





Link-Seal® modular seals are considered to be the premier method for permanently sealing pipes of any size passing through walls, floors and ceilings. In fact, any cylindrical object may be quickly, easily and permanently sealed, as they pass through barriers, by the patented Link-Seal modular seal design.

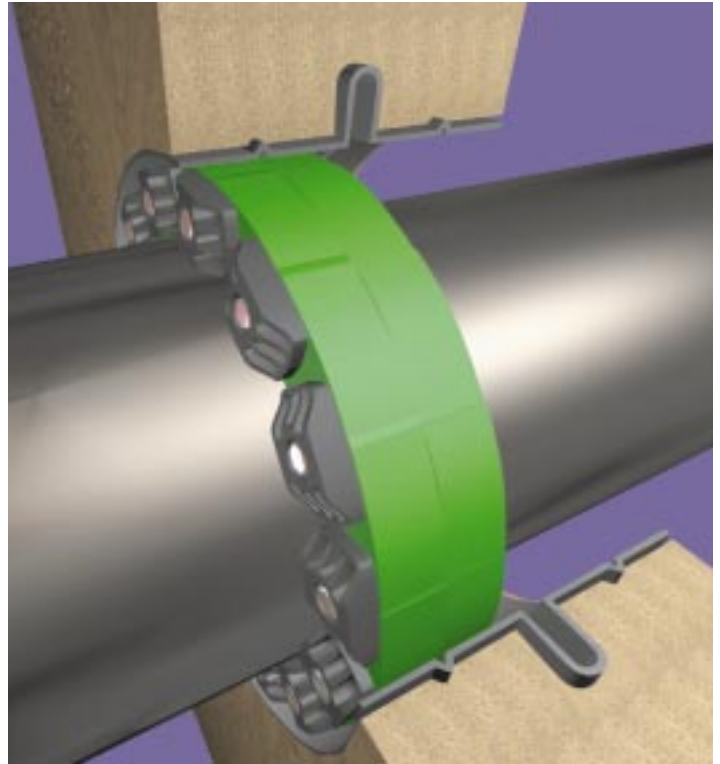
Ductile iron, concrete, metal as well as plastic pipes may be hydrostatically sealed within walls to hold up to 20 psig (40 feet of head).

Electrical or telecommunications cable may be sealed within conduit as they enter vaults or manholes. The annular space between carrier pipes passing through casings may be sealed against the entry of water, soil or backfill material.

With a wide variety of hardware/elastomer combinations, Link-Seal modular seals are easily configured to achieve the best possible match for service conditions encountered. High temperature seals, fire seals (Factory Mutual approved) and oil resistant seals may be ordered to meet special or unique service applications.

For the system approach, metal or non-conductive Century-Line® sleeves with water stops may be ordered with Link-Seal modular seals to ensure correct positioning and a water tight seal of the installation within poured concrete walls.

This brochure focuses on standard size Link-Seal modular seals for use with Century-Line® Model CS sleeves, Model WS (Steel) sleeves or core drilled holes. Link-Seal modular seals are also available for a wide variety of special applications, temperature extremes, exotic chemical combinations and for "out of round" or non-centered applications. Please contact factory for your special application.



Features

Saves time and money...

Link-Seal modular seals install in up to 75% less time compared to lead-oakum joints, hand fitted flashings, mastics or casing boots.

Positive hydrostatic seal...

Link-Seal modular seals are rated at 20 psig (40 feet of head), which exceeds the performance requirements of most applications.

Long seal life...

Link-Seal modular seals are designed for use as a permanent seal. Seal elements are specially compounded to resist aging and attack from ozone, sunlight, water and a wide range of chemicals.

Maximum protection against corrosion...

Standard fasteners with a two-part organic resin coating or corrosion resistant 316 stainless steel.

Certification/Approvals...

Factory Mutual Fire Approvals. Det Norske Veritas Marine Deck/Bulkhead Penetration Certification. ANI (American Nuclear Insurers). Also a wide variety of approvals from various Federal agencies, associations, code groups, laboratories and organizations.

ISO Quality Assurance...

Link-Seal modular seals are manufactured in an ISO 9002 certified facility.

Configure a Link-Seal modular seal to match your application...

Color coded EPDM, Nitrile, & Silicone elastomers may be used with various hardware options to match performance characteristics with service conditions.

Link-Seal® Modular Seal Options

with EPDM Seal Elements



Model "C" Link-Seal Modular Seals

Suitable for use in water, direct ground burial and atmospheric conditions. Provides electrical isolation where cathodic protection is required.

Type: Standard

Seal Element: EPDM (Black)

Pressure Plates: Composite

Bolts & Nuts: Steel with 2-part Zinc Dichromate & Organic Coating

Temp. Range: -40 to +250°F (-40 to +121°C)*

Model "S-316" Link-Seal Modular Seals

For chemical processing & waste water treatment. EPDM rubber is resistant to most inorganic acids and alkalis, some organic chemicals (acetone, alcohol, ketones).

Type: Stainless

Seal Element: EPDM (Black)

Pressure Plates: Composite

Bolts & Nuts: 316 Stainless Steel

Temp. Range: -40 to +250°F (-40 to +121°C)*

with Nitrile Seal Elements



Model "O" Link-Seal Modular Seals

Nitrile rubber is resistant to oils, fuel and many solvents (gasoline, motor oil, kerosene, methane, jet fuel, hydraulic fluid, water, etc.).

Type: Oil Resistant

Seal Element: Nitrile (Green)

Pressure Plates: Composite

Bolts & Nuts: Steel with 2-part Zinc Dichromate & Organic Coating

Temp. Range: -40 to +210°F (-40 to +99°C)*

Model "OS-316" Link-Seal Modular Seals

Combination of oil resistant rubber and stainless steel hardware.

Type: Oil Resistant

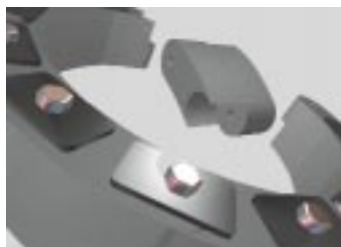
Seal Element: Nitrile (Green)

Pressure Plates: Composite

Bolts & Nuts: 316 Stainless Steel

Temp. Range: -40 to +210 °F (-40 to +99°C)*

with Silicone Seal Elements



Model "T" Link-Seal Modular Seals

Silicone rubber is ideal for temperature extremes. "T" model is one hour Factory Mutual approved.

Type: High/Low Temperature

Seal Element: Silicone (Grey)

Pressure Plates: Steel Zinc Dichromate

Bolts: Steel with 2-part Zinc Dichromate & Organic Coating

Temp. Range: -67 to +400°F (-55 to +204°C)*

Model "FD/FS" Link-Seal Modular Seals

Double seal for added protection.

Type: Fire Seals

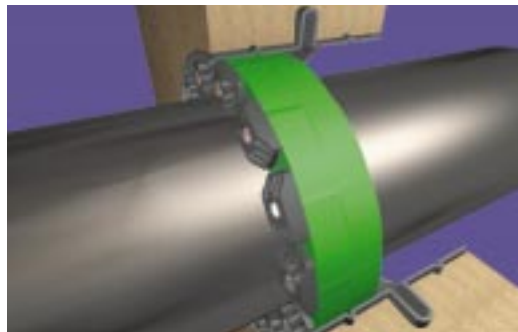
Seal Element: Silicone (Grey)

Pressure Plates: Steel Zinc Dichromate

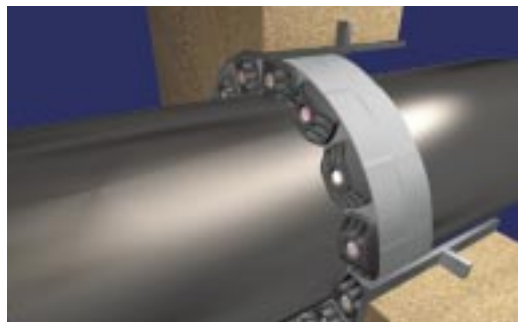
Bolts: Steel with 2-part Zinc Dichromate & Organic Coating

Temp. Range: -67 to +400°F (-55 to +204°C)*

Sleeve Options



Century-Line® Model CS Sleeves are ideal for poured wall construction. Made of HDPE thermo-plastic, they are lightweight and easy to handle. Molded-in waterstop and reinforcing ribs serve to anchor the sleeve in the wall and resist pour forces. Nailer end caps are provided to make placement in forms simple and accurate. Sleeves are available in 16 diameters, up to 25", and any length. In the event of a field change they can be shortened with ordinary hand tools.



Model WS Steel Sleeves are made from heavy-wall welded or seamless pipe. A full circle water-stop plate acts as positive water seal and anchor to prevent thrust movement. The collar is continuously welded on both sides. Model WS is available in a wide range of diameters and any length. Sleeves are protected by a coating of red primer. Hot dip galvanizing is available on request.

Link-Seal® Modular Seals for Wall Openings



Link-Seal Modular Seals are also commonly installed in cored wall openings or pre-cast openings such as those formed by use of the Thunderline Cell-Cast® Disks pipe penetration hole forms. See Cell-Cast Disk literature or contact PSI for more information.

* = Sustained operation near temperature limits may affect life expectancy.

Link-Seal® Modular Seal Sizing Charts for Standard Pipe

How to Order

1. Locate chart on this or opposite page that corresponds to the type and size pipe being used.
2. Verify that your pipe O.D. matches the actual outside diameter shown on the chart.
3. Determine type of wall opening (Model CS, WS or cast/core bit drilled).
4. Determine Link-Seal modular seal model to be used (see information on page 3).
5. To order Link-Seal modular seals: under the appropriate wall opening column, indicate number of links required per seal (from LINKS PER SEAL column), Link-Seal modular seal size (from SIZE column) and Link-Seal modular seal model (C, S-316, O, OS-316, T or FD/FS from page 3). [Example: 10 - LS-475-S-316]
6. To order corresponding sleeves indicate quantity, model number (from MODEL NUMBER column) and length of sleeve required. [Example: 1 - CS-10-12"]

Steel and Plastic Pipe with Same Outside Diameter

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
1/2	0.840	CS-2-*	LS-200-**	4	WS-2-15-S-*	LS-200-**	4	2.000	LS-200-**	4
3/4	1.050	CS-3-*	LS-315-**	4	WS-2-1/2-20-S-*	LS-275-**	5	2.500	LS-275-**	5
1	1.315	CS-3-*	LS-300-**	4	WS-2-1/2-20-S-*	LS-200-**	5	3.000	LS-300-**	4
1-1/4	1.660	CS-3-*	LS-275-**	7	WS-3-21-S-*	LS-275-**	7	3.000	LS-275-**	7
1-1/2	1.900	CS-3-1/2-*	LS-275-**	8	WS-3-1/2-22-S-*	LS-300-**	5	3.500	LS-300-**	5
2	2.375	CS-4-*	LS-300-**	6	WS-4-23-S-*	LS-300-**	6	4.000	LS-300-**	6
2-1/2	2.875	CS-4-*	LS-200-**	9	WS-4-23-S-*	LS-200-**	9	4.000	LS-200-**	9
3	3.500	CS-5-*	LS-300-**	8	WS-5-25-S-*	LS-300-**	8	5.000	LS-300-**	8
3-1/2	4.000	CS-6-*	LS-325-**	5	WS-6-28-S-*	LS-325-**	5	6.000	LS-325-**	5
4	4.500	CS-6-*	LS-300-**	10	WS-6-28-S-*	LS-300-**	10	6.000	LS-300-**	10
5	5.563	CS-8-*	LS-425-**	6	WS-8-32-S-*	LS-425-**	6	8.000	LS-425-**	6
6	6.625	CS-10-*	LS-475-**	10	WS-10-36-S-*	LS-475-**	9	10.000	LS-475-**	9
8	8.625	CS-12-*	LS-475-**	12	WS-12-37-S-*	LS-475-**	12	12.000	LS-475-**	12
10	10.750	CS-14-*	LS-400-**	10	WS-14-37-S-*	LS-425-**	10	14.000	LS-400-**	10
12	12.750	CS-16-*	LS-400-**	12	WS-16-37-S-*	LS-425-**	12	16.000	LS-400-**	12
14	14.000	CS-18-*	LS-400-**	13	WS-18-37-S-*	LS-400-**	13	18.000	LS-575-**	16
16	16.000	CS-20-*	LS-400-**	15	WS-20-37-S-*	LS-400-**	15	20.000	LS-575-**	18
18	18.000	CS-24-*	LS-525-**	16	WS-24-37-S-*	LS-500-**	16	22.000	LS-575-**	20
20	20.000	CS-25-*	LS-525-**	18	WS-24-37-S-*	LS-400-**	18	24.000	LS-575-**	22
22	22.000	CS-25-*	LS-425-**	20	WS-26-37-S-*	LS-400-**	20	26.000	LS-575-**	24
24	24.000	CC-30-***	LS-500-**	21	WS-30-37-S-*	LS-500-**	21	28.000	LS-575-**	26
26	26.000	CC-32-***	LS-500-**	23	WS-30-37-S-*	LS-400-**	23	30.000	LS-575-**	28
28	28.000	CC-32-***	LS-400-**	25	WS-34-37-S-*	LS-500-**	24	32.000	LS-575-**	30
30	30.000	CC-36-***	LS-525-**	26	WS-36-37-S-*	LS-500-**	26	34.000	LS-575-**	32
32	32.000	CC-38-***	LS-500-**	28	WS-38-37-S-*	LS-500-**	27	36.000	LS-575-**	34
34	34.000	CC-38-***	LS-400-**	30	WS-40-37-S-*	LS-500-**	29	38.000	LS-575-**	36
36	36.000	CC-42-***	LS-500-**	31	WS-42-37-S-*	LS-500-**	31	40.000	LS-575-**	38
42	42.000	CC-48-***	LS-500-**	36	WS-48-37-S-*	LS-500-**	36	46.000	LS-575-**	44
48	48.000	CC-54-***	LS-525-**	40	WS-54-37-S-*	LS-500-**	41	52.000	LS-575-**	50

* = Specify sleeve length in inches *** = See Cell-Cast Disk catalog ** = Specify model when ordering

Technically there is no limit to the pipe size that can be sealed using Link-Seal modular seals. Please contact factory for sizes not listed and for CS model plastic sleeves for walls less than 8" thick.

Ductile Iron Pipe (AWWA-Type)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
2	2.500	CS-4-*	LS-300-**	6	WS-4-23-S-*	LS-300-**	6	4.000	LS-300-**	6
2-1/4	2.750	CS-5-*	LS-325-**	4	WS-5-25-S-*	LS-325-**	4	5.000	LS-325-**	5
3	3.960	CS-6-*	LS-325-**	5	WS-6-28-S-*	LS-325-**	5	6.000	LS-325-**	5
4	4.800	CS-8-*	LS-400-**	5	WS-8-32-S-*	LS-400-**	5	8.000	LS-400-**	5
6	6.900	CS-10-*	LS-400-**	7	WS-10-36-S-*	LS-400-**	7	10.000	LS-400-**	7
8	9.050	CS-12-*	LS-400-**	9	WS-12-37-S-*	LS-400-**	9	12.000	LS-400-**	9
10	11.100	CS-14-*	LS-400-**	11	WS-16-37-S-*	LS-575-**	13	14.000	LS-400-**	10
12	13.200	CS-16-*	LS-400-**	12	WS-18-37-S-*	LS-575-**	15	18.000	LS-500-**	12
14	15.300	CS-20-*	LS-575-**	17	WS-20-37-S-*	LS-575-**	17	20.000	LS-525-**	14
16	17.400	CS-22-*	LS-400-**	16	WS-22-37-S-*	LS-575-**	19	22.000	LS-525-**	16
18	19.500	CS-24-*	LS-400-**	18	WS-24-37-S-*	LS-475-**	25	24.000	LS-525-**	17
20	21.600	CS-25-*	LS-400-**	20	WS-27-37-S-*	LS-525-**	19	26.000	LS-525-**	19
24	25.800	CC-32-***	LS-500-**	23	WS-30-37-S-*	LS-400-**	23	30.000	LS-575-**	28
30	32.000	CC-38-***	LS-500-**	28	WS-38-37-S-*	LS-500-**	28	36.000	LS-575-**	34
36	38.300	CC-44-***	LS-500-**	33	WS-44-1/2-37-S-*	LS-500-**	33	43.000	LS-525-**	33
42	44.500	CC-50-***	LS-500-**	38	WS-50-1/2-37-S-*	LS-500-**	38	49.000	LS-525-**	38
48	50.800	CC-56-***	LS-500-**	43	WS-57-37-S-*	LS-500-**	43	56.000	LS-500-**	43

* = Specify sleeve length in inches *** = See Cell-Cast Disk catalog ** = Specify model when ordering

Technically there is no limit to the pipe size that can be sealed using Link-Seal modular seals. Please contact factory for sizes not listed and for CS model plastic sleeves for walls less than 8" thick.

Copper Tubing

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
1/2	0.625	CS-2.*	LS-275.**	4	WS-2-15-S.*	LS-275.**	4	2.000	LS-275.**	4
3/4	0.875	CS-3.*	LS-315.**	4	WS-2-15-S.*	LS-200.**	4	2.000	LS-200.**	4
1	1.125	CS-3.*	LS-300.**	4	WS-2-1/2-20-S.*	LS-275.**	5	3.000	LS-315.**	4
1-1/4	1.375	CS-3.*	LS-300.**	4	WS-3-21-S.*	LS-300.**	4	3.000	LS-300.**	4
1-1/2	1.625	CS-3.*	LS-275.**	7	WS-3-21-S.*	LS-275.**	7	3.000	LS-275.**	7
2	2.125	CS-4.*	LS-315.**	6	WS-3-1/2-22-S.*	LS-275.**	8	3.500	LS-275.**	9
2-1/2	2.625	CS-4.*	LS-275.**	11	WS-4-23-S.*	LS-275.**	10	4.000	LS-275.**	11
3	3.125	CS-5.*	LS-325.**	4	WS-5-25-S.*	LS-315.**	8	5.000	LS-315.**	8
4	4.125	CS-6.*	LS-325.**	5	WS-6-28-S.*	LS-315.**	10	6.000	LS-315.**	10
6	6.125	CS-8.*	LS-325.**	7	WS-8-32-S.*	LS-315.**	15	8.000	LS-315.**	15
8	8.125	CS-10.*	LS-325.**	9	WS-10-36-S.*	LS-315.**	19	10.000	LS-315.**	19
10	10.125	CS-12.*	LS-325.**	11	WS-14-37-S.*	LS-400.**	10	14.000	LS-475.**	14
12	12.125	CS-14.*	LS-325.**	13	WS-16-37-S.*	LS-400.**	12	16.000	LS-475.**	16

Cast Iron Soil Pipe (Extra Heavy)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
2	2.380	CS-4.*	LS-300.**	6	WS-4-23-S.*	LS-300.**	6	4.000	LS-300.**	6
3	3.500	CS-5.*	LS-300.**	8	WS-5-25-S.*	LS-300.**	8	5.000	LS-300.**	8
4	4.500	CS-6.*	LS-300.**	10	WS-6-28-S.*	LS-300.**	10	6.000	LS-300.**	10
5	5.500	CS-8.*	LS-425.**	6	WS-8-32-S.*	LS-425.**	6	8.000	LS-425.**	6
6	6.500	CS-10.*	LS-475.**	10	WS-10-36-S.*	LS-475.**	9	10.000	LS-475.**	9
8	8.620	CS-12.*	LS-475.**	12	WS-12-37-S.*	LS-475.**	12	12.000	LS-475.**	12
10	10.750	CS-14.*	LS-400.**	10	WS-14-37-S.*	LS-425.**	10	14.000	LS-400.**	10
12	12.750	CS-16.*	LS-400.**	12	WS-16-37-S.*	LS-425.**	12	16.000	LS-400.**	12
15	15.880	CS-20.*	LS-400.**	15	WS-20-37-S.*	LS-400.**	15	20.000	LS-575.**	18

Cast Iron Soil Pipe (Service Weight)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
2	2.300	CS-4.*	LS-300.**	6	WS-4-23-S.*	LS-300.**	6	4.000	LS-300.**	6
3	3.300	CS-5.*	LS-315.**	8	WS-5-25-S.*	LS-315.**	8	5.000	LS-315.**	8
4	4.300	CS-6.*	LS-315.**	11	WS-6-28-S.*	LS-315.**	10	6.000	LS-315.**	10
5	5.300	CS-8.*	LS-425.**	6	WS-8-32-S.*	LS-425.**	6	8.000	LS-425.**	6
6	6.300	CS-8.*	LS-325.**	7	WS-10-36-S.*	LS-475.**	10	10.000	LS-475.**	10
8	8.380	CS-12.*	LS-575.**	10	WS-12-37-S.*	LS-475.**	12	12.000	LS-475.**	12
10	10.500	CS-14.*	LS-475.**	14	WS-14-37-S.*	LS-425.**	10	14.000	LS-475.**	14
12	12.500	CS-16.*	LS-475.**	17	WS-16-37-S.*	LS-425.**	12	16.000	LS-475.**	17
15	15.620	CS-20.*	LS-475.**	20	WS-20-37-S.*	LS-475.**	21	20.000	LS-575.**	18

Electrical Metallic Tubing (Thin Wall)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
1/2	0.706	CS-2.*	LS-275.**	4	WS-2-15-S.*	LS-275.**	4	2.000	LS-275.**	4
3/4	0.922	CS-3.*	LS-315.**	4	WS-2-15-S.*	LS-200.**	4	2.000	LS-200.**	4
1	1.163	CS-3.*	LS-300.**	4	WS-3-21-S.*	LS-315.**	4	3.000	LS-315.**	4
1-1/4	1.510	CS-3-1/2.*	LS-315.**	5	WS-3-21-S.*	LS-300.**	4	3.000	LS-300.**	4
1-1/2	1.740	CS-3-1/2.*	LS-300.**	5	WS-3-1/2-22-S.*	LS-315.**	5	3.500	LS-315.**	5
2	2.197	CS-4.*	LS-315.**	6	WS-4-23-S.*	LS-315.**	6	4.000	LS-315.**	6
2-1/2	2.875	CS-4.*	LS-200.**	9	WS-4-23-S.*	LS-200.**	9	4.000	LS-200.**	9
3	3.500	CS-5.*	LS-300.**	8	WS-5-25-S.*	LS-300.**	8	5.000	LS-300.**	8
4	4.500	CS-6.*	LS-300.**	10	WS-6-28-S.*	LS-300.**	10	6.000	LS-300.**	10

SDR-35 & DR-28 Gravity Sewer Pipe

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL PLASTIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL SIZE	LINKS PER SEAL
4	4.22	CS-6.*	LS-315.**	11	WS-6-28-S.*	LS-315.**	10	6.000	LS-315.**	10
6	6.28	CS-10.*	LS-575.**	8	WS-10-36-S.*	LS-475.**	10	10.000	LS-475.**	10
8	8.40	CS-12.*	LS-575.**	10	WS-12-37-S.*	LS-475.**	12	12.000	LS-475.**	12
10	10.50	CS-14.*	LS-475.**	14	WS-14-37-S.*	LS-475.**	10	14.000	LS-475.**	14
12	12.50	CS-16.*	LS-475.**	17	WS-16-37-S.*	LS-425.**	12	16.000	LS-475.**	17
15	15.30	CS-20.*	LS-575.**	17	WS-20-37-S.*	LS-575.**	17	20.000	LS-525.**	14
18	18.70	CS-22.*	LS-575.**	20	WS-22-37-S.*	LS-400.**	17	22.000	LS-400.**	17
21	22.05	CC-30.***	LS-600.**	13	WS-26-37-S.*	LS-400.**	20	26.000	LS-575.**	24
24	24.80	CC-30.***	LS-525.**	21	WS-30-37-S.*	LS-525.**	21	28.000	LS-400.**	22
27	27.95	CC-32.***	LS-400.**	25	WS-32-37-S.*	LS-400.**	25	32.000	LS-575.**	30
30	32.00	CC-38.***	LS-500.**	28	WS-38-37-S.*	LS-500.**	28	36.000	LS-575.**	34

* = Specify sleeve length in inches *** = See Cell-Cast Disk catalog ** = Specify model when ordering

Link-Seal Modular Seal - Specifications and Dimensional Data

Material Properties of Link-Seal Modular Seal Elements

PROPERTY	ASTM METHOD	EPDM	NITRILE	SILICONE
Temperature Range		-40 to +250°F. -40 to +121°C.	-40 to +210°F. -40 to +99°C.	-67 to +400°F. -55 to +204°C.
Hardness (shore A)	D-2240	47 ±3	50 ±5	50 ±5
Tensile	D-412	1450 psi	1300 psi	860 psi
Elongation	D-412	400%	300%	250%
Compression Set	S-395	15%	45%	40%
		22 hrs. @ 158°F (70°C)	22 hrs. @ 212°F (100°C)	22 hrs. @ 350°F (177°C)
Specific Gravity	D-297	1.10	1.42	1.40

Material Properties of Composite Pressure Plates

PROPERTY	ASTM METHOD	VALUE
Izod Impact - Notched	D-256	2.05 ft-lb/in
Tensile Strength @ Yield	D-638	20,000 psi
Tensile Strength - Break	D-638	20,250 psi
Flexural Strength @ Yield	D-790	30,750 psi
Flexural Modulus	D-790	1,124,000 psi
Elongation, Break	D-638	11.07%
Specific Gravity	D-792	1.38
Moisture Content	--	0.18%

Bolt & Nut Specifications

Standard: Carbon Steel

Tensile Strength = 74,000 psi, min.

Plating: Yellow zinc dichromate per ASTM B633

Minimum Thickness = 0.005 mm

Coating = 2 part organic resin
(passes 1000 hour salt spray test)

Option: Stainless Steel

ANSI Type = 316

Tensile Strength = 85,000 psi, average.

Approx. Weight - Model C (Belt of 10 links)

MODEL	LBS.	Kg.
LS-200	0.75	0.34
LS-275	0.85	0.36
LS-300	2.10	0.95
LS-315	3.00	1.36
LS-325	5.50	2.49
LS-400	12.00	5.44
LS-425	10.00	4.54
LS-475	10.00	4.54
LS-500	22.50	10.21
LS-525	21.00	9.53
LS-575	15.50	7.03
LS-600	58.00	26.31

Minimum Thickness

MODEL NO.	MINIMUM WALL THICKNESS
LS-200/LS-275	2.25"
LS-300/LS-315	3.00"
LS-325	4.00"
LS-400/LS-425/LS-475	5.00"
LS-500/LS-525/LS-575	5.00"
LS-600	6.00"

Sleeves - Weights and Dimensional Data

Model CS (16" length)

MODEL	I.D.	LBS.	Kg.
CS-2	2.09	0.70	0.32
CS-3	2.94	1.30	0.59
CS-3-1/2	3.38	1.50	0.68
CS-4	4.03	2.00	0.90
CS-5	5.14	2.80	1.27
CS-6	6.14	3.60	1.63
CS-8	8.21	4.80	2.18
CS-10	10.19	6.40	2.90
CS-12	12.26	7.20	3.27
CS-14	14.14	11.20	5.08
CS-16	16.18	12.00	5.44
CS-18	17.45	15.50	7.03
CS-20	19.12	17.50	7.94
CS-22	20.32	21.00	9.53
CS-24	22.76	22.00	9.98
CS-25	24.81	23.00	10.43

Century-Line Model CS Sleeves are manufactured from HDPE which is dimensionally stable and capable of withstanding the pour forces of concrete. They are available in 16 diameters from 2" to 25". Standard sleeves are 16" in length while longer models may be fabricated as a custom item.



Model WS (12" length)

MODEL	I.D.	LBS.	Kg.
WS-2-15-S-12	2.07	5.53	2.51
WS-2-1/2-15-S-12	2.32	7.91	3.59
WS-3-21-S-12	3.07	9.93	4.51
WS-3-1/2-22-S-12	3.55	11.70	5.31
WS-4-23-S-12	4.03	13.61	6.17
WS-5-25-S-12	5.05	17.91	8.12
WS-6-28-S-12	6.07	22.73	10.31
WS-8-32-S-12	7.98	33.55	15.22
WS-10-36-S-12	10.02	46.12	20.92
WS-12-37-S-12	12.00	60.14	27.28
WS-14-37-S-12	13.25	62.04	28.14
WS-16-37-S-12	15.25	71.04	32.22
WS-18-37-S-12	17.25	79.98	36.28

WS Wall Sleeves are constructed from steel and available in a wide range of diameters and lengths.

They are an excellent choice for installations where the sleeve assembly would be subject to extremely high temperatures or where fire seals are specified.



Typical Specification

1.0 General

Under this section there shall be furnished and installed a complete Link-Seal modular seal assembly, manufactured by PSI/Thunderline/Link-Seal located at 6525 Goforth Street, Houston, TX 77021, as shown on drawings and specifications. For clarification, complete assembly is defined as a combined:

- A. Wall opening (i.e. steel sleeve, Thermoplastic (HDPE) sleeve, cored hole or formed hole). The wall opening size and/or type shall be selected according to recommendations found in the most recent Link-Seal modular seal catalog.
- B. Sufficient quantity and type of Link-Seal modular seals required to effectively provide a hydrostatic and/or fire-rated seal.
- C. Each individual link shall be conspicuously and permanently identified with the name of the manufacturer and model number. Manufacturers other than the above-named company wishing to quote equipment in this section shall submit detail drawings of their proposed equipment and suitable evidence of experience and results to the engineer to obtain written approval to quote at least ten (10) days prior to bid opening.

2.0 Link-Seal® Modular Seal Rubber Links

Shall be modular, mechanical type, consisting of inter-locking synthetic rubber links shaped to continuously fill the annular space between the pipe and the wall opening. The elastomeric element shall be sized and selected per manufacturer's recommendations and have the following properties as designated by ASTM. Coloration shall be throughout elastomer for positive field inspection.

- A. For Standard Service Applications
-40 to +250°F (-40 to +121°C)
EPDM = ASTM D2000 M3 BA510
Color = Black

- B. For Hydrocarbon Service Applications
-40 to +210°F (-40 to +99°C)
Nitrile = ASTM D2000 M1BF510
Color = Green

- C. For High Temperature or Fire Seal Applications
-67 to +400°F (-55 to +204°C)
Silicone = ASTM D2000 M1GE505
Color = Gray
Reference shall always be made to the latest published Link-Seal modular seal Selection Guide for the service intended.



2.1 Link-Seal® Modular Seal Pressure Plates

- A. Link-Seal® modular seal pressure plates shall be molded of glass reinforced nylon. Models LS200-275-300-315 shall include an integrally molded compression assist boss on the pressure plate, which permits increased compressive loading of the rubber sealing element. Models 325-400-425-475-500-525-575-600 shall incorporate an integral recess known as a "Hex Nut Interlock" designed to accommodate commercially available fasteners to insure proper thread engagement for the class and service of metal hardware.

- B. For fire and Hi-Temp service, pressure plates shall be steel with zinc dichromate coating.

2.2 Link-Seal® Modular Seal Hardware

All fasteners shall be sized according to latest Link-Seal modular seal technical data. Bolts, flange hex nuts shall be either:

- A. Mild Steel Coated with both zinc dichromate and an organic corrosion resistance coating, or
- B. 316 Stainless Steel.

3.0 Wall Opening

A. Century-Line® Sleeves (2" to 25" in diameter)

Where pipes must pass through walls and floors of new structures, unless otherwise shown or specified, install molded non-metallic high density polyethylene Model CS Century-Line sleeves as manufactured by PSI/Thunderline/Link-Seal. CS sleeves shall have integrally formed water stop sized a minimum of four inches larger than the outside diameter of the sleeve itself. Each sleeve assembly shall have end caps manufactured of the same material as the sleeve itself. End caps shall be installed at each end of the sleeve so as to prevent deformation during the initial concrete pour, and to facilitate attaching the sleeve to the wall forms. End caps shall remain in place to protect the opening from residual debris and rodent entry prior to pipe insertion.

B. Cell-Cast® Disks (over 25" in diameter)

The contractor shall install the Cell-Cast Disk modular hole forming system, providing a round hole in conformance with Link-Seal modular seal sizing data. Cell-Cast disks shall consist of 3" and/or 4" lightweight interlocking polyethylene cells stacked to form the thickness of the poured concrete wall. Molded into each cell shall be a cavity to accept a 2" x 4" nailer.

4.0 Quality Assurance

All modular seal components and systems shall be manufactured at a plant with a current ISO-9002 registration.

Warranty and Conditions of Sale

The seller warrants that all goods furnished under this order will be free from defects in material and workmanship and will conform to PSI published specifications.

The limit of PSI's liability for failure of any of our products to meet the foregoing warranty, or for breach of any other warranty, express, implied or statutory, shall be to supply an equivalent amount of product for any materials returned to us within 12 months of shipment and found to be defective by PSI.

Due to the widely varying conditions under which our products are used or installed, PSI offers no warranty as to their merchantability, length of service or suitability for any particular purpose, express or implied, other than described above.

The Purchaser accepts full responsibility for installation of all goods furnished under this order and for any defects or damage suffered as a result of defective installation of such goods. No instructions, advice, or aid relative to installation given by the Seller to the Purchaser shall be construed as a warranty as to the accuracy or utility of such instructions, advice, or aid, but only as an accommodation to the Purchaser and an opinion of the Seller.

The foregoing conditions of sale shall not be modified or affected in any way whatsoever by reason of Seller's receipt or acknowledgement of Buyer's purchase order or any other related instrument of paper containing additional or different conditions and, to the extent there may be any terms or provisions in such a purchase order, etc. which may be in conflict with or modification of the foregoing, such terms and provisions of such purchase order, etc. shall be deemed to have no force or effect.

Complete installation in minutes.



1. Link-Seal modular seals are shipped as a belt of interconnecting rubber links.



2. Wrap the belt around the pipe and connect the first and last links together.



3. Slide the assembly into the space between the pipe and wall opening.



4. When the bolts are tightened, Link-Seal modular seals expand to create a gas and water tight seal.

Frequently Asked Questions

Q - Can Link-Seal modular seals withstand pressures greater than 20 psi?

A - Yes, where pressure exceeds 20 psi, key factors to consider are: pipe surface, sleeve surface, seal compression, and proper installation techniques. Contact our engineering services for recommendations.

Q - How much angular pipe movement will Link-Seal modular seals allow and still maintain a seal?

A - Link-Seal modular seals may allow angular pipe movement or misalignment of up to 10 degrees, depending upon the size of seal used.

Q - When is the recommended time to install Link-Seal modular seals?

A - Always install Link-Seal modular seals prior to any final connections. This helps prevent off-center pipe alignment.

Q - My wall is 24" thick. Do I need Link-Seal modular seals on both sides of the wall?

A - In many cases, one single assembly is appropriate. Double seals are typically found in critical applications such as fire walls or nuclear power stations. Double seals are also recommended for building foundation wall penetrations where the wall thickness is greater than 12".

Q - Is it necessary to use WS or CS sleeves when installing Link-Seal modular seals?

A - WS model steel and CS model plastic sleeves are specially designed for use with Link-Seal modular seals. When installed with Link-Seal modular seals these sleeves provide the best possible assurance of a quality wall penetration system.

Q - Sometimes when installing a belt of Link-Seal modular seals, it hangs loose on the pipe even though all my sizing calculations are correct. Why does it appear that I have too many links?

A - Link-Seal modular seals are basically sized to fit the opening, not the pipe. Use the assemblies recommended by the charts or calculation. It may not look right, but it will fit.

Q - Can Link-Seal modular seals be used for penetrations where the pipe is off-center to the opening?

A - Centering is very important. Contact our engineering services for off-center installation.

Q - Is it necessary to use riser clamps, pipe saddles and hanger supports with Link-Seal modular seals?

A - Designed as a penetration seal, Link-Seal modular seals are not intended to be a structural support. Standard pipe hanger practice should always be applied.

Q - What tools are required to install Link-Seal modular seals?

A - A socket or offset wrench with 5/16", 1/2", 3/8", 9/16", 3/4" & 1-3/16" sockets will handle all installations. A low speed (450 RPM or less) power tool is suggested for multiple installations to increase efficiency. (see next question)

Q - Can I use power tools when installing Link-Seal modular seals with 316 stainless steel bolts?

A - No, please see recommended installation instructions.



Thunderline/Link-Seal

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