

Technical Manual

straub[®] 

STRAUB pipe couplings




aliaxis

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The right connection

STRAUB stands for the manufacture of first-class couplings and pipe coupling solutions, which are used in a wide variety of industries around the world.

STRAUB Werke AG celebrated its 50th anniversary in 2017. What started in 1967 with the invention of the STRAUB pipe connection is now a globally successful brand.

There have always been countless ways to connect pipes. They all required a great deal of specialised knowledge and extensive warehousing. Immanuel Straub made it his goal to bring order to this clutter. Following a long period of research and development, he came up with a universal pipe connection concept that is very easy and quick to use while still offering maximum reliability: the STRAUB pipe connection.

This innovative solution permanently revolutionised pipe connection technology. Using STRAUB solutions was quick, easy and reliable and soon took the place of welding or flanging. Thanks to this ingenious concept, the original STRAUB pipe coupling is

considered one of the best innovations on the global market for pipe connection technology.

STRAUB Werke AG makes use of regional resources and maintains local partnerships to ensure that STRAUB couplings can be transported safely and in high quality from Switzerland to all parts of the world and used there. The company has also been part of the globally active Aliaxis Group since 2003, benefitting from a global trading network.

Meeting the highest standards is the benchmark of our daily work. We do everything we can to ensure that our customers find suitable solutions for their pipe connections. Thanks to many years of practical experience in various markets, our customers can rely on lasting quality backed by our engineering expertise. To maintain this standard STRAUB has been regularly certified to ISO 9001 since 1995 and to ISO 14001 since 2008.



Swiss Made - think globally, act locally



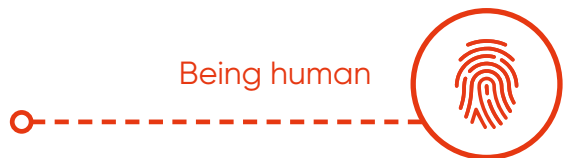
Tradition paired with innovation



In harmony with the environment



Expertise from A - Z



Being human

STRAUB pipe couplings

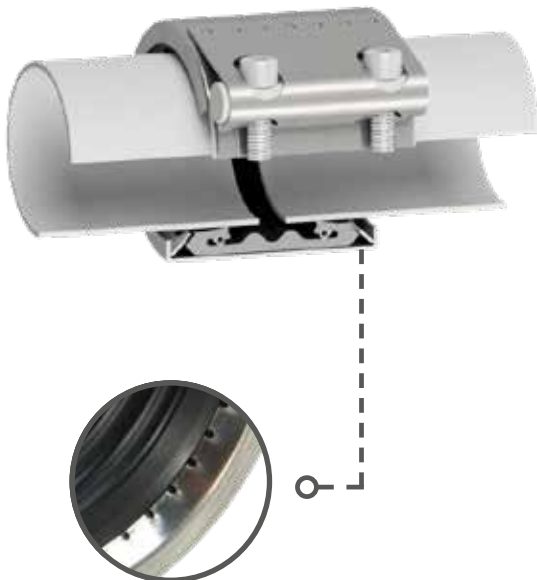
The basic concept

STRAUB distinguishes between two different types of pipe coupling:

STRAUB-GRIP

All STRAUB couplings labelled GRIP feature **axial restraint**.

To absorb the axial forces generated by the internal pressure, anchoring teeth grip the corresponding pipe material to establish a mechanical restraint connection. If the axial tensile load on the pipe increases due to the rising internal pressure, the anchoring teeth penetrate deeper into the pipe surface.



STRAUB-FLEX

All STRAUB couplings labelled FLEX feature **non-axial restraint** (not tension-proof).

If STRAUB-FLEX pipe couplings are used, it must be ensured that the axial movement occurring in each pipe section is no greater than the compensation capacity of the STRAUB-FLEX pipe coupling being used. Each pipe section requires a fixed point and a sliding pipe guide.

Depending on the size, the STRAUB-OPEN-FLEX is a hinged or multi-part FLEX pipe coupling.



The properties

The progressive sealing effect

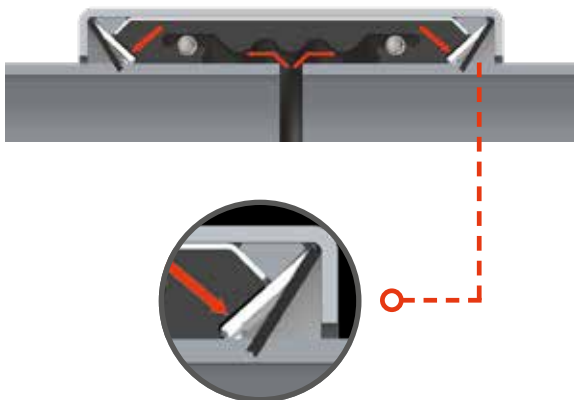
The progressive sealing effect is a unique and patented feature of the STRAUB gasket.



- As the pressure in the pipe increases so does the contact pressure on the sealing lip due to the flow through the pressure equalisation channels.
- Due to the low tightening torques, the rubber is not subjected to any high loads, resulting in lasting elasticity and a long service life.
- The open space between the sealing lips serves as a "reservoir" for the elastomer in the event of temperature fluctuations.

The progressive anchoring effect

STRAUB pipe connections are used on commercially available pipes without pipe end preparation. The progressive anchoring effect of all STRAUB-GRIP products is another special and patented feature thanks to specially shaped teeth:



- As the locking bolts are tightened to the specified torque, the specially shaped teeth on the anchoring rings penetrate the surface of the pipe, creating an axial restraint connection.
- If the axial load on the pipe increases due to increased internal pressure or external influences, the teeth continue to penetrate even deeper into the pipe surface.
- STRAUB anchoring systems are suitable for hard (cast iron, copper, stainless steel) and soft surfaces (aluminium, CuNiFe, plastic).
- The strategic distribution of hardness to the edge zones means that the anchoring ring remains spring tempered and flexible in the centre.

Stress-free joining

In STRAUB pipe couplings, the sealing and anchoring functions are independent of one another.

Anchoring

The spring effect of the casing and anchoring rings results in a flexible restraint connection.

The casing bridging the exposed pipe ends does not transfer any strains, minimising the stress on fittings and built-in parts. The pipework is thus no longer rigid and stiff, but can be moved and angled at every joint.

Sealing

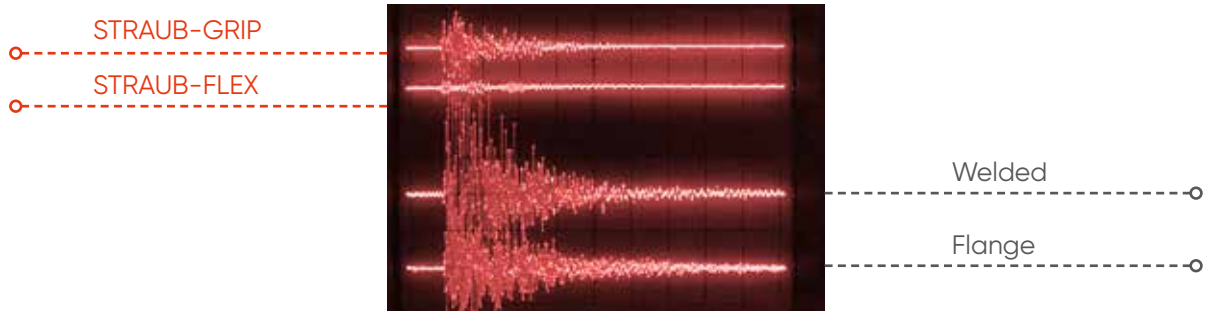
The rubber seal is not located in the area of the guiding forces. Instead, it is outside on the surface of the pipe allowing the pipe ends to move freely.

Damping properties

Thanks to the large amount of rubber, the real sealing lip principle and the high flexibility of STRAUB couplings, high damping values are achieved without implementing additional measures on the pipework.

Noise and vibration damping

Testing with an oscilloscope confirms that the noise damping of the STRAUB coupling is up to seven times better than that of a flange connection.

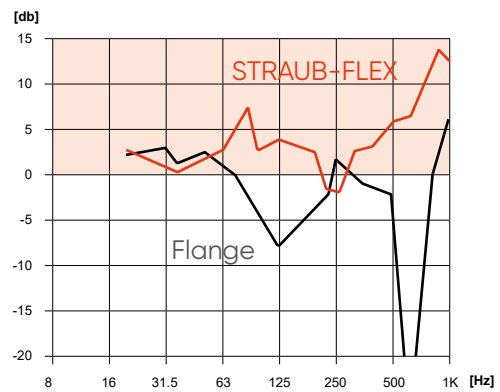


Measurements taken using an electro-dynamic oscillating circuit by a turbine manufacturer resulted in the following average damping values:

- STRAUB-GRIP: 2.25 times better than a flange
- STRAUB-FLEX: 7.5 times better than a flange

The following absolute values were determined across all three axes for the above reference system:

In this case, STRAUB-FLEX also has remarkable advantages over the flange. The positive values correspond to vibration damping, the negative values to vibration reinforcement.



Application benefits

... on oscillating machines such as engines, gears, pumps, turbines, compressors, etc.

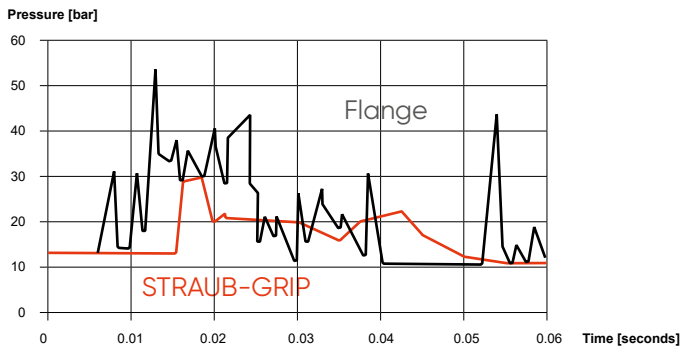
- 👍 No tension transfer
- 👍 No vibration reinforcement
- 👍 No fractures
- 👍 Longer service life





... for transitions between oscillating elements and rigid components such as the ship's diesel engine, hull, pump, pipeline, turbine, fuel supply, etc.

- 👍 More convenient
- 👍 No structure-borne noise emissions
- 👍 Joint and compensation in one
- 👍 Quickly detachable


Balancing pressure surges

Using 25 kg hammer on water pipe to generate a pressure surge of 13 bar:









-  No retightening of locking bolts
-  Longer service life
-  Elasticity in the pipework
-  No additional damping elements


The measured pressure at the end of the pipe is four times higher with flanges than STRAUB couplings.

Pressure pulsation testing by the French Navy:	Amplitude	0 - 16 bar	
	Frequency	0.5 Hz	
	STRAUB-GRIP L	660,000 cycles	

Shock resistance

Anvil shock test by the Canadian Navy:	Drop height	1 m	
	Weight	1700 kg	
	Acceleration	approx. 150 g	
Shock test WTD71/BWB BV0440: (for CuNiFe and carbon steel pipes)	Acceleration	140 g surface ships	
	Acceleration	200 g submarines	

-  Resistant to underwater blasts
-  Flexible in the event of collisions
-  Tight even when deformed
-  Stress-free pipes

Earthquake test in Nippon Foundation laboratory:	1000 gal without damage (gal = dimension for acceleration)	
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Life expectancy

If the recommended storage and operating conditions are observed, the life expectancy of STRAUB pipe couplings and repair clamps equipped with EPDM, NBR or FKM/FPM can be 25 years or more.

Application conditions



Higher temperatures

EPDM can be used up to max. 125°C and NBR up to max. 100°C, but with a reduced service life. The additional mechanical and chemical loads play a significant role here. The service life must therefore be clarified with the manufacturer on a case-by-case basis.



Lower temperatures

Depending on the design, the elasticity of STRAUB gaskets is sufficient down to -30°C. Below this temperature there is a loss of elasticity, which can lead to the destruction of the elastomer under additional dynamic loads.



UV radiation

The coupling casing and anchoring rings (STRAUB-GRIP) completely surround the gasket and protect it from UV radiation.



Tightening torque

Due to the progressive sealing effect, STRAUB gaskets require a lower tightening torque and are thus subjected to less stress than flange gaskets, for example. As a result, STRAUB gaskets retain their elasticity and service life over a longer period of time.

Recommended long-term storage conditions:

- Do not expose to direct sunlight
- Store at a constant temperature below 40°C
- Maintain the relative humidity above 50%
- Protect from soiling

STRAUB – main areas of application

The advantage of a wide range of applications

In practice, STRAUB pipe couplings are quick, easy and reliable to use – even under the toughest conditions.



Water & gas:

Drinking water | waste water | drainage | gas pipes | repairs



Renewable energy:

Hydropower plants | wastewater energy | solar energy



Industry:

Fire protection | ventilation | cooling | transport | chemicals



Shipbuilding & offshore:

Fire main lines | ventilation | cooling | ballast | fuel



Reliable

- Stress-free and flexible pipe connection
- Compensates for the axial movement and angular deflections
- Pressure resistant and tight, even with inaccurate pipe joints
- Dampens pressure surges, vibrations and structure-borne noise

Easy handling

- Detachable and reusable
- Maintenance- and fault-free
- No time-consuming alignment and fitting work
- Installation without risk of fire or explosion
- No safety measures required

Economical

- Easy to mount thanks to a ready-to-install product
- Joins plain end pipes without the need for time-consuming pipe end preparation
- No special assembly tools
- Cost-saving thanks to short assembly times

Space-saving

- Compact design for space-saving pipe installation
- Low-profile insulation, small openings, little space required
- Low weight compared to traditional connection options such as flanges
- No pipe end preparation

System independence

- Compatible with almost all pipe connection systems
- Joins pipes made of different materials
- Absolutely leakproof joint for liquids, gas and solids
- Repairs to pipe damage without service interruptions

A close-up photograph of a metal tool, likely a screwdriver or similar instrument. The tool has a circular grip at the top and a hexagonal hole in the middle. The background is dark and out of focus. A bright blue curved shape is on the right side of the image. On the left side, there are five white rounded rectangular boxes containing text labels for different grip types. The tool's body has some faint text on it, including "STRAUB" and "1000000".

STRAUB-METAL-GRIP

STRAUB-GRIP

STRAUB-COMBI-GRIP

STRAUB-PLAST-GRIP

STRAUB-PLAST-PRO

**Elementary forces
reliably under
control:**

Axial restraint pipe couplings

STRAUB-METAL-GRIP

STRAUB-METAL-GRIP is a pipe connection with axial restraint for all metal and rigid plastic pipes.

The universal connection solution offers countless application possibilities for almost all pipe systems. The installation is performed on plain end pipes without the need to machine the pipe ends.

As the first product from STRAUB Werke AG, STRAUB-METAL-GRIP is considered to be the original coupling and thanks to its compact design it enables pipe routing in very confined spaces.

In 2024, this product celebrated 50 years of successful use, illustrating its durability and importance for the industry.



**30.0 mm to
609.6 mm**

Diameter [mm]



**-30°C to
+100°C**

Temperature [°C]



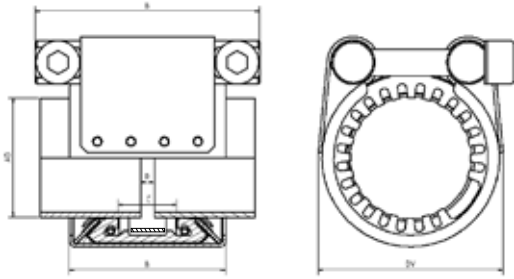
**EPDM
NBR**

Gasket [material]

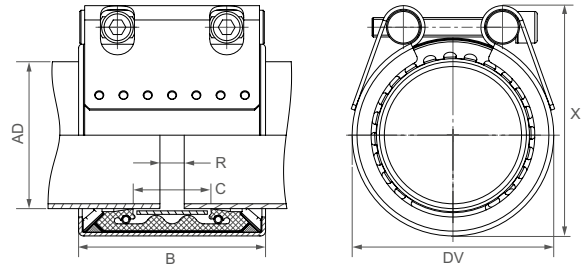


STRAUB-METAL-GRIP

ø 30.0 - 33.7 mm



ø 38.0 - 219.1 mm



Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 or equivalent
Anchoring rings	-	1.4310	1.4310
Strip insert (stainless steel insert included)	-	1.4404 or equivalent / PVDF	1.4404 or equivalent / PVDF

EPDM	
	<ul style="list-style-type: none"> -30°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
30.0	29.5 - 30.5	67	16	46/67	18	47	56	5	10	6	M8
33.7	33.2 - 34.2	62	16	46/67	18	52	63	5	10	6	M8
38.0	37.5 - 38.5	58	16	61	19	58	73	5 - 10	15	6	M8
42.4	41.9 - 42.9	53	16	61	20	62	76	5 - 10	15	6	M8
44.5	44.0 - 45.0	48	16	61	20	64	80	5 - 10	15	6	M8
48.3	47.8 - 48.8	44	16	61	20	68	83	5 - 10	15	6	M8
54.0	53.5 - 54.5	39	16	77	38	74	89	5 - 15	15	6	M8
57.0	56.4 - 57.6	37	16	77	32	77	92	5 - 25	15	6	M8
60.3	59.7 - 60.9	37	16	77	32	82	95	5 - 25	15	6	M8
63.5	62.9 - 64.1	37	16	77	32	84	98	5 - 25	15	6	M8
73.0	72.2 - 73.8	56	16	94	39	95	117	5 - 25	35	8	M10
76.1	75.3 - 76.9	56	16	94	39	100	117	5 - 25	35	8	M10
84.0	83.2 - 84.8	45	16	94	39	112	123	5 - 25	35	8	M10
88.9	88.0 - 89.8	41	16	94	39	117	123	5 - 25	35	8	M10
104.0	103.0 - 105.0	37	16	94	39	133	151	5 - 25	35	8	M10
108.0	106.9 - 109.1	35	16	94	39	133	151	5 - 25	35	8	M10
114.3	113.2 - 115.4	34	16	94	39	139	157	5 - 25	35	8	M10
129.0	127.7 - 130.3	33	16	108	43	160	182	5 - 25	60	10	M12
133.0	131.7 - 134.3	33	16	108	43	160	182	5 - 25	60	10	M12
139.7	138.3 - 141.1	32	16	109	43	168	191	5 - 25	60	10	M12
154.0	152.5 - 155.5	32	16	109	51	186	210	5 - 25	60	10	M12
159.0	157.4 - 160.6	31	16	109	43	187	210	5 - 25	60	10	M12
168.3	166.6 - 170.0	29	16	109	43	200	220	5 - 25	60	10	M12
219.1	216.9 - 221.3	26	16	144	60	259	288	5 - 35	100	14	M16

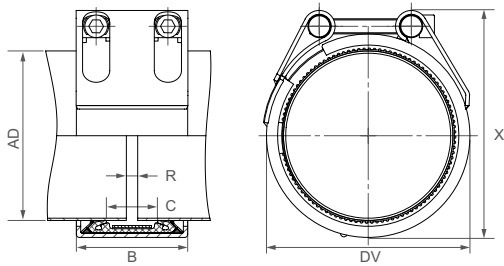
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- PN () = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-METAL-GRIP

ø 206.0 - 609.6 mm



Components Materials	W1	W2	W5
Casing	1.0577, hot-dip galvanised	-	-
Locking bolts	1.7220	-	-
Bolt	1.0737, galvanised	-	-
Anchoring rings	1.4310	-	-
Strip insert (stainless steel insert included)	1.4404 or equivalent / PVDF	-	-

EPDM	
	<ul style="list-style-type: none"> -30°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
206.0	204.0 - 208.0	28	15	148	67	251	282	5 - 35	180	17	M20
244.5	242.0 - 247.0	27	14	148	67	290	330	5 - 35	180	17	M20
267.0	264.5 - 269.5	24	12	148	67	312	352	5 - 35	180	17	M20
273.0	270.5 - 275.5	21	12	148	67	318	359	5 - 35	180	17	M20
323.9	320.5 - 327.0	18	10	148	67	369	411	5 - 35	230	17	M20
355.6	352.0 - 359.0	17	8	148	67	401	444	5 - 35	230	17	M20
406.4	402.5 - 410.5	14	8	148	67	451	494	5 - 35	230	17	M20
457.2	452.5 - 462.0	8	-	148	67	502	546	5 - 35	250	17	M20
508.0	503.0 - 513.0	6	-	148	67	553	598	5 - 35	250	17	M20
558.8	554.0 - 564.0	6	-	148	67	604	649	5 - 35	300	17	M20
609.6	604.5 - 614.5	5	-	148	67	655	701	5 - 35	300	17	M20

Infinitely variable intermediate sizes available | Refer to minimum pipe wall thickness ➔ page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP

STRAUB-GRIP pipe couplings are used to connect pipes securely without the need for additional safety measures.

STRAUB-GRIP has the same properties as STRAUB-METAL-GRIP, but tends to be used for lower working pressures.

Unexpected secondary stresses as well as inaccuracies in the pipe guide on site are absorbed by the couplings due to their flexible design. This allows quick and easy installation, resulting in significant cost savings.



**21.3 mm to
711.2 mm**

Diameter [mm]



**-20°C to
+180°C**

Temperature [°C]



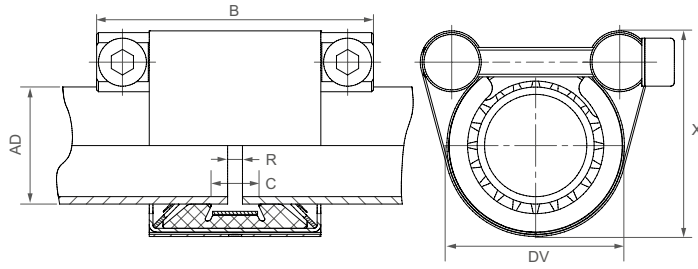
**EPDM
NBR
FPM/FKM**

Gasket [material]



STRAUB-GRIP

ø 21.3 - 48.3 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4404 / 1.4162 (LDX)
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 or equivalent
Anchoring rings	-	-	1.4310
Strip insert (stainless steel insert included)	-	-	1.4404 or equivalent / PVDF

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
21.3	21.0 - 21.6	36	-	46.5 / 75	18	43	56	5 - 10	10	5	M6
25.0	24.5 - 25.5	64	16	46.5 / 75	18	41	53	5 - 10	10	6	M8
26.9	26.4 - 27.4	58	16	46.5 / 75	18	44	56	5 - 10	10	6	M8
28.0	27.5 - 28.5	50	16	46.5 / 75	18	45	57	5 - 10	10	6	M8
30.0	29.5 - 30.5	42	16	46.5 / 75	18	47	60	5 - 10	10	6	M8
33.7	33.2 - 34.2	39	16	46.5 / 75	18	51	65	5 - 10	10	6	M8
35.0	34.5 - 35.5	37	16	46.5 / 75	18	52	66	5 - 10	12	6	M8
38.0	37.5 - 38.5	36	16	46.5 / 75	18	55	69	5 - 10	12	6	M8
40.0	39.5 - 40.5	35	16	46.5 / 75	18	57	71	5 - 10	12	6	M8
42.4	41.9 - 42.9	33	16	46.5 / 75	18	60	74	5 - 10	12	6	M8
44.5	44.0 - 45.0	30	16	46.5 / 75	18	62	76	5 - 10	12	6	M8
48.3	47.8 - 48.8	28	16	46.5 / 75	18	65	81	5 - 10	12	6	M8

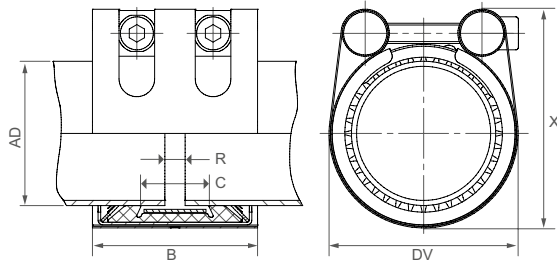
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP

ø 50.8 - 168.3 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4404 / 1.4162 (LDX)
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 or equivalent
Anchoring rings	-	-	1.4310
Strip insert (stainless steel insert included)	-	-	1.4404 or equivalent / PVDF

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products




NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
50.8	50.0 - 51.3	20	16	75	37	76	88	5 - 15	15	6	M8
54.0	53.5 - 54.5	24	16	65	24	71	87	5 - 15	15	6	M8
57.0	56.4 - 57.6	23	16	65	24	74	90	5 - 15	15	6	M8
60.3	59.7 - 60.9	23	16	65	24	77	93	5 - 15	15	6	M8
63.0	62.4 - 63.6	23	16	65	24	80	96	5 - 15	15	6	M8
66.6	64.9 - 67.3	22	16	65	24	84	100	5 - 15	15	6	M8
70.0	68.9 - 70.7	22	16	65	24	87	104	5 - 15	15	6	M8
73.0	72.3 - 73.7	21	16	65	24	90	107	5 - 15	15	6	M8
76.1	75.3 - 76.9	35	16	100	40	100	122	5 - 25	20	8	M10
79.5	78.7 - 80.3	32	16	100	40	103	125	5 - 25	20	8	M10
84.0	83.2 - 84.8	29	16	100	40	107	130	5 - 25	20	8	M10
88.9	88.0 - 89.8	26	16	100	40	112	134	5 - 25	20	8	M10
100.6	99.6 - 101.6	23	16	100	40	124	146	5 - 25	25	8	M10
101.6	100.6 - 102.6	23	16	100	40	125	146	5 - 25	25	8	M10
104.0	103.0 - 105.0	23	16	100	40	127	148	5 - 25	25	8	M10
104.8	103.8 - 105.8	23	16	100	40	128	150	5 - 25	25	8	M10
108.0	106.9 - 109.1	22	16	100	40	132	154	5 - 25	25	8	M10
114.3	113.2 - 115.4	22	16	100	40	138	160	5 - 25	25	8	M10
118.0	116.9 - 119.1	22	16	100	40	142	166	5 - 25	25	8	M10
125.0	123.7 - 126.3	21	16	115	53	152	174	5 - 30	40	10	M12
127.0	125.7 - 128.3	21	16	115	53	154	176	5 - 30	40	10	M12
129.0	127.7 - 130.3	21	16	115	53	156	178	5 - 30	40	10	M12
130.2	128.9 - 131.5	21	16	115	53	157	179	5 - 30	40	10	M12
133.0	131.7 - 134.3	21	16	115	53	160	182	5 - 30	40	10	M12
139.7	138.3 - 141.1	20	16	115	53	166	189	5 - 30	40	10	M12
141.3	139.9 - 142.7	20	16	115	53	168	190	5 - 30	40	10	M12
154.0	152.5 - 155.5	18	16	115	53	181	203	5 - 30	50	10	M12
159.0	157.4 - 160.6	18	16	115	53	186	208	5 - 30	50	10	M12
165.0	163.4 - 166.6	16	16	115	53	192	214	5 - 30	50	10	M12
168.3	166.6 - 170.0	16	16	115	53	195	217	5 - 30	50	10	M12

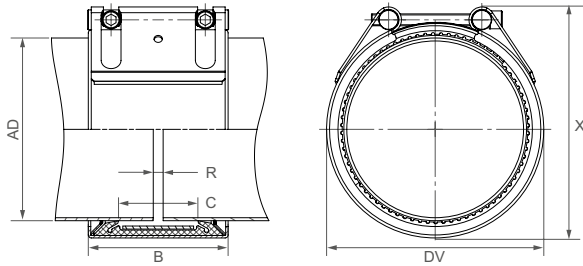
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- PN () = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP

ø 180.0 - 711.2 mm



Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 / 1.4435
Anchoring rings	-	1.4310	1.4310
Strip insert (stainless steel insert included)	-	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
180.0	178.0 - 182.0	16	10	141	80	205	233	5 - 35	50	10	M12
193.7	192.0 - 195.5	16	10	141	80	224	243	5 - 35	50	10	M12
200.0	198.0 - 202.0	15	10	141	80	230	249	5 - 35	50	10	M12
204.0	202.0 - 206.0	14	10	141	80	234	253	5 - 35	50	10	M12
206.0	204.0 - 208.0	14	5.5	141	80	234	253	5 - 35	50	10	M12
219.1	216.9 - 221.3	16	10	142	80	250	269	5 - 30	60	10	M12
244.5	242.0 - 247.0	9	5.5	141	80	275	294	5 - 35	50	10	M12
250.0	247.5 - 252.5	9	5.5	141	80	280	299	5 - 35	50	10	M12
254.0	251.5 - 256.5	9	5.5	141	80	284	303	5 - 35	50	10	M12
256.0	253.5 - 258.5	9	5.5	141	80	284	303	5 - 35	50	10	M12
267.0	264.5 - 269.5	8	5	141	80	297	316	5 - 35	50	10	M12
273.0	270.5 - 275.5	7	4	141	80	303	322	5 - 35	60	10	M12
273.0	270.5 - 275.5	16	4	141	80	303	326	5 - 35	80	14	M16
306.0	303.0 - 309.0	6	3	141	80	334	353	5 - 35	60	10	M12
323.9	320.5 - 327.0	5	3	141	80	354	373	5 - 35	60	10	M12
323.9	320.5 - 327.0	13	3	141	80	354	377	5 - 35	90	14	M16
355.6	352.0 - 359.0	10	2.5	141	80	386	405	5 - 35	90	14	M16
406.4	402.5 - 410.5	7	2	141	80	436	455	5 - 35	100	14	M16
457.2	452.5 - 461.5	5	-	141	80	487	506	5 - 35	100	14	M16
508.0	503.5 - 512.5	4	-	141	80	538	557	5 - 35	110	14	M16
558.8	554.5 - 563.5	3	-	141	80	589	608	5 - 35	110	14	M16
609.6	605.5 - 614.0	2	-	141	80	640	659	5 - 35	120	14	M16
711.2	707.0 - 715.0	1	-	141	80	742	761	5 - 35	120	14	M16

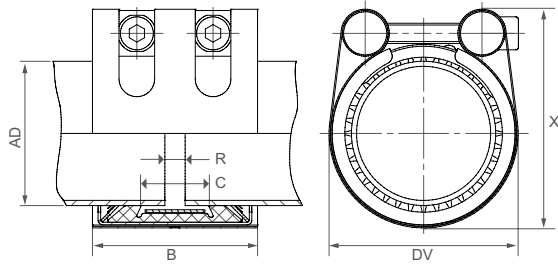
Infinitely variable intermediate sizes available | Refer to minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP stepped coupling

ø 48.3 - 168.3 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4404 or equivalent
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 / 1.4435
Anchoring rings	-	-	1.4310
Strip insert (stainless steel insert included)	-	-	1.4404 or equivalent / PVDF

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

Pipe 1 [mm]	OD Pipe 2 [mm]	Clamping range		PN [bar]	B [mm]	C [mm]	DV [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
		OD 1 [mm]	OD 2 [mm]								
50.8	48.3	50.3 - 51.3	47.8 - 48.8	24	75	37	76	5 - 10	15	6	M8
54.0	50.8	53.5 - 54.5	50.3 - 51.3	24	65	24	76	5 - 15	15	6	M8
57.0	54.0	56.4 - 57.6	53.5 - 54.5	24	65	24	76	5 - 15	15	6	M8
60.3	57.0	59.7 - 60.9	56.4 - 57.6	24	65	24	77	5 - 15	15	6	M8
63.0	60.3	62.4 - 63.6	59.7 - 60.6	24	65	24	79	5 - 15	15	6	M8
70.0	66.6	68.9 - 70.7	64.9 - 67.3	24	65	24	87	5 - 15	15	6	M8
76.1	73.0	75.3 - 76.9	72.3 - 73.7	24	100	40	100	5 - 25	20	8	M10
79.5	76.1	78.7 - 80.3	75.3 - 76.9	22	100	40	103	5 - 25	20	8	M10
88.9	84.0	88.0 - 89.8	83.2 - 84.8	22	100	40	107	5 - 25	20	8	M10
104.0	101.6	103.0 - 105.0	100.6 - 102.6	22	100	40	127	5 - 25	25	8	M10
108.0	104.8	106.9 - 109.1	103.8 - 105.8	21	100	40	132	5 - 25	25	8	M10
114.3	108.0	113.2 - 115.4	106.9 - 109.1	16	100	40	138	5 - 25	25	8	M10
118.0	114.3	116.9 - 170.0	113.2 - 115.4	16	100	40	142	5 - 25	35	8	M10
139.7	133.0	138.3 - 141.1	131.7 - 134.3	16	115	53	166	5 - 25	40	10	M12
144.0	139.7	142.6 - 145.4	138.3 - 141.1	16	115	53	171	5 - 25	60	10	M12
159.0	154.0	157.4 - 160.6	152.5 - 155.5	16	115	53	186	5 - 25	50	10	M12
168.3	159.0	166.6 - 170.0	157.4 - 160.6	16	115	53	195	5 - 25	50	10	M12
168.3	164.5	166.6 - 170.0	162.9 - 166.1	16	115	53	195	5 - 25	50	10	M12

Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-COMBI-GRIP

STRAUB-COMBI-GRIP is a coupling that has been specially developed for transitions from metal to plastic pipes.

The innovative GRIP technology ensures a secure joint between the different pipe materials.

Different anchoring rings on each side are what set the coupling apart and ensure a tight joint.

STRAUB-COMBI-GRIP is therefore an ideal solution for fitters and technicians who require a reliable connection between metal and plastic pipes.



**33.7/33.7 mm
to
400.0/400.0 mm**

Diameter [mm]



**-20°C to
+100°C**

Temperature [°C]



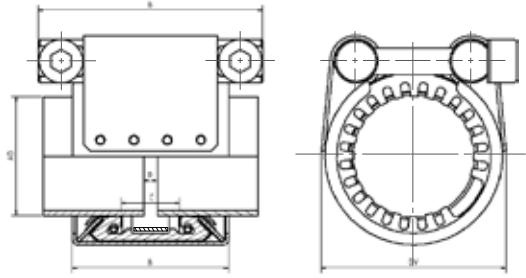
**EPDM
NBR**

Gasket [material]

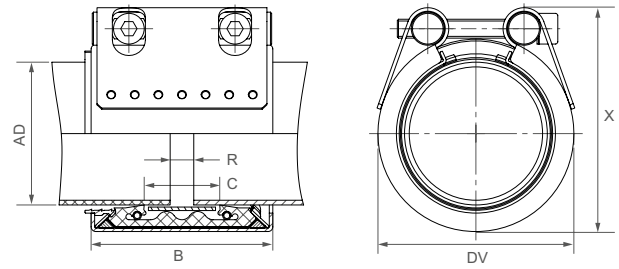


STRAUB-COMBI-GRIP

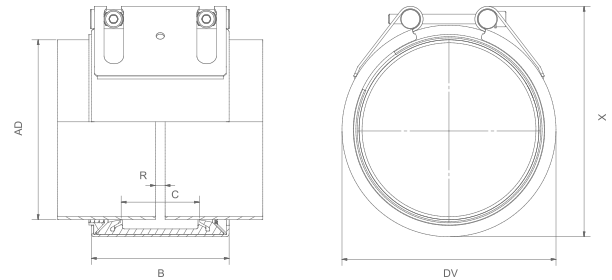
ø 33.7/33.7 mm



ø 40.0/38.0 - 160.0/168.3 mm



ø 200.0/206.0 - 400.0/400.0 mm



EPDM	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products
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
NBR	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons
------------	--

Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 or equivalent
Anchoring rings	-	1.4301 / 1.4310	1.4301 / 1.4310
Strip insert (stainless steel insert included)	-	1.4404 or equivalent / PVDF / HDPE	1.4404 or equivalent / PVDF / HDPE

OD		Clamping range		PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
Plastic [mm]	Steel [mm]	Plastic [mm]	Steel [mm]									
33.7	33.7	32.7 - 34.2	32.7 - 34.2	16	67	18	52	63	5	10	6	8
40.0	38.0	39.0 - 40.5	37.5 - 39.0	16	61	19	60	73	5 - 10	15	6	M8
40.0	42.4	39.0 - 40.5	42.0 - 43.5	16	61	20	63	76	5 - 10	15	6	M8
50.0	48.3	49.0 - 50.5	47.8 - 49.0	16	61	26	70	83	5 - 10	15	6	M8
60.0	60.3	59.0 - 61.0	59.7 - 61.0	16	76	32	85	98	5 - 25	20	6	M8
63.0	60.3	62.0 - 64.0	59.7 - 61.0	16	76	32	85	98	5 - 25	20	6	M8
75.0	73.0	74.0 - 76.0	72.0 - 74.0	16	94	39	99	117	5 - 25	30	8	M10
75.0	76.1	74.0 - 76.0	75.0 - 77.5	16	94	39	100	117	5 - 25	30	8	M10
90.0	88.9	89.0 - 91.0	87.0 - 90.0	16	94	39	118	123	5 - 25	30	8	M10
110.0	108.0	109.0 - 111.0	106.5 - 110.5	16	94	39	135	151	5 - 25	30	8	M10
110.0	114.3	109.0 - 111.0	112.0 - 116.0	16	94	45	139	157	5 - 25	30	8	M10
114.3	114.3	113.0 - 115.0	112.0 - 116.0	16	94	39	140	157	5 - 25	30	8	M10
140.0	139.7	139.0 - 142.0	137.5 - 141.0	16	109	43	168	191	5 - 30	60	10	M12
160.0	159.0	159.0 - 162.0	157.0 - 160.5	16	109	43	188	210	5 - 30	60	10	M12
160.0	168.3*	159.0 - 162.0	166.6 - 170.0	16	110	54	192	222	5 - 30	20	10	M12
180.0	180.0	178.0 - 182.0	178.0 - 182.0	16	141	80	207	236	5 - 30	60	10	M12
200.0	200.0	198.0 - 202.0	198.0 - 202.0	16	141	80	220	246	5 - 35	60	10	M12
200.0	206.0	198.0 - 202.0	204.0 - 208.0	16	141	80	227	246	5 - 35	60	10	M12
225.0	219.1	223.0 - 227.0	216.9 - 221.3	10	141	80	252	271	5 - 35	60	10	M12
225.0	229.0	223.0 - 227.0	227.0 - 231.0	10	141	80	252	271	5 - 35	60	10	M12
250.0	256.0	248.0 - 252.0	253.5 - 258.5	10	141	80	277	296	5 - 35	60	10	M12
280.0	273.0	278.0 - 282.0	271.0 - 275.0	10	141	80	307	330	5 - 35	100	14	M16
280.0	280.0	278.0 - 282.0	278.0 - 282.0	3	141	80	307	330	5 - 35	60	14	M16
315.0	323.9	313.0 - 317.0	320.5 - 327.0	10	141	80	342	365	5 - 35	120	14	M16
315.0	326.0	313.0 - 317.0	322.0 - 326.0	10	141	80	345	365	5 - 35	110	14	M16
355.0	355.6	353.0 - 357.0	352.0 - 359.0	6	141	80	382	405	5 - 35	150	14	M16
400.0	400.0	397.0 - 403.0	397.0 - 403.0	6	141	80	450	450	5 - 35	150	14	M16

* only available in W5

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Use STRAUB stiffening rings when installing on soft thermoplastic pipes (PP, PE) ( p. 89)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-PLAST-GRIP

STRAUB-PLAST-GRIP is suitable for joining plastic pipes.

The installation and joining of plastic pipes presents new challenges for contractors. Many connection types are weather or temperature-dependent or require electrical equipment and special tools for installation.

STRAUB-PLAST-GRIP can be used to connect pipes made of all types of plastic, including two different plastics.

If adjustments or changes are made to systems that have already been installed, the pipe connection can be easily detached and re-used. This has a positive impact on the cost/benefit ratio.



**33.7 mm
to
400.0 mm**

Diameter [mm]



**-20°C to
+100°C**

Temperature [°C]



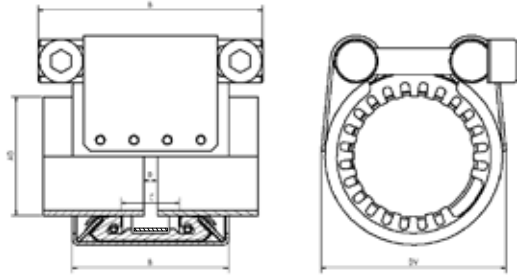
**EPDM
NBR**

Gasket [material]

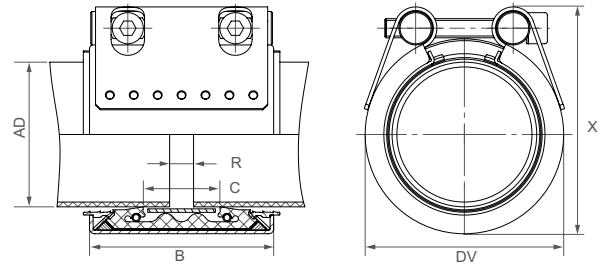


STRAUB-PLAST-GRIP

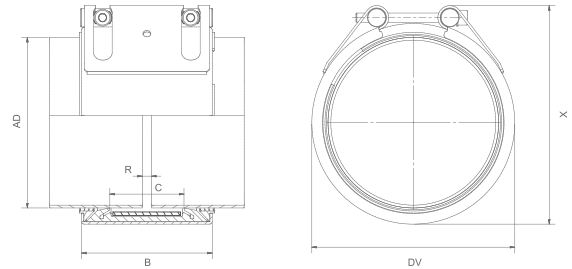
ø 33.7 mm



ø 40.0 - 160.0 mm



ø 180.0 - 355.0 mm





EPDM	• -20°C to +100°C
	• all qualities of water, waste water, air, solids and chemical products

NBR	• -20°C to +80°C
	• water, gases, oils, combustibles, fuels and other hydrocarbons

Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 or equivalent
Anchoring rings	-	1.4301 / 1.4310	1.4301 / 1.4310
Strip insert (stainless steel insert included)	-	1.4404 or equivalent / PVDF / HDPE	1.4404 or equivalent / PVDF / HDPE

OD plastic [mm]	Clamping range plastic [mm]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
33.7	32.7 - 34.2	16	67	18	52	63	5	10	6	M8
40.0	39.0 - 40.5	16	61	19	60	73	5 - 15	15	6	M8
42.4	41.9 - 42.9	16	61	20	62	75	5 - 10	15	6	M8
48.3	47.3 - 49.3	16	61	20	68	81	5 - 15	15	6	M8
50.0	49.0 - 50.5	16	61	26	70	83	5 - 15	15	6	M8
60.3	59.7 - 60.9	16	77	32	82	93	5 - 15	18	6	M8
63.0	62.0 - 64.0	16	76	32	85	98	5 - 20	20	6	M8
73.0	72.2 - 73.8	16	94	39	100	108	5 - 25	25	8	M10
75.0	74.0 - 76.0	16	94	39	99	117	5 - 25	25	8	M10
84.0	83.2 - 84.8	16	94	39	112	119	5 - 25	30	8	M10
88.9	88.0 - 89.8	16	94	39	117	121	5 - 25	30	8	M10
90.0	89.0 - 91.0	16	94	39	118	123	5 - 25	25	8	M10
104.0	103.0 - 105.0	16	94	39	133	148	5 - 25	30	8	M10
110.0	109.0 - 111.0	16	94	39	135	151	5 - 25	25	8	M10
114.3	113.0 - 115.0	16	94	39	139	157	5 - 30	25	10	M12
125.0	124.0 - 126.0	16	94	43	152	174	5 - 30	60	10	M12
140.0	139.0 - 142.0	16	108	43	168	191	5 - 30	60	10	M12
160.0	159.0 - 162.0	16	109	43	188	210	5 - 25	60	10	M12
180.0	178.0 - 182.0	16	141	80	207	226	5 - 35	60	10	M12
200.0	198.0 - 202.0	16	141	80	227	246	5 - 35	60	10	M12
225.0	223.0 - 227.0	10	141	80	252	271	5 - 35	60	10	M12
250.0	248.0 - 252.0	10	141	80	277	296	5 - 35	60	10	M12
280.0	278.0 - 282.0	10	141	80	307	330	5 - 35	100	14	M16
315.0	313.0 - 317.0	10	141	80	342	365	5 - 35	120	14	M16
355.0	353.0 - 357.0	6	141	80	382	405	5 - 35	150	14	M16
400.0	398.0 - 402.0	6	141	80	427	450	5 - 35	150	14	M16

Notes:

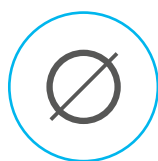
- Follow the assembly instructions
- PN () = working pressure considering the application loads Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Use STRAUB stiffening rings when installing on soft thermoplastic pipes (PP, PE) ( p. 89)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-PLAST-PRO

STRAUB-PLAST-PRO is a complete system of axial restraint for the quick and easy connection of pressure pipes made of polyethylene (PE). Other pipe materials are available on request.

STRAUB-PLAST-PRO is particularly suitable for use in water supply, pressurised drainage, industry and landfill construction. The application range includes the dimensions SDR 11 (63.0 - 180.0 mm; PN 16) and SDR 17 (90.0 - 355.0 mm; PN 10).

This unique complete system offers the great advantage that the individual parts can be quickly connected to each other by hand without an external power supply and without preparing the pipe ends. STRAUB-PLAST-PRO is the proven alternative to welding PE pipes.



**63.0 mm to
355.0 mm**



-5°C to +80°C

Diameter [mm]

Temperature [°C]

PE 80 and PE 100 pipes are connected with a liner insert (internal sealing fitting) and one to three clamps.

Thanks to the use of carefully selected materials, STRAUB-PLAST-PRO is highly resistant to corrosion.



STRAUB-PLAST-PRO

Product overview

The STRAUB-PLAST-PRO product range consists of various liner inserts and clamps. Thanks to this versatile range of fittings, PE pipes can be connected quickly and easily in any situation.

STRAUB-PLAST-PRO L

Coupler



STRAUB-PLAST-PRO LR

Repair coupler
(repairs up to 100 mm)



STRAUB-PLAST-PRO FA

Flange adapter¹
(separate flange included)

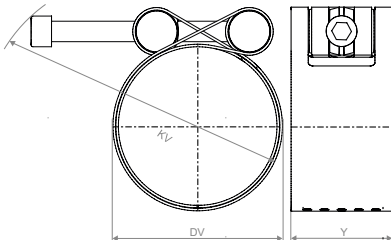


STRAUB-PLAST-PRO has been successfully tested in accordance with British Standard WIS 4-24-01 and fulfils the requirements of "German Standard DVGW-VP609" and "European Standard EN 1254-3".

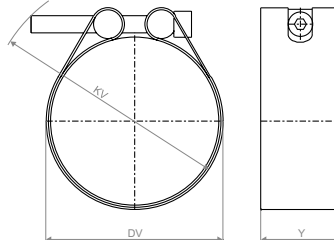
STRAUB-PLAST-PRO

Clamps

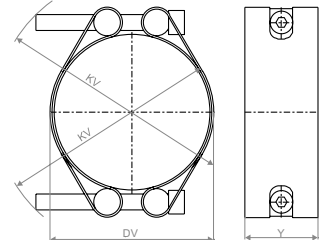
DN 63 - DN 125 (tangential)



DN 140 - DN 200



DN 225 - DN 355



DN	DV braced		KV braced		Y [mm]	AF [mm]	Thread M..	Torque rate [Nm]
	DIN [mm]	MVR [mm]	DIN [mm]	MVR [mm]				
63	66	68	139	141	59	10	12	60
75	78	81	154	156	59	10	12	60
90	93	96	166	168	59	10	12	60
110	113	116	180	182	59	10	12	60
125	129	132	155	156	55	10 / 14 ²	12 / 16 ²	60 / 120 ²
140	144	147	170	170	55	14	16	130
160	165	168	188	189	55	14	16	150
180	184	188	216	217	55	14	16	160
200	204	208	235	236	55	14	16	180
225	227	230	258	260	55	14	16	160
250	251	255	282	285	55	14	16	160
280	282	285	311	313	55	14	16	160
315	318	321	355	357	60 / 70	17	20	280
355	359	362	394	397	60 / 70	17	20	300

^{*} Plastic shaped parts are available as an option. (on request)

¹ Locking bolt set and gasket for flange connection not included in delivery (DIN EN 1092-1)

² M16 screw for SDR 11

STRAUB-PLAST-PRO

Pipe dimensions and tolerances

Our complete systems are designed for the following pipe dimensions in accordance with DIN EN 12201-2:2003. There are a variety of designs for multilayer pipes with a different outer diameter. These are not standardised, which means that the outer diameters and the materials used can vary greatly.

➔ Due to the additional protective layer, the outer diameter of multilayer pipes may vary (the factory must be consulted for integrated metal layers); please note the pipe dimensions and tolerances.

SDR 11	DN	Min. OD		Max. OD		Min. wall thickness		Max. wall thickness		ID ² [mm]
		DIN ¹ [mm]	MVR ¹ [mm]	DIN ¹ [mm]	MVR ¹ [mm]	DIN [mm]	MVR [mm]	DIN [mm]	MVR [mm]	
	63	63.0	64.0	63.4	65.7	5.8	6.5	6.5	7.6	51
	75	75.0	77.0 ³	75.5	79.0	6.8	7.8	7.6	9.1	61
	90	90.0	92.0	90.6	94.0	8.2	9.3	9.2	10.7	73
	110	110.0	112.0	110.7	114.0	10.0	11.1	11.1	12.7	89
	125	125.0	127.0	125.8	129.0	11.4	12.5	12.7	14.2	101
	140	140.0	143.0	140.9	145.0	12.7	14.0	14.1	15.9	113
	160	160.0	163.0	161.0	166.0	14.6	15.8	16.2	18.0	129
	180	180.0	183.0	181.1	186.0	16.4	17.6	18.2	20.0	145

SDR 17	DN	Min. OD		Max. OD		Min. wall thickness		Max. wall thickness		ID ² [mm]
		DIN ¹ [mm]	MVR ¹ [mm]	DIN ¹ [mm]	MVR ¹ [mm]	DIN [mm]	MVR [mm]	DIN [mm]	MVR [mm]	
	90	90.0	92.0	90.6	94.0	5.3	5.4	6.0	6.5	79
	110	110.0	112.0	110.7	114.0	6.5	7.5	7.8	8.6	97
	125	125.0	127.0	125.8	129.0	7.4	8.5	8.3	9.8	110
	140	140.0	143.0	140.9	145.0	8.3	9.4	9.3	11.1	123
	160	160.0	163.0	161.0	166.0	9.5	10.7	10.6	12.4	140
	180	180.0	183.0	181.1	186.0	10.7	11.9	11.9	13.7	158
	200	200.0	203.0	201.2	206.0	11.9	13.1	13.2	15.0	176
	225	225.0	225.0	226.4	230.0	13.4	14.6	14.9	16.6	197
	250	250.0	250.0	251.5	255.0	14.8	16.0	16.4	18.3	220
	280	280.0	280.0	281.7	286.0	16.6	17.8	18.4	20.1	246
	315	315.0	315.0	316.9	321.0	18.7	19.9	20.7	22.4	277
	355	355.0	355.0	357.2	361.0	21.1	22.3	23.4	25.1	312

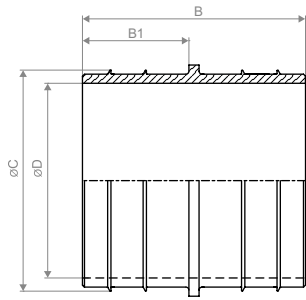
¹ DIN ➔ Pipe dimensions according to DIN EN 12201-2
MVR ➔ Multilayer pipe

² average inside diameter of the pipe



STRAUB-PLAST-PRO L

Coupler



DN 63 - DN 125 (tangential)



DN 140 - DN 355



Components Materials	Materials
Clamps	1.4404 or equivalent
Locking bolts	A4 - 80
Bolt	1.4404
Liner insert	Carbon steel, Rilsan coated (W270, NSF61, WRAS)
Medium	All water qualities
Temperature	-5°C to 80°C (for constant temperatures above 20°C, observe the maximum pressure specifications for PE pipes in accordance with DIN 8074)

OD	Product		B [mm]	B1 [mm]	C [mm]	D [mm]	Weight [kg]
	DIN ²	MVR ²					
63.0		873005	95	45.0	49.5	41.0	1.6
75.0		873010	95	45.0	59.5	50.5	1.8
90.0		873015	95	45.0	71.0	62.0	2.0
110.0		873020	110	52.5	87.5	76.0	2.6
125.0	870089	870019	110	52.5	99.5	86.5	3.1
140.0	870094	870024	110	52.5	111.5	97.5	4.0
160.0	870099	870029	110	52.5	127.5	113.5	4.4
180.0	870104	870034	110	52.5	143.5	126.5	4.8

SDR 11
PN 16

OD	Product		B [mm]	B1 [mm]	C [mm]	D [mm]	Weight [kg]
	DIN ²	MVR ²					
90.0		873045	95	45.0	77.0	66.8	2.1
110.0		873050	110	52.5	94.5	82.3	2.7
125.0	870090	870020	110	52.5	108.0	95.0	3.0
140.0	870095	870025	110	52.5	121.0	107.0	3.8
160.0	870100	870030	110	52.5	138.5	124.5	4.3
180.0	870105	870035	110	52.5	156.0	139.0	5.1
200.0	870110	870040	110	52.5	173.5	154.5	5.5
225.0	870045	870045	110	52.5	195.0	173.0	9.1
250.0	870050	870050	110	52.5	217.0	193.0	10.2
280.0	870055	870055	110	52.5	243.0	217.0	11.9
315.0	870060	870060	130	62.5	273.0	243.0	19.6
355.0	870065	870065	130	62.5	308.0	274.0	23.2

SDR 17
PN 10

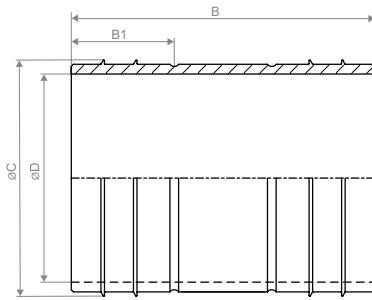
Notes:

- Test pressure at 20°C = 1.5 x PN
- Higher pressure rates on request
- For protecting pipes, please specify the inside and outside diameter
- Diameter range and pipe tolerances → page 30
- Specified weight corresponds to the total product weight (liner insert and clamps)

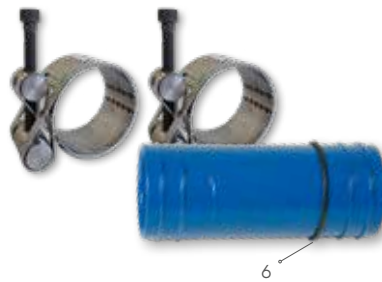
- ² DIN → Pipe dimensions according to DIN EN 12201-2
- MVR → Multilayer pipe

STRAUB-PLAST-PRO LR

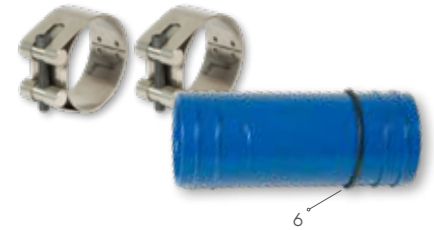
Repair coupler



DN 63 - DN 125 (tangential)



DN 140 - 180



Components Materials	Materials
Clamps	1.4404 or equivalent
Locking bolts	A4 - 80
Bolt	1.4404
Liner insert	Carbon steel, Rilsan coated (W270, NSF61, WRAS)
Medium	All water qualities
Temperature	-5°C to 80°C (for constant temperatures above 20°C, observe the maximum pressure specifications for PE pipes in accordance with DIN 8074)

SDR 11 PN 16	OD	Product		B [mm]	B1 [mm]	C [mm]	D [mm]	Weight [kg]
		DIN ¹	MVR ¹					
	63.0		874005	195	47.5	49.5	40.0	1.9
	75.0		874010	195	47.5	59.5	49.5	2.2
	90.0		874015	195	47.5	71.0	61.0	2.6
	110.0		874020	210	55.0	87.5	75.0	3.0
	125.0	871123	871127	210	55.0	99.5	85.5	4.0
	140.0	871124	871128	210	55.0	111.5	97.5	5.2
	160.0	871125	871129	210	55.0	127.5	113.5	5.8
	180.0	871126	871130	210	55.0	143.5	126.5	6.7

SDR 17 PN 10	OD	Product		B [mm]	B1 [mm]	C [mm]	D [mm]	Weight [kg]
		DIN ¹	MVR ¹					
	90.0		874045	195	47.5	77.0	66.8	2.7
	110.0		874050	210	55.0	94.5	82.3	3.1
	125.0	871118	871104	210	55.0	108.0	94.0	4.4
	140.0	871119	871105	210	55.0	121.0	107.0	5.4
	160.0	871120	871106	210	55.0	138.5	124.5	6.1
	180.0	871121	871107	210	55.0	156.0	139.0	7.1

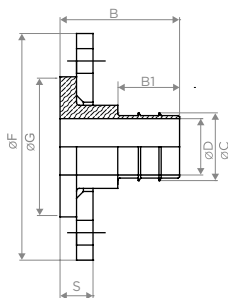
Notes:

- Before installing the repair coupler, a gap of 100 mm must be created between the pipe ends
- Test pressure at 20°C = 1.5 x PN
- Other repair lengths and higher pressure rates on request
- For protecting pipes, please specify the inside and outside diameter
- Diameter range and pipe tolerances → page 30
- Specified weight corresponds to the total product weight (liner insert and clamps)

¹ DIN → Pipe dimensions according to DIN EN 12201-2
MVR → Multilayer pipe
⁶ The O-ring prevents the liner insert from falling into the plastic pipe; the O-ring has no sealing function

STRAUB-PLAST-PRO FA

Flange adapter



DN 63 - DN 125 (tangential)



DN 140 - DN 355



Components Materials	Materials
Clamps	1.4404 or equivalent
Locking bolts	A4 - 80
Bolt	1.4404
Liner insert	Carbon steel, Rilsan coated (W270, NSF61, WRAS)
Medium	All water qualities
Temperature	-5°C to 80°C (for constant temperatures above 20°C, observe the maximum pressure specifications for PE pipes in accordance with DIN 8074)

SDR 11 PN 16	OD	Product		B [mm]	B1 [mm]	C [mm]	D [mm]	F [mm]	G° [mm]	S [mm]	Flange PN 16	Locking bolts Quan./dim.	Weight [kg]
		DIN ¹	MVR ¹										
	63.0	874100		83.0	45.0	49.5	41.0	165	107.0	28	DN 50	4x, M16	2.4
	63.0	874105		85.0	45.0	49.5	41.0	202	142.0	30	DN 80	8x, M16	4.1
	75.0	874110		85.0	45.0	59.5	50.5	187	127.0	28	DN 65	4x, M16	3.4
	90.0	874116		85.0	45.0	71.0	62.0	202	142.0	30	DN 80	8x, M16	3.8
	110.0	874120		92.5	52.5	87.5	76.0	220	162.0	30	DN 100	8x, M16	4.0
	125.0	870963	870910	92.5	52.5	99.5	86.5	220	162.0	30	DN 100	8x, M16	4.6
	140.0	870966	870911	92.5	52.5	111.5	97.5	250	192.0	34	DN 125	8x, M16	6.6
	160.0	870969	870914	104.5	52.5	127.5	113.5	286	218.0	36	DN 150	8x, M20	11.1
	180.0	870972	870917	104.5	52.5	143.5	126.5	286	218.0	36	DN 150	8x, M20	10.2

SDR 17 PN 10	OD	Product		B [mm]	B1 [mm]	C [mm]	D [mm]	H [mm]	G° [mm]	S [mm]	Flange PN 10	Locking bolts Quan./dim.	Weight [kg]
		DIN ¹	MVR ¹										
	90.0	874145		85.0	45.0	77.0	66.8	200	138.0	30	DN 80	8x, M16	3.9
	110.0	874150		92.5	52.5	94.5	82.3	218	158.0	30	DN 100	8x, M16	5.0
	125.0	870951	870912	92.5	52.5	108.0	95.0	220	162.0	30	DN 100	8x, M16	4.2
	140.0	870954	870913	92.5	52.5	121.0	107.0	250	192.0	34	DN 125	8x, M16	6.1
	160.0	870957	870915	104.5	52.5	138.5	124.5	286	218.0	36	DN 150	8x, M20	10.2
	180.0	870960	870918	104.5	52.5	156.0	139.0	286	218.0	36	DN 150	8x, M20	9.0
	200.0	870975	870920	127.0	52.5	173.5	154.5	340	273.0	39	DN 200	8x, M20	19.2
	225.0	870922	870922	127.0	52.5	195.0	173.0	340	273.0	39	DN 200	8x, M20	17.7
	250.0	870924	870924	133.0	52.5	217.0	193.0	409	328.0	45	DN 250	12x, M20	31.7
	280.0	870926	870926	133.0	52.5	243.0	217.0	409	328.0	45	DN 250	12x, M20	27.0
	315.0	870928	870928	150.0	62.5	273.0	243.0	463	378.0	52	DN 300	12x, M20	40.7
	355.0	870930	870930	158.0	62.5	308.0	274.0	515	438.0	60	DN 350	16x, M20	54.5

Notes:

- Flange according to DIN 2633 / EN 1092-1, hole pattern according to EN 1092-1
- Test pressure at 20°C = 1.5 x PN
- Higher pressure rates and other dimensions on request
- For protecting pipes, please specify the inside and outside diameter
- Diameter range and pipe tolerances → page 30
- Specified weight corresponds to the total product weight (liner insert and clamps)
- Locking bolt set and flange gasket not included

- ¹ DIN → Pipe dimensions according to DIN EN 12201-2
MVR → Multilayer pipe
⁹ Outside diameter for seal

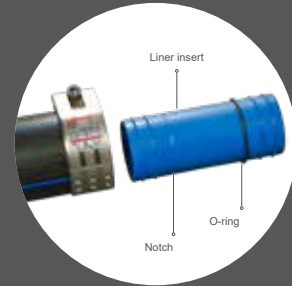
The repair concept

The STRAUB-PLAST-PRO LR repair coupler set is the easiest way to repair damaged PE pipes with an axial force fit. Repairs up to a length of 100 mm can be carried out.

Expose 100 mm of pipe. Bend the pipe ends slightly sideways and insert the repair coupler into one of the two pipe ends up to the O-ring. Push the clamps until they are flush with the pipe ends.

The O-ring prevents the repair coupler from sliding completely into the pipe.

The pipe ends can be centred to one another again and the repair couplers can be aligned using the notches on the liner insert. Tighten the clamps according to the torque specified on the label.



Installation example (STRAUB-PLAST-PRO L)



1

Slide the clamps over the pipes to be connected.



2

Push the reducer into the end of the pipe as far as it will go.



3

Push the second pipe onto the liner insert as far as it will go.



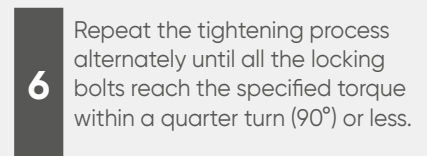
4

Align the clamps flush with the pipe ends.



5

Tighten the locking bolts to the specified torque rate using the torque wrench.



6

Repeat the tightening process alternately until all the locking bolts reach the specified torque within a quarter turn (90°) or less.





STRAUB-FLEX

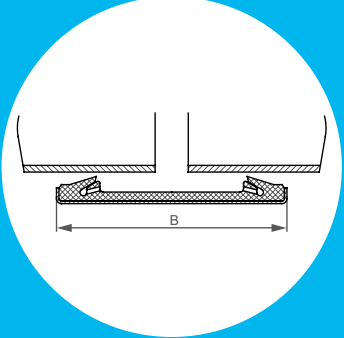
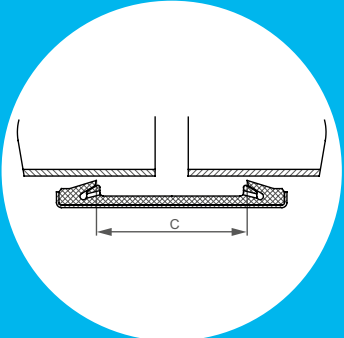
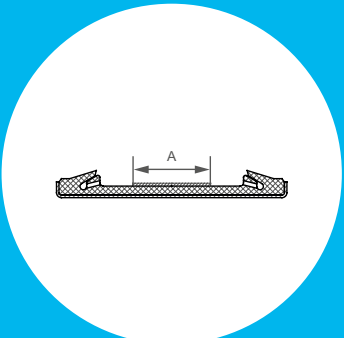
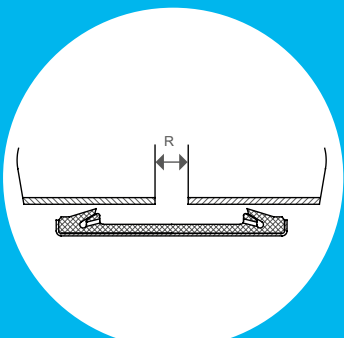
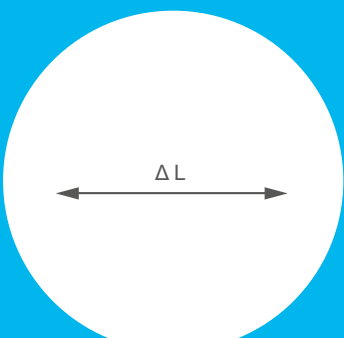
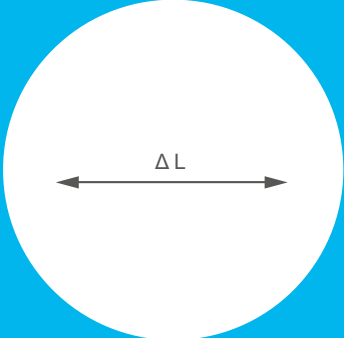
STRAUB-OPEN-FLEX

STRAUB-STEP-FLEX

STRAUB-SQUARE-FLEX

**The fastest turn
on the pipe:**

Non-axial restraint flexible pipe couplings

Specifications	STRAUB-FLEX STRAUB-OPEN-FLEX				
	1 [mm]	2 [mm]	3 [mm]	3.5 [mm]	4 [mm]
 <p>B Casing width</p>	75 - 107	138 - 148	210 - 218	310 - 311	443 - 444
 <p>C Distance between sealing lips</p>	35 - 62	91	127	227	350
 <p>A Width of strip insert</p>	29 - 52	70	100	200	300
 <p>R_{max} Gap between pipe ends without strip insert</p>	5	5 - 10	5 - 15	-	-
 <p>R_{max} Gap between pipe ends with strip insert</p>	5 - 15 / 25 / 35	5 - 35	5 - 60	5 - 120	5 - 200
 <p>L Max. permissible axial movement</p>	5	10	15	15	20

STRAUB-FLEX

All pipe materials can be reliably connected using STRAUB-FLEX couplings.

They are suitable for a wide range of media and temperatures and cover a broad range of pressure values.

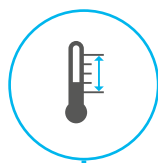
The gasket separates the coupling casing from the pipe surface, optimally dampening noise, vibrations and oscillations.

As STRAUB-FLEX couplings cannot absorb axial forces, the pipes must be secured axially using appropriate on-site measures (e.g. tie rods, fixed/sliding points, concrete abutments).



26.9 mm to
2032.0 mm

Diameter [mm]



-20°C to
+180°C

Temperature [°C]



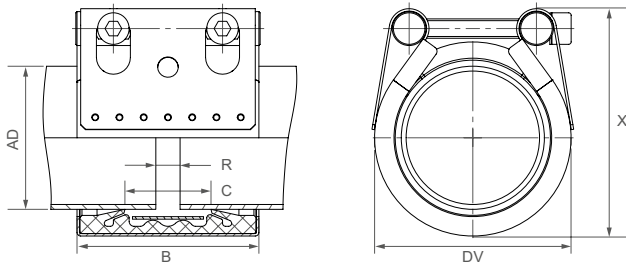
EPDM
NBR
FPM/FKM

Gasket [material]



STRAUB-FLEX 1

ø 26.9 - 168.3 mm



Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 or equivalent
Strip insert (stainless steel insert included)	-	1.4404 or equivalent / PVDF	1.4404 or equivalent / PVDF

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]
26.9	26.4 - 27.4	25	-	46.5/75	18	44	56	5 - 10	10
28.0	27.5 - 28.5	25	-	46.5/75	18	45	57	5 - 10	10
30.0	29.5 - 30.5	25	-	46.5/75	18	47	60	5 - 10	10
33.7	33.2 - 34.2	25	-	46.5/75	18	51	65	5 - 10	10
35.0	34.5 - 35.5	25	-	46.5/75	18	52	66	5 - 10	10
38.0	37.5 - 38.5	25	-	46.5/75	18	55	69	5 - 10	12
40.0	38.7 - 41.2	25	-	46.5/75	18	57	71	5 - 10	12
42.4	41.9 - 42.9	25	-	46.5/75	18	60	74	5 - 10	12
44.5	44.0 - 45.0	25	-	46.5/75	18	62	76	5 - 10	12
48.3*	47.0 - 51.0	25	16	75	35	70	83	5 - 15	7.5
54.0*	52.0 - 56.0	25	16	75	35	76	88	5 - 15	7.5
57.0*	55.0 - 59.0	25	16	75	35	79	94	5 - 15	7.5
60.3	59.0 - 61.5	25	16	75	35	82	95	5 - 15	15
70.0	69.5 - 71.0	25	16	94	51	95	112	5 - 25	7.5
73.0	71.0 - 76.0	25	16	94	51	95	112	5 - 25	7.5
76.1	74.0 - 78.0	25	16	94	51	98	119	5 - 25	7.5
80.0	79.5 - 82.0	25	16	94	51	106	127	5 - 25	7.5
84.0	82.0 - 86.0	25	16	94	51	106	127	5 - 25	7.5
88.9	87.0 - 91.0	25	16	94	51	111	132	5 - 25	7.5
100.6	98.0 - 104.0	25	16	94	51	123	145	5 - 25	7.5
101.6	99.0 - 105.0	25	16	94	51	124	145	5 - 25	7.5
104.0	102.0 - 106.0	20	16	94	51	126	146	5 - 25	7.5
104.8	102.0 - 108.0	20	16	94	51	127	146	5 - 25	7.5
108.0	106.0 - 111.0	20	16	94	51	130	151	5 - 25	7.5
114.3	111.0 - 117.0	20	16	94	51	136	160	5 - 25	7.5
127.0	124.0 - 130.0	20	16	107	62	149	168	5 - 35	10
129.0	126.0 - 132.0	20	16	107	62	151	170	5 - 35	10
130.2	128.0 - 133.0	20	16	107	62	152	170	5 - 35	10
133.0	130.0 - 136.0	16	16	107	62	155	174	5 - 35	10
139.7	137.0 - 143.0	16	16	107	62	162	180	5 - 35	10
141.3	139.0 - 144.0	16	16	107	62	163	182	5 - 35	10
154.0	151.0 - 157.0	16	16	107	62	176	198	5 - 35	10
159.0	156.0 - 162.0	16	16	107	62	181	203	5 - 35	10
168.3	165.0 - 172.0	16	16	107	62	190	212	5 - 35	10

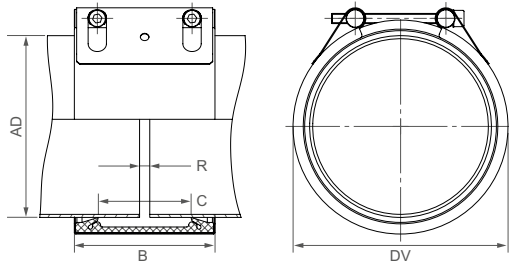
Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4 times safety factor (e.g. shipbuilding)
- Additional sealing materials and pressure and temperature ranges on request

* FPM/FKM only available as STRAUB-OPEN-FLEX

STRAUB-FLEX 2

ø 172.0 - 2032.0 mm



- B | 138 to 148 mm
- DV | OD + 27 mm
- C | 91 mm
- R without strip insert | 5 - 10 mm
- R with strip insert | 5 - 35 mm

Components Materials	W1	W2 (marked with *)	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
Strip insert (optional)	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> • -20°C to +180°C • ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	PN								PN								PN					
		1	2.5	6	10	16	20	25	1	2.5	6	10	16	20	25								
172.0	169 - 175	-	-	-	-	-	-	-	↔	↔	↔	PN 10*	PN 16*	-	-	-	-	-	-	-	-	-	-
180.0	177 - 183	-	-	-	-	-	-	-	↔	↔	↔	PN 10*	PN 16*	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
200.0	197 - 203	-	-	-	-	-	-	-	↔	↔	↔	PN 10*	PN 16*	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
219.1	216 - 223	-	-	-	-	-	-	-	↔	↔	↔	PN 10*	PN 16*	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
250.0	247 - 254	-	-	-	-	-	-	-	↔	↔	↔	PN 10*	PN 16*	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
267.0	263 - 272	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
273.0	269 - 278	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
304.0	300 - 309	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
323.9	320 - 329	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
355.6	352 - 360	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
406.4	403 - 410	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
457.2	453 - 462	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
508.0	504 - 513	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
558.8	555 - 564	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
609.6	604 - 615	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
711.2	707 - 717	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
762.0	756 - 768	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
812.8	807 - 819	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
914.4	908 - 920	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1016.0	1010 - 1022	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1117.6	1112 - 1124	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1219.2	1213 - 1226	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1320.8	1314 - 1328	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1422.4	1416 - 1429	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1524.0	1517 - 1532	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1600.0	1593 - 1608	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1625.6	1619 - 1634	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1727.2	1720 - 1735	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1828.8	1822 - 1837	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
1930.4	1923 - 1938	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
2032.0	2025 - 2040	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔

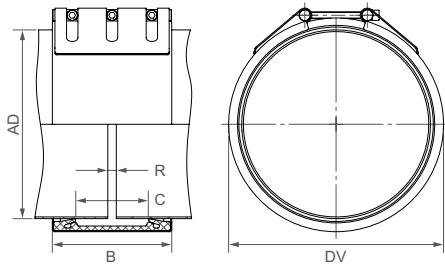
Infinitely variable intermediate sizes available | Larger diameters are available as STRAUB-OPEN-FLEX

Notes:

- Follow the assembly instructions
- PN (↔) = working pressure considering the application loads
- Test pressure = PN (↔) x 1.5 (e.g. industry, water supply, etc.)
- PN (↔) = approval-related nominal pressure includes 4 times safety factor (e.g. shipbuilding)
- Strip inserts are optional accessories → page 88
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-FLEX 3

ø 219.1 - 2032.0 mm



- B | 210 to 218 mm
- DV | OD + 38 mm
- C | 127 mm
- R without strip insert | 5 - 15 mm
- R with strip insert | 5 - 60 mm

Components Materials	W1	W2 (marked with *)	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
Strip insert (optional)	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM (on request)	
	<ul style="list-style-type: none"> • -20°C to +180°C • ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	PN								PN							
		1	2.5	6	10	16	20	25	1	2.5	6	10	16	20	25		
219.1	216 - 222	-	-	-	-	-	-	-	⇒	⇒	⇒	⇒	⇒	PN 20*	-		
250.0	247 - 253	-	-	-	-	-	-	-	⇒	⇒	⇒	⇒	⇒	PN 16*	-		
267.0	264 - 270	-	-	-	-	-	-	-	⇒	⇒	⇒	⇒	⇒	PN 16*	⇒		
273.0	270 - 276	-	-	-	-	-	-	-	⇒	⇒	⇒	⇒	⇒	PN 16*	⇒		
304.0	301 - 307	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒		
323.9	321 - 327	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒		
355.6	352 - 358	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒		
406.4	403 - 409	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒		
457.2	454 - 460	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒		
508.0	504 - 512	⇒	⇒	⇒	⇒	⇒	⇒	PN 20	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
558.8	555 - 562	⇒	⇒	⇒	⇒	⇒	⇒	PN 20	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
609.6	606 - 613	⇒	⇒	⇒	⇒	⇒	⇒	PN 16	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
711.2	707 - 715	⇒	⇒	⇒	⇒	⇒	⇒	PN 16	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
762.0	758 - 766	⇒	⇒	⇒	⇒	⇒	⇒	PN 16	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
812.8	809 - 817	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
914.4	910 - 918	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒		
1016.0	1012 - 1020	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1117.6	1113 - 1122	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1219.2	1215 - 1224	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1320.8	1316 - 1325	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1422.4	1418 - 1427	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1524.0	1519 - 1529	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1600.0	1595 - 1605	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1625.6	1621 - 1631	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1727.2	1722 - 1732	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1828.8	1824 - 1834	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
1930.4	1925 - 1935	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		
2032.0	2027 - 2037	⇒	⇒	⇒	⇒	⇒	⇒	PN 6	⇒	⇒	⇒	⇒	⇒	PN 2.5*	⇒		

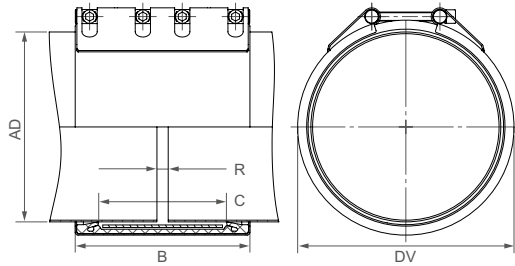
Infinitely variable intermediate sizes available | Larger diameters are available as STRAUB-OPEN-FLEX

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- Strip inserts are optional accessories ➔ page 88
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-FLEX 3.5

ø 323.9 - 1219.2 mm



- B | 310 to 311 mm
- DV | OD + 38 mm
- C | 227 mm
- R | 5 - 120 mm

Components Materials	W1	W2	W5
Casing	1.0976, hot-dip galvanised	-	1.4162 (LDX)
Locking bolts	1.7220	-	A4 - 80
Bolt	1.0737, galvanised	-	1.4404 or equivalent
Strip insert (stainless steel insert included)	1.4310 or equivalent / HDPE	-	1.4310 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]
323.9	320 - 327
355.6	352 - 359
406.4	402 - 410
457.2	453 - 461
508.0	504 - 512
558.8	555 - 563
609.6	605 - 614
655.0	651 - 659
711.2	707 - 715
762.0	758 - 766
812.8	809 - 817
914.4	910 - 918
1016.0	1011 - 1021
1117.6	1112 - 1123
1219.2	1214 - 1224

W1	PN						
	1	2.5	6	10	16	20	25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	PN 20	-
⇒	⇒	⇒	⇒	⇒	⇒	PN 20	-
⇒	⇒	⇒	⇒	⇒	PN 16	-	-
⇒	⇒	⇒	⇒	⇒	PN 16	-	-
⇒	⇒	⇒	⇒	⇒	PN 16	-	-
⇒	⇒	⇒	⇒	PN 10	-	-	-
⇒	⇒	⇒	⇒	PN 10	-	-	-
⇒	⇒	⇒	⇒	PN 10	-	-	-
⇒	⇒	⇒	⇒	PN 10	-	-	-

W5	PN						
	1	2.5	6	10	16	20	25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	PN 20	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	PN 20	PN 25
⇒	⇒	⇒	⇒	⇒	⇒	PN 20	PN 25
⇒	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25
⇒	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25
⇒	⇒	⇒	⇒	PN 10	⇒	⇒	PN 25
⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	-
⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	-
⇒	⇒	⇒	⇒	PN 10	PN 16	-	-

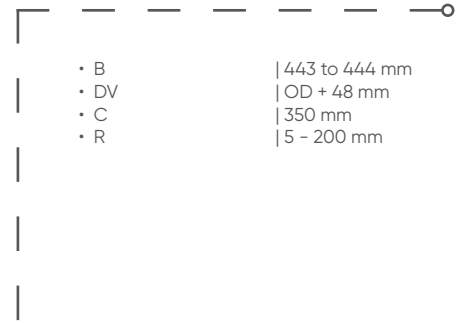
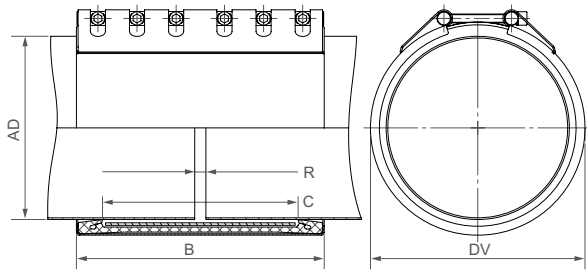
Infinitely variable intermediate sizes available | Larger diameters are available as STRAUB-OPEN-FLEX

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-FLEX 4

ø 323.9 - 812.8 mm



Components Materials	W1	W2	W5
Casing	1.0976, hot-dip galvanised	-	1.4162 (LDX)
Locking bolts	1.7220	-	A4 - 80
Bolt	1.0737, galvanised	-	1.4404 or equivalent
Strip insert (stainless steel insert included)	1.4310 or equivalent / HDPE	-	1.4310 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]
323.9	320 - 327
355.6	352 - 359
406.4	403 - 409
457.2	454 - 460
508.0	505 - 512
558.8	555 - 562
609.6	606 - 613
655.0	652 - 658
711.2	707 - 715
762.0	758 - 766
812.8	809 - 817

W1	PN						
	1	2.5	6	10	16	20	25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	PN 20	-
	⇔	⇔	⇔	⇔	⇔	PN 20	-
	⇔	⇔	⇔	⇔	PN 16	-	-
	⇔	⇔	⇔	⇔	PN 16	-	-
	⇔	⇔	⇔	⇔	PN 16	-	-
	⇔	⇔	⇔	⇔	PN 16	-	-

W5	PN						
	1	2.5	6	10	16	20	25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	⇔	PN 25
	⇔	⇔	⇔	⇔	⇔	PN 20	PN 25
	⇔	⇔	⇔	⇔	⇔	PN 20	PN 25
	⇔	⇔	⇔	⇔	⇔	PN 20	PN 25
	⇔	⇔	⇔	⇔	⇔	PN 20	PN 25
	⇔	⇔	⇔	⇔	⇔	PN 16	⇔
	⇔	⇔	⇔	⇔	⇔	PN 16	⇔
	⇔	⇔	⇔	⇔	⇔	PN 16	⇔
	⇔	⇔	⇔	⇔	⇔	PN 16	⇔

Infinitely variable intermediate sizes available | Larger diameters are available as STRAUB-OPEN-FLEX

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-OPEN-FLEX

STRAUB-OPEN-FLEX was specially developed for quick and easy mounting on existing pipes.

Thanks to the option of a hinged or 2- or 3-part casing, the STRAUB-OPEN-FLEX can be installed without having to remove existing pipes.

This flexible casing design also allows the STRAUB-OPEN-FLEX to not only be used to join pipes, but also for repairs.



**48.3 mm to
4064.0 mm**

Diameter [mm]



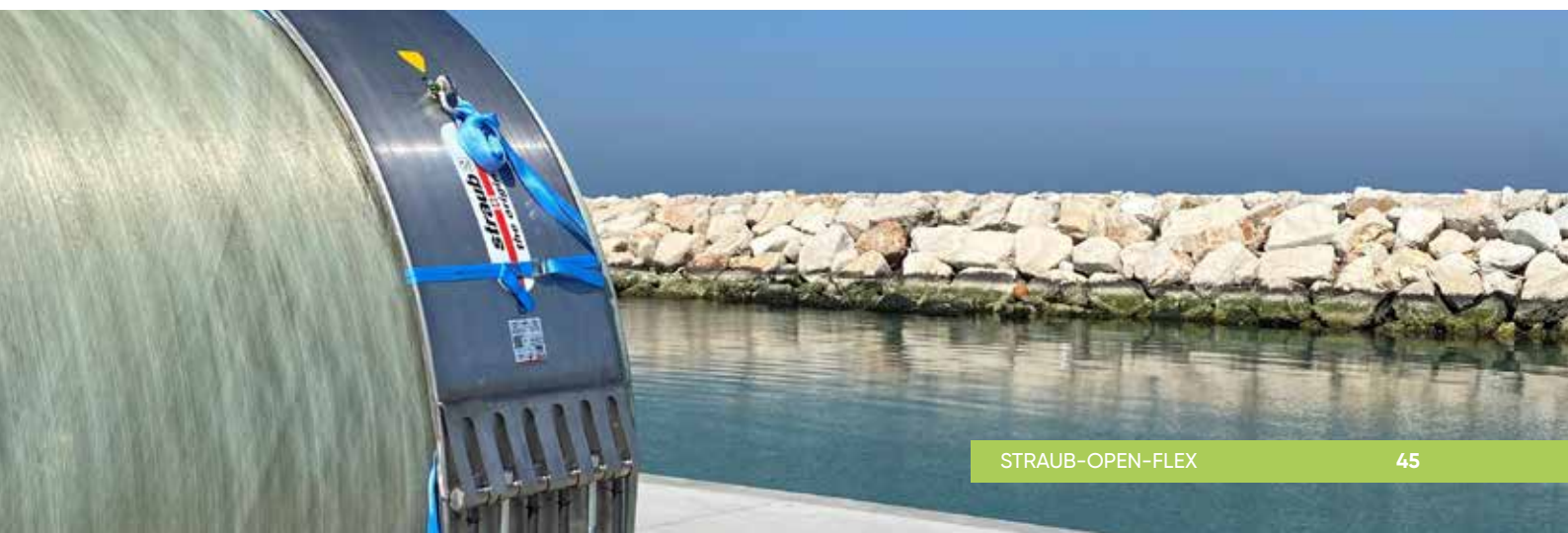
**-20°C to
+180°C**

Temperature [°C]



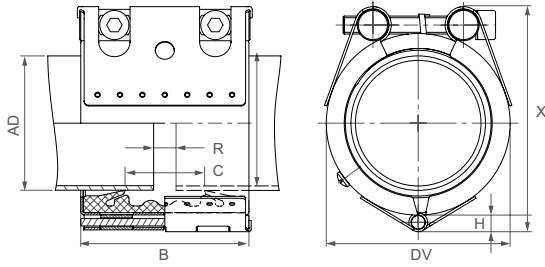
**EPDM
NBR
FPM/FKM**

Gasket [material]



STRAUB-OPEN-FLEX 1

ø 48.3 - 168.3 mm



Height H
[mm]

- ø 48.3 - 60.3 | 7.0 mm
- ø 73.0 - 114.3 | 9.0 mm
- ø 127.0 - 168.3 | 9.5 mm

Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 / 1.4435
Strip insert (optional)	-	1.4404 or equivalent / PVDF	1.4404 or equivalent / PVDF

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> • -20°C to +180°C • ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

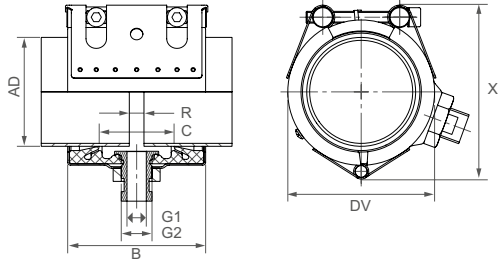
OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R without strip insert [mm]	R with strip insert [mm]	Torque rate [Nm]
48.3	47.0 - 50.0	25	16	75	35	70	89	5	5 - 15	7.5
54.0	52.5 - 55.5	25	16	75	35	76	94	5	5 - 15	7.5
57.0	55.5 - 58.5	25	16	75	35	79	97	5	5 - 15	7.5
60.3	59.0 - 63.0	25	16	75	35	82	101	5	5 - 15	7.5
73.0	71.5 - 75.0	25	16	94	51	95	119	5	5 - 25	10
76.1	74.5 - 77.5	25	16	94	51	98	123	5	5 - 25	10
84.0	82.5 - 85.5	25	16	94	51	106	131	5	5 - 25	10
88.9	87.5 - 90.5	25	16	94	51	111	136	5	5 - 25	10
100.6	99.0 - 102.5	25	16	94	51	123	148	5	5 - 25	10
101.6	100.0 - 103.5	25	16	94	51	124	148	5	5 - 25	10
104.0	102.5 - 105.5	20	16	94	51	126	152	5	5 - 25	10
104.8	103.0 - 106.5	20	16	94	51	127	152	5	5 - 25	10
108.0	106.5 - 110.0	20	16	94	51	130	156	5	5 - 25	10
114.3	112.5 - 116.0	20	16	94	51	136	162	5	5 - 25	10
118.0	116.0 - 120.0	20	16	94	51	140	166	5	5 - 25	10
127.0	125.0 - 129.0	20	16	107	62	149	179	5	5 - 35	12
129.0	127.0 - 131.0	20	16	107	62	151	181	5	5 - 35	12
130.2	128.5 - 132.0	20	16	107	62	152	181	5	5 - 35	12
133.0	131.0 - 135.0	16	16	107	62	155	189	5	5 - 35	12
139.7	138.0 - 141.5	16	16	107	62	162	192	5	5 - 35	12
141.3	139.5 - 143.0	16	16	107	62	163	192	5	5 - 35	12
154.0	152.0 - 156.0	16	16	107	62	176	207	5	5 - 35	12
159.0	157.0 - 161.0	16	16	107	62	181	212	5	5 - 35	12
168.3	166.0 - 170.5	16	16	107	62	190	225	5	5 - 35	12
168.3	165.0 - 172.0	16	16	107	62	190	212	5	5 - 35	10

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Strip inserts are optional accessories ➔ page 88
- Additional sealing materials and pressure and temperature ranges on request
- Assembly tool is required for correct assembly (reusable) ➔ page 91

STRAUB-OPEN-FLEX 1 GT

ø 73.0 - 168.3 mm | with GT-outlet



Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 / 1.4435

EPDM	
	<ul style="list-style-type: none"> -20°C to +70°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +70°C water, gases, oils, combustibles, fuels and other hydrocarbons

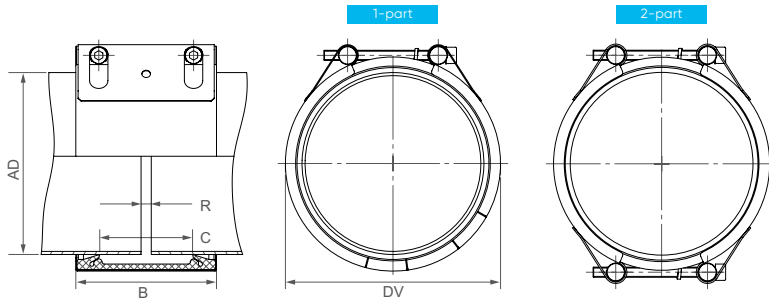
OD [mm]	Clamping range [mm]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	G1 [mm]	G2 [mm]	Torque rate [Nm]
73.0	71.5 - 74.5	16	94	51	95	119	1/4	1/2	10
76.1	74.5 - 77.5	16	94	51	98	123	1/4	1/2	10
84.0	82.5 - 85.5	16	94	51	106	131	1/4	1/2	10
88.9	87.5 - 90.5	16	94	51	111	136	1/4	1/2	10
100.6	99.0 - 102.5	16	94	51	123	148	1/4	1/2	10
101.6	100.0 - 103.5	16	94	51	124	148	1/4	1/2	10
104.0	102.5 - 105.5	16	94	51	126	152	1/4	1/2	10
104.8	103.0 - 106.5	16	94	51	127	152	1/4	1/2	10
108.0	106.5 - 109.5	16	94	51	130	156	1/4	1/2	10
114.3	112.5 - 116.0	16	94	51	136	162	1/4	1/2	10
118.0	116.0 - 120.0	16	94	51	140	166	1/4	1/2	10
127.0	125.0 - 129.0	16	107	62	149	179	3/4	1	12
129.0	127.0 - 131.0	16	107	62	151	181	3/4	1	12
130.2	128.5 - 132.0	16	107	62	152	181	3/4	1	12
133.0	131.0 - 135.0	16	107	62	155	189	3/4	1	12
139.7	138.0 - 141.5	16	107	62	162	192	3/4	1	12
141.3	139.5 - 143.0	16	107	62	163	192	3/4	1	12
154.0	152.0 - 156.0	16	107	62	176	207	3/4	1	12
159.0	157.0 - 161.0	16	107	62	181	212	3/4	1	12
168.3	166.0 - 170.5	16	107	62	190	225	3/4	1	12

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Strip inserts cannot be used
- Not suitable for vacuum applications
- Additional sealing materials and pressure and temperature ranges on request
- Assembly tool is required for correct assembly (reusable) ➔ page 91

STRAUB-OPEN-FLEX 2

ø 172.0 - 2032.0 mm



- B | 138 to 148 mm
- DV | OD + 27 mm
- C | 91 mm
- R without strip insert | 5 - 10 mm
- R with strip insert | 5 - 35 mm

Version

PN1 2.5	PN 6	PN 10	PN 16	PN 20 25	1-part	2-part
≤ 1219.1	-	-	-	-	-*	x
> 1219.1	-	-	-	-	-	x
-	≤ 624.0	-	-	-	-*	x
-	> 624.0	-	-	-	-	x
-	-	≤ 355.6	-	-	-*	x
-	-	> 355.6	-	-	-	x
-	-	-	≤ 250.0	-	-*	x
-	-	-	> 250.0	-	-	x
-	-	-	-	all sizes	-	x

* only on request

Components Materials	W1	W2 (marked with *)	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
Strip insert (optional)	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM	
	<ul style="list-style-type: none"> • -20°C to +180°C • ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

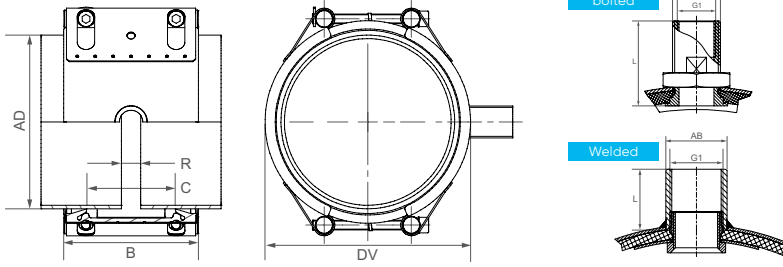
OD [mm]	Clamping range 2-part [mm]	PN								PN							PN
		1	2.5	6	10	16	20	25	1	2.5	6	10	16	20	25		
172.0	169 - 175	-	-	-	-	-	-	-	⇔	⇔	⇔	PN 10*	PN 16*	-	-		
180.0	177 - 183	-	-	-	-	-	-	-	⇔	⇔	⇔	PN 10*	PN 16*	⇔	PN 25		
200.0	197 - 203	-	-	-	-	-	-	-	⇔	⇔	⇔	PN 10*	PN 16*	⇔	PN 25		
219.1	216 - 223	-	-	-	-	-	-	-	⇔	⇔	⇔	PN 10*	PN 16*	⇔	PN 25		
250.0	247 - 254	-	-	-	-	-	-	-	⇔	⇔	⇔	PN 10*	PN 16*	⇔	PN 25		
267.0	263 - 272	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	PN 10*	⇔	⇔	PN 25		
273.0	269 - 278	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	PN 10*	⇔	⇔	PN 25		
304.0	300 - 309	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	PN 6*	PN 10*	⇔	PN 20*	PN 25	
323.9	320 - 329	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	PN 6*	PN 10*	⇔	PN 20*	PN 25	
355.6	352 - 360	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔	PN 6*	PN 10*	PN 16*	⇔	PN 25	
406.4	403 - 410	⇔	⇔	⇔	⇔	⇔	⇔	PN 20	⇔	⇔	⇔	PN 6*	⇔	PN 16*	⇔	PN 25	
457.2	453 - 462	⇔	⇔	⇔	⇔	⇔	⇔	PN 20	⇔	⇔	⇔	PN 6*	PN 10*	⇔	⇔	PN 25	
508.0	504 - 513	⇔	⇔	⇔	⇔	⇔	PN 16	⇔	⇔	⇔	⇔	PN 6*	PN 10*	⇔	⇔	PN 25	
558.8	555 - 564	⇔	⇔	⇔	⇔	⇔	PN 16	⇔	⇔	⇔	⇔	PN 6*	PN 10*	⇔	⇔	PN 25	
609.6	604 - 615	⇔	⇔	⇔	⇔	⇔	PN 16	⇔	⇔	⇔	⇔	PN 2.5*	PN 6*	PN 10*	⇔	PN 20	
711.2	707 - 717	⇔	⇔	⇔	PN 10	⇔	⇔	⇔	⇔	⇔	⇔	PN 2.5*	⇔	PN 10*	PN 16	-	
762.0	756 - 768	⇔	⇔	⇔	PN 10	⇔	⇔	⇔	⇔	⇔	⇔	PN 2.5*	PN 6*	⇔	PN 16	-	
812.8	807 - 819	⇔	⇔	⇔	PN 10	⇔	⇔	PN 20	-	⇔	⇔	PN 2.5*	PN 6*	⇔	PN 16	-	
914.4	908 - 920	⇔	⇔	⇔	PN 10	⇔	⇔	PN 20	-	⇔	⇔	PN 2.5*	PN 6*	PN 10	-	-	
1016.0	1010 - 1022	⇔	⇔	⇔	PN 10	⇔	⇔	PN 20	-	⇔	⇔	PN 2.5*	PN 6*	PN 10	-	-	
1117.6	1112 - 1124	⇔	⇔	PN 6	⇔	PN 16	-	-	-	⇔	⇔	PN 2.5*	PN 6*	PN 10	-	-	
1219.2	1213 - 1226	⇔	⇔	PN 6	⇔	PN 16	-	-	-	⇔	⇔	PN 2.5*	PN 6*	PN 10	-	-	
1320.8	1314 - 1328	⇔	⇔	PN 6	⇔	PN 16	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1422.4	1416 - 1429	⇔	⇔	PN 6	⇔	PN 16	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1524.0	1517 - 1532	⇔	⇔	PN 6	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1600.0	1593 - 1608	⇔	⇔	PN 6	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1625.6	1619 - 1634	⇔	⇔	PN 6	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1727.2	1720 - 1735	⇔	⇔	PN 6	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1828.8	1822 - 1837	⇔	⇔	PN 6	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
1930.4	1923 - 1938	⇔	PN 2.5	⇔	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	
2032.0	2025 - 2040	⇔	PN 2.5	⇔	PN 10	-	-	-	-	⇔	⇔	PN 2.5*	PN 6	-	-	-	

Infinitely variable intermediate sizes available

- Notes:**
- Follow the assembly instructions
 - PN (🏭) = working pressure considering the application loads
 - Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
 - PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
 - Strip inserts are optional accessories → page 88
 - Additional sealing materials and pressure and temperature ranges on request
 - The clamping range of 1-part STRAUB- OPEN-FLEX and STRAUB-FLEX components is identical

STRAUB-OPEN-FLEX 2 GT

∅ 171.0 - 2032.0 mm | with GT-outlet



- DV | OD + 27 mm
- C | 91 mm
- R without strip insert | 5 - 10 mm
- R with strip insert | 5 - 35 mm

Components Materials	W1	W2	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
GT-outlet	1.4404	1.4404	1.4404

EPDM <ul style="list-style-type: none"> • -20°C to +70°C • all qualities of water, waste water, air, solids and chemical products 	NBR <ul style="list-style-type: none"> • -20°C to +70°C • water, gases, oils, combustibles, fuels and other hydrocarbons 	Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
		bolted	bolted	Welded	Welded	Welded	Welded
G1	G ¾"	G ¾"	G 1"	G 1 ¼"	G 1 ½"	G 2"	
G2 / OB	G ¾"	G 1"	39.5 mm	48.3 mm	54.4 mm	66.3 mm	
L	-	-	43.0 mm	48.0 mm	48.0 mm	66.3 mm	

OD [mm]	Clamping range [mm]	W1	PN						W5	with GT-outlet												
			2.5	6	10	16	20	25		V1	V2	V3	V4	V5	V6							
172.0	169 - 175		-	-	-	-	-	-	⇒	⇒	PN 10	PN 16	-	-	V1	V2	-	-	-	-		
180.0	177 - 183		-	-	-	-	-	-	⇒	⇒	PN 10	PN 16	⇒	PN 25	V1	V2	V3	-	-	-		
200.0	197 - 203		-	-	-	-	-	-	⇒	⇒	PN 10	PN 16	⇒	PN 25	V1	V2	V3	-	-	-		
219.1	216 - 223		-	-	-	-	-	-	⇒	⇒	PN 10	PN 16	⇒	PN 25	V1	V2	V3	-	-	-		
250.0	247 - 254		-	-	-	-	-	-	⇒	⇒	PN 10	PN 16	⇒	PN 25	V1	V2	V3	-	-	-		
267.0	263 - 272		⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	PN 10	⇒	⇒	PN 25	V1	V2	V3	-	-	-		
273.0	269 - 278		⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	PN 10	⇒	⇒	PN 25	V1	V2	V3	V4	-	-		
304.0	300 - 309		⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	PN 6	PN 10	⇒	PN 20	PN 25	V1	V2	V3	V4	-	-	
323.9	320 - 329		⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	PN 6	PN 10	⇒	PN 20	PN 25	V1	V2	V3	V4	-	-	
355.6	352 - 360		⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	PN 6	PN 10	PN 16	⇒	PN 25	V1	V2	V3	V4	-	-	
406.4	403 - 410		⇒	⇒	⇒	⇒	⇒	PN 20	PN 25	⇒	PN 6	⇒	PN 16	⇒	PN 25	V1	V2	V3	V4	V5	-	
457.2	453 - 462		⇒	⇒	⇒	⇒	⇒	PN 20	PN 25	⇒	PN 6	PN 10	⇒	⇒	PN 25	V1	V2	V3	V4	V5	-	
508.0	504 - 513		⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	PN 6	PN 10	⇒	⇒	PN 25	V1	V2	V3	V4	V5	-	
558.8	555 - 564		⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	PN 2.5	PN 6	PN 10	⇒	PN 20	-	V1	V2	V3	V4	V5	V6
609.6	604 - 615		⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	PN 2.5	PN 6	PN 10	⇒	PN 20	-	V1	V2	V3	V4	V5	V6
711.2	707 - 717		⇒	⇒	⇒	⇒	PN 10	⇒	PN 25	⇒	PN 2.5	⇒	PN 10	PN 16	-	-	V1	V2	V3	V4	V5	V6
762.0	756 - 768		⇒	⇒	⇒	⇒	PN 10	⇒	PN 25	⇒	PN 2.5	PN 6	⇒	PN 16	-	-	V1	V2	V3	V4	V5	V6
812.8	807 - 819		⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	-	PN 2.5	PN 6	⇒	PN 16	-	-	V1	V2	V3	V4	V5	V6
914.4	908 - 920		⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	-	PN 2.5	PN 6	PN 10	-	-	-	V1	V2	V3	V4	V5	V6
1016.0	1010 - 1022		⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	-	PN 2.5	PN 6	PN 10	-	-	-	V1	V2	V3	V4	V5	V6
1117.6	1112 - 1124		⇒	PN 6	⇒	⇒	PN 16	-	-	-	PN 2.5	PN 6	PN 10	-	-	-	V1	V2	V3	V4	V5	V6
1219.2	1213 - 1224		⇒	PN 6	⇒	⇒	PN 16	-	-	-	PN 2.5	PN 6	PN 10	-	-	-	V1	V2	V3	V4	V5	V6
1320.8	1314 - 1328		⇒	PN 6	⇒	⇒	PN 16	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1422.4	1416 - 1429		⇒	PN 6	⇒	⇒	PN 16	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1524.0	1517 - 1532		⇒	PN 6	PN 10	-	-	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1600.0	1593 - 1608		⇒	PN 6	PN 10	-	-	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1625.6	1619 - 1634		⇒	PN 6	PN 10	-	-	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1727.2	1720 - 1735		⇒	PN 6	PN 10	-	-	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1828.8	1822 - 1837		⇒	PN 6	PN 10	-	-	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
1930.4	1923 - 1938		⇒	PN 6	PN 10	-	-	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6
2032.0	2025 - 2040		⇒	PN 2.5	⇒	⇒	PN 10	-	-	-	PN 2.5	PN 6	-	-	-	-	V1	V2	V3	V4	V5	V6

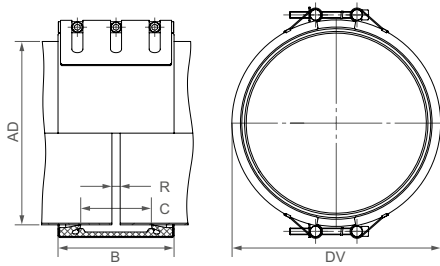
Infinitely variable intermediate sizes available | STRAUB-OPEN-FLEX 3 GT to 4 GT with G3/4/1 outlet also available

Notes:

- Follow the assembly instructions
- PN () = working pressure considering the application loads
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Version 1+2 with outside and inside thread
- Version 3-6 with inside thread and outside blank (OB)
- Only available in 2-part version
- Strip inserts cannot be used
- Not suitable for vacuum applications

STRAUB-OPEN-FLEX 3

ø 219.1 - 4064.0 mm



- B | 210 to 218 mm
- DV | OD + 38 mm
- C | 127 mm
- R without strip insert | 5 - 15 mm
- R with strip insert | 5 - 60 mm

Components Materials	W1	W2 (marked with *)	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
Strip insert (optional)	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

FPM/FKM (on request)	
	<ul style="list-style-type: none"> • -20°C to +180°C • ozone, oxygen, acids, gases, oils and fuels (only with strip insert)

OD [mm]	Clamping range [mm]	W1	PN							W5	PN									
			1	2.5	6	10	16	20	25		1	2.5	6	10	16	20	25			
219.1	215 - 224		-	-	-	-	-	-	-		⇒	⇒	⇒	⇒	⇒	PN 20*	-			
250.0	246 - 255		-	-	-	-	-	-	-		⇒	⇒	⇒	⇒	PN 16*	-	-			
267.0	263 - 272		-	-	-	-	-	-	-		⇒	⇒	⇒	⇒	PN 16*	⇒	PN 25			
273.0	269 - 278		-	-	-	-	-	-	-		⇒	⇒	⇒	⇒	PN 16*	⇒	PN 25			
304.0	300 - 309		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25			
323.9	320 - 329		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25			
355.6	350 - 360		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25			
406.4	402 - 411		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25			
457.2	453 - 462		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 25	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25			
508.0	502 - 514		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 20	-	⇒	⇒	PN 6*	⇒	⇒	PN 25			
558.8	553 - 564		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 20	PN 25	⇒	⇒	PN 6*	⇒	⇒	PN 25			
609.6	604 - 615		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	⇒	PN 6*	⇒	PN 25			
711.2	705 - 717		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	⇒	PN 6*	⇒	PN 25			
762.0	756 - 768		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	⇒	PN 6*	⇒	PN 25			
812.8	807 - 819		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	PN 25	⇒	⇒	PN 6*	⇒	PN 25			
914.4	908 - 920		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	PN 25	⇒	⇒	PN 6*	⇒	PN 25			
1016.0	1010 - 1022		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	PN 25	⇒	⇒	PN 2.5*	⇒	PN 25		
1117.6	1111 - 1125		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	⇒	PN 20	PN 25	⇒	⇒	PN 2.5*	⇒	PN 25		
1219.2	1213 - 1226		⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10	PN 16	⇒	PN 25	⇒	⇒	PN 2.5*	⇒	PN 25		
1320.8	1314 - 1328		⇒	⇒	PN 6	⇒	PN 16	⇒	PN 25	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	⇒	PN 25			
1422.4	1416 - 1429		⇒	⇒	PN 6	⇒	PN 16	PN 20	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	⇒	PN 16	-	-
1524.0	1517 - 1532		⇒	⇒	PN 6	PN 10	⇒	PN 20	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	PN 10	-	-	-
1600.0	1593 - 1608		⇒	⇒	PN 6	PN 10	⇒	PN 20	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	PN 10	-	-	-
1727.2	1720 - 1735		⇒	⇒	PN 6	PN 10	⇒	PN 20	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	PN 10	-	-	-
1828.8	1822 - 1837		⇒	⇒	PN 6	PN 10	PN 16	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	PN 10	-	-	-
1930.4	1923 - 1938		⇒	⇒	PN 6	PN 10	PN 16	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	PN 10	-	-	-
2032.0	2025 - 2024		⇒	⇒	PN 6	PN 10	PN 16	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5*	PN 6	PN 10	-	-	-
2540.0	2533 - 2548		⇒	PN 2.5	⇒	PN 10	-	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5	PN 6	-	-	-	-
3048.0 ¹	3041 - 3056		⇒	PN 2.5	PN 6	-	-	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5	-	-	-	-	-
3302.0 ¹	3293 - 3311		⇒	PN 2.5	PN 6	-	-	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5	-	-	-	-	-
3556.0 ¹	3544 - 3566		⇒	PN 2.5	PN 6	-	-	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5	-	-	-	-	-
4064.0 ¹	4055 - 4073		⇒	PN 2.5	PN 6	-	-	-	-	⇒	⇒	PN 25	⇒	⇒	PN 2.5	-	-	-	-	-

¹ Note: 3-part execution

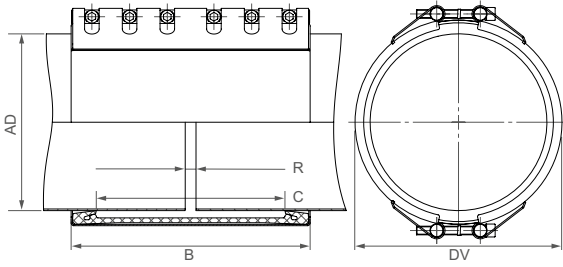
Infinitely variable intermediate sizes available

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- Strip inserts are optional accessories ➔ page 88
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-OPEN-FLEX 4

Ø 323.9 - 4064.0 mm



- B | 443 to 444 mm
- DV | OD + 48 mm
- C | 350 mm
- R with strip insert | 5 - 200 mm

Components Materials	W1	W2	W5
Casing	1.0976, hot-dip galvanised	-	1.4162 (LDX)
Locking bolts	1.7220	-	A4 - 80
Bolt	1.0737, galvanised	-	1.4404 or equivalent
Strip insert (stainless steel insert included)	1.4310 or equivalent / HDPE	-	1.4310 or equivalent / HDPE

EPDM	• -20°C to +100°C
	• all qualities of water, waste water, air, solids and chemical products

NBR	• -20°C to +80°C
	• water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]		PN									PN										
			1	2.5	6	10	16	20	25	1		2.5	6	10	16	20	25					
323.9	318 - 329	W1	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 25	W5	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 25			
355.6	350 - 362		⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 25		⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 25		
406.4	402 - 411		⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨		PN 25	⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 25	
457.2	453 - 462		⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨		PN 25	⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 25	
508.0	504 - 514		⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨		PN 25	⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 20	PN 25
558.8	553 - 564		⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨		PN 20	-	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 20	PN 25
609.6	604 - 615		⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨		PN 20	-	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 20	PN 25
655.0	651 - 660		⇨	⇨	⇨	⇨	⇨	⇨	PN 16	-		-	⇨	⇨	⇨	⇨	⇨	⇨	⇨	⇨	PN 20	PN 25
711.2	705 - 717		⇨	⇨	⇨	⇨	⇨	⇨	PN 16	-		-	⇨	⇨	⇨	⇨	⇨	PN 16	⇨	⇨	PN 25	-
762.0	756 - 768		⇨	⇨	⇨	⇨	⇨	⇨	PN 16	-		-	⇨	⇨	⇨	⇨	⇨	PN 16	⇨	⇨	PN 25	-
812.8	807 - 819		⇨	⇨	⇨	⇨	⇨	⇨	PN 16	-		-	⇨	⇨	⇨	⇨	⇨	PN 16	⇨	⇨	PN 25	-
914.4	908 - 920		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	⇨	⇨	PN 20	-
1016.0	1010 - 1022		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	⇨	⇨	PN 20	-
1117.6	1111 - 1125		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1219.2	1213 - 1226		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1320.8	1314 - 1328		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1422.4	1416 - 1429		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1524.0	1517 - 1532		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1600.0	1593 - 1608		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1625.0	1619 - 1633		⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-		-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-
1727.2	1720 - 1735	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
1828.8	1822 - 1837	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
1930.4	1923 - 1938	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
2032.0	2025 - 2040	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
2268.0	2261 - 2276	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
2540.0	2533 - 2548	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
2794.0	2796 - 2801	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
3048.0 ¹	3041 - 3056	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
3302.0 ¹	3293 - 3311	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
3556.0 ¹	3544 - 3566	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
3810.0 ¹	3801 - 3819	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		
4064.0 ¹	4055 - 4073	⇨	⇨	⇨	⇨	⇨	⇨	PN 10	-	-	⇨	⇨	⇨	⇨	⇨	PN 10	PN 16	-	-	-		

¹ Note: 3-part execution

Infinitely variable intermediate sizes available

- Notes:**
- Follow the assembly instructions
 - PN (🏭) = working pressure considering the application loads
 - Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
 - Additional sealing materials and pressure and temperature ranges on request

STRAUB-STEP-FLEX

The pipe connection for all pipe materials and various outside diameters of pipes.

The possible diameter differences of the pipes to be connected can be between 10 mm and a maximum of 30 mm. Larger differences in diameter can be compensated for by using a reduction fitting with two couplings. Smaller differences of up to 9 mm can be bridged with our STRAUB-FLEX solution (on request).

Under pressure, STRAUB-STEP-FLEX couplings tend to be pushed in the direction of the smaller pipe diameter due to internal forces caused by the difference in diameter. They must therefore be secured against slipping using a thrust protector; retainers are not required for unpressurised applications.



219.1 mm to
2032.0 mm

Diameter [mm]



-20°C to
+100°C

Temperature [°C]

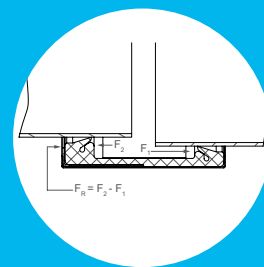


EPDM

Gasket [material]

Reaction forces

	OD 1 [mm]	OD 2 [mm]	min [bar]	Coupling retainer F_R at min. PN [N]	max [bar]	Coupling retainer F_R at max. PN [N]
STRAUB-STEP-FLEX 2	250.0	280.0	12.0	14980	24.0	29960
	323.9	353.0	9.5	14690	25.0	38860
	406.4	436.0	7.5	14680	25.0	48940
	609.6	639.0	5.0	14410	25.0	72040
	812.8	842.0	3.5	13195	22.0	82938
STRAUB-STEP-FLEX 3	1219.2	1249.0	3.5	20210	17.0	98160
	1600.0	1630.0	2.5	19020	13.5	102690
	2032.0	2062.0	2.0	19280	10.0	96410
	3048.0	3078.0	3.0	43280	6.5	93770
	4064.0	4094.0	1.0	19210	5.0	96060

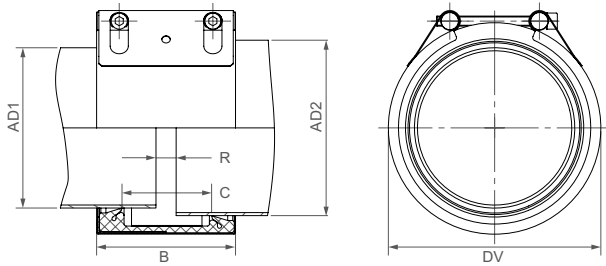


More detailed calculations on request



STRAUB-STEP-FLEX 2

ø 219.1 - 812.8 mm



Components Materials	W1	W2 (marked with *)	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
Strip insert (stainless steel insert included)	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

OD 1 [mm]	Min. OD 2 to max. OD 2 (OD 1 + 10 mm) (OD 1 + 30 mm)	PN							PN						
		1	2.5	6	10	16	20	25	1	2.5	6	10	16	20	25
219.1	230 - 250	-	-	-	-	-	-	-	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25*
250.0	260 - 280	-	-	-	-	-	-	-	⇒	⇒	⇒	PN 10*	⇒	⇒	PN 25*
267.0	277 - 297	-	-	-	-	-	-	-	⇒	⇒	⇒	PN 10*	⇒	PN 20*	-
273.0	283 - 303	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒	PN 20*	PN 25
304.0	314 - 334	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10*	⇒	PN 20*	PN 25
323.9	334 - 354	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 10*	PN 16*	⇒	PN 25
355.6	366 - 386	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	⇒	PN 6*	⇒	PN 16*	⇒
406.4	416 - 436	⇒	⇒	⇒	⇒	⇒	⇒	PN 20	PN 25	⇒	⇒	PN 6*	⇒	PN 16*	⇒
457.2	467 - 487	⇒	⇒	⇒	⇒	⇒	⇒	PN 20	PN 25	⇒	⇒	PN 6*	PN 10*	⇒	⇒
508.0	518 - 538	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	⇒	⇒	PN 6*	PN 10*	⇒	⇒
558.8	569 - 589	⇒	⇒	⇒	⇒	PN 16	⇒	PN 25	⇒	⇒	⇒	PN 6*	PN 10*	⇒	PN 20
609.6	620 - 640	⇒	⇒	⇒	PN 10	⇒	⇒	PN 25	⇒	⇒	⇒	PN 6*	PN 10*	⇒	PN 20
711.2	721 - 741	⇒	⇒	⇒	PN 10	⇒	⇒	PN 25	⇒	⇒	⇒	PN 2.5*	PN 6*	⇒	PN 16
762.0	772 - 792	⇒	⇒	⇒	PN 10	⇒	PN 20	-	⇒	⇒	⇒	PN 2.5*	PN 6*	⇒	PN 16
812.8	823 - 843	⇒	⇒	⇒	PN 10	⇒	PN 20	-	⇒	⇒	⇒	PN 2.5*	PN 6*	⇒	PN 16

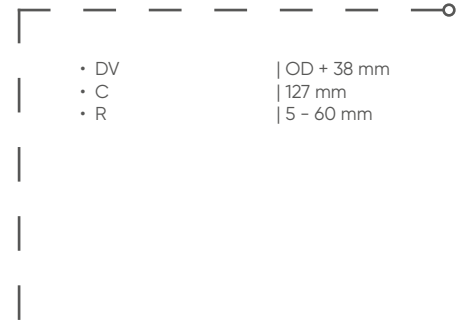
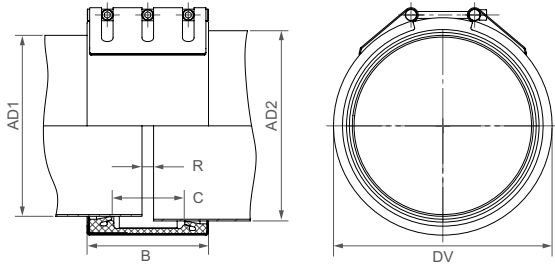
Infinitely variable intermediate sizes available

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-STEP-FLEX 3

ø 914.4 - 2032.0 mm



Components Materials	W1	W2 (marked with *)	W5
Casing	1.0976, hot-dip galvanised	1.4404 or equivalent	1.4162 (LDX)
Locking bolts	1.7220	1.7220	A4 - 80
Bolt	1.0737, galvanised	1.0737, galvanised	1.4404 or equivalent
Strip insert (stainless steel insert included)	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

OD 1 [mm]	Min. OD 2 to max. OD 2 (OD 1 + 10 mm) (OD 1 + 30 mm)	PN							PN						
		1	2.5	6	10	16	20	25	1	2.5	6	10	16	20	25
914.4	924 - 934	↔	↔	↔	PN 10	↔	PN 20	-	↔	PN 2.5*	↔	PN 10	-	-	-
1016.0	1026 - 1046	↔	↔	↔	PN 10	↔	PN 20	-	↔	PN 2.5*	↔	PN 10	-	-	-
1117.6	1127 - 1147	↔	↔	↔	PN 10	PN 16	-	-	↔	PN 2.5*	↔	PN 10	-	-	-
1219.2	1229 - 1249	↔	↔	PN 6	↔	PN 16	-	-	↔	PN 2.5*	↔	PN 10	-	-	-
1320.8	1331 - 1351	↔	↔	PN 6	↔	PN 16	-	-	↔	PN 2.5*	↔	PN 10	-	-	-
1422.4	1432 - 1452	↔	↔	PN 6	↔	PN 16	-	-	↔	PN 2.5*	PN 6	-	-	-	-
1524.0	1534 - 1554	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-
1600.0	1610 - 1630	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-
1625.4	1635 - 1655	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-
1727.2	1737 - 1757	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-
1828.8	1839 - 1859	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-
1930.4	1940 - 1960	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-
2032.0	2042 - 2062	↔	↔	PN 6	PN 10	-	-	-	↔	PN 2.5*	PN 6	-	-	-	-

Infinitely variable intermediate sizes available

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-SQUARE-FLEX

STRAUB connects square pipes easily, quickly and reliably with STRAUB-SQUARE-FLEX.

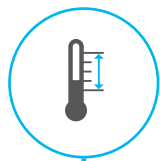
STRAUB-SQUARE-FLEX is used for pipes in sewage treatment plants that are used for biological waste water purification. They are specially designed for use on square pipes in aeration basins.

The STRAUB-SQUARE-FLEX helps waste water treatment plant operators ensure that their systems run smoothly and efficiently, resulting in improved water quality and more sustainable operation.



60.0 mm
to
100.0 mm

Diameter [mm]



-20°C to
+100°C

Temperature [°C]



EPDM

Gasket [material]



STRAUB-SQUARE-FLEX

ø 60.0 - 100.0 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4404
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404

EPDM	• -20°C to +100°C
	• all qualities of water, waste water, air, solids and chemical products

Dimension [mm]	PN [bar]	D [mm]	D1 [mm]	D2 [mm]	B [mm]	A1 [mm]	Torque rate [Nm]	AF [mm]	Metric thread
60.0	4	142	60	83	85	125	10	6	M8
80.0	4	171	80	103	85	140	10	6	M8
100.0	4	200	100	123	85	170	10	6	M8

Notes:

- Follow the assembly instructions

A close-up photograph of a metal hose clamp assembly. The assembly consists of a cylindrical metal body with a red handle on the right side. A metal hose clamp is attached to the front of the assembly. The background is dark and out of focus, showing other parts of the machinery. A large blue curved shape is on the right side of the image.

STRAUB-REP-FLEX

STRAUB-MAXI-FLEX

STRAUB-CLAMP

STRAUB repair products:

For damaged pipelines

STRAUB-REP-FLEX

The repair COUPLING!

STRAUB-REP-FLEX offers a fast and reliable solution for repairing broken pipes and sealing corrosion damage to drinking water and water pipes, gas and oil pipes.

The proven STRAUB sealing lip system guarantees reliable and durable use on pipes made of a wide range of materials such as steel, cast iron, ductile cast iron, fibre cement, PVC or PE. STRAUB-REP-FLEX can also be used to connect two different types of pipe with the same DN.

The EPDM gasket fulfils all SVGW, ÖVGW, WRC and NSF requirements as well as DVGW W270 and KTW.



DN 40
to
DN 400

Diameter [mm]



-20°C to
+100°C

Temperature [°C]



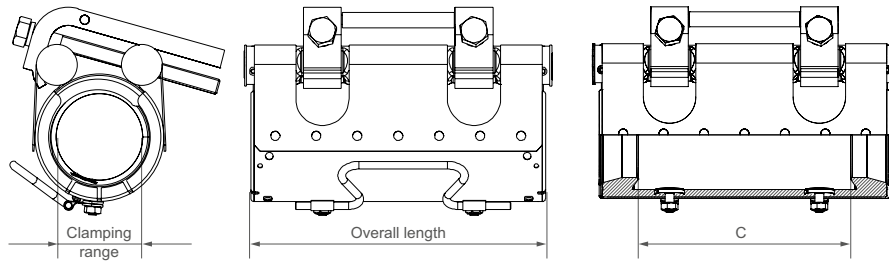
EPDM
NBR

Gasket [material]



STRAUB-REP-FLEX

DN 40 - DN 150 | Overall length 200 / 300 mm



- Damaged areas (burst pipes, corrosion) up to 120 mm
- from DN 100 up to 200 mm

Components	Materials
Jacket sheath	1.4301
Locking bolts	A2 - 70
Bolt	1.4301


EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

DN	Clamping range [mm]	Overall length [mm]	PN [bar]	C [mm]	Cast iron [mm]	Old cast iron [mm]	Steel [mm]	PE [mm]	Torque rate [Nm]	AF [mm]	Metric thread
40	46 - 53	200	16	142	-	51 - 53	46.0 - 49.0	50	10	17	M10
40	53 - 60	200	16	142	56	-	-	-	10	17	M10
50	56 - 64	200	16	142	-	62 - 64	56.0 - 61.0	63	10	17	M10
50 / 60	63 - 71	200	16	142	66	-	70.0 - 71.0	-	10	17	M10
60 / 65	72 - 80	200	16	142	77	72 - 74	72.0 - 76.1	75	10	17	M10
65 / 70	76 - 83	200	16	142	82	-	77.0 - 79.0	-	10	17	M10
70	82 - 89	200	16	142	87	83 - 85	-	-	10	17	M10
80	88 - 98	200	16	142	98	94 - 96	88.0 - 89.0	90	10	17	M10
90	97 - 108	200	16	142	108	104 - 108	97.0 - 102.0	-	10	17	M10
100	108 - 118	200 / 300	16	142 / 245	118	114 - 116	107.0 - 114.3	110/125	10	17	M10
100	120 - 130	200 / 300	16	142 / 245	-	123 - 125	-	-	10	17	M10
100/125	128 - 138	200 / 300	16	142 / 245	-	134 - 137	132.0 - 134.0	-	10	17	M10
125	139 - 149	200 / 300	16	142 / 245	144	140 - 143	139.7	140	10	17	M10
135 / 150	150 - 160	200 / 300	16	142 / 245	-	150 - 153	157.0 - 160.0	160	10	17	M10

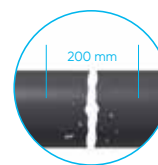
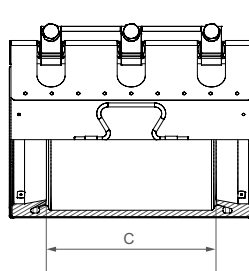
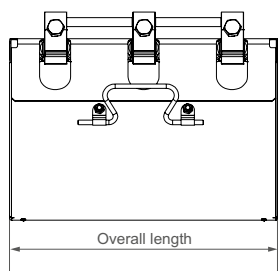
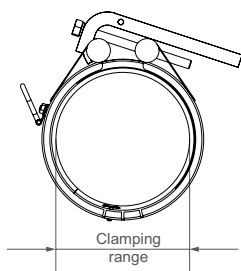
Intermediate sizes on request

Notes:

- Follow the assembly instructions
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Can be mounted on pipes made of various materials

STRAUB-REP-FLEX

DN 150 - DN 400 | Overall length 300 mm



- Damaged areas (burst pipes, corrosion) up to 200 mm

Components	Materials
Jacket sheath	1.4301
Locking bolts	A2 - 70
Bolt	1.4301

EPDM	
	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -20°C to +80°C • water, gases, oils, combustibles, fuels and other hydrocarbons

DN	Clamping range [mm]	Overall length [mm]	PN [bar]	C [mm]	Cast iron [mm]	Old cast iron [mm]	Steel [mm]	PE [mm]	Torque rate [Nm]	AF [mm]	Metric thread
150	159 - 170	300	16	212	170	166 - 169	168.3	160	20	19	M12
165	175 - 185	300	16	212	-	180 - 184	-	-	20	19	M12
175	186 - 196	300	16	212	196	191 - 194	183.0 - 191.0	-	20	19	M12
175 / 180	196 - 206	300	16	212	-	198 - 200	-	200	20	19	M12
190 / 200	206 - 216	300	16	212	-	208 - 211	211.0 - 216.0	-	20	19	M12
200	216 - 226	300	16	212	222	218 - 222	219.1	225	20	19	M12
225	241 - 251	300	16	212	248	244 - 247	241.0	250	20	19	M12
250	264 - 274	300	16	212	274	268 - 273	264.0 - 273.0	-	20	19	M12
250	274 - 284	300	16	212	-	-	-	280	20	19	M12
300	315 - 325	300	10	212	324	322 - 325	316.0 - 323.9	315	20	19	M12
350	355 - 365	300	10	212	-	-	355.6	355	20	19	M12
350	368 - 379	300	10	212	378	376 - 379	368.0	-	20	19	M12
400	398 - 408	300	10	212	-	-	406.4	400	20	19	M12
400	419 - 429	300	10	212	429	426 - 430	419.0	-	20	19	M12

Intermediate sizes on request

Notes:

- Follow the assembly instructions
- Test pressure = PN (PN) x 1.5 (e.g. industry, water supply, etc.)
- Can be mounted on pipes made of various materials

STRAUB-MAXI-FLEX

Reliable sealing for various types of pipe

STRAUB-MAXI-FLEX offers an efficient (thanks to its large clamping range) and reliable (thanks to its proven STRAUB principle) solution for repairing broken pipes and sealing corrosion damage on drinking water pipes and also for gas and oil pipes on request.

STRAUB's tried and tested sealing lip system guarantees long-term reliability on a wide range of pipe materials, such as stainless steel, grey cast iron, PE, PVC, GRP, concrete, ductile cast iron and Eternit. In addition, STRAUB-MAXI-FLEX makes it possible to connect different types of pipe with identical nominal values (DN).

The EPDM gasket complies with all relevant international standards, including the regulations of SVGW, ÖVGW, WRC, NSF, as well as DVGW W270 and KTW.



**87.0 mm to
243.0 mm**

Diameter [mm]



**-20°C to
+100°C**

Temperature [°C]



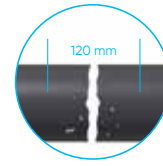
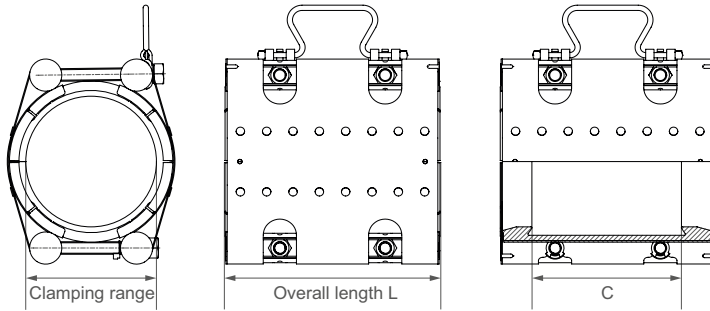
EPDM

Gasket [material]



STRAUB-MAXI-FLEX

DN 80 - 200



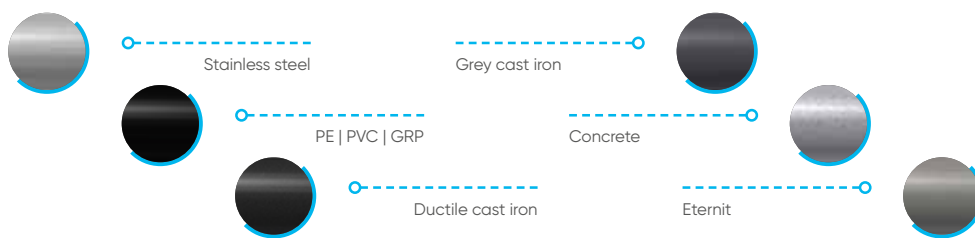
- Damaged areas (burst pipes, corrosion) up to 120 mm

Components	Materials
Jacket sheath	1.4301
Locking bolts	A2 - 70
Bolt	1.4301

EPDM	<ul style="list-style-type: none"> • -20°C to +100°C • all qualities of water, waste water, air, solids and chemical products
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DN	Clamping range [mm]	PN [bar]	Overall length L [mm]	C [mm]	Cast iron [mm]	Old cast iron [mm]	Steel [mm]	Torque rate [Nm]	AF [mm]	Thread Metric
80	87 - 109	16	200	142	98	94 - 96	88.9	35	19	M12
100	104 - 129	16	200	142	118	114 - 116	107.0 - 114.3	35	19	M12
150	158 - 184	16	200	142	170	166 - 169	168.3	35	19	M12
200	218 - 243	16	200	142	222	218 - 222	219.1	35	19	M12

STRAUB-MAXI-FLEX: can be used on all pipe materials



Notes:

- Follow the assembly instructions
- Test pressure = PN (bar) x 1.5 (e.g. industry, water supply, etc.)
- Can be mounted on pipes made of various materials

STRAUB-CLAMP

The repair CLAMP!

STRAUB-CLAMP repair clamps are used to reliably seal damaged pipes made of various materials (steel, cast iron, ductile cast iron, fibre cement, PVC). Damaged areas up to 250 mm in length can be repaired.

STRAUB-CLAMP repair clamps are manufactured with standard EPDM or NBR seals and are available in one- or two-part versions. The repair clamp must be at least as long as the outside diameter of the pipe that needs to be repaired.

The pipe surfaces must be prepared in accordance with the general installation requirements (refer to the STRAUB-CLAMP assembly instructions).



**44.0 mm to
440.0 mm**

Diameter [mm]



**-5°C to
+40°C**

Temperature [°C]



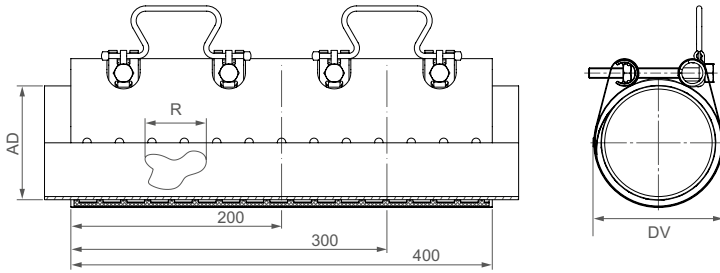
**EPDM
NBR**

Gasket [material]



STRAUB-CLAMP

ø 44.0 - 330.0 mm | SCE (1-part)



Clamp length

- 200 mm
- 300 mm
- 400 mm

R_{max}

- | 50 mm
- | 150 mm
- | 250 mm

Components	Materials
Jacket sheath	1.4301
Locking bolts	A2 - 70
Bolt	1.4301

EPDM	
	<ul style="list-style-type: none"> • -5°C to +40°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -5°C to +40°C • water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]	PN * [bar]	2 locking bolts [mm]	3 locking bolts [mm]	4 locking bolts [mm]	DV [mm]	Torque rate [Nm]	AF [mm]	Metric thread
44.0	44 - 48	16	200	300	-	60	20	17	M10
48.0	48 - 52	16	200	300	-	64	20	17	M10
54.0	54 - 58	16	200	300	-	70	20	17	M10
60.0	60 - 67	16	200	300	-	79	20	17	M10
67.0	67 - 74	16	200	300	-	86	20	17	M10
70.0	70 - 77	16	200	300	-	89	20	17	M10
75.0	75 - 83	16	200	300	-	95	20	17	M10
82.0	82 - 89	16	200	300	400	101	20	17	M10
87.0	87 - 95	16	200	300	400	107	20	17	M10
88.0	88 - 98	16	200	300	400	110	20	17	M10
95.0	95 - 104	16	200	300	400	116	20	17	M10
108.0	108 - 118	16	200	300	400	120	20	17	M10
113.0	113 - 123	16	200	300	400	135	20	17	M10
118.0	118 - 128	16	200	300	400	140	20	17	M10
120.0	120 - 131	16	200	300	400	143	20	17	M10
132.0	132 - 142	16	200	300	400	154	35	19	M12
135.0	135 - 145	16	200	300	400	157	35	19	M12
139.0	139 - 149	16	200	300	400	161	35	19	M12
145.0	145 - 155	16	200	300	400	167	35	19	M12
159.0	159 - 170	16	200	300	400	182	35	19	M12
167.0	167 - 178	16	200	300	400	190	35	19	M12
176.0	176 - 187	16	200	300	400	199	35	19	M12
193.0	193 - 203	10	200	300	400	215	35	19	M12
215.0	215 - 225	10	200	300	400	237	35	19	M12
228.0	228 - 239	10	200	300	-	251	35	19	M12
240.0	240 - 250	10	200	300	-	262	35	19	M12
261.0	261 - 271	10	200	300	-	283	35	19	M12
269.0	269 - 280	10	200	300	-	292	35	19	M12
280.0	280 - 291	10	-	300	-	303	35	19	M12
315.0	315 - 325	10	-	300	-	337	40	19	M12
320.0	320 - 330	10	-	300	-	342	40	19	M12

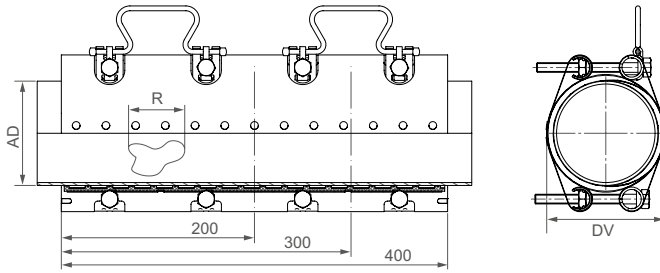
Notes:

- Follow the assembly instructions
- Test pressure = PN () x 1.5 (e.g. industry, water supply, etc.)
- Different pipe diameters (transitions) not possible
- Radial length of damaged area max. 20% of outside diameter of pipe
- Repair clamp must be centred over the damaged area

* Working pressure for gas: max. 5 bar

STRAUB-CLAMP

∅ 88.0 - 440.0 mm | SCZ (2-part)



Clamp length

- 200 mm
- 300 mm
- 400 mm

R_{max}

- | 50 mm
- | 150 mm
- | 250 mm

Components	Materials
Jacket sheath	1.4301
Locking bolts	A2 - 70
Bolt	1.4301

EPDM	
	<ul style="list-style-type: none"> • -5°C to +40°C • all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> • -5°C to +40°C • water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]	PN * [bar]	2 locking bolts [mm]	3 locking bolts [mm]	4 locking bolts [mm]	DV [mm]	Torque rate [Nm]	AF [mm]	Metric thread
88.0	88 - 110	16	200	300	400	117	20	17	M10
100.0	100 - 120	16	200	300	400	132	20	17	M10
108.0	108 - 128	16	200	300	400	140	20	17	M10
114.0	114 - 134	16	200	300	400	146	20	17	M10
120.0	120 - 140	16	200	300	400	152	20	17	M10
130.0	130 - 150	16	200	300	400	162	20	19	M12
140.0	140 - 160	16	200	300	400	172	35	19	M12
159.0	159 - 180	16	200	300	400	192	35	19	M12
168.0	168 - 189	16	200	300	400	201	35	19	M12
190.0	190 - 210	16	200	300	400	223	35	19	M12
210.0	210 - 230	10	200	300	400	242	35	19	M12
218.0	218 - 238	10	200	300	400	252	35	19	M12
240.0	240 - 260	10	200	300	400	272	35	19	M12
269.0	269 - 289	10	200	300	400	301	35	19	M12
282.0	282 - 302	10	200	300	400	314	35	19	M12
315.0	315 - 335	10	200	300	400	347	40	19	M12
322.0	322 - 344	10	-	300	400	356	40	19	M12
337.0	337 - 358	6	-	300	400	370	40	19	M12
347.0	347 - 367	6	-	300	400	379	40	19	M12
365.0	365 - 385	5	-	-	400	397	40	19	M12
390.0	390 - 410	5	-	-	400	422	40	19	M12
410.0	410 - 430	5	-	-	400	442	40	19	M12
420.0	420 - 440	5	-	-	400	452	40	19	M12

Notes:

- Follow the assembly instructions
- Test pressure = PN (bar) x 1.5 (e.g. industry, water supply, etc.)
- Different pipe diameters (transitions) not possible
- Radial length of damaged area max. 20% of outside diameter of pipe
- Repair clamp must be centred over the damaged area

* Working pressure for gas: max. 5 bar



STRAUB-METAL-GRIP-FIRE-FENCE

STRAUB-GRIP-FIRE-FENCE

STRAUB-OPEN-FLEX-FIRE-FENCE

STRAUB fire protection system:

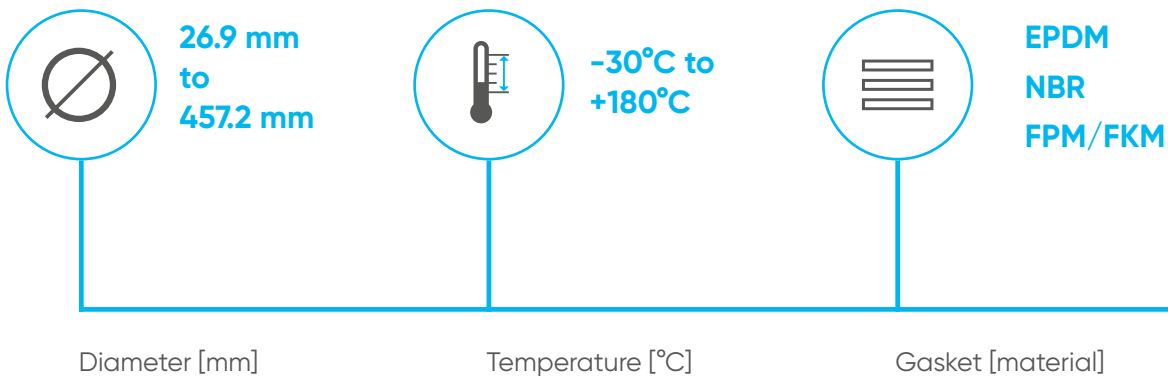
Fire resistant in case of fire

STRAUB-FIRE-FENCE

With ISO 19921 and ISO 19922, STRAUB-FIRE-FENCE meets the highest globally standardised requirements for fire and temperature tests.

The FIRE-FENCE system is the optimum solution for fire extinguishing systems and for a wide range of joints with increased fire protection requirements such as in civil engineering (tunnels), in shipyards for ocean-going vessels with various requirements and other applications.

It is based on the standard types of the STRAUB-GRIP and -FLEX series. In addition, an intumescent plastic is firmly bonded to the outside of the casing. This plastic swells in the event of fire and protectively encloses the pipe coupling while retaining its full functionality.

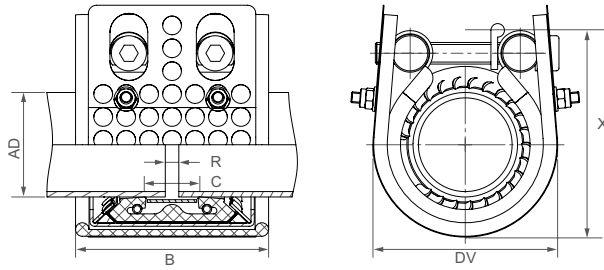


This combines all of the advantages of STRAUB pipe couplings with fire protection and provides the user with a simple, space-saving, state-of-the-art pipe joint.

STRAUB couplings, that are already installed, can be quickly and easily converted to the STRAUB-FIRE-FENCE version using the separately available retrofit kit.

STRAUB-METAL-GRIP-FIRE-FENCE

ø 30.0 - 219.1 mm



Components Materials	W1	W2	W5
Casing	-	1.4404	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 or equivalent
Anchoring rings	-	1.4310	1.4310
Strip insert	-	1.4404 or equivalent / PVDF	1.4404 or equivalent / PVDF

EPDM	<ul style="list-style-type: none"> -30°C to +100°C all qualities of water, waste water, air, solids and chemical products
-------------	---

NBR	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons
------------	--

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R [mm]	Torque rate [Nm]	AF [mm]	Metric thread
30.0	29.5 - 30.5	67	16	46/67	18	57	61	5	10	6	M8
33.7	33.2 - 34.2	62	16	46/67	18	62	68	5	10	6	M8
38.0	37.5 - 38.5	58	16	71	19	68	78	5 - 10	15	6	M8
42.4	41.9 - 42.9	53	16	71	20	72	81	5 - 10	15	6	M8
44.5	44.0 - 45.0	48	16	71	20	74	85	5 - 10	15	6	M8
48.3	47.8 - 48.8	44	16	71	20	78	88	5 - 10	15	6	M8
54.0	53.5 - 54.5	39	16	87	38	84	94	5 - 15	15	6	M8
57.0	56.4 - 57.6	37	16	87	32	87	97	5 - 25	15	6	M8
60.3	59.7 - 60.9	37	16	87	32	92	100	5 - 25	15	6	M8
63.5	62.9 - 64.1	37	16	87	32	94	103	5 - 25	15	6	M8
76.1	75.3 - 76.9	56	16	110	39	110	122	5 - 25	35	8	M10
84.0	83.2 - 84.8	45	16	110	39	122	128	5 - 25	35	8	M10
88.9	88.0 - 89.8	41	16	110	39	127	128	5 - 25	35	8	M10
104.0	103.0 - 105.0	37	16	110	39	143	156	5 - 25	35	8	M10
108.0	106.9 - 109.1	35	16	110	39	143	156	5 - 25	35	8	M10
114.3	113.2 - 115.4	34	16	110	39	149	162	5 - 25	35	8	M10
129.0	127.7 - 130.3	33	16	124	43	170	187	5 - 25	60	10	M12
133.0	131.7 - 134.3	33	16	125	43	170	187	5 - 25	60	10	M12
139.7	138.3 - 141.1	32	16	125	43	178	196	5 - 25	60	10	M12
154.0	152.5 - 155.5	32	16	125	51	196	215	5 - 25	60	10	M12
159.0	157.4 - 160.6	31	16	125	43	197	215	5 - 25	60	10	M12
168.3	166.6 - 170.0	29	16	125	43	210	225	5 - 25	60	10	M12
219.1	216.9 - 221.3	26	16	166	60	269	293	5 - 35	100	14	M16

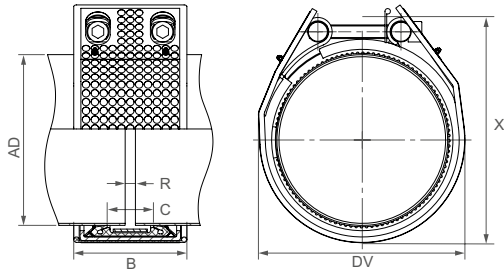
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-METAL-GRIP-FIRE-FENCE

ø 244.5 - 457.2 mm



Components Materials	W1	W2	W5
Casing	1.0577, hot-dip galvanised	-	-
Locking bolts	1.7220	-	-
Bolt	1.0737, galvanised	-	-
Anchoring rings	1.4310	-	-
Strip insert	1.4404 or equivalent / PVDF	-	-

EPDM	<ul style="list-style-type: none"> -30°C to +100°C all qualities of water, waste water, air, solids and chemical products
-------------	---

NBR	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons
------------	--

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R with strip insert [mm]	Torque rate [Nm]	AF [mm]	Metric thread
244.5	242.0 - 247.0	27	14	164	67	300	335	5 - 35	180	17	M20
267.0	264.5 - 269.5	24	12	164	67	322	357	5 - 35	180	17	M20
273.0	270.5 - 275.5	21	12	164	67	328	364	5 - 35	180	17	M20
323.9	320.5 - 327.0	18	10	164	67	379	416	5 - 35	230	17	M20
355.6	352.0 - 359.0	17	8	164	67	411	449	5 - 35	230	17	M20
406.4	402.5 - 410.5	14	8	164	67	461	499	5 - 35	230	17	M20
457.2	452.5 - 462.0	8	6	164	67	512	551	5 - 35	250	17	M20

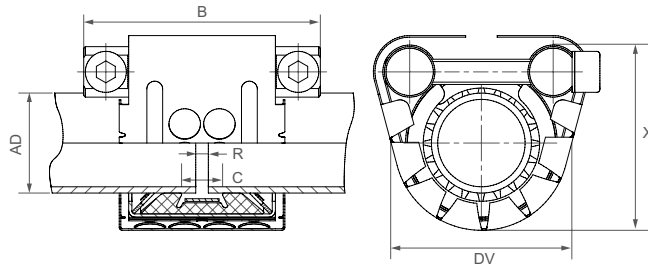
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Strip inserts always included
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP-FIRE-FENCE

∅ 25.0 - 48.3 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4404 or equivalent
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 or equivalent
Anchoring rings	-	-	1.4310
Strip insert	-	-	1.4404 or equivalent / PVDF

EPDM	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products
-------------	---

NBR	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons
------------	--

FPM/FKM	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)
----------------	---

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R with strip insert [mm]	Torque rate [Nm]	AF [mm]	Metric thread
25.0	24.5 - 25.5	64	16	78 (54)	18	51	58	5 - 10	10	6	M8
26.9	26.4 - 27.4	58	16	78 (54)	18	54	61	5 - 10	10	6	M8
28.0	27.5 - 28.5	50	16	78 (54)	18	55	62	5 - 10	10	6	M8
30.0	29.5 - 30.5	42	16	78 (54)	18	57	65	5 - 10	10	6	M8
33.7	33.2 - 34.2	39	16	78 (54)	18	61	70	5 - 10	10	6	M8
35.0	34.5 - 35.5	37	16	78 (54)	18	62	71	5 - 10	12	6	M8
38.0	37.5 - 38.5	36	16	78 (54)	18	65	74	5 - 10	12	6	M8
40.0	39.5 - 40.5	35	16	78 (54)	18	67	76	5 - 10	12	6	M8
42.4	41.9 - 42.9	33	16	78 (54)	18	70	79	5 - 10	12	6	M8
44.5	44.0 - 45.0	30	16	78 (54)	18	72	81	5 - 10	12	6	M8
48.3	47.8 - 48.8	28	16	78 (54)	18	75	86	5 - 10	12	6	M8

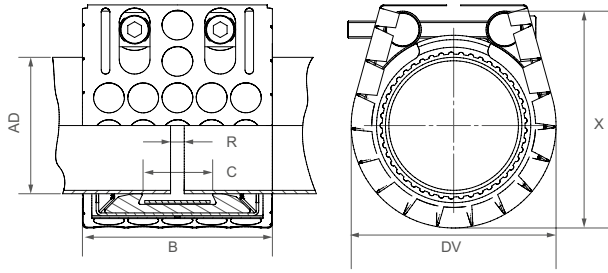
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP-FIRE-FENCE

ø 54.0 - 168.3 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4404 or equivalent
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 or equivalent
Anchoring rings	-	-	1.4310
Strip insert	-	-	1.4404 / PVDF

EPDM	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products
-------------	---

NBR	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons
------------	--

FPM/FKM	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)
----------------	---

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R with strip insert [mm]	Torque rate [Nm]	AF [mm]	Metric thread
54.0	53.5 - 54.5	24	16	71	24	81	92	5 - 15	15	6	M8
57.0	56.4 - 57.6	23	16	71	24	84	95	5 - 15	15	6	M8
60.3	59.7 - 60.9	23	16	71	24	87	98	5 - 15	15	6	M8
63.0	62.4 - 63.6	23	16	71	24	90	101	5 - 15	15	6	M8
66.6	64.9 - 67.3	22	16	71	24	94	105	5 - 15	15	6	M8
70.0	68.9 - 70.7	22	16	71	24	97	109	5 - 15	15	6	M8
73.0	72.3 - 73.7	21	16	71	24	100	112	5 - 15	15	6	M8
76.1	75.3 - 76.9	35	16	106	40	110	127	5 - 25	20	8	M10
79.5	78.7 - 80.3	32	16	106	40	113	130	5 - 25	20	8	M10
84.0	83.2 - 84.8	29	16	106	40	117	135	5 - 25	20	8	M10
88.9	88.0 - 89.8	26	16	106	40	122	139	5 - 25	20	8	M10
100.6	99.6 - 101.6	23	16	106	40	134	151	5 - 25	25	8	M10
101.6	100.6 - 102.6	23	16	106	40	135	151	5 - 25	25	8	M10
104.0	103.0 - 105.0	23	16	106	40	137	153	5 - 25	25	8	M10
104.8	103.8 - 105.8	23	16	106	40	138	155	5 - 25	25	8	M10
108.0	106.9 - 109.1	22	16	106	40	142	159	5 - 25	25	8	M10
114.3	113.2 - 115.4	22	16	106	40	148	165	5 - 25	25	8	M10
125.0	123.7 - 126.3	21	16	121	53	162	179	5 - 30	40	10	M12
127.0	125.7 - 128.3	21	16	121	53	164	181	5 - 30	40	10	M12
129.0	127.7 - 130.3	21	16	121	53	166	183	5 - 30	40	10	M12
130.2	128.9 - 131.5	21	16	121	53	167	184	5 - 30	40	10	M12
133.0	131.7 - 134.3	21	16	121	53	170	187	5 - 30	40	10	M12
139.7	138.3 - 141.1	20	16	121	53	176	194	5 - 30	40	10	M12
141.3	139.9 - 142.7	20	16	121	53	178	195	5 - 30	40	10	M12
154.0	152.5 - 155.5	18	16	121	53	191	208	5 - 30	50	10	M12
159.0	157.4 - 160.6	18	16	121	53	196	213	5 - 30	50	10	M12
165.0	163.4 - 166.6	16	16	121	53	202	219	5 - 30	50	10	M12
168.3	166.6 - 170.0	16	16	121	53	205	222	5 - 30	50	10	M12

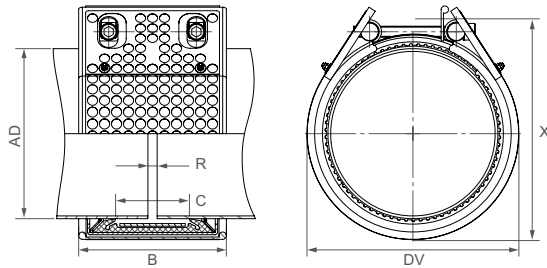
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4-fold safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-GRIP-FIRE-FENCE

∅ 180.0 - 406.4 mm



Components Materials	W1	W2	W5
Casing	-	1.4404 or equivalent	1.4404 or equivalent
Locking bolts	-	1.7220	A4 - 80
Bolt	-	1.0737, galvanised	1.4404 or equivalent
Anchoring rings	-	1.4310	1.4310
Strip insert	-	1.4404 or equivalent / HDPE	1.4404 or equivalent / HDPE

EPDM	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products
-------------	---

NBR	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons
------------	--

FPM/FKM	<ul style="list-style-type: none"> -20°C to +180°C ozone, oxygen, acids, gases, oils and fuels (only with strip insert)
----------------	---

OD [mm]	Clamping range [mm]	PN [bar]	PN [bar]	B [mm]	C [mm]	DV [mm]	X [mm]	R with strip insert [mm]	Torque rate [Nm]	AF [mm]	Metric thread
180.0	178.0 - 182.0	16	10	158	80	221	238	5 - 35	50	10	M12
193.7	192.0 - 195.5	16	10	158	80	241	248	5 - 35	50	10	M12
200.0	198.0 - 202.0	15	10	158	80	247	254	5 - 35	50	10	M12
204.0	202.0 - 206.0	14	10	158	80	252	258	5 - 35	50	10	M12
206.0	204.0 - 208.0	14	5.5	158	80	252	258	5 - 35	50	10	M12
219.1	216.9 - 221.3	16	10	142	80	268	274	5 - 30	60	10	M12
244.5	242.0 - 247.0	9	5.5	158	80	295	299	5 - 35	50	10	M12
250.0	247.5 - 252.5	9	5.5	158	80	300	304	5 - 35	50	10	M12
254.0	251.5 - 256.5	9	5.5	158	80	304	308	5 - 35	50	10	M12
256.0	253.5 - 258.5	9	5.5	158	80	304	308	5 - 35	50	10	M12
267.0	264.5 - 269.5	8	5	158	80	318	321	5 - 35	50	10	M12
273.0	270.5 - 275.5	7	4	158	80	324	327	5 - 35	60	10	M12
306.0	303.0 - 309.0	6	3	158	80	357	358	5 - 35	60	10	M12
323.9	320.5 - 327.0	5	3	158	80	378	378	5 - 35	60	10	M12
355.6	352.0 - 359.0	10	2.5	158	67	411	410	5 - 35	90	14	M16
406.4	402.5 - 410.5	7	2	158	67	464	460	5 - 35	100	14	M16

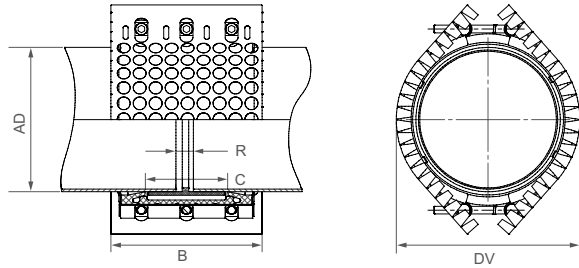
Observe minimum pipe wall thickness → page 106

Notes:

- Follow the assembly instructions
- PN (🏭) = working pressure considering the application loads
- Test pressure = PN (🏭) x 1.5 (e.g. industry, water supply, etc.)
- PN (🚢) = approval-related nominal pressure includes 4 times safety factor (e.g. shipbuilding)
- Pressure values refer to radially rigid carbon steel pipes under static loads
- Strip inserts are optional accessories → page 88
- Additional sealing materials and pressure and temperature ranges on request

STRAUB-OPEN-FLEX-FIRE-FENCE 3

ø 219.1 - 406.4 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4162 (LDX)
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 or equivalent
Strip insert	-	-	HDPE

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]	PN [bar]	B [mm]	C [mm]	DV [mm]	Torque rate [Nm]
219.1	216 - 222	5*	235	127	285	60
250.0	247 - 253	5*	235	127	316	60
267.0	264 - 270	5*	235	127	333	60
273.0	270 - 276	6	235	127	339	60
304.0	301 - 307	5	235	127	370	60
323.9	321 - 327	5	235	127	393	60
406.4	403 - 409	5	235	127	475	60

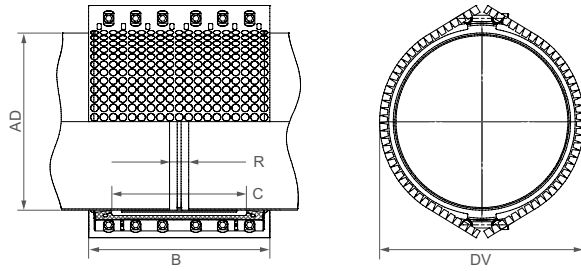
Notes:

- Follow the assembly instructions
- Tested in accordance with ISO 19921-1 and ISO 19922-2 / DIN 86228-1 and DIN 86228-2
- Tested according to IACS URP2

- * For use on pipework with non-flammable media → PN 6 bar

STRAUB-OPEN-FLEX-FIRE-FENCE 4

ø 323.9 – 508.0 mm



Components Materials	W1	W2	W5
Casing	-	-	1.4162 (LDX)
Locking bolts	-	-	A4 - 80
Bolt	-	-	1.4404 or equivalent
Strip insert	-	-	HDPE

EPDM	
	<ul style="list-style-type: none"> -20°C to +100°C all qualities of water, waste water, air, solids and chemical products

NBR	
	<ul style="list-style-type: none"> -20°C to +80°C water, gases, oils, combustibles, fuels and other hydrocarbons

OD [mm]	Clamping range [mm]	PN [bar]	B [mm]	C [mm]	DV [mm]	Torque rate [Nm]
323.9	320 - 327	6	472	350	399	40
355.6	352 - 359	6	472	350	431	40
406.4	403 - 409	6	472	350	481	40
457.2	454 - 460	6	472	350	532	40
508.0	505 - 512	6	472	350	583	40
558.8	555 - 562	6*	472	350	634	40
609.6	606 - 613	6*	472	350	685	40
655.0	652 - 658	6*	472	350	730	40
711.2	707 - 715	6*	472	350	786	40
762.0	758 - 766	6*	472	350	837	40
812.8	809 - 817	6*	472	350	888	50

Notes:

- Follow the assembly instructions
- Tested in accordance with ISO 19921-1 and ISO 19922-2 / DIN 86228-1 and DIN 86228-2
- Tested according to IACS URP2

* not tested



STRAUB elbow 90°

STRAUB elbow 45°

STRAUB equal tee

STRAUB reducing tee

STRAUB 45° tee

STRAUB reducer

STRAUB flange adapter

STRAUB pipe end cap

STRAUB threaded connection

STRAUB SHAPED PARTS stainless steel

... with extended pipe ends

STRAUB shaped parts, stainless steel

STRAUB shaped parts make it possible to join, change the direction, branch, extend or reduce the pipe diameter as well as close pipelines.

With the new STRAUB connection range, we will guide you through a successful piping project. Leading industrial companies, pipeline constructors and maintenance companies rely on the complete solution of shaped parts and pipe connections from STRAUB.

The advantages not only include significantly shorter installation time and cost savings, but above all in the quality of workmanship and reusability.

The STRAUB complete system guarantees maximum variability and the shortest conversion times, resulting in the shortest downtimes for maximum system availability.



Diameter [mm]

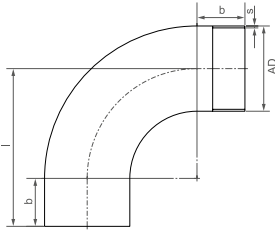


Material



90° elbow

Type 3 (welded DIN 2605, EN 10253)

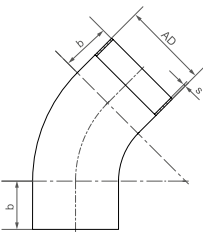


DN	PN [bar]	OD [mm]	b [mm]	s [mm]	l [mm]	Weight [kg/unit]	Material V4A
32	16	42.4	40	2.0	85	0.31	1.4571
40	16	48.3	40	2.0	97	0.39	1.4571
50	16	60.3	40	2.0	116	0.58	1.4571
65	16	76.1	55	2.0	150	0.96	1.4571
80	16	88.9	55	2.0	169	1.15	1.4571
100	16	114.3	55	2.0	207	1.75	1.4571
125	16	139.7	120	2.6	310	5.00	1.4571
150	16	168.3	120	2.6	349	6.50	1.4571
200	16	219.1	155	3.0	460	12.48	1.4571
300	16	323.9	200	4.0	657	31.0	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Elbow 45°

Type 3 (welded DIN 2605, EN 10253)

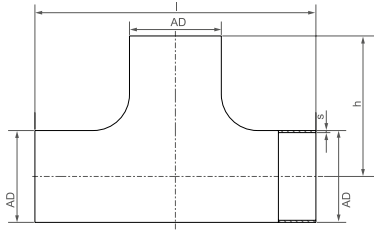


DN	PN [bar]	OD [mm]	b [mm]	s [mm]	Weight [kg/unit]	Material V4A
32	16	42.4	40	2.0	0.24	1.4571
40	16	48.3	40	2.0	0.29	1.4571
50	16	60.3	40	2.0	0.35	1.4571
65	16	76.1	55	2.0	0.69	1.4571
80	16	88.9	55	2.0	0.87	1.4571
100	16	114.3	55	2.0	1.29	1.4571
125	16	139.7	120	2.6	3.65	1.4571
150	16	168.3	120	2.6	4.85	1.4571
200	16	219.1	155	3.0	8.76	1.4571
300	16	323.9	200	4.0	29.0	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Equal tee

(welded DIN 2615, EN 10253-4)

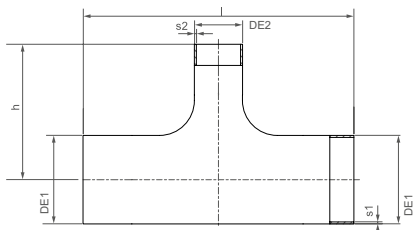


DN	PN [bar]	OD [mm]	h [mm]	s [mm]	l [mm]	Weight [kg/unit]	Material V4A
32	16	42.4	100	2.0	200	0.84	1.4571
40	16	48.3	105	2.0	210	1.00	1.4571
50	16	60.3	115	2.0	230	1.35	1.4571
65	16	76.1	145	2.0	290	2.08	1.4571
80	16	88.9	150	2.0	300	2.57	1.4571
100	16	114.3	165	2.0	330	4.71	1.4571
125	16	139.7	190	2.6	380	6.56	1.4571
150	16	168.3	210	2.6	420	8.54	1.4571
200	16	219.1	275	3.0	550	16.28	1.4571
300	16	323.9	380	4.0	850	58.0	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Reducing tee

(welded DIN 2615, EN 10253-4)

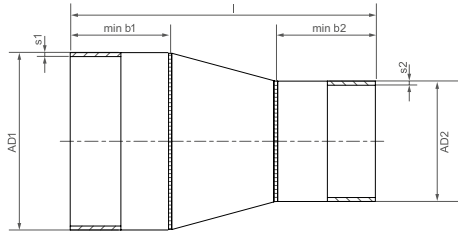


DN / DN	PN [bar]	OD 1 [mm]	OD 2 [mm]	h [mm]	s1 [mm]	s2 [mm]	l [mm]	Weight [kg/unit]	Material V4A
40 / 32	16	48.3	42.4	105	2.0	2.0	210	1.00	1.4571
50 / 25	16	60.3	33.7	105	2.0	2.0	210	1.35	1.4571
50 / 40	16	60.3	48.3	115	2.0	2.0	230	1.35	1.4571
65 / 50	16	76.1	60.3	145	2.0	2.0	290	2.08	1.4571
80 / 65	16	88.9	76.1	150	2.0	2.0	300	2.57	1.4571
80 / 50	16	88.9	60.3	150	2.0	2.0	300	2.29	1.4571
80 / 40	16	88.9	48.3	150	2.0	2.0	300	2.17	1.4571
100 / 80	16	114.3	88.9	165	2.0	2.0	330	4.71	1.4571
100 / 65	16	114.3	76.1	165	2.0	2.0	330	3.94	1.4571
100 / 50	16	114.3	60.3	165	2.0	2.0	330	3.77	1.4571
100 / 40	16	114.3	48.3	165	2.0	2.0	330	3.64	1.4571
125 / 100	16	139.7	114.3	190	2.6	2.0	380	6.56	1.4571
125 / 80	16	139.7	88.9	190	2.6	2.0	380	5.44	1.4571
125 / 65	16	139.7	76.1	190	2.6	2.0	380	5.28	1.4571
125 / 50	16	139.7	60.3	190	2.6	2.0	380	5.25	1.4571
150 / 125	16	168.3	139.7	210	2.6	2.6	420	8.54	1.4571
150 / 100	16	168.3	114.3	210	2.6	2.0	420	7.62	1.4571
150 / 80	16	168.3	88.9	210	2.6	2.0	420	6.84	1.4571
150 / 65	16	168.3	76.1	210	2.6	2.0	420	6.67	1.4571
150 / 50	16	168.3	60.3	210	2.6	2.0	420	6.47	1.4571
200 / 150	16	219.1	168.3	275	3.0	2.6	550	16.28	1.4571
200 / 125	16	219.1	139.7	275	3.0	2.6	550	14.46	1.4571
200 / 100	16	219.1	114.3	275	3.0	2.6	550	13.28	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Concentric reducers

(welded DIN 2616, EN 10253-4)

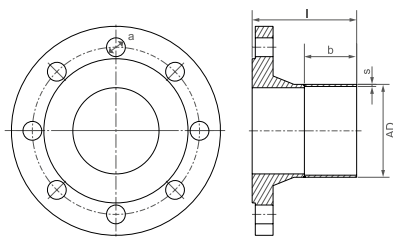


DN / DN	PN [bar]	OD1 [mm]	OD2 [mm]	s1 [mm]	s2 [mm]	l [mm]	Weight [kg/unit]	Material V4A
65 / 50	16	76.1	60.3	2.0	2.0	225	1.08	1.4571
65 / 40	16	76.1	48.3	2.0	2.0	210	1.02	1.4571
80 / 65	16	88.9	76.1	2.0	2.0	245	1.33	1.4571
80 / 50	16	88.9	60.3	2.0	2.0	225	1.34	1.4571
80 / 40	16	88.9	48.3	2.0	2.0	210	1.29	1.4571
100 / 80	16	114.3	88.9	2.0	2.0	255	2.10	1.4571
100 / 65	16	114.3	76.1	2.0	2.0	255	1.93	1.4571
100 / 50	16	114.3	60.3	2.0	2.0	235	1.87	1.4571
125 / 100	16	139.7	114.3	2.6	2.0	287	2.40	1.4571
125 / 80	16	139.7	88.9	2.6	2.0	287	2.81	1.4571
125 / 65	16	139.7	76.1	2.6	2.0	287	2.59	1.4571
150 / 125	16	168.3	139.7	2.6	2.6	315	3.55	1.4571
150 / 100	16	168.3	114.3	2.6	2.0	300	3.05	1.4571
150 / 80	16	168.3	88.9	2.6	2.0	300	3.53	1.4571
150 / 65	16	168.3	76.1	2.6	2.0	300	3.45	1.4571
150 / 50	16	168.3	60.3	2.6	2.0	300	3.38	1.4571
200 / 150	16	219.1	168.3	3.0	2.6	342	7.15	1.4571
200 / 125	16	219.1	139.7	3.0	2.6	342	7.06	1.4571
200 / 100	16	219.1	114.3	3.0	2.0	327	6.61	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Flange adapter

(EN 1092-1)

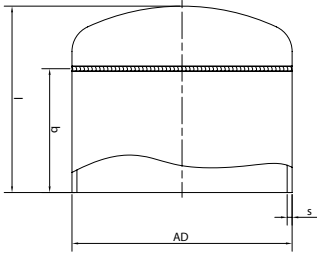


DN	PN [bar]	OD [mm]	a [mm]	b [mm]	s [mm]	l [mm]	Weight [kg/unit]	Material V4A
32	16	42.4	4 x 18	60	2.0	100	2.11	1.4571
40	16	48.3	4 x 18	60	2.0	102	2.60	1.4571
50	16	60.3	4 x 18	80	2.0	125	2.70	1.4571
65	16	76.1	4 x 18	95	2.0	140	3.60	1.4571
80	16	88.9	8 x 18	95	2.0	145	4.35	1.4571
100	16	114.3	8 x 18	95	2.0	147	5.10	1.4571
125	16	139.7	8 x 18	110	2.6	165	7.45	1.4571
150	16	168.3	8 x 22	110	2.6	165	8.65	1.4571
200	16	219.1	12 x 22	150	3.0	212	12.50	1.4571
250	16	273.0	12 x 26	150	3.0	220	17.90	1.4571
300	16	323.9	12 x 26	150	4.0	228	23.40	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Pipe end caps

(DIN, EN)



DN	PN [bar]	OD [mm]	b [mm]	s [mm]	l [mm]	Weight [kg/unit]	Material V4A
15	16	21.3	14	2.0	51	0.07	1.4571
20	16	26.9	21	2.0	50	0.09	1.4571
25	16	33.7	23	2.0	50	0.13	1.4571
32	16	42.4	26	2.0	60	0.19	1.4571
40	16	48.3	30	2.0	60	0.35	1.4571
50	16	60.3	38	2.0	75	0.45	1.4571
65	16	76.1	43	2.0	90	0.53	1.4571
80	16	88.9	45	2.0	94	0.71	1.4571
100	16	108.0	45	2.0	90	0.93	1.4571
100	16	114.3	45	2.0	90	0.99	1.4571
125	16	139.7	48	2.6	100	1.70	1.4571
150	16	168.3	48	2.6	100	2.15	1.4571
200	16	219.1	62	3.0	140	3.75	1.4571
250	16	273.0	80	4.0	155	5.80	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Threaded connection

(outside | DIN, EN)



DN	G [inch]	OD [mm]	g [mm]	b [mm]	s [mm]	l [mm]	Weight [kg/unit]	Material V4A
15	1/2"	21.3	13	47	2.65	60	0.07	1.4571
20	3/4"	26.9	15	45	3.25	60	0.12	1.4571
25	1"	33.7	17	43	3.25	60	0.15	1.4571
32	1 1/4"	42.4	19	61	3.25	80	0.21	1.4571
40	1 1/2"	48.3	19	61	3.25	80	0.33	1.4571
50	2"	60.3	24	76	3.65	100	0.51	1.4571
65	2 1/2"	76.1	27	93	3.65	120	0.79	1.4571
80	3"	88.9	30	95	4.05	125	1.08	1.4571
100	4"	114.3	36	94	4.50	130	1.61	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Stainless steel pipe

(welded, unannealed EN 10217-7)

DN	PN [bar]	OD [mm]	s [mm]	l [mm]	Weight [kg/m]	Weight [kg/x6]	Material V4A
50	16	60.3	2.0	6000	2.92	17.52	1.4571
65	16	76.1	2.0	6000	3.71	22.26	1.4571
80	16	88.9	2.0	6000	4.35	26.10	1.4571
100	16	114.3	2.0	6000	5.62	33.72	1.4571
125	16	139.7	2.6	6000	8.93	53.58	1.4571
150	16	168.3	2.6	6000	10.80	64.74	1.4571
200	16	219.1	3.0	6000	16.23	97.38	1.4571

Other versions and dimensions (e.g. 1.4301 / 1.4404) available on request

Strip inserts

Stiffening rings

Torque wrench

Fitting tool OF

Tension strap

Long catch bolt

Rubber hammer

Lubricant

Lubricating grease

Gaskets

Lock parts

Thrust protector

Earth conductor



**The perfect
assembly:**

With our matching accessories

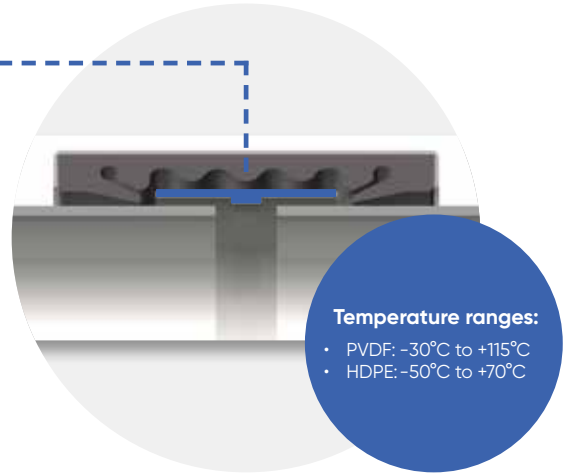
Strip inserts

For secure sealing

STRAUB strip inserts protect the gasket from increased mechanical or chemical damage in the pipe end area.

Strip inserts are required for:

- Great distances between pipe ends
- Axial movement (expansion/contraction)
- Large angular deflection and linear misalignment
- Vacuum (e.g. suction line)
- External overpressure (e.g. underwater pipeline)
- High temperatures (recommended from 40°C)
- Propellant and fuel applications
- Rubber swelling due to contact with chemicals



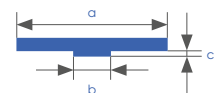
Material selection depends on the medium and temperature.

Plastic strip inserts are used in ambient temperatures and with salt water and chemicals. Stainless steel strip inserts are required for higher temperatures, vacuum and external pressure. Combinations of plastic and stainless steel are also possible. T-profile strip inserts secure the installation position under heavy, dynamic loads.

STRAUB pipe coupling	Stainless steel		Plastic		Plastic T-profile	
	1.4404 or equivalent	1.4310 or equivalent	PVDF	HDPE	PVDF	HDPE
STRAUB-METAL-GRIP	✓	-	✓	-	-	-
STRAUB-GRIP 25.0 - 168.3 mm	✓	-	✓	-	-	-
STRAUB-GRIP 180.0 - 711.2 mm	✓	-	-	✓	-	-
STRAUB-PLAST-GRIP	✓	-	✓	-	-	-
STRAUB-COMBI-GRIP	✓	-	✓	-	-	-
STRAUB-FLEX 1	✓	-	✓	-	✓ (from 76.1 mm) *	-
STRAUB-FLEX 2	✓	-	-	✓	-	✓*
STRAUB-FLEX 3	✓	-	-	✓	-	✓*
STRAUB-FLEX 3.5	-	✓	-	✓	-	✓*
STRAUB-FLEX 4	-	✓	-	✓	-	✓*
STRAUB-OPEN-FLEX 1	✓	-	✓	-	✓ (from 76.1 mm) *	-
STRAUB-OPEN-FLEX 2	✓	-	-	✓	-	✓*
STRAUB-OPEN-FLEX 3	✓	-	-	✓	-	✓*
STRAUB-OPEN-FLEX 3.5	-	✓	-	✓	-	✓*
STRAUB-OPEN-FLEX 4	-	✓	-	✓	-	✓*

* only available on request

* T-profile	OD [mm]	Strip width a [mm]	Cam width b [mm]	Cam width c [mm]
STRAUB-FLEX 1	76.1 - 118.0	45.0	5.0	3.5
	127.0 - 168.3	55.0	5.0	3.5
STRAUB-FLEX 2	all OD	75.0	7.5	6.0
STRAUB-FLEX 3	all OD	118.0	10.0	6.0
STRAUB-OPEN-FLEX 1	76.1 - 118.0	45.0	5.0	3.5
	127.0 - 168.3	55.0	5.0	3.5
STRAUB-OPEN-FLEX 2	all OD	75.0	7.5	6.0
STRAUB-OPEN-FLEX 3	all OD	118.0	10.0	6.0



➡ Strip inserts can also be retrofitted to STRAUB pipe couplings.

STRAUB stiffening rings

Preventing the deformation of pipe ends

Thermoplastic pipes can be deformed under the influence of pressure and heat. STRAUB stiffening rings prevent the plastic pipe ends from constricting.

STRAUB stiffening rings are made of stainless steel DIN 1.4301 / AISI 304 and are available in slotted (OD 40.0 – 315.0 mm) and welded designs (OD 355.0 – 1600.0 mm). Slotted stiffening rings must be fitted in the direction of the marked arrow and installed flush with the pipe end.



You can specify either:

- Inside diameter
- SDR class
- Wall thickness of the plastic pipe

If the pipes already exhibit constriction due to being stored for a long time, we recommend cutting off these constricted sections before installing the STRAUB stiffening rings.



SDR Series no. standard	41 S 20 DIN 8074	33 / 32.25 S 16 / S 15.625 DIN 8074	26 S 12.5 DIN 8074	17.6 S 8.3 DIN 8074	17 S 8 DIN 8074	11 S 5 DIN 8074	7.4 / 7.25 S 3.2 / S 3.125 DIN 8074
Pipe OD [mm]	Pipe ID [mm]	Pipe ID [mm]	Pipe ID [mm]	Pipe ID [mm]	Pipe ID [mm]	Pipe ID [mm]	Pipe ID [mm]
40.0	-	-	36.4	35.4	35.2	32.6	29.0
50.0	-	46.4	46.0	44.2	44.0	40.8	36.2
63.0	59.4	59.0	58.0	55.8	55.4	51.4	45.8
75.0	71.2	70.4	69.2	66.4	66.0	61.4	54.4
90.0	85.6	84.4	83.0	79.8	79.2	73.6	65.4
110.0	104.6	103.2	101.6	97.4	96.8	90.0	79.8
125.0	118.8	117.2	115.4	110.8	110.2	102.2	90.8
140.0	133.0	131.4	129.2	124.0	123.4	114.6	101.6
160.0	152.0	150.2	147.6	141.8	141.0	130.8	116.2
180.0	171.2	169.0	166.2	159.6	158.6	147.2	130.8
200.0	190.2	187.6	184.6	177.2	176.2	163.6	145.2
225.0	214.0	211.2	207.8	199.4	198.2	184.0	163.4
250.0	237.6	234.6	230.8	221.6	220.4	204.6	181.6
280.0	266.2	262.8	258.6	248.2	246.8	229.2	203.4
315.0	299.6	295.6	290.8	279.2	277.6	257.8	228.8
355.0	337.7	333.2	327.7	314.7	313.2	290.5	258.1
400.0	380.5	375.5	369.2	354.5	352.9	327.3	209.8
450.0	428.0	422.4	415.4	398.9	397.1	368.2	327.1
500.0	475.6	469.3	461.5	443.2	441.2	409.1	363.5

Notes:

- Stiffening ring determination only possible to a limited extent due to measured pipe mass
- Only applies to soft thermoplastic pipes e.g. PE, PP, etc.
- No stiffening rings are required for plastic pipes made of PVC, ABS and CPVC at media temperatures below 40°C
- Stiffening rings are special accessories and must be ordered separately

Our assembly tools

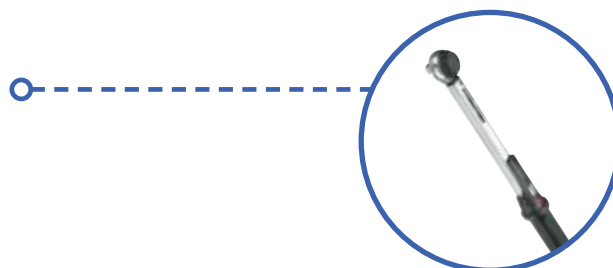
... for the perfect installation

Torque wrench & inserts

The use of a torque wrench is essential for the successful use of a STRAUB pipe coupling.

Torque wrench:

Torque range		Product
[Nm]	[lbf ft]	
5 - 25	3.7 - 18.5	11028
20 - 100	14.5 - 73.5	11031
40 - 200	29.5 - 147.5	11033
60 - 300	44 - 221	11034



Allen wrench ½":

Thread metric	Short Allen key ¹⁴		Long Allen key ¹⁵	
	AF [mm]	Product	AF [mm]	Product
M8	6	1453	6	2611
M10	8	1434	8	7265
M12	10	1454	10	7266
M16	14	1455	14	7267
M20	17	1456	17	100197



External hexagon ½":

Thread metric	Insert ^{16*}	
	AF [mm]	Product
M10	17	100036
M20	19	100032



¹⁴ for pipes with OD up to 1000 mm

¹⁵ for pipes with OD larger than 1000 mm

¹⁶ for STRAUB-CLAMP and STRAUB-REP-FLEX

* for STRAUB CLAMP, STRAUB REP-FLEX and STRAUB MAXI-FLEX

Socket adapter

An adapter to accommodate socket wrench inserts with square sockets in machine screwdrivers with hexagon sockets. Chrome vanadium steel, phosphated.

Hexagonal coupling ½":

Type [No.]	Length [mm]	Product [Product no.]
5	75	109631



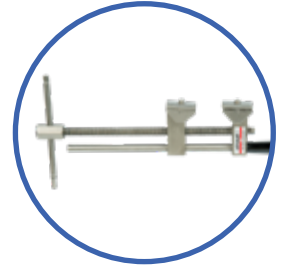
STRAUB-OPEN-FLEX assembly tool

STRAUB-OPEN-FLEX couplings are opened for assembly and placed around the pipe. The cut gasket is relaxed and is always longer than the pipe circumference – **do not shorten it!**

For a perfect seal, the gasket must be pressed with a certain amount of force. The gasket presses on the metal bridge of the pipe coupling, making it more difficult to screw the locking bolts back in easily. This pressing force can be applied easily and effortlessly with the STRAUB-OPEN-FLEX assembly tool.

- **Can be used for all STRAUB-OPEN-FLEX 1 + 2**
- **Does not need much space (detachable handle)**
- **Design suitable for building site**
- **Access holes in the plates of the couplings**

After the locking bolts have been screwed in again, they can be tightened further with hexagon socket inserts until the specified torque is reached.



Product 6649

Tension strap

Tension straps facilitate the assembly of larger 1- and 2-part STRAUB-OPEN-FLEX couplings. For lock openings starting at 210 mm, we recommend the use of a tension strap without ratchet for 1-part models (product 5561: strap width 25 mm, length approx. 1.6 m).

When fitting STRAUB-OPEN-FLEX 3, 3.5 and 4, larger tension straps with a ratchet are required for pipe diameters up to 3000 mm (product 5559: strap width 35 mm, length approx. 10 m).



Product 5561 (< 210 mm)
Product 5559 (up to OD 3000 mm)

Long catch bolt

Long catch bolts facilitate the installation of STRAUB-OPEN-FLEX 2, 3, 3.5 and 4 and can be **reused**.

➡ A “standard” locking bolt is replaced on site, ideally in the middle of the lock, by a longer, so-called long catch bolt. This has a cylindrical chamfer at the front, which forces the alignment of the locking bolts. The pipe coupling is now tightened with the inserted long catch bolt until the “standard” locking bolt can be screwed into the threaded bolt.

The long catch bolt must then be removed again and replaced with the “standard” locking bolt that was removed at the beginning.

The long catch bolts are available in thread sizes M10, M12, M16 and M20.



Product 5943P1 (M10), 5943P2 (M12),
5943P3 (M16), 5943P4 (M20)

Rubber hammer

For larger 2-part STRAUB-FLEX and STRAUB-OPEN-FLEX couplings it is very important that the rubber gasket is evenly distributed in the casing. To ensure this, we recommend using a rubber or plastic hammer to tap firmly around the entire circumference of the coupling casing during the clamping process. This triggers a “slip-stick” process between the pipe surface and gasket, which leads to the even distribution of the rubber as desired.

Lubricant for pipe surfaces and coupling casings

When STRAUB pipe couplings are manufactured, lubricant is applied to the inside of the coupling casing. This ensures the even distribution of the gasket in the coupling casing.

For large and 2-part versions, however, the lubricant must be applied on site with a sponge or brush before installation, as the casing and gasket for the pipe couplings in these dimensions are supplied separately.

The use of lubricant on the pipe surfaces has a positive effect on assembly and rubber distribution in the coupling casing in the contact area of the gasket sealing lips. The STRAUB lubricant has a high consistency and can therefore be used in all weather conditions. The quantity required depends on the condition of the pipe surfaces to be lubricated. For example, for two pipe ends of a GRP pipe with OD 2000 mm, we recommend 1 kg of STRAUB lubricant.

STRAUB lubricant for pipe surfaces is available in cans of 3 kg; lubricant with NSF61 approval is available on request (product 100204).

Lubricating grease for locking bolts

➤ Galvanised locking bolts for STRAUB couplings are treated with a special grease.

➤ Stainless steel locking bolts are coated with a molybdenum disulphide layer and therefore do not require any special additional treatment.

When dismantling and reusing a STRAUB pipe coupling, however, both the galvanised and stainless steel locking bolts must be greased, as this prevents "cold welding" of the screws in the locking bolt.

The lubricating grease for locking bolts is available in 100 ml tubes.



Product 5825



Product 5819



Lubricant necessary:

- Pipes from outer diameter 406.0 mm
- Rough, uneven and heavily corroded pipe surfaces: Concrete
Grey cast iron
Asbestos cement
GRP, etc.

Lubricant recommended:

- Pipes with an outside diameter between 170.0 – 406.0 mm



No lubricant necessary:

- Smooth, even and clean pipe surfaces: PE
PP
PVC
Stainless steel, etc.
- Pipes with an outside diameter of to 168.3 mm

Replacement parts for STRAUB pipe couplings

FLEX gaskets

On STRAUB-FLEX pipe couplings, the gaskets can be replaced by the customer if necessary. The following information is required for delivery.

STRAUB serial number (on label) or all of the following:

- **STRAUB-FLEX coupling type**
- **Cut or vulcanised version**
- **Coupling or pipe outside diameter**
- **Gasket material (EPDM, NBR, FPM / FKM)**

Before fitting a new gasket, the inside of the casing must be treated with lubricant.

- ➔ When installing a new gasket, the lock part must also be replaced!
- ➔ The gaskets for our axial restraint products or for REP-FLEX, MAXI-FLEX and OPEN-FLEX 1-part may not be replaced.

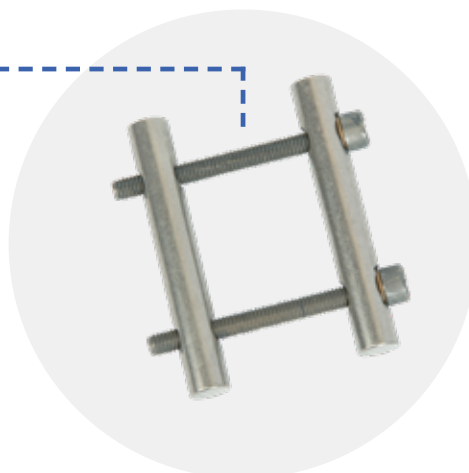
Lock parts

Lock parts are available as spare parts for all STRAUB pipe couplings. When ordering, please specify the coupling type and size as well as the material of the lock part (galvanised or stainless steel).

Lock parts for pipe couplings are only supplied as complete units.

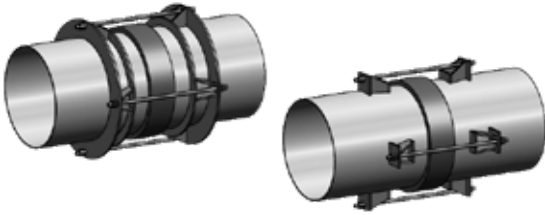
A lock set includes the following elements:

- Threaded bolts
- Drilled bolts
- Locking bolts
- Washers
(only for stainless steel lock parts)



Thrust protector and tie rods





Axial thrust protectors/tie rods are used in STRAUB-FLEX applications and are designed to absorb axial tensile forces. The entire calculation, design and delivery can be carried out by STRAUB, if required.



Earth conductor

In contrast to GRIP pipe couplings, STRAUB-FLEX and STRAUB-OPEN-FLEX do not conduct electricity and are therefore insulating connections. However, if required, electrical bridging from pipe to pipe can be achieved using metallic earth conductors inserted into the pipe coupling. The STRAUB earth conductor thus replaces an external cable bridge.

Our earth conductor system has been tested by the Swiss Electrotechnical Association (SEV) in accordance with SEV 04 ATEX 0167 (EN 1127-1:2007 and EN 13463-1:2009)*.

-  Explosion protection (prevents static charging)
-  Corrosion protection
-  Electrically conductive connection between metal pipes
-  Earthing for cable conduits

*The term ATEX is an abbreviation for the French "Atmosphère explosible" (explosive atmosphere) and is used as a synonym for the directives of the European Community in the field of explosion protection.

Made in Switzerland

straub <i>the original</i> Tel. +41 81 725 4100 straub@straub.ch www.straub.ch		
	-	PN 2.5 bar
	-	58 psi
FLEX 3 ø 2400.0 mm 94.488 inch		 W5
Product no. 658062 Ser. no. 109792020915 not pull-out resistant SEE ASSEMBLY INSTRUCTIONS		
		
135 Nm [100 lb.ft]	EPDM	15 mm

Approval-related nominal pressure (e.g. shipbuilding)

Working pressure [bar]

Working pressure [psi]

QR code (assembly instructions)

Material specification

STRAUB product number | Serial number

Information: axial restraint/non-axial restraint

Tightening torque

Gasket

Pipe gap without strip insert



STRAUB installation instructions

One unique principle, but countless possible applications.

Cost effectiveness and reliability are our top priorities, even under the toughest conditions. Our technology is designed to deliver maximum efficiency and consistent performance, regardless of the challenges it faces.

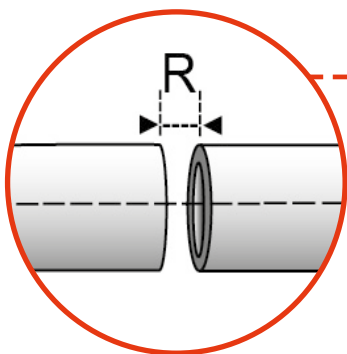
Correct application is a prerequisite to be able to take advantage of the STRAUB technology. Optimum utilisation of our products requires a deep understanding of the requirements and conditions under which they are used. This is the only way to fully utilise the exceptional properties of our technology and achieve maximum results.

Our products are designed not only to meet the highest safety and performance standards, but also to be easy to install and maintain.

Through continuous research and development, we ensure that our technology is always at the cutting edge and meets the growing demands of our customers. We focus on innovation and quality to provide our customers with products that not only function reliably today, but also in the future.

With STRAUB at your side, you have a partner who offers solutions that will impress you with their versatility and robustness. You can rely on our experience and our commitment to quality to realise your projects successfully and efficiently.





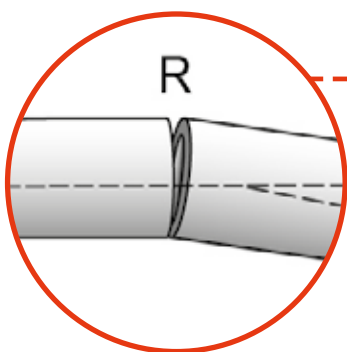
Gap between pipe ends [R]

Pipe gaps are caused by angular deflection, inaccurate assembly, ground movement and axial movements. STRAUB pipe couplings can bridge pipe gaps.

- 5 - 20 mm without strip insert
Depending on pipe diameter, observe coupling label
- 15 - 200 mm with strip insert
depending on pipe diameter, observe technical data sheet

➔ Use strip inserts for:

large pipe gaps, rubber swelling, vacuum, external overpressure, high temperatures. Strip inserts are special accessories and must be ordered separately.

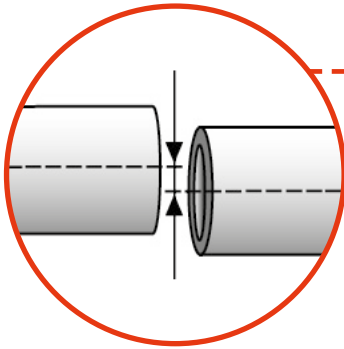


Angular deflection [α]

STRAUB can be used to connect two pipes with angular deflection on all sides between the pipe axes:

≤ Ø 60.3 mm	➔	5°
> Ø 60.3 mm	➔	4°
> Ø 219.1 mm	➔	2°
> Ø 609.6 mm	➔	1°

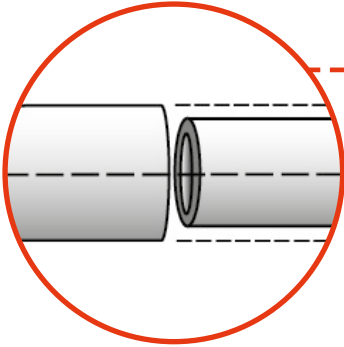
The specified gap between pipe ends must not be exceeded; for further information, see page 105.



Linear misalignment

STRAUB pipe couplings allow a low linear misalignment:

- 1% of the outside pipe diameter (max. 3 mm)
- Larger linear misalignment can be realised using the Cardan principle (two couplings + 1 intermediate pipe section). ➔ Ask factory



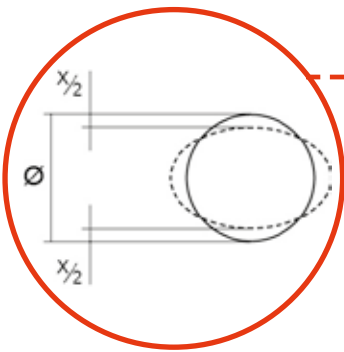
Outside diameter difference

STRAUB pipe couplings compensate for pipes with different outside diameters. The following requirements must be satisfied:

- $\lt; \varnothing 100 \text{ mm}$ ➔ 2 mm
- >math>\gt; \varnothing 100 \text{ mm}</math> ➔ 2%
- >math>\gt; \varnothing 300 \text{ mm}</math> ➔ 6 mm

Outside diameter difference:

- up to 9 mm ➔ STRAUB-FLEX with rubber inserts
- 10 - 30 mm ➔ STRAUB-STEP-FLEX
- from 31 mm ➔ 3-part solution (2 pipe couplings & 1 reducer)



Pipes out of roundness

Pipes often exhibit out of roundness (difference between the largest and smallest value of the outside diameter). The permissible out of roundness is:

- STRAUB-GRIP ➔ 2% (max. 3 mm)
- STRAUB-METAL-GRIP ➔ 2% (max. 3 mm)
- STRAUB-FLEX 1 ➔ 4 mm
- STRAUB-FLEX 2 ➔ 2% of the \varnothing
- STRAUB-FLEX 3 ➔ 2% of the \varnothing
- STRAUB-FLEX 3.5 ➔ 2% of the \varnothing
- STRAUB-FLEX 4 ➔ 2% of the \varnothing

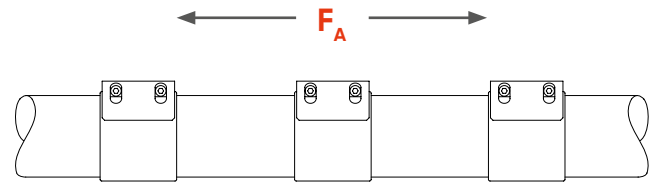
To ensure the coupling can be slid over, the out of roundness [X] must be within the permissible clamping range (X = max. 6 mm).



Loads & operating conditions

Axial tensile force [F_A]

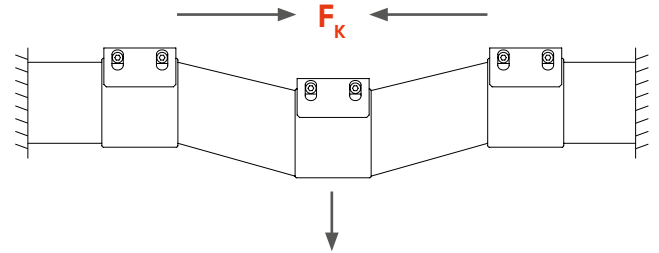
The internal pressure P_N acts directly as an axial tensile force on each pipe connection. The prevailing tensile force can be calculated from the respective internal pressure and the pipe diameter used.



Cannot be absorbed by non-axial restraint pipe couplings.

Axial collapsing force [F_K]

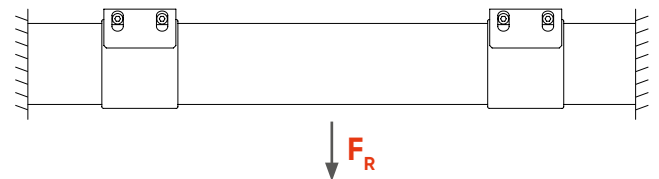
If the pipes are obstructed in their axial movement, increasing internal pressure combined with inadequate pipe guide will cause the pipework to buckle.



Cannot be absorbed by any pipe coupling.

Radial weight force [F_R]

This is made up of the weight of the pipe section and the weight of the medium it contains. Pipe couplings can only absorb very low shear forces. If in doubt, please contact STRAUB directly.



Can only be absorbed to a limited extent by STRAUB-FLEX and STRAUB-GRIP.

Axial movement & dilatation

Temperature fluctuations and axial movements in pipelines

Pipes are exposed to temperature fluctuations, whether from the medium (e.g. cold and hot water) or the environment (e.g. sunlight, cold in winter). These temperature fluctuations cause axial movements in the pipe.

The axial movement depends on the pipe material, the length of the respective pipe section and the temperature fluctuation.



➔ When using STRAUB-GRIP pipe couplings, the pipe fastenings are selected such that the axial movement is converted into an angular deflection.

➔ If STRAUB-FLEX couplings are used, it must be ensured that the axial movement occurring in each pipe section is not greater than the compensation capacity of the STRAUB-FLEX coupling being used.

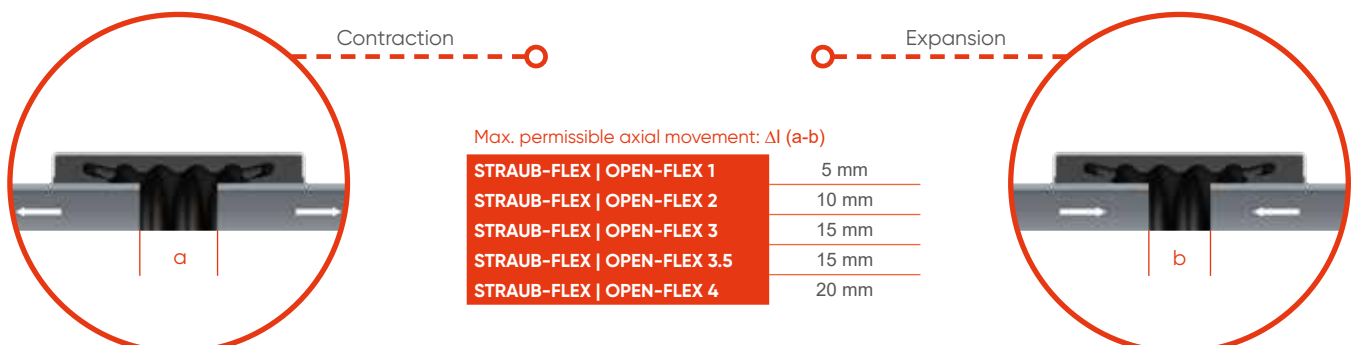
Reaction forces for STRAUB-FLEX:

∅	101.6 mm	168.0 mm	219.1 mm	355.6 mm	558.8 mm	812.8 mm
Newton	3800 N	4800 N	5600 N	7300 N	9800 N	12500 N



Compensating for the axial movement

If the operating temperature is higher than the installation temperature, the pipeline is elongated. However, if it is lower than the installation temperature, the pipe contracts.

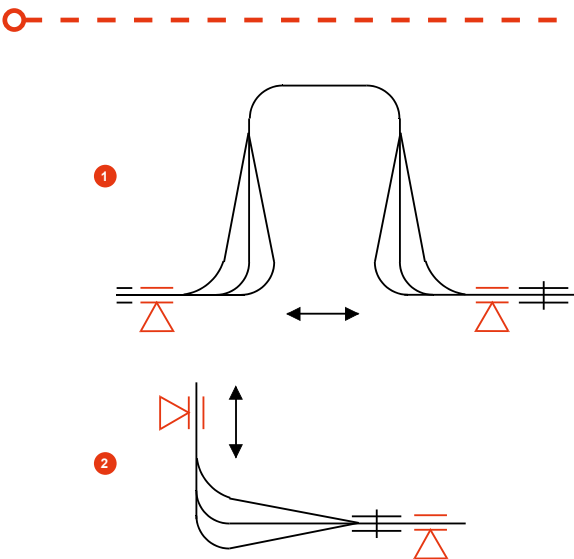
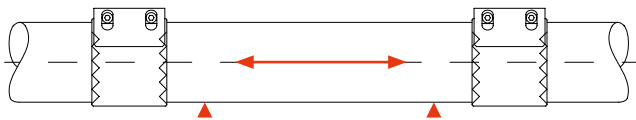


Pipe fastening using:

STRAUB-GRIP

All STRAUB couplings labelled GRIP feature **axial restraint**.

- The pipes are anchored in the coupling
- Only retainers/supports are required
- Axial movements of the pipes must be compensated for outside the coupling, e.g. with expansion arches (see 1) or by converting to angular deflection (see 2)

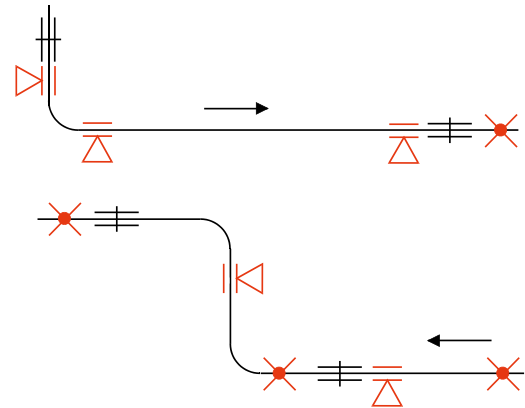
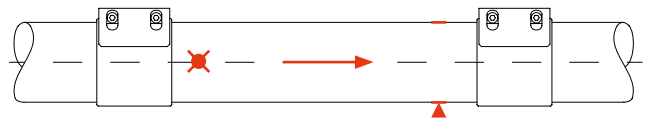


- ≡ STRAUB-GRIP pipe coupling
- △ Sliding pipe guide (axially free)

STRAUB-FLEX

All STRAUB couplings labelled FLEX feature **non-axial restraint** (not tension-proof).

- The pipes are not anchored in the coupling
- Each pipe section requires a fixed point and one or more pipe guides
- Axial movements of the pipes can be compensated for within the coupling (see page 44)



- ≡ STRAUB-FLEX pipe coupling
- × Fixed point (To absorb the reaction forces of STRAUB-FLEX couplings and the forces from internal pressure)

Power on the pipe: Technical details at a glance

Successfully implement STRAUB solutions with the correct coupling type in the right place.

STRAUB pipe connection technology is regarded as an easy, simple and quick-to-use system in pipework construction. It boasts tried-and-tested safety and consistent cost-effectiveness.

Pressure pipe dimension table

Dimensions of different pipe types

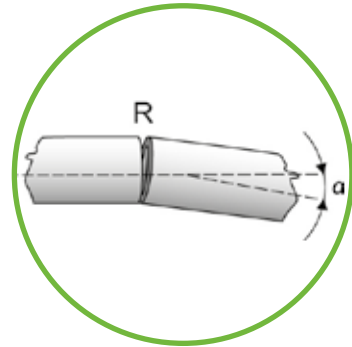
Pipe DN	Ductile cast iron DIN 28610 [mm]	Old cast iron [mm]	Grey cast iron DIN 2431			Steel			PVC DIN 8062 [mm]	PE DIN 8074 [mm]	AZ DIN 19800					
			PN 8 PN 16 [mm]	PN 25 [mm]	PN 40 [mm]	Threaded pipe [mm]	Siederohr (boiler pipe) [mm]	Plug-in sleeve +4 mm PE			PN 10		PN 12.5		PN 16	
											cal. [mm]	uncal. [mm]	cal. [mm]	uncal. [mm]	cal. [mm]	uncal. [mm]
32	-	42 - 43	46	-	-	42.4	44.5	-	40	40	-	-	-	-	-	-
40	56	51 - 53	56	-	-	48.3	51.0	-	50	50	-	-	-	-	-	-
50	66	62 - 64	66	67	70	60.3	70.0	-	63	63	-	-	-	-	-	-
60	-	72 - 74	77	78	82	-	-	-	-	-	-	-	-	-	-	-
65	85	-	77	78	82	76.1	-	-	75	75	-	-	83	-	85	-
(75)	-	88 - 91	87	89	92	-	-	-	-	-	-	-	-	-	-	-
80	98	94 - 96	98	100	104	88.9	88.9	-	90	90	98	102	100	-	104	-
(90)	-	104 - 108	108	112	116	-	-	-	-	-	-	-	-	-	-	-
100	118	114 - 116	118	122	128	114.3	108.0	117.5	110/125	110/125	120	128	124	-	130	-
125	144	140 - 143	144	149	155	139.7	133.0	144.0	140	140	149	154	153	-	159	-
150	170	166 - 169	170	176	-	168.3	159.0	168.3	160/180	160/180	178	184	182	-	190	-
175	-	191 - 194	196	203	213	193.7	191.0	-	-	-	-	-	-	-	-	-
200	222	218 - 222	222	230	242	219.1	216.0	219.1	200/225	200/225	234	243	240	-	252	-
225	-	244-247	248	259	271	229.1	241.0	-	-	-	-	-	-	-	-	-
250	274	268 - 273	274	286	298	273.0	267.0	273.0	250/280	250/280	286	288	296	-	308	-
275	-	397 - 300	300	313	327	-	292.0	-	-	-	-	-	-	-	-	-
300	326	322 - 325	326	340	358	323.9	318.0	323.9	315	315	342	346	352	-	368	-
325	-	348 - 352	352	367	385	-	343.0	-	355	355	-	-	-	-	-	-
350	378	376 - 379	378	394	412	355.6	368.0	-	400	400	-	404	410	-	428	-
375	-	-	403	421	441	-	-	-	-	-	-	-	-	-	-	-
400	429	426 - 430	429	448	470	406.4	419.0	-	450	450	456	460	470	-	488	-
450	480	476 - 480	480	504	-	457.0	-	-	-	500	510	-	524	-	546	-
500	532	527 - 530	532	558	-	508.0	-	-	560	560	564	-	582	-	606	-
550	-	581 - 585	583	-	-	-	-	-	630	630	-	-	-	-	-	-
600	635	631 - 635	634	-	-	610.0	-	-	710	710	678	-	698	-	726	-
650	-	-	686	-	-	660.4	-	-	-	-	-	-	-	-	-	-
700	738	-	738	-	-	711.2	-	-	800	800	-	792	-	-	-	-
750	-	-	790	-	-	762.0	-	-	-	-	-	-	-	-	-	-
800	842	-	842	-	-	812.8	-	-	1000	100	-	-	-	-	-	-
900	945	-	945	-	-	914.4	-	-	-	-	-	-	-	-	-	-
1000	1048	-	1048	-	-	1016.0	-	-	1200	1200	-	1125	-	-	-	-

Gap between pipe ends due to angular deflection α for a reliable pipe system

OD [mm]	$-\alpha$ in degrees								
	1	2	3	4	6	8	10	12	
26.9	0.5	1	1.5	2	3	4	5	6	
30.0	0.5	1	1.5	2	3	4	5	6	
33.7	0.5	1	1.5	2	3	4	6	7	
38.0	1	1	3	3	4	5	7	8	
40.0	1	2	3	3	4	6	7	8	
42.4	1	2	3	3	4	6	7	9	
44.5	1	2	3	3	5	6	8	9	
48.3	1	2	3	3	5	7	8	10	
50.0	1	2	3	4	5	7	9	11	
54.0	1	2	3	4	6	8	9	11	
57.0	1	2	3	4	6	8	10	12	
60.3	1	2	3	4	6	8	11	13	
63.0	1	2	3	4	7	9	11	13	
75.0	1	3	3	5	8	11	13	16	
76.1	1	3	3	5	8	11	13	16	
84.0	2	3	6	6	9	12	15	18	
88.9	2	3	6	6	9	12	16	19	
90.0	2	3	6	6	9	13	16	19	
104.0	2	4	6	7	11	15	18	22	
108.0	2	4	6	8	11	15	19	23	
110.0	2	4	6	8	12	15	19	23	
114.3	2	2	6	8	12	16	20	24	
125.0	2	2	6	9	13	17	22	26	
129.0	2	5	6	9	14	18	23	27	
133.0	2	5	6	9	14	19	23	28	
139.7	2	5	6	10	15	20	24	29	
140.0	2	5	6	10	15	20	24	29	
154.0	3	5	9	11	16	22	27	32	
159.0	3	6	9	11	17	22	28	33	
160.0	3	6	9	11	17	22	28	33	
168.3	3	6	9	12	18	24	30	35	
180.0	3	6	9	13	19	25	-	-	
200.0	4	7	11	14	21	28	-	-	
219.1	4	8	12	15	23	31	-	-	
244.5	4	9	13	17	26	34	-	-	
250.0	4	9	13	17	26	35	-	-	
267.0	5	9	14	19	28	37	-	-	
273.0	5	10	14	19	29	38	-	-	
304.0	5	11	16	21	32	42	-	-	
323.9	6	11	17	23	34	45	-	-	
355.6	6	12	19	25	37	50	-	-	
406.4	7	14	21	28	43	57	-	-	
457.2	8	16	24	32	48	-	-	-	
508.0	9	18	27	36	53	-	-	-	
559.0	10	20	29	39	59	-	-	-	
575.0	10	20	30	40	-	-	-	-	
609.6	11	21	32	43	-	-	-	-	
711.2	12	25	37	50	-	-	-	-	
762.0	13	27	40	53	-	-	-	-	
812.8	14	28	43	57	-	-	-	-	
914.4	16	32	48	-	-	-	-	-	
1016.0	18	36	53	-	-	-	-	-	
1117.6	20	39	59	-	-	-	-	-	
1219.2	21	43	-	-	-	-	-	-	
1320.8	23	46	-	-	-	-	-	-	
1422.4	25	50	-	-	-	-	-	-	
1524.0	27	53	-	-	-	-	-	-	
1625.6	28	57	-	-	-	-	-	-	
1727.2	30	-	-	-	-	-	-	-	
1828.8	32	-	-	-	-	-	-	-	
1930.4	34	-	-	-	-	-	-	-	
2032.0	36	-	-	-	-	-	-	-	

Pipe gaps are caused by angular deflection, inaccurate assembly and axial movements.

The gap must not exceed the specified value R (gap between pipe ends shown in the relevant product data sheet).



The gap between pipe ends can be increased by using a strip insert (see also page 92). This maximum value is different for each coupling type based on the design and can be found in the respective product data sheet.

Dimensions and minimum wall thicknesses

... at working pressure PN

Pipe OD		Nominal values		Minimum pipe wall thickness	
Metric	IPS	Metric	IPS	Stainless steel STRAUB-METAL-GRIP STRAUB-GRIP	CuNi10Fe (DIN) CuNi10Mn1Fe (ISO) STRAUB-GRIP
[mm]	[inch]	[DN]	[nom]	[mm]	[mm]
21.3	0.840	15	½	1.5	1.5
26.9	1.050	20	¾	1.5	1.5
30.0	1.180	25	1.2	1.5	1.5
33.7	1.325	25	1	1.5	2.0
38.0	1.495	32	1.5	1.5	2.0
42.4	1.670	32	1¼	1.5	2.0
44.5	1.750	40	1.75	1.5	2.0
48.3	1.900	40	1½	1.5	2.0
50.8	2.000	-	-	2.0	2.0
54.0	2.125	50	2.125	2.0	2.0
57.0	2.245	50	2.25	2.0	2.0
60.3	2.375	50	2	2.0	2.0
66.6	2.625	65	2½	2.0	2.0
70.0	2.756	65	2½	2.0	2.0
73.0	2.875	65	2½	2.0	2.0
76.1	(3.000)	65	(3 OD)	2.0	2.0
79.5	3.125	65	3	2.0	2.0
84.0	3.305	80	3.3	2.0	2.0
88.9	3.500	80	3	2.0	2.0
100.6	3.960	90	(3)	2.0	2.3
101.6	(4.000)	100	(3½)	2.0	2.3
104.0	4.095	100	4.1	2.0	2.3
104.8	4.125	100	(4)	2.0	2.3
108.0	4.250	100	4¼	2.0	2.3
114.3	4.500	100	4	2.0	2.3
127.0	5.000	100	4½	2.6	3.0
129.0	5.080	125	5	2.6	3.0
130.2	5.125	125	(5)	2.6	3.0
133.0	5.235	125	5¼	2.6	3.0
139.7	(5.500)	125	(5½)	2.6	3.0
141.3	5.565	125	5	2.6	3.0
154.0	6.065	150	6.1	2.6	3.0
159.0	6.260	150	6¼	2.6	3.0
168.3	6.625	150	6	2.6	3.5
193.7	7.625	200	7.6	3.0	3.5
219.1	8.625	200	8	3.0	3.5
244.5	9.625	225	9	on request	4.5
267.0	10.510	250	10.5	on request	4.5
273.0	10.750	250	10	on request	5.0
323.9	12.750	300	12	on request	5.5
355.6	14.000	350	14	on request	6.0
406.4	16.000	400	16	on request	8.0
457.2	18.000	450	18	on request	9.0
508.0	20.000	500	20	on request	10.0
558.8	22.000	550	22	on request	10.0
609.6	24.000	600	24	on request	12.0
711.2	28.000	700	28	on request	on request

Thinner walls are possible at lower pressures. Please contact STRAUB for other pipe diameters, different pipe materials and pressure values, as well as thinner pipe walls.

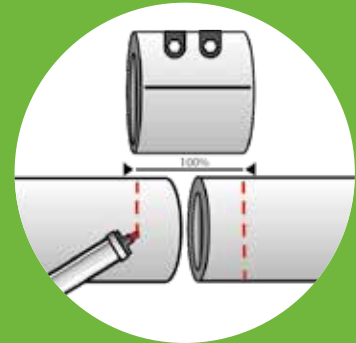
Assembly set-up times & dimension comparison

Assembly at record speed

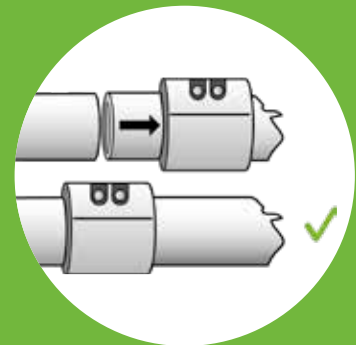
Pipe OD		Nominal values		Installation time per coupling *
Metric [mm]	IPS [inch]	Metric [DN]	IPS [nom]	
21.3	0.840	15	½	2
26.9	1.050	20	¾	2
30.0	1.180	25	1.2	2
33.7	1.325	25	1	2
38.0	1.495	32	1.5	2
42.4	1.670	32	1¼	2
44.5	1.750	40	1.75	2
48.3	1.900	40	1½	2
54.0	2.125	50	2.125	3
57.0	2.245	50	2.25	3
60.3	2.375	50	2	3
66.6	2.625	65	2½	4
73.0	2.875	65	2½	4
76.1	(3.000)	65	(3 OD)	4
79.5	3.125	65	3	4
84.0	3.305	80	3.3	4
88.9	3.500	80	3	4
100.6	3.960	80	(3)	5
101.6	(4.000)	90	(3½)	5
104.0	4.095	100	4.1	5
104.8	4.125	100	(4)	5
108.0	4.250	100	4¼	5
114.3	4.500	100	4	5
127.0	5.000	100	4½	6
129.0	5.080	125	5	6
130.2	5.125	125	(5)	6
133.0	5.235	125	5¼	6
139.7	(5.500)	125	(5½)	6
141.3	5.565	125	5	6
154.0	6.065	150	6.1	7
159.0	6.260	150	6¼	7
168.3	6.625	150	6	7
219.1	8.625	200	8	9
244.5	9.625	225	9	10
267.0	10.510	250	10.5	10
273.0	10.750	250	10	10
323.9	12.750	300	12	12
355.6	14.000	350	14	12
406.4	16.000	400	16	12
457.2	18.000	450	18	12
508.0	20.000	500	20	12
558.8	22.000	550	22	12
609.6	24.000	600	24	12
711.2	28.000	700	28	12

* Average values for 1-part pipe couplings with two locking bolts

➡ The installation time includes:



Marking half the coupling width on both pipes



Sliding pipe coupling over pipe ends and positioning



Tighten the locking bolts with a torque wrench

Material specification of STRAUB couplings

DIN 86128-1

Material class	W1		W2		W4		W5	
<div style="display: flex; flex-direction: column; gap: 5px;"> <div><input checked="" type="checkbox"/> Galvanised</div> <div><input checked="" type="checkbox"/> Combination</div> <div><input type="checkbox"/> Stainless steel</div> </div> 								
Components	DIN	AISI	DIN	AISI	DIN	AISI	DIN	AISI
Casing	1.0577 or equivalent hot-dip galvanised	1024	1.4044 or equivalent 1.4301 1.4162	316 L 304 S32101	1.4301	304	1.4404 or equivalent 1.4162	316 L S32101
Locking bolts	1.7220	4135	1.7220	4135	A2 - 70	A2 - 70	A4 - 80	A4 - 80
Bolt	1.0737 galvanised	12L14	1.0737 galvanised	12L14	1.4301	304	1.4404 1.4435	316 L
Anchoring ring	1.4310	301	1.4310 1.4301 (PLAST-GRIP)	301 304	-	-	1.4310	301
Strip inserts (optional)	1.4435 PVDF/HDPE	316 L	1.4435 PVDF/HDPE	316 L	-	-	1.4435 PVDF/HDPE	316 L
Material class	W1		W2		W4		W5	
STRAUB-METAL-GRIP	✓		✓		-		✓	
STRAUB-GRIP	-		✓		-		✓	
STRAUB-GRIP stepped coupling	-		-		-		✓	
STRAUB-COMBI-GRIP	-		✓		-		✓	
STRAUB-PLAST-GRIP	-		✓		-		✓	
STRAUB-FLEX 1	-		✓		-		✓	
STRAUB-FLEX 2	✓		✓		-		✓	
STRAUB-FLEX 3	✓		✓		-		✓	
STRAUB-FLEX 3.5	✓		-		-		✓	
STRAUB-FLEX 4	✓		-		-		✓	
STRAUB-OPEN-FLEX 1	-		✓		-		✓	
STRAUB-OPEN-FLEX 1 GT	-		✓		-		✓	
STRAUB-OPEN-FLEX 2	✓		✓		-		✓	
STRAUB-OPEN-FLEX 2 GT	✓		✓		-		✓	
STRAUB-OPEN-FLEX 3	✓		✓		-		✓	
STRAUB-OPEN-FLEX 3.5	✓		-		-		✓	
STRAUB-OPEN-FLEX 4	✓		-		-		✓	
STRAUB-STEP-FLEX 2	✓		✓		-		✓	
STRAUB-STEP-FLEX 3	✓		-		-		✓	
STRAUB-SQUARE-FLEX	-		-		-		✓	
STRAUB-METAL-GRIP FIRE-FENCE	✓		✓		-		✓	
STRAUB-GRIP FIRE-FENCE	-		✓		-		✓	
STRAUB-OPEN-FLEX FIRE-FENCE 3	-		-		-		✓	
STRAUB-OPEN-FLEX FIRE-FENCE 4	-		-		-		✓	
STRAUB-CLAMP	-		-		✓		-	
STRAUB-REP-FLEX	-		-		✓		-	
STRAUB MAXI-FLEX	-		-		✓		-	

Corrosion in pipe systems:

Material qualities and their corrosion resistance

Material sub group		Material class DIN 86128	EN	ASTM (AISI)	UNS	Trade name	Yield strength (N/mm ²)	Joint structure	PRE *	Sensitivity compared with hole and crack corrosion
FE1	1	-	1.4410	-	S32750	SAF 2507	550	Super Duplex	42.5	extremely low
-	-	-	1.4547	-	S31254	254 SMO	320	Super Austenite	44	
-	-	-	1.4501	-	S32760	4501	550	Super Duplex	42	
-	-	-	-	-	NO8367	AL-6XN	310	Super Austenite	44	
-	2	-	1.3964	-	-	-	365	Austenite	36	very low
-	-	-	1.4462	318LN	S32205	2205	500	Duplex	34	
-	-	-	1.4539	-	NO8904	904L	240	Austenite	37	
**	4	W5	1.4401	316	S31600	-	240	Austenite	25	low
-	-	W5	1.4404	316 L	S31603	-	240	Austenite	26	
-	(V4A)	W5	1.4435	316 L	S31603	-	240	Austenite	29	
-	-	W5	1.4571	316 TI	S31635	-	240	Austenite	25	
-	-	W5	1.4162	S32101	S32101	LDX 2101	530	Lean Duplex	26	
FE2	(V2A)	W4	1.4301	304	S30400	-	220	Austenite	19	high
-	-	W4	1.4310	301	S30100	-	250	Austenite	18	
-	-	W2	1.0737	-	-	-	-	-	-	very high
-	-	W1	1.0570	-	-	-	-	-	-	very high

** STRAUB standard

* PRE (Pitting Resistance Equivalent / pitting index):
 $\%Cr + 3.3 \times \%MO + 16 \times \%N$

- ↓
- Duplex ➔ Ferritic / austenitic structure
 - Lean Duplex ➔ PRE under 30
 - Super Duplex ➔ PRE over 40

Corrosion in pipe systems:

Corrosiveness classification

Corrosivity category (ISO 12944, EN 12500)	Application (example)	Corrosivity	Inside	Outdoors	W1	W2	W4	W5 or better
C1 - C2	Building construction, building systems, underground car parks	insignificant, low	C1: heated buildings with low humidity C2: occasional condensation, insignificant air contamination	C1: dry and cold climate zones C2: very rural and generally dry areas				
C3	Building construction, building systems, low environmental demands	moderate	Production areas with intermittent condensation and moderate air contamination	Temperate climate, low air contamination, middle-sized city climate, virtually no road salting				
C4	Process pipes, applications in urban areas	high	Production areas with frequent condensation and moderate air contamination	Industrial and urban areas with a temperate climate, but high air contamination, areas affected by road salting (bridges)				
C5 (C5 - I)	Industrial, areas near industry	very high	Production areas with continuous condensation and/or high air contamination (mines, tunnels)	Temperate climate with high air contamination, aerosols containing sulphates, soot, dust of unknown composition				
C5 - M (maritime climate)	Shipbuilding engine rooms, covered area in coastal climate	high	Inside damp, frequent condensation, no chlorides or sulphates	Roofed, no direct precipitation, but coastal maritime climate or less than 5 km inland				
C5 - M (maritime climate)	Shipbuilding bilge systems, coastal climate open to weather	very high	Condensation, no cleaning of surfaces, high temperatures above 30°C, salts containing chloride or sulphate particles with the possibility of build-ups	Exposed to weather, coastal and off-shore areas, splash zone, less than 5 km inland, possibly industrial				
Im1 - Im3 (Immersion)	Im1: Underground applications	Im2: Applications in contact with fresh water, drinking water, municipal waste water		Im3: Applications in seawater or brackish water				

Corrosion in pipe systems:

Corrosion protection for STRAUB couplings

Requirements and solutions

The use of corrosion protection depends on the corrosivity category of the environment or soil.

In general, W1 and W2 STRAUB couplings must be protected against corrosion if they are used in soil or if a corrosive environment is suspected; the classification into corrosivity categories can be used as a decision-making aid.

Stainless steel pipe couplings do not need to be protected against corrosion under normal environmental conditions. Even galvanised pipe couplings installed in an air-conditioned building do not require corrosion protection.

Corrosion protection can be applied by STRAUB specialists or by the customer (in Germany, a GW15 certificate is required for this purpose).

Our range includes the following corrosion protection material:

- Plastic fillers for lock and edge alignment
- Corrosion protection strips
- Pipe protection mats against damage caused by filling material

Installing corrosion protection: STRAUB-FLEX 2 (galvanised casing/lock part)



Mechanically clean the areas to be protected and wipe as dry as possible. If necessary, use a flame to dry the cavities around the lock area. Seal all cavities and transitions using joint sealer, especially in the lock area.



Wrap three layers of the corrosion protection strip around the coupling and press on. Avoid cavities.



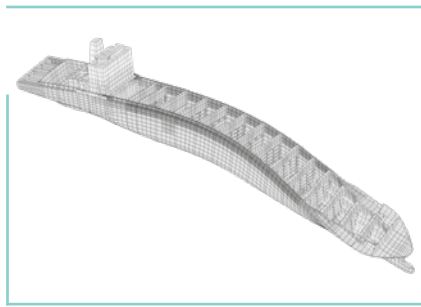
Apply the pipe protection matting around the corrosion protection, with an overlap of approx. 200 mm on both sides. Using a gentle flame to heat the surface under the overlap and press down.



STRAUB couplings
in shipbuilding
Connection and compensator in one

"Safe to the next port"

Shipyards and shipbuilders are constantly face with the challenge of laying a large number of pipes in tight, hard-to-reach places while trying to saving costs at the same time. These conditions call for an optimised pipe connection system. The use of STRAUB pipe couplings offers a number of advantages here.



Company founder Immanuel Straub came up with the idea during a visit to a shipyard in northern Germany: Connecting commercially available pipes without pipe end preparation using a flexible system.

Flexibility, space requirements and product weight were decisive factors in the further development of ships. This led to a new chapter in maritime pipe construction.

New approaches in pipe construction

The STRAUB-METAL-GRIP was developed and successfully launched on the market. Working with German shipbuilders and Germanischer Lloyd – a classification society based in Hamburg, Germany – the use and application of this flexible, detachable and reusable coupling was tested and approved.

The German and French navies began installing the couplings in frigates, submarines and aircraft carriers, taking advantage of the STRAUB properties that are so valuable for shipbuilding.

Technological developments

Navy shock tests have shown that due to their low weight, STRAUB couplings remain sealed even when deformed following a ship collision or an underwater explosion.

Sea swells can cause the hull of a ship to deform considerably. This leads to a permanent strain on the pipe systems. Rigid pipe connections, such as flanges or welded collars, transfer these strains directly to other components in the form of stress. Compensators thus become necessary.

Their flexibility dissipates stress and extends the service life of the components. The large rubber part of the coupling dampens vibrations and noise to a high degree. Fatigue failures are reduced and passenger comfort is increased.

These special properties of STRAUB-GRIP and STRAUB-FLEX couplings represent a decisive added value for ship owners and operators.

References

Passenger ships

Cruise ship | "Carnival Splendor" (Italy)



Our solution:

- STRAUB-GRIP-L and STRAUB-METAL-GRIP
- Fire main, grey and black water lines

Customer benefits:

- Short downtimes thanks to quick installation and removal
- Simple, quick installation
- Safety factor 4
- Tensile strength
- Good damping properties increase passenger comfort

Yachts

"MY Triple Seven" (Germany)



Our solution:

- STRAUB-GRIP-L and STRAUB-METAL-GRIP
- Seawater cooling, fire main, grey and black water lines

Customer benefits:

- Simple and safe installation

Warships

Frigate | "Horizon 6108" (Italy)



Our solution:

- STRAUB-GRIP-L and STRAUB-METAL-GRIP
- CuNiFe seawater pipes, ventilation, grey and black water lines, sprinkler lines

Customer benefits:

- High-quality product
- Practical installation
- Technical advantages (vibration-damping, shock-absorbing, angular deflection possible, high flexibility)

Others: Aircraft carriers, taskforce supply ships, naval tankers, submarines

Ferries

Fast ferry | "N.G.V Asco" (France)



Our solution:

- STRAUB-GRIP-L, STRAUB-METAL-GRIP and STRAUB-COMBI-GRIP
- Ballast, drainage, fire main, seawater, freshwater and fuel lines

Customer benefits:

- Possibility to join different pipe materials, STRAUB offers a lightweight product that provides damping

PSV platform supply vessels

"Bourbon Hamos" GPA 670 MKII (Designer: GPA USA)



Our solution:

- STRAUB-GRIP-L
- Bulk goods, fresh water, fuel lines

Customer benefits:

- Easy cleaning of dry bulk lines
- Space-saving
- Flexible connection

Others: AHT anchor handling tug, AHTS anchor handling tug / supply vessel

Oil production

Offshore and production platform | "Xitebjorn" (Norway)



Our solution:

- STRAUB-METAL-GRIP
- Various pipelines

Customer benefits:

- Absorption of pressure surges and stress peaks

Others: Drilling ships, FPSO

Cargo ships

Transport ship | "Wagenborg" (Netherlands)



Our solution:

- STRAUB-GRIP-L
- Ballast lines

Customer benefits:

- Coupling installation possible in hard-to-reach places without additional tools
- Increased payload
- Better utilisation of space

Others: RoRo ships, bulk carriers, container ships, refrigerator ships, LNG tankers

Inland water vessels

Paddle wheel steamer | "La Suisse" (Switzerland)



Our solution:

- STRAUB-GRIP-L and STRAUB-FLEX
- Fresh water, fire protection, ventilation

Customer benefits:

- The ship is largely made of wood. No welding was carried out due to the risk of explosion and fire.

Special vessels

Dredger "Vasco da Gama" (Netherlands)

Others: Research vessels, icebreakers



Advantages for shipbuilding

👍 Space-saving

- Requires little storage space
- Good accessibility
- Lock part can be rotated to the optimum mounting position, access only required from one side
- Tighter pipe routing possible, creates space for other components
- Little space required for retrofitting

👍 Fast and cost-effective

- Installation without special tools
- No pipe end preparation necessary
- Detachable and reusable
- Short installation time and downtimes
- High assembly tolerances

👍 Multi-purpose

- Connects a wide variety of pipe materials and diameters
- Can be used for pressure, drainage and suction lines

👍 Safe

- No risk of fire or explosion during installation
- No costs for safety measures
- 4 factor safety
- STRAUB has all IACS approvals
- Flexible design absorbs overstressing

👍 Damping

- Lots of rubber to absorb vibrations/oscillations
- Reduces pressure surges
- Reduces fatigue failures
- Noise reduction increases passenger comfort

👍 Stress-free

- Increases the service life of fittings and systems
- Compensates for axial misalignment and angular deflection
- Coupling and compensator in one

👍 Long service life

- Corrosion resistant
- Good resistance to temperature and chemicals
- Low torque guarantees long service life

👍 Light

- Low weight
- Low transport costs
- Increases the payload



Flanged connection:
8.6 kg

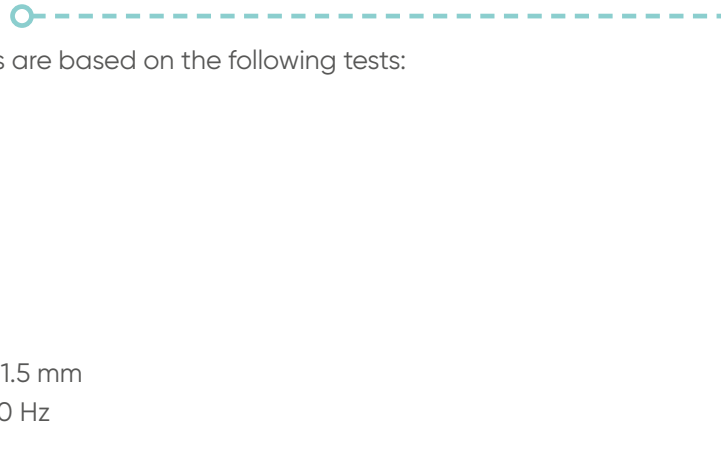


STRAUB connection:
2.1 kg

Our approvals

Safety and quality standards

STRAUB pipe couplings have been tested by all leading national and international classification societies and have been approved for almost all pipe systems and in shipbuilding.



The necessary approvals are based on the following tests:

Pressure test

- 1.5 x PN
- 5 minutes tight

Vibration test

- 1 x PN
- 3 x 10⁶ cycles
- Amplitude 0.06 / 0.5 / 1.5 mm
- Frequency 100 / 45 / 10 Hz



Pressure test

- 4 x PN
- 5 minutes tight

Pull-out test

- 1x PN + F_{ox} (PN as appropriate)
- 5 minutes tight

Fire test (according to ISO 19921 and ISO 19922)

- 1 x PN
- 30 minutes
- 800°C
- Pressure test: 2 x PN; 5 min; tight

Vacuum test

- 170 mbar absolute
- 5 minutes tight

Repeated assembly test

- 10x assembly and dismantling
- 1.5 x PN tightness test
- 5 minutes tight

Shock test

- Acceleration 140 g surface ships
- Acceleration 200 g submarines (for CuNiFe and carbon steel pipes)

Angular deflection test

- Angular deflection 20°
- 20 bar; Ø 114.3 mm
- 5 minutes tight

Dynamic, radial load test



- 1 x PN
- 100 kg impact on coupling
- No leak
- Angular deflection approx. 20°

Approvals

by product type

APPROVAL COMPANY	METAL-GRIP	GRIP	PLAST-GRIP	COMBI-GRIP	FLEX	OPEN-FLEX	CLAMP	REP-FLEX
 ABS - American Bureau of Shipping	✓	✓	-	-	✓	-	-	-
 DNV - Det Norske Veritas	✓	✓	-	-	✓	✓	-	-
 Bureau Veritas	✓	✓	✓	✓	✓	-	-	-
 LR - Lloyd's Register Group Limited	✓	✓	-	-	✓	-	-	-
 CCS - China Classification Society	✓	✓	-	-	✓	-	-	-
 RINA - RINA S.p.A.	✓	✓	-	-	✓	-	-	-
 DVGW - German Association for Gas and Water Experts	✓	-	-	-	-	-	-	-
 ÖVGW - Austrian Association for the Gas and Water Industry	✓	✓	-	-	-	-	-	-
 SVGW - Swiss Association of Gas and Water Experts	✓	✓	-	-	-	-	-	-
 VdS - German Association of Property Insurers	✓	-	-	-	-	-	-	-
 TSSA - Technical Standards and Safety Authority	✓	✓	-	-	-	-	-	-
 NSF - National Sanitation Foundation	✓	✓	✓	✓	✓	✓	-	-

by configuration

APPROVAL COMPANY	METAL-GRIP	GRIP	PLAST-GRIP	COMBI-GRIP	FLEX	OPEN-FLEX	CLAMP	REP-FLEX
 ACS - Attestation de conformite sanitaire	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
 WRAS - Water Regulations Approval Scheme	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
W270 KTW W270 - Plastic drinking water	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *

(*) Rubber compound approved
Information on other models on request.

STRAUB couplings in shipbuilding

based on "IACS rules and regulations"

System	according to IACS <i>(with limitations)</i>
Inert gas lines	
Water seal effluent lines	✓
Scrubber effluent lines	✓
Pipes for flammable liquids with flash point > 60°C	
Fuel	✓ (1) (2)
Lubricating oil	✓ (1) (2)
Hydraulic oil	✓ (1) (2)
Thermal oil	✓ (1) (2)
Seawater pipes	
Pump out	✓ (3)
Fire main systems and sprinklers (permanently filled with water)	✓ (2)
Ballast	✓ (3)
Cooling water	✓ (3)
Tank cleaning	✓
Non-essential systems	✓
Fresh water pipes	
Cooling water	✓ (3)
Condensate return	✓ (3)
Non-essential systems	✓
Drainage pipes	
Inside deck drains	✓ (4)
Sanitary drains	✓
Sounding / ventilation	
Water tanks / dry spaces	✓
Oil tanks (flash point > 60°C)	✓ (1) (2)
Miscellaneous	
Operating air (insignificant)	✓
Brine	✓
Steam	✓ (5)

Note:

- (1) Slip on joints are not permitted in category A machinery spaces or in accommodation spaces. They may be accepted in other machinery spaces provided that the joints are located in easily visible and accessible positions (see IMO circular MSC/Circ. 734).
- (2) Approved fire resistant types, except where such mechanical connections are installed on open decks as defined in Chap. 4, Sec. 5, [1.4.3] item b) 2) (10), and are not used for fuel oil lines.
- (3) Fire endurance test is to be applied when mechanical joints are installed inside category A machinery spaces.
- (4) Only above the bulkhead deck of passenger ships and the freeboard deck of cargo ships.
- (5) Slip on joints can be used for pipes on deck with a design pressure of 10 bar or less.

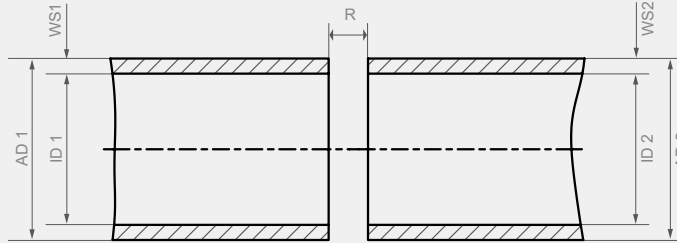
⇒ **Deviations from the requirements of the individual classes or flag states are always possible. Responsibility for this lies with the on-site project manager.**

Quick checklist

Issued by: _____

Client: _____

Date: _____



Pipe dimensions 1	OD 1	mm
	ID 1	mm
	or WS 1	mm
	or SDR1 no.	

Pipe dimensions 2	OD 2	mm
	ID 2	mm
	or WS 2	mm
	or SDR2 no.	

Material 1	<input type="checkbox"/> Carbon steel
	<input type="checkbox"/> SS
	<input type="checkbox"/> GRP
	<input type="checkbox"/> PE / PP
	<input type="checkbox"/> PVC
	<input type="checkbox"/> other

Material 2	<input type="checkbox"/> Carbon steel
	<input type="checkbox"/> SS
	<input type="checkbox"/> GRP
	<input type="checkbox"/> PE / PP
	<input type="checkbox"/> PVC
	<input type="checkbox"/> other

Coupling	<input type="checkbox"/> axial restraint
	<input type="checkbox"/> non-axial restraint
	<input type="checkbox"/> repair

Casing Lock part Pressure	<input type="checkbox"/> stainless	<input type="checkbox"/> galvanised
	<input type="checkbox"/> stainless	<input type="checkbox"/> galvanised
	Working pressure	bar
	Test pressure	bar
	(System pressure)	bar
	Vacuum	mbar

Pipe gap	R max.	mm
-----------------	--------	----

Medium	<input type="checkbox"/> Air
	<input type="checkbox"/> Water
	<input type="checkbox"/> Gas
	<input type="checkbox"/> Fuel
	<input type="checkbox"/> Chemical
Specification	
Chemical formula	
Concentration	

Temperature	max.	°C
	min	°C

Quantity	
Remarks	

STRAUB solution (completed by STRAUB)	Signature
	Date

F3.04.02.06

Terms and Conditions

Purchase order	<p>These Conditions of Sale and Delivery shall apply unless otherwise expressly agreed in writing in individual cases. We shall not be bound by any other contractual terms and conditions of the customer unless we expressly recognise them in writing.</p> <p>All quotations in our offers and price lists are subject to change and are only binding for us until the expiry of the deadline we have set for the acceptance of the order.</p> <p>We accept no liability for damage to or loss of drawings, samples, models, etc. provided to us by the customer, with the exception of liability for intent and gross negligence.</p> <p>Technical documents and samples prepared by us remain our property and may not be reproduced or made accessible to third parties. These items, and the offer, shall be treated in confidence. If a corresponding order is not received, we reserve the right to request the return of these documents.</p>
Prices	<p>Our prices are based on the currently valid raw material prices and wage rates. We expressly reserve the right to make any price changes up to the time of delivery. Unless otherwise stated, our prices are always quoted ex works.</p>
Terms of payment	<p>a) 30 days net b) advance payment c) against irrevocable letter of credit, confirmed by UBS AG, Oerlikon branch, 8050 Zurich, Switzerland, payable 30 days from the date of confirmation of delivery by the forwarding agency. All bank charges abroad are borne by the purchaser. Letter of credit valid 8 weeks from date of delivery.</p>
Retention of title	<p>The supplier shall remain the owner of all its deliveries until such time as it has received payment in full in accordance with the contract. By concluding the contract, the client authorises the registration or priority notice of the retention of title in public registers, books or the like at the client's expense in accordance with the applicable laws.</p>
Delivery terms	<p>Details concerning delivery periods shall be calculated from the date of the written order confirmation or upon receipt of the advance payment or confirmation of the letter of credit, or shall commence with the conclusion of the contract, but not before receipt of the documents to be supplied by the client. Every effort will be made to keep to the delivery terms as quoted but they are not legally binding.</p>
Delivery	<p>Some of our products are only sold in their original packaging. We must therefore oblige our buyers to accept any resulting quantity tolerances. As the manufacturer, we cannot accept returns or exchanges of goods ordered in excess or incorrectly. If a minimum quantity is absolutely necessary, this must be specifically noted when the order is placed.</p>
Transfer of benefit & risk	<p>The goods are dispatched at the expense and risk of the buyer. If we take care of the transport, this shall be at the expense and risk of the client.</p>
Insurance	<p>The client is responsible for taking out any legally required liability and property insurance in the country of destination of our products. We expressly reject any liability for the absence of such insurance coverage.</p>
Tools	<p>By paying a share of the costs for tools, the client acquires the exclusive right to the parts manufactured therewith, but no claim to the tools themselves; they remain the property and possession of the supplier (see our special conditions).</p> <p>New tools and modifications shall be at the expense of the client. In the event of no follow-up orders for a period of five years, we shall have the right to make use of the tools as we see fit.</p>
Inspection & acceptance of the delivery	<p>The customer shall inspect the delivery immediately upon receipt and notify us in writing of any defects within 8 days. Failure to do so shall be taken to mean that the delivery has been accepted.</p>
Guarantee	<p>STRAUB couplings and components thereof which exhibit manufacturing or material defects shall be replaced free of charge or credited to the customer for a period of 5 years (exceptions: STRAUB-CLAMP, STRAUB-PLAST-PRO and STRAUB-REP-FLEX → 2 years), calculated from the date of dispatch from the factory. If they are rejected within the warranty period for the reasons stated, they shall be returned to our factory in 7323 Wangs/SG, Switzerland for inspection. Faulty couplings or components thereof shall only be replaced after our inspection department has issued a final and incontestable report. Couplings that have not been installed in compliance with our installation instructions shall not be covered by our warranty. This shall apply regardless of any contrary purchasing conditions on the part of the customer.</p>
Liability	<p>In the event of damages not covered by the warranty, in particular consequential damages due to faulty design or faulty function of the couplings manufactured in our factory, as well as damages arising from the responsibility of the manufacturer, we shall only be held liable within the limits of the legally binding requirements. Liability for corrosion damage to the couplings and damage associated with components that are not manufactured in our factory is expressly excluded.</p>
Changes to the order by the customer	<p>In the event of a contractually agreed change (quantity, dimensions, material, etc.) to the current order by the customer, we shall have the right to invoice the parts already manufactured and/or the raw materials and semi-finished products that can no longer be used for the modified order.</p>
Patents Copyright	<p>The customer hereby undertakes to indemnify us against all claims of third parties which may arise from an infringement of patent, utility model or other industrial property right or copyright.</p>
Place of fulfilment	<p>Wangs, Switzerland shall be the place of fulfilment for both parties for all rights and obligations arising from the legal transaction.</p>
Place of jurisdiction & applicable law	<p>Any disputes arising from this contract shall be subject to the jurisdiction of the ordinary courts of Wangs/ Municipality of Vilters, Switzerland. The legal relationship between the contracting parties shall be governed by Swiss law.</p>
Acceptance	<p>Unless reported to the contrary within 10 days, the above terms and conditions of sale and delivery shall be deemed to have been accepted by the client.</p>

DISCLAIMER

The information and data in this manual are intended to assist the user in selecting the correct STRAUB products. This information may contain inaccuracies or typographical errors. Furthermore, all information contained in this manual is subject to change by STRAUB Werke AG without prior notice as a result of product redesigns, product improvements or other reasons.

STRAUB Werke AG accepts no liability whatsoever for damage arising from the use of the data, diagrams or application examples in this manual.

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STRAUB Werke AG
Straubstrasse 13
7323 Wangs
Switzerland

T: +41 81 725 4100 • Fax +41 81 725 4101 • straub@straub.ch
www.straub.ch

