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Intertek

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CASING SPACERS

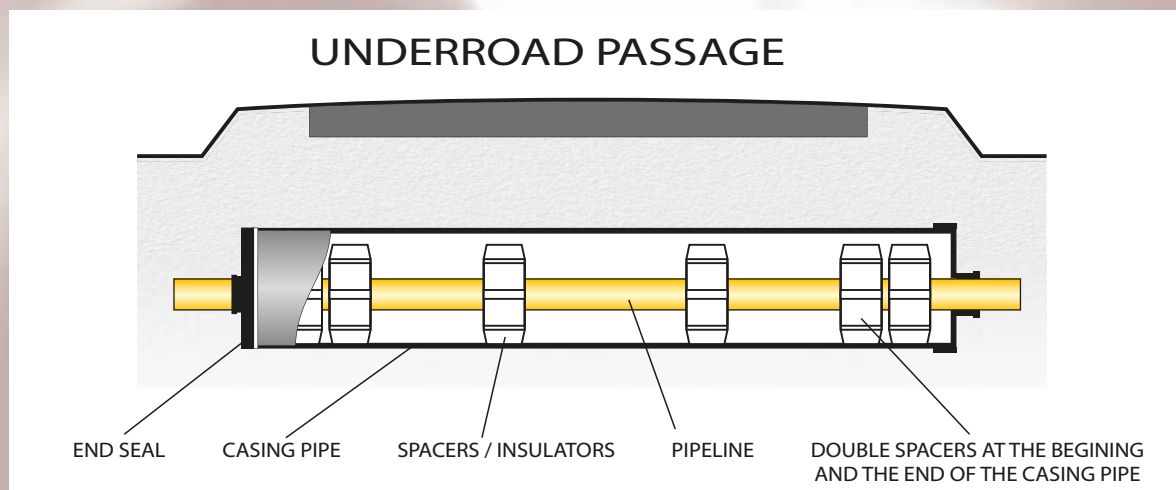
Casing spacers protect carrier pipes inside the casing.

BENEFITS & ADVANTAGES of using Casing Spacers:

- Easy installation of the carrier pipe inside the casing pipe.
- Proper alignment (centering) of the carrier pipe inside the casing pipe.
- Outstanding insulating properties.
- Cathodic protection of pipelines.
- Protection of paint and insulation coating.

TECHNICAL FEATURES

Casing Spacers may be used for PE, PVC, Steel and others pipe types for a wide range of diameters. Damage protection for external pipe surfaces - light-weight, easy installation without specialized tools.



Size calculation. The height of spacers can be calculated in the following way:

$$(D_1 - D_2) : 2 = \text{height}$$

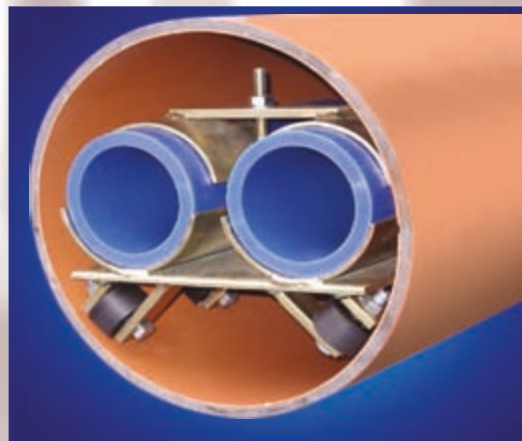
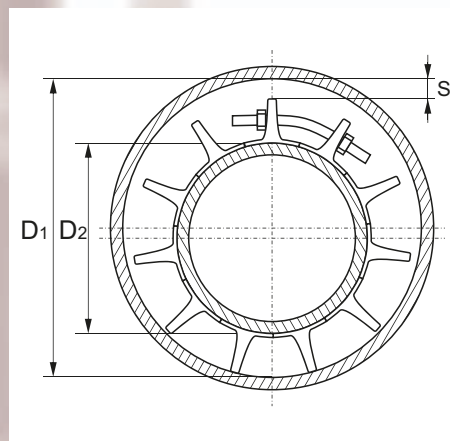
where: D_1 - inner diameter of casing pipe,
 D_2 - outer diameter of carrier pipe
 + possible insulation.

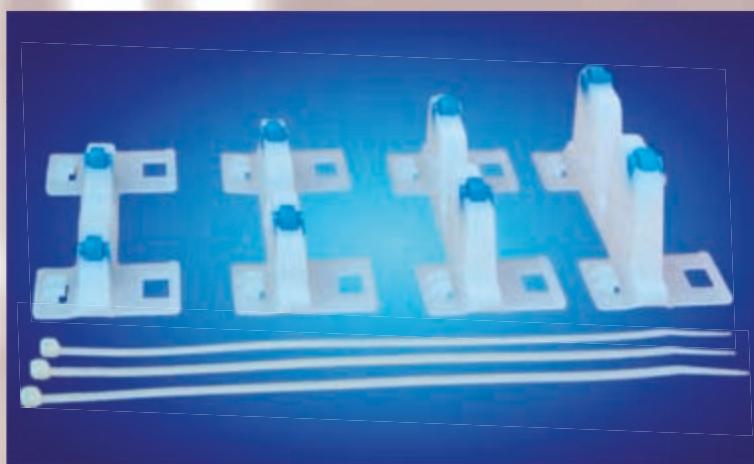
The total height of elements has to be lower than calculated (dimension $S > 0$).

The number of casing spacers needed is determined by the formula:

$$L : 1.5 + 3 = \text{number of circuits}$$

Where L is the length of casing pipe in meters, we add 3 spacers so that the beginning and the end of the casing pipe, is supported by two spacers.





BR model spacers are designed for small pipe diameters. Insert friction is reduced with rollers, allowing the pipe to be moved freely during installation. Formation of the spacer is accomplished by a snap connection joint for the desired number of elements (see table). After the spacer is wrapped around the pipe, nylon tighteners fix the spacer firmly to the pipe. Spacers are delivered to customer in the required element sets for the pipe OD.

Diameter range: 32 to 173 mm

Spacer height including rollers: 15; 25; 35; 45 mm

Spacer width: 100 mm

Material: Spacers are HDPE, closing straps are nylon.

Operating temperature: -20 to +80 °C

Distance between spacers: 1.5 m

(+ Additional spacers at 0.15m from the beginning and the end of casing pipe)

Maximum static load: 200 kG.

Spacers have no metal parts.

BR model spacers - selection table

Outer diameter of carrier pipe	Number of elements
32 - 37	3
38 - 48	4
49 - 58	5
59 - 69	6
70 - 79	7
80 - 90	8
91 - 101	9
102 - 111	10
112 - 121	11
122 - 132	12
133 - 142	13
143 - 152	14
153 - 163	15
164 - 173	16

L MODEL CASING SPACERS

UTILITY MODEL PATENT

L SPACERS



L model spacers are designed for medium pipe diameters. Insert friction is reduced with rollers, allowing the pipe to be moved freely during installation. Formation of the spacer is accomplished by a snap connection joint for the desired number of elements (see table). After the spacer is wrapped around the pipe, nylon screws fix the spacer firmly to the pipe. Spacers are delivered to customer in the required element sets for the pipe OD.



Diameter range: 110 to 400 mm
Spacer height incl. rollers: 24; 40; 60; 80 mm.
Spacer width 125 mm.
Distance between spacers 1.5 m
(+ Additional spacers at 0.15m from the beginning and the end of casing pipe).

Material: Spacers are HDPE, M8 screws are nylon (in special applications M6 screws are stainless steel).
Operating temperature: -20 to +80 °C
Maximum static load: 300 kG

L model spacers - selection table.

Outer diameter of carrier pipe	Number of elements
110 - 137	6
138 - 159	7
160 - 179	8
180 - 199	9
200 - 220	10
221 - 240	11
241 - 260	12

Outer diameter of carrier pipe	Number of elements
261 - 280	13
281 - 300	14
301 - 320	15
321 - 340	16
341 - 360	17
361 - 380	18
381 - 400	19

R MODEL CASING SPACERS

UTILITY MODEL PATENT

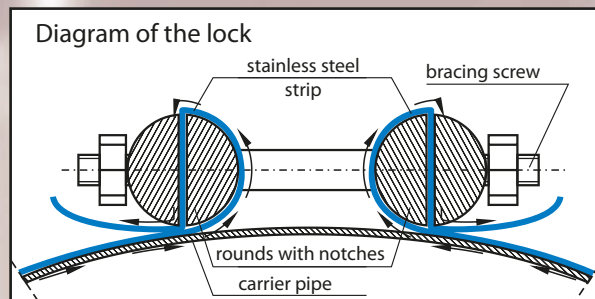


R model spacers are designed for medium pipe diameters. They are also designed to use in long distance carrier pipes. Insert friction is reduced with rollers, allowing the pipe to be moved freely during installation. Formation of the spacer is accomplished by a snap connection joint for the desired number of elements (see table). After the spacer is wrapped around the pipe, steel bands fix the spacer firmly to the pipe.



R
SPACERS

Spacers are delivered to customer in the required element sets for the pipe OD. The installation is based on threading the metal band through the required number of plastic elements (see table) and tightening them with a lock (see picture).



Diameter range: 160 to 420 mm
Spacer height including rollers: 28; 42; 58; 72 mm
Spacer width: 145 mm
Materials: HDPE, stainless steel

Operating temperature: -20 to +80°C
Distance between spacers: 1.5 m
(+ Additional spacers at 0.15m from the beginning and the end of casing pipe).
Maximum static load: 400 kG.

Selection table.

Outer diameter of carrier pipe	Number of elements
160 - 190	4
191 - 225	5
226 - 255	6
256 - 290	7
291 - 325	8
326 - 355	9
356 - 390	10
391 - 420	11





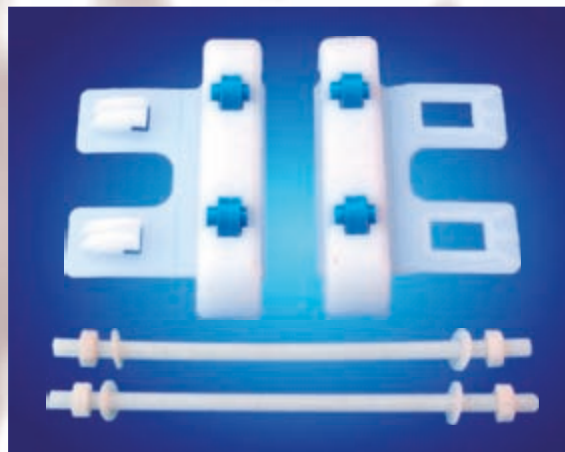
TR SPACERS

TR MODEL CASING SPACERS

UTILITY MODEL PATENT



TR model spacers are designed for medium pipe diameters. Insert friction is reduced with rollers, allowing the pipe to be moved freely during installation. Formation of the spacer is accomplished by a snap connection joint for the desired number of elements (see table). After the spacer is wrapped around the pipe, nylon screws fix the spacer firmly to the pipe. Spacers are delivered to customer in the required element sets for the pipe OD.



TR model spacers – selection table.

Outer diameter of carrier pipe	Number of elements
151 - 183	5
184 - 216	6
217 - 249	7
250 - 282	8
283 - 315	9
316 - 348	10
349 - 381	11
382 - 414	12

Closing hooks on the spacers may need to be removed before installing the lock.

Diameter range: 151 to 414 mm
 Spacer height including rollers: 30; 50; 70; 90 mm
 Spacer width: 140 mm
 Materials: HDPE, nylon
 Operating temperature: -20 to +80°C
 Distance between spacers: 1.5 m
 (+ Additional spacers at 0.15m from the beginning and the end of casing pipe).
 Maximum static load: 700 kG.

ZR MODEL CASING SPACERS

UTILITY MODEL PATENT



ZR
SPACERS



ZR model spacers are designed for medium and large pipe diameters. Insert friction is reduced with rollers, allowing the pipe to be moved freely during installation. Formation of the spacer is accomplished by a snap connection joint for the desired number of elements (see table). After the spacer is wrapped around the pipe, nylon screws fix the spacer firmly to the pipe. Spacers are delivered to customer in the required element sets for the pipe OD.



Diameter range: 300 to 805 mm
Spacer height including rollers: 35; 60; 90 mm
Spacer width: 180 mm
Operating temperature: -20 to +80°C
For pipes under the diameter of 553 mm a nylon M10 screw is used.
For bigger diameters M12 screw is used.
Distance between spacers: 1.5 m
(+ Additional spacers at 0.15m from the beginning and the end of casing pipe).
Maximum static load: 1500 kG.



ZR model spacers – selection table.

Outer diameter of carrier pipe	Number of elements
300 - 343	8
344 - 385	9
386 - 427	10
428 - 469	11
470 - 511	12
512 - 553	13

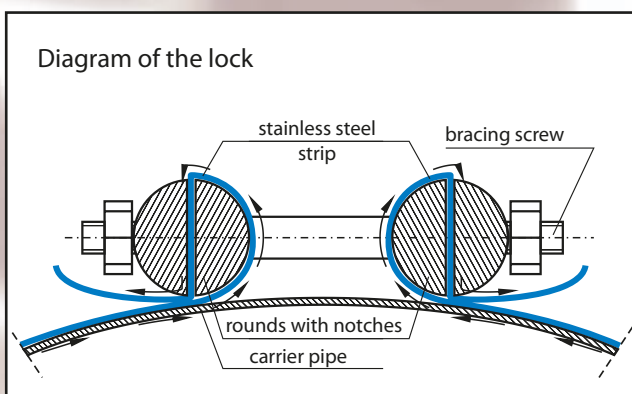
Outer diameter of carrier pipe	Number of elements
554 - 595	14
596 - 637	15
638 - 679	16
680 - 721	17
722 - 763	18
764 - 805	19

SM DUO MODEL CASING SPACERS

EU REGISTERED INDUSTRIAL PATTERN

SM DUO model spacers are designed for pipelines with large diameters. SM DUO spacers are designed for high load capacity and two completely different installation systems. SM Duo 1 system is based on high torque, wide steel bands that exert high pressures to tightly press plastic spacer elements to the carrier pipe. SM Duo 2 system use three non-metallic nylon bolt tightners. There are no metal components SM Duo 2 spacers can be used for cathodic protection. Rollers allowing the pipeline to move freely during installation.

Version 1.



Diameter of carrier pipe	Number of elements with stainless steel lock
DN 500	9
DN 550	10
DN 600	11
DN 650 (630)	12
DN 700	13
DN 800	15
DN 900	17
DN 1000	19
DN 1100	21
DN 1200	23
DN 1300	25
DN 1400	27
DN 1500	29

Installation is based on threading a steel band through the required number of plastic elements (see table) and tightening them with a lock (see the picture).

SM DUO MODEL CASING SPACERS

Version 2.



SM DUO
SPACERS

Diameter of carrier pipe	Number of elements with nylon screws
500-525	10
526-575	11
576-625	12
626-675	13
676-725	14
726-775	15
776-825	16
826-875	17
876-925	18
926-975	19
976-1025	20
1026-1075	21
1076-1125	22
1126-1175	23
1176-1225	24
1226-1275	25
1276-1325	26
1326-1375	27
1376-1425	28
1426-1475	29
1476-1525	30



Diameter range: 500 mm and more
 Spacer height including rollers: 32; 50; 70; 100; 160 mm
 Rollers stand out 6 mm over the spacer.
 Spacer width: 240 mm
 Materials: HDPE, stainless steel (ver.) HDPE, nylon (ver. 2)
 Operating temperature: -20 to +80°C
 Distance between spacers: depends on pipe load - 1.0 to 2.0 m (0.15m from the beginning and the end of casing pipe). For pipes under the diameter of 1025 mm a nylon M 10 screw is used. For bigger diameters screw M 12 is used.
 Maximum static load: 3200 kG.

The installation is based on connection of the required number of plastic elements (see table) and tightening them with 3 nylon bolt fasteners (see the picture). Spacers are delivered to the customer in total element sets.



MULTI-PIPE SPACERS



BR model casing spacers for Multi-pipe passages are used when a casing pipe contains multiple small diameter pipes. Units are made up of BR spacers and polystyrene or elastomer insert spacing units. Inserts are designed to ensure the correct distance between the pipes and proper alignment of BR spacers. The installation is based on placing an insert spacing unit between the carrier pipes. Casing spacers are placed over the polystyrene (or elastomer) insert. The final step using the tightening bands, the spacers are fixed tightly to the pipes. Spacers are delivered to the customer with the required elements for the multi-pipe spacer. Due to variety of possible solutions for multi-pipe requirements please contact us for pricing and assessment.

Maximum diameter of multi-pipe sets are determined by a suitable combination of insert requirements.

Materials:
spacer – HDPE,
insert – polystyrene or elastomer

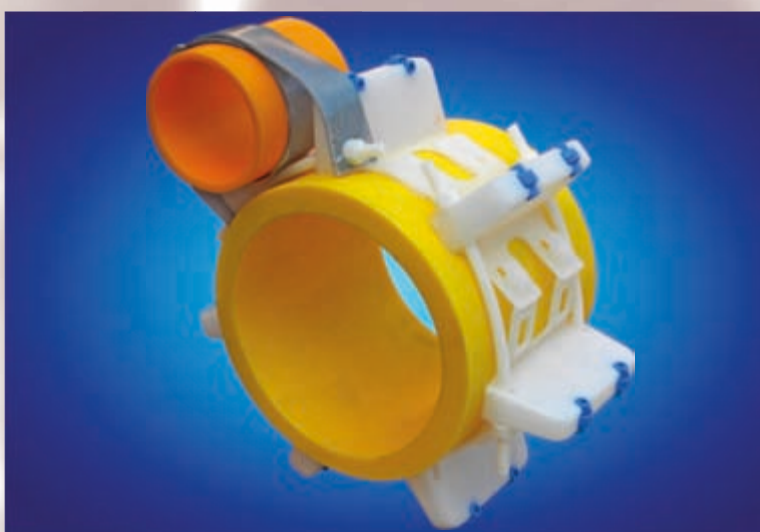


ADDITIONAL PIPE INSTALLATION

Additional pipe installation on various casing spacer systems using TR or ZR spacers.



Maximum diameter of additional pipeline on TR spacers is 65 mm.



Maximum diameter of additional pipeline on ZR spacers is 90 mm.



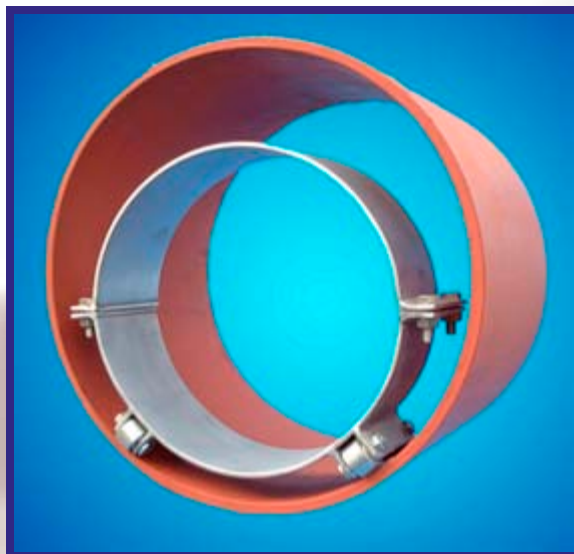
Nylon locking band and bolt for TR and ZR spacers (see the picture).

For long passages, the diameter of the additional pipe must not exceed the leg height of the spacer used.



STEEL WHEEL SPACERS

These spacers are designed to drag heavy pipelines into the casing pipe. Spacers are made of steel flat bars. They are equipped with rollers that are sized according pipe weight. Rollers are made of steel or PE HD. Minimum height of running spacers is 30 mm. Spacers are not dielectric – they contain metal components. Due to variety of solutions contact us for pricing and available.



SPACERS WITH ADJUSTABLE HEIGHT LEGS

These spacers are used in passages where height adjustments between the beginning and the end of carrier pipe is required.

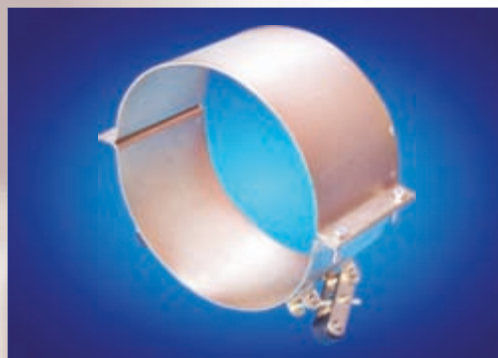
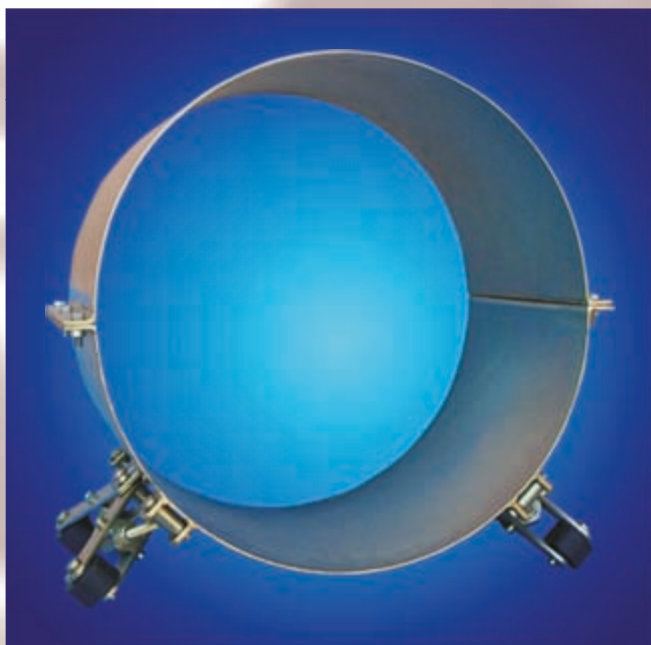
For example: gravity sewers with incorrect leveling of casing pipe.

Adjustable heights are made possible by screw jacks allowing for variable positioning. Spacers are made of steel flat bars.

Thickness of flat bars is selected according to weight of pipeline.

Height difference range: from 50 to 150 mm

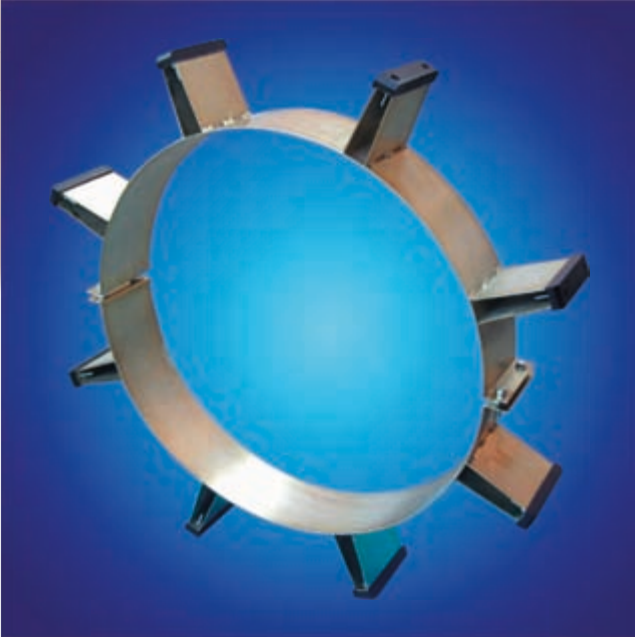
Due to variety of solutions prices are a vailable upon request.



SPACERS
WITH
ADJ.
HEIGHT
LEGS

STE MODEL STEEL SPACERS

These spacers are designed to carry heavy loads from large pipelines. They are made of steel flat bars. Thickness of the flat bar is selected according to the weight of carrier pipe. An important feature of these spacers is, it is possible to produce different fixed leg heights (minimum leg height is 20 mm). The axis of the carrier pipe parallel the casing pipe. Top legs must be shorter than lower skids. The sliding runner is a wear cap made of tough durable polyethylene. The runner is attached to the steel led with embedded steel fasteners. This design provides high resistance to shearing forces which develop during dragging of the carrier pipe into casing pipe.



Often for reinforcement, steel spacers are used between non-metallic units, e.g. every third or fourth spacer a steel spacer may be added.

When used with cast iron pipelines spacers can be connected with bracing to add further strength to the system.

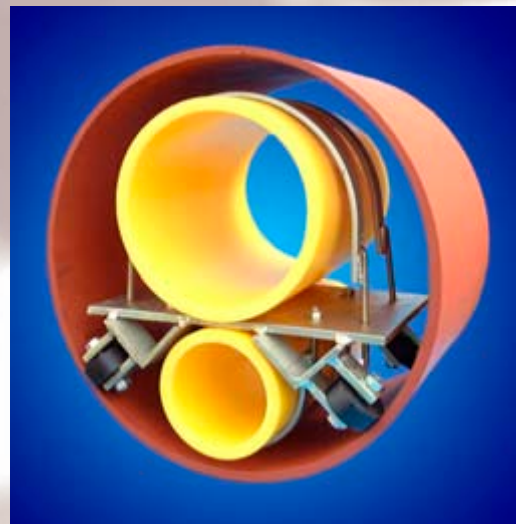
Note* these spacers are non-dielectric. They conduct electricity.

Due to variety of solutions pricing is available upon request.

SPACER FOR MULTI-PIPE PASSAGES

Multi-pipe spacers are used in passages where a single casing pipe contains multiple pipes. They allow more than one pipe to be placed separated from each other. They are custom made and come with bearing chassis, wheels and steel clips for the pipes.

Due to variety of solutions pricing is available upon request.



STE
STEEL
SPACERS

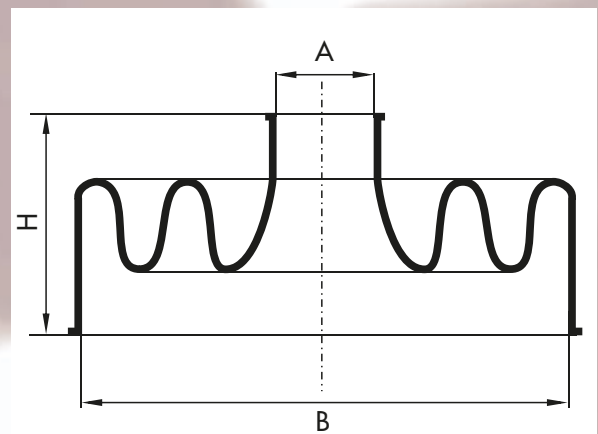
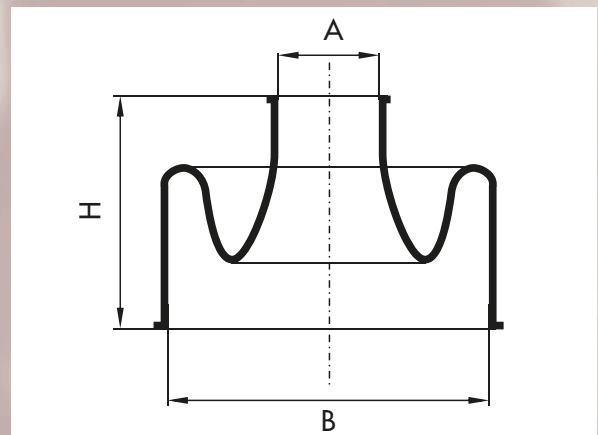
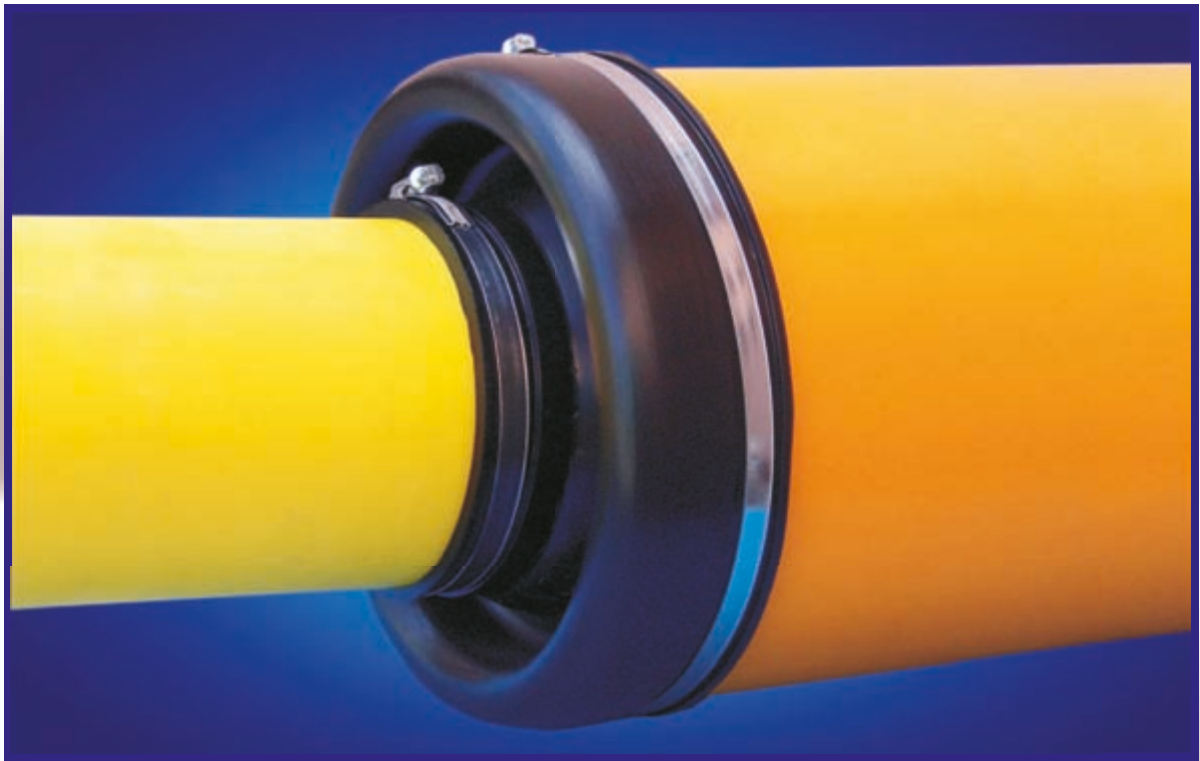


SPACER
FOR
MULTI-PIPE
PASSAGES

INTEGRA
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N MODEL END SEALS

End seals are used in district heating ducting, gas networks, water supply networks and sewer networks. End seals protect the annular space between carrier pipe and casing pipe. End seals are, high durability and compensate for thermal changes of the pipes without unsealing the connection.



Technical data:

Materials: EPDM elastomer and stainless steel clip.

Operating temperature: from - 30°C to 100°C

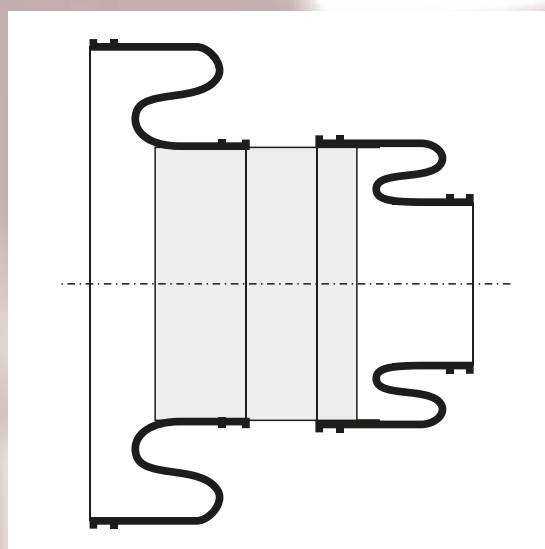
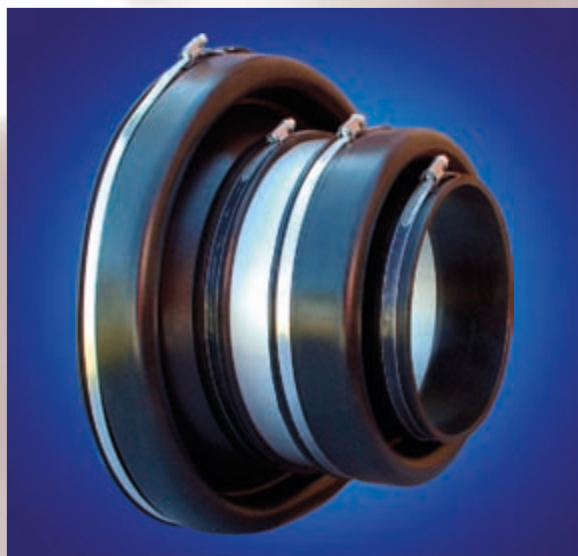


Dimension table N model end seals.

DN x DN	A	B	H
20 x 50	26	64	75
25 x 50	33	64	75
25 x 80	33	92	75
25 x 100	33	112	75
25 x 150	33	165	75
32 x 80	41	92	75
32 x 100	41	112	75
32 x 150	41	165	75
40 x 100	50	112	75
40 x 125	50	135	75
40 x 150	50	165	75
50 x 100	64	112	75
50 x 125	64	135	75
50 x 150	64	165	75
65 x 125	78	135	75
65 x 150	78	165	75
65 x 200	78	225	75
80 x 150	92	165	75
80 x 180	92	190	75
80 x 200	92	225	75
80 x 240	92	252	75
80 x 250	92	275	75
100 x 150	112	165	75
100 x 180	112	190	75
100 x 200	112	225	75
100 x 240	112	252	75
100 x 250	112	275	75

DN x DN	A	B	H
100 x 300	112	330	75
125 x 200	131	225	75
125 x 240	131	252	75
125 x 250	131	275	75
150 x 200	162	225	75
150 x 240	162	252	75
150 x 250	162	275	75
150 x 300	162	330	75
180 x 250	190	275	75
180 x 300	190	330	75
200 x 250	225	275	75
200 x 300	225	330	75
200 x 350	225	362	75
200 x 400	225	415	75
240 x 300	252	330	75
240 x 350	252	362	75
240 x 400	252	415	75
250 x 300	275	330	75
250 x 350	275	362	75
250 x 400	275	415	75
300 x 400	325	415	75
300 x 450	325	455	75
300 x 500	325	513	75
400 x 500	410	513	75
400 x 600	410	615	75
500 x 600	510	615	75

End seals are made of high durability elastomer so they can be stretched and shrunk about 7% of the actual size.



Expanded usage can be attained by joining two seals with a short steel sleeve connector.

N MODEL END SEALS



In addition to EDPM, we supply end seals made of silicon (operating temperature form – 55°C to 230°C) or NBR (operating temperature form – 20°C to 90°C) upon request. NBR elastomers are resistant to any petroleum based compound.

U MODEL END SEALS

U model end seals are designed for large diameter pipelines and may be used when pipe diameters are unusual. Seals are made in the form of an elastomeric sleeve and clamp fastened on pipes with two straps. Technical data is the same as an N mode end seal.



U model end seals dimension table.

The outer diameter of the carrier pipe (min) [mm]	The outer diameter of the casing pipe (max) [mm]
200	360
300	540
400	720
500	900
600	1080

The outer diameter of the carrier pipe (min) [mm]	The outer diameter of the casing pipe (max) [mm]
700	1260
800	1440
900	1620
1000	1800
1100	1980



G-S-G AND G-S-W MODEL GASKETS

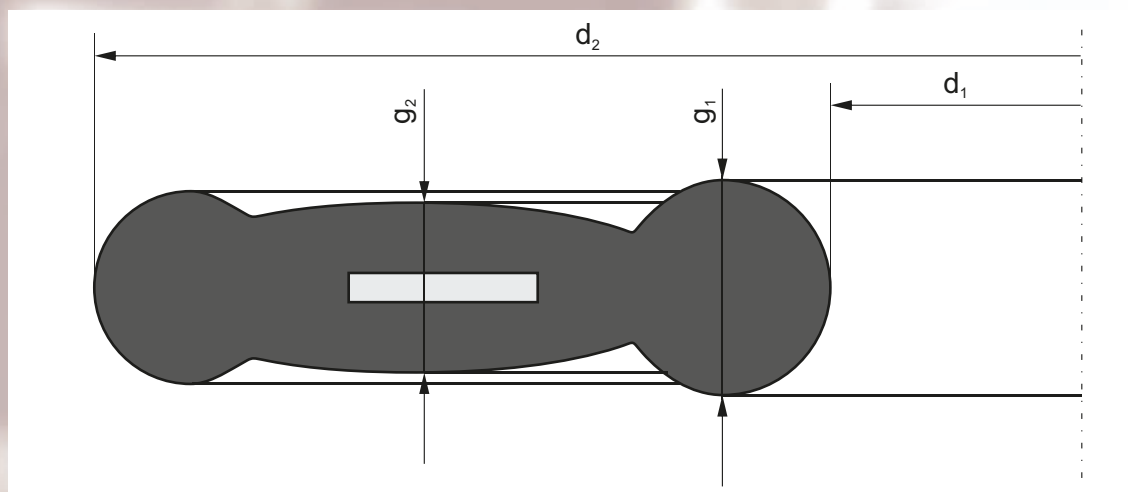
Rubber-steel G-S type gaskets are used on flanged pipes in district heating installations, in gas networks, water supply networks and sewer networks.



They can be used for PE and steel pipeline joints. Because of materials used and shape of gasket, the quality and durability of the gasket – flange link have been improved. Cost of pipelines are reduced by installing G-S-G and G-S-W gaskets. Construction design and sizes enable quick and easy gasket installation between the flanges.

G-S type gaskets basic features:

- Vulcanized steel ring prevents any shape changes.
- Optimal shape guarantees tightness with little tension of bolts.
- Sizes ensure gasket centering between flanges.
- Gasket stiffness allows easy installation between flanges.





GASKETS

ELASTOMERIC GASKETS WITH STEEL RING

DN	d ₁ [mm]	d ₂ [mm]	g ₁ [mm]	g ₂ [mm]	Pressure [bar]
20	28	60	4	3	10 - 40
25	35	70	4	3	10 - 40
32	43	82	4	3	10 - 40
40	49	92	4	3	10 - 40
50	61	107	5	4	10 - 40
65	77	127	5	4	10 - 40
80	90	142	5	4	10 - 40
100	115	162	6	5	10 - 16
125	141	192	6	5	10 - 16
150	169	218	7	6	10 - 16
200	220	273	7	6	10 - 16
250	274	328	7	6	10
250	274	330	7	6	16
300	325	378	7	6	10
300	325	385	7	6	16
300	325	402	7	6	25

DN	d ₁ [mm]	d ₂ [mm]	g ₁ [mm]	g ₂ [mm]	Pressure [bar]
350	368	438	9	7	10
350	368	458	9	7	25
400	420	490	9	7	10
400	420	497	9	7	16
400	420	515	9	7	25
400	420	547	9	7	40
450	470	540	9	7	10
500	520	595	9	7	10
500	520	618	9	7	16
500	520	625	9	7	25
600	620	695	9	7	10
600	620	730	10	7	25
700	720	810	10	7	10
800	820	915	10	7	10
1000	1020	1120	11	8	10
1200	1220	1340	11	8	10 - 16

Torque tables of screw tightening of flanged pipe joints, using G-S-G and G-S-W type gaskets, are in accordance to the screw class.

Screw	5.6	8.8	10.9
M 8	10 Nm	18 Nm	25 Nm
M 10	20 Nm	35 Nm	50 Nm
M 12	30 Nm	60 Nm	80 Nm
M 14	50 Nm	90 Nm	140 Nm
M 16	75 Nm	140 Nm	200 Nm
M 18	100 Nm	200 Nm	300 Nm
M 20	140 Nm	290 Nm	400 Nm
M 22	200 Nm	380 Nm	550 Nm
M 24	250 Nm	500 Nm	700 Nm
M 27	370 Nm	700 Nm	900 Nm
M 30	500 Nm	950 Nm	1400 Nm
M 33	650 Nm	1300 Nm	1900 Nm

Notation used in elastomers, application, operating temperature and hardness.

Symbol gasket	Elastomer	Application	Operating temperature °C			°Shore (A) hardness
			continuous operation	1 hour	1 minute	
G-S-G	NBR nitrile rubber	Gas, gasoline, oils, greases, compressed air	-20 ÷ +90	-30 ÷ +110	-40 ÷ +130	70±5°
G-S-W	EPDM rubber ethylene-propylene	Drinking water, municipal wastewater, diluted acids and bases, alcohols, compressed air	-30 ÷ +100	-35 ÷ +130	-40 ÷ +160	70±5°

Gaskets have quality certificates for the materials used, certification also attest to material usage for drinking water applications (potable water applications).



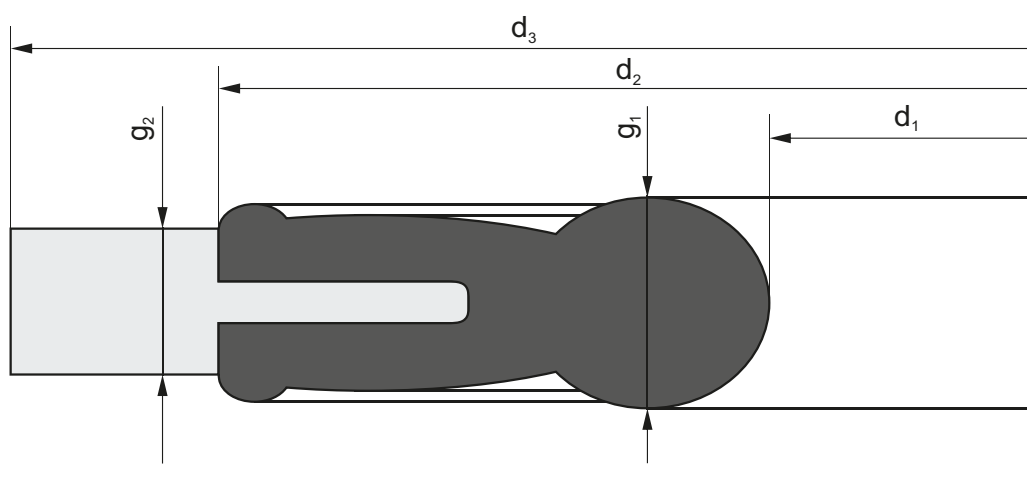
O-G-S MODEL GASKETS

Rubber-steel gaskets with outside steel ring are intended for medium or high pressure flanged pipes joints.

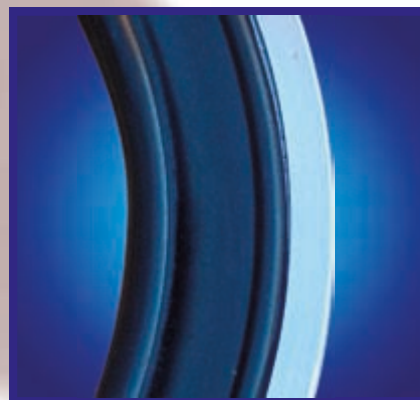


O-G-S type gaskets basic features:

Outside steel ring closes the rubber gasket making it impossible to "blow" even under high pressure. It also prevents from putting too high pressure at the elastomer during screwing flanged joints. Sizes of outside steel ring allow centering between flanges.

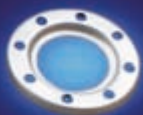


DN	d1 [mm]	d2 [mm]	d3[mm]		g1 [mm]	g2 [mm]
			40 bar	64 bar		
25	35	64	70	82	6	4
32	43	75	82	88	6	4
40	49	84	92	103	6	4
50	61	99	107	113	7	5
65	77	119	127	138	7	5
80	90	132	142	148	7	5
100	115	152	168	174	8	5
125	141	182	195	210	8	5
150	169	209	225	247	10	7
200	220	262	292	309	10	7
250	274	318	353	364	10	7
300	325	366	418	424	10	7



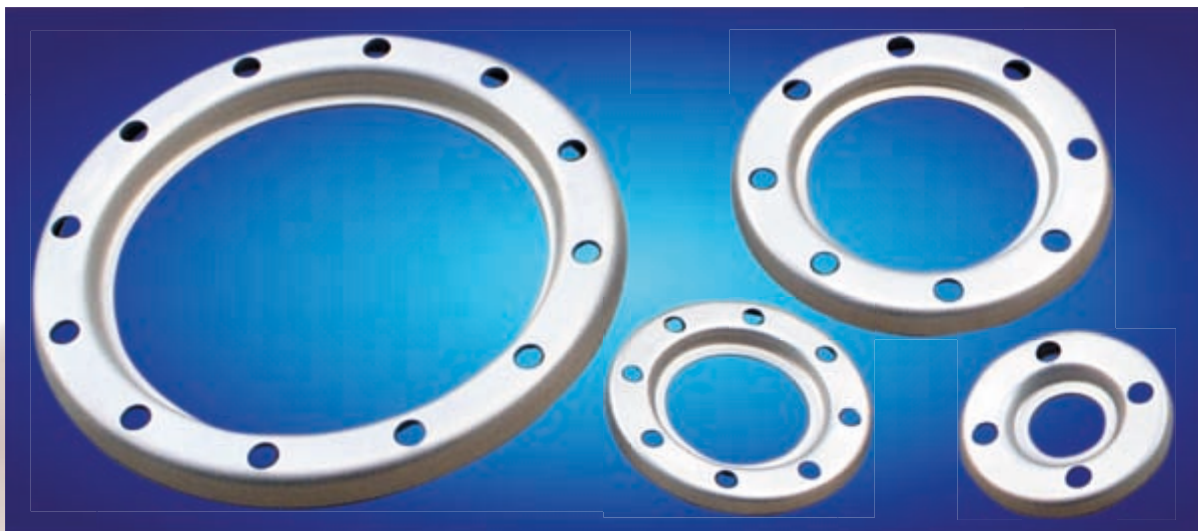
Used material:
EPDM or NBR elastomer.
Galvanized or stainless
steel ring.

Gaskets with other dimensions on request.

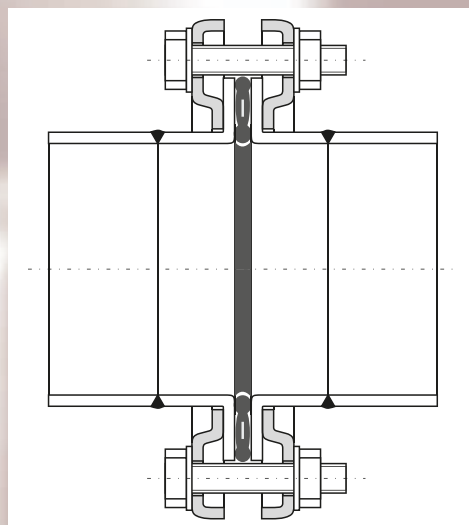


EXTRUDED FLANGES

EXTRUDED FLANGES



Extruded flanges are designed for low-pressure pipelines made of stainless steel. They are used for pipeline tubes with braid ends. So-called "flat loose" flanges can be replaced by extruded one. They are manufactured in diameters: DN 32 to DN 300 and have drilling according to the EN 1092-1 norm for PN10. The use of extruded flanges allows significant reduce costs. They are made of 1.4307; 1.4404 (1.4571; 1.4541 on request) stainless steel.

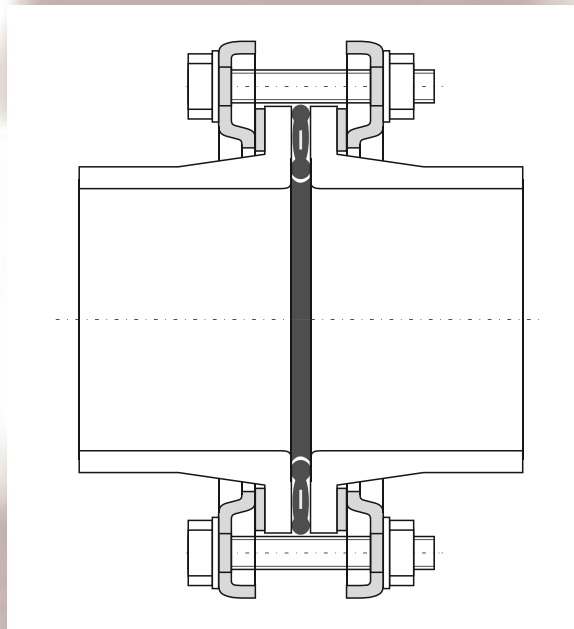
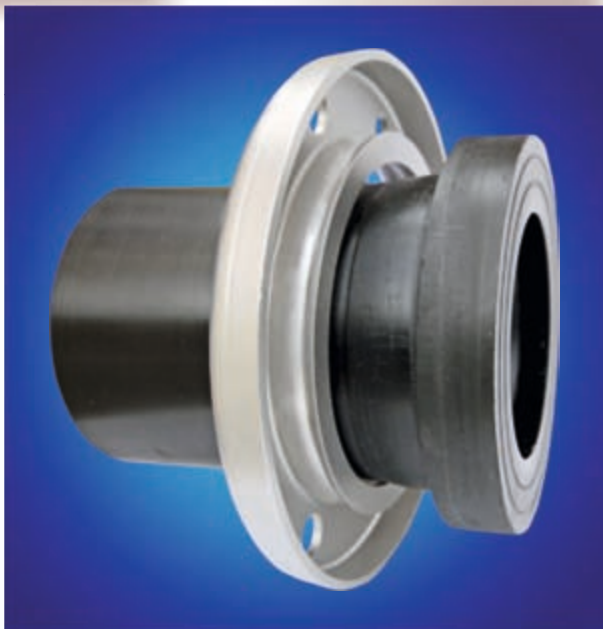
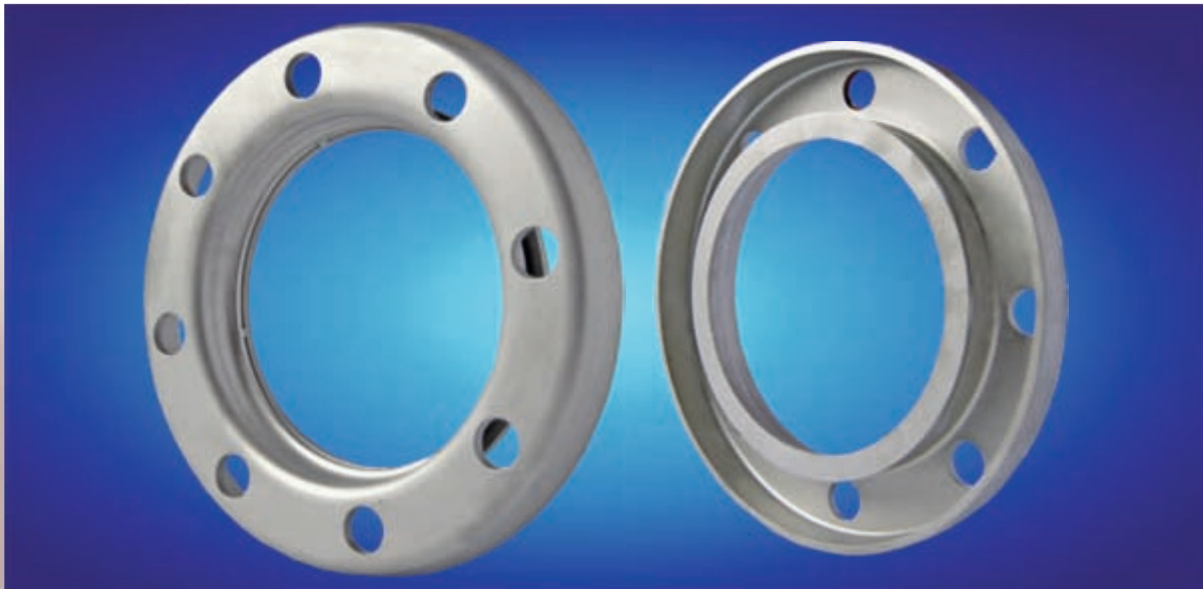


DN	Outer diameter of the pipe	Outer diameter of the flange	Inner diameter of the flange	Drilled pitch diameter	Flange thickness	Number of holes	Holes diameter
32	40; 41; 42,3; 43	140	47	100	3	4	18
40	44,5; 48,3	150	53	110	4	4	18
50	50; 52; 54	165	59	125	4	4	18
50	57	165	62	125	4	4	18
50	60,3	165	65	125	4	4	18
65	70; 73	185	78	145	4	4 or 8	18
65	76,1	185	81	145	4	4 or 8	18
80	80; 83; 84	200	89	160	4	8	18
80	88,9	200	94	160	4	8	18
100	104; 106; 108	220	113	180	4	8	18
100	114,3	220	119	180	4	8	18
125	129; 133	250	137	210	4	8	18
125	139,7	250	145	210	4	8	18
150	154; 156	285	161	240	5	8	22
150	159	285	164	240	5	8	22
150	168,3	285	173	240	5	8	22
200	204; 206; 208	340	213	295	5	8	22
200	219,1	340	224	295	5	8	22
250	254; 256	395	261	350	6	12	22
250	273	395	279	350	6	12	22
300	304; 306; 308	445	314	400	6	12	22
300	323,9	445	329	400	6	12	22

Other dimensions on request. Prices on request.

EXTRUDED FLANGES FOR PE SLEEVES

EU REGISTERED INDUSTRIAL PATTERN



DN	Pipe outer diameter	Flange outer diameter	Pressure ring diameter	Drilled pitch diameter	Flange thickness	Holes number	Holes diameter
32	40	140	43/70	100	3	4	18
40	50	150	53/78	110	4	4	18
50	63	165	80/102	125	4	4	18
65	75	185	88/125	145	4	4 or 8	18
80	90	200	110/138	160	4	8	18
100	110	220	131/158	180	4	8	18
100	125	220	141/158	180	4	8	18
125	125	250	141/164	210	4	8	18
125	140	250	156/164	210	4	8	18
150	160	285	182/214	240	5	8	22
150	180	285	202/214	240	5	8	22
200	200	340	229/270	295	5	8	22
200	225	340	243/270	295	5	8	22
250	250	395	270/314	350	6	12	22
250	280	395	300/314	350	6	12	22
300	315	445	343/374	400	6	12	22

Nominal pressure up to 16 bar.



EXTRUDED
FLANGES FOR
PE SLEEVES



GZ MODEL SERVER PIPE CONNECTORS

They are designed to connect endings of sewage pipe with the same diameters. Connector consists of EPDM sleeve (NBR and silicon on request) and three stainless steel tie-wraps. Narrow external bands are responsible for tightness of the link while the wide interior one ensure centering of connection and prevents buckling of the pipelines. Extremely reliable and strong method of gripping an elastomeric sleeve on pipes allows to use of GZ connectors on sewage pipes made of PCV, PE, concrete, cast iron. They can also connect sewage pipes made of other materials.



GZ 110 to GZ 180 server pipe connectors



GZ 200 to GZ 380 server pipe connectors



GZ 450 and bigger server pipe connectors

Pressure up to 0.5 bar.

Operating temperature depend on the material:

EPDM od -30°C do +100°C, NBR od -20°C do +90°C

Symbol	Diameter range [mm]	Connector length [mm]
GZ 110	100 - 110	100
GZ 120	111 - 125	120
GZ 140	126 - 145	120
GZ 160	146 - 165	150
GZ 180	166 - 185	150
GZ 200	186 - 200	150
GZ 220	201 - 220	180
GZ 240	221 - 235	180
GZ 250	236 - 245	180
GZ 260	246 - 265	180
GZ 280	266 - 290	200
GZ 310	291 - 315	200

Symbol	Diameter range [mm]	Connector length [mm]
GZ 330	316 - 340	200
GZ 360	341 - 365	200
GZ 380	366 - 395	200
GZ 450*	396 - 480	250
GZ 500*	481 - 720	250
GZ 750*	721 - 960	250
GZ 1000*	961 - 1200	250
GZ 1250*	1201 - 1440	250
GZ 1500*	1441 - 1680	250
GZ 1750*	1681 - 1920	250
GZ 2000*	1921 - 2160	250
GZ 2250*	2161 - 2400	250

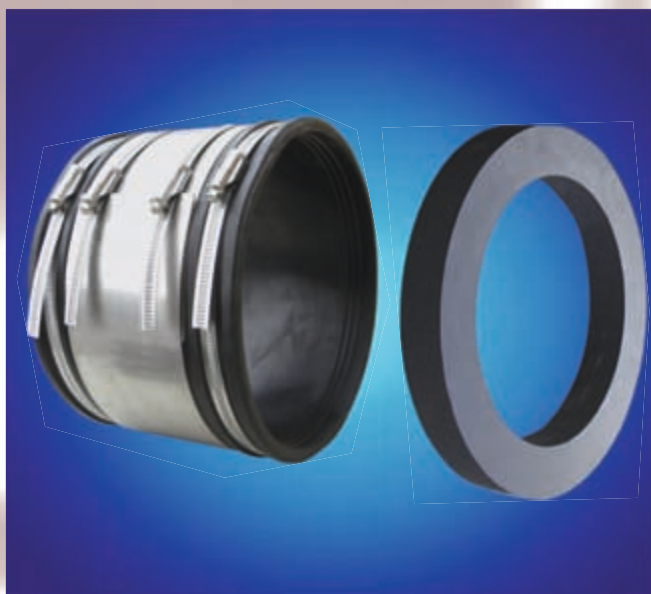
* - Seals are made for above diameters.

Other diameters on request.



REDUCTION CONNECTORS.

They are designed to connect endings of sewage pipe with different diameters on condition that the difference of diameters is bigger than 10mm.



Axial version



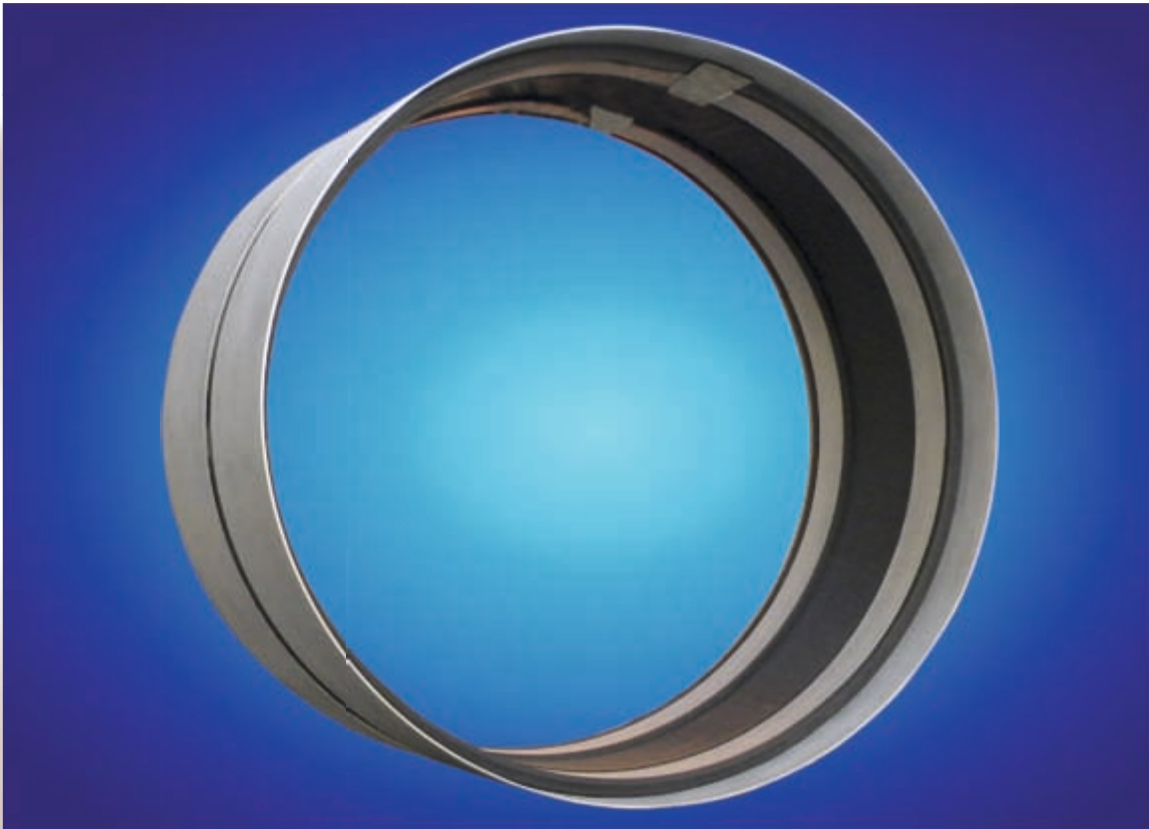
Eccentric version



Special version



DWRS system is designed to seal the inside of the pipes. It can be used for pipes made of cast iron, concrete, PCV, vitrified clay pipe and other materials. Sealing is suitable for pipes with diameters big enough to allow worker to enter it in order to perform assembly. Sealing is prepared exactly to the inner diameter of the pipe. Seals are made of elastomer, expansion ring. There is outer ring if it is needed. Metal parts are made of stainless steel.



Montage is based on placing elastomeric seal where two pipes connect. After that expansion rings are stretched by the use of special tool. They are pushing the seal to the surface of the pipeline. In order to ensure tightness, pipe surface must be cleaned.



It is necessary to use outer steel ring when we are dealing with high pressure (up to 16 bar).



CZR MODEL PRESSURE PIPE CONNECTION

CZR PRESSURE PIPE CONNECTION



CZR model pressure pipe connection is designed for all kinds of pipe installations, pipeline networks, industry and power plants. Its greatest assets are: fast and easy montage, lightness, safety of installation. Thanks to specially shaped gasket, pressure inside the pipe tightens the connection. They can be used to connect pipes made of steel, cast iron, polyester, PE and PVC.

Diameters range: 250mm to 2900 mm

Width: 145 or 300 mm

Operating pressure 2 to 25 bar.

Operating temp. for seal made of EPDM -30 do +100°C.

Operating temp. for seal made of NBR -20 do +90°C.

Used materials:

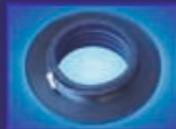
Stainless steel 304 or 316L

Seal: elastomer EPDM (for water, sewage and chemical products)

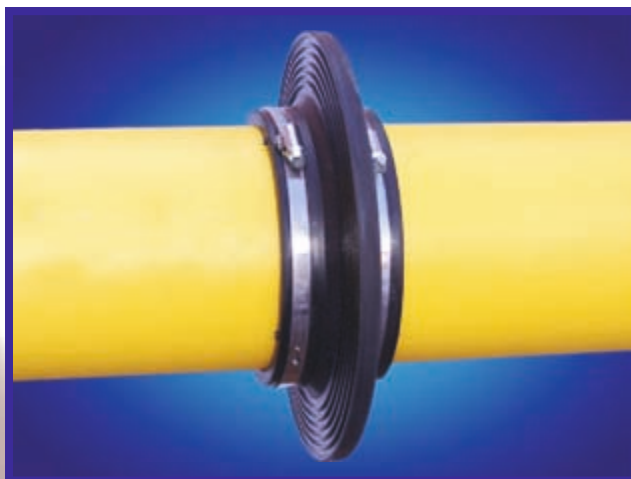
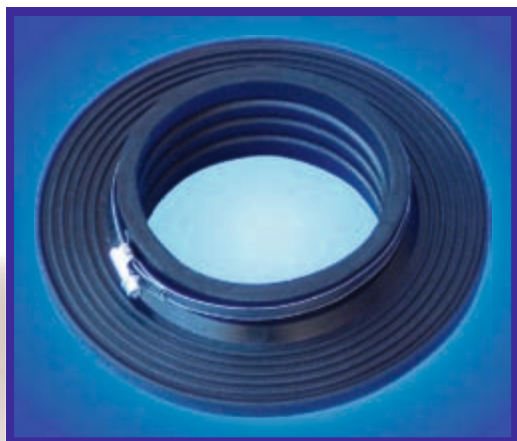
NBR (for oils, fuels and other carbohydrates).

DN	Operating pressure [bar]	Numbers of locks
250	25	1
300	25	1
350	25	1
400	25	1
450	20	1
500	20	1
550	16	1
600	16	1
700	12	1
800	12	1
900	10	2
1000	10	2

DN	Operating pressure [bar]	Numbers of locks
1100	8	2
1200	8	2
1300	6	2
1400	6	2
1500	5	2
1600	5	2
1700	5	2
1800	4	2
1900	4	3
2000	4	3
2100	3	3
2200 - 2900	2	3



Puddle Flanges are designed to seal passages of pipelines through buildings walls, tanks, swimming pools, foundations, partitions, ceilings etc.



Advantages:

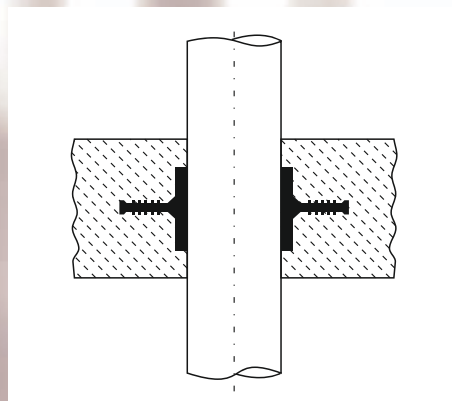
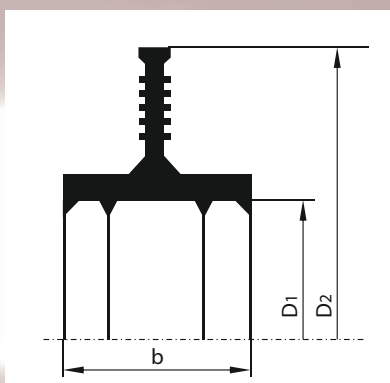
- protection against gas migration,
- prevent penetration of water along pipelines,
- they are easy to install and match to every kind of pipes,
- they are especially suitable for passages through foundation slab,

Technical data:

Materials: EPDM elastomer, stainless steel clip bands

Maximum operating pressure: 2.5 bar.

The puddle flanges are installed by sliding the flange onto a pipeline in the place of planned partition (between shuttering plates), then they are secure with clip bands. After that there are concrete works: concreting and compacting of concrete mix. This kind of sealing cannot be disassembled. Puddle flanges are not suitable for mounting in existing partitions.



DN	d [mm]	D1 [mm]	D2 [mm]	b [mm]
25	32	29	127	60
32	40	38	136	60
40	50	48	146	60
50	63	60	158	60
65	75	71	169	60
80	90	84	182	60
100	110	105	203	60
125	125	120	218	60
125	140	120	218	60
150	160	154	252	60
180	200	195	293	60
200	225	215	315	60
250	250	245	343	60

DN	d [mm]	D1 [mm]	D2 [mm]	b [mm]
250	280	245	343	60
300	315	310	408	60
350	355	352	435	75
400	400	395	480	75
450	450	442	530	75
500	500	480	580	75
550	560	547	640	75
600	630	613	710	75
700	710	690	790	75
800	800	775	880	75
900	900	870	980	75
1000	1000	965	1080	75
1200	1200	1155	1280	75

WGC MODEL EXTERIOR WALL PIPE SEALS

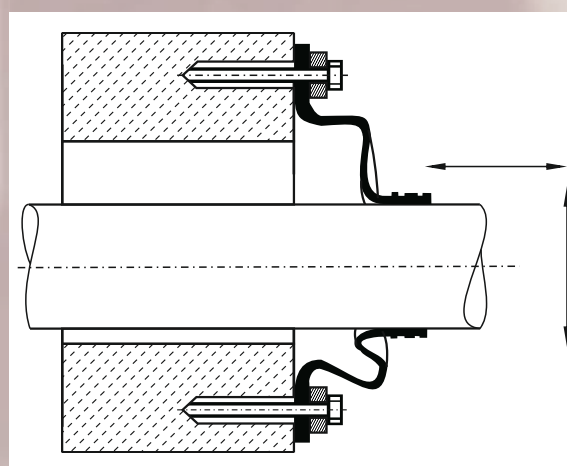
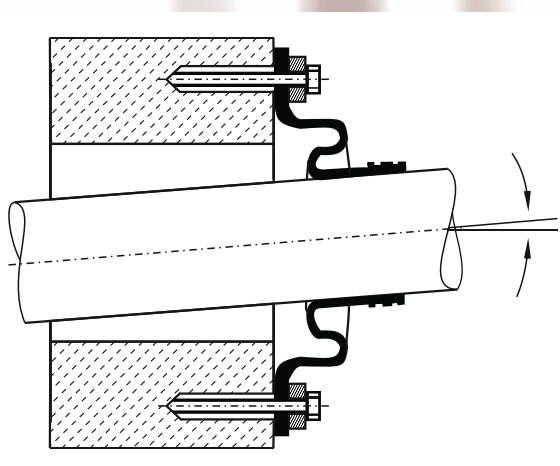
REGISTERED UTILITY MODEL

WGC model seals are designed for low – pressure tight pipe passages, that are waterproof and gas-tight. Their main application is building terminals of heat distribution networks, gas network, water supply network and sewer network. This kind of seal allows pipes to move relative to structure partition without unsealing the joint (remember: it is not a pipe stand).



Advantages:

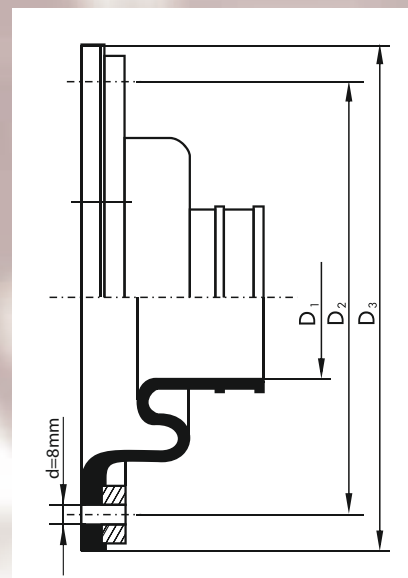
- enables movements of pipes in passages in 3 dimensions without unsealing the joint e.g. displacement due to temperature changes (heat distribution pipelines),
- possibility to use in places where is a difference of subsidence between pipeline and the building,
- there is no need to use a protective sleeve or drill opening with high precision
- easy installation, service-free exploitation, corrosion resistance,
- maximum deviation of the pipeline: up to 12 degrees



Used materials:

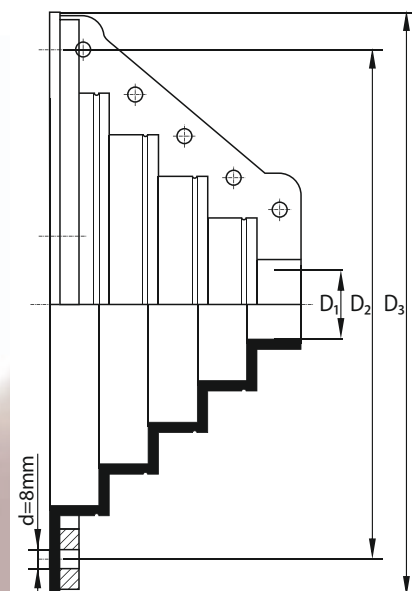
- Elastomer EPDM
- Clamping ring, fixing screws, clip band: stainless steel

DN	D ₁ [mm]	D ₂ [mm]	D ₃ [mm]	Range of use [mm]	Max. diameter of the opening [mm]
25	30	126	150	32 - 35	70
32	38	135	159	40 - 44	75
40	46	142	167	48 - 52	85
50	57	150	180	60 - 65	95
65	72	167	193	75 - 78	110
80	84	184	209	88 - 94	120
100	104	220	251	108 - 116	150
125	121	237	270	125 - 140	170
150	155	275	307	158 - 172	200
200	196	328	360	200 - 225	250
250	248	410	440	250 - 280	320





PRS EXTERIOR WALL PIPE SEALS



PRS seals, similarly WGC seals, is designed for low pressure tight pipe passages that are waterproof and gas-tight.



Biggest advantage is ability to install passage in any moment thanks to specially constructed lock that tightly connects both ends of elastomer. Fitting the seal to pipeline happens by cutting certain piece of elastomer along the trench placed on the outside diameter. After that we tighten the seal with a clip band.

Materials:

- EPDM elastomer,
- Pressure ring, fixing screws, clip band are made of stainless steel.

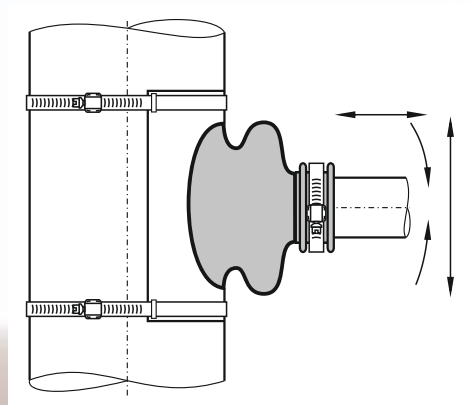
DN	D ₁ [mm]	D ₂ [mm]	D ₃ [mm]	Range of use max [mm]	Diameter of opening max [mm]
25	31	213	228	28 - 34	145
32	39	238	249	37 - 43	165
40	47	213	228	45 - 51	145
50	59	238	249	56 - 63	165
65	74	213	228	70 - 78	145
80	88	238	249	85 - 94	165
100	109	213	228	107 - 115	145
125	125	238	249	121 - 131	165
140	138	213	228	134 - 145	145
150	162	238	249	158 - 170	165

RTR MODEL EXTERIOR SEALS

RTR seal is designed for low pressure entrances of pipes into all kinds of tanks, wells, manholes, pipelines that have round cross-section. Installation system fits perfectly the tight passage into pipe or tank diameter.



A type attachment (pipe entrance)



Any angular and linear movement (up to 12 degree) of attached pipe will not unseal the joint.



B type attachment (tank or well entrance)

Table selection

DN	Diameter of included pipeline [mm]	Outer dimension of flange [mm]
25	32 - 35	135 x 135
32	40 - 44	135 x 135
40	48 - 52	150 x 150
50	60 - 65	170 x 170
65	75 - 78	180 x 180
80	88 - 94	195 x 195
100	108 - 116	220 x 220
125	125 - 140	230 x 230
150	158 - 172	275 x 275
200	200 - 225	335 x 335

Materials:
EPDM elastomer, stainless steel



If we use square fixing frame passage can be used with concrete roofs.

ZW MODEL TANK SEAL



ZW TANK SEAL

It is a low pressure seal for entrances of pipeline to a concrete tanks, with an indication of sanitary sewer access pint. It protects from groundwater migration as well as from spilling sewage outside the sewer network.

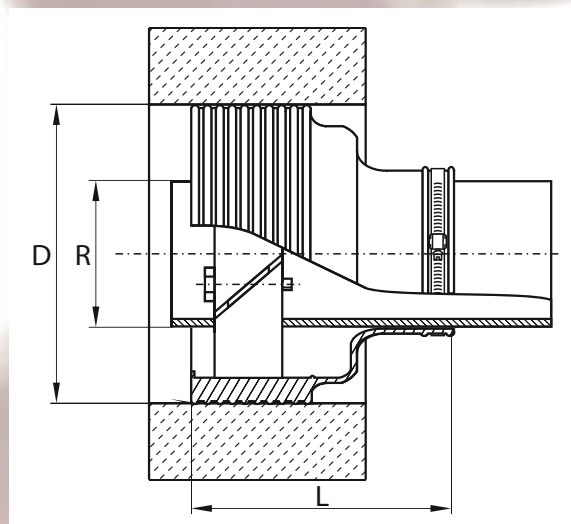
This tank seal allows angular movement of pipeline up to 12 degrees in all directions plus linear movements up to 50 mm.



Materials:
EPDM elastomer, stainless steel

Table selection

DN	R	D	L
80	78 - 96	≈ 160	120
100	108 - 118	≈ 200	120
150	155 - 170	≈ 250	120
200	200 - 225	≈ 300	120
250	250 - 280	≈ 350	120
300	310 - 330	≈ 400	120



SEALING CHAIN

The sealing chain is a modern of sealing the space between carrier pipe and casing pipe or opening in building partition.



The sealing chain consists of identical, elastomeric elements mutually interlocking. Components are made in such way that after screwing bolts, elastomers swell and fill tightly space between casing pipe (opening in building partition) and carrier pipe.



Conventional version (LU1- LU11)



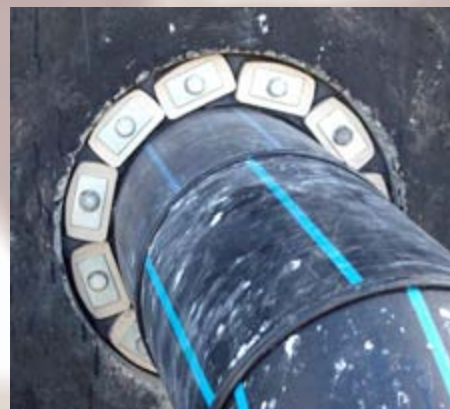
Bis version (LU5 - LU11)

Sealing chains are used in:

- Pipeline passages into concrete tanks, swimming pools, hydro-technical facilities etc.,
- Cathodic or sacrificial protection of pipelines,
- Noise reduction,
- Keeping rooms aseptic,
- Protecting against liquids, smoke and gases penetration,
- Passages of pipelines in casings.



Sewer collector 1400 mm diameter



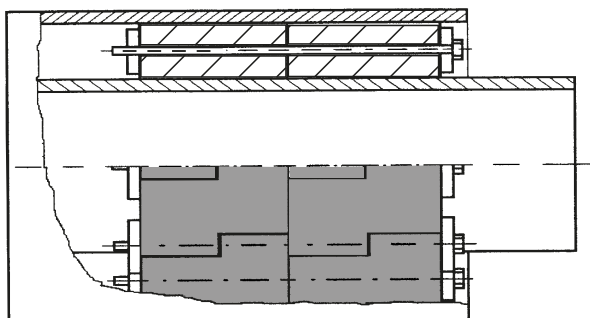
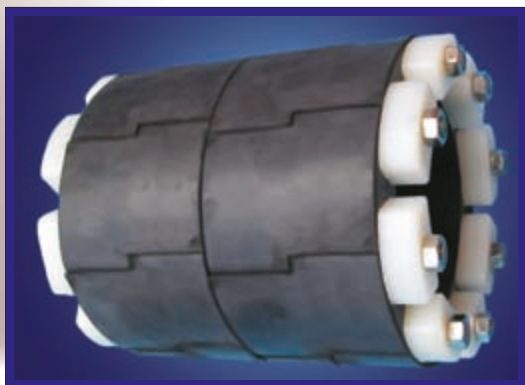
Pumping pipeline 315 mm diameter



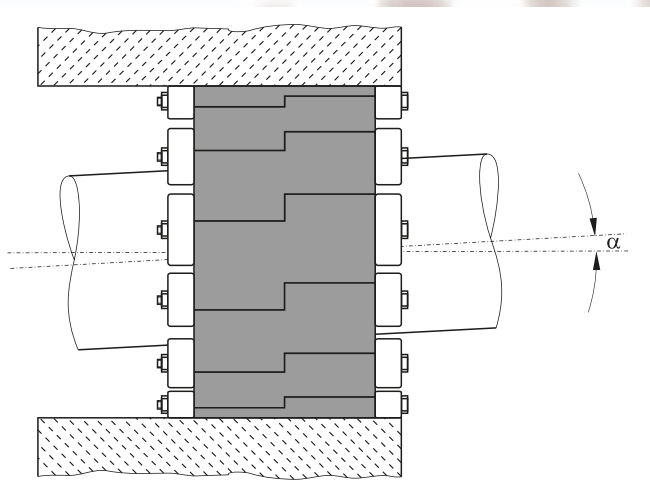
It is possible to seal pipes that have 40 mm and greater outer diameter by using sealing chains. You can seal pipes made of steel, cast iron, plastics and concrete.

LU sealing chains provide tightness up to 2.5 bar.

We recommended to use double chain marked 2LU for pressure 2.5 – 5 bar.



This is serial connection of two sealing chains by using double length bolts.



To provide 100% tightness, maximum angular deviation of the pipeline centre from the opening centre (see the picture) cannot exceed 1.25° .

How to install:



Encircle pipe with the sealing chain and connect both ends.



Move the chain into the casing pipe (or opening) so that it is entirely inside.



Evenly screw bolts. Sealing chain elements secure space between carrier pipe and casing pipe.

Sealing chains work great with casing pipe and opening made directly in the concrete wall.

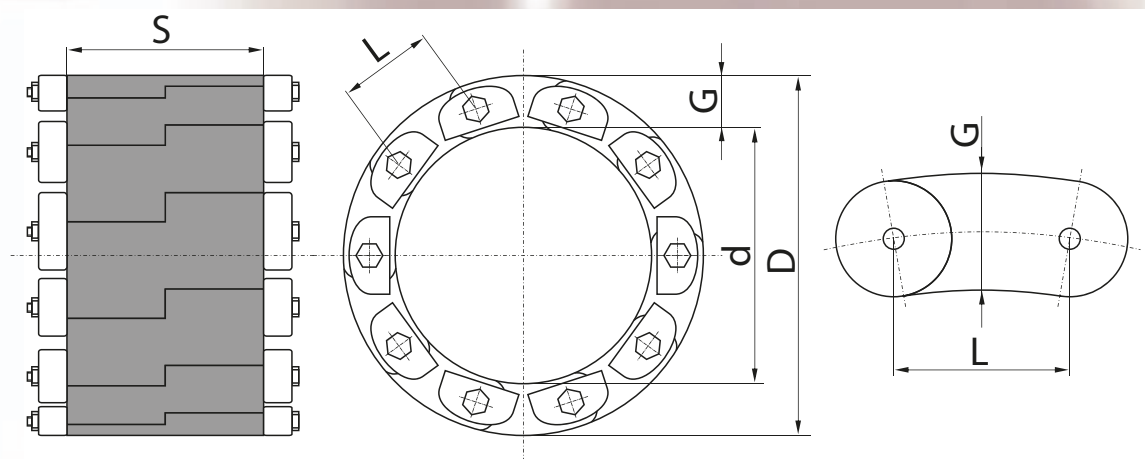


SEALING CHAIN

SEALING CHAIN

Example of choosing sealing chain:

1. Inner diameter of casing pipe: $D = 400 \text{ mm}$
Outer diameter of carrier pipe with possible insulation: $d = 315 \text{ mm}$
Size of opening to be sealed: $W = 85 \text{ mm}$
2. Basing on the size to be sealed a certain model of the sealing chain is to be selected form below table (column 2). For $W = 85 \text{ mm}$ model of chain should be LU-6.
3. Overall length of sealing:
$$\frac{400 + 315}{2} \times 3.14 = 1122.55 \text{ mm.}$$
4. Defining the number of links:
 $1122.55 : 68 = 16.508 \text{ pcs.}$
where 68 mm is the length of link form the table - column 3 (for chain LU6).
5. The number of links should be expressed in integers (whole numbers). That's why the number form item 4 has to be made even. We accept the principle that for decimal values less than 0.5 has to be made even downwards and upward for greater than 0.5. In case above the number of needed links is 17.



Selection table of sealing chain.

1	2	3	4	5	6	
Type	W size to seal (the difference between hole diameter and pipe diameter)	L length of link [mm]	G thickness of link [mm]	S width of link [mm]	Bolt size	
					version conventional	version BIS
LU-1	26 - 33	30	13	44	M5 x 60	---
LU-2	32 - 41	35	16	44	M5 x 60	---
LU-3	40 - 51	40	20	63	M8 x 90	---
LU-4	50 - 63	48	25	72	M8 x 110	---
LU-5	62 - 77	56	31	88	M10 x 120	M10 x 140
LU-6	76 - 93	68	38	88	M10 x 120	M10 x 140
LU-7	92 - 113	82	46	90	M10 x 120	M10 x 150
LU-8	112 - 133	99	56	98	M12 x 130	M12 x 170
LU-9	132 - 157	104	66	98	M12 x 140	M12 x 170
LU-10	156 - 181	104	78	106	M12 x 150	M12 x 190
LU-11	180 - 206	114	90	110	M12 x 150	M12 x 190



Maximum torque values for sealing chain bolts.

Sealing chain	LU-1	LU-2	LU-3	LU-4	LU-5	LU-6	LU-7	LU-8	LU-9	LU-10	LU-11
Max. torque [Nm]	3	3	8	8	20	20	20	30	30	30	30

Optimization of sealing chain selection:

In the range of diameters up to DN 100 we recommend to make the opening according to the following formula:

$$\text{Opening diameter} = \text{Outer pipe diameter} \times (1.4 \text{ to } 1.6)$$

In the range of diameters up to DN 400 we recommend to make the opening according to the following formula:

$$\text{Opening diameter} = \text{Outer pipe diameter} \times (1.25 \text{ to } 1.4)$$

Above diameter DN 400 we suggest to make the opening according to the following formula:

$$\text{Opening diameter} = \text{Outer pipe diameter} + (100 \text{ to } 200\text{mm})$$

CAUTION: Sealing chain cannot carry the weight of the carrier pipe and its content.

Installation tips:

1. The size and the number of links must be chosen properly (there must be more than 6 links).
2. Axis of carrier pipe must coincide with axis of casing pipe (or opening).
3. Wrap the pipe with the chain and connect both ends with screw.
4. Move the chain on the pipe so all of it is in the casing pipe (or opening).
5. Tighten screws evenly on the circuit. One turn at a time.

CAUTION: It's not allowed to use pneumatic and electric spanners.

Types and materials:

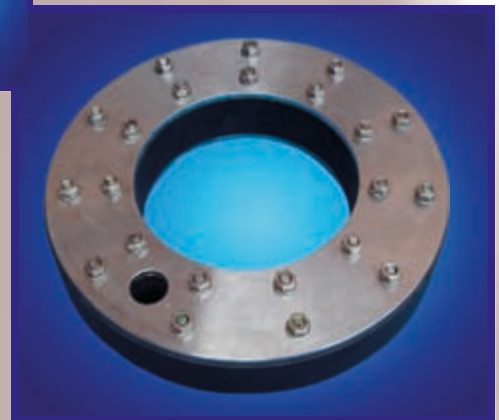
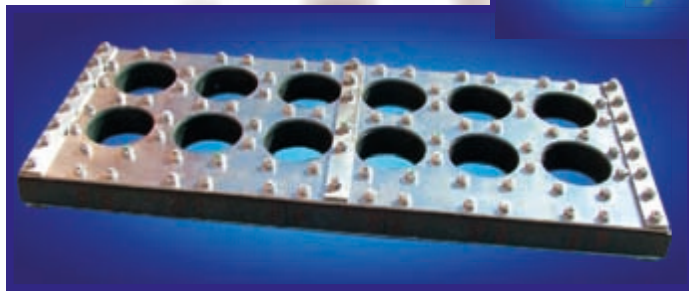
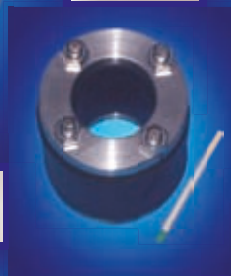
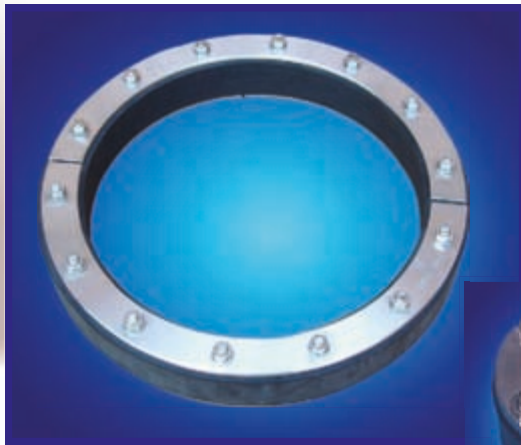
When ordering the chain, apart from giving number of links it is necessary to add letter symbols to define used materials

- Z type - standard type, EPDM elastomer (form -30°C to +100°C) resistant sheet: polyamide, metal parts: galvanized steel.
- A2/A4 type - corrosion resistant, EPDM elastomer, resistant sheet: polyamide, metal parts: stainless steel.
- KTW type - use in food production and drinking water, attested EPDM elastomer, resistant sheet: polyamide, metal parts: stainless steel.
- O type - oil resistant, NBR elastomer (form - 20° to +90°C), resistant sheet – polyamide, metal parts – stainless steel.
- O-A2 type - oil resistant, NBR elastomer (form - 20° to +90°C), resistant sheet – polyamide, metal parts – stainless steel.
- T type - resistant to both high and low temperature (hard to burn), elastomer silicon (from -55° to +230°C), resistant sheet and screw – galvanized steel.



GP SEALS

It is sealing system designed for low, medium and high pressure tight passages for pipes, cables, duct passing through all kinds construction partitions, concrete tanks and hydrological structures. The seal consists of an elastomeric ring and two pressure (clamping) disks made of stainless steel. After securing nuts, elastomer swells and fills tightly space between carrier pipe (or cable) and casing pipe (or opening). This kind of seal can be used for pipes made of steel, cast iron, PVC, PE and telecommunication and power cables.



TECHNICAL DATA:

D – seal outer diameter
d – seal inner diameter
A – width of elastomer seal before swelling
B – total width
C – width of pressure ring

D	d	A [mm]	B [mm]
by the project	by the project	40	65

D and d dimensions have to fulfill the following condition:

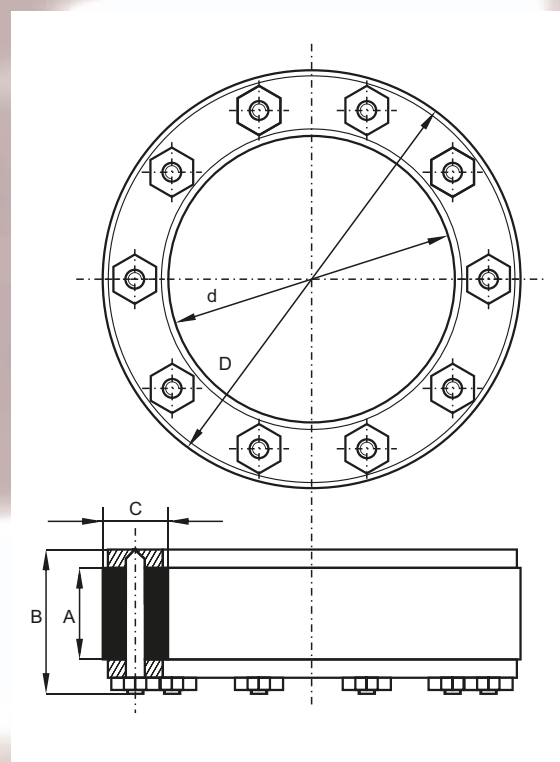
$$\frac{D - d}{2} \geq C$$

dla $d < 100 \text{ mm}$ $C \geq 15,0 \text{ mm}$

dla $d < 250 \text{ mm}$ $C \geq 20,0 \text{ mm}$

dla $d < 500 \text{ mm}$ $C \geq 25,0 \text{ mm}$

dla $d > 500 \text{ mm}$ $C \geq 30,0 \text{ mm}$





GP SEALS

Advantages:

- Seals are made to order
- Ensure tightness up to 2.5 bar
- Prevent liquids, gases and smoke migration
- Suppress noise
- Allows sealing the passages where there is large difference between carrier pipe diameter and opening (casing pipe) diameter
- Allows sealing eccentric and multi-wire passages

To provide 100% tightness, maximum angular deviation of the pipeline centre from the opening centre cannot exceed 2.0°.

Materials:

- EPDM, NBR or silicon elastomers
- Pressure (clamping) disks and screws – stainless steel

Operating temperature: from – 30° to +100°C (EPDM)



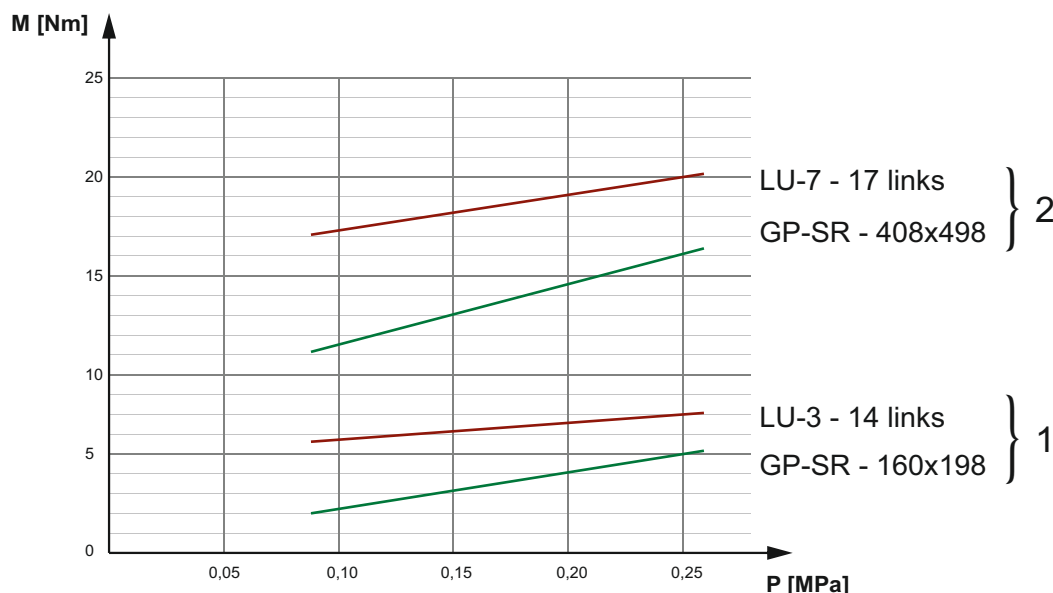
Bolt size	"S" [cm ²]
M 5	9
M 6	16
M 8	25
M 10	64

Best conditions for elastomer tightening appears when one screw covers not more than S of the surface (for EPDM elastomer approximately 50° Shore "A").

Comparison of screws torques to obtain tight seal for GP-SR seals and chains.

Tests have been performed for:

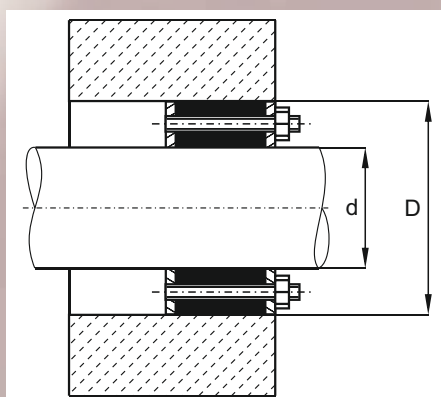
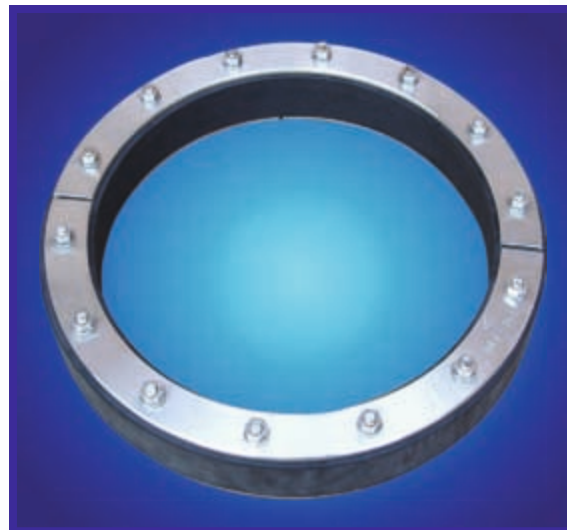
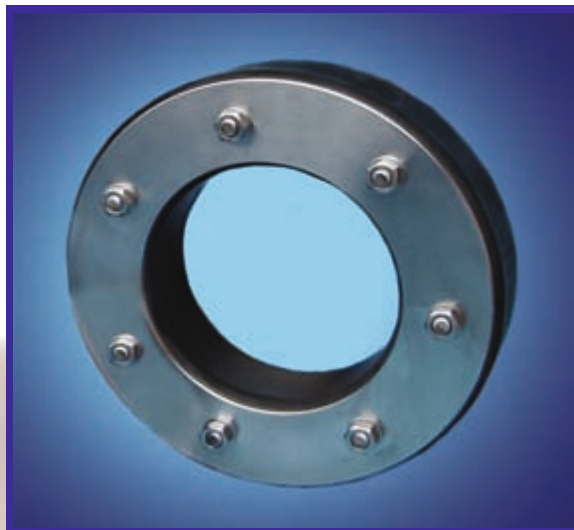
1. Outer pipe diameter 159 mm, opening diameter 200 mm.
LU-3 sealing chain with 14 links and GP-SR seal 160x198
2. Outer pipe diameter 406 mm, opening diameter 500 mm,
LU-7 sealing chain with 17 links and GP-SR 408x498



GP-SR MODEL DISK COMPRESSION SEALS



GP-SR
SEALS



It's the most used solution.

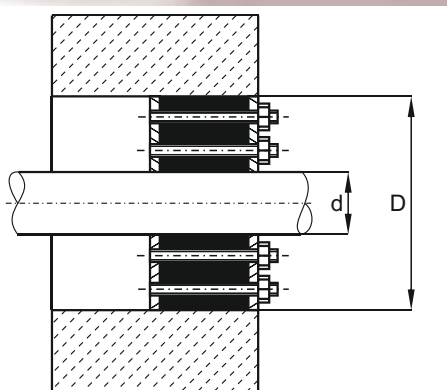
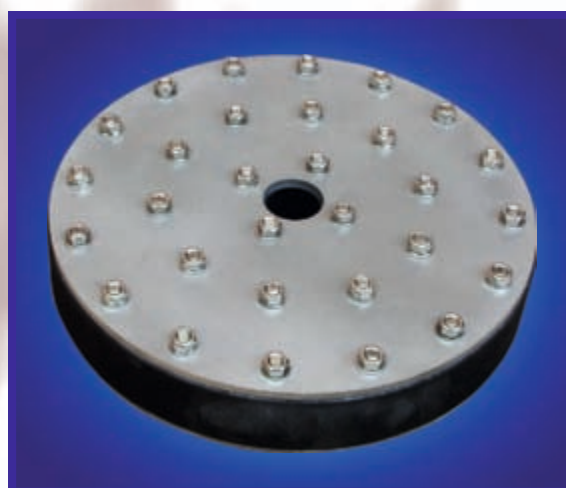
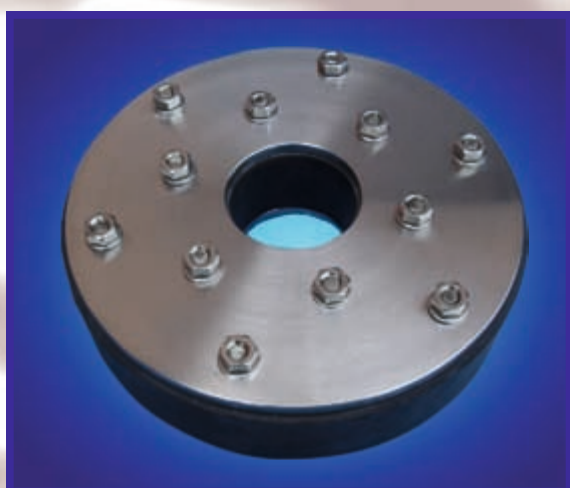
Applications:

GP-SR seal is designed for sealing carrier pipe or an electric cable axially placed in building opening. GP - SR works great with mounted protective sleeve (casing pipe) and opening made directly in the partition. Pressure rings and elastomer can be divided, thereby that is possibility to install them on existing pipeline.

GP-SD MODEL DISK COMPRESSION SEALS

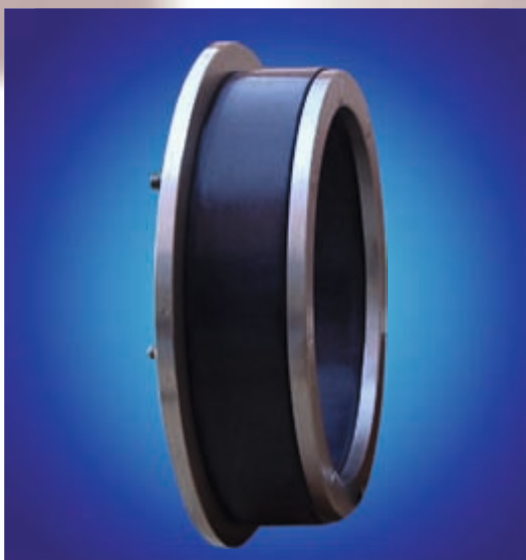
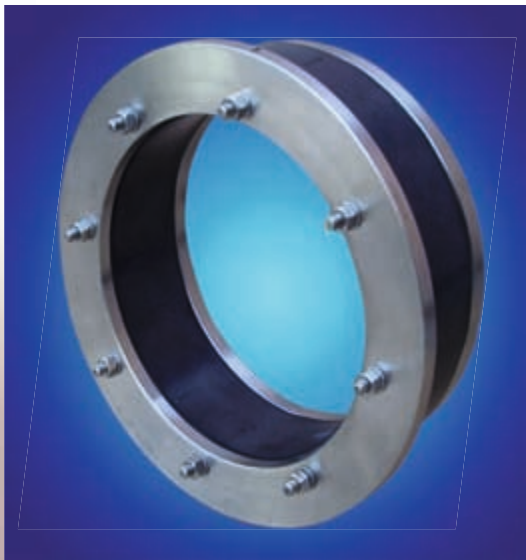


GP-SD
SEALS

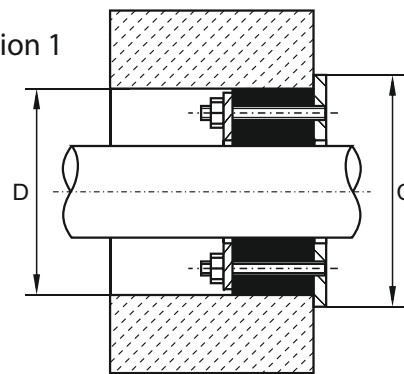


This type is used in case when there is a large difference between carrier pipe diameter and opening (casing pipe) diameter ($D-d \geq 120$). Double or even triple rings of bolts are used to properly compress the elastomer, thus providing the tight passage. Pressure rings and elastomer can be divided, thereby that is possibility to install them on existing pipeline.

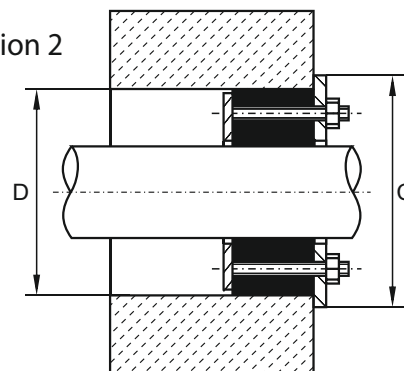
GP-LR MODEL DISK COMPRESSION SEALS



Version 1



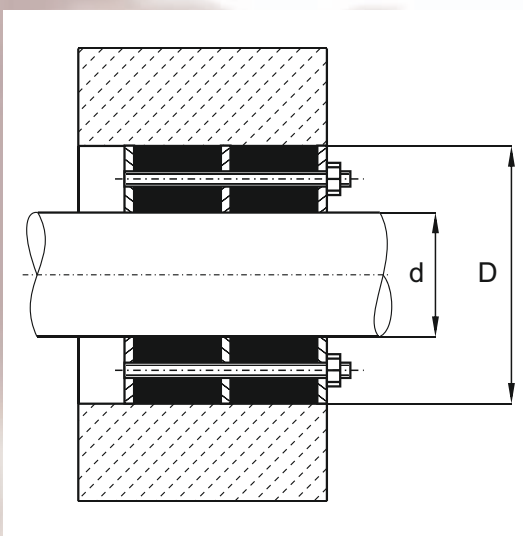
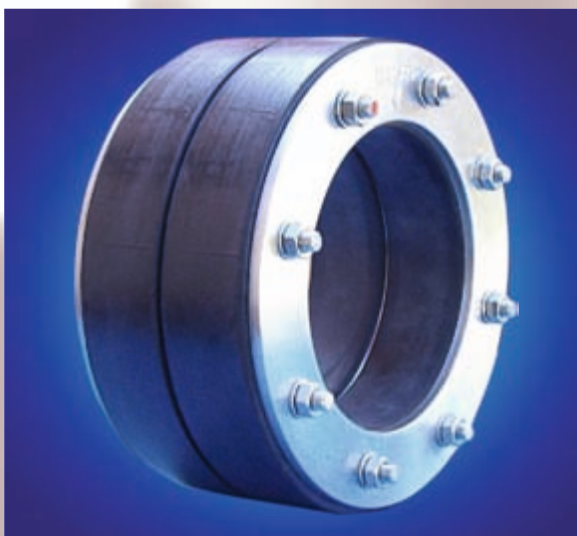
Version 2



$$C = D + \text{min. } 60 \text{ mm}$$

This type of disk compression seal has larger one of the pressure (clamping) disks. It is used in tanks where huge hydraulic impact appears. Enlarge ring is mounted always on the side of flowing liquid. This kind of ring can be used in other GP type tight passages.

GP-DL MODEL DISK COMPRESSION SEALS



It was created by the combination of two GP-SR type tight passages. It is used for pressure up to 5 bar. Pressure plates and elastomer can be divided, thereby that is possibility to install them on existing pipeline.

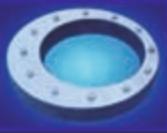


GP-LR
SEALS

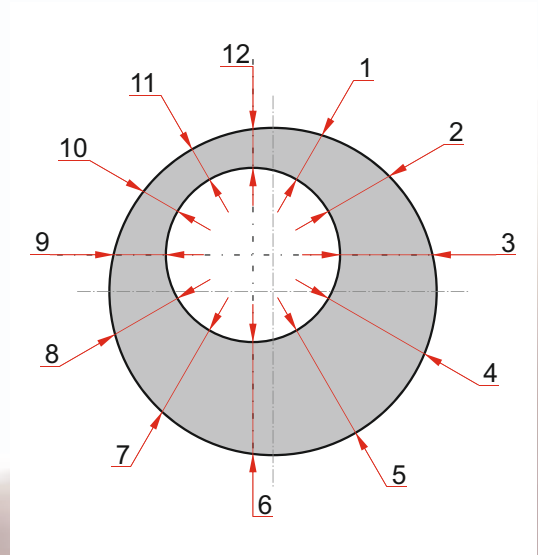
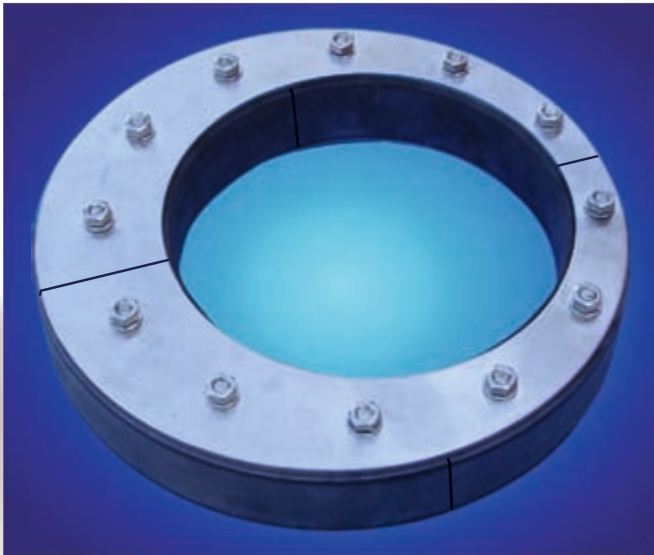


GP-DL
SEALS

GP-UM MODEL DISK COMPRESSION SEALS



GP-UM SEALS



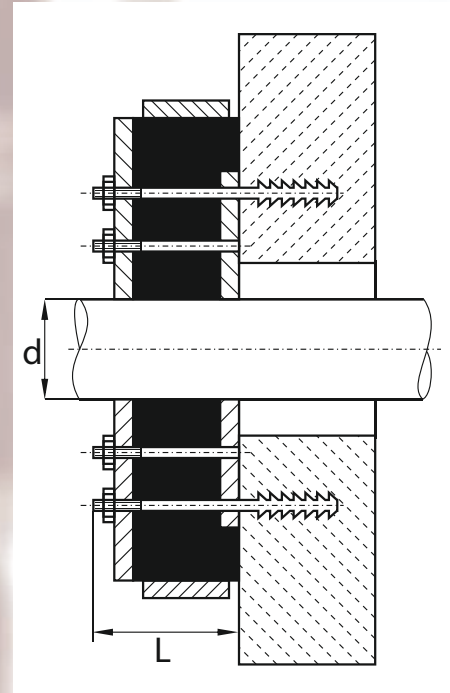
GP – UM model eccentric compression disk-seals finds use in the case of inner pipe eccentricity. It is necessary to make exact measurements of twelve points (see the picture) before making this type of tight passage. Pressure rings and elastomer are divided in standard version.

GP-B MODEL DISK COMPRESSION SEALS



GP-B SEALS

PATENTED

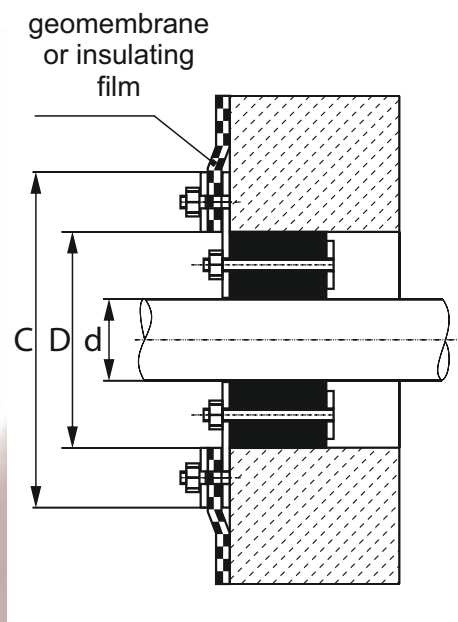


This model is designed for existing pipe sealing. It's screwed to the wall of the building. It is used when there is no possibility to place seal between pipe and opening (opening is too small, misaligned or regardless carved in the wall).

Advantages:

- very small lengthwise size (L = approximately 60 mm)
 - easy installation
 - good pressure of seal to the partition and pipeline (cable)
- Pressure plates and elastomer are divided in standard version.

GP-F MODEL DISK COMPRESSION SEALS

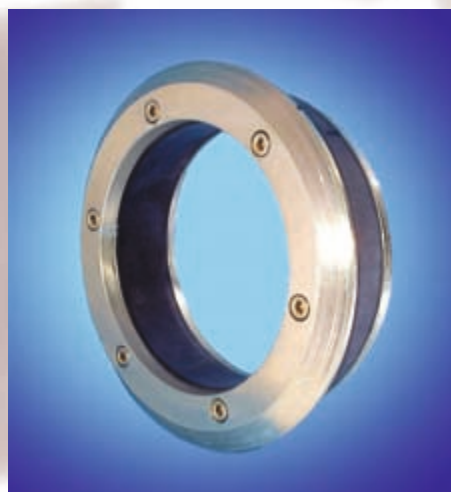
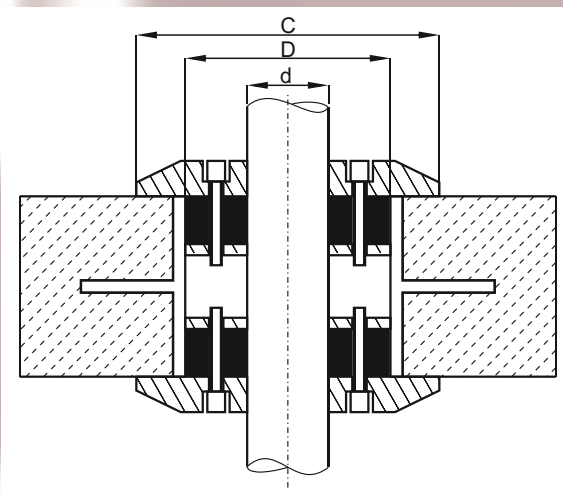


This disk compression seal is intended for cooperation with geomembrane, waterproofing membrane or others insulation used for example to cover dumps.
Standard size: $C=D+100$ mm. Other sizes are available upon request.



GP-F
SEALS

GP-SP MODEL DISK COMPRESSION SEALS



GP-SP floor penetration pipe seal is designed for sealing pipeline and cable passages through ceilings. It is used in casing pipe concreted in the ceiling or directly in the opening. This kind of seal is protection against liquids, smoke and gases penetration.
Pressure plates and elastomer can be divided, thereby that is possibility to install them on existing pipeline.

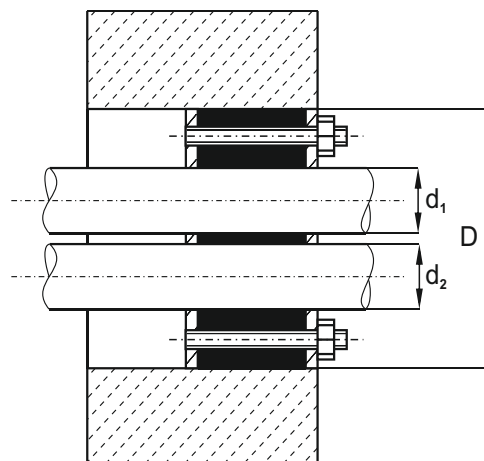
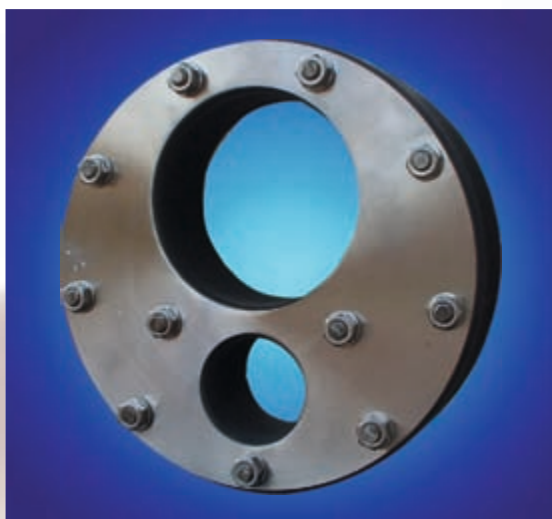


GP-SP
SEALS

GP-W MODEL DISK COMPRESSION SEALS



GP-W
SEALS



GP-W type is multi-pipe sealing through the same wall opening.

Size, quantity, placement, outer diameter of the pipes have to be given during the order.

Remember: amount of space taken by the pipes cannot exceed 30% surface of the seal.

GP-P MODEL DISK COMPRESSION SEALS



GP-P
SEALS



This one is entirely made of plastic and elastomeric materials. It is intended for sealing power cables passages. Pressure up to 1 bar. Temperature operating range depends on used materials.

Materials:

Pressure (clamping) plates – plastic customized for environmental condition

Screws – nylon

Seal – EPDM or NBR elastomer

GP-WK MODEL DISK COMPRESSION SEALS



GP-WK
SEALS



Passage three cords and ground
from steel tape

It is used to seal power cables or pipelines in drilled opening in building partition (or casing pipe). Pressure plates and elastomer are divided, thereby that is possibility to install them on existing cables or pipeline. Size, quantity, placement, outer diameter of cables or pipes have to be given during the order. Remember: amount of space taken by the pipes cannot exceed 30% surface of the seal.

GP-WP MODEL DISK COMPRESSION SEALS



GP-WP
SEALS

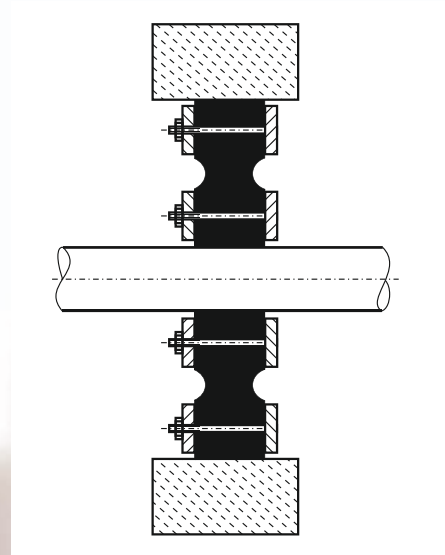
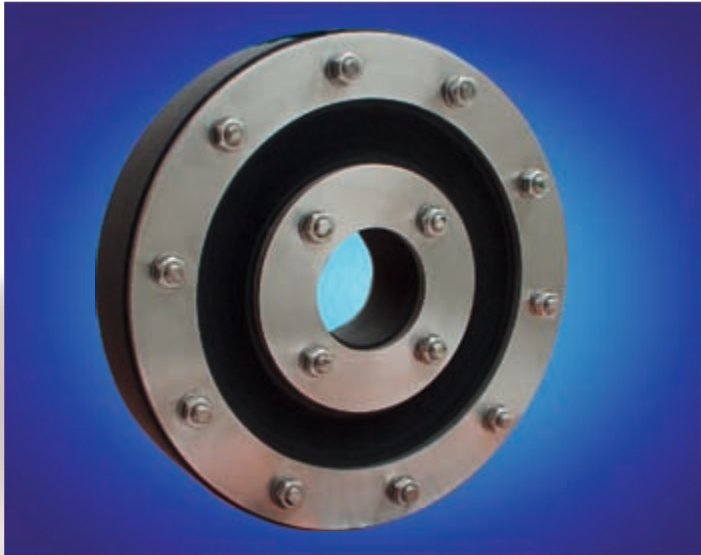


This type is used to seal power cables in square or rectangular openings in building partition. Sizes upon order. Prices upon request.

GP-PT MODEL DISK COMPRESSION SEALS



GP-PT
SEALS



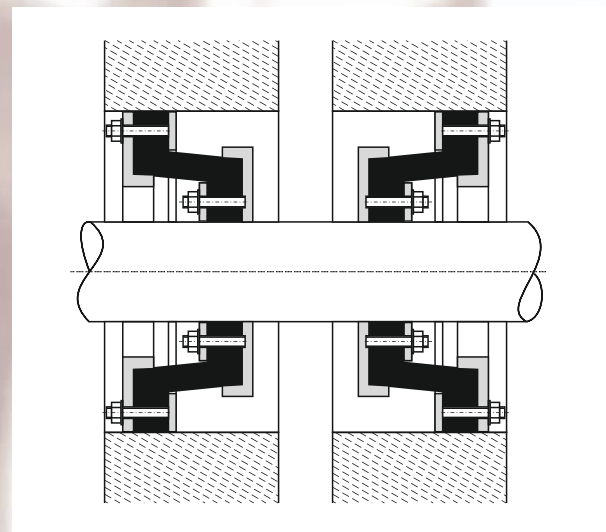
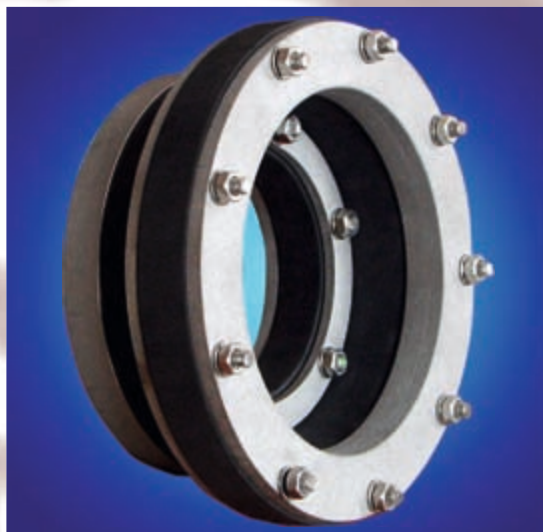
Construction of this type tight passage allows compensated for vibration of pipeline. To apply this seal, opening have to be enlarged (at least 120 – 150 mm bigger than the outer diameter of the pipeline). This kind of seal cannot be made in divided version.

GP-NS MODEL DISK COMPRESSION SEALS



GP-NS
SEALS

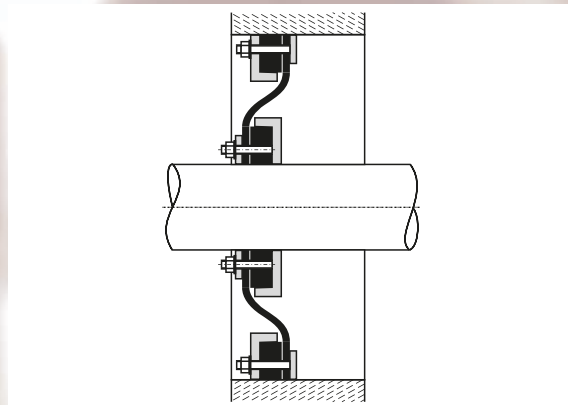
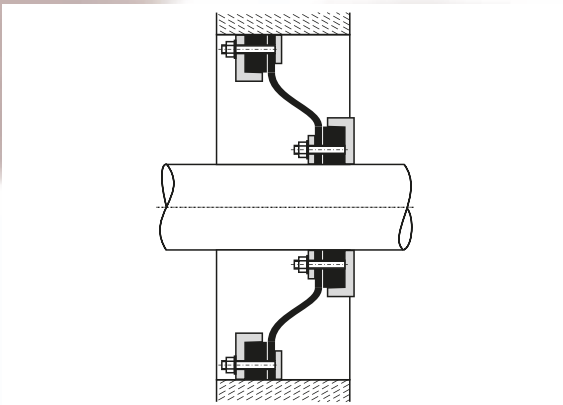
PATENTED



Elastic construction of the seal eliminates shearing forces resulting from movement of the divided partition. Full tightness up to 1.5 bar of hydrostatic pressure. Sealing is able to compensate vertical movement of 10-12 mm. To apply this seal opening have to be bigger at least 100 mm than the outer diameter of the pipeline). This kind of seal cannot be made in divided version.

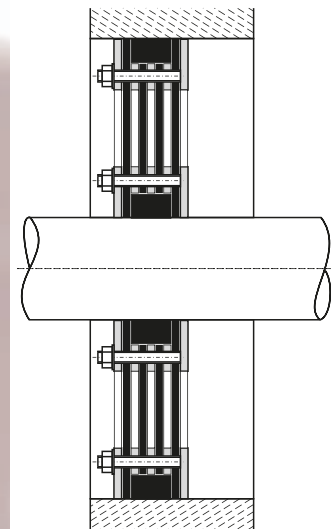
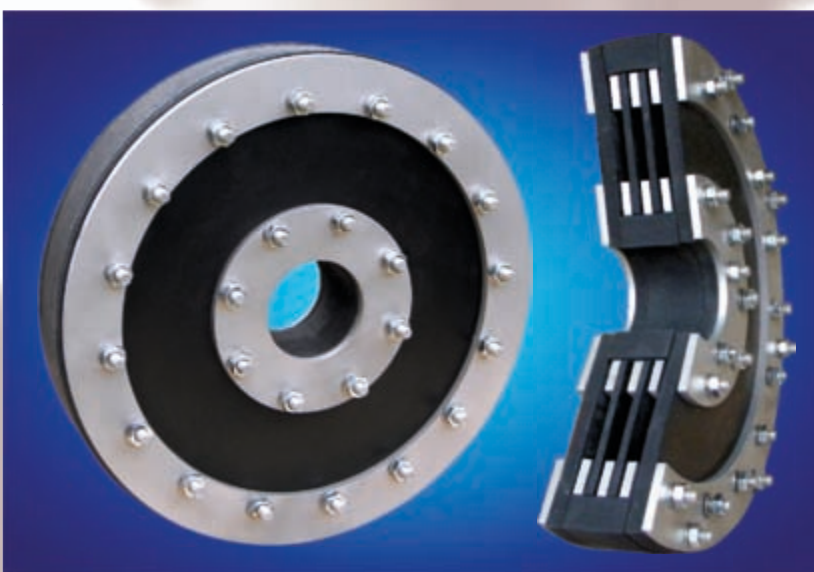


GP-AM SEALS



GP-AM type consists of two GP-SR type seals connected with elastomeric sheet. Tight passage construction allows axis movement of pipeline with preserving full tightness up to 1 bar. Range of movement depends on the difference in diameters of the opening and the pipeline. Maximum value is ± 50 mm. To apply this seal opening have to be bigger at least 150 - 300 mm than the outer diameter of the pipeline. This kind of seal cannot be made in divided version.

GP-KM MODEL DISK COMPRESSION SEALS



GP-KM type consists of two GP-SR type seals connected with four elastomeric sheets. Construction of this type tight passage allows compensated for vibration and axial movement up to 20 mm. Full tightness up to 2 bar of hydrostatic pressure. To apply this seal opening have to be bigger at least 150 - 250 mm than the outer diameter of the pipeline. This kind of seal cannot be made in divided version.



GP-KM SEALS

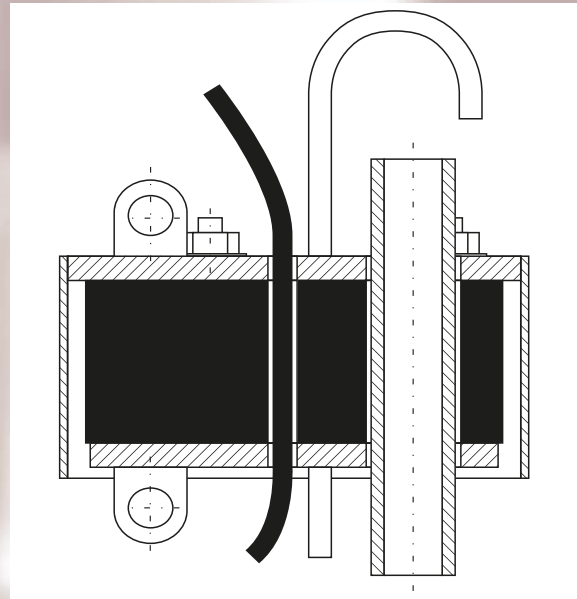
GP-AJ MODEL DISK COMPRESSION SEALS

GP-AJ SEALS



GP-AJ model is a sealing head to drilled water wells. It is used to close drain pipe. It has separate openings for carrier pipe, pump power cable and vent. In the lower part there is a hook to hang the pump. When drain pipe is made of plastic, additional steel ring is needed to protect drain pipe from the outside.

Materials:
pressure (clamping) sheets,
hook, vent – stainless steel
seal – EPDM elastomer.



GP-Z MODEL DISK COMPRESSION SEALS

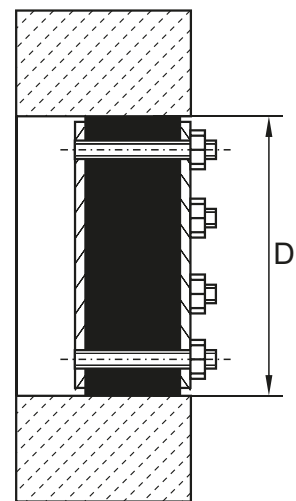
GP-Z SEALS



version 1 (diameter to 200 mm)



version 2 (diameter over 200 mm)



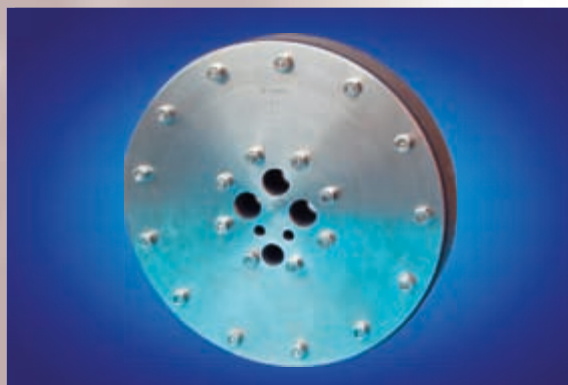
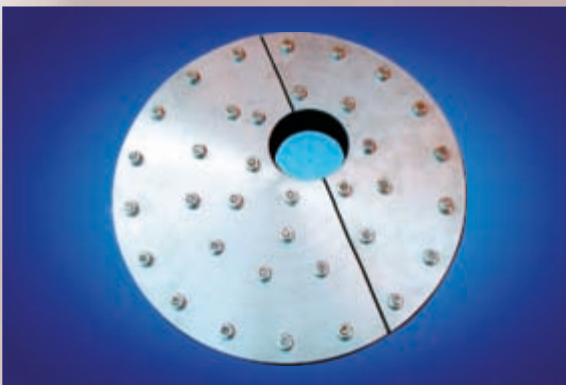
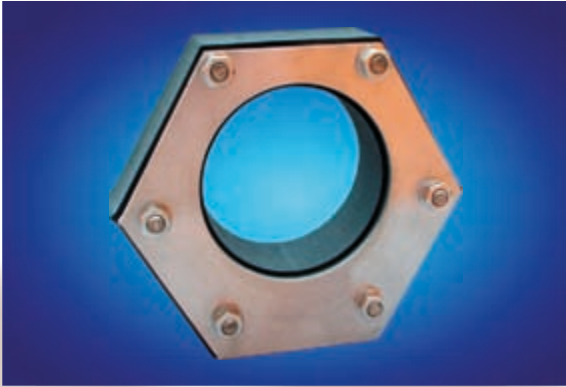
This model is used for plugging and sealing wall openings and other round-shaped openings. Used materials guarantee tight and permanent close of passage. There is possibility to install drain plug or other supply. Maximum operating pressure up to 1 bar.

DIFFERENT MODELS OF GP-..

Upon request we construct other GP models disk compression seals according to project or measurements made on the construction site.



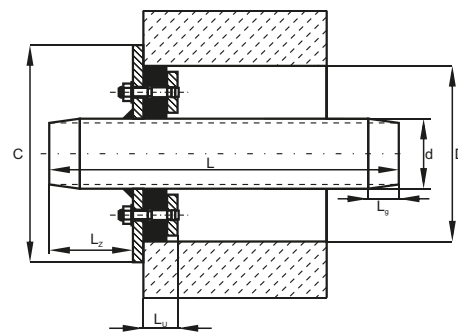
GP-..
SEALS





GP-M MODEL DISK COMPRESSION SEALS

GP-M
SEALS



It is a monolithic seal that can be used when a gas or water pipeline enters into a building. It consists of a steel pipe and a seal type GP. Pipe can end with two screws or bare ends.

If ordered we can also make other sizes.

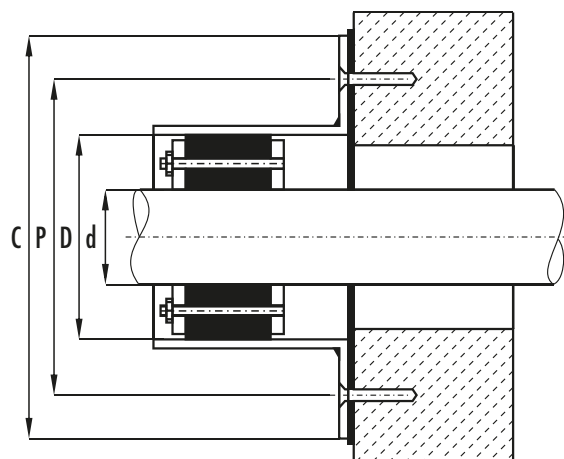
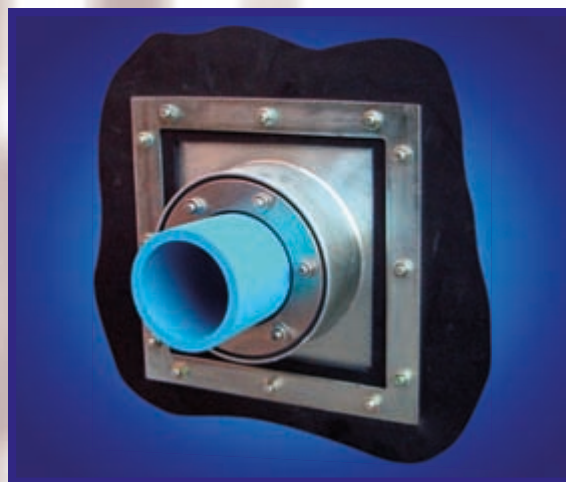
DN	d [mm]	D [mm]	C [mm]	L [mm]	L _g [mm]	L _u [mm]	L _z [mm]
25	33,7	80	110	1000	30	46	250
32	42,4	100	125	1000	30	46	250
40	48,3	100	125	1000	35	46	250
50	60,3	120	150	1000	35	46	250
65	76,1	140	160	1000	40	46	250
80	88,9	140	180	1000	40	46	250

Upon request we make different sizes.



GP-T
SEALS

GP-T MODEL DISK COMPRESSION SEALS



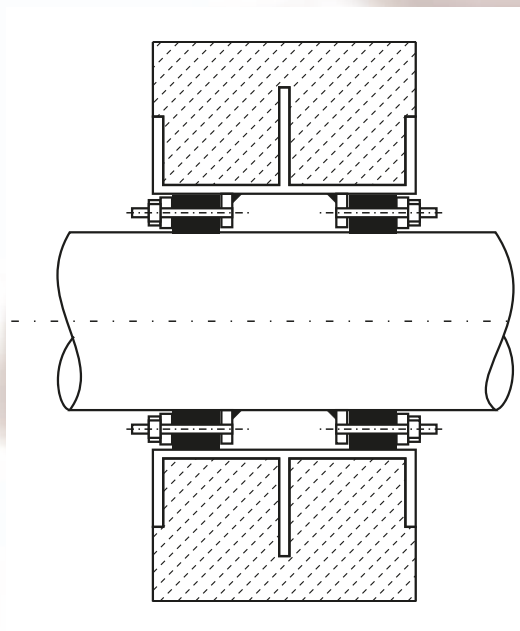
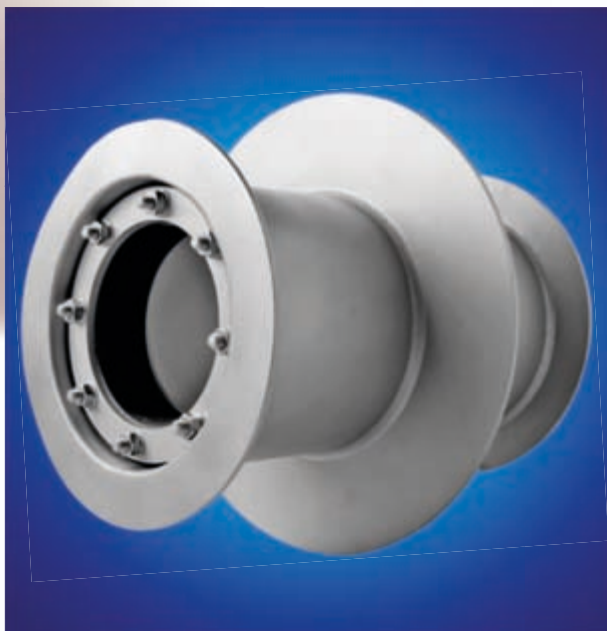
Seal with additional sleeve screwed into a building partition. Can be used when there is no possibility of placing the seal directly inside the wall. This external wall mount sleeve can seal non-axis or very thin walls (under 40 mm). It can be adapted to work with insulating foil. Product can be made in a separated version to be welded or screwed. Angle of the pipe and the wall can be other than right and the tank can be round.

PD-GP MODEL STEEL PIPE WALL SLEEVES



PD-GP
SEALS

It is a tight choke passage intended to make tight passages with pipelines through walls of concrete tanks. It consists of steel sleeve with internal resistance ring, to which an elastomeric seal is pressed (GP-SR system).
Technical data: sleeve, resistance collars and the clamp: stainless steel.
Passage can be made with one or two seals.
Seal: EPDM or NBR.
Can be used for pipes bigger than DN 25.

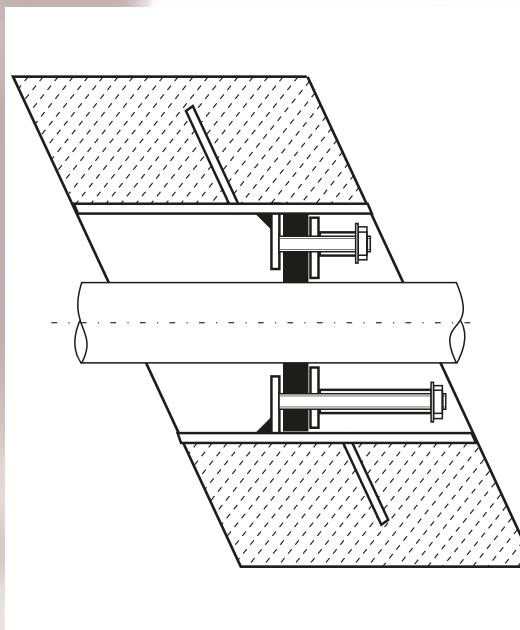
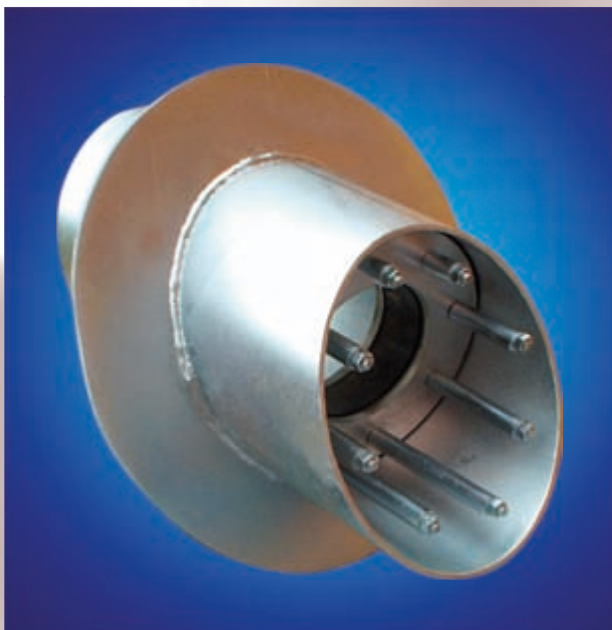


PD-KP MODEL STEEL PIPE WALL SLEEVES

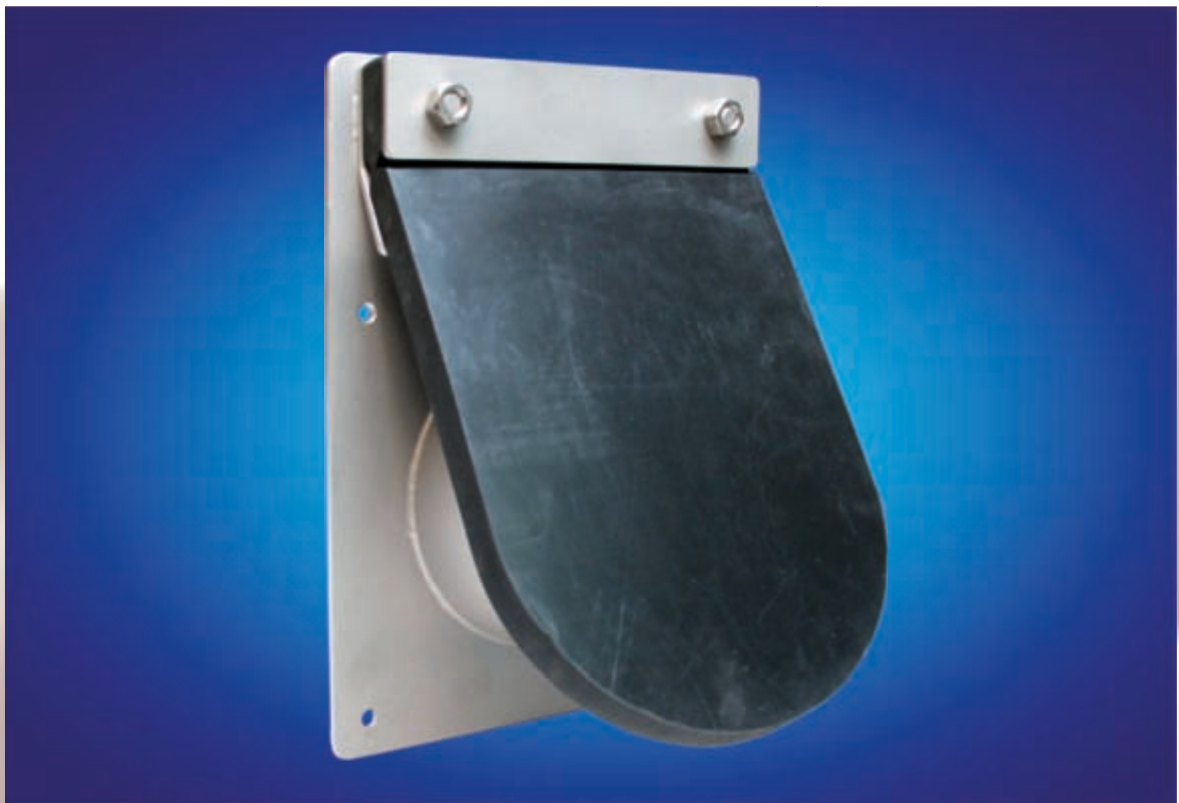


PD-KP
SEALS

PD-KP model is used to seal pipelines entering concrete walls at any angle.



Seal PD-KP model.

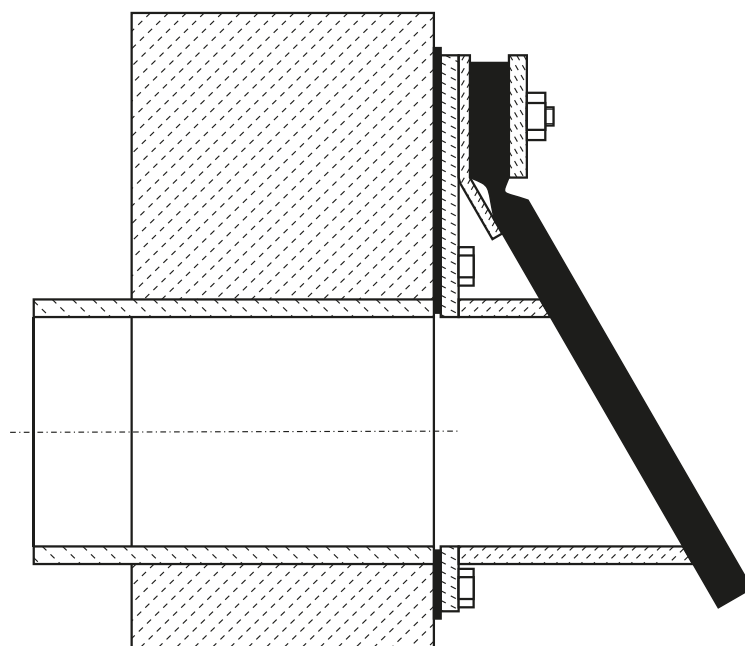


Trapdoors are made in sewage, rain and amelioration systems. They prevent the water and sewage from backing into the pipe. They are produced in diameters ranging from DN 50 to DN 600. For diameters bigger than DN 400 the trapdoor is reinforced with steel sheet. They are supposed to be installed on the nozzles of the pipes. Not intended for pump pipelines only for gravitational ones. The trapdoor opens when the water from pipe presses on it and closes when the pressure comes from outside. Can be mounted to a collar connection or a concrete wall. They can be tight up to 0.5 bar.

Used materials:

Main body – stainless steel

Rubber elements – EPDM or NBR



RESTRICTIVE CAPS



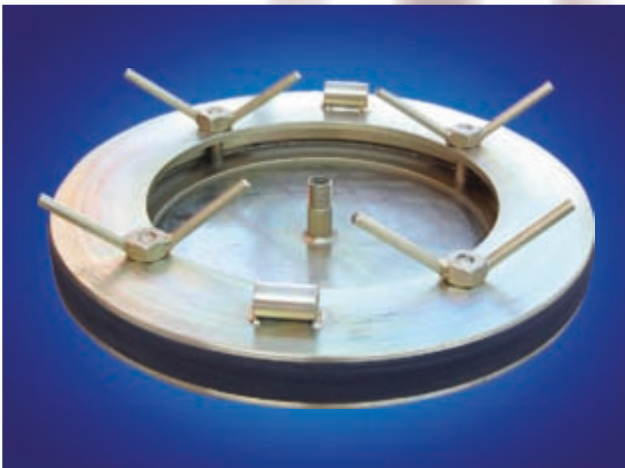
RESTRICTIVE CAPS

Restrictive caps are intended for makeshift closing of the sewage pipes and other low pressure installations (up to 0.25 bar). They characterise with simple construction and simple installation. Can be used for PE, PCV, steel, cast iron and concrete pipes.

Installation: the cap is to be placed inside the pipeline and screws are to be tightened which causes the rubber to swell and fill the space tightly. The cap can be equipped with a valve to release the medium or a manometer to control the pressure in the pipe.



Up to DN 250.



Special production.



For large diameters.



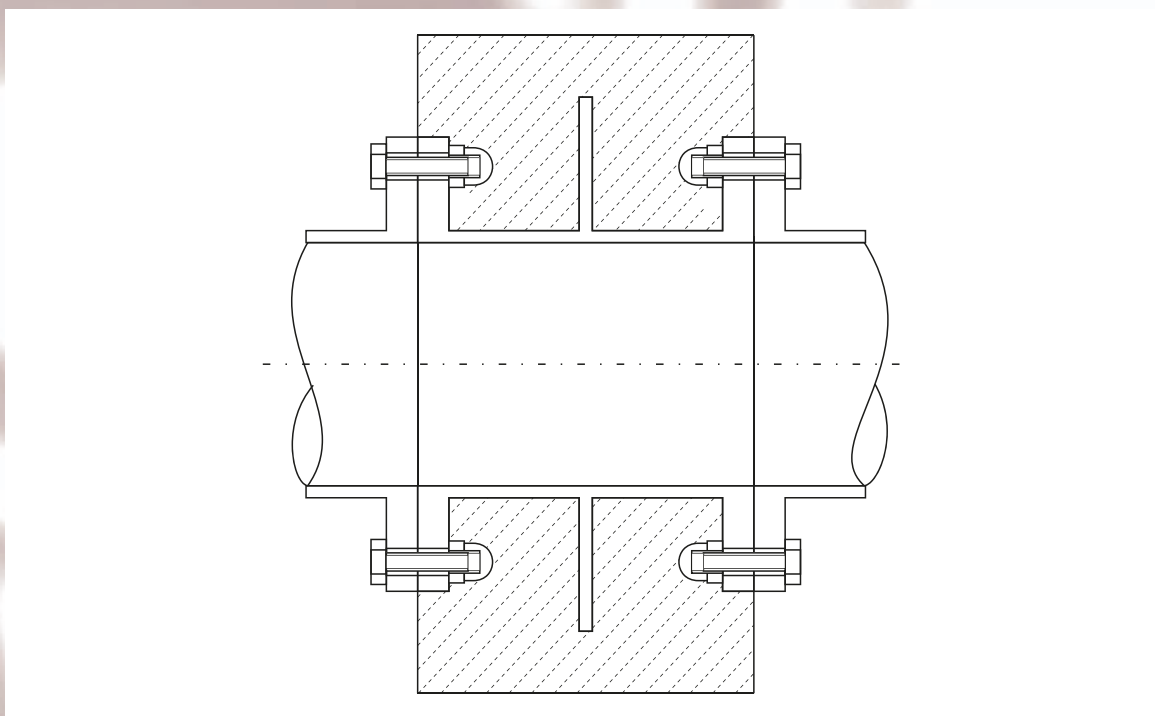
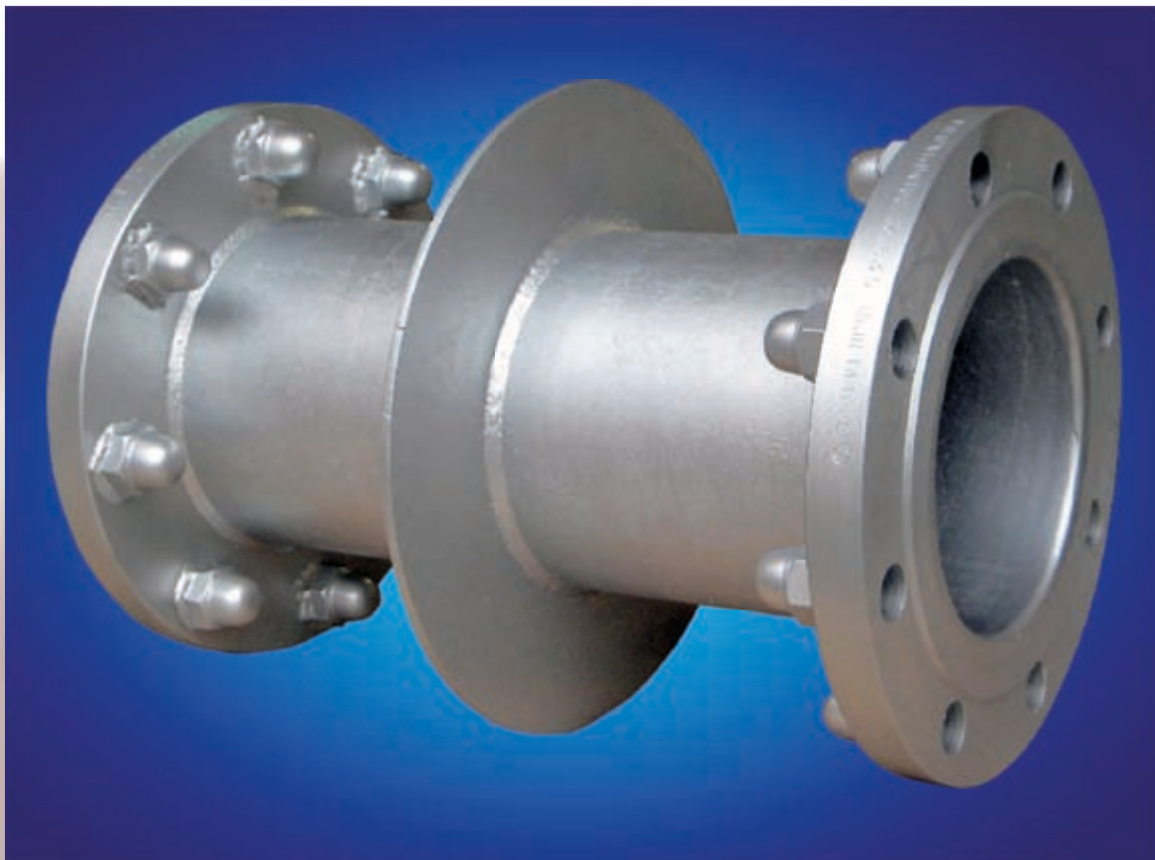


EL WALL SLEEVES

EL MODEL WALL SLEEVES

EL model Wall sleeve is used to eliminate the horizontal movement of the pipelines.

Can be used for pipes up to DN 1500
Materials: Galvanized or stainless steel.



During installation pay special attention to supporting wall and that the pipeline is perpendicular to resistant surfaces.

CAUTION!

Forces carried by the pipeline on the supporting construction need to be given in the building assumptions.

CASING WALL SLEEVES



CASING WALL SLEEVES

Steel casing passages are used to make tight passages with pipelines through concrete building partition (tank walls, foundation and ceilings).



Type I



Type II



Specjal
made

Range of production:

Internal diameter of the sleeve: 65 mm and higher, thickness of the wall 2 -12 mm for galvanized steel, 2 – 10 mm for stainless steel, maximum length 12 m.

Sleeves can also be made in separated version.

Materials: galvanised or stainless steel.

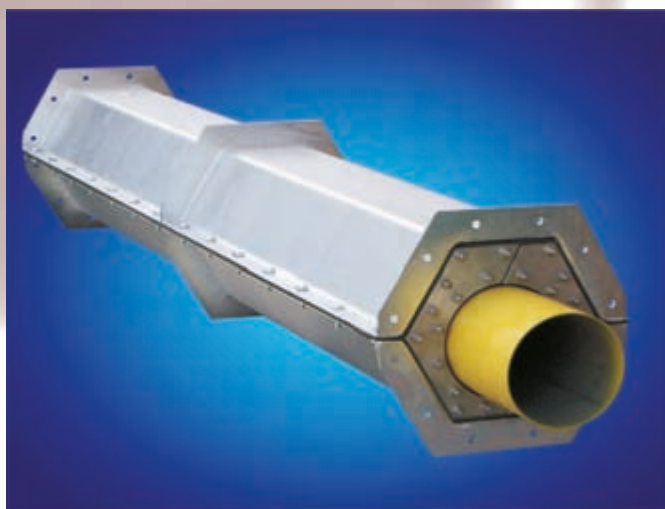
All sizes to order all prices upon request.



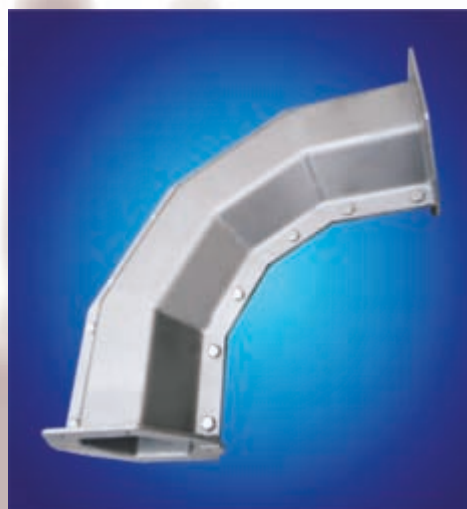
Type III

HEXAGONAL SPLIT CASING PIPES

PATENTED

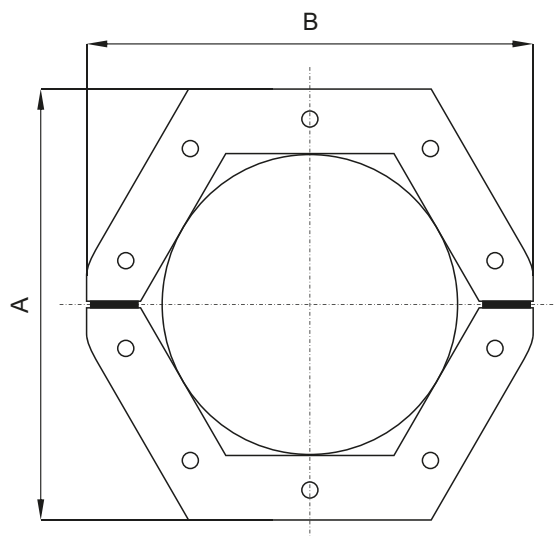


Split pipe with a support rib.

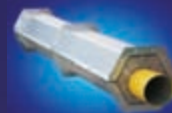


Split segment knee.

Intended to make passages in existing pipelines. Technical approval ITB allows the use of Integra split casing pipes as passages for existing pipelines under the roads. Split pipes are made from galvanized steel (covered with anticorrosive coating chosen based on the corrosive category of atmosphere according to EN ISO 12944-2:2001) or from stainless steel. Made in parts of maximum length 2 m (higher DN 800 and bigger maximum length 1 m). Individual pieces are connected with special collar connections. It is necessary to use spacers when making a passage.



HEXAGONAL SPLIT CASING PIPES



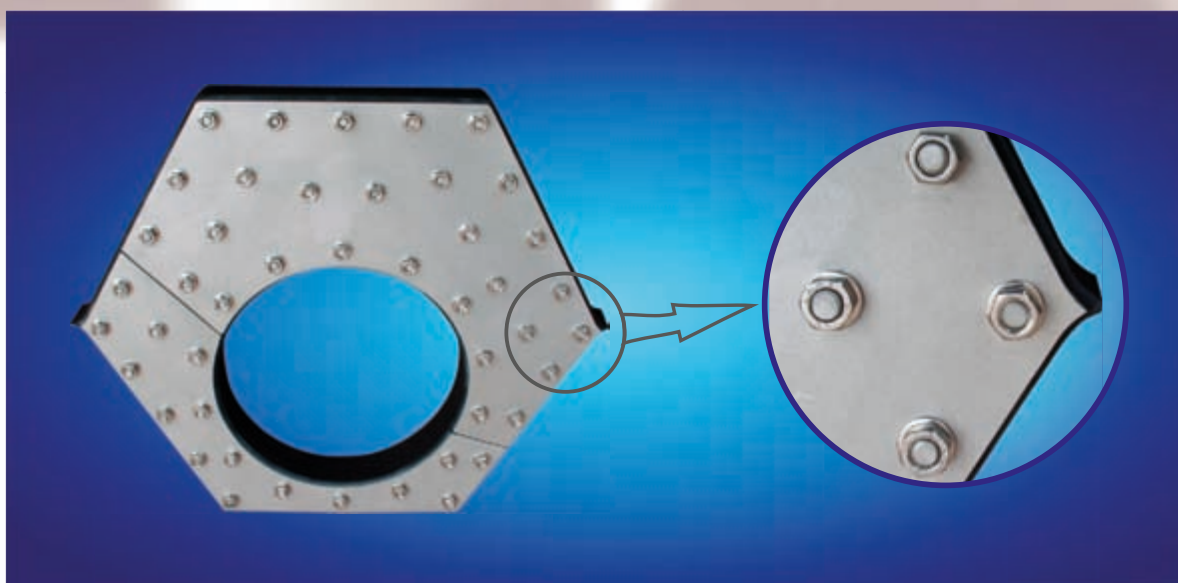
HEXAGONAL
SPLIT
CASING PIPES

Table of sizes for bipartite pipes.

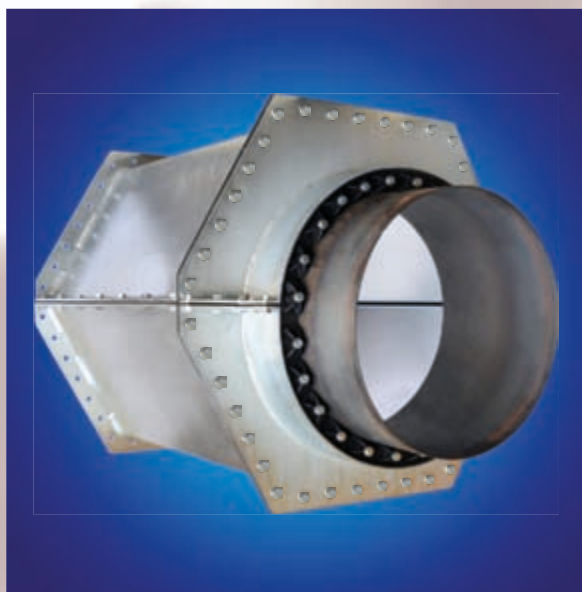
DN	Thickness of wall for stainless steel. [mm]	Thickness of wall for galvanized steel [mm]	A [mm]	B [mm]
DN 125	3,0	4,0	215	215
DN 150	3,0	4,0	245	250
DN 200	3,0	4,0	305	320
DN 250	3,0	4,0	365	380
DN 300	3,0	4,0	420	440
DN 350	3,0	4,0	470	490

DN	Thickness of wall for stainless steel. [mm]	Thickness of wall for galvanized steel [mm]	A [mm]	B [mm]
DN 400	3,0	4,0	515	540
DN 500	4,0	6,0	620	660
DN 600	5,0	6,0	735	780
DN 800	5,0	8,0	940	1020
DN 1000	6,0	8,0	1200	1300
DN 1200	6,0	8,0	1380	1500

Other sizes available upon order.



Ends of the pipe are sealed with the use of a hexagonal GP disk compression seals.



Sealing on the end of the pipe with the help of link seal for sizes bigger than 800 DN.



With the help of the hexagonal split casing pipes you can make the existing casing pipe longer.



SPLIT CASING PIPE

SPLIT CASING PIPE

Split casing pipes are used to protect existing high pressure gas pipelines or other pipelines working in conditions of high static and dynamic load. Pipes like that can be used also when a pipelines intersect with other underground infrastructure. They are produced in pieces up to 2 meters long. The proper length of the casing pipe is achieved through welding of the pieces. The inside surface of the casing pipe is covered with metal sheet that protects the pipeline from sparks. Halves of the casing pipe have a number of grips that can be cut off in order to achieve a smooth surface. Pipes are not protected against the corrosion. Upon order we make also casing pipes to be screwed together.

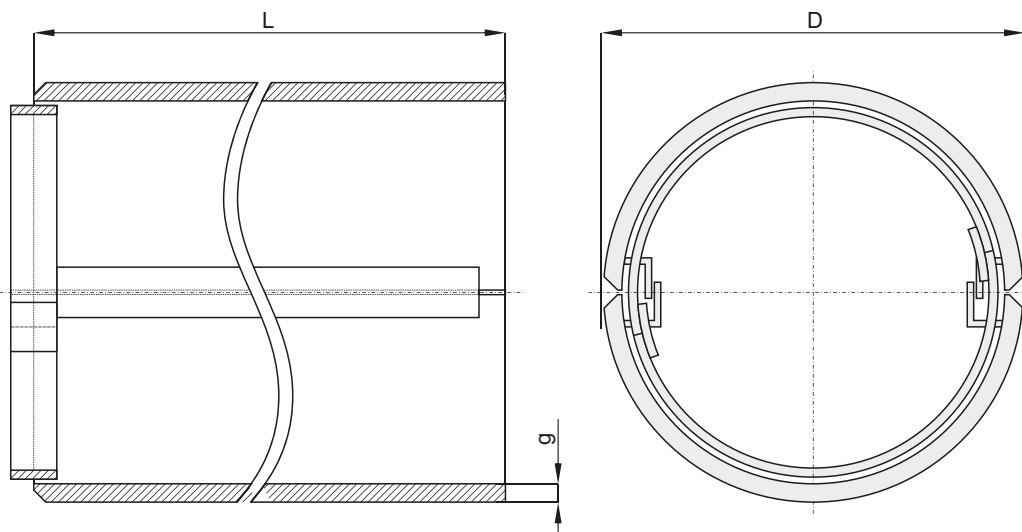
Technical data:

Diameter after welding: 400 – 1500 mm.

Thickness of the wall: 8 – 22 mm (thickness of the wall depends on the diameter of the pipe)

Standard length: 2 m (shorter pieces upon order)

Material: steel S 235 JR or other kind if needed.



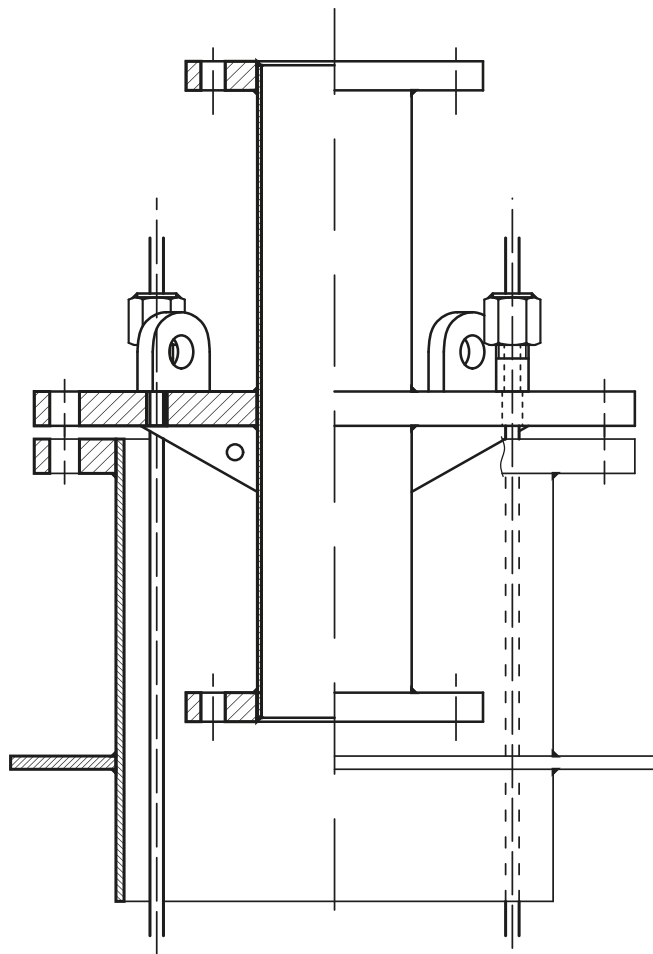
HEAD FOR DRILLED WELLS



HEAD
FOR DRILLED
WELLS



Professional head for drilled wells.



Materials: stainless steel 1.4307 or 1.4404

Dimensions of the pump pipe: between DN 80 and DN 150 (bigger ones made for order).

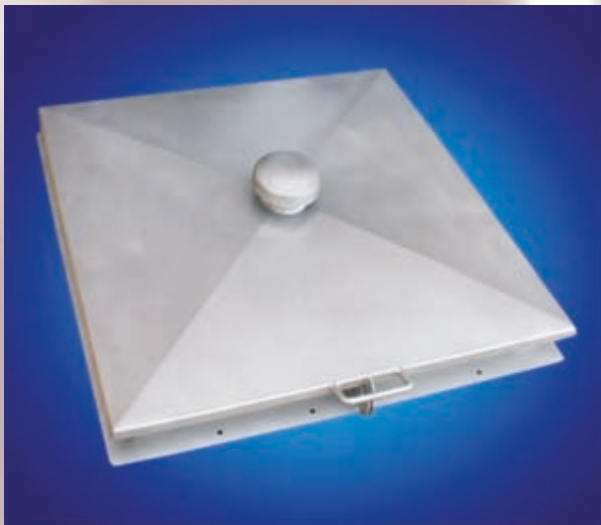
Dimensions of the case: from DN 200, height and other dimensions to be determined.

Number of cable glands: to be determined (seals for power cables, probes).

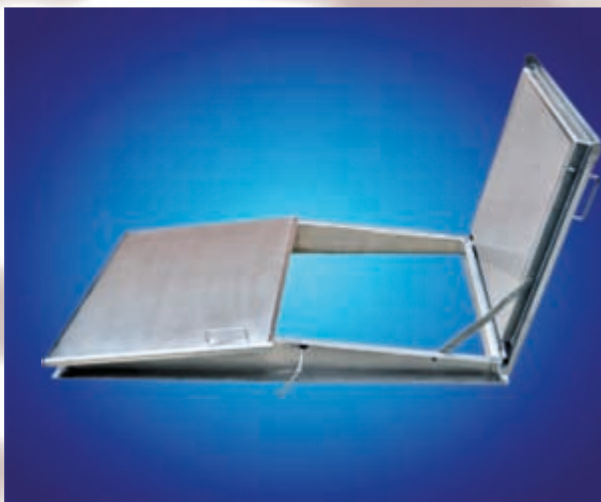
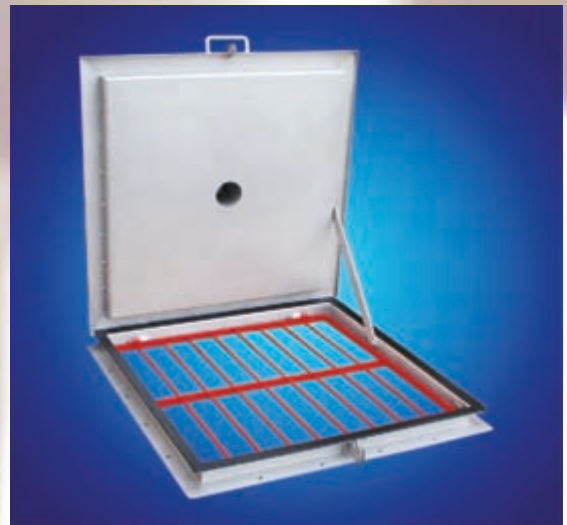
LOW PRESSURE INSPECTION HATCHES TYPE WR-K

Hatches of this type are installed in the upper part of the tank and are used to inspect and change elements installed in the tank.

We offer a wide range of hatches made to order according to exploitation needs. The hatch can be installed with an additional safety measure (a grid) that prevents accidental fall into the tank.



Insulated hatch



Double hatch

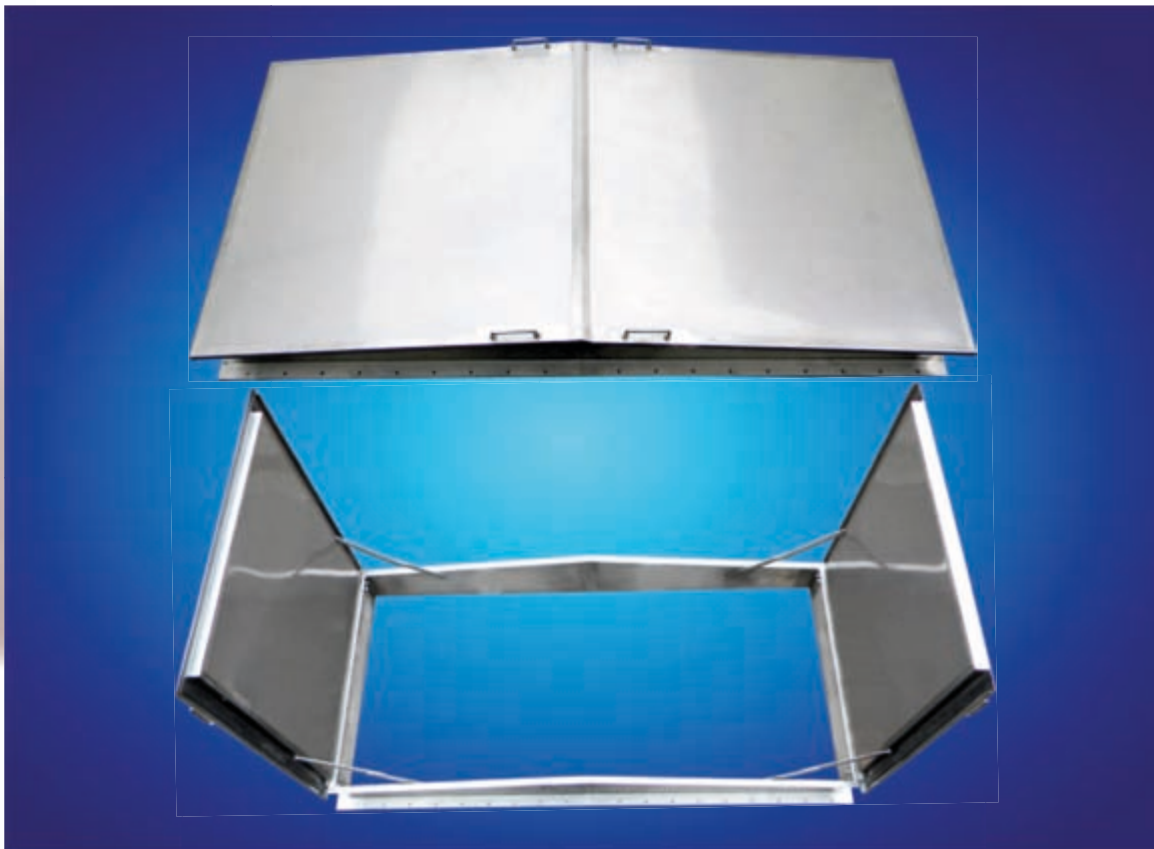


Application:

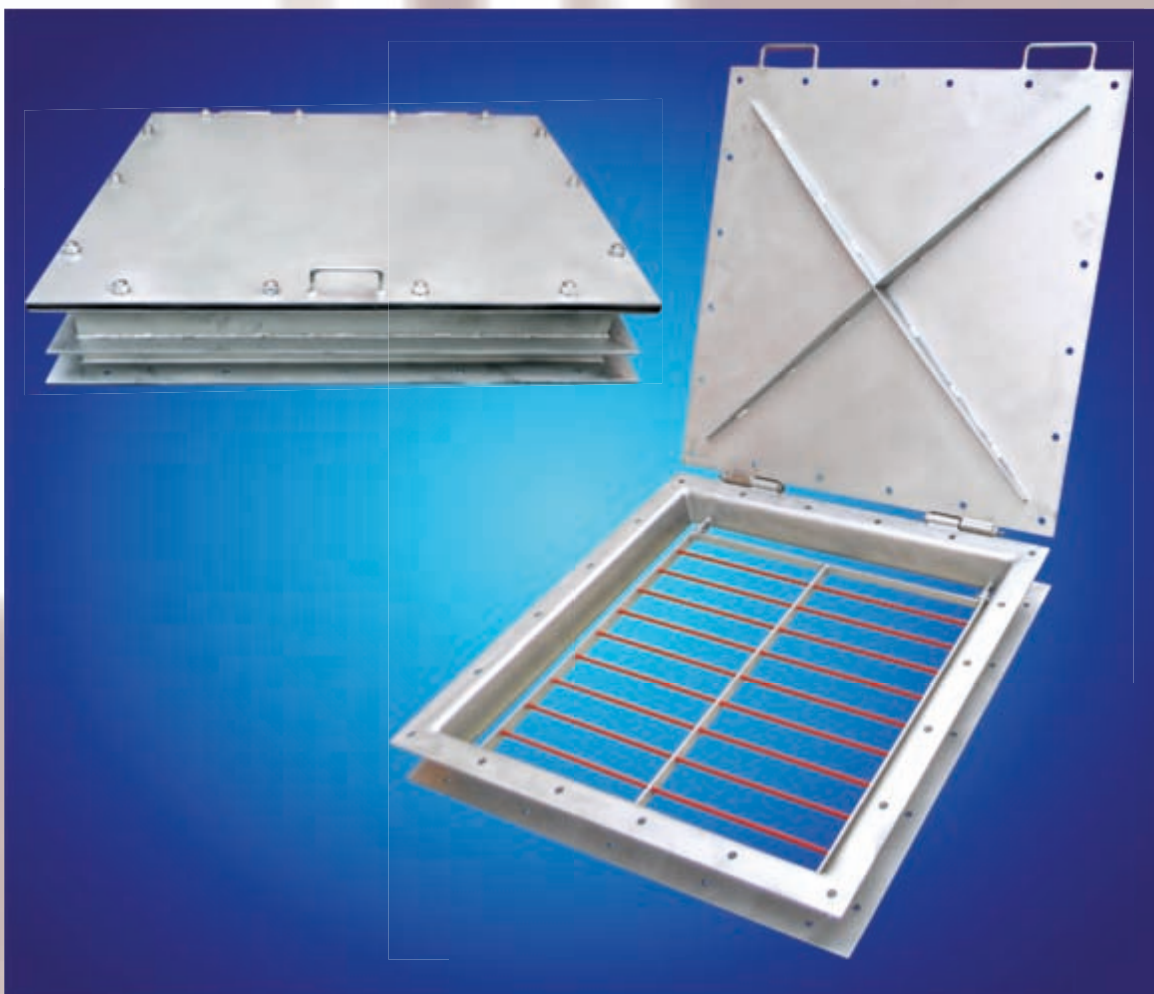
- Water tanks
- Installation chambers
- Water and sewage pump rooms

Technical data:

Materials: stainless steel, styrofoam thermal insulation, seal of the cover NBR elastomer.
Hatch is locked with a patent lock, special lock or a padlock.
Covers protected with a lever from accidental closing.



Double hatches in large sizes.



Tight hatch used in biogas tanks.

HIGH PRESSURE INSPECTION HATCHES FOR TANKS TYPE WR-S

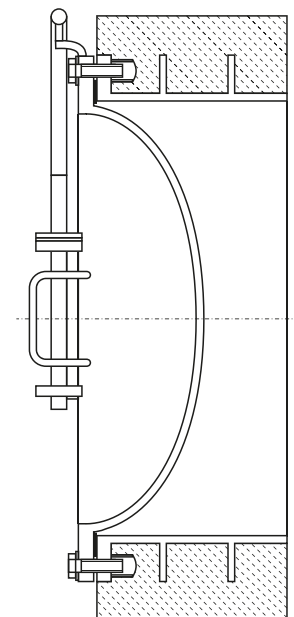
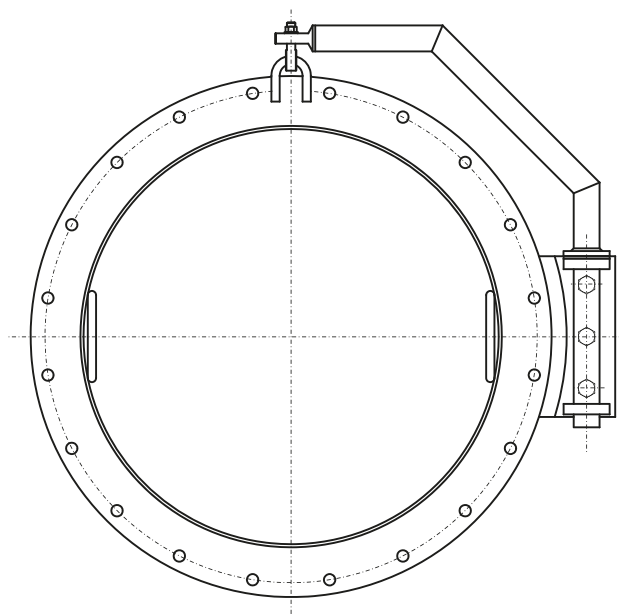
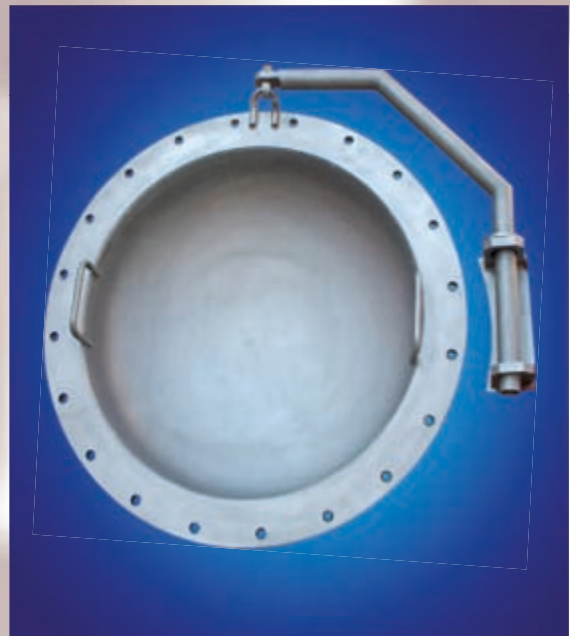
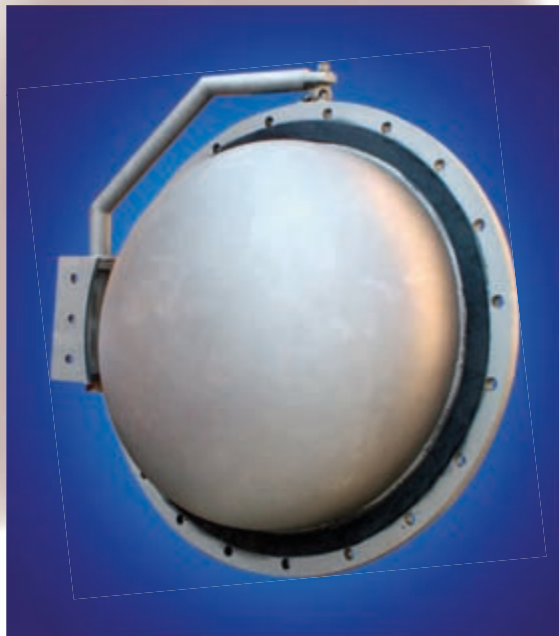
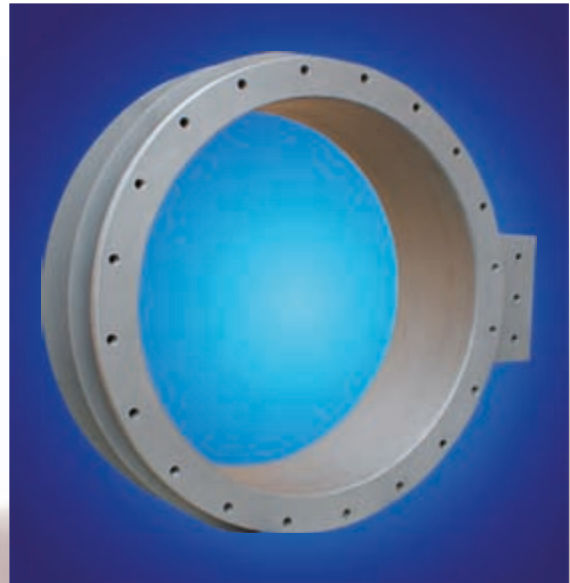
Inspectional hatches are installed to walls of concrete tanks and are used for control, conservation and repairs of the equipment inside the tank. They are most often used to close Separated Fermentation Chamber in sewage treatment plants. When used in concrete tanks they can be installed only during pouring of the concrete.

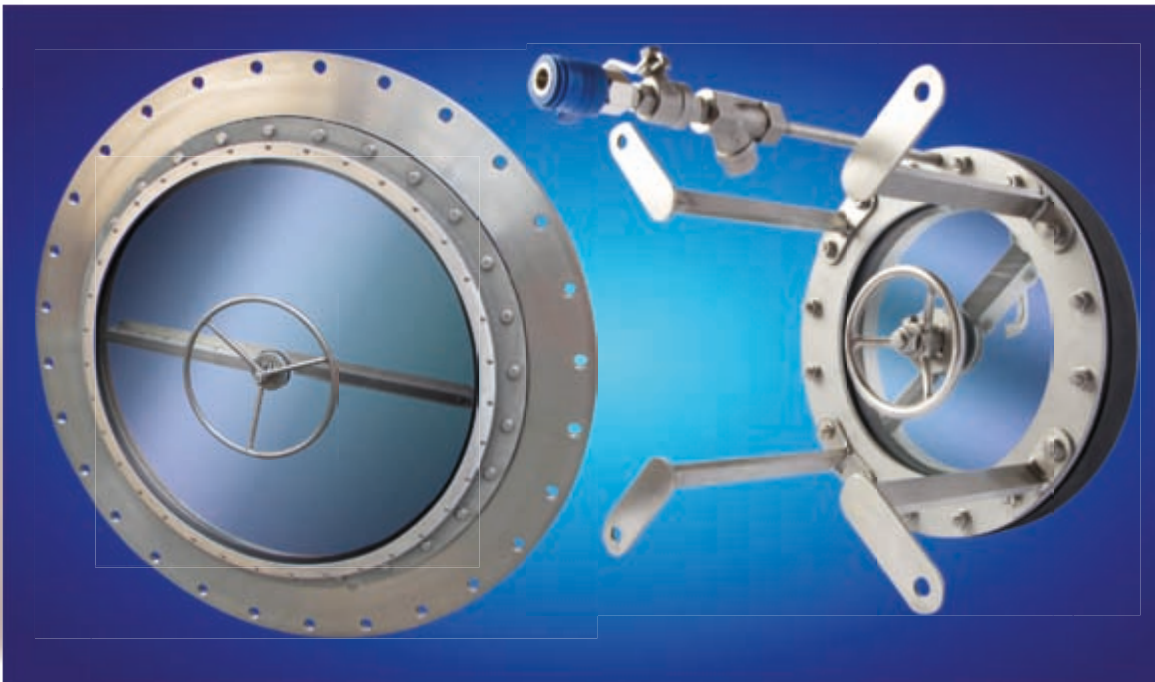
Materials:

Stainless steel,
EPDM elastomer seal.

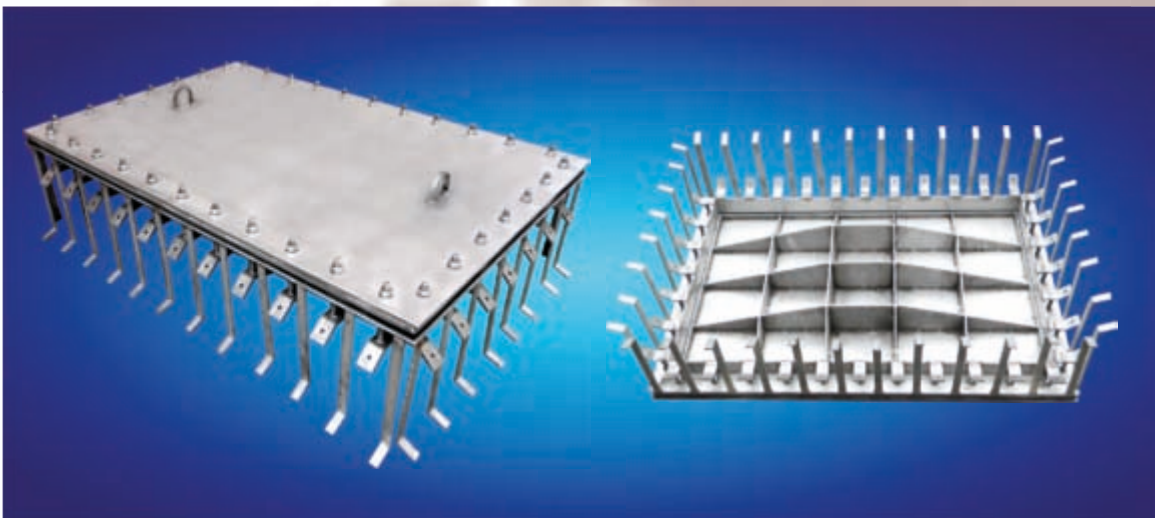
Operating pressure up to 2.5 bar

Size of the hatch to be determined





Hatches with viewfinders (laminated and tempered glass) pres. up to 0.5 bar.



Flat hatches pressure up to 0.5 bar.



Round hatch with a sleeve.



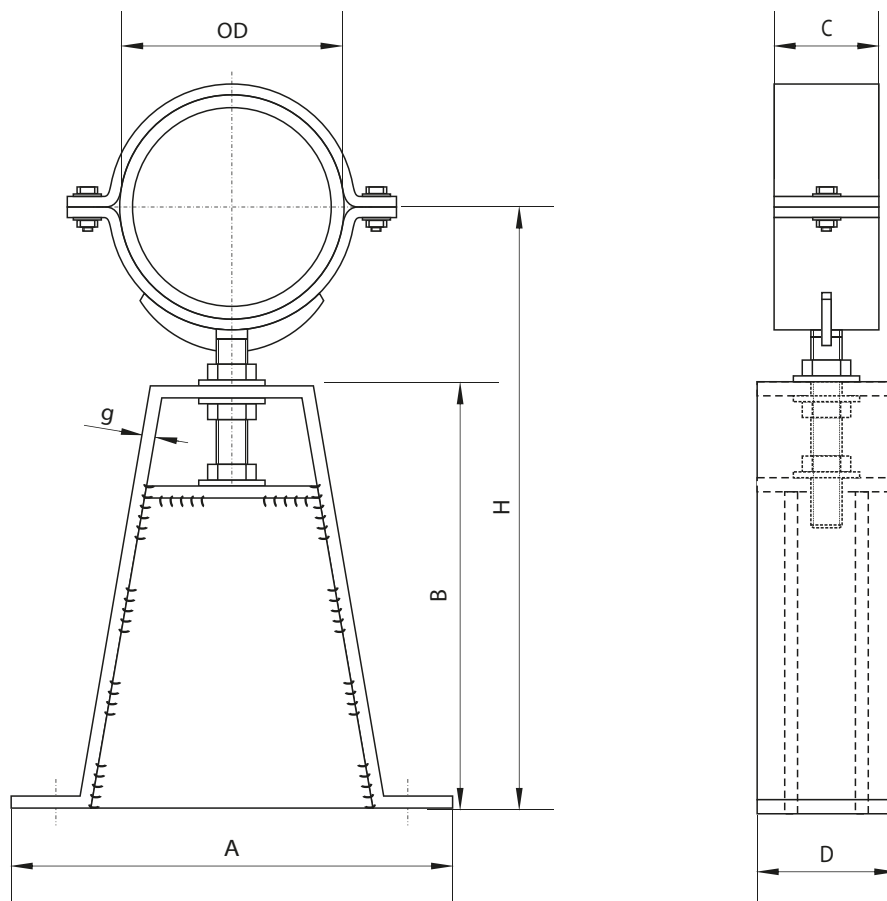
Round cover with large size.

AR-.. MODEL SUPPORTS WITH REGULATED HEIGHT

PATENTED



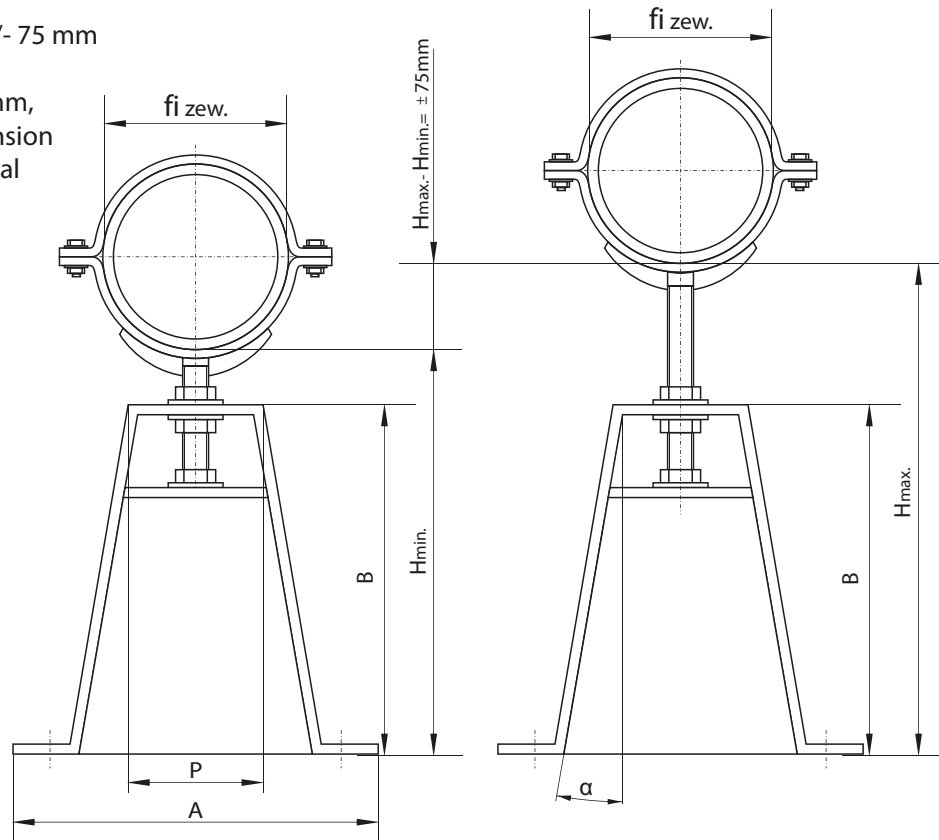
AR model supports are used to support all kinds of pipelines in a very large range of diameters and different materials. Simple box construction ensures high durability while limiting the weight of the support itself. Intervals between supports can go up to 9 meters, and in special uses even up to 12 meters. Weight of the support cannot be higher than 1.5 meters. Thanks to regulation of height there is also a possibility of finding desired slope of the pipe. Standard height regulation is $\pm 75\text{mm}$. Supports can be placed on all kinds of foundations or pedestals. Construction of the clip allows for thermal surround of the pipeline as thick as 60mm.



System of supports allows for leading multiple pipelines as well. Special products allow leading the pipelines in a form of supports, suspensions or a combination of these two. Upper part of the clip can be laced with polyethylene, rubber or anything else such as thermal insulation for cryogenic installations. Suspensions are usually made of galvanized or stainless steel.

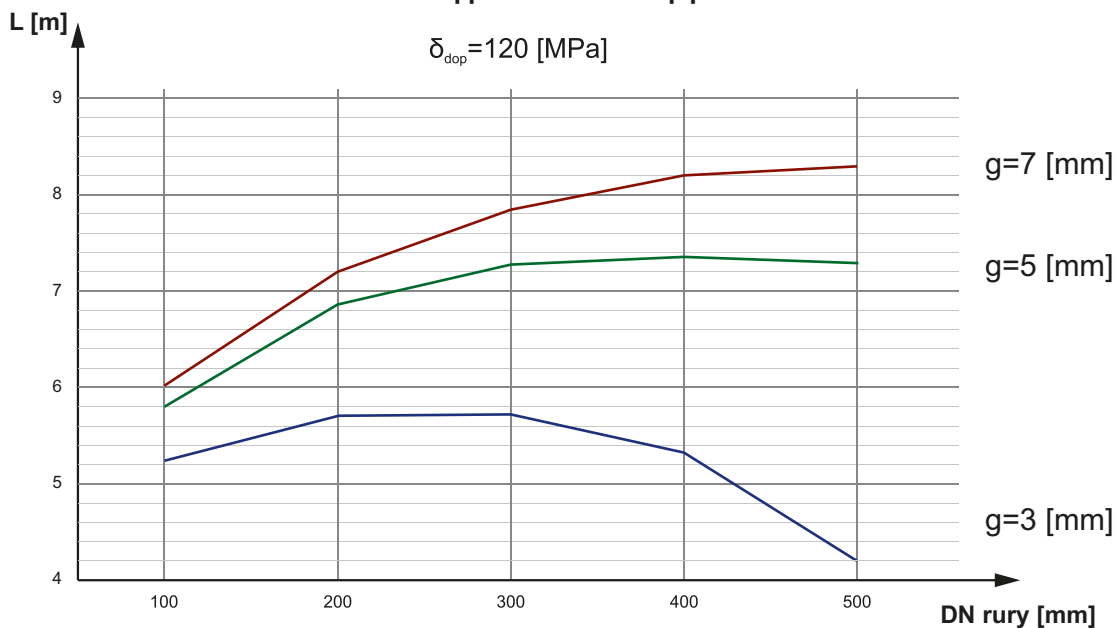
$$H_{\max} - H_{\min} = \pm 75 \text{ mm}$$

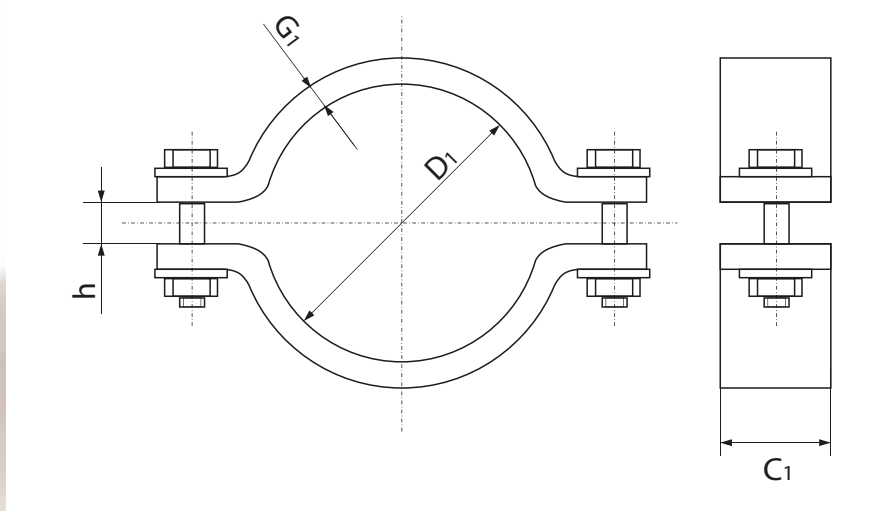
$B = \min. 250 \text{ mm}$,
another dimension
every additional
150 mm



Supports for low parameter pipelines.

The distance between the supports for different pipe wall thickness steel





Sizes of clips
for steel pipes

D_1 = outer diameter
of the pipe

$C_1 = D_1 \times 0.4$

$h = D_1 \times 0.1$

$G_1 = D_1 \times 0.01 \div 0.02$

Clip for a steel pipe (version 1)

Supports for pipelines made of plastic.

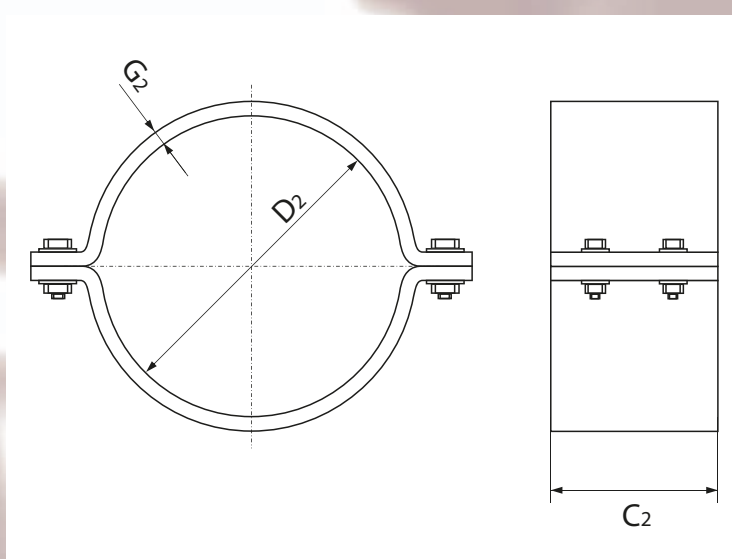
Due to large general volumetric thermal expansion coefficient of plastics:

$\alpha = 0.08 \text{ mm/m} \times ^\circ\text{C}$ - for PCV-U

$\alpha = 0.20 \text{ mm/m} \times ^\circ\text{C}$ - for PE-100

Pipelines should be constructed in a way that allows for a free thermal movement with properly placed supports. Internal diameter of the clip must be about 1% bigger than the outer diameter of the pipe. Edges of the clip must be rounded so the pipe doesn't damage itself while moving. Inside of the clip can be coated with PE or rubber on the whole circumference.

Example of the max. intervals between supports for pipes PE-100 (SDR 17,6) filled with water that is 20°C.



DN	OD	L [m]
100	110	1.5
150	160	1.7
200	225	2.0
250	250	2.5
300	315	3.0
400	400	3.5
500	500	4.0

Sizes of clips for plastic pipes.

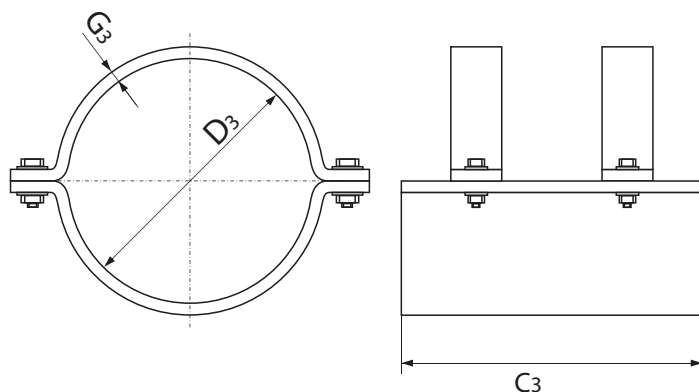
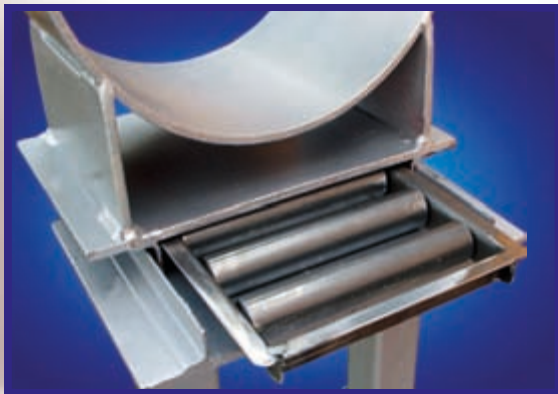
D_2 = outer diameter of the pipe + 1%

$C_2 = D_2 \times 0,6$

$G_2 = D_2 \times 0,005 - 0,01$

Supports for pre-isolated pipes.

Due to pipelines operating under huge temperature differences (over 120 °C) and general volumetric thermal expansion coefficient of $\alpha = 0.12 \text{ mm/m} \times ^\circ\text{C}$ it is often necessary to use supports with roller elements to compensate for the expansion.



Dimensions of clips for pre-isolated pipes:

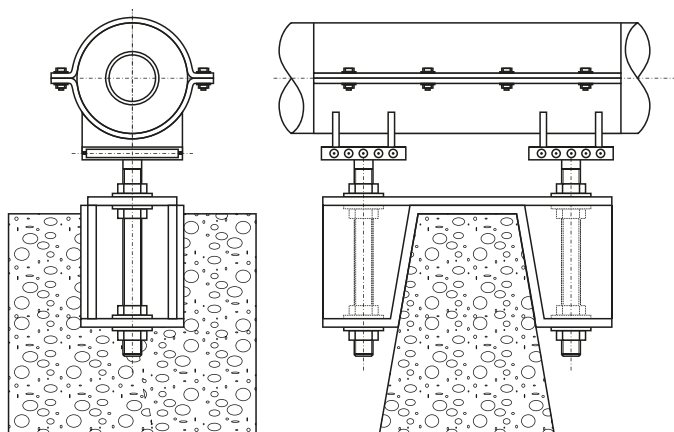
D_3 = outer diameter of the pipe

$$C_3 = D_2 \times 1.0 \div 1.5$$

$$G_3 = D_1 \times 0.01 \div 0.015$$

Maximum intervals between supports for pre-isolated pipes.

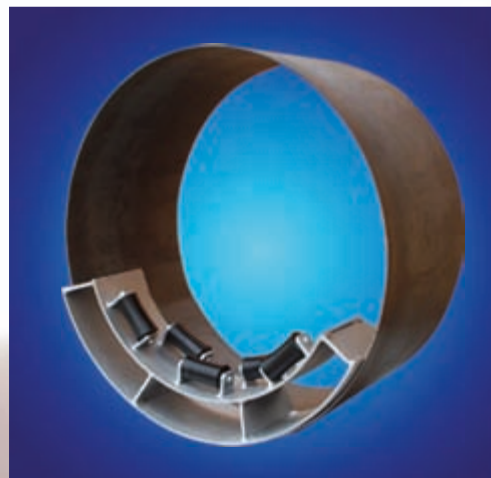
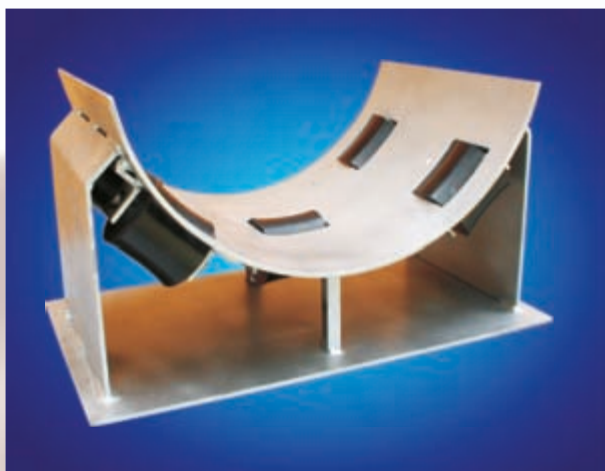
DN	OD	L [m]
25	100	3.0
32	100	3.2
40	100	3.5
50	125	4.0
80	160	5.0
100	200	5.5
125	250	6.0
150	250	6.5
200	315	7.0
250	400	7.5
300	450	8.0
400	560	9.0
500	630	9.5
600	800	10.0
700	900	10.5
800	1000	11.0
1000	1200	12.0



Support placed on a pedestal.

Special versions of supports

Upon order we make unusual supports based on your plans including roller supports.



Test site.



To properly test the strength of the supports we have built a contraption that makes static examination. The test can be done on a support with max. diameter of DN 1500. The max. pressure of 50000 kG can be created on the site. The max. height of the support can be 1800 mm.

AR-L MODEL SUPPORT



Support can be used for diameters between 100 and 350 mm.
Height can be regulated with the help of one screw up to 75 mm.
Support is suitable for small extensions of the pipeline.
Installation with anchors screwed to base or to be flooded with concrete.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kg]	Max. axial force [kG]	Max. lateral force [kG]
100	3	M16	2000	500	350
150	3	M16	2000	500	350
200	3	M16	2000	500	350
250	3	M20	2500	600	400
300	3	M20	2500	600	400
350	3	M20	2500	600	400

AR-LP MODEL SUPPORT



Support can be used for diameters from DN 100 to DN 350.
Regulation of the height in the range of 75mm is done by a two screws.
Support is suitable for cases where axis forces are great while sideways forces are slight.
Installation with anchors screwed to base or to flood with concrete.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kg]	Max. axial force [kG]	Max. lateral force [kG]
100	3	2xM16	2400	850	350
150	3	2xM16	2400	850	350
200	3	2xM16	2400	850	350
250	3	2xM20	2800	1000	400
300	3	2xM20	2800	1000	400
350	3	2xM20	2800	1000	400



AR-L
SUPPORT



AR-LP
SUPPORT

AR-S MODEL SUPPORT

Support can be used for diameters from DN 100 to DN 350. Regulation of the height in the range of 75mm is done by a two screws. Support is suitable when axis forces are slight while sideways forces are great. Installation with anchors screwed to base of to flood with concrete.

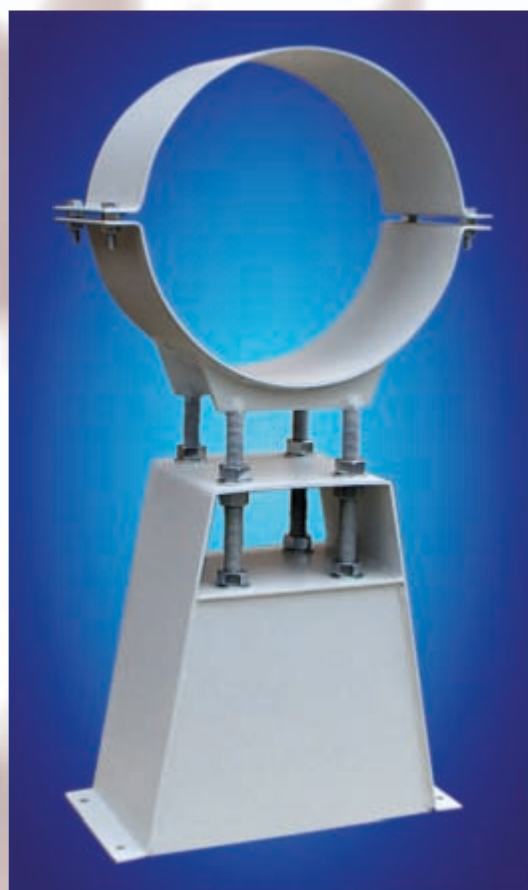
DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
350	3	2xM16	3500	1000	800
400	3	2xM16	3500	1000	800
500	4	2xM16	4000	1500	1200



AR-C MODEL SUPPORT

Support can be used for diameters from DN 350 to DN 1200. Regulation of the height in the range of 75mm is done by a four screws. Support is suitable when weight of the pipeline, axis forces and sideways forces are great. Installation with anchors screwed to base of to flood with concrete.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
350	3	4xM16	5000	1600	1400
400	3	4xM16	5000	1600	1400
500	4	4xM16	6000	2000	1600
600	4	4xM20	6000	2100	1700
800	4	4xM20	7500	2200	1800
1000	5	4xM24	8000	2600	2000
1200	5	4xM24	8000	2600	2000



AR-BL MODEL SUPPORT



AR-BL SUPPORT



It is a very economical support intended for light pipelines. Regulation of the height in the range of 75mm is done by a single screw.

Support is suitable for small axis expansions or bulks of the pipelines.

Installation with anchors screwed to base or to flood with concrete.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]
50	2	M10	100
80	2	M10	100
100	2	M10	100
125	2	M12	100
150	2	M12	150

AR-K MODEL SUPPORT



AR-K SUPPORT



Support can be used for diameters from DN 100 to DN 350. In this case instead of a clip we used a pipeline installation on a collar link.

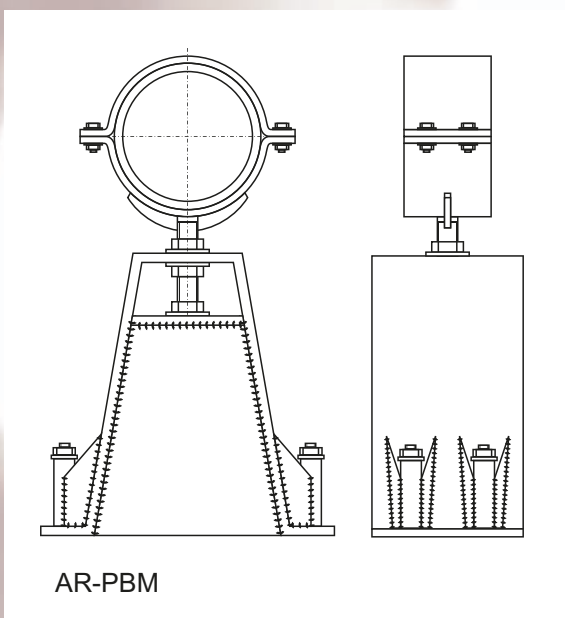
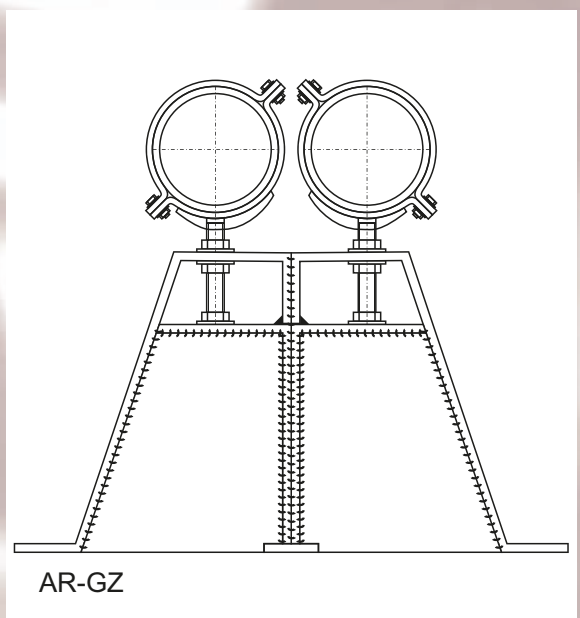
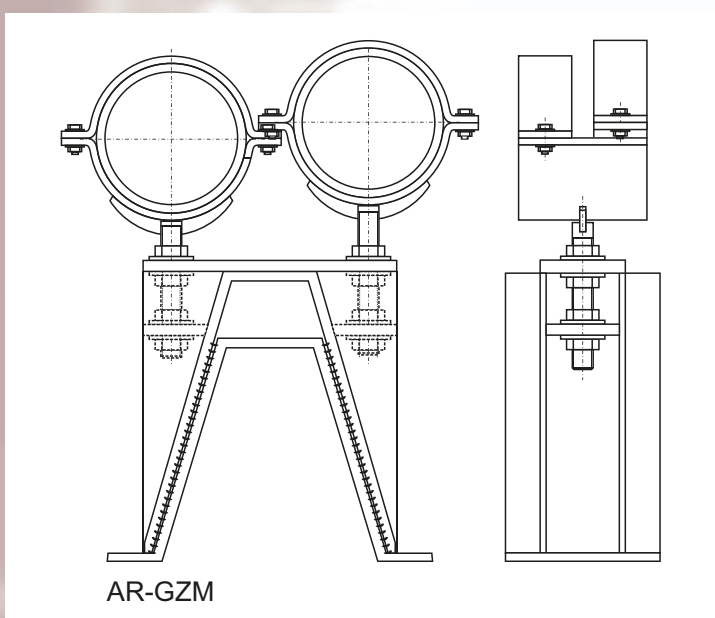
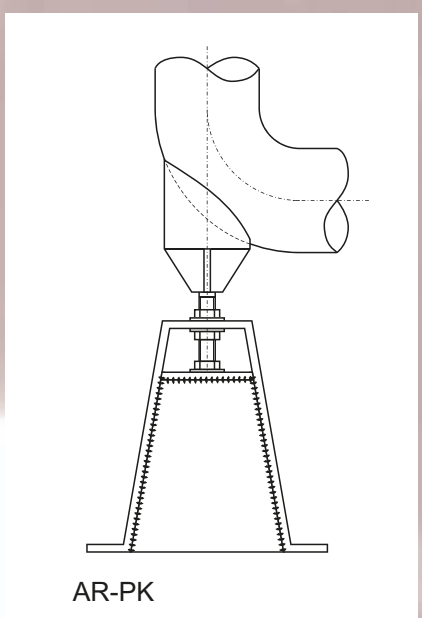
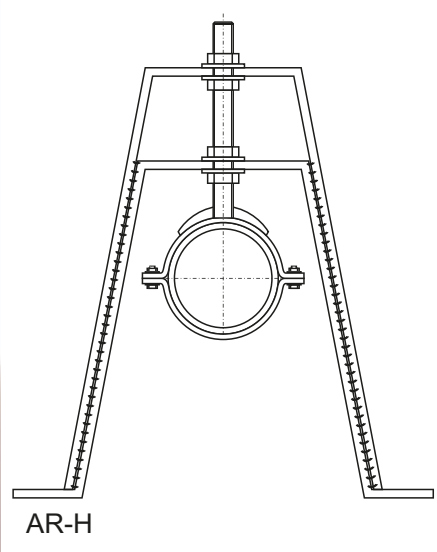
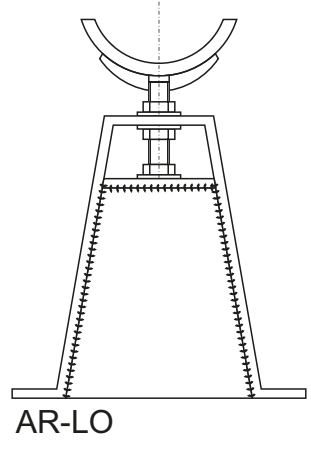
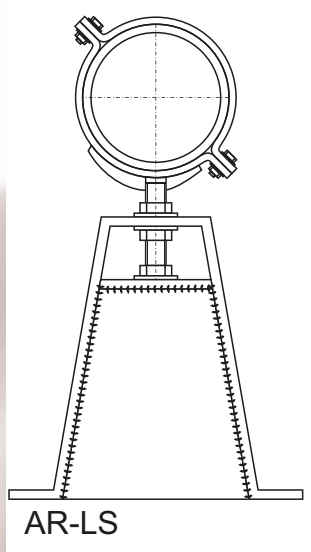
Regulation of the height in the range of 75mm is done by a single screw.

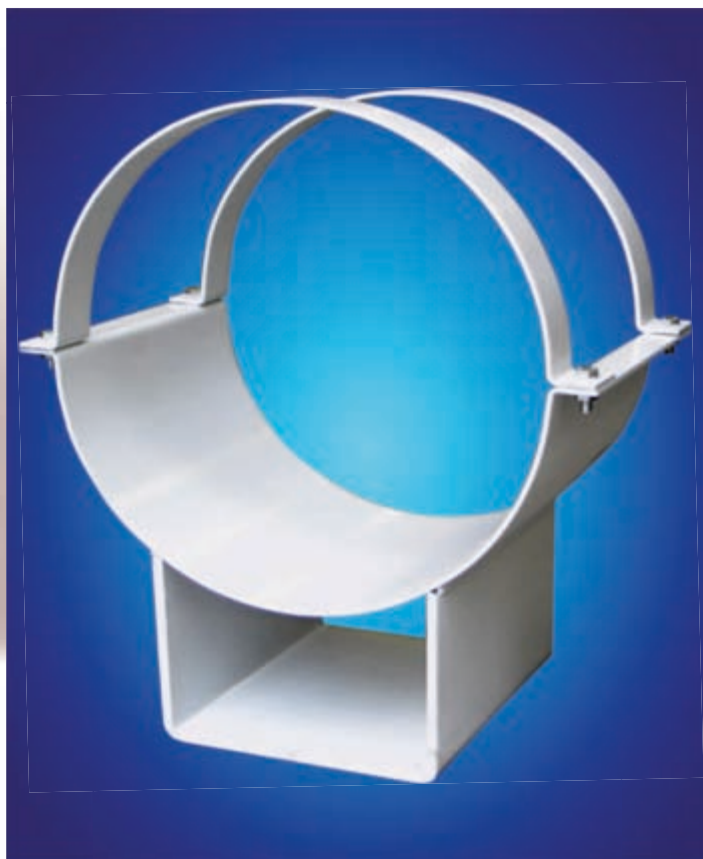
There is however a possibility of using two bearing and regulating screws.

Installation with anchors screwed to base or to flood with concrete.

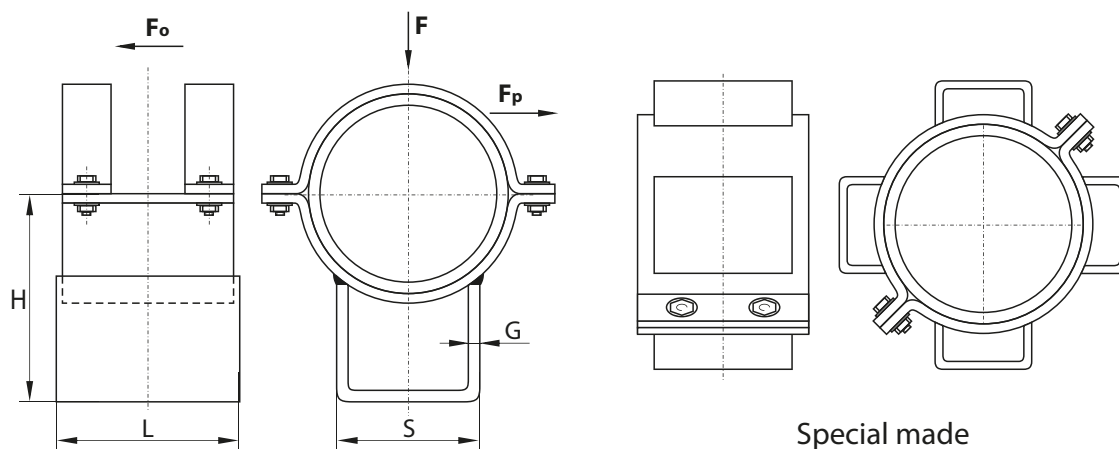
DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
100	3	M16	2000	500	350
150	3	M16	2000	500	350
200	3	M16	2000	500	350
250	3	M20	2500	600	400
300	3	M20	2500	600	400
350	3	M20	2500	600	400

Presented on these graphics examples of supports can be modified according to needs.





Moving supports are widely used in numerous branches of industry everywhere where in pipeline big axis forces appear. Most commonly used in cryogenic installations, pipelines for LNG, LPG, ice water etc. To insulate pipeline from support we use double coatings of insulation from hard polyurethane and sometimes even wooden claddings. Supports usually have one slay but there can be up to four of them. By big forces slays can be supported by special ribs. Steel slay elements on the surface usually have insides from polyethylene or Teflon.



DN	L [mm]	S [mm]	G [mm]	F [kG]	F _o [kG]	F _p [kG]
50	120	40	2,5	500	350	250
80	120	60	2,5	680	400	300
100	160	70	3,0	880	600	400
125	160	80	3,0	1000	700	500
150	200	100	4,0	1200	800	600
200	200	140	4,0	1500	900	800
250	280	200	4,0	3500	1800	1500
300	300	250	4,0	4000	2000	1800
350	320	300	5,0	4200	2400	2200
400	340	350	5,0	4400	2700	2400
500	380	400	6,0	4800	3000	2500
600	400	500	6,0	5000	3300	2700

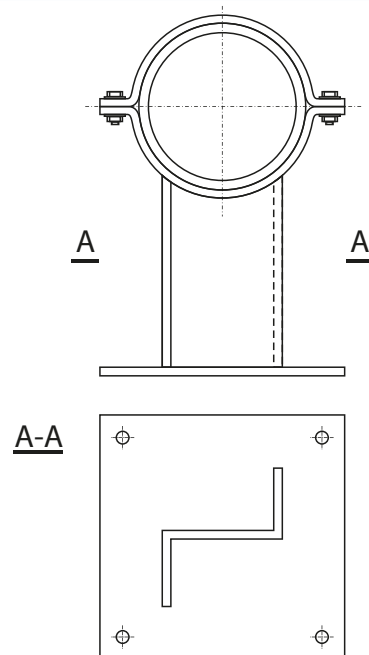
SP-Z MODEL SUPPORTS



SP-Z SUPPORTS



DN	Metal Thickness	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
100	3	1500	500	350
150	3	1800	500	350
200	3	1800	500	350
250	4	2300	600	400
300	4	2500	600	400



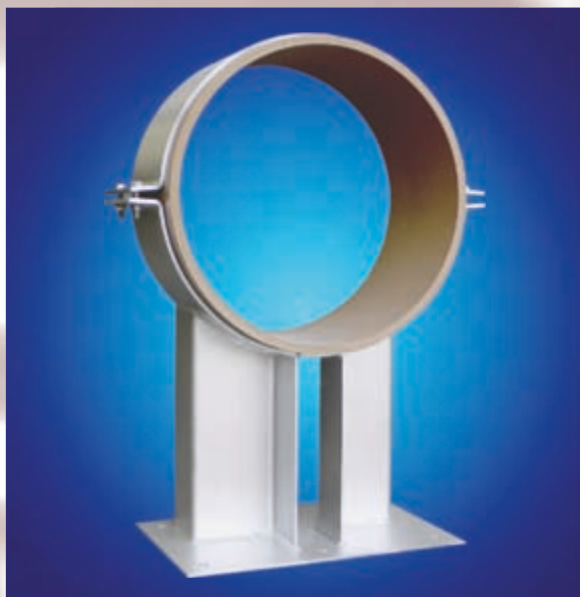
Support can be used for diameters DN 100 ÷ DN 350.

Support is suitable for small axis expansions or bulks of the pipelines. Installation with anchors screwed to base or to flood with concrete.

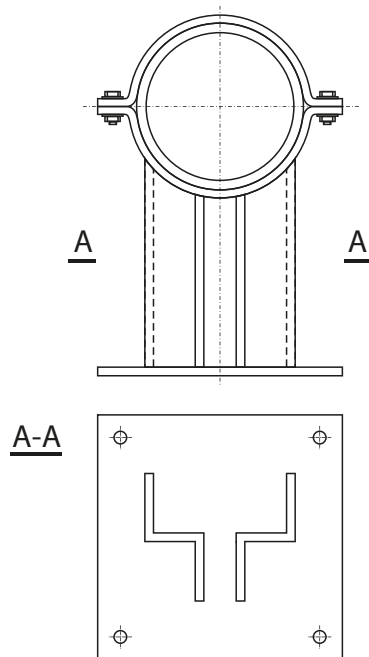
SP-Y MODEL SUPPORTS



SP-Y SUPPORTS



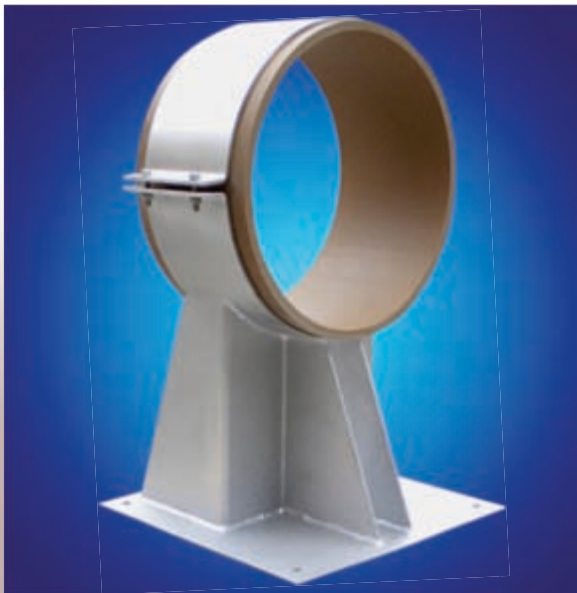
DN	Metal Thickness	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
350	4	3000	1500	1000
400	4	3200	1500	1000
450	4	3500	1500	1200
500	5	4000	1800	1500
600	5	4400	2000	1600



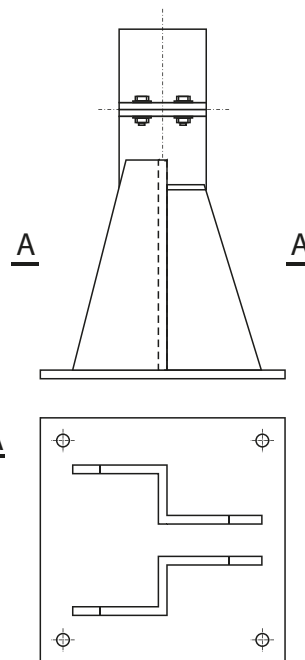
Support can be used for diameters DN 350 ÷ DN 600.

Support is suitable for medium axis weights or bulks of the pipelines. Installation with anchors screwed to base or to flood with concrete.

SP-V MODEL SUPPORTS



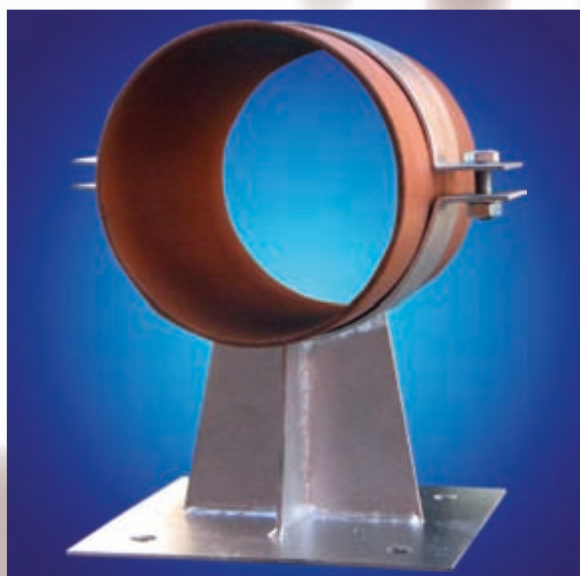
DN	Metal Thickness	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
350	4	3000	2600	2000
400	4	3200	2800	2200
450	4	3500	3200	2800
500	5	4000	3500	3000
600	5	4400	4000	3500



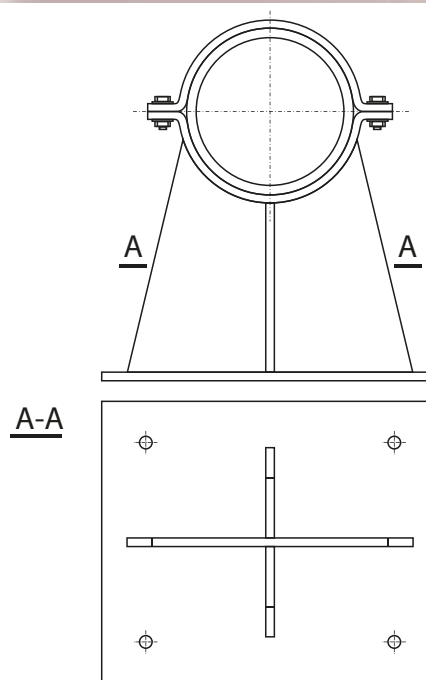
Support can be used for diameters DN 350 ÷ DN 600. Support is suitable for big axis forces of the pipelines. Installation with anchors screwed to base or to flood with concrete.



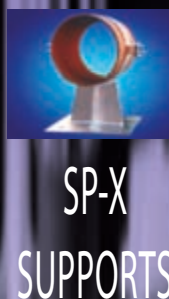
SP-X MODEL SUPPORTS



DN	Metal Thickness	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
50	2	1000	600	800
100	2	1500	900	1300
200	3	2500	1200	1800
300	3	2800	1600	2200
400	4	3500	2400	3100
500	5	4500	3200	4000
600	5	5000	3800	4500



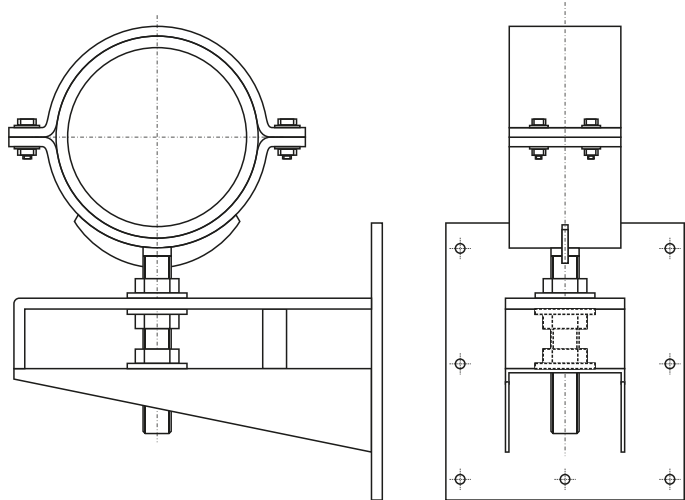
Support can be used for diameters DN 50 ÷ DN 600. Support is suitable for big sideways forces of the pipelines. Support can be strengthened by adding proper ribs.



CONSOLES FOR PIPELINES

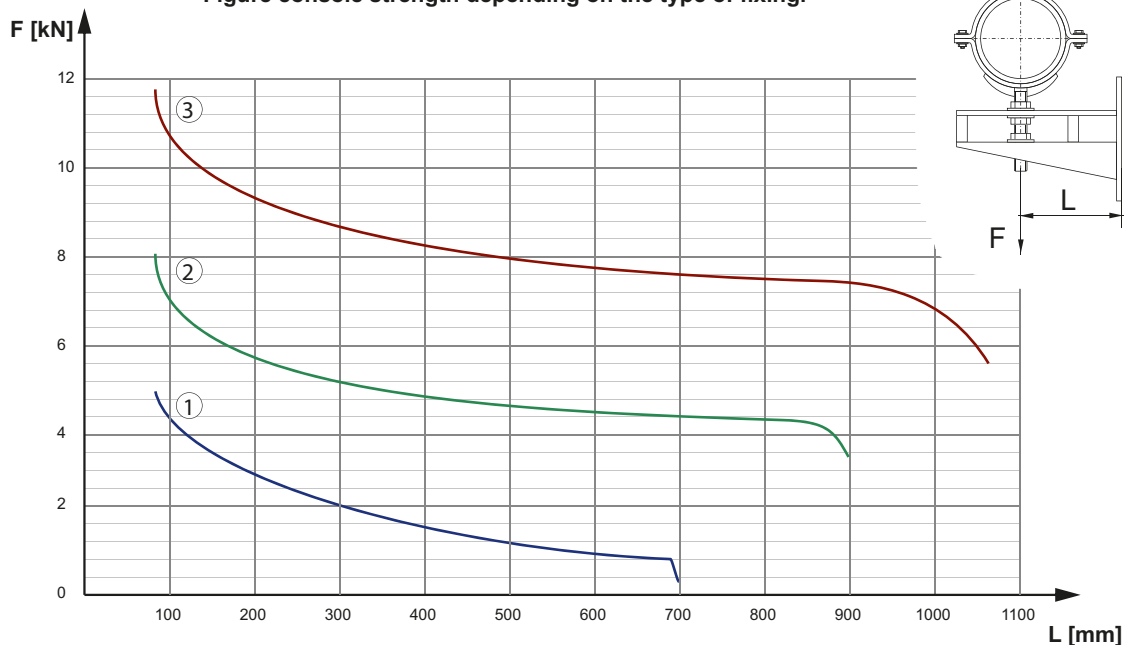
KR-.. MODEL CONSOLES WITH REGULATED HEIGHT

PATENTED



Consoles are intended for leading pipelines along building partitions. They can be attached with the help of stretcher pins for concrete walls or with screws or welded to metal construction of the partition.

Figure console strength depending on the type of fixing.



- 1 - Console bolted to the concrete wall using dowels.
- 2 - Console bolted to the steel structure bolts.
- 3 - Console welded to the steel structure.

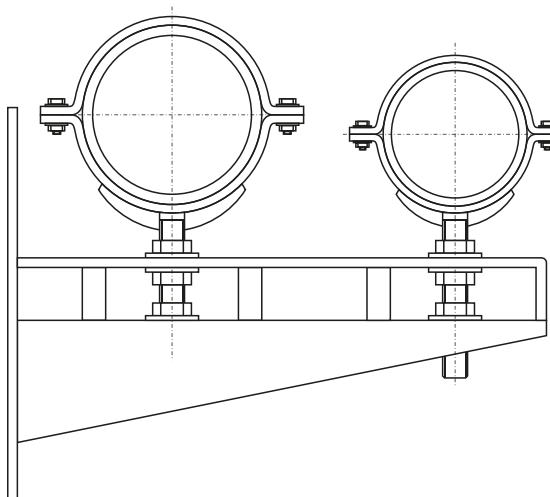
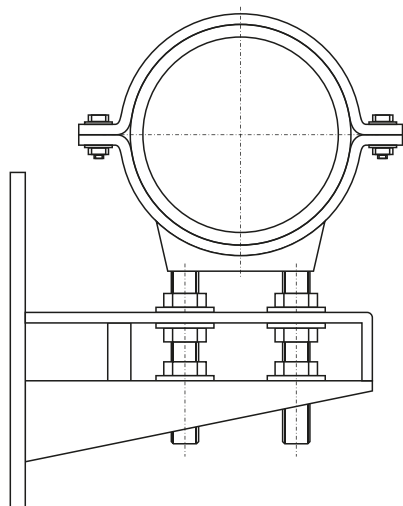
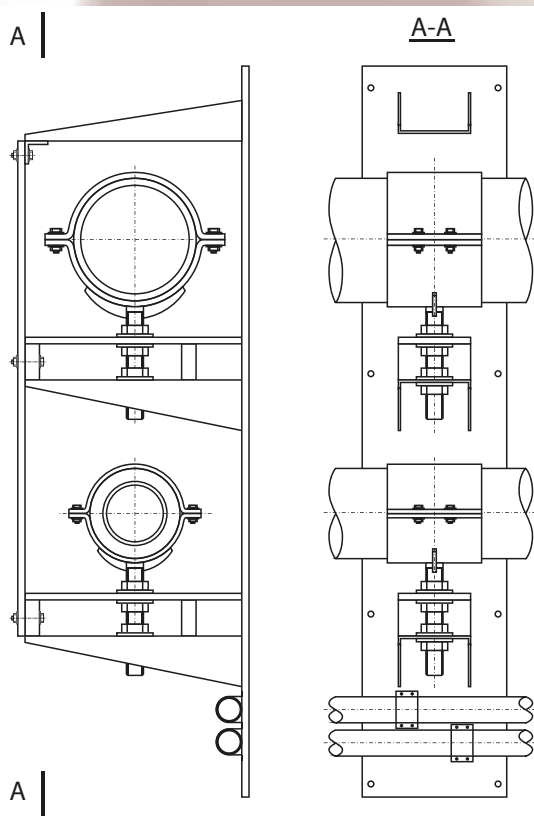
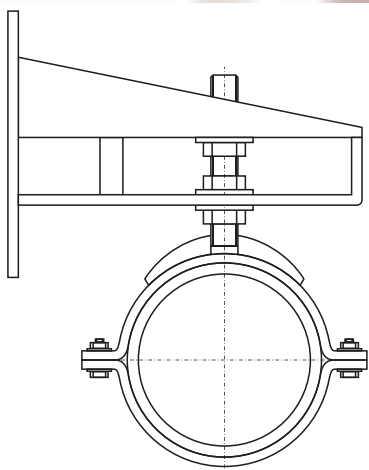
Offered consoles are suitable for leading horizontal and vertical pipelines. Screw regulation allows to set just the right slope of the pipe. Consoles can be connected in groups allowing to lead sets of pipes and power cables.



Console KR-L is intended to lead single pipe along building partition in the range of diameters DN 50 to DN 250.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
50	3	M12	500	100	70
80	3	M12	500	100	70
100	3	M16	800	150	90
150	3	M16	800	150	90
200	4	M20	1000	200	110
250	4	M20	1000	200	110

This console can be easily turned into a suspension system.



For big sideways forces two regulating screws can be used.

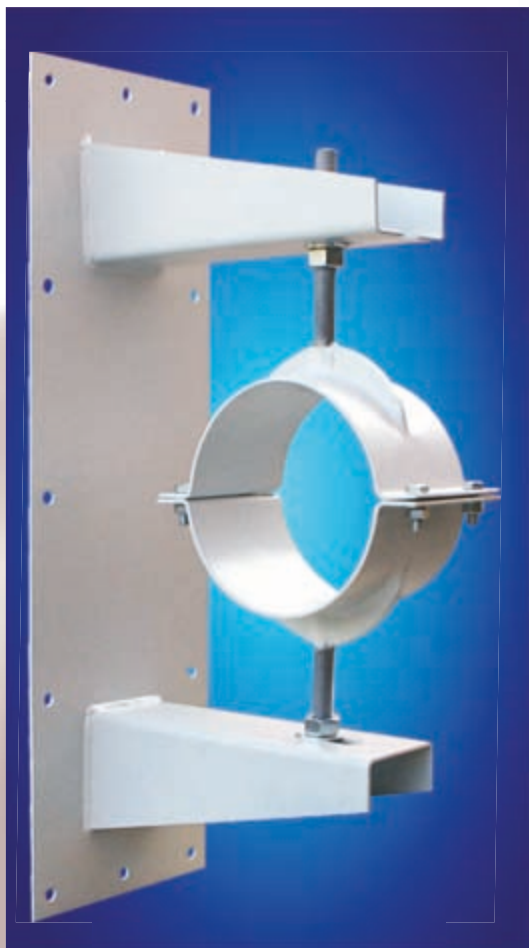
Example sets of console for leading different types of pipes and power cords and even ventilations tubes.



KR-P MODEL CONSOLE

KR-P

CONSOLE



Special console intended for the range of diameters DN 50 ÷ DN 250.

Regulation of the placement of the pipe with the help of regulation two screws in the range of $\pm 75\text{mm}$.

Console used for cases where weight of the pipeline, axis and sideways forces have big values.

Installation of anchors screwed to building partition. There is a possibility of welding or screwing to metal bearing construction.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kg]	Max. axial force [kg]	Max. lateral force [kg]
50	3	2xM12	800	400	300
80	3	2xM12	800	400	300
100	3	2xM16	1000	600	400
150	3	2xM16	1000	600	400
200	4	2xM20	1200	800	500
250	4	2xM20	1200	800	500

KR-N MODEL CONSOLE



KR-N

CONSOLE



Corner console intended for the range of diameters DN 50 ÷ DN 250.

Regulation of the placement of the pipe with the help of regulation screw in the range of $\pm 75\text{mm}$.

Installation of anchors screwed to building partition. There is a possibility of welding or screwing to metal bearing construction.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kg]	Max. axial force [kg]	Max. lateral force [kg]
50	3	M12	500	100	70
80	3	M12	500	100	70
100	3	M16	800	150	90
150	3	M16	800	150	90
200	4	M20	1000	200	110
250	4	M20	1000	200	110

KR-D MODEL CONSOLE



Simple and economical console for pipelines with diameter of DN 200.

Regulation of the placement of the pipe with the help of regulation screw in the range of $\pm 75\text{mm}$.

Installation of anchors screwed to building partition.

There is a possibility of welding or screwing to metal bearing construction.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
50	2	M10	200	150	150
65	2	M10	200	150	150
80	2	M10	300	200	200

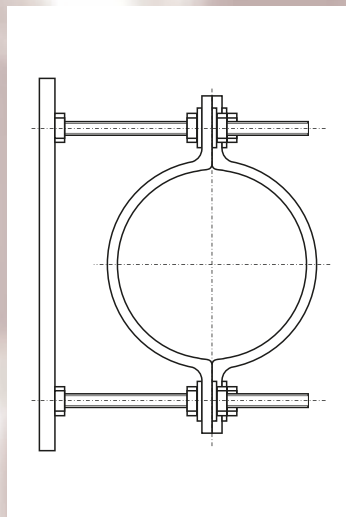
DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
100	2,5	M12	300	200	200
150	2,5	M12	400	300	300
200	2,5	M12	400	300	300

KR-W MODEL CONSOLE



Console unregulated.

Consoles for vertical pipelines.



Console with regulation of distance from bearing wall intended for the range of diameters DN 50 ÷ DN 250. Regulation is done with the help of 4 or 6 bearing and regulating screws in the range of $\pm 50\text{mm}$.

Installation of anchors screwed to building partition. There is a possibility of welding or screwing to metal bearing construction.

DN	Metal Thickness	Bolt 5.8	Lifting capacity [kG]	Max. axial force [kG]	Max. lateral force [kG]
50	3	4xM12	400	400	200
80	3	4xM12	400	400	200
100	3	4xM16	600	600	300
150	3	4xM16	600	600	300
200	4	6xM20	800	800	600
250	4	6xM20	800	800	600



KR-D
CONSOLE



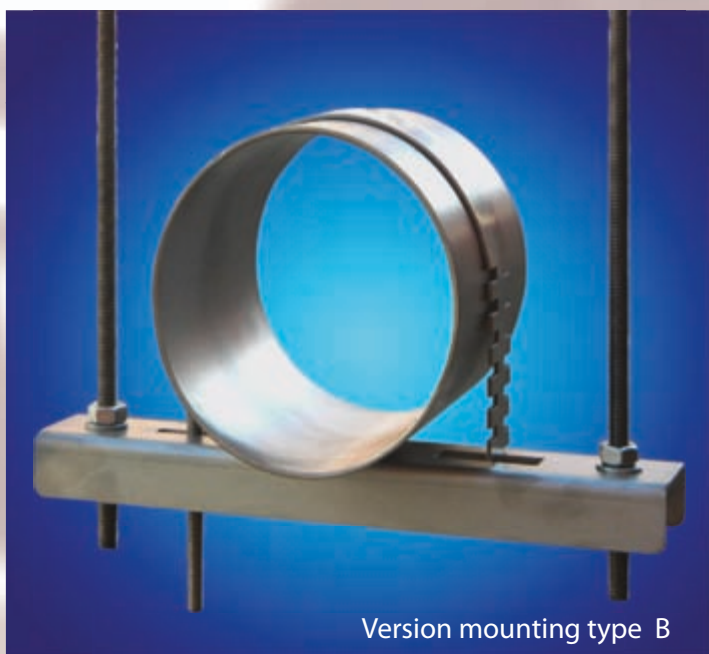
KR-W
CONSOLE



Version mounting type A



Universal system of attaching pipelines on suspensions in the range of diameters from DN 25 to DN 200. Advantage of the system is a very fast montage and easy application for unusual sizes and shapes of pipes. There is a possibility of expansion of the system to lead many pipelines on one grip. Suspension usually is made out of stainless or galvanized steel.



Version mounting type B

