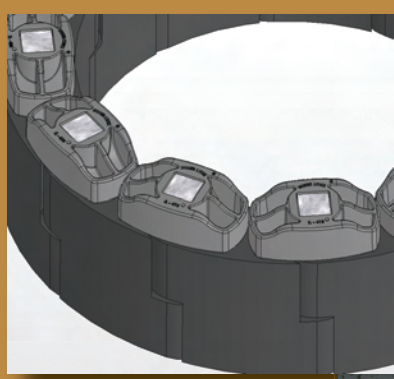




# INNERLYNX<sup>®</sup>

## Modular Mechanical Seals



**Advance Products & Systems, Inc.**

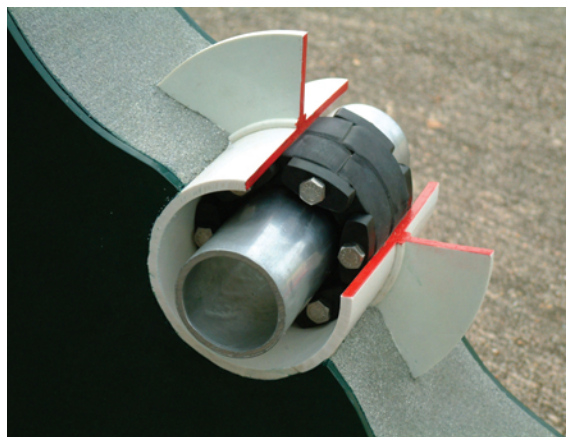
# Why choose Innerlynx®?

- Innerlynx® offer sixteen different sizes for all pipe size diameters ranging from 1/2" – 120".
- Innerlynx® penetration seals are manufactured in compliance with ISO 9001:2000 Certification.
- Innerlynx® are made from synthetic rubber with heavy-duty UV and ozone resistant plastic pressure plates or all metal plates.
- Innerlynx® help absorb vibrations, shocks, and sound waves and act as a sound dampener.
- Innerlynx® come in five models; EPDM Black, Nitrile Green, Silicone Grey, EPDM Blue & Silicon Red.
- Innerlynx® are completely manufactured 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. They can be just as easily reinstalled many times over the life of the installation.



## Innerlynx® Applications

- Mechanical Interior Piping Systems
- Floor Penetration Sleeves
- Wall Penetration Sleeves
- Manholes
- Cased Pipeline Road Crossings
- Hospital Mechanical Piping
- Power Generating Plants
- Boiler Room Piping
- Fire Protection Wall Penetrations
- Cased Pipeline Railroad Crossings
- Electrical Isolation of Pipes
- Precast Concrete Manhole Pipe Seals
- Insulated Piping Seals
- High Pressure Tank Guards
- Dual Containment Piping Seals
- Ship Bulkhead Pipe Penetrations
- Noise Dampening Piping Seals
- Electrical Isolation of Pipe Supports for Corrosion Protection
- Quiet Room Piping Seals
- Decorative Fountain System Pipe Seals
- Swimming Pool Piping Penetrations
- Electrical Conduit Pipe Seals
- Water Fountain Piping Seals
- Waste and Water Treatment Plant Piping Wall Penetrations
- Telecommunication Vault or Building
- Conduit Penetrations
- Refrigeration Building Penetration Piping Seals
- Power Generation Dams
- Underground Steel Tank Piping Penetrations
- Perimeter Bermor Dikes Around Tank Farms
- Noise and Sway Dampener
- Parking Garage Column Protectors
- Cable TV Installation Penetrations
- Bridge Pipeline Crossings
- Septic Tank Piping Seals
- Compressor Stations Pipe Penetrations
- Instrument Lines
- Tunneling Installation Seals
- Offshore Platforms



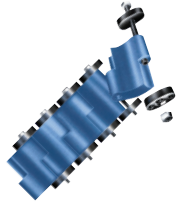
Third dimensional cut view of wall sleeve & Innerlynx®

# Innerlynx® Models and Properties



**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  
 Bolts & Nuts: Carbon Steel (Zinc plated)  
 Temp. range: -40 to +250 F

**Model “S-304” or “S-316” Innerlynx® Modular Seal** is suitable for chemical processing and water or wastewater treatment. EPDM rubber is resistant to most inorganic acids and alkalis, some organic chemicals (acetone, alcohol, ketones.)  
 Type: 304 or 316 Stainless Steel  
 Seal Element: EPDM (black)  
 Pressure Plates: Composite  
 Bolts & Nuts: Stainless Steel  
 Temp. range: -40 to +250 F



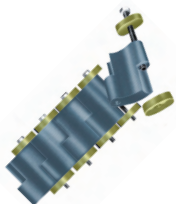
**Model “L” Innerlynx® Modular Seal** is composed of low durometer EPDM rubber suitable for thin walled conduit or copper pipe applications.  
 Type: Standard  
 Seal Element: EPDM (blue)  
 Pressure Plates: Composite  
 Bolts & Nuts: Carbon Steel (Zinc plated)  
 Temp. range: -40 to +250 F

**Model “L-304” or “L-316” Innerlynx® Modular Seal** is composed of low durometer EPDM rubber with stainless steel hardware suitable for corrosion applications.  
 Type: 304 or 316 Stainless Steel  
 Seal Element: EPDM (blue)  
 Pressure Plates: Composite  
 Bolts & Nuts: Stainless Steel  
 Temp. range: -40 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  
 Bolts & Nuts: Carbon Steel (Zinc plated)  
 Temp. range: -40 to +210 F

**Model “OS-304 or OS-316” Innerlynx® Modular Seal** is composed of a combination of stainless steel hardware and oil-resistant rubber.  
 Type: Oil resistant, stainless steel  
 Seal Element: Nitrile (green)  
 Pressure Plates: Composite  
 Bolts & Nuts: Stainless Steel  
 Temp. range: -40 to +210 F



**Model “T” Innerlynx® Modular Seal** is composed of silicone rubber which is excellent where temperature extremes are a factor.  
 Type: High/low Temperature  
 Seal Element: Silicone (grey)  
 Pressure Plates: Carbon Steel (Zinc plated)  
 Bolts & Nuts: Carbon Steel (Zinc plated)  
 Temp. range: -67 to +400 F

**Model “T-304 or T-316” Innerlynx® Modular Seal** is composed of silicone rubber which is excellent where temperature extremes are a factor.  
 Type: High/low Temperature  
 Seal Element: Silicone (grey)  
 Pressure Plates: Carbon Steel (Zinc plated)  
 Bolts & Nuts: Carbon Steel (Zinc plated)  
 Temp. range: -67 to +400 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 Rubber (red)  
 Bolts & Nuts: Carbon Steel (Zinc plated)  
 Temp. range: 3 hr. fire rating



**\*UL and Hi-Temp Innerlynx Available with optional 304 or 316 SS Pressure Plates by Special Order.**

## Innerlynx® Modular Seal - Properties

Material Properties for Innerlynx® Modular Seal Elements

Property	ASTM Method	EPDM	Nitrile	Silicone
Hardness	D-2240	46.5	50.5	50.5
Tensile	D-412	1828 psi	1200 psi	860psi
Elongation	D-412	784%	600%	600%
Compression Set	D-395	25% 22 hrs. @ 158 F	45% 22 hrs. @ 212 F	38% 22hrs. @ 350 F
Specific Gravity	D-297	1.15	1.42	1.30

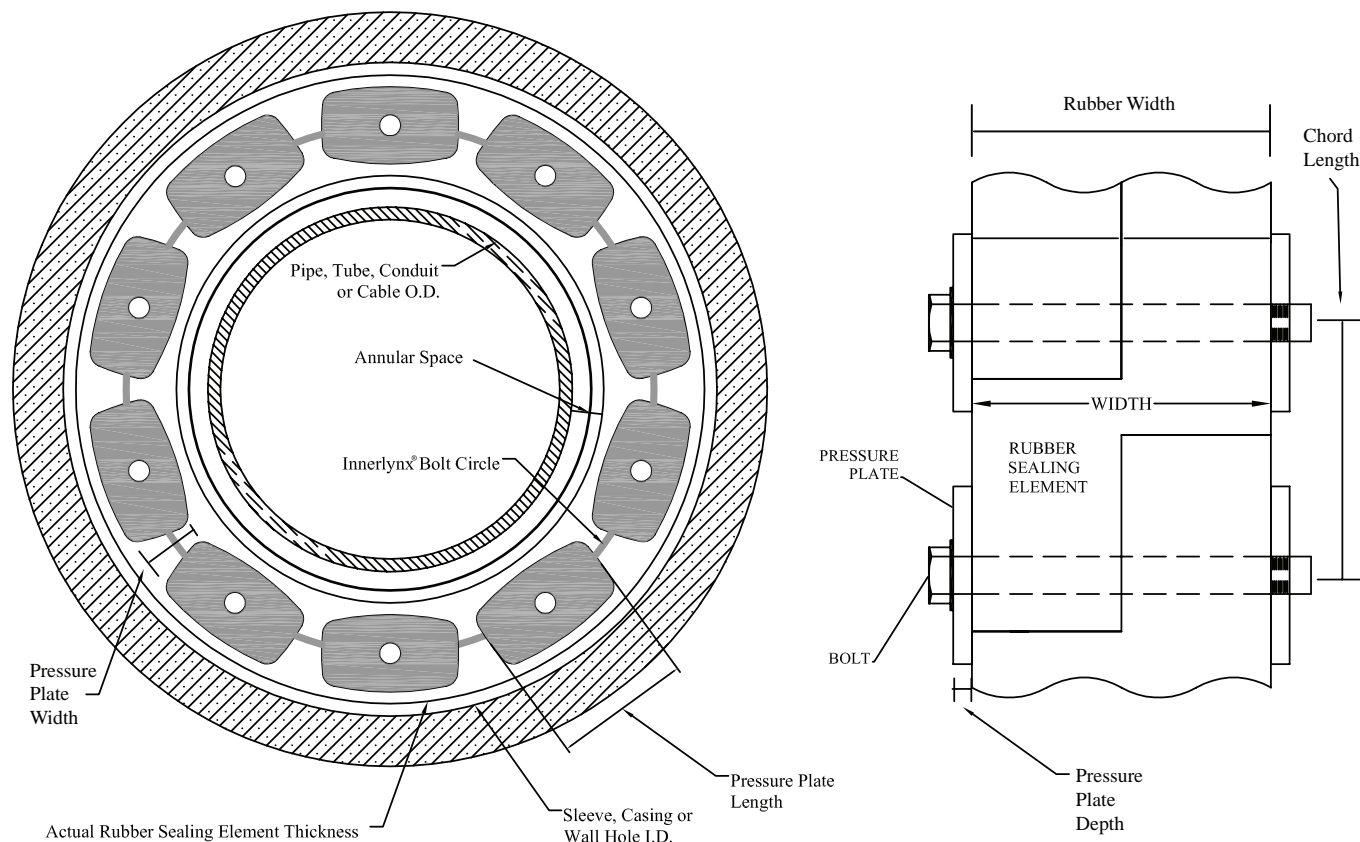
Material Properties for Composite Pressure Plates

Property	ASTM Method	Value
Tensile Strength	D-638	27,000 psi
Stress at break	D-638	28,000 psi
Elongation at break	D-638	3%
Flexural Strength	D-790	40,000 psi
Flexural Modulus	D-790	1,300,000 psi
Izod Impact	D-256	2.0
Specific Gravity	D-792	1.39

### Bolt and Nut Properties

**Stainless Steel:** 304 & 306 Stainless Steel  
 Tensile strength = 85,000 psi  
**Stainless Steel:** 316 Stainless Steel  
 Tensile strength = 85,000 psi

# Innerlynx® Dimensions



INNERLYNX® Model No.	RUBBER SEALING ELEMENT			PRESSURE PLATE			BOLT			MIN. WALL THICKNESS	WEIGHT BY PIECE (LBS) appx.
	Actual Thickness	Width	Chord Length	Width	Length	Depth	Hex Across Flats	Thread Size	Length		
IL200	0.50	1.80	1.20	0.45	1.14	0.32	.3125	10/32	2.50	2.25	0.05
IL275	0.62	1.87	0.91	0.63	0.90	0.35	.3125	10/32	2.50	2.25	0.10
IL300	0.71	2.57	1.51	0.68	1.52	0.43	0.50	5/16	3.50	3.00	0.20
IL315	0.82	2.49	1.50	0.79	1.46	0.48	0.50	5/16	3.50	3.00	0.20
IL325	0.95	3.04	3.10	0.81	2.87	0.94	0.50	5/16	5.00	4.00	0.60
IL340	1.00	2.76	1.61	0.95	1.50	0.70	0.50	5/16	5.00	4.00	0.30
IL360	1.23	2.75	2.08	1.12	2.10	0.76	0.50	5/16	5.00	4.00	0.50
IL400	1.43	3.56	3.63	1.33	3.51	1.06	0.56	3/8	6.00	5.00	1.20
IL410	1.41	3.38	2.62	1.42	2.52	0.87	0.56	3/8	5.50	5.00	0.80
IL425	1.13	3.54	3.63	1.03	3.45	1.18	0.56	3/8	6.00	5.00	0.95
IL475	1.62	3.35	2.63	1.48	2.60	0.78	0.56	3/8	5.50	5.00	0.95
IL500	2.37	3.80	3.86	2.17	3.72	1.04	0.75	1/2	6.00	5.00	2.15
IL525	2.18	3.80	3.86	2.00	3.72	1.03	0.75	1/2	6.00	5.00	2.10
IL575	1.83	3.80	3.10	1.79	3.01	1.00	0.75	1/2	6.00	5.00	1.60
IL600	3.20	4.00	6.00	3.07	6.12	1.90	1.125	3/4	8.00	6.00	6.35
IL650	2.67	4.07	4.16	2.17	3.72	0.87	0.75	1/2	6.00	5.50	2.70

\*All dimensions are in inches

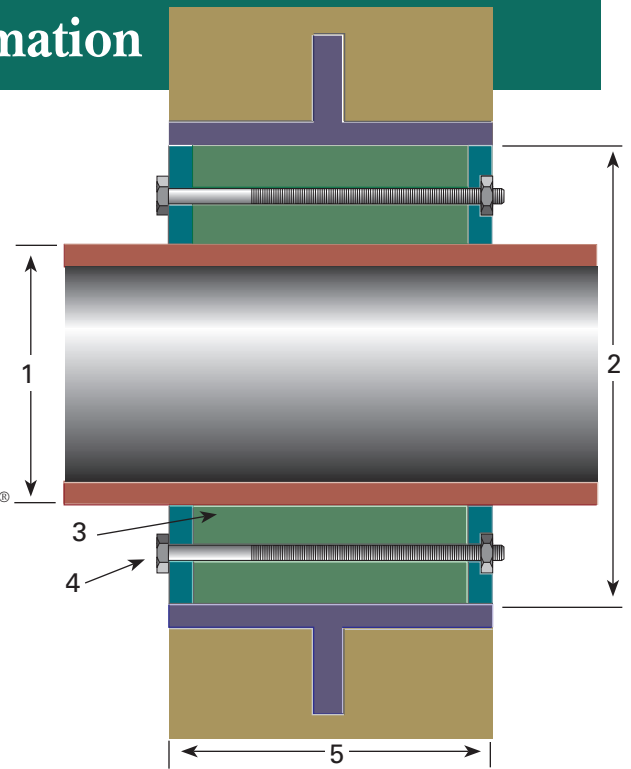
# Innerlynx® Sizing & Ordering Information

## Innerlynx® Standard Sizing

For standard pipe penetrations, use the charts on pages 4, 5, & 6.

- Select the nominal pipe size making sure the O.D. matches the application.
- Select one of the three recommended wall openings. (APS Plastic Wall Sleeve, APS Steel Wall Sleeve, or Core Drilled Hole).
- Beginning at column heading “Nominal Pipe Size”, read across to the sizing selection for Core Drilled Hole or Sleeve Type. Inside the sizing selection column, the first column identifies the Core Drilled I.D. or Wall Sleeve size. The second column identifies the Innerlynx® model number & the third column provides number of Innerlynx® required to seal the penetration.

NOTE: when following charts on pages 5, 6, & 7, Plastic & Steel Wall Sleeves do not have the same I.D.s. See page 10 for Plastic & Steel Wall Sleeve I.D.s.



1. Pipe outside diameter
2. Wall sleeve or core drill inside diameter
3. Model of Innerlynx®
4. Specify steel or stainless steel hardware
5. Wall thickness

**Having trouble sizing Innerlynx®?**  
**Call factory with all information applicable:**  
**1-800-315-6009**

Nominal Pipe Size	Pipe OD (Inches)	Recommended size for a Core Drilled Hole			Recommended size using APS Plastic Wall Sleeve			Recommended size using APS Steel Wall Sleeve		
		Core Drill ID	Innerlynx® Size	IL's per Seal	Plastic Wall Sleeve	Innerlynx® Size	IL's per Seal	Steel Wall Sleeve	Innerlynx® Size	IL's per Seal
<b>CISP (Extra Heavy) - Cast Iron Soil Pipe</b>										
2	2.380	4	IL300-**	6	PWSW4-*	IL300-**	6	SWSW4-*	IL300-**	6
3	3.500	5	IL300-**	8	PWSW5-*	IL300-**	8	SWSW5-*	IL300-**	8
4	4.500	6	IL300-**	10	PWSW6-*	IL300-**	10	SWSW6-*	IL300-**	10
5	5.500	8	IL340-**	13	PWSW8-*	IL340-**	13	SWSW8-*	IL340-**	13
6	6.500	10	IL400-**	7	PWSW10-*	IL400-**	7	SWSW10-*	IL400-**	7
8	8.620	12	IL400-**	9	PWSW12-*	IL400-**	9	SWSW12-*	IL400-**	9
10	10.750	14	IL400-**	10	PWSW14-*	IL340-**	23	SWSW14-*	IL425-**	10
12	12.750	16	IL400-**	12	PWSW16-*	IL325-**	14	SWSW16-*	IL425-**	12
15	15.880	18	IL325-**	17	PWSW20-*	IL400-**	15	SWSW20-*	IL400-**	15
<b>CISP (Service Weight) - Cast Iron Pipe</b>										
2	2.300	4	IL300-**	6	PWSW4-*	IL300-**	6	SWSW4-*	IL300-**	6
3	3.300	5	IL315-**	8	PWSW5-*	IL315-**	8	SWSW5-*	IL315-**	8
4	4.300	6	IL315-**	10	PWSW6-*	IL315-**	10	SWSW6-*	IL315-**	10
5	5.300	8	IL360-**	10	PWSW8-*	IL360-**	10	SWSW8-*	IL360-**	10
6	6.300	8	IL315-**	14	PWSW8-*	IL300-**	14	SWSW8-*	IL315-**	14
8	8.380	10	IL300-**	18	PWSW10-*	IL300-**	18	SWSW10-*	IL300-**	18
10	10.500	14	IL475-**	14	PWSW14-*	IL425-**	10	SWSW14-*	IL425-**	10
12	12.500	16	IL475-**	17	PWSW16-*	IL425-**	12	SWSW16-*	IL425-**	12
15	15.620	20	IL575-**	18	PWSW20-*	IL400-**	15	SWSW20-*	IL475-**	20

\* Specify length of wall sleeve in inches

\*\* Specify (C) carbon or (S) stainless steel hardware

## INNERLYNX® - Model IL - Sizing Specifications - Standard Sizes

Nominal Pipe Size	Pipe O.D. (inches)	Recommended size for a Core Drilled Hole			Recommended size using APS Plastic Wall Sleeve			Recommended size using APS Steel Wall Sleeve		
		Core Drill ID	Innerlynx® Size	IL's Per Seal	plastic wall sleeve	Innerlynx® Size	IL's Per Seal	steel wall sleeve	Innerlynx® size	IL's Per Seal
<b>DI - Ductile Iron Pipe Size, Plastic Pipe Size, or any pipe with same O.D.</b>										
2	2.500	4	IL300-**	6	PWSW4-*	IL300-**	6	SWSW4-*	IL300-**	6
2¼	2.750	4	IL200-**	9	PWSW4-*	IL200-**	9	SWSW4-*	IL200-**	9
3	3.960	6	IL315-**	10	PWSW6-*	IL315-**	10	SWSW6-*	IL315-**	10
4	4.800	8	IL400-**	5	PWSW8-*	IL400-**	5	SWSW8-*	IL400-**	5
6	6.900	10	IL400-**	7	PWSW10-*	IL400-**	7	SWSW10-*	IL400-**	7
8	9.050	12	IL360-**	16	PWSW12-*	IL360-**	16	SWSW12-*	IL360-**	16
10	11.100	14	IL400-**	10	PWSW14-*	IL325-**	12	SWSW14-*	IL325-**	12
12	13.200	16	IL360-**	22	PWSW18-*	IL475-**	18	SWSW16-*	IL325-**	14
14	15.300	18	IL425-**	14	PWSW20-*	IL475-**	20	SWSW20-*	IL575-**	17
16	17.400	20	IL425-**	16	PWSW24-*	IL500-**	16	SWSW22-*	IL575-**	19
18	19.500	22	IL425-**	18	PWSW24-*	IL400-**	18	SWSW24-*	IL475-**	25
20	21.600	26	IL575-**	24				SWSW26-*	IL475-**	28
24	25.800	30	IL575-**	28				SWSW30-*	IL475-**	33
30	32.000	36	IL575-**	34				SWSW36-*	IL400-**	29
36	38.300	43	IL525-**	33				SWSW44-*	IL500-**	33
42	44.500	49	IL525-**	38				SWSW50-*	IL525-**	38
48	50.800	56	IL500-**	43				SWSW57-*	IL500-**	43
60	61.610	66	IL575-**	64				SWSW69-*	IL600-**	34
<b>Copper Tubing Pipe</b>										
½	.0625	2	IL275-**	4	PWSW2-*	IL275-**	4	SWSW2-*	IL275-**	4
¾	0.875	2	IL200-**	4	PWSW2-*	IL200-**	4	SWSW2-*	IL200-**	4
1	1.125	2.5	IL275-**	5	PWPW3-*	IL315-**	4	SWSW2.5-*	IL275-**	5
1¼	1.375	2.5	IL200-**	5	PWSW3-*	IL300-**	4	SWSW2.5-*	IL200-**	5
1½	1.625	3	IL275-**	7	PWSW3-*	IL275-**	7	SWSW3-*	IL275-**	7
2	2.125	4	IL315-**	6	PWSW4-*	IL315-**	6	SWSW4-*	IL315-**	6
2½	2.625	4	IL275-**	10	PWSW4-*	IL275-**	10	SWSW4-*	IL275-**	10
3	3.125	5	IL315-**	8	PWSW5-*	IL315-**	8	SWSW5-*	IL315-**	8
4	4.125	6	IL315-**	10	PWSW6-*	IL315-**	10	SWSW6-*	IL315-**	10
6	6.125	8	IL315-**	14	PWSW8-*	IL315-**	14	SWSW8-*	IL315-**	14
8	8.125	10	IL315-**	18	PWSW10-*	IL315-**	18	SWSW10-*	IL315-**	18
10	10.125	14	IL575-**	12	PWSW14-*	IL410-**	14	SWSW14-*	IL400-**	10
12	12.125	16	IL575-**	14	PWSW16-*	IL425**	12	SWSW16-*	IL400-**	12
<b>EMT - Thin Wall Steel Conduit</b>										
¾	0.922	2	IL200-**	4	PWSW2-*	IL200-**	4	SWSW2-*	IL200-**	4
1	1.163	2.5	IL275-**	5	PWSW3-*	IL315-**	4	SWSW2.5-*	IL275-**	5
1 ¼	1.510	3	IL300-**	4	PWSW3-*	IL300-**	4	SWSW3-*	IL300-**	4
1 ½	1.740	3.5	IL315-**	5	PWSW3-*	IL275-**	7	SWSW3.5-*	IL315-**	5
2	2.197	4	IL315-**	6	PWSW4-*	IL315-**	6	SWSW4-*	IL315-**	6
2½	2.875	4	IL200-**	9	PWSW4-*	IL200-**	9	SWSW4-*	IL200-**	9
3	3.500	5	IL300-**	8	PWSW5-*	IL300-**	8	SWSW5-*	IL300-**	8
4	4.500	6	IL300-**	10	PWSW6-*	IL300-**	10	SWSW6-*	IL300-**	10

\* Specify length of wall sleeve in inches

\*\* Specify (C) carbon or (S) stainless steel hardware

Nominal Pipe Size	Pipe O.D. (inches)	Recommended size for a Core Drilled Hole			Recommended size using APS Plastic Wall Sleeve			Recommended size using APS Steel Wall Sleeve		
		Core Drill ID	Innerlynx® Size	IL's Per Seal	plastic wall sleeve	Innerlynx® Size	IL's Per Seal	steel wall sleeve	Innerlynx® size	IL's Per Seal
<b>IPS - Iron Pipe Size, Plastic Pipe Size, API Pipe Size, Electrical Conduit Size, or any pipe with same O.D.</b>										
1/2	0.840	2	IL200-**	4	PWSW2-*	IL200-**	4	SWSW2-*	IL200-**	4
3/4	1.050	2.5	IL275-**	5	PWSW3-*	IL315-**	4	SWSW2.5-*	IL275-**	5
1	1.315	2.5	IL200-**	5	PWSW3-*	IL300-**	4	SWSW2.5-*	IL200-**	5
1 1/4	1.660	3	IL275-**	7	PWSW3-*	IL275-**	7	SWSW3-*	IL275-**	7
1 1/2	1.900	3.5	IL300-**	5	PWSW3-*	IL200-**	6	SWSW3.5-*	IL300-**	5
2	2.375	4	IL300-**	6	PWSW4-*	IL300-**	6	SWSW4-*	IL300-**	6
2 1/2	2.875	4	IL200-**	9	PWSW4-*	IL200-**	9	SWSW4-*	IL200-**	9
3	3.500	5	IL300-**	8	PWSW5-*	IL300-**	8	SWSW5-*	IL300-**	8
3 1/2	4.000	6	IL315-**	10	PWSW6-*	IL315-**	10	SWSW6-*	IL315-**	10
4	4.500	6	IL300-**	10	PWSW6-*	IL300-**	10	SWSW6-*	IL300-**	10
5	5.563	8	IL340-**	13	PWSW8-*	IL340-**	13	SWSW8-*	IL340-**	13
6	6.625	10	IL400-**	7	PWSW10-*	IL400-**	7	SWSW10-*	IL400-**	7
8	8.625	12	IL400-**	9	PWSW12-*	IL400-**	9	SWSW12-*	IL400-**	9
10	10.750	14	IL400-**	10	PWSW14-*	IL340-**	23	SWSW14-*	IL425-**	10
12	12.750	16	IL400-**	12	PWSW16-*	IL325-**	14	SWSW16-*	IL425-**	12
14	14.000	18	IL575-**	16	PWSW18-*	IL360-**	23	SWSW18-*	IL400-**	13
16	16.000	20	IL575-**	18	PWSW20-*	IL425-**	15	SWSW20-*	IL400-**	15
18	18.000	22	IL575-**	20	PWSW24-*	IL525-**	16	SWSW22-*	IL400-**	17
20	20.000	24	IL575-**	22	PWSW24-*	IL425-**	18	SWSW24-*	IL400-**	18
22	22.000	26	IL575-**	24				SWSW26-*	IL400-**	20
24	24.000	28	IL575-**	26				SWSW28-*	IL400-**	22
26	26.000	30	IL575-**	28				SWSW30-*	IL400-**	24
28	28.000	32	IL575-**	30				SWSW32-*	IL400-**	25
30	30.000	34	IL575-**	32				SWSW34-*	IL400-**	27
32	32.000	36	IL575-**	34				SWSW36-*	IL400-**	29
34	34.000	38	IL575-**	36				SWSW40-*	IL500-**	29
36	36.000	40	IL575-**	38				SWSW42-*	IL500-**	31
42	42.000	46	IL575-**	44				SWSW48-*	IL500-**	36
48	48.000	52	IL575-**	50				SWSW54-*	IL500-**	41
<b>SDR-35 - or pipe with same O.D.</b>										
4	4.22	6	IL315-**	10	PWSW6-*	IL315-**	10	SWSW6-*	IL315-**	10
6	6.28	8	IL315-**	14	PWSW8-*	IL315-**	14	SWSW8-*	IL315-**	14
8	8.40	10	IL300-**	19	PWSW10-*	IL300-**	19	SWSW10-*	IL300-**	19
10	10.50	14	IL475-**	14	PWSW14-*	IL425-**	10	SWSW14-*	IL425-**	10
12	12.50	16	IL475-**	17	PWSW16-*	IL425-**	12	SWSW16-*	IL425-**	12
15	15.30	18	IL425-**	14	PWSW20-*	IL475-**	20	SWSW20-*	IL575-**	17
18	18.70	22	IL400-**	17	PWSW24-*	IL575-**	21	SWSW22-*	IL425-**	17
21	22.05	26	IL575-**	24				SWSW26-*	IL400-**	20
24	24.80	28	IL400-**	23				SWSW28-*	IL425-**	22
27	27.95	32	IL575-**	30				SWSW32-*	IL400-**	25
30	32.00	36	IL575-**	34				SWSW36-*	IL400-**	29

\* Specify length of wall sleeve in inches

\*\* Specify (C) carbon or (S) stainless steel hardware

# Non-Standard Sizes

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

$Y \div 2 = \text{Sealing Range}$

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

$Y \div 2 = \text{Bolt Circle}$

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:

$$12 - 9.05 = 2.95$$

$$2.95 \div 2 = 1.475 \text{ seal range}$$

1.475 falls between the range for IL 400

### Part 2:

$$12 + 9.05 = 21.05$$

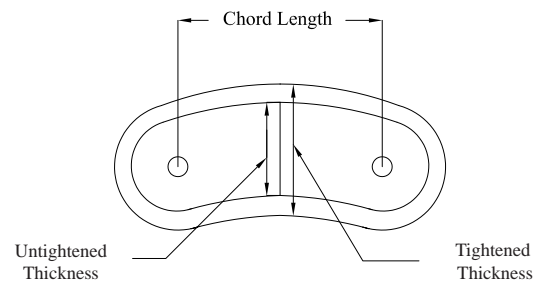
$$21.05 \div 2 = 10.525 \text{ Bolt Circle}$$

$$10.525 \times 3.14 = 33.0485 \text{ Circumference Bolt Circle}$$

$$33.0485 \div 3.63 = 9.10427 \text{ Number of Innerlynx®}$$

**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.



Innerlynx® Size	Sealing range		Chord Length
	Untightened	Tightened	
IL200	0.500	0.625	1.13
IL275	0.650	0.781	0.91
IL300	0.690	0.875	1.51
IL315	0.820	1.033	1.47
IL325	0.940	1.187	3.10
IL340	1.000	1.320	1.61
IL360	1.230	1.650	2.08
IL400	1.437	1.812	3.63
IL410	1.410	1.810	2.62
IL425	1.125	1.500	3.63
IL475	1.630	2.000	2.63
IL500	2.380	2.812	3.86
IL525	2.190	2.500	3.86
IL575	1.850	2.352	3.10
IL600	3.200	4.000	6.00
IL650	2.670	3.200	4.16



## INNERLYNX® CALCULATOR

Innerlynx® Calculator on CD-Rom that automatically determines the quantity of Innerlynx® by entering in O.D. and I.D.

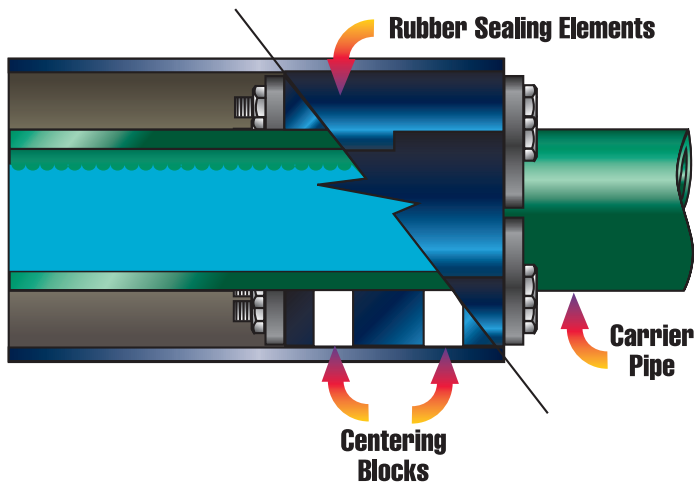
Having trouble determining sizes, please call 1-800-315-6009.



## Innerlynx® Centering Blocks

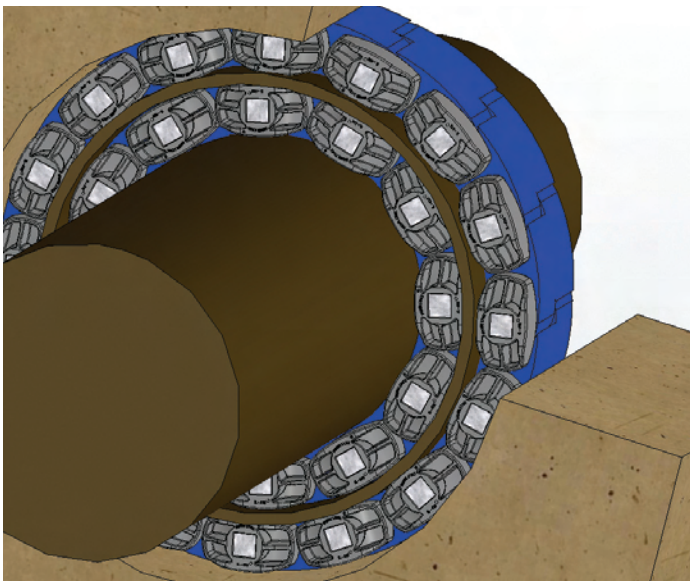
Centering blocks are a glass epoxy support block reinforcement positioned in the bottom 25% of the Innerlynx® assembly. Centering blocks assure a penetrating pipe will stay “centered” within its casing and adds extra support against heavy loads. This and the fact that, unlike pipeline boots, they are set within the inner casing and protected from sharp aggregate and equipment, make them a perfect endseal for pipelines.

The recommended quantity of Centering Blocks are listed on the chart adjacent.



## Double Sealing Applications

When an annular space is larger than the expanded thickness of a single Innerlynx®, it is necessary to use an intermediate sleeve and another Innerlynx® assembly as seen in the example below. Call the factory for sizing assistance at 1-800-315-6009.



Double seals require an intermediate sleeve between each wrap of Innerlynx®. Even triple installations can be accomplished successfully.

## Centering Blocks Sizing Chart

Centering Blocks are for sealing carrier pipes installed on casing, such as under highways, railroads and bridge crossings. They fit between the I.D. of the casing pipe and the O.D. of the carrier to form a watertight seal. Ordering information: See IL sizing specifications on chart below. For large sizes, please call. All dimensions are assumed to be IPS.

IPS Carrier Pipe Size (normal)	IPS Casing Pipe Size (normal)	IL Number	Qty. of IL	Qty. of ILs with Centering Blocks Included
1/2"	2"	IL200-**	4	0
3/4"	2 1/2"	IL275-**	5	0
1"	2 1/2"	IL200-**	5	0
1 1/4"	3"	IL275-**	7	0
1 1/2"	3 1/2"	IL300-**	5	0
2"	4"	IL300-**	6	0
2 1/2"	4"	IL200-**	9	0
3"	5"	IL300-**	8	0
3 1/2"	6"	IL315-**	10	0
4"	6"	IL300-**	10	0
4"	8"	IL400-**	5	0
6"	10"	IL400-**	7	0
8"	12"	IL400-**	9	0
10"	14"	IL425-**	10	0
12"	16"	IL425-**	12	0
14"	18"	IL400-**	13	4
16"	20"	IL400-**	15	4
18"	22"	IL400-**	17	4
20"	24"	IL400-**	18	5
22"	26"	IL400-**	20	5
24"	28"	IL400-**	22	5
26"	30"	IL400-**	24	6
28"	32"	IL400-**	25	7
30"	34"	IL400-**	27	7
32"	36"	IL400-**	29	8
34"	40"	IL500-**	29	8
36"	42"	IL500-**	31	8
42"	48"	IL500-**	36	9
48"	54"	IL500-**	41	11
54"	60"	IL500-**	46	12

\*\* Specify (C) carbon or (S) stainless steel hardware

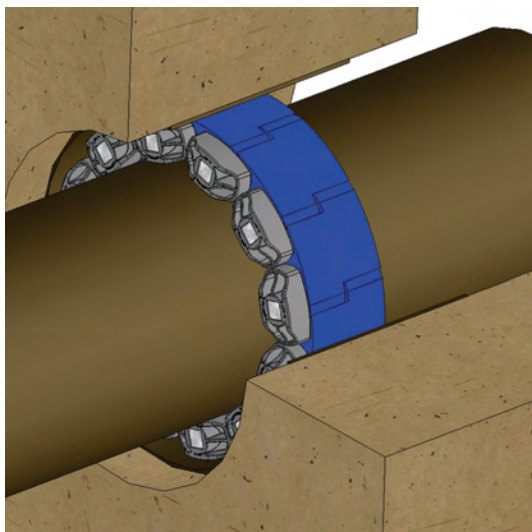
# Wall Sleeves

APS offers four types of wall sleeves designed to mate with the Innerlynx® for leak free performance. Wall Sleeves are schedule 40 thickness 10" & below; 12" & above are standard 3/8" wall thickness. Standard length is 12 inches, however we can customize to any length, keeping in mind a 6 inch minimum is required. Each model is available with a water stop that anchors the sleeve to prevent thrust movement and ensure positive water sealing. APS standard water stops are centered, unless otherwise specified.

All standard sizes of pipe-to-hole or pipe-to-sleeve combinations are shown in the charts on pages 5, 6 & 7. However, there are many other combinations which will also work. To calculate other types of pipe not listed in the standard size charts, refer to the non-standard size formula on page 8.

## 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.



Plastic Wall Sleeves	
Nominal Size	Sleeve I.D.
2	2.067
3	3.068
4	3.998
5	5.016
6	6.031
8	7.943
10	9.976
12	11.890
14	13.072
16	14.940
18	16.808
20	18.863
24	22.540
30	30.746
36	36.798



Steel Wall Sleeves	
Nominal Size	Sleeve I.D.
2	2.067
2½	2.469
3	3.068
3½	3.548
4	4.026
6	6.065
8	7.981
10	10.020
12	12.000
14	13.250
16	15.250
18	17.250
20	19.250
22	21.250
24	23.250
26	25.250
28	27.250
30	29.250
32	31.250
34	33.250
36	35.250
38	37.250
40	39.250
42	41.250
48	47.250

## Plastic Wall Sleeve Features

MODEL: PWS are made of PVC or PE plastic with a welded plastic water stop.

- Eliminates rust, corrosion & staining problems
- Ensures positive watertight sealing
- 15 sizes - 2" to 36"
- Lifetime leak proof performance
- Repair piping without damaging wall
- Lightweight, easy to install by one worker



## Steel Wall Sleeve Features

MODEL: SWS made of steel with a welded steel water stop.

- More durable than plastic
  - Ensures positive water sealing
  - Repair piping without damaging wall
  - Lifetime leak proof performance
  - Available in 2" to 120" diameter
- \* Available in galvanized also

## Gal-Vo-Plast Wall Sleeve Features

MODEL: GPWS 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® Installation Instructions



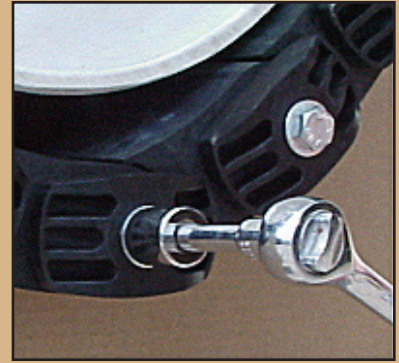
1. Center the pipe, cable or conduit in wall sleeve, casing or core drilled hole. Make sure the pipe will be adequately supported on both ends. Innerlynx® are not intended to support the weight of the pipe.



2. Connect both ends of the belt assembly around the pipe.



3. Check to be sure all bolt heads are facing the installer. Extra slack or sag is normal. Do not remove Lynx. Note: On smaller diameter pipe links may need to be stretched.



4. With a hand tool, pre tighten the belt assembly by giving each bolt about 2 turns.



5. Slide bolt assembly into annular space.



6. Start at 12 o'clock and tighten bolt until rubber begins to "bulge." Do not tighten any bolt more than 4 turns at a time. Continue in clockwise manner until Lynx have been uniformly compressed. (Approx. 2 to 4 rotations)



7. Make 2 or 3 more passes with 3 turns per bolt, tightening all bolts clockwise.



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

## INNERLYNX® CHECK LIST

1. Make sure Innerlynx® assembly and pipe surfaces are free from dirt.
2. Make sure pipe is centered in wall sleeve or cored hole.
3. Check correct Innerlynx® sizes and quantity with sizing chart.
4. Make sure pressure plates are all facing correct direction.
5. Check to make sure pipe is supported properly during backfill operations. Note: Innerlynx® are not intended to support the weight of the pipe and other attachments.

## INNERLYNX® DON'TS

1. Do not use power tools, air impacts, etc. on Innerlynx® bolts.
2. Do not install the Innerlynx® belt with pressure plates facing opposite directions.
3. Do not torque each bolt completely before moving onto the next.
4. Do not install Innerlynx® where obstruction such as weld beads may occur without consideration of the sealing requirements.
5. Do not use high-speed power tools on Innerlynx® stainless steel bolts.

# Warranty

All products are warranted against failure caused by Manufacturing defects for a period of one year. Any product found to be defective and returned within one year of shipment date will be replaced without charge. The above warranty is made in lieu of, and APS disclaims any and all other warranties expressed or implied, including the warranties of marketability and fitness for a particular purpose and buyer agrees to accept the products without any such warranties. APS hereby disclaims any obligation or liability for consequential damages, labor costs or any other claims or liabilities of any kind whatsoever, including an error or misprint in this brochure.

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- U-Bolt Cote®
- Flange Isolating Gasket Kits
- Safety Spray Shields
- Foreman Night Caps
- Kleerband® Flange Protectors

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