Pipe Penetrations Sealed

Innerlynx® Type UL Fire Rated 3Hour Fire Stop

ADVANCE PRODUCTS & SYSTEMS, INC.
www.apsonline.com

ISO-9001 Certified Company - FM537405
Why choose Innerlynx®?

- Innerlynx® offer 21 different sizes for all pipe diameters ranging from 1/2” – 144”.
- Innerlynx® are made from synthetic rubbers with industrial strength UV and ozone resistant plastic or all metal plates.
- Innerlynx® help absorb vibrations, shocks, and sound waves and act as a sound dampener.
- Innerlynx® come in 5 models; EPDM Black, Nitrile Green, Silicone Grey, EPDM Blue & Silicone Red.
- Innerlynx® can be easily reinstalled many times over the life of the installation.
- Innerlynx® are manufactured and assembled in the U.S.A.
- Innerlynx® form a hydrostatic seal up to 40 psig and up to 92.28 feet of head pressure.
- Innerlynx® electrically isolate the inner carrier pipe from the penetrated structure.
- Innerlynx® can be installed easily and quickly by one worker with no special tools.

Innerlynx® Applications

- Wall, Floor and Ceiling Penetrations
- Cased Road Crossings
- Cased Railroad Crossings
- Bridge Pipeline Crossings
- Hospital Mechanical
- Quiet Rooms
- Electronic Equipment Rooms
- Waste Water Treatment Plants
- Power Plants
- Fire Walls
- Boiler Rooms
- Power Generation Dams
- Berms & Dikes around Tank Farms
- Public Works
- Mechanical & Electrical
- Industrial & Chemical
- Manholes & Precast Concrete Forms
- Aquariums
- HVAC Systems
- Plumbing Commercial & Residential
- Offshore Platforms (Oil & Gas)
- Swimming Pools
- Decorative Fountains
- Septic Tanks
- Ship Bulkheads
- High Pressure Tank Guards
- Parking Garage Column Protectors
- Electrical Isolation for Corrosion Protection
- Vibration, Shock & Sound Dampening
- Pumps and Tanks

Cut-away view of Infinity® wall sleeve & Innerlynx®
Model “C” Innerlynx® Modular Seal is suitable for most standard applications including: aboveground, direct underground burial, wet conditions and where cathodic protection is desired.
Type: Standard
Seal Element: EPDM (black)
Pressure Plates: Composite
Nuts & Bolts: Carbon Steel (Zinc plated)
Temp. range: -40 °F to +250 °F

Model “S-316” Innerlynx® Modular Seal is composed of a combination of stainless steel hardware, glass-filled epoxy resin and EPDM.
Type: Standard
Seal Element: EPDM (black)
Pressure Plates: Composite
Nuts & Bolts: Stainless Steel
Temp. range: -40 °F to +250 °F

Model “O” Innerlynx® Modular Seal is composed of Nitrile rubber which is suitable for most Hydrocarbons, oils, hydraulic fluids, chemicals and solvents (gasoline, jet fuel, water, motor oil, kerosene, etc.)
Type: Oil resistant
Seal Element: Nitrile (green)
Pressure Plates: Composite
Nuts & Bolts: Carbon Steel (Zinc plated)
Temp. range: -40 °F to +210 °F

Model “OS-316” Innerlynx® Modular Seal is composed of a combination of stainless steel hardware, glass-filled epoxy resin and nitrile.
Type: Oil/fuel resistant
Seal Element: Nitrile (green)
Pressure Plates: Composite
Nuts & Bolts: Stainless Steel
Temp. range: -40 °F to +210 °F

Model “T” Innerlynx® Modular Seal is composed of silicone able to endure extreme temperatures.
Type: Extreme Temperature
Seal Element: Silicone (grey)
Pressure Plates: Composite
Nuts & Bolts: Carbon Steel (Zinc plated)
Temp. range: -67 °F to +400 °F

Model “OS-316PP” Innerlynx® Modular Seal is composed of a combination of stainless steel hardware and silicone.
Type: Extreme Temperature
Seal Element: Silicone (grey)
Pressure Plates: Stainless Steel
Nuts & Bolts: Stainless Steel
Temp. range: -67 °F to +400 °F

Model “L” Innerlynx® Modular Seal is composed of a low durometer EPDM rubber suitable for conduit, insulated pipe, copper pipe or thin walled pipe.
Type: Low Durometer
Seal Element: EPDM (blue)
Pressure Plates: Composite
Nuts & Bolts: Carbon Steel (Zinc plated)
Temp. range: -40 °F to +250 °F

Model “L-316” Innerlynx® Modular Seal is composed of stainless steel hardware, glass-filled epoxy resin and low durometer EPDM.
Seal Element: EPDM (blue)
Pressure Plates: Stainless Steel
Nuts & Bolts: Stainless Steel
Temp. range: -40 °F to +250 °F

Model “UL” Innerlynx® Modular Seal is composed of proprietary rubber where fire resistance is a must. Two seals must be in place for UL approval.
Type: UL approved (3 hr. fire rating)
Seal Element: Proprietary Silicone (red)
Pressure Plates: Carbon Steel (Zinc plated)
Nuts & Bolts: Carbon Steel (Zinc plated)
Temp. range: 3 hr. fire rating (1900 °F/3hrs)

Model “UL-S316PP” Innerlynx® Modular Seal is composed of a combination of stainless steel hardware and silicone. Two seals must be in place for UL approval.
Type: UL approved (3 hr. fire rating)
Seal Element: Proprietary Silicone (red)
Pressure Plates: Stainless Steel
Nuts & Bolts: Stainless Steel
Temp. range: 3 hrs fire rating (1900 °F/3hrs)

Material Properties for Composite Pressure Plates

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<td>Stress at Break</td>
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<td>Elongation at Break</td>
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# Innerlynx® Dimensions

**Innerlynx® Assembly**
- Front View
- Side View
- Side View/Cut Away

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<tr>
<th>INNERLYNX® Model No.</th>
<th>RUBBER SEALING ELEMENT</th>
<th>PRESSURE PLATE</th>
<th>BOLT</th>
<th>Minimum Wall Thickness</th>
<th>Weight By Piece (lbs/approx)</th>
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*All dimensions are in inches*
Centering Blocks

Innerlynx® Centering Blocks

Around pipes of at least 14” in diameter, HDPE centering blocks are embedded into the bottom 25% of the Innerlynx® assembly to assist in centering the carrier pipe during installation. Unlike pipeline “boots”, when used as end seals, on pipes of these sizes, Innerlynx® are set within the casing and are protected from sharp aggregate and equipment, making them perfect end seals for cased pipelines.

Layered Applications

Layered Applications

Multiple layers of Innerlynx® assemblies can be successfully installed using intermediate sleeves between wraps when the annular space is wider than the expanded thickness of a single Innerlynx® assembly (as seen in the example below). Call the factory for sizing assistance at 1-800-315-6009.

Wall Sleeves

Why use Wall Sleeves

Protect your investment using APS wall sleeves to provide a better seal than a core drilled hole. In the absence of wall sleeves, mechanical/utility piping vibration can cause costly damage. In addition, wall sleeves make it easier to repair piping without damaging the wall.

APS offers three types of wall sleeves designed to mate with the Innerlynx® for leak free performance.

Each model is available with a 2” water stop that anchors the sleeve to prevent thrust movement and ensure positive water sealing. APS standard water stops are centered, unless otherwise specified.

Infinity® Wall Sleeve Features

High Density Polyethylene (HDPE)
- Excellent resistance to acids, alkalis and other organic solvents
- Positive hydrostatic seal
- 16 sizes - 2” to 25”
- Lighter than steel
- Resists water migration
- 16” Long
- Locator caps make installation easier
- Adjust to wall thickness onsite

Gal-vo-plast® Wall Sleeve Features

MODEL: GPWSW are made of steel with a welded steel water stop with Gal-vo-plast® coating.
- Less expensive than galvanized
- More corrosion resistant
- Faster availability, especially for custom wall sleeves
- Longer installation life
- All coating performed in house
- Considerably more economical
- Available in 2” to 120” diameter
Innerlynx® Sizing

Having trouble sizing Innerlynx®?
Call the factory with all information applicable: 1-800-315-6009
Online calculator available at www.apsonline.com/innerlynx

How to figure sizes and number of Innerlynx® needed to make a penetration seal:

**Part 1**
To figure which IL style number is needed to seal the annular space
I.D. of casing/core drilled hole - O.D. of carrier pipe = Y
Y ÷ 2 = Sealing Range
Find the correct sealing range and the corresponding style number on the chart adjacent. If there is more than one IL size to choose from, choose the IL size that is closer to the untightened seal range.

**Part 2**
To figure out how many Innerlynx® are needed to seal the penetration:
I.D. of casing/core drilled hole + O.D. of carrier pipe = Y
Y ÷ 2 = Bolt Circle
Bolt Circle x 3.14 = Circumference of bolt circle
Circumference of bolt circle ÷ chord length = Innerlynx® per seal
Use the chord length matched with proper Innerlynx® number

**Example:**
8” Ductile Iron Pipe into a 12” core drilled hole

**Part 1:**
12 – 9.05 = 2.95
2.95 ÷ 2 = 1.475 seal range
1.475 falls between the range for IL 400

**Part 2:**
12 + 9.05 = 21.05
21.05 ÷ 2 = 10.525 Bolt Circle
10.525 x 3.14 = 33.0485 Circumference Bolt Circle
33.0485 ÷ 3.63 = 9.10427 Number of Innerlynx®

**Answer:** 9 IL400

**Note:** If the calculation ends in .79 or lower, round down to the nearest whole number. If the calculation ends in .80 or higher round up to the nearest whole number.

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<th>IL Size</th>
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<th>Min Pipe</th>
<th>Max Pipe</th>
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**Untightened Thickness**

Chord Length

**Tightened Thickness**

**Coming Soon!**
**Innerlynx® Installation Instructions**

**Innerlynx® Check List**
1. Make sure installation area is free of dirt or debris.
2. Make sure pipe is centered in sleeve or hole.
3. Make sure pressure plates and bolt heads are facing out.
4. Make sure that Innerlynx are hand-tightened only.
5. Make sure that the carrier pipe is supported.
6. Make sure that you use an anti-seizing compound if using stainless steel hardware.

**Innerlynx® Don’ts**
1. Never use power tools or air tools on any Innerlynx bolt.
2. Do not tighten bolts more than a couple of turns at a time.
3. Do not tighten bolts completely at one time.
4. Do not use Innerlynx as a mean of pipe support.
5. Do not install Innerlynx® on uneven surfaces.
6. Do not tighten in a star pattern. Do go clockwise.

**Please Read Above Before Installing**

1. Center the pipe, cable or conduit in wall sleeve, casing or core drilled hole. Make sure the pipe will be adequately supported on both ends. Innerlynx® are not intended to support the weight of the pipe.
2. Connect both ends of the belt assembly around the pipe. Check to be sure all bolt heads are facing the installer.
3. Slide Innerlynx assembly into annular space. Lubrication with thin soap/water solution may help if tight.
4. Assembly may fit tightly or be loose depending on fit designed for your annular space.
5. Use HAND tools only. DO NOT USE power or air driven tools. This not only voids your warranty, but does not let Innerlynx work to its full potential.
6. Start at the bolt located at 12 o’clock with 2-3 turns of wrench/ratchet. Continue clockwise. Do not tighten in a star pattern.
7. Repeat process until rubber begins to slightly bulge and bolt is tight. Make one more turn on each bolt around the entire assembly.
8. Installation is complete. If the seal doesn’t appear to be correct using the instructions provided, call Advance Products & Systems, Inc. at 800-315-6009.
For the best possible wall penetration seal when using Innerlynx® you may also need either Gal-vo-plast® or Infinity® wall sleeves from APS. Refer to the reference within this brochure or request a copy of these brochures from your APS representative.

OTHER PRODUCTS AVAILABLE

- Flange Isolation Gasket Kits
- Radolid® Nut & Bolt Protector Caps
- U Bolt Cote®
- Casing Spacers and End Seals
- Kleerband® Flange Protectors
- Safety Spray Shields
- Foreman® Nite Caps, temporary pipe plugs
- Kleergel®
- Bore Spacers
- ISOJOINT® - Monolithic Isolating Joint

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