

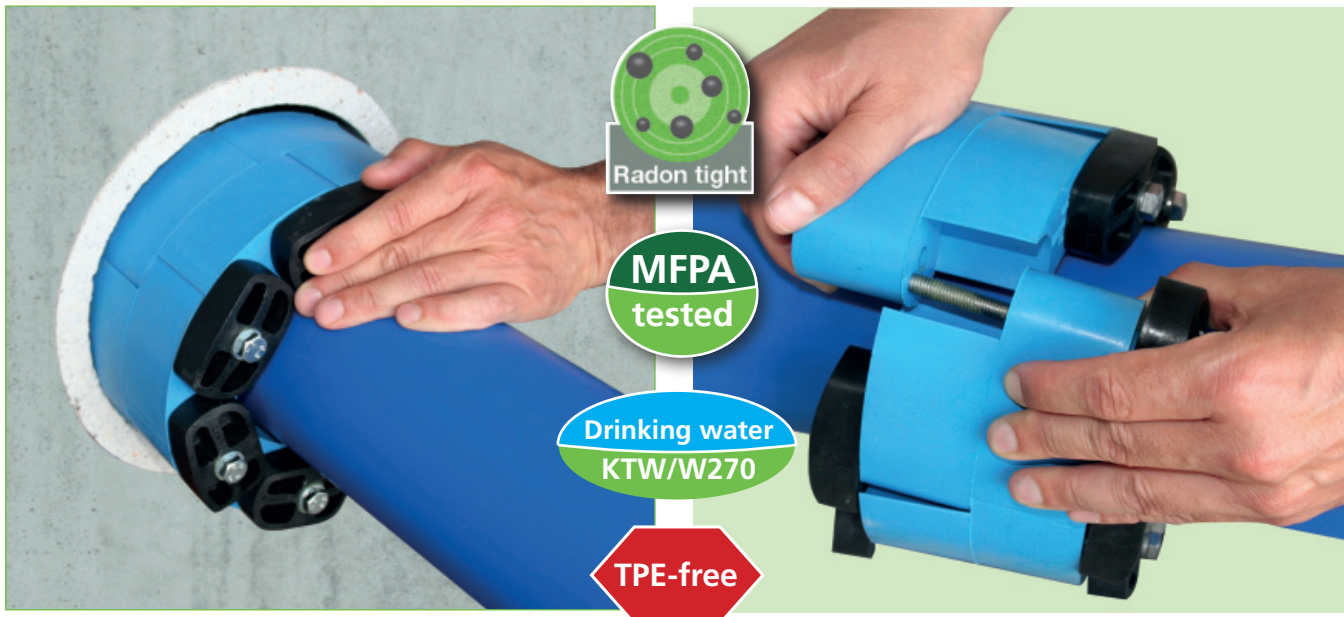


Pipeline Accessories

Pressio®-Elements
Modular Wall Penetration
Seals 4 pipes



Pressio®-Elements 4 pipes Modular Wall Penetration Seals



Pressio®-Elements modular wall penetration seals are an excellent choice to seal annular spaces between wall and pipe/cable securely so they are watertight and gas-tight.

Pressio®-Elements modular seals can be used flexibly because of their variable sizes for different combinations of wall sleeves/core holes and carrier pipes. These seals prevent leaks in case of high external water pressure.

Application

By compressing the rubber between the polyamide pressure plates, a gas-tight and watertight closure of the annular space between the carrier pipe and the casing pipe can be achieved. Pressio®-Elements modular seals can always be **used for retrofit application**.

Pressio®-Elements modular wall penetration seals are not suitable for especially thin-walled plastic pipes (e.g. flexible preinsulated pipe). Here we recommend Pressio® Seals for district heating pipes.

Pressure rating and MFWA test

- Type C, S 316, OC, OS316, KTW/W270 and TS **up to 5.0 bar pressure tight**
- Type BC and BS 316: **up to 3.0 bar pressure tight**
- **Drinking water quality according to DVGW W270, Elastomer guideline of UBA / KTW**
- Radon tight
- Fire class E acc. to EN13501-1 (formerly B2) normal flammability



To calculate the right Pressio®-Elements our calculation programme via our website <http://www.4pipes.de> is at your disposal.

More Advantages

- Made of high quality materials
- Fast mounting
- Retrofit application possible
- Applicable for various constructions
- Cost-efficient solution
- Fast delivery, standard versions in stock
- Different colours make the various rubber qualities easily distinguishable
- electrical isolation between pipe and sleeve
- noise protection
- anti vibration application
- Easy storage
- Radon tight







The 4 pipes warranty only applies to faulty material. Checking the suitability of the product for the individual application is solely the responsibility of the user.



Pressio®-Elements 4 pipes Modular Wall Penetration Seals

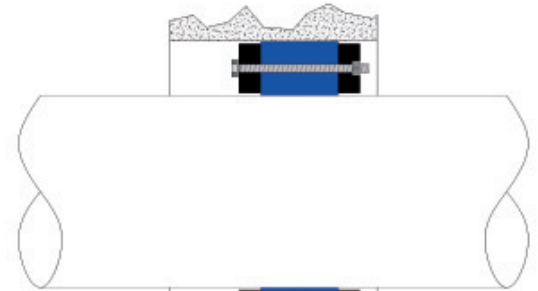
Product information

Pressio®-Elements 4 pipes are available in various material quality-combinations.

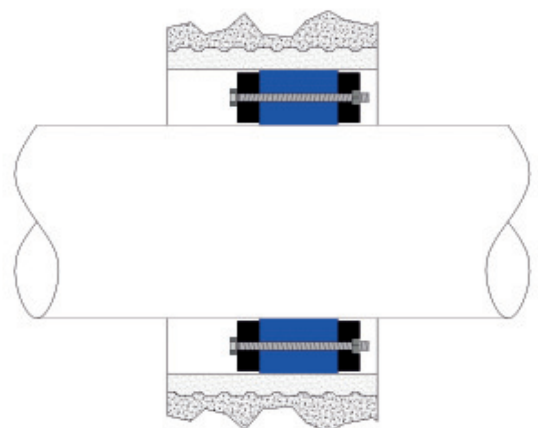
<p>Quality C and S316</p> 	<ul style="list-style-type: none"> • Type C: EPDM rubber black (50 ± 5 Shore A, standard rubber for cable, steel- and cast iron pipes), bolts galv., pressure plates polyamide 6-30, operation temperature: -40°C bis +80°C • Type S316: EPDM rubber black (50 ± 5 Shore A, standard rubber for cable, steel- and cast iron pipes), stainless steel bolts (V4A), pressure plates polyamide 6-30, operation temperature: -40°C up to +80°C Normal flammability MFPA tested Class E acc. to DIN EN 13501-1
<p>Quality BC and BS316</p> 	<ul style="list-style-type: none"> • Type BC: EPDM rubber blue (40 ± 5 Shore A, soft rubber especially suitable for plastic pipes), bolts galv., pressure plates polyamide 6-30, operation temperature: -40°C bis +80°C • Type BS316: EPDM rubber blue (40 ± 5 Shore A, soft rubber especially suitable for plastic pipes), stainless steel bolts (V4A), pressure plates polyamide 6-30, operation temperature: -40°C up to +80°C Normal flammability MFPA tested Class E acc. to DIN EN 13501-1
<p>Quality OC and OS316</p> 	<ul style="list-style-type: none"> • Type OC: Nitrile rubber green (50 ± 5 Shore A, nitrile rubber oil- and fuel resistant), bolts galv., pressure plates polyamide 6-30, Attention: rubber is not UV-resistant, operation temperature: -40°C up to +70°C • Type OS316: Nitrile rubber green (50 ± 5 Shore A, nitrile rubber oil- and fuel-resistant), stainless steel bolts (V4A), pressure plates polyamide 6-30, Attention: rubber is not UV-resistant, operation temperature: -40°C up to +70°C
<p>Quality KTW/W270</p> 	<ul style="list-style-type: none"> • Type KTW/W270: EPDM rubber black, (50 ± 5 Shore A, pressure plates and rubber approved acc. to KTW/W270) bolts and nuts made of V4A stainless steel, pressure plate fibreglass reinforced Polyamide white, operation temperature: -40°C up to +80°C 
<p>Quality TS</p> 	<ul style="list-style-type: none"> • Type TS: Silicone rubber grey (45 ± 5 Shore A, high temperature resistance) pressure plates V2A stainless steel, bolts V4A stainless steel operation temperature: -55°C up to +204°C

Examples for applications:

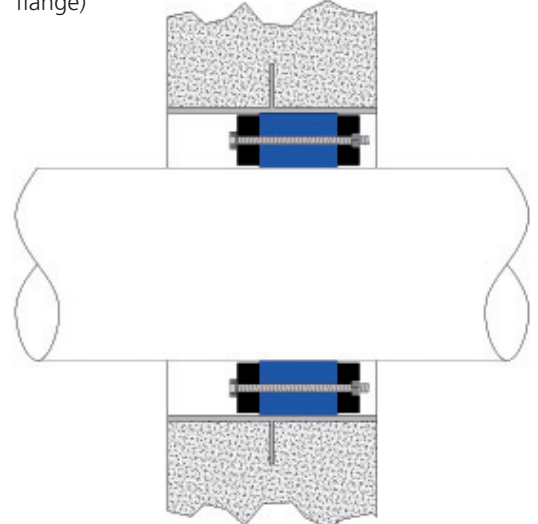
...in core drilled hole



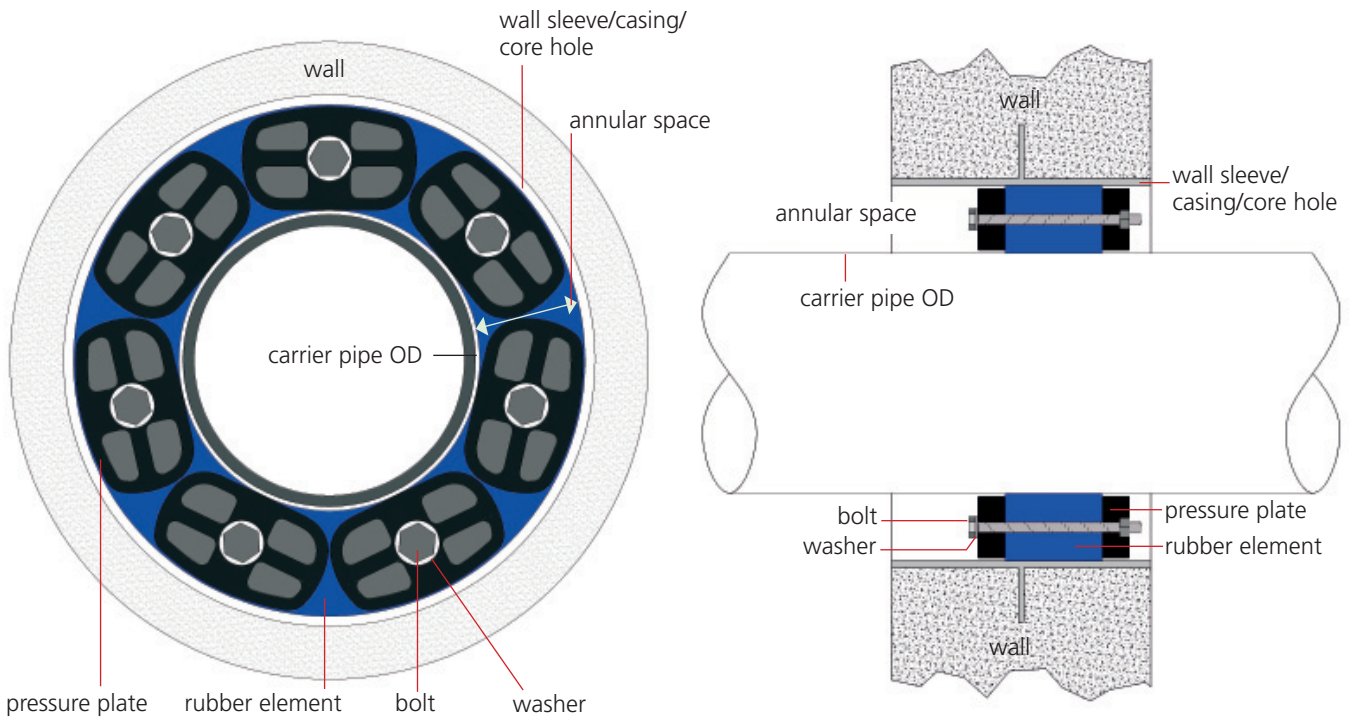
...in wall sleeve made of fibre cement



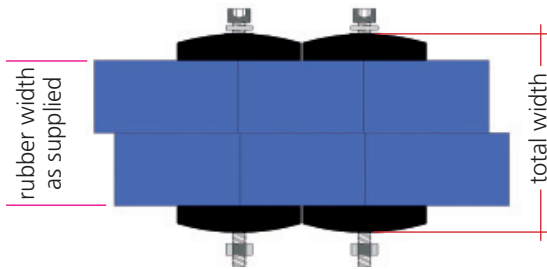
...in steel wall sleeve with puddle flange (anchor flange)



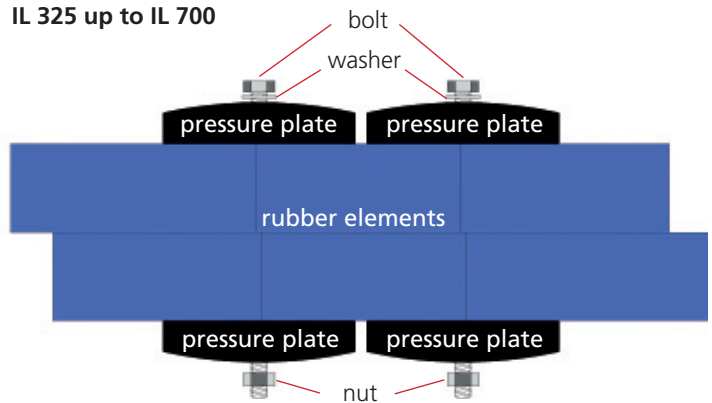
Pressio®-Elements 4 pipes Modular Wall Penetration Seals



IL 100 up to IL 315



IL 325 up to IL 700



IL 100 - IL 315 4 pipes - bolts with inner hex head
- solid pressure plates

IL 325 - IL 700 4 pipes - bolts with outer hex head
- profiled pressure plates



Pressio®-Elements 4 pipes Modular Wall Penetration Seals



Pressio®-Elements 4 pipes – Dimensions in mm

Pressio® Elem. Type	sealing range		arc length	carrier pipe		width of rubber part when delivered	total width when delivered	Minimum amount elements/ ring	min. wall thick- ness	bolt	Head of bolts	tool size
	min.	max.		min. Ø	max. Ø							
IL 100	9.0	12.5	31.0	25.0	219.0	45	60	4	60	M 4 x 60	Inner hexhead	3 mm
IL 200	12.5	15.7	30.0	21.3	323.9	45	63	4	63	M 5 x 70	Inner hexhead	4 mm
IL 265	16.0	20.0	41.0	50.0	406.4	45	63	5	63	M 5 x 70	Inner hexhead	4 mm
IL 275	16.0	20.0	25.6	0.0	90.0	45	63	4	63	M 5 x 70	Inner hexhead	4 mm
IL 300	18.0	22.5	41.0	44.5	273.0	65	90	5	90	M 6 x 90	Inner hexhead	5 mm
IL 310	18.0	22.5	57.0	60.3	406.4	65	90	5	90	M 6 x 90	Inner hexhead	5 mm
IL 315	21.1	26.0	38.4	37.0	323.9	65	90	5	90	M 6 x 90	Inner hexhead	5 mm
IL 325	23.2	30.0	79.0	133.0	711.0	65	100	6	100	M 6 x 100	Outer hexhead	10 mm
IL 340	25.5	34.0	41.4	30.0	323.9	65	100	4	100	M 6 x 100	Outer hexhead	10 mm
IL 360	32.0	42.0	55.1	40.0	406.4	65	100	5	100	M 6 x 100	Outer hexhead	10 mm
IL 400	36.0	46.0	93.1	139.7	1220.0	85	125	6	125	M 8 x 130	Outer hexhead	13 mm
IL 410	37.0	48.5	67.6	60.3	323.9	85	125	5	125	M 8 x 130	Outer hexhead	13 mm
IL 425	28.0	37.0	93.1	144.0	1220.0	85	125	6	125	M 8 x 130	Outer hexhead	13 mm
IL 440	44.0	55.0	99.0	139.7	1220.0	85	125	6	125	M 8 x 130	Outer hexhead	13 mm
IL 475	41.0	48.5	68.6	60.3	1220.0	85	125	5	125	M 8 x 130	Outer hexhead	13 mm
IL 500	60.0	71.5	99.8	100.0	1220.0	90	140	5	140	M 10 x 150	Outer hexhead	17 mm
IL 525	55.0	63.5	99.8	133.0	1220.0	90	140	6	140	M 10 x 150	Outer hexhead	17 mm
IL 575	48.0	58.0	79.3	88.9	1220.0	90	140	5	140	M 10 x 150	Outer hexhead	17 mm
IL 615	81.0	98.0	155.5	219.0	3000.0	100	165	6	165	M 12 x 180	Outer hexhead	19 mm
IL 625	81.0	98.0	106.7	88.9	2000.0	100	165	5	165	M 12 x 180	Outer hexhead	19 mm
IL 650	69.0	84.0	106.7	88.9	2000.0	100	165	5	165	M 12 x 180	Outer hexhead	19 mm
IL 700	95.0	110.0	155.5	219.0	3000.0	100	165	6	165	M 12 x 180	Outer hexhead	19 mm

All data in mm

Selecting the seal:

1. Annular Space Calculation

$$\frac{\text{casing pipe ID} - \text{carrier pipe OD}}{2} = \text{annular space}$$

Choose Pressio® Elements Type for annular space from table to calculate the right quantity.

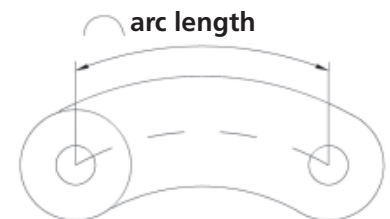
2. Quantity of Elements

$$\frac{\text{casing pipe ID} + \text{carrier pipe OD}}{2} \times 3,14 = \text{bolt circle} : \text{arc length} = \text{amount of elements}^*$$

*Mathematical rounding:

when... .49 round down to the nearest whole number of elements

when... .50 round up to the nearest whole number of elements



To calculate the right number of Pressio®-Elements there is also our calculation programme via our website www.4pipes.de at your disposal.

Pressio®-Elements-Set 4 pipes




Pressio®-Elements-Set preassembled to a ready-to-use ring, supplied in a box, perfect for keeping in stock.


Set features:

- Standard EPDM blue/soft
- Bolts stainless or carbon steel
- Separable for retrofit application
- Easy to select type required
- One carton per sealing ring
- Other sets on request
- We use brown carton for the sake of the environment

Corehole/ sleeve ID in mm	Pipe OD Ø _a (mm)		Quality BC galvanised bolts	Quality BS 316 stainless steel bolts
	min.	max.	Art.-No.	Art.-No.
50	1	18	09000	09100
	18	25	09001	09101
80	22	27	09010	09110
	40	48	09011	09111
100	32	45	09020	09120
	48	57	09021	09121
	55	64	09022	09122
125	42	61	09030	09130
	57	74	09031	09131
	80	89	09032	09132
150	53	76	09040	09140
	66	78	09041	09141
	82	99	09042	09142
	105	115	09043	09143
200	84	104	09050	09150
	103	117	09051	09151
	116	133	09052	09152
	132	149	09053	09153
	148	157	09054	09154
250	156	164	09055	09155
	107	129	09060	09160
	134	154	09061	09161
	153	163	09062	09162
	158	177	09063	09163
300	176	193	09064	09164
	184	204	09070	09170
	203	217	09071	09171
350	216	236	09072	09172
	207	229	09080	09180
	234	254	09081	09181
	253	274	09082	09182
	266	286	09083	09183

Pressio®-Elements 4 pipes Selection Guide for Core Drilled Holes

 Core hole mm ID	Carrier pipe OD in mm		Number of elements	Type IL...
	min.	max.		
50	10	18	4	275
	25	32	4	100
70	30	36	6	275
	39	45	6	200
	45	52	6	100
80	40	48	8	275
	49	55	7	200
	55	62	7	100
100	32	45	5	340
	48	57	6	315
	55	64	6	300
	62	68	6	265
	68	75	9	200
125	75	82	9	100
	42	61	5	360
	58	74	7	340
	73	82	8	315
	80	89	8	300
	87	93	8	265
	95	100	12	200
150	100	107	12	100
	58	76	5	410
	66	82	6	360
	82	99	9	340
	105	114	7	310
	112	118	10	265
	118	125	14	200
	125	132	14	100
200	90	104	6	575
	103	117	7	475
	103	124	7	410
	116	133	9	360
	132	149	13	340
	155	164	10	310
250	134	154	8	575
	140	160	6	440
	153	163	9	475
	158	177	7	400
	166	186	12	360
	178	192	7	425
	190	203	9	325
	206	212	12	310
300	157	173	7	500
	184	204	10	575
	190	210	8	440
	208	226	12	410
	216	236	15	360
	234	244	20	340
	240	253	11	325
	255	264	15	310

 Core hole mm ID	Carrier pipe OD in mm		Number of elements	Type IL...	
	min.	max.			
350	182	210	8	650	
	207	229	9	500	
	223	239	9	525	
	234	254	12	575	
	253	267	14	475	
	253	274	14	410	
	266	286	18	360	
	258	274	10	400	
	276	293	11	425	
	286	296	24	340	
	294	303	13	325	
	307	314	18	310	
	400	204	234	9	625
		234	255	9	650
264		279	10	500	
273		289	11	525	
284		304	14	575	
292		310	11	440	
303		317	16	475	
308		327	12	400	
326		341	12	425	
340		353	15	325	
450	235	256	7	700	
	254	265	10	625	
	266	286	7	615	
	285	311	11	650	
	307	329	12	500	
	327	339	12	525	
	335	354	16	575	
	345	356	13	440	
	355	367	19	475	
	358	377	14	400	
	376	393	14	425	
	375	386	24	360	
	390	403	17	325	
	500	285	306	8	700
304		334	12	625	
335		359	12	650	
357		379	14	500	
373		389	14	525	
385		400	18	575	
390		410	14	440	
408		427	15	400	
426		443	16	425	
440		453	19	325	
600	385	406	10	700	
	404	434	15	625	
	436	457	15	650	
	457	479	17	500	
	473	489	17	525	
	490	503	17	440	
	503	509	25	475	
	508	527	19	400	
	526	543	19	425	
	540	553	23	325	

For more combinations see our calculation program

Pressio®-Elements 4 pipes Selection Guide for Pipe OD



Selection guide for plastic pipes (PE-HD, PVC, PP) PE-HD eg.: DIN 8074 PVC eg.: DIN 8062; 8079; 19531

carrier pipe OD Ø	core drilled hole recomm. ID Ø mm	tolerance	wall sleeve fibre cement ID Ø mm	wall sleeve PVC ID Ø mm	wall sleeve steel ID Ø mm				core hole mm		Pressio®- Elements number of elements	Type	
					Ø a	x	s	Ø i	min.	max.			
10	16	50	-2/+6	-	50	60.3	x	2.3	55.7	48.0	56	4	IL 275
15	20	50	-0/+1	-	50	-	x	-	-	50.3	51.4	4	IL 200
20	25	50	-2/+0	-	50	-	x	-	-	48.1	50	4	IL 100
25	25	80	-3/+13	80	80	88.9	x	2.9	83.1	77.7	93	4	IL 340
25	32	50	-0/+6	-	50	-	x	-	-	50.0	56	4	IL 100
25	32	60	-1/+3	-	60	63.5	x	2.3	58.9	59.0	63.4	5	IL 200
25	32	70	-6/+2	-	70	76.1	x	2.6	70.9	64.3	72	6	IL 275
32	40	60	-2/+5	-	60	63.5	x	2.3	58.9	58.0	65	5	IL 100
32	40	70	-1/+2	-	70	76.1	x	2.6	70.9	69.4	72	6	IL 200
32	40	100	-9/+4	100	100	101.6	x	2.9	95.8	91.0	104	5	IL 340
40	50	70	-2/+5	-	70	76.1	x	2.6	70.9	68.0	75	6	IL 100
40	50	80	-2/+1	80	80	-	x	-	-	78.9	81.4	7	IL 200
40	50	100	-6/+2	100	100	-	x	-	-	93.8	102	6	IL 315
40	50	125	-6/+9	125	125	133.0	x	3.6	125.8	119.2	134	5	IL 360
50	63	100	-1/+6	100	100	108.0	x	2.9	102.2	99.0	106	6	IL 300
50	63	125	-7/+6	125	125	133.0	x	3.6	125.8	117.2	131	7	IL 340
50	63	150	-7/+10	150	150	159.0	x	4.0	151.0	143.9	160	5	IL 410
65	75	100	-3/+0	100	100	-	x	-	-	97.4	100	9	IL 100
65	75	125	-7/+2	125	125	-	x	-	-	118.3	127	8	IL 315
65	75	150	-11/+5	150	150	159.0	x	4.0	151.0	139.0	155	6	IL 360
80	90	125	-3/+3	125	125	133.0	x	3.6	125.8	122.0	130	8	IL 265
80	90	130	-0/+5	-	-	139.7	x	3.6	132.5	130.0	135	9	IL 300
80	90	150	-6/+8	150	150	159.0	x	4.0	151.0	143.6	158	9	IL 340
100	110	150	-4/+5	150	150	159.0	x	4.0	151.0	146.0	155	7	IL 310
100	110	200	-7/+7	200	200	-	x	-	-	192.6	207	7	IL 475
100	110	225	-2/+1	-	-	-	x	-	-	222.7	226	7	IL 575
125	125	180	-3/+11	-	-	193.7	x	5.6	182.5	176.0	193	11	IL 340
125	125	200	-10/+6	200	200	-	x	-	-	190.0	206	9	IL 360
125	125	225	-2/+15	-	-	244.5	x	6.3	231.9	222.7	241	7	IL 575
125	125	250	-4/+18	250	250	267.0	x	6.3	254.4	247.8	268	6	IL 500
125	140	200	-4/+8	200	200	-	x	-	-	196.3	208	13	IL 340
125	140	210	-4/+14	-	-	219.1	x	4.5	210.1	206.9	224	10	IL 360
125	140	225	-3/+10	-	-	244.5	x	6.3	231.9	222.0	235	8	IL 475
125	140	250	-2/+6	250	250	267.0	x	6.3	254.4	247.9	256	8	IL 575
125	140	260	-5/+9	-	-	273.0	x	5.0	263.0	260.0	269	6	IL 500
125	140	300	-22/+5	300	300	-	x	-	-	278.0	305	6	IL 650
150	160	200	-2/+5	200	200	-	x	-	-	198.0	205	10	IL 310
150	160	225	-1/+19	-	-	244.5	x	6.3	231.9	224.4	244	11	IL 360
150	160	250	-7/+5	250	250	-	x	-	-	242.0	255	9	IL 475
150	160	300	-19/+3	300	300	298.5	x	7.1	284.3	280.0	303	7	IL 500
150	180	225	-2/+5	-	-	-	x	-	-	222.2	230	16	IL 315
150	180	250	-6/+10	250	250	267.0	x	6.3	254.4	244.0	260	12	IL 360
150	180	260	-6/+12	-	-	273.0	x	5.0	263.0	254.0	272	10	IL 410
150	180	310	-1/+13	-	-	323.9	x	5.6	312.7	311.3	323	8	IL 500
200	200	250	-1/+10	250	250	267.0	x	6.3	254.4	248.5	260	9	IL 325
200	200	300	-4/+10	300	300	-	x	-	-	295.1	310	8	IL 440
200	200	310	-9/+6	-	-	323.9	x	5.6	312.7	301.0	316	10	IL 575
200	200	350	-9/+13	350	-	355.6	x	5.6	344.4	339.7	363	8	IL 650
200	200	400	-9/+20	400	-	406.4	x	6.3	393.8	391.5	420	6	IL 700
200	225	265	-4/+5	-	-	273.0	x	5.0	263.0	261.0	270	13	IL 310
200	225	300	-1/+15	300	300	323.9	x	5.6	312.7	299.0	315	12	IL 410
200	225	350	-14/+2	350	-	355.6	x	5.6	344.4	338.3	352	9	IL 525
200	225	400	-9/+16	400	-	406.4	x	6.3	393.8	387.0	416	9	IL 625
200	250	300	-1/+10	300	300	-	x	-	-	298.8	310	11	IL 325
200	250	310	-3/+7	300	-	323.9	x	5.6	312.7	306.0	324	9	IL 425
200	250	350	-12/+5	350	-	355.6	x	5.6	344.4	338.0	360	9	IL 440
200	250	400	-7/+5	400	-	406.4	x	6.3	393.8	388.0	418	9	IL 650
200	250	450	-8/+20	-	-	457.0	x	6.3	444.4	441.0	470	7	IL 700
250	280	320	-4/+5	-	-	-	x	-	-	316.0	325	16	IL 310
250	280	350	-3/+14	350	-	368.0	x	8.0	352.0	347.2	364	18	IL 360
250	280	400	-2/+7	400	-	419.0	x	10.0	399.0	401.8	407	11	IL 525
300	315	355	-4/+5	-	-	-	x	-	-	351.0	360	18	IL 310
300	315	400	-10/+7	400	-	406.4	x	6.3	393.8	396.0	407	12	IL 400
300	315	450	-14/+9	-	-	457.0	x	6.3	444.4	438.4	458	12	IL 500
300	315	500	-9/+13	500	-	508.0	x	6.3	495.4	486.6	511	12	IL 625
350	355	400	-2/+8	400	-	419.0	x	10.0	399.0	398.0	408	31	IL 315
350	355	450	-12/+2	-	-	457.0	x	6.3	444.4	437.0	452	18	IL 475
350	355	500	-5/+5	500	-	-	x	-	-	495.0	505	12	IL 650
350	355	550	-5/+25	-	-	559.0	x	6.3	546.4	545.0	575	9	IL 700
400	400	450	-1/+10	-	-	-	x	-	-	449.7	460	17	IL 325
400	400	470	-1/+14	-	-	-	x	-	-	470.0	484	25	IL 360
400	400	500	-12/+10	500	-	508.0	x	6.3	495.4	488.0	510	14	IL 440
400	400	550	-5/+18	-	-	559.0	x	6.3	546.4	543.5	568	14	IL 650
400	400	600	-9/+20	600	-	610.0	x	6.3	597.4	590.0	620	10	IL 700
450	450	500	-2/+10	500	-	-	x	-	-	498.0	510	19	IL 325
450	450	525	-2/+10	-	-	-	x	-	-	522.0	535	16	IL 400
450	450	550	-4/+10	-	-	559.0	x	6.3	546.4	546.0	560	16	IL 440
450	450	600	-12/+10	600	-	610.0	x	6.3	597.4	588.0	610	15	IL 650
450	450	650	-10/+20	-	-	660.0	x	7.1	645.8	640.0	670	11	IL 700
500	500	550	-1/+10	-	-	-	x	-	-	550.3	560	21	IL 325
500	500	580	-7/+12	-	-	-	x	-	-	572.0	592	18	IL 400
500	500	600	-12/+7	600	-	610.0	x	6.3	597.4	588.0	607	17	IL 440
500	500	650	-5/+10	-	-	660.0	x	7.1	645.8	645.0	660	17	IL 650
500	500	700	-10/+20	700	-	711.0	x	7.1	696.8	690.0	720	12	IL 700
500	560	640	-7/+7	-	-	660.0	x	7.1	645.8	632.0	652	20	IL 400
500	560	650	-2/+20	-	-	-	x	-	-	648.0	670	19	IL 440
500	560	690	-3/+9	-	-	711.0	x	7.1	696.8	692.5	699	20	IL 500
500	560	700	-2/+10	700	-	-	x	-	-	698.0	710	18	IL 650
500	560	750	-21/+8	-	-	762.0	x	8.0	746.0	724.3	756	19	IL 625
600	630	700	-10/+4	700	-	711.0	x	7.1	696.8	686.0	704	22	IL 425
600	630	710	-7/+5	-	-	-	x	-	-	702.0	715	22	IL 400
600	630	750	-0/+7	-	-	-	x	-	-	751.3	757	22	IL 525
600	630	800	-4/+10	800	-	813.0	x	8.0	797.0	792.2	810	21	IL 625
600	670	750	-5/+12	-	-	762.0	x	8.0	746.0	745.0	762	24	IL 400
600	670	800	-9/+13	800	-	813.0	x	8.0	797.0	790.0	813	23	IL 500
600	670	850	-14/+10	-	-	864.0	x	8.8	846.4	832.0	860	22	IL 625

For more combinations see our calculation program

Pressio®-Elements 4 pipes Selection Guide for Pipe OD



Selection guide for steel and stainless steel pipes acc. DIN 2448 / 2458

carrier pipe OD Ø DN	mm	core drilled hole recomm. ID Ø mm	tolerance	wall sleeve fibre cement ID Ø mm	wall sleeve PVC ID Ø mm	wall sleeve steel ID Ø mm				core hole mm		Pressio® Elements number of elements	Type
						Ø a	x	s	Ø i	min.	max.		
10	17.2	50	-1/+6	-	50	-	x	-	-	49.2	56	4	IL 275
15	21.3	50	-0/+2	-	50	-	x	-	-	50.3	52.7	4	IL 200
20	26.9	50	-2/+2	-	50	-	x	-	-	48.1	51.9	4	IL 100
	26.9	80	-2/+10	80	80	88.9	x	2	84.9	77.9	90	4	IL 340
25	33.7	60	-1/+5	-	60	63.5	x	2	59.5	59.7	65.1	5	IL 200
	33.7	70	-4/+2	-	70	-	x	-	-	65.7	72	6	IL 275
32	42.4	80	-0/+2	80	80	-	x	-	-	80.6	82.4	8	IL 275
	42.4	100	-6/+2	100	100	101.6	x	2	97.6	93.4	102	5	IL 340
40	48.3	70	-2/+3	-	70	-	x	-	-	67.8	73.3	6	IL 100
	48.3	100	-6/+0	100	100	101.6	x	2	97.6	93.8	100	6	IL 315
	48.3	125	-6/+5	125	125	133.0	x	2	129.0	119.2	132.3	5	IL 360
50	60.3	80	-1/+5	80	80	88.9	x	2	84.9	78.3	85.3	7	IL 100
	60.3	100	-4/+5	100	100	101.6	x	2	97.6	96.3	105	6	IL 300
	60.3	125	-0/+8	125	125	133.0	x	2	129.0	124.3	133.8	5	IL 360
65	76.1	100	-2/+1	100	100	101.6	x	2	97.6	97.4	101.1	9	IL 100
	76.1	125	-6/+3	125	125	-	x	-	-	118.3	128.1	8	IL 315
80	76.1	150	-9/+5	150	150	-	x	-	-	140.1	155	6	IL 360
	88.9	125	-4/+3	125	125	-	x	-	-	120.9	128.9	8	IL 265
	88.9	125	-0/+8	125	125	133.0	x	2	129.0	125.0	133	8	IL 300
100	88.9	150	-6/+6	150	150	-	x	-	-	143.6	156.9	9	IL 340
	114.3	150	-4/+4	150	150	159.0	x	4.5	150.0	146.3	154.3	10	IL 265
	114.3	150	-0/+9	150	150	159.0	x	4.5	150.0	150.0	159	7	IL 310
125	114.3	200	-3/+11	200	200	-	x	-	-	196.3	211	7	IL 475
	114.3	225	-2/+5	-	-	-	x	-	-	222.7	230.3	7	IL 575
	139.7	200	-3/+7	200	200	-	x	-	-	196.3	207.7	13	IL 340
	139.7	210	-4/+13	-	-	219.1	x	3	213.1	206.9	223.7	10	IL 360
150	139.7	225	-3/+11	-	-	-	x	-	-	221.7	236.7	8	IL 475
	139.7	250	-2/+5	250	250	256.0	x	3	250.0	247.9	255.7	8	IL 575
	139.7	300	-22/+4	300	300	-	x	-	-	277.7	304	6	IL 650
	168.3	210	-5/+3	-	-	219.1	x	3	213.1	205.0	213.3	10	IL 310
200	168.3	225	-3/+10	-	-	-	x	-	-	222.7	236.3	15	IL 340
	168.3	250	-8/+10	250	250	256.0	x	3	250.0	242.4	260.3	7	IL 400
	168.3	300	-11/+10	300	300	298.5	x	3	292.5	288.3	310	7	IL 500
250	219.1	260	-4/+4	-	-	-	x	-	-	256.0	264.1	13	IL 310
	219.1	300	-5/+14	300	300	-	x	-	-	294.5	316.1	12	IL 410
	219.1	350	-8/+11	350	-	355.6	x	3	349.6	343.1	362.1	9	IL 500
	219.1	400	-12/+17	400	-	406.4	x	4	398.4	388.0	417	9	IL 625
300	273	310	-0/+8	-	-	323.9	x	3	317.9	309.0	318	16	IL 310
	273	340	-3/+6	-	-	-	x	-	-	337.0	346	17	IL 360
	273	350	-3/+5	350	-	355.6	x	3	349.6	347.0	354	14	IL 410
	273	400	-6/+5	400	-	406.4	x	4	398.4	393.0	405	10	IL 500
	273	450	-12/+16	-	-	457.0	x	4	449.0	435.0	466	7	IL 615
350	323.9	400	-3/+13	400	-	419.0	x	4	411.0	395.9	415	12	IL 400
	323.9	400	-11/+6	400	-	406.4	x	4	398.4	387.9	407.9	20	IL 360
	323.9	450	-6/+13	-	-	457.0	x	4	449.0	443.9	463	12	IL 500
	323.9	500	-10/+15	500	-	508.0	x	4	500.0	490.0	515	12	IL 625
400	355.6	400	-1/+7	400	-	-	x	-	-	399.4	407.6	31	IL 315
	355.6	450	-10/+2	-	-	457.0	x	4	449.0	437.6	452	18	IL 475
	355.6	490	-14/+8	-	-	488.0	x	4	480.0	475.6	498.6	13	IL 500
	355.6	500	-6/+5	500	-	508.0	x	4	500.0	493.6	505	12	IL 650
450	355.6	550	-4/+25	-	-	559.0	x	6,3	546.4	545.6	575.6	9	IL 700
	406.4	500	-5/+10	500	-	508.0	x	4	500.0	495.0	510	14	IL 440
	406.4	550	-5/+15	-	-	559.0	x	4	551.0	544.4	565	14	IL 650
500	406.4	600	-3/+26	600	-	610.0	x	5	600.0	596.4	626.4	10	IL 700
	457	510	-6/+7	-	-	-	x	-	-	503.4	517	19	IL 325
	457	550	-4/+17	-	-	559.0	x	4	551.0	546.0	567	16	IL 440
	457	600	-5/+5	600	-	610.0	x	5	600.0	595.0	605	15	IL 650
550	457	650	-24/+5	-	-	660.0	x	5	650.0	626.0	655	16	IL 625
	508	560	-5/+8	-	-	-	x	-	-	554.4	568	21	IL 325
	508	600	-3/+10	600	-	610.0	x	5	600.0	597.0	610	17	IL 440
	508	650	-4/+10	-	-	660.0	x	5	650.0	646.0	660	17	IL 650
600	508	700	-6/+6	700	-	711.0	x	5	701.0	694.0	704	18	IL 625
	559	610	-4/+9	-	-	-	x	-	-	605.4	619	23	IL 325
	559	650	-3/+19	-	-	660.0	x	5	650.0	647.0	669	19	IL 440
	559	700	-3/+10	700	-	711.0	x	5	701.0	697.0	710	18	IL 650
650	559	750	-22/+7	-	-	762.0	x	5	752.0	724.3	755	19	IL 625
	610	660	-3/+10	-	-	-	x	-	-	656.4	670	25	IL 325
	610	700	-7/+7	700	-	711.0	x	5	701.0	694.8	707	30	IL 475
	610	750	-1/+28	-	-	762.0	x	5	752.0	748.0	778	20	IL 650
650	800	-4/+8	800	-	813.0	x	5	803.0	792.2	806	21	IL 625	

For more combinations see our calculation program

Pressio®-Elements 4 pipes Selection Guide for Pipe OD



Selection guide for steel pipes acc. DIN 2448 / 2458 with PE-coating (standard) acc. DIN 30670

carrier pipe OD Ø	core drilled hole recomm. ID Ø mm	tolerance	wall sleeve fibre cement ID Ø mm	wall sleeve PVC ID Ø mm	wall sleeve steel ID Ø mm				core hole mm		Pressio® Elements number of elements	Type	
					Ø a	x	s	Ø i	min.	max.			
10	20.8	50	-0/+2	-	50	-	x	-	-	50.3	52.2	4	IL 200
15	24.9	50	-0/+6	-	50	-	x	-	-	50.3	56.3	4	IL 200
	24.9	60	-3/+3	-	60	63.5	x	2.3	58.9	56.9	63.5	5	IL 275
20	30.5	50	-1/+5	-	50	-	x	-	-	48.5	55.5	4	IL 100
	30.5	60	-1/+2	-	60	63.5	x	2.3	58.9	59.8	61.9	5	IL 200
25	37.3	100	-9/+5	100	100	101.6	x	2.9	95.8	90.9	105.3	5	IL 340
32	46.0	70	-2/+1	-	70	76.1	x	2.6	70.9	67.8	71	6	IL 100
	46.0	80	-1/+6	80	80	88.9	x	2.9	83.1	80.6	86	8	IL 275
	46.0	100	-3/+6	100	100	108.0	x	2.9	102.2	97.0	114	5	IL 340
40	51.9	70	-0/+6	-	70	76.1	x	2.6	70.9	69.9	76.9	6	IL 100
	51.9	80	-1/+3	80	80	88.9	x	2.9	83.1	78.9	83.3	7	IL 200
	51.9	100	-5/+3	100	100	101.6	x	2.9	95.8	94.1	103.9	6	IL 315
	51.9	125	-6/+9	125	125	133.0	x	3.6	125.8	119.2	135.9	5	IL 360
50	63.9	100	-1/+5	100	100	108.0	x	2.9	102.2	99.9	105	6	IL 300
	63.9	125	-8/+6	125	125	133.0	x	3.6	125.8	117.2	131.9	7	IL 340
	63.9	150	-7/+8	150	150	159.0	x	4.0	151.0	143.9	160.9	5	IL 410
65	79.7	100	-2/+4	100	100	108.0	x	2.9	102.2	97.7	104.7	9	IL 100
	79.7	125	-6/+5	125	125	133.0	x	3.6	125.8	121.9	130	8	IL 315
	79.7	150	-5/+5	150	150	159.0	x	4.0	151.0	143.7	163.7	6	IL 360
80	92.5	125	-0/+7	125	125	133.0	x	3.6	125.8	125.0	132	8	IL 265
	92.5	150	-6/+9	150	150	159.0	x	4.0	151.0	143.6	157.5	9	IL 340
100	117.9	150	-0/+6	150	150	159.0	x	4.0	151.0	149.9	156	10	IL 265
	117.9	160	-0/+2	-	-	168.3	x	4.0	160.3	160.0	162	11	IL 300
	117.9	200	-8/+11	200	200	219.1	x	4.5	210.1	191.9	206.5	7	IL 410
	117.9	225	-2/+8	-	-	244.5	x	6.3	231.9	222.7	233.9	7	IL 575
125	143.7	200	-4/+11	200	200	-	x	-	-	196.3	211.7	13	IL 340
	143.7	210	-2/+11	-	-	219.1	x	4.5	210.1	207.7	227.7	10	IL 360
	143.7	225	-8/+10	-	-	244.5	x	6.3	231.9	215.7	235.7	6	IL 400
	143.7	250	-2/+9	250	250	267.0	x	6.3	254.4	247.9	259.7	8	IL 575
150	172.3	300	-18/+3	300	300	-	x	-	-	281.7	303	6	IL 650
	172.3	210	-1/+5	-	-	219.1	x	4.5	210.1	209.0	215	10	IL 310
	172.3	225	-1/+14	-	-	244.5	x	6.3	231.9	223.3	236	15	IL 340
	172.3	250	-5/+14	250	250	267.0	x	6.3	254.4	244.3	264.3	7	IL 400
	172.3	300	-7/+5	300	300	-	x	-	-	292.3	305	7	IL 500
200	223.1	320	-9/+10	-	-	323.9	x	5.6	312.7	310.3	330	7	IL 650
	223.1	260	-0/+8	-	-	273.0	x	5.0	263.0	259.1	268.1	13	IL 310
	223.1	300	-3/+17	300	300	323.9	x	5.6	312.7	297.1	320.1	12	IL 410
	223.1	350	-6/+15	350	-	355.6	x	5.6	344.4	343.1	366.1	9	IL 500
	223.1	400	-10/+20	400	-	406.4	x	6.3	393.8	390.0	420	9	IL 625
250	277.0	330	-4/+7	-	-	-	x	-	-	324.0	337	12	IL 325
	277.0	340	-6/+8	-	-	355.6	x	5.6	344.4	333.0	351	10	IL 425
	277.0	350	-3/+11	350	-	368.0	x	8.0	352.0	347.2	361	18	IL 360
	277.0	380	-5/+13	-	-	-	x	-	-	374.1	393	13	IL 575
	277.0	400	-1/+4	400	-	419.0	x	10.0	399.0	401.8	404	11	IL 525
300	277.0	450	-10/+12	-	-	457.0	x	6.3	444.4	439.0	462	7	IL 615
	328.3	400	-8/+5	400	-	406.4	x	6.3	393.8	392.3	405	20	IL 360
	328.3	410	-7/+15	-	-	-	x	-	-	402.3	425.3	17	IL 410
	328.3	450	-11/+5	-	-	457.0	x	6.3	444.4	438.3	455.3	12	IL 525
	328.3	500	-5/+20	500	-	508.0	x	6.3	495.4	490.3	520	12	IL 625
350	360.0	410	-4/+10	-	-	-	x	-	-	406.4	420	15	IL 325
	360.0	450	-7/+5	-	-	457.0	x	6.3	444.4	442.0	455	18	IL 475
	360.0	490	-9/+6	-	-	508.0	x	6.3	495.4	480.0	496	13	IL 500
	360.0	550	-24/+8	-	-	559.0	x	6.3	546.4	522.0	558	13	IL 625
400	410.8	460	-2/+10	-	-	-	x	-	-	457.2	470.8	17	IL 325
	410.8	500	-5/+7	500	-	508.0	x	6.3	495.4	495.0	507.8	21	IL 475
	410.8	550	-18/+3	-	-	559.0	x	6.3	546.4	533.7	553.8	15	IL 500
	410.8	600	-8/+8	600	-	610.0	x	6.3	597.4	592.0	608	15	IL 625
450	461.4	510	-2/+11	-	-	-	x	-	-	507.8	521.4	19	IL 325
	461.4	550	-6/+5	-	-	559.0	x	6.3	546.4	543.4	555.5	23	IL 475
	461.4	600	-7/+4	600	-	610.0	x	6.3	597.4	597.2	604.4	17	IL 500
	461.4	650	-22/+9	-	-	660.0	x	7.1	645.8	623.4	657.4	16	IL 625
500	513.0	560	-0/+13	-	-	-	x	-	-	559.4	573	21	IL 325
	513.0	600	-5/+5	600	-	610.0	x	6.3	597.4	595.0	605	25	IL 475
	513.0	650	-17/+2	-	-	660.0	x	7.1	645.8	633.0	652.5	18	IL 500
	513.0	700	-6/+11	700	-	711.0	x	7.1	696.8	694.0	709	18	IL 625
550	564.0	620	-9/+4	-	-	-	x	-	-	610.4	624	23	IL 325
	564.0	640	-3/+10	-	-	660.0	x	7.1	645.8	636.0	650	20	IL 400
	564.0	650	-2/+11	-	-	-	x	-	-	651.1	661	28	IL 475
	564.0	700	-12/+7	700	-	711.0	x	7.1	696.8	692.5	707	20	IL 500
	564.0	750	-20/+12	-	-	762.0	x	8.0	746.0	726.0	762	19	IL 625
600	615.0	700	-12/+7	700	-	711.0	x	7.1	696.8	687.0	707	22	IL 400
	615.0	750	-14/+5	-	-	762.0	x	8.0	746.0	735.0	755	21	IL 500
	615.0	800	-4/+13	800	-	813.0	x	8.0	797.0	792.2	813	21	IL 625

For more combinations see our calculation program



Pressio®-Elements 4 pipes Selection Guide for Pipe OD

Selection guide for ductile iron pipes (GGG) acc. to EN 545, EN 598

carrier pipe OD Ø DN	mm	core drilled hole recomm. ID Ø mm	tolerance	wall sleeve fibre cement ID Ø mm	wall sleeve PVC ID Ø mm	wall sleeve steel ID Ø mm				core hole mm		Pressio® Elements number of elements	Type
						Ø a	x	s	Ø i	min.	max.		
80	98	140	-5/+3	-	-	-	x	-	-	134.9	143	9	IL 300
	98	150	-1/+4	150	150	159.0	x	4.0	151.0	149.0	154	9	IL 340
100	118	150	-0/+6	150	150	159.0	x	4.0	151.0	150.0	156	10	IL 265
	118	160	-0/+3	-	-	168.3	x	4.0	160.3	161.0	163	11	IL 300
	118	200	-8/+4	200	200	-	x	-	-	192.0	204	7	IL 410
	118	225	-2/+9	-	-	244.5	x	6.3	231.9	222.7	234	7	IL 575
125	144	200	-4/+12	200	200	219.1	x	4.5	210.1	196.3	212	13	IL 340
	144	210	-2/+18	-	-	219.1	x	4.5	210.1	208.0	228	10	IL 360
	144	225	-8/+11	-	-	244.5	x	6.3	231.9	216.0	236	6	IL 400
	144	250	-2/+10	250	250	267.0	x	6.3	254.4	247.9	260	8	IL 575
150	170	210	-4/+5	-	-	219.1	x	4.5	210.1	206.0	215	10	IL 310
	170	225	-3/+13	-	-	244.5	x	6.3	231.9	222.7	238	15	IL 340
	170	250	-7/+12	250	250	267.0	x	6.3	254.4	242.4	262	7	IL 400
	170	300	-9/+5	300	300	-	x	-	-	290.0	305	7	IL 500
200	222	260	-2/+7	-	-	273.0	x	5.0	263.0	258.0	267	13	IL 310
	222	300	-4/+19	300	300	323.9	x	5.6	312.7	296.0	319	12	IL 410
	222	350	-7/+15	350	-	355.6	x	5.6	344.4	343.1	365	9	IL 500
	222	400	-11/+20	400	-	406.4	x	6.3	393.8	384.7	420	9	IL 625
250	274	315	-5/+4	-	-	323.9	x	5.6	312.7	310.0	319	16	IL 310
	274	340	-6/+4	-	-	355.6	x	5.6	344.4	338.0	346	17	IL 360
	274	350	-2/+5	350	-	368.0	x	8.0	352.0	348.0	355	14	IL 410
	274	400	-5/+5	400	-	419.0	x	10.0	399.0	394.0	405	10	IL 500
	274	450	-12/+16	-	-	457.0	x	6.3	444.4	436.0	466	7	IL 615
300	326	380	-4/+6	-	-	-	x	-	-	374.3	386	14	IL 325
	326	400	-1/+15	400	-	419.0	x	10.0	399.0	398.0	415	12	IL 400
	326	450	-13/+3	-	-	457.0	x	6.3	444.4	436.0	453	12	IL 525
	326	500	-8/+15	500	-	508.0	x	6.3	495.4	488.0	515	12	IL 625
350	378	450	-8/+2	-	-	457.0	x	6.3	444.4	442.0	452	23	IL 360
	378	500	-1/+21	500	-	-	x	-	-	501.9	521	14	IL 500
	378	500	-6/+5	500	-	508.0	x	6.3	495.4	497.1	505	14	IL 525
	378	550	-8/+10	-	-	559.0	x	6.3	546.4	540.0	560	9	IL 615
400	429	480	-3/+9	-	-	-	x	-	-	477.0	489	18	IL 325
	429	500	-0/+7	500	-	-	x	-	-	500.0	507	16	IL 425
	429	510	-1/+11	-	-	-	x	-	-	509.2	521	16	IL 400
	429	540	-1/+10	-	-	559.0	x	6.3	546.4	539.0	550	15	IL 525
	429	550	-1/+5	-	-	-	x	-	-	549.0	555	15	IL 500
	429	600	-5/+20	600	-	610.0	x	6.3	597.4	591.0	620	15	IL 625
500	532	600	-10/+6	600	-	610.0	x	6.3	597.4	590.1	606	19	IL 425
	532	610	-5/+14	-	-	-	x	-	-	604.0	624	19	IL 400
	532	640	-12/+8	-	-	660.0	x	7.1	645.8	628.0	648	23	IL 575
	532	650	-0/+9	-	-	-	x	-	-	650.0	659	19	IL 525
	532	700	-2/+25	700	-	-	x	-	-	694.0	725	18	IL 625
600	635	700	-8/+5	700	-	711.0	x	7.1	696.8	691.0	705	22	IL 425
	635	750	-5/+12	-	-	762.0	x	8.0	746.0	751.3	762	22	IL 525
	635	800	-3/+20	-	-	-	x	-	-	797.0	820	21	IL 625

For more combinations see our calculation program

The 4 pipes warranty only applies to faulty material. Checking the suitability of the product for the individual application is solely the responsibility of the user.

Pressio®-Elements 4 pipes Modular Wall Penetration Seals



Application instructions



1. **Centre** pipe or cable in the wall sleeve/core bore. Carrier pipe or cable must be supported . Pressio-Elements seals cannot perform any load-bearing function. **Our tip:** core holes can be coated with epoxy resin 4 pipes to protect the cement and reinforcing steel. This coating can smoothen over any cavities and grooves.



Attention! Lubricant: Only for type KTW/W270
Use the supplied lubricant on the inside and outside of each element / connected end so the elements can glide.



2. **Connect ends of the Pressio®-Elements.** All heads of bolts must point in the direction of the installer.



Installation video



3. It is possible that a chain could slightly sag. **No elements should be taken out of the chain.** It can be necessary to stretch the chain at smaller pipe diameters.



4. Push Pressio®-Elements **into the annular space.** Begin to push in the seal first at 6 o'clock position, then right and left up to 12 o'clock position. Heads of bolts should still be easily accessible after installation in the wall.



5. Tighten the bolts with a **torque wrench** beginning at the 12 o'clock position. Do not tighten with a power tool.



6. Tighten every bolt with about 4 to 5 turns. Repeat **in clockwise direction** until the noted torque (see table) is reached and the rubber oozes out between pressure plates evenly.



7. **Tighten the bolts again after about 2 hours** according to mentioned torque. Repeat this procedure several times depending on on-site conditions (e.g. temperatures < 10°C, larger annular space etc.). This is especially important for IL 500 and larger.

Torque table		
Type	Type: C, S 316, OC, OS 316, KTW/W270 and TS	Type: BC and BS 316
IL 100	1 Nm	1 Nm
IL 200 up to IL 275	1.5 Nm	1 Nm
IL 300 up to IL 360	5 Nm	4 Nm
IL 400 up to IL 475	15 Nm	12 Nm
IL 500 up to IL 575	30 Nm	22 Nm
IL 615 up to IL 700	60 Nm	48 Nm

Please consider following steps when mounting Pressio®-Elements modular mechanical seals:

- **Remove dirt** and impurities from carrier pipe and core bore / wall sleeve
- **Carrier pipe must be centered**
- **Pressure plates** must be adjusted when mounting
- The right number of elements has to be used, as specified
- Make sure that **pipe is supported before back filling**
- Pressio®-Elements Modular Seals **are not a fixed point**
- It is not possible to seal a spiral-wave pipe in this way
- Always tighten bolts with a torque wrench, **never with power tools**

To calculate the right Pressio®-Elements the calculation program on our website www.4pipes.de is at your disposal.

Certificate Pressio®-Elements 4 pipes



MFFPA
MFFPA Leipzig GmbH
 Test, Monitoring and Certification Office for
 Construction Materials, Components and Types
 Business Division V - Civil and Underground Engineering
 Prof. Dr.-Ing. Otfried Seife
 Work Group 5.1 - Structural Sealing

Test Report PB 5.1 / 15-538-2

dated April 18, 2013
 1st copy

object: Pressio-Elements Wall Penetration Seal Type II, 340 BC - testing sealing when installed

client: 4 pipes GmbH
 Sigmundstraße 182
 90431 Nürnberg

receipt of sample: September 18, 2012 / December 17, 2012 / February 11, 2013

receipt number of sample: 381-1 / 467-3 / 490

test period: February to April 2013

staff engineer: Dipl.-Ing. Jüling

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MFFPA
MFFPA Leipzig GmbH
 Test, Monitoring and Certification Office for
 Construction Materials, Components and Types
 Business Division V - Civil and Underground Engineering
 Prof. Dr.-Ing. Otfried Seife
 Work Group 5.1 - Structural Sealing

Test Report PB 5.1 / 15-538-1

dated April 17, 2013
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object: Pressio-Elements Wall Penetration Seal Type II, 340 C - testing sealing when installed

client: 4 pipes GmbH
 Sigmundstraße 182
 90431 Nürnberg

receipt of sample: September 18, 2012 / December 17, 2012 / February 11, 2013

receipt number of sample: 381-1 / 467-1 / 490

test period: February to April 2013

staff engineer: Dipl.-Ing. Jüling

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 Fax: +49 (0) 341 - 6582-2

MFFPA
MFFPA Leipzig GmbH
 Test, Monitoring and Certification Office for
 Construction Materials, Components and Types
 Business Division V - Civil and Underground Engineering
 Prof. Dr.-Ing. Otfried Seife
 Work Group 5.1 - Structural Sealing

Test Report PB 5.1 / 15-538-3

dated April 18, 2013
 1st copy

object: Pressio-Elements Wall Penetration Seal Type II, 340 OC - testing sealing when installed

client: 4 pipes GmbH
 Sigmundstraße 182
 90431 Nürnberg

receipt of sample: September 18, 2012 / December 17, 2012 / February 11, 2013

receipt number of sample: 381-1 / 467-2 / 490

test period: February to April 2013

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We will send the complete test report on request.

IAF - Radioökologie GmbH

Labor für Radionuklidanalytik | Radiologische Gutachten | Consulting

IAF - Radioökologie GmbH • Wilhelm-Rönisch-Str. 9 • 01454 Radeberg

4 pipes GmbH
Sigmundstraße 182
90431 Nürnberg

IAF - Radioökologie GmbH
Wilhelm-Rönisch-Str. 9
01454 Radeberg
Telefon (03528) 48730-0
Telefax (03528) 48730-22
e-Mail info@iaf-dresden.de

Radeberg, 2014-03-17

Certificate

Radon Diffusion Coefficient

The radon diffusion coefficient D of the delivered material as a part of the sealing system "Pressio-Elements" has been measured for the company

4 pipes GmbH
Sigmundstraße 182
90431 Nürnberg.

The results are described in the following table.

Description of variables	Measured values
Diffusion coefficient D	1,04 · 10 ⁻¹⁶ m ² /s
Diffusion length L _D	7,04 mm
Thickness of the material d	40,0 mm
Area of the Material F	101 cm ²
Test parameter R = d · L _D	5,68
Result	R > 3, radon tight



The material is characterised as "radon tight" if its thickness exceeds the associated radon diffusion length of the material at least by a factor 3.

Dr. rer. nat. habil. Hartmut Schütz
managing director

Durch die Deutsche Akkreditierungsstelle GmbH nach
DIN EN ISO/IEC 17025:2005 akkreditiertes Prüflaboratorium.
Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren.



Geschäftskürzel: Bankverbindung HypoVereinsbank Dresden Handelsregister: HRB 9186
Dr. rer. nat. habil. Hartmut Schütz BIK: 2522 0033 0386 0303 1704 29 Amtsgericht Dresden
SWIFT (BIC): HYVEDE3303

Certified translation from the German language



MFGA Leipzig GmbH

Testing, inspection and certification body for building materials, building products and building systems

Division II - Structural Fire Protection

Dir.: Ing. Sebastian Hübnerwald

Team 3.1 - Fire Behaviour of Building Products

Matthias Claus

Phone +49 (0) 341-8983-123

claus@mfga-leipzig.de

Classification report no. KB 3.1/16-374-2

Reaction to fire classification report

from 18 November 2016
1st copy

Client: 4 pipes GmbH
Sigmundstraße 182
90431 Nürnberg

Order: Reaction to fire classification according to DIN EN 13501-1:2010

Subject matter: Wall penetration seals "Pressio-Elements type IL 100 BC" and "Pressio-Elements type IL 100 S 316"

Date of order: 21. October 2016

Person in charge: Matthias Claus

This document consists of 4 pages.



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This document is certified in German. It is available in other languages upon request.

Approved for use according to the requirements of the building code (BIMBA) for fire safety.

Approved for use according to the requirements of the building code (BIMBA) for fire safety.

Geprüfte für Materialprüfung und Prüfungsstellen für die Bauteileprüfung (MFGA Leipzig GmbH)

Registered office: Rosa-Hugel-Str. 23 – 04119 Leipzig/Germany

Managing Director: Prof. Dr.-Ing. Frank Dahn

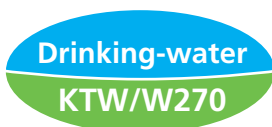
Company Register: District Court Leipzig HRB 12718

VAT ID No.: DE 815200488

Phone: +49 (0) 341-8983-123

Fax: +49 (0) 341-8983-133

On request, we will send you the complete test report.



On request, we can also send you certificates for drinking water Pressio®-Elements KTW / W270



MFGA Leipzig GmbH
Structural Fire Protection

KB 3.1/16-374-2
from 18 November 2016

Page 3 of 4

3 Classification and field of application

3.1 Reference for classification

This classification was carried out in accordance with DIN EN 13501-1:2010.

3.2 Classification

The building products "Pressio-Elements type IL 100 BC" and "Pressio-Elements type IL 100 S 316" are classified as follows regarding their reaction to fire behaviour: E

The additional classification in relation to smoke production is: -

The additional classification in relation to flaming droplets/particles is: -

The format of the reaction to fire classification for building products excluding floorings and pipe thermal insulation products is:

Reaction to fire	Smoke production	Flaming droplets/particles
E	-	-

i. e. E

Reaction to fire classification: E

3.3 Area of application

This classification is valid for the following product parameters:

- The composition of the product to be classified described in section 1.2 must be used according to these specifications. Further requirements under building law for the constructive design are to be considered.
- The building products "Pressio-Elements type IL 100 BC" and "Pressio-Elements type IL 100 S 316" must have a thickness of 60 mm.
- The building products "Pressio-Elements type IL 100 BC" and "Pressio-Elements type IL 100 S 316" must have a minimum thickness of 12 mm.
- The building products "Pressio-Elements type IL 100 BC" and "Pressio-Elements type IL 100 S 316" must have a length mass of 0.73 kg/m².

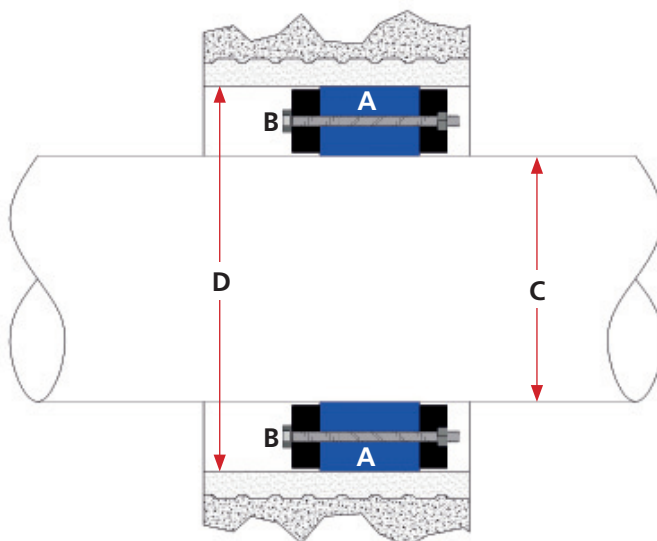
Pressio®-Elements 4 pipes Specification



Specification guide Pressio®-Elements 4 pipes

Pressio®-Elements 4 pipes, Germany, modular wall penetration seals to seal the annular space between wall sleeve/core drilled hole and OD pipe against high external water pressure. The seal works with elastomeric elements that are compressed into the annular space by tightening the integrated bolts, radon-tight.

A) Rubber quality
B) Bolt material
C) OD pipe incl. coating	: ND.....OD.....mm
D) ID wallsleeve/core holemm
Seal type
Number of ringspcs.



Specification example:

- A)** Material EPDM Elastomer blue, extra soft 40 Shore A
- B)** Bolts, washers and nuts made of S316L stainless steel
- C)** Outer diameter pipe PE 110 mm
- D)** Inner diameter wall sleeve 150 mm

Spec. Seal = 7 elements IL 310 BS316 per ring