



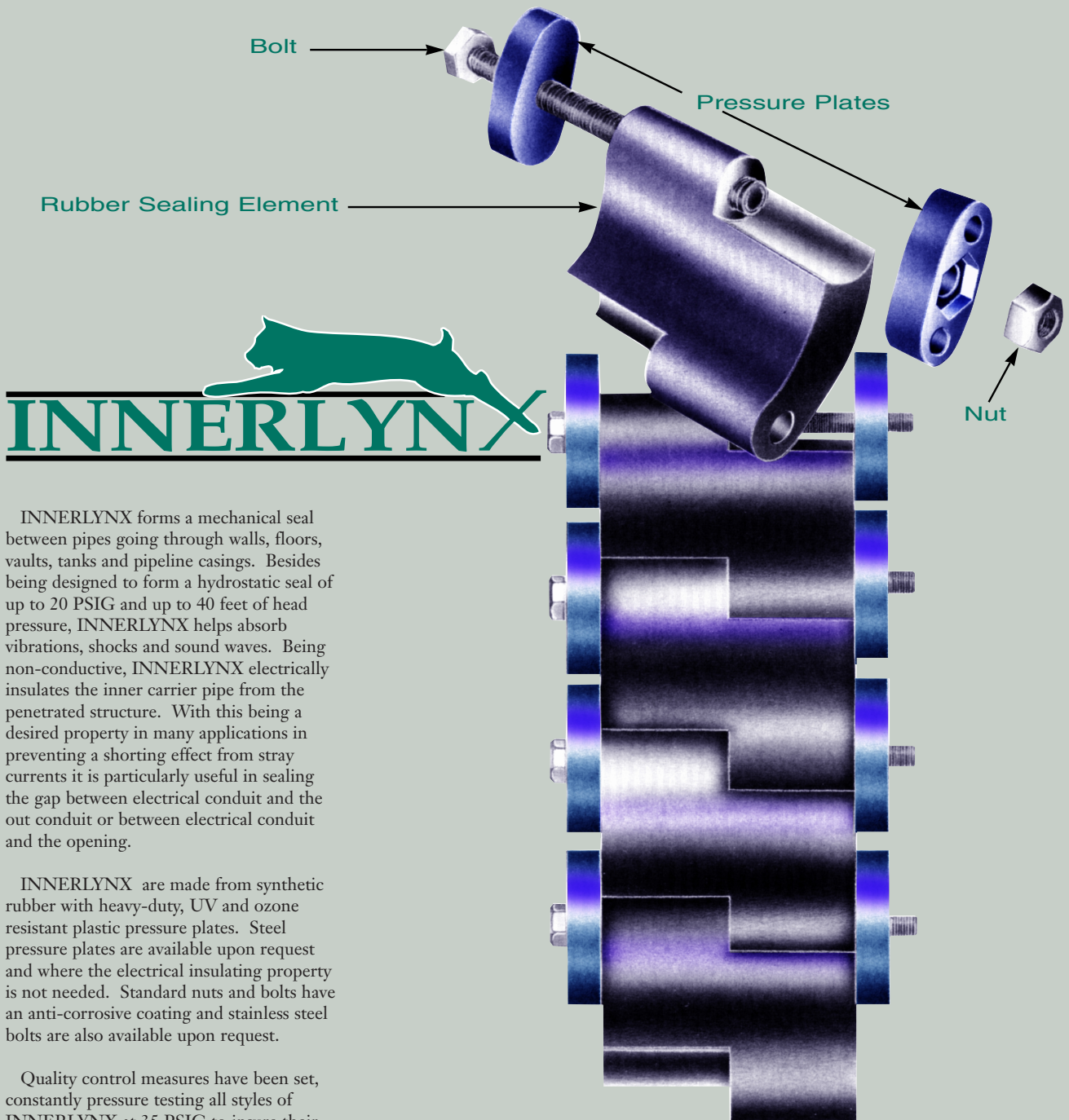
ADVANCE PRODUCTS & SYSTEMS, INC.




INNERLYNX

SEALS PIPE PENETRATIONS...FAST

INTRODUCTION TO INNERLYNX



INNERLYNX forms a mechanical seal between pipes going through walls, floors, vaults, tanks and pipeline casings. Besides being designed to form a hydrostatic seal of up to 20 PSIG and up to 40 feet of head pressure, INNERLYNX helps absorb vibrations, shocks and sound waves. Being non-conductive, INNERLYNX electrically insulates the inner carrier pipe from the penetrated structure. With this being a desired property in many applications in preventing a shorting effect from stray currents it is particularly useful in sealing the gap between electrical conduit and the out conduit or between electrical conduit and the opening.

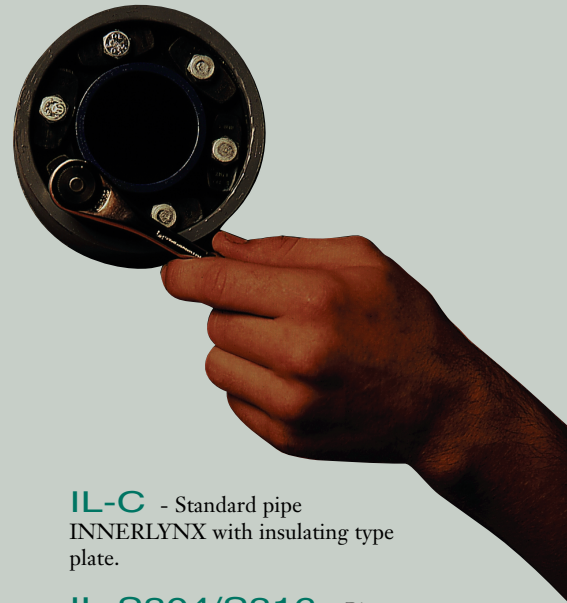
INNERLYNX are made from synthetic rubber with heavy-duty, UV and ozone resistant plastic pressure plates. Steel pressure plates are available upon request and where the electrical insulating property is not needed. Standard nuts and bolts have an anti-corrosive coating and stainless steel bolts are also available upon request.

Quality control measures have been set, constantly pressure testing all styles of INNERLYNX at 35 PSIG to insure their integrity. Standard maximum operating temperature is 300° F.

Twelve different sizes of Innerlynx are available for most pipe sizes with diameters from 1/2" to 100". Custom sizes can also be made.

INNERLYNX can be installed easily and quickly by one worker with no special tools required.

TYPES OF INNERLYNX



IL-C - Standard pipe INNERLYNX with insulating type plate.

IL-S304/S316 - Pipe INNERLYNX with stainless steel pressure plate (special).

IL-PLAIN - Pipeline pipe INNERLYNX without centering blocks*. All INNERLYNX are "plain" style.

IL-CB - Pipe INNERLYNX with centering block feature.

*Centering Blocks are plastic reinforcements that assure a penetrating pipe will stay "centered" within its casing and adds extra support against heavy loads from back fill.



VARIOUS APPLICATIONS FOR INNERLYNX SEALS AND WALL SLEEVES:

- Pipelines
- Buildings
- Power Generating Plants
- Water Plants
- Waste Treatment Plants
- Offshore Production Platforms
- Compressor Stations

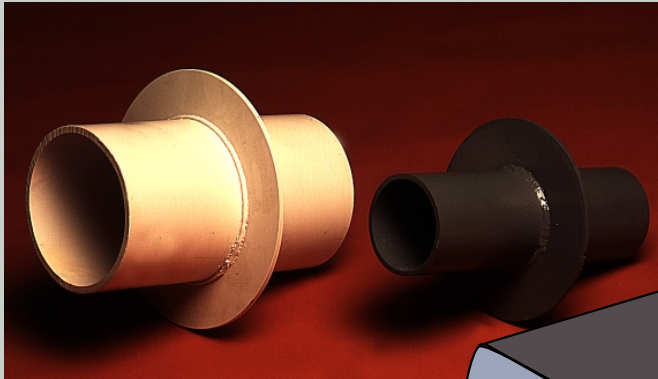
FOR USE ON:

- Road Crossings
- Wall Penetrations
Interior & Exterior
- Fire Protection Piping
- Discharge Lines
- Electrical Conduit
- Instrument Lines

WALL SLEEVES

WHY USE WALL SLEEVES

Protect your investment and use 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 wall damage. In addition, wall sleeves make it easy to repair piping without damaging the wall.



Advance Products & Systems offers two types of wall sleeves:

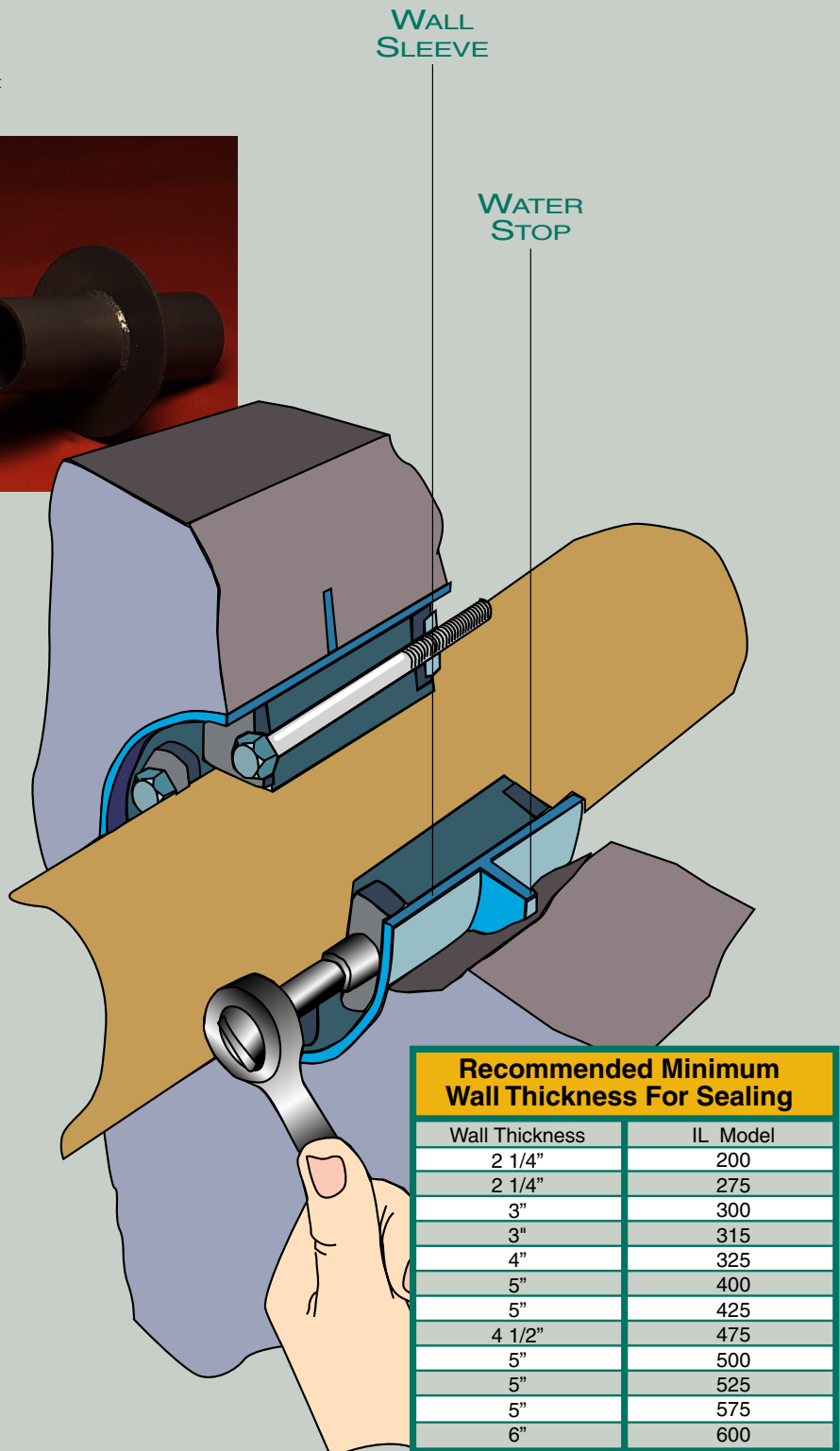
1. **Model SWS** made of steel with a welded steel water stop
2. **Model PWS** made of plastic with a welded plastic water stop

APS WALL SLEEVES PROVIDE:

- Quality Assurance
- A Wide Variety Of Sizes
- Customized Wall Sleeves
- Water Resistance
- Easy Installation
- No Hard Labor
- A One Man Job
- Fast Turn-around

The APS wall sleeves are designed to mate with the Advance INNERLYNX seals for leak free performance. Wall sleeves are all standard schedule 40 wall thickness. APS standard length is 12 inches, however, we can customize any size wall sleeve, 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 insure positive water sealing. APS standard water stops are centered, unless otherwise specified.

All common sizes of pipe-to-hole or pipe-to-sleeve combinations are shown in the chart on pages 5 & 6. However, there are many other combinations which will also work. To calculate other types of pipe not listed in the IL sizing specification on these pages refer to IL Non-Standard Sizes on Page 7.



Recommended Minimum Wall Thickness For Sealing	
Wall Thickness	IL Model
2 1/4"	200
2 1/4"	275
3"	300
3"	315
4"	325
5"	400
5"	425
4 1/2"	475
5"	500
5"	525
5"	575
6"	600

WALL SLEEVES

Advance Products & Systems can provide quick turn-around on wall sleeve orders due to a well stocked inventory.

Plastic Wall Sleeves

Nominal Size	Sleeve I.D.
2"	2.067"
3"	3.068"
4"	4.026"
6"	6.065"
8"	7.981"
10"	10.02"
12"	11.938"
14"	13.124"
16"	13.00"
18"	17.12"
20"	19.022"
24"	23.593"

INNERLYNX-MODEL IL • SIZING SPECIFICATIONS-STANDARD SIZES

IPS - Iron Pipe Size
 Plastic Pipe Size
 API Pipe Size
 Electrical Conduit Size
 Or any pipe with same O.D.

DI - Ductile Iron Pipe Size
 Plastic Pipe Size
 Or any pipe with same O.D.

CTS - Copper Tubing Size
 Plastic Tubing Size
 Or any pipe with same O.D.

LP - Pipeline Line Pipe with coating
 of 50 mils approximately

EMT - Thin Wall Steel Conduit

Please Note:

Color band indicates the INNERLYNX recommended when more than one size is offered.

This chart is a guide only and APS is not responsible for mistakes, omissions and errors, etc.

For larger sizes, please call.

Nominal Pipe Size	Type of Pipe	Pipe O.D.	Inner Pipe Through A Core Drilled Hole			Inner Pipe Through A Wall Sleeve		
			Hole Diameter	IL Number	Quantity of IL	Sleeve I.D.	IL Number	Quantity of IL
1/2"	IPS	0.840"	2.0"	#200	4	2.067"	#200	4
3/4"	CTS	0.875"	2.0"	#200	4	2.067"	#200	4
3/4"	EMT	0.922"	2.0"	#200	4	2.067"	#200	4
3/4"	IPS	1.050"	2.5"	#300	3	2.067"	#200	4
1"	EMT	1.163"	2.5"	#275	6	2.469"	#275	6
1"	IPS	1.315"	2.5"	#200	5	2.469"	#200	5
1"	IPS	1.315"	3.0"	#300	4	2.469"	#200	5
1 1/4"	CTS	1.375"	2.5"	#200	5	2.469"	#200	5
1 1/4"	EMT	1.510"	3.0"	#300	4	3.068"	#300	4
1 1/4"	IPS	1.660"	3.25"	#300	5	3.068"	#300	5
1 1/2"	CTS	1.625"	3.0"	#275	8	3.068"	#300	5
1 1/2"	EMT	1.740"	4.0"	#325	3	4.026"	#325	3
1 1/2"	IPS	1.900"	3.0"	#200	7	3.068"	#200	7
1 1/2"	IPS	1.900"	3.5"	#300	5	3.548"	#300	5
1 1/2"	IPS	1.900"	4.0"	#325	3	4.026"	#325	3
2"	CTS	2.125"	3.0"	#275	9	3.548"	#300	6
2"	CTS	2.125"	4.0"	#315	6	4.026"	#325	3
2"	DI	2.500"	4.0"	#300	6	4.026"	#300	6
2"	DI	2.500"	6.0"	#475	5	6.065"	#475	5
2"	EMT	2.197"	4.0"	#315	6	4.026"	#315	6
2"	IPS	2.375"	4.0"	#300	6	4.026"	#300	6
2"	IPS	2.375"	6.0"	#475	5	6.065"	#475	5
2 1/4"	DI	2.750"	5.0"	#325	4	5.047"	#325	4
2 1/2"	CTS	2.625"	4.0"	#300	6	4.026"	#300	7
2 1/2"	EMT	2.875"	4.0"	#200	9	4.026"	#200	9
2 1/2"	EMT	2.875"	5.0"	#325	4	5.047"	#325	4
2 1/2"	IPS	2.875"	4.0"	#200	9	4.026"	#200	9
2 1/2"	IPS	2.875"	5.0"	#325	4	5.047"	#325	4
3"	CTS	3.125"	5.0"	#315	8	5.047"	#325	4
3"	CTS	3.125"	6.0"	#425	4	6.065"	#400	4
3"	DI	3.960"	6.0"	#325	5	6.065"	#325	5
3"	DI	3.960"	5.0"	#200	12	5.047"	#200	12
3"	EMT	3.500"	5.0"	#300	9	5.047"	#300	9
3"	EMT	3.500"	6.0"	#425	4	6.065"	#425	4
3"	IPS	3.500"	5.0"	#300	9	5.047"	#300	9
3"	IPS	3.500"	6.0"	#425	4	6.065"	#425	4
3 1/2"	IPS	4.000"	6.0"	#325	5	6.065"	#325	5
3 1/2"	IPS	4.000"	5.0"	#200	12	5.047"	#200	12
4"	CTS	4.125"	6.0"	#315	11	6.065"	#325	5
4"	CTS	4.125"	8.0"	#575	5	7.981"	#575	7
4"	DI	4.800"	8.0"	#400	5	7.981"	#400	5
4"	EMT	4.500"	6.0"	#300	11	6.065"	#300	11
4"	EMT	4.500"	8.0"	#475	5	7.981"	#400	5
4"	IPS	4.500"	6.0"	#300	11	6.065"	#300	11
4"	IPS	4.500"	8.0"	#475	7	7.981"	#400	5
5"	IPS	5.563"	9.0"	#475	8	7.981"	#425	6
6"	CTS	6.125"	8.0"	#315	15	7.981"	#315	15
6"	CTS	6.125"	10.0"	#575	6	10.020"	#575	6
6"	DI	6.900"	10.0"	#400	7	10.020"	#400	7
6"	IPS	6.625"	10.0"	#400	7	10.020"	#400	7
6"	IPS	6.625"	9.0"	#425	6	10.020"	#400	7

Nominal Pipe Size	Type of Pipe	Pipe O.D.	Inner Pipe Through A Core Drilled Hole			Inner Pipe Through A Wall Sleeve		
			Hole Diameter	IL Number	Quantity of IL	Sleeve I.D.	IL Number	Quantity of IL
8"	CTS	8.125"	10.0"	#315	19	10.020"	#315	19
8"	CTS	8.125"	12.0"	#575	8	12.000"	#575	8
8"	DI	9.050"	12.0"	#400	9	12.000"	#400	9
8"	IPS	8.625"	12.0"	#400	9	12.000"	#400	9
8"	IPS	8.625"	11.0"	#425	8	12.000"	#400	9
10"	CTS	10.125"	12.0"	#315	23	12.000"	#315	23
10"	CTS	10.125"	14.0"	#575	9	13.250"	#400	10
10"	DI	11.100"	14.0"	#400	11	13.250"	#325	12
10"	IPS	10.750"	14.0"	#400	10	13.250"	#425	10
10"	IPS	10.750"	16.0"	#500	11	15.250"	#575	10
12"	CTS	12.125"	16.0"	#575	11	15.250"	#400	12
12"	CTS	12.125"	17.50"	#500	12	17.250"	#500	12
12"	DI	13.200"	16.0"	#425	12	15.250"	#325	14
12"	IPS	12.750"	16.0"	#400	12	15.250"	#425	12
12"	IPS	12.750"	18.0"	#500	12	17.250"	#575	12
14"	DI	15.300"	18.0"	#425	14	17.250"	#325	16
14"	IPS	14.000"	16.0"	#325	15	17.250"	#400	13
14"	IPS	14.000"	19.0"	#500	13	19.250"	#500	13
16"	DI	17.400"	20.0"	#425	16	19.250"	#315	39
16"	IPS	16.000"	18.0"	#325	17	19.250"	#400	15
16"	IPS	16.000"	21.0"	#500	15	21.250"	#500	15
18"	DI	19.500"	24.0"	#525	17	23.250"	#375	25
18"	IPS	18.000"	23.0"	#500	16	23.250"	#500	16
18"	IPS	18.000"	20.0"	#325	19	21.250"	#400	17
20"	DI	21.600"	25.0"	#400	20	25.250"	#475	28
20"	IPS	20.000"	23.0"	#400	18	23.250"	#400	18
20"	IPS	20.000"	25.0"	#500	18	25.250"	#500	18
22"	IPS	22.000"	25.0"	#400	20	25.250"	#400	20
22"	IPS	22.000"	27.0"	#500	20	27.250"	#500	20
24"	DI	25.800"	29.0"	#400	23	29.250"	#400	24
24"	DI	25.800"	31.0"	#500	23	31.250"	#500	23
24"	IPS	24.000"	29.0"	#500	21	29.250"	#500	21
24"	IPS	24.000"	27.0"	#400	22	27.250"	#400	22
26"	IPS	26.000"	29.0"	#400	24	29.250"	#400	24
26"	IPS	26.000"	31.0"	#500	23	31.250"	#500	23
28"	IPS	28.000"	33.0"	#500	24	33.250"	#500	25
28"	IPS	28.000"	31.0"	#400	25	31.250"	#400	25
30"	IPS	30.000"	35.0"	#500	26	35.250"	#500	26
30"	IPS	30.000"	33.0"	#400	27	33.250"	#400	27
30"	DI	32.000"	35.0"	#400	29	35.250"	#400	29
30"	DI	32.000"	37.0"	#500	28	37.250"	#500	28
32"	IPS	32.000"	37.0"	#500	28	37.250"	#500	28
32"	IPS	32.000"	35.0"	#400	29	35.250"	#400	29
34"	IPS	34.000"	39.0"	#500	29	39.250"	#500	29
34"	IPS	34.000"	37.0"	#400	30	37.250"	#400	31
36"	DI	38.300"	43.0"	#525	33	43.250"	#500	33
36"	DI	38.300"	41.0"	#425	34	41.250"	#400	34
36"	IPS	36.000"	41.0"	#500	31	41.250"	#500	31
36"	IPS	36.000"	39.0"	#400	32	39.250"	#400	32
42"	DI	44.500"	49.0"	#525	38	49.250"	#525	38
42"	DI	44.500"	48.0"	#475	55	47.250"	#425	39
42"	IPS	42.000"	47.0"	#500	36	47.250"	#500	36
42"	IPS	42.000"	45.0"	#400	37	45.250"	#400	37
48"	DI	50.800"	55.0"	#575	43	55.250"	#575	43
48"	DI	50.800"	53.0"	#325	52	53.250"	#425	45
48"	IPS	48.000"	53.0"	#500	41	53.250"	#500	41
48"	IPS	48.000"	51.0"	#400	43	51.250"	#400	43

NON-STANDARD SIZES

HOW TO FIGURE SIZE AND NUMBER OF INNERLYNX NEEDED TO MAKE ONE COMPLETE SEAL:

Formula 1 - To figure which IL Style No. is needed -
 I.D. of Casing/Hole minus O.D. of carrier pipe = y
 y divided by 2 = Sealing Range
 Find the correct Sealing Range and the corresponding Style No. on the chart below.

Formula 2 - To figure how many of Style IL needed -
 I.D. of Casing/Hole plus O.D. of carrier pipe = z
 z times the corresponding IL Multiplier = Qty. of IL needed
 Find the corresponding IL Multiplier on the chart below.
 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.

Example: 4" Ductile Iron Pipe into a 10" core drilled hole.
 I.D. of hole = 10"
 O.D. of carrier pipe = 4.80"

Formula 1: $10" - 4.80" = y = 5.20"$
 5.20 divided by 2 = 2.600"
 2.600" falls between the range for IL 500

Formula 2: $10" + 4.80" = z = 14.80"$
 IL Multiplier for IL 500 = .406
 z multiplied by .406 = $14.80" \times .406 = 6.009$
 Round down to the nearest whole number
Answer: 6 IL 500

IL Style NO.	Sealing Range		IL Multiplier
	(untightened)	(tightened)	
IL 200	0.500	0.625	1.395
IL 275	0.620	0.781	1.725
IL 300	0.687	0.875	1.039
IL 315	0.820	1.033	1.068
IL 325	0.935	1.187	0.506
IL 400	1.437	1.812	0.433
IL 425	1.125	1.500	0.433
IL 475	1.625	2.000	0.598
IL 500	2.375	2.812	0.406
IL 525	2.187	2.500	0.406
IL 575	1.810	2.352	0.406
IL 600	3.200	4.000	0.262

PIPELINE PIPE INNERLYNX

Model IL - Sizing Specifications

These Pipe INNERLYNX are for sealing carrier pipes from casings when casings are required such as highway, railroad 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 larger sizes, please call.
 All dimensions are assumed to be IPS.

Nominal Carrier Pipe Size (nominal)	Casing Pipe Size (nominal)	IL Number	Qty. of IL	Qty of ILs with Centering Blocks Included
1/2"	2 1/2"	#300	3	0
3/4"	3"	#300	4	0
1"	3"	#300	4	0
1 1/4"	3 1/2"	#300	5	0
1 1/2"	3 1/2"	#300	5	0
1 1/2"	4"	#325	3	0
2"	4"	#300	6	0
2"	6"	#475	5	0
2 1/2"	5"	#325	4	0
3"	5"	#300	9	0
3"	6"	#425	4	0
3 1/2"	6"	#325	5	0
4"	6"	#300	11	0
4"	8"	#400	5	0
4"	10"	#500	6	0
6"	10"	#400	7	0
6"	12"	#500	8	0
8"	12"	#400	9	0
8"	14"	#500	9	0
10"	14"	#425	10	0
10"	16"	#575	10	3
12"	16"	#425	12	0
12"	18"	#575	12	3
14"	18"	#400	13	4
14"	20"	#500	13	4
16"	20"	#400	15	4
16"	22"	#500	15	4
18"	22"	#400	17	4
18"	24"	#500	16	4
20"	24"	#400	19	5
20"	24"	#500	18	5
22"	26"	#400	21	5
22"	28"	#500	20	5
24"	28"	#400	22	5
24"	30"	#500	21	5
26"	30"	#400	24	6
26"	32"	#500	23	6
28"	32"	#400	25	7
28"	34"	#500	25	6
30"	34"	#400	27	7
30"	36"	#500	26	7
32"	36"	#400	29	8
32"	38"	#500	27	7
34"	38"	#400	31	8
34"	40"	#500	29	8
36"	40"	#400	32	8
36"	42"	#500	31	8
42"	48"	#500	36	9
48"	54"	#500	41	11
54"	60"	#500	45	12

Standard ILs come with centering blocks when carrier pipe is 10" or larger. 10" x 16", for example, would come with 10 ILs total; 7 of them would be the plain, standard type, and 3 would be with centering blocks.

If no centering blocks are desired, please specify IL-PLAIN. For the size mentioned above (10"x16"), 10 ILs would be provided, with all 10 of them being the plain type (no centering blocks).

This chart is a guide only and we are not responsible for mistakes, omissions, errors, etc.

INNERLYNX MODELS AND APPLICATIONS

Model	Type	Seal Element	Pressure Plates	Fasteners Bolts & Nuts	Temperature Range (°F)	Applications
C	Standard	EPDM Black	Composite	Plated Steel	-40 to +250	Suitable for most standard applications including: aboveground, direct underground burial, wet conditions and where cathodic protection - electrical insulation is desired.
O	Oil Resistant	Nitrile Green	Composite	Plated Steel	-40 to +210	Nitrile rubber is suitable for most hydrocarbons, fats, oils, greases, hydraulic fluids, chemicals and solvents (gasoline, jet fuel, water, motor oil, kerosene, methane, etc.)
S304	304 Stainless Steel	EPDM Black	Composite	304 Stainless Steel	-40 to +250	For chemical processing wastewater treatment. EPDM rubber is resistant to most inorganic acids and alkalis, some organic chemicals (acetone, alcohol, ketones).
S316	316 Stainless Steel	EPDM Black	Composite	316 Stainless Steel	-40 to +250	For applications where lower grade Stainless Steel hardware is not suitable and a higher degree of corrosion resistant hardware is required.
OS304	Oil Resistant 304 Stainless Steel	Nitrile Green	Composite	304 Stainless Steel	-40 to +210	Combination of stainless steel hardware and oil-resistant rubber.
OS316	Oil Resistant 304 Stainless Steel	Nitrile Green	Composite	316 Stainless Steel	-40 to +210	Combination of higher grade stainless steel hardware and oil resistant rubber where the ultimate corrosion protection is desired.
T	High/Low Temperature	Silicone Grey	Plated Steel or Stainless Steel	Plated Steel or Stainless Steel	-67 to +400	Silicone rubber is excellent where temperature extremes are a factor.
FD	Fire Seals	Silicone Grey	Plated Steel or Stainless Steel	Plated Steel or Stainless Steel	-67 to +400	The double seal installation gives a three hour fire rated barrier.
M	Non-Insulating	EPDM Black	Steel or Stainless Steel	Plated Steel or Stainless Steel	-40 to +250	Wider range of applications where cathodic protection is not required.
TC	High Temperature Insulating	Silicone Grey	Epoxy Coated Steel	Plated Steel	-67 to +400	High temperature applications where cathodic protection is required

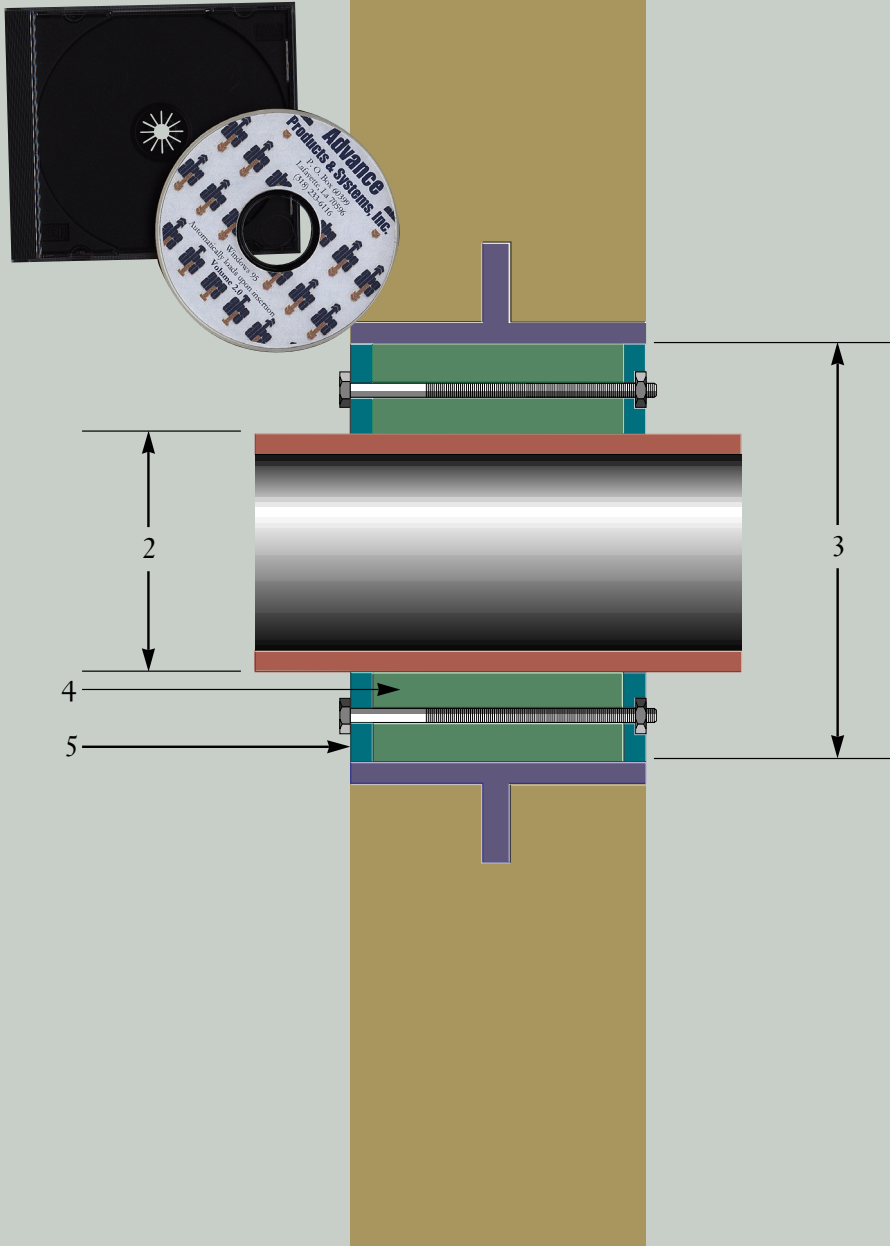
ORDERING INFORMATION

PLEASE SUPPLY ALL INFORMATION APPLICABLE:

1. Wall Thickness Outside
2. Pipe Outside Diameter
3. Wall Sleeve Inside Diameter
4. Type of INNERLYNX desired
5. Insulated or Steel Pressure Plates

AVAILABLE TO YOU

APS offers a CD ROM software package for Advance INNERLYNX that helps determine size and quantity of pieces required for your project.



OTHER QUALITY PRODUCTS AVAILABLE

- Flange Insulating Gasket Kits
- Flange Band Protectors
- Radolid Nut & Bolt Protective Caps
- U-Bolt Cote
- Casing Insulators & End Seals
- Duocon Centralizers
- Forman Night Caps
- ISOJOINTS®
 - Monolithic Insulating Joints
- Safety Spray Shields

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