



JACOB

NO. 1 IN PIPEWORK SYSTEMS

PRODUCT CATALOGUE

1924-
2024

www.jacob-group.com



THE PDF CATALOGUE GIVES YOU A FAST ROUTE...



... to the table of contents

Just one click away from our table of contents: The doorway to our range of products – your one-stop shop for modular pipework systems. Try it out!

... to our products

Quickly find your product of choice: To save you the page-turning, we have made the table of contents “clickable”.

This way, you can quickly find what you are looking for.

1	GENERAL INFORMATION	5	
2	THE PULL-RING SYSTEM	21	
3	PIPES	31	

... backwards and forwards

Navigating the chapters is easy and intuitive.

The chapter icons on every left-hand page lead you back to the table of contents for the chapter.

The chapter section symbols on every right-hand page can be clicked on, allowing easy navigation within a chapter.



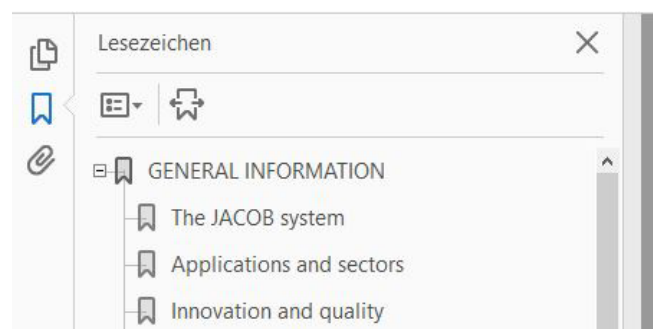
GENERAL INFORMATION

The JACOB System



... using bookmarks

You can move directly to any chapter or page using the structure tree.







NO.1 IN PIPEWORK SYSTEMS



Order number key



Global presence



Index

1	GENERAL INFORMATION	5	
2	THE PULL-RING SYSTEM	21	
3	PIPES	31	
4	THE RANGE OF PIPE BENDS	47	
5	BRANCH PIECES	63	
6	TRANSITION PIECES AND ADAPTERS	75	
7	INSPECTION AND CLEANING	99	
8	THROTTLE VALVES AND REGULATORS	109	
9	TWO-WAY DISTRIBUTORS	131	
10	MULTI-WAY DISTRIBUTORS	167	
11	THE FLANGE RANGE	183	
12	ASSEMBLY AND ACCESSORIES	225	
13	SILENCERS AND CYCLONES	235	
14	WEAR PROTECTION	245	
15	SPECIAL MANUFACTURE	259	



A WHOLE CENTURY OF JACOB —
BECAUSE SUCCESS IS ENSURED
BY PEOPLE

Klaudine Gericke and Patrick Jacob

DEAR CUSTOMERS AND BUSINESS PARTNERS,

JACOB has maintained its reputation for high-quality products and exceptionally committed people throughout the 100 years since Friedrich Jacob founded the company – and this fills us with pride. From our modest beginnings, we have grown to become market leaders in our industry, whilst always remaining faithful to our key values.

Our founder Friedrich Jacob grew up in a mill, so it is no wonder that he became fascinated by the mechanics and operations of windmills and watermills as a boy. He took this youthful preoccupation further to pursue a degree in engineering and nurture his ambition to design and modernise mills. It was in 1924 that Friedrich then laid the foundation for today's JACOB Group. At first, the company produced square wooden pipes that were used for conveying flour and grain in gravity systems. Later, in the 1950s, JACOB shifted its focus to the manufacture of pipework systems made of steel. With the aim of providing the highest level of flexibility for its customers, the company developed the modular pipework system for which it soon became internationally renowned. The anniversary catalogue you see before you reflects the results of our unrelenting product development process, which always strives to support our customers in the best possible way.

JACOB is now a globally active company. And it is still family owned. Although our roots are in Porta Westfalica, we also have a strong international team at our disposal, thanks to our various subsidiaries. We are fully aware that it is the commitment of our employees that breathes life into JACOB and makes us successful, and this is why we are just as committed to them as they are to the company.

We look forward to a strong future. We continue to develop and improve our expertise and ourselves, and utilise the benefits of digitalisation so that we can always offer our customers the superior quality and excellent service they have come to expect.

A whole century of JACOB – this makes us very proud.



Patrick Jacob



Klaudine Gericke



WHEN IT COMES TO SECURE CONNECTIONS,
WE ARE YOUR IDEAL PARTNER



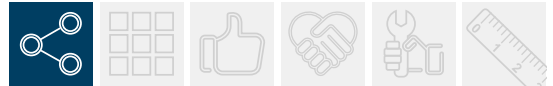
GENERAL INFORMATION

The JACOB System	6	
Applications and sectors	8	
Innovation and quality	10	
Service	12	
Materials and special finishes	14	
Types of connection and dimensions	18	



JACOB'S DIVERSITY

- More than 8,500 different standard products
- Diameters from 60 to 1,600 mm
- Wall thicknesses of 1 to 3 mm
- Stainless steel, shotblasted
- Mild steel, powder-coated or hot-dip galvanised



Modular pipework
explanatory video

THE JACOB SYSTEM

There's a system behind what JACOB does: top quality standards, an outstanding innovative spirit and an uncompromising choice of materials. Profound knowledge of the industry, customer orientation, and expertise based on 100 years of experience. International customer support, excellent service and round-the-clock availability. The result is perfect modular pipework systems and satisfied customers across the globe.

THE PRINCIPLE

Other pipework systems are specially produced for a specific project and welded together on site. JACOB has come up with a far more efficient way: Standard modular parts with lipped ends are fitted with a U-shaped seal and joined together with a pull-ring. This system is fast, tight and flexible. For special applications, JACOB also supplies its pipes with a welded flange or a loose flange connection.

RELIABILITY

Anyone who thinks that this easy connection principle is second-rate compared to welded pipework systems is mistaken. These connections can be used at differential pressures of up to 0.5 bar and form a condensation leak-proof seal, making them ideally suited for extracting oil mist. There are even special versions of JACOB pipework systems that are up to 10 bar shock explosion proof.

QUALITY

We offer you a pipework system of the very highest quality. We develop and build key elements of our machinery, such as flanging machines, ourselves in order to guarantee the outstanding leaktightness and longevity of our products. We use high-performance, automated manufacturing systems and invest continually in new production technologies, machinery and processes. In tandem with our innovative development department, we are therefore able to guarantee flawless engineering and a consistently high standard of quality.

LOCATIONS

JACOB is a globally active company which supports its customers all over the world with its six subsidiaries, in Germany, France, Italy, the UK, the Czech Republic and the USA, and a presence in some 40 countries. We are able to count reputable customers from all sectors of industry both in Germany and abroad among our long-standing and satisfied customers. Expanding this leading position and building on the confidence that our customers place in us is our goal.



BULK GOODS HANDLING

Gravity chute systems



DUST EXTRACTION AND EXHAUST AIR

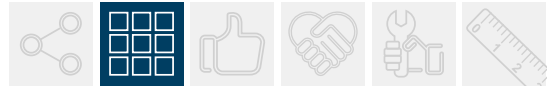
Environmental technology



LOW PRESSURE CONVEYING

Product and air conveying





APPLICATIONS AND SECTORS

JACOB pipework systems are condensation leak-proof and the materials and workmanship are of outstanding quality. These properties make them the perfect choice for numerous applications and sectors.

The JACOB pipework system offers flexibility in use in virtually every sector, from conveying sensitive foodstuffs or pharmaceutical products, or conveying granulates in the chemical or plastics industry, right up to extracting dust or oil mist in the automotive or metal-working industry.

All sectors which involve conveying raw materials and products or extracting contaminated air will benefit from installation-friendly JACOB pipework systems. They are particularly valued in the following sectors due to their high quality, tightness and their flexibility:

CONVEYING BULK GOODS

Grains in any form	Food, beverages and tobacco	Chemicals, pharmaceuticals, plastics
Grain	Spices	Polyamides
Concentrated feed	Coffee	Intermediate products
Seeds	Sugar	Pharmaceuticals
	Rice	Granulates
	Animal feed and pet food	
	Baked goods/pasta products	

DUST EXTRACTION AND EXHAUST AIR

Metal-working	Food, beverages and tobacco	Chemicals, pharmaceuticals, plastics
Degreasing systems	Dust	Dust
Oil mist	Fumes	Lacquers
Welding fumes		Fumes
Grind dusts		
Solvent recovery		

LOW PRESSURE CONVEYING

Recycling	Wood and paper	Chemicals	Air conditioning
Electronics	Paper	Polystyrene	Printing companies
Plastics	Wood	PU foam	Cleanrooms
Glass	Wood shavings		Cereal cooling
Paper	Pellets		Sealing air lines
	Cellulose		
	Biomass		



GENERAL INFORMATION
Innovation and quality





FOOD GRADE LINE

JACOB sets standards in food safety. Our new FOOD GRADE line of products complies with both the European EC 1935/2004 regulations and the American FDA guidelines. All components that come into contact with food are made exclusively of high grade stainless steels. In addition, we use adhesive-free vulcanized U-shaped seals and ring seals: They are more resistant to chemicals, temperature and tearing than glued rings.



THE DETECTABLE DESIGN LINE

In many sectors, foreign particles in a product are not acceptable. Up to now, it was practically impossible to trace gaskets and seals, or even just parts of them, in the product flow. JACOB has succeeded in incorporating miniscule particles in the compound that the gaskets or seals are made of. If gaskets or seals get into the product flow, such as during maintenance work, these can now be reliably detected by metal detectors and then removed. This makes the DETECTABLE DESIGN line an indispensable safety asset.



THE QUICK CONNECT PRINCIPLE

JACOB pipework systems take less time to install than conventional systems. Using the QUICK CONNECT pull-ring makes it even quicker, however. It only takes a few quick turns of the hand to join two sections of pipe together or to separate them again. This is a great advantage! This is particularly the case with pipework systems that require to be dismantled regularly for cleaning and maintenance. You will find our QUICK CONNECT pull-rings in [chapter 2](#).



DURABLE DESIGN

The new wear protection range from JACOB makes your pipework system extremely resistant. This allows you to extend the service life and the cost-effectiveness of your industrial plants. This range uses standard pipe components from our modular system. Depending on the requirement, these are lined with different polyurethane compounds. This ensures that the full modularity is maintained. Our range of products is described in [chapter 14](#).

EXPLOSION PROTECTION AND ELECTROSTATIC POTENTIAL EQUALISATION

JACOB pipework systems, if configured accordingly, are shock explosion proof to 1 bar, 3 bar and 10 bar over-pressure. This is an important safety factor, particularly when conveying solids and gases that have a tendency to explode. To ensure that this does not happen, JACOB pipework systems can be installed in such a way that they are completely electrostatically conductive. Please refer to the "Knowledge" section of our website for detailed information about this.



www.jacob-group.com/knowledge



SERVICE

Your satisfaction is
our motivation



We want to make our products as accessible and easy to handle as possible – from planning through to assembly.

PLANNING

In the download section of our website, you will find our CAD library and digital documentation for all our products.

As a driver of innovation, we are also exploring new avenues in the field of augmented reality. Our 3D Pipe Planner is a digital pipe planning app controlled via Microsoft HoloLens. This allows you to plan your pipework at your own premises, without any laborious measuring or planning – saving you time and money.

CONSULTING

No matter what you need before, during or after the purchase of your pipework system – we are here to help. From our customer care and field staff to our technical team, we attend to your needs right from the start. With its subsidiaries and representatives the JACOB Group is on the ground worldwide, and thus is just as globally present as you are. Also, our Customer Order Fulfilment staff ensure optimised and realistic scheduling. You will have an overview of your delivery times, capacities and production planning at all times. For larger projects, you will even have the exclusive support of a personal contact partner from our Large-scale Project Control department.



ORDERING

We also offer various systems for digital data connectivity. This allows us to exchange data according to your individual needs, to prevent errors, and save time in the ordering process.

DELIVERY

Discover the advantages of our large storage and logistics centre, and our international footprint, with subsidiaries and representatives in 42 countries. With our first-class infrastructure and more than 1,300,000 finished products available for delivery, we are able to ship urgent orders quickly and easily, within just one to two days. The collective shipping option allows us to save on freight costs, reduce CO₂ emissions, and thus offer you cost-efficient solutions. We also offer you the option of temporarily storing your project components in safe and protected conditions until you actually need them on site. You can rely on our logistics expertise to meet your requirements without fail and to optimise your processes.



THE JACBOX – ELECTRIC FLANGING MACHINE

Mobile, flexible and easy – the JacBox is a professional system that allows you to produce lip edges quickly and easily, whenever and wherever you need them on site.

- **No retooling** – creates lip edges on pipes from 80 to 315 mm in diameter
- **Conveniently mobile** – with castors and ergonomic handles for easy pushing
- **Easy power supply** – the unit can be operated via a standard household power outlet
- **Efficient ergonomics** – flanging can be undertaken by a single person
- **The highest quality** – lip edges are created to JACOB's usual high quality standard

You can rent the JacBox on a flexible basis. It is available for long-term or short-term use. Reserve a JacBox for your projects, now.

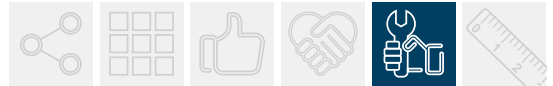


JACOB JacBox



GENERAL INFORMATION
Materials and special finishes





MATERIALS

High-grade materials, perfect workmanship: This is the basis for the distinctive quality of our products.

Pipework and press-formed components in mild steel

Mainly the following materials:

- DD11 (1.0332) in compliance with DIN EN 10111
- DD13 (1.0335) in compliance with DIN EN 10111
- DC01 (1.0330) in compliance with DIN EN 10130
- DC04 (1.0338) in compliance with DIN EN 10130
- S235JR (1.0038) in compliance with DIN EN 10025

Corrosion protection by powder coating, spray priming or galvanising

Flanges and mounting brackets in structural grade mild steel

S235JR (1.0038) to DIN EN 10025-2

Corrosion protection through powder-coating, priming (spray painting) or hot-dip galvanising

Pipework and press-formed components in stainless steel

Suitable for mildly and moderately corrosive environmental conditions (CRC 2 to DIN EN 1993-1-4).

Primarily for use in the food industry. Mainly the following materials:

- 1.4301 (X5CrNi18-10), AISI 304, ASTM A240, A480, A666
- 1.4307 (X2CrNi18-9), AISI 304L, ASTM A240, A480, A666

To restore the corrosion resistance and to create a uniform surface finish, these materials are stainless steel shotblasted as standard. Temperature-resistant to 300°C.

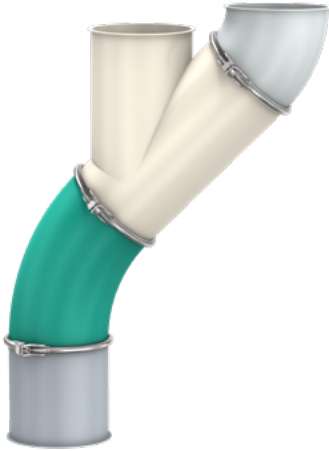
Available on request

Stainless steels for particularly corrosive environmental conditions (CRC 3 to DIN EN 1993-1-4).

Primarily used in the chemical and pharmaceutical industry.

- 1.4404 (X2CrNiMo17-12-2) AISI 316L, ASTM A 240
- 1.4571 (X6CrNiMoTi17-12-2), AISI 316Ti, ASTM A 240

As standard, components are pickled in a bath and passivated by storing in the open air to restore their corrosion resistance. Prices and delivery times on request. Other materials that are not specifically mentioned can also be offered, after their suitability has been examined.



FINISHING

To prevent damage due to corrosion in mild steels, our components are protected to enable them to withstand the general ambient conditions. In this respect, JACOB offers different product groups for the mild steel modular pipework system: powder-coated, spray primed or galvanised components.

Corrosion protection through powder-coating or spray priming

Powder-coating:

- Pretreatment: Thin film iron phosphate coating
- Powder-coating primer from DN 60 to 630 mm
- Glossy (gloss level 70 to 90, 60° measuring angle)
- Smooth polyester resin binder-based powder-coating
- Its constituents comply with the Food and Drug Administration (FDA) requirements of regulation 21 CFR 175.300 for direct contact with food
- Temperature resistance: from -60°C to +120°C
- Electrostatically conductive
- Colour similar to RAL 7032 (pebble grey)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection

Priming (spray painted):

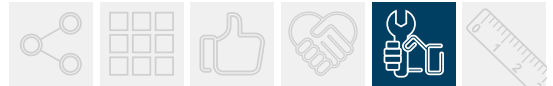
- Generally used with pipe components > DN 630 mm
- Inner and outer priming
- Average coating thickness: 45 µm
- Colour similar to RAL 7032 (pebble grey)
- Coating thickness on the outside and inside: optically covered as temporary corrosion protection

More colours:

- Choose from more than 3,000 colour and effect variants
- Final painting of the outside of pipe components and press-formed components, with a coating thickness of approx. 80 µm

Options:

- Structured coatings and high-gloss effects
- UV protection
- Inner coating free from spray mist is possible at additional cost with spray priming



Costs:

Additional costs for external powder-coating (DN 60–DN 630 mm):

- 1.0 and 1.5 mm pipe components: 25 %
- 2 mm pipe components: 21 %
- 3 mm pipe components: 19 %

Additional costs for final coating of paint > DN 630 mm and multi-way distributors, cyclones, and silencers, on request.

Minimum price for paint topcoat is 70 € (fixed price); additional costs for throttle valves, distributors and two-way valves:

DN	Throttle valves, two-way distributors / two-way valves, non-return valves	Pipe slide gates, outlet slide gates
	€	€
60 to 175	24.00	41.40
200 to 300	31.00	47.30
350 to 400	37.60	54.50
From 450	47.30	64.90

Corrosion protection through hot-dip galvanising

- Pipe components described as “galvanised” are always hot-dip galvanised
- Hot-dip galvanising to DIN EN ISO 1461
- Average layer thicknesses (minimum values) depend on the thickness of the steel:
 - < 1.5 mm: 45 µm
 - ≥ 1.5 mm to ≤ 3 mm: 55 µm
 - > 3 mm to ≤ 6 mm: 70 µm
- Temperature-resistant to 200°C
- During hot-dip galvanising, irregularities may occur in the colour and structure of the surface

Corrosion protection through electro-galvanisation

- For pull-rings, air flow control gates, pipe ball joints, and other accessories, for example
- Galvanisation according to DIN EN ISO 19598 (Fe//Zn8//An//T0) colourless to iridescent colour
- Layer thickness approx. 10 µm
- Temperature-resistant to 120°C



GENERAL INFORMATION

Types of connection and dimensions

OUR CONNECTIONS AND DIMENSIONS


Our modular pipework system is distinguished by its diversity and top quality. We have the right type of connection in our range for virtually all applications involving bulk goods conveying, exhaust air, dust extraction, and low-pressure conveying: from the JACOB pull-ring system and loose flange system to pipework with welded-on flanges.

The nominal diameters and dimensions in the catalogue are given in mm.

Inside diameter

The JACOB pull-ring system



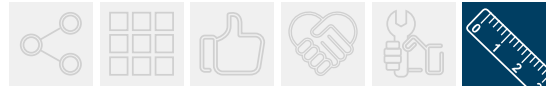
DN (mm)	DN (inch)	Ø d with a wall thickness of				Lip width 6 mm	QUICK CONNECT pull-ring 	Pull-ring without sealant	Pull-ring with sealant	One-part pull-ring with sealant
		S = 1 mm	S = 1.5 mm	S = 2 mm	S = 3 mm					
60	2¼	57				■		■		
80	3	78	77	76	■	■	■	■	■	
100	4	100	100	99	■	■	■	■	■	
120	5	120	120	119	118	■	■	■	■	
140	5½	136	136	135	■	■	■	■		
150	6	150	150	149	148	■	■	■	■	
160	6⅓	159	159	159	■	■	■	■		
175	7	175	175	174	173	■	■	■	■	
200	8	200	200	199	198	■	■	■	■	
224	9	220	220	219	■	■	■	■		
250	10	250	250	249	248	■	■	■	■	
280	11	278	277	276	■	■	■	■		
300	12	300	300	299	298	■	■	■	■	
315	12½	313	312	311	■	■	■	■		
350	14	350	350	349	348	■	■	■	■	
400	16	400	399	398	396	■	■	■	■	
450	18	450	449	448	446	■	□	□	■	
500	20	500	499	498	496	■		□	■	
560	22		559	558	556	■		□	■	
630	25		629	628	626	■		□	■	
710	28			707	705					
800	31½			797	795					
900	35½			897	895					
1000	39			997	995					
1120	44			1117	1115					
1250	49			1247	1245					
1400	55				1398					
1600	63				1598					

DN = nominal diameter

■ Standard

□ Optional – use depends on application





Tolerances:

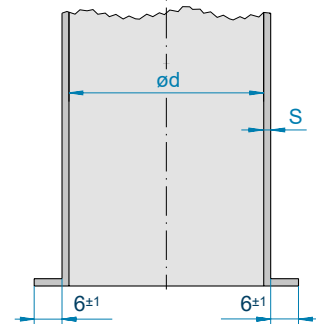
- Pipe diameter and roundness – DIN EN 10296-1
- Lengths – DIN ISO 2768-1 – tolerance class V
- Angle tolerance $\pm 1^\circ$
- In the case of drawn or ground partial areas, the wall thickness may differ
- JACOB flanges similar to DIN 24154-2 (see chapter 11, page 219 for dimensions of JACOB flanges)
- Internal diameter ($\varnothing d$) differs for certain products

The JACOB flange system

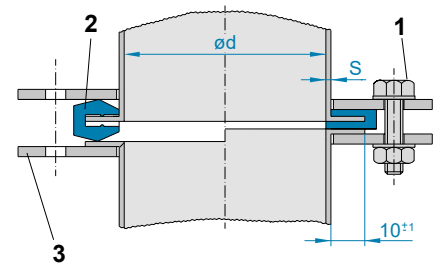


DN (mm)	DN (inch)	Lip width		Loose flange	Fixed flange welded-on	10 bar shock explosion proof
		6 mm	10 mm			
60	2¼	■		□	□	
80	3	■		□	□	■
100	4	■		□	□	■
120	5	■		□	□	■
140	5½	■		□	□	
150	6	■		□	□	■
160	6⅓	■		□	□	
175	7	■		□	□	■
200	8	■		□	□	■
224	9	■		□	□	
250	10	■		□	□	■
280	11	■		□	□	
300	12	■		□	□	■
315	12½	■		□	□	□
350	14		■	■	□	□
400	16		■	■	□	□
450	18		■	■	□	□
500	20		■	■	□	□
560	22		■	■	□	□
630	25		■	■	□	□
710	28		■	■	□	
800	31½		■	■	□	
900	35½		■	■	□	
1000	39		■	■	□	
1120	44		■	■	□	
1250	49		■	■	□	
1400	55				■	
1600	63				■	

DN = nominal diameter
 ■ Standard
 □ Optional – use depends on application
 ■ Price on request



JACOB pipework system with lip for pull-ring connection

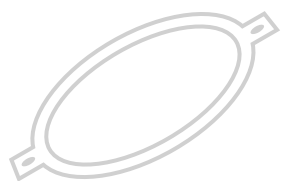


JACOB loose flange system
 1 Mounting bolts
 2 U-shaped seal for 10 mm lip
 3 Loose flange similar to DIN 24154-2 (see chapter 11, page 219 for dimensions)







S = Wall thickness
 Ø d = Internal diameter



JACOB PULL-RING SYSTEM:
EASY TO INSTALL, MAXIMUM TIGHTNESS



THE PULL-RING SYSTEM


Technical information	22	
Installation instructions	24	
Pull-rings	26	
U-shaped seals	27	
Pull-rings with sealant	28	
Accessories	29	



Explanatory video on the pull-ring system

PULL-RINGS



DN	QUICK CONNECT pull-ring ¹⁾	 Pull-ring without sealant ¹⁾	Pull-ring with sealant	One-part pull-ring with sealant
60		■		
80	■	■	■	■
100	■	■	■	■
120	■	■	■	■
140	■	■	■	
150	■	■	■	■
160	■	■	■	
175	■	■	■	■
200	■	■	■	■
224	■	■	■	
250	■	■	■	
280	■	■	■	
300	■	■	■	
315	■	■	■	
350	■	■	■	
400	■	■	■	
450	□	□	■	
500		□	■	
560		□	■	
630		□	■	

1) Use in conjunction with U-shaped seal
 ■ Standard
 □ Optional – use depends on application

Pull-rings made of mild steel are electro-galvanised in the standard version. Stainless steel pull-rings are stainless steel shotblasted. Electrolytic polishing or ball-polishing is also available on request.



Details of leakage values for the pull-ring system with U-shaped seal

QUICK CONNECT PULL-RINGS AND PULL-RINGS WITHOUT SEALANT

Highlights: The JACOB pull-ring system is very easy to assemble and gives the pipework system its high stability and leak-tightness due to its high-quality construction. Both pull-rings have been tested in conjunction with JACOB U-shaped seals. The air leakage per connection, measured at a differential pressure of 0.5 bar – e.g. with a diameter of 300 mm – is far below the maximum admissible values of DIN EN 12237, class D.

Application: Up to a diameter of DN 300 mm, our pull-ring system with a U-shaped seal, if configured accordingly, is condensation leak-proof and so is ideal for applications such as extracting oil mist. As a rule, our pull-ring connections with a U-shaped seal can be used for conveying bulk goods and for ventilation systems at over-pressures of up to 50,000 Pa (500 mbar, 5,000 mm WG). Vacuum applications are possible on request, depending on the product selected.

PULL-RINGS WITH FACTORY-FITTED MASTIC SEALANT

Application: The elastic sealant in the pull-ring is EC 1935/2004 compliant and can be used in contact with food product in the temperature range between -40°C and +100°C.

This pull-ring is used for bulk goods conveyed by gravity and for ventilation systems with low differential pressures and without condensates. For higher demands concerning sealing properties and the resistance of the connection, pull-rings with U-shaped seals should be preferred.

U-SHAPED SEALS

Our U-shaped seals combine an ideal profile with the perfect choice of materials.

The benefits:

- Tear-resistant, compliant with food regulations (FOOD GRADE) and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness due to the individual profile
- Resistant to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone	F	Silicone	F D	EPDM	Viton (FKM)
grey white	beige		blue		black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant		FDA EC 1935/2004*	
-20°C to +100°C	-60°C to +250°C		-60°C to +250°C		-30°C to +120°C	-18°C to +230°C
glued	vulcanised		vulcanised		vulcanised	vulcanised
			metal-detectable		electrostatically conductive	

* Please note that the seals meet the currently valid recommendations of the German Federal Institute for Risk Assessment (BfR) to a limited extent. Category 4 applications for dry, non-fatty foodstuffs that are subsequently washed, peeled or otherwise cleaned are permissible.

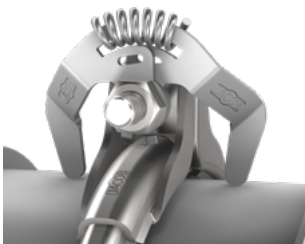
Refer to the technical information at the beginning of this chapter and in the installation instructions (see next page) for more details. The temperatures given indicate the permanent temperature resistance. U-shaped seals must be tested by the user to ensure they are sufficiently resistant to the specific working conditions and conveyed goods. Our team would be pleased to assist you with selecting the right U-shaped seal. We can send you samples on request.

EARTHING BRIDGES

The innovative solution from JACOB for electrostatic potential equalisation.

Suitable for retrofitting to our pull-ring system without welding or drilling. The stainless steel earthing bridge can be used as an alternative to the earthing wire or the conductive EPDM U-shaped seal. Please observe the installation instructions.

Both versions of earthing bridge have been tested by DEKRA EXAM GmbH, a specialist unit for explosion protection.



Without contact caps



With contact caps

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



Installation instructions for the pull-ring system

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

Pull-rings are used in conjunction with U-shaped seals to connect pipe components and pressed components with a 6 mm lip. The use of different U-shaped seal profiles enables the same pull-ring to be used with 1 to 2 mm thick pipe components and pressed components.

JACOB includes various U-shaped seals and pull-rings in its range, to cover the various types of application.

U-shaped seals

	Profile for 1 mm wall thickness			Profile for 2 and 3 mm wall thickness			
	NBR, silicone, Viton	EPDM conductive		NBR, silicone, Viton, EPDM conductive For 3 mm wall thickness, the use of U-shaped seals made of NBR or silicone is recommended. Only in conjunction with the pull-ring for 3 mm pipework.			
Pipe component B	Wall thickness pipe component A			Wall thickness pipe component A		Wall thickness pipe component A	
	1 mm	1.5 mm	2 mm	1.5 mm	2 mm	2 mm	3 mm
1 mm	■	■	■				
1.5 mm	■	■			■		
2 mm	■			■	■		■
3 mm						■	■

Refer to page 23 for more technical information on U-shaped seals.

Pull-rings

QUICK CONNECT pull-ring		Pull-ring (without sealant)

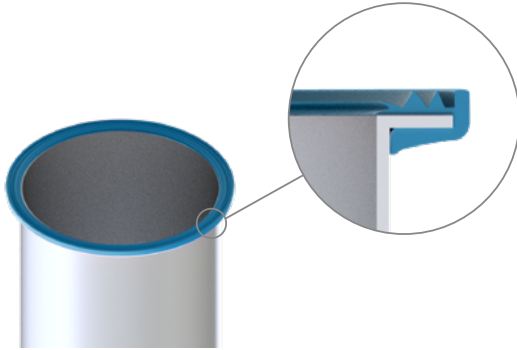
Refer to page 22 for more technical information on pull-rings.

GENERAL INSTALLATION INFORMATION ON CREATING LEAK-PROOF CONNECTIONS

- Repair damaged lipped ends (e.g. align)
- Eliminate any unevenness from the lipped end
- Assemble the pipework tension-free
- Ensure when fitting the pull-ring that the U-shaped seal does not form any loops
- Support horizontal pipework at roughly 4 metre intervals. If there are several short pipe components in the pipeline, the interval between supports should be reduced
- Attach branch pipes such that they do not generate any torque in the main pipeline
- Tighten the bolts of two-part pull-rings evenly on both sides
- Re-tighten the pull-rings after 24 hours to ensure they are as leak-proof as possible

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

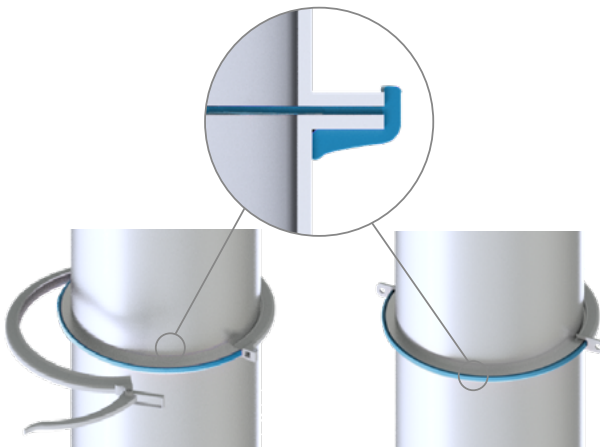
Note: To connect JACOB pipe components with a 6 mm lip. A U-shaped seal and a pull-ring are needed for each connection. You need a 6 mm hexagon cap screwdriver to mount the pull-rings.



Step 1

Fit a U-shaped seal over one of the lipped pipe ends.

- The U-shaped seal must be slightly stretched to enable it to be fitted
- The profiled side must face the pipe component that is being connected
- To fit the U-shaped seal, we recommend starting at the place where the joint is



Step 2

Position the connecting pipe and slide one half of the pull-ring over the lipped pipe end.

QUICK CONNECT pull-ring

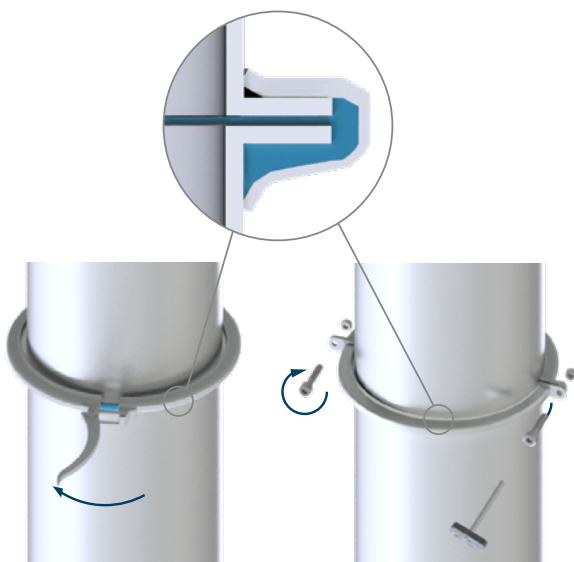
First, attach the pull-ring half without the toggle clip

Two-part pull-ring

We recommend separating the two halves of the pull-ring beforehand

Ensure that the pipe components are properly aligned and the U-shaped seal stays in the right position.

Note: We recommend that when fitting horizontal pipelines where condensate occurs, any points at which the U-shaped seal is glued should be positioned at the top, and the connecting points of the pull-ring halves should be horizontal. This ensures the maximum possible tightness at the lowest point of the connection.



Step 3

Press the second pull-ring half onto the lipped pipe ends.

Attention:

When closing the pull-ring, the U-shaped seal must not form any loops.

QUICK CONNECT pull-ring

- Place the clasp over the closing hook and close the clip
- To prevent the connection from loosening accidentally (due to vibration, for example) tighten the bolt with a 10 Nm torque on the mounting face

Two-part pull-ring

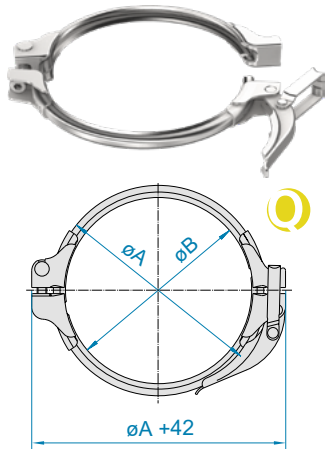
- Tighten the bolts evenly, on alternating sides, with a torque of 10 Nm

Attention: A bolt tightening torque of 10 Nm is necessary for the QUICK CONNECT pull-ring, or 25 Nm for the two-part pull-ring, for shock explosion proof connections of up to 3 bar over-pressure.



THE PULL-RING SYSTEM

Pull-rings



QUICK CONNECT PULL-RINGS

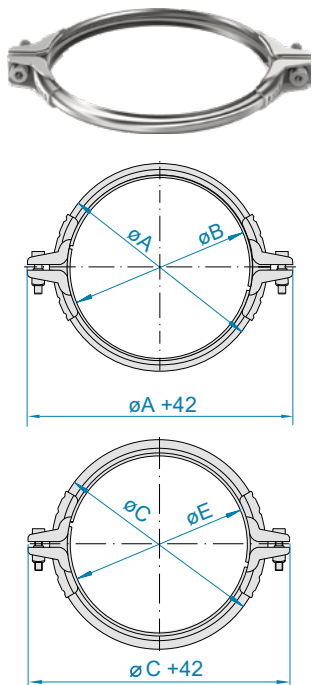
3085

- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- Up to DN 300 mm, shock explosion proof to 3 bar

- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

DN	Ø A	Ø B	kg	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€
80	100	80	0.35	12082903	11,50	12083903	25,70
100	123	103	0.37	12102903	11,60	12103903	26,30
120	143	123	0.40	12122903	12,00	12123903	27,20
140	159	139	0.45	12142903	12,10	12143903	27,80
150	173	153	0.47	12152903	12,20	12153903	28,10
160	184	164	0.48	12162903	13,10	12163903	28,90
175	198	178	0.49	12172903	13,10	12173903	28,90
200	223	203	0.51	12202903	13,80	12203903	30,00
224	243	223	0.55	12222903	17,20	12223903	33,80
250	273	253	0.58	12252903	17,30	12253903	33,90
280	301	281	0.61	12282903	18,80	12283903	35,40
300	323	303	0.62	12302903	18,90	12303903	35,50
315	336	316	0.63	12312903	23,40	12313903	43,00
350	373	353	0.68	12352903	27,10	12353903	49,50
400	423	403	0.74	12402903	34,70	12403903	55,60
450	472	450	0.79	12452903	39,90	12453903	64,60



PULL-RINGS WITHOUT SEALANT

3060

- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- From DN 80 to 300 mm, shock explosion proof to 3 bar

- Pull-ring for 3 mm wall thickness, in conjunction with U-shaped seal made of NBR or silicone for 2 mm pipework system
- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

Pull-rings for 3 mm wall thickness

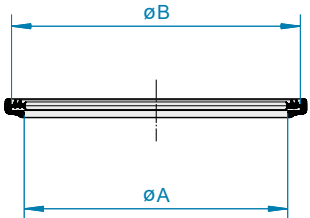
DN	Ø A	Ø B	kg	Electro-galvanised		Stainless steel		Ø C	Ø E	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€			Item no.	€	Item no.	€
60	81	60	0.30	12062383	8,50	12063383	23,70						
80	101	80	0.31	12082383	8,60	12083383	23,90						
100	125	104	0.33	12102383	8,80	12103383	24,00						
120	145	124	0.36	12122383	8,90	12123383	24,90	151	126	12122926	11,30	12123926	25,40
140	161	140	0.37	12142383	9,90	12143383	25,80						
150	175	154	0.39	12152383	10,00	12153383	26,30	181	156	12152926	11,50	12153926	26,80
160	177	158	0.40	12162383	12,00	12163383	28,30						
175	200	179	0.42	12172383	12,00	12173383	28,30	206	181	12172926	12,70	12173926	29,20
200	225	204	0.45	12202383	13,00	12203383	29,60	231	206	12202926	14,00	12203926	30,30
224	245	224	0.47	12222383	13,50	12223383	32,30						
250	275	254	0.51	12252383	13,60	12253383	32,70	281	256	12252926	15,10	12253926	33,90
280	302	281	0.55	12282383	16,80	12283383	36,60						
300	325	304	0.57	12302383	16,90	12303383	37,60	331	306	12302926	17,60	12303926	38,90
315	337	316	0.58	12312383	18,80	12313383	38,70						
350	375	354	0.63	12352383	19,80	12353383	39,70	381	356	12352926	20,40	12353926	40,80
400	425	404	0.68	12402383	22,70	12403383	40,80	431	406	12402926	23,00	12403926	42,00
450	478	450	0.73	12452383	27,50	12453383	44,70						
500	524	500	0.78	12502383	32,40	12503383	46,20						
560	586	560	0.83	12562383	38,00	12563383	48,70						
630	656	632	0.90	12632383	43,20	12633383	52,20						

Shock-explosion proof



■ Pull-rings used in conjunction with the pipe components and U-shaped seals indicated in the catalogue are shock explosion proof tested up to 1 bar and/or 3 bar.

U-shaped seals



U-SHAPED SEALS

3070

- For use in conjunction with JACOB pull-rings and pipework system with a 6 mm lip
- **U-shaped seals for 1 mm pipework system**, also for connecting 1 mm to 1.5 mm, 1 mm to 2 mm, and 1.5 mm to 1.5 mm thick pipe components
- **U-shaped seals for 2 mm pipework system**, also for connecting 2 mm to 1.5 mm thick pipe components
- For 3 mm thick pipe components, the use of U-shaped seals made of NBR or silicone for 2 mm pipework is recommended
- Please also read and take into account the technical information given at the beginning of this chapter

2

U-shaped seals for 1 mm pipework system

DN	ØA	ØB	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		Viton reddish brown	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	69	100669517	2,00	1006795109	3,20	10067951091	5,80	1006895159	3,20	100699519	12,80
80	81	93	100869517	2,10	1008795109	3,40	10087951091	6,10	1008895159	3,40	100899519	13,70
100	103	115	101069517	2,40	1010795109	3,60	10107951091	6,70	1010895159	3,60	101099519	15,70
120	123	135	101269517	2,50	1012795109	3,70	10127951091	7,30	1012895159	3,70	101299519	17,20
140	139	151	101469517	2,70	1014795109	3,90	10147951091	7,90	1014895159	3,90	101499519	19,40
150	153	165	101569517	2,70	1015795109	3,90	10157951091	8,30	1015895159	3,90	101599519	20,00
160	163	175	101669517	2,90	1016795109	4,30	10167951091	9,10	1016895159	4,30	101699519	20,80
175	178	190	101769517	2,90	1017795109	4,30	10177951091	9,10	1017895159	4,30	101799519	20,80
200	203	215	102069517	3,40	1020795109	4,50	10207951091	9,70	1020895159	4,50	102099519	22,50
224	223	235	102269517	3,70	1022795109	5,10	10227951091	10,30	1022895159	5,10	102299519	27,20
250	253	265	102569517	3,70	1025795109	5,10	10257951091	11,00	1025895159	5,10	102599519	29,70
280	280	292	102869517	3,80	1028795109	5,50	10287951091	11,70	1028895159	5,50	102899519	32,50
300	303	315	103069517	3,90	1030795109	5,50	10307951091	12,50	1030895159	5,50	103099519	34,60
315	315	327	103169517	4,00	1031795109	6,10	10317951091	12,70	1031895159	6,10	103199519	36,20
350	353	365	103569517	4,50	1035795109	6,10	10357951091	13,80	1035895159	6,10	103599519	39,40
400	403	415	104069517	5,10	1040795109	7,10	10407951091	15,30	1040895159	7,10	104099519	44,00
450	450	470	104569517	5,90	1045795109	8,30	10457951091	16,50	1045895159	8,30	104599519	48,90
500	500	516	105069517	7,10	1050795109	8,80	10507951091	18,20	1050895159	8,80	105099519	53,90
560	560	578	105669517	8,40	1056795109	9,70	10567951091	20,20	1056895159	9,70	105699519	59,40
630	632	648	106369517	8,90	1063795109	11,10	10637951091	20,80	1063895159	11,10	106399519	66,70

U-shaped seals for 2 mm pipe system, NBR and silicone also suitable for 3 mm pipe system

DN	ØA	ØB	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		Viton reddish brown	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	81	93	100869527	2,10	1008795209	3,40	10087952091	6,10	1008895259	3,40	100893869	13,70
100	103	115	101069527	2,40	1010795209	3,60	10107952091	6,70	1010895259	3,60	101093869	15,70
120	123	135	101269527	2,50	1012795209	3,70	10127952091	7,30	1012895259	3,70	101293869	17,20
140	139	151	101469527	2,70	1014795209	3,90	10147952091	7,90	1014895259	3,90	101493869	19,40
150	153	165	101569527	2,70	1015795209	3,90	10157952091	8,30	1015895259	3,90	101593869	20,00
160	163	175	101669527	2,90	1016795209	4,30	10167952091	9,10	1016895259	4,30	101693869	20,80
175	178	190	101769527	2,90	1017795209	4,30	10177952091	9,10	1017895259	4,30	101793869	20,80
200	203	215	102069527	3,40	1020795209	4,50	10207952091	9,70	1020895259	4,50	102093869	22,50
224	223	235	102269527	3,70	1022795209	5,10	10227952091	10,30	1022895259	5,10	102293869	27,20
250	253	265	102569527	3,70	1025795209	5,10	10257952091	11,00	1025895259	5,10	102593869	29,70
280	280	292	102869527	3,80	1028795209	5,50	10287952091	11,70	1028895259	5,50	102893869	32,50
300	303	315	103069527	3,90	1030795209	5,50	10307952091	12,50	1030895259	5,50	103093869	34,60
315	315	327	103169527	4,00	1031795209	6,10	10317952091	12,70	1031895259	6,10	103193869	36,20
350	353	365	103569527	4,50	1035795209	6,10	10357952091	13,80	1035895259	6,10	103593869	39,40
400	403	415	104069527	5,10	1040795209	7,10	10407952091	15,30	1040895259	7,10	104093869	44,00
450	450	470	104569527	5,90	1045795209	8,30	10457952091	16,50	1045895259	8,30	104593869	48,90
500	500	516	105069527	7,10	1050795209	8,80	10507952091	18,20	1050895259	8,80	105093869	53,90
560	560	578	105669527	8,40	1056795209	9,70	10567952091	20,20	1056895259	9,70	105693869	59,40
630	632	648	106369527	8,90	1063795209	11,10	10637952091	20,80	1063895259	11,10	106393869	66,70

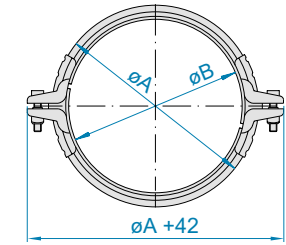
VULCANISED AND MORE TEAR-RESISTANT QUALITY.

- F** FOOD GRADE EC 1935/2004 plus FDA compliant
- D** DETECTABLE DESIGN Metal-detectable

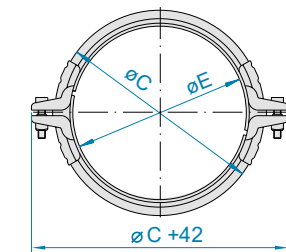


THE PULL-RING SYSTEM

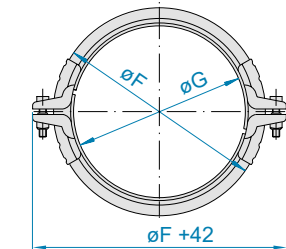
Pull-rings with sealant



for 1 mm



for 2 mm



for 3 mm

PULL-RINGS WITH SEALANT

3050

- All versions electro-galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm or 2 mm thick pipe components

- Pull-rings for 2 mm also suitable for connecting 2 mm to 1.5 mm thick pipe components
- In larger diameters, pull-rings for 3 mm are used for all wall thicknesses

Pull-rings for 1, 2 and 3 mm wall thickness

DN	Ø A	Ø B	kg	For 1 mm pipework system		Ø C	Ø E	For 2 mm pipework system		Ø F	Ø G	For 3 mm pipework system	
				Item no.	€			Item no.	€			Item no.	€
80	99	80	0.23	11082381	7,40	100	80	11082382	7,90				
100	121	102	0.26	11102381	7,70	123	103	11102382	8,00				
120	141	122	0.28	11122381	8,10	143	123	11122382	8,60	145	124	11122383	10,20
140	157	138	0.30	11142381	8,50	159	139	11142382	9,40				
150	171	152	0.33	11152381	9,00	173	153	11152382	9,70	175	154	11152383	11,10
160			0.33	11162382	10,70	177	158	11162382	10,70	178	158	11162383	12,20
175			0.34	11172382	10,70	198	178	11172382	10,70	200	179	11172383	12,20
200			0.38	11202382	11,50	223	203	11202382	11,50	225	204	11202383	13,50
224			0.40	11222382	11,90	243	223	11222382	11,90	244	223	11222383	14,40
250			0.42	11252382	12,60	275	254	11252382	12,60	275	254	11252383	15,60
280			0.47	11282382	14,80	302	281	11282382	14,80				
300			0.50	11302382	15,10	325	304	11302382	15,10	325	304	11302383	18,10
315			0.53	11312383	19,20	337	316	11312383	19,20				
350			0.68	11352383	20,40			11352383	20,40	375	354	11352383	20,40
400			0.75	11402383	23,80			11402383	23,80	423	402	11402383	23,80
450			0.81	11452383	27,80			11452383	27,80	473	452	11452383	27,80
500			0.88	11502383	32,10			11502383	32,10	523	502	11502383	32,10
560			0.95					11562383	38,00	583	562	11562383	38,00
630			1.05					11632383	43,30	653	632	11632383	43,30

ONE-PART PULL-RINGS WITH SEALANT

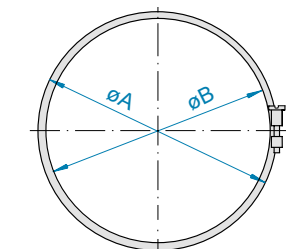
3055

- All versions electro-galvanised

- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm thick pipe components

Pull-rings for 1 mm wall thickness

DN	Ø A	Ø B	kg	1 mm	
				Item no.	€
80	97	80	0.04	11082372	6,90
100	119	102	0.05	11102372	6,90
120	139	122	0.06	11122372	7,20
150	169	152	0.07	11152372	7,90
175	194	177	0.08	11172372	8,30
200	219	202	0.09	11202372	9,40



Product similar to picture



EARTHING BRIDGES WITHOUT CONTACT CAPS

1400

- Engineered by JACOB for electrostatic potential equalisation
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 26 and 28)
- Recommended for use in conjunction with galvanised pipe components or stainless steel surfaces
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003792	42,50



EARTHING BRIDGES WITH CONTACT CAPS

- Engineered by JACOB for electrostatic potential equalisation
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 26 and 28)
- Contact caps made of electrostatically conductive EPDM
- Recommended for use in conjunction with powder-coated pipe components in JACOB standard RAL 7032 (pebble grey), electrostatically conductive
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003793	49,70



ALLEN KEYS

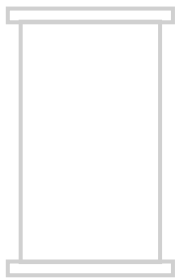
4030

- Size 5 Allen key for assembling one-part pull-ring
- Size 6 Allen key for assembling QUICK CONNECT pull-ring, pull-ring without sealant and pull-ring with sealant

	Item no.	€
Size 5 for one-part pull-rings	10002361	21,60
Size 6 for two-part pull-rings	10002362	8,10



JACOB PIPES –
THE SOUND BASIS FOR YOUR PIPEWORK SYSTEM



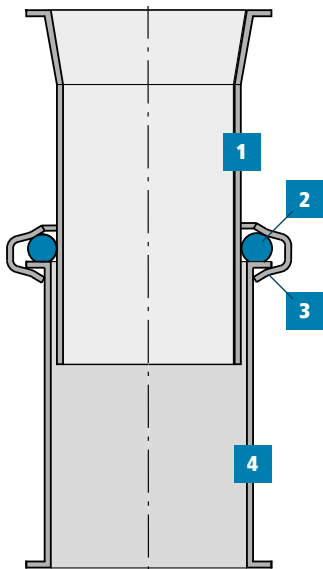
PIPES

Technical information	32	
Pipes	34	
Welding ends	40	
Push-in pipes	41	
Ring seals	44	
Pipes with spigots	45	



WELDED PIPES

The cornerstone of the modular pipework system – our certification according to the DIN EN ISO 3834-3 welding quality management system and automated welding processes guarantee top serial production quality. Straight pipes are available in diameters ranging from 60 to 630 mm with a 6 mm lip in various materials with a wall thickness of 1 to 3 mm. Please refer to chapter 1, on page 18 for information on inside diameters. At your request we manufacture customised special lengths, supply pipes with flanges, or produce finishes to your specification as far as technically possible – from special colours to pickled stainless steel.



PUSH-IN PIPES

The easy solution for creating special lengths on site within a modular system. Push-in pipes are available in different lengths and are fitted with a ring seal. They are inserted into a welded pipe as far as required and then fixed in place with a pull-ring. The push-in pipe should be inserted at least 50 mm into the straight pipe, and the minimum length that is bridged is 45 mm. The easiest way of creating a special length – without sawing, welding or lip flanging!

This connection is **not** shock explosion proof. Admissible over-pressure 100 mbar (1000 mm WG, 10,000 Pa).

Push-in pipes are not telescopic pipes that can be adjusted during operation. When push-in pipes are installed horizontally, support must be provided directly on the pipe upstream or the pipe downstream of the push-in pipe. In vertical pipework, the pipe under the push-in pipe must be supported. The use of these pipes in pipework conveying foodstuffs is not recommended. Please also read and take into account our push-in pipe installation instructions.

- 1 Push-in pipe
- 2 Ring seal
- 3 Standard pull-ring
(see chapter 2)
- 4 Straight pipe



Push-in pipe installation instructions



RING SEALS FOR PUSH-IN PIPES

- Tear-resistant, compliant with food regulations (FOOD GRADE) and resistant to many aggressive chemicals thanks to vulcanisation
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone	F	Silicone	F D	EPDM	Viton (FKM)
grey white	beige		blue		black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant		FDA	
-20°C to +100°C	-60°C to +250°C		-60°C to +250°C		-30°C to +120°C	-18°C to +230°C
glued	vulcanised		vulcanised metal-detectable		vulcanised electrostatically conductive	vulcanised

3



PIPES WITH SPIGOTS

The ideal solution for incorporating sensors in the modular pipework system.

JACOB offers 200 mm long pipe components as standard with a 6 mm lip, made of various materials, with different spigots. Special lengths and other spigots are available on request.

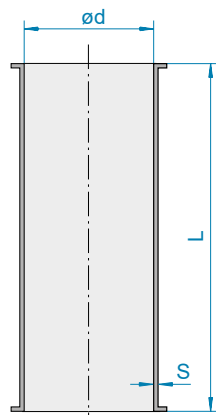
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



WELDED PIPES

- L = actual length
- Ø d = internal diameter of 2 mm parts
- All pipes with a 6 mm lip
- Special lengths and special colours available on request
- Lengths of 2 m up to 12 m available on request



PIPES 2000 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11061010*	27,50				
80	76	1984	7.80	11081010	28,00	12081010	48,40		
100	99	1984	10.15	11101010	28,50	12101010	51,10		
120	119	1984	11.85	11121010	32,30	12121010	54,40	13121010	75,30
140	135	1984	13.15	11141010	38,60	12141010	63,00		
150	149	1984	15.05	11151010	38,10	12151010	62,00	13151010	89,40
160	159	1984	16.50	11161010	44,00	12161010	70,60		
175	174	1984	17.25	11171010	44,00	12171010	70,60	13171010	103,00
200	199	1984	19.25	11201010	48,90	12201010	78,60	13201010	116,00
224	219	1984	21.65	11221010	57,90	12221010	84,60		
250	249	1984	24.45	11251010	57,90	12251010	84,60	13251010	136,00
280	278	1984	27.40	11281010	66,10	12281010	101,00		
300	299	1984	29.05	11301010	66,10	12301010	101,00	13301010	160,50
315	313	1984	31.00	11311010	76,10	12311010	124,50		
350	349	1984	34.50	11351010	82,50	12351010	130,50	13351010	183,50
400	398	1984	39.40	11401010	119,50	12401010	183,50	13401010	240,00
450	448	1984	44.30	11451010	141,00	12451010	241,00	13451010	297,00
500	498	1984	49.30	11501010	150,00	12501010	262,50	13501010	336,50
560	558	1984	56.20			12561010	291,00	13561010	385,50
630	628	1988	64.00			12631010	330,00	13631010	432,50


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11062010*	41,00			11063010*	87,80		
80	76	1984	7.80	11082010	41,70	12082010	72,00	11083010	105,50	12083010	176,50
100	99	1984	10.15	11102010	42,20	12102010	73,00	11103010	106,00	12103010	177,50
120	119	1984	11.85	11122010	47,10	12122010	81,20	11123010	121,00	12123010	205,50
140	135	1984	13.15	11142010	56,10	12142010	97,80	11143010	141,00	12143010	242,00
150	149	1984	15.05	11152010	55,60	12152010	96,30	11153010	141,00	12153010	242,00
160	159	1984	16.50	11162010	65,20	12162010	114,00	11163010	155,00	12163010	269,50
175	174	1984	17.25	11172010	65,20	12172010	114,00	11173010	155,00	12173010	269,50
200	199	1984	19.25	11202010	75,10	12202010	130,00	11203010	171,00	12203010	320,50
224	219	1984	21.65	11222010	82,70	12222010	143,50	11223010	189,50	12223010	366,50
250	249	1984	24.45	11252010	82,70	12252010	143,50	11253010	189,50	12253010	366,50
280	278	1984	27.40	11282010	98,60	12282010	171,50	11283010	230,00	12283010	429,50
300	299	1984	29.05	11302010	98,60	12302010	171,50	11303010	230,00	12303010	429,50
315	313	1984	31.00	11312010	113,50	12312010	223,50	11313010	245,00	12313010	448,00
350	349	1984	34.50	11352010	122,00	12352010	231,50	11353010	252,00	12353010	454,50
400	398	1984	39.40	11402010	160,50	12402010	296,00	11403010	318,00	12403010	526,50
450	448	1984	44.30	11452010	187,50	12452010	348,00	11453010	372,50	12453010	585,50
500	498	1984	49.30	11502010	208,00	12502010	414,00	11503010	434,50	12503010	693,50
560	558	1984	56.20			12562010	459,50			12563010	743,50
630	628	1988	64.00			12632010	516,50			12633010	812,00

*1.5 mm

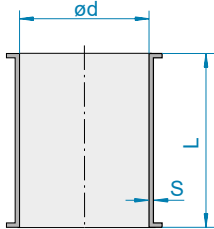
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar



PIPES 1000 MM



Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11061020*	17,40				
80	76	984	3.80	11081020	17,60	12081020	24,70		
100	99	984	4.95	11101020	18,00	12101020	26,00		
120	119	984	5.85	11121020	20,30	12121020	28,40	13121020	42,20
140	135	984	6.55	11141020	24,90	12141020	36,70		
150	149	984	7.25	11151020	24,50	12151020	36,10	13151020	52,10
160	159	984	8.30	11161020	26,50	12161020	38,10		
175	174	984	8.55	11171020	26,50	12171020	38,10	13171020	56,60
200	199	984	9.45	11201020	30,00	12201020	41,90	13201020	64,10
224	219	984	10.75	11221020	33,00	12221020	46,40		
250	249	984	12.05	11251020	33,00	12251020	46,40	13251020	77,40
280	278	984	13.70	11281020	35,90	12281020	52,30		
300	299	984	14.25	11301020	35,90	12301020	52,30	13301020	84,30
315	313	984	14.40	11311020	43,00	12311020	62,00		
350	349	984	16.55	11351020	48,80	12351020	66,90	13351020	94,10
400	398	984	18.95	11401020	58,60	12401020	93,80	13401020	124,00
450	448	984	21.65	11451020	70,20	12451020	124,00	13451020	155,00
500	498	984	24.60	11501020	75,50	12501020	141,00	13501020	175,50
560	558	984	28.10			12561020	151,00	13561020	201,50
630	628	984	29.85			12631020	171,50	13631020	226,50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

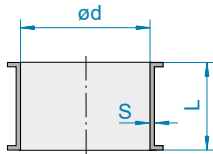
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11062020*	24,40			11063020*	49,70		
80	76	984	3.80	11082020	25,00	12082020	38,60	11083020	56,10	12083020	90,90
100	99	984	4.95	11102020	25,10	12102020	39,10	11103020	56,40	12103020	91,60
120	119	984	5.85	11122020	26,00	12122020	40,30	11123020	63,60	12123020	108,50
140	135	984	6.55	11142020	30,50	12142020	47,30	11143020	73,60	12143020	127,00
150	149	984	7.25	11152020	30,30	12152020	46,50	11153020	73,60	12153020	127,00
160	159	984	8.30	11162020	39,80	12162020	62,10	11163020	82,10	12163020	148,00
175	174	984	8.55	11172020	39,80	12172020	62,10	11173020	82,10	12173020	148,00
200	199	984	9.45	11202020	43,80	12202020	68,20	11203020	89,90	12203020	168,00
224	219	984	10.75	11222020	45,30	12222020	70,80	11223020	104,50	12223020	191,00
250	249	984	12.05	11252020	45,30	12252020	70,80	11253020	104,50	12253020	191,00
280	278	984	13.70	11282020	53,10	12282020	82,70	11283020	125,00	12283020	223,00
300	299	984	14.25	11302020	53,10	12302020	82,70	11303020	125,00	12303020	223,00
315	313	984	14.40	11312020	63,60	12312020	109,00	11313020	137,50	12313020	235,00
350	349	984	16.55	11352020	70,00	12352020	118,00	11353020	146,50	12353020	243,50
400	398	984	18.95	11402020	81,70	12402020	157,50	11403020	188,50	12403020	293,50
450	448	984	21.65	11452020	96,90	12452020	189,50	11453020	206,00	12453020	315,00
500	498	984	24.60	11502020	108,00	12502020	217,00	11503020	230,50	12503020	362,50
560	558	984	28.10			12562020	247,50			12563020	413,00
630	628	984	29.85			12632020	266,00			12633020	457,50

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



PIPES 500 MM



1010

Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11061030*	11,80				
80	76	486	1.90	11081030	11,90	12081030	13,90		
100	99	486	2.55	11101030	12,20	12101030	14,70		
120	119	486	2.90	11121030	12,90	12121030	17,00	13121030	25,00
140	135	486	3.25	11141030	16,00	12141030	20,10		
150	149	486	3.65	11151030	16,00	12151030	20,10	13151030	30,60
160	159	486	4.20	11161030	16,90	12161030	23,00		
175	174	486	4.35	11171030	16,90	12171030	23,00	13171030	33,10
200	199	486	4.85	11201030	17,90	12201030	25,50	13201030	37,00
224	219	486	5.30	11221030	18,10	12221030	27,70		
250	249	486	5.95	11251030	18,10	12251030	27,70	13251030	43,10
280	278	486	6.80	11281030	20,30	12281030	31,50		
300	299	486	7.25	11301030	20,30	12301030	31,50	13301030	46,80
315	313	486	7.70	11311030	24,50	12311030	34,40		
350	349	486	8.45	11351030	28,40	12351030	37,50	13351030	52,60
400	398	486	9.55	11401030	33,40	12401030	50,40	13401030	67,50
450	448	486	10.75	11451030	40,00	12451030	63,40	13451030	80,00
500	498	486	12.05	11501030	42,00	12501030	73,20	13501030	94,60
560	558	486	14.10			12561030	80,40	13561030	107,00
630	628	486	15.80			12631030	90,50	13631030	122,00


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11062030*	15,10			11063030*	28,40		
80	76	486	1.90	11082030	15,20	12082030	21,10	11083030	30,10	12083030	47,50
100	99	486	2.55	11102030	15,80	12102030	21,60	11103030	30,30	12103030	47,90
120	119	486	2.90	11122030	16,10	12122030	22,20	11123030	35,10	12123030	55,00
140	135	486	3.25	11142030	21,40	12142030	29,60	11143030	39,80	12143030	65,50
150	149	486	3.65	11152030	21,40	12152030	29,70	11153030	39,80	12153030	65,50
160	159	486	4.20	11162030	23,70	12162030	33,00	11163030	45,30	12163030	75,10
175	174	486	4.35	11172030	23,70	12172030	33,00	11173030	45,30	12173030	75,10
200	199	486	4.85	11202030	24,40	12202030	39,20	11203030	49,20	12203030	84,00
224	219	486	5.30	11222030	25,10	12222030	40,40	11223030	56,10	12223030	101,00
250	249	486	5.95	11252030	25,10	12252030	40,40	11253030	56,10	12253030	101,00
280	278	486	6.80	11282030	30,40	12282030	48,70	11283030	66,00	12283030	115,50
300	299	486	7.25	11302030	30,40	12302030	48,70	11303030	66,00	12303030	115,50
315	313	486	7.70	11312030	36,40	12312030	63,90	11313030	76,10	12313030	124,50
350	349	486	8.45	11352030	38,70	12352030	70,60	11353030	80,50	12353030	129,00
400	398	486	9.55	11402030	44,00	12402030	87,80	11403030	111,50	12403030	166,00
450	448	486	10.75	11452030	53,30	12452030	107,00	11453030	118,50	12453030	191,00
500	498	486	12.05	11502030	56,20	12502030	124,50	11503030	124,50	12503030	217,00
560	558	486	14.10			12562030	141,00			12563030	253,00
630	628	486	15.80			12632030	155,00			12633030	270,50

*1.5 mm

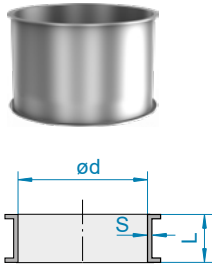
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar



PIPES 200 MM



Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11061040*	8,20				
80	76	200	0.70	11081040	8,30	12081040	8,70		
100	99	200	1.00	11101040	8,40	12101040	9,20		
120	119	200	1.20	11121040	9,00	12121040	10,20	13121040	16,80
140	135	200	1.40	11141040	10,40	12141040	12,90		
150	149	200	1.50	11151040	10,40	12151040	12,90	13151040	20,20
160	159	200	1.80	11161040	11,70	12161040	14,40		
175	174	200	1.80	11171040	11,70	12171040	14,40	13171040	22,10
200	199	200	2.05	11201040	12,40	12201040	15,30	13201040	25,60
224	219	200	2.20	11221040	12,80	12221040	16,50		
250	249	200	2.55	11251040	12,80	12251040	16,50	13251040	28,90
280	278	200	2.90	11281040	12,90	12281040	19,30		
300	299	200	2.95	11301040	12,90	12301040	19,30	13301040	30,60
315	313	200	3.30	11311040	15,80	12311040	23,40		
350	349	200	3.70	11351040	17,00	12351040	25,10	13351040	36,40
400	398	200	4.10	11401040	19,90	12401040	29,20	13401040	39,80
450	448	200	5.00	11451040	29,10	12451040	37,90	13451040	51,40
500	498	200	5.20	11501040	36,60	12501040	43,50	13501040	56,40
560	558	200	7.50			12561040	53,10	13561040	69,10
630	628	200	7.80			12631040	64,50	13631040	84,00

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

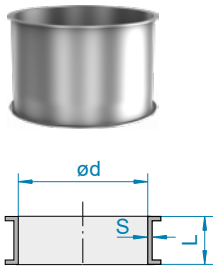
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062040*	10,40			11063040*	15,80		
80	76	200	0.70	11082040	10,50	12082040	12,80	11083040	17,00	12083040	24,10
100	99	200	1.00	11102040	10,70	12102040	12,90	11103040	17,10	12103040	24,20
120	119	200	1.20	11122040	11,20	12122040	13,40	11123040	19,40	12123040	29,90
140	135	200	1.40	11142040	14,40	12142040	19,00	11143040	23,10	12143040	36,00
150	149	200	1.50	11152040	14,40	12152040	19,30	11153040	23,10	12153040	36,00
160	159	200	1.80	11162040	15,90	12162040	21,00	11163040	25,70	12163040	38,10
175	174	200	1.80	11172040	15,90	12172040	21,00	11173040	25,70	12173040	38,10
200	199	200	2.05	11202040	16,80	12202040	22,10	11203040	27,70	12203040	42,40
224	219	200	2.20	11222040	17,20	12222040	23,00	11223040	30,50	12223040	49,90
250	249	200	2.55	11252040	17,20	12252040	23,00	11253040	30,50	12253040	49,90
280	278	200	2.90	11282040	19,30	12282040	31,20	11283040	35,70	12283040	57,30
300	299	200	2.95	11302040	19,30	12302040	31,20	11303040	35,70	12303040	57,30
315	313	200	3.30	11312040	23,00	12312040	39,80	11313040	37,70	12313040	63,30
350	349	200	3.70	11352040	26,00	12352040	44,10	11353040	38,80	12353040	66,00
400	398	200	4.10	11402040	28,10	12402040	50,20	11403040	62,50	12403040	90,30
450	448	200	5.00	11452040	40,00	12452040	56,10	11453040	71,00	12453040	98,90
500	498	200	5.20	11502040	47,30	12502040	64,20	11503040	76,00	12503040	111,00
560	558	200	7.50			12562040	72,20			12563040	127,50
630	628	200	7.80			12632040	81,50			12633040	147,50

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



PIPES 100 MM



1010

Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11061044*	7,40				
80	76	100	0.37	11081044	7,50	12081044	7,90		
100	99	100	0.53	11101044	7,60	12101044	8,40		
120	119	100	0.63	11121044	8,20	12121044	9,20	13121044	15,20
140	135	100	0.74	11141044	9,30	12141044	10,40		
150	149	100	0.79	11151044	9,30	12151044	10,40	13151044	18,30
160	159	100	0.90	11161044	10,60	12161044	11,60		
175	174	100	0.95	11171044	10,60	12171044	11,60	13171044	19,90
200	199	100	1.08	11201044	11,20	12201044	12,20	13201044	23,10
224	219	100	1.16	11221044	11,50	12221044	13,30		
250	249	100	1.35	11251044	11,50	12251044	13,30	13251044	26,10
280	276	100	1.53	11281044	11,60	12281044	15,50		
300	299	100	1.56	11301044	11,60	12301044	15,50	13301044	27,60
315	311	100	1.74	11311044	14,20	12311044	19,90		
350	349	100	1.95	11351044	16,50	12351044	21,40	13351044	32,80
400	398	100	2.17	11401044	18,00	12401044	24,80	13401044	35,80
450	448	100	2.64	11451044	26,20	12451044	32,30	13451044	46,30
500	498	100	2.75	11501044	33,00	12501044	37,10	13501044	50,80
560	558	100	3.96			12561044	45,20	13561044	62,20
630	628	100	4.12			12631044	54,90	13631044	75,70


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062044*	9,30			11063044*	13,50		
80	76	100	0.37	11082044	9,40	12082044	10,20	11083044	14,40	12083044	18,10
100	99	100	0.53	11102044	9,70	12102044	10,40	11103044	14,60	12103044	18,20
120	119	100	0.63	11122044	10,20	12122044	10,80	11123044	16,50	12123044	22,40
140	135	100	0.74	11142044	13,10	12142044	15,30	11143044	19,70	12143044	27,10
150	149	100	0.79	11152044	13,10	12152044	15,50	11153044	19,70	12153044	27,10
160	159	100	0.90	11162044	14,30	12162044	16,80	11163044	21,90	12163044	28,60
175	174	100	0.95	11172044	14,30	12172044	16,80	11173044	21,90	12173044	28,60
200	199	100	1.08	11202044	15,20	12202044	17,70	11203044	23,60	12203044	31,80
224	219	100	1.16	11222044	15,60	12222044	18,50	11223044	26,00	12223044	37,50
250	249	100	1.35	11252044	15,60	12252044	18,50	11253044	26,00	12253044	37,50
280	276	100	1.53	11282044	17,40	12282044	25,00	11283044	30,40	12283044	43,00
300	299	100	1.56	11302044	17,40	12302044	25,00	11303044	30,40	12303044	43,00
315	311	100	1.74	11312044	20,80	12312044	33,80	11313044	32,10	12313044	47,40
350	349	100	1.95	11352044	23,40	12352044	37,60	11353044	33,00	12353044	49,50
400	398	100	2.17	11402044	27,40	12402044	42,70	11403044	53,20	12403044	67,70
450	448	100	2.64	11452044	36,00	12452044	47,60	11453044	60,50	12453044	74,20
500	498	100	2.75	11502044	42,70	12502044	54,60	11503044	64,70	12503044	83,00
560	558	100	3.96			12562044	61,40			12563044	95,40
630	628	100	4.12			12632044	69,40			12633044	111,00

*1.5 mm

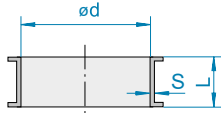
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar



PIPES 50 MM



Powder-coated (dimensions for 2 mm pipework)


DN	Ød	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12	11061050*	5,70				
80	76	50	0.15	11081050	5,90	12081050	6,00		
100	99	50	0.30	11101050	6,00	12101050	6,30		
120	119	50	0.40	11121050	6,30	12121050	6,90	13121050	11,20
140	135	50	0.45	11141050	7,20	12141050	7,90		
150	149	50	0.50	11151050	7,20	12151050	7,90	13151050	13,80
160	159	50	0.52	11161050	7,70	12161050	8,30		
175	174	50	0.55	11171050	7,70	12171050	8,30	13171050	14,70
200	199	50	0.60	11201050	8,30	12201050	8,80	13201050	15,90
224	219	50	0.65	11221050	8,50	12221050	9,20		
250	249	50	0.75	11251050	8,50	12251050	9,20	13251050	17,40
280	278	50	0.90	11281050	9,80	12281050	11,00		
300	299	50	0.90	11301050	9,80	12301050	11,00	13301050	19,30
315	313	50	1.00	11311050	11,70	12311050	16,20		
350	349	50	1.10	11351050	16,00	12351050	19,10	13351050	24,70
400	398	50	1.80	11401050	17,60	12401050	24,20	13401050	31,30
450	448	50	1.40	11451050	23,90	12451050	28,10	13451050	36,50
500	498	50	1.50	11501050	28,50	12501050	31,70	13501050	41,00
560	558	50	1.70			12561050	35,40	13561050	46,10
630	628	50	1.90			12631050	43,00	13631050	55,90


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ød	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12	11062050*	7,20			11063050*	9,20		
80	76	50	0.15	11082050	7,50	12082050	8,70	11083050	10,10	12083050	11,80
100	99	50	0.30	11102050	7,80	12102050	8,90	11103050	10,20	12103050	11,90
120	119	50	0.40	11122050	8,00	12122050	9,40	11123050	10,50	12123050	12,90
140	135	50	0.45	11142050	9,20	12142050	10,70	11143050	11,30	12143050	14,30
150	149	50	0.50	11152050	9,20	12152050	10,70	11153050	11,30	12153050	14,30
160	159	50	0.52	11162050	10,10	12162050	11,70	11163050	12,80	12163050	16,20
175	174	50	0.55	11172050	10,10	12172050	11,70	11173050	12,80	12173050	16,20
200	199	50	0.60	11202050	10,80	12202050	12,50	11203050	14,10	12203050	17,60
224	219	50	0.65	11222050	11,20	12222050	12,90	11223050	16,50	12223050	20,70
250	249	50	0.75	11252050	11,20	12252050	12,90	11253050	16,50	12253050	20,70
280	278	50	0.90	11282050	12,60	12282050	15,40	11283050	21,40	12283050	22,10
300	299	50	0.90	11302050	12,60	12302050	15,40	11303050	21,40	12303050	22,10
315	313	50	1.00	11312050	15,20	12312050	19,20	11313050	22,30	12313050	30,60
350	349	50	1.10	11352050	20,70	12352050	24,30	11353050	28,10	12353050	34,60
400	398	50	1.80	11402050	26,40	12402050	30,10	11403050	35,70	12403050	43,80
450	448	50	1.40	11452050	30,50	12452050	35,40	11453050	41,50	12453050	50,70
500	498	50	1.50	11502050	36,70	12502050	39,90	11503050	48,30	12503050	57,10
560	558	50	1.70			12562050	44,50			12563050	64,30
630	628	50	1.90			12632050	54,00			12633050	77,90

*1.5 mm

 FOOD GRADE
EC 1935/2004 plus FDA compliant

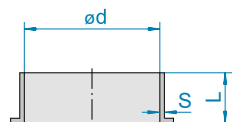
 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar



PIPES

Welding ends



WELDING ENDS 55 MM, WITH LIP AT ONE END

1020

- With a 6 mm lip at one end
- For connection to existing pipe systems or machinery on site

Steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	2 mm steel uncoated		3 mm steel uncoated		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11060060*	5,30			11062060	10,20
80	76	55	0.15	12080060	5,80			12082060	10,70
100	99	55	0.35	12100060	6,10			12102060	10,80
120	119	55	0.40	12120060	6,60	13120060	9,50	12122060	11,90
140	135	55	0.45	12140060	7,50			12142060	12,60
150	149	55	0.45	12150060	7,50	13150060	9,90	12152060	12,60
160	159	55	0.50	12160060	7,90			12162060	13,20
175	174	55	0.55	12170060	7,90	13170060	11,10	12172060	13,20
200	199	55	0.60	12200060	8,40	13200060	11,70	12202060	14,00
224	219	55	0.70	12220060	8,70			12222060	15,40
250	249	55	0.75	12250060	8,70	13250060	12,10	12252060	15,40
280	276	55	0.80	12280060	10,50			12282060	17,40
300	299	55	0.85	12300060	10,50	13300060	13,80	12302060	17,40
315	311	55	0.90	12310060	10,80			12312060	24,70
350	349	55	1.05	12350060	11,00	13350060	14,90	12352060	25,70
400	398	55	1.15	12400060	12,10	13400060	16,30	12402060	29,30
450	448	55	1.40	12450060	14,00	13450060	18,60	12452060	33,70
500	498	55	1.55	12500060	15,90	13500060	20,90	12502060	37,20
560	558	55	1.70	12560060	17,40	13560060	23,40	12562060	41,00
630	628	55	1.90	12630060	19,90	13630060	27,20	12632060	46,20

*1.5 mm

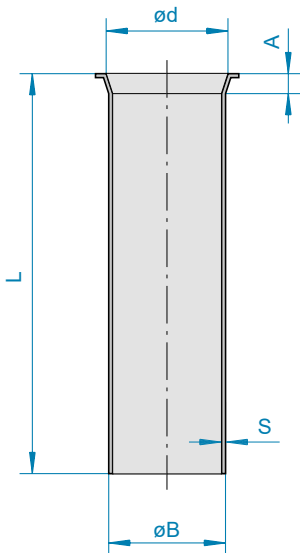
Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11061060	5,70					11063060*	7,80
80	76	55	0.15	11081060	5,90	12081060	6,20			12083060	11,20
100	99	55	0.35			12101060	6,30			12103060**	11,70
120	119	55	0.40			12121060	6,90	13121060	9,90	12123060	12,70
140	135	55	0.45			12141060	7,90			12143060	13,60
150	149	55	0.45			12151060	7,90	13151060	10,20	12153060**	13,60
160	159	55	0.50			12161060	8,40			12163060	16,10
175	174	55	0.55			12171060	8,40	13171060	11,50	12173060	16,10
200	199	55	0.60			12201060	8,80	13201060	11,90	12203060**	17,90
224	219	55	0.70			12221060	9,00			12223060	20,40
250	249	55	0.75			12251060	9,00	13251060	12,50	12253060**	20,40
280	276	55	0.80			12281060	11,10			12283060	22,10
300	299	55	0.85			12301060	11,10	13301060	14,30	12303060	22,10
315	311	55	0.90			12311060	11,70			12313060	23,10
350	349	55	1.05			12351060	11,70	13351060	15,30	12353060	24,30
400	398	55	1.15			12401060	12,80	13401060	16,80	12403060	26,80
450	448	55	1.40			12451060	14,80	13451060	19,30	12453060	33,00
500	498	55	1.55			12501060	16,50	13501060	21,40	12503060	38,00
560	558	55	1.70			12561060	18,50	13561060	24,20	12563060	43,10
630	628	55	1.90			12631060	21,20	13631060	27,90	12633060	47,70

* 1.5 mm

** Internal diameter Ød differs by: +1 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



Push-in pipe installation instructions

PUSH-IN PIPES

Push-in pipes in 1 to 3 mm wall thickness

For combining with:

- QUICK CONNECT pull-ring or pull-ring without sealant for 1 and 2 mm pipework (page 26)
- Ring seal (page 44)



PUSH-IN PIPES 1000 MM

1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	ød	A	øB	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	990	2.20			11061110	29,00
80	77	34	74	990	2.70	11081110	30,10		
100	100	34	96	990	3.50			11101110	30,30
120	120	34	116	990	4.30			11121110	34,50
140	136	34	132	990	4.60			11141110	42,80
150	150	34	146	990	5.40			11151110	42,80
160	159	34	155	990	6.00			11161110	48,10
175	175	34	171	990	6.20			11171110	48,10
200	200	34	196	990	7.00			11201110	52,30
224	220	34	216	990	7.60			11221110	64,60
250	250	34	246	990	8.80			11251110	64,60
280	277	34	272	990	10.00			11281110	71,00
300	300	34	296	990	10.70			11301110	71,00
315	312	34	307	990	11.30			11311110	81,60
350	350	50	346	990	12.40			11351110	87,70
400	399	50	396	990	14.20			11401110	110,50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	ød	A	øB	L	kg	1.5 mm galvanised		1 mm stainless steel 		1.5 mm stainless steel 		2 mm stainless steel 	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	990	2.20	11062110	38,10			11063110	74,40		
80	77	34	74	990	2.70	11082110*	40,00	11083110	87,10				
100	100	34	96	990	3.50	11102110	40,20	11103110	87,80			12103110**	129,00
120	120	34	116	990	4.30	11122110	44,10	11123110	92,00			12123110	148,00
140	136	34	132	990	4.60	11142110	51,10	11143110	107,00				
150	150	34	146	990	5.40	11152110	51,10	11153110	107,00			12153110**	171,00
160	159	34	155	990	6.00	11162110	62,50	11163110	119,50			12163110	199,00
175	175	34	171	990	6.20	11172110	62,50	11173110	119,50			12173110	199,00
200	200	34	196	990	7.00	11202110	67,90	11203110	137,50			12203110	222,00
224	220	34	216	990	7.60	11222110	81,70	11223110	157,50				
250	250	34	246	990	8.80	11252110	81,70	11253110	157,50			12253110	253,50
280	277	34	272	990	10.00	11282110	95,90			11283110	183,50		
300	300	34	296	990	10.70	11302110	95,90	11303110	183,50			12303110	292,50
315	312	34	307	990	11.30	11312110	110,50			11313110	200,50		
350	350	50	346	990	12.40	11352110	124,00	11353110	221,50			12353110	301,00
400	399	50	396	990	14.20	11402110	151,50	11403110	238,00			12403110	362,50

* 1 mm

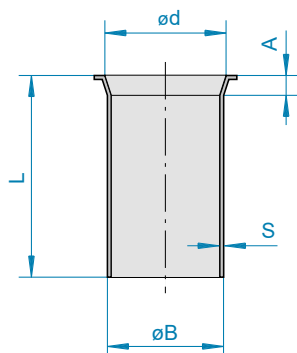
**øB differs: øB = 92 mm with DN 100, øB = 139 mm with DN 150

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant



PIPES

Push-in pipes



PUSH-IN PIPES 500 MM

1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm powder-coated		1.5 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10			11061120	20,30		
80	77	34	74	492	1.40	11081120	21,30				
100	100	34	96	492	1.80			11101120	21,60		
120	120	34	116	492	2.10			11121120	22,90		
140	136	34	132	492	2.45			11141120	26,50		
150	150	34	146	492	2.65			11151120	26,50	13151120**	47,10
160	159	34	155	492	3.10			11161120	32,60		
175	175	34	171	492	3.10			11171120	32,60	13171120	53,10
200	200	34	196	492	3.50			11201120	33,50	13201120	61,50
224	220	34	216	492	3.90			11221120	40,60		
250	250	34	246	492	4.50			11251120	40,60	13251120	68,70
280	277	34	272	492	5.00			11281120	45,00		
300	300	34	296	492	5.40			11301120	45,00	13301120	76,70
315	312	34	307	492	5.70			11311120	51,70		
350	350	50	346	492	6.20			11351120	52,60		
400	399	50	396	492	7.20			11401120	65,40		

** ØB differs: ØB = 139 mm with DN 150

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm galvanised		1 mm stainless steel	1.5 mm stainless steel	2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10	11062120	25,20		11063120	40,80	
80	77	34	74	492	1.40	11082120*	26,30	11083120	47,30		
100	100	34	96	492	1.80	11102120	26,60	11103120	47,50	12103120**	68,20
120	120	34	116	492	2.10	11122120	28,30	11123120	53,10	12123120	78,90
140	136	34	132	492	2.45	11142120	31,30	11143120	58,90		
150	150	34	146	492	2.65	11152120	31,30	11153120	58,90	12153120**	91,50
160	159	34	155	492	3.10	11162120	38,00	11163120	65,20	12163120	104,00
175	175	34	171	492	3.10	11172120	38,00	11173120	65,20	12173120	104,00
200	200	34	196	492	3.50	11202120	40,20	11203120	75,90	12203120	116,00
224	220	34	216	492	3.90	11222120	50,20	11223120	85,60		
250	250	34	246	492	4.50	11252120	50,20	11253120	85,60	12253120	139,00
280	277	34	272	492	5.00	11282120	56,20		11283120	97,20	
300	300	34	296	492	5.40	11302120	56,20	11303120	97,20	12303120	158,50
315	312	34	307	492	5.70	11312120	64,90		11313120	107,00	
350	350	50	346	492	6.20	11352120	70,50	11353120	112,00	12353120	199,00
400	399	50	396	492	7.20	11402120	86,50	11403120	117,00	12403120	227,00

* 1 mm

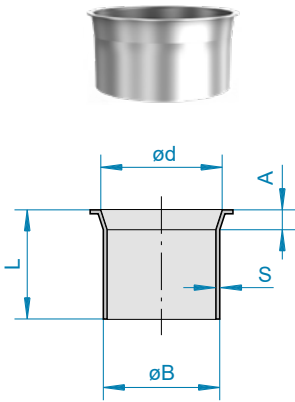
** ØB differs: ØB = 92 mm with DN 100, ØB = 139 mm with DN 150

F FOOD GRADE
EC 1935/2004 plus FDA compliant



PUSH-IN PIPES 200 MM

1030



Powder-coated (dimensions for 1.5 mm pipework)

DN	Ød	A	ØB	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	200	0.41			11061130	18,60
80	77	34	74	200	0.60	11081130	19,00		
100	100	34	96	200	0.75			11101130	19,50
120	120	34	116	200	0.85			11121130	20,20
140	136	34	132	200	0.95			11141130	23,70
150	150	34	146	200	1.10			11151130	23,70
160	159	34	155	200	1.30			11161130	29,00
175	175	34	171	200	1.30			11171130	29,00
200	200	34	196	200	1.50			11201130	32,70
224	220	34	216	200	1.55			11221130	37,00
250	250	34	246	200	1.90			11251130	37,00
280	277	34	272	200	2.10			11281130	41,20
300	300	34	296	200	2.45			11301130	41,20
315	312	34	307	200	2.50			11311130	47,40

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ød	A	ØB	L	kg	1.5 mm galvanised		1 mm stainless steel	1.5 mm stainless steel	2 mm stainless steel
						Item no.	€	Item no.	€	Item no.
60	57	34	54	200	0.41	11062130	23,00		11063130	23,90
80	77	34	74	200	0.60	11082130*	24,10	11083130	27,80	
100	100	34	96	200	0.75	11102130	24,40	11103130	27,80	12103130** 40,70
120	120	34	116	200	0.85	11122130	25,40	11123130	30,40	12123130 43,50
140	136	34	132	200	0.95	11142130	30,30	11143130	33,30	
150	150	34	146	200	1.10	11152130	30,30	11153130	33,30	12153130** 52,20
160	159	34	155	200	1.30	11162130	35,10	11163130	36,70	12163130 54,10
175	175	34	171	200	1.30	11172130	35,10	11173130	36,70	12173130 54,10
200	200	34	196	200	1.50	11202130	38,60	11203130	42,20	12203130 59,90
224	220	34	216	200	1.55	11222130	45,00	11223130	46,90	
250	250	34	246	200	1.90	11252130	45,00	11253130	46,90	12253130 70,60
280	277	34	272	200	2.10	11282130	51,50		11283130	53,20
300	300	34	296	200	2.45	11302130	51,50	11303130	53,20	12303130 80,30
315	312	34	307	200	2.50	11312130	59,50		11313130	58,80

* 1 mm

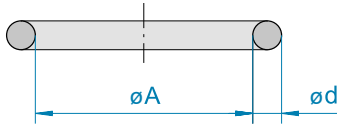
** Ø B differs: ØB = 92 mm with DN 100, ØB = 139 mm with DN 150

FOOD GRADE
EC 1935/2004 plus FDA compliant



PIPES

Ring seals



FOR USE IN CONJUNCTION WITH PUSH-IN PIPE AND PULL-RING.

RING SEALS FOR PUSH-IN PIPES

3020

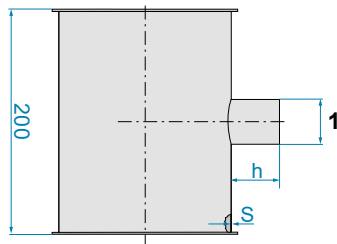
- Use in conjunction with push-in pipes and QUICK CONNECT pull-ring or pull-ring without sealant
- The use of silicone ring seals is recommended for a 3 mm wall thickness

Ring seals to seal push-in pipes from 1 to 3 mm wall thickness

DN	ø d	ø A	NBR grey		Silicone beige F		Silicone blue D		EPDM black		Viton reddish brown	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	7	53	100661557	1,70	1006715509	5,20	10067155091	6,00	1006815559	5,20	100691559	36,40
80	9	68	100861557	2,00	1008715509	5,20	10087155091	6,90	1008815559	5,20	100891559	40,50
100	9	87	101061557	2,30	1010715509	5,80	10107155091	7,90	1010815559	5,80	101091559	40,50
120	9	106	101261557	2,50	1012715509	6,00	10127155091	8,90	1012815559	6,00	101291559	42,60
140	9	121	101461557	2,70	1014715509	6,20	10147155091	9,50	1014815559	6,20	101491559	44,10
150	9	138	101561557	2,70	1015715509	6,40	10157155091	10,30	1015815559	6,40	101591559	44,10
160	9	149	101661557	3,20	1016715509	7,20	10167155091	11,50	1016815559	7,20	101691559	45,70
175	9	162	101761557	3,20	1017715509	7,20	10177155091	11,50	1017815559	7,20	101791559	45,70
200	9	186	102061557	3,60	1020715509	7,50	10207155091	12,40	1020815559	7,50	102091559	46,30
224	9	205	102261557	3,80	1022715509	7,90	10227155091	13,20	1022815559	7,90	102291559	47,40
250	9	233	102561557	3,90	1025715509	8,60	10257155091	14,70	1025815559	8,60	102591559	49,60
280	9	258	102861557	4,30	1028715509	9,20	10287155091	15,90	1028815559	9,20	102891559	52,60
300	9	281	103061557	4,80	1030715509	9,20	10307155091	16,80	1030815559	9,20	103091559	55,90
315	9	293	103161557	5,00	1031715509	9,90	10317155091	17,40	1031815559	9,90	103191559	58,20
350	9	328	103561557	5,10	1035715509	9,90	10357155091	19,00	1035815559	9,90	103591559	63,90
400	9	376	104061557	5,50	1040715509	10,50	10407155091	21,50	1040815559	10,50	104091559	72,80

PIPES 200 MM WITH SPIGOTS

1035



1 Spigot with inner thread

- For installation of sensors on site
- Spigot length
 - G ½ inch: h = circa 31 mm
 - G 1 inch: h = circa 40 mm
 - G 1½ inch: h = circa 44 mm
- Special lengths and other spigots available on request

2 mm powder-coated, length 200 mm

DN	ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110610400901*	38,70	110610400902*	43,80		
80	76	120810400901	40,60	120810400902	45,60	120810400903	57,60
100	99	121010400901	41,00	121010400902	46,10	121010400903	58,10
120	119	121210400901	41,90	121210400902	47,10	121210400903	58,80
140	136	121410400901	44,40	121410400902	49,70	121410400903	61,60
150	149	121510400901	44,40	121510400902	49,70	121510400903	61,60
160	159	121610400901	46,10	121610400902	51,20	121610400903	63,20
175	174	121710400901	46,10	121710400902	51,20	121710400903	63,20
200	199	122010400901	47,10	122010400902	52,20	122010400903	64,20
224	220	122210400901	48,30	122210400902	53,40	122210400903	65,30
250	249	122510400901	48,30	122510400902	53,40	122510400903	65,30
280	276	122810400901	50,80	122810400902	56,10	122810400903	68,00
300	299	123010400901	50,80	123010400902	56,10	123010400903	68,00

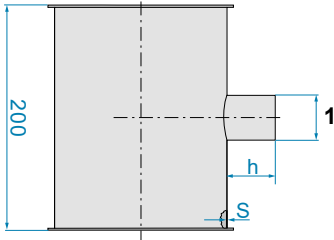
*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

Shock explosion proof
tested up to 3 bar

Pipes with spigots



1 Spigot with inner thread

2 mm galvanised, length 200 mm

DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110620400901*	50,10	110620400902*	59,90		
80	76	120820400901	53,00	120820400902	62,60	120820400903	80,10
100	99	121020400901	53,20	121020400902	62,80	121020400903	80,20
120	119	121220400901	53,90	121220400902	63,80	121220400903	80,70
140	136	121420400901	59,30	121420400902	69,20	121420400903	86,30
150	149	121520400901	59,40	121520400902	69,30	121520400903	86,50
160	159	121620400901	61,20	121620400902	70,90	121620400903	88,10
175	174	121720400901	61,20	121720400902	70,90	121720400903	88,10
200	199	122020400901	62,40	122020400902	72,10	122020400903	89,30
224	220	122220400901	63,20	122220400902	73,10	122220400903	90,10
250	249	122520400901	63,20	122520400902	73,10	122520400903	90,10
280	276	122820400901	71,60	122820400902	81,20	122820400903	98,20
300	299	123020400901	71,60	123020400902	81,20	123020400903	98,20

*1.5 mm

2 mm stainless steel, length 200 mm

DN	Ø d	Spigot ½ inch	Spigot 1 inch	Spigot 1½ inch
		Item no. €	Item no. €	Item no. €
60	57	110630400901* 53,20	110630400902* 62,40	
80	76	120830400901 62,10	120830400902 71,50	120830400903 87,60
100	99	121030400901 62,10	121030400902 71,50	121030400903 87,60
120	119	121230400901 67,90	121230400902 77,10	121230400903 93,40
140	136	121430400901 74,30	121430400902 83,20	121430400903 99,50
150	149	121530400901 74,30	121530400902 83,20	121530400903 99,50
160	159	121630400901 76,30	121630400902 85,40	121630400903 101,50
175	174	121730400901 76,30	121730400902 85,40	121730400903 101,50
200	199	122030400901 80,50	122030400902 89,60	122030400903 106,00
224	220	122230400901 88,10	122230400902 97,10	122230400903 114,00
250	249	122530400901 88,10	122530400902 97,10	122530400903 114,00
280	276	122830400901 95,40	122830400902 105,00	122830400903 121,50
300	299	123030400901 95,40	123030400902 105,00	123030400903 121,50

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE JACOB RANGE OF BENDS:
HIGHEST EFFICIENCY,
MAXIMUM OPTIMISATION OF FLOW



THE RANGE OF PIPE BENDS

Technical information	48	
Segments	50	
Bends	54	
Adjustable elbows	61	
Pipe ball joints	61	



SEGMENTS AND BENDS

Perfect flow properties pay off! If the product flow is guided optimally through direction-changing elements, the flow resistance, and therefore also the wear, are significantly reduced. This results in: Energy savings, longer maintenance intervals, shorter downtimes and thus lower costs. We achieve this with our innovative manufacturing technology. We produce bends from pressed half shells or pressed segments, depending on the diameter. Automated production stages, particularly during welding, ensure a uniformly high level of quality.

Maximum flexibility for planning and implementation: from bends for restricted spaces with a radius of $R = 1D$ up to drawn bends with a large radius. All parts have a 6 mm lip and can be combined with all JACOB pipework using our pull-ring system.

Are you looking for the right angle or radius for your application? No problem with the JACOB pipework system! Whether by using our flexible elbows and pipe ball joints or by counter-rotating two segments: a wide range of different angles can easily be achieved with parts from our standard range. We can also produce special radius pieces on request.

JACOB's unique flexibility makes it possible to implement numerous special requirements at the customer's request: from bends with welded-on flanges to a wide range of special colours – this is no problem at all with our unique vertical integration.

Overview of segment and bend versions

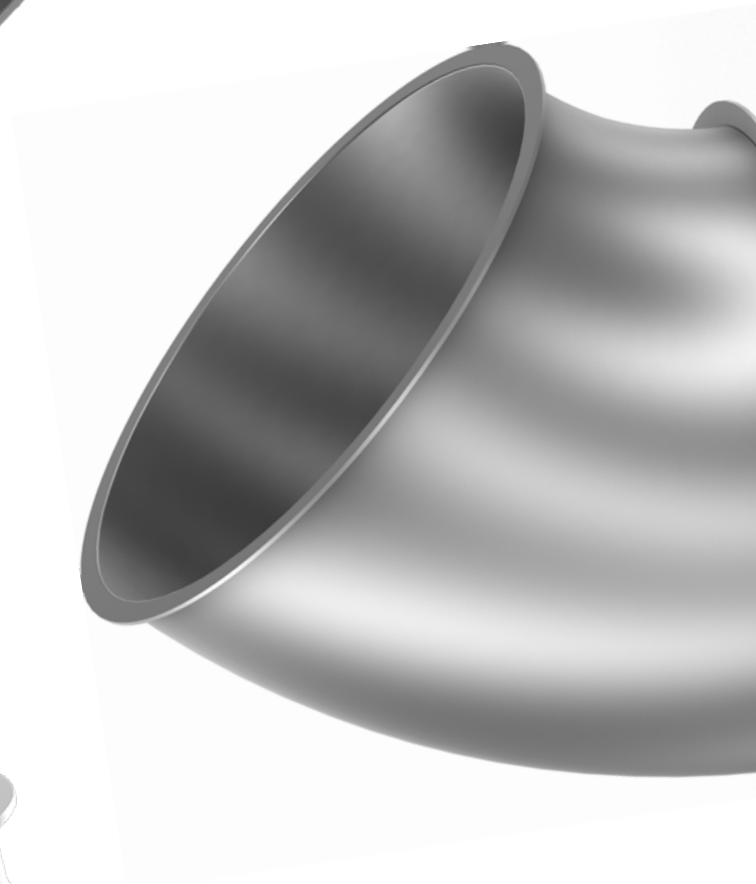
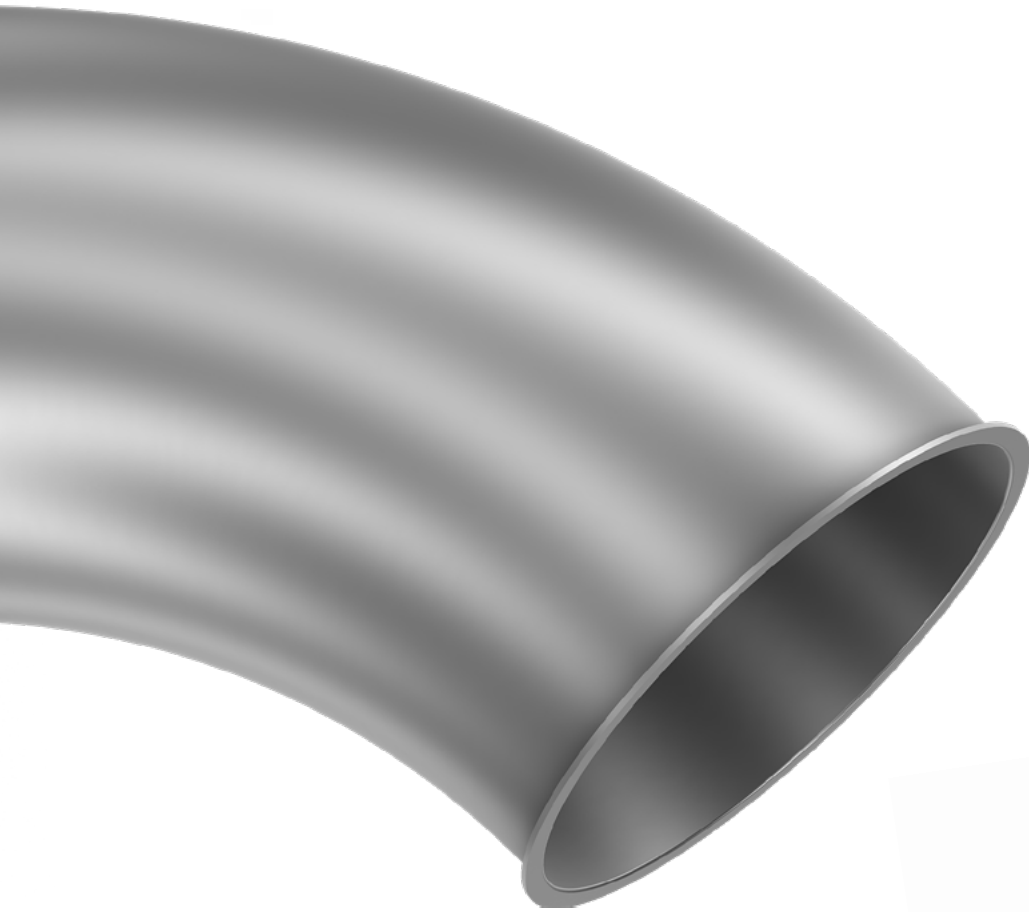
DN	Segments		Bends			
	5°	15°, 30°, 45°	R = 1D 90°	R = 2D 30°	R = 2D 90°, 60°, 45°	Large radii 15°, 30°, 45°, 60°, 90°
60	■	■	■	■	■	
80–120	■	■	■	■	■	■
140	■	■	■	■	■	
150	■	■	■	■	■	■
160	■	■	■	■	■	
175	■	■	■	■	■	■
200	■	■	■	■	■	■
224	■	■	■	■	■	
250	■	■	■	■	■	■
280	■	■	■	■	■	
300	■	■	■	■	■	■
315	■	■	■	■	■	
350–400	■	■	■	■	■	
450–630	■	■	■	■	■	

■ Lobster back version, segments/bends made up of one or more lobster back segments with a straight back

■ Pressed segment version, pressed segments and bends

■ Pressed segments and bends, bends made up of several pressed segments

■ Bends with larger radii, drawn from longitudinally welded pipes

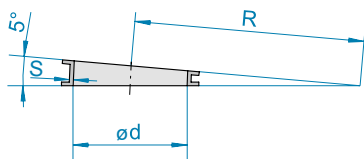


4



THE RANGE OF PIPE BENDS

Segments



SEGMENTS 5°

1110

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11081300	7,80				
100	99	320	0.20	11101300	7,80	12101300	9,40		
120	119	360	0.25	11121300	8,00	12121300	10,30	13121300	21,80
140	135	500	0.35	11141300*	8,60				
150	149	530	0.45	11151300	8,60	12151300	12,20	13151300	24,10
160	159	300	0.50	11161300*	12,20				
175	174	560	0.55	11171300	12,20	12171300	15,30	13171300	29,70
200	199	650	0.65	11201300	13,20	12201300	15,80	13201300	32,00
224	219	610	0.70	11221300*	16,80				
250	249	550	0.75	11251300	16,80	12251300	20,90	13251300	36,70
280	276	560	0.90	11281300*	29,70				
300	299	625	0.95	11301300	27,10	12301300	30,40	13301300	42,90
315	311	600	0.95	11311300*	32,60				
350	349	350	0.80	11351300*	35,70	12351300	43,40	13351300	51,70
400	398	420	0.95	11401300*	38,70	12401300	54,60	13401300	59,60
450	448	450	1.40	11451300*	48,60	12451300	57,00	13451300	72,90
500	498	500	1.45	11501300*	56,30	12501300	64,90	13501300	77,50
560	558	560	1.60			12561300	74,00	13561300	94,20
630	628	630	2.15			12631300	88,80	13631300	110,00

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel F	2 mm stainless steel F		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11082300	9,00			11083300	20,80		
100	99	320	0.20	11102300	9,00	12102300	11,50	11103300	20,80	12103300	23,50
120	119	360	0.25	11122300	9,90	12122300	13,10	11123300	23,50	12123300	26,60
140	135	500	0.35	11142300*	10,30	12142300	14,10	11143300*	24,60		
150	149	530	0.45	11152300	10,30	12152300	14,10	11153300	24,60	12153300	36,40
160	159	300	0.50	11162300*	14,90			11163300*	31,80		
175	174	560	0.55	11172300	14,90	12172300	20,70	11173300	31,80	12173300	45,90
200	199	650	0.65	11202300	15,60	12202300	21,60	11203300	35,60	12203300	50,90
224	219	610	0.70	11222300*	21,50	12222300	29,50	11223300*	46,00		
250	249	550	0.75	11252300	21,50	12252300	29,50	11253300	46,20	12253300	64,60
280	276	560	0.90	11282300*	40,20			11283300*	81,70		
300	299	625	0.95	11302300	29,80	12302300	41,40	11303300	54,80	12303300	82,90
315	311	600	0.95	11312300*	43,40			11313300*	83,70		
350	349	350	0.80	11352300*	44,60			11353300	90,70	12353300	97,10
400	398	420	0.95	11402300*	50,80			11403300	101,50	12403300	123,50
450	448	450	1.40	11452300*	60,90			11453300	115,50	12453300	131,00
500	498	500	1.45	11502300*	67,20			11503300	128,50	12503300	145,00
560	558	560	1.60			12562300	89,80			12563300	170,00
630	628	630	2.15			12632300	107,50			12633300	202,50

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

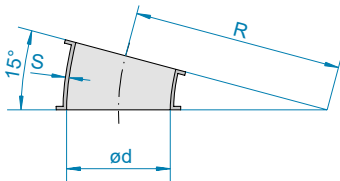
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

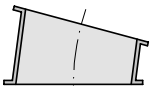


SEGMENTS 15°

1120



1 pressed segment 15°



1 lobster back segment 15°

Powder-coated (dimensions for 2 mm pipework)

DN	Ød	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11061310*	22,20				
80	76	105	0.10	11081310	7,90				
100	99	120	0.20	11101310	7,90	12101310	9,40		
120	119	140	0.30	11121310	8,30	12121310	10,30	13121310	22,40
140	135	185	0.30	11141310*	8,80				
150	149	240	0.55	11151310	8,80	12151310	12,50	13151310	24,70
160	159	160	0.60	11161310*	12,50				
175	174	280	0.75	11171310	12,50	12171310	15,30	13171310	30,30
200	199	270	0.80	11201310	13,20	12201310	15,80	13201310	32,80
224	219	220	0.55	11221310*	16,90				
250	249	275	1.05	11251310	16,90	12251310	20,90	13251310	38,50
280	276	280	1.25	11281310*	29,80				
300	299	310	1.30	11301310	27,90	12301310	30,40	13301310	44,20
315	311	315	1.60	11311310*	32,80				
350	349	350	1.75	11351310*	37,00	12351310	43,40	13351310	56,90
400	398	400	2.35	11401310*	40,10	12401310	54,60	13401310	63,80
450	448	450	2.95	11451310*	49,90	12451310	57,00	13451310	77,30
500	498	500	3.50	11501310*	58,00	12501310	64,90	13501310	82,60
560	558	560	4.40			12561310	74,00	13561310	100,00
630	628	630	5.60			12631310	88,80	13631310	116,00

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ød	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11062310*	24,80			11063310*	45,40		
80	76	105	0.10	11082310	9,10			11083310	20,80		
100	99	120	0.20	11102310	9,10	12102310	12,60	11103310	20,80	12103310	23,50
120	119	140	0.30	11122310	9,90	12122310	13,70	11123310	23,50	12123310	26,60
140	135	185	0.30	11142310*	10,30	12142310	14,10	11143310*	24,60		
150	149	240	0.55	11152310	10,30	12152310	14,10	11153310	24,60	12153310	36,60
160	159	160	0.60	11162310*	14,90			11163310*	31,80		
175	174	280	0.75	11172310	14,90	12172310	20,70	11173310	31,80	12173310	46,40
200	199	270	0.80	11202310	15,60	12202310	21,60	11203310	35,60	12203310	52,20
224	219	220	0.55	11222310*	21,50	12222310	29,50	11223310*	51,60		
250	249	275	1.05	11252310	21,50	12252310	29,50	11253310	51,60	12253310	66,30
280	276	280	1.25	11282310*	40,30			11283310*	82,70		
300	299	310	1.30	11302310	29,80	12302310	41,40	11303310	56,00	12303310	84,50
315	311	315	1.60	11312310*	43,60			11313310*	85,40		
350	349	350	1.75	11352310*	44,60			11353310	91,70	12353310	99,40
400	398	400	2.35	11402310*	52,50			11403310	102,50	12403310	126,50
450	448	450	2.95	11452310*	62,70			11453310	116,50	12453310	133,50
500	498	500	3.50	11502310*	69,00			11503310	129,50	12503310	149,00
560	558	560	4.40				12562310	89,80		12563310	174,00
630	628	630	5.60				12632310	107,50		12633310	207,50

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

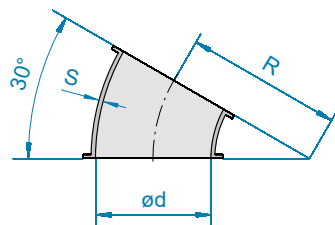
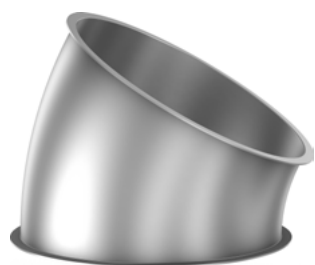
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

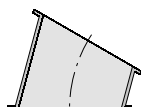


THE RANGE OF PIPE BENDS

Segments



1 pressed segment 30°



1 lobster back segment 30°

SEGMENTS 30°

1130

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	85	0.10	11081320	8,60				
100	99	85	0.30	11101320	8,60	12101320	10,40		
120	119	100	0.40	11121320	9,00	12121320	10,90	13121320	23,80
140	135	140	0.45	11141320*	10,60				
150	149	165	0.70	11151320	10,60	12151320	14,00	13151320	25,30
160	159	160	0.85	11161320*	14,20				
175	174	208	1.05	11171320	14,20	12171320	20,20	13171320	31,10
200	199	175	1.05	11201320	14,60	12201320	20,20	13201320	33,60
224	219	195	0.95	11221320*	18,80				
250	249	224	1.55	11251320	18,80	12251320	24,80	13251320	41,90
280	276	283	2.30	11281320*	31,80				
300	299	230	1.90	11301320	29,30	12301320	32,60	13301320	49,70
315	311	315	2.95	11311320*	38,10				
350	349	350	3.30	11351320*	44,30	12351320	50,50	13351320	62,40
400	398	400	4.10	11401320*	48,10	12401320	64,20	13401320	81,00
450	448	450	5.60	11451320*	56,80	12451320	67,50	13451320	84,10
500	498	500	6.60	11501320*	64,20	12501320	73,10	13501320	95,10
560	558	560	8.50			12561320	87,20	13561320	112,50
630	628	630	10.50			12631320	100,50	13631320	130,50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel F		2 mm stainless steel F	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	85	0.10	11082320	9,40			11083320	22,30		
100	99	85	0.30	11102320	9,40	12102320	13,30	11103320	22,30	12103320	27,20
120	119	100	0.40	11122320	10,20	12122320	13,90	11123320	24,30	12123320	32,00
140	135	140	0.45	11142320*	11,80	12142320	16,80	11143320*	27,60		
150	149	165	0.70	11152320	11,80	12152320	16,80	11153320	27,60	12153320	41,60
160	159	160	0.85	11162320*	19,10			11163320*	37,90		
175	174	208	1.05	11172320	19,10	12172320	26,30	11173320	37,90	12173320	59,60
200	199	175	1.05	11202320	19,30	12202320	26,90	11203320	39,70	12203320	63,20
224	219	195	0.95	11222320*	25,40	12222320	35,50	11223320*	52,30		
250	249	224	1.55	11252320	25,40	12252320	35,50	11253320	52,30	12253320	79,00
280	276	283	2.30	11282320*	45,70			11283320*	91,20		
300	299	230	1.90	11302320	33,40	12302320	46,80	11303320	59,70	12303320	94,60
315	311	315	2.95	11312320*	49,50			11313320*	94,10		
350	349	350	3.30	11352320*	52,30			11353320	101,00	12353320	116,00
400	398	400	4.10	11402320*	60,90			11403320	117,50	12403320	148,00
450	448	450	5.60	11452320*	69,50			11453320	134,50	12453320	156,50
500	498	500	6.60	11502320*	78,50			11503320	146,50	12503320	169,50
560	558	560	8.50			12562320	105,50			12563320	200,00
630	628	630	10.50			12632320	122,00			12633320	231,00

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

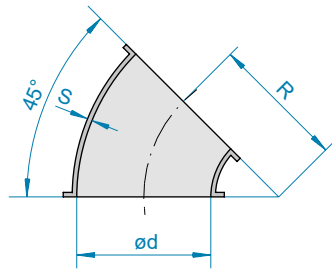
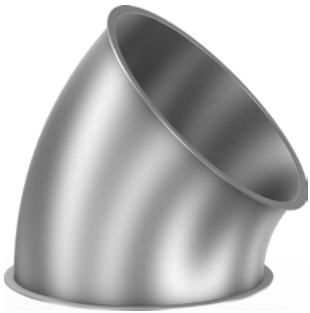
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

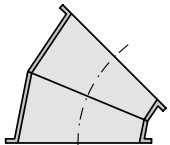


SEGMENTS 45°

1140



1 pressed segment 45°





2 lobster back segments:
2x22.5°

Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	74	0.15	11081330	9,20				
100	99	78	0.35	11101330	9,20	12101330	10,90		
120	119	85	0.50	11121330	10,20	12121330	12,60	13121330	25,30
140	135	112	0.50	11141330*	11,50				
150	149	137	0.90	11151330	11,50	12151330	15,50	13151330	28,60
160	159	160	1.00	11161330*	16,00				
175	174	175	1.20	11171330*	16,00	12171330	21,70	13171330	33,10
200	199	190	1.55	11201330*	17,90	12201330	25,00	13201330	38,10
224	219	160	1.10	11221330*	22,70				
250	249	195	1.95	11251330*	22,70	12251330	29,30	13251330	49,30
280	276	280	3.55	11281330*	80,90				
300	299	205	2.50	11301330*	33,80	12301330	39,90	13301330	58,70
315	311	315	4.30	11311330*	82,40				
350	349	350	4.90	11351330*	89,60	12351330	112,50	13351330	126,00
400	398	400	6.50	11401330*	103,00	12401330	126,00	13401330	156,00
450	448	450	8.15	11451330*	115,00	12451330	145,50	13451330	180,50
500	498	500	10.00	11501330*	135,00	12501330	161,00	13501330	197,00
560	558	560	12.40			12561330	195,00	13561330	238,50
630	628	630	16.10			12631330	236,50	13631330	284,50


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	74	0.15	11082330	10,30			11083330	23,70		
100	99	78	0.35	11102330	10,30	12102330	14,10	11103330	23,70	12103330	30,60
120	119	85	0.50	11122330	11,10	12122330	15,70	11123330	27,80	12123330	37,50
140	135	112	0.50	11142330*	12,20	12142330	17,00	11143330*	33,90		
150	149	137	0.90	11152330	12,20	12152330	17,00	11153330	33,90	12153330	50,80
160	159	160	1.00	11162330*	19,20			11163330*	44,00		
175	174	173	1.20	11172330*	19,20	12172330	26,70	11173330*	44,00	12173330	72,20
200	199	190	1.55	11202330*	26,60	12202330	36,60	11203330*	55,40	12203330	79,90
224	219	160	1.10	11222330*	30,30	12222330	41,80	11223330*	64,40		
250	249	195	1.95	11252330*	30,30	12252330	41,80	11253330*	64,40	12253330	100,50
280	276	280	3.55	11282330*	99,30			11283330*	157,50		
300	299	205	2.50	11302330*	44,40	12302330	56,40	11303330*	83,40	12303330	139,50
315	311	315	4.30	11312330*	101,00			11313330*	161,50		
350	349	350	4.90	11352330*	110,00			11353330*	183,00	12353330	225,50
400	398	400	6.50	11402330*	123,50			11403330*	234,00	12403330	264,00
450	448	450	8.15	11452330*	136,50			11453330*	262,50	12453330	308,50
500	498	500	10.00	11502330*	161,00			11503330*	297,50	12503330	338,00
560	558	560	12.40			12562330	228,50			12563330	401,00
630	628	630	16.10			12632330	277,00			12633330	480,00

*1.5 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

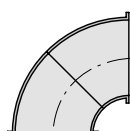
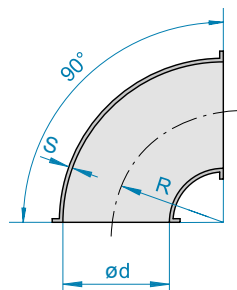
 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar

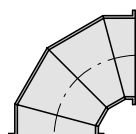


THE RANGE OF PIPE BENDS

Bends



■ 2 pressed segments 45°



■ 4 lobster back segments: 2x30° / 2x15°

BENDS R = 1D, 90°

1220

- DN 140, 224 and 300 mm R ≠ 1 D

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11081339	39,30				
100	100	100	0.43	11101339	39,30				
120	120	120	1.00	11121339	49,50				
140	136	125	1.20			11141339	58,50		
150	150	150	0.92	11151339	58,50				
160	159	160	1.55			11161339	68,90		
175	174	175	2.00			11171339	68,90		
200	200	200	2.42			11201339	70,10		
224	220	165	2.60			11221339	106,50		
250	250	250	4.00			11251339	106,50		
280	277	280	5.00			11281339	187,00		
300	300	210	5.00			11301339	130,50		
315	312	315	6.20			11311339	192,00		
350	350	350	8.00			11351339	206,50		
400	399	400	10.00			11401339	248,50		
450	449	450	13.00			11451339	266,00		
500	499	500	16.00			11501339	311,50		
560	558	560	26.00					12561339	354,50
630	628	630	23.00					12631339	416,00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		1.5 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11082339	46,00			11083339	82,10		
100	100	100	0.43	11102339	46,00			11103339	84,40		
120	120	120	1.00	11122339	56,00			11123339	96,50		
140	136	125	1.20			11142339	67,10	11143339*	148,50		
150	150	150	0.92	11152339	67,10			11153339	148,50		
160	159	320	1.55			11162339	83,50	11163339*	153,50		
175	174	175	2.00			11172339	83,50	11173339*	153,50		
200	200	200	2.42			11202339	87,70	11203339*	181,00		
224	220	165	2.60			11222339	130,50	11223339*	204,00		
250	250	250	4.00			11252339	130,50	11253339*	204,00		
280	277	280	5.00			11282339	215,00	11283339*	337,00		
300	300	210	5.00			11302339	163,50	11303339*	238,00		
315	312	315	6.20			11312339	220,50	11313339*	349,50		
350	350	350	8.00			11352339	238,50	11353339*	385,00		
400	399	400	10.00			11402339	290,00	11403339*	445,50		
450	449	450	13.00			11452339	302,50	11453339*	522,50		
500	499	500	16.00			11502339	355,00	11503339*	595,00		
560	558	560	26.00			12562339*	444,00			12563339	703,00
630	628	630	23.00			12632339*	511,00			12633339	776,50

*2 mm

*1.5 mm

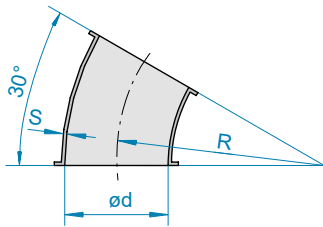
FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 3 bar

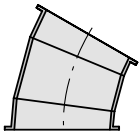


BENDS R = 2D, 30°

1230



1 pressed segment 30°



3 lobster back segments: 1x 15°/2x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11061343	23,10				
80	76	160	0.35	11081343*	22,60	12081343	24,80		
100	99	200	0.60	11101343*	24,10	12101343	25,00		
120	119	240	0.80	11121343	28,40	12121343	35,80	13121343	53,40
140	135	280	1.00	11141343	36,30	12141343	44,80		
150	149	300	1.25	11151343	36,30	12151343	44,80	13151343	62,60
160	159	320	1.50	11161343	43,00				
175	174	350	1.65	11171343	43,00	12171343	48,60	13171343	68,90
200	199	400	2.10	11201343	47,90	12201343	58,70	13201343	77,20
224	219	448	2.65	11221343	60,40	12221343	71,00		
250	249	500	3.50	11251343	60,40	12251343	71,00	13251343	100,00
280	276	560	4.40	11281343	105,00				
300	299	600	4.60	11301343	84,30	12301343	98,00	13301343	113,00
315	311	630	5.50	11311343	117,00				
350	349	700	6.35			12351343	105,50	13351343	122,50
400	398	800	8.50			12401343	125,50	13401343	138,00
450	448	900	10.70			12451343	158,00	13451343	179,50
500	498	1000	13.20			12501343	181,00	13501343	209,00
560	558	1120	15.90			12561343	215,00	13561343	252,00
630	628	1260	19.00			12631343	277,50	13631343	298,50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11062343	25,80			11063343*	47,00		
80	76	160	0.35	11082343*	24,90	12082343	29,20	11083343	48,60		
100	99	200	0.60	11102343*	26,10	12102343	30,40	11103343	49,00	12103343	68,80
120	119	240	0.80	11122343	29,50	12122343	39,40	11123343	73,90	12123343	100,50
140	135	280	1.00	11142343	38,80	12142343	51,90	11143343	91,30	12143343	129,00
150	149	300	1.25	11152343	38,80	12152343	51,90	11153343	91,30	12153343	129,00
160	159	320	1.50	11162343	45,70			11163343*	98,80		
175	174	350	1.65	11172343	45,70	12172343	55,70	11173343*	98,80	12173343	141,50
200	199	400	2.10	11202343	56,10	12202343	68,00	11203343*	117,00	12203343	169,50
224	219	448	2.65	11222343	70,30	12222343	85,60	11223343*	149,00		
250	249	500	3.50	11252343	70,30	12252343	85,60	11253343*	149,00	12253343	203,50
280	276	560	4.40	11282343	118,50			11283343*	175,50		
300	299	600	4.60	11302343	98,00	12302343	119,00	11303343*	174,50	12303343	207,50
315	311	630	5.50	11312343	133,00			11313343*	196,00		
350	349	700	6.35			12352343	128,00			12353343	211,50
400	398	800	8.50			12402343	151,50			12403343	223,50
450	448	900	10.70	11452343	166,50					12453343	310,00
500	498	1000	13.20	11502343	199,00					12503343	351,00
560	558	1120	15.90	11562343	226,50					12563343	452,50
630	628	1260	19.00	11632343	281,50					12633343	532,50

*1 mm

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

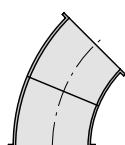
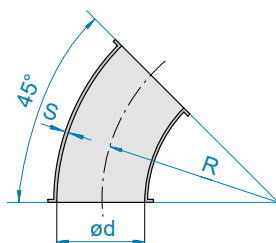
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

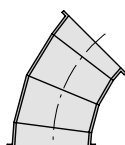


THE RANGE OF PIPE BENDS

Bends



2 pressed segments 22.5°



4 lobster back segments: 2 x 15° / 2 x 7.5°

BENDS R = 2D, 45°

1240

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11061344	24,90				
80	76	160	0.50	11081344*	26,10	12081344	33,50		
100	99	200	0.85	11101344*	28,60	12101344	33,80		
120	119	240	1.15	11121344	32,90	12121344	39,70	13121344	67,40
140	135	280	1.45	11141344	42,70	12141344	52,50		
150	149	300	1.80	11151344	42,70	12151344	52,50	13151344	77,20
160	159	320	2.00	11161344	49,30				
175	174	350	2.25	11171344	49,30	12171344	59,10	13171344	85,70
200	199	400	3.00	11201344	53,80	12201344	63,80	13201344	93,70
224	219	448	3.90	11221344	72,00	12221344	89,90		
250	249	500	4.80	11251344	72,00	12251344	89,90	13251344	135,00
280	276	560	6.55	11281344	145,50				
300	299	600	7.20	11301344	125,50	12301344	142,50	13301344	175,50
315	311	630	8.15	11311344	164,50				
350	349	700	9.80			12351344	149,50	13351344	184,50
400	398	800	12.70			12401344	189,50	13401344	224,00
450	448	900	16.00			12451344	226,00	13451344	256,00
500	498	1000	19.80			12501344	255,00	13501344	301,00
560	558	1120	23.90			12561344	300,00	13561344	360,50
630	628	1260	29.60			12631344	339,00	13631344	438,50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11062344	30,00			11063344*	47,30		
80	76	160	0.50	11082344*	32,60	12082344	38,50	11083344	64,60		
100	99	200	0.85	11102344*	34,50	12102344	38,80	11103344	65,70	12103344	97,50
120	119	240	1.15	11122344	37,90	12122344	45,60	11123344	77,50	12123344	113,00
140	135	280	1.45	11142344	48,60	12142344	60,20	11143344	105,50	12143344	155,50
150	149	300	1.80	11152344	48,60	12152344	60,20	11153344	105,50	12153344	155,50
160	159	320	2.00	11162344	56,20			11163344*	122,50		
175	174	350	2.25	11172344	56,20	12172344	67,80	11173344*	122,50	12173344	183,00
200	199	400	3.00	11202344	62,50	12202344	72,80	11203344*	133,50	12203344	198,50
224	219	448	3.90	11222344	85,10	12222344	105,00	11223344*	191,00		
250	249	500	4.80	11252344	85,10	12252344	105,00	11253344*	191,00	12253344	280,50
280	276	560	6.55	11282344	166,50			11283344*	240,50		
300	299	600	7.20	11302344	142,00	12302344	172,00	11303344*	244,00	12303344	314,00
315	311	630	8.15	11312344	185,00			11313344*	267,00		
350	349	700	9.80			12352344	181,00			12353344	322,00
400	398	800	12.70			12402344	230,50			12403344	362,00
450	448	900	16.00	11452344	236,50					12453344	436,00
500	498	1000	19.80	11502344	263,50					12503344	526,00
560	558	1120	23.90	11562344	295,50					12563344	646,00
630	628	1260	29.60	11632344	363,00					12633344	768,00

*1 mm

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

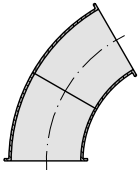
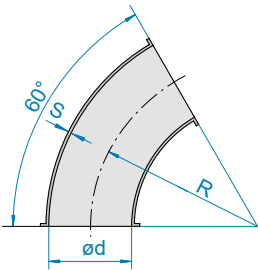
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

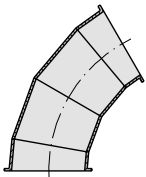


BENDS R = 2D, 60°

1250



2 pressed segments 30°



4 lobster back segments: 2x 20° / 2x 10°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11061346	27,20				
80	76	160	0.65	11081346*	38,20	12081346	39,70		
100	99	200	1.10	11101346*	38,80	12101346	40,30		
120	119	240	1.50	11121346	43,40	12121346	57,90	13121346	79,50
140	135	280	2.05	11141346	53,80	12141346	64,70		
150	149	300	2.40	11151346	53,80	12151346	64,70	13151346	88,00
160	159	320	2.80	11161346	59,50				
175	174	350	3.15	11171346	59,50	12171346	71,70	13171346	96,00
200	199	400	4.10	11201346	67,80	12201346	92,10	13201346	115,50
224	219	448	5.20	11221346	127,00	12221346	147,00		
250	249	500	6.90	11251346	127,00	12251346	147,00	13251346	208,00
280	276	560	8.80	11281346	188,00				
300	299	600	9.30	11301346	166,50	12301346	199,00	13301346	238,50
315	311	630	10.80	11311346	211,00				
350	349	700	13.00			12351346	207,50	13351346	247,50
400	398	800	16.90			12401346	239,00	13401346	305,00
450	448	900	21.30			12451346	283,00	13451346	346,00
500	498	1000	26.40			12501346	326,50	13501346	389,50
560	558	1120	31.90			12561346	419,50	13561346	494,50
630	628	1260	37.90			12631346	500,00	13631346	564,00

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11062346	31,60			11063346*	52,60		
80	76	160	0.65	11082346*	40,40	12082346	45,90	11083346	82,80		
100	99	200	1.10	11102346*	42,70	12102346	46,50	11103346	83,40	12103346	115,00
120	119	240	1.50	11122346	45,60	12122346	66,20	11123346	119,00	12123346	172,50
140	135	280	2.05	11142346	56,50	12142346	74,20	11143346	135,00	12143346	184,50
150	149	300	2.40	11152346	56,50	12152346	74,20	11153346	135,00	12153346	184,50
160	159	320	2.80	11162346	74,20			11163346*	147,00		
175	174	350	3.15	11172346	74,20	12172346	81,90	11173346*	147,00	12173346	206,00
200	199	400	4.10	11202346	82,90	12202346	105,50	11203346*	180,50	12203346	254,50
224	219	448	5.20	11222346	142,00	12222346	171,50	11223346*	261,00		
250	249	500	6.90	11252346	142,00	12252346	171,50	11253346*	261,00	12253346	409,50
280	276	560	8.80	11282346	212,50			11283346*	334,00		
300	299	600	9.30	11302346	201,00	12302346	239,00	11303346*	339,50	12303346	416,00
315	311	630	10.80	11312346	238,50			11313346*	373,00		
350	349	700	13.00			12352346	250,00			12353346	426,00
400	398	800	16.90			12402346	289,00			12403346	496,00
450	448	900	21.30	11452346	323,00					12453346	653,00
500	498	1000	26.40	11502346	363,00					12503346	704,00
560	558	1120	31.90	11562346	417,50					12563346	836,50
630	628	1260	37.90	11632346	457,00					12633346	982,00

*1 mm

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

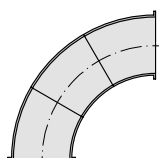
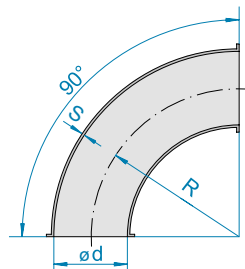
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

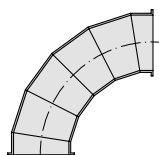


THE RANGE OF PIPE BENDS

Bends



3 pressed segments 30°



6 lobster back segments: 4 x 18° / 2 x 9°

BENDS R = 2D, 90°

1260

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11061349	27,60				
80	76	160	0.95	11081349*	40,90	12081349	46,80		
100	99	200	1.55	11101349*	41,60	12101349	47,90		
120	119	240	2.20	11121349	51,00	12121349	59,60	13121349	105,50
140	135	280	3.05	11141349	64,60	12141349	80,10		
150	149	300	3.50	11151349	64,60	12151349	80,10	13151349	124,00
160	159	320	4.00	11161349	69,30				
175	174	350	4.60	11171349	69,30	12171349	89,80	13171349	130,50
200	199	400	6.10	11201349	78,50	12201349	109,00	13201349	181,00
224	219	448	7.80	11221349	159,00	12221349	193,00		
250	249	500	9.70	11251349	159,00	12251349	193,00	13251349	316,00
280	276	560	12.70	11281349	269,50				
300	299	600	13.50	11301349	229,50	12301349	265,00	13301349	369,50
315	311	630	16.30	11311349	302,00				
350	349	700	19.60			12351349	286,50	13351349	382,00
400	398	800	25.00			12401349	334,50	13401349	426,50
450	448	900	32.00			12451349	450,50	13451349	523,50
500	498	1000	39.30			12501349	509,00	13501349	611,50
560	558	1120	47.90			12561349	585,00	13561349	643,00
630	628	1260	56.90			12631349	670,50	13631349	813,50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11062349	32,60			11063349*	55,00		
80	76	160	0.95	11082349*	47,60	12082349	53,50	11083349	97,30		
100	99	200	1.55	11102349*	48,80	12102349	55,10	11103349	97,30	12103349	148,00
120	119	240	2.20	11122349	58,50	12122349	69,00	11123349	125,00	12123349	184,50
140	135	280	3.05	11142349	71,00	12142349	91,20	11143349	172,50	12143349	255,00
150	149	300	3.50	11152349	71,00	12152349	91,20	11153349	172,50	12153349	255,00
160	159	320	4.00	11162349	83,80			11163349*	193,00		
175	174	350	4.60	11172349	83,80	12172349	103,00	11173349*	193,00	12173349	284,00
200	199	400	6.10	11202349	102,00	12202349	124,50	11203349*	213,00	12203349	315,50
224	219	448	7.80	11222349	189,50	12222349	223,50	11223349*	402,50		
250	249	500	9.70	11252349	189,50	12252349	223,50	11253349*	402,50	12253349	547,50
280	276	560	12.70	11282349	305,50			11283349*	512,50		
300	299	600	13.50	11302349	295,50	12302349	318,00	11303349*	534,50	12303349	565,00
315	311	630	16.30	11312349	341,00			11313349*	571,50		
350	349	700	19.60			12352349	347,00			12353349	589,50
400	398	800	25.00			12402349	405,50			12403349	700,50
450	448	900	32.00	11452349	491,50					12453349	891,50
500	498	1000	39.30	11502349	555,50					12503349	1068,00
560	558	1120	47.90	11562349	638,00					12563349	1280,00
630	628	1260	56.90	11632349	716,50					12633349	1467,00

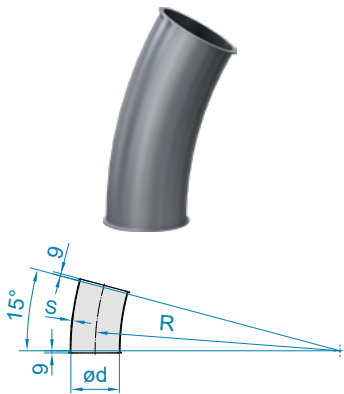
*1 mm

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



BENDS WITH LARGE RADII, 15°

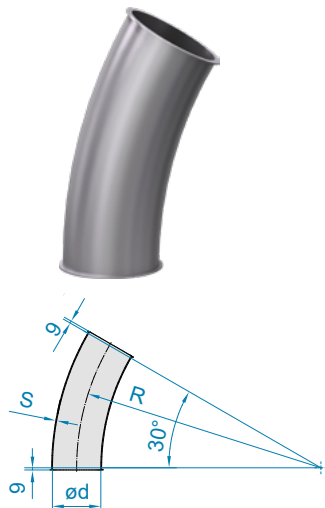
1262

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	0.70	120813511	160,00	120833511	169,50	
100	99	500	0.85	121013511	203,50	121033511	253,00	
120	119	600	1.60	121213511	217,00	121233511	261,00	
150	149	750	1.70	131513511*	263,50	121533511	305,00	
175	175	875	2.40	131713511*	407,00	121733511	497,50	
200	199	1000	4.50	132013511*	427,50	132033511*	601,50	
250	249	1000	5.60	132513511*	507,50	132533511*	902,00	
300	299	1200	7.90	133013511*	771,50	133033511*	1253,00	

*3 mm



BENDS LARGE RADII, 30°

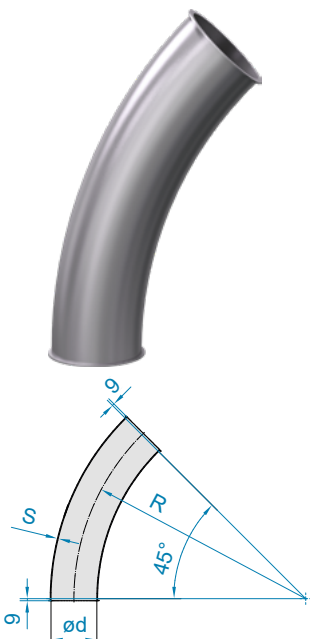
1264

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	1.20	120813531	177,00	120833531	200,00	
100	99	500	1.50	121013531	228,50	121033531	289,00	
120	119	600	2.15	121213531	247,50	121233531	316,00	
150	149	750	3.25	131513531*	317,00	121533531	367,00	
175	175	875	4.40	131713531*	486,50	121733531	608,50	
200	199	1000	8.50	132013531*	506,00	132033531*	744,50	
250	249	1000	10.60	132513531*	585,00	132533531*	1108,00	
300	299	1200	15.10	133013531*	889,50	133033531*	1540,00	

*3 mm



BENDS LARGE RADII, 45°

1266

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	1.70	120813541	223,50	120833541	247,50	
100	99	500	2.20	121013541	262,00	121033541	343,00	
120	119	600	3.10	121213541	291,00	121233541	405,50	
150	149	750	4.75	131513541*	402,00	121533541	470,00	
175	175	875	6.40	131713541*	610,00	121733541	791,00	
200	199	1000	12.50	132013541*	630,00	132033541*	988,00	
250	249	1000	15.60	132513541*	698,00	132533541*	1458,00	
300	299	1200	22.30	133013541*	1061,00	133033541*	2020,00	

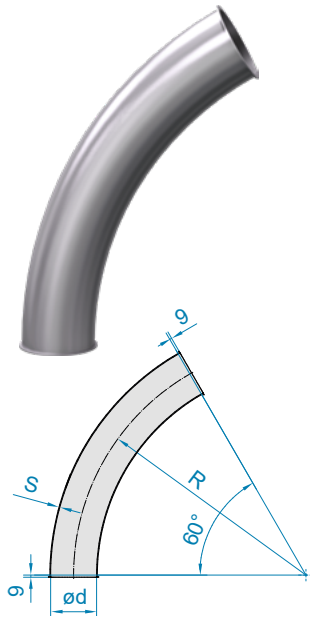
*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THE RANGE OF PIPE BENDS

Bends



BENDS LARGE RADII, 60°

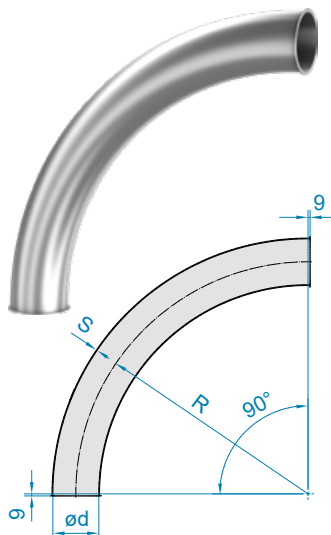
1268

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	2.20	120813561	254,50	120833561	261,50	
100	99	500	2.90	121013561	308,00	121033561	394,00	
120	119	600	4.10	121213561	321,50	121233561	444,00	
150	149	750	6.30	131513561*	464,00	121533561	537,50	
175	175	875	8.50	131713561*	684,50	121733561	854,50	
200	199	1000	16.50	132013561*	717,50	132033561*	1232,00	
250	249	1000	20.60	132513561*	744,50	132533561*	1801,00	
300	299	1200	29.50	133013561*	1349,00	133033561*	2531,00	

*3 mm



BENDS LARGE RADII, 90°

1270

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.10	120813591	305,00	120833591	344,50	
100	99	500	3.80	121013591	417,50	121033591	527,50	
120	119	600	5.30	121213591	451,50	121233591	575,50	
150	149	750	8.00	131513591*	554,00	121533591	641,50	
175	175	875	12.50	131713591*	816,00	121733591	1021,00	
200	199	1000	27.30	132013591*	816,00	132033591*	1288,00	
250	249	1000	34.10	132513591*	1101,00	132533591*	1881,00	
300	299	1200	48.10	133013591*	1624,00	133033591*	2591,00	

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Adjustable elbows / pipe ball joints

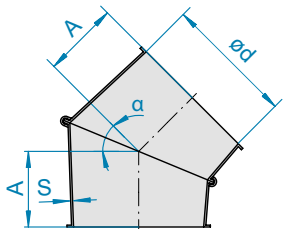


ADJUSTABLE ELBOWS

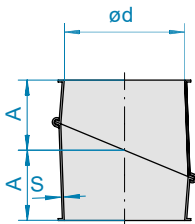
1145

- Version with galvanised pull-ring and U-shaped seal
- Pre-assembled in the factory
- 2 segments can also be adjusted by counter-rotating

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)



DN	Ø d	A	α	kg	1.5 mm powder-coated with NBR		1.5 mm powder-coated with EPDM		1.5 mm stainless steel with silicone, blue		FD
					Item no.	€	Item no.	€	Item no.	€	
100	100	70	55°	1.50	1110133503	55,30	1110133502	56,40	1110333501	75,70	
120	120	60	45°	1.60	1112133503	57,10	1112133502	58,40	1112333501	78,30	
150	150	80	45°	2.40	1115133503	61,60	1115133502	62,80	1115333501	91,80	
175	175	100	45°	3.00	1117133503	71,80	1117133502	72,90	1117333501	109,00	
200	200	120	45°	3.50	1120133503	76,40	1120133502	77,90	1120333501	121,00	
250	250	140	45°	4.60	1125133503	89,40	1125133502	91,00	1125333501	153,50	



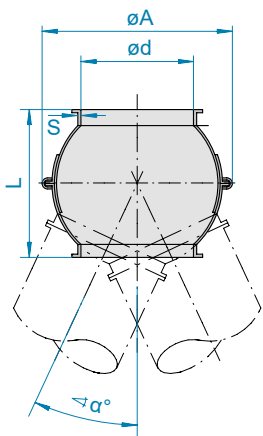
PIPE BALL JOINTS

2125

- Only suitable for coarse-grained bulk goods



Galvanised and stainless steel (dimensions for 2 mm pipework)



DN	Ø d	Ø A	α	L	kg	2 mm electro-galvanised		2 mm stainless steel		F
						Item no.	€	Item no.	€	
100	99	150	25°	130	1.50	12102730	97,40	12103730	184,50	
120	119	150	15°	115	1.60	12122730	102,50	12123730	239,00	
150	149	200	18°	160	2.35	12152730	138,00	12153730	266,50	
175	174	250	25°	200	3.70	12172730	193,50	12173730	376,00	
200	199	250	15°	170	3.50	12202730	204,50	12203730	391,00	
250	249	300	16°	190	4.60	12252730	215,50	12253730	453,00	

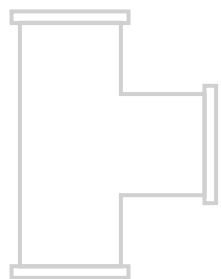
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



JACOB BRANCH PIECES:
STANDARD OR BESPOKE, YOU CHOOSE.





BRANCH PIECES

Technical information	64	
T-pieces	66	
Forks	67	
Symmetrical forks	72	



BRANCH PIECES

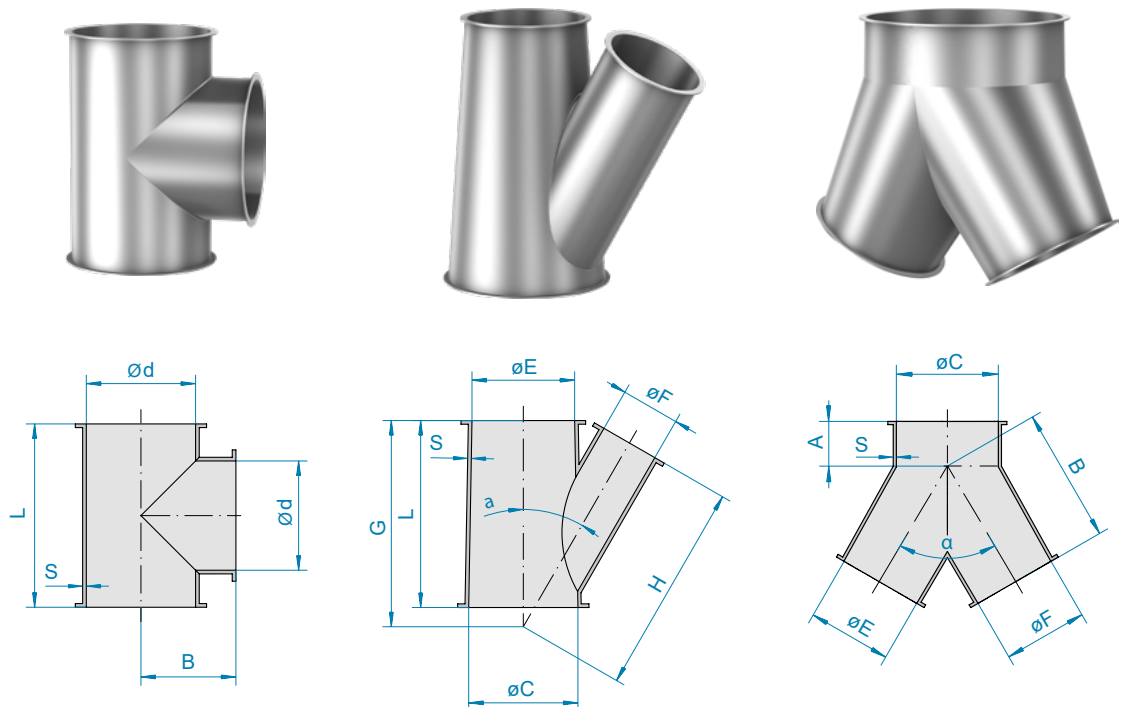
Branch pieces turn a straightforward pipe into a complex pipework system. They are therefore key elements in planning and implementation.

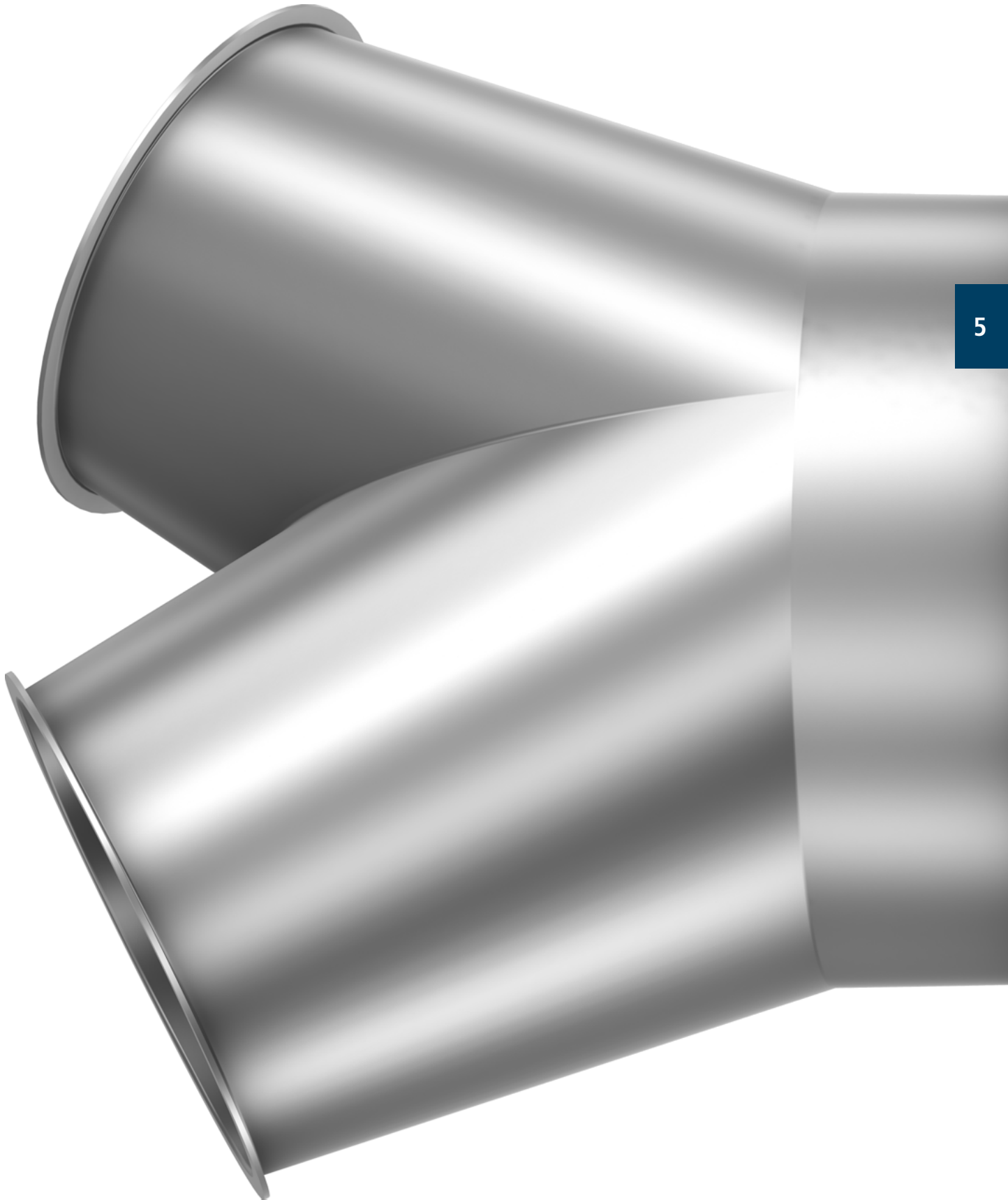
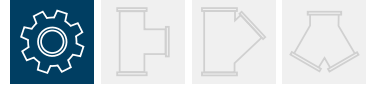
To meet the particular requirements of each system, JACOB offers a comprehensive and broad standard range which covers most requirements. If necessary, we can also manufacture individual parts to the customer's specification. This is possible due to up-to-the-minute technologies, such as fully-automated laser welding equipment, which can carry out precise customised and small-scale production as well as production on an industrial scale.

We can therefore manufacture your own individual branch piece – including a wide range of special colours as well as different flanges, special lengths and individual angles.

T-PIECES, FORKS AND SYMMETRICAL FORKS ACCORDING TO YOUR SPECIFIED DIMENSIONS

We manufacture forks, T-pieces and symmetrical forks to your specifications, if you inform us of the dimensions of the material and the wall thickness you require. Prices and delivery times on request.



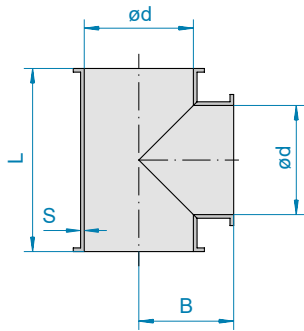


5



BRANCH PIECES

T-pieces



T-PIECES 90°

1070

- Other combinations of diameter and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	60	130	0.55	11061240	47,90			11062240	55,30		
80	77	70	150	0.60	11081240	48,30	12081240	57,50	11082240	55,30	12082240	66,30
100	100	100	200	1.00	11101240	48,80	12101240	58,00	11102240	55,60	12102240	66,70
120	120	110	220	1.20	11121240	50,60	12121240	60,70	11122240	58,60	12122240	70,30
140	136	120	240	1.40	11141240	63,30	12141240	75,90	11142240	75,60	12142240	90,80
150	150	125	250	1.65	11151240	63,30	12151240	75,90	11152240	75,60	12152240	90,80
160	159	130	260	2.86	11161240	71,70	12161240	86,00	11162240	79,50	12162240	95,30
175	175	137.5	275	2.05	11171240	71,70	12171240	86,00	11172240	79,50	12172240	95,30
200	200	150	300	2.55	11201240	76,00	12201240	91,30	11202240	96,60	12202240	116,50
224	220	162.5	325	2.90	11221240	99,60	12221240	130,50	11222240	127,50	12222240	161,50
250	250	175	350	3.50	11251240	99,60	12251240	130,50	11252240	127,50	12252240	161,50
280	277	190	380	4.30	11281240	121,50	12281240	166,00	11282240	149,50	12282240	202,50
300	300	200	400	4.70	11301240	121,50	12301240	166,00	11302240	149,50	12302240	202,50
315	312	210	420	5.30	11311240	146,00	12311240	197,50	11312240	181,00	12312240	244,00
350	350	275	550	8.10	11351240	168,00	12351240	230,00	11352240	193,00	12352240	254,50
400	399	300	600	9.90	11401240	197,50	12401240	255,00	11402240	228,00	12402240	276,00
450	449	325	650	12.75	11451240	220,00	12451240	271,00	11452240	254,50	12452240	296,00
500	499	350	700	14.10	11501240	262,50	12501240	283,00	11502240	304,50	12502240	312,50
560	558	380	760	22.15			12561240	295,50			12562240	337,00
630	628	415	830	26.80			12631240	334,50			12632240	375,00

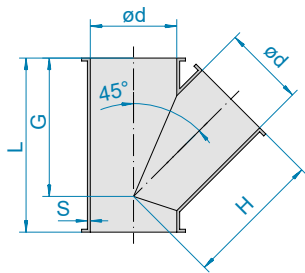
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
60	57	60	130	0.55	11063240	112,50		
80	77	70	150	0.60	11083240	113,00	12083240	139,00
100	100	100	200	1.00	11103240	113,50	12103240	140,00
120	120	110	220	1.20	11123240	119,00	12123240	150,00
140	136	120	240	1.40	11143240	138,50	12143240	198,50
150	150	125	250	1.65	11153240	138,50	12153240	198,50
160	159	130	260	2.86	11163240	194,50	12163240	258,50
175	175	137.5	275	2.05	11173240	194,50	12173240	258,50
200	200	150	300	2.55	11203240	206,50	12203240	278,00
224	220	162.5	325	2.90	11223240	223,50	12223240	258,50
250	250	175	350	3.50	11253240	223,50	12253240	291,50
280	277	190	380	4.30	11283240	239,50	12283240	356,00
300	300	200	400	4.70	11303240	239,50	12303240	356,00
315	312	210	420	5.30	11313240	263,50	12313240	403,00
350	350	275	550	8.10	11353240	284,00	12353240	424,00
400	399	300	600	9.90	11403240	311,00	12403240	480,00
450	449	325	650	12.75	11453240	339,50	12453240	538,00
500	499	350	700	14.10	11503240	367,00	12503240	610,50
560	558	380	760	22.15			12563240	650,00
630	628	415	830	26.80			12633240	706,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar

T-pieces



FORKS 45°

1050

- Other combinations of diameters available on request
- Conical forks available on request
- From DN 350 mm, dimensions for 2 mm pipework
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11061220	41,70				
80	77	123	137	160	0.75	11081220	42,00	12081220	49,60		
100	100	177	176	215	1.15	11101220	42,40	12101220	49,90		
120	120	187	185	240	1.20	11121220	45,20	12121220	53,10	13121220	78,00
140	136	216	219	280	1.60	11141220	54,80	12141220	62,50		
150	150	234	231	300	2.10	11151220	54,80	12151220	62,50	13151220	89,20
160	159	251	251	320	3.60	11161220	64,80	12161220	82,80		
175	175	269	266	340	2.20	11171220	64,80	12171220	82,80	13171220	99,10
200	200	309	306	390	4.10	11201220	80,70	12201220	95,50	13201220	105,50
224	220	334	336	420	5.70	11221220	94,80	12221220	128,00		
250	250	358	352	450	5.40	11251220	94,80	12251220	128,00	13251220	151,00
280	277	400	400	500	6.90	11281220	118,00	12281220	160,00		
300	300	418	412	520	7.80	11301220	118,00	12301220	160,00	13301220	200,00
315	312	450	450	560	8.70	11311220	143,50	12311220	172,00		
350	349	498	472	615	15.00	11351220	166,50	12351220	189,50	13351220	269,00
400	398	557	533	685	17.75	11401220	210,50	12401220	259,50	13401220	375,50
450	448	662	623	800	22.80	11451220	258,50	12451220	304,50	13451220	440,50
500	498	701	674	850	27.20	11501220	304,50	12501220	333,50	13501220	487,00
560	558	789	786	950	38.00			12561220	385,50	13561220	563,50
630	628	885	890	1060	48.00			12631220	456,50	13631220	664,50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel
						Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11062220	46,30			11063220 *	74,90
80	77	123	137	160	0.75	11082220	46,30	12082220	55,60	11083220	74,90
100	100	177	176	215	1.15	11102220	46,60	12102220	56,60	11103220	75,10
120	120	187	185	240	1.20	11122220	51,30	12122220	62,10	11123220	97,10
140	136	216	219	280	1.60	11142220	63,90	12142220	74,90	11143220	135,00
150	150	234	231	300	2.10	11152220	63,90	12152220	74,90	11153220	135,00
160	159	251	251	320	3.60	11162220	80,40	12162220	105,50	11163220	168,50
175	175	269	266	340	2.20	11172220	80,40	12172220	105,50	11173220	168,50
200	200	309	306	390	4.10	11202220	93,90	12202220	115,00	11203220	181,50
224	220	334	336	420	5.70	11222220	112,00	12222220	156,00	11223220	241,00
250	250	358	352	450	5.40	11252220	112,00	12252220	156,00	11253220	241,00
280	277	400	400	500	6.90	11282220	142,00	12282220	197,50	11283220 *	276,00
300	300	418	412	520	7.80	11302220	142,00	12302220	197,50	11303220	276,00
315	312	450	450	560	8.70	11312220	173,50	12312220	243,00	11313220 *	291,50
350	349	498	472	615	15.00	11352220	206,50	12352220	288,50	11353220 *	307,50
400	398	557	533	685	17.75	11402220	256,00	12402220	358,50	11403220 *	429,50
450	448	662	623	800	22.80	11452220	311,00	12452220	435,00	11453220 *	511,00
500	498	701	674	850	27.20	11502220	363,50	12502220	509,50	11503220 *	559,00
560	558	789	786	950	38.00			12562220	592,00		
630	628	885	890	1060	48.00			12632220	711,00		

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

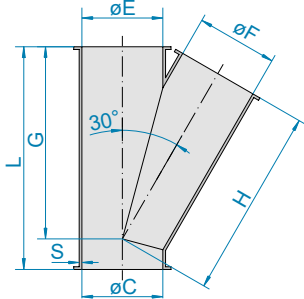
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

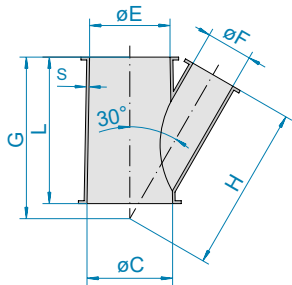


BRANCH PIECES

T-pieces



Fork 30°



Conical fork 30°

Shock explosion proof tested up to 3 bar

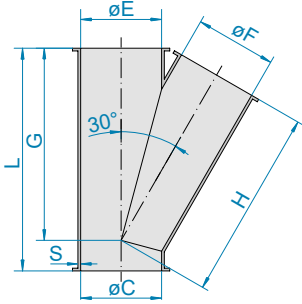
FORKS 30°

1060/1080

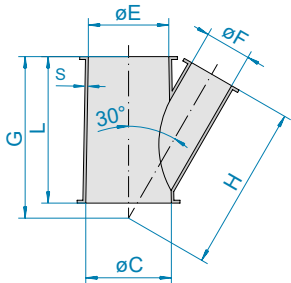
- Diameters C, E, F = nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- Other combinations of diameter, angles and wall thickness available on request
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

Powder-coated (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
60-60-60	170	170	200	0.80	11061230	44,90				
80-60-60	170	170	200	0.95	11081255	45,20				
80-80-80	209	216	240	1.32	11081230	45,30				
100-80-80	237	236	250	1.25	11101255	73,90				
100-100-80	239	248	250	1.35	11101258	82,90				
100-100-100	262	248	300	1.70	11101230	45,60	12101230	51,90		
120-80-80	258	259	255	1.35	11121286	82,90				
120-100-80	260	261	255	1.45	11121257	79,90				
120-100-100	267	267	290	1.75	11121255	89,00				
120-120-80	256	258	250	1.50	11121258	85,60				
120-120-120	299	296	340	2.20	11121230	49,90	12121230	56,40	13121230	92,80
140-100-100	290	292	300	1.95	11141255	97,20				
140-120-80	274	278	255	1.65	11141257	90,10				
140-120-100	291	293	300	2.00	11141256	91,80				
140-140-80	275	284	255	1.70	11141258	90,90				
140-140-140	336	334	390	2.80	11141230	59,40	12141230	74,90		
150-100-100	291	294	290	2.10	11151254	86,50				
150-120-100	293	296	290	2.05	11151256	97,60				
150-120-120	323	324	340	2.45	11151255	105,50				
150-140-80	286	292	255	1.75	11151287	95,00				
150-150-80	282	288	250	1.85	11151258	94,50				
150-150-150	355	350	410	3.05	11151230	59,40	12151230	74,90	13151230	110,50
160-120-120	393	393	450	2.70	11161285	112,00				
160-140-80	382	390	360	2.68	11161258	96,50				
160-140-120	393	393	450	2.79	11161286	119,50				
160-150-100	393	393	450	2.46	11161257	104,00				
160-150-120	393	393	450	2.86	11161256	116,00				
160-150-150	393	393	450	3.62	11161255	128,00				
160-160-160	393	393	450	4.00	11161230	78,10	12161230	96,80		
175-120-120	343	347	340	2.70	11171285	112,00				
175-140-120	344	348	340	2.70	11171286	119,50				
175-150-80	302	311	250	1.90	11171258	96,50				
175-150-100	315	321	290	2.40	11171257	104,00				
175-150-120	345	349	340	2.80	11171256	116,00				
175-150-150	375	373	410	3.80	11171255	128,00				
175-160-100	335	343	320	2.60	11171267	109,00				
175-160-120	355	360	360	3.02	11171266	116,50				
175-160-150	395	396	430	3.80	11171268	133,00				
175-175-175	392	383	450	4.00	11171230	78,10	12171230	96,80	13171230	122,00
200-140-140	387	401	390	3.60	11201285	130,00				
200-150-120	365	373	340	2.70	11201286	123,50				
200-150-150	395	396	410	5.00	11201255	131,00				
200-160-100	394	403	360	3.19	11201268	113,50				
200-160-120	374	380	360	3.22	11201267	121,00				
200-160-150	415	416	430	4.04	11201266	138,00				
200-175-100	336	346	290	2.70	11201258	113,50				
200-175-120	366	374	340	3.10	11201257	121,00				



Fork 30°



Conical fork 30°

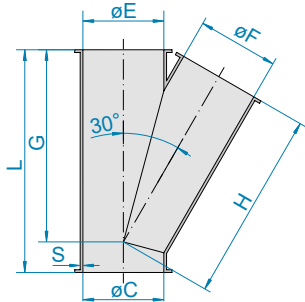
Shock explosion proof tested up to 3 bar

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
200-175-150	396	398	410	4.10	11201256	138,00				
200-200-80	330	348	255	2.50	11201253	103,00				
200-200-100	348	358	300	3.00	11201254	115,50				
200-200-200	463	457	530	5.60	11201230	97,70	12201230	121,00	13201230	137,50
224-150-150	410	424	410	4.00	11221255	142,50				
224-160-140	444	447	430	4.20	11221266	140,50				
224-175-140	406	423	390	4.00	11221256	140,50				
224-200-100	364	377	300	3.00	11221258	127,50				
224-200-120	384	395	340	3.30	11221257	134,50				
224-224-224	510	510	580	6.90	11221230	109,00	12221230	137,50		
250-200-150	438	446	410	4.60	11251286	155,00				
250-200-160	448	453	430	4.76	11251266	160,50				
250-200-175	453	455	450	5.80	11251256	160,50				
250-200-200	503	513	530	6.10	11251255	172,00				
250-224-120	409	424	340	4.20	11251288	145,50				
250-224-140	433	455	390	4.40	11251287	154,00				
250-250-80	374	398	255	2.90	11251253	122,50				
250-250-100	392	409	300	3.50	11251254	125,50				
250-250-250	547	544	620	8.00	11251230	109,00	12251230	137,50	13251230	196,50
280-280-280	610	610	690	10.00	11281230	135,00	12281230	172,00		
300-224-224	575	584	580	7.70	11301285	203,00				
300-250-140	475	493	390	4.90	11301288	170,50				
300-250-150	476	495	410	5.30	11301258	166,50				
300-250-160	471	483	410	5.90	11301267	172,00				
300-250-175	496	505	450	5.90	11301257	172,00				
300-250-200	546	563	530	7.10	11301256	189,00				
300-250-250	587	580	620	8.70	11301255	206,50				
300-300-80	417	448	255	3.30	11301253	131,50				
300-300-100	435	459	300	4.10	11301254	139,50				
300-300-300	640	640	720	11.25	11301230	135,00	12301230	172,00	13301230	248,50
315-315-315	690	690	780	12.70	11311230	166,50	12311230	230,00		
350-250-250	627	627	620	9.60	11351255	255,50				
350-300-150	524	546	410	6.10	11351288	240,00				
350-300-200	590	613	530	7.90	11351257	240,00				
350-300-224	619	636	580	8.90	11351286	268,50				
350-300-250	630	630	620	9.90	11351256	269,50				
350-350-350	728	717	820	14.40	11351230	199,00	12351230	248,50	13351230	362,00
400-300-250	670	677	620	10.40	11401256	280,00				
400-300-300	721	724	720	12.40	11401255	300,00				
400-350-175	583	609	450	7.40	11401288	274,50				
400-350-224	663	686	580	10.20	11401287	303,50				
400-400-400	826	825	925	18.65	11401230	258,00	12401230	308,00	13401230	449,00
450-350-300	764	774	720	14.80	11451256	323,00				
450-350-350	809	811	820	17.50	11451255	341,00				
450-400-200	676	713	530	10.70	11451258	336,50				
450-400-250	716	730	620	12.80	11451257	358,50				
450-450-450	945	930	1050	23.60	11451230	321,50	12451230	375,00	13451230	548,00
500-400-350	853	861	820	18.20	11501256	441,50				
500-400-400	909	914	925	22.70	11501255	463,00				
500-450-224	749	786	580	13.00	11501288	415,00				
500-450-300	810	827	720	17.00	11501257	410,50				
500-500-500	1038	1027	1150	28.80	11501230	384,00	12501230	414,50	13501230	603,00
560-560-560	1180	1175	1300	54.00			12561230	473,00	13561230	693,00
630-630-630	1301	1304	1430	64.00			12631230	505,00	13631230	741,00

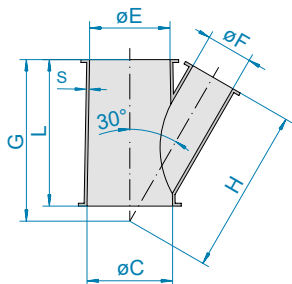


BRANCH PIECES

T-pieces



Fork 30°



Conical fork 30°

FORKS 30°

1060/1080

- Other combinations of diameter, angles and wall thickness available on request
- Diameters C, E, F: Nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

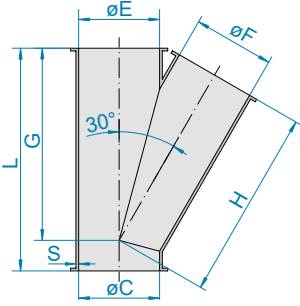
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60- 60- 60	170	170	200	0.80	11062230	52,40			11063230*	92,60		
80- 60- 60	170	170	200	0.95	11082255	54,20			11083255*	92,30		
80- 80- 80	209	216	240	1.32	11082230	54,60			11083230	92,60		
100- 80- 80	237	236	250	1.25	11102255	85,80			11103255	153,00	12103255	198,00
100-100- 80	239	248	250	1.35	11102258	95,50			11103258	160,00	12103258	202,00
100-100-100	262	248	300	1.70	11102230	55,00	12102230	64,30	11103230	92,80	12103230	153,50
120- 80- 80	258	259	255	1.35	11122286	95,50			11123286	160,00	12123286	200,00
120-100- 80	260	261	255	1.45	11122257	93,40			11123257	161,50	12123257	202,50
120-100-100	267	267	290	1.75	11122255	103,00			11123255	184,00	12123255	235,50
120-120- 80	256	258	250	1.50	11122258	98,10			11123258	168,00	12123258	214,00
120-120-120	299	296	340	2.20	11122230	60,30	12122230	69,80	11123230	117,00	12123230	176,00
140-100-100	290	292	300	1.95	11142255	114,00			11143255	200,00	12143255	273,00
140-120- 80	274	278	255	1.65	11142257	104,00			11143257	181,00	12143257	229,50
140-120-100	291	293	300	2.00	11142256	107,00			11143256	178,50	12143256	222,50
140-140- 80	275	284	255	1.70	11142258	105,50			11143258	175,50	12143258	221,50
140-140-140	336	334	390	2.80	11142230	71,70	12142230	93,00	11143230	161,50	12143230	250,50
150-100-100	291	294	290	2.10	11152254	110,00			11153254	187,00	12153254	244,50
150-120-100	293	296	290	2.05	11152256	113,50			11153256	192,50	12153256	248,50
150-120-120	323	324	340	2.45	11152255	122,50			11153255	218,00	12153255	280,00
150-140- 80	286	292	255	1.75	11152287	110,00			11153287	191,00	12153287	239,00
150-150- 80	282	288	250	1.85	11152258	109,00			11153258	181,00	12153258	229,50
150-150-150	355	350	410	3.05	11152230	71,70	12152230	93,00	11153230	161,50	12153230	250,50
160-120-120	393	393	450	2.70	11162285	131,00			11163285	227,50	12163285	287,50
160-140- 80	382	390	360	2.68	11162258	138,00			11163258	201,50	12163258	263,00
160-140-120	393	393	450	2.79	11162286	139,50			11163286	236,00	12163286	298,00
160-150-100	393	393	450	2.46	11162257	121,00			11163257	208,00	12163257	265,00
160-150-120	393	393	450	2.86	11162256	134,50			11163256	227,50	12163256	291,50
160-150-150	393	393	450	3.62	11162255	149,00			11163255	262,50	12163255	337,50
160-160-160	393	393	450	4.00	11162230	89,40	12162230	114,50	11163230	191,00	12163230	310,00
175-120-120	343	347	340	2.70	11172285	131,00			11173285	227,50	12173285	287,50
175-140-120	344	348	340	2.70	11172286	139,50			11173286	236,00	12173286	298,50
175-150- 80	302	311	250	1.90	11172258	112,50			11173258	191,00	12173258	244,00
175-150-100	315	321	290	2.40	11172257	121,00			11173257	208,00	12173257	265,00
175-150-120	345	349	340	2.80	11172256	134,50			11173256	227,50	12173256	291,50
175-150-150	375	373	410	3.80	11172255	149,00			11173255	262,50	12173255	337,50
175-160-100	335	343	320	2.60	11172267	151,50			11173267	214,50	12173267	302,50
175-160-120	355	360	360	3.02	11172266	152,50			11173266	234,50	12173266	309,50
175-160-150	395	396	430	3.80	11172268	153,00			11173268	268,50	12173268	327,00
175-175-175	392	383	450	4.00	11172230	89,40	12172230	114,50	11173230	191,00	12173230	310,00
200-140-140	387	401	390	3.60	11202285	154,00			11203285	270,00	12203285	338,50
200-150-120	365	373	340	2.70	11202286	145,50			11203286	246,50	12203286	309,50
200-150-150	395	396	410	5.00	11202255	154,00			11203255	270,00	12203255	347,50
200-160-100	394	403	360	3.19	11202268	131,50			11203268	222,50	12203268	284,50
200-160-120	374	380	360	3.22	11202267	139,50			11203267	241,00	12203267	309,50
200-160-150	415	416	430	4.04	11202266	160,50			11203266	270,00	12103266	347,00
200-175-100	336	346	290	2.70	11202258	131,50			11203258	222,50	12203258	284,50
200-175-120	366	374	340	3.10	11202257	139,50			11203257	241,00	12203257	309,50
200-175-150	396	398	410	4.10	11202256	160,50			11203256	270,00	12203256	347,00

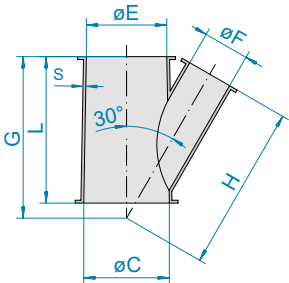
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar



■ Fork 30°



Conical fork 30°

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 1 bar

■ Shock explosion proof
tested up to 3 bar

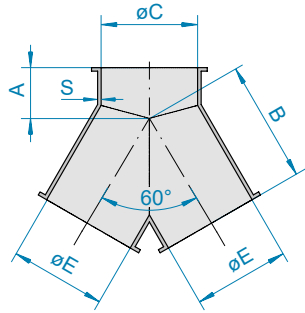
DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel F		2 mm stainless steel F	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
200-200-80	330	348	255	2.50	11202253	113,00			11203253	265,00	12203253	317,50
200-200-100	348	358	300	3.00	11202254	129,00			11203254	279,00	12203254	349,50
200-200-200	463	457	530	5.60	11202230	127,50	12202230	161,50	11203230	255,50	12203230	361,50
224-150-150	410	424	410	4.00	11222255	168,50			11223255	297,00	12223255	375,00
224-160-140	444	447	430	4.20	11222266	166,50			11223266	279,00	12223266	350,50
224-175-140	406	423	390	4.00	11222256	166,50			11223256	279,00	12223256	350,50
224-200-100	364	377	300	3.00	11222258	149,00			11223258	246,50	12223258	309,00
224-200-120	384	395	340	3.30	11222257	158,50			11223257	274,00	12223257	344,00
224-224-224	510	510	580	6.90	11222230	149,00	12222230	191,00	11223230	299,00	12223230	428,00
250-200-150	438	446	410	4.60	11252286	184,50			11253286	308,00	12253286	388,00
250-200-160	448	453	430	4.76	11252266	187,50			11253266	308,00	12253266	397,00
250-200-175	453	455	450	5.80	11252256	187,50			11253256	308,00	12253256	397,00
250-200-200	503	513	530	6.10	11252255	200,00			11253255	349,00	12253255	449,00
250-224-120	409	424	340	4.20	11252288	170,50			11253288	278,50	12253288	350,50
250-224-140	433	455	390	4.40	11252287	187,50			11253287	317,50	12253287	399,00
250-250-80	374	398	255	2.90	11252253	134,50			11253253	271,00	12253253	385,00
250-250-100	392	409	300	3.50	11252254	139,50			11253254	284,50	12253254	392,00
250-250-250	547	544	620	8.00	11252230	149,00	12252230	191,00	11253230	299,00	12253230	428,00
280-280-280	610	610	690	10.00	11282230	189,50	12282230	239,00	11283230*	356,50	12283230	543,00
300-224-224	575	584	580	7.70	11302285	244,00			11303285	433,00	12303285	544,50
300-250-140	475	493	390	4.90	11302288	199,00			11303288	323,50	12303288	408,00
300-250-150	476	495	410	5.30	11302258	193,00			11303258	328,50	12303258	410,50
300-250-160	471	483	410	5.90	11302267	200,00			11303267	338,00	12303267	434,50
300-250-175	496	505	450	5.90	11302257	200,00			11303257	338,00	12303257	434,50
300-250-200	546	563	530	7.10	11302256	222,00			11303256	367,00	12303256	473,50
300-250-250	587	580	620	8.70	11302255	240,50			11303255	418,50	12303255	540,50
300-300-80	417	448	255	3.30	11302253	142,00			11303253	275,50	12303253	396,00
300-300-100	435	459	300	4.10	11302254	154,00			11303254	289,00	12303254	401,00
300-300-300	640	640	720	11.25	11302230	189,50	12302230	239,00	11303230	356,50	12303230	543,00
315-315-315	690	690	780	12.70	11312230	232,00	12312230	302,50	11313230*	392,00	12313230	688,00
350-250-250	627	627	620	9.60	11352255	298,00			11353255*	520,50	12353255	671,00
350-300-150	524	546	410	6.10	11352288	291,00			11353288	487,00	12353288	614,50
350-300-200	590	613	530	7.90	11352257	278,50			11353257*	475,50	12353257	612,50
350-300-224	619	636	580	8.90	11352286	316,00			11353286*	521,00	12353286	657,00
350-300-250	630	630	620	9.90	11352256	315,50			11353256*	523,00	12353256	675,00
350-350-350	728	717	820	14.40	11352230	243,50	12352230	355,00	11353230*	417,00	12353230	708,50
400-300-250	670	677	620	10.40	11402256	324,00			11403256*	539,50	12403256	694,00
400-300-300	721	724	720	12.40	11402255	348,50			11403255*	609,50	12403255	786,50
400-350-175	583	609	450	7.40	11402288	331,00			11403288	554,00	12403288	698,50
400-350-224	663	686	580	10.20	11402287	364,00			11403287*	627,50	12403287	789,00
400-400-400	826	825	925	18.65	11402230	310,00	12402230	441,50	11403230*	466,00	12403230	755,50
450-350-300	764	774	720	14.80	11452256	375,00			11453256*	624,00	12453256	805,00
450-350-350	809	811	820	17.50	11452255	397,50			11453255*	691,00	12453255	898,50
450-400-200	676	713	530	10.70	11452258	389,50			11453258*	651,00	12453258	840,00
450-400-250	716	730	620	12.80	11452257	417,00			11453257*	709,50	12453257	915,00
450-450-450	945	930	1050	23.60	11452230	382,00	12452230	597,00	11453230*	632,00	12453230	804,00
500-400-350	853	861	820	18.20	11502256	511,50			11503256*	853,50	12503256	1102,00
500-400-400	909	914	925	22.70	11502255	537,00			11503255*	943,00	12503255	1220,00
500-450-224	749	786	580	13.00	11502288	502,00			11503288*	847,50	12503288	1069,00
500-450-300	810	827	720	17.00	11502257	476,00			11503257*	812,00	12503257	1046,00
500-500-500	1038	1027	1150	28.80	11502230	446,00	12502230	597,00	11503230*	696,00	12503230	926,50
560-560-560	1180	1175	1300	54.00			12562230	666,50			12563230	1064,00
630-630-630	1301	1304	1430	64.00			12632230	764,00			12633230	1132,00

*1.5 mm

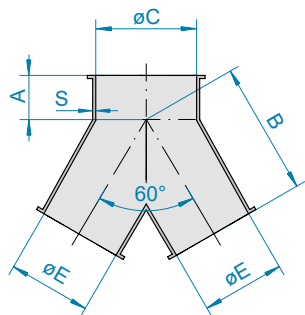


BRANCH PIECES

Symmetrical forks



■ Symmetrical fork 60°



■ Conical symmetrical fork 60°

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 1 bar

■ Shock explosion proof
tested up to 3 bar

SYMMETRICAL FORKS 60°

1090/1095

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
80- 80- 80	40	120	77	77	0.80	11081270	91,30	11082270	114,00
100- 80- 80	40	130	100	77	0.85	11101275	77,70	11102275	88,10
100-100-100	50	120	100	100	1.00	11101270	96,40	11102270	119,50
120-100-100	50	150	120	100	1.25	11121275	79,90	11122275	91,20
120-120-120	50	150	120	120	1.50	11121270	101,50	11122270	127,50
140-100-100	50	150	136	100	1.25	11141275	82,10	11142275	93,40
140-140-140	70	165	136	136	2.00	11141270	106,00	11142270	136,50
150-100-100	50	170	150	100	1.40	11151276	82,10	11152276	93,40
150-120-120	50	170	150	120	1.65	11151275	84,50	11152275	96,10
150-150-150	75	175	150	150	2.20	11151270	106,00	11152270	136,50
160-160-160	75	180	159	159	1.33	11161270	121,00	11162270	145,50
175-120-120	50	200	175	120	2.00	11171276	91,00	11172276	109,00
175-175-175	80	210	175	175	3.10	11171270	121,00	11172270	145,50
200-140-140	60	200	200	136	2.35	11201276	114,50	11202276	122,50
200-150-150	60	200	200	150	2.50	11201275	114,50	11202275	122,50
200-200-200	90	240	200	200	4.00	11201270	134,50	11202270	156,50
224-150-150	60	220	220	150	2.65	11221275	162,50	11222275	175,50
224-224-224	90	275	220	220	5.00	11221270	154,50	11222270	170,50
250-200-200	60	250	250	200	3.50	11251275	202,50	11252275	224,00
250-250-250	100	300	250	250	6.20	11251270	166,50	11252270	188,50
300-224-224	70	300	300	220	4.80	11301276	216,50	11302276	244,00
300-300-300	120	360	300	300	8.90	11301270	181,50	11302270	215,00
315-315-315	150	350	312	312	4.93	11311270	218,50	11312270	236,50
350-250-250	70	300	350	250	5.30	11351275	236,50	11352275	253,50
400-300-300	70	350	399	300	6.20	11401275	258,00	11402275	275,00
450-350-350	80	400	449	350	9.20	11451275	279,00	11452275	306,50
500-400-400	80	450	499	399	11.40	11501275	298,50	11502275	331,00

Stainless steel (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	Ø C	Ø E	kg	1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
80- 80- 80	40	120	77	77	0.80	11083270	144,00		
100- 80- 80	40	130	100	77	0.85	11103275	141,50	12103275	181,00
100-100-100	50	120	100	100	1.00	11103270	150,00	12103270	203,00
120-100-100	50	150	120	100	1.25	11123275	151,00	12123275	191,00
120-120-120	50	150	120	120	1.50	11123270	187,00	12123270	216,50
140-100-100	50	150	136	100	1.25	11143275	169,00	12143275	211,50
140-140-140	70	165	136	136	2.00	11143270	205,50	12143270	243,00
150-100-100	50	170	150	100	1.40	11153276	169,00	12153276	211,50
150-120-120	50	170	150	120	1.65	11153275	174,00	12153275	220,00
150-150-150	75	175	150	150	2.20	11153270	205,50	12153270	243,00
160-160-160	75	180	159	159	1.33	11163270	221,50	12163270	263,00
175-120-120	50	200	175	120	2.00	11173276	187,00	12173276	235,00
175-175-175	80	210	175	175	3.10	11173270	221,50	12173270	263,00
200-140-140	60	200	200	136	2.35	11203276	241,00	12203276	315,50
200-150-150	60	200	200	150	2.50	11203275	241,00	12203275	315,50
200-200-200	90	240	200	200	4.00	11203270	241,00	12203270	284,50
224-150-150	60	220	220	150	2.65	11223275	302,00	12223275	391,50
224-224-224	90	275	220	220	5.00	11223270	257,00	12223270	306,50
250-200-200	60	250	250	200	3.50	11253275	362,50	12253275	478,00



■ Symmetrical fork 60°

DN C-E-E	A	B	Ø C	Ø E	kg	1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
250-250-250	100	300	250	250	6.20	11253270	273,00	12253270	334,00
300-224-224	70	300	300	220	4.80	11303276	412,00	12303276	520,50
300-300-300	120	360	300	300	8.90	11303270	302,50	12303270	381,50
315-315-315	150	350	312	312	4.93	11313270	442,50	12313270	569,00
350-250-250	70	300	350	250	5.30	11353275*	459,00	12353275	599,00
400-300-300	70	350	399	300	6.20	11403275*	495,00	12403275	671,50
450-350-350	80	400	449	350	9.20	11453275*	534,50	12453275	692,00
500-400-400	80	450	499	399	11.40	11503275*	570,50	12503275	730,50

*1.5 mm

SYMMETRICAL FORKS 90°

1100

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11081260	73,10			11082260	78,10
100	100	60	100	0.85	11101260	73,10			11102260	78,10
120	120	75	110	1.10	11121260	75,90	13121260	93,80	11122260	83,20
140	136	75	120	1.30	11141260	78,80			11142260	85,90
150	150	75	125	1.45	11151260	78,80	13151260	107,00	11152260	85,90
160	159	75	130	1.60	11161260	92,30			11162260	102,00
175	175	75	140	1.75	11171260	92,30	13171260	126,00	11172260	102,00
200	200	90	170	2.50	11201260	113,00	13201260	156,00	11202260	125,50
224	220	100	190	3.00	11221260	148,00			11222260	165,00
250	250	100	200	3.50	11251260	148,00	13251260	201,00	11252260	165,00
300	300	120	220	4.40	11301260	205,50	13301260	265,00	11302260	223,50
315	312	120	230	4.83	11311260	209,50			11312260	244,50
350	350	120	250	5.65	11351260	225,00			11352260	259,50
400	399	150	270	7.00	11401260	242,00			11402260	282,50
450	449	150	300	8.45	11451260	263,00			11452260	304,00
500	499	175	325	10.20	11501260	284,00			11502260	326,50

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	40	80	0.55	11083260	132,50		
100	100	60	100	0.85	11103260	132,50	12103260	175,50
120	120	75	110	1.10	11123260	140,00	12123260	184,00
140	136	75	120	1.30	11143260	146,50	12143260	191,00
150	150	75	125	1.45	11153260	146,50	12153260	191,00
160	159	75	130	1.60	11163260	173,50	12163260	225,50
175	175	75	140	1.75	11173260	173,50	12173260	225,50
200	200	90	170	2.50	11203260	213,50	12203260	272,50
224	220	100	190	3.00	11223260	273,00	12223260	355,00
250	250	100	200	3.50	11253260	273,00	12253260	447,50
300	300	120	220	4.40	11303260	391,00	12303260	514,50
315	312	120	230	4.83	11313260*	416,50	12313260	541,50
350	350	120	250	5.65	11353260*	438,00	12353260	571,50
400	399	150	270	7.00	11403260*	472,50	12403260	614,50
450	449	150	300	8.45	11453260*	520,50	12453260	661,00
500	499	175	325	10.20	11503260*	569,50	12503260	707,00

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 1 bar

■ Shock explosion proof
tested up to 3 bar



JACOB TRANSITION PIECES AND ADAPTERS:
CONNECTING YOUR MACHINES
WITH OUR PIPEWORK SYSTEM



TRANSITION PIECES AND ADAPTERS

Technical information	76	
Cone pieces	78	
Compensators	82	
Connecting flanges	82	
Transition pieces and counter flanges	85	
Flexible hoses and accessories	89	
Bagging spouts and accessories	93	
Jet caps and rain caps	94	
Air outlet pipes and perforated sheet metal	96	



TRANSITION PIECES AND ADAPTERS

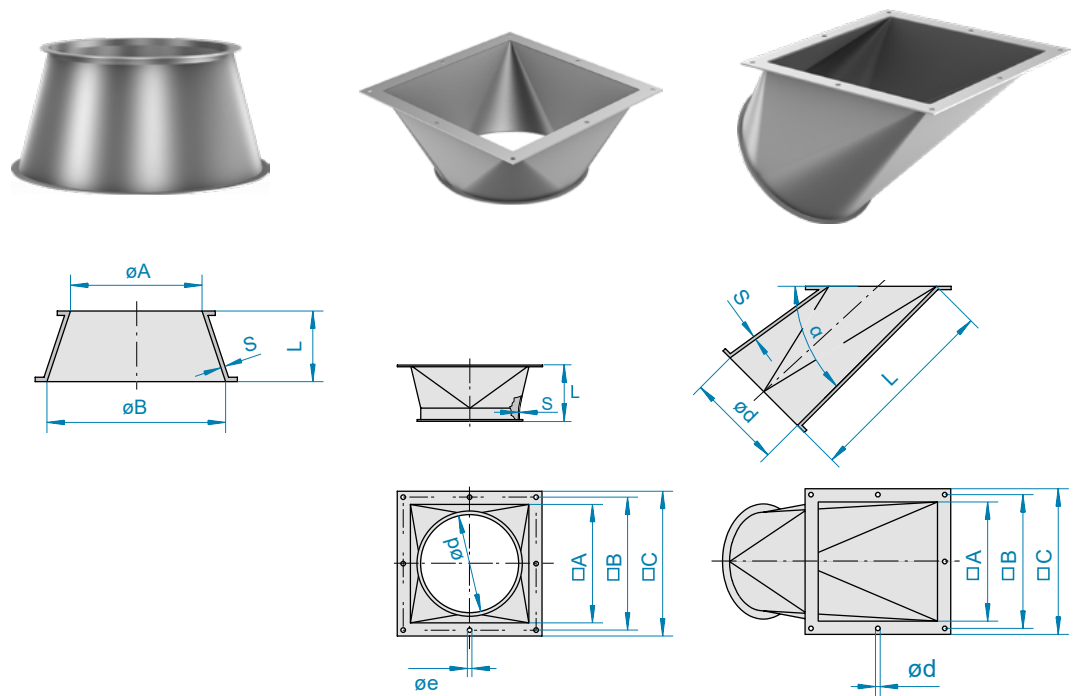
Technical information

JACOB TRANSITION PIECES AND ADAPTERS

How to be well-connected: With our comprehensive range of cone pieces, transition pieces and adapters, we create the connection between your JACOB pipework system and your machinery. And since nothing is as individual as these transition pieces, we can manufacture them to your specification, even from a batch size of 1. These special components have one thing in common with their large-scale production cousins: the same consistently high quality.

CONE PIECES AND TRANSITION PIECES TO YOUR INDIVIDUAL MEASUREMENTS

We manufacture cone pieces and transition pieces to your specification if you inform us of the dimensions, the material and the wall thickness you require. Prices and delivery times on request



FLAT SEALS



NBR	Silicone	F Silicone	F D
grey white	beige	blue	
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	
-30°C to +80°C	-30°C to +230°C	-60°C to +200°C	metal-detectable

- F** FOOD GRADE
EC 1935/2004 plus FDA compliant
- D** DETECTABLE DESIGN
Metal-detectable

Our flat seals for connecting pipe components with welded-on flanges or transition pieces:

- More tear-proof and FOOD GRADE
- Metal-detectable (DETECTABLE DESIGN)
- Other materials available on request



BFM COMPENSATOR WITH JACOB LIP

- FOOD GRADE: EC 1935/2004 plus FDA. Furthermore, thanks to the special design of the compensator, there are no corners in which food can be caught.
- Temperature resistance: -25 to 110°C
- Each compensator comprises two spigots and one connector
- Spigot: 83 mm long with 6 mm lip for pull-ring connection, stainless steel 304 L
- Stainless steel 316L available on request
- Connector: Seeflex 040 E model, thermoplastic ether-based polyurethane coating, wall thickness: 0.9 mm
- Quick assembly and disassembly for maintenance and cleaning
- For information on calculating the connector length, go to: <https://www.jacob-group.com/uk/products/transition-pieces-adapters/bfm-compensator/>



COMPENSATORS

Material: EPDM, black

- Temperature resistance: -30°C to +100°C
- Permissible differential pressure: 0.1 bar
- Not suitable for contact with food

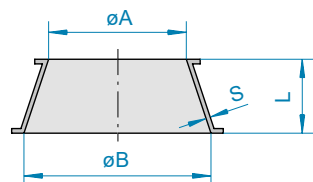
Compensator connections made of VA, material 1.4301, with press-formed sleeve made of extruded polyurethane, transparent/opaque, 1 mm thick.

- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Temperature resistance: -20°C to +90°C



TRANSITION PIECES AND ADAPTERS

Cone pieces



CONE PIECES

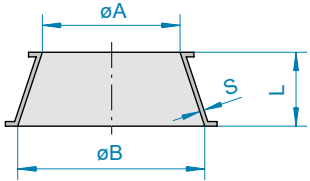
1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework
- More diameter combinations and special lengths available on request
- DN 315 shock explosion proof up to 3 bar with 1.5 mm wall thickness

Powder-coated (dimensions for 1.5 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
60-80	57	77	60	0.17	11001488	15,50		
60-100	57	100	100	0.25	11001492	15,80		
80-100	77	100	100	0.35	11001450	16,00		
80-120	77	120	80	0.35	11001478	17,90		
80-140	77	136	120	0.55	11001479	18,30		
80-150	77	150	140	0.65	11001489	19,30		
80-160	77	159	160	0.65	11001974	19,30		
100-120	100	120	60	0.30	11001451	17,30		
100-140	100	136	100	0.50	11001459	19,90		
100-150	100	150	95	0.50	11001452	17,90		
100-160	100	159	120	0.70	11001978	20,20		
100-175	100	175	120	0.70	11001464	20,20		
100-200	100	200	120	0.75	11001453	24,90		
100-250	100	250	200	1.45	11001454	29,40		
120-125	120	125	100	0.50	11001493	22,50		
120-140	120	136	100	0.55	11001466	22,50		
120-150	120	150	150	0.85	11001455	18,50	13001455	54,60
120-160	120	159	80	0.65	11001979	20,70		
120-175	120	175	100	0.65	11001456	20,70	13001456	56,90
120-200	120	200	120	0.80	11001457	25,40	13001457	61,20
120-250	120	250	150	1.20	11001458	26,40	13001458	63,50
140-150	136	150	100	0.60	11001467	23,00		
140-175	136	175	100	0.65	11001468	26,10		
140-200	136	200	150	1.05	11001469	28,40		
150-160	150	159	100	0.55	11001982	20,90		
150-175	150	175	100	0.60	11001460	20,90	13001460	49,50
150-200	150	200	100	0.75	11001461	20,30	13001461	59,10
150-224	150	220	150	1.15	11001472	31,00		
150-250	150	250	150	1.10	11001462	26,40	13001462	63,50
150-300	150	300	200	1.85	11001463	34,40	13001463	72,40
160-200	159	200	80	0.80	11001983	22,00		
175-180	175	180	100	0.75	11001494	29,70		
175-200	175	200	100	0.80	11001465	22,00	13001465	65,90
175-224	175	220	100	0.85	11001473	29,70		
200-224	200	220	100	0.85	11001474	31,00		
200-250	200	250	120	1.10	11001470	25,40	13001470	68,80
200-300	200	300	150	1.55	11001471	33,20	13001471	73,40
224-250	220	250	100	1.00	11001476	33,90		
224-300	220	300	150	1.60	11001477	39,80		
250-280	250	277	120	1.30	11001960	37,30		
250-300	250	300	150	1.65	11001475	33,20	13001475	78,80

Shock explosion proof tested up to 3 bar



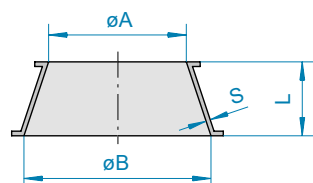
DN	ØA	ØB	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
250-350	250	350	200	2.20	11001484	50,30	13001484	93,60
280-300	277	300	100	1.22	11001961	39,00		
300-315	300	312	100	1.30	11001962	49,60		
300-350	300	350	200	2.55	11001480	55,70	13001480	99,50
300-400	300	399	200	2.75	11001481	62,60	13001481	108,00
315-350	312	350	120	1.65	11001963	54,10		
350-400	350	399	200	2.95	11001482	70,90	13001482	117,00
350-450	350	449	200	3.15	11001483	72,70	13001483	127,50
400-450	399	449	200	3.40	11001485	77,80	13001485	139,00
400-500	399	499	250	4.40	11001486	82,10	13001486	148,50
450-500	449	499	200	3.70	11001487	94,10	13001487	166,00
450-560	448	558	250	6.70	12001495*	99,90	13001495	182,00
500-560	498	558	250	7.00	12001496*	105,50	13001496	201,50
500-630	498	628	300	8.90	12001497*	117,00	13001497	231,00
560-630	558	628	300	9.50	12001498*	135,50	13001498	259,50

*2 mm



TRANSITION PIECES AND ADAPTERS

Cone pieces / compensators



CONE PIECES

1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework
- More diameter combinations and special lengths available on request
- DN 315 shock explosion proof up to 3 bar with 1.5 mm wall thickness

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

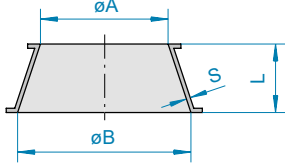
DN	øA	øB	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60-80	57	77	60	0.17					11003488*	22,50		
60-100	57	100	100	0.25	11002492	18,90			11003492	23,30		
80-100	77	100	100	0.35	11002450	19,10			11003450	23,60		
80-120	77	120	80	0.35	11002478	20,20			11003478	25,10		
80-140	77	136	120	0.55	11002479	20,20			11003479	25,10		
80-150	77	150	140	0.65	11002489	23,10			11003489	26,40		
80-160	77	159	160	0.65	11002974	23,30			11003974	26,40		
100-120	100	120	60	0.30	11002451	19,90			11003451	23,60	12003451	29,20
100-140	100	136	100	0.50	11002459	24,00			11003459	26,80		
100-150	100	150	95	0.50	11002452	21,10			11003452	27,50	12003452	39,80
100-160	100	159	120	0.70	11002978	23,40			11003978	28,40	12003978	44,60
100-175	100	175	120	0.70	11002464	23,40			11003464	28,40	12003464	44,60
100-200	100	200	120	0.75	11002453	28,90			11003453	32,30	12003453	47,20
100-250	100	250	200	1.45	11002454	30,90			11003454	33,10	12003454	49,00
120-125	120	125	100	0.50	11002493	26,90			11003493	28,90		
120-140	120	136	100	0.55	11002466	26,90			11003466	28,90		
120-150	120	150	150	0.85	11002455	21,30			11003455	29,40	12003455	40,20
120-160	120	159	80	0.65	11002979	23,80			11003979	32,70	12003979	48,50
120-175	120	175	100	0.65	11002456	23,80			11003456	32,70	12003456	48,50
120-200	120	200	120	0.80	11002457	29,30			11003457	40,30	12003457	58,20
120-250	120	250	150	1.20	11002458	30,10			11003458	46,40	12003458	72,20
140-150	136	150	100	0.60	11002467	27,70			11003467	30,00		
140-175	136	175	100	0.65	11002468	31,50			11003468	33,80		
140-200	136	200	150	1.05	11002469	34,30			11003469	37,00		
150-160	150	159	100	0.55	11002982	24,80			11003982	30,00	12003982	42,20
150-175	150	175	100	0.60	11002460	24,80			11003460	30,00	12003460	42,20
150-200	150	200	100	0.75	11002461	25,50			11003461	34,20	12003461	50,10
150-224	150	220	150	1.15	11002472	40,20			11003472	43,30		
150-250	150	250	150	1.10	11002462	31,80			11003462	46,40	12003462	61,00
150-300	150	300	200	1.85	11002463	41,00			11003463	49,90	12003463	70,80
160-200	159	200	80	0.80	11002983	26,90			11003983	35,50	12003983	49,30
175-180	175	180	100	0.75	11002494	37,30			11003494	52,90	12003494	49,30
175-200	175	200	100	0.80	11002465	26,90			11003465	35,50	12003465	49,30
175-224	175	220	100	0.85	11002473	37,30			11003473	52,90		
200-224	200	220	100	0.85	11002474	38,20			11003474	43,30	12003474	59,80
200-250	200	250	120	1.10	11002470	31,70			11003470	46,40	12003470	67,60
200-300	200	300	150	1.55	11002471	41,00			11003471	58,20	12003471	91,30
224-250	220	250	100	1.00	11002476	42,00			11003476	47,50		
224-300	220	300	150	1.60	11002477	49,50			11003477	57,00	12003477	100,50
250-280	250	277	120	1.30	11002960	44,80			11003960*	63,20		
250-300	250	300	150	1.65	11002475	38,90			11003475	58,50	12003475	92,30
250-350	250	350	200	2.20	11002484	62,40			11003484	73,70	12003484	107,50
280-300	277	300	100	1.22	11002961	46,80			11003961*	65,70		
300-315	300	312	100	1.30	11002962	59,60			11003962*	77,20		
300-350	300	350	200	2.55	11002480	73,40			11003480	78,70	12003480	115,00
300-400	300	399	200	2.75	11002481	78,80			11003481	83,40	12003481	126,50

*1.5 mm

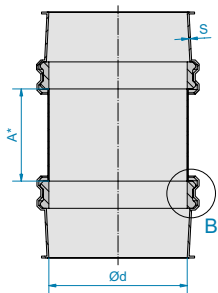
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 1 bar

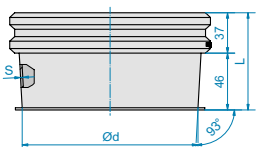
Shock explosion proof tested up to 3 bar



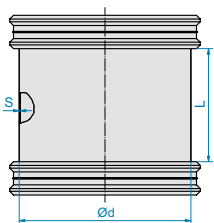
BFM compensator



BFM compensator Seeflex



Spigot



Connector

F FOOD GRADE
EC 1935/2004 plus FDA compliant

DN	ØA	ØB	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	F	2 mm stainless steel		F
					Item no.	€	Item no.	€	Item no.	€	Item no.	€	
315-350	312	350	120	1.65	11002963	64,80			11003963*	79,80			
350-400	350	399	200	2.95	11002482	84,00			11003482	86,60	12003482	121,50	
350-450	350	449	200	3.15	11002483	89,10			11003483	94,20	12003483	143,00	
400-450	399	449	200	3.40	11002485	91,50			11003485	103,00	12003485	139,50	
400-500	399	499	250	4.40	11002486	99,60			11003486	116,00	12003486	174,00	
450-500	449	499	200	3.70	11002487	101,50			11003487	129,00	12003487	181,00	
450-560	448	558	250	6.70			12002495	111,00			12003495	214,00	
500-560	498	558	250	7.00			12002496	116,50			12003496	230,50	
500-630	498	628	300	8.90			12002497	129,00			12003497	250,00	
560-630	558	628	300	9.50			12002498	149,50			12003498	269,50	

*1.5 mm

COMPENSATORS

1349

- Easy connection with the JACOB pull-ring system
- Food-grade standard, to FDA and EC 1935/2004
- Other lengths, diameters and materials available on request

- Each BFM compensator comprises one connector and two spigots. The components must be ordered individually.
- Recommended for static applications and slight vibration: A (distance between the spigots) should ideally equal the length L of the connector - 10 mm

BFM spigot with JACOB lip (2 spigots needed)

DN	L	kg	2 mm Stainless steel F	
			Item no.	€
100	83	0.40	1210317200	189,50
150	83	0.80	1215317200	196,00
200	83	1.00	1220317200	212,00
250	83	1.20	1225317200	243,00
300	83	1.40	1230317200	271,50
350	83	1.60	1235317200	305,50
400	83	1.90	1240317200	343,50



BFM connector

DN	L	kg	Seeflex 040 E F		DN	L	kg	Seeflex 040 E F		DN	L	kg	Seeflex 040 E F	
			Item no.	€				Item no.	€				Item no.	€
100					100	150	0.40	1210317215	130,50	100	250	0.70	1210317225	154,50
150	80	0.35	1215317205	137,50	150	150	0.60	1215317215	155,50	150	250	1.10	1215317225	188,00
200	80	0.40	1220317205	159,50	200	150	0.80	1220317215	174,50	200	250	1.30	1220317225	224,50
250	80	0.50	1225317205	182,50	250	150	1.00	1225317215	199,50	250	250	1.50	1225317225	261,50
300	80	0.70	1230317205	209,50	300	150	1.20	1230317215	229,00	300	250	1.70	1230317225	294,00
350	80	0.80	1235317205	232,00	350	150	1.40	1235317215	255,00	350	250	1.90	1235317225	341,00
400	80	1.00	1240317205	284,00	400	150	1.60	1240317215	319,50	400	250	2.10	1240317225	400,50
100	100	0.30	1210317210	125,50	100	200	0.60	1210317220	135,50	100				
150	100	0.40	1215317210	145,50	150	200	0.90	1215317220	165,50	150				
200	100	0.50	1220317210	167,50	200	200	1.00	1220317220	183,50	200				
250	100	0.70	1225317210	192,50	250	200	1.20	1225317220	210,50	250				
300	100	0.80	1230317210	221,50	300	200	1.40	1230317220	241,00	300				
350	100	0.90	1235317210	245,00	350	200	1.60	1235317220	269,00	350				
400	100	1.10	1240317210	299,00	400	200	1.90	1240317220	327,00	400				



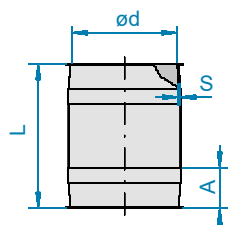
TRANSITION PIECES AND ADAPTERS

Compensators/connecting flanges



EPDM, black

AU, transparent




COMPENSATORS

1348

- Please also read and take into account the technical information given at the beginning of this chapter

Powder-coated, galvanised and stainless steel

DN	$\varnothing d$	A	S	L	kg	2 mm powder-coated (EPDM, black)		2 mm galvanised (EPDM, black)		2 mm stainless steel (EPDM, black)		2 mm stainless steel (AU, transparent) 	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	78	55	1	200	0.52	11081707*	62,60	11082707*	64,80	11083707*	73,90	11083171*	206,00
100	99	55	2	200	1.00	12101707	64,30	12102707	66,70	12103707	75,60	12103171	211,50
120	119	55	2	200	1.16	12121707	68,40	12122707	70,70	12123707	82,90	12123171	221,00
140	135	55	2	200	1.30	12141707	73,00	12142707	75,60	12143707	86,50	12143171	230,50
150	149	55	2	200	1.42	12151707	74,60	12152707	77,10	12153707	89,00	12153171	232,00
175	174	55	2	200	1.65	12171707	78,90	12172707	81,90	12173707	95,20	12173171	237,00
200	199	55	2	200	1.88	12201707	81,90	12202707	85,00	12203707	101,50	12203171	278,00
224	219	55	2	200	2.06	12221707	89,00	12222707	92,00	12223707	110,50	12223171	317,50
250	249	55	2	200	2.34	12251707	93,10	12252707	96,80	12253707	115,00	12253171	320,50
300	299	55	2	200	2.80	12301707	100,50	12302707	104,50	12303707	122,50	12303171	388,50

*1 mm



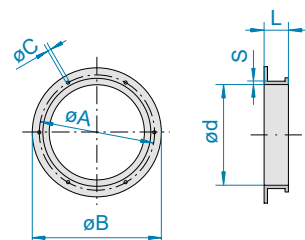
AVAILABLE IN THE DETECTABLE DESIGN LINE.



CONNECTING FLANGES

1310

- For combining with a counter flange for connecting flanges and a flat seal for counter flanges (see page 83)
- Not suitable for combining with flanges similar to DIN 24154-2



E = No. of holes


Powder-coated (dimensions for 1.5 mm pipework)

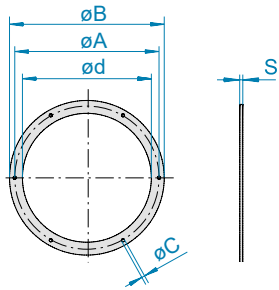
DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11081431	10,10		
100	100	130	150	6	6	28	0.23	11101431	10,10		
120	120	150	170	6	6	28	0.28	11121431	10,40	13121431	39,30
150	150	180	202	6	6	36	0.40	11151431	15,40	13151431	42,80
175	175	205	228	6	6	40	0.49	11171431	21,60	13171431	45,50
200	200	230	250	6	6	37	0.52	11201431	22,70	13201431	47,10
250	250	280	300	6	6	48	0.75	11251431	25,40	13251431	57,70

Galvanised and stainless steel

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	C	E	L	kg	1.5 mm galvanised		1.5 mm stainless steel 	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11082431	10,60	11083431	31,10
100	100	130	150	6	6	28	0.23	11102431	10,60	11103431	31,10
120	120	150	170	6	6	28	0.28	11122431	11,10	11123431	35,60
150	150	180	202	6	6	36	0.40	11152431	16,00	11153431	43,30
175	175	205	228	6	6	40	0.49	11172431	23,30	11173431	53,50
200	200	230	250	6	6	37	0.52	11202431	25,30	11203431	64,00
250	250	280	300	6	6	48	0.75	11252431	29,20	11253431	77,70

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



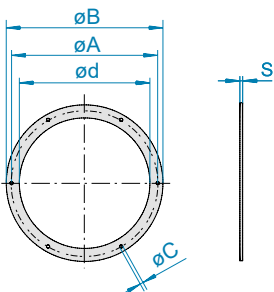
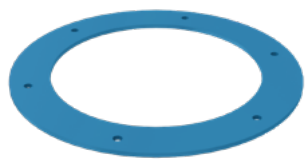
E = No. of holes

COUNTER FLANGES FOR CONNECTING FLANGES, ROUND

1311

- Counter flange to match connecting flange (see page 82)
- For use in conjunction with a flat seal (see below)

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301 F	
								Item no.	€	Item no.	€
80	82	108	122	6	6	5	0.25	10080710	10,30	10083710	26,00
100	105	130	155	6	6	5	0.40	10100710	11,20	10103710	33,10
120	125	150	175	6	6	5	0.46	10120710	12,40	10123710	38,30
150	155	180	205	6	6	5	0.55	10150710	15,80	10153710	41,30
175	180	205	230	6	6	5	0.63	10170710	23,60	10173710	43,20
200	205	230	255	6	6	5	0.71	10200710	25,80	10203710	45,30
250	255	280	305	6	6	5	0.86	10250710	28,20	10253710	50,20



E = No. of holes

FLAT SEALS FOR COUNTER FLANGES (ROUND) FOR CONNECTING FLANGES

1312

- Flat seal to match connecting flange (page 82) and counter flange (see above)
- Please also read and take into account the technical information given at the beginning of this chapter
- Not suitable for combining with flanges similar to DIN 24154-2

DN	Ø d	Ø A	Ø B	Ø C	E	S	NBR grey white		Silicone beige F	Silicone blue F D		
							Item no.	€	Item no.	€	Item no.	€
80	83	108	122	6	6	3	10086731	13,40	10087731	14,40	1008773101	17,20
100	103	130	155	6	6	3	10106731	14,10	10107731	15,40	1010773101	20,30
120	123	150	175	6	6	3	10126731	15,20	10127731	15,90	1012773101	19,00
150	153	180	205	6	6	3	10156731	15,40	10157731	16,30	1015773101	23,90
175	178	205	230	6	6	3	10176731	16,80	10177731	18,10	1017773101	29,00
200	203	230	255	6	6	3	10206731	17,70	10207731	19,00	1020773101	33,90
250	253	280	305	6	6	3	10256731	19,20	10257731	20,70	1025773101	45,70

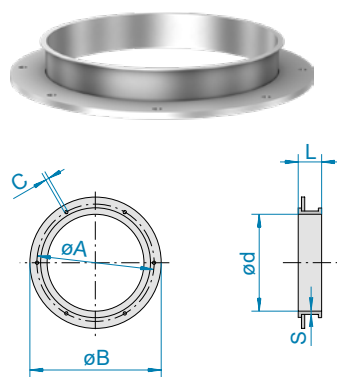
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TRANSITION PIECES AND ADAPTERS

Connecting flanges



E = No. of holes

CONNECTING FLANGE WITH LOOSE FLANGE

1315

- From DN 450 mm, dimensions for 2 mm pipework
- Flanged end for combining with flange similar to DIN 24154-2 (see chapter 11, page 219, for dimensions) and U-shaped seal
- From DN 350, in combination with U-shaped seal for 6 mm lip (page 27) or flat seals (page 222)
- From DN 350, in combination with U-shaped seal for 10 mm lip or flat seal (page 222)

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	Ø B	Ø C	E	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11061432	10,70				
80	77	118	142	9.5	4	50	0.62	11081432	18,10				
100	100	139	165	9.5	4	50	0.70	11101432	18,70				
120	120	165	185	9.5	4	50	0.84	11121432	20,40				
140	136	182	212	11.5	8	50	1.06	11141432	21,10				
150	150	200	225	11.5	8	50	1.18	11151432	22,90				
160	159	200	232	11.5	8	50	0.65	11161432	24,20				
175	175	219	250	11.5	8	50	1.34	11171432	24,20				
200	200	241	275	11.5	8	50	1.48	11201432	25,30				
224	220	265	295	11.5	8	50	1.65	11221432	29,20				
250	250	292	325	11.5	8	50	1.82	11251432	29,20				
280	277	332	363	11.5	8	50	2.07	11281432	33,40				
300	300	366	395	11.5	8	50	2.31	11301432	33,40			13301432	39,30
315	312	366	398	11.5	8	50	2.48	11311432	38,30				
350	350	405	436	11.5	8	50	2.93	11351432	40,40			13351432	44,80
400	399	448	485	11.5	12	50	3.57	11401432	48,30			13401432	53,80
450	448	497	535	11.5	12	50	5.52			12451432	55,50	13451432	62,10
500	498	551	585	11.5	12	50	5.98			12501432	66,40	13501432	74,10
560	558	629	665	14.0	16	50	6.73			12561432	98,80	13561432	143,00
630	628	698	735	14.0	16	50	7.86			12631432	107,00	13631432	163,50

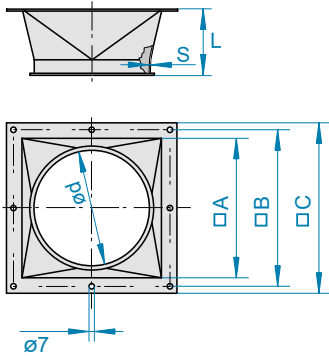
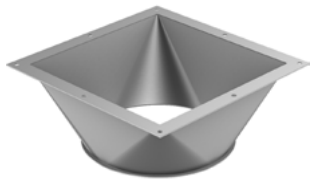
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	Ø B	Ø C	E	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel F		2 mm stainless steel F	
								Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11062432	10,90			11063432	32,70		
80	77	118	142	9.5	4	50	0.62	11082432	19,40			11083432	42,80		
100	100	139	165	9.5	4	50	0.70	11102432	20,10			11103432	46,40		
120	120	165	185	9.5	4	50	0.84	11122432	21,30			11123432	50,10		
140	136	182	212	11.5	8	50	1.06	11142432	21,70			11143432	54,90		
150	150	200	225	11.5	8	50	1.18	11152432	24,50			11153432	59,20		
160	159	200	232	11.5	8	50	0.65	11162432	26,70			11163432	64,10		
175	175	219	250	11.5	8	50	1.34	11172432	26,70			11173432	64,10		
200	200	241	275	11.5	8	50	1.48	11202432	27,60			11203432	70,80		
224	220	265	295	11.5	8	50	1.65	11222432	31,60			11223432	86,00		
250	250	292	325	11.5	8	50	1.82	11252432	31,60			11253432	86,00		
280	277	332	363	11.5	8	50	2.07	11282432	36,10			11283432	129,50		
300	300	366	395	11.5	8	50	2.31	11302432	36,10			11303432	129,50		
315	312	366	398	11.5	8	50	2.48	11312432	41,70			11313432	134,50		
350	350	405	436	11.5	8	50	2.93	11352432	43,70			11353432	137,50		
400	399	448	485	11.5	12	50	3.57	11402432	51,90			11403432	153,00		
450	448	497	535	11.5	12	50	5.52			12452432	61,00			12453432	184,00
500	498	551	585	11.5	12	50	5.98			12502432	71,20			12503432	205,50
560	558	629	665	14.0	16	50	6.73			12562432	107,00			12563432	268,00
630	628	698	735	14.0	16	50	7.86			12632432	116,00			12633432	293,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ DN 350 to 630 mm with 10 mm lip.
Combination with U-shaped seal for 10 mm lip (refer to page 222)

Transition pieces / counter flanges



E = No. of holes

SPOUTS FROM SQUARE TO ROUND

1280

- Special models and individual flange dimensions on request
- For use in conjunction with a square flat seal
- Lipped at one end for use with the JACOB pull-ring system

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	8	50	0.36	11081400	22,90			11082400	24,30
100	100	120	140	160	8	60	0.45	11101400	22,90			11102400	24,30
120	120	140	164	180	8	70	0.63	11121400	24,60	13121400	59,10	11122400	26,30
150	150	180	202	220	8	85	0.90	11151400	25,70	13151400	59,10	11152400	30,90
175	175	200	225	245	8	145	1.50	11171400	52,30	13171400	83,20	11172400	55,10
200	200	250	270	290	8	115	1.80	11201400	52,40	13201400	84,50	11202400	55,10
250	250	300	325	345	8	150	2.70	11251400	102,00	13251400	153,50	11252400	110,00
300	300	350	375	395	8	210	3.90	11301400	114,50	13301400	172,50	11302400	126,00

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	8	50	0.36	11083400	56,80		
100	100	120	140	160	8	60	0.45	11103400	56,80	12103400	70,50
120	120	140	164	180	8	70	0.63	11123400	60,50	12123400	95,10
150	150	180	202	220	8	85	0.90	11153400	73,70	12153400	105,00
175	175	200	225	245	8	145	1.50			12173400	131,00
200	200	250	270	290	8	115	1.80			12203400	155,00
250	250	300	325	345	8	150	2.70			12253400	219,50
300	300	350	375	395	8	210	3.90			12303400	237,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

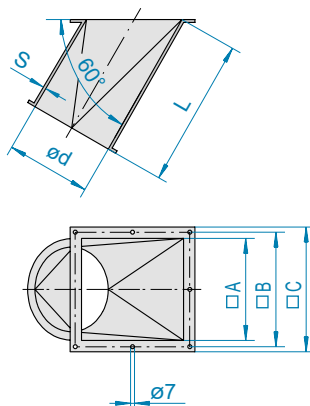
Transition pieces / counter flanges



SPOUTS FROM SQUARE TO ROUND / 60°

1290

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat seal
- Lipped at one end for use with the JACOB pull-ring system



E = No. of holes

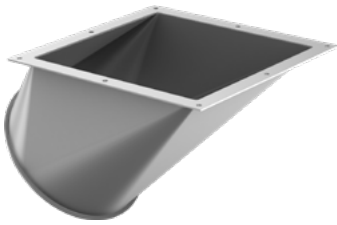
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11081410	62,40			11082410	68,40
100	100	120	140	160	7	190	0.90	11101410	62,40			11102410	68,40
120	120	140	164	180	7	215	1.20	11121410	65,90	13121410	100,00	11122410	68,90
150	150	180	202	220	7	260	1.80	11151410	76,80	13151410	117,50	11152410	82,30
175	175	200	225	245	7	275	2.25	11171410	100,50	13171410	152,50	11172410	103,00
200	200	250	270	290	7	265	2.40	11201410	106,00	13201410	160,00	11202410	128,00
250	250	300	325	345	7	345	4.05	11251410	134,50	13251410	206,50	11252410	145,50
300	300	350	375	395	7	475	6.60	11301410	152,50	13301410	231,00	11302410	162,00

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11083410	109,00		
100	100	120	140	160	7	190	0.90	11103410	109,00	12103410	144,00
120	120	140	164	180	7	215	1.20	11123410	118,00	12123410	158,00
150	150	180	202	220	7	260	1.80	11153410	135,00	12153410	183,50
175	175	200	225	245	7	275	2.25			12173410	214,50
200	200	250	270	290	7	265	2.40			12203410	264,00
250	250	300	325	345	7	345	4.05			12253410	380,00
300	300	350	375	395	7	475	6.60			12303410	413,00

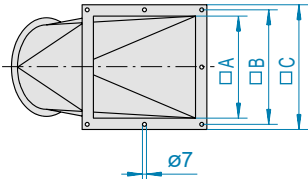
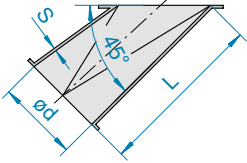
F FOOD GRADE
EC 1935/2004 plus FDA compliant



SPOUTS FROM SQUARE TO ROUND / 45 °

1300

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat seal
- Lipped at one end for use with the JACOB pull-ring system



E = No. of holes

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11081420	48,40			11082420	51,30
100	100	120	140	160	7	180	0.75	11101420	48,40			11102420	51,30
120	120	140	164	180	7	190	0.90	11121420	56,30	13121420	91,10	11122420	60,30
150	150	180	202	220	7	295	1.95	11151420	80,70	13151420	114,00	11152420	88,90
175	175	200	225	245	7	300	2.40	11171420	98,80	13171420	143,50	11172420	108,50
200	200	250	270	290	7	325	2.75	11201420	102,00	13201420	154,00	11202420	121,00
250	250	300	325	345	7	395	4.65	11251420	127,50	13251420	190,00	11252420	138,50
300	300	350	375	395	7	450	5.55	11301420	143,00	13301420	220,50	11302420	152,50

Stainless steel (dimensions for 1.5 mm pipework)

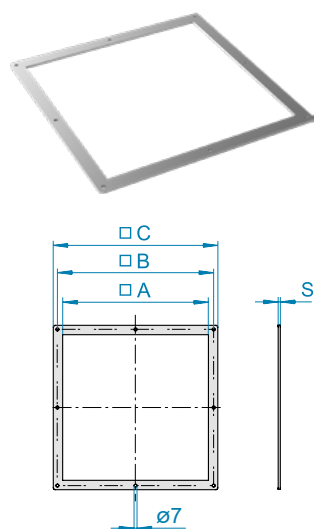
DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11083420	101,50		
100	100	120	140	160	7	180	0.75	11103420	101,50	12103420	126,00
120	120	140	164	180	7	190	0.90	11123420	107,50	12123420	141,00
150	150	180	202	220	7	295	1.95	11153420	123,50	12153420	162,50
175	175	200	225	245	7	300	2.40			12173420	188,00
200	200	250	270	290	7	325	2.75			12203420	236,50
250	250	300	325	345	7	395	4.65			12253420	344,50
300	300	350	375	395	7	450	5.55			12303420	356,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Transition pieces / counter flanges



E = No. of holes

COUNTER FLANGES FOR SPOUTS FROM SQUARE TO ROUND

1301

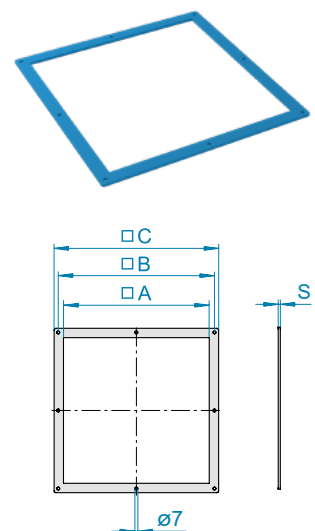
- Counter flange to match spouts from square to round
- For use in conjunction with a square flat seal

DN	A	B	C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301 F	
							Item no.	€	Item no.	€
80	100	120	140	8	5	0.38	10080714	15,30	10083714	24,30
100	120	140	160	8	5	0.44	10100714	17,00	10103714	28,90
120	140	164	180	8	5	0.50	10120714	18,80	10123714	37,00
150	180	202	220	8	5	0.63	10150714	20,00	10153714	41,50
175	200	225	245	8	5	0.79	10170714	21,20	10173714	43,90
200	250	270	290	8	5	0.85	10200714	28,20	10203714	57,80
250	300	325	345	8	5	1.14	10250714	29,40	10253714	63,60
300	350	375	395	8	5	1.30	10300714	31,80	10303714	94,70

FLAT SEALS FOR SPOUTS FROM SQUARE TO ROUND

1302

- Flat seal to match square to round spout and counter flange for spout
- Please also read and take into account the technical information given at the beginning of this chapter

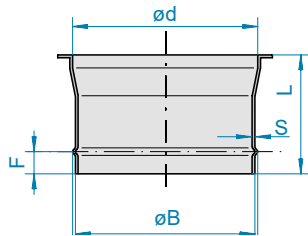


E = No. of holes

DN	A	B	C	E	S	NBR grey white		Silicone beige F		Silicone blue F D	
						Item no.	€	Item no.	€	Item no.	€
80	100	120	140	8	3	10086732	14,30	10087732	15,40	1008773201	20,30
100	120	140	160	8	3	10106732	15,20	10107732	15,90	1010773201	21,80
120	140	164	180	8	3	10126732	15,60	10127732	16,50	1012773201	23,80
150	180	202	220	8	3	10156732	16,30	10157732	17,40	1015773201	31,30
175	200	225	245	8	3	10176732	18,30	10177732	19,30	1017773201	33,80
200	250	270	290	8	3	10206732	23,80	10207732	25,10	1020773201	42,10
250	300	325	345	8	3	10256732	29,60	10257732	31,60	1025773201	56,00
300	350	375	395	8	3	10306732	34,50	10307732	36,70	1030773201	64,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



HOSE CONNECTIONS

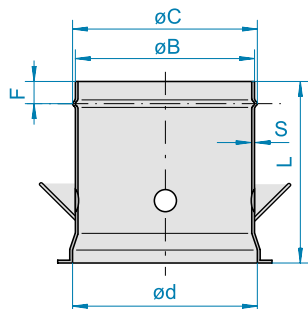
1340

- For use in conjunction with PU hose and special hose clamp

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	$\varnothing d$	$\varnothing B$	$\varnothing C$	F	S	L	kg	1 mm powder-coated		1 mm galvanised		1 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
60-50	57	50	51	10	1.5	80	0.20	110614990*	13,20	110624990*	16,90	110634990*	23,40	
60	57	60	61	15	1.5	80	0.20	11061499*	12,70	11062499*	16,00	11063499*	22,40	
80	78	78	80	15	1	88	0.20	11081499	14,80	11082499	18,80	11083499	26,20	
100	100	95	100	15	1	100	0.25	11101499*	14,80	11102499*	18,80	11103499	26,20	
120	120	122	125	15	1	100	0.30	11121499	16,10	11122499	19,50	11123499	28,00	
140	136	138	140	15	1	100	0.35	11141499	17,30	11142499	21,10	11143499	30,30	
150	150	145	150	20	1	100	0.40	11151499*	17,30	11152499*	21,10	11153499	30,30	
160	159	161	163	20	1	100	0.42	11161499	18,90	11162499	23,10	11163499	33,30	
175	175	177	180	20	1	100	0.45	11171499	18,90	11172499	23,10	11173499	33,30	
200	200	198	200	20	1	100	0.50	11201499	19,90	11202499	23,80	11203499	35,00	
224	220	222	225	20	1	100	0.57	11221499	20,90	11222499	25,30	11223499	36,60	
250	250	248	250	20	1	100	0.65	11251499	20,90	11252499	25,30	11253499	36,60	
280	278	276	278	20	1	100	0.76	11281499	30,50	11282499	34,40	11283499	46,00	
300	300	298	300	20	1	100	0.84	11301499	24,60	11302499	27,60	11303499	42,90	
315	313	315	317	20	1	100	0.86	11311499	34,00	11312499	38,50	11313499	52,30	

*1.5 mm



HOSE CONNECTIONS WITH COLLAR (CONDENSATE SEPARATOR)

1341

- For use with PU hose and special hose clamp
- With outlet cone and 4 drilled holes $\varnothing d = 10$ mm for the recirculation of condensate.

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

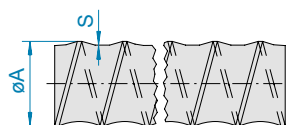
DN	$\varnothing d$	$\varnothing B$	$\varnothing C$	F	S	L	kg	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
80	77	78	80	15	1.5	150	0.4	110814991	72,40	110824991	84,90	110834991	96,40	
100	100	95	100	15	1.5	150	0.5	111014991	74,00	111024991	87,20	111034991	99,40	
120	120	122	125	15	1.5	150	0.6	111214991	82,60	111224991	95,60	111234991	110,50	
140	136	138	140	15	1.5	150	0.7	111414991	95,50	111424991	110,00	111434991	126,00	
150	150	145	150	20	1.5	150	0.8	111514991	95,50	111524991	111,00	111534991	127,50	
160	159	161	163	20	1.5	150	1.2	111614991	103,00	111624991	118,50	111634991	138,50	
175	175	177	180	20	1.5	150	0.9	111714991	103,00	111724991	118,50	111734991	138,50	
200	200	198	200	20	1.5	150	1.0	112014991	112,00	112024991	129,50	112034991	149,00	
224	220	222	225	20	1.5	150	1.15	112214991	118,50	112224991	137,50	112234991	158,50	
250	250	248	250	20	1.5	150	1.3	112514991	121,00	112524991	140,50	112534991	163,50	
280	277	276	278	20	1.5	150	1.5	112814991	131,50	112824991	151,00	112834991	181,50	
300	300	298	300	20	1.5	150	1.7	113014991	133,00	113024991	153,50	113034991	182,00	
315	312	315	317	20	1.5	150	1.8	113114991	141,50	113124991	177,50	113134991	194,50	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



PU HOSES

3160

- Material: Polyether polyurethane with spring steel wire
- Properties: highly abrasion resistant, oil and fuel resistant, inside largely smooth, transparent
- Temperature range: -40°C to +100°C
- Not suitable for conveying water vapour
- Suitable for short-term contact with foodstuffs without fatty substances (max. 4 hours, max. +40°C)
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Pressure resistance on request
- Bending radius: Minimum R = 1 D or larger

Lengths 1, 2, 3 and 5 m (sold by whole metres only)

DN	ØA	S	kg/m	Length 1 m		Length 2 m		Length 3 m	
				Item no.	€	Item no.	€	Item no.	€
50	58	0.7	0.41	10050165910	23,40	10050165920	46,70	10050165930	70,40
60	68	0.7	0.49	10060165910	23,90	10060165920	48,10	10060165930	72,20
80	88	0.7	0.76	10080165910	32,80	10080165920	65,80	10080165930	98,60
100	110	0.7	0.95	10100165910	42,60	10100165920	85,40	10100165930	128,50
120	129	0.7	1.12	10120165910	52,50	10120165920	105,50	10120165930	158,00
140	149	0.7	1.38	10140165910	55,30	10140165920	111,50	10140165930	168,00
150	161	0.7	1.48	10150165910	61,10	10150165920	122,50	10150165930	184,50
160	169	0.7	1.19	10160165910	66,60	10160165920	133,50	10160165930	201,00
175	185	0.7	1.85	10170165910	66,60	10170165920	133,50	10170165930	201,00
200	214	0.7	2.30	10200165910	73,70	10200165920	148,50	10200165930	223,00
224	235	0.7	2.55	10220165911	84,10	10220165921	169,50	10220165930	254,00
250	260	0.7	3.02	10250165911	104,00	10250165920	209,50	10250165930	312,00
280	290	0.7	3.16	10280165911	108,50	10280165921	216,50	10280165930	326,00
300	310	0.7	3.20	10300165910	115,50	10300165920	230,50	10300165930	345,50
315	325	0.7	3.40	10310165911	121,50	10310165920	243,00	10310165930	363,50

Length 10 m (sold by whole metres only)

DN	ØA	S	kg/m	Length 10 m	
				Item no.	€
50	58	0.7	0.41	100501659110	236,00
60	68	0.7	0.49	100601659110	241,00
80	88	0.7	0.76	100801659110	329,50
100	110	0.7	0.95	101001659110	427,00
120	129	0.7	1.12	101201659110	525,00
140	149	0.7	1.38	101401659110	554,50
150	161	0.7	1.48	101501659110	609,50
160	169	0.7	1.19	101601659110	664,50
175	185	0.7	1.85	101701659110	664,50
200	214	0.7	2.30	102001659110	735,00
224	235	0.7	2.55	102201659110	840,00
250	260	0.7	3.02	102501659110	1036,00
280	290	0.7	3.16	102801659110	1083,00
300	310	0.7	3.20	103001659110	1150,00
315	325	0.7	3.40	103101659110	1210,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



SPECIAL HOSE CLAMPS

3170

- For use in conjunction with hose connections and JACOB PU hose

DN	Galvanised		Stainless steel	
	Item no.	€	Item no.	€
50	10052162	7,50	10053162	11,30
60	10062162	7,50	10063162	11,50
80	10082162	7,70	10083162	11,70
100	10102162	9,00	10103162	13,50
120	10122162	9,40	10123162	14,10
140	10142162	11,10	10143162	16,40
150	10152162	11,70	10153162	17,70
160	10162162	14,10	10163162	20,80
175	10172162	14,10	10173162	20,80
200	10202162	15,90	10203162	23,60
224	10222162	29,60	10223162	38,30
250	10252162	30,90	10253162	40,40
280	10282162	32,10	10283162	41,80
300	10302162	32,90	10303162	42,70
315	10312162	34,40	10313162	44,60



HOSE CLAMPS

3165

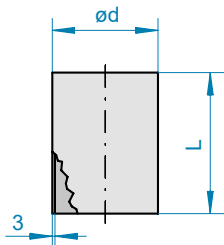
- For fixing flexible sleeves

DN	Stainless steel	
	Item no.	€
60	10063163	10,40
80	10083163	12,60
100	10103163	14,40
120	10123163	14,60
140	10143163	15,30
150	10153163	15,30
160	10163163	16,40
175	10173163	16,40
200	10203163	16,70
224	10223163	17,70
250	10253163	17,70
300	10303163	19,30



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



SLEEVES FOR HOSE CONNECTIONS

1345

- Material: EPDM, black
- Electrostatically conductive
- Temperature resistance: -30°C to +120°C
- Pressure resistance on request

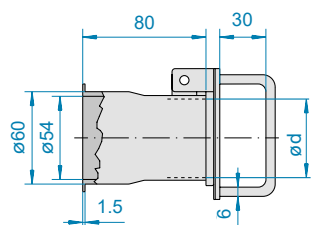
DN	Ø d	L	kg	EPDM, black	
				Item no.	€
60	60	200	0.19	1006817051	61,80
80	80	200	0.21	1008817051	63,20
100	100	200	0.26	1010817051	64,50
120	125	200	0.32	1012817051	68,80
140	140	200	0.37	1014817051	73,00
150	150	200	0.40	1015817051	76,00
160	160	200	0.42	1016817051	82,50
175	175	200	0.46	1017817051	82,50
200	200	200	0.53	1020817051	88,50
224	225	200	0.59	1022817051	94,90
250	250	200	0.66	1025817051	102,50
300	300	200	0.79	1030817051	115,00



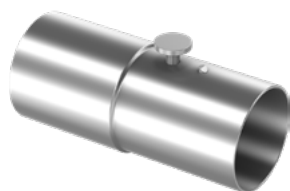
HOSE SOCKETS

3175

- With cover for hose plug
- The version with 80 mm diameter differs from the illustration



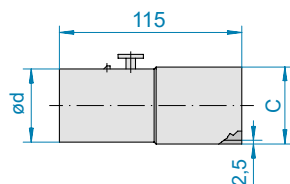
DN	Electro-galvanised		Stainless steel	
	Item no.	€	Item no.	€
60	10062860	76,90	10063860	251,50
80	10082860	170,00		



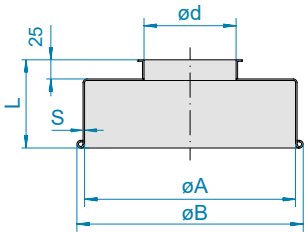
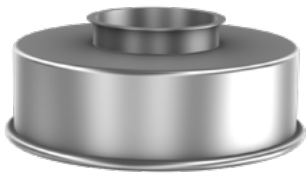
HOSE PLUGS

3180

- 45 mm and 50 mm diameters are suitable for 60 mm hose socket



DN	C	Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
45	45	100628651	63,80		
50	50	100628650	65,80	100638650	190,50
80	80	100828650	90,40		



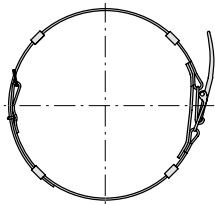
BAGGING SPOUTS

1350

- For use in conjunction with a bag clamp

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	Ø B	L	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	275	295	115	11081585	65,00	11082585	81,10	11083585	164,50
100	100	275	295	115	11101585	65,00	11102585	81,10	11103585	164,50
120	120	275	295	115	11121585	67,70	11122585	84,10	11123585	167,00
150	150	275	295	115	11151585	75,50	11152585	93,90	11153585	174,00
175	175	275	295	115	11171585	90,50	11172585	112,50	11173585	182,00
200	200	275	295	115	11201585	102,50	11202585	134,50	11203585	198,00
250	250	275	295	115	11251585	131,00	11252585	170,50	11253585	227,00
300	300	300	311	115	11301585	216,00	11302585	280,50	11303585	309,50



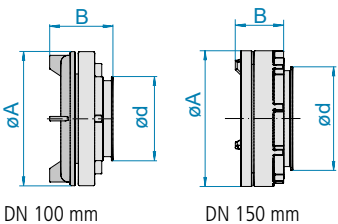
BAG CLAMPS

4010

- Made from leather for bagging spout
- Bag clamp item no. 10080581 can be used for bagging spouts with 80–300 mm diameter

- For attachment on site

DN min / max	Item no.	€
250-320	10080581	50,30
420-500	10080582	70,40



PNEUMATIC FILL AND VACUUM COUPLINGS

1460

- Pressure coupling, aluminium
- Sealing cap, plastic
- Chain, galvanised steel
- With 6 mm lip for connecting to the JACOB pull-ring system

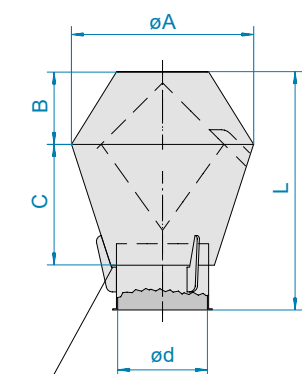
DN	Ø d	Ø A	B	kg	Aluminium	
					Item no.	€
100	113	182	85	1.26	10100870	80,20
150	164	215	91	3.02	10150870	312,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Jet caps and rain caps



Revolving water outlet

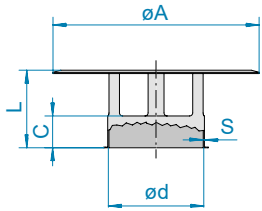
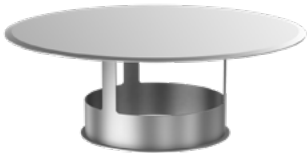
JET CAPS

1430

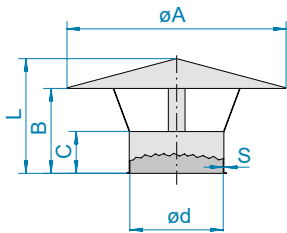
- From DN 350 mm, with welded flange similar to DIN 24154-2 (see chapter 11, page 219, for dimensions), but without counter flange (see chapter 11 for suitable flanges)

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
80	76	230	110	188	360	3.20	12082805	276,50	12083805	443,50
100	99	230	110	152	325	3.40	12102805	276,50	12103805	455,00
120	119	260	125	169	355	5.20	12122805	337,00	12123805	500,00
140	135	310	130	222	415	6.60	12142805	343,00	12143805	556,00
150	149	310	130	200	390	7.40	12152805	343,00	12153805	556,00
160	159	313	130	195	395	7.60	12162805	433,50	12163805	703,00
175	174	360	160	237	460	9.50	12172805	433,50	12173805	703,00
200	199	460	200	322	620	12.50	12202805	517,50	12203805	836,50
224	219	515	235	368	695	14.50	12222805	597,00	12223805	978,00
250	249	515	235	322	650	18.80	12252805	597,00	12253805	978,00
280	276	570	245	305	566	18.00	12282805	693,00	12283805	1119,00
300	299	575	255	335	680	18.50	12302805	693,00	12303805	1119,00
315	311	590	255	327	680	20.00	12312805	728,00	12313805	1176,00
350	349	645	275	448	848	25.50	12352805	754,00	12353805	1229,00
400	398	715	295	480	915	29.50	12402805	872,00	12403805	1423,00
450	448	820	320	588	1040	49.50	12452805	991,00	12453805	1668,00
500	498	870	320	588	1040	53.50	12502805	1118,00	12503805	1931,00
560	558	990	372	703	1208	71.00	12562805	1243,00	12563805	2209,00
630	628	1140	442	776	1434	95.00	12632805	1416,00	12633805	2513,00
710	707	1290	502	901	1627	118.00	12712805	2376,00	12713805	3951,00
800	797	1440	520	1020	1790	142.00	12802805	2733,00	12803805	4737,00



Version DN 80 to 200 mm



Version from DN 224 mm

RAIN CAPS

1440

- Take local building regulations into account, alternatively use a jet cap

Galvanised and stainless steel (dimensions for 2 mm pipework)

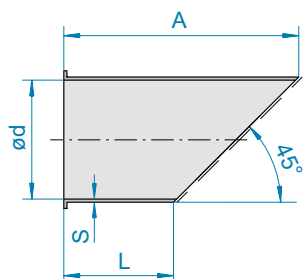
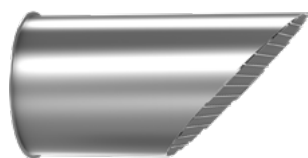
DN	$\varnothing d$	$\varnothing A$	B	C	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel		2 mm stainless steel	
							Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	180		50	92	0.60	11082850	96,40			11083850	122,50		
100	100	225		50	102	0.90	11102850	100,50			11103850	148,50		
120	120	270		50	112	1.30	11122850	105,00			11123850	174,50		
140	136	325		50	122	1.70	11142850	115,00			11143850	200,50		
150	150	325		50	127	1.80	11152850	115,00			11153850	200,50		
160	159	350		50	132	1.90	11162850	121,50			11163850	225,00		
175	175	375		50	140	2.30	11172850	121,50			11173850	225,00		
200	200	425		50	152	2.90	11202850	131,00			11203850	251,50		
224	220	525	205	106	275	6.10	11222850	159,00			11223850	302,50		
250	250	525	205	106	275	6.40	11252850	159,00			11253850	302,50		
280	277	596	220	106	300	6.60	11282850	187,00			11283850	356,00		
300	300	625	230	156	315	6.20	11302850	187,00			11303850	356,00		
315	312	655	230	106	320	10.54	11312850	251,00			11313850	479,50		
350	350	750	300	156	395	14.70	11352850	298,00			11353850	547,50		
400	399	850	320	156	435	15.20	11402850	337,00			11403850	684,00		
450	448	950	340	150	470	22.00			12452850	371,50			12453850	879,00
500	498	1050	410	200	550	27.70			12502850	403,50			12503850	986,00
560	558	1150	435	200	590	27.00			12562850	436,50			12563850	1053,00
630	628	1300	470	200	645	32.00			12632850	474,50			12633850	1107,00



TRANSITION PIECES AND ADAPTERS

Air outlet pipes and perforated sheet metal

1450



AIR OUTLET PIPES 45°

- With bird-guard, mesh size 20 x 20 x 2 mm

Galvanised (dimensions for 1.5 mm)

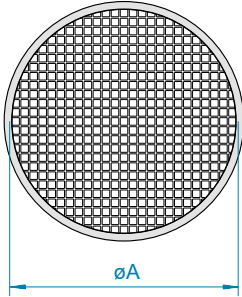
DN	Ød	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11082880*	93,90		
100	100	300	200	1.20	11102880	93,90		
120	120	320	200	1.50	11122880	111,50		
140	136	340	200	1.90	11142880	131,00		
150	150	350	200	2.20	11152880	131,00		
160	159	360	200	1.79	11162880	143,50		
175	175	375	200	2.60	11172880	143,50		
200	200	400	200	3.20	11202880	156,00		
224	220	424	200	3.70	11222880	173,50		
250	250	450	200	4.40	11252880	173,50		
280	277	480	200	5.40	11282880	204,50		
300	300	500	200	6.00	11302880	204,50		
315	312	515	200	7.20	11312880	238,50		
350	350	550	200	8.20	11352880	293,50		
400	399	600	200	10.20	11402880	351,50		
450	449	650	200	12.40	11452880	424,50		
500	499	700	200	14.90	11502880	486,00		
560	558	760	200	23.70			11562880	575,00
630	628	830	200	29.20			11632880	641,50

*1 mm

Stainless steel (dimensions for 1.5 mm)

DN	Ød	A	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11083880	122,50		
100	100	300	200	1.20	11103880	122,50		
120	120	320	200	1.50	11123880	151,00		
140	136	340	200	1.90	11143880	174,00		
150	150	350	200	2.20	11153880	174,00		
160	159	360	200	1.79	11163880	190,50		
175	175	375	200	2.60	11173880	190,50		
200	200	400	200	3.20	11203880	209,00		
224	220	424	200	3.70	11223880	229,50		
250	250	450	200	4.40	11253880	229,50		
280	277	480	200	5.40	11283880*	279,50		
300	300	500	200	6.00	11303880	279,50		
315	312	515	200	7.20	11313880*	316,00		
350	350	550	200	8.20	11353880	378,50		
400	399	600	200	10.20	11403880	469,00		
450	449	650	200	12.40	11453880	538,00		
500	499	700	200	14.90	11503880	621,50		
560	558	760	200	23.70			12563880	748,00
630	628	830	200	29.20			12633880	895,50

*1 mm



PERFORATED SHEET METAL

1380

- With NBR U-shaped seal for 2 mm
- 69% free space, hole size 10 x 10 mm
- NBR: Temperature resistance: -20°C to +100°C, food grade standard, in accordance with EC 1935/2004
- On request: Silicone seal, temperature resistance -60°C to +250°C
- FOOD GRADE: EC 1935/2004 plus FDA compliant

DN	Ø A	kg	1 mm stainless steel	
			Item no.	€
80	92	0.01	11083716	19,80
100	114	0.05	11103716	19,80
120	134	0.05	11123716	23,40
140	150	0.05	11143716	24,10
150	164	0.10	11153716	24,10
160	174	0.10	11163716	25,60
175	189	0.10	11173716	25,60
200	214	0.11	11203716	28,00
224	238	0.11	11223716	32,30
250	264	0.11	11253716	32,30
280	294	0.13	11283716	34,70
300	314	0.14	11303716	39,40
315	326	0.15	11313716	43,30
350	364	0.15	11353716	48,10
400	414	0.15	11403716	58,70

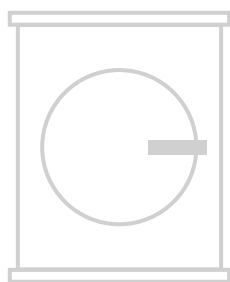


AVAILABLE IN THE DETECTABLE DESIGN LINE.

6



JACOB INSPECTION PIPE COMPONENTS:
CLEANING AND MAINTENANCE
IN NEXT TO NO TIME



INSPECTION AND CLEANING

Technical information	100	
Inspection pipes	102	
Cleaning pipes	103	
Inspection T-pieces	104	
Rubber covers	105	
Plexiglass pipes	106	
Magnetic separator	107	



INSPECTION PIPE COMPONENTS

Control is better: Inspection pipe components allow you to keep an eye on the inside of your JACOB pipework system too. Special pipe components provide unhindered access and let you carry out inspections, maintenance and cleaning without having to dismantle whole sections of pipework. Like all other pipework elements, the inspection pipe components are manufactured to the same high JACOB standard of quality.

SEALS FOR INSPECTION PIPE COMPONENTS AND RUBBER COVERS

Seals for inspection pipes



NBR	Silicone F	Silicone F D
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

Seals for use with cleaning pipes



EPDM (sponge rubber)	Foam silicone F	Foam silicone F D
light grey	white	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-35°C to +110°C	-60°C to +180°C	-60°C to +180°C
glued	vulcanised	vulcanised
		metal-detectable

Rubber covers for inspection T-pieces



NBR	TPE F	Silicone F	Silicone F D
dark grey	white	silicone, translucent	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-30°C to +90°C	-30°C to +100°C	-60°C to +200°C	-60°C to +200°C
			metal-detectable

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



MAGNETIC SEPARATOR

For free-flowing bulk goods and exhaust air with low delivery pressure

- Strong magnets: up to nine neodymium rod magnets remove even the smallest iron particles from bulk goods and exhaust air. Maximum magnetic induction (G) – on the surface of the pipe (+/- 10 %): 10,000 Gauss.
- Compact and robust: comprises several rod magnets in a protective stainless-steel casing, a JACOB T-piece and a pull-ring connection with a DETECTABLE DESIGN seal.
- Easy to clean: pull the separator out of the pipework system, remove the magnets from the casing, and all the iron parts and particles will simply fall off the casing.
- Improved food safety
- Combine the magnetic separator with seals from JACOB's DETECTABLE DESIGN series of products.



Explanatory video on magnetic separator



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

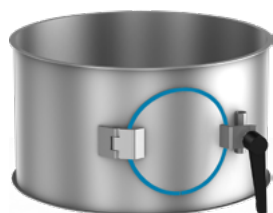


INSPECTION AND CLEANING

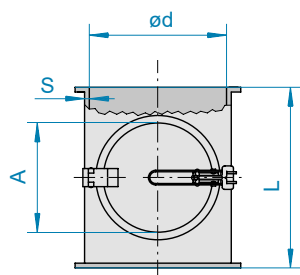
Inspection pipes



DN 80 to 315 mm



DN 350 to 400 mm



INSPECTION PIPES

2010

- Galvanised and powder-coated in standard range with NBR seal
- Stainless steel in standard range with silicone seal
- Other seals available on request
- Reinforced shock explosion proof version up to 3 bar on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11081190	56,20			11082190	68,70
100	100	115	200	1.25	11101190	56,20			11102190	68,70
120	120	115	200	1.45	11121190	58,50	13121190	91,90	11122190	72,00
140	136	115	200	1.55	11141190	61,60			11142190	77,20
150	150	115	200	1.65	11151190	61,60	13151190	97,20	11152190	77,20
160	159	115	200	1.75	11161190	64,60			11162190	80,50
175	175	115	200	1.85	11171190	64,60	13171190	98,10	11172190	80,50
200	200	115	200	2.00	11201190	66,50	13201190	103,00	11202190	82,40
224	220	115	200	2.25	11221190	70,00			11222190	89,20
250	250	115	200	2.40	11251190	70,00	13251190	107,00	11252190	89,20
280	277	115	200	2.60	11281190	73,20			11282190	92,80
300	300	115	200	2.65	11301190	73,20	13301190	110,50	11302190	92,80
315	312	115	200	2.85	11311190	84,30			11312190	107,00
350	350	115	200	3.20	11351190	94,10	13351190	129,50	11352190	118,50
400	399	115	200	3.55	11401190	99,80	13401190	140,50	11402190	129,50

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11083190	117,00				
100	100	115	200	1.25	11103190	117,00			12103190	144,00
120	120	115	200	1.45	11123190	120,00			12123190	146,50
140	136	115	200	1.55	11143190	124,00				
150	150	115	200	1.65	11153190	124,00			12153190	153,50
160	159	115	200	1.15	11163190	128,50			12163190	158,50
175	175	115	200	1.85	11173190	128,50			12173190	158,50
200	200	115	200	2.00	11203190	134,50			12203190	169,00
224	220	115	200	2.25	11223190	144,00				
250	250	115	200	2.40	11253190	144,00			12253190	182,50
280	277	115	200	2.60			11283190	156,50		
300	300	115	200	2.65	11303190	156,50			12303190	204,00
315	312	115	200	2.85			11313190	172,50		
350	350	115	200	3.20	11353190	181,00			12353190	232,00
400	399	115	200	3.55	11403190	201,50			12403190	265,00

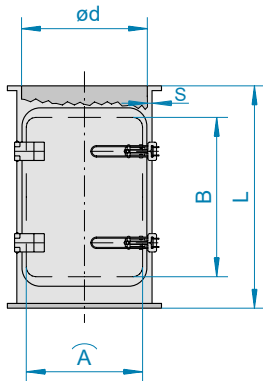
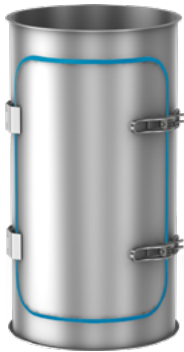


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable



CLEANING PIPES

2020

- Galvanised and powder-coated in standard range with EPDM (sponge rubber) seal
- Stainless steel with foam silicone seal
- Other seals available on request
- Not recommended for extracting exhaust air containing condensates

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	\widehat{A}	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€
200	200	224	350	486	4.70	11201195	176,50			11202195	221,00
224	220	224	350	486	5.20	11221195	189,00			11222195	239,00
250	250	224	350	486	5.85	11251195	189,00			11252195	239,00
280	277	224	350	486	6.60	11281195	201,00			11282195	251,00
300	300	350	350	486	7.00	11301195	201,00			11302195	251,00
315	312	350	350	486	7.35	11311195	211,00			11312195	265,00
350	350	350	350	486	8.40	11351195	212,00			11352195	269,00
400	399	350	350	486	9.10	11401195	226,00			11402195	285,50
450	448	500	350	486	11.60			12451195	248,50	12452195*	321,00
500	498	500	350	486	12.80			12501195	267,00	12502195*	345,00
560	558	500	350	486	14.30			12561195	286,50	12562195*	382,00
630	628	500	350	486	16.00			12631195	310,00	12632195*	406,50

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	\widehat{A}	B	L	kg	1.5 mm stainless steel F		2 mm stainless steel F	
						Item no.	€	Item no.	€
200	200	224	350	486	4.70	11203195	321,50		
224	220	224	350	486	5.20	11223195	345,00		
250	250	224	350	486	5.85	11253195	345,00		
280	277	224	350	486	6.60	11283195	365,00		
300	300	350	350	486	7.00	11303195	365,00		
315	312	350	350	486	7.35	11313195	378,00		
350	350	350	350	486	8.40	11353195	388,00		
400	399	350	350	486	9.10	11403195	407,50		
450	448	500	350	486	11.60			12453195	440,00
500	498	500	350	486	12.80			12503195	471,50
560	558	500	350	486	14.30			12563195	506,00
630	628	500	350	486	16.00			12633195	547,50



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

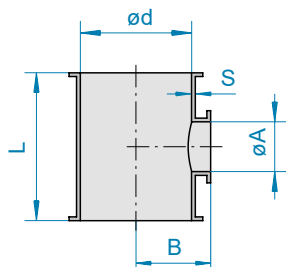
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION AND CLEANING

Inspection T-pieces



INSPECTION T-PIECES

1040

- For use in conjunction with a rubber cover
- Alternatively: Combined with a blank off cover and JACOB pull-ring
- Refer to dimension A to select the right rubber cover or blank off cover

Powder-coated (dimensions for 1.5 mm pipework)

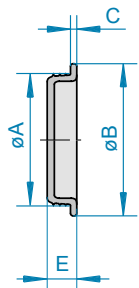
DN	Ø d	Ø A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11101200	26,40				
120	120	100	89	165	0.80	11121200	27,80			13121200	48,80
150	150	120	100	198	1.20	11151200	33,20			13151200	55,80
175	175	150	114	225	1.55			12171200	48,80	13171200	59,90
200	200	150	125	225	1.80	11201200	41,60	12201200	54,60	13201200	76,40
250	250	150	150	225	2.20	11251200	54,50	12251200	72,10	13251200	93,70
300	300	150	177	225	2.55	11301200	65,10	12301200	75,90	13301200	105,50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	B	L	kg	1.5 mm galvanised		1 mm stainless steel	F	2 mm stainless steel	F
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11102200	30,40	11103200	63,00	12103200	74,60
120	120	100	89	165	0.80	11122200	32,70	11123200	65,90	12123200	79,80
150	150	120	100	198	1.20	11152200	41,10	11153200	77,30	12153200	102,50
175	175	150	114	225	1.55	11172200	44,40	11173200	102,50	12173200	133,50
200	200	150	125	225	1.80	11202200	53,50	11203200	106,00	12203200	144,00
250	250	150	150	225	2.20	11252200	69,20	11253200	119,00	12253200	152,50
300	300	150	177	225	2.55	11302200	81,20	11303200	125,50	12303200	184,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Rubber covers



RUBBER COVERS

3030

- For use in conjunction with inspection T-pieces or JACOB pipework in the appropriate diameter
- To select the right rubber cover, please refer to dimension A of the inspection T-piece
- Refer to the beginning of the chapter for more information on materials

NBR and TPE

DN	øA	øB	C	E	kg	NBR (-30°C to +90°C)		TPE (-30°C to +100°C)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10			1008520309	7,30
100	101	121	5	21	0.15	10106203	9,50	1010520309	7,50
120	121	141	5	22	0.20	10126203	10,70	1012520309	9,40
150	151	171	6	24	0.35	10156203	14,60	1015520309	9,70
175	176	197	6	29	0.45	10176203	21,80	1017520309	14,60
200	201	221	6	26	0.60	10206203	29,70	1020520309	19,00
250	251	271	7	30	0.90	10256203	41,20	1025520309	25,50
300	301	321	7	32	1.35	10306203	53,50	1030520309	35,40

Silicone

DN	øA	øB	C	E	kg	Silicone (-60°C to +200°C)		Silicone (blue) (-60°C to +200°C)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10	10087203	32,10	1008720301	46,70
100	102	121	5	21	0.15	10107203	33,60	1010720301	48,30
120	123	141	5	22	0.20	10127203	37,10	1012720301	51,80
150	151	171	6	24	0.35	10157203	48,50	1015720301	64,60
175	176	197	6	25	0.45	10177203	62,50	1017720301	81,40
200	202	221	6	26	0.60	10207203	80,60	1020720301	102,50
250	252	271	7	30	0.90	10257203	125,50	1025720301	163,00
300	302	321	7	32	1.35	10307203	129,00	1030720301	171,00

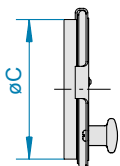
ADDITIONAL RUBBER COVER LOCKS

3040

- For use in conjunction with inspection T-pieces and rubber covers

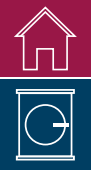
Electro-galvanised

DN	øC	kg	2 mm electro-galvanised	Item no.	€
100	100	0.30	for inspection T-pieces DN 100 and 120 mm	11102210	29,30
120	120	0.35	for inspection T-pieces DN 150 mm	11122210	30,00
150	150	0.55	for inspection T-pieces DN 175 to 300 mm	11152210	37,40



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION AND CLEANING

Plexiglass pipes



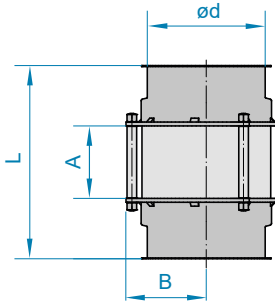
PLEXIGLASS PIPES WITH SPIGOTS AND ROD SPACERS

1390

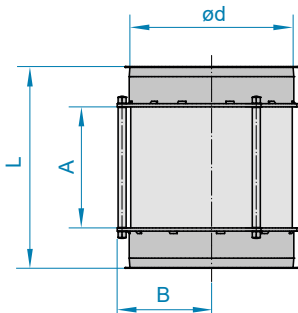
- Including spigots with a lip
- NEW: with rod spacers for a stronger construction
- Temperature-resistant to 70°C
- Plexiglass pipes must never be installed in load bearing situations
- DN 60 to 150 mm and DN 200 mm made of seamless plexiglass
- DN 175 and 250 mm with glued plexiglass, foodstuff compliant in accordance with FDA

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	B	L	kg	1 mm powder-coated		1 mm electro-galvanised		1 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€
80	78	75	62	200	0.80	11081725	86,50	11082725	101,00	11083725	107,00
100	100	75	72	200	0.90	11101725	92,60	11102725	107,00	11103725	115,00
120	120	75	83	200	1.10	11121725	99,90	11122725	115,00	11123725	124,00
150	150	75	97	200	1.30	11151725	107,50	11152725	122,00	11153725	133,00
175	175	100	104	200	1.50	11171725	150,00	11172725	165,00	11173725	185,50
200	200	150	117	250	1.90	11201725	156,00	11202725	170,00	11203725	192,50
250	250	150	142	250	2.30	11251725	162,50	11252725	176,50	11253725	200,50



DN 80 to 150 mm



DN 175 to 250 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Magnetic separator



MAGNETIC SEPARATOR

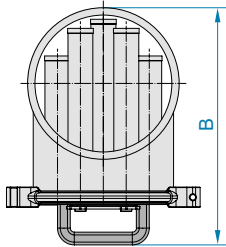
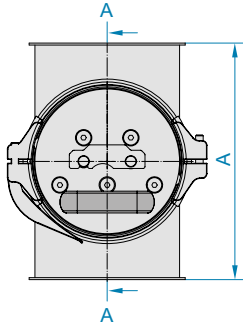
2025

- Strong magnets with 10,000 G, neodymium magnet N35
- Improved food safety
- Other diameters available on request
- For further T-piece dimensions, see also chapter 5
- Comprises several rod magnets in a protective stainless-steel casing, a T-piece and a pull-ring connection with a DETECTABLE DESIGN seal

Magnetic separator (dimensions for 1.5 mm T-piece)

DN	Ø d	A	B	M*	kg	Number of rods	1.5 mm Stainless steel	
							Item no.	€
100	100	200	205	17	4.5	3	1110324003	1514,00
150	150	250	260	22	8.5	5	1115324005	2425,00
200	200	300	310	22	14.0	7	1120324007	3478,00
250	250	350	360	22	20.0	9	1125324009	4412,00
300	300	400	410	22	26.5	9	1130324009	5165,00
315	312	420	425	22	27.0	9	1131324009	5342,00

*Minimum spacing between the rod magnets

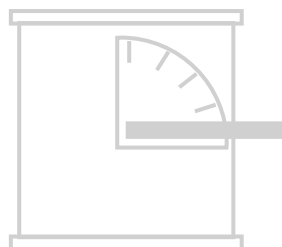


F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



AIR FLOW AND PRODUCT TRANSPORT
TO SUIT YOUR SYSTEM: PERFECTLY REGULATED
AT ALL TIMES



THROTTLE VALVES AND REGULATORS

Technical information	110	
Throttle valves	112	
Throttle valves with seal	117	
Adjustable blank-off covers and air bleeds	122	
Non-return valves	123	
Air and pipe slide gates	124	
Silo / Redler outlet slide gates	127	



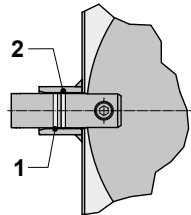
THROTTLE VALVES AND REGULATORS

Technical information

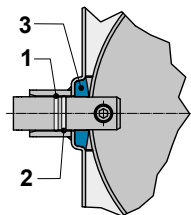
THROTTLE VALVES

JACOB throttle valves and regulators precisely control the air flow and product transport and can be flexibly incorporated in our pull-ring system thanks to their lipped ends.

We have a wide portfolio of standard products – from manually adjustable throttle valves and pneumatic rotary actuators to electrically operated adjustable actuators. Other actuators and larger diameters are available on request. We reserve the right to alter design specifications.



Cross-section of throttle valve without seal, valve open
1 EPDM
2 Viton



Cross-section of throttle valve with seal, valve open
1 EPDM
2 Viton
3 Silicone rubber

THROTTLE VALVES WITHOUT INNER VALVE SEAL

- Diameters of 60 – 400 mm
- Hand-operated, made of powder-coated, galvanised and stainless steel
- Fitted with pneumatic rotary actuator, and electrically operated with an electric motor, powder-coated and stainless steel
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to ensure that any electrostatic charges on the inner flap are discharged to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant for contact with food in accordance with EC 1935/2004 plus FDA
- Versions with a diameter over 350 mm are alternatively available with loose flanges. Refer to chapter 11 for details

THROTTLE VALVES WITH INNER VALVE SEAL

- Diameters of 80 – 400 mm
- Hand-operated, pneumatically operated with a rotary actuator, and electrically operated with an electric motor, powder-coated and stainless steel
- The standard quality with an inner valve seal is made of silicone rubber
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to ensure that any electrostatic charges on the inner flap are discharged to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant with EC 1935/2004 plus FDA for contact with food, including all parts in contact with foodstuffs and any sealing materials and glues used
- Please refer to chapter 11 for information on special throttle valve versions with a seal in diameters of over 400 mm

Throttle valves with and without a seal: Shafts are sealed with O-ring seals

Throttle valves with a seal: Inner flap seal made of silicone rubber

O-ring EPDM	O-ring Viton	Valve seal made of silicone rubber	F
black	green	transparent	
not in contact with the product	not in contact with the product	FOOD GRADE: EC 1935/2004 plus FDA compliant	
-40°C to +150°C	-20°C to +200°C	-60°C to +180°C	
conductive		vulcanised	

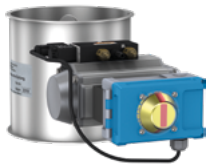
F FOOD GRADE
EC 1935/2004 plus FDA compliant



Special versions available – prices on request

- Housing available in various types of stainless steel, such as 1.4571
- Versions for higher temperatures on request
- Actuation possible 100 mm away from the housing for higher temperature protection
- Actuators, solenoid valves and limit switches according to customers' specifications
- Larger diameters available on request
- Versions with loose flanges or welded flanges, e.g. similar to DIN 24154-2 (see chapter 11, page 219, for dimensions)
- Special colours
- Other actuators on request

ACTUATORS FOR THROTTLE VALVES



Pneumatic AIR TORQUE rotary actuators (IP 65)

Required air pressure 5 bar. Switch-over time for 90° < 3 seconds. On the rotary actuator there is a 5/2-way spring-return solenoid valve (1 coil) with auxiliary hand operation, with an angle push-in fitting for an 8 x 1 PU hose. Standard version of throttle valve defaults to closed when the current is cut.

2 potential-free micro limit switches 4-250 V with spring-free gold contacts for PLC controls and suitable for amperages up to 5 A, in a limit switch box on the drive. Solenoid valve and limit switches wired on terminals in a limit switch box.



Electrically operated BELIMO valve actuators (IP 42)

Overload proof, in standard version without limit switches. The valve remains energised in the respective end position. Consumption approx. 4 watt. Switch-over time for 90° approx. 150 seconds. Valves larger than DN 300 mm without a seal and larger than DN 200 mm with a seal are not fitted with a BELIMO actuator as standard. Larger diameters available on request. Flexibly adjustable limit switches for switching off and position feedback, or as a continuously adjustable actuator, are available at additional cost.



Electrically operated AIR TORQUE adjustable actuator (IP 65)

1-phase, with emergency hand operation. Switch-over time for 90° for throttle valves without a seal approx. 11 to 12 seconds, throttle valves with a seal approx. 12 to 23 seconds, 2 limit switches integrated in the actuator. Prices for additional limit switch, potentiometer or position controller on request.



EXPLOSION PROTECTION

Throttle valves without a seal, pipe slide gates, outlet slide gates

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the valves in Zone 1, 2 and Zone 21, 22 are available at additional cost.

Inside area: Inside use is permitted if the operating conditions for ATEX **Zone 0/20** are adhered to.

Throttle valve with seal made of silicone

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the valves in Zone 1, 2 and Zone 21, 22 are available at additional cost.

Inside area: Inside use is permitted if the operating conditions for ATEX **Zone 20** are adhered to.

Processes that generate strong electrostatic charges are prohibited. Versions for use in gas atmospheres are available on request.

TECHNICAL DOCUMENTATION

Our comprehensive technical documentation on throttle valves and slide gates is always kept up-to-date and is available on our website for you to download.



Documentation – JACOB



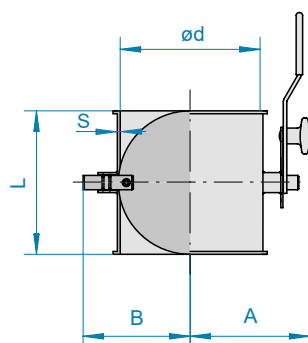
THROTTLE VALVES AND REGULATORS

Throttle valves

2070

THROTTLE VALVES, HAND-OPERATED

- Larger diameters available on request
- Refer to chapter 11 for version with loose flange
- For manual continuous flow regulation



Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11061566	65,20		
80	77	90	74	100	0.90	11081566	67,90	11082566	91,50
100	100	101	85	100	1.10	11101566	71,90	11102566	94,00
120	120	124	103	120	1.90	11121560	86,20	11122560	109,00
140	136	132	111	140	2.20	11141560	95,10	11142560	117,50
150	150	139	118	150	2.40	11151560	95,10	11152560	117,50
160	159	144	123	160	2.70	11161560	116,50	11162560	130,00
175	175	152	130	175	3.00	11171560	116,50	11172560	130,00
200	200	164	143	200	3.50	11201560	127,50	11202560	142,00
224	220	174	153	200	3.90	11221560	164,50	11222560	185,00
250	250	189	168	200	4.50	11251560	164,50	11252560	185,00
280	277	203	181	200	5.00	11281560	176,50	11282560	203,50
300	300	214	193	200	5.50	11301560	180,50	11302560	206,50
315	312	220	199	200	6.50	11311560*	197,00	11312560*	228,00
350	350	239	218	200	7.50	11351560*	204,50	11352560*	235,00
400	399	264	242	200	9.00	11401560*	226,00	11402560*	261,50

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11063566	128,50		
80	77	90	74	100	0.90	11083566	162,50		
100	100	101	85	100	1.10	11103566	162,50	12103566	172,50
120	120	124	103	120	1.90	11123560	174,50	12123560	187,50
140	136	132	111	140	2.20	11143560	201,50		
150	150	139	118	150	2.40	11153560	201,50	12153560	213,50
160	159	144	123	160	2.70	11163560	228,50	12163560	248,50
175	175	152	130	175	3.00	11173560	228,50	12173560	248,50
200	200	164	143	200	3.50	11203560	277,50	12203560	290,50
224	220	174	153	200	3.90	11223560	334,50		
250	250	189	168	200	4.50	11253560	334,50	12253560	355,00
280	277	203	181	200	5.00			12283560	402,00
300	300	214	193	200	5.50	11303560	380,50	12303560	402,00
315	312	220	199	200	6.50			12313560	408,00
350	350	239	218	200	7.50			11353560	408,00
400	399	264	242	200	9.00			11403560	476,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2095

- Control with 5/2-way solenoid valve (1-coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€



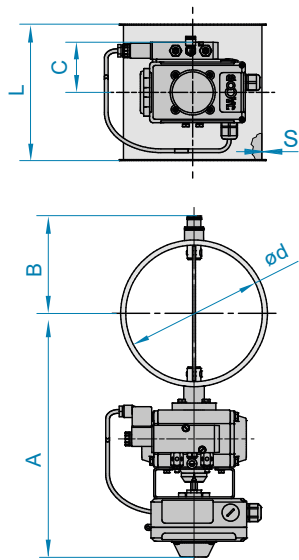
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

60	57	280	63	79	60	3.30	5662060344	728,00	6662060344	855,00
80	77	303	87	79	100	3.60	5662080344	742,00	6662080344	891,50
100	100	315	99	79	100	3.90	5662100344	742,00	6662100344	892,00
120	120	325	109	79	120	4.30	5852120344	746,50	6852120344	903,00
140	136	333	117	79	140	4.70	5852140344	755,50	6852140344	913,00
150	150	340	124	79	150	5.00	5852150344	755,50	6852150344	913,00
160	159	345	123	79	160	5.30	5852160344	782,00	6852160344	968,50
175	175	352	136	84	175	6.60	5852170344	782,00	6852170344	968,50
200	200	364	149	84	200	7.40	5852200344	799,50	6852200344	998,00
224	220	374	159	84	200	7.90	5852220344	837,50	6852220344	1082,00
250	250	388	174	84	200	8.60	5852250344	837,50	6852250344	1082,00
280	277	403	188	84	200	9.10	5852280344	855,00	6852280344	1123,00
300	300	414	199	84	200	9.80	5852300344	859,00	6852300344	1123,00
315	312	422	205	84	200	10.20	5852310344*	875,50	6852310344*	1129,00
350	350	460	224	84	200	10.90	5852350344*	897,50	6852350344*	1185,00
400	399	485	248	84	200	12.30	5852400344*	941,00	6852400344*	1247,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

60	57	280	63	79	60	3.30	5662060345	728,00	6662060345	855,00
80	77	303	87	79	100	3.60	5662080345	742,00	6662080345	891,50
100	100	315	99	79	100	3.90	5662100345	742,00	6662100345	892,00
120	120	325	109	79	120	4.30	5852120345	746,50	6852120345	903,00
140	136	333	117	79	140	4.70	5852140345	755,50	6852140345	913,00
150	150	340	124	79	150	5.00	5852150345	755,50	6852150345	913,00
160	159	345	123	79	160	5.30	5852160345	782,00	6852160345	968,50
175	175	352	136	84	175	6.60	5852170345	782,00	6852170345	968,50
200	200	364	149	84	200	7.40	5852200345	799,50	6852200345	998,00
224	220	374	159	84	200	7.90	5852220345	837,50	6852220345	1082,00
250	250	388	174	84	200	8.60	5852250345	837,50	6852250345	1082,00
280	277	403	188	84	200	9.10	5852280345	855,00	6852280345	1123,00
300	300	414	199	84	200	9.80	5852300345	859,00	6852300345	1123,00
315	312	422	205	84	200	10.20	5852310345*	875,50	6852310345*	1129,00
350	350	460	224	84	200	10.90	5852350345*	897,50	6852350345*	1185,00
400	399	485	248	84	200	12.30	5852400345*	941,00	6852400345*	1247,00

*2 mm



F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

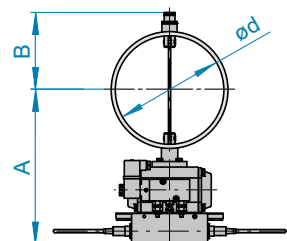
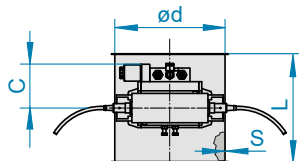
Throttle valves



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2095

- Switch-over time for 90°: < 3 seconds
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request
- Version with earthing lugs
- Please also read and take into account the technical information given at the beginning of this chapter



Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

60	57	280	63	79	60	3.30	56620603455	905,50	66620603455	1033,00
80	77	303	87	79	100	3.60	56620803455	919,00	66620803455	1069,00
100	100	315	99	79	100	3.90	56621003455	919,00	66621003455	1070,00
120	120	325	109	79	120	4.30	58521203455	924,00	68521203455	1080,00
140	136	333	117	79	140	4.70	58521403455	933,50	68521403455	1091,00
150	150	340	124	79	150	5.00	58521503455	933,50	68521503455	1091,00
160	159	345	123	79	160	5.30	58521603455	959,50	68521603455	1146,00
175	175	352	136	84	175	6.60	58521703455	959,50	68521703455	1146,00
200	200	364	149	84	200	7.40	58522003455	976,50	68522003455	1174,00
224	220	374	159	84	200	7.90	58522203455	1015,00	68522203455	1259,00
250	250	388	174	84	200	8.60	58522503455	1015,00	68522503455	1259,00
280	277	403	188	84	200	9.10	58522803455	1033,00	68522803455	1300,00
300	300	414	199	84	200	9.80	58523003455	1037,00	68523003455	1300,00
315	312	422	205	84	200	10.20	58523103455*	1054,00	68523103455*	1305,00
350	350	460	224	84	200	10.90	58523503455*	1076,00	68523503455*	1360,00
400	399	485	248	84	200	12.30	58524003455 *	1121,00	68524003455*	1426,00

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2105

- Switch-over time for 90°: approx. 150 seconds
- Limit switch position feedback at additional cost
- With external control voltage 0 to 10 V DC on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

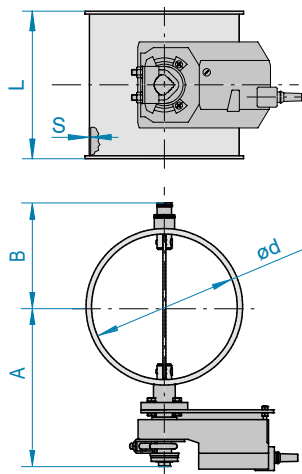
DN	Ød	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		F
						Item no.	€	Item no.	€	

Valve actuator, make BELIMO, voltage 230 V AC

60	57	145	63	60	3.60	5662060551	541,50	6662060551	695,50
80	77	166	87	100	3.90	5662080551	547,00	6662080551	728,00
100	100	179	99	100	4.20	5662100551	547,00	6662100551	729,50
120	120	189	109	120	4.60	5852120551	552,50	6852120551	738,50
140	136	197	117	140	5.00	5852140551	565,00	6852140551	755,50
150	150	204	124	150	5.20	5852150551	565,00	6852150551	755,50
160	159	209	123	160	5.40	5852160551	622,50	6852160551	853,00
175	175	216	136	175	5.60	5852170551	622,50	6852170551	853,00
200	200	229	149	200	6.40	5852200551	641,50	6852200551	882,50
224	220	239	159	200	6.80	5852220551	708,00	6852220551	953,00
250	250	254	174	200	7.40	5852250551	708,00	6852250551	953,00
280	277	403	188	200	8.10	5852280551	733,50	6852280551	1018,00
300	300	277	199	200	8.70	5852300551	736,00	6852300551	1018,00

Valve actuator, make BELIMO, voltage 24 V DC/AC

60	57	145	63	60	3.60	5662060552	541,50	6662060552	695,50
80	77	166	87	100	3.90	5662080552	547,00	6662080552	728,00
100	100	179	99	100	4.20	5662100552	547,00	6662100552	729,50
120	120	189	109	120	4.60	5852120552	552,50	6852120552	738,50
140	136	197	117	140	5.00	5852140552	565,00	6852140552	755,50
150	150	204	124	150	5.20	5852150552	565,00	6852150552	755,50
160	159	209	123	160	5.40	5852160552	622,50	6852160552	853,00
175	175	216	136	175	5.60	5852170552	622,50	6852170552	853,00
200	200	229	149	200	6.40	5852200552	641,50	6852200552	882,50
224	220	239	159	200	6.80	5852220552	708,00	6852220552	953,00
250	250	254	174	200	7.40	5852250552	708,00	6852250552	953,00
280	277	403	188	200	8.10	5852280552	733,50	6852280552	1018,00
300	300	277	199	200	8.70	5852300552	736,00	6852300552	1018,00

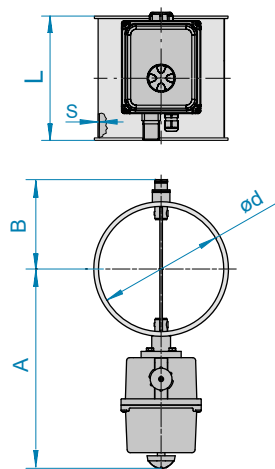


F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

Throttle valves



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

2107

- Adjustable actuator, make AIR TORQUE
- Including 2 limit switches
- Switch-over time for 90°: approx. 11–12 seconds
- ATEX version on request
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		F
						Item no.	€	Item no.	€	

Adjustable actuator, make AIR TORQUE, voltage 230 V AC

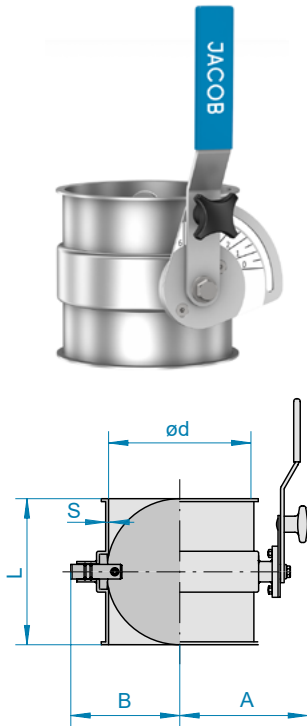
60	57	240	63	60	2.80	5662060773	782,00	6662060773	910,00
80	77	250	75	100	3.00	5662080773	784,50	6662080773	943,00
100	99	262	85	100	3.20	5662100773	784,50	6662100773	943,00
120	119	277	103	120	3.70	5852120773	788,50	6852120773	954,50
140	135	285	111	140	4.00	5852140773	800,50	6852140773	965,00
150	149	293	118	150	4.20	5852150773	800,50	6852150773	965,00
160	159	297	123	160	4.50	5852160773	828,00	6852160773	1024,00
175	174	305	131	175	4.70	5852170773	828,00	6852170773	1024,00
200	199	317	143	200	5.30	5852200773	846,00	6852200773	1055,00
224	219	327	153	200	5.70	5852220773	887,50	6852220773	1143,00
250	249	342	168	200	6.30	5852250773	887,50	6852250773	1143,00
280	276	357	182	200	6.80	5852280773	905,50	6852280773	1188,00
300	299	368	193	200	7.30	5852300773	909,00	6852300773	1188,00
315	311	374	199	200	8.40	5852310773*	925,00	6852310773*	1193,00
350	349	393	218	200	9.40	5852350773*	933,50	6852350773*	1217,00
400	398	418	242	200	10.80	5852400773*	953,50	6852400773*	1285,00

Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC

60	57	240	63	60	2.80	5662060774	782,00	6662060774	910,00
80	77	250	75	100	3.00	5662080774	784,50	6662080774	943,00
100	99	262	85	100	3.20	5662100774	784,50	6662100774	943,00
120	119	277	103	120	3.70	5852120774	788,50	6852120774	954,50
140	135	285	111	140	4.00	5852140774	800,50	6852140774	965,00
150	149	293	118	150	4.20	5852150774	800,50	6852150774	965,00
160	159	297	123	160	4.50	5852160774	828,00	6852160774	1024,00
175	174	305	131	175	4.70	5852170774	828,00	6852170774	1024,00
200	199	317	143	200	5.30	5852200774	846,00	6852200774	1055,00
224	219	327	153	200	5.70	5852220774	887,50	6852220774	1143,00
250	249	342	168	200	6.30	5852250774	887,50	6852250774	1143,00
280	276	357	182	200	6.80	5852280774	905,50	6852280774	1188,00
300	299	368	193	200	7.30	5852300774	909,00	6852300774	1188,00
315	311	374	199	200	8.40	5852310774*	925,00	6852310774*	1193,00
350	349	393	218	200	9.40	5852350774*	933,50	6852350774*	1217,00
400	398	418	242	200	10.80	5852400774*	953,50	6852400774*	1285,00

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES, HAND-OPERATED

2080

- Silicone rubber seal
- Powder-coated: Temperatures from -20 to +120°C permissible
- Stainless steel: Temperatures from 20 to +150°C permissible
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	A	B	L	kg	2 mm powder-coated		2 mm stainless steel		F
						Item no.	€	Item no.	€	
80	77	121	83	100	1.80	12081577*	153,00	12083577	266,00	
100	99	133	93	100	2.20	12101577	153,00	12103577	266,00	
120	119	143	103	120	2.60	12121577	158,00	12123577	283,00	
140	135	151	111	140	2.90	12141577	172,00	12143577	309,50	
150	149	158	116	150	3.20	12151577	172,00	12153577	309,50	
160	159	162	123	160	3.50	12161577	200,00	12163577	356,50	
175	174	170	131	175	3.90	12171577	200,00	12173577	356,50	
200	199	183	143	200	4.60	12201577	221,50	12203577	388,50	
224	219	193	153	200	5.10	12221577	276,00	12223577	487,00	
250	249	208	168	200	5.80	12251577	276,00	12253577	487,00	
280	276	222	182	200	6.40	12281577	295,00	12283577	521,50	
300	299	233	193	200	7.22	12301577	302,00	12303577	534,50	
315	311	272	220	200	10.50	12311577	392,00	12313577	586,50	
350	349	291	239	200	12.00	12351577	447,00	12353577	634,00	
400	398	316	264	200	14.20	12401577	501,50	12403577	758,50	

*1.5 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

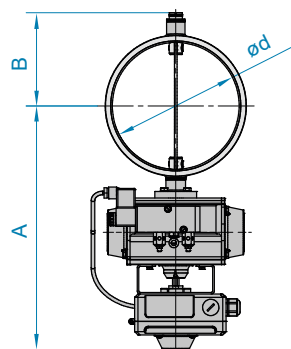
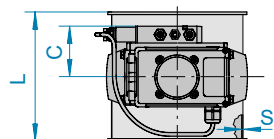
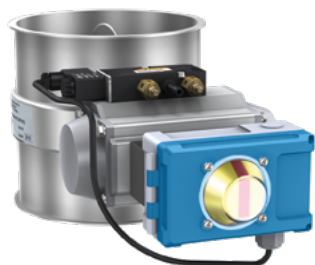
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES AND REGULATORS

Throttle valves with seal



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2090

- 5/2-way solenoid valve (1 coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Silicone rubber seal
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

80	76	303	87	79	100	3.60	5772080344	805,50	6772080344	967,50
100	99	315	99	79	100	3.90	5772100344	805,50	6772100344	967,50
120	119	325	109	79	120	4.30	5772120344	812,00	6772120344	976,00
140	135	333	117	79	140	4.70	5772140344	823,50	6772140344	991,50
150	149	340	124	79	150	5.00	5772150344	823,50	6772150344	991,50
160	159	347	123	79	160	5.30	5772160344	849,50	6772160344	1052,00
175	174	352	136	84	175	6.60	5772170344	849,50	6772170344	1052,00
200	199	385	149	84	200	7.40	5772200344	868,00	6772200344	1082,00
224	219	395	159	84	200	7.90	5772220344	910,00	6772220344	1170,00
250	249	410	174	84	200	8.60	5772250344	910,00	6772250344	1170,00
280	276	413	188	84	200	9.60	5772280344	926,50	6772280344	1197,00
300	299	439	199	84	200	9.80	5772300344	933,50	6772300344	1210,00
315	311	455	220	84	200	14.10	5772310344	1021,00	6772310344	1264,00
350	349	474	239	84	200	18.20	5772350344	1075,00	6772350344	1311,00
400	399	499	264	84	200	20.70	5772400344	1127,00	6772400344	1438,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

80	76	303	87	79	100	3.60	5772080345	805,50	6772080345	967,50
100	99	315	99	79	100	3.90	5772100345	805,50	6772100345	967,50
120	119	325	109	79	120	4.30	5772120345	812,00	6772120345	976,00
140	135	333	117	79	140	4.70	5772140345	823,50	6772140345	991,50
150	149	340	124	79	150	5.00	5772150345	823,50	6772150345	991,50
160	159	347	123	79	160	5.30	5772160345	849,50	6772160345	1052,00
175	174	352	136	84	175	6.60	5772170345	849,50	6772170345	1052,00
200	199	385	149	84	200	7.40	5772200345	868,00	6772200345	1082,00
224	219	395	159	84	200	7.90	5772220345	910,00	6772220345	1170,00
250	249	410	174	84	200	8.60	5772250345	910,00	6772250345	1170,00
280	276	413	188	84	200	9.60	5772280345	926,50	6772280345	1197,00
300	299	439	199	84	200	9.80	5772300345	933,50	6772300345	1210,00
315	311	455	220	84	200	14.10	5772310345	1021,00	6772310345	1264,00
350	349	474	239	84	200	18.20	5772350345	1075,00	6772350345	1311,00
400	399	499	264	84	200	20.70	5772400345	1127,00	6772400345	1438,00

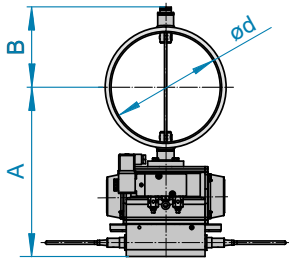
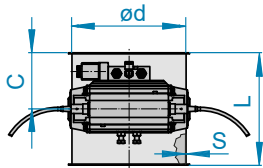


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2090

- Switch-over time for 90°: <3 seconds
- Silicone rubber seal
- Use is permitted if the operating conditions for ATEX **Zone 20** inside and **Zone 22** outside are adhered to
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request
- Version with earthing lugs
- >DN 300 mm on request
- Please also read and take into account the technical information given at the beginning of this chapter

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

80	76	303	87	79	100	3.60	57720803455	984,50	67720803455	1145,00
100	99	315	99	79	100	3.90	57721003455	984,50	67721003455	1145,00
120	119	325	109	79	120	4.30	57721203455	989,50	67721203455	1153,00
140	135	333	117	79	140	4.70	57721403455	1000,00	67721403455	1169,00
150	149	340	124	79	150	5.00	57721503455	1000,00	67721503455	1169,00
160	159	264	123	79	160	5.30	57721603455	1027,00	67721603455	1229,00
175	174	352	136	84	175	6.60	57721703455	1027,00	67721703455	1229,00
200	199	385	149	84	200	7.40	57722003455	1046,00	67722003455	1259,00
224	219	395	159	84	200	7.90	57722203455	1088,00	67722203455	1347,00
250	249	410	174	84	200	8.60	57722503455	1088,00	67722503455	1347,00
280	276	413	188	84	200	9.60	57722803455	1104,00	67722803455	1375,00
300	299	439	199	84	200	9.80	57723003455	1112,00	67723003455	1388,00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

8

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES AND REGULATORS

Throttle valves with seal



THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2100

- Switch-over time for 90°: approx. 150 seconds
- Limit switch position feedback at additional cost
- With external control voltage 0 to 10 V DC on request
- Silicone rubber seal

Powder-coated and stainless steel (dimensions for 2 mm pipework)

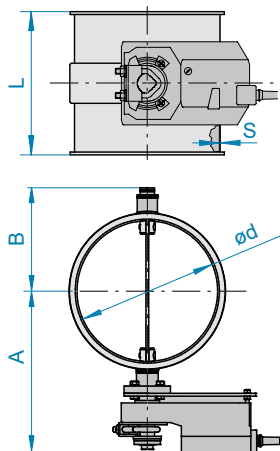
DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel		F
						Item no.	€	Item no.	€	

Valve actuator, make BELIMO, voltage 230 V AC

80	76	166	86	100	3.90	5772080551	608,50	6772080551	758,00
100	99	179	98	100	4.20	5772100551	608,50	6772100551	797,00
120	119	189	108	120	4.60	5772120551	614,50	6772120551	804,00
140	135	197	116	140	5.00	5772140551	626,00	6772140551	822,00
150	149	204	123	150	5.20	5772150551	626,00	6772150551	822,00
160	159	209	123	160	5.50	5772160551	653,50	6772160551	869,00
175	174	216	135	175	5.80	5772170551	653,50	6772170551	869,00
200	199	229	148	200	6.60	5772200551	674,00	6772200551	902,50

Valve actuator, make BELIMO, voltage 24 V DC/AC

80	76	166	86	100	3.90	5772080552	608,50	6772080552	797,00
100	99	179	98	100	4.20	5772100552	608,50	6772100552	797,00
120	119	189	108	120	4.60	5772120552	614,50	6772120552	804,00
140	135	197	116	140	5.00	5772140552	626,00	6772140552	822,00
150	149	204	123	150	5.20	5772150552	626,00	6772150552	822,00
160	159	209	123	160	5.50	5772160552	653,50	6772160552	869,00
175	174	216	135	175	5.80	5772170552	653,50	6772170552	869,00
200	199	229	148	200	6.60	5772200552	674,00	6772200552	902,50



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

2102

- Including 2 limit switches
- Switch-over time for 90°: approx. 12-22 seconds
- ATEX version on request
- Silicone rubber seal
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€

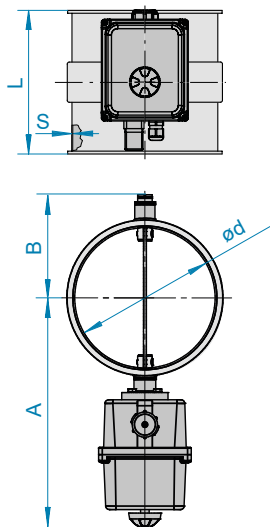


Adjustable actuator, make AIR TORQUE, voltage 230 V AC

80	77	256	82	100	3.40	5772080773	852,50	6772080773	1023,00
100	99	267	93	100	3.70	5772100773	852,50	6772100773	1023,00
120	119	277	103	120	4.10	5772120773	859,50	6772120773	1033,00
140	135	285	111	140	4.50	5772140773	869,50	6772140773	1049,00
150	149	293	118	150	4.80	5772150773	869,50	6772150773	1049,00
160	159	298	123	160	5.10	5772160773	898,50	6772160773	1113,00
175	174	305	131	175	5.40	5772170773	898,50	6772170773	1113,00
200	199	317	143	200	6.20	5772200773	919,00	6772200773	1143,00
224	219	327	153	200	6.60	5772220773	1042,00	6772220773	1314,00
250	249	342	168	200	7.30	5772250773	1042,00	6772250773	1314,00
280	276	356	182	200	8.00	5772280773	1058,00	6772280773	1358,00
300	299	368	193	200	8.60	5772300773	1065,00	6772300773	1373,00
315	311	386	220	200	11.60	5772310773	1153,00	6772310773	1426,00
350	349	405	239	200	13.00	5772350773	1206,00	6772350773	1473,00
400	398	430	264	200	15.00	5772400773	1260,00	6772400773	1597,00

Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC

80	77	256	82	100	3.40	5772080774	852,50	6772080774	1023,00
100	99	267	93	100	3.70	5772100774	852,50	6772100774	1023,00
120	119	277	103	120	4.10	5772120774	859,50	6772120774	1033,00
140	135	285	111	140	4.50	5772140774	869,50	6772140774	1049,00
150	149	293	118	150	4.80	5772150774	869,50	6772150774	1049,00
160	159	298	123	160	5.10	5772160774	898,50	6772160774	1113,00
175	174	305	131	175	5.40	5772170774	898,50	6772170774	1113,00
200	199	317	143	200	6.20	5772200774	919,00	6772200774	1143,00
224	219	327	153	200	6.60	5772220774	1042,00	6772220774	1314,00
250	249	342	168	200	7.30	5772250774	1042,00	6772250774	1314,00
280	276	356	182	200	8.00	5772280774	1058,00	6772280774	1358,00
300	299	368	193	200	8.60	5772300774	1065,00	6772300774	1373,00
315	311	386	220	200	11.60	5772310774	1153,00	6772310774	1426,00
350	349	405	239	200	13.00	5772350774	1206,00	6772350774	1473,00
400	398	430	264	200	15.00	5772400774	1260,00	6772400774	1597,00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

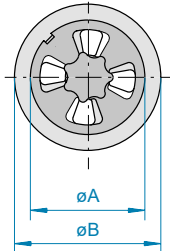
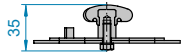


THROTTLE VALVES AND REGULATORS

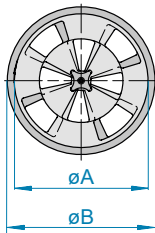
Adjustable blank-off covers and air bleeds

ADJUSTABLE BLANK-OFF COVERS

2030



DN 80 to 200 mm



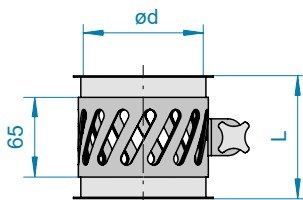
DN 224 to 300 mm

Powder-coated and stainless steel

DN	Ø A	Ø B	kg	Opening surfaces %	1.5 mm powder-coated		1.5 mm stainless steel		F
					Item no.	€	Item no.	€	
80	70	92	0.14	12	11081522	47,60	11083522	61,50	
100	90	115	0.19	17	11101522	47,60	11103522	61,50	
120	110	135	0.25	21	11121522	50,80	11123522	68,00	
140	126	151	0.30	25	11141522	53,20	11143522	71,40	
150	140	165	0.34	26	11151522	53,20	11153522	71,40	
175	165	190	0.44	29	11171522	58,60	11173522	93,00	
200	190	215	0.56	31	11201522	67,00	11203522	100,50	
224	210	235	0.65	31	11221522	75,20	11223522	111,50	
250	240	265	0.81	33	11251522	75,20	11253522	111,50	
280	270	292	0.97	34	11281522	88,90	11283522	116,50	
300	290	315	1.12	35	11301522	94,90	11303522	120,00	

AIR BLEEDS

2040

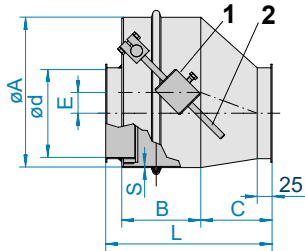


Powder-coated and stainless steel

DN	Ø d	L	kg	1 mm powder-coated		1 mm stainless steel		F
				Item no.	€	Item no.	€	
80	78	100	0.39	11081523	86,70	11083523	94,70	
100	100	100	0.47	11101523	92,80	11103523	101,50	
120	120	100	0.55	11121523	99,10	11123523	108,00	
140	136	100	0.61	11141523	110,50	11143523	120,50	
150	150	100	0.67	11151523	110,50	11153523	120,50	
175	175	100	0.76	11171523	128,00	11173523	140,50	
200	200	100	0.88	11201523	140,50	11203523	153,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Non-return valves



1 Lever arm adjustable through 360°

2 Adjustable weight on lever arm

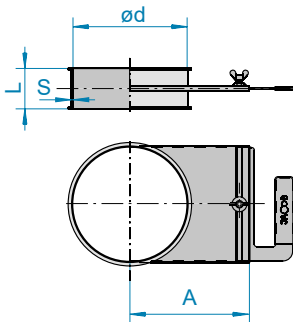
NON-RETURN VALVES

2060

- Lever arm and weights adjustable
- Powder-coated: Grey NK-SBR inner seal from -40°C to +70°C, grey NBR U-shaped seal
- Stainless steel: Transparent silicone inner seal from -60°C to +230°C, beige silicone U-shaped seal

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	$\varnothing A$	B	C	E	L	kg	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
80	76	150	95	90	20	210	4.30	12081575	641,50	12083575	1033,00
100	99	175	115	90	22.5	230	4.90	12101575	667,00	12103575	1064,00
120	119	200	130	100	25	255	6.25	12121575	689,50	12123575	1076,00
150	149	250	135	120	35	280	8.30	12151575	732,50	12153575	1165,00
175	174	300	150	140	47.5	315	10.50	12171575	769,50	12173575	1224,00
200	199	300	185	140	35	350	11.60	12201575	814,50	12203575	1297,00
250	249	350	225	165	35	415	15.10	12251575	881,50	12253575	1416,00
300	299	450	260	195	55	480	22.70	12301575	967,50	12303575	1522,00



PIPE REGULATOR GATES

2110

- Only for granular products
- Only for installation in inclined pipelines with the operating mechanism facing upwards

Powder-coated and stainless steel (dimensions for 2 mm pipework)

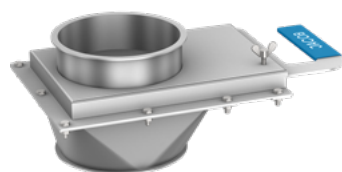
DN	$\varnothing d$	A	L	kg	2 mm powder-coated		2 mm stainless steel	
					Item no.	€	Item no.	€
100	99	100	70	1.10	12101610	69,70	12103610	176,50
120	119	120	70	1.40	12121610	72,40	12123610	188,50
150	149	150	70	2.00	12151610	88,10	12153610	246,50
175	174	180	70	2.75	12171610	107,50	12173610	279,50
200	199	200	70	3.10	12201610	125,00	12203610	302,00
250	249	250	70	4.60	12251610	182,00	12253610	464,00
300	299	300	70	7.10	12301610	188,50	12303610	482,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

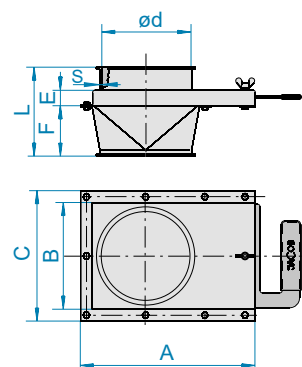
Air and pipe slide gates



PIPE SLIDE GATES, HAND-OPERATED

2120

- Stainless steel: Silicone slide plate seal
- Powder-coated and galvanised version: Felt seal
- Stainless steel version: temperature resistant from -60°C to +250°C and FOOD GRADE: compliant with EC 1935/2004 plus FDA



Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm powder-coated		2 mm powder-coated	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11081620	192,00		
100	99	225	120	160	28	60	108	2.05			12101620	199,50
120	119	251	140	180	28	70	138	3.00			12121620	201,50
150	149	295	180	220	25	85	152	4.20			12151620	211,50
175	174	320	200	245	28	145	212	5.80			12171620	262,50
200	199	410	250	290	26	115	182	7.60			12201620	287,50
250	249	432	300	345	30	150	217	9.50			12251620	347,00
300	299	512	350	395	30	210	277	13.50			12301620	394,00

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm galvanised		2 mm galvanised	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11082620	213,50		
100	99	225	120	160	28	60	108	2.05			12102620	226,00
120	119	251	140	180	27	70	138	3.00			12122620	240,00
150	149	295	180	220	25	85	152	4.20			12152620	270,50
175	174	320	200	245	28	145	212	5.80			12172620	322,00
200	199	410	250	290	26	115	182	7.60			12202620	360,00
250	249	432	300	345	30	150	217	9.50			12252620	411,00
300	299	512	350	395	30	210	277	13.50			12302620	476,50

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm stainless steel F		2 mm stainless steel F	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11083620	430,00		
100	99	225	120	160	28	60	108	2.05			12103620	458,50
120	119	251	140	180	27	70	138	3.00			12123620	465,00
150	149	295	180	220	25	85	152	4.20			12153620	515,00
175	174	320	200	245	28	145	212	5.80			12173620	606,00
200	199	410	250	290	26	115	182	7.60			12203620	671,00
250	249	432	300	345	30	150	217	9.50			12253620	741,00
300	299	512	350	395	30	210	277	13.50			12303620	828,00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

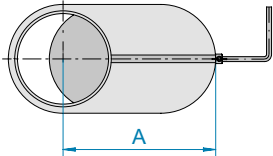
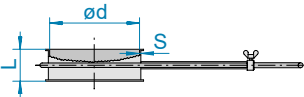


AIR FLOW CONTROL GATES

2050



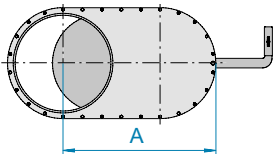
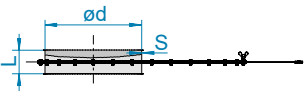
- Only for air pipelines



DN 80 to 300 mm

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
80	78	148	50	0.75	11081525	49,80		
100	100	175	58	1.10	11101525	49,80		
120	120	205	58	1.30	11121525	53,20		
140	136	242	70	1.70	11141525	72,40		
150	150	250	70	1.80	11151525	72,40		
160	159	275	70	4.50	11161525	129,00		
175	175	290	70	2.55	11171525	129,00		
200	200	335	70	3.40	11201525	134,00		
224	220	392	70	3.90	11221525	156,50		
250	250	410	100	4.60	11251525	156,50		
300	299	485	100	7.90			12301525	174,00



DN 350 to 500 mm

■ Screw-fixed version

Electro-galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm electro-galvanised		2 mm electro-galvanised		1.5 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	
80	78	148	50	0.75	11082525	64,00				
100	100	175	58	1.10	11102525	64,00				
120	120	205	58	1.30	11122525	70,20				
140	136	242	70	1.70	11142525	91,00				
150	150	250	70	1.80	11152525	91,00				
160	159	275	70	4.50	11162525	143,50				
175	175	290	70	2.55	11172525	143,50				
200	200	335	70	3.40	11202525	148,00				
224	220	392	70	3.90	11222525	172,00				
250	250	410	100	4.60	11252525	172,00				
300	299	485	100	7.90			12302525	220,50	12303525*	391,50
350	349	560	100	15.50			12352525	371,50	12353525*	638,00
400	398	636	100	18.80			12402525	445,00	12403525*	756,50
450	448	710	100	22.50			12452525	534,50	12453525*	914,50
500	498	795	100	28.80			12502525	599,50	12503525*	1035,00

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

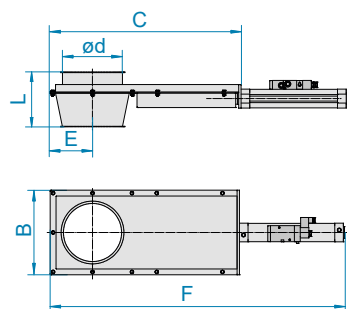
Air and pipe slide gates



PIPE SLIDE GATES, PNEUMATICALLY OPERATED

2290

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 magnetic limit switches, potential-free
- ATEX version on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- Stainless steel: Silicone slide plate seal: -60°C to +250°C
- Powder-coated version: Felt seal
- Other cylinders available on request
- Other diameters available on request



Pipe slide gates, including cylinder, powder-coated and stainless steel

DN	Ød	B	C	E	F	L	kg	2 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	
Control voltage 230 V AC												
100	99	160	320	80	578	108	5.90	5622100121	1059,00	6622100121	1444,00	
120	119	180	360	90	618	138	6.90	5622120121	1099,00	6622120121	1524,00	
150	149	225	505	110	782	152	9.20	5602150221	1161,00	6602150221	1618,00	
175	174	250	555	123	882	212	11.00	5602170221	1210,00	6602170221	1703,00	
200	199	295	645	148	1055	182	19.90	5602200221	1306,00	6602200221	1841,00	
250	249	350	780	173	1210	217	22.20	5602250221	1405,00	6602250221	2001,00	
300	299	400	880	198	1360	277	28.40	5602300221	1534,00	6602300221	2112,00	

Control voltage 24 V DC

100	99	160	320	80	578	108	5.90	5622100123	1059,00	6622100123	1444,00	
120	119	180	360	90	618	138	6.90	5622120123	1099,00	6622120123	1524,00	
150	149	225	505	110	782	152	9.20	5602150223	1161,00	6602150223	1618,00	
175	174	250	555	123	882	212	11.00	5602170223	1210,00	6602170223	1703,00	
200	199	295	645	148	1055	182	19.90	5602200223	1306,00	6602200223	1841,00	
250	249	350	780	173	1210	217	22.20	5602250223	1405,00	6602250223	2001,00	
300	299	400	880	198	1360	277	28.40	5602300223	1534,00	6602300223	2112,00	



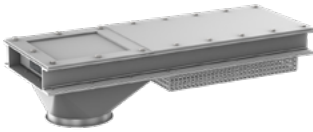
DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

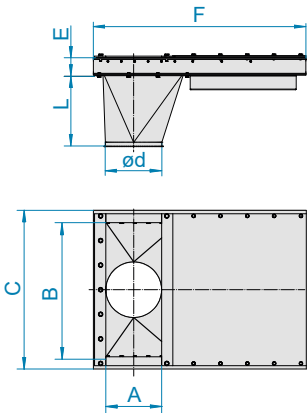
Silo / Redler outlet slide gates



SILO / REDLER OUTLET SLIDE GATES, PNEUMATICALLY OPERATED

2300/2305

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 magnetic limit switches, potential-free
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder-coated on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- FOOD GRADE version, powder coating, ATEX version or other cylinders on request
- Other dimensions available on request



Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

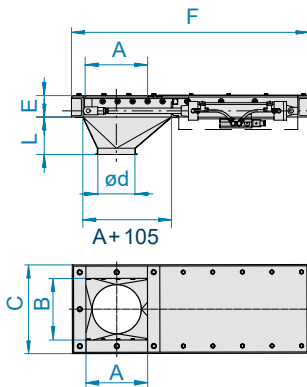
DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

200	199	200	600	710	86	852	360	65	5710200121	1735,00	5712200121	2001,00
250	249	250	600	710	86	952	320	73	5710250121	1783,00	5712250121	2059,00
300	299	300	600	710	86	1052	270	78	5710300121	1848,00	5712300121	2140,00

Control voltage 24 V DC

200	199	200	600	710	86	852	360	65	5710200123	1735,00	5712200123	2001,00
250	249	250	600	710	86	952	320	73	5710250123	1783,00	5712250123	2059,00
300	299	300	600	710	86	1052	270	78	5710300123	1848,00	5712300123	2140,00



Silo outlet slide gates, primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

150	149	200	200	310	86	852	150	40	5760150121	1629,00	5762150121	1812,00
200	199	250	250	360	86	952	150	46	5760200121	1662,00	5762200121	1880,00
250	249	300	300	410	86	1052	150	52	5760250121	1750,00	5762250121	1963,00

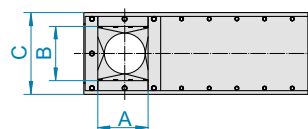
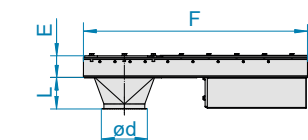
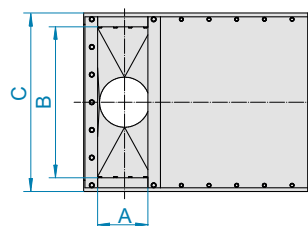
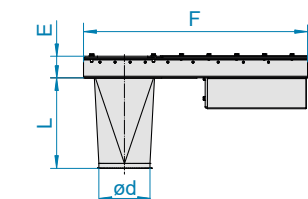
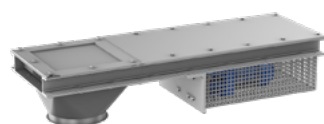
Control voltage 24 V DC

150	149	200	200	310	86	852	150	40	5760150123	1629,00	5762150123	1812,00
200	199	250	250	360	86	952	150	46	5760200123	1662,00	5762200123	1880,00
250	249	300	300	410	86	1052	150	52	5760250123	1750,00	5762250123	1963,00



THROTTLE VALVES AND REGULATORS

Silo / Redler outlet slide gates



SILO / REDLER OUTLET SLIDE GATES, ELECTRICALLY-OPERATED

2310/2315

- Including worm-gear motor 380/400 V, 50 Hz and 2 mechanical limit switches
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder-coated on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- FOOD GRADE version, powder-coated or ATEX version available on request
- Other dimensions available on request

Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
200	199	200	600	710	86	845	360	88	57102005	2282,00	57122005	2525,00
250	249	250	600	710	86	995	320	91	57102505	2303,00	57122505	2555,00
300	299	300	600	710	86	1145	270	103	57103005	2319,00	57123005	2610,00

Silo outlet slide gates, primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
150	149	200	200	304	71	932	150	54	57601505	2123,00	57621505	2306,00
200	199	250	250	354	71	1082	150	64	57602005	2166,00	57622005	2363,00
250	249	300	300	404	71	1232	150	54	57602505	2229,00	57622505	2440,00





THE RIGHT WAY FOR YOUR PRODUCT:
JACOB TWO-WAY DISTRIBUTORS FOR
EVERY APPLICATION



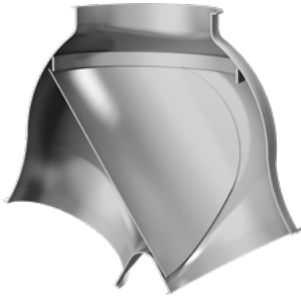
TWO-WAY DISTRIBUTORS

Technical information	132	
Two-way valves with inlet collar	138	
Two-way valves with seal	144	
Two-way distributors	150	



TWO-WAY DISTRIBUTORS

Technical information



Cross-section: Two-way valves with inlet collar 60°, symmetrical

JACOB TWO-WAY DISTRIBUTORS

JACOB has various types of two-way distributors available to meet your requirements: From bulk goods conveying by gravity to pneumatic low pressure conveying, JACOB's portfolio includes just the right solution for distributing your product.

JACOB two-way distributors

	Two-way valves with inlet collar	Two-way valves with seal	Two-way distributors
Application	Gravity conveying of bulk goods	Gravity conveying of bulk goods Ventilation systems up to 0.1 bar	Gravity conveying of bulk goods Ventilation systems up to 0.3 bar (version with more powerful actuator necessary from 0.1 bar upwards)
Seal	No inner flap seal	Standard range inner flap seal NBR or silicone No seal below shaft	Standard inner flap seal in NBR or silicone Standard shaft seal in silicone
Diameters and angles	DN 100 to 300 mm pressed component with lip, angle: 60° DN 350 and 400 mm from pipework with welded flanges, angle: 50°	DN 100 to 300 mm pressed component with lip, angle: 60°	DN 100 to 300 mm with lip, angle: 60° or 45° DN 350 to 630 mm with welded flanges: Angle: 60° or 45°



Documentation – JACOB

TECHNICAL DOCUMENTATION

Our comprehensive technical documentation on 2-way distributors is always kept up-to-date and is available on our website for you to download.



Example: Two-way valves with inlet collar 60°, symmetrical, hand-operated



Example: Two-way valves with inlet collar 50°, symmetrical, construction DN > 300 mm with welded flanges, pneumatically operated with a rotary actuator

TWO-WAY VALVES WITH INLET COLLAR

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 400 mm

DN 100 to 300 mm:

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- With 6 mm lip for pull-ring connection
- Shaft seal with NBR double V-ring seal

DN > 300 mm:

- Angle between outlets 50°
- Inlets and outlets with welded flanges similar to DIN 24154-2 (see chapter 11, page 219, for dimensions), but without counter flange
- Shafts with ball bearings with Viton O-ring seal

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

Actuation:

- Hand-operated, DN > 200 mm with additional lever lock, DN 350 and 400 mm without tension spring
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic with cylinder, make FESTO (refer also to actuators)

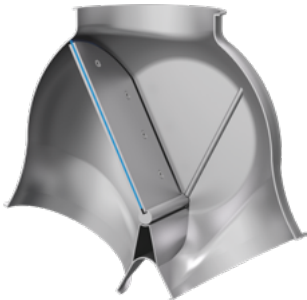
Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm. Installation dimensions are identical to two-way valves with a seal.



Applications: For gravity conveying of free-flowing – without backlog – non-glutinous, granular bulk goods. With powdery products, especially with over-pressure or under-pressure in the closed outlet, there could be leakages in the closed outlet. Only limited use in ventilation plants is recommended due to the absence of an inner flap seal. The product flow is by the inlet collar directing the product towards the centre of the flap, and in the outlet by covering the U-shaped inner flap towards the next pipe that follows.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 and FDA.

TWO-WAY VALVES WITH SEAL



Cross-section: Two-way valves with seal 60°, symmetrical



Example: Two-way valves with seal 60°, symmetrical, pneumatically operated with a rotary actuator

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 300 mm

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- On the side with formed beads to increase tightness, (except DN 175 mm)
- For hand-operated two-way valves, shaft sealing with NBR double V-ring seal
- For two-way valves with rotary actuator or cylinder: Shafts with ball bearings with Viton O-ring seal
- Two-way distributors should be used for diameters > DN 300 mm

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

Actuation:

- Hand-operated, with lever lock, can also be locked in intermediate position (increased seal wear is likely)
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic with cylinder, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection.

Installation dimensions are identical to two-way valves with inlet collar.

Inner valve seal:

- Powder-coated two-way valves, standard version with intermediate NBR seal on 3-part inner flap
- Stainless steel two-way valves, standard version with intermediate silicone seal on 3-part inner flap

Silicone	F	NBR	F
transparent		grey white	
-60°C to +180°C		-30°C to +80°C	
FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant	
Thickness: 3 or 4 mm		Thickness: 3 or 4 mm	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

Applications: For gravity conveying of free-flowing bulk goods and in ventilation plants up to 0.1 bar. There is no seal underneath the shaft, so that in the case of higher tightness requirements towards the closed outlet the two-way distributor should be used.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 and FDA.

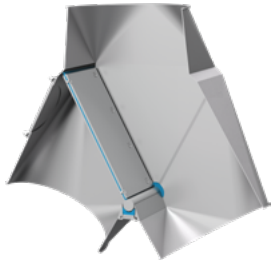
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

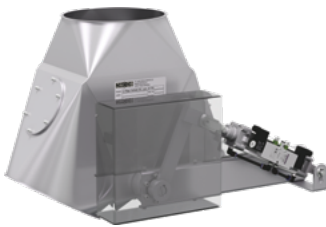


TWO-WAY DISTRIBUTORS

Technical information



Cross-section: Two-way distributor 60° up to DN 300 mm, symmetrical



Example: Two-way distributor 60°, DN 300 mm, symmetrical, pneumatically operated with cylinder



Example: Two-way distributor 60° DN > 300 mm, symmetrical, pneumatically operated with cylinder and welded-on flanges



- F** FOOD GRADE
EC 1935/2004 plus FDA compliant
- D** DETECTABLE DESIGN
Metal-detectable

TWO-WAY DISTRIBUTORS

Construction: symmetrical and asymmetrical

Diameters and versions:

- DN 100 to 630 mm
- DN > 300 mm: Inlets and outlets with welded flanges similar to DIN 24154-2 (see chapter 11, page 219, for dimensions)
- Angle between outlets 45° or 60°
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Below the shaft there is a silicone seal that can be re-adjusted from outside
- Shafts with ball bearings and a silicone flat ring-seal
- From DN 250-630 mm with inspection openings on both outlets for inspection purposes

Materials: up to DN 400 mm: 2 mm powder-coated and stainless steel, from DN 450 mm: 3 mm powder-coated and stainless steel

Actuation:

- Hand-operated, DN 100-300 mm with lever lock, can also be locked in intermediate positions (increased seal wear)
- Fitted with pneumatic with rotary actuator, DN 100 to 630 mm, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic with cylinder, DN 100 to 630 mm, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm.

Inner valve seal: 3-part straight inner flap with intermediate silicone seal. Other seal qualities on request (e.g.: NBR or EPDM)

Silicone F	NBR F
transparent	grey white
-60°C to +180°C	-30°C to +80°C
FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
Thickness: 3 or 4 mm	Thickness: 3 or 4 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

Applications: For gravity conveying of free-flowing bulk goods and for ventilation plants up to 0.3 bar (if more powerful actuators are fitted). The 45° version is recommended for sensitive bulk goods or for products with bad flow properties.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 and FDA.

Special feature: All two-way distributors have an inner valve which can be dismantled without removing the distributor from the pipework system (for cleaning or to replace the seals)

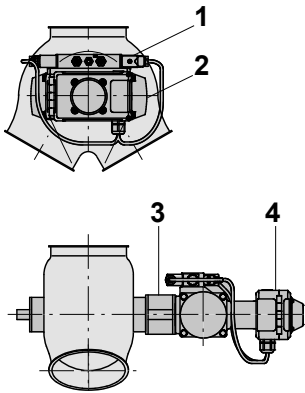
EXPLOSION PROTECTION FOR TWO-WAY DISTRIBUTORS

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the two-way distributors in Zone 1, 2 and Zone 21, 22 are available at additional cost.

Inside area: Inside use is permitted if the operating conditions for ATEX **Zone 0/20** are adhered to.



ACTUATORS FOR TWO-WAY DISTRIBUTORS



- 1 Solenoid valve
- 2 Rotary actuator
- 3 Panel
- 4 Limit switch box

Pneumatically operated version with rotary actuator

- Rotary actuator, make AIR TORQUE, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation, as 24 V DC or 230 V AC versions
- The solenoid valve is bolted directly to the actuator in accordance with Namur specification
- Complete with two exhaust throttles for speed adjustment and compressed air connection (angle push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: min. 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on positions via 2 potential-free micro limit switches with gold contacts, spring-free, suitable for PLC. Switching range 4-250 V AC/DC at 0.1 A
- Solenoid valve and limit switch are wired into terminals in the limit switch box that is positioned on the actuator. Protection category IP 65
- ATEX version:
 - Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
 - Designed for Zone 22 outside
 - Without terminal box
 - Terminal box or limit switch box on request
 - ATEX version supplied with earthing lugs as standard

Pneumatically operated version with cylinder

- Cylinder, make FESTO, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation; fitted to the cylinder with a hose connection and available as 24 V DC or 230 V AC versions with connection sockets, IP 65
- Complete with exhaust throttle, speed adjustment and a hose connection for compressed air (push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on positions via 2 potential-free magnetic limit switches which are positioned on the cylinder, with LED display. With free cable end, 2 m long. 24 V version: Switching range 12-30 V DC at 500 mA, 230 V version: Switching range 4-230 V AC/DC at 120 mA. Protection category IP 67
- Standard version without terminal box, without wiring, with protective device made of polycarbonate



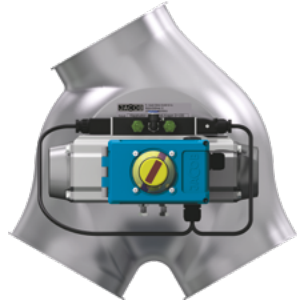


TWO-WAY DISTRIBUTORS

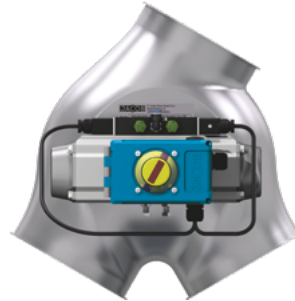
Technical information

Installation of the actuator in asymmetric components

With asymmetric components, the actuator is positioned on the right-hand side as standard – as shown in the illustration. Installation on the left-hand side is possible at no extra charge at the customer's request.



Standard: Actuator unit on right-hand side



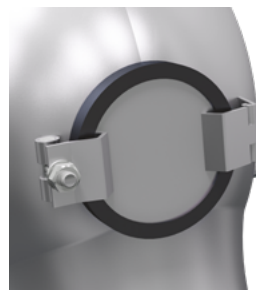
Optional: Actuator unit on left-hand side

ACCESSORIES AND SPECIAL VERSIONS

Inspection openings

Installation of an inspection opening with a diameter of 115 mm possible for inspection purposes on all two-way valves from 150 mm upwards. Upwards of DN 250 mm, two-way distributors are fitted with two inspection openings as standard.

- Extra charge for powder-coating: € 125.10
- Extra charge for stainless steel: € 159.30



Manual cord device

For two-way valves with inlet collar, hand-operated up to DN 200 mm. The lever is available with an additionally screwed-on switch device for cord or chain operation.

- Extra charge for powder-coating: € 42.90
- Extra charge for stainless steel: € 50.80





Limit switches

Two limit switches positioned on a base plate opposite to the actuator side, with protective cover, without terminal box

Extra charge for version	Powder-coated	Stainless steel
	€	€
Siemens 3SE 5232-OHD03	145.80	169.70
Pepperl & Fuchs type NBB 5-18GM50-E2	177.50	200.30
Pepperl & Fuchs type NCB 5-18GM40-N0, ATEX Zone 21	197.70	221.60
ATEX limit switch IFM IG 513A, ATEX Zone 22	257.40	281.30



Gear motor

Prices for electrically-operated two-way distributors with gear motor or cylinder actuator and pneumatic actuators and limit switches in ex-proof version on request.

YOUR INDIVIDUAL TWO-WAY DISTRIBUTOR

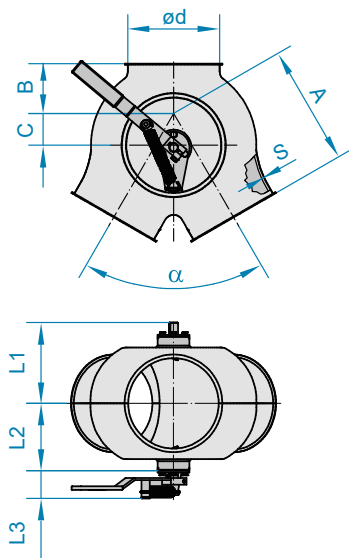
JACOB two-way distributors are available not only in a comprehensive standard range but also in a wide range of special versions:

- Electrical actuation
- Other materials
- Rotary actuators or cylinders at the customer's request
- Lining with a wide range of different wear protection materials (refer to chapter 14 for information on lined two-way valves with an inlet collar)
- Welded flanges: in JACOB standard (refer to chapter 11 for dimensions) or with customers' own dimensions. In this case, outlets and, if necessary, inlets are supplied in a longer version. Extended lengths can also be produced with a conical form to match the diameter of connecting pipes
- Stainless steel in a pickled and passivated version
- More than 3,000 special colours (refer to chapter 1, Materials)
- ATEX version: with terminal box or limit switch box, further inductive limit switches
- Viton shaft seal
- Fitting of inspection opening in smaller diameters on request (refer also to Technical information and accessories)
- Other inner valve seals for two-way valves with seal or two-way distributors
- More powerful actuators for use with differential pressures of up to 0.3 bar for two-way valves with seal or two-way distributors



TWO-WAY DISTRIBUTORS

Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, HAND-OPERATED

2130

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
100	60°	135	50	41	118	88	60	12101502	186,00			12103502	430,50	
120	60°	160	50	54	129	99	60	12121502	198,00			12123502	461,50	
150	60°	200	80	60	146	116	60	12151502	216,00	13151502	303,00	12153502	604,00	
175	60°	218	63	75	159	129	60	12171505	268,50	13171505	373,50	12173505	743,50	
200	60°	265	110	70	178	148	60	12201505	336,00	13201505	435,50	12203505	843,50	
250	60°	305	115	82	199	169	60	12251505	445,50	13251505	581,50	12253505	1166,00	
300	60°	385	145	110	225	195	60	12301502	614,50	13301502	721,00	12303502	1387,00	
350	50°	520	95	185	345	300	90	12351505	1198,00	13351505	1553,00	12353505	2671,00	
400	50°	580	105	195	378	333	90	12401505	1382,00	13401505	1779,00	12403505	3071,00	

TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2150



- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

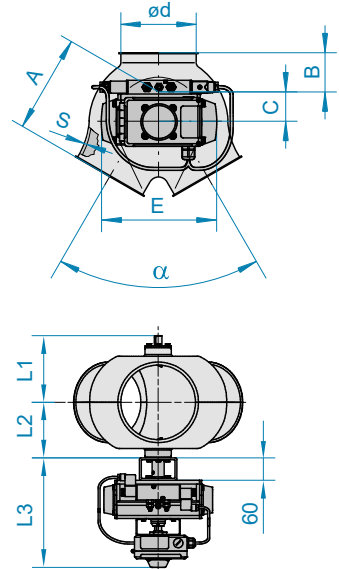
DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	135	50	41	216	129	88	286	5582100244	885,00			6582100244	1113,00	
120	60°	160	50	54	216	129	99	286	5582120244	893,50			6582120244	1142,00	
150	60°	200	80	60	216	146	116	286	5582150244	894,50	5583150244	972,50	6582150244	1296,00	
175	60°	218	63	75	216	159	129	286	5582170144	981,50	5583170144	1086,00	6582170144	1450,00	
200	60°	265	110	70	291	178	148	303	5582200144	1045,00	5583200144	1156,00	6582200144	1547,00	
250	60°	305	115	82	291	199	169	303	5582250144	1157,00	5583250144	1342,00	6582250144	1845,00	
300	60°	385	145	110	291	225	195	303	5582300244	1300,00	5583300244	1436,00	6582300244	2042,00	
350	50°	520	95	185	335	345	300	316	5582350144	2033,00	5583350144	2339,00	6582350144	3237,00	
400	50°	580	105	195	335	378	333	316	5582400144	2199,00	5583400144	2547,00	6582400144	3581,00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	50	41	216	129	88	286	5582100245	885,00			6582100245	1113,00	
120	60°	160	50	54	216	129	99	286	5582120245	893,50			6582120245	1142,00	
150	60°	200	80	60	216	146	116	286	5582150245	894,50	5583150245	972,50	6582150245	1296,00	
175	60°	218	63	75	216	159	129	286	5582170145	981,50	5583170145	1086,00	6582170145	1450,00	
200	60°	265	110	70	291	178	148	303	5582200145	1045,00	5583200145	1156,00	6582200145	1547,00	
250	60°	305	115	82	291	199	169	303	5582250145	1157,00	5583250145	1342,00	6582250145	1845,00	
300	60°	385	145	110	291	225	195	303	5582300245	1300,00	5583300245	1436,00	6582300245	2042,00	
350	50°	520	95	185	335	345	300	316	5582350145	2033,00	5583350145	2339,00	6582350145	3237,00	
400	50°	580	105	195	335	378	333	316	5582400145	2199,00	5583400145	2547,00	6582400145	3581,00	



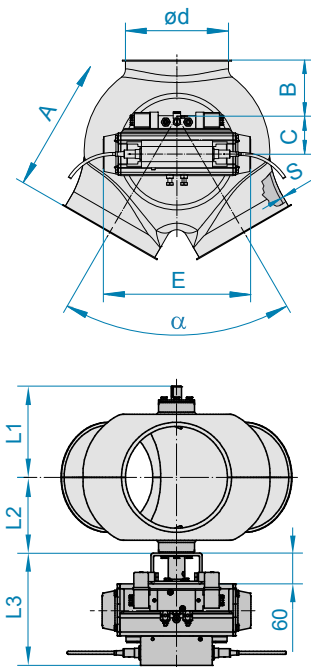
F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2150

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

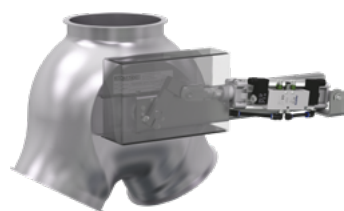
100	60°	135	50	41	216	118	88	203	55821002455	1105,00		65821002455	1332,00		
120	60°	160	50	54	216	129	99	203	55821202455	1114,00		65821202455	1361,00		
150	60°	200	80	60	216	146	116	203	55821502455	1115,00	55831502455	1193,00	65821502455	1517,00	
175	60°	218	63	75	216	159	129	203	55821701455	1203,00	55831701455	1307,00	65821701455	1670,00	
200	60°	265	110	70	291	178	148	220	55822001455	1266,00	55832001455	1378,00	65822001455	1765,00	
250	60°	305	115	82	291	199	169	220	55822501455	1378,00	55832501455	1563,00	65822501455	2062,00	
300	60°	385	145	110	291	225	195	220	55823002455	1521,00	55833002455	1655,00	65823002455	2260,00	
350	50°	520	95	185	335	345	300	233	55823501455	2253,00	55833501455	2559,00	65823501455	3454,00	
400	50°	580	105	195	335	378	333	233	55824001455	2420,00	55834001455	2766,00	65824001455	3800,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DISTRIBUTORS

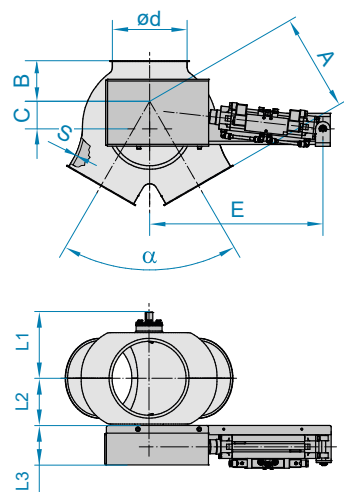
Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH CYLINDER

2155

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	56	41	440	129	88	88	5582100221	885,00			6582100221	1113,00
120	60°	160	50	54	440	129	99	88	5582120221	893,50			6582120221	1142,00
150	60°	200	80	60	440	146	116	88	5582150221	894,50	5583150221	972,50	6582150221	1296,00
175	60°	218	63	75	440	159	129	88	5582170121	981,50	5583170121	1086,00	6582170121	1450,00
200	60°	265	110	70	470	178	148	88	5582200121	1045,00	5583200121	1156,00	6582200121	1547,00
250	60°	305	115	82	470	199	169	88	5582250121	1157,00	5583250121	1342,00	6582250121	1845,00
300	60°	385	145	110	470	225	195	88	5582300221	1300,00	5583300221	1436,00	6582300221	2042,00
350	50°	520	95	185	470	345	300	90	5582350121	2033,00	5583350121	2339,00	6582350121	3237,00
400	50°	580	105	195	470	378	333	90	5582400121	2199,00	5583400121	2547,00	6582400121	3581,00

Cylinder, make FESTO, control voltage 24 V DC

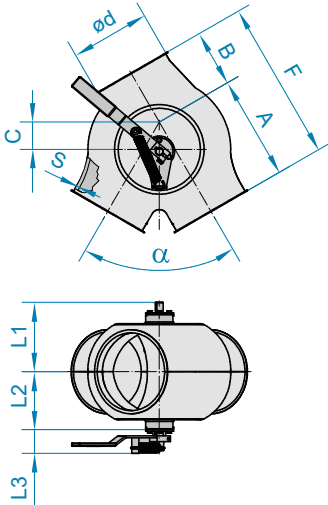
100	60°	135	56	41	440	129	88	88	5582100223	885,00			6582100223	1113,00
120	60°	160	50	54	440	129	99	88	5582120223	893,50			6582120223	1142,00
150	60°	200	80	60	440	146	116	88	5582150223	894,50	5583150223	972,50	6582150223	1296,00
175	60°	218	63	75	440	159	129	88	5582170123	981,50	5583170123	1086,00	6582170123	1450,00
200	60°	265	110	70	470	178	148	88	5582200123	1045,00	5583200123	1156,00	6582200123	1547,00
250	60°	305	115	82	470	199	169	88	5582250123	1157,00	5583250123	1342,00	6582250123	1845,00
300	60°	385	145	110	470	225	195	88	5582300223	1300,00	5583300223	1436,00	6582300223	2042,00
350	50°	520	95	185	470	345	300	90	5582350123	2033,00	5583350123	2339,00	6582350123	3237,00
400	50°	580	105	195	470	378	333	90	5582400123	2199,00	5583400123	2547,00	6582400123	3581,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, HAND-OPERATED

2140



- Standard version: Right-side mounting

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	
100	60°	135	65	41	200	118	88	60	12101512	186,00			12103512	430,50	
120	60°	160	70	54	230	129	99	60	12121512	198,00			12123512	461,50	
150	60°	200	100	60	300	146	116	60	12151512	216,00	13151512	303,00	12153512	604,00	
175	60°	218	90	75	308	159	129	60	12171517	268,50	13171517	373,50	12173517	743,50	
200	60°	265	145	70	410	178	148	60	12201517	336,00	13201517	435,50	12203517	843,50	
250	60°	305	155	82	460	199	169	60	12251517	445,50	13251517	581,50	12253517	1166,00	
300	60°	385	190	110	575	225	195	60	12301512	614,50	13301512	721,00	12303512	1387,00	
350	50°	520	150	185	670	345	300	90	12351515	1198,00	13351515	1553,00	12353515	2671,00	
400	50°	580	170	195	750	378	333	90	12401515	1382,00	13401515	1779,00	12403515	3071,00	

TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2160



- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Standard version: Right-side mounting
- Completely wired in limit switch box

- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

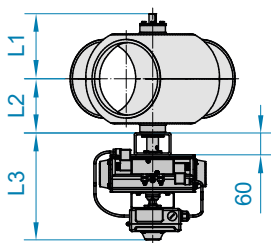
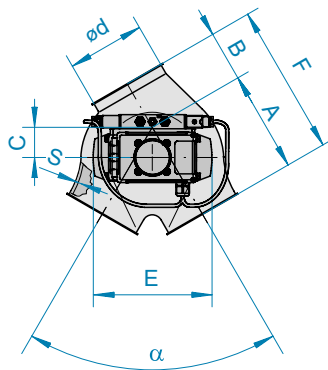
DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	135	65	41	216	200	82	88	286	5592100244	885,00			6592100244	1113,00	
120	60°	160	70	54	216	230	90	99	286	5592120244	893,50			6592120244	1142,00	
150	60°	200	100	60	216	300	146	116	286	5592150244	894,50	5593150244	972,50	6592150244	1296,00	
175	60°	218	90	75	216	308	159	129	286	5592170144	981,50	5593170144	1086,00	6592170144	1450,00	
200	60°	265	145	70	291	410	178	148	303	5592200144	1045,00	5593200144	1156,00	6592200144	1547,00	
250	60°	305	156	82	291	460	199	169	303	5592250144	1157,00	5593250144	1342,00	6592250144	1845,00	
300	60°	385	190	110	291	575	225	195	303	5592300244	1300,00	5593300244	1436,00	6592300244	2042,00	
350	50°	520	150	185	335	670	325	300	316	5592350144	2033,00	5593350144	2339,00	6592350144	3237,00	
400	50°	580	170	195	335	750	350	333	316	5592400144	2199,00	5593400144	2547,00	6592400144	3581,00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	65	41	216	200	82	88	286	5592100245	885,00			6592100245	1113,00	
120	60°	160	70	54	216	230	90	99	286	5592120245	893,50			6592120245	1142,00	
150	60°	200	100	60	216	300	146	116	286	5592150245	894,50	5593150245	972,50	6592150245	1296,00	
175	60°	218	90	75	216	308	159	129	286	5592170145	981,50	5593170145	1086,00	6592170145	1450,00	
200	60°	265	145	70	291	410	178	148	303	5592200145	1045,00	5593200145	1156,00	6592200145	1547,00	
250	60°	305	156	82	291	460	199	169	303	5592250145	1157,00	5593250145	1342,00	6592250145	1845,00	
300	60°	385	190	110	291	575	225	195	303	5592300245	1300,00	5593300245	1436,00	6592300245	2042,00	
350	50°	520	150	185	335	670	325	300	316	5592350145	2033,00	5593350145	2339,00	6592350145	3237,00	
400	50°	580	170	195	335	750	350	333	316	5592400145	2199,00	5593400145	2547,00	6592400145	3581,00	



F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DISTRIBUTORS

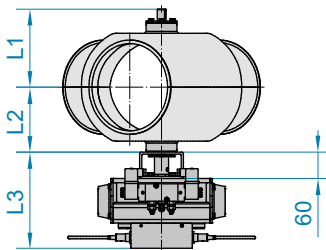
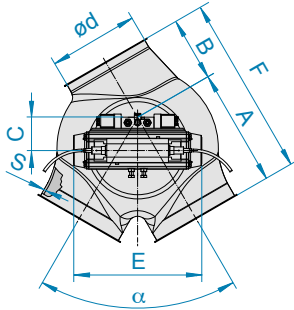
Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2160

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs

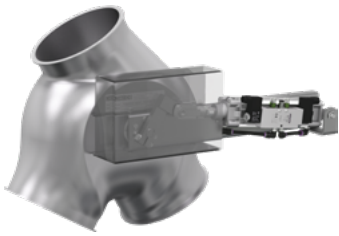


DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	65	41	216	200	118	88	203	55921002455	1105,00			65921002455	1332,00		
120	60°	160	70	54	216	230	129	99	203	55921202455	1114,00			65921202455	1361,00		
150	60°	200	100	60	216	300	146	116	203	55921502455	1115,00	55931502455	1193,00	65921502455	1517,00		
175	60°	218	90	75	216	308	159	129	203	55921701455	1203,00	55931701455	1307,00	65921701455	1670,00		
200	60°	265	145	70	291	410	178	148	220	55922001455	1266,00	55932001455	1378,00	65922001455	1765,00		
250	60°	305	155	82	291	460	199	169	220	55922501455	1378,00	55932501455	1563,00	65922501455	2062,00		
300	60°	385	190	110	291	575	225	195	220	55923002455	1521,00	55933002455	1655,00	65923002455	2260,00		
350	50°	520	150	185	335	670	345	300	233	55923501455	2253,00	55933501455	2559,00	65923501455	3454,00		
400	50°	580	170	195	335	750	378	333	233	55924001455	2420,00	55934001455	2766,00	65924001455	3800,00		

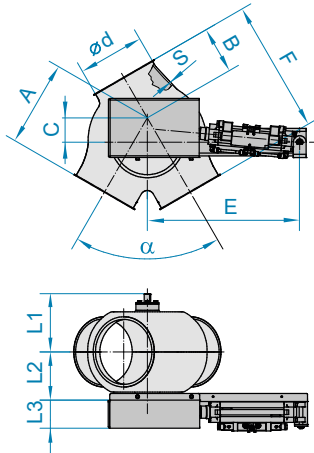
F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH CYLINDER

2165

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	65	41	440	200	82	88	88	5592100221	885,00			6592100221	1113,00	
120	60°	160	70	54	440	230	90	99	88	5592120221	893,50			6592120221	1142,00	
150	60°	200	100	60	440	300	146	116	88	5592150221	894,50	5593150221	972,50	6592150221	1296,00	
175	60°	218	90	75	440	308	159	129	88	5592170121	981,50	5593170121	1086,00	6592170121	1450,00	
200	60°	265	145	70	470	410	178	148	88	5592200121	1045,00	5593200121	1156,00	6592200121	1547,00	
250	60°	305	156	82	470	460	199	169	88	5592250121	1157,00	5593250121	1342,00	6592250121	1845,00	
300	60°	385	190	110	470	575	225	195	88	5592300221	1300,00	5593300221	1436,00	6592300221	2042,00	
350	50°	520	150	185	470	670	325	300	90	5592350121	2033,00	5593350121	2339,00	6592350121	3237,00	
400	50°	580	170	195	470	750	350	333	90	5592400121	2199,00	5593400121	2547,00	6592400121	3581,00	

Cylinder, make FESTO, control voltage 24 V DC

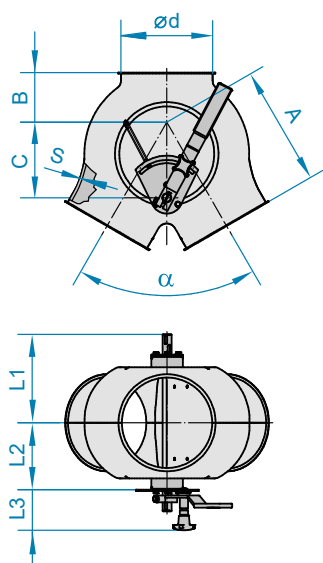
100	60°	135	65	41	440	200	82	88	88	5592100223	885,00			6592100223	1113,00	
120	60°	160	70	54	440	230	90	99	88	5592120223	893,50			6592120223	1142,00	
150	60°	200	100	60	440	300	146	116	88	5592150223	894,50	5593150223	972,50	6592150223	1296,00	
175	60°	218	90	75	440	308	159	129	88	5592170123	981,50	5593170123	1086,00	6592170123	1450,00	
200	60°	265	145	70	470	410	178	148	88	5592200123	1045,00	5593200123	1156,00	6592200123	1547,00	
250	60°	305	156	82	470	460	199	169	88	5592250123	1157,00	5593250123	1342,00	6592250123	1845,00	
300	60°	385	190	110	470	575	225	195	88	5592300223	1300,00	5593300223	1436,00	6592300223	2042,00	
350	50°	520	150	185	470	670	325	300	90	5592350123	2033,00	5593350123	2339,00	6592350123	3237,00	
400	50°	580	170	195	470	750	350	333	90	5592400123	2199,00	5593400123	2547,00	6592400123	3581,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DISTRIBUTORS

Two-way valves with seal



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, HAND-OPERATED

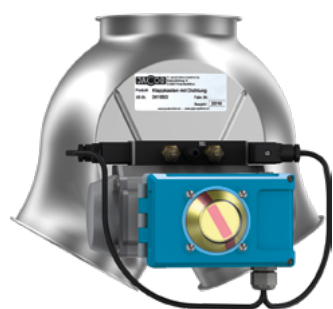
2170

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
100	60°	135	50	87	140	88	88	12101503	420,00			121035037	617,00	
120	60°	160	50	112	148	96	88	12121503	420,00			121235037	617,00	
150	60°	200	80	136	168	119	88	12151503	445,00	13151503	513,50	121535037	750,50	
175	60°	218	63	170	198	147	88	12171506	517,00	13171506	564,00	121735067	1014,00	
200	60°	265	110	167	199	150	88	12201506	517,00	13201506	564,00	122035067	1014,00	
250	60°	305	115	215	220	171	88	12251506	527,50	13251506	644,50	122535067	1249,00	
300	60°	385	145	260	264	213	88	12301503	646,50	13301503	784,50	123035037	1457,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

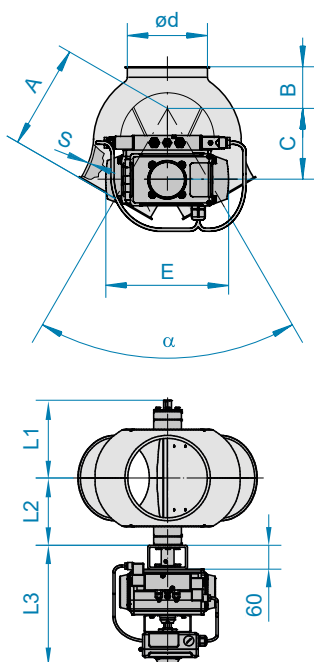
100	60°	135	50	87	203.5	140	110	303	5542100244	1012,00			65421002744	1295,00	
120	60°	160	50	112	203.5	148	118	303	5542120244	1012,00			65421202744	1295,00	
150	60°	200	80	136	203.5	168	138	303	5542150244	1035,00	5543150244	1103,00	65421502744	1429,00	
175	60°	218	63	170	203.5	198	168	303	5542170144	1133,00	5543170144	1188,00	65421701744	1725,00	
200	60°	265	110	167	241	199	169	316	5542200144	1133,00	5543200144	1188,00	65422001744	1725,00	
250	60°	305	115	215	241	220	190	316	5542250144	1143,00	5543250144	1275,00	65422501744	1952,00	
300	60°	385	145	260	241	264	234	316	5542300244	1253,00	5543300244	1396,00	65423002744	2155,00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	50	87	203.5	140	110	303	5542100245	1012,00			65421002745	1295,00	
120	60°	160	50	112	203.5	148	118	303	5542120245	1012,00			65421202745	1295,00	
150	60°	200	80	136	203.5	168	138	303	5542150245	1035,00	5543150245	1103,00	65421502745	1429,00	
175	60°	218	63	170	203.5	198	168	303	5542170145	1133,00	5543170145	1188,00	65421701745	1725,00	
200	60°	265	110	167	241	199	169	316	5542200145	1133,00	5543200145	1188,00	65422001745	1725,00	
250	60°	305	115	215	241	220	190	316	5542250145	1143,00	5543250145	1275,00	65422501745	1952,00	
300	60°	385	145	260	241	264	234	316	5542300245	1253,00	5543300245	1396,00	65423002745	2155,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

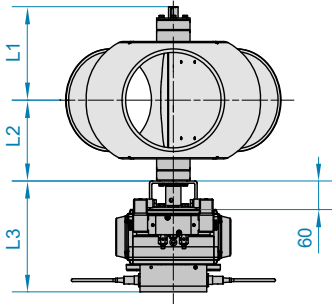
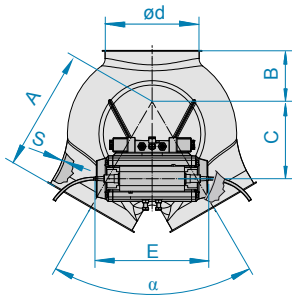
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Terminal box available on request
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	50	87	203.5	140	110	220	55421002455	1232,00			654210027455	1515,00	
120	60°	160	50	112	203.5	148	118	220	55421202455	1232,00			654212027455	1515,00	
150	60°	200	80	136	203.5	168	138	220	55421502455	1255,00	55431502455	1323,00	654215027455	1646,00	
175	60°	218	63	170	203.5	198	168	220	55421701455	1352,00	55431701455	1408,00	654217017455	1943,00	
200	60°	265	110	167	241	199	169	233	55422001455	1352,00	55432001455	1408,00	654220017455	1943,00	
250	60°	305	115	215	241	220	190	233	55422501455	1363,00	55432501455	1496,00	654225017455	2170,00	
300	60°	385	145	260	241	245	215	233	55423002455	1473,00	55433002455	1616,00	654230027455	2373,00	



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

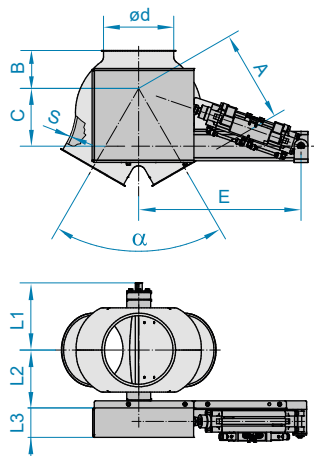
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way valves with seal



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH CYLINDER

2195

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	50	87	440	140	110	88	5542100221	1057,00			65421002721	1341,00
120	60°	160	50	112	440	148	118	88	5542120221	1057,00			65421202721	1341,00
150	60°	200	80	136	440	168	138	88	5542150221	1080,00	5543150221	1146,00	65421502721	1472,00
175	60°	218	63	170	440	198	168	88	5542170121	1179,00	5543170121	1232,00	65421701721	1769,00
200	60°	265	110	167	470	199	169	88	5542200121	1179,00	5543200121	1232,00	65422001721	1769,00
250	60°	305	115	215	470	220	190	88	5542250121	1189,00	5543250121	1321,00	65422501721	1998,00
300	60°	385	145	260	470	264	234	88	5542300221	1298,00	5543300221	1441,00	65423002721	2201,00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	50	87	440	140	110	88	5542100223	1057,00			65421002723	1341,00
120	60°	160	50	112	440	148	118	88	5542120223	1057,00			65421202723	1341,00
150	60°	200	80	136	440	168	138	88	5542150223	1080,00	5543150223	1146,00	65421502723	1472,00
175	60°	218	63	170	440	198	168	88	5542170123	1179,00	5543170123	1232,00	65421701723	1769,00
200	60°	265	110	167	470	199	169	88	5542200123	1179,00	5543200123	1232,00	65422001723	1769,00
250	60°	305	115	215	470	220	190	88	5542250123	1189,00	5543250123	1321,00	65422501723	1998,00
300	60°	385	145	260	470	264	234	88	5542300223	1298,00	5543300223	1441,00	65423002723	2201,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

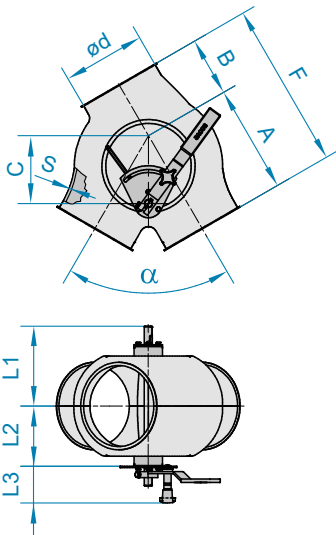
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, HAND-OPERATED

2180



- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

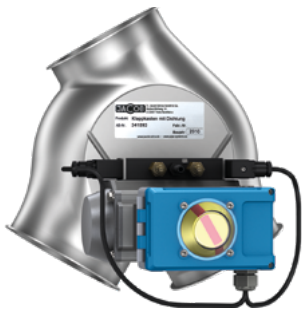
DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
100	60°	135	65	87	200	140	88	88	12101513	420,00			121035137	617,00
120	60°	160	70	112	230	148	96	88	12121513	420,00			121235137	617,00
150	60°	200	100	136	300	168	119	88	12151513	445,00	13151513	513,50	121535137	750,50
175	60°	218	90	170	308	198	149	88	12171516	517,00	13171516	564,00	121735167	1014,00
200	60°	265	145	167	410	199	150	88	12201516	517,00	13201516	564,00	122035167	1014,00
250	60°	305	155	215	460	220	171	88	12251516	527,50	13251516	644,50	122535167	1249,00
300	60°	385	190	260	575	264	197	88	12301513	646,50	13301513	784,50	123035137	1457,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2200



- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

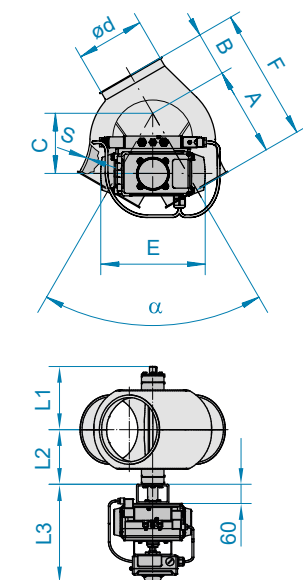
100	60°	135	65	87	203.5	200	140	110	303	5552100244	1012,00			65521002744	1295,00
120	60°	160	70	112	203.5	230	148	118	303	5552120244	1012,00			65521202744	1295,00
150	60°	200	100	136	203.5	300	168	138	303	5552150244	1035,00	5553150244	1103,00	65521502744	1429,00
175	60°	218	90	170	203.5	308	198	168	303	5552170144	1133,00	5553170144	1188,00	65521701744	1725,00
200	60°	265	145	167	241	410	199	169	316	5552200144	1133,00	5553200144	1188,00	65522001744	1725,00
250	60°	305	155	215	241	460	220	190	316	5552250144	1143,00	5553250144	1275,00	65522501744	1952,00
300	60°	385	190	260	241	575	264	234	316	5552300244	1253,00	5553300244	1396,00	65523002744	2155,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	65	87	203.5	200	140	110	303	5552100245	1012,00			65521002745	1295,00
120	60°	160	70	112	203.5	230	148	118	303	5552120245	1012,00			65521202745	1295,00
150	60°	200	100	136	203.5	300	168	138	303	5552150245	1035,00	5553150245	1103,00	65521502745	1429,00
175	60°	218	90	170	203.5	308	198	168	303	5552170145	1133,00	5553170145	1188,00	65521701745	1725,00
200	60°	265	145	167	241	410	199	169	316	5552200145	1133,00	5553200145	1188,00	65522001745	1725,00
250	60°	305	155	215	241	460	220	190	316	5552250145	1143,00	5553250145	1275,00	65522501745	1952,00
300	60°	385	190	260	241	575	264	234	316	5552300245	1253,00	5553300245	1396,00	65523002745	2155,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

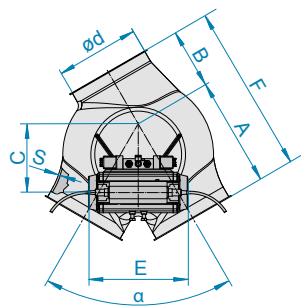
Two-way valves with seal



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2200

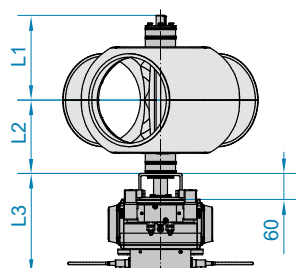
- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Terminal box available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

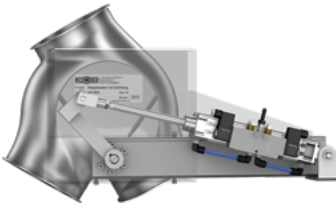
100	60°	135	65	87	203.5	200	140	110	220	55521002455	1232,00			655210027455	1515,00
120	60°	160	70	112	203.5	230	148	118	220	55521202455	1232,00			655212027455	1515,00
150	60°	200	100	136	203.5	300	168	138	220	55521502455	1255,00	55531502455	1323,00	655215027455	1646,00
175	60°	218	90	170	203.5	308	198	168	220	55521701455	1352,00	55531701455	1408,00	655217017455	1943,00
200	60°	265	145	167	241	410	199	169	233	55522001455	1352,00	55532001455	1408,00	655220017455	1943,00
250	60°	305	155	215	241	460	220	190	233	55522501455	1363,00	55532501455	1496,00	655225017455	2170,00
300	60°	385	190	260	241	575	245	215	233	55523002455	1473,00	55533002455	1616,00	655230027455	2373,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

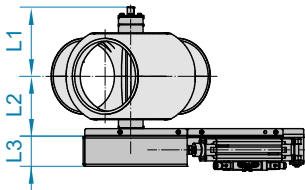
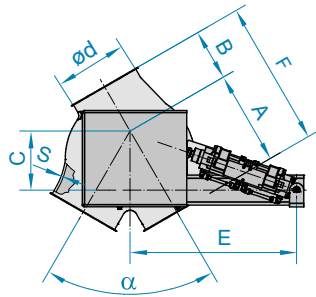
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH CYLINDER

2205

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	65	87	440	200	140	110	88	5552100221	1057,00			65521002721	1341,00	
120	60°	160	70	112	440	230	148	118	88	5552120221	1057,00			65521202721	1341,00	
150	60°	200	100	136	440	300	168	138	88	5552150221	1080,00	5553150221	1146,00	65521502721	1472,00	
175	60°	218	90	170	440	308	198	168	88	5552170121	1179,00	5553170121	1232,00	65521701721	1769,00	
200	60°	265	145	167	470	410	199	169	88	5552200121	1179,00	5553200121	1232,00	65522001721	1769,00	
250	60°	305	155	215	470	460	220	190	88	5552250121	1189,00	5553250121	1321,00	65522501721	1998,00	
300	60°	385	190	260	470	575	264	234	88	5552300221	1298,00	5553300221	1441,00	65523002721	2201,00	

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	65	87	440	200	140	110	88	5552100223	1057,00			65521002723	1341,00	
120	60°	160	70	112	440	230	148	118	88	5552120223	1057,00			65521202723	1341,00	
150	60°	200	100	136	440	300	168	138	88	5552150223	1080,00	5553150223	1146,00	65521502723	1472,00	
175	60°	218	90	170	440	308	198	168	88	5552170123	1179,00	5553170123	1232,00	65521701723	1769,00	
200	60°	265	145	167	470	410	199	169	88	5552200123	1179,00	5553200123	1232,00	65522001723	1769,00	
250	60°	305	155	215	470	460	220	190	88	5552250123	1189,00	5553250123	1321,00	65522501723	1998,00	
300	60°	385	190	260	470	575	264	234	88	5552300223	1298,00	5553300223	1441,00	65523002723	2201,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

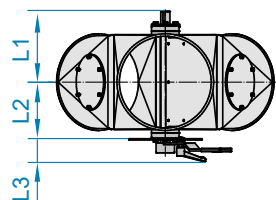
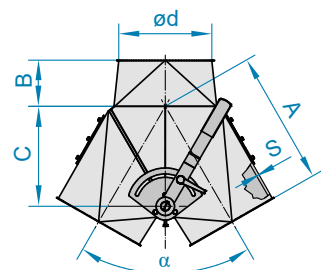
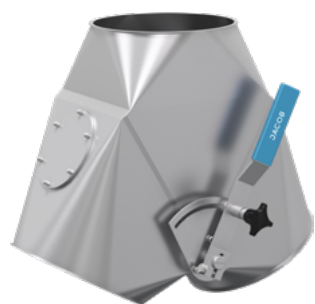
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, HAND-OPERATED

2250

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
100	60°	220	65	128	117	82	75	12101508	1403,00	12103508	2255,00
120	60°	240	70	145	127	92	75	12121508	1403,00	12123508	2255,00
150	60°	250	75	168	142	107	75	12151508	1449,00	12153508	2311,00
200	60°	300	105	218	164	132	75	12201508	1509,00	12203508	2379,00
250	60°	370	130	277	205	160	75	12251508	1555,00	12253508	2428,00
300	60°	435	150	326	230	185	75	12301508	1698,00	12303508	2543,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

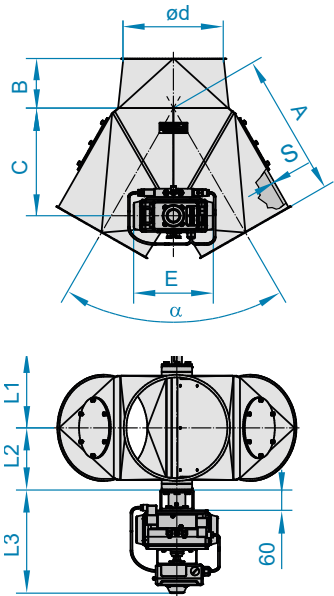
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	65	128	203.5	117	82	303	5982100144	1897,00	6982100144	2750,00
120	60°	240	70	145	203.5	127	92	303	5982120144	1897,00	6982120144	2750,00
150	60°	250	75	168	203.5	142	107	303	5982150144	1939,00	6982150144	2800,00
200	60°	300	105	218	241	164	132	316	5982200144	2096,00	6982200144	2957,00
250	60°	370	130	277	259	205	160	328	5982250144	2235,00	6982250144	3100,00
300	60°	435	150	326	259	230	185	328	5982300144	2277,00	6982300144	3319,00
350	60°	500	185	377	333	255	210	358	5982350144	2613,00	6982350144	3683,00
400	60°	600	205	427	333	280	235	358	5982400144	3100,00	6982400144	4271,00
450	60°	650	225	474	422.5	301	261	397	5983450144	* 3531,00	6983450144	* 5022,00
500	60°	700	250	574	422.5	326	286	397	5983500144	* 3854,00	6983500144	* 5615,00
560	60°	800	300	592	422.5	437	357	397	5983560144	* 5075,00	6983560144	* 6493,00
630	60°	900	350	662	422.5	472	392	397	5983630144	* 5996,00	6983630144	* 7558,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	220	65	128	203.5	117	82	303	5982100145	1897,00	6982100145	2750,00
120	60°	240	70	145	203.5	127	92	303	5982120145	1897,00	6982120145	2750,00
150	60°	250	75	168	203.5	142	107	303	5982150145	1939,00	6982150145	2800,00
200	60°	300	105	218	241	164	132	316	5982200145	2096,00	6982200145	2957,00
250	60°	370	130	277	259	205	160	328	5982250145	2235,00	6982250145	3100,00
300	60°	435	150	326	259	230	185	328	5982300145	2277,00	6982300145	3319,00
350	60°	500	185	377	333	255	210	358	5982350145	2613,00	6982350145	3683,00
400	60°	600	205	427	333	280	235	358	5982400145	3100,00	6982400145	4271,00
450	60°	650	225	474	422.5	301	261	397	5983450145	* 3531,00	6983450145	* 5022,00
500	60°	700	250	574	422.5	326	286	397	5983500145	* 3854,00	6983500145	* 5615,00
560	60°	800	300	592	422.5	437	357	397	5983560145	* 5075,00	6983560145	* 6493,00
630	60°	900	350	662	422.5	472	392	397	5983630145	* 5996,00	6983630145	* 7558,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

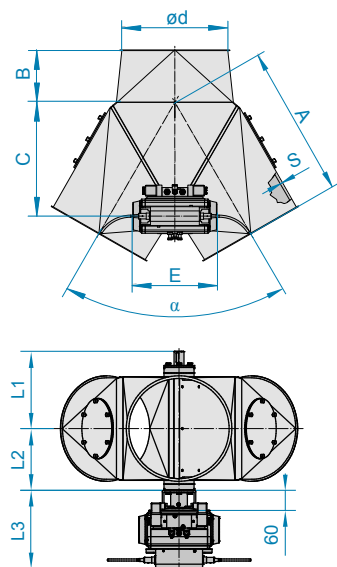
Two-way distributors



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	220	65	128	203.5	117	82	220	59821001455	2118,00	69821001455	2970,00
120	60°	240	70	145	203.5	127	92	220	59821201455	2118,00	69821201455	2970,00
150	60°	250	75	168	203.5	142	107	233	59821501455	2157,00	69821501455	3020,00
200	60°	300	105	218	241	164	132	233	59822001455	2316,00	69822001455	3176,00
250	60°	370	130	277	259	205	160	245	59822501455	2454,00	69822501455	3319,00
300	60°	435	150	326	259	230	185	245	59823001455	2495,00	69823001455	3537,00
350	60°	500	185	377	333	255	210	275	59823501455	2834,00	69823501455	3903,00
400	60°	600	205	427	333	280	235	275	59824001455	3320,00	69824001455	4491,00
450	60°	650	225	474	422.5	450	302	314	59834501455*	3752,00	69834501455*	5241,00
500	60°	700	250	524	422.5	475	327	314	59835001455*	4074,00	69835001455*	5833,00
560	60°	800	300	592	422.5	505	357	314	59835601455*	5293,00	69835601455*	6710,00
630	60°	900	350	662	422.5	540	392	314	59836301455*	6217,00	69836301455*	7777,00

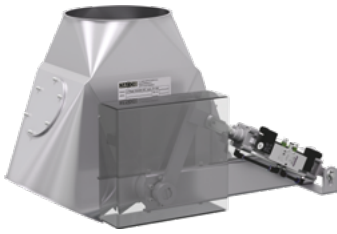
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

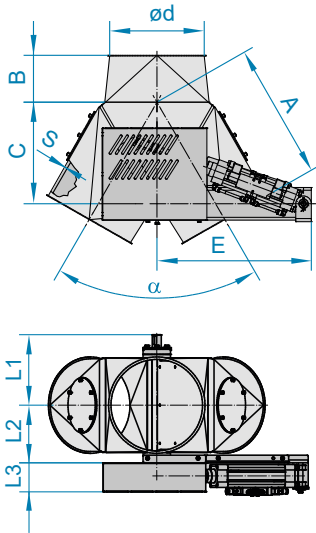
DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH CYLINDER

2275

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	60°	220	65	128	440	117	82	88	5982100121	1974,00	6982100121	2825,00
120	60°	240	70	145	440	127	92	88	5982120121	1974,00	6982120121	2825,00
150	60°	250	75	168	470	142	107	88	5982150121	2012,00	6982150121	2874,00
200	60°	300	105	218	470	164	132	88	5982200121	2171,00	6982200121	3031,00
250	60°	370	130	277	470	205	160	90	5982250121	2313,00	6982250121	3174,00
300	60°	435	150	326	470	230	185	90	5982300121	2351,00	6982300121	3391,00
350	60°	500	185	377	490	255	210	110	5982350121	2699,00	6982350121	3767,00
400	60°	600	205	427	490	280	235	110	5982400121	3200,00	6982400121	4366,00
450	60°	650	225	474	540	301	261	110	5983450121*	3647,00	6983450121*	5133,00
500	60°	700	250	574	540	326	286	110	5983500121*	3976,00	6983500121*	5743,00
560	60°	800	300	592	540	437	357	110	5983560121*	5235,00	6983560121*	6639,00
630	60°	900	350	662	540	472	392	110	5983630121*	6187,00	6983630121*	7726,00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	220	65	128	440	117	82	88	5982100123	1974,00	6982100123	2825,00
120	60°	240	70	145	440	127	92	88	5982120123	1974,00	6982120123	2825,00
150	60°	250	75	168	470	142	107	88	5982150123	2012,00	6982150123	2874,00
200	60°	300	105	218	470	164	132	88	5982200123	2171,00	6982200123	3031,00
250	60°	370	130	277	470	205	160	90	5982250123	2313,00	6982250123	3174,00
300	60°	435	150	326	470	230	185	90	5982300123	2351,00	6982300123	3391,00
350	60°	500	185	377	490	255	210	110	5982350123	2772,00	6982350123	3767,00
400	60°	600	205	427	490	280	235	110	5982400123	3200,00	6982400123	4366,00
450	60°	650	225	474	540	301	261	110	5983450123*	3647,00	6983450123*	5133,00
500	60°	700	250	574	540	326	286	110	5983500123*	3976,00	6983500123*	5743,00
560	60°	800	300	592	540	437	357	110	5983560123*	5235,00	6983560123*	6639,00
630	60°	900	350	662	540	472	392	110	5983630123*	6187,00	6983630123*	7726,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

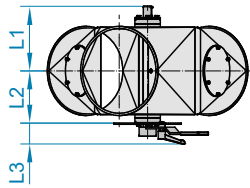
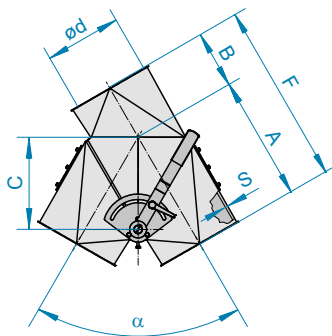
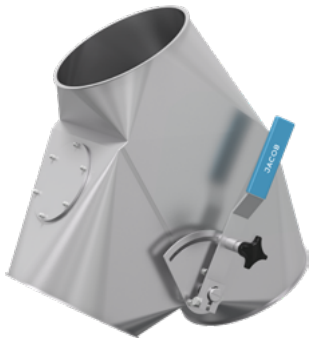
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, HAND-OPERATED

2260

- Standard version: Right-side mounting
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
100	60°	220	100	128	320	117	82	75	12101509	1403,00	12103509	2255,00
120	60°	240	110	145	350	127	92	75	12121509	1403,00	12123509	2255,00
150	60°	250	115	168	365	142	107	75	12151509	1449,00	12153509	2311,00
200	60°	300	140	218	440	164	132	75	12201509	1509,00	12203509	2379,00
250	60°	370	170	277	540	205	160	75	12251509	1555,00	12253509	2428,00
300	60°	435	200	326	635	230	185	75	12301509	1698,00	12303509	2543,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

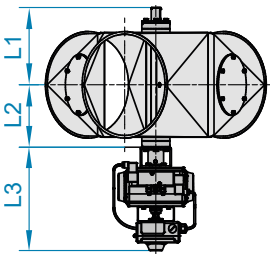
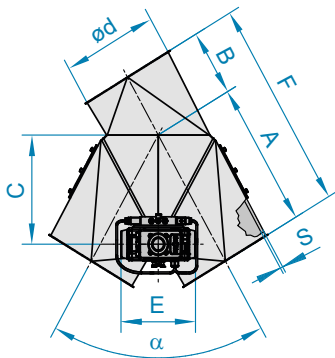
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	100	128	203.5	320	117	82	303	5992100144	1897,00	6992100144	2750,00
120	60°	240	110	145	203.5	350	127	92	303	5992120144	1897,00	6992120144	2750,00
150	60°	250	115	168	203.5	365	142	107	303	5992150144	1939,00	6992150144	2800,00
200	60°	300	140	218	241	440	164	132	316	5992200144	2096,00	6992200144	2957,00
250	60°	370	170	277	259	540	205	160	328	5992250144	2235,00	6992250144	3100,00
300	60°	435	200	326	259	635	230	185	328	5992300144	2277,00	6992300144	3319,00
350	60°	500	230	377	333	730	255	210	358	5992350144	2613,00	6992350144	3683,00
400	60°	600	250	427	333	850	280	235	358	5992400144	3100,00	6992400144	4271,00
450	60°	650	270	474	422.5	920	301	256	397	5993450144*	3531,00	6993450144*	5022,00
500	60°	700	300	542	422.5	1000	326	288	397	5993500144*	3854,00	6993500144*	5615,00
560	60°	800	350	592	422.5	1150	437	357	397	5993560144*	5075,00	6993560144*	6493,00
630	60°	900	400	662	422.5	1300	472	392	397	5993630144*	5996,00	6993630144*	7558,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	220	100	128	203.5	320	117	82	303	5992100145	1897,00	6992100145	2750,00
120	60°	240	110	145	203.5	350	127	92	303	5992120145	1897,00	6992120145	2750,00
150	60°	250	115	168	203.5	365	142	107	303	5992150145	1939,00	6992150145	2800,00
200	60°	300	140	218	241	440	164	132	316	5992200145	2096,00	6992200145	2957,00
250	60°	370	170	277	259	540	205	160	328	5992250145	2235,00	6992250145	3100,00
300	60°	435	200	326	259	635	230	185	328	5992300145	2277,00	6992300145	3319,00
350	60°	500	230	377	333	730	255	210	358	5992350145	2613,00	6992350145	3683,00
400	60°	600	250	427	333	850	280	235	358	5992400145	3100,00	6992400145	4271,00
450	60°	650	270	474	422.5	920	301	256	397	5993450145*	3531,00	6993450145*	5022,00
500	60°	700	300	542	422.5	1000	326	288	397	5993500145*	3854,00	6993500145*	5615,00
560	60°	800	350	592	422.5	1150	437	357	397	5993560145*	5075,00	6993560145*	6493,00
630	60°	900	400	662	422.5	1300	472	392	397	5993630145*	5996,00	6993630145*	7558,00

*3 mm



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

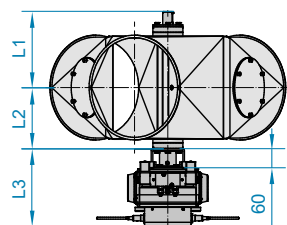
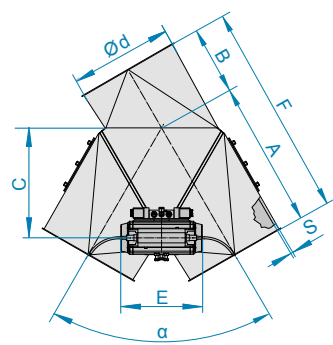
Two-way distributors



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Shaft and inner flap with seal
- Standard version: Right-side mounting
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	220	100	128	203.5	320	117	82	220	59921001455	2118,00	69921001455	2970,00
120	60°	240	110	145	203.5	350	127	92	220	59921201455	2118,00	69921201455	2970,00
150	60°	250	115	168	203.5	365	142	107	233	59921501455	2157,00	69921501455	3020,00
200	60°	300	140	218	241	440	164	132	233	59922001455	2316,00	69922001455	3176,00
250	60°	370	170	277	259	540	205	160	245	59922501455	2454,00	69922501455	3319,00
300	60°	435	200	326	259	635	230	185	245	59923001455	2495,00	69923001455	3537,00
350	60°	500	230	377	333	730	255	210	275	59923501455	2834,00	69923501455	3903,00
400	60°	600	250	427	333	850	280	235	275	59924001455	3320,00	69924001455	4491,00
450	60°	650	270	474	422.5	920	450	302	314	59934501455*	3752,00	69934501455*	5241,00
500	60°	700	300	524	422.5	1000	475	327	314	59935001455*	4074,00	69935001455*	5833,00
560	60°	800	350	592	422.5	1150	505	357	314	59935601455*	5293,00	69935601455*	6710,00
630	60°	900	400	662	422.5	1300	540	392	314	59936301455*	6217,00	69936301455*	7777,00

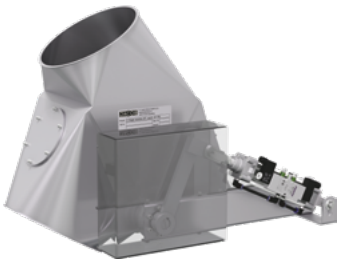
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

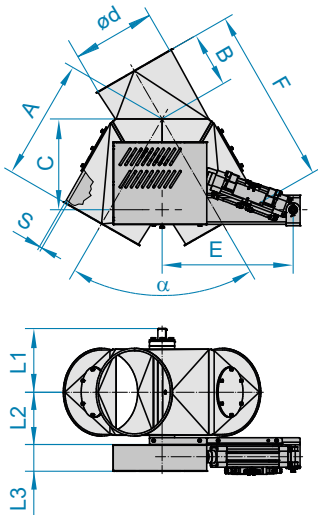
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH CYLINDER

2285

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	60°	220	100	128	440	320	117	82	88	5992100121	1974,00	6992100121	2825,00
120	60°	240	110	145	440	350	127	92	88	5992120121	1974,00	6992120121	2825,00
150	60°	250	115	168	470	365	142	107	88	5992150121	2012,00	6992150121	2874,00
200	60°	300	140	218	470	440	164	132	88	5992200121	2171,00	6992200121	3031,00
250	60°	370	170	277	470	540	205	160	90	5992250121	2313,00	6992250121	3174,00
300	60°	435	200	326	470	635	230	185	90	5992300121	2351,00	6992300121	3391,00
350	60°	500	230	377	490	730	255	210	110	5992350121	2699,00	6992350121	3767,00
400	60°	600	250	427	490	850	280	235	110	5992400121	3200,00	6992400121	4366,00
450	60°	650	270	474	540	920	301	256	110	5993450121*	3647,00	6993450121*	5133,00
500	60°	700	300	542	540	1000	326	288	110	5993500121*	3976,00	6993500121*	5743,00
560	60°	800	350	592	540	1150	437	357	110	5993560121*	5235,00	6993560121*	6639,00
630	60°	900	400	662	540	1300	472	392	110	5993630121*	6187,00	6993630121*	7726,00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	220	100	128	440	320	117	82	88	5992100123	1974,00	6992100123	2825,00
120	60°	240	110	145	440	350	127	92	88	5992120123	1974,00	6992120123	2825,00
150	60°	250	115	168	470	365	142	107	88	5992150123	2012,00	6992150123	2874,00
200	60°	300	140	218	470	440	164	132	88	5992200123	2171,00	6992200123	3031,00
250	60°	370	170	277	470	540	205	160	90	5992250123	2313,00	6992250123	3174,00
300	60°	435	200	326	470	635	230	185	90	5992300123	2351,00	6992300123	3391,00
350	60°	500	230	377	490	730	255	210	110	5992350123	2699,00	6992350123	3767,00
400	60°	600	250	427	490	850	280	235	110	5992400123	3200,00	6992400123	4366,00
450	60°	650	270	474	540	920	301	256	110	5993450123*	3647,00	6993450123*	5133,00
500	60°	700	300	542	540	1000	326	288	110	5993500123*	3976,00	6993500123*	5743,00
560	60°	800	350	592	540	1150	437	357	110	5993560123*	5235,00	6993560123*	6639,00
630	60°	900	400	662	540	1300	472	392	110	5993630123*	6187,00	6993630123*	7726,00

*3 mm



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

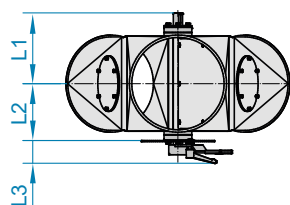
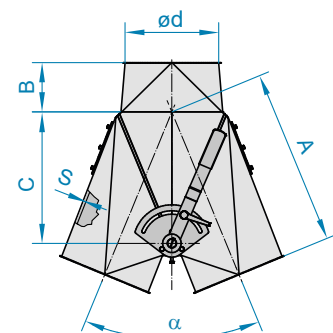
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, HAND-OPERATED

2210

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
100	45°	260	65	165	117	82	75	12101518	1536,00	12103518	2465,00
120	45°	280	70	185	127	92	75	12121518	1536,00	12123518	2465,00
150	45°	315	75	225	142	107	75	12151518	1578,00	12153518	2518,00
175	45°	350	90	255	151	119	75	12171518	1647,00	12173518	2591,00
200	45°	400	105	289	164	132	75	12201518	1647,00	12203518	2591,00
250	45°	480	130	356	205	160	75	12251518	1697,00	12253518	2642,00
300	45°	570	160	426	230	185	75	12301518	1849,00	12303518	2769,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

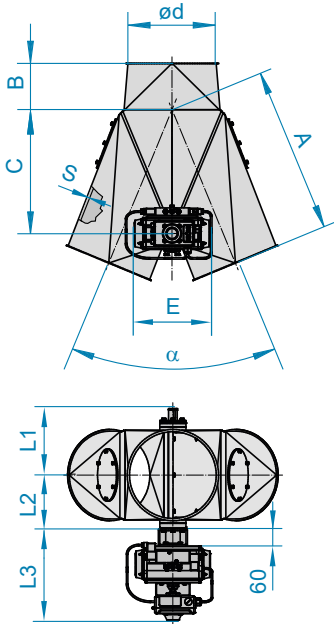
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	45°	260	65	165	203.5	117	82	303	5922100144	2121,00	6922100144	3048,00
120	45°	280	70	185	203.5	127	107	303	5922120144	2121,00	6922120144	3048,00
150	45°	315	75	225	203.5	142	107	303	5922150144	2156,00	6922150144	3092,00
175	45°	350	90	255	241	150	119	316	5922170144	2335,00	6922170144	3267,00
200	45°	400	105	289	241	164	132	316	5922200144	2335,00	6922200144	3267,00
250	45°	480	130	356	259	205	160	328	5922250144	2491,00	6922250144	3427,00
300	45°	570	160	426	259	230	185	328	5922300144	2526,00	6922300144	3672,00
350	45°	618	185	495	333	238	208	358	5922350144	2920,00	6922350144	4099,00
400	45°	698	205	558	333	263	233	358	5922400144	3464,00	6922400144	4749,00
450	45°	800	225	624	422.5	450	302	397	5923450144*	3948,00	6923450144*	5584,00
500	45°	880	250	686	422.5	475	327	397	5923500144*	4308,00	6923500144*	6243,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	45°	260	65	165	203.5	117	82	303	5922100145	2121,00	6922100145	3048,00
120	45°	280	70	185	203.5	127	107	303	5922120145	2121,00	6922120145	3048,00
150	45°	315	75	225	203.5	142	107	303	5922150145	2156,00	6922150145	3092,00
175	45°	350	90	255	241	150	119	316	5922170145	2335,00	6922170145	3267,00
200	45°	400	105	289	241	164	132	316	5922200145	2335,00	6922200145	3267,00
250	45°	480	130	356	259	205	160	328	5922250145	2491,00	6922250145	3427,00
300	45°	570	160	426	259	230	185	328	5922300145	2526,00	6922300145	3672,00
350	45°	618	185	495	333	238	208	358	5922350145	2920,00	6922350145	4099,00
400	45°	698	205	558	333	263	233	358	5922400145	3464,00	6922400145	4749,00
450	45°	800	225	624	422.5	450	302	397	5923450145*	3948,00	6923450145*	5584,00
500	45°	880	250	686	422.5	475	327	397	5923500145*	4308,00	6923500145*	6243,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

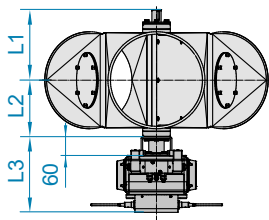
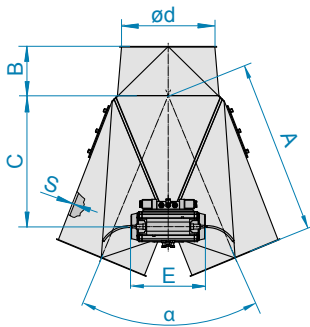
Two-way distributors



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- DN > 300 mm with welded flanges
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	45°	260	65	165	203.5	117	82	220	59221001455	2340,00	69221001455	3267,00
120	45°	280	70	185	203.5	127	92	220	59221201455	2340,00	69221201455	3267,00
150	45°	315	75	225	203.5	142	107	233	59221501455	2375,00	69221501455	3310,00
175	45°	350	90	255	241	151	119	233	59221701455	2555,00	69221701455	3486,00
200	45°	400	105	289	241	164	132	233	59222001455	2555,00	69222001455	3486,00
250	45°	480	130	356	259	205	160	245	59222501455	2712,00	69222501455	3648,00
300	45°	570	160	426	259	230	185	245	59223001455	2746,00	69223001455	3890,00
350	45°	618	185	495	333	238	210	375	59223501455	3141,00	69223501455	4318,00
400	45°	698	205	558	333	263	235	375	59224001455	3684,00	69224001455	4967,00
450	45°	800	225	624	422.5	450	302	314	59234501455*	4167,00	69234501455*	5802,00
500	45°	880	250	700	422.5	475	327	314	59235001455*	4528,00	69235001455*	6461,00

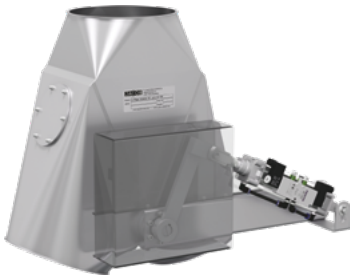
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

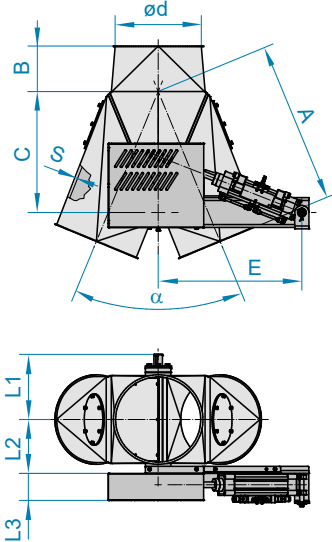
DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH CYLINDER

2235

- Standard version: Right-side mounting
- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	45°	260	65	165	440	117	82	88	5922100121	2195,00	6922100121	3123,00
120	45°	280	70	185	440	127	92	88	5922120121	2195,00	6922120121	3123,00
150	45°	315	75	225	470	142	107	88	5922150121	2230,00	6922150121	3165,00
175	45°	350	90	255	470	150	119	88	5922170121	2409,00	6922170121	3341,00
200	45°	400	105	289	470	164	132	88	5922200121	2409,00	6922200121	3341,00
250	45°	480	130	356	470	205	160	90	5922250121	2567,00	6922250121	3503,00
300	45°	570	160	426	470	230	185	90	5922300121	2602,00	6922300121	3746,00
350	45°	618	185	495	490	238	208	110	5922350121	3017,00	6922350121	4232,00
400	45°	698	205	558	490	263	233	110	5922400121	3578,00	6922400121	4905,00
450	45°	800	205	624	540	450	302	110	5923450121*	4078,00	6923450121*	5771,00
500	45°	880	250	686	540	475	327	110	5923500121*	4449,00	6923500121*	6448,00

Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	65	165	440	117	82	88	5922100123	2195,00	6922100123	3123,00
120	45°	280	70	185	440	127	92	88	5922120123	2195,00	6922120123	3123,00
150	45°	315	75	225	470	142	107	88	5922150123	2230,00	6922150123	3165,00
175	45°	350	90	255	470	150	119	88	5922170123	2409,00	6922170123	3341,00
200	45°	400	105	289	470	164	132	88	5922200123	2409,00	6922200123	3341,00
250	45°	480	130	356	470	205	160	90	5922250123	2567,00	6922250123	3503,00
300	45°	570	160	426	470	230	185	90	5922300123	2602,00	6922300123	3746,00
350	45°	618	185	495	490	238	208	110	5922350123	3017,00	6922350123	4232,00
400	45°	698	205	558	490	263	233	110	5922400123	3578,00	6922400123	4905,00
450	45°	800	205	624	540	450	302	110	5923450123*	4078,00	6923450123*	5771,00
500	45°	880	250	686	540	475	327	110	5923500123*	4449,00	6923500123*	6448,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

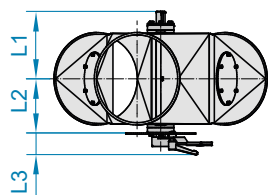
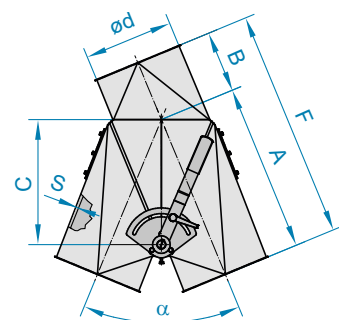
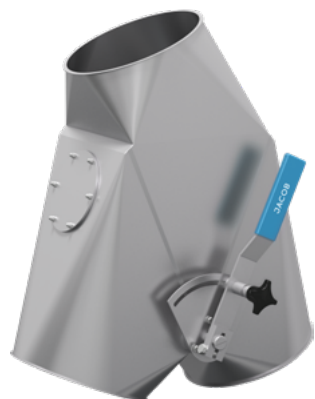
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, HAND-OPERATED

2220

- Standard version: Right-side mounting
- Shaft and inner flap with seal
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel F	
									Item no.	€	Item no.	€
100	45°	260	100	165	360	117	82	75	12101519	1536,00	12103519	2465,00
120	45°	280	110	185	390	127	92	75	12121519	1536,00	12123519	2465,00
150	45°	315	115	225	430	142	107	75	12151519	1578,00	12153519	2518,00
175	45°	350	125	255	475	151	119	75	12171519	1647,00	12173519	2591,00
200	45°	400	140	289	540	164	132	75	12201519	1647,00	12203519	2591,00
250	45°	480	170	356	650	205	160	75	12251519	1697,00	12253519	2642,00
300	45°	570	210	426	780	230	185	75	12301519	1849,00	12303519	2769,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

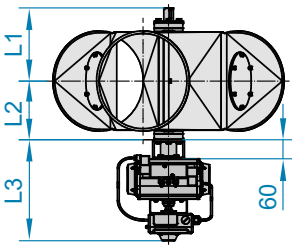
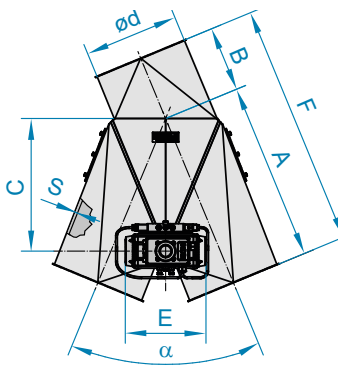
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	45°	260	100	165	203.5	360	117	82	303	5912100144	2121,00	6912100144	3048,00
120	45°	280	110	185	203.5	390	127	92	303	5912120144	2121,00	6912120144	2818,00
150	45°	315	115	225	203.5	430	142	107	303	5912150144	2156,00	6912150144	3092,00
175	45°	350	125	255	241	475	151	119	316	5912170144	2335,00	6912170144	3267,00
200	45°	400	140	289	241	540	164	132	316	5912200144	2335,00	6912200144	3267,00
250	45°	480	170	356	259	650	205	160	328	5912250144	2491,00	6912250144	3427,00
300	45°	570	210	426	259	780	230	185	328	5912300144	2526,00	6912300144	3672,00
350	45°	618	230	495	333	848	238	208	358	5912350144	2920,00	6912350144	4099,00
400	45°	698	250	558	333	948	263	233	358	5912400144	3464,00	6912400144	4749,00
450	45°	800	270	624	422.5	1070	450	302	397	5913450144*	3948,00	6913450144*	5584,00
500	45°	880	300	686	422.5	1180	475	327	397	5913500144*	4308,00	6913500144*	6243,00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	45°	260	100	165	203.5	360	117	82	303	5912100145	2121,00	6912100145	3048,00
120	45°	280	110	185	203.5	390	127	92	303	5912120145	2121,00	6912120145	3048,00
150	45°	315	115	225	203.5	430	142	107	303	5912150145	2156,00	6912150145	3092,00
175	45°	350	125	255	241	475	150	119	316	5912170145	2335,00	6912170145	3267,00
200	45°	400	140	289	241	540	164	132	316	5912200145	2335,00	6912200145	3267,00
250	45°	480	170	356	259	650	205	160	328	5912250145	2491,00	6912250145	3427,00
300	45°	570	210	426	259	780	230	185	328	5912300145	2526,00	6912300145	3672,00
350	45°	618	230	495	333	848	238	208	358	5912350145	2920,00	6912350145	4099,00
400	45°	698	250	558	333	948	263	233	358	5912400145	3464,00	6912400145	4749,00
450	45°	800	270	624	422.5	1070	450	302	397	5913450145*	3948,00	6913450145*	5584,00
500	45°	880	300	686	422.5	1180	475	327	397	5913500145*	4308,00	6913500145*	6243,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

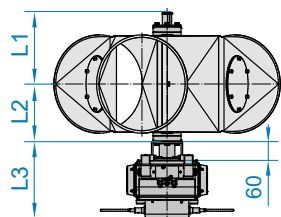
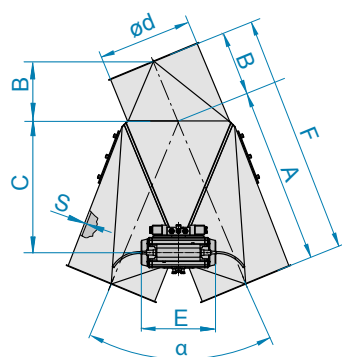
Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Standard version: Right-side mounting
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	45°	260	100	165	203.5	360	117	82	220	59121001455	2340,00	69121001455	3267,00
120	45°	280	110	185	203.5	390	127	92	220	59121201455	2340,00	69121201455	3267,00
150	45°	315	115	225	203.5	430	142	107	233	59121501455	2375,00	69121501455	3310,00
175	45°	350	125	255	241	475	151	119	233	59121701455	2555,00	69121701455	3486,00
200	45°	400	140	289	241	540	164	132	233	59122001455	2555,00	69122001455	3486,00
250	45°	480	170	356	259	650	205	160	245	59122501455	2712,00	69122501455	3648,00
300	45°	570	210	426	259	780	230	185	245	59123001455	2746,00	69123001455	3890,00
350	45°	618	230	495	333	848	238	210	375	59123501455	3141,00	69123501455	4318,00
400	45°	698	250	558	333	948	263	235	375	59124001455	3684,00	69124001455	4967,00
450	45°	800	270	624	422.5	1070	450	302	314	59134501455*	4167,00	69134501455*	5802,00
500	45°	880	300	700	422.5	1180	475	327	314	59135001455*	4528,00	69135001455*	6461,00

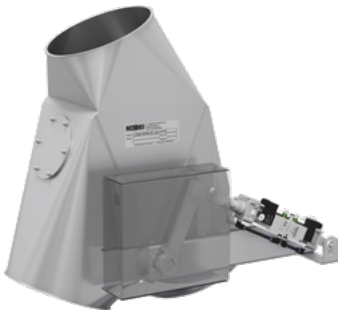
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH CYLINDER

2245

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	45°	260	100	165	440	360	117	82	88	5912100121	2195,00	6912100121	3123,00
120	45°	280	110	185	440	390	127	92	88	5912120121	2195,00	6912120121	3123,00
150	45°	315	115	225	470	430	142	107	88	5912150121	2230,00	6912150121	3165,00
175	45°	350	125	255	470	475	150	119	88	5912170121	2409,00	6912170121	3341,00
200	45°	400	140	289	470	540	164	132	88	5912200121	2409,00	6912200121	3341,00
250	45°	480	170	356	470	650	205	160	90	5912250121	2567,00	6912250121	3503,00
300	45°	570	210	426	470	780	230	185	90	5912300121	2602,00	6912300121	3746,00
350	45°	618	230	495	490	848	238	208	110	5912350121	3017,00	6912350121	4232,00
400	45°	698	250	558	490	948	263	233	110	5912400121	3578,00	6912400121	4905,00
450	45°	800	270	624	540	1070	450	302	110	5913450121*	4078,00	6913450121*	5771,00
500	45°	880	300	686	540	1180	475	327	110	5913500121*	4449,00	6913500121*	6448,00

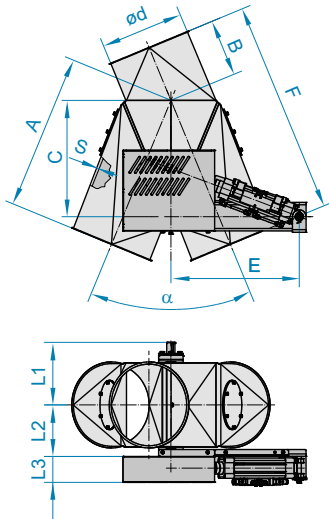
Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	100	165	440	360	117	82	88	5912100123	2195,00	6912100123	3123,00
120	45°	280	110	185	440	390	127	92	88	5912120123	2195,00	6912120123	3123,00
150	45°	315	115	225	470	430	142	107	88	5912150123	2230,00	6912150123	3165,00
175	45°	350	125	255	470	475	150	119	88	5912170123	2409,00	6912170123	3341,00
200	45°	400	140	289	470	540	164	132	88	5912200123	2409,00	6912200123	3341,00
250	45°	480	170	356	470	650	205	160	90	5912250123	2567,00	6912250123	3503,00
300	45°	570	210	426	470	780	230	185	90	5912300123	2602,00	6912300123	3746,00
350	45°	618	230	495	490	848	238	208	110	5912350123	3017,00	6912350123	4232,00
400	45°	698	250	558	490	948	263	233	110	5912400123	3578,00	6912400123	4905,00
450	45°	800	270	624	540	1070	450	302	110	5913450123*	4078,00	6913450123*	5771,00
500	45°	880	300	686	540	1180	475	327	110	5913500123*	4449,00	6913500123*	6448,00

*3 mm

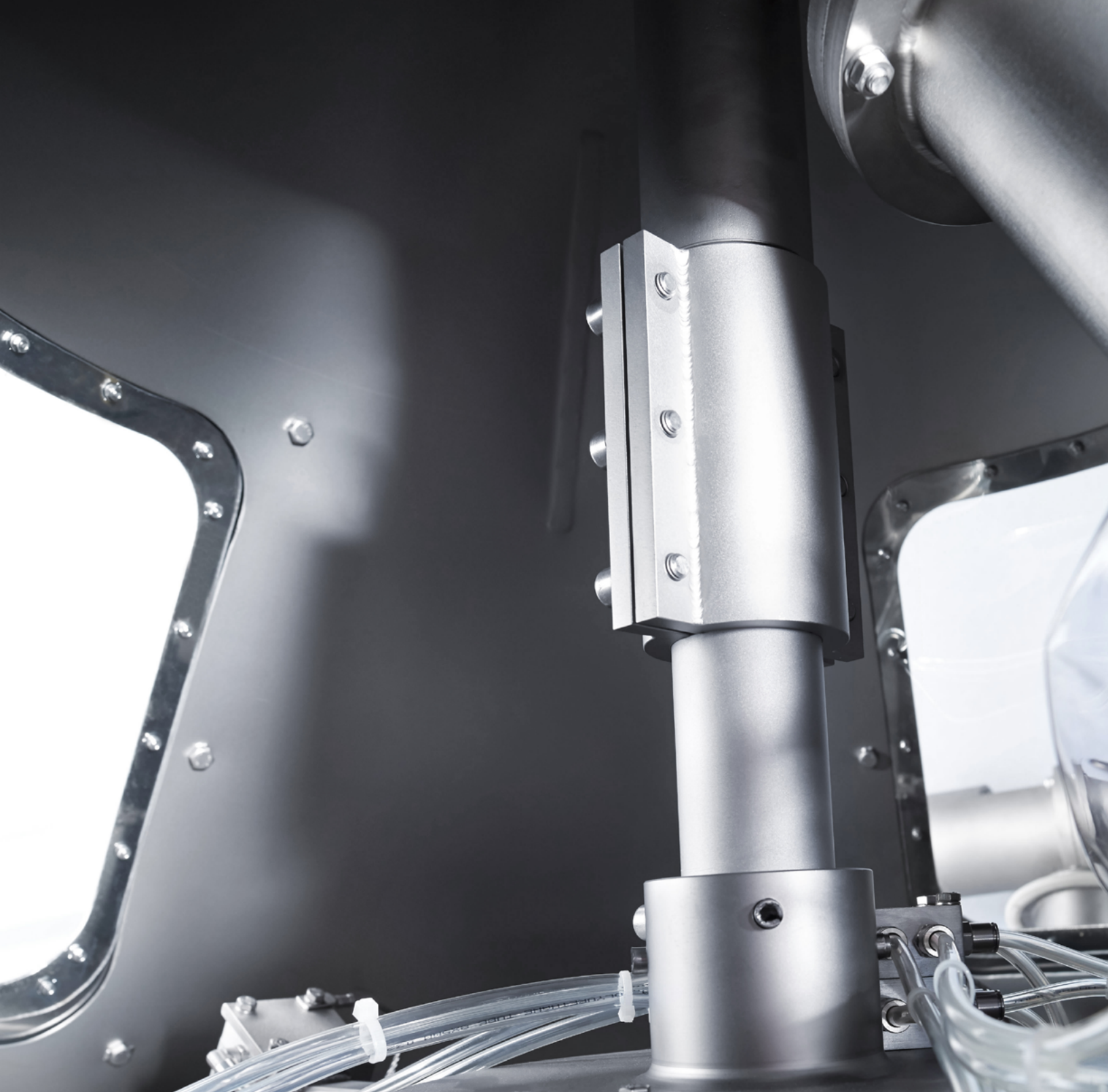


AVAILABLE IN THE DETECTABLE DESIGN LINE.

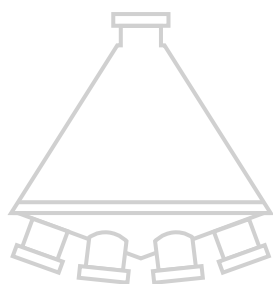


F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



JACOB MULTI-WAY DISTRIBUTORS –
FOR FLEXIBLE DISTRIBUTION OF YOUR
BULK GOODS



MULTI-WAY DISTRIBUTORS

Technical information	168	
Turn-head distributor	172	
Turn-head distributors, dust-tight version	176	
Double turn-head distributors	180	
Swivel pipe switches	181	



MULTI-WAY DISTRIBUTORS

JACOB multi-way distributors are the compact solution for conveying bulk goods to many different machines or silos in the course of the production process. JACOB has a range of multi-way distributors with up to 2 x 20 outlets available in its standard portfolio in order to meet a variety of requirements.



Documentation – JACOB

TECHNICAL DOCUMENTATION

Our comprehensive technical documentation on multi-way distributors is always kept up-to-date and is available on our website for you to download.

TURN-HEAD DISTRIBUTORS 45° AND 60°



Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, motor current 380-400 volt, 3-phase, 50 Hz.

2.3 rpm	1.2 rpm
DN 100 mm, 4-18 outlets	DN 100 mm, 20 outlets
DN 120 mm, 4-14 outlets	DN 120 mm, 16-20 outlets
DN 150 mm, 4-12 outlets	DN 150 mm, 14-20 outlets
DN 175 mm, 4-10 outlets	DN 175 mm, 12-20 outlets
DN 200 mm, 4-10 outlets	DN 200 mm, 12-20 outlets
	DN 250 mm, 4-16 outlets
	DN 300 mm, 4-14 outlets

Positioning with mechanical limit switches, wired on terminals in a connection box. The turn-head distributor must never be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- Deliverable in blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives



DOUBLE TURN-HEAD DISTRIBUTORS 45° AND 60°

Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through two counter-rotating turn-pipes towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, wired on terminals in a connection box. The turn-head distributor must never be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- ATEX versions on request
- Wear protection lining
- Other drives

TURN-HEAD DISTRIBUTORS 45° AND 60°, DUST-TIGHT VERSION

Versions and applications

Primed steel version. For distributing bulk goods by gravity up to a maximum of 1 bar over-pressure inside the pipework system.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Sealing of the turn-pipe outlet by means of pneumatic pressing onto outlet sleeve.

Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Necessary minimum operating pressure: 6 bar.

The turn-head distributor must never be operated when transporting material.

Please indicate control voltage when ordering.



Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- Seals in DETECTABLE DESIGN line: Blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives
- Cover to blank off outlets that are not in use

SWIVEL PIPE SWITCHES

Versions and applications

Housing made of primed steel. Parts in contact with the products are also available in stainless steel.

For pneumatic conveying of bulk goods. Over-pressure inside the pipework system up to diameter 150 mm max. 3 bar, diameter 200 and 250 mm max. 2 bar. Necessary minimum operating pressure: 6 bar. Swivel pipe switch must never be operated when transporting material.

Feeding from the top through the swivel pipe towards the required outlet inside a closed casing. Sealing of swivel pipe outlet by means of pneumatic pressing-on of the telescopic pipe onto the outlet sleeve, outlets not in use pneumatically blanked off. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

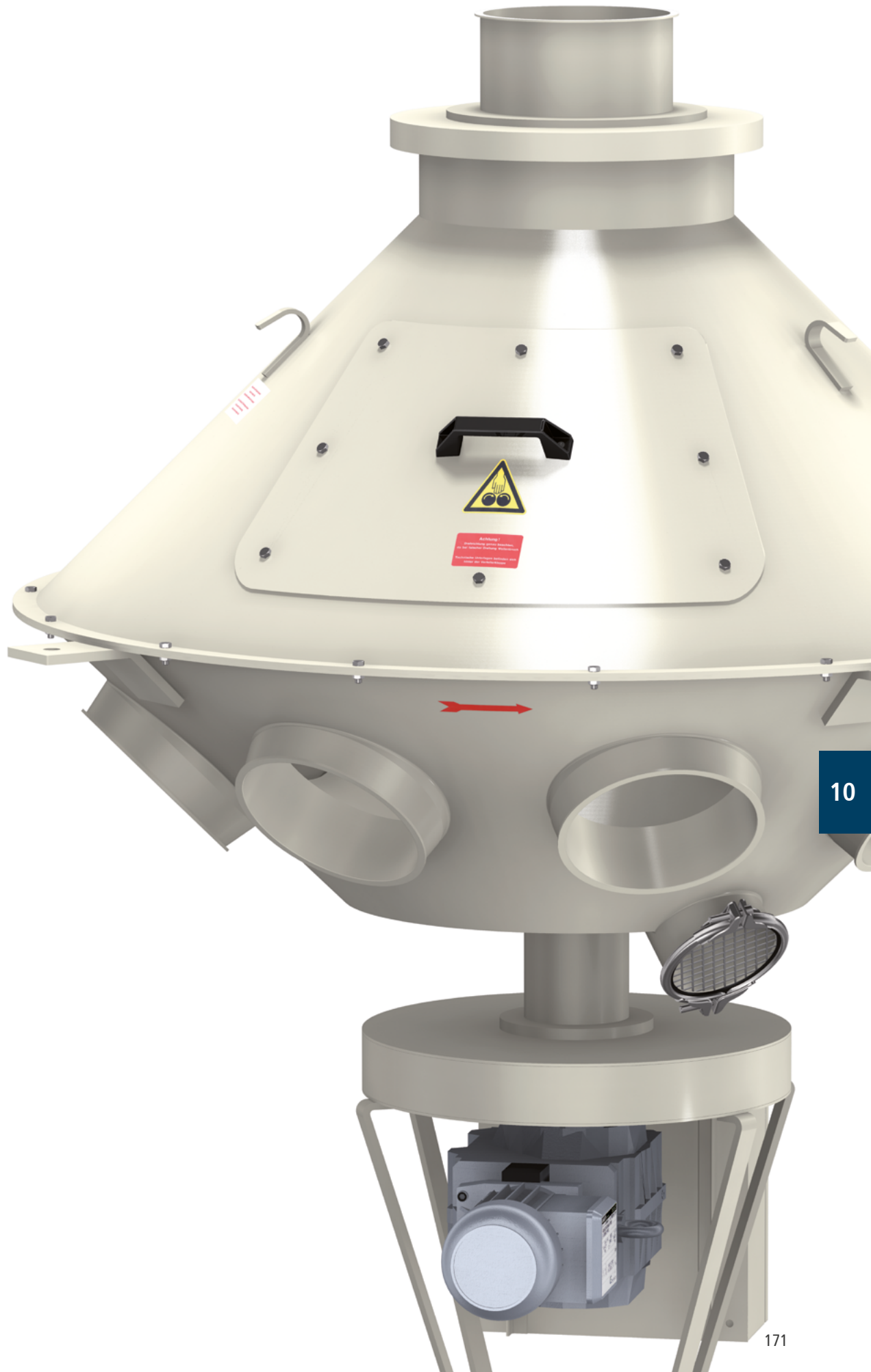
Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Please indicate control voltage when ordering.

Your individual swivel pipe switch

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- ATEX versions on request
- Wear protection lining
- Other drives

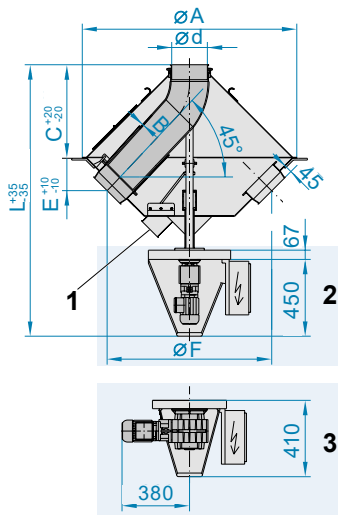


10



MULTI-WAY DISTRIBUTORS

Turn-head distributor



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

TURN-HEAD DISTRIBUTOR 45°

2320

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5104104501	5891,00	5106104501	6131,00
120	118	800	4.0	355	155	590	1348	79	12	5104124501	5914,00	5106124501	6236,00
150	148	800	4.5	340	155	590	1333	80	25	5104154501	6006,00	5106154501	6340,00
175	173	1200	5.4	520	173	940	1576	134	45	5104174501	6672,00	5106174501	6935,00
200	198	1200	6.3	510	183	920	1568	141	65	5104204501	6780,00	5106204501	7117,00
250	248	1200	6.3	485	219	850	1540	155	100	5104254501	7580,00	5106254501	7878,00
300	298	1200	7.1	480	212	860	1538	165	150	5104304501	8258,00	5106304501	9061,00

8 outlets

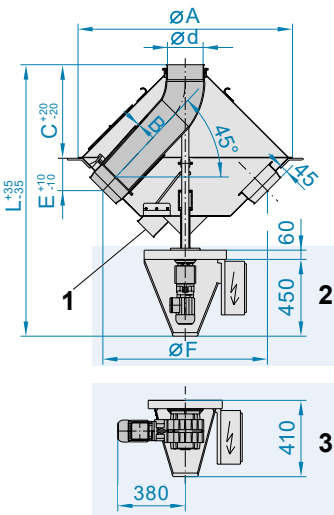
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5108104501	6421,00
120	118	800	4.0	355	155	590	1348	79	12	5108124501	6464,00
150	148	1200	4.5	535	155	974	1593	129	25	5108154501	7050,00
175	173	1200	5.4	520	173	940	1576	134	45	5108174501	7278,00
200	198	1200	6.3	510	183	920	1568	141	65	5108204501	7486,00
250	248	1600	6.3	685	219	1250	1945	248	100	5108254501	9735,00
300	298	1600	7.1	680	212	1260	1940	260	150	5108304501	11537,00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5110104501	6735,00
120	118	1200	4.0	550	155	974	1608	120	12	5110124501	7361,00
150	148	1200	4.5	535	155	974	1593	129	25	5110154501	7545,00
175	173	1200	5.4	520	173	940	1576	134	45	5110174501	7620,00
200	198	1200	6.3	510	183	920	1568	141	65	5110204501	7844,00
250	248	1600	6.3	685	219	1250	1945	248	100	5110254501	10101,00
300	298	1600	7.1	680	212	1260	1940	260	150	5110304501	11906,00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5112104501	7468,00
120	118	1200	4.0	550	155	974	1608	120	12	5112124501	7691,00
150	148	1200	4.5	535	155	974	1593	129	25	5112154501	7884,00
175	173	1600	5.4	720	173	1340	1980	240	45	5112174501	10186,00
200	198	1600	6.3	710	183	1320	1970	250	65	5112204501	10376,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5112254501	14552,00
300	298	2280	7.1	1010	212	1945	2205	430	150	5112304501	16783,00



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5114104501	8169,00
120	118	1200	4.0	550	155	974	1608	120	12	5114124501	8198,00
150	148	1600	4.5	735	155	1373	1957	230	25	5114154501	10376,00
175	173	1600	5.4	720	173	1340	1980	240	45	5114174501	10539,00
200	198	1600	6.3	710	183	1320	1970	250	65	5114204501	10753,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5114254501	14907,00
300	298	2280	7.1	1010	212	1945	2205	430	150	5114304501	17479,00

16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5116104501	8349,00
120	118	1600	4.0	750	155	1374	1972	225	12	5116124501	10320,00
150	148	1600	4.5	735	155	1373	1957	230	25	5116154501	10641,00
175	173	1600	5.4	720	173	1340	1980	240	45	5116174501	10906,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5116204501	14745,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5116254501	15293,00

18 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5118104501	8702,00
120	118	1600	4.0	750	155	1374	1972	225	12	5118124501	10859,00
150	148	1600	4.5	735	155	1373	1957	230	25	5118154501	10988,00
175	173	2280	5.4	1070	173	2022	2255	382	45	5118174501	15006,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5118204501	15071,00

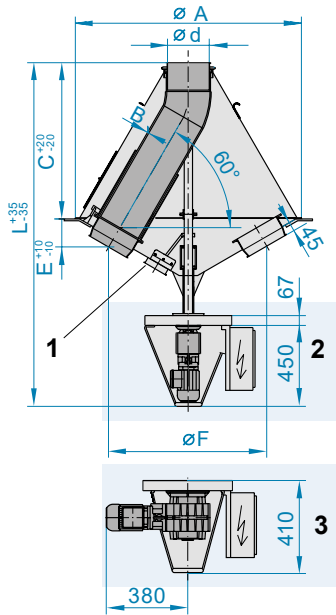
20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1600	3.6	760	138	1408	1983	220	8	5120104501	11157,00
120	118	1600	4.0	750	155	1374	1972	225	12	5120124501	11256,00
150	148	2280	4.5	1085	155	2057	2240	362	25	5120154501	14782,00
175	173	2280	5.4	1070	173	2022	2255	382	45	5120174501	15381,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5120204501	15442,00



MULTI-WAY DISTRIBUTORS

Turn-head distributor



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

TURN-HEAD DISTRIBUTORS 60°

2330

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 500 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5104106001	6421,00	5106106001	6461,00
120	118	800	4.0	570	120	540	1498	84	6	5104126001	6497,00	5106126001	6613,00
150	148	800	4.5	545	125	520	1473	85	12	5104156001	6515,00	5106156001	6653,00
175	173	1200	5.4	860	130	875	1898	153	22	5104176001	6764,00	5106176001	7026,00
200	198	1200	6.3	835	135	855	1873	153	32	5104206001	6918,00	5106206001	7149,00
250	248	1200	6.3	790	150	805	1688	167	50	5104256001	7820,00	5106256001	8963,00
300	298	1200	7.1	745	160	770	1643	182	75	5104306001	9248,00	5106306001	9996,00

8 outlets

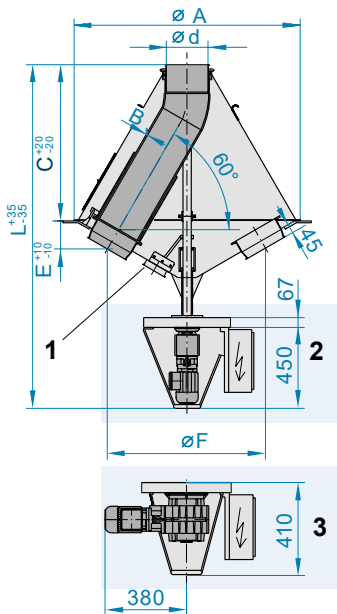
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5108106001	6826,00
120	118	800	4.0	570	120	540	1498	84	6	5108126001	6856,00
150	148	1200	4.5	880	125	910	1918	140	12	5108156001	7217,00
175	173	1200	5.4	860	130	875	1898	153	22	5108176001	7361,00
200	198	1200	6.3	835	135	855	1873	153	32	5108206001	7527,00
250	248	1600	6.3	1140	150	1205	2158	267	50	5108256001	9932,00
300	298	1600	7.1	1095	160	1170	2113	287	75	5108306001	11685,00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5110106001	7207,00
120	118	1200	4.0	905	120	930	1943	134	6	5110126001	7596,00
150	148	1200	4.5	880	125	910	1918	140	12	5110156001	7608,00
175	173	1200	5.4	860	130	875	1898	153	22	5110176001	7795,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5110206001	9958,00
250	248	1600	6.3	1140	150	1205	2158	267	50	5110256001	10160,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5110306001	14255,00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5112106001	7940,00
120	118	1200	4.0	905	120	930	1943	134	6	5112126001	8159,00
150	148	1200	4.5	880	125	910	1918	140	12	5112156001	8376,00
175	173	1600	5.4	1210	130	1275	2328	250	22	5112176001	10234,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5112206001	10482,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5112256001	14606,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5112306001	16839,00



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

14 outlets

DN	Ød	ØA	B	C	E	ØF	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5114106001	8349,00
120	118	1200	4.0	905	120	930	1943	134	6	5114126001	8609,00
150	148	1600	4.5	1230	125	1310	2348	240	12	5114156001	10386,00
175	173	1600	5.4	1210	130	1275	2328	250	22	5114176001	10571,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5114206001	10816,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5114256001	14961,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5114306001	17551,00

16 and 18 outlets

DN	Ød	ØA	B	C	E	ØF	L	kg	t/h	16 outlets		18 outlets	
										Item no.	€	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5116106001	8653,00	5118106001	9034,00
120	118	1600	4.0	1255	120	1330	2373	235	6	5116126001	10630,00	5118126001	10906,00
150	148	1600	4.5	1230	125	1310	2348	240	12	5116156001	10730,00	5118156001	11072,00
175	173	2280	5.4	1815	130	1954	3133	405	22	5116176001	14284,00	5118176001	15071,00
200	198	2280	6.3	1790	135	1937	3108	430	32	5116206001	14810,00	5118206001	15186,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5116256001	15332,00		

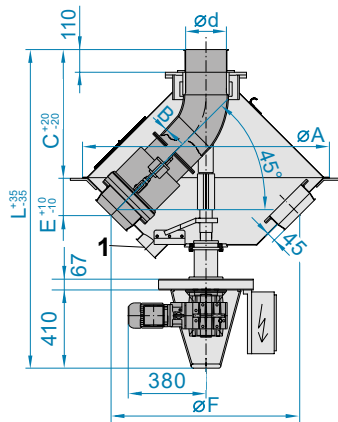
20 outlets

DN	Ød	ØA	B	C	E	ØF	L	kg	t/h	Item no.	€
100	98	1600	3.6	1275	112	1350	2393	227	4	5120106001	11369,00
120	118	1600	4.0	1255	120	1330	2373	235	6	5120126001	11429,00
150	148	2280	4.5	1835	125	2019	3153	380	12	5120156001	14969,00
175	173	2280	5.4	1815	130	1954	3133	405	22	5120176001	15444,00
200	198	2280	6.3	1790	135	1937	3108	430	32	5120206001	15556,00



MULTI-WAY DISTRIBUTORS

Turn-head distributors, dust-tight version



1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 45°

2360

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

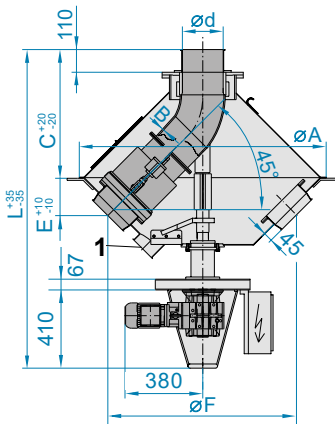
DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54041045	13999,00	54061045	14454,00
120	118	1200	5.0	621	155	980	1595	54041245	14185,00	54061245	14515,00
150	148	1200	5.6	640	155	980	1614	54041545	14289,00	54061545	14618,00
175	173	1200	5.4	622	173	944	1596	54041745	14515,00	54061745	14755,00
200	198	1200	6.3	626	183	924	1600	54042045	14755,00	54062045	14905,00
250	248	1600	6.3	784	219	1252	1960	54042545	15784,00	54062545	16387,00
300	298	1600	7.1	817	219	1252	1993	54043045	17271,00	54063045	18780,00

8 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54081045	14631,00
120	118	1200	5.0	621	155	980	1595	54081245	14796,00
150	148	1200	5.6	640	155	980	1614	54081545	14995,00
175	173	1200	5.4	622	173	944	1596	54081745	15078,00
200	198	1200	6.3	626	183	924	1600	54082045	15147,00
250	248	1600	6.3	784	219	1252	1960	54082545	18623,00
300	298	1600	7.1	817	219	1252	1993	54083045	19614,00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54101045	14857,00
120	118	1200	5.0	621	155	980	1595	54101245	15140,00
150	148	1200	5.6	640	155	980	1614	54101545	15287,00
175	173	1200	5.4	622	173	944	1596	54101745	15377,00
200	198	1600	6.3	826	183	1324	2002	54102045	18437,00
250	248	1600	6.3	784	219	1252	1960	54102545	19023,00



1 Spillage outlet

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54121045	15238,00
120	118	1200	5.0	621	155	980	1595	54121245	15440,00
150	148	1200	5.6	640	155	980	1614	54121545	15641,00
175	173	1600	5.4	822	173	1344	1998	54121745	18845,00
200	198	1600	6.3	826	183	1324	2002	54122045	19093,00

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54141045	15580,00
120	118	1200	5.0	621	155	980	1595	54141245	15748,00
150	148	1600	5.6	840	155	1380	2016	54141545	18886,00
175	173	1600	5.4	822	173	1344	1998	54141745	19212,00

16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54161045	15921,00
120	118	1600	5.0	821	155	1380	1997	54161245	19103,00
150	148	1600	5.6	840	155	1380	2016	54161545	19292,00
175	173	1600	5.4	822	173	1344	1998	54161745	19674,00

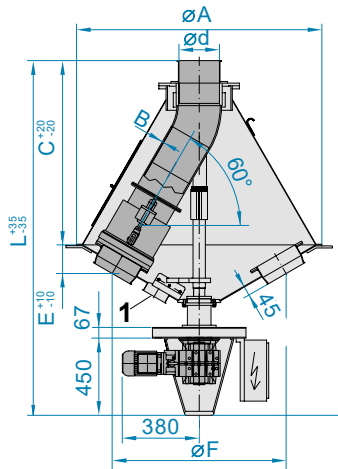
18 and 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	843	138	1414	2019	54181045	18180,00	54201045	18469,00
120	118	1600	5.0	821	155	1380	1997	54181245	19520,00	54201245	19840,00



MULTI-WAY DISTRIBUTORS

Turn-head distributors, dust-tight version



1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 60°

2370

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	970	112	958	1889	54041060	14436,00	54061060	14698,00
120	118	1200	5.0	946	120	932	1865	54041260	14796,00	54061260	15019,00
150	148	1200	5.6	939	125	914	1858	54041560	14834,00	54061560	15035,00
175	173	1200	5.4	910	135	880	1829	54041760	15377,00	54061760	15771,00
200	198	1200	6.3	910	140	862	1829	54042060	15569,00	54062060	15957,00
250	248	1600	6.3	1215	155	1210	2250	54042560	16178,00	54062560	16552,00
300	298	1600	7.1	1196	165	1176	2231	54043060	18989,00	54063060	20211,00

8 outlets

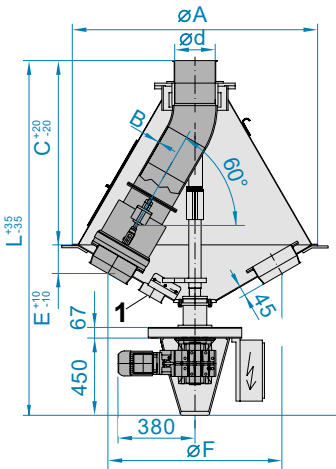
DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54081060	15055,00
120	118	1200	5.0	946	120	932	1865	54081260	15636,00
150	148	1200	5.6	939	125	914	1858	54081560	15800,00
175	173	1200	5.4	910	135	880	1829	54081760	16205,00
200	198	1200	6.3	910	140	862	1829	54082060	16619,00
250	248	1600	6.3	1215	155	1210	2250	54082560	19117,00
300	298	1600	7.1	1196	165	1176	2231	54083060	20968,00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54101060	15679,00
120	118	1200	5.0	946	120	932	1865	54101260	16128,00
150	148	1200	5.6	939	125	914	1858	54101560	16251,00
175	173	1200	5.4	910	135	880	1829	54101760	16871,00
200	198	1600	6.3	1256	140	1262	2291	54102060	19331,00
250	248	1600	6.3	1215	155	1210	2250	54102560	19812,00
300	298	2280	7.1	1785	165	1856	3016	54103060	23666,00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54121060	16241,00
120	118	1200	5.0	946	120	932	1865	54121260	16608,00
150	148	1600	5.6	1285	125	1314	2320	54121560	18757,00
175	173	1600	5.4	1257	135	1280	2292	54121760	19699,00
200	198	1600	6.3	1256	140	1262	2291	54122060	19879,00
250	248	2280	6.3	1804	155	1890	3035	54122560	23772,00
300	298	2280	7.1	1785	165	1856	3016	54123060	25456,00



1 Spillage outlet

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54141060	16824,00
120	118	1200	5.0	946	120	932	1865	54141260	17068,00
150	148	1600	5.6	1285	125	1314	2320	54141560	19288,00
175	173	1600	5.4	1257	135	1280	2292	54141760	20056,00
200	198	2280	6.3	1845	140	1942	3076	54142060	23975,00
250	248	2280	6.3	1804	155	1890	3035	54142560	24331,00
300	298	2280	7.1	1785	165	1856	3016	54143060	26962,00

16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54161060	17179,00
120	118	1600	5.0	1293	120	1332	2328	54161260	19295,00
150	148	1600	5.6	1285	125	1314	2320	54161560	19711,00
175	173	2280	5.4	1845	135	1960	3076	54161760	24231,00
200	198	2280	6.3	1845	140	1942	3076	54162060	24435,00
250	248	2280	6.3	1804	155	1890	3035	54162560	25024,00

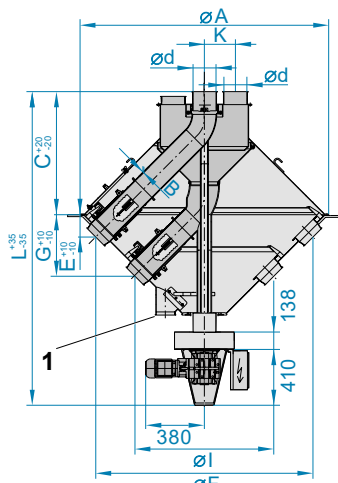
18 and 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	1316	112	1358	2351	54181060	19316,00	54201060	19631,00
120	118	1600	5.0	1293	120	1332	2328	54181260	19686,00	54201260	20000,00
150	148	2280	5.6	1874	125	1994	3105	54181560	24340,00	54201560	24632,00
175	173	2280	5.4	1845	135	1960	3076	54181760	24424,00	54201760	24890,00
200	198	2280	6.3	1845	140	1942	3076	54182060	24564,00	54202060	25084,00



MULTI-WAY DISTRIBUTORS

Double turn-head distributors



1 Spillage outlet

DOUBLE TURN-HEAD DISTRIBUTORS 45°

2340

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- Lower funnel circumference according to data sheet
- Spillage outlet DN 120 mm
- Please also read and take into account the technical information given at the beginning of this chapter

2 x 8 and 2 x 10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 8 outlets		2 x 10 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52081245	25376,00	52101245	26039,00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52081545	25714,00	52101545	26344,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52081745	28325,00	52101745	28834,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52082045	29230,00	52102045	29694,00
250	248	2280	6.3	1110	210	1960	530	1325	290	2900	577	100	52082545	30384,00	52102545	30845,00

2 x 12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52121245	26694,00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52121545	26722,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52121745	29273,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52122045	30160,00

2 x 14 and 2 x 16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 14 outlets		2 x 16 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52141245	27353,00	52161245	28074,00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52141545	29090,00	52161545	29831,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52141745	29712,00	52161745	30292,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52142045	30618,00	52162045	31108,00

2 x 18 and 2 x 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 18 outlets		2 x 20 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1170	150	2075	345	1690	160	2410	532	12	52181245	30124,00	52201245	30443,00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52181545	30486,00	52201545	31137,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52181745	30877,00		

Swivel pipe switches



SWIVEL PIPE SWITCHES 60°

2340

- All dimensions are approximate
- Inlet and outlets with welded-on flanges according to DIN EN 1092-1, PN 10, 10 mm thick
- Hole pattern off-axis (without counter flange)
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53040860	17348,00	53060860	18291,00
100	99	1200	8.0	970	203	1064	1889	53041060	17379,00	53061060	18337,00
120	118	1200	8.0	946	211	1038	1865	53041260	17936,00	53061260	18952,00
150	148	1200	10.0	939	216	1020	1858	53041560	18913,00	53061560	19945,00
200	197	1200	11.0	910	231	968	1829	53042060	23436,00	53062060	24696,00

8 outlets

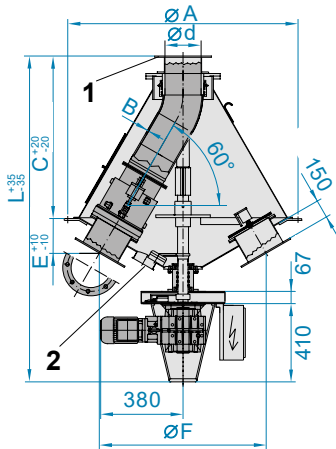
DN	Ø d	Ø A	B	C	E	Ø F	L	8 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53080860	19280,00
100	99	1200	8.0	970	203	1064	1889	53081060	19322,00
120	118	1200	8.0	946	211	1038	1865	53081260	20030,00
150	148	1200	10.0	939	216	1020	1858	53081560	21073,00
200	197	1200	11.0	910	231	968	1829	53082060	25933,00

10 and 12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	10 outlets		12 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53100860	20257,00	53120860	21230,00
100	99	1200	8.0	970	203	1064	1889	53101060	20498,00	53121060	21314,00
120	118	1200	8.0	946	211	1038	1865	53101260	21049,00	53121260	22097,00
150	148	1200	10.0	939	216	1020	1858	53101560	22146,00		
200	197	1600	11.0	1256	231	1368	2291	53102060	27189,00	53122060	28483,00

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	14 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53140860	22209,00
100	99	1200	8.0	970	203	1064	1889	53141060	22312,00

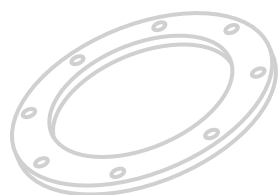


1 Inlet and outlets with welded-on flanges according to DIN 1092-1, PN 10

2 Spillage outlet



COMPLETE JACOB DIVERSITY –
WITH LOOSE AND WELDED FLANGES



THE FLANGE RANGE

Technical information	184	
Welded pipes	188	
Push-in pipes and accessories	191	
Segments and bends	193	
Branch pieces	205	
Transition pieces and adapters	212	
Cleaning pipes	216	
Throttle valves	218	
Flanges, seals and installation kit	219	

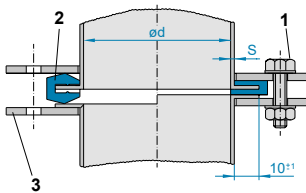


FOR LARGE DIAMETERS: FLANGES

The whole world of JACOBS diversity is also available with a flange connection. Larger diameters with a high level of tightness are available in particular for large ventilation systems extracting dust, oil mist or other condensates. JACOBS's range of flanges provides the ideal solution for this purpose.

THE VERSIONS

JACOBS flanged pipework is available in wall thicknesses from 1 to 3 mm. Pipe components and press-formed components for loose flange connections from DN 350 to 1250 mm are provided with a 10 mm lip. The flanges are pre-fitted and are connected with a U-shaped seal and nuts and bolts. The U-shaped seal for loose flanges is fitted over one of the lipped ends. A flat seal can be used as an alternative to a U-shaped seal. The flanges are then bolted to each other. Pipework with welded flanges available on request.



JACOBS loose flange system
1 Mounting bolts
2 U-shaped seal for 10 mm lip
3 Loose flange similar to DIN 24154-2
(see page 219 for dimensions)
S = Wall thickness
Ød = Internal diameter

Mild steel:

DN 350 to 630 mm:

- Surface powder-coated, conductive, RAL 7032 (pebble grey) or galvanised
- Electrostatic potential equalisation can be achieved through the use of the EPDM U-shaped seal or the earthing lug with earthing wire

DN 710 to 1250 mm:

- Corrosion protection: Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised
- Priming coat is not conductive
- Electrostatic potential equalisation enabled through the use of earthing lugs in conjunction with earthing wire
- Welded flanges on request

DN 1400 to 1600 mm on request:

- Version with 3 mm wall thickness
- With welded-on flanges
- Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised

All mass-produced parts made of mild steel are delivered with earthing lugs to safeguard the loose flanges.

Stainless steel:

- DN 350 to 1250 mm:
 - Version with galvanised loose flanges
 - Alternatively: Loose flanges in shotblasted stainless steel
 - Surface shotblasted with stainless steel
 - Welded flanges on request
- DN 1400 to 1600 mm on request:
 - Version with 3 mm wall thickness
 - With welded-on stainless steel flanges
 - All stainless steel parts >DN 1250 mm are pickled and passivated

Refer to chapter 1, Materials and processing, for more information on materials and tolerances. See chapter 1, Connecting systems and dimensions, for an overview of internal diameters.

SEALS

JACOBS has seals in a variety of materials to obtain the best possible seal even with the loose flange system.

- Tear-resistant, FOOD GRADE and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness due to the ideal profile
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)

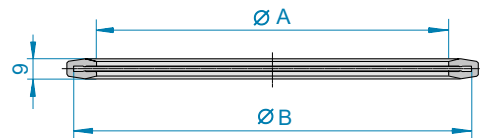


U-shaped seals for loose flange system with 10 mm lip



NBR	Silicone F	Silicone F D	EPDM	Viton (FKM)
grey white	beige	blue	black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant		
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Profile for loose flange pipework with a 10 mm lip



Use for 1–3 mm pipework system

For connecting:

- 2 pipe components with loose flange from > DN 350 mm with 10 mm lip
- Pipe component with a welded flange in conjunction with a pipe component with a loose flange

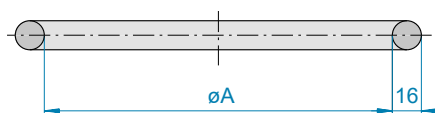
A U-shaped seal (chapter 2) must be used for pipe components with a loose flange with a diameter of up to 350 mm and a 6 mm lip

Ring seals for push-in pipes with a flange connection



NBR	Silicone F	Silicone F D	EPDM	Viton (FKM)
grey white	beige	blue	black	black
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant		
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Profile diameter: 16 mm



Use for 1–3 mm pipework system

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



Flat seals for loose flanges and welded flanges



NBR	Silicone F	Silicone F D	EPDM
grey white	transparent	blue	black
EC 1935/2004 up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	
-30°C to +80°C	-60°C to +230°C	-60°C to +200°C	-40°C to +100°C
Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm
from DN 1120 mm glued, from segments	from DN 1120 mm glued, from segments	from DN 1120 mm glued, from segments	from DN 1120 mm glued, from segments
		metal-detectable	electrostatically conductive

- Thickness: DN 350 to 800 mm: 3 mm, DN 900 to 1600 mm: 4 mm
- Specified temperatures apply for adhesive-free silicone seals up to DN 1000 mm

Seals for use with cleaning pipes

- In stainless steel version, door sealed with silicone seal (beige)
- Alternatively, also available in DETECTABLE DESIGN line with blue silicone seal
- In version with powder-coated or galvanised surfaces, door sealed with NBR seal



EPDM	Silicone F	Silicone F D
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

APPLICATIONS

Use in the area of bulk goods conveying and ventilation systems at over-pressures of 50,000 Pa (500 mbar, 5000 mm WG). DN 900 to 1250 mm with loose flanges are only recommended for use in air applications. In the case of higher tightness requirements, we recommend welded-on flanges from diameters of 900 mm.

Pipes in 1 mm wall thickness and cleaning pipes for ventilation systems up to 100 mbar, over-pressure can be used.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



EXPLOSION PROTECTION

Flanged pipework was tested in the following configuration up to 3 bar over-pressure:

Pipes	2 mm thick up to DN 800 mm
Segments 5° to 45°	2 mm thick up to DN 800 mm
Bends 30° to 90°	2 mm thick up to DN 800 mm
T-pieces	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Forks 30° and 45°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 630 mm
Cone pieces	2 mm thick up to DN 630 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 60°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 90°	3 mm thick up to DN 630 mm

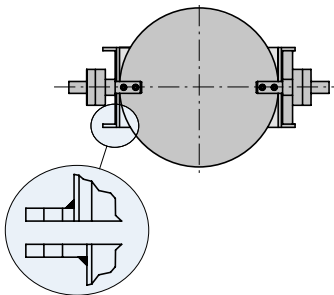
- For shock explosion proof pipe connections, bolt quality 8.8 is required
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm

Cleaning pipes are not available in a shock explosion proof version. Alternatively, inspection pipes (diameter of opening 115 mm) up to DN 630 mm pipe diameter can be delivered in a special version.

YOUR INDIVIDUAL PIPEWORK SYSTEM

We can supply your individual pipework system on request. Prices on request.

- JACOB pipework system with welded-on flanges
- Over 3,000 special colours
- Earthing lugs on request
- Additional diameters and wall thicknesses
- Stainless steel with pickled and passivated surface, including up to a diameter of 1250 mm
- Stainless steel in other steel qualities, e.g. 1.4571 or AISI 316Ti with flanges in pickled and passivated stainless steel
- 3 mm pipes and pressed components on request, stainless steel only available with welded-on flanges



Special version: Throttle valve from DN 400 mm with glued silicone seal
 –Without cross-section constriction
 –Shaft with ball bearings and sealed with a Viton O-ring

THROTTLE VALVES

- Diameters: DN 350 to 1250 mm
- DN 350 to 800 mm delivered with loose flange similar to DIN 24154-2 (see page 219 for dimensions)
- From DN 900 mm, 3 mm wall thickness with welded-on flanges similar to DIN 24154-2 (see page 219 for dimensions)
- Shafts with ball bearings and sealed with Viton O-rings
- DN 350 and 400 mm also available with 6 mm lip, see chapter 8

Special versions available – prices on request

- From DN 400 mm to DN 1000 mm with glued silicone inner flap seal and welded-on flanges similar to DIN 24154-2 (see page 219 for dimensions), but without counter flange (see drawing)
- Version with pneumatic or electric actuator

INSTALLATION INFORMATION

- Mounting bolts in installation kit: see page 220
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm

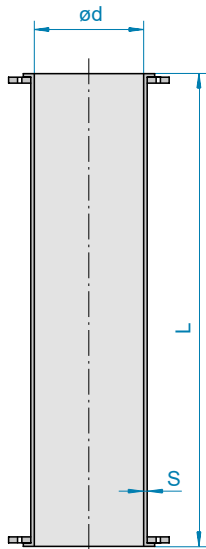


Installation instructions for loose flange connections



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated as L

PIPES 2000 MM



6010


- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm
- powder-coated, from DN 710 mm spray-primed


Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1976	40.60	21351010	125,50	22351010	174,00	21352010	179,50	22352010	270,50
400	398	1976	46.20	21401010	170,00	22401010	233,50	21402010	226,00	22402010	345,50
450	448	1976	52.10	21451010	196,00	22451010	296,00	21452010	261,00	22452010	427,50
500	498	1976	57.90	21501010	209,00	22501010	321,00	21502010	285,50	22502010	471,00
560	558	1976	64.70			22561010	362,00			22562010	565,50
630	628	1980	75.00			22631010	405,00			22632010	643,00
710	707	1980	84.00			22711010	593,50			22712010	801,50
800	797	1980	100.00			22801010	687,00			22802010	926,00
900	897	1980	108.92			229910104090	773,50			229920104090	1161,00
1000	998	1980	121.14			229910104100	868,00			229920104100	1378,00
1120	1118	1980	146.60			229910104112	1046,00			229920104112	1624,00
1250	1248	1980	163.46			229910104125	1189,00			229920104125	1827,00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	Stainless steel with galvanised loose flanges 				Stainless steel with stainless steel loose flange, shotblasted 			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1976	40.60	21353010	313,00	22353010	525,50	213530103	423,00	223530103	636,50
400	398	1976	46.20	21403010	389,50	22403010	607,00	214030103	517,00	224030103	735,00
450	448	1976	52.10	21453010	452,00	22453010	675,00	214530103	582,00	224530103	806,50
500	498	1976	57.90	21503010	522,00	22503010	791,50	215030103	652,00	225030103	924,00
560	558	1976	64.70			22563010	861,00			225630103	1115,00
630	628	1980	75.00			22633010	951,00			226330103	1191,00
710	707	1980	84.00			22713010	1126,00			227130103	1406,00
800	797	1980	100.00			22803010	1333,00				
900	897	1980	108.92			229930104090	1563,00				
1000	998	1980	121.14			229930104100	1798,00				
1120	1118	1980	146.60			229930104112	2085,00				
1250	1248	1980	163.46			229930104125	2390,00				

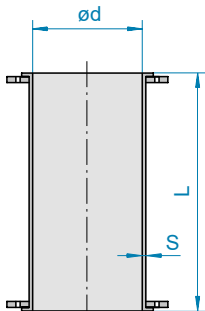
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 3 bar



PIPES 1000 MM

6010





The pipe length and diameter DN are nominal dimensions, the actual length is indicated as L


Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	976	22.70	21351020	89,20	22351020	107,00	21352020	126,50	22352020	180,50
400	398	976	25.30	21401020	105,00	22401020	141,00	21402020	146,50	22402020	209,50
450	448	976	29.40	21451020	121,00	22451020	175,50	21452020	168,00	22452020	255,50
500	498	976	33.20	21501020	130,00	22501020	196,00	21502020	183,50	22502020	281,50
560	558	976	36.60			22561020	216,50			22562020	346,00
630	628	976	45.00			22631020	241,50			22632020	384,00
710	707	980	48.00			22711020	312,50			22712020	458,50
800	797	980	56.00			22801020	360,00			22802020	538,50
900	897	980	63.63			229910204090	444,00			229920204090	670,00
1000	998	980	70.77			229910204100	576,00			229920204100	886,50
1120	1118	980	90.20			229910204112	735,50			229920204112	1090,00
1250	1248	980	100.53			229910204125	802,50			229920204125	1195,00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	Stainless steel with galvanised loose flanges 				Stainless steel with stainless steel loose flange, shotblasted 			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	976	22.70	21353020	204,00	22353020	305,00	213530203	314,00	223530203	416,50
400	398	976	25.30	21403020	255,00	22403020	364,00	214030203	382,00	224030203	492,50
450	448	976	29.40	21453020	279,00	22453020	391,00	214530203	409,00	224530203	523,00
500	498	976	33.20	21503020	309,00	22503020	447,00	215030203	439,50	225030203	579,00
560	558	976	36.60			22563020	517,00			225630203	769,50
630	628	976	45.00			22633020	581,00			226330203	823,50
710	707	980	48.00			22713020	715,00			227130203	996,50
800	797	980	56.00			22803020	862,50				
900	897	980	63.63			229930204090	1005,00				
1000	998	980	70.77			229930204100	1177,00				
1120	1118	980	90.20			229930204112	1376,00				
1250	1248	980	100.53			229930204125	1544,00				

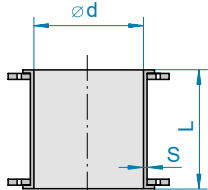
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated as L

PIPES 500 MM

6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

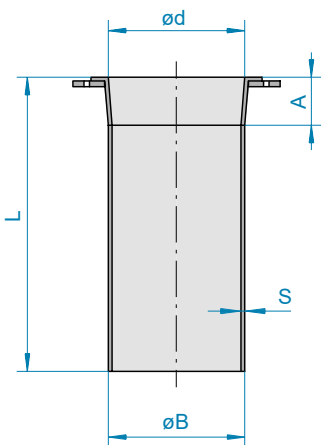
DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21351030	67,80	22351030	76,80	21352030	93,40	22352030	124,00
400	398	478	16.30	21401030	78,30	22401030	95,50	21402030	106,50	22402030	141,00
450	448	478	18.50	21451030	88,60	22451030	113,00	21452030	122,00	22452030	173,00
500	498	478	20.60	21501030	94,10	22501030	126,50	21502030	129,50	22502030	184,00
560	558	478	22.60			22561030	144,50			22562030	236,00
630	628	478	25.40			22631030	159,00			22632030	269,00
710	707	480	32.00			22711030	222,00			22712030	360,00
800	797	480	36.00			22801030	266,50			22802030	424,00
900	897	480	40.98			229910304090	326,00			229920304090	489,00
1000	998	480	45.60			229910304100	422,00			229920304100	633,50
1120	1118	480	62.00			229910304112	538,50			229920304112	784,50
1250	1248	480	69.07			229910304125	600,50			229920304125	869,50

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm stainless steel with galvanised loose flanges F				2 mm stainless steel with stainless steel shotblasted loose flange F			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21353030	135,00	22353030	186,50	213530303	246,50	223530303	297,50
400	398	478	16.30	21403030	175,00	22403030	231,00	214030303	302,00	224030303	359,50
450	448	478	18.50	21453030	186,50	22453030	262,50	214530303	317,00	224530303	395,00
500	498	478	20.60	21503030	197,50	22503030	295,00	215030303	327,50	225030303	426,50
560	558	478	22.60			22563030	348,00			225630303	603,00
630	628	478	25.40			22633030	386,00			226330303	627,00
710	707	480	32.00			22713030	496,50			227130303	778,00
800	797	480	36.00			22803030	603,00				
900	897	480	40.98			229930304090	716,50				
1000	998	480	45.60			229930304100	862,50				
1120	1118	480	62.00			229930304112	1061,00				
1250	1248	480	69.07			229930304125	1176,00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



PUSH-IN PIPES 1000 MM

6020

- For information on push-in pipe applications, see chapter 3
- One side with loose flange
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Use in conjunction with ring seal and flange for push-in pipe

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	350	50	345	986	18.00	21351110	112,00	22351110	132,00	21352110	155,50	22352110	195,50
400	399	50	394	986	22.00	21401110	139,00	22401110	165,00	21402110	187,50	22402110	236,50
450	448	50	444	986	29.45	21451110	166,00	22451110	188,00	21452110	210,00	22452110	301,00
500	498	50	494	986	29.40	21501110	186,50	22501110	217,00	21502110	222,00	22502110	327,00
560	558	50	554	986	32.00			22561110	253,50			22562110	358,50
630	628	50	624	986	36.00			22631110	272,50			22632110	376,00
710	707	50	703	986	42.00			22711110	323,00			22712110	470,50
800	797	100	792	986	40.00			22801110	408,50			22802110	538,50

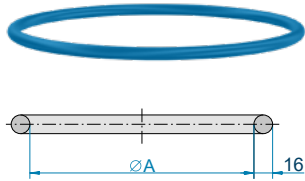
Stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm stainless steel with galvanised loose flanges		2 mm stainless steel with galvanised loose flanges	
						Item no.	€	Item no.	€
350	350	50	345	986	18.00	21353110	256,50	22353110	339,50
400	399	50	394	986	22.00	21403110	277,50	22403110	409,00
450	448	50	444	986	29.45	21453110	288,00	22453110	427,50
500	498	50	494	986	29.40	21503110	322,00	22503110	482,00
560	558	50	554	986	32.00			22563110	532,00
630	628	50	624	986	36.00			22633110	603,00
710	707	50	703	986	42.00			22713110	794,50
800	797	100	792	986	40.00			22803110	912,50



THE FLANGE RANGE

Push-in pipes and accessories



RING SEALS FOR PUSH-IN PIPES WITH A FLANGE CONNECTION

6030

- Usable for 1-3 mm pipework system
- Use in conjunction with push-in pipe and flange for push-in pipe
- Protect pipework against axial displacement
- Admissible differential pressure: approx. 50 mbar
- Please also read and take into account the technical information given at the beginning of this chapter

Ring seal for 1-3 mm pipework system

DN	$\varnothing A$	kg	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		Viton black	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	327	0.34	203561177	29,00	2035711709	50,40	20357117091	64,20	2035811759	31,30	203591179	122,50
400	373	0.38	204061177	29,00	2040711709	52,40	20407117091	67,70	2040811759	32,20	204091179	140,00
450	421	0.42	204561177	32,40	2045711709	57,10	20457117091	72,80	2045811759	34,70	204591179	157,50
500	468	0.48	205061177	34,40	2050711709	62,20	20507117091	81,00	2050811759	36,70	205091179	174,50
560	524	0.54	205661177	37,30	2056711709	68,50	20567117091	88,90	2056811759	39,50	205691179	197,50
630	591	0.60	206361177	41,50	2063711709	75,70	20637117091	98,60	2063811759	43,40	206391179	221,00
710	666	0.69	207161177	44,60	2071711709	83,20	20717117091	108,50	2071811759	46,60	207191179	245,50
800	761	0.78	208061177	55,10	2080711709	99,50	20807117091	127,00	2080811759	51,00	208091179	262,50

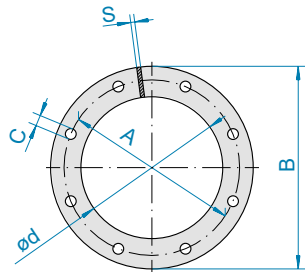


FLANGES FOR PUSH-IN PIPES

6040

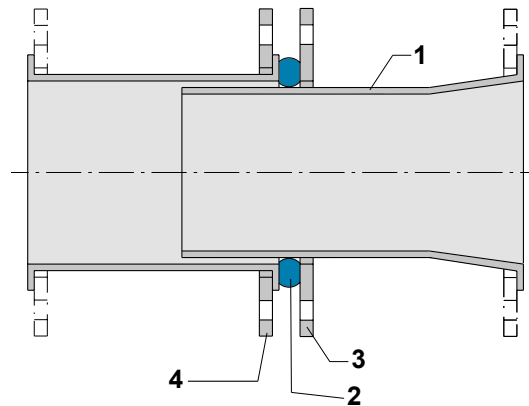
- Use in conjunction with ring seal for push-in pipe and standard pipe with loose flange
- Use 50 mm long mounting bolts

Powder-coated, galvanised and stainless steel



E = No. of holes

DN	$\varnothing d$	A	B	C	E	S	kg	Powder-coated		Galvanised		Stainless steel	
								Item no.	€	Item no.	€	Item no.	€
350	348	405	438	11.5	8	8	3.46	20351724	44,00	20352724	55,20	20353724	83,10
400	398	448	488	11.5	12	8	3.88	20401724	49,90	20402724	62,30	20403724	92,60
450	448	497	538	11.5	12	8	4.33	20451724	55,20	20452724	69,40	20453724	105,00
500	498	551	588	11.5	12	8	4.77	20501724	66,90	20502724	84,00	20503724	115,50
560	556	629	656	14	16	8	5.86	20561724	112,50	20562724	135,00	20563724	215,50
630	626	698	726	14	16	8	6.56	20631724	126,00	20632724	149,50	20633724	239,00
710	705	775	805	14	16	8	7.34	20711724	168,00	20712724	219,50	20713724	283,00
800	795	861	895	14	24	8	8.16	20801724	203,00	20802724	272,50	20803724	331,00

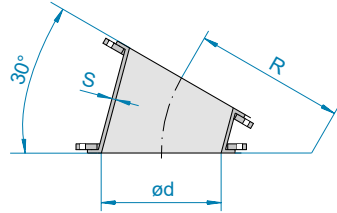


- 1 Push-in pipe
- 2 Ring seal for push-in pipe
- 3 Flange for push-in pipe
- 4 Straight pipe with loose flange

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

Segments and bends



SEGMENTS 30°

6100

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	438	9.40	21351320	84,80	22351320	91,10
400	398	500	11.20	21401320	94,30	22401320	111,00
450	448	563	14.40	21451320	107,00	22451320	118,00
500	498	625	17.10	21501320	118,00	22501320	127,00
560	558	700	17.00			22561320	153,50
630	628	788	26.00			22631320	170,50
710	707	888	30.00			22711320	234,00
800	797	1000	38.00			22801320	357,00
900	897	1126	43.88			229913204090	467,00
1000	998	1250	51.89			229913204100	580,50
1120	1118	1400	73.28			229913204112	754,00
1250	1248	1563	86.79			229913204125	898,50

Galvanised (dimensions for 2 mm pipework)

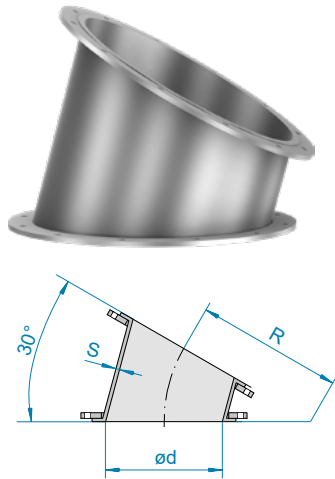
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	438	9.40	21352320	108,50	22352320	123,50
400	398	500	11.20	21402320	126,00	22402320	151,00
450	448	563	14.40	21452320	141,00	22452320	169,50
500	498	625	17.10	21502320	154,50	22502320	188,50
560	558	700	17.00			22562320	201,50
630	628	788	26.00			22632320	238,00
710	707	888	30.00			22712320	294,50
800	797	1000	38.00			22802320	467,00
900	897	1126	43.88			229923204090	651,00
1000	998	1250	51.89			229923204100	832,50
1120	1118	1400	73.28			229923204112	1059,00
1250	1248	1563	86.79			229923204125	1260,00

■ Shock explosion proof tested up to 3 bar



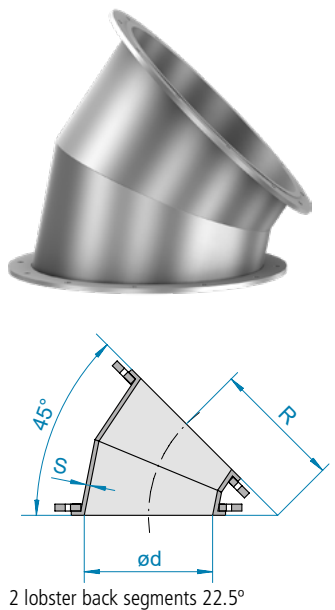
THE FLANGE RANGE

Segments and bends



Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		F	Stainless steel with stainless steel loose flange, shotblasted		
				1.5 mm			2 mm		
				Item no.	€	Item no.	€	Item no.	€
350	349	438	9.40	21353320	156,50	22353320	172,50	223533203	286,00
400	398	500	11.20	21403320	181,50	22403320	212,00	224033203	343,00
450	448	563	14.40	21453320	203,00	22453320	226,50	224533203	361,00
500	498	625	17.10	21503320	219,50	22503320	244,00	225033203	378,50
560	558	700	17.00			22563320	293,50	225633203	553,00
630	628	788	26.00			22633320	344,50	226333203	591,50
710	707	888	30.00			22713320	445,00	227133203	731,00
800	797	1000	38.00			22803320	550,00		
900	897	1126	43.88			229933204090	753,50		
1000	998	1250	51.89			229933204100	988,50		
1120	1118	1400	73.28			229933204112	1236,00		
1250	1248	1563	86.79			229933204125	1502,00		



SEGMENTS 45°

6110

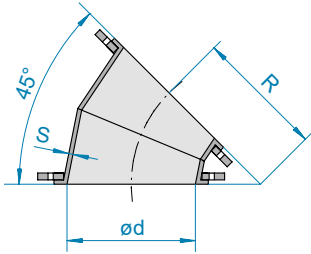
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	11.40	21351330	132,00	22351330	154,50
400	398	400	13.30	21401330	152,50	22401330	173,50
450	448	450	16.40	21451330	168,50	22451330	197,00
500	498	500	19.00	21501330	192,50	22501330	216,50
560	558	560	21.00			22561330	262,00
630	628	630	27.00			22631330	307,50
710	707	710	34.00			22711330	372,00
800	797	800	42.00			22801330	417,00
900	897	900	51.53			229913304090	544,50
1000	998	1000	61.30			229913304100	697,50
1120	1118	1120	85.15			229913304112	899,00
1250	1248	1250	101.59			229913304125	1103,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



2 lobster back segments 22.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	11.40	21352330	168,00	22352330	192,50
400	398	400	13.30	21402330	189,00	22402330	217,00
450	448	450	16.40	21452330	209,00	22452330	239,50
500	498	500	19.00	21502330	238,00	22502330	274,00
560	558	560	21.00			22562330	326,50
630	628	630	27.00			22632330	395,00
710	707	710	34.00			22712330	463,50
800	797	800	42.00			22802330	522,50
900	897	900	51.53			229923304090	731,00
1000	998	1000	61.30			229923304100	957,50
1120	1118	1120	85.15			229923304112	1240,00
1250	1248	1250	101.59			229923304125	1510,00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F				Stainless steel with stainless steel loose flange, shot-blasted F			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	11.40	21353330	240,50	22353330	284,50	213533303	352,00	223533303	397,50
400	398	400	13.30	21403330	299,00	22403330	331,00	214033303	429,50	224033303	461,00
450	448	450	16.40	21453330	334,50	22453330	381,50	214533303	467,50	224533303	516,00
500	498	500	19.00	21503330	375,00	22503330	416,50	215033303	509,00	225033303	551,00
560	558	560	21.00			22563330	500,50			225633303	761,00
630	628	630	27.00			22633330	599,00			226333303	845,50
710	707	710	34.00			22713330	714,50			227133303	1001,00
800	797	800	42.00			22803330	771,50				
900	897	900	51.53			229933304090	995,50				
1000	998	1000	61.30			229933304100	1297,00				
1120	1118	1120	85.15			229933304112	1646,00				
1250	1248	1250	101.59			229933304125	2027,00				

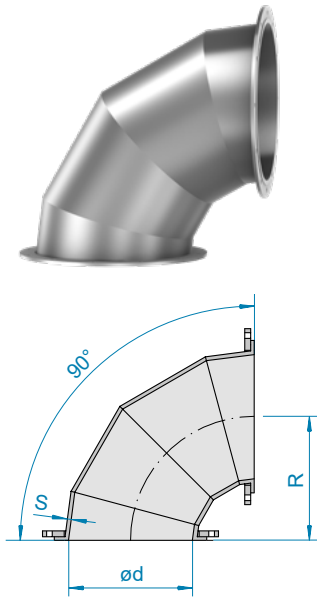
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Segments and bends



4 lobster back segments:
2x30°/2x15°

BENDS R = 1D, 90°

6120

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

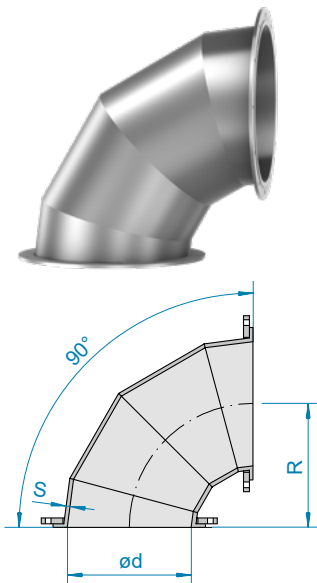
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	16.00	21351339	251,00	22351339	267,50
400	398	400	20.40	21401339	299,50	22401339	319,00
450	448	450	24.40	21451339	321,50	22451339	356,50
500	498	500	24.60	21501339	372,00	22501339	394,00
560	558	560	36.00			22561339	424,00
630	628	630	46.00			22631339	488,00
710	707	710	56.00			22711339	611,00
800	797	800	66.00			22801339	736,50
900	897	900	82.77			229913394090	899,00
1000	998	1000	99.85			229913394100	1156,00
1120	1118	1120	133.45			229913394112	1475,00
1250	1248	1250	161.74			229913394125	1860,00

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	16.00	21352339	293,50	22352339	312,50
400	398	400	20.40	21402339	354,00	22402339	376,00
450	448	450	24.40	21452339	372,50	22452339	420,50
500	498	500	24.60	21502339	430,50	22502339	475,50
560	558	560	36.00			22562339	544,50
630	628	630	46.00			22632339	633,00
710	707	710	56.00			22712339	801,50
800	797	800	66.00			22802339	979,00
900	897	900	82.77			229923394090	1220,00
1000	998	1000	99.85			229923394100	1550,00
1120	1118	1120	133.45			229923394112	1990,00
1250	1248	1250	161.74			229923394125	2495,00

Shock explosion proof
tested up to 3 bar



4 lobster back segments:
2x30°/2x15°

Stainless steel (dimensions for 2 mm pipework)

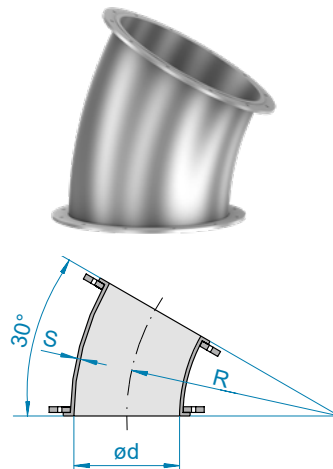
DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shot-blasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	16.00	21353339	442,00	22353339	471,50	213533393	552,50	223533393	582,00
400	398	400	20.40	21403339	512,50	22403339	544,50	214033393	638,50	224033393	674,00
450	448	450	24.40	21453339	595,00	22453339	634,50	214533393	725,00	224533393	767,50
500	498	500	24.60	21503339	674,00	22503339	718,50	215033393	804,00	225033393	851,00
560	558	560	36.00			22563339	809,00			225633393	1064,00
630	628	630	46.00			22633339	903,50			226333393	1146,00
710	707	710	56.00			22713339	1201,00			227133393	1488,00
800	797	800	66.00			22803339	1418,00			228033393	1827,00
900	897	900	82.77			229933394090	1703,00				
1000	998	1000	99.85			229933394100	2154,00				
1120	1118	1120	133.45			229933394112	2765,00				
1250	1248	1250	161.74			229933394125	3405,00				

BENDS R = 2D, 30°

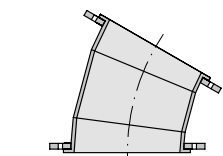
6130

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)



1 pressed segment 30°



3 lobster back segments:
1x15°/2x7.5°

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	13.20			22351343	146,50
400	398	800	15.20			22401343	172,50
450	448	900	19.00	21451343	195,50	22451343	209,00
500	498	1000	28.00	21501343	220,00	22501343	236,00
560	558	1120	28.00			22561343	281,50
630	628	1260	34.00			22631343	348,00
710	707	1420	42.00			22711343	443,00
800	797	1600	50.50			22801343	564,00
900	897	1800	60.57			229913434090	707,00
1000	998	2000	72.45			229913434100	895,50
1120	1118	2240	99.08			229913434112	1147,00
1250	1248	2500	118.94			229913434125	1393,00

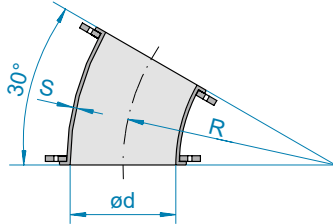
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar

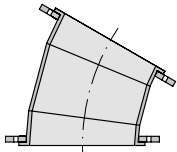


THE FLANGE RANGE

Segments and bends



■ 1 pressed segment 30°



■ 3 lobster back segments:
1 x 15° / 2 x 7.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	13.20			22352343	186,00
400	398	800	15.20			22402343	218,00
450	448	900	19.00	21452343	235,50	22452343	293,50
500	498	1000	23.00	21502343	271,50	22502343	325,00
560	558	1120	28.00			22562343	379,50
630	628	1260	34.00			22632343	471,50
710	707	1420	42.00			22712343	589,50
800	797	1600	50.50			22802343	745,50
900	897	1800	60.57			229923434090	945,00
1000	998	2000	72.45			229923434100	1231,00
1120	1118	2240	99.08			229923434112	1576,00
1250	1248	2500	118.94			229923434125	1936,00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F				Stainless steel with stainless steel loose flange, shotblasted F			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	13.20			22353343	269,00	213533433	371,00	223533433	381,00
400	398	800	15.20			22403343	289,00	214033433	411,50	224033433	417,00
450	448	900	19.00	21453343	343,00	22453343	384,50	214533433	472,50	224533433	515,50
500	498	1000	23.00	21503343	380,50	22503343	429,50	215033433	510,50	225033433	562,00
560	558	1120	28.00			22563343	551,50			225633433	805,50
630	628	1260	34.00			22633343	651,50			226333433	894,50
710	707	1420	42.00			22713343	880,50			227133433	1167,00
800	797	1600	50.50			22803343	1022,00				
900	897	1800	60.57			229933434090	1216,00				
1000	998	2000	72.45			229933434100	1520,00				
1120	1118	2240	99.08			229933434112	1924,00				
1250	1248	2500	118.94			229933434125	2384,00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

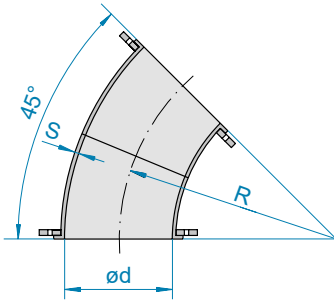
■ Shock explosion proof
tested up to 3 bar



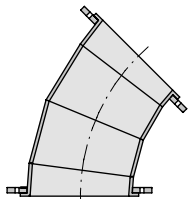
BENDS R = 2D, 45°

6140

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



■ 2 pressed segments 22.5°



■ 4 lobster back segments:
2 x 15° / 2 x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	17.12			22351344	192,00
400	398	800	20.00			22401344	238,00
450	448	900	24.20	21451344	255,00	22451344	279,00
500	498	1000	29.50	21501344	282,00	22501344	311,50
560	558	1120	37.00			22561344	368,00
630	628	1260	39.20			22631344	411,00
710	707	1420	54.00			22711344	501,50
800	797	1600	72.76			22801344	626,00
900	897	1800	81.66			229913444090	831,50
1000	998	2000	98.48			229913444100	1096,00
1120	1118	2240	131.72			229913444112	1384,00
1250	1248	2500	159.59			229913444125	1687,00

Galvanised (dimensions for 2 mm pipework)

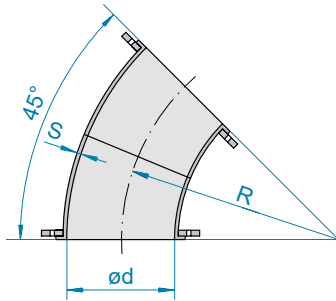
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	17.12			22352344	239,50
400	398	800	20.00			22402344	297,50
450	448	900	24.20	21452344	305,50	22452344	374,50
500	498	1000	29.50	21502344	337,00	22502344	418,00
560	558	1120	37.00			22562344	483,50
630	628	1260	39.20			22632344	543,00
710	707	1420	54.00			22712344	681,00
800	797	1600	72.76			22802344	827,50
900	897	1800	81.66			229923444090	1074,00
1000	998	2000	98.48			229923444100	1472,00
1120	1118	2240	131.72			229923444112	1927,00
1250	1248	2500	159.59			229923444125	2336,00

■ Shock explosion proof
tested up to 3 bar

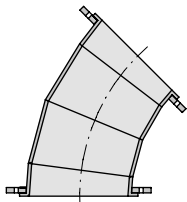


THE FLANGE RANGE

Segments and bends



■ 2 pressed segments 22.5°



■ 4 lobster back segments:
2x 15° / 2x 7.5°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		F	Stainless steel with stainless steel loose flange, shot-blasted				
				1.5 mm			2 mm		1.5 mm		2 mm
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	17.12		22353344	383,00	213533443	435,00	223533443	494,50	
400	398	800	20.00		22403344	431,50	214033443	509,00	224033443	559,50	
450	448	900	24.20	21453344	457,00	22453344	512,50	214533443	585,50	224533443	645,50
500	498	1000	29.50	21503344	538,50	22503344	609,50	215033443	667,50	225033443	742,00
560	558	1120	37.00		22563344	750,50			225633443	1005,00	
630	628	1260	39.20		22633344	894,50			226333443	1137,00	
710	707	1420	54.00		22713344	1208,00			227133443	1493,00	
800	797	1600	72.76		22803344	1401,00					
900	897	1800	81.66		229933444090	1670,00					
1000	998	2000	98.48		229933444100	2085,00					
1120	1118	2240	131.72		229933444112	2602,00					
1250	1248	2500	159.59		229933444125	3182,00					

F FOOD GRADE
EC 1935/2004 plus FDA compliant

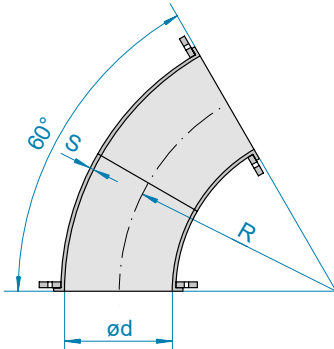
■ Shock explosion proof
tested up to 3 bar



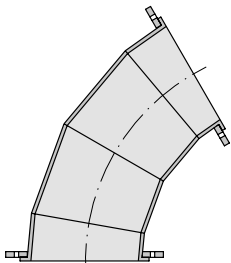
BENDS $R = 2D, 60^\circ$

6150

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



■ 2 pressed segments 30°



■ 4 lobster back segments:
 $2 \times 20^\circ / 2 \times 10^\circ$

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	19.40			22351346	249,50
400	398	800	23.80			22401346	288,00
450	448	900	29.40	21451346	311,50	22451346	336,50
500	498	1000	36.00	21501346	361,50	22501346	384,00
560	558	1120	45.00			22561346	489,50
630	628	1260	56.00			22631346	575,00
710	707	1420	69.00			22711346	693,50
800	797	1600	84.00			22801346	831,50
900	897	1800	103.12			229913464090	1076,00
1000	998	2000	124.97			229913464100	1380,00
1120	1118	2240	164.95			229913464112	1761,00
1250	1248	2500	200.97			229913464125	2153,00

Galvanised (dimensions for 2 mm pipework)

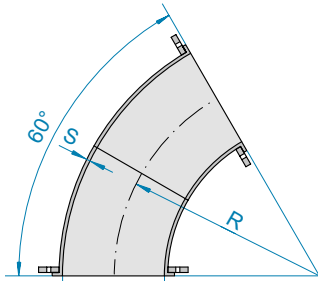
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	19.40			22352346	309,50
400	398	800	23.80			22402346	357,00
450	448	900	29.40	21452346	393,50	22452346	463,50
500	498	1000	36.00	21502346	439,50	22502346	552,50
560	558	1120	45.00			22562346	651,00
630	628	1260	56.00			22632346	756,00
710	707	1420	69.00			22712346	951,50
800	797	1600	84.00			22802346	1190,00
900	897	1800	103.12			229923464090	1488,00
1000	998	2000	124.97			229923464100	1936,00
1120	1118	2240	164.95			229923464112	2443,00
1250	1248	2500	200.97			229923464125	2983,00

■ Shock explosion proof
tested up to 3 bar

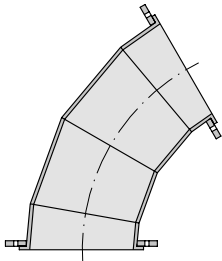


THE FLANGE RANGE

Segments and bends



■ 2 pressed segments 30°



■ 4 lobster back segments:
2 x 20° / 2 x 10°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F		Stainless steel with stainless steel loose flange, shotblasted F					
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	19.40		22353346	489,00	213533463	544,50	223533463	601,50	
400	398	800	23.80		22403346	569,00	214033463	636,00	224033463	698,00	
450	448	900	29.40	21453346	657,00	22453346	735,50	214533463	786,50	224533463	868,00
500	498	1000	36.00	21503346	711,50	22503346	793,50	215033463	841,00	225033463	924,50
560	558	1120	45.00		22563346	946,50			225633463	1203,00	
630	628	1260	56.00		22633346	1114,00			226333463	1357,00	
710	707	1420	69.00		22713346	1506,00			227133463	1794,00	
800	797	1600	84.00		22803346	1883,00					
900	897	1800	103.12		229933464090	2243,00					
1000	998	2000	124.97		229933464100	2662,00					
1120	1118	2240	164.95		229933464112	3356,00					
1250	1248	2500	200.97		229933464125	4120,00					

F FOOD GRADE
EC 1935/2004 plus FDA compliant

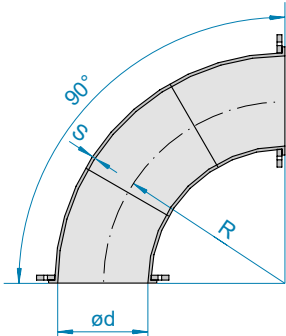
■ Shock explosion proof
tested up to 3 bar



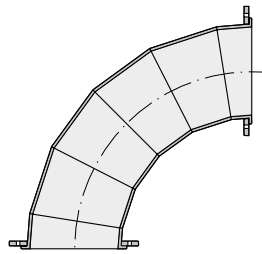
BENDS $R = 2D, 90^\circ$

6160

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



■ 3 pressed segments 30°



■ 6 lobster back segments:
4 x 18° / 2 x 9°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	25.20			22351349	331,50
400	398	800	31.80			22401349	386,00
450	448	900	41.50	21451349	475,00	22451349	508,00
500	498	1000	48.60	21501349	533,50	22501349	569,50
560	558	1120	62.00			22561349	658,50
630	628	1260	68.80			22631349	748,50
710	707	1420	94.00			22711349	955,50
800	797	1600	120.00			22801349	1196,00
900	897	1800	145.24			229913494090	1516,00
1000	998	2000	176.95			229913494100	1952,00
1120	1118	2240	230.14			229913494112	2474,00
1250	1248	2500	282.16			229913494125	3042,00

Galvanised (dimensions for 2 mm pipework)

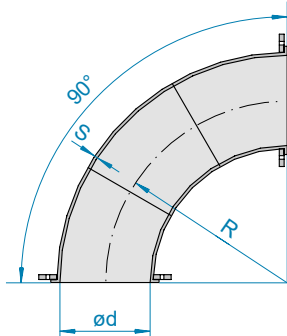
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	25.20			22352349	407,00
400	398	800	31.80			22402349	475,50
450	448	900	41.50	21452349	564,00	22452349	619,50
500	498	1000	48.60	21502349	633,00	22502349	766,50
560	558	1120	62.00			22562349	934,50
630	628	1260	68.80			22632349	1042,00
710	707	1420	94.00			22712349	1306,00
800	797	1600	120.00			22802349	1607,00
900	897	1800	145.24			229923494090	2040,00
1000	998	2000	176.95			229923494100	2646,00
1120	1118	2240	230.14			229923494112	3424,00
1250	1248	2500	282.16			229923494125	4201,00

■ Shock explosion proof
tested up to 3 bar

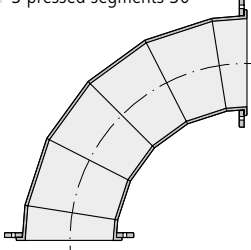


THE FLANGE RANGE

Segments and bends



3 pressed segments 30°



6 lobster back segments:
4 x 18° / 2 x 9°

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F			
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	25.20			22353349	658,50
400	398	800	31.80			22403349	779,50
450	448	900	41.50	21453349	899,00	22453349	981,50
500	498	1000	48.60	21503349	1069,00	22503349	1165,00
560	558	1120	62.00			22563349	1402,00
630	628	1260	68.80			22633349	1614,00
710	707	1420	94.00			22713349	2125,00
800	797	1600	120.00			22803349	2534,00
900	897	1800	145.24			229933494090	3118,00
1000	998	2000	176.95			229933494100	3916,00
1120	1118	2240	230.14			229933494112	4803,00
1250	1248	2500	282.16			229933494125	5922,00

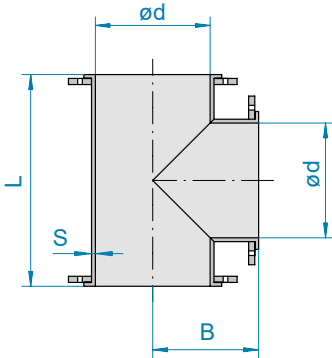
Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with stainless steel loose flange, shotblasted F			
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	26.00	213533493	752,50	223533493	770,00
400	398	800	32.00	214033493	886,00	224033493	908,50
450	448	900	41.00	214533493	1029,00	224533493	1113,00
500	498	1000	50.00	215033493	1198,00	225033493	1299,00
560	558	1120	62.00			225633493	1658,00
630	628	1260	76.00			226333493	1856,00
710	707	1420	94.00			227133493	2413,00
800	797	1600	120.00			228033493	2944,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar

Branch pieces



T-PIECES

6060

- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- DN 560 to 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21351240	230,50	22351240	250,50
400	398	300	600	24.00	21401240	270,50	22401240	293,50
450	448	325	650	27.20	21451240	298,50	22451240	325,50
500	498	350	700	32.20	21501240	347,50	22501240	378,50
560	558	380	760	40.00			22561240	395,50
630	628	415	830	46.40			22631240	440,00
710	707	460	910	58.00			22711240	561,00
800	797	500	1000	64.00			22801240	699,50
900	897	550	1100	77.87			229912404090	848,50
1000	998	600	1200	90.84			229912404100	1016,00
1120	1118	660	1320	124.06			229912404112	1268,00
1250	1248	725	1450	145.46			229912404125	1526,00

Galvanised (dimensions for 2 mm pipework)

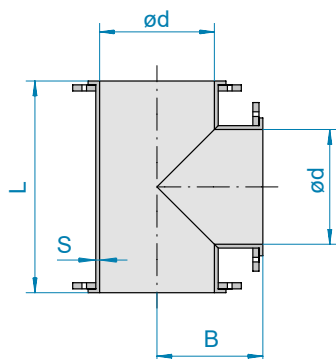
DN	Ø d	B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21352240	279,00	22352240	302,00
400	398	300	600	24.00	21402240	328,50	22402240	345,00
450	448	325	650	27.20	21452240	363,00	22452240	379,00
500	498	350	700	32.20	21502240	420,50	22502240	438,50
560	558	380	760	40.00			22562240	484,00
630	628	415	830	46.40			22632240	552,50
710	707	460	910	58.00			22712240	708,00
800	797	500	1000	64.00			22802240	834,00
900	897	550	1100	77.87			229922404090	1116,00
1000	998	600	1200	90.84			229922404100	1399,00
1120	1118	660	1320	124.06			229922404112	1748,00
1250	1248	725	1450	145.46			229922404125	2057,00

■ Shock explosion proof tested up to 3 bar



THE FLANGE RANGE

Branch pieces



Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	B	L	kg	Stainless steel with galvanised loose flanges		Stainless steel with stainless steel loose flange, shotblasted					
					1.5 mm		2 mm		1.5 mm		2 mm	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	275	550	19.80	21353240	370,50	22353240	514,00	213532403	538,00	223532403	682,50
400	398	300	600	24.00	21403240	409,00	22403240	582,50	214032403	604,00	224032403	780,50
450	448	325	650	27.20	21453240	447,00	22453240	651,00	214532403	645,50	224532403	852,00
500	498	350	700	32.20	21503240	481,50	22503240	733,00	215032403	680,50	225032403	933,50
560	558	380	760	40.00			22563240	799,00			225632403	1189,00
630	628	415	830	46.40			22633240	885,00			226332403	1258,00
710	707	460	910	58.00			22713240	1113,00			227132403	1546,00
800	797	500	1000	64.00			22803240	1248,00				
900	897	550	1100	77.87			229932404090	1323,00				
1000	998	600	1200	90.84			229932404100	1574,00				
1120	1118	660	1320	124.06			229932404112	1945,00				
1250	1248	725	1450	145.46			229932404125	2352,00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

S Shock explosion proof
tested up to 3 bar



FORKS AND CONICAL FORKS 30°

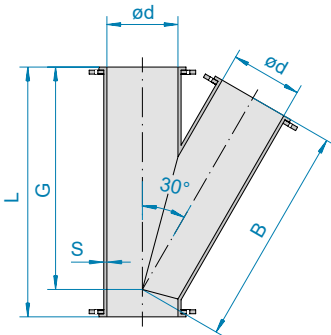
6080



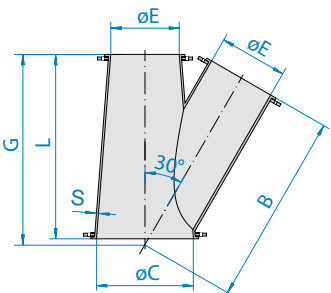
- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 and 630 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm powder-coated		2 mm powder-coated	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21351255	305,00	22351255	329,50
350- 350- 350	349	817			828	920	27.75	21351230	271,00	22351230	323,00
400- 300- 300		824	399	300	821	720	20.40	21401255	358,00	22401255	375,00
400- 400- 400	398	925			926	1025	38.80	21401230	341,00	22401230	392,50
450- 350- 350		911	449	350	909	920	36.40	21451255	425,50	22451255	509,50
450- 450- 450	448	1030			1045	1150	48.00	21451230	413,50	22451230	468,00
500- 400- 400		1014	499	399	1009	1025	44.00	21501255	558,00	22501255	661,50
500- 500- 500	498	1127			1138	1250	56.00	21501230	484,00	22501230	513,50
560- 400- 400		1071	558	399	1059	1025	47.60			22561255	691,50
560- 560- 560	558	1275			1280	1400	72.00			22561230	593,00
630- 450- 450		1213	628	448	1195	1150	58.80			22631255	812,00
630- 630- 630	628	1404			1401	1530	84.60			22631230	633,00
710- 500- 500		1327	707	498	1311	1250	72.00			22711255	986,00
710- 710- 710	707	1665			1660	1800	116.00			22711230	917,50
800- 560- 560		1507	797	558	1481	1400	87.00			22801255	1262,00
800- 800- 800	797	1823			1818	1970	140.00			22801230	1166,00
900- 900- 900	897	2030			2020	2200	165.60			229912304090	1438,00
1000-1000-1000	998	2190			2205	2400	194.60			229912304100	1783,00
1120-1120-1120	1118	2480			2490	2700	258.70			229912304112	2164,00
1250-1250-1250	1248	2710			2715	2950	308.46			229912304125	2578,00



Fork 30°



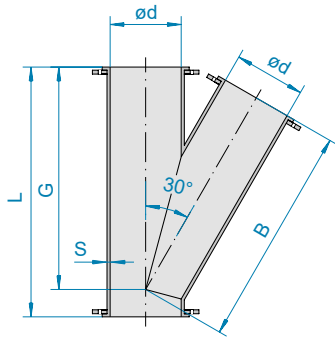
Conical fork 30°

Shock explosion proof tested up to 3 bar

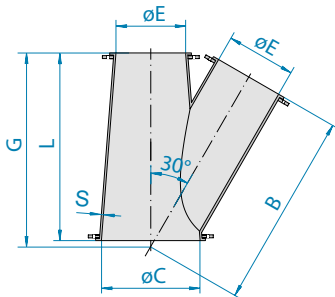


THE FLANGE RANGE

Branch pieces



█ Fork 30°

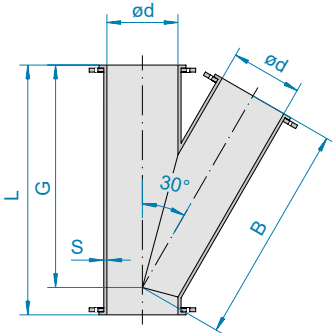


█ Conical fork 30°

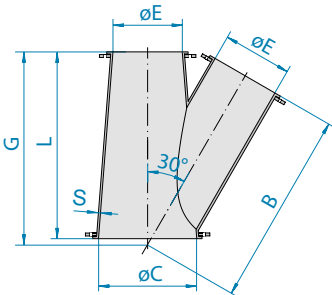
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm galvanised		2 mm galvanised	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21352255	363,50	22352255	391,00
350- 350- 350	349	817			828	920	27.75	21352230	336,00	22352230	393,50
400- 300- 300		824	399	300	821	720	20.40	21402255	424,50	22402255	445,50
400- 400- 400	398	925			926	1025	38.80	21402230	414,50	22402230	480,50
450- 350- 350		911	449	350	909	920	36.40	21452255	505,00	22452255	634,50
450- 450- 450	448	1030			1045	1150	48.00	21452230	497,50	22452230	575,50
500- 400- 400		1014	499	399	1009	1025	44.00	21502255	658,50	22502255	824,50
500- 500- 500	498	1127			1138	1250	56.00	21502230	569,50	22502230	623,00
560- 400- 400		1071	558	399	1059	1025	47.60			22562255	864,50
560- 560- 560	558	1275			1280	1400	72.00			22562230	732,50
630- 450- 450		1213	628	448	1195	1150	58.80			22632255	1020,00
630- 630- 630	628	1404			1401	1530	84.60			22632230	778,00
710- 500- 500		1327	707	498	1311	1250	72.00			22712255	1239,00
710- 710- 710	707	1665			1660	1800	116.00			22712230	1134,00
800- 560- 560		1507	797	558	1481	1400	87.00			22802255	1677,00
800- 800- 800	797	1823			1818	1970	140.00			22802230	1502,00
900- 900- 900	897	2030			2020	2200	165.60			229922304090	2086,00
1000-1000-1000	998	2190			2205	2400	194.60			229922304100	2643,00
1120-1120-1120	1118	2480			2490	2700	258.70			229922304112	3303,00
1250-1250-1250	1248	2710			2715	2950	308.46			229922304125	3937,00

█ Shock explosion proof tested up to 3 bar



■ Gabelstück 30°



Konisches Gabelstück 30°

Stainless steel with galvanized loose flanges (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	Stainless steel with galvanized loose flanges F			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21353255	590,50	22353255	753,00
350- 350- 350	349	817			828	920	27.75	21353230	521,00	22353230	827,00
400- 300- 300		824	399	300	821	720	20.40	21403255	691,00	22403255	881,50
400- 400- 400	398	925			926	1025	38.80	21403230	583,50	22403230	889,00
450- 350- 350		911	449	350	909	920	36.40	21453255	811,50	22453255	1046,00
450- 450- 450	448	1030			1045	1150	48.00	21453230	764,00	22453230	953,50
500- 400- 400		1014	499	399	1009	1025	44.00	21503255	1084,00	22503255	1386,00
500- 500- 500	498	1127			1138	1250	56.00	21503230	840,50	22503230	1091,00
560- 400- 400		1071	558	399	1059	1025	47.60			22563255	1413,00
560- 560- 560	558	1275			1280	1400	72.00			22563230	1264,00
630- 450- 450		1213	628	448	1195	1150	58.80			22633255	1603,00
630- 630- 630	628	1404			1401	1530	84.60			22633230	1365,00
710- 500- 500		1327	707	498	1311	1250	72.00			22713255	2051,00
710- 710- 710	707	1665			1660	1800	116.00			22713230	1813,00
800- 560- 560		1507	797	558	1481	1400	87.00			22803255	2303,00
800- 800- 800	797	1823			1818	1970	140.00			22803230	2296,00
900- 900- 900	897	2030			2020	2200	165.60			229932304090	2823,00
1000-1000-1000	998	2190			2205	2400	194.60			229932304100	3305,00
1120-1120-1120	1118	2480			2490	2700	258.70			229932304112	4076,00
1250-1250-1250	1248	2710			2715	2950	308.46			229932304125	4874,00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	Stainless steel with stainless steel loose flange, shotblasted F			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350-250-250		727	350	250	727	620	15.60	213532553	645,00	223532553	809,00
350-350-350	349	817			828	920	28.00	213532303	682,50	223532303	993,50
400-300-300		824	399	300	821	720	20.00	214032553	754,00	224032553	946,00
400-400-400	398	925			926	1025	39.40	214032303	771,50	224032303	1081,00
450-350-350		911	449	350	909	920	38.20	214532553	984,00	224532553	1223,00
450-450-450	448	1030			1045	1150	48.00	214532303	957,00	224532303	1151,00
500-400-400		1014	499	399	1009	1025	44.00	215032553	1273,00	225032553	1581,00
500-500-500	498	1127			1138	1250	61.00	215032303	1033,00	225032303	1288,00
560-400-400		1071	558	399	1059	1025	47.60			225632553	1669,00
560-560-560	558	1275			1280	1400	75.00			225632303	1646,00
630-450-450		1213	628	448	1195	1150	57.00			226332553	1855,00
630-630-630	628	1404			1401	1530	84.50	226332303*	1728,00	236332303*	2250,00
710-500-500		1327	707	498	1311	1250	72.00			227132553	2345,00
710-710-710	707	1665			1660	1800	113.00	227132303*	2239,00	237132303*	3049,00

*2 mm

*3 mm

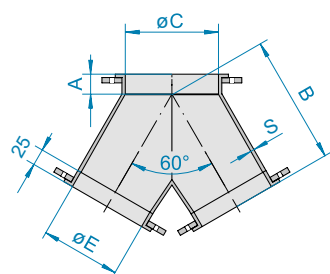
F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Branch pieces



CONICAL SYMMETRICAL FORK 60°

6090

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 to 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

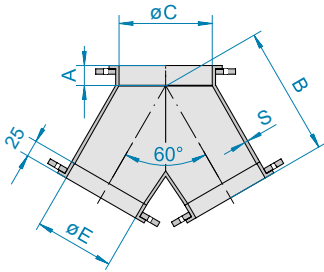
Powder-coated (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21351275	274,50	22351275	301,50
400- 300- 300	70	350	399	300	12.00	21401275	299,50	22401275	332,00
450- 350- 350	80	425	449	350	23.00	21451275	375,50	22451275	441,50
500- 400- 400	80	475	499	399	33.50	21501275	403,50	22501275	494,50
560- 400- 400	80	550	558	399	37.00			22561275	602,50
630- 450- 450	150	600	628	448	40.40			22631275	740,50
710- 500- 500	200	650	707	498	47.60			22711275	995,50
800- 560- 560	200	700	797	558	59.00			22801275	1247,00
900- 630- 630	210	850	897	628	74.40			229912754090	1570,00
1000- 710- 710	220	930	998	707	87.96			229912754100	1893,00
1120- 800- 800	220	1040	1118	797	110.30			229912754112	2275,00
1250- 900- 900	220	1130	1248	897	128.22			229912754125	2678,00

Galvanised (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21352275	308,00	22352275	327,00
400- 300- 300	70	350	399	300	12.00	21402275	337,00	22402275	355,00
450- 350- 350	80	425	449	350	23.00	21452275	405,50	22452275	481,00
500- 400- 400	80	475	499	399	33.50	21502275	449,50	22502275	548,00
560- 400- 400	80	550	558	399	37.00			22562275	677,50
630- 450- 450	150	600	628	448	40.40			22632275	844,50
710- 500- 500	200	650	707	498	47.60			22712275	1161,00
800- 560- 560	200	700	797	558	59.00			22802275	1472,00
900- 630- 630	210	850	897	628	74.40			229922754090	1877,00
1000- 710- 710	220	930	998	707	87.96			229922754100	2294,00
1120- 800- 800	220	1040	1118	797	110.30			229922754112	2766,00
1250- 900- 900	220	1130	1248	897	128.22			229922754125	3265,00

■ Shock explosion proof tested up to 3 bar



Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with galvanised loose flanges F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21353275	539,00	22353275	692,00
400- 300- 300	70	350	399	300	12.00	21403275	586,50	22403275	732,50
450- 350- 350	80	425	449	350	23.00	21453275	678,50	22453275	846,50
500- 400- 400	80	475	499	399	33.50	21503275	746,50	22503275	947,50
560- 400- 400	80	550	558	399	37.00			22563275	1089,00
630- 450- 450	150	600	628	448	40.40			22633275	1264,00
710- 500- 500	200	650	707	498	47.60			22713275	1702,00
800- 560- 560	200	700	797	558	59.00			22803275	2009,00
900- 630- 630	210	850	897	628	74.40			229932754090	2510,00
1000- 710- 710	220	930	998	707	87.96			229932754100	3009,00
1120- 800- 800	220	1040	1118	797	110.30			229932754112	3587,00
1250- 900- 900	220	1130	1248	897	128.22			229932754125	4227,00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with stainless steel loose flange, shotblasted F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350-250-250	70	300	350	250	14.37	213532753	593,50	223532753	747,00
400-300-300	70	350	399	300	11.76	214032753	648,50	224032753	797,00
450-350-350	80	425	449	350	32.90	214532753	851,00	224532753	1023,00
500-400-400	80	475	499	399	27.40	215032753	935,50	225032753	1142,00
560-400-400	80	550	558	399	37.00			225632753	1346,00
630-450-450	150	600	628	448	41.00			226332753	1516,00
710-500-500	200	650	707	498	47.60			227132753	1994,00

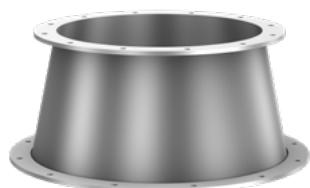
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

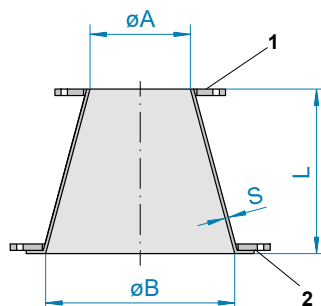
Transition pieces and adapters



CONE PIECES

6170

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 630 to 710 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request



- 1 With welded flange similar to DIN 24154-2 (see page 219 for dimensions)
- 2 With loose flange similar to DIN 24154-2 (see page 219 for dimensions)

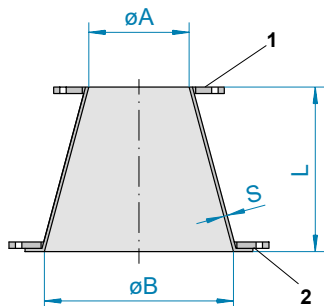
Powder-coated (dimensions for 2 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21001480	75,30	22001480	89,00
300- 400	299	398	200	7.40	21001481	83,00	22001481	98,30
350- 400	349	398	200	10.00	21001482	139,00	22001482	166,00
350- 450	349	448	200	11.20	21001483	142,50	22001483	169,00
400- 450	398	448	200	11.80	21001485	156,00	22001485	185,00
400- 500	398	498	250	13.40	21001486	170,00	22001486	201,00
450- 500	448	498	200	14.20	21001487	176,50	22001487	208,00
450- 560	448	558	250	16.60			22001495	213,00
500- 560	498	558	250	17.40			22001496	250,00
500- 630	498	628	300	19.60			22001497	277,00
560- 630	558	628	300	21.80			22001498	288,00
630- 710	628	707	300	24.40			22001499	364,00
710- 800	707	797	300	28.00			22001500	418,00
800- 900	897	799	300	31.21			229918104090	496,50
900-1000	998	899	300	34.83			229918114100	579,00
1000-1120	1118	1000	300	44.21			229918124112	690,00
1120-1250	1248	1120	300	55.14			229918134125	798,50

Galvanised (dimensions for 2 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21002480	93,90	22002480	111,50
300- 400	299	398	200	7.40	21002481	104,00	22002481	122,50
350- 400	349	398	200	10.00	21002482	175,50	22002482	207,00
350- 450	349	448	200	11.20	21002483	180,00	22002483	211,50
400- 450	398	448	200	11.80	21002485	195,50	22002485	228,50
400- 500	398	498	250	13.40	21002486	212,00	22002486	248,50
450- 500	448	498	200	14.20	21002487	220,00	22002487	258,00
450- 560	448	558	250	16.60			22002495	281,00
500- 560	498	558	250	17.40			22002496	332,50
500- 630	498	628	300	19.60			22002497	366,00
560- 630	558	628	300	21.80			22002498	383,50
630- 710	628	707	300	24.40			22002499	487,00
710- 800	707	797	300	28.00			22002500	553,50
800- 900	897	799	300	31.21			229928104090	638,00
900-1000	998	899	300	34.83			229928114100	743,50
1000-1120	1118	1000	300	44.21			229928124112	893,00
1120-1250	1248	1120	300	55.14			229928134125	984,50

■ Shock explosion proof tested up to 3 bar



- 1 With welded stainless steel flange similar to DIN 24154-2 (see page 219 for dimensions)
- 2 With loose flange similar to DIN 24154-2 (see page 219 for dimensions)

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	$\varnothing A$	$\varnothing B$	L	kg	Stainless steel with galvanised loose flanges F			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300-350	299	349	200	6.80	21003480	98,90	22003480	122,50
300-400	299	398	200	7.40	21003481	107,50	22003481	132,50
350-400	349	398	200	10.00	21003482	225,50	22003482	276,50
350-450	349	448	200	11.20	21003483	235,50	22003483	288,00
400-450	398	448	200	11.80	21003485	261,00	22003485	318,50
400-500	398	498	250	13.40	21003486	275,50	22003486	338,00
450-500	448	498	200	14.20	21003487	295,50	22003487	363,00
450-560	448	558	250	16.60			22003495	391,00
500-560	498	558	250	17.40			22003496	435,50
500-630	498	628	300	19.60			22003497	449,00
560-630	558	628	300	21.80			22003498	513,50
630-710	628	707	300	24.40			22003499	692,50
710-800	707	797	300	28.00			22003500	789,00
800-900	897	799	300	31.21			229938104090	926,50
900-1000	998	899	300	34.83			229938114100	1081,00
1000-1120	1118	1000	300	44.21			229938124112	1242,00
1120-1250	1248	1120	300	55.14			229938134125	1416,00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	$\varnothing A$	$\varnothing B$	L	kg	Stainless steel with stainless steel loose flange, shotblasted F			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300-350	299	349	200	6.80	210034803	154,50	220034803	180,00
300-400	299	398	200	7.40	210034813	172,00	220034813	197,50
350-400	349	398	200	10.00	210034823	288,00	220034823	340,50
350-450	349	448	200	11.00	210034833	300,00	220034833	353,50
400-450	398	448	200	11.80	210034853	325,00	220034853	385,50
400-500	398	498	250	13.40	210034863	338,50	220034863	403,00
450-500	448	498	200	14.20	210034873	360,50	220034873	429,00
450-560	448	558	250	16.60			220034953	518,00
500-560	498	558	250	17.40			220034963	563,00
500-630	498	628	300	19.60			220034973	569,00
560-630	558	628	300	21.80			220034983	634,50
630-710	628	707	300	24.40			220034993	835,50

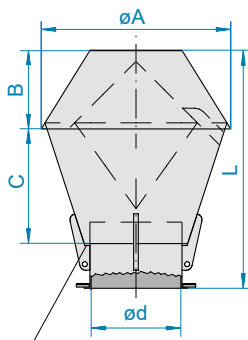
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Transition pieces and adapters



Revolving water outlet

JET CAPS

1430

- With welded flange similar to DIN 24154-2 (see page 219 for dimensions)

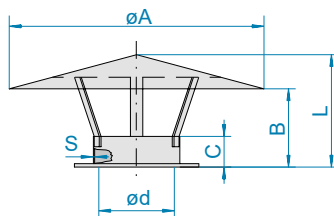
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
350	349	645	275	448	865	33.00	12352805	754,00	12353805	1229,00
400	398	715	295	480	915	42.00	12402805	872,00	12403805	1423,00
450	448	820	320	588	1040	51.00	12452805	991,00	12453805	1668,00
500	498	870	320	588	1040	61.50	12502805	1118,00	12503805	1931,00
560	558	990	372	703	1208	81.50	12562805	1243,00	12563805	2209,00
630	628	1140	442	776	1434	112.00	12632805	1416,00	12633805	2513,00
710	707	1290	502	901	1627	138.00	12712805	2376,00	12713805	3951,00
800	797	1440	520	1020	1790	164.00	12802805	2733,00	12803805	4737,00
900	897	1550	600	1150	2150	260.00	239928055090 *	3843,00	239938055090 *	5481,00
1000	998	1800	700	1330	2400	328.00	239928055100 *	4455,00	239938055100 *	6357,00
1120	1118	1825	1120	1100	2370	421.00	239928055112 *	4766,00	239938055112 *	7092,00
1250	1248	1955	1190	1150	2470	452.00	239928055125 *	5487,00	239938055125 *	7828,00

*3 mm

RAIN CAPS

6190



- With loose flange up to DN 1000 mm
- DN 1120 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 219 for dimensions)

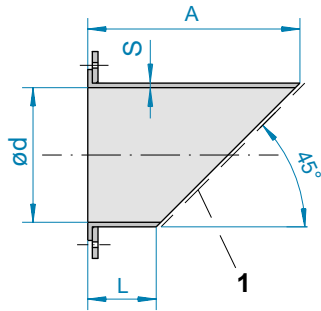
- From DN 1250 mm, we recommend the use of jet caps
- Take local building regulations into account, alternatively use a jet cap
- DN 710 – 1120 available in stainless steel only

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	2 mm galvanised		2 mm Stainless steel with galvanised loose flanges		2 mm stainless steel with stainless steel loose flange shotblasted	
							Item no.	€	Item no.	€	Item no.	€
350	349	750	300	150	395	23.70	22352850	327,50	22353850	583,00	223538503	638,50
400	398	850	320	150	435	16.80	22402850	371,50	22403850	727,50	224038503	791,00
450	448	950	340	150	470	25.90	22452850	405,50	22453850	919,00	224538503	983,00
500	498	1050	410	200	550	31.50	22502850	440,00	22503850	1029,00	225038503	1095,00
560	558	1150	435	200	590	34.00	22562850	482,00	22563850	1106,00	225638503	1232,00
630	628	1300	470	200	645	42.00	22632850	529,00	22633850	1169,00	226338503	1289,00
710	707	1400	500	250	700	52.00			22713850	1571,00	227138503	1715,00
800	797	1500	530	250	760	59.92			22803850	1888,00	228038503	2092,00
900	897	1800	550	250	793	87.20			229938504090	2299,00		
1000	998	2000	600	250	870	103.20			229938504100	3147,00		
1120	1118	2240	650	300	950	186.90					239938505112 *	3652,00

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



1 Bird-guard

AIR OUTLET PIPES 45°

6200


- Bird-guard: Material thickness 2 mm, mesh size 20x20
- One side with loose flange
- DN 1400 and 1600 mm on request

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21352880	322,00		
400	399	600	200	10.80	21402880	386,00		
450	449	650	200	12.30	21452880	462,50		
500	499	700	200	10.60	21502880	526,00		
560	558	760	200	22.00			22562880	616,00
630	628	830	200	26.00			22632880	692,00
710	707	910	200	30.00			22712880	907,50
800	797	1000	200	36.00			22802880	1071,00
900	897	1100	200	58.80			239928804090 *	1302,00
1000	998	1200	200	69.12			239928804100 *	1554,00
1120	1118	1320	200	90.75			239928804112 *	1834,00
1250	1248	1450	200	107.40			239928804125 *	2144,00

*3 mm

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	Stainless steel with galvanised loose flanges 			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21353880	411,00		
400	399	600	200	10.80	21403880	508,00		
450	449	650	200	12.30	21453880	579,50		
500	499	700	200	10.60	21503880	667,00		
560	558	760	200	22.00			22563880	797,50
630	628	830	200	26.00			22633880	954,50
710	707	910	200	30.00			22713880	1344,00
800	797	1000	200	36.00			22803880	1611,00
900	897	1100	200	58.80			239938804090 *	1979,00
1000	998	1200	200	69.12			239938804100 *	2352,00
1120	1118	1320	200	90.75			239938804112 *	2757,00
1250	1248	1450	200	107.40			239938804125 *	3235,00

*3 mm



THE FLANGE RANGE

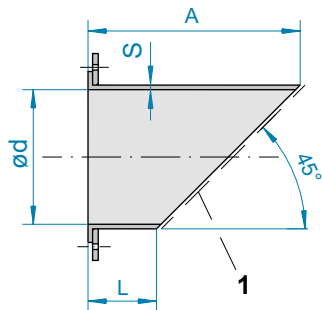
Transition pieces and adapters/Cleaning pipes



AIR OUTLET PIPES 45°

6200

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)



1 Bird-guard
mesh size: 20x20 x 2 mm

DN	ød	A	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	213538803	465,50		
400	399	600	200	10.80	214038803	570,50		
450	448	650	200	12.30	214538803	644,50		
500	498	700	200	10.60	215038803	733,00		
560	558	760	200	22.00			225638803	923,50
630	628	830	200	26.00			226338803	1075,00
710	707	910	200	30.00			227138803	1487,00
800	797	1000	200	36.00			228038803	1819,00

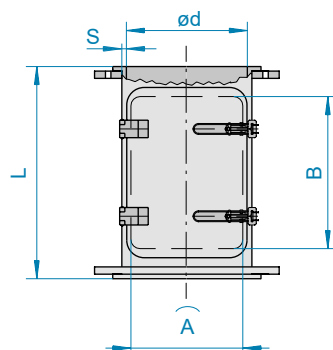


CLEANING PIPES

6050

- For seals, please also read and take into account the technical information given at the beginning of this chapter
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Not recommended for extracting exhaust air containing condensates

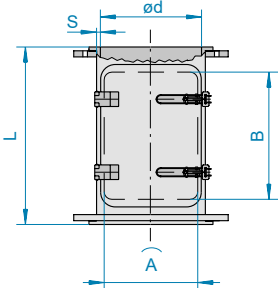
Powder-coated (dimensions for 2 mm pipework)



DN	ød	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21351195	254,50		
400	399	350	350	478	15.90	21401195	273,00		
450	448	500	350	478	20.00			22451195	300,00
500	498	500	350	478	21.60			22501195	323,00
560	558	500	350	478	25.00			22561195	352,50
630	628	500	350	478	30.00			22631195	379,50
710	707	500	350	478	34.00			22711195	487,50
800	797	500	350	478	38.00			22801195	592,50
900	897	500	350	478	41.48			229911954090	718,50
1000	998	500	350	478	46.10			229911954100	873,50
1120	1118	500	350	478	62.50			229911954112	1026,00
1250	1248	500	350	478	69.57			229911954125	1152,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Cleaning pipes



Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21352195	322,00		
400	399	350	350	478	15.90	21402195	347,00		
450	448	500	350	478	20.00			22452195	393,50
500	498	500	350	478	21.60			22502195	422,00
560	558	500	350	478	25.00			22562195	479,00
630	628	500	350	478	30.00			22632195	523,50
710	707	500	350	478	34.00			22712195	684,00
800	797	500	350	478	38.00			22802195	835,00
900	897	500	350	478	41.48			229921954090	995,50
1000	998	500	350	478	46.10			229921954100	1179,00
1120	1118	500	350	478	62.50			229921954112	1349,00
1250	1248	500	350	478	69.57			229921954125	1533,00

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Stainless steel with galvanised loose flanges F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21353195	442,00		
400	399	350	350	478	15.90	21403195	469,00		
450	448	500	350	478	20.00			22453195	515,00
500	498	500	350	478	21.60			22503195	551,50
560	558	500	350	478	25.00			22563195	603,50
630	628	500	350	478	30.00			22633195	664,50
710	707	500	350	478	34.00			22713195	911,00
800	797	500	350	478	38.00			22803195	1082,00
900	897	500	350	478	41.48			229931954090	1295,00
1000	998	500	350	478	46.10			229931954100	1509,00
1120	1118	500	350	478	62.50			229931954112	1741,00
1250	1248	500	350	478	69.57			229931954125	1893,00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Stainless steel with stainless steel loose flange, shotblasted F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	213531953	550,50		
400	399	350	350	478	15.60	214031953	594,00		
450	448	500	350	478	16.00			224531953	646,50
500	498	500	350	478	23.00			225031953	682,50
560	558	500	350	478	29.50			225631953	856,50
630	628	500	350	478	34.80			226331953	906,00
710	707	500	350	478	38.50			227131953	1198,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

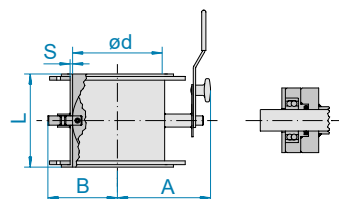
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THE FLANGE RANGE

Throttle valves



■ Additionally with ball bearings and Viton O-ring seal

THROTTLE VALVES

6180

- Special version available with glued silicone inner seal up to DN 800 mm, no cross-section constriction, prices on request
- Version with pneumatic or electric actuator, on request
- Both sides with loose flange
- From DN 900 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 219 for dimensions)
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated, galvanised and stainless steel (dimensions for 2 mm pipework)

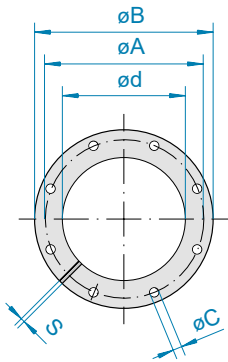
DN	Ød	A	B	L	kg	2 mm powder-coated		2 mm galvanised	
						Item no.	€	Item no.	€
350	349	240	233	200	14.00	22351560	252,00		
400	398	265	258	200	16.20	22401560	282,50		
450	458	396	365	200	26.50	22451560	583,50		
500	498	421	391	200	29.60	22501560	647,00		
560	558	451	421	200	36.00	22561560	690,50		
630	628	486	456	200	41.00	22631560	748,00		
710	707	525	495	200	46.00	22711560	954,00		
800	797	570	540	200	52.00	22801560	1155,00		
900	897	620	590	200	65.00	239915605090*	1863,00	239925605090*	2237,00
1000	998	670	640	200	83.00	239915605100*	2227,00	239925605100*	2874,00
1120	1118	810	675	200	104.00	239915605112*	3003,00	239925605112*	3615,00
1250	1248	875	740	200	123.00	239915605125*	3533,00	239925605125*	4247,00

*3 mm

DN	Ød	A	B	L	kg	2 mm Stainless steel with galvanised loose flanges		2 mm stainless steel with stainless steel loose flange, shotblasted	
						Item no.	€	Item no.	€
350	349	240	233	200	14.00	22353560	479,00	223535603	589,00
400	398	265	258	200	16.20	22403560	555,00	224035603	681,50
450	458	396	365	200	26.50	22453560	778,00	224535603	908,00
500	498	421	391	200	29.60	22503560	891,00	225035603	1022,00
560	558	451	421	200	36.00	22563560	1041,00	225635603	1292,00
630	628	486	456	200	41.00	22633560	1193,00	226335603	1432,00
710	707	525	495	200	46.00	22713560	1562,00	227135603	1847,00
800	797	570	540	200	52.00	22803560	1877,00		
900	897	620	590	200	65.00			239935605090*	3223,00
1000	998	670	640	200	83.00			239935605100*	3983,00
1120	1118	810	675	200	104.00			239935605112*	4927,00
1250	1248	875	740	200	123.00			239935605125*	5798,00

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



E = No. of holes

FLANGES

1360

- Similar to DIN 24154-2
- For nominal diameters DN 120, 150, 175, 300 and 350 mm, the hole diameter and number of holes have been adapted to the next higher standard diameter (120=125, 150=160, 175=180, 300=315, 350=355 mm)
- DN 60 mm is not a standard diameter; the dimensions are adapted to DIN 24154-2
- For nominal diameters 80, 100, 140, 160, 200, 224, 250, 400, 450, 500, 560, 630, 710 and 800 the pitch circle diameter, the hole diameter and the number of holes conform to DIN 24154-2

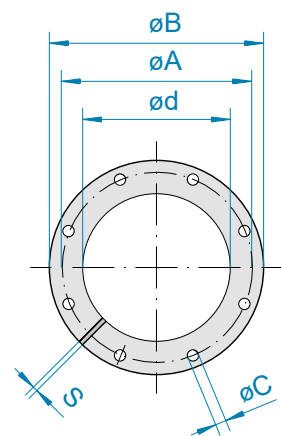
Powder-coated and galvanised

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
60	62	102	128	9.5	4	5	0.40	10061711	7,30		
80	82	118	142	9.5	4	5	0.40	10081711	9,00	10082711	10,00
100	105	139	165	9.5	4	5	0.46	10101711	10,30	10102711	11,60
120	125	165	185	9.5	4	5	0.57	10121711	10,60	10122711	13,50
140	142	182	212	11.5	8	5	0.73	10141711	10,90	10142711	14,00
150	155	200	225	11.5	8	5	0.78	10151711	11,20	10152711	14,30
160	162	200	232	11.5	8	5	0.82	10161711	11,50	10162711	14,40
175	180	219	250	11.5	8	5	0.93	10171711	11,60	10172711	14,70
200	205	241	275	11.5	8	5	0.99	10201711	12,10	10202711	15,10
224	225	265	295	11.5	8	5	1.10	10221711	14,70	10222711	15,90
250	255	292	325	11.5	8	5	1.21	10251711	15,90	10252711	16,80
280	283	332	363	11.5	8	8	2.51	10281711	21,50	10282711	22,90
300	305	366	395	11.5	8	8	3.00	10301711	22,90	10302711	23,70
315	318	366	398	11.5	8	8	2.98	10311711	24,10	10312711	25,00
350	356	405	436	11.5	8	8	3.10	10351711	25,40	10352711	26,30
400	405	448	485	11.5	12	8	3.44	10401711	25,70	10402711	28,30
450	455	497	535	11.5	12	8	3.90	10451711	26,50	10452711	28,60
500	505	551	585	11.5	12	8	4.13	10501711	27,30	10502711	30,70
560	565	629	665	14	16	8	5.90	10561711	33,50	10562711	38,20
630	635	698	735	14	16	8	6.60	10631711	37,40	10632711	49,20
710	715	775	815	14	16	8	7.40	10711711	42,80	10712711	57,90
800	805	861	905	14	24	8	7.95	10801711	58,30	10802711	74,50
900	904	958	1004	14	24	8	9.17	109917110090	74,80	109927110090	98,20
1000	1005	1067	1105	14	24	8	10.20	109917110100	95,10	109927110100	136,00
1120	1125	1200	1245	18	32	10	16.90	109917110112	130,00	109927110112	184,00
1250	1255	1337	1375	18	32	10	18.80	109917110125	143,50	109927110125	254,00



THE FLANGE RANGE

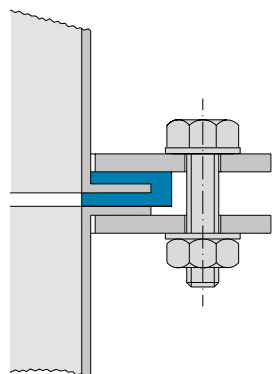
Flanges, seals and installation kit



E = No. of holes

Stainless steel

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Stainless steel	
								Item no.	€
60	62	102	128	9.5	4	5	0.40	10063711	25,00
80	82	118	142	9.5	4	5	0.40	10083711	27,60
100	105	139	165	9.5	4	5	0.46	10103711	29,60
120	125	165	185	9.5	4	5	0.57	10123711	34,20
140	142	182	212	11.5	8	5	0.73	10143711	36,80
150	155	200	225	11.5	8	5	0.78	10153711	37,50
160	162	200	232	11.5	8	5	0.82	10163711	38,60
175	180	219	250	11.5	8	5	0.93	10173711	39,20
200	205	241	275	11.5	8	5	0.99	10203711	39,90
224	225	265	295	11.5	8	5	1.10	10223711	43,30
250	255	292	325	11.5	8	5	1.21	10253711	45,20
280	283	332	363	11.5	8	8	2.51	10283711	71,40
300	305	366	395	11.5	8	8	3.00	10303711	75,60
315	318	366	398	11.5	8	8	2.98	10313711	85,00
350	356	405	436	11.5	8	8	3.10	10353711	88,10
400	405	448	485	11.5	12	8	3.44	10403711	96,10
450	455	497	535	11.5	12	8	3.90	10453711	107,50
500	505	551	585	11.5	12	8	4.13	10503711	115,50
560	565	629	665	14	16	8	5.90	10563711	168,50
630	635	698	735	14	16	8	6.60	10633711	182,50
710	715	775	815	14	16	8	7.40	10713711	186,50
800	805	861	905	14	24	8	7.95	10803711	227,00
900	904	958	1004	14	24	8	9.17	109937110090	243,00
1000	1005	1067	1105	14	24	8	10.20	109937110100	301,50
1120	1125	1200	1245	18	32	10	16.90	109937110112	336,50
1250	1255	1337	1375	18	32	10	18.80	109937110125	358,50



INSTALLATION KIT FOR JACOB FLANGES

1510

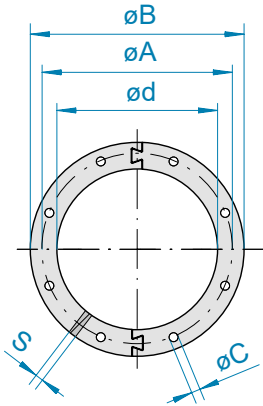
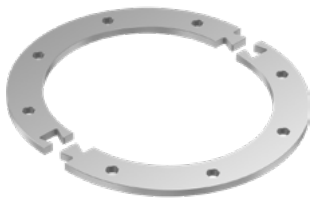
- Installation kit consisting of bolts, nuts and two washers per bolt
- To match the number of holes and flange thicknesses
- Bolts in compliance with DIN EN ISO 4017 (formerly DIN 933)
- Washers in compliance with DIN EN ISO 7090 (formerly DIN 125), 2 each per bolt
- Nuts in compliance with DIN EN ISO 4032 (formerly DIN 934)

Galvanised bolts, nuts and washers

DN	Bolts	Number	Item no.	€
60- 120	M 8x30	4	10062788	2,00
140- 250	M 10x35	8	10142788	5,30
280- 350	M 10x40	8	10282788	5,80
400- 500	M 10x40	12	10402788	7,60
560- 710	M 12x45	16	10562788	10,10
800-1000	M 12x45	24	10802788	14,70
1120-1250	M 16x50	32	109927880112	27,00



Installation instructions for loose flange connections



E = No. of holes

FLANGES 2-PART

1362

• Similar to DIN 24154-2

• Refer to comments regarding flanges on page 219

Powder-coated and galvanised

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
80	82	118	142	9.5	4	8	0.40	10081713	21,10	10082713	22,00
100	105	139	165	9.5	4	8	0.46	10101713	21,80	10102713	22,70
120	125	165	185	9.5	4	8	0.57	10121713	22,30	10122713	23,30
140	142	182	212	11.5	8	8	0.73	10141713	26,50	10142713	27,40
150	155	200	225	11.5	8	8	1.25	10151713	37,20	10152713	38,10
175	180	219	250	11.5	8	8	1.50	10171713	44,90	10172713	46,10
200	205	241	275	11.5	8	8	1.60	10201713	51,50	10202713	52,80
224	225	265	295	11.5	8	8	1.76	10221713	53,70	10222713	54,90
250	255	292	325	11.5	8	8	1.94	10251713	56,10	10252713	57,20
280	283	332	363	11.5	8	8	2.51	10281713	57,10	10282713	58,90
300	305	366	395	11.5	8	8	3.00	10301713	62,70	10302713	64,50
315	318	366	398	11.5	8	8	3.10	10311713	97,00	10312713	98,80
350	356	405	436	11.5	8	8	3.20	10351713	101,00	10352713	102,50
400	405	448	485	11.5	12	8	3.44	10401713	105,00	10402713	107,00

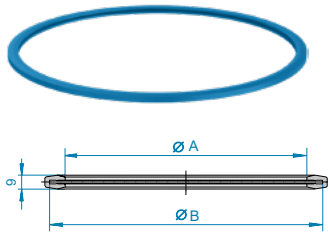
Stainless steel

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Stainless steel	
								Item no.	€
80	82	118	142	9.5	4	8	0.40	10083713	56,20
100	105	139	165	9.5	4	8	0.46	10103713	58,10
120	125	165	185	9.5	4	8	0.57	10123713	59,50
140	142	182	212	11.5	8	8	0.73	10143713	73,50
150	155	200	225	11.5	8	8	1.25	10153713	97,30
175	180	219	250	11.5	8	8	1.50	10173713	118,00
200	205	241	275	11.5	8	8	1.60	10203713	135,00
224	225	265	295	11.5	8	8	1.76	10223713	141,00
250	255	292	325	11.5	8	8	1.94	10253713	146,50
280	283	332	363	11.5	8	8	2.51	10283713	151,00
300	305	366	395	11.5	8	8	3.00	10303713	199,50
315	318	366	398	11.5	8	8	3.10	10313713	252,50
350	356	405	436	11.5	8	8	3.20	10353713	262,00
400	405	448	485	11.5	12	8	3.44	10403713	272,00



THE FLANGE RANGE

Flanges, seals and installation kit



U-SHAPED SEALS FOR 10 MM LIP FLANGE

6210

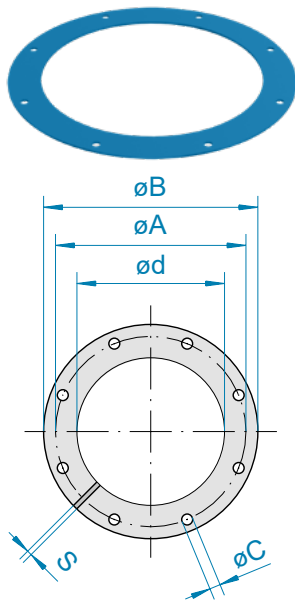
- Please also read and take into account the technical information given at the beginning of this chapter
- Profile for loose flange pipework with a 10 mm lip
- Use for 1-3 mm pipework system
- A U-shaped seal (chapter 2) must be used for pipe components with a loose flange of diameter of up to 350 mm and a 6 mm lip
- For connecting:
 - 2 pipe components with loose flange from DN 350 mm with 10 mm lip
 - A pipe component with a welded flange in conjunction with a pipe component with a loose flange

NBR and silicone

DN	ØA	ØB	kg	NBR grey white		Silicone beige F		Silicone blue F D	
				Item no.	€	Item no.	€	Item no.	€
350	353	373	0.11	103567177	8,40	1035771709	11,20	10357717091	15,70
400	403	423	0.13	104067177	9,30	1040771709	12,80	10407717091	17,60
450	453	473	0.15	104567177	10,40	1045771709	14,00	10457717091	19,20
500	503	523	0.17	105067177	11,70	1050771709	15,30	10507717091	21,40
560	561	581	0.18	105667177	12,80	1056771709	16,90	10567717091	23,80
630	631	651	0.21	106367177	14,30	1063771709	18,80	10637717091	26,50
710	711	731	0.24	107167177	16,40	1071771709	20,80	10717717091	29,30
800	801	821	0.26	108067177	25,70	1080771709	33,20	10807717091	46,50

EPDM and Viton

DN	ØA	ØB	kg	EPDM black		Viton reddish brown	
				Item no.	€	Item no.	€
350	353	373	0.11	1035871759	11,20	103597179	70,30
400	403	423	0.13	1040871759	12,80	104097179	79,50
450	453	473	0.15	1045871759	14,00	104597179	88,90
500	503	523	0.17	1050871759	15,30	105097179	97,80
560	561	581	0.18	1056871759	16,90	105697179	108,50
630	631	651	0.21	1063871759	18,80	106397179	122,50
710	711	731	0.24	1071871759	20,80	107197179	136,50
800	801	821	0.26	1080871759	33,20	108097179	152,00



E = No. of holes

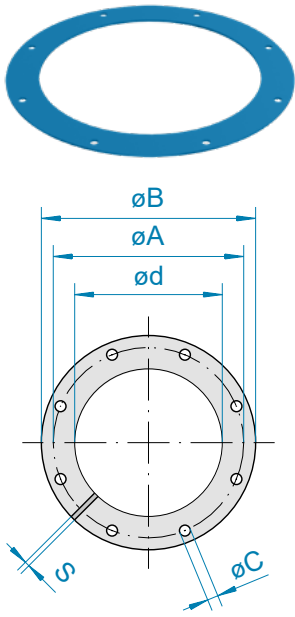
FLAT SEALS FOR LOOSE FLANGES AND WELDED FLANGES

6220

- Similar to DIN 24154-2
- Please also read and take into account the technical information given at the beginning of this chapter

NBR and silicone

DN	Ød	ØA	ØB	ØC	E	S	kg	NBR grey white		Silicone transparent F		Silicone blue F D	
								Item no.	€	Item no.	€	Item no.	€
60	62	102	128	9.5	4	3	0.06	10066718	6,10	10067718	7,50	1006771801	12,00
80	82	118	142	9.5	4	3	0.06	10086718	7,20	10087718	9,20	1008771801	14,80
100	105	139	165	9.5	4	3	0.08	10106718	8,80	10107718	11,10	1010771801	17,90
120	125	165	185	9.5	4	3	0.09	10126718	10,40	10127718	13,20	1012771801	21,20
140	142	182	212	11.5	8	3	0.11	10146718	14,40	10147718	15,90	1014771801	25,40
150	155	200	225	11.5	8	3	0.12	10156718	14,40	10157718	16,80	1015771801	27,00
160	162	200	232	11.5	8	3	0.13	10166718	15,20	10167718	17,70	1016771801	28,40
175	180	219	250	11.5	8	3	0.14	10176718	16,60	10177718	20,00	1017771801	32,10
200	205	241	275	11.5	8	3	0.16	10206718	19,00	10207718	22,70	1020771801	36,40
224	225	265	295	11.5	8	3	0.17	10226718	24,60	10227718	32,40	1022771801	51,90
250	255	292	325	11.5	8	3	0.19	10256718	24,60	10257718	32,40	1025771801	51,90
280	283	332	363	11.5	8	3	0.20	10286718	29,10	10287718	36,70	1028771801	60,90



E = No. of holes

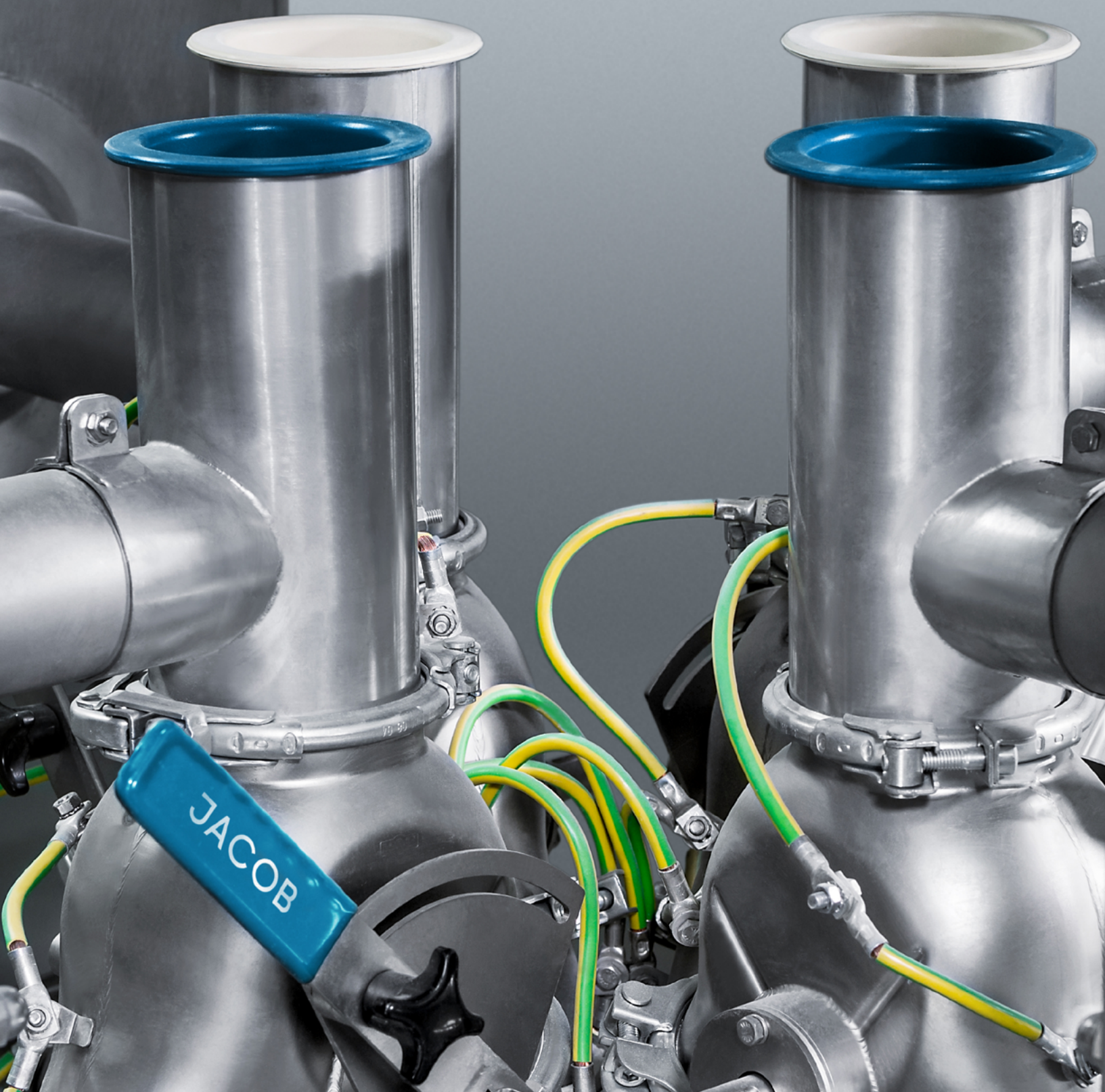
NBR and silicone

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	NBR grey white		Silicone transparent F		Silicone blue FD	
								Item no.	€	Item no.	€	Item no.	€
300	305	366	395	11.5		3	0.30	10306718	33,40	10307718	41,60	1030771801	66,70
315	318	366	398	11.5		3	0.27	10316718	34,40	10317718	43,10	1031771801	69,00
350	355	405	435	11.5	8	3	0.20	10356718	34,40	10357718	43,10	1035771801	72,00
400	400	448	484	11.5	12	3	0.24	10406718	37,80	10407718	49,40	1040771801	99,70
450	450	497	534	11.5	12	3	0.26	10456718	41,50	10457718	53,00	1045771801	108,50
500	500	551	584	11.5	12	3	0.28	10506718	47,40	10507718	62,00	1050771801	132,00
560	560	629	664	14	16	3	0.38	10566718	52,50	10567718	78,10	1056771801	168,00
630	630	698	734	14	16	3	0.42	10636718	63,80	10637718	85,10	1063771801	189,50
710	710	775	814	14	16	3	0.52	10716718	72,90	10717718	112,00	1071771801	252,50
800	800	861	904	14	24	3	0.56	10806718	90,70	10807718	160,50	1080771801	308,00
900	897	958	1004	14	24	4	1.51	109967180090	208,50	109977180090	246,50	10997718009001	599,00
1000	998	1067	1105	14	24	4	1.68	109967180100	248,50	109977180100	261,00	10997718010001	605,00
1120	1118	1200	1245	18	32	4	2.79	109967180112	282,00	109977180112	327,00	10997718011201	611,50
1250	1248	1337	1375	18	32	4	3.10	109967180125	339,50	109977180125	342,00	10997718012501	617,50

EPDM

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	EPDM black	
								Item no.	€
60	62	102	128	9.5	4	3	0.06	10068718	4,80
80	82	118	142	9.5	4	3	0.06	10088718	5,40
100	105	139	165	9.5	4	3	0.08	10108718	6,30
120	125	165	185	9.5	4	3	0.09	10128718	7,30
140	142	182	212	11.5	8	3	0.11	10148718	10,10
150	155	200	225	11.5	8	3	0.12	10158718	10,10
160	162	200	232	11.5	8	3	0.13	10168718	10,80
175	180	219	250	11.5	8	3	0.14	10178718	11,60
200	205	241	275	11.5	8	3	0.16	10208718	13,00
224	225	265	295	11.5	8	3	0.17	10228718	16,40
250	255	292	325	11.5	8	3	0.19	10258718	16,40
280	283	332	363	11.5	8	3	0.20	10288718	18,90
300	305	366	395	11.5	8	3	0.30	10308718	21,30
315	318	366	398	11.5	8	3	0.27	10318718	21,50
350	355	405	435	11.5	8	3	0.20	10358718	13,80
400	400	448	484	11.5	12	3	0.24	10408718	16,30
450	450	497	534	11.5	12	3	0.26	10458718	18,10
500	500	551	584	11.5	12	3	0.28	10508718	20,60
560	560	629	664	14	16	3	0.38	10568718	26,10
630	630	698	734	14	16	3	0.42	10638718	31,30
710	710	775	814	14	16	3	0.52	10718718	39,10
800	800	861	904	14	24	3	0.56	10808718	49,80
900	897	958	1004	14	24	4	1.51	109987180090	108,50
1000	998	1067	1105	14	24	4	1.68	109987180100	128,50
1120	1118	1200	1245	18	32	4	2.79	109987180112	158,50
1250	1248	1337	1375	18	32	4	3.10	109987180125	173,00

- F** FOOD GRADE
EC 1935/2004 plus FDA compliant
- D** DETECTABLE DESIGN
Metal-detectable



JACOB FIXING COMPONENTS AND
ACCESSORIES – THE QUICK AND EASY WAY
TO INSTALL YOUR PIPEWORK SYSTEM



ASSEMBLY AND ACCESSORIES

Technical information	226	
Lip flanging	228	
Spray paint and paint in a tin	229	
Earthing wires and earthing lugs	229	
Pipe clamps	230	
Assembly accessories	232	
Blank-off cover	233	



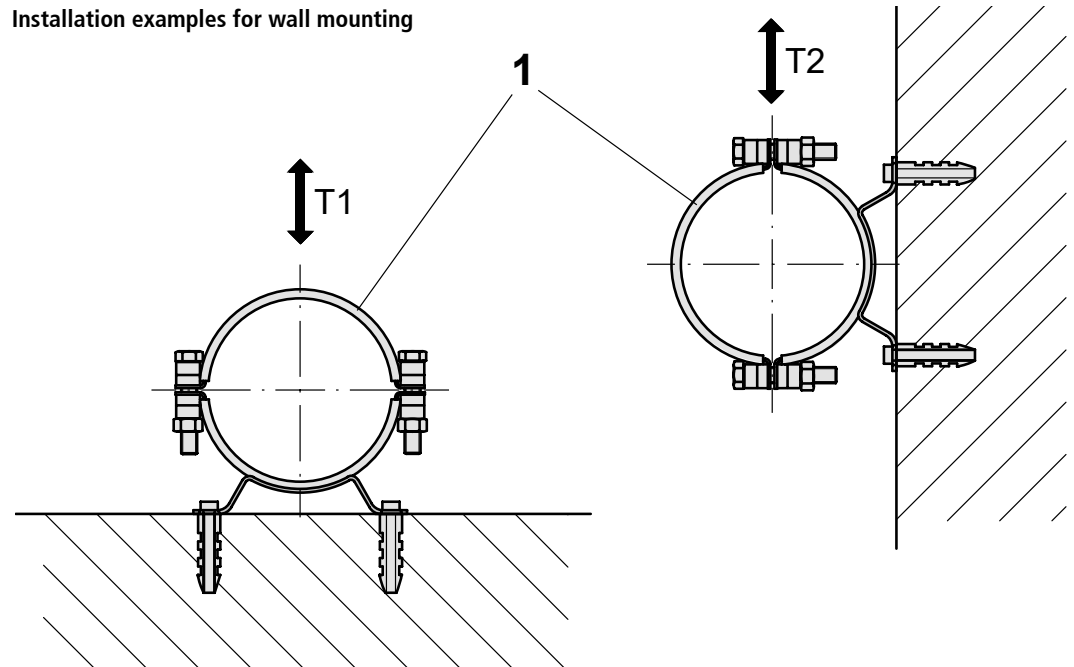
JACOB ASSEMBLY

Your pipework system comes entirely from one source and is easily installed with our accessories, from the flanging tools for creating exact pipe lengths on site right through to pipe clamps.

INSTALLATION EXAMPLES OF PIPE CLAMPS FOR CEILING AND WALL MOUNTING

Whether for ceiling or wall mounting – JACOB has the right pipe clamps in its range.

Installation examples for wall mounting



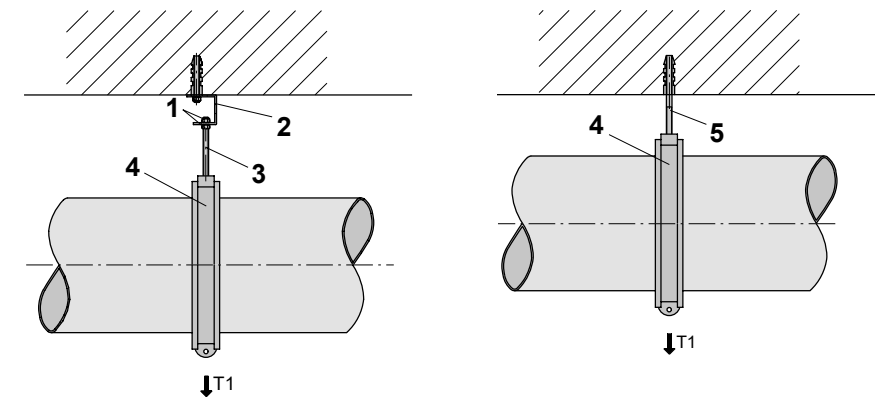
1 Pipe clamps for wall mounting with insert

T1 Load with a deformation of 5 mm

T2 Load with a deformation of 10 mm

For details of loads, refer to the tables on pages 230 and 231

Installation examples for ceiling mounting



1 Hexagon nuts, metric

2 Fixing clips

3 Threaded bolt, metric

4 Pipe clamps for wall mounting with insert

5 Hanger bolt, metric

T1 Load with a deformation of 5 mm

For details of loads, refer to the tables on pages 230 and 231



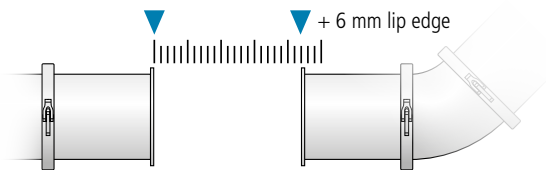
EARTHING WIRE

Establishes electrostatic continuity by connecting two pipe components with an earthing lug using a JACOB earthing wire. Alternatively, the earthing bridge (see chapter 2) can be used to establish electrostatic continuity.

JACOB'S ELECTRIC FLANGING MACHINE

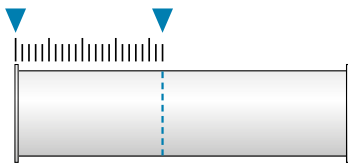
- With the JacBox, you can create lip edges, quickly and easily, to JACOB's usual high quality standard
- Lip edges measuring up to 1.5 mm for stainless steel and up to 2.0 mm for mild steel are possible
- Pipes from 80 to 315 mm in diameter
- Universal compatibility thanks to 230 volt power supply

**YOU CAN NOW RENT
THE JACBOX ON A
FLEXIBLE BASIS.**



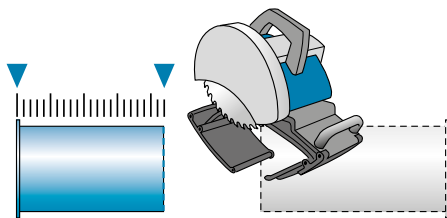
Step 1

Determine the required length



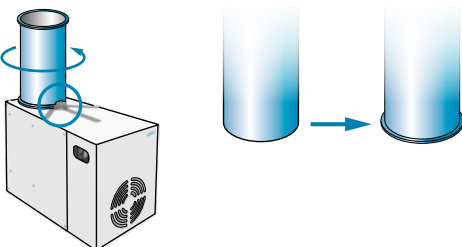
Step 2

Measure and mark the pipes



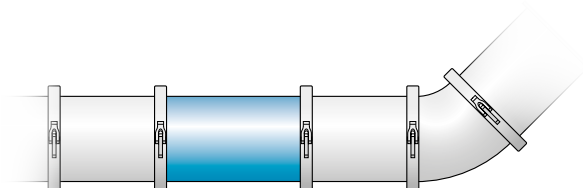
Step 3

Cut the pipes to length cleanly using a special pipe saw



Step 4

Use the JacBox to flange the pipe ends



Step 5

Connect the pipes securely with a tightly sealed pull-ring connection



ASSEMBLY AND ACCESSORIES

Lip flanging



THE JACBOX ELECTRIC FLANGING MACHINE

- With the JacBox, you can create lip edges, quickly and easily, to JACOB's usual high quality standard
- Create lip edges on pipes, which can be made of various materials, with various wall thicknesses, and diameters from 80 to 315 mm
- Conveniently mobile – with castors and ergonomic handles for easy pushing
- Easy power supply – can be operated via a standard household power outlet
- Efficient ergonomics – flanging can be undertaken by a single person

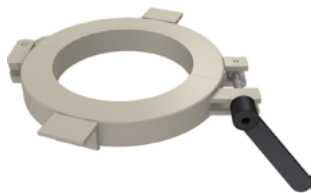
YOU CAN NOW RENT THE JACBOX ON A FLEXIBLE BASIS.



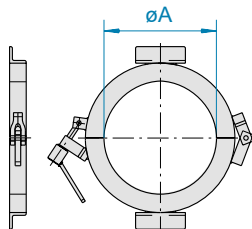
JACOB JacBox

FLANGING TOOLS

4020



- To create exact lengths on site
- Please also read and take into account our operating instructions
- From DN 80 to 175 mm only 1 angle piece welded
- From DN 200 to 400 mm 2 angle pieces welded



DN	ØA	kg	Powder-coated	
			Item no.	€
60	58	3.10	10061740	203,50
80	80	3.30	10081740	203,50
100	103	3.60	10101740	229,50
120	123	4.70	10121740	272,50
140	139	5.20	10141740	310,50
150	153	5.60	10151740	310,50
160	163	6.00	10161740	330,00
175	178	6.40	10171740	330,00
200	203	6.80	10201740	369,50
224	223	7.30	10221740	432,00
250	253	8.75	10251740	432,00
280	283	9.10	10281740	477,00
300	303	9.35	10301740	477,00
315	318	9.80	10311740	501,00
350	353	10.30	10351740	600,00
400	403	12.00	10401740	663,00
450	453	14.50	10451740	1158,00
500	503	17.00	10501740	1270,00



Operating instructions for flanging tools



SPRAY PAINT AND PAINT IN A TIN

4040/4050

- Spray paint for re-touching powder-coated (RAL 7032) or galvanised pipework
- 1 kg of paint with paintbrush for powder-coated pipework (RAL 7032)
- Note: Paint is a hazardous substance – separate packaging provided!
- Non-conductive
- Non food grade

Paint and zinc spray

RAL 7032		Galvanised	
Item no.	€	Item no.	€
100019900	23,50	100029900	23,50



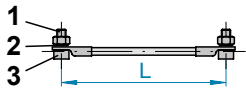
1 kg of paint, with paintbrush

RAL 7032	
Item no.	€
100019910	44,40



EARTHING WIRES, 16 MM²

1420



- To establish electrostatic continuity
For use in conjunction with pipework with earthing lugs
- Including hexagon nut M6, A2, toothed lock washer 6.4, A2 and hexagon bolt M6 x 16, A2

- 1 Hexagon nut, metric M6, A2
- 2 Toothed lock washer M6.4, A2
- 3 Hexagon bolt, metric M6 x 16, A2

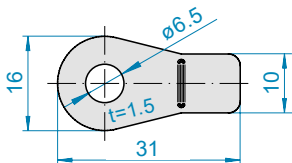
L = 120 mm		L = 230 mm		L = 330 mm		L = 430 mm	
Item no.	€/pack of ten	Item no.	€/pack of ten	Item no.	€/pack of five	Item no.	€/pack of five
1000079510	21,90	1000079610	27,70	1000079705	27,00	1000079805	29,20



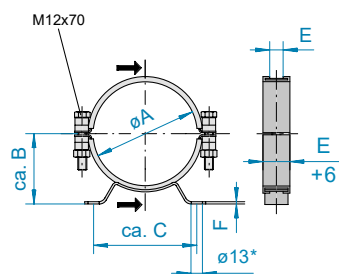
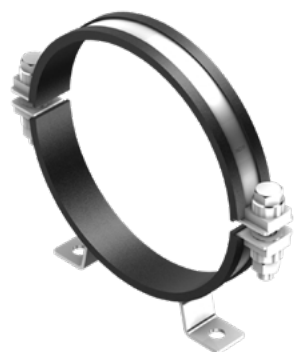
EARTHING LUGS

1415/1410

- To create electrostatic continuity in conjunction with the earthing wire
- Material 1.4301, material thickness 1.5 mm
- Available as a loose earthing lug for installation on site
- Including application through spot welding to pipework



Earthing lug, loose		Earthing lug, spot-welded	
Item no.	€/pack of ten	Item no.	€
1100379020	10,40	11003791	7,20



*DN 60: Hole diameter 7 mm

PIPE CLAMPS FOR WALL MOUNTING

3100

- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting

DN	ØA	B	C	E	F	Load (kN)		kg	Electro galvanised		Stainless steel	
						T1	T2		Item no.	€	Item no.	€
60	60	50	100	20x1	2			0.20	10062780	25,10	10063780	58,30
80	80	64	138	30x2.5	3	2.0	1.0	0.70	10082780	26,80	10083780	61,30
100	102	75	138	30x2.5	3	2.5	1.0	0.80	10102780	27,80	10103780	63,20
120	123	86	138	30x2.5	3	2.5	1.0	0.85	10122780	29,70	10123780	68,60
140	139	94	138	30x2.5	3	2.5	1.0	0.85	10142780	29,90	10143780	78,10
150	153	101	148	30x2.5	3	3.0	1.2	0.95	10152780	30,70	10153780	78,10
160	163	98.3	148	30x2.5	3	3.0	1.2	1.00	10162780	33,00	10163780	86,30
175	178	113	148	30x2.5	3	3.0	1.2	1.00	10172780	33,00	10173780	86,30
200	203	126	148	30x2.5	3	3.0	1.2	1.05	10202780	33,90	10203780	91,50
224	223	136	148	30x2.5	3	3.0	1.2	1.10	10222780	36,40	10223780	99,80
250	253	151	230	30x2.5	3	3.0	1.2	1.25	10252780	38,80	10253780	99,80
280	280	166	230	30x2.5	3	3.0	1.2	1.40	10282780	39,90	10283780	103,50
300	303	176	230	30x2.5	3	3.0	1.2	1.40	10302780	42,40	10303780	110,50
315	315	182	230	30x2.5	3	3.0	1.2	1.40	10312780	44,10	10313780	115,50
350	353	204	260	30x3	4	3.5	1.2	1.55	10352780	64,40	10353780	136,50
400	402	228	260	30x3	4	3.5	1.2	2.10	10402780	73,20	10403780	144,00
450	452	254	300	30x3	4	4.5	1.5	2.95	10452780	82,90	10453780	178,50
500	502	279	300	30x3	4	4.5	1.5	3.05	10502780	96,10	10503780	199,00
560	562	309	350	30x3	4	5.0	1.7	4.00	10562780	107,00	10563780	224,50
630	632	344	350	30x3	4	5.0	1.7	5.00	10632780	133,50	10633780	280,00
710	712	385	350	40x4	5			5.50	10712780	156,00	10713780	454,00
800	800	450	350	40x4	5			6.50	10802780	168,50	10803780	532,50

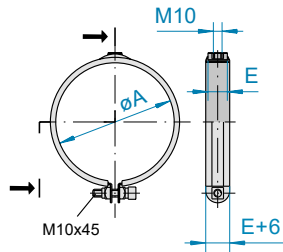


PIPE CLAMPS FOR CEILING MOUNTING

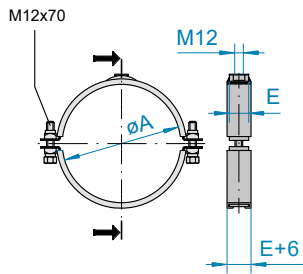
3090



- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting

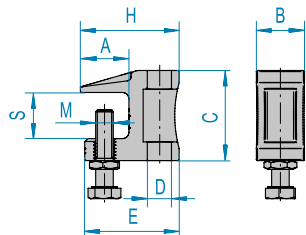


■ DN 60 to 300 mm



■ DN 315 to 800 mm

DN	ØA	E	Load (kN)	kg	Electro galvanised		Stainless steel	
					Item no.	€	Item no.	€
60	60	20x1.0		0.11	10062770	9,40	10063770	26,50
80	80	25x1.5	2.0	0.20	10082770	10,00	10083770	27,90
100	102	25x1.5	2.0	0.24	10102770	11,30	10103770	28,90
120	123	25x1.5	2.0	0.27	10122770	12,70	10123770	29,90
140	139	25x1.5	2.0	0.29	10142770	13,70	10143770	30,50
150	153	25x1.5	2.0	0.31	10152770	13,70	10153770	31,00
160	163	25x1.5	2.0	0.32	10162770	15,70	10163770	31,60
175	178	25x1.5	2.0	0.34	10172770	15,70	10173770	31,60
200	203	25x1.5	2.0	0.37	10202770	16,30	10203770	33,60
224	223	25x1.5	2.0	0.41	10222770	17,10	10223770	35,40
250	253	25x1.5	2.0	0.44	10252770	17,10	10253770	36,40
280	280	25x1.5	2.0	0.51	10282770	17,90	10283770	37,90
300	303	25x1.5	2.0	0.60	10302770	19,00	10303770	40,50
315	315	30x2.5	2.0	1.25	10312770	19,70	10313770	42,50
350	353	30x2.5	3.0	1.31	10352770	55,40	10353770	136,00
400	402	30x2.5	3.0	1.42	10402770	57,10	10403770	143,50
450	452	30x2.5	3.0	1.60	10452770	58,60	10453770	146,50
500	502	30x2.5	3.0	1.66	10502770	61,70	10503770	152,00
560	562	30x2.5	3.0	1.79	10562770	64,60	10563770	167,00
630	632	30x2.5	3.0	1.80	10632770	67,30	10633770	185,50
710	712	30x2.5		2.50	10712770	74,60	10713770	192,00
800	802	30x2.5		3.50	10802770	93,50	10803770	243,50

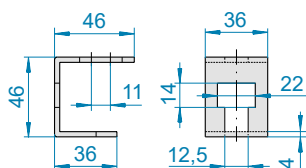
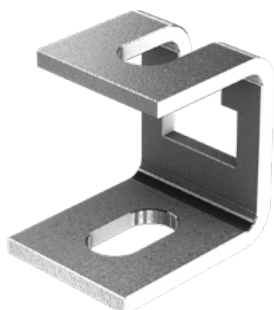


BEARING CLAMPS

3190

- For fixing pipes to steel girders (no welding or drilling required)
- Galvanised cast-iron bearing clamps (clamping width 0 to 20 mm)
- Bearing clamps, V2A (clamping width 0 to 16 mm)
- Fully equipped for the suspension of DN 60 to DN 300 pipes, size of through hole: M10

S	A	B	C	D	E	H	M	Cast iron, galvanised	
								Item no.	€/ pack of ten
0-20	23	21	42	11	41	44	10	1008277610	43,30



FIXING CLIPS

3110

- Electro galvanised
- Load 3.0 kN with a deformation of 5 mm

Item no.	€/pack of ten
1008277110	40,40



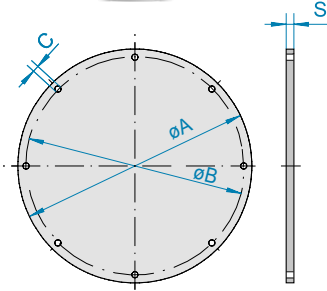
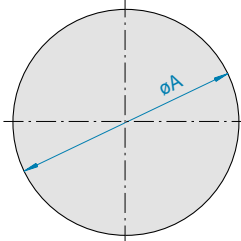
Hanger bolt, metric

HANGER BOLTS, METRIC

3120/3140/3150/3130

Item		Electro galvanised	
		Item no.	€
Threaded bolts, metric 1000 mm long	M 10	10082772	7,00
	M 12	10102772	7,50
Hexagon nuts, metric DIN EN ISO 4032	M 10	10082774	0,30
	M 12	10102774	0,30
Twin nuts 30 mm long	M 10	10082775	2,40
	M 12	10102775	2,80
Hanger bolts, metric M 10 x 100 mm	M 10	10082773	1,80
	M 12	10102773	2,00

Blank-off cover



E = No. of holes

F FOOD GRADE
EC 1935/2004 plus FDA compliant



BLANK-OFF COVER

1370

- For permanently closing off a pipe system
- For use in conjunction with U-shaped seal and pull-ring
- From DN 350 mm, also available for flange connections
- Pressure range restricted, particularly in the case of large diameters

Blank-off covers for pull-ring connections

DN	ØA	kg	1.5 mm stainless steel	F	2 mm stainless steel	F
			Item no.	€	Item no.	€
60	70	0.04	110637151	7,20		
80	92	0.05	110837151	9,30		
100	114	0.10	111037151	9,50		
120	134	0.10	111237151	10,40		
140	150	0.15	111437151	11,20		
150	164	0.15	111537151	12,50		
160	172	0.24	111637151	14,10		
175	189	0.20	111737151	14,10		
200	214	0.30	112037151	16,10		
224	234	0.30	112237151	17,30		
250	264	0.45	112537151	18,40		
280	292	0.83	112837151	18,50		
300	314	0.55	113037151	20,30		
315	327	1.10	113137151	22,40		
350	364	1.60			123537151	50,70
400	414	1.50			124037151	67,90
450	464	1.50			124537151	82,40
500	514	3.25			125037151	100,50
560	574	4.05			125637151	104,50
630	644	5.15			126337151	143,00

Blank-off cover for flange connections




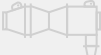
DN	ØA	ØB	C	E	S	kg	Stainless steel	F
							Item no.	€
350	435	405	11.5	8	6	7.00	20353723	254,50
400	484	448	11.5	12	6	8.70	20403723	271,50
450	534	497	11.5	12	6	10.60	20453723	278,50
500	584	551	11.5	12	6	12.70	20503723	323,50
560	664	629	14.0	16	6	16.30	20563723	439,50
630	734	698	14.0	16	6	20.00	20633723	635,50
710	814	775	14.0	16	6	24.50	20713723	900,50
800	904	861	14.0	24	6	30.30	20803723	1062,00
900	1004	958	14.0	24	6	37.30	209937230090	1155,00
1000	1105	1067	14.0	24	6	45.20	209937230100	1260,00
1120	1245	1200	18.0	32	6	57.30	209937230112	1328,00
1250	1375	1337	18.0	32	6	69.90	209937230125	1462,00



JACOB SILENCERS AND CYCLONES –
COMPLETE THE FUNCTIONALITY OF THE
JACOB MODULAR SYSTEM



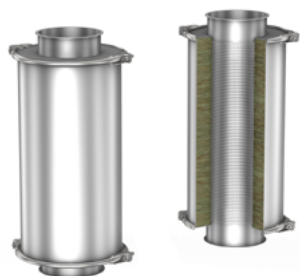
SILENCERS AND CYCLONES

Technical information	236	
Silencers	238	
Cyclones	241	
Horizontal cyclone	243	



SILENCERS AND CYCLONES

Technical information



SILENCERS

In pipework systems, noticeable noise cannot be avoided. To get your production systems to whisper, we offer silencers with JACOB-compatible elements in our standard range. Silencers are available in lengths of 500, 1000 and 1500 mm and in diameters of 80-630 mm. They are made in a variety of materials with a wall thickness of 2 mm. The ends are lipped but are also available with a loose flange connection from a diameter of 350 mm. The sound-absorbing material applied on the inside consists of non-inflammable mineral wool with a non-woven glass covering. As a component of the JACOB modular pipework system, the silencers are easy to disassemble and assemble for cleaning or to replace the mineral wool.

We are pleased to accommodate special customer requirements. If desired, we can also assist you in selecting the right design variant and the correct dimensions for your acoustic insulation.

The advantages for you:

- Easy to incorporate in the JACOB modular system
- Broad range of standard products with a variety of different diameters, materials and damping lengths
- Replaceable insulation through the use of our pull-ring system
- Accommodation of special customer requirements, such as special lengths
- Special colours
- Mineral wool heat-resistant to 200°C



CYCLONES

Utilising centrifugal force, cyclones within a pipework system ensure that solid particles are separated out. Cyclones are often used in industry to recover raw materials from the production process or generally to remove solid particles before recirculating the air. The range of applications is therefore accordingly wide. Our cyclones are used in the timber, plastics and tobacco industries, for example. Our standard cyclones are available in diameters ranging from 250 to 1000 mm with lipped connections, and with diameters from 1120 to 2300 mm with welded-on flanges. For diameters up to 1250 mm, the material thickness can be 2 or 3 mm, and for larger diameters the material thickness is 3 mm. Cyclones are available in powder-coated, galvanised or stainless steel versions. Please note that cyclones are passive components. The way they work depends on the volumetric flow, the pressure loss and the material load and particle size.

The nominal diameters refer to the diameter of the cyclone body. The size of the cyclone inlet can be dimensioned with a diameter of between 80 and 900 mm.

The volumetric flow indicated applies for a flow velocity of approx. 20-24 m/sec in the pipe system at the cyclone connection.

The separation rate and pressure loss were determined based on a material load of 1 kg/m³.

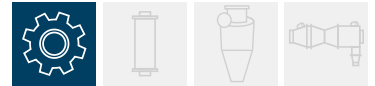
We custom-build cyclones according to your individual requirements and we also help you to select the right cyclone for the job. Further models and diameters are available on request. Please call us for further information.

The advantages for you:

- Easy to incorporate in the JACOB modular system
- Easy maintenance through modular design
- Also available in stainless steel for contact with food
- Accommodation of special customer requirements
- Special colours
- Leg supports on request



Explanatory video about cyclones



HORIZONTAL CYCLONE

The patented horizontal cyclone from JACOB fits in almost every pipe system. Its design makes it easy to integrate in straight pipelines. This makes it the first choice when retrofitting a cyclone. But it also proves its worth in new pipework systems, where it reliably cleans the airflow of particles and sparks.

These horizontal cyclones belong to the JACOB modular pipework system. They can be integrated within your system as required:

- As a pre-filter, to clean the air of dust particles, and thus extend the life of filter systems
- To separate large-volume, low-density particles, such as in the medical industry

The advantages for you:

- Their elongated form is easy to integrate in straight pipes
- Their modular design makes light work of replacing worn components
- As passive components they do not require their own power supply
- Proven JACOB quality

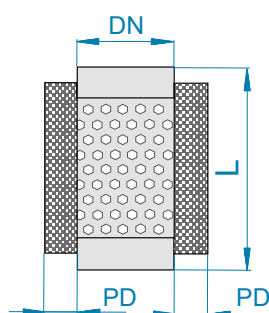
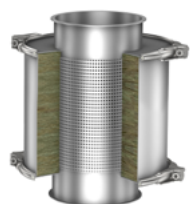


Explanatory video about horizontal cyclone



SILENCERS AND CYCLONES

Silencers



PD = insulation thickness

SILENCERS, DAMPING LENGTH 400 MM

1470/6470

Technical data

DN	L	PD	Volumetric flow at v_{\max} (m ³ /h)	Air speed v_{\max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
80	486	100	250	15	18	32	17
100	486	100	400	15	15	34	14
120	486	100	600	15	13	35	11
140	486	100	800	15	12	36	10
150	486	100	900	15	11	37	9
175	486	100	1200	15	10	38	8
200	486	100	1700	15	9	40	7
224	486	100	2100	15	9	41	6
250	486	100	2600	15	7	42	5
300	486	100	3800	15	6	43	5
350	486	100	5100	15	5	44	4
400	486	100	6700	15	5	46	3

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200805012500	445,50			4200805022500	490,50		
100	4201005012500	456,00			4201005022500	510,50		
120	4201205012500	472,50			4201205022500	533,50		
140	4201405012500	509,50			4201405022500	576,50		
150	4201505012500	535,00			4201505022500	607,50		
175	4201705012500	599,00			4201705022500	679,50		
200	4202005012500	651,50			4202005022500	741,00		
224	4202205012500	711,00			4202205022500	810,00		
250	4202505012500	764,50			4202505022500	878,00		
300	4203005012500	840,00			4203005022500	978,00		
350	4203505012500	912,00	4203505012503	1009,00	4203505022500	1074,00	4203505022503	1192,00
400	4204005012500	996,50	4204005012503	1112,00	4204005022500	1181,00	4204005022503	1295,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200805032500	607,00		
100	4201005032500	636,50		
120	4201205032500	663,50		
140	4201405032500	706,00		
150	4201505032500	747,00		
175	4201705032500	812,50		
200	4202005032500	883,00		
224	4202205032500	957,00		
250	4202505032500	1027,00		
300	4203005032500	1130,00		
350	4203505032500	1228,00	4203505032503	1348,00
400	4204005032500	1338,00	4204005032503	1473,00



SILENCERS, DAMPING LENGTH 900 MM

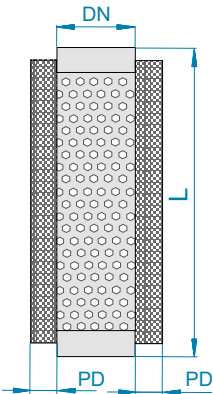
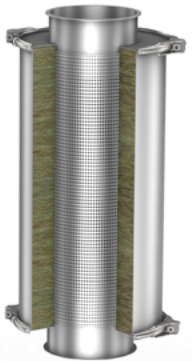
1470/6470

Technical data

DN	L	PD	Volumetric flow at v_{\max} (m ³ /h)	Air speed v_{\max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_w (A)	Pressure loss (Pa)
80	984	100	270	15	37	32	38
100	984	100	400	15	30	34	31
120	984	100	600	15	25	35	26
140	984	100	800	15	24	36	22
150	984	100	900	15	22	37	20
175	984	100	1200	15	21	38	18
200	984	100	1700	15	18	40	15
224	984	100	2100	15	17	41	14
250	984	100	2600	15	15	42	12
300	984	100	3800	15	13	43	10
350	984	100	5100	15	12	44	9
400	984	100	6700	15	11	46	8
450	984	100	8500	15	8	47	7

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200810012500	499,00			4200810022500	591,00		
100	4201010012500	514,00			4201010022500	620,50		
120	4201210012500	535,00			4201210022500	652,50		
140	4201410012500	583,00			4201410022500	712,50		
150	4201510012500	609,00			4201510022500	744,00		
175	4201710012500	687,50			4201710022500	831,50		
200	4202010012500	736,50			4202010022500	902,00		
224	4202210012500	800,50			4202210022500	974,50		
250	4202510012500	858,50			4202510022500	1053,00		
300	4203010012500	946,00			4203010022500	1167,00		
350	4203510012500	1031,00	4203510012503	1130,00	4203510022500	1286,00	4203510022503	1403,00
400	4204010012500	1135,00	4204010012503	1248,00	4204010022500	1416,00	4204010022503	1559,00
450	4204510012500	1210,00	4204510012503	1338,00	4204510022500	1524,00	4204510022503	1687,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200810032500	733,50		
100	4201010032500	769,50		
120	4201210032500	810,50		
140	4201410032500	866,50		
150	4201510032500	912,50		
175	4201710032500	1008,00		
200	4202010032500	1086,00		
224	4202210032500	1166,00		
250	4202510032500	1255,00		
300	4203010032500	1383,00		
350	4203510032500	1514,00	4203510032503	1635,00
400	4204010032500	1670,00	4204010032503	1807,00
450	4204510032500	1799,00	4204510032503	1955,00



PD = insulation thickness

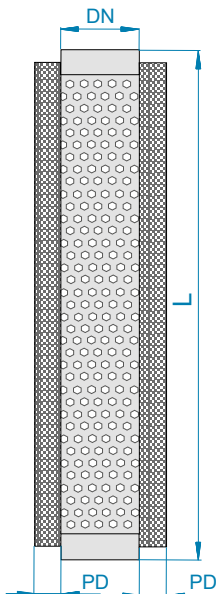
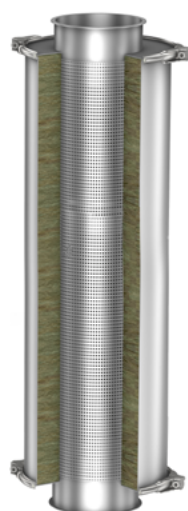


SILENCERS AND CYCLONES

Silencers

SILENCERS, DAMPING LENGTH 1400 MM

1470/6470



PD = insulation thickness

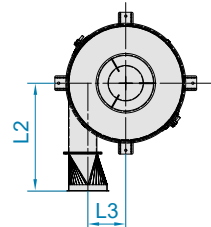
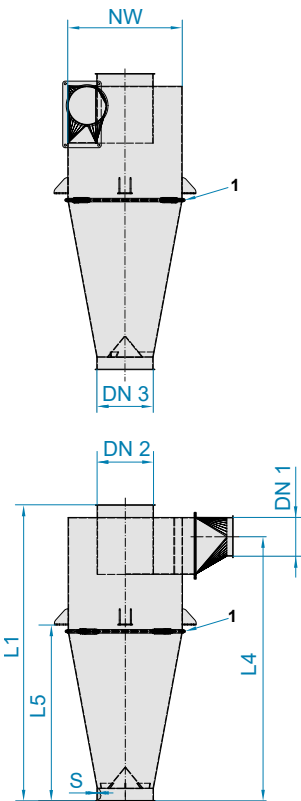
Technical data

DN	L	PD	Volumetric flow at v_{max} (m ³ /h)	Air speed v_{max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
150	1484	100	900	15	34	37	32
175	1484	100	1200	15	32	38	27
200	1484	100	1700	15	27	40	24
224	1484	100	2100	15	26	41	21
250	1484	100	2600	15	23	42	19
300	1484	100	3800	15	30	43	16
350	1484	100	5100	15	18	44	14
400	1484	100	6700	15	16	46	12
450	1484	100	8500	15	13	47	11
500	1484	100	10600	15	12	48	10
560	1484	100	13300	15	12	49	9
630	1484	100	15800	15	11	50	8

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	4201515012500	689,50			4201515022500	878,00		
175	4201715012500	771,00			4201715022500	980,00		
200	4202015012500	827,50			4202015022500	1053,00		
224	4202215012500	895,50			4202215022500	1143,00		
250	4202515012500	957,00			4202515022500	1221,00		
300	4203015012500	1061,00			4203015022500	1365,00		
350	4203515012500	1157,00	4203515012503	1256,00	4203515022500	1501,00	4203515022503	1624,00
400	4204015012500	1263,00	4204015012503	1379,00	4204015022500	1647,00	4204015022503	1789,00
450	4204515012500	1348,00	4204515012503	1481,00	4204515022500	1779,00	4204515022503	1938,00
500	4205015012500	1701,00	4205015012503	1855,00	4205015022500	2417,00	4205015022503	2608,00
560	4205615012500	1760,00	4205615012503	1928,00	4205615022500	2480,00	4205615022503	2687,00
630	4206315012500	1908,00	4206315012503	2096,00	4206315022500	2728,00	4206315022503	2967,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
150	4201515032500	1086,00		
175	4201715032500	1198,00		
200	4202015032500	1289,00		
224	4202215032500	1392,00		
250	4202515032500	1489,00		
300	4203015032500	1653,00		
350	4203515032500	1806,00	4203515032503	1985,00
400	4204015032500	1977,00	4204015032503	2118,00
450	4204515032500	2141,00	4204515032503	2303,00
500	4205015032500	2446,00	4205015032503	2726,00
560	4205615032500	2645,00	4205615032503	2894,00
630	4206315032500	2917,00	4206315032503	3170,00

Cyclones



- 1 Connection between top and bottom section of cyclone:
- Pull-ring connection
NW 250-630 mm
 - Flange connection
NW 710-2300 mm
 - From DN 710 mm
with a domed cover

CYCLONES

1480/6480

- Please also read and take into account the technical information given at the beginning of this chapter
- NW 2000 and 2300 mm spray-primed
- Up to NW 1800 mm powder-coated

Technical data

NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
250	80	120	120	650	262	87	560	375	407	1020	>10
300	100	150	150	800	302	102	699	475	636	1012	>10
350	120	175	175	924	347	117	814	550	865	924	>12
400	140	200	200	1050	386	131	931	625	1130	980	>12
450	150	224	224	1170	426	151	1044	695	1418	984	>13
500	175	250	250	1300	471	164	1161	775	1766	980	>13
560	200	280	280	1450	516	181	1299	865	2216	980	>14
630	224	300	300	1550	576	204	1389	895	2543	975	>15
710	250	350	350	1800	647	232	1474	1040	3462	978	>16
800	280	400	400	2050	717	262	1710	1200	4522	980	>18
900	300	450	450	2300	802	302	1949	1350	5723	980	>18
1000	350	500	500	2550	887	327	2174	1500	7065	980	>19

Inlets and outlets with 6 mm lip, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		2 mm galvanised		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
250	4202002512255	982,50	4203002512255	1229,00	4202002522255	1220,00	4203002522255	1489,00
300	4202003012255	1105,00	4203003012255	1380,00	4202003022255	1371,00	4203003022255	1674,00
350	4202003512255	1214,00	4203003512255	1515,00	4202003522255	1507,00	4203003522255	1837,00
400	4202004012255	1247,00	4203004012255	1559,00	4202004022255	1549,00	4203004022255	1892,00
450	4202004512255	1352,00	4203004512255	1687,00	4202004522255	1679,00	4203004522255	2043,00
500	4202005012255	1449,00	4203005012255	1811,00	4202005022255	1799,00	4203005022255	2192,00
560	4202005612255	1551,00	4203005612255	1938,00	4202005622255	1927,00	4203005622255	2349,00
630	4202006312255	1674,00	4203006312255	2090,00	4202006322255	2078,00	4203006322255	2533,00
710	4202007112255	1798,00	4203007112255	2251,00	4202007122255	2236,00	4203007122255	2726,00
800	4202008012255	2427,00	4203008012255	3031,00	4202008022255	3013,00	4203008022255	3673,00
900	4202009012255	2595,00	4203009012255	3240,00	4202009022255	3218,00	4203009022255	3924,00
1000	4202010012255	3234,00	4203010012255	4039,00			4203010022255	4897,00

Inlets and outlets with 6 mm lip, stainless steel, shotblasted or pickled and passivated

NW	2 mm 1.4301 (304) shotblasted		2 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€
250	4202002532255	1857,00	4202002542255	2355,00
300	4202003032255	2198,00	4202003042255	2793,00
350	4202003532255	2538,00	4202003542255	3221,00
400	4202004032255	2767,00	4202004042255	3509,00
450	4202004532255	2996,00	4202004542255	3799,00
500	4202005032255	3216,00	4202005042255	4076,00
560	4202005632255	3432,00	4202005642255	4350,00
630	4202006332255	3652,00	4202006342255	4629,00
710	4202007132255	3882,00	4202007142255	4919,00
800	4202008032255	4708,00	4202008042255	5971,00
900	4202009032255	5920,00	4202009042255	7505,00
1000	4202010032255	7131,00	4202010042255	9043,00



SILENCERS AND CYCLONES

Cyclones



Product similar to picture

Technical data

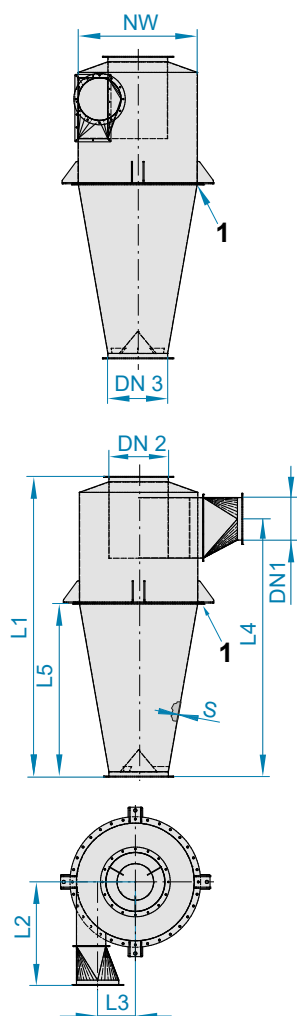
NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
1120	400	560	560	2900	987	362	2449	1650	8862	1003	>19
1250	450	630	630	3250	1097	402	2774	1900	11216	998	>21
1400	500	710	710	3650	1217	452	3149	2130	14246	980	>22
1600	560	800	800	4100	1387	522	3569	2400	18086	980	>24
1800	630	900	900	4600	1552	587	4034	2700	22891	980	>25
2000	710	1000	1000	5100	1717	647	4493	3000	28260	980	>28
2300	800	1120	1120	5850	1967	752	5198	3450	37374	980	>29

Inlets and outlets with welded-on flanges, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€
1120	4202011212255	3650,00	4203011212255	4563,00	4203011222255	5527,00
1250	4202012512255	4287,00	4203012512255	5359,00	4203012522255	6491,00
1400			4203014012255	7404,00	4203014022255	8971,00
1600			4203016012255	8663,00		
1800			4203018012255	9629,00		
2000			4203020012255	11265,00		
2300			4203023012255	12276,00		

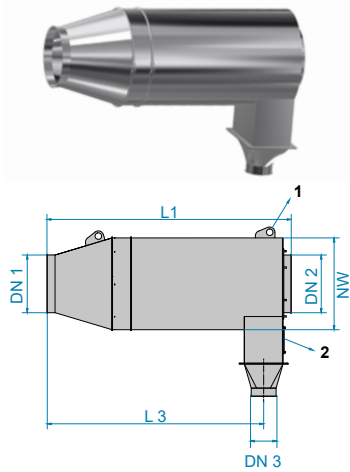
Inlets and outlets with welded-on flanges, stainless steel, pickled and passivated

NW	2 mm 1.4301 (304) pickled and passivated		3 mm 1.4301 (304) pickled and passivated		2 mm 1.4571 (316Ti) pickled and passivated		3 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
1120	4202011232255	8337,00	4203011232255	10419,00	4202011242255	10519,00	4203011242255	13143,00
1250	4202012532255	9790,00	4203012532255	12237,00	4202012542255	12352,00	4203012542255	15441,00
1400			4203014032255	15726,00			4203014042255	19844,00
1600			4203016032255	16823,00			4203016042255	21226,00
1800			4203018032255	19679,00			4203018042255	24834,00
2000			4203020032255	23027,00			4203020042255	29054,00
2300			4203023032255	26482,00			4203023042255	33417,00

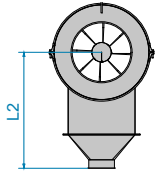


- 1 Connection between top and bottom section with JACOB flanges
- DN 1, 2 and 3 with welded flanges; hole pattern off-axis
 - Dimensions of JACOB flanges see chapter 12
 - From a nominal diameter of 2000 mm: three-part cyclone

Horizontal cyclone



- 1 From NW 500, two transport lugs
- 2 From NW 500, there is an inspection opening here



Connection type:

- Pull-ring connection
NW 120 to 630 mm
- Flange connection
NW 710 to 1400 mm
- From DN 500
with inspection opening

HORIZONTAL CYCLONE

1481

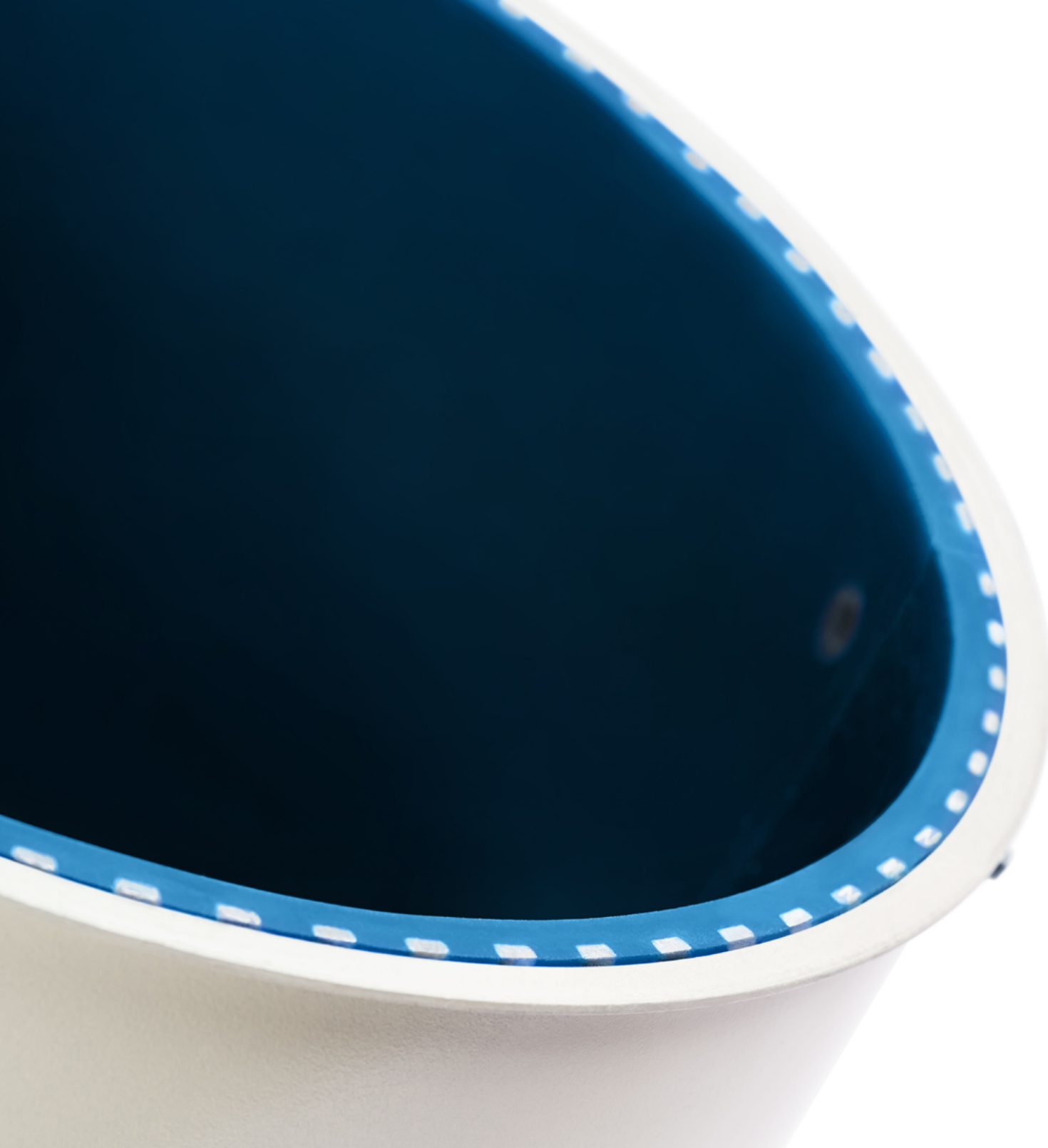
- Please also read and take into account the technical information given at the beginning of this chapter

Technical data (dimensions for 2.0 mm material thickness)
available with powder coating or in stainless steel

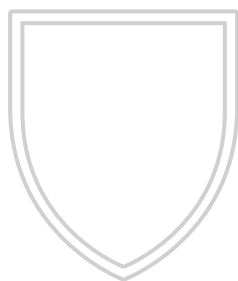
NW	DN 1	DN 2	DN 3	L 1	L 2	L 3	Volumetric flow m ³ /h	Pressure loss Pa
120	80	80	80	404	206	324	360	1050
175	100	100	80	496	239	408	560	1050
200	120	120	80	576	267	484	810	1050
250	150	150	80	696	359	594	1270	1050
300	175	175	150	796	394	686	1730	1050
350	200	200	150	896	429	777	2260	1050
400-1	224	224	150	976	457	850	2830	1050
400-2	250	250	150	1096	549	960	3510	1050
500	300	300	150	1296	619	1143	5080	1050
560	350	350	150	1496	689	1327	6900	1050
630	400	400	350	1692	807	1506	9050	1050
710	450	450	350	1892	877	1689	11450	1050
800	500	500	350	2092	947	1873	14100	1050
1000-1	560*	560*	350*	2332	1081	2092	17730	1050
1000-2	630*	630*	350*	2612	1179	2349	22450	1050
1250	710*	710*	350*	2932	1291	2642	28500	1050
1400	800*	800*	350*	3292	1517	2972	36200	1050

*3 mm

DN1	2 mm powder-coated		2 mm Stainless steel	
	Item no.	€	Item no.	€
80	4201200812270	1336,00	4201200832270	2598,00
100	4201801012270	1506,00	4201801032270	2928,00
120	4202001212270	1626,00	4202001232270	3163,00
150	4202501512270	1846,00	4202501532270	3591,00
175	4203001712270	2076,00	4203001732270	4038,00
200	4203502012270	2224,00	4203502032270	4325,00
224	4204002212270	2349,00	4204002232270	4569,00
250	4204002512270	2389,00	4204002532270	4649,00
300	4205003012270	3028,00	4205003032270	5890,00
350	4205603512270	3344,00	4205603532270	6506,00
400	4206304012270	3748,00	4206304032270	7288,00
450	4207204512270	4640,00	4207204532270	9025,00
500	4208005012270	5432,00	4208005032270	10569,00
560	4210005612270	7991,00	4210005632270	15542,00
630	4210006312270	10598,00	4210006332270	20617,00
710	4212507112270	11722,00	4212507132270	22805,00
800	4214008012270	12817,00	4214008032270	24696,00



GREATER EFFICIENCY WITH THE
JACOB WEAR PROTECTION RANGE



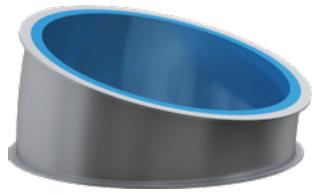
WEAR PROTECTION

Technical information	246	
Inlet pieces	248	
Pipes	248	
Segments	250	
Forks	252	
Cone pieces	252	
Two-way valves with inlet collar	253	
Cast-iron pipework	254	
Special range hot-dip galvanised 3 mm	256	



WEAR PROTECTION

Technical information



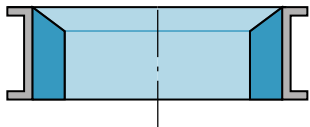
DURABLE DESIGN – WEAR PROTECTION RANGE

Wide ranging applications in industry and agriculture are associated with high wear in pipework systems. In view of this, we developed the modular wear protection range DURABLE DESIGN.

The wear protection lining is glued or bolted in the standard range and consists of a polyurethane base. The materials differ however in their various properties. The products are combined with our modular pipework system.

In the standard range, we offer diameters DN 150 mm to 350 mm with bolted wear protection and diameters DN 100 mm to 350 mm with glued wear protection. Larger diameters than 350 are generally available on request. Polyurethane offers the advantage that it has a flexible yet wear-resistant structure. As a result, it absorbs the impact energy from deflections in particular and thereby extends the lifetime.

DURABLE DESIGN is frequently used in industry, e.g. for conveying cement, lime, sand, grit, concrete or mineral wool, and in agriculture, e.g. for conveying grain, soya, maize or barley.



Thanks to the modular JACOB system, you can simply replace worn pipe components with lined ones from the DURABLE DESIGN line. You can still use pull-rings and seals from the standard range. To ensure optimal product flow, we have an inlet piece (see drawing) in our range with a chamfered lining which is fixed particularly securely in place. It is recommended that this piece is fitted at every place where lined pipework begins.

**ELECTROSTATICALLY
DISSIPATIVE WEAR
PROTECTION –
DEKRA CERTIFIED**

Version	Glued wear protection		Bolted wear protection		
Pipework diameter	From DN 100 mm		From DN 150 mm		
Wear protection material	PU ochre	Kryptane red	Blue Ox	Kryptane green	Kryptane blue
Material thickness	6 mm	6 mm	6.5 mm	6 mm	6 mm
Expanded metal	–	–	■	■	■
Food grade	–	–	–	■	–
Temperature resistance	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C	-30°C to +80°C
Shore hardness A	70	80	85	83	83
Electrostatic conductivity	–	–	–	–	■
Application	For high impact wear due to coarse products without sharp edges.	With high sliding and impact wear cause by fine-grained products up to 5 mm, both dry and wet, at an angle of incidence of up to about 30°.	Mainly for the grain and concentrated feed industry, for light to medium wear.	For high sliding and impact wear due to coarse products up to 50 mm. For a higher angle of incidence of 30 to 60°.	For high sliding and impact wear, such as in the grain and concentrated feed industry, for conveying products with increased dust content.
Feature	Flexible use, suitable for light and medium wear.	Low friction coefficient, consequently no caking of the products and good sliding properties.	Focus on grain and concentrated feed.	Universal use, good resistance including to coarse and sharp-edged products.	Flame-resistant and electrically conductive (in installed state DEKRA tested), good antifriction properties.

F FOOD GRADE
EC 1935/2004 plus FDA compliant



Your benefits with DURABLE DESIGN

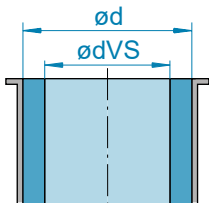
- Wear protection in a modular system
- Perfect for combining with the JACOB pull-ring system
- Flexibly replaceable
- Wide product spectrum, wear protection possible with various materials from DN 100 mm
- Easy to assemble
- Longer lasting when conveying abrasive materials
- Choice of 6 different materials in the standard range
- Other linings available on request

Technical data

For the DURABLE DESIGN wear protection range, JACOB uses pipe components from the modular system which are lined with different materials:

JACOB pipework system with a lip for pull-ring connection

- Wall thicknesses of 1.5 and 2 mm in the standard range. Other wall thicknesses are available on enquiry.
- Powder-coated RAL 7032 in the standard range
- Special colours, galvanised pipe components or stainless steel on request
- Bolted wear protection: DN 150–350 mm in the standard range, DN >350 mm on request
- Glued wear protection: DN 100–350 mm in the standard range, DN >350 mm on request



Internal diameter 1.5 mm pipe components with wear protection lining

DN	Ø d	Ø dVS		
		Material thickness		
		approx. 6 mm	approx. 6.5 mm	approx. 8 mm
150	150	138	137	134
200	200	188	187	184
250	250	238	237	234
300	300	288	287	284
350	350	338	337	334

Internal diameter 2 mm pipe components with wear protection lining

DN	Ø d	Ø dVS		
		Material thickness		
		approx. 6 mm	approx. 6.5 mm	approx. 8 mm
150	149	137	136	133
200	199	187	186	183
250	249	237	236	233
300	299	287	286	283
350	349	337	336	333

All internal diameters (dVS) are approximate dimensions

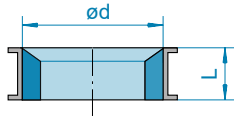
F
From DN 150 mm
Rhino Hyde blue
8 mm
■
■
-20°C to +80°C
85
–
Recommended application: For conveying bulk goods without sharp edges, with high sliding and impact wear.
Food grade, universally usable and high quality.

Product range DN > 350 mm on request	PU ochre and Kryptane red (glued)	Blue Ox, Kryptane green, Rhino Hyde blue and Kryptane blue (bolted)
Inlet piece 50 mm	DN 100–350	DN 150–350
Pipes 50–1000 mm	DN 100–350	DN 150–350
Pipes 2000 mm	DN 100–350	–
Segments 5°–30°	DN 100–350	DN 150–350
Segments 45°	DN 100–350	DN 150–350 Special segment (with straight back)
Bends R = 1D, 90°	DN 100–350	–
Bends R = 2D, 30°–90°	DN 100–350	–
Push-in pipes 200–1000 mm	DN 100–350	–
Forks 30° and 45°	DN 100–350	DN 150–350
Symmetrical forks 60° and 90°	DN 100–350	DN 150–350
Cone pieces	DN 100–350	Special cone (with 50 mm connecting flange) DN 150–350
Connecting flanges with loose flange	DN 100–350	DN 150–350
Adapters with loose flange	DN 100–350	–
Spouts from square to round	DN 100–350	DN 150–350
Spouts from square to round 45° and 60°	DN 100–350	DN 150–350
Two-way valves with inlet collar, hand-operated	–	DN 150–350



WEAR PROTECTION

Inlet pieces / Pipes



L = 50 mm

INLET PIECES – WEAR PROTECTION LINING

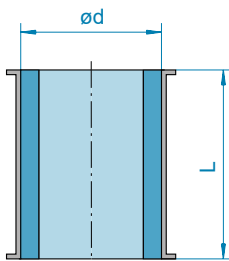
1490

50 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121514000952	62,40	121514000951	66,70	121514000950	75,30
200	122014000952	65,50	122014000951	71,20	122014000950	82,60
250	122514000952	68,10	122514000951	74,90	122514000950	89,30
300	123014000952	72,30	123014000951	80,40	123014000950	97,50
350	123514000952	80,90	123514000951	90,60	123514000950	111,00

50 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121524000952	66,70	121524000951	70,60	121524000950	79,60
200	122024000952	71,20	122024000951	76,40	122024000950	88,20
250	122524000952	73,50	122524000951	80,60	122524000950	94,90
300	123024000952	78,80	123024000951	87,00	123024000950	104,50
350	123524000952	86,60	123524000951	96,20	123524000950	117,00



200 mm long: L = 200 mm
 500 mm long: L = 486 mm
 1000 mm long: L = 984 mm

PIPES – WEAR PROTECTION LINING

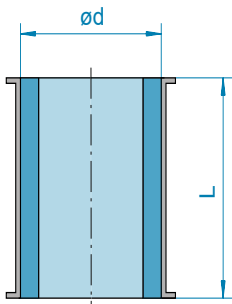
1492

200 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510400952	92,10	121510400951	108,50	121510400950	144,50
200	122010400952	103,00	122010400951	125,50	122010400950	172,00
250	122510400952	112,50	122510400951	141,00	122510400950	198,50
300	123010400952	124,50	123010400951	158,00	123010400950	226,00
350	123510400952	140,50	123510400951	178,50	123510400950	258,00

200 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520400952	101,50	121520400951	118,00	121520400950	154,00
200	122020400952	113,00	122020400951	135,50	122020400950	182,50
250	122520400952	122,50	122520400951	150,00	122520400950	208,50
300	123020400952	141,50	123020400951	174,00	123020400950	244,00
350	123520400952	165,50	123520400951	203,00	123520400950	283,00



200 mm long: L = 200 mm
 500 mm long: L = 486 mm
 1000 mm long: L = 984 mm

500 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510300952	154,00	121510300951	195,00	121510300950	280,50
200	122010300952	181,00	122010300951	234,50	122010300950	349,00
250	122510300952	203,00	122510300951	270,50	122510300950	413,50
300	123010300952	227,50	123010300951	307,00	123010300950	480,50
350	123510300952	255,00	123510300951	348,00	123510300950	549,00

500 mm long, 2 mm galvanised

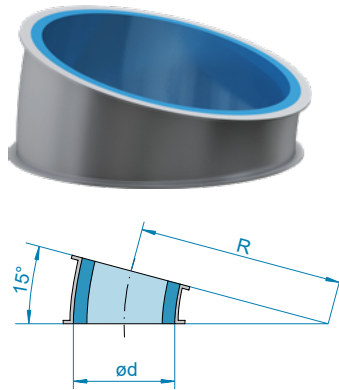
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520300952	132,50	121520300951	150,00	121520300950	184,00
200	122020300952	200,50	122020300951	254,00	122020300950	371,00
250	122520300952	221,50	122520300951	289,00	122520300950	433,50
300	123020300952	251,50	123020300951	332,50	123020300950	507,00
350	123520300952	302,00	123520300951	395,50	123520300950	598,50

1000 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510200952	268,50	121510200951	348,50	121510200950	521,00
200	122010200952	313,00	122010200951	420,50	122010200950	650,50
250	122510200952	358,00	122510200951	491,50	122510200950	778,00
300	123010200952	404,00	123010200951	565,00	123010200950	909,00
350	123510200952	461,00	123510200951	649,00	123510200950	1050,00

1000 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520200952	226,00	121520200951	266,00	121520200950	353,00
200	122020200952	350,00	122020200951	459,00	122020200950	690,50
250	122520200952	392,00	122520200951	527,50	122520200950	816,00
300	123020200952	446,50	123020200951	609,00	123020200950	957,00
350	123520200952	542,00	123520200951	731,00	123520200950	1138,00



SEGMENTS – WEAR PROTECTION LINING

1494/1496/1498/1500

5°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121513000952	78,50	121513000951	83,90	121513000950	95,60
200	690	122013000952	88,20	122013000951	97,10	122013000950	116,50
250	635	122513000952	97,00	122513000951	108,00	122513000950	130,50
300	625	123013000952	114,00	123013000951	127,50	123013000950	156,00
350	350	123513000952	128,00	123513000951	140,00	123513000950	166,00

5°, 2 mm galvanised

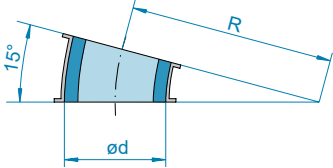
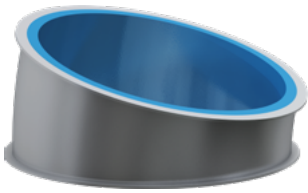
DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121523000952	81,90	121523000951	87,30	121523000950	99,20
200	690	122023000952	96,30	122023000951	105,50	122023000950	125,00
250	635	122523000952	109,00	122523000951	120,00	122523000950	143,50
300	625	123023000952	129,50	123023000951	143,00	123023000950	172,00
350	350	123523000952	131,00	123523000951	143,50	123523000950	167,00

15°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	250	121513100952	101,50	121513100951	110,00	121513100950	127,50
200	270	122013100952	112,00	122013100951	124,00	122013100950	151,50
250	310	122513100952	126,00	122513100951	143,00	122513100950	180,50
300	310	123013100952	145,00	123013100951	169,00	123013100950	215,00
350	350	123513100952	173,00	123513100951	202,50	123513100950	266,00

15°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	250	121523100952	104,50	121523100951	113,00	121523100950	131,00
200	270	122023100952	120,00	122023100951	132,00	122023100950	160,00
250	310	122523100952	138,50	122523100951	156,00	122523100950	192,50
300	310	123023100952	161,00	123023100951	184,00	123023100950	232,00
350	350	123523100952	175,50	123523100951	206,00	123523100950	267,00



30°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	175	121513200952	145,50	121513200951	158,50	121513200950	183,50
200	180	122013200952	162,00	122013200951	180,50	122013200950	217,50
250	230	122513200952	183,00	122513200951	210,50	122513200950	268,50
300	230	123013200952	205,50	123013200951	241,50	123013200950	318,00
350	350	123513200952	257,00	123513200951	312,50	123513200950	431,50

30°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	175	121523200952	150,00	121523200951	162,50	121523200950	187,50
200	180	122023200952	173,00	122023200951	190,50	122023200950	228,00
250	230	122523200952	198,50	122523200951	225,00	122523200950	284,50
300	230	123023200952	225,00	123023200951	262,50	123023200950	339,00
350	350	123523200952	262,00	123523200951	318,00	123523200950	434,00

45°, 2 mm powder-coated

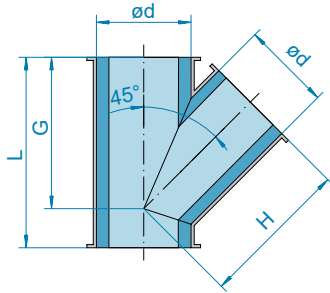
DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121513300952	185,00	121513300951	199,50	121513300950	225,50
200	195	122013300952	212,00	122013300951	233,00	122013300950	278,50
250	195	122513300952	225,00	122513300951	251,50	122513300950	309,00
300	205	123013300952	249,00	123013300951	284,00	123013300950	357,50
350	350	123513300952	389,50	123513300951	456,50	123513300950	600,50

45°, 2 mm galvanised

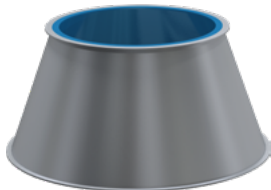
DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121523300952	189,50	121523300951	202,50	121523300950	228,50
200	195	122023300952	228,00	122023300951	249,50	122023300950	295,50
250	195	122523300952	243,00	122523300951	269,00	122523300950	327,50
300	205	123023300952	272,50	123023300951	307,00	123023300950	381,00
350	350	123523300952	389,50	123523300951	457,50	123523300950	598,00



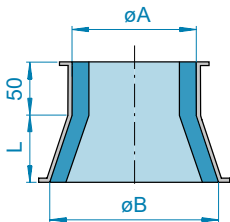
WEAR PROTECTION Forks / Cone pieces



See chapter 5 for fork dimensions



Product similar to picture



FORKS – WEAR PROTECTION LINING

1502

45°, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121512200952	370,50	121512200951	421,00	121512200950	530,00
200	122012200952	470,00	122012200951	558,50	122012200950	750,50
250	122512200952	553,50	122512200951	673,00	122512200950	928,50
300	123012200952	668,50	123012200951	839,00	123012200950	1207,00
350	123512200952	819,00	123512200951	1069,00	123512200950	1604,00

45°, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121522200952	389,50	121522200951	440,50	121522200950	550,50
200	122022200952	497,00	122022200951	586,50	122022200950	781,50
250	122522200952	591,00	122522200951	712,50	122522200950	971,00
300	123022200952	721,50	123022200951	893,50	123022200950	1266,00
350	123522200952	846,00	123522200951	1099,00	123522200950	1638,00

CONE PIECES – WEAR PROTECTION LINING

1504

2 mm powder-coated

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150-200	100	110014610952*	242,00	110014610951*	262,00	110014610950*	303,00
150-250	150	110014620952*	262,50	110014620951*	291,50	110014620950*	352,00
150-300	200	110014630952*	302,00	110014630951*	348,50	110014630950*	453,00
200-250	120	120014700952	269,50	120014700951	298,50	120014700950	362,00
200-300	150	120014710952	296,00	120014710951	338,50	120014710950	427,50
250-300	150	120014750952	301,50	120014750951	345,50	120014750950	440,50
250-350	200	120014840952	329,50	120014840951	375,50	120014840950	478,00
300-350	200	120014800952	368,00	120014800951	437,00	120014800950	585,50

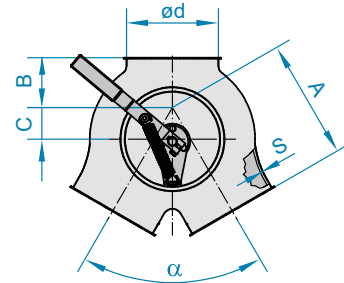
*1.5 mm

2 mm galvanised

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150-200	100	110024610952*	255,00	110024610951*	276,00	110024610950*	318,00
150-250	150	110024620952*	276,50	110024620951*	307,00	110024620950*	369,50
150-300	200	110024630952*	298,50	110024630951*	348,00	110024630950*	454,50
200-250	120	120024700952	279,50	120024700951	308,50	120024700950	373,00
200-300	150	120024710952	310,00	120024710951	350,00	120024710950	440,50
250-300	150	120024750952	310,50	120024750951	355,00	120024750950	450,00
250-350	200	120024840952	344,00	120024840951	391,50	120024840950	493,00
300-350	200	120024800952	391,50	120024800951	462,00	120024800950	612,00

*1.5 mm

Two-way valves with inlet collar



Inlet and inner flap lined

Refer to chapter 9 for dimensions of two-way valve with inlet collar

TWO-WAY VALVES WITH INLET COLLAR – WEAR PROTECTION LINING

1506

- For gravity-flow pipe systems for coarse bulk goods

Asymmetrical 60°, hand-operated, 2 mm powder-coated

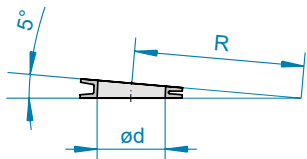
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515120952	527,50	121515120951	555,00	121515120950	613,00
200	122015170952	714,50	122015170951	763,00	122015170950	869,00
250	122515170952	893,50	122515170951	966,50	122515170950	1128,00
300	123015120952	1161,00	123015120951	1271,00	123015120950	1502,00
350	123515150952	1927,00	123515150951	2041,00	123515150950	2286,00

Symmetrical 60°, hand-operated, 2 mm powder-coated

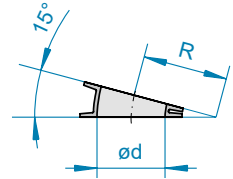
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515020952	470,00	121515020951	488,00	121515020950	528,50
200	122015050952	639,00	122015050951	668,00	122015050950	730,00
250	122515050952	841,00	122515050951	912,00	122515050950	1065,00
300	123015020952	1091,00	123015020951	1185,00	123015020950	1383,00
350	123515050952	1883,00	123515050951	2000,00	123515050950	2249,00



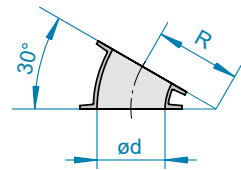
WEAR PROTECTION Cast-iron pipework



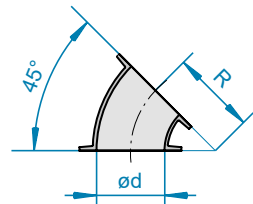
Cast-iron segment 5°



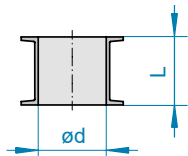
Cast-iron segment 15°



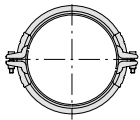
Cast-iron segment 30°



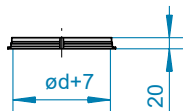
Cast-iron segment 45°



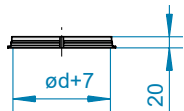
Cast-iron pipes



Pull-rings for cast-iron pipework



Angle flanges



Angle flanges, 1 cut

CAST-IRON PIPEWORK

1160/1170/1180/1190/1150/1200/7000/1210

- 7.5 mm wall thickness
- Powder-coated (RAL 7032)
- Internal diameters correspond to 3 mm thick pipework
- Connection using pull-rings for cast-iron pipes with sealant
- Combination with JACOB pipework with lip using angle flanges

Cast-iron segments 5° and 15°

DN	Ø d	R	Cast-iron segments 5°		R	Cast-iron segments 15°	
			Item no.	€		Item no.	€
120	118				155	17121310	63,70
150	148	600	17151300	82,30	250	17151310	82,70
200	198	690	17201300	85,00	270	17201310	87,70
250	248	635	17251300	94,90	310	17251310	97,70
300	298	625	17301300	99,30	310	17301310	112,50

Cast-iron segments 30° and 45°

DN	Ø d	R	Cast-iron segments 30°		R	Cast-iron segments 45°	
			Item no.	€		Item no.	€
120	118	110	17121320	72,20			
150	148	175	17151320	84,40	150	17151330	86,60
200	198	180	17201320	94,70	195	17201330	112,50
250	248	230	17251320	157,50	195	17251330	176,00

Cast-iron pipes and pull-rings

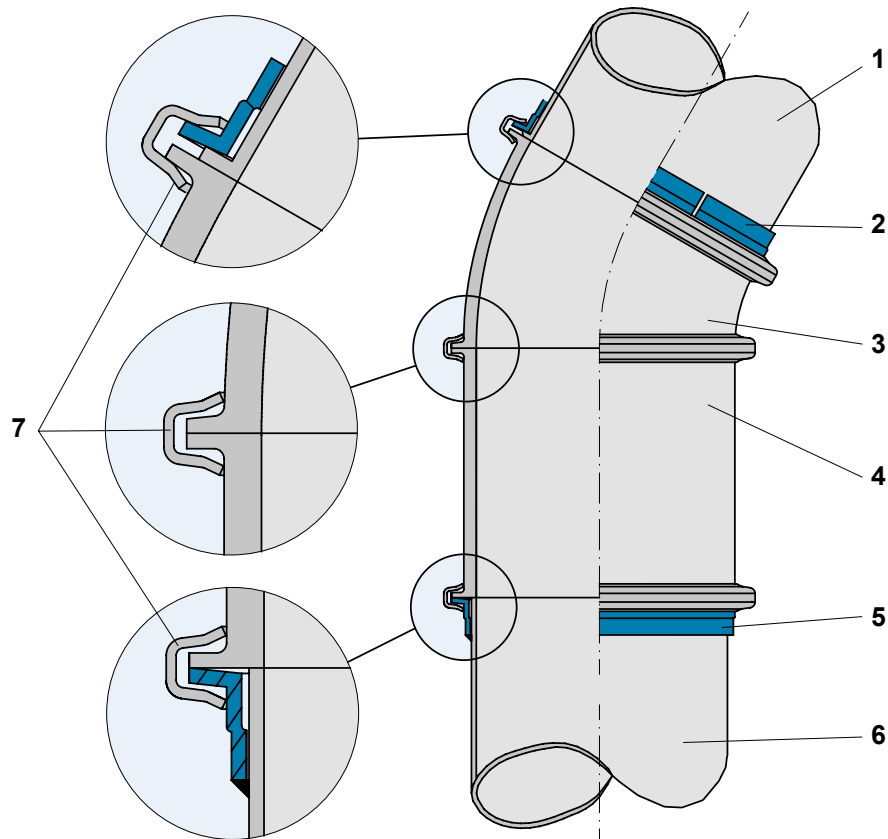
DN	Ø d	L	Cast-iron pipes		Pull-rings for cast-iron pipework, galvanised, with mastic sealant	
			Item no.	€	Item no.	€
120	118	150	17121040	94,60	17122382	14,80
150	148	150	17151040	111,00	17152382	16,10
200	198	200	17201040	184,00	17202382	17,20
250	248	250	17251040	214,00	17252382	19,40
300	298	300	17301040	304,00	17302382	21,60

Angle flanges

DN	Ø d	Angle flanges for welding-on on site		Angle flanges, 1 cut	
		Item no.	€	Item no.	€
120	118	33121705	7,50	17121705	8,70
150	148	33151705	8,70	17151705	9,90
200	198	33201705	10,80	17201705	12,00
250	248	33251705	15,10	17251705	16,20
300	298	33301705	18,80	17301705	20,00



INCORPORATING CAST-IRON PIPE COMPONENTS INTO THE MODULAR PIPEWORK SYSTEM



- 1 Steel pipe with lip
- 2 Angle flange (1 cut)
- 3 Cast-iron segment
- 4 Cast-iron pipe
- 5 Angle flange welded-on
- 6 Steel pipe
- 7 Pull-rings for cast-iron pipework

- Angle flange, 1 cut, is rotated on behind the lipped end of the existing JACOB pipe component and connected to the cast-iron pipe with the pull-ring for cast-iron pipes.
- Alternatively: Use of an angle flange for welding-on on site. One pipe end without a lip is necessary to enable the angle flange to be fitted. This can be created when connecting pipes are shortened, for example.



WEAR PROTECTION

Special range hot-dip galvanised 3 mm



PIPEWORK SYSTEM HOT-DIP GALVANISED 3 MM

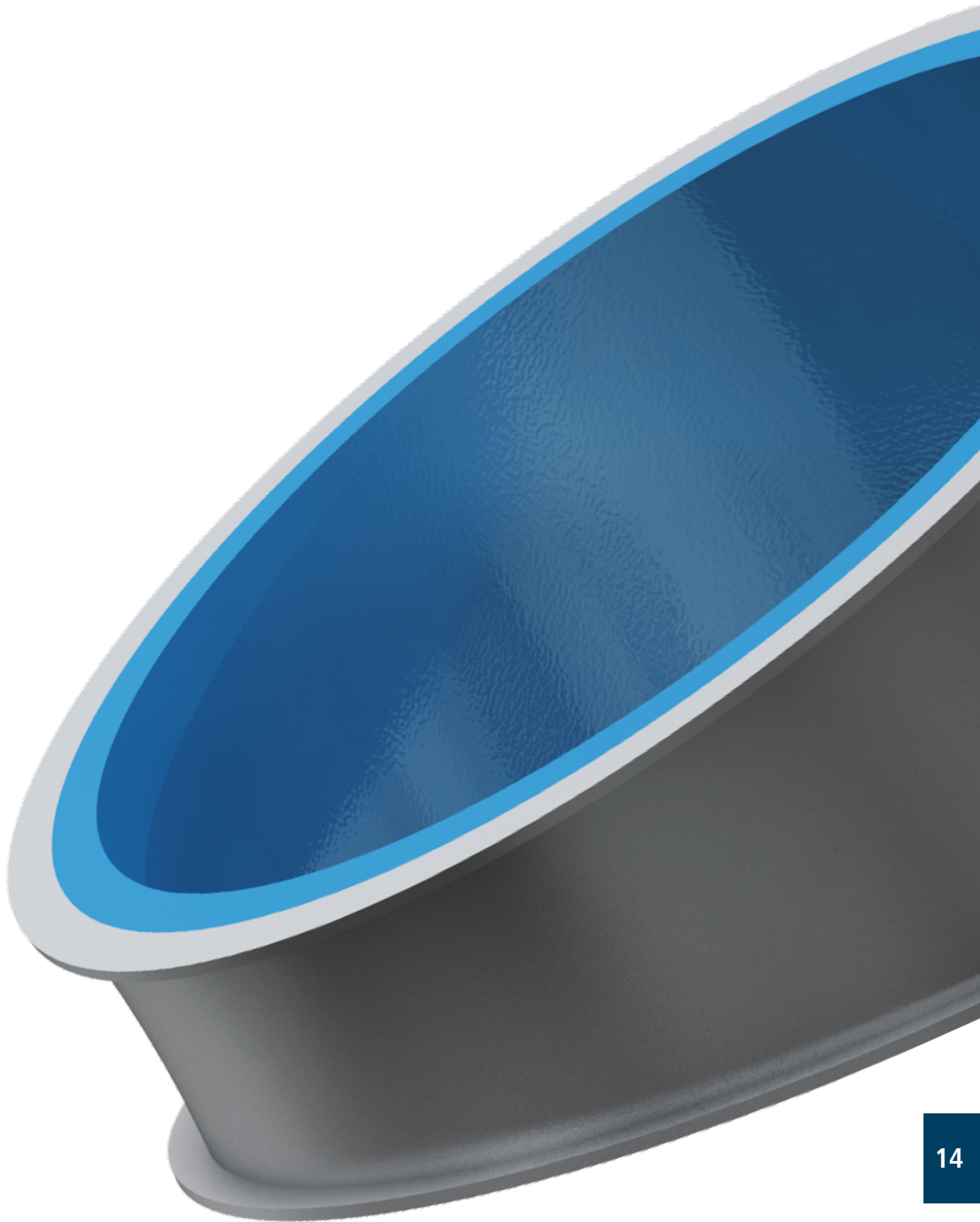
7200/7210/7220/7230/7240/7250/7260/7270/7280/7290/7300/7310/7320

The hot-dip galvanised pipework system that JACOB delivers from stock is specially designed for conveying bulk goods in outdoor areas. It is particularly suitable for conveying goods with abrasive characteristics.

The components can be mounted quickly and provide a tight seal due to the use of our proven pull-ring system. The hot-dip galvanised pipe components and press-formed components are available in the popular diameters DN 200, 250 and 300 mm. With a wall thickness of 3 mm, the system remains installation-friendly yet is still suitable for abrasive bulk goods, such as coarse-grained products such as grains or pellets.

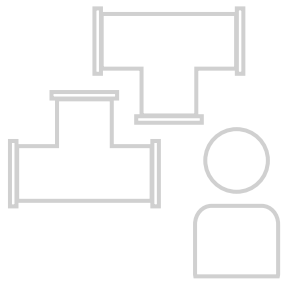
Please refer to chapter 2 for technical information and instructions for assembling the JACOB pull-ring system.

Hot-dip galvanised range All pipework with 6 mm lip for pull-ring system	DN 200 mm		DN 250 mm		DN 300 mm	
	Item no.	€	Item no.	€	Item no.	€
Welded pipes 2000 mm long	13202010	171,00	13252010	196,00	13302010	228,50
Welded pipes 1000 mm long	13202020	90,30	13252020	103,00	13302020	120,00
Welded pipes 500 mm long	13202030	50,80	13252030	59,30	13302030	66,10
Segments 5°	13202300	37,90	13252300	46,50	13302300	51,00
Segments 15°	13202310	37,90	13252310	46,50	13302310	51,00
Segments 30°	13202320	44,40	13252320	55,40	13302320	58,90
Segments 45°	13202330	49,00	13252330	64,10	13302330	75,80
Cone pieces 200-250	13002470	84,20				
Cone pieces 200-300	13002471	89,60				
Cone pieces 250-300			13002475	91,10		
Forks 45°	13202220	124,50	13252220	178,50	13302220	234,00
Connecting flanges with loose flange drilled similarly to DIN 24154-2 (see chapter 11, page 219, for dimensions)	13202432	33,90	13252432	39,80	13302432	45,90
Spouts without a gradient, from square to round	13202400	93,70	13252400	172,00	13302400	191,00
Spouts with a 45° gradient, from square to round	13202420	175,50	13252420	213,00	13302420	243,50
Inspection T-pieces without a rubber cover	13202200	97,60	13252200	119,50	13302200	135,00
Two-way valves with inlet collar, symmetrical, hand-operated	13202505	592,50	13252505	742,00	13302502	893,00
Two-way valves with inlet collar, asymmetrical, hand-operated	13202517	592,50	13252517	742,00	13302512	893,00



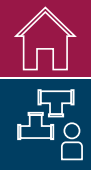


JACOB MANUFACTURING TECHNOLOGY:
TOP QUALITY CUSTOMISED PRODUCT SOLUTIONS



SPECIAL MANUFACTURE

Technical information	260	
Special parts	262	
Special range shock explosion proof to 10 bar	266	



SPECIAL MANUFACTURE

Technical information

SPECIAL PART MANUFACTURE

JACOB manufacturing technology stands not only for top quality mass-produced standard parts but also for top quality special part manufacture. From manufacturing product variants and small-lot production right up to made-to-order production to customers' drawings: You can depend on the comprehensive expertise and many years of experience of our technicians, design engineers and production staff. We also invest in production equipment on an ongoing basis to guarantee the highest possible quality using modern technology.

Take advantage of our professional expertise, providing you with advice and solutions that are tailored to your specific product requirements. We guarantee integration and compatibility with our modular system. For you, this means: mass-produced standard products and special manufacture from a single source, which is the No. 1 for modular pipework systems. This chapter merely shows a small selection of our manufacturing capabilities for special parts and customised solutions. We would be pleased to fulfil your specific requests on an individual basis.

Individual product solutions: Variant manufacture, small-lot manufacture, made-to-order manufacture to customers' drawings

DISTRIBUTORS/THROTTLE VALVES

Dust-tight slide gate
Louvre valve
Square two-way valve

MEASUREMENT TECHNOLOGY AND ACTUATORS

Preparation and integration for measurement technology
Actuators and limit switches
Venturi tube

WEAR PROTECTION AND NON-STICK PROTECTION

Wear protection linings
Baffle boxes/pipes
Non-stick protection
Fall brake

ADAPTERS / SYSTEMS

Adapters for connection to the JACOB system
Connector system with guide rings

EXHAUST AIR

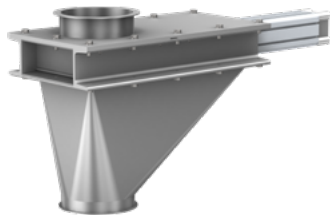
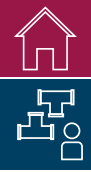
Air outlets for roofs
Air inlet / outlet hoods
Air quality / air conditioning and ventilation

MATERIALS AND SPECIAL FINISHES

Innovative powder-coating
Special colours
Grinding or electrolytic polishing

PIPE LENGTHS OF UP TO 12 M

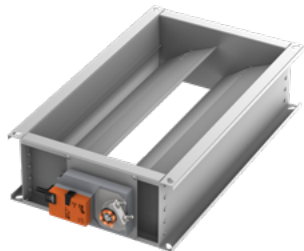




DISTRIBUTORS / THROTTLE VALVES

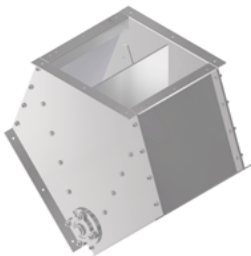
Dust-tight slide gate

The range of products in the valve and gate catalogue (see chapter 8) has been extended with the addition of the sealed slide gate. This slide valve is sealed to prevent dust from leaking out. It is used for floury or granular goods in gravity-flow pipe systems.



Louvre valve

Our louvre valves are mostly used in pipes that convey hot air. A wide variety of versions is available including multi-part versions and single flaps. Larger versions, i.e. DN 1000 mm and larger, tend to be used in industrial halls, in particular. These units withstand temperatures of up to 320°C, which makes them reliable even in challenging environments.



Square two-way valve

The square two-way valve is used in various industrial applications, and particularly in gravity-flow conveying systems. It has proven its worth in a wide range of production processes, thanks to its versatility and robust design. There are many different versions of the symmetrical and asymmetrical square two-way valves to choose from. Customised adjustments can be made, to the angle of splay or the connection dimensions, for example. Wear protection linings can also be provided, with various materials to choose from. This flexibility allows you to adapt the square two-way valve to meet the specific requirements of your production environment and to ensure that your bulk goods are conveyed with the greatest efficiency.



MEASUREMENT TECHNOLOGY AND ACTUATORS

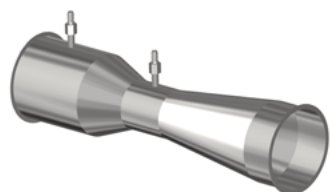
Preparation and integration of measurement technology

Our modular pipework system makes it possible to integrate various types of measurement technology. At the customer's request, we can prepare our modular pipework system for the integration of measurement systems, to measure pressure, temperature or flow rate, for example. We install adapters, transition pieces, spigots or other special connection systems in order to facilitate the installation of measurement devices on site. To enable our customers to integrate measurement technology in a modular system as standard, in chapter 3 we offer pipes in 200 mm lengths in a variety of materials and with various spigots.



Actuators and limit switches

With regard to automatic control technology, we offer a wide selection of tried-and-tested drives for two-way distributors and valves (see chapter 9) and for throttle valves (see chapter 8). Whether electrically or pneumatically driven: Our pipework system components can be fitted with many different brands of drive thanks to the DIN EN ISO attachment system. The same applies to a wide range of different mechanical or inductive limit switches.



Venturi tube

The Venturi tube is a precision instrument used for measuring the volumetric flow of air in industrial systems. The Venturi effect makes it possible to calculate the volumetric flow by measuring the change in pressure in the constricted section. The Venturi tube is reliable and efficient, and is used in many industries to facilitate the precise control and optimisation of processes. Measuring instruments can also be supplied, if necessary. The Venturi tube comes into its own, for example, in difficult environments such as in waste disposal, where traditional measuring instruments are unsuitable due to the presence of aggressive gases.

WEAR PROTECTION AND NON-STICK PROTECTION



Wear protection linings

In addition to the JACOB wear protection range (chapter 14), we have numerous materials available in a range of thicknesses for lining our products (from DN 100 mm). Examples of these materials are PUR, Linatex, ceramic, Correx and Philan. With many materials, you have the choice between layer thicknesses of 2, 4, 6 and 8 mm. Thicker layers are possible on request. We are also happy to fulfil special requirements, such as for food grade quality, electrostatic conductivity or higher temperature resistance.



Baffle pipe

Baffle pipes can be installed to reduce the speed of abrasive or sensitive bulk goods as they fall, and so reduce their abrasive effect. This extends the service life of the pipework and reduces wear on the product. Typically, baffle pipes are installed just upstream of where pipes change direction to flow down a vertical pipe.



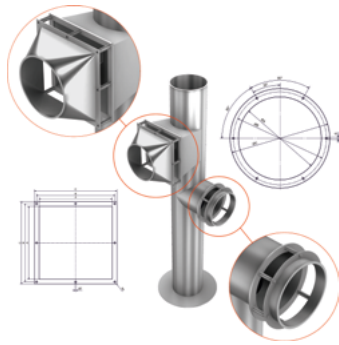
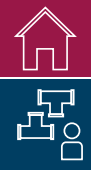
Non-stick protection coating

The addition of a non-stick coating improves the flow properties of dry products that do not tend to flow freely. This type of coating is typically used in the food industry, mechanical engineering applications, polymer processing and the printing and paper industry. Examples of these are coffee powder varieties with a high oil content, or products used in the manufacture and recycling of car tyres. Various lining materials are available on request.



Fall brake

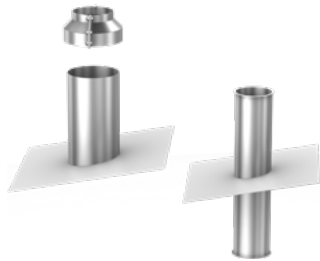
In systems that convey bulk goods, a fall brake is used to reduce the velocity of the goods as they fall down the pipe. This extends the service life of the pipework and reduces wear on the product. The fall brakes can be manufactured with various different angles, to meet specific requirements.



ADAPTERS / SYSTEMS

Adapters for connection to the JACOB system

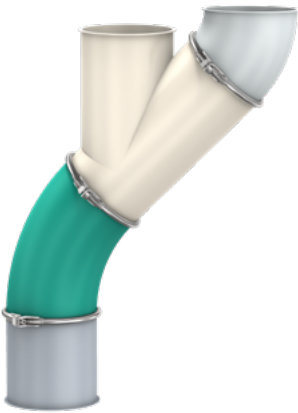
Do you require special transitions or adapter connections for the JACOB pipework system? We have a wide range of adapters and transitions available as standard components. Special customer-specific solutions can also be produced if required. Please refer to chapter 6 of this catalogue for details of standardised adapters and transitions. These include connecting flanges, together with loose flanges, used as spouts for connecting square sections to round pipes, or used as single round or square flanges for connecting to machine inlets or outlets.



EXHAUST AIR

Air outlets for roofs

The roof air outlet is used as a connection element for on-roof exhaust components. It consists of a pipe with a circular roof sealing plate. The roof outlets are available in stainless steel and can also be surface-coated if required.



SURFACES AND SPECIAL FINISHES

Innovative powder-coating

JACOB uses an ultra-modern, automated powder-coating system in order to ensure superior and uniform product quality. The advantages of our standard powder coating (similar to RAL 7032) are:

- Electrostatically conductive
- Its constituents comply with the requirements of the Food and Drug Administration (FDA)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection
- Optimum surface quality and long service life due to three-stage pretreatment
- Temperature resistance: from -60°C to +120°C

3,000 special colours

JACOB can provide powder coatings on request in any colour from the wide RAL spectrum. In this case, the products are first coated with our standard RAL 7032 powder coating and then powder coated again in the colour of your choice. This creates a layer thickness of at least 80 µm. We also offer further special features on request. These include high-gloss effects.

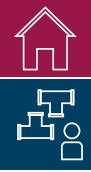
Grinding or electrolytic polishing

At our customers' request, we also offer electrolytic polishing or grinding of our stainless steel pipework.

PIPE LENGTHS

Pipe lengths of up to 12 m

We produce special pipes up to 12 m in length in diameters of DN 60 to 300 mm and in different materials with a wall thickness of 1 to 3 mm. We normally supply pipes in lengths of 6 to 12 m with untreated and unlipped ends. Pipes of up to 6 m in length can optionally be supplied with lipped ends for quick assembly with JACOB pull-rings. For pipes of up to 12 m in length, we also offer special connections on request.



SPECIAL MANUFACTURE

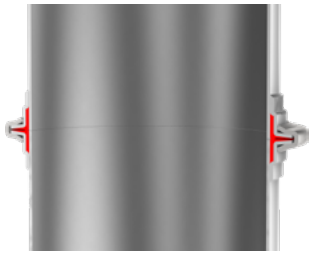
Special range shock explosion proof to 10 bar



SHOCK EXPLOSION PROOF PIPEWORK SYSTEM 10 BAR

Particularly exacting demands for up to 10 bar shock explosion resistance are met by the special range certified by DEKRA EXAM GmbH and/or the Forschungsgesellschaft für angewandte Systemsicherheit und Arbeitsmedizin (FSA) (Research Society for Applied System Security and Occupational Medicine).

We have dimension sheets available to aid your planning and design work. Test reports are available on request.



DN 80 to 300 mm

Pipework with angle flange, shock explosion proof to 10 bar:

- Pipe components DN 80, 100, 120, 150, 175, 200, 250 and 300 mm with angle flange
- Depending on the diameter, available with 2 and/or 3 mm wall thickness
- Straight pipes up to 2000 mm in length, inspection T-pieces with end cover in reinforced version, forks 30° and 45° and bends $R = 2D$, 30° to 90°
- Pipe components connected with special pull-ring for angle flange
- The seal is incorporated in the pipework
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance
- Earthing lugs are spot-welded to all angle flange pipework

DN 350 to 630 mm:

DN 350 to 630 mm with welded-on special flanges for 10 bar shock explosion resistance available on request



PULL-RINGS FOR ANGLE FLANGE PIPEWORK

7010

- 10 bar shock explosion proof
- Electro galvanised
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance

Pull-rings for angle flange

DN	Pull-ring for angle flange			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32082382	15,30		
100	32102382	16,30		
120	32122382	16,60		
150			32152382	17,40
175			32172382	18,50
200			32202382	20,80
250			32252382	24,30
300			32302382	27,00



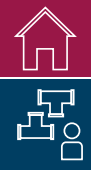
WELDED PIPES

7020

- With angle flange
- Powder-coated

DN	1996 mm long				996 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081010	98,90			32081020	63,90		
100	32101010	103,50			32101020	67,50		
120	32121010	115,00			32121020	77,50		
150	32151010	129,00	33151010	174,50	32151020	89,30	33151020	118,00
175	32171010	144,50	33171010	196,50	32171020	97,90	33171020	129,00
200	32201010	156,00	33201010	213,00	32201020	120,50	33201020	159,00
250	32251010	188,50	33251010	252,50	32251020	122,50	33251020	166,50
300	32301010	217,00	33301010	292,00	32301020	137,50	33301020	184,50

DN	498 mm long				212 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081030	47,90			32081040	40,60		
100	32101030	50,70			32101040	43,00		
120	32121030	59,50			32121040	49,80		
150	32151030	66,00	33151030	83,50	32151040	58,20	33151040	69,90
175	32171030	74,30	33171030	93,30	32171040	61,30	33171040	74,10
200	32201030	78,20	33201030	98,70	32201040	63,40	33201040	76,80
250	32251030	91,20	33251030	114,50	32251040	73,50	33251040	88,70
300	32301030	100,50	33301030	125,50	32301040	81,50	33301040	97,70



SPECIAL MANUFACTURE

Special range shock explosion proof to 10 bar



WELDING ENDS

7030

- With angle flange
- Powder-coated

DN	60 mm long			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081060	24,10		
100	32101060	25,40		
120	32121060	28,60		
150	32151060	31,30	33151060	37,60
175	32171060	33,00	33171060	39,50
200	32201060	34,30	33201060	41,30
250	32251060	38,90	33251060	46,60
300	32301060	43,20	33301060	52,10



INSPECTION T-PIECES

7040

- With angle flange pull-ring and end cover
- Powder-coated

DN	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081200	165,00		
100	32101200	185,00		
120	32121200	206,50		
150	32151200	226,00	33151200	246,50
175	32171200	240,00	33171200	263,50
200	32201200	265,00	33201200	290,50
250	32251200	304,00	33251200	333,50
300	32301200	327,50	33301200	360,00





FORKS

7050/7052

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081230	129,00			32081220	126,50		
100	32101230	135,00			32101220	127,50		
120	32121230	153,00			32121220	147,00		
150	32151230	189,50	33151230	228,50	32151220	176,00	33151220	206,50
175	32171230	229,50	33171230	269,50	32171220	211,50	33171220	244,00
200	32201230	267,00	33201230	321,00	32201220	242,50	33201220	284,50
250	32251230	343,50	33251230	408,00	32251220	310,00	33251220	356,00
300	32301230	443,00	33301230	486,00	32301220	365,50	33301220	429,00



BENDS R = 2D

7060/7062/7064/7066/7068

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081343	56,00			32081344	68,10		
100	32101343	60,40			32101344	72,60		
120	32121343	76,20			32121344	80,60		
150	32151343	91,10	33151343	114,00	32151344	102,50	33151344	129,00
175	32171343	99,60	33171343	126,50	32171344	113,00	33171344	142,00
200	32201343	114,50	33201343	143,50	32201344	122,00	33201344	154,00
250	32251343	132,00	33251343	166,50	32251344	160,00	33251344	201,00
300	32301343	182,50	33301343	229,50	32301344	233,00	33301344	290,50

DN	60° powder-coated				90° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081346	73,40			32081349	85,60		
100	32101346	77,30			32101349	90,10		
120	32121346	99,60			32121349	108,00		
150	32151346	114,00	33151346	143,00	32151349	138,50	33151349	173,50
175	32171346	127,50	33171346	159,00	32171349	154,00	33171349	191,00
200	32201346	150,00	33201346	188,50	32201349	178,50	33201349	222,00
250	32251346	238,50	33251346	297,00	32251349	296,00	33251349	369,50
300	32301346	301,00	33301346	374,50	32301349	441,50	33301349	551,50



General Terms and Conditions of Delivery and Payment

Last updated: March 2026

1. General Information

- (1) Our deliveries, services and offers are made exclusively on the basis of these General Terms and Conditions of Delivery and Payment (in the following "T&C"). Unless otherwise agreed, the T&C apply in the version valid at the time of the Purchaser's order or, in any case, in the version last notified to the Purchaser in writing as a framework agreement also for similar future contracts without our need to refer to them again in each individual case. We do not recognise any terms and conditions of the Purchaser which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservations although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservation although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C or if the Purchaser refers to its general terms and conditions within the scope of the order and we do not expressly object.
- (2) Our T&C apply to entrepreneurs (§ 14 German Civil Code – BGB), legal entities under public law and special funds under public law ("öffentlich-rechtliches Sondervermögen") only.
- (3) Individual agreements (e.g. framework supply agreements, quality assurance agreements) and specifications in our order confirmation take precedence over these T&C. In any case, commercial clauses are interpreted in accordance with the Incoterms issued by the International Chamber of Commerce in Paris (ICC) in the version valid at the time of conclusion of the contract.
- (4) Legally relevant declarations and notifications of the Purchaser with regard to the contract (e.g. setting of deadlines, notification of defects, withdrawal or reduction) are to be made in writing. Written form in terms of these T&C includes written and text form (e.g. letter, e-mail, fax). Legal formal requirements and further proof, in particular in the case of doubts about the legitimacy of the declarant, remain unaffected.
- (5) References to the statutory law only have clarifying significance. Even without such clarification, the statutory law therefore applies unless it is expressly amended or excluded in these T&C.

2. Conclusion of the Contract; Contract Documents

- (1) Our offers are subject to confirmation and non-binding unless they are explicitly specified as binding. This also applies if we have provided the Purchaser with samples, catalogs, other product descriptions or documents - also in electronic form – to which we reserve property rights and copyrights.
- (2) The Purchaser's order of goods is viewed as a binding offer to contract. Unless otherwise stated in the order, we are entitled to accept this offer to contract within one week of receipt. During this period the Purchaser is bound to his order. The contract is deemed to be concluded upon our confirmation (order confirmation). In case of immediate delivery, our delivery replaces the order confirmation.
- (3) The Purchaser must check our order confirmation without undue delay to ensure that it is correct and complete and must inform us of any discrepancies between the order and the order confirmation without undue delay. (4) Performance characteristics specified in catalogues and orders such as figures, drawings etc. are to be considered an approximation only. In particular, such information represents no guarantees or assurances („Zusicherungen“) and do not relieve the Purchaser from its duty to execute own tests or examinations.
- (5) The tolerances specified in our catalogs and offers for these components also apply to components manufactured according to drawings, specifications, samples, requirements and/or other documents of the purchaser.
- (6) Our salespersons are not authorised to make further agreements or give assurances which exceed the content of the written contract or these T&C.
- (7) The Purchaser is liable for the correctness, accuracy and completeness of his order data and all of his order documents, especially those relating to drawings as well as for technical data and samples. Verbal specifications, including those relating to amendments and modifications of the documentation and data provided, require written confirmation.

3. Prices; Terms of Payment

- (1) Our prices are EURO prices. Unless stated otherwise in the order confirmation, our prices are FCA (pursuant to Incoterms® 2020 or in their respective version valid in time) ex our works in Porta Westfalica plus packaging costs and the then applicable value-added tax.
- (2) Our prices do not include installation, commissioning and assembly costs nor packaging, freight, postage and insurance costs.
- (3) Deliveries and services in excess of the order will be – after consultation with the Purchaser – invoiced separately.
- (4) Payments are to be conducted cashless and free of charge without any deductions. Unless indicated otherwise in the order confirmation, our invoices are due and payable within 14 days after the invoice date and receipt of the invoice. In case prepayment has been agreed upon, the deadline for delivery begins to start only after receipt of the full invoice amount.
- (5) Despite dissenting provisions by the Purchaser, we are entitled to offset the Purchaser's payments first with older claims due against the Purchaser; we will inform the Purchaser of any type of offsetting. In case any costs and interests have already occurred, we are entitled to offset the payment first with the costs, then the interests and the main service at last.
- (6) Payments are only considered settled if we can dispose of the amount.
- (7) Upon expiry of the payment deadline, the Purchaser shall be in default. In case of the Purchaser's default in payment, the statutory provisions are fully applicable.
- (8) The Purchaser is not entitled to withhold payments based on counter-claims or offset counter-claims unless these counter-claims have been recognised by us, are undisputed or have been established by a final non-appealable court decision (res judicata). However, counter-claims of the Purchaser existing or arising under the same contract for defects or non-performance and/or unfinished or incomplete performance remain unaffected.
- (9) If, after conclusion of the contract, it becomes apparent (e.g. through termination of the trade credit insurance or application for the opening of insolvency proceedings) that our claim to the purchase price is jeopardized by the Purchaser's inability to pay, we are entitled in accordance with the statutory provisions to refuse performance and - if necessary after setting a deadline - to withdraw from the contract (§ 321 BGB).

4. Serial Deliveries, Long-term and Call-off Contracts

- (1) Unlimited contracts are subject to ordinary termination giving three months' notice prior to the end of a calendar month, unless provided otherwise.
- (2) In case of call-off contracts, unless provided otherwise, binding quantities are to be notified at least 3 months prior to the delivery date by call-offs. Additional costs arising as a result of delayed call-offs or subsequent amendments to a call-off regarding time or quantity by the Purchaser will be borne by the latter.

5. Time of Delivery, Delay in Delivery; Force Majeure

- (1) Unless explicitly provided otherwise, any indicated delivery times are approximate only. Any delivery deadline only starts to run if all details of execution have been clarified and both parties have mutually agreed on the conditions of the order. Any agreed delivery date will be postponed accordingly. Any change made to the scope of services will result in a corresponding extension of the delivery period once the order has been accepted.
- (2) If advance payment has been contractually agreed, compliance with the delivery deadline is dependent on the timely payment of the advance payment. In the event of late payment of the advance payment, the delivery period is extended accordingly.
- (3) Fulfilment of our delivery obligations further requires timely and proper fulfilment of the Purchaser's obligations. The defence of non-performance remains reserved. In addition, we are entitled to postpone delivery as long as the Purchaser has failed to fulfil due payment obligations arising out of previous deliveries without justification.
- (4) In case we are prevented from adhering to agreed delivery or performance dates as a result of for e.g. force majeure, labour disputes, governmental action, energy or raw material shortages, transport bottlenecks or hindrances, operational hindrances, for example due to fire, water and/or machine defects, for which we are not responsible, or other disruptions in the flow of operations either at our premises or those of suppliers or subcontractors for which we are not responsible and which can be proven to have a significant impact, we are obliged to inform the other party without

undue delay ("unverzöglich"). In such cases we are entitled to extend the delivery/ performance period by the period of the event of force majeure or the disruption if we have informed the Purchaser pursuant to the above information obligation. If delivery or performance becomes impossible as a result thereof, our obligation to perform lapses to the exclusion of any compensation for damages. If the Purchaser proves that subsequent performance of the contract is of no interest to him as a result of the delay, he may withdraw from the contract, any further claims being excluded. If the event of force majeure or the disruption lasts longer than three months, we may withdraw from the contract in view of any part of the contract which has not yet been performed, provided that we have informed the Purchaser pursuant to the above information obligation and have not assumed the risk of procurement ("Beschaffungsrisiko") or a delivery guarantee. Force majeure is any external event caused by elementary forces of nature or by actions of third parties, which is unforeseeable according to human insight and experience, which cannot be prevented or rendered harmless by economically acceptable means even by the utmost care reasonably to be expected in the circumstances and which is also not to be accepted by us due to its frequency.

- (5) Article 5 (4) applies mutatis mutandis if and to the extent that we have, prior to conclusion of the contract with the Purchaser, entered into a covering transaction which – if properly executed – would have enabled us to fulfil our contractual obligations in our relationship with the Purchaser and have not been supplied by our suppliers in conformity with the contract and/or due time with no fault on our part.
- (6) In case we are in default, the Purchaser may specify an additional period for performance in writing and, if said period elapsed to no avail, withdraw from the contract. An additional period for performance is not required if we seriously and finally refuse to perform the contract or if the underlying contract is a fixed-date transaction ("Fixgeschäft") according to Section 323 para. 2 No. 2 of the German Civil Code (BGB) or Section 376 of the German Commercial Code (HGB) or if special circumstances exist which, taking into account the interests of both parties, justify immediate withdrawal from the contract.
- (7) We are liable for damages in accordance with Article 11 of these T&C only. The Purchaser's right to withdraw from the contract is governed by statutory provisions.
- (8) If an acceptance inspection of the delivered goods has been agreed, the acceptance inspection has to be performed at our factory immediately after we have informed the Purchaser that the goods are ready for acceptance, unless otherwise agreed. The Purchaser will bear the costs of the acceptance inspection.
- (9) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons which are attributable to the Purchaser, we will be entitled to claim compensation of any damage incurred as a result thereof, including additional expenses, if any. In these cases, we will store the goods at the Purchaser's risk and invoice the Purchaser for such storage. We are entitled to charge for the storage a flat fee of 0.1 % of the net price agreed in the contract for each completed working day ("Werktag") but not more than 5 % in total of the net price agreed in the contract. We reserve the right to assert further claims. The Purchaser reserves the right to prove that we incurred no damage or a substantially smaller damage than the foregoing flat fee.
- (10) We reserve the right to make partial deliveries if and to the extent that they are reasonably acceptable for the Purchaser, also considering the Purchaser's interests.

6. Delivery and transfer of risk

- (1) Unless stated otherwise in the order confirmation, deliveries are made FCA (pursuant to Incoterms® 2020 or in their respective version valid in time) ex our works in Porta Westfalica. This also applies if we have exceptionally assumed the transport costs or paid them in advance on behalf of the Purchaser.
- (2) At the request and expense of the Purchaser, the goods are shipped to another destination (sale by delivery to a place other than the place of performance). Unless otherwise agreed, we are entitled to determine the type of shipment (in particular transport company, shipping route, packaging) ourselves.
- (3) In case shipment has been agreed, the risk of incidental loss or incidental deterioration of the goods passes to the Purchaser at the time the goods have been handed over to the carrier, freight forwarder or any other third party entrusted with the execution of shipment. This also applies if shipment is performed by our own vehicles, if we have assumed the transport costs or if we have advanced the costs on behalf of the Purchaser or in the case of partial delivery. If dispatch or handover is delayed for reasons attributable to the Purchaser, the risk will pass to the Purchaser at the time the goods are ready for dispatch and we have notified the Purchaser thereof.

- (4) Provided that the Purchaser does not announce in due time how the goods shall be delivered, we will conclude a transport contract with a carrier at the Purchaser's expense. In this case the choice of the transportation route and the shipping method is at our discretion, unless provided otherwise. The Purchaser shall point out to us if transport insurance is desired; if so, transport insurance will be concluded at our reasonable discretion in favour of the Purchaser. Any costs incurred in this respect shall be borne by the Purchaser, even if we have exceptionally assumed the remaining transport costs.
- (5) We are entitled to make partial deliveries insofar as this is reasonable for the Purchaser, taking into account his interests.
- (6) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons for which the Purchaser is responsible, we are entitled to demand compensation for the resulting damage including additional expenses. In such cases, we store the products at the risk of the Purchaser and invoice the Purchaser for storage.

7. Retention of Title

- (1) We reserve title to the goods sold until full payment of all our present and future claims arising from the purchase contract and an ongoing business relationship (secured claims).
- (2) Prior to complete payment of the secured claims, goods subject to reservation of title must neither be pledged to third parties nor assigned by way of security by the Purchaser without our explicit written consent. In the case of pledges or other third party intervention, the Purchaser must notify us immediately in writing so that we can file a lawsuit (pursuant to § 771 ZPO). If we bring an action against the third party and to the extent that the action was successful and the customer breaches its obligations under this clause 7(2) or is otherwise responsible for the enforcement proceedings, and the third party is unable to reimburse us for the judicial and extra-judicial costs incurred by us, the Purchaser will be liable for such costs.
- (3) If the Purchaser acts contrary to the contract – in particular delayed payment – we are entitled to rescind the contract in accordance with the statutory regulation and to reclaim the reserved goods.
- (4) The Purchaser is obliged to notify us at all times of the location of the goods subject to retention of title until the reserved goods have been paid for in full.
- (5) The Purchaser is entitled to resell the goods delivered within the ordinary course of business. He herewith assigns to us, however, all claims amounting to the final invoice amount (including value-added tax) of our claims which accrue from the resale vis-à-vis its customers or third parties, irrespective of whether the goods purchased have been sold again with or without further processing. After such assignment the Purchaser also remains entitled to collect this claim. Our right to collect this claim ourselves remains unaffected thereby. However, we undertake not to collect the claim provided that no bill or cheque protests are raised, the Purchaser fulfils his payment obligations out of the proceeds received, the Purchaser is not in default of payment and, in particular, no application to initiate insolvency proceedings with regard to the Purchaser's assets has been filed. If this is the case, however, we may demand that the Purchaser notifies us of the claims assigned and their debtors, provides all details necessary for their collection, delivers the relevant documents and informs the debtors (third parties) of said assignment.
- (6) The processing or conversion by the Purchaser of the goods supplied subject to reservation of title is always deemed to be performed for us and on our behalf. If the goods supplied subject to reservation of title are processed with other items/materials not belonging to us, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other processed items/materials at the time of processing. In all other respects, the provisions applicable to the goods supplied subject to reservation of title also apply mutatis mutandis to the articles resulting from such processing.
- (7) If the goods supplied subject to reservation of title are mixed or joined inseparably with other items/materials not belonging to us in such a way that they become major components of a uniform article, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other mixed or joined items/materials at the time of the joining or mixing. If the goods and other items/materials are joined or mixed in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us. The Purchaser will keep the jointly held property thus produced in safe custody for us. Furthermore, the same will apply to the article resulting from such joining or mixing as to the goods supplied subject to reservation of title.



- (8) The Purchaser is obliged to treat the goods subject to reservation of title carefully. He is obliged to adequately insure such at his own expense, in particular against fire, water damage and theft at replacement value. The Purchaser is obliged to perform any necessary service and inspection work in good time and at its own expense.
- (9) In the event of loss or damage to the goods subject to reservation of title, the Purchaser hereby assigns to us any claims to insurance payments existing in this connection in the amount of the final invoice (including value-added tax) of our claims with respect to the object of delivery by way of additional security in advance.
- (10) In case of deliveries abroad, if certain measures and/or declarations by either party are necessary to ensure the effectiveness of the above mentioned reservation of title and/or certain other rights referred to in the paragraphs above, the Purchaser is obliged to inform us accordingly in writing or in text form and to take all necessary measures and/or make all necessary declarations without undue delay at its own expense. If the law of the country of import does not permit reservation of title to the delivered goods, the Purchaser is obliged to provide without undue delay ("unverzüglich") another appropriate security interest in the goods delivered or any other equivalent collateral based on equitable discretion (Section 315 German Civil Code (BGB) at its own expense.
- (11) We undertake to release, at Purchaser's request, the securities due to us if the realizable value of our securities exceeds the claims to be secured by more than 10 %; we reserve the right to select of the securities to be released.

8. Acquisition of Ownership through Machining, Processing or Repair of Items Provided to us

- (1) If the Purchaser delivers to us an item for machining or processing or repair and if the Purchaser remains sole owner of the machined, processed or repaired item also after machining, processing or repair, it is already agreed here and now that the Purchaser assigns to us pro-rata co-ownership in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of processing.
- (2) If the item is mixed or joined during machining, processing or repair with items/materials belonging to us in such a way that they become essential components of a uniform article, we will acquire co-ownership of the new article in a ratio of the value of our items/materials to the value of the Purchaser's item made available at the time of joining or mixing.
- (3) If joining or mixing takes place in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of joining or mixing.
- (4) The provisions of Article 7 of these T&C apply mutatis mutandis to items of the Purchaser in which we have acquired co-ownership in accordance with the above provisions. For clarification: we will transfer the co-ownership we have acquired pursuant to the above terms and conditions to the Purchaser on delivery of the item in accordance with the provisions set forth in Article 7 of these T&C.

9. Packaging

- (1) Unless agreed otherwise, the packaging is at our discretion. The costs of packaging are borne by the Purchaser. The transport boxes of our standard packaging are not designed for stacking. Special packaging (e.g. additional transport reinforcement which allows max. double-stacking of the transport crates) must only be provided upon special agreement and / or at the request of the Purchaser (which the Purchaser must specify in its order at the latest).
- (2) The packaging of our products (including transport packaging, sales packaging and outer packaging) must be disposed of properly. For this reason, we are legally obligated under Section 15 (1) of the German Packaging Act (VerpackG) to organize and monitor the proper return and recycling of our packaging.
- (3) In the interest of an efficient and careful use of resources, in particular to avoid unnecessary transport routes, the Purchaser undertakes, on our behalf and in accordance with the applicable law, to dispose of the packaging of the products delivered by us (including transport packaging, sales packaging and outer packaging) properly and at its own expense.

- (4) Upon request, the Purchaser provides us with evidence of the proper disposal of the packaging of the products delivered by us without undue delay and in a suitable form and shall cooperate to the required extent in packaging law procedures of the competent authorities.
- (5) The Purchaser undertakes to use the products delivered by us directly in its business or to process them further or to deliver them to further processing companies so that the packaging of the respective products is not regarded as waste at a private end user or at comparable points of accumulation in accordance with § 3 para. 11 VerpackG. Insofar as the Purchaser does not (or no longer) fulfill the aforementioned obligation for products delivered to it, it undertakes to inform us immediately in text form.

10. Warranty - Liability for Infringement of Obligations

- (1) The statutory provisions apply to the rights of the Purchaser with respect to defects in quality or title (including incorrect delivery and short delivery) unless nothing to the contrary is determined in the following.
- (2) In any case, the special statutory provisions on the reimbursement of expenses in the event of final delivery of the newly manufactured goods to a consumer (supplier recourse pursuant to Sections 478, 445a, 445b or Sections 445c, 327 (5), 327u BGB) remain unaffected, unless an equivalent compensation has been agreed, e.g. within the framework of a quality assurance agreement.
- (3) In case we have to perform a contract in accordance with drawings, specifications, specimens, figures and/or other documents supplied by the Purchaser, the latter has to bear the risk of the suitability for the intended use.
- (4) If parts of the Purchaser are processed on behalf of the Purchaser, the Purchaser is obliged to examine whether the parts are suitable for the requested processing. If processing of parts sent by the Purchaser is not successful due to reasons beyond our control and responsibility, we will accept no responsibility for any damages caused. The Purchaser will still be required to pay for the costs already incurred for the processing. We will invoice the Purchaser for any necessary reworking costs.
- (5) The Purchaser's right to warranty claims under this contract requires the Purchaser to duly discharge his obligations of inspection and notification of defects in accordance with Section 377 of the German Commercial Code (HGB). If the contractual relationship between us and the Purchaser constitutes a contract for work and services ("Werkvertrag"), Section 377 of the German Commercial Code (HGB) shall apply mutatis mutandis. Notices of defects have to be addressed to our Customer Service Department in writing. In the case of goods intended for installation or other further processing, an inspection must in any case be carried out at the latest before installation or processing.
- (6) If an acceptance inspection or an initial specimen inspection has been agreed with the Purchaser, a complaint about defects which the Purchaser could have detected during a careful acceptance or initial specimen inspection is excluded.
- (7) We must be given the opportunity to examine on site any defect complained about.
- (8) If our operating and maintenance instructions are not followed, unauthorised modifications are carried out in the products and/or parts are exchanged, warranty claims for the consequences so caused are excluded. The foregoing applies also to incorrect installation or removal, poor maintenance, incorrect handling or storage, improper repairs not carried out by us, alterations as well as chemical, electrochemical or electrical influences for which we are not responsible as well as weather-induced or other natural causes.
- (9) If the delivered goods or the work created is defective, the Purchaser is entitled to the statutory rights as follows:
 - a) We are first entitled to either remedy the defect or to supply the Purchaser with goods free of defect as we so choose or, in case a contract for work and services has been agreed upon, to produce a new work (subsequent performance ("Nacherfüllung")). The Purchaser must allow the time necessary for and give the opportunity to subsequent performance. If the type of subsequent performance chosen by us is unreasonable for the Purchaser in the individual case, the Purchaser may reject it. Our right to refuse to provide subsequent performance on the conditions provided for by law remains unaffected.
 - b) We will bear or reimburse the expenses necessary for subsequent performance, in particular transport, travel, labor and material costs and, if applicable, dismantling and installation costs, in accordance with the statutory law and these T&C, if the

goods actually prove to be defective. If the Purchaser's request to remedy the defect turns out to be unjustified, we are entitled to demand reimbursement of the costs incurred from the Purchaser if the Purchaser knew or negligently did not know that there was actually no defect. The supplementary performance does not include the expenses for the removal of the defective item or for the renewed installation if the Purchaser was already aware of the defect at the time of installation or if the installation was not carried out in accordance with the intended purpose. This also applies if the Purchaser failed to recognize the defect prior to installation due to gross negligence, unless we fraudulently concealed the defect or assumed a guarantee.

- c) In the event of replacement delivery or, in case a contract for works and services has been agreed upon, new production, the Purchaser must return the defective goods to us on request.
 - d) We are entitled to make the subsequent performance contingent on the Purchaser paying the price agreed for the goods delivered. The Purchaser is entitled, however, to withhold an appropriate part of the price.
 - e) If the subsequent performance fails, the Purchaser is entitled to withdraw from the contract or to request a reduction in the agreed purchase price as he so chooses. However, there is no right of withdrawal in case of minor defects.
 - f) Claims of the Purchaser for compensation of damages or replacement of expenses only apply in accordance with the provisions of Article 11 of these T&C.
- (10) The limitation periods are governed by Article 12 of these T&C.

11. Exclusions and Limitations of Liability

- (1) Subject to the provisions of Article 11 (2), we are only liable for damages – in the case of contractual, non-contractual or other claims for damages, irrespective of the legal reason, in particular due to defects, default and impossibility, culpa in contrahendo and tort – in case of wilful intent and/or gross negligence, including wilful intent and/or gross negligence on the part of our representatives or vicarious agents. In addition, we are also liable in case of mild negligence, including mild negligence of our representatives and vicarious agents, for damages arising from the infringement of an essential contractual duty, i.e. a duty, the satisfaction of which makes the due implementation of the contract possible in the first place and which the Purchaser can therefore usually expect to be satisfied by us (cardinal duty). If and to the extent that we are not liable for wilfully infringing a duty, the liability for damages will, however, be restricted to the foreseeable, typical damage.
- (2) Claims for damages arising from an injury of life or limb or health as well as claims of the Purchaser pursuant to the German Product Liability Act and the special statutory provisions governing ultimate delivery of the goods to a consumer as well as other mandatory statutory liability regulations remain unaffected by the exclusions and limitations of liability set out in Article 11 (1). The above exclusions and limitations do neither apply insofar as we have fraudulently concealed a defect or insofar as we are liable because of the assumption of a guarantee or of the risk of procurement ("Beschaffungsrisiko").
- (3) Articles 11 (1) and 11 (2) also apply if the Purchaser demands replacement of useless applications instead of a claim to compensation of damages.
- (4) Insofar as our liability of damages is excluded or limited, this also applies with regard to personal liability for damages of our employees, representatives and vicarious agents which is based on the same legal reason.

12. Statute of Limitations

- (1) Claims of the Purchaser arising from defects in quality and title become time-barred after expiry of 12 months from delivery (hand-over) of the goods. If acceptance has been agreed, the limitation period shall commence upon acceptance.
- (2) Mandatory provisions on the statute of limitations remain unaffected. Therefore, Article 12 (1) shall not apply to claims for injury of life, limb or health, to claims based on wilful intent and gross negligence and to claims based on the assumption of a warranty or the risk of procurement ("Beschaffungsrisiko"). The longer limitation periods pursuant to Section 438 (1) No. 1 of the German Civil Code (BGB) – third party rights in rem; Sections 438 (1) Nr. 2, 634a (1) No. 2 of the German Civil Code (BGB) – constructions (Bauwerke), construction materials and construction components as well as planning services for a construction and Sections 438 (3), 634a (3) of the German Civil Code (BGB) – fraudulent concealment remain unaffected.

It the ultimate contract in the supply chain pertains to a sale of consumer goods according to § 474 of the German Civil Code (BGB) (i.e. if the goods are ultimately delivered to a consumer), the limitation periods stipulated in § 445b of the German Civil Code (BGB) remain unaffected, too.

- (3) The limitation periods resulting from Articles 12 (1) and 12 (2) for claims due to defects in quality and title apply mutatis mutandis to competing contractual or non-contractual claims for damages of the Purchaser which are based on a defect to the contractual goods. If, however, in an individual case the application of the statutory limitation rules lead to an earlier statutory limitation of the competing claims, the statutory period of limitation applies to the competing claims. In any case, the statutory periods of limitation pursuant to the German Product Liability Act remain unaffected.
- (4) Insofar as the limitation period for claims against us is shortened pursuant to Articles 12 (1) to 12 (3), this applies mutatis mutandis to any claims of the Purchaser against our statutory representatives, employees, authorised representatives and vicarious agents which are based on the same legal reason.

13. Right of Withdrawal - Right of Termination

- (1) The Purchaser is only entitled to withdraw from the contract for a breach of duty on our part other than a defect if we can be made responsible for such breach of duty.
- (2) In case a contract for works and services under which we are obliged to bring about a particular result ("Werkvertrag") or a contract for work and services under which we are obliged to supply the Purchaser with movable things to be produced or manufactured ("Werklieferungsvertrag") has been agreed upon, the Purchaser's right to freely terminate the contract according to Sections 650, 648 of the German Civil Code (BGB) is excluded.

14. Industrial property rights and Copyrights

- (1) Unless provided otherwise, we are required to perform delivery free of third party industrial property rights and/or copyrights (hereinafter referred to as industrial property rights) only in the country in which the place of original delivery is located.
- (2) If a third party raises legitimate claims against the Purchaser for breach of industrial property rights by goods delivered by us and used in accordance with the contract, we are liable vis-à-vis the Purchaser as follows:

We will, at our option and cost, either secure a right of use of the deliveries concerned, or modify them so as to ensure that they will not infringe upon such property rights or exchange such deliveries. In case neither option can be reasonably demanded from us, the Purchaser may cancel the contract or reduce the remuneration pursuant to the statutory provisions and Article 13 of these T&C. Our obligation to pay damages is determined by Article 11 of these T&C, the statute of limitations by Article 12 of these T&C. The above obligations apply to us only provided that the Purchaser has notified us of the claims asserted by third parties immediately in writing.

- (3) Claims by the Purchaser are excluded to the extent he himself is responsible for the infringement of the industrial property right. Claims by the Purchaser are excluded in particular if the infringement of the industrial property right is caused by the Purchaser's special requirements or is caused by a use which we could not foresee or because the delivery is changed by the Purchaser or is used together with products that we did not deliver and if we are not responsible for the infringement.

15. Non-Disclosure

We reserve property rights and copyrights in figures, drawings, calculations and other documents. This also applies to written documents which are marked as "confidential". The Purchaser requires our explicit written consent before passing on such to third parties. Upon request, the Purchaser has to return these documents to us completely, including any copies which may have been made, if they are no longer needed during the ordinary course of business or if negotiations do not lead to the conclusion of a contract.

16. Communication with the Purchaser

- (1) We process personal data, which we collect within the scope of deliveries, services and offers, exclusively in compliance with the applicable data protection law regulations. Information pursuant to Articles 13, 14 of the EU General Data Protection Regulation No. 2016/679 on this processing of personal data can be found at www.jacob-rohre.de/datenschutzhinweis/.



General Terms and Conditions of Delivery and Payment

Last updated: March 2026

- (2) In the event that personal data is transmitted to us, the Purchaser is obliged to inform the persons concerned in good time about the data processing by us in accordance with Article 14 of the EU General Data Protection Regulation No. 2016/679. We refrain from providing information to the person concerned.

17. Final Provisions

- (1) A transfer of the contractual rights and obligations to third parties by the Purchaser is only admissible with our written approval. This does not apply if the contractual rights and obligations are transferred to an affiliated company within the meaning of Section 15 German Stock Corporation Act (AktG).
- (2) Unless otherwise stated in the order confirmation, place of performance for payments and delivery is Porta Westfalica.
- (3) The law of the Federal Republic of Germany shall apply to the contractual relationship. The application of the UN sales law (CISG - United Nations Convention on Contracts for the International Sale of Goods) is excluded.
- (4) If the Purchaser is a merchant, legal entity under public law or a special fund under public law ("öffentlich-rechtliches Sondervermögen") as defined by German law, the place of jurisdiction for all disputes arising out of the contractual relationship including legal proceedings relating to cheques, bills of exchange and deeds shall be the venue competent at our registered office, Porta Westfalica. We are, however, also entitled to bring legal action against the Purchaser before the court having jurisdiction at its place of residence.
- (5) In case of discrepancies between the German and a translated version of these T&C, the German version always prevails.
- (6) Should any individual provision of these T&C or any individual provision of any other agreement be or become void or illegal, the validity of the remaining provisions or agreements is in no way affected.

We deliver in accordance with our 'General Terms and Conditions of Delivery and Payment (Please visit also www.jacob-group.com or also request a copy from us.

JACOB A to Z index

A

Actuators and limit switches 111, 262
Adapter pieces/transition pieces 85
Adapters and transition pieces 264
Adjustable blank-off covers 122
Adjustable elbows 61
Air bleeds 122
Air flow control gates 125
Air outlet pipes with bird-guard 96
Air outlet pipes with loose flange 215, 216
Air outlets/roof air outlets 264
Angle flange 266–269
Applications 9

B

Baffle pipe 263
Bag clamps 93
Bagging spouts 93
Bearing clamps 232
Bends 54–60
Bends with loose flange 196–204
BFM compensator 77, 81
Blank-off covers for flange connections 233

C

Cast-iron parts 254–255
Clamps 230–231
Cleaning pipes 103
Cleaning pipes with loose flange 216–217
Coatings 265
Compensators 77, 81, 82
Cone pieces 76, 78–81
Cone pieces – wear protection lining 252
Cone pieces with loose flange 212–213
Connecting flanges 82, 84
Counter flanges for connecting flanges 83
Cover locks 105
Cyclones 236, 241–242

D

DETECTABLE DESIGN 11
Distributors 132–165
Double turn-head distributors 180
Dust separators 241–242

E

Earthing bridges 23, 29
Earthing lugs 229
Earthing wires 227, 229
Electrostatic potential equalisation 11, 23, 29

F

Fall brake 263
Fill couplings 93
Fixing clips 232
Fixing components 226–233
Flanges 184, 219–221
Flanges for push-in pipes 192
Flanges/loose flange connections 184–187
Flanges/machine adapters 85–87
Flanges, separate, alternative 219–221
Flat seals 76
Flat seals for counter flanges 83
Flat seals for spouts 88
FOOD GRADE EC 1935/2004 11
Forks 64, 67–71
Forks, conical 68–71
Forks, conical with loose flange 207–209
Forks – wear protection 252
Forks, with loose flange 207–209

G

Gates 123–128

H

Hanger bolts, metric 232
Hexagon cap screwdriver 29
Hexagon nuts, metric 220, 232
Horizontal cyclone 237, 243
Hose clamps 91
Hose connections 89
Hose plugs 92
Hoses 90
Hose sockets 92
Hot-dip galvanised parts 3 mm 256

I

Inlet pieces – wear protection lining 248
Inspection pipes 102
Inspection T-pieces 104

J

JacBox 227–228
Jet caps 94
Jet caps with flange 214

L

Lip flanging 228
Louvre valve 262

M

Magnetic separator 101, 107

N

Non-return valves 123
Non-stick protection 263

P

Paint/spray paint 229
Perforated sheet metal 97
Pipe ball joints 61
Pipe clamps 226–227, 230–231
Pipe regulator gates 123
Pipe slide gates 124
Pipe slide gates, pneumatically operated 126
Pipes up to 12 m in length 265
Pipes – wear protection lining 248–249
Pipes, welded 32, 34–39, 267
Pipes with loose flange 188–190
Plexiglass pipes 106
Pull-rings 18, 22, 24–26, 28
Pull-rings for cast-iron 254
Push-in pipes 32, 41–43
Push-in pipes with loose flange 191

Q

QUICK CONNECT 11

R

Rain caps 95
Rain caps with loose flange 214
Rubber covers 100, 105

S

Sealed/dust-tight slide gates 262
Seals 186
Segments 48–53
Segments – wear protection lining 250–251
Segments with loose flange 193–195
Shock explosion proof 11
Shock explosion proof 10 bar 266
Silencers 236, 238–240
Silo / Redler outlet slide gates 127–128
Sleeves for hose connections 92
Special colours 16, 265
Special manufacture 260–269
Spigots 44–45
Square flanges 88
Square two-way valve 262
Swivel pipe switches 170, 181



JACOB A to Z index

Symmetrical forks 64, 72–73
Symmetrical forks, conical 72, 210–211
Symmetrical forks, conical
 with loose flange 210–211

T

Threaded bolts, metric 232
Throttle valves 110–121, 187
Throttle valves with loose flange 218
T-pieces 66
T-pieces with loose flange 205–206
Transition pieces/spouts 76, 85–87
Turn-head distributors 168–170, 172–175
Turn-head distributors, dust-tight 176–179
Twin nuts 232
Two-way distributors 132, 134, 150–165
Two-way valves – wear protection lining 253
Two-way valves with inlet collar 132, 138–143
Two-way valves with seal 133, 144–149

U

U-shaped seals 23, 24, 27
U-shaped seals for 10 mm lip 185, 222

V

Vacuum couplings 93
Venturi tube 262

W

Wear protection 246–253
Wear protection lining 263
Welded-on flanges 184–187
Welding ends 40



SALES GERMANY

T +49 571 9558-200
vertrieb@jacob-rohre.de
www.jacob-shop.com

FR. JACOB SÖHNE GMBH & CO. KG
Niedernfeldweg 14
32457 Porta Westfalica, Germany
T +49 571 9558-0
post@jacob-rohre.de
www.jacob-group.com

INTERNATIONAL SALES

T +49 571 9558-201
sales@jacob-rohre.de
www.jacob-shop.com

JACOB DOSATEC SARL
10 avenue de l'Entreprise
Campus Saint-Christophe Edison 2
95863 Cergy-Pontoise
France
T +33 1 39594758
F +33 1 39594759
infos@jacob-dosatec.fr

EUROTUBI S.R.L.
Via Bassa, 27
46020 Borgocarbonara (Mantova)
Italy
T +39 0386 41997
F +39 0386 41882
info@eurotubi.it

JACOB TUBING L.P.
3948 Willow Lake Blvd.
Memphis, TN 38118
USA
T +1 901 5661110
F +1 901 5661910
info@jacob-tubing.com

JACOB (UK) LIMITED
Unit 2, Laundry Bank
Church Stretton SY6 6PH
Shropshire
T +44 1694 722841
sales@jacob-uk.com

JACOB-SYSTEMS S.R.O.
Vavreckova 7074
760 01 Zlin
Czech Republic
T +420 721 936 860
info@jacob-group.cz