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Link-Seal®...the world's standard for sealing pipe penetrations
passing through walls, floors and ceilings.



DESCRIPTION

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 static 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. 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.

BENEFITS/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 have a two-part zinc dichromate and proprietary corrosion inhibiting coating.
- Corrosion resistant 316 stainless steel available for maximum corrosion protection.

Certification/Approvals...

- Factory Mutual Fire Approvals.
- Also a wide variety of approvals from various Federal agencies, associations, code groups, laboratories and organizations.

ISO Quality Assurance...

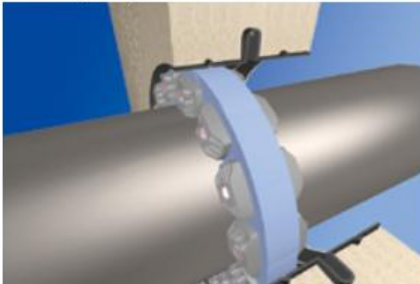
- Link-Seal modular seals are manufactured in an ISO 9001:2000 certified facility.

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

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

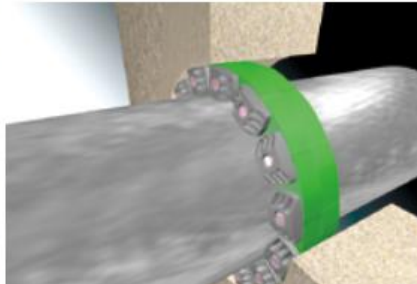
TYPICAL APPLICATIONS

Century-Line® Model CS Sleeves in Combination with "low durometer" EPDM (blue) Link-Seal® Modular Seals



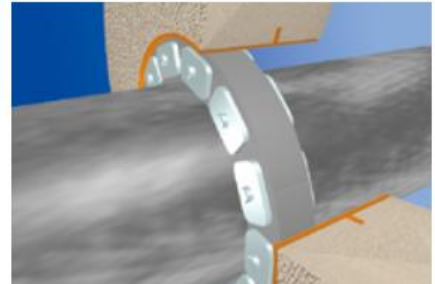
Century-Line® Model CS Sleeves are ideal for poured wall construction. Made of HDPE thermoplastic, they are lightweight and easy to handle. Molded in waterstop and reinforcing ribs serve to anchor the sleeve in the wall and resist pour forces. Nailer end caps are provided to make placement in forms simple 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.

Pre-cast or Cored Wall Openings in Combination with Nitrile (green) Link-Seal® Modular Seals



Link-Seal® Modular Seals are also commonly installed in cored wall openings or pre-cast openings such as those formed by use of Cell Cast® Disks for pipe penetration hole forms. See Cell-Cast Disk (page 4) or contact PSI for more information.

Model WS Steel Sleeves in Combination with Silicone (grey) Link-Seal® Modular Seals



Model WS Steel Sleeves are made from heavy wall welded or seamless pipe. A full circle waterstop plate acts as positive water seal and anchor to prevent thrust movement. The 2" collar (water-stop) 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.

Typical Applications

- Mechanical Contractors - Interior Piping Systems
- Floor Sleeves
- Wall Sleeves
- Manhole Pipe Entry Seals
- Waste Treatment Plants
- Cased Road Crossings
- Elevator Shafts
- Power Generating Dams
- Thermal Storage Systems
- Fire Protection Wall Penetrations
- Cased Railroad Crossings
- Electrical Isolation of Pipes
- Precast Concrete Pipe Seals
- Insulated Pipe Seals
- Dual Containment Seals
- Marine Applications
- Noise Dampening
- Flexible Sign & Pole Supports
- Electrical Isolation of Pipe Supports for Corrosion Protection
- Mining
- Pulp & Paper
- Decorative Fountains
- Bank Tube Transfer Systems
- Pool Contractors
- Electrical Contractors
- Marine Applications
- Waste & Water Treatment
- Telecommunications
- Railway Crossings
- Valve Pits
- Refrigeration Buildings
- Overhead Signs
- Guard Post Assemblies
- Power Generation Dams
- Offshore Oil Rigs
- High Pressure Tank Guards
- Underground Steel Tanks
- Centuryline Applications
- Precast Concrete Manufacturers
- Perimeter Berm Installations Around Tank Farms
- Flow Restrictors in Sewer Maintenance
- Fluid Overflow Devices
- Noise and Sway Dampener
- Through Deck Fire Breaks
- Parking Garage Column Protectors
- Cable TV Installations
- Bridge Construction
- Septic Tank Installations
- Coal Preparation Plants
- Pile Driving Operations
- Lag Pole Installations
- Driving Contractors
- Tunneling Operations

LINK-SEAL® MODULAR SEAL AND HARDWARE OPTIONS



Model "C" or "L" Link-Seal Modular Seal

Suitable for use in water, direct ground burial and atmospheric conditions.

Provides electrical insulation where cathodic protection is required.

Color: Black or Blue

Type: Standard

Seal Element: EPDM (Black), EPDM (Blue)

Pressure Plates: Composite

Bolts & Nuts: Steel with 2-part Zinc

Dichromate & Proprietary Corrosion Inhibiting Coating

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

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



Model "S-316" Link-Seal Modular Seal

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

Color: Black or Blue

Type: Stainless

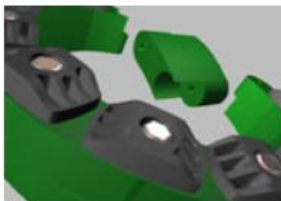
Seal Element: EPDM (Black), EPDM (Blue)

Pressure Plates: Composite

Bolts & Nuts: 316 Stainless Steel

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

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



Model "O" Link-Seal Modular Seal

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

Color: Green

Type: Oil Resistant

Seal Element: Nitrile (Green)

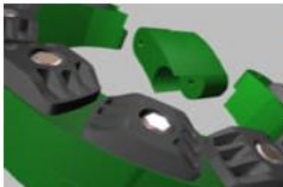
Pressure Plates: Composite

Bolts & Nuts: Steel with 2-part Zinc

Dichromate & Proprietary Corrosion Inhibiting Coating

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

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



Model "OS-316" Link-Seal Modular Seal

Combination of oil-resistant rubber and stainless steel hardware.

Color: Green

Type: Oil Resistant

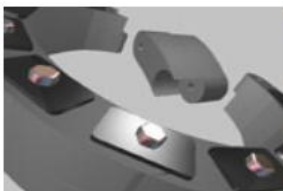
Seal Element: Nitrile (Green)

Pressure Plates: Composite

Bolts & Nuts: 316 Stainless Steel

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

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



Model "T" Link-Seal Modular Seal

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

Color: Grey

Type: High/Low Temperature

Seal Element: Silicone (Grey)

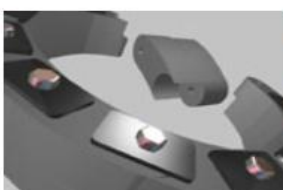
Pressure Plates: Steel Zinc Dichromate

Bolts & Nuts: Steel with 2-part Zinc

Dichromate & Proprietary Corrosion Inhibiting Coating

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

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



Model "FD/FS" Link-Seal Modular Seal

Double seal for added protection.

Color: Grey

Type: Fire Seals

Seal Element: Silicone (Grey)

Pressure Plates: Steel Zinc Dichromate

Bolts & Nuts: Steel with 2-part Zinc

Dichromate & Proprietary Corrosion Inhibiting Coating

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

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

SPECIFICATIONS

Material Properties of Link-Seal Modular Seal Elements				
PROPERTY	ASTM METHOD	EPDM (EPDM L)	NITRILE	SILICONE
Hardness (shore A)	D-2240	50 ±5 (40 ±5)	50 ±5	50 ±5
Tensile	D-412	1450 psi	1300 psi	860 psi
Elongation	D-412	400%	300%	250%
Compression Set	S-395	15% 22 hrs. @ 158°F (70°C)	45% 22 hrs. @ 212°F (100°C)	40% 22 hrs. @ 350°F (177°C)
Specific Gravity	D-297	1.10	1.15	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	Carbon steel, zinc dichromated per ASTM B633 with an additional corrosion inhibiting proprietary organic coating. (passes 1470 hour salt spray test) Tensile Strength = 60,000 psi, minimum.
Option: Stainless Steel	ANSI Type = 316, Per ASTM F593-95 Tensile Strength = 85,000 psi, average.

Modular/Mechanical Seal and Sleeve Specification

Typical Specification

1.0 Penetration Seals

Use a modular, mechanical seal, consisting of rubber links shaped to continuously fill the annular space between the pipe and the wall opening. Link-Seal® pressure plates shall be molded of glass reinforced nylon. Hardware shall be mild steel with a 60,000 psi minimum tensile strength and 2-part Zinc Dichromate coating per ASTM B-633 and Organic Coating, tested in accordance with ASTM B-117 to pass a 1,500-hour salt spray test (or 316 Stainless Steel). Coloration shall be throughout elastomer for positive field inspection. Each link shall have permanent identification of the size and manufacturer's name molded into the pressure plate and sealing element. The Contractor will submit to verify the modular seals are domestically manufactured at a plant with a current ISO-9001:2000 registration. Copy of ISO-9001:2000 registrations shall be a submittal item. PSI-Thunderline/ Link-Seal® Modular Seal as manufactured by Pipeline Seal & Insulator, Inc, Houston, TX, or pre-approved equal.

2.0 Sleeves and Wall Openings

A. For diameters up to 24 81" install molded non-metallic high density polyethylene sleeves (HDPE) with integral hollow, molded water-stop ring four inches larger than the outside diameter of the sleeve itself. End caps and reinforcing ribs, domestically manufactured in an approved ISO-9001:2000 facility. Century-Line® Sleeve as manufactured by Pipeline Seal & Insulator, Inc, Houston, TX., or engineered pre-approved equal.

B. For openings from 29 25" to 64 74" in diameter, use a modular hole-forming system consisting of interlocking HDPE plastic discs, domestically manufactured in an ISO-9001:2000 facility. The system shall provide a round hole in conformance with Link Seal® Modular Seal sizing data. Cell-Cast® Hole Forming Discs as manufactured by Pipeline Seal & Insulator, Inc, Houston, TX, or engineer pre-approved equal

Consideration of brands other than mentioned above shall be submitted to the Engineer for evaluation at least 10 days prior to bid due date and shall include evidence of a minimum of 25 years of successful in-service application of the mechanical seal, as well as current ISO-9001:2000 registration.

WARRANTY

All products are warranted against failure caused by manufacturing defects for a period of one year. Any product found to be so defective and returned within one year from date of shipment will be replaced without charge. The above warranty is made in lieu of, and we disclaim, any and all other warranties,

expressed or implied, including the warranties of merchantability and fitness for a particular purpose, and buyer agrees to accept the products without any such warranties. We hereby disclaim any obligation or liability for consequential damages, labor costs or any other claims or liabilities of any kind whatsoever.