

ORIGINAL LINK-SEAL® MODULAR SEAL

EASY AND QUICK INSTALLATION
THANKS TO PRE-ASSEMBLED
MODULE DESIGN

POTABLE WATER, OIL,
FUEL, SOLVENTS, AND HIGH
TEMPERATURE-RESISTANT
VERSIONS AVAILABLE

PROTECTED POSITION
IN THE MASONRY

FHRK
QUALITY



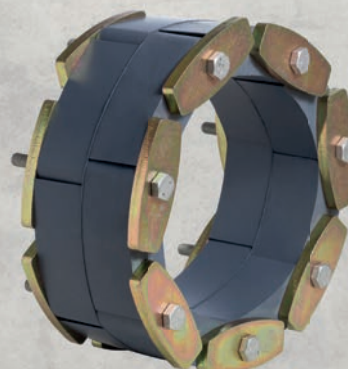
Type O / OS 316

Type C / S 316

Type BC / BS 316



Type KTW/W270



Type T

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GENERAL INFORMATION

Fields of Application

Original LINK-SEAL® Modular Seals are ideal for sealing wall penetrations of gas, water and sewage pipes as well as cables (taking into account the calculation bases and the on-site suitability of the product)

- Wall penetrations
- Tank embeddings
- Casing pipe seals

Advantages

- High quality rubber parts ensure longest lifetime
- Potable water, oil, fuel, solvents, and high temperature-resistant versions available upon request
- Protected position in the masonry
- Perfect even for retrofitting
- Easy and quick installation thanks to pre-assembled modules
- Choice of zinc-plated or S316 (V4A) stainless steel bolts
- Different colors for different rubber qualities
- Electrically isolating
- Hydrostatic sealing against pressing water
- Original product with longest lifetime experience on the market

The Principle

The radial expansion of the rubber ensures a permanently pressure tight and secure sealing of the annular space. For very thin-walled plastic pipes e.g. pre-insulated, flexible and corrugated pipe systems, a PSI Kompakt seal type FW and WR Super Soft is recommended.

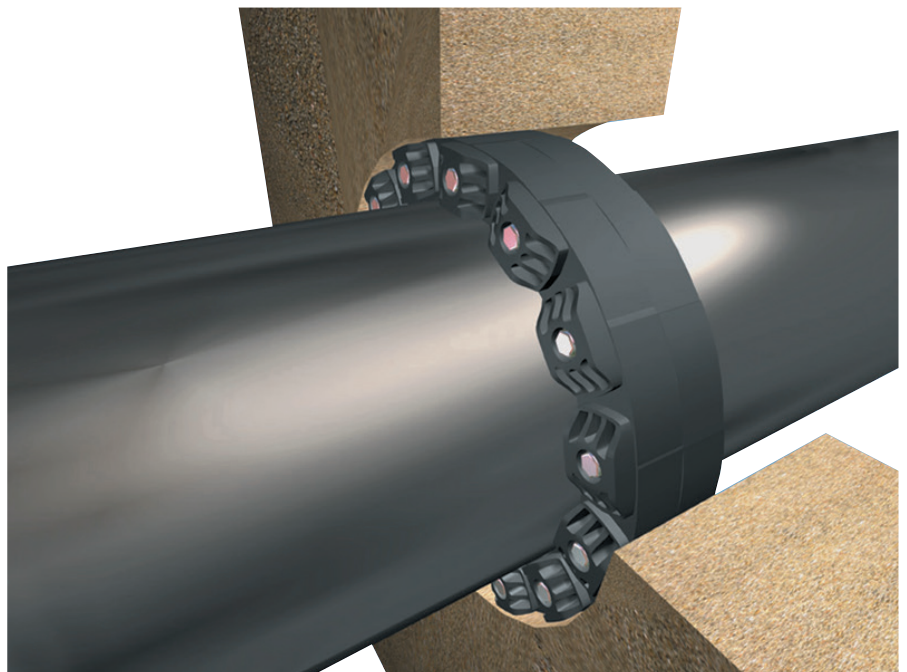
Recommendation

The inside of the core drilling should be coated in order to protect the reinforcement. Therefore we recommend using core hole sealing respectively epoxy resin.

FHRK - Seal of Quality

FHRK testing basis GE 101 Modular Seals (Test report no. G 30 322-6-2)

- Original LINK-SEAL® Modular Seal Type C and Type S316



More content can be found on
www.psi-products.com

TECHNICAL DATA

Material Properties

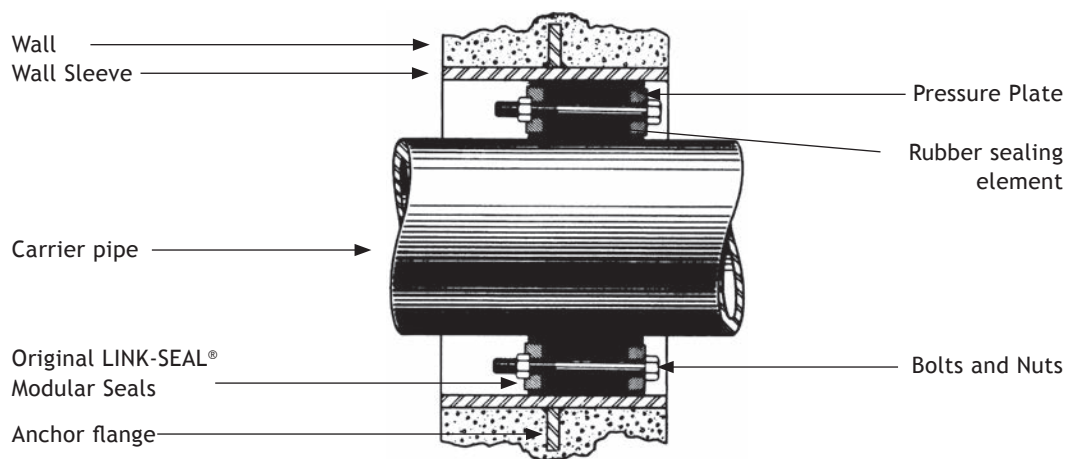
Temperature resistance	Standard version black Type T, grey Type O, green KTW/W270*	from -40 °C up to +80 °C from -55 °C up to +204 °C from -40 °C up to +70 °C from -40 °C up to +80 °C
Oil, fuel and solvent resistant	Type O (not UV-resistant)	
Especially for plastic pipes	blue Version	Shore A 40 ± 5
Pressure tight	up to 5 bar (TÜV, Lloyd's Register) Original LINK-SEAL® up to 3 bar (Lloyd's Register) Original LINK-SEAL®, Type BC and BS316	
Electrical insulation	Dielectric strength 500 V/mm**	

The values specified for the pressure tightness are valid at 23 °C. For different, in particular higher permanent operating temperatures, it might be necessary to fit an ejection safety device.

*The KTW/W270 version is used whenever the seal comes into contact with potable water.

**Not valid for type T (Steel pressure plates).

Sectional drawing of a wall penetration sealed with LINK-SEAL® Modular Seals ring seal



Wall Sleeves

PSI offers wall sleeves in asbestos free fiber cement, PVC, galvanized steel or S304 (V2A) with an inner diameter of 50 mm up to 2350 mm.



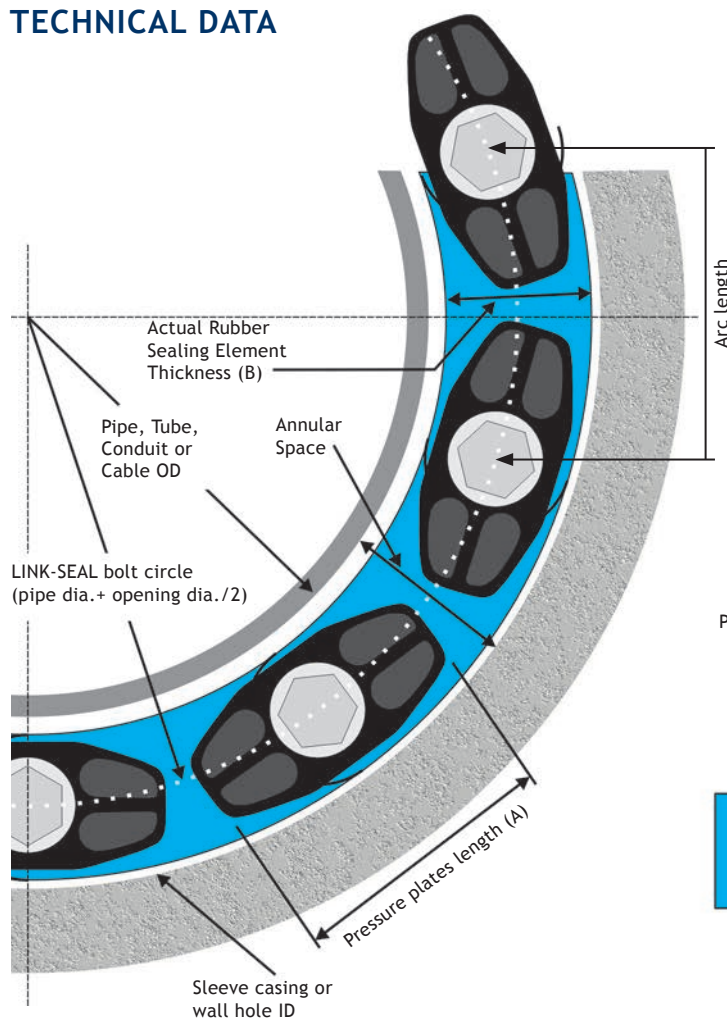
TECHNICAL DATA

Picture	Type	Version	Sealing element	Pressure plates	Nuts and Bolts	Temp. range	Application
	C	Standard	EPDM rubber black Shore A 50±5	fiber reinforced polyamide	strength class 8.8 galvanized	-40 °C up to +80 °C	General application in a normal atmosphere, water, or a humid environment. Suitable for electrical isolation and cathodic corrosion protection.
	S 316	Standard stainless steel	EPDM rubber black Shore A 50±5	fiber reinforced polyamide	Material A 4-70 stainless steel	-40 °C up to +80 °C	High level of water-resistance, resistant against most inorganic substances (acids and alkalis) and most organic substances
	BC	Plastic pipes	EPDM rubber blue Shore A 40±5	fiber reinforced polyamide	strength class 8.8 galvanized	-40 °C up to +80 °C	See type "C", but particular for plastic pipes
	BS 316	Plastic pipes stainless steel	EPDM rubber blue Shore A 40±5	fiber reinforced polyamide	Material A 4-70 stainless steel	-40 °C up to +80 °C	See type "S 316", but particular for plastic pipes
	O	Oil resistant	Nitrile rubber green Shore A 50±5	fiber reinforced polyamide	strength class 8.8 galvanized	-40 °C up to +70 °C	Good resistance against oils, aromatic fuels, solvents and other mineral oil based products not UV-resistant
	OS 316	Oil resistant stainless steel	Nitrile rubber green Shore A 50±5	fiber reinforced polyamide	Material A 4-70 stainless steel	-40 °C up to +70 °C	Good resistance against oils, aromatic fuels, solvents and other mineral oil based products not UV-resistant
	KTW/ W270*	Trinkwas-serbereich	EPDM rubber black, with a KTW stamp Shore A 50±5	fiber reinforced polyamide natural color	Material A 4-70 stainless steel	-40 °C up to +80 °C	Suitable for applications in potable water. Tested according to W270 and UBA Elastomer Guideline Transition Control as well as WRAS & ACS. Radon-tight.
	T**	High and low temperature resistant	Silicon rubber grey Shore A 50±5	St 37 galvanized	strength class 8.8 galvanized	-55 °C up to +204 °C	No isolating properties, especially suitable for extreme temperatures

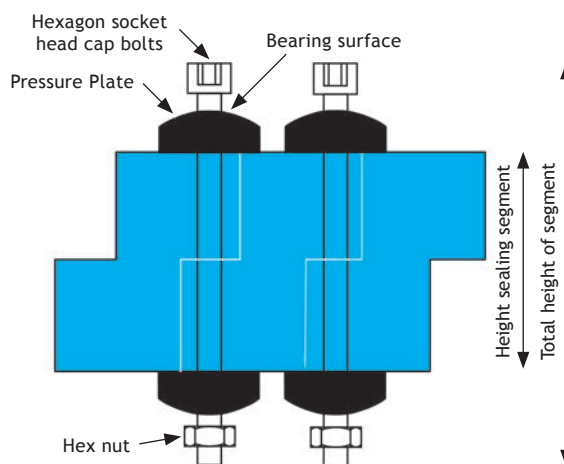
* Elastomers are tested according to UBA Elastomer Guideline, DVGW W270, WRAS and ACS. Polyamide components are tested as well.
** Available upon request



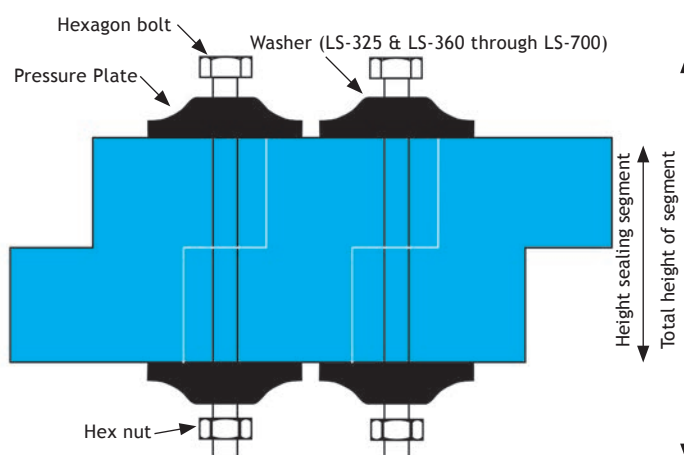
TECHNICAL DATA



For LS-200 through LS-315



For LS-325 through LS-700



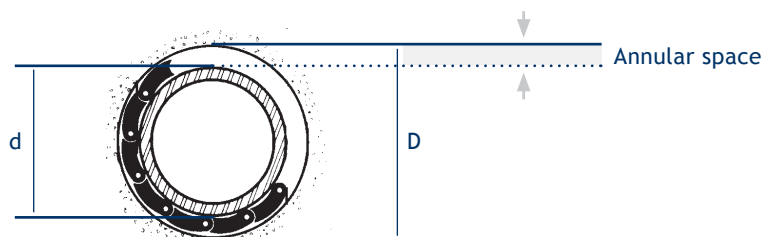
LINK-SEAL® Typ C	Rubber sealing element [mm]			Pressure plate [mm]		Bolts				Weight [kg] (10 elements)	Overall Height segment [mm]
	Thickness with tension	Height	Arc length	Length	Height	Type	Thread	Length	Wrench size		
LS 200	12,7	44	30	27	8	Cylinder bolt with hexagon socket	M5	65	4	0,3	70
LS 265	16	45	41	38	10		M5	65	4	0,5	70
LS 275	16	55	26	24	8		M5	65	4	0,4	76
LS 300	18	60	41	37	13		M8	90	6	1,1	98
LS 310	18	61	58	51	16		M6	90	5	1	99
LS 315	21	61	38	37	13		M8	90	6	1,2	98
LS 325	23	65	80	76	23	Hexagon bolt	M8	110	13	2	116
LS 340	26	70	41	39	17		M8	110	13	1,4	115
LS 360	32	70	55	52	20		M8	110	13	2,3	110
LS 400	36	85	93	89	27		M10	130	16	5	139
LS 410	37	86	68	64	23		M10	130	16	3,8	132
LS 425	28	74	93	88	30		M10	130	16	3,9	140
LS 440	44	90	99	90	24		M10	140	16	6,5	140
LS 475	41	84	69	64	21		M10	130	16	4	130
LS 500	60	96	100	92	27		M12	140	18	9,3	150
LS 525	55	96	100	92	24		M12	140	18	8,3	144
LS 575	48	94	79,5	75	25		M12	140	18	6,3	144
LS 615	82	100	156	150	48		M16	180	24	24	196
LS 625	83	102	107	100	30		M12	150	18	16	162
LS 650	69	102	107	100	30		M12	150	18	12,5	162
LS 700	95	100	156	149	29		M12	180	18	24	188

Values rounded. All data without guarantee. Subject to change without notice.

TYPE SELECTION

01. Which type?

The suitable LINK-SEAL® for the application results from the thickness of the annular space between casing pipe (wall sleeve/core drilling) and media pipe. The perfect LINK-SEAL® is smaller than the annular space in a non-tensioned condition and larger in tensioned condition. The annular space is calculated as follows:



Casing pipe inside (D)

Carrier pipe outside (d)

-

=

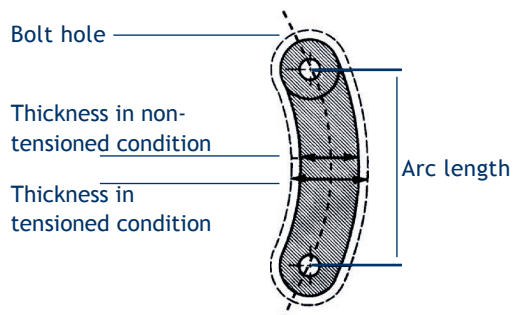
2

Annular space

The calculated value must lie between the values in the table for “non-tensioned condition” and “tensioned condition”. Simply enter the calculated value in the right place in the “annular space thickness” column and determine the right type.

02. How many elements?

After the type definition the required number of elements needs to be calculated. Determine the bolt circle by using the formula below and divide the value by the arc length of the chosen type (see table). The result, rounded up or down, shows the required number of elements.



Casing pipe inside (D)

Carrier pipe outside (d)

+

x 3.14

Bolt hole

Arc length

Number

:

=

2

TYPE SELECTION

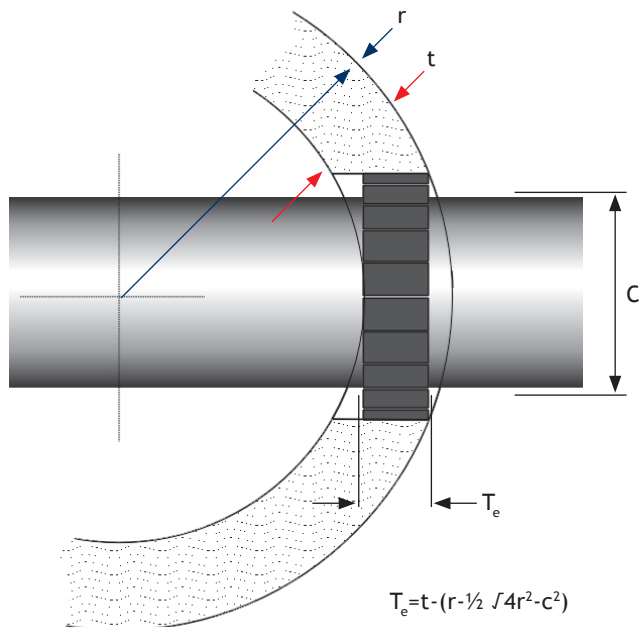
Type	Thickness		Arc length	Outer diameter of Pipe		Minimum no. of Segments	Required wall thickness	Recommended sleeve length (on wall-face sleeve)
	without tension	with tension		from up	to			
LS 200	12,7 mm	16,0 mm	30,0 mm	21,3 mm	323,9 mm ⁽¹⁾	4	75 mm	100 mm
LS 265	16,0 mm	20,0 mm	41,0 mm	50,0 mm	406,4 mm ⁽¹⁾	5	75 mm	100 mm
LS 275	16,0 mm	20,0 mm	25,6 mm	8,0 mm	90,0 mm	4	75 mm	100 mm
LS 300	18,0 mm	22,5 mm	41,0 mm	44,5 mm	250,0 mm	5	100 mm	150 mm
LS 310	18,0 mm	22,5 mm	57,5 mm	60,3 mm	406,4 mm ⁽²⁾	5	100 mm	150 mm
LS 315	21,1 mm	26,0 mm	38,4 mm	37,0 mm	315,0 mm	5	100 mm	150 mm
LS 325	23,2 mm	30,0 mm	79,8 mm	133,0 mm	711,0 mm	6	120 mm	150 mm
LS 340	25,5 mm	34,0 mm	41,4 mm	30,0 mm	323,9 mm	4	120 mm	150 mm
LS 360	32,0 mm	42,0 mm	55,1 mm	40,0 mm	406,4 mm	5	120 mm	150 mm
LS 400	36,3 mm	46,0 mm	93,1 mm	139,7 mm	1220,0 mm	6	140 mm	200 mm
LS 410	37,0 mm	48,5 mm	67,6 mm	60,3 mm	323,9 mm	5	140 mm	200 mm
LS 425	28,4 mm	37,0 mm	93,1 mm	144,0 mm	1220,0 mm	6	140 mm	200 mm
LS 440	44,0 mm	55,0 mm	99,0 mm	139,7 mm	1220,0 mm	6	140 mm	200 mm
LS 475	41,3 mm	48,5 mm	68,6 mm	60,3 mm	1220,0 mm	5	140 mm	200 mm
LS 500	60,3 mm	71,5 mm	99,8 mm	100,0 mm	1220,0 mm	5	150 mm	200 mm
LS 525	55,4 mm	63,5 mm	99,8 mm	133,0 mm	1220,0 mm	6	150 mm	200 mm
LS 575	48,0 mm	58,0 mm	79,5 mm	130,0 mm	1220,0 mm	5	150 mm	200 mm
LS 615 ⁽³⁾	81,6 mm	102,0 mm	155,5 mm	219,0 mm	3000,0 mm	6	150 mm	250 mm
LS 625	83,0 mm	102,0 mm	106,7 mm	160,0 mm	2000,0 mm	7	150 mm	250 mm
LS 650	69,0 mm	84,0 mm	106,7 mm	160,0 mm	2000,0 mm	7	150 mm	250 mm
LS 700	95,0 mm	110,0 mm	155,5 mm	219,6 mm	3000,0 mm	6	200 mm	250 mm

IMPORTANT:

- (1 From an outer diameter of DA 150 we recommend to enlarge the borehole to be able to use at least LINK-SEAL® Type LS 310.
- (2 From an outer diameter of DA 300 we recommend to enlarge the borehole to be able to use at least LINK-SEAL® Type LS 325.
- (3 The LS 615 is not suitable for PE pipes!
- When using LINK-SEAL® in combination with an on wall-face sleeve it is recommended to choose the sleeve length greater than the required wall thickness, in order to achieve free movement of the LINK-SEAL® bolts during the installation process

WALL PENETRATION SEALS FOR MANHOLES

When LINK-SEAL® modular seals are specified for a penetration through a curved wall, it is necessary to check in advance whether a sufficiently large effective sealing surface (T_e) is available. The effective wall thickness can be determined by a scale drawing or by using the formula below. The effective sealing surface must be greater than -or equal to the required effective minimum wall thickness of the selected LINK-SEAL®.



Legend:

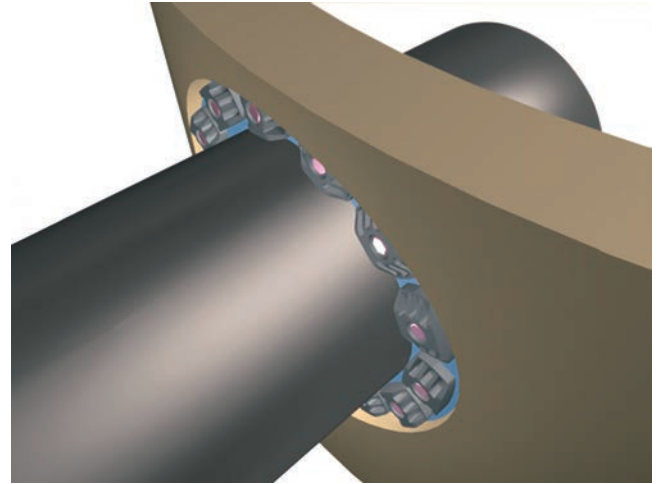
T_e = Available effective sealing surface

t = Wall thickness

r = Outer diameter

c = Inner diameter core drilling / opening

The determined effective sealing surface (T_e) must be at least as large as the required minimum wall thickness of the selected LINK-SEAL® type. If the effective sealing surface (T_e) is at least 40 mm (80 mm for core drillings from 800 mm diameter), a PSI kompakt seal can be selected as an alternative option.



LINK-SEAL® Type	Required wall thickness
LS 200 - LS 275	75 mm
LS 300 - LS 315	100 mm
LS 325 - LS 360	120 mm
LS 400 - LS 475	140 mm
LS 500 - LS 650	150 mm
LS 700	200 mm

SELECTION FOR CORE DRILLED HOLES

Core hole in mm	Carrier pipe outer diameter in mm from - to		Selected seal	
			Quantity of elements	Type LS
50	10	18	4	275
80	40	48	8	275
	48	53	7	200
100	32	45	5	340
	48	57	6	315
	55	64	6	300
	62	68	6	265
	68	75	9	200
125	42	61	5	360
	58	74	7	340
	73	82	8	315
	80	89	8	300
	87	93	8	265
150	95	100	12	200
	53	67	5	475
	58	76	5	410
	66	82	6	360
	82	99	9	340
	105	114	7	310
	112	118	10	265
200	118	125	14	200
	103	117	7	475
	103	124	7	410
	116	133	9	360
	132	149	13	340
250	155	164	10	310
	134	154	8	575
	140	160	6	440
	153	163	9	475
	158	177	7	400
	166	186	12	360
	178	192	7	425
300	190	203	9	325
	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
350	255	264	15	310
	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
	276	293	11	425
	286	296	24	340
	294	303	13	325
	307	314	18	310

Core hole in mm	Carrier pipe outer diameter in mm from - to		Selected seal	
			Quantity of elements	Type LS
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
500	390	403	17	325
	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
600	440	453	19	325
	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

All other sizes on request.

Available in these versions:

Type C: Rubber EPDM (black standard), bolts/nuts galvanized

Type BC: Rubber EPDM (blue, extra soft for plastic pipe), bolts/nuts galvanized

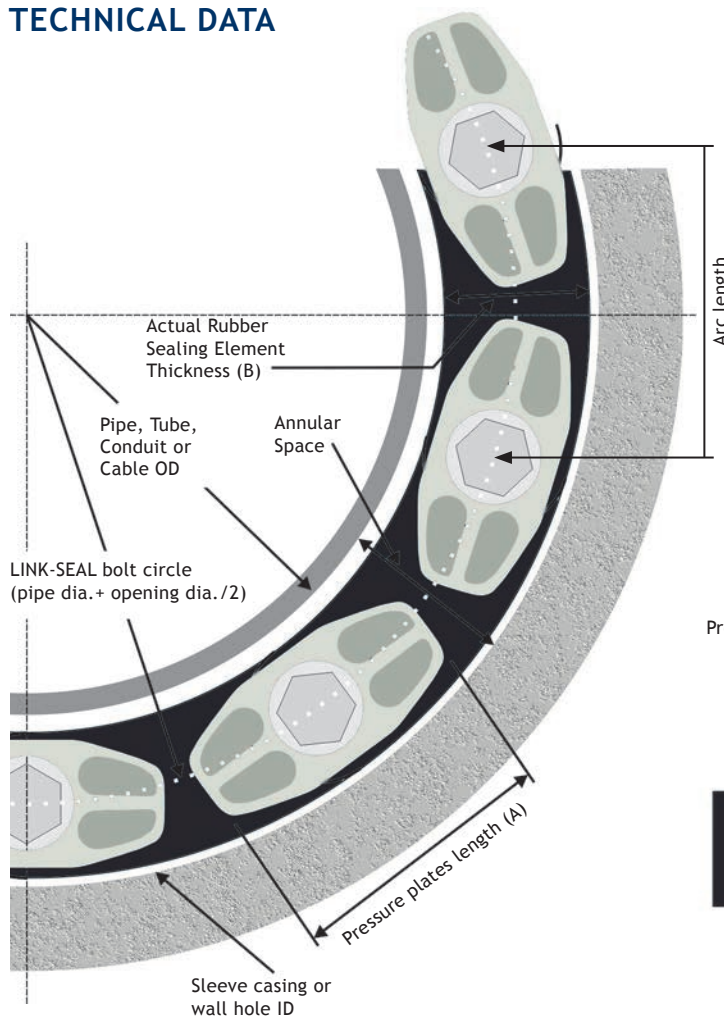
Type S316: Rubber EPDM (black), bolts/nuts stainless steel

Type BS316: Rubber EPDM (blue, extra soft for plastic pipe), bolts/nuts stainless steel

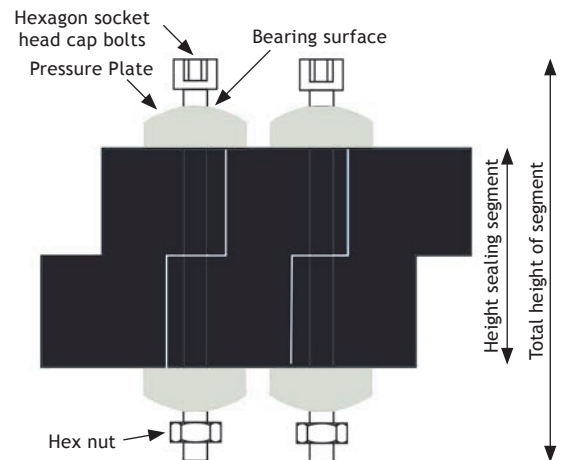
Type O: Rubber Nitril (green, oil resistant), bolts/nuts galvanized

Type OS316: Rubber Nitril (green, oil resistant), bolts/nuts stainless steel

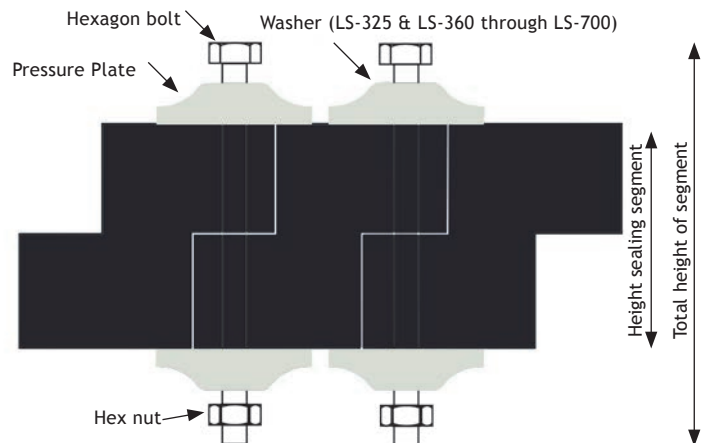
TECHNICAL DATA



For LS-200 through LS-315



For LS-325 through LS-700

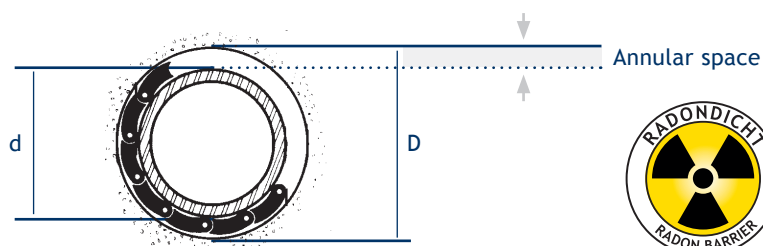


LINK-SEAL® Type KTW/W270	Rubber sealing element [mm]			Pressure plate [mm]		Bolts				Weight [kg] (10 elements)	Overall Height segment [mm]
	Thickness with tension	Height	Arc length	Length	Height	Type	Thread	Length	Wrench size		
LS 200	13	44	31	27	8	Cylinder bolt with hexagon socket	M5	65	4	0,3	70
LS 275	16	55	25	24	8		M5	65	4	0,3	76
LS 300	18	60	41	37	13		M8	90	6	1,0	98
LS 315	21	61	38	37	13		M8	90	6	1,0	98
LS 325	24	65	79	76	23	Hexagon bolt	M8	110	13	2,2	116
LS 340	25	70	42	39	17		M8	110	13	1,3	115
LS 360	31	70	56	52	20		M8	110	13	2,1	110
LS 400	36	85	93	89	27		M10	130	16	4,5	139
LS 410	37	86	68	64	23		M10	130	16	3,7	132
LS 425	29	74	93	88	30		M10	130	16	3,8	140
LS 440	44	90	99	90	24		M10	140	16	6,2	140
LS 475	41	84	68	64	21		M10	130	16	3,9	130
LS 500	61	96	99	92	27		M12	140	18	9,7	150
LS 525	53	96	99	92	24		M12	140	18	8,7	144
LS 575	48	94	79	75	25		M12	140	18	5,2	144
LS 625	83	102	107	100	30		M12	150	18	13,7	162
LS 650	69	102	107	100	30		M12	150	18	12,0	162

TYPE SELECTION

01. Which Type?

The LINK-SEAL® ring seal suitable for the application depends on the annular distance between the casing pipe (wall sleeve) and carrier pipe. The optimal type is smaller than the annular space when in free state, and larger when in expanded state. The annular space is calculated from:



Casing pipe inside (D)

Carrier pipe outside (d)

-

=

Annular space

2

The calculated value must lie between the values in the table for „thickness in free state“ and „thickness expanded“. Simply enter the calculated value in the right place in the „annular space thickness“ column and determine the type.

TYPE SELECTION

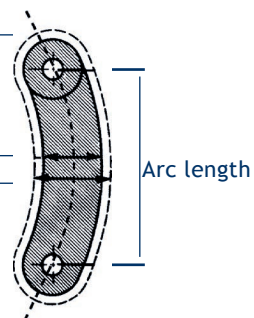
02. How many elements?

After the type definition the required number of elements needs to be calculated. Determine the bolt circle by using the formula below and divide the value by the arc length of the chosen type (see table). The result, rounded up or down, shows the required number of elements.

Bolt hole

Thickness in non-tensioned condition

Thickness in tensioned condition



Casing pipe inside (D)

Carrier pipe outside (d)

+

x 3.14 =

Bolt hole

Arc length

Number

:

=

2

TYPE SELECTION

Type	Thickness		Arc length	Outer diameter of Pipe		Minimum no. of Segments	Required wall thickness
	without tension	with tension		von	bis		
LS 200	12,7 mm	15,7 mm	30,5 mm	21,3 mm	323,9 mm ⁽¹⁾	4	75 mm
LS 275	16,0 mm	20,0 mm	25,0 mm	0 mm	90,0 mm	4	75 mm
LS 300	17,5 mm	22,5 mm	40,5 mm	44,5 mm	406,4 mm ⁽²⁾	5	100 mm
LS 315	20,5 mm	26,0 mm	38,4 mm	37,0 mm	315,0 mm	5	100 mm
LS 325	24,0 mm	30,0 mm	79,0 mm	133,0 mm	711,0 mm	6	120 mm
LS 340	24,5 mm	34,0 mm	42,0 mm	30,0 mm	323,9 mm	4	120 mm
LS 360	31,2 mm	42,0 mm	55,5 mm	40,0 mm	406,4 mm	5	120 mm
LS 400	35,5 mm	46,0 mm	93,0 mm	139,7 mm	1220,0 mm	6	140 mm
LS 410	36,5 mm	48,5 mm	68,0 mm	60,3 mm	323,9 mm	4	140 mm
LS 425	28,6 mm	37,0 mm	93,0 mm	144,0 mm	1220,0 mm	6	140 mm
LS 440	44,0 mm	55,0 mm	99,0 mm	139,7 mm	1220,0 mm	6	140 mm
LS 475	41,3 mm	48,5 mm	68,0 mm	60,3 mm	1220,0 mm	5	140 mm
LS 500	61,0 mm	71,5 mm	99,0 mm	100,0 mm	1220,0 mm	5	150 mm
LS 525	53,0 mm	63,5 mm	99,0 mm	133,0 mm	1220,0 mm	6	150 mm
LS 575	48,0 mm	58,0 mm	79,0 mm	160,0 mm	1220,0 mm	5	150 mm
LS 625	83,0 mm	98,0 mm	106,7 mm	133,0 mm	2000,0 mm	5	150 mm
LS 650	69,0 mm	84,0 mm	106,7 mm	160,0 mm	2000,0 mm	7	150 mm

⁽¹⁾
from an outer diameter of OD 150 we recommend to enlarge the borehole to be able to use
at least LINK-SEAL® Type LS 310.

⁽²⁾
from an outer diameter of OD 300 we recommend to enlarge the borehole to be able to use
at least LINK-SEAL® Type LS 325.

TYPE KTW/W270 POTABLE WATER FOR CORE DRILLED HOLES

Core hole in mm	Carrier pipe outer diameter in mm from - to		Selected seal	
			Quantity of elements	Type LS
50	10	18	4	275
80	40	48	8	275
	48	53	7	200
100	32	45	5	340
	48	57	6	315
	55	64	6	300
	62	68	10	275
	68	75	9	200
125	42	61	5	360
	58	74	7	340
	73	82	8	315
	80	89	8	300
	87	90	13	275
150	95	100	12	200
	53	67	5	475
	58	76	5	410
	66	82	6	360
	82	99	9	340
200	105	114	10	300
	118	125	14	200
	90	104	6	575
	103	117	7	475
	103	124	7	410
250	116	133	9	360
	132	149	13	340
	155	164	14	300
	134	154	8	575
	140	160	6	440
	153	163	9	475
	158	177	7	400
300	166	186	12	360
	178	192	7	425
	190	203	9	325
	206	212	18	300
	157	173	7	500
	184	204	10	575
	190	210	8	440
350	208	226	12	410
	216	236	15	360
	234	244	20	340
	240	253	11	325
	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	292	11	425
	286	296	24	340
	294	303	13	325

Core hole in mm	Carrier pipe outer diameter in mm from - to		Selected seal	
			Quantity of elements	Type LS
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	254	265	10	625
	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	392	14	425
	375	386	24	360
500	390	403	17	325
	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	442	16	425
	440	453	19	325
600	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	542	19	425
	540	553	23	325

All other sizes on request.

Available as Type KTW/W270*:
Rubber EPDM (black with blue label „KTW/W270“, nature pressure plate),
bolts/nuts stainless steel, KTW/W270 = Components acc. German Drinking Water Recommendation
Certified elastomer acc. KTW and W270



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