

**Sleeves and hole forms  
for pipe penetrations in poured concrete  
walls, floors and ceilings.**

**Century-Line  
Cell-Cast**

**The system is the solution...  
engineered products to mate with  
Link-Seal® Modular  
Seals.**





## Century-Line® Pipe Penetration Sleeves

are used to create circular sleeved holes in concrete poured barriers including; walls, floors, ceilings structural supports and tank footings. Molded from non-conductive, high impact resistant HDPE, Century-Line® sleeves are lightweight and easily installed by one construction worker. They are available in 16 diameters ranging from 2" to 25" and shipped, from stock, in any desired length.

### Features

**16 sizes -  
2" to 25" in diameter.**

In the event of a field or engineering change, sleeves may be cut shorter at the job site using ordinary hand tools (See page 5). Standard sleeves are 16" (40.6mm) in length. Longer length models may also be quickly fabricated as a custom ordered item.

**1/8 the weight of steel.**

Century-Line sleeves are light enough for one worker to install without a crane, hoist or helper which reduces installation time and costs. Century-Line sleeves are easy to stock and store and far less expensive to ship, when compared to steel sleeves.

**Resists water migration.**

The 2" (50.8mm) water stop collar not only anchors the sleeve in position but creates a long tortuous path against the migration of water around the outside of the sleeve.

**Adjusts to wall thickness.**

Century-Line sleeves' unique hollow water stop collar acts like an expansion joint, adjusting (up to 1/2" - 12.7mm) to the thickness of the wall. This compressive force reacts against the forms like a spring, creating a prevailing tension which maintains proper sleeve location within the form.

**Nailer end caps position sleeve precisely in form.**

Specially designed end caps provide an ideal method for attaching Century-Line sleeves to the concrete forms. The end caps assure that the sleeve holds its circular configuration during the pour. In addition to keeping out wet concrete, they also prevent dirt from entering the sleeve during backfill operations or the interim construction period.

**Tough high density polyethylene (HDPE) construction.**

High impact resistant HDPE also provides excellent resistance to acids, alkalis and other organic solvents. Ideal for cathodic protection systems, these non-conductive sleeves will neither rust, corrode or degrade. Low-temperature properties are such that they may be installed under any weather conditions suitable for pouring concrete. High temperature application limit is 150° F. (66° C.). The sleeve is molded with a texture on the outside surface to assure a better bond, than most other plastics, to concrete interfaces.

## The system is the solution

Century-Line® sleeves are engineered to mate with Link-Seal® modular mechanical seals for a lifetime of leak-proof performance. PSI/Thunderline/Link-Seal® is your one-stop source for everything you need to effectively seal the annular space between pipes and concrete barriers through which they pass.

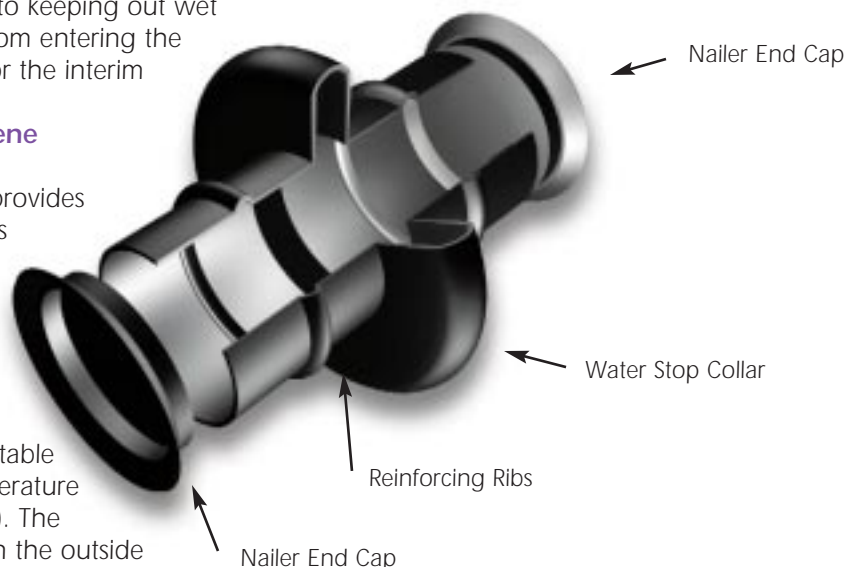
Charts on the adjacent page provide Century-Line® sleeve model numbers for standard size pipe along with corresponding Link-Seal® modular seal model numbers.



### Century-Line® Sleeves Model CS (16" length)

#### Weights and Dimensional Data

MODEL	I.D. (In.)	I.D. (mm)	lbs.	Kg.
CS-2	2.09	53.1	0.70	0.32
CS-3	2.94	74.7	1.30	0.59
CS-3-1/2	3.38	85.9	1.50	0.68
CS-4	4.03	102.4	2.00	0.90
CS-5	5.14	130.6	2.80	1.27
CS-6	6.14	156.0	3.60	1.63
CS-8	8.21	208.5	4.80	2.18
CS-10	10.19	258.8	6.40	2.90
CS-12	12.26	311.4	7.20	3.27
CS-14	14.14	359.2	11.20	5.08
CS-16	16.18	411.0	12.00	5.44
CS-18	17.45	443.2	15.50	7.03
CS-20	19.12	485.6	17.50	7.94
CS-22	20.32	516.1	21.00	9.53
CS-24	22.76	578.1	22.00	9.98
CS-25	24.81	630.2	23.00	10.43



# Century-Line® Sleeves and Link-Seal® Modular Seals Sizing Charts for Standard Pipe

## How to Order Century-Line® Sleeves

1. Locate chart 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. Indicate: quantity, model number (from MODEL NUMBER column) and length of sleeve required. [Example: 1 - CS-10-16"]

## Steel and Plastic Pipe with Same Outside Diameter

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL
1/2	0.840	CS-2.*	LS-200.**	4
3/4	1.050	CS-3.*	LS-315.**	4
1	1.315	CS-3.*	LS-300.**	4
1-1/4	1.660	CS-3.*	LS-275.**	7
1-1/2	1.900	CS-3-1/2.*	LS-275.**	8
2	2.375	CS-4.*	LS-300.**	6
2-1/2	2.875	CS-4.*	LS-200.**	9
3	3.500	CS-5.*	LS-300.**	8
3-1/2	4.000	CS-6.*	LS-325.**	5
4	4.500	CS-6.*	LS-300.**	10
5	5.563	CS-8.*	LS-425.**	6
6	6.625	CS-10.*	LS-475.**	10
8	8.625	CS-12.*	LS-475.**	12
10	10.750	CS-14.*	LS-400.**	10
12	12.750	CS-16.*	LS-400.**	12
14	14.000	CS-18.*	LS-400.**	13
16	16.000	CS-20.*	LS-400.**	15
18	18.000	CS-24.*	LS-525.**	16
20	20.000	CS-25.*	LS-525.**	18
22	22.000	CS-25.*	LS-425.**	20

## Ductile Iron Pipe (AWWA-Type)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL
2	2.500	CS-4.*	LS-300.**	6
2-1/4	2.750	CS-5.*	LS-325.**	4
3	3.960	CS-6.*	LS-325.**	5
4	4.800	CS-8.*	LS-400.**	5
6	6.900	CS-10.*	LS-400.**	7
8	9.050	CS-12.*	LS-400.**	9
10	11.100	CS-14.*	LS-400.**	11
12	13.200	CS-16.*	LS-400.**	12
14	15.300	CS-20.*	LS-575.**	17
16	17.400	CS-22.*	LS-400.**	16
18	19.500	CS-24.*	LS-400.**	18
20	21.600	CS-25.*	LS-400.**	20

## Copper Tubing

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL
1/2	0.625	CS-2.*	LS-275.**	4
3/4	0.875	CS-3.*	LS-315.**	4
1	1.125	CS-3.*	LS-300.**	4
1-1/4	1.375	CS-3.*	LS-300.**	4
1-1/2	1.625	CS-3.*	LS-275.**	7
2	2.125	CS-4.*	LS-315.**	6
2-1/2	2.625	CS-4.*	LS-275.**	11
3	3.125	CS-5.*	LS-325.**	4
4	4.125	CS-6.*	LS-325.**	5
6	6.125	CS-8.*	LS-325.**	7
8	8.125	CS-10.*	LS-325.**	9
10	10.125	CS-12.*	LS-325.**	11
12	12.125	CS-14.*	LS-325.**	13

## How to Order Corresponding Link-Seal® Modular Seals

1. Determine Link-Seal modular seal model to be used. See Link-Seal Modular Seal Brochure.
2. Indicate number of links required per seal (from LINKS PER SEAL column), Link-Seal modular seal size (from LINK-SEAL SIZE column) and Link-Seal modular seal model (C, S-316, O, OS-316, T or FD/FS) from Link-Seal modular seal brochure. [Example: 10 - LS-475-S-316]

## Cast Iron Soil Pipe (Extra Heavy)

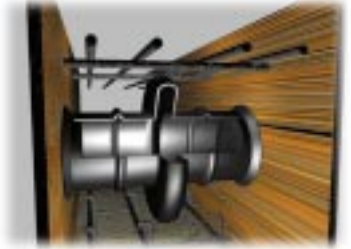
PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL
2	2.380	CS-4.*	LS-300.**	6
3	3.500	CS-5.*	LS-300.**	8
4	4.500	CS-6.*	LS-300.**	10
5	5.500	CS-8.*	LS-425.**	6
6	6.500	CS-10.*	LS-475.**	10
8	8.620	CS-12.*	LS-475.**	12
10	10.750	CS-14.*	LS-400.**	10
12	12.750	CS-16.*	LS-400.**	12
15	15.880	CS-20.*	LS-400.**	15

## Cast Iron Soil Pipe (Service Weight)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL
2	2.300	CS-4.*	LS-315.**	6
3	3.300	CS-5.*	LS-315.**	8
4	4.300	CS-6.*	LS-315.**	11
5	5.300	CS-8.*	LS-425.**	6
6	6.300	CS-8.*	LS-325.**	7
8	8.380	CS-12.*	LS-575.**	10
10	10.500	CS-14.*	LS-475.**	14
12	12.500	CS-16.*	LS-475.**	17
15	15.620	CS-20.*	LS-475.**	20

## Electrical Metallic Tubing (Thin Wall)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	MODEL NUMBER	LINK-SEAL SIZE	LINKS PER SEAL
1/2	0.706	CS-2.*	LS-275.**	4
3/4	0.922	CS-3.*	LS-315.**	4
1	1.163	CS-3.*	LS-300.**	4
1-1/4	1.510	CS-3-1/2.*	LS-315.**	5
1-1/2	1.740	CS-3-1/2.*	LS-300.**	5
2	2.197	CS-4.*	LS-315.**	6
2-1/2	2.875	CS-4.*	LS-200.**	9
3	3.500	CS-5.*	LS-300.**	8
4	4.500	CS-6.*	LS-300.**	10



Please contact factory for sizes not listed and for CS model plastic sleeves for walls less than 8" thick.

\* = Specify sleeve length in inches  
 \*\* = Specify model when ordering

## Cell-Cast® Hole Forming Disks

Cell-Cast® Hole Forming Disks are designed to produce large diameter holes in poured concrete structures. Molded from HDPE plastic, Cell-Cast® disks are lightweight and may be installed by one construction worker. They are available in a wide variety of opening diameters. Disks are either 3" or 4" thick allowing one to form a hole in 3" walls or thicker (except 5").



### Features

#### Economy

- Reduces material costs by 30% to 50%.
- Cuts labor costs by 50% - 70%.
- Minimizes freight and handling charges.

#### Quality

- Consistently produces dimensionally accurate openings.
- Sized to work with Link-Seal Modular Seals.
- Avoids potential leak path between sleeve and concrete.

#### Installation

- Lightweight - 1/8 the weight of steel pipe sleeves.
- Complete assembly accomplished in minutes.
- Easily installed by one construction worker.

#### Availability

- Cell-Cast® Disks are stocked in a variety of diameters up to 64.75" (164cm) and available for immediate delivery.
- Larger sizes are available by special order.

#### Flexibility

- Cell-Cast® Disks are produced in 3" and 4" thicknesses and can be assembled to fit virtually any wall.

#### For example:

- Combine two 3" cells and one 4" cell for 10" walls.
- Combine two 4" cells and one 3" cell for 11" walls.
- Combine three 4" cells for 12" walls.



### Cell-Cast® Hole Forming Disks Model CC

#### Weights and Dimensional Data

CELL-CAST® MODEL NO.	HOLE I.D.	3" THICKNESS		4" THICKNESS	
		lbs.	KG	lbs.	KG
CC-30	29.25	10.0	4.53	10.4	4.71
CC-32	31.13	10.8	4.89	11.2	5.08
CC-36	34.75	12.6	5.71	13.1	5.94
CC-38	37.25	13.9	6.30	14.4	6.53
CC-42	41.38	16.3	7.39	16.8	7.62
CC-44	43.75	17.7	8.02	18.3	8.30
CC-48	47.25	20.0	9.07	20.7	9.38
CC-50	50.00	22.0	9.97	22.6	10.25
CC-54	52.63	23.9	10.84	24.6	11.15
CC-56	56.00	26.5	12.02	27.3	12.38
CC-60	59.25	29.2	13.24	30.0	13.60
CC-64	62.75	32.2	14.60	33.1	15.01
CC-66	64.75	34.0	15.42	34.9	15.83



# Cell-Cast® Disks and Link-Seal® Modular Seals Sizing Charts for Standard Pipe

## Steel Pipe

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CELL-CAST MODEL NUMBER	CAST I.D. (Inches)	LINK-SEAL SIZE	LINKS PER SEAL
24	24.00	CC-30	29.25	LS-500.*	21
26	26.00	CC-32	31.13	LS-500.*	23
28	28.00	CC-32	31.13	LS-400.*	25
30	30.00	CC-36	34.75	LS-525.*	26
32	32.00	CC-38	37.25	LS-500.*	28
34	34.00	CC-38	37.25	LS-400.*	30
36	36.00	CC-42	41.38	LS-500.*	31
42	42.00	CC-48	47.25	LS-500.*	36
48	48.00	CC-54	52.63	LS-525.*	40
54	54.00	CC-60	59.25	LS-500.*	46
60	60.00	CC-66	64.75	LS-525.*	50

\* = Specify model when ordering, see Link-Seal® modular seal brochure.

## Ductile or Cast Iron Pipe

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CELL-CAST MODEL NUMBER	CAST I.D. (Inches)	LINK-SEAL SIZE	LINKS PER SEAL
24	25.80	CC-32	31.13	LS-500.*	23
30	32.00	CC-38	37.25	LS-500.*	28
36	38.30	CC-44	43.75	LS-500.*	33
42	44.50	CC-50	50.00	LS-500.*	38
48	50.80	CC-56	56.00	LS-500.*	43
54	57.56	CC-64	62.75	LS-500.*	48

\* = Specify model when ordering, see Link-Seal® modular seal brochure.

## PVC Plastic Pipe

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CELL-CAST MODEL NUMBER	CAST I.D. (Inches)	LINK-SEAL SIZE	LINKS PER SEAL
24	24.80	CC-30	29.25	LS-525.*	21
27	27.90	CC-32	31.13	LS-400.*	25

\* = Specify model when ordering, see Link-Seal® modular seal brochure.

## HDPE Plastic Pipe

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CELL-CAST MODEL NUMBER	CAST I.D. (Inches)	LINK-SEAL SIZE	LINKS PER SEAL
24	24.00	CC-30	29.25	LS-500.*	21
26	26.00	CC-32	31.13	LS-500.*	23
28	28.00	CC-32	31.13	LS-400.*	25
30	30.00	CC-36	34.75	LS-525.*	26
800mm	31.50	CC-36	34.75	LS-400.*	28
32	32.00	CC-38	37.25	LS-500.*	28
34	34.00	CC-38	37.25	LS-400.*	30
36	36.00	CC-42	41.38	LS-500.*	31
1000mm	39.37	CC-44	43.75	LS-525.*	33
42	42.00	CC-48	47.25	LS-500.*	36
1200mm	47.24	CC-54	52.63	LS-500.*	40
54	54.00	CC-60	59.25	LS-500.*	46

\* = Specify model when ordering, see Link-Seal® modular seal brochure.

## Concrete Pipe (ASTM B-WALL)

PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CELL-CAST MODEL NUMBER	CAST I.D. (Inches)	LINK-SEAL SIZE	LINKS PER SEAL
21	26.50	CC-32	31.13	LS-525.*	23
24	30.00	CC-36	34.75	LS-525.*	26
27	33.50	CC-38	37.25	LS-400.*	30
30	37.00	CC-42	41.38	LS-525.*	31
36	44.00	CC-48	47.25	LS-400.*	39
42	51.00	CC-56	56.00	LS-500.*	43
48	58.00	CC-64	62.75	LS-525.*	49

\* = Specify model when ordering, see Link-Seal® modular seal brochure.

**The system is the solution...use Century-Line® Sleeves or Cell-Cast® Disks with Link-Seal® Modular Sleeves for a lifetime of leak-proof performance.**

### 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...

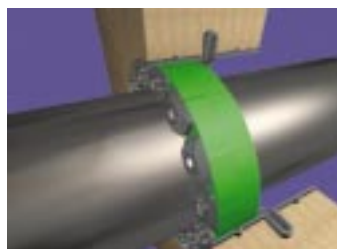
Link-Seal modular seals are rated at 20 psig (40 feet of head), which exceeds the performance requirements of most applications.

#### 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 hardware available in zinc-dicromate with two-part proprietary organic corrosion resistant 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. Visit our web site, [www.linkseal.com](http://www.linkseal.com), or see Link-Seal Modular Seal Brochures for further details.







## Installation Techniques - Century-Line® Sleeves

**Century-Line® Sleeves** are thermoplastic wall or floor pipe penetration sleeves. One person working alone can usually install a Century-Line® Sleeve regardless of the size.



1. Measure the center line to position Century-Line® Sleeve end cap.



2. Nail one of the end caps at the marked center line.



3. Place the Century-Line® Sleeve on the end cap. The sleeve should be cut 1/2" shorter than the width of the wall. Cut with a hand or power saw.



4. Place second end cap on sleeve. Check to determine that the cap is properly inserted.

### Always Wear Safety Equipment When Using Century-Line Sleeves & Link-Seal Modular Seals!

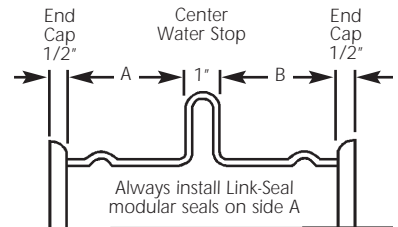


5. For additional stability, it's necessary to secure the sleeve with wire to the rebar. Insert the other end cap firmly and check that second end cap is positioned correctly and close the form.

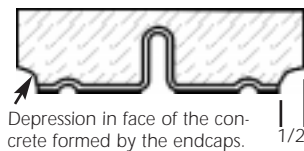


6. After the concrete is poured and cured, remove end caps with screw driver or crow bar. End caps may be replaced to protect sleeve until pipe penetration is made.

**Note:** To insure minimum water migration, center the water stop in wall by cutting equal lengths from each end of the sleeve, **except as noted below.**



Wall Thickness	Cut From Left End	Dimension A	Cut From Right End	Dimension B
16"	0.0"	7.0"	0.0"	7.0"
14"	1.0"	6.0"	1.0"	6.0"
12"	2.0"	5.0"	2.0"	5.0"
10"	2.5"	4.5"	3.5"	3.5"
8"	2.5"	4.5"	5.5"	1.5"



Depression in face of the concrete formed by the endcaps. 1/2"

#### Notes:

- Example: To convert 16" to 12", cut 2" off each end.
- Endcaps leave 1/2" depression in face of concrete.
- On sleeves under 12" length, install Link-Seal® modular seals on the "long side" of the waterstop.
  - For Link-Seal® modular seals models LS-200, LS-275, LS-300, LS-315, LS-340 and LS-360 - install with pressure plates flush with outer edge of the sleeve.
  - For Link-Seal® modular seals models LS-325, LS-400, LS-410, LS-425 and LS-475 - install with pressure plates partially inserted into the sleeve. When tightened, the pressure plates will "pull" into the sleeve.
  - For Link-Seal® modular seals models LS-500, LS-525, LS-575 and LS-600 - the minimum sleeve length is 10". Follow the instructions in #3 above.

### Alternative Technique Using Threaded Rod



After nailing end cap to form, drive (threaded rod\*) through the end plate and form and (thread nut\*) on other side.

**Note:** Remember to measure the (threaded rod\*) to match the length of the sleeve.



Place the sleeve over the end cap nailed to the form.

\* = Not Provided by PSI.



Place second cap on the sleeve and use a (block of wood\*) and (wing nut\*) to tighten unit in place. Make certain sleeve is plumb.



## Installation Techniques - Cell-Cast® Disks



1. Locate center line where the hole is desired. This location will be used as a guide for the threaded centering assist rod.



2. A 2x4 wood nailer is included. Fasten it along with the threaded rod directly to the concrete form. This provides support and helps center the complete Cell-Cast® disk assembly.



3. Slide the first Cell-Cast disk over the threaded rod.



4. Secure the edges of the cell to the form using the provided steel spikes.



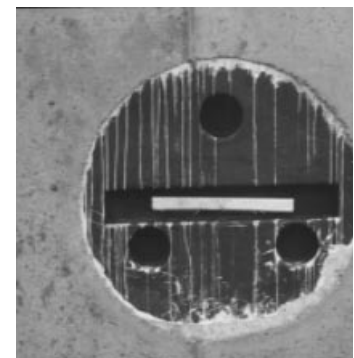
5. Additional disks are interlocked to accommodate finished wall thickness. Verify thickness is the same as wall.



6. Guide the 1" wood block over the threaded rod and secure the assembly with the wing nut provided.



7. Wrap each seam with one wrap of 2" wide tape to bridge any possible gaps. **Note:** Tape not included.



8. After wall cures, wall forms are removed. The Cell-Cast disk assembly is now ready for removal.



9. Chip excess concrete from the edge of the Cell-Cast disk assembly and wall.



10. Remove disks by breaking out the entire assembly.



11. Inspect the installation. A smooth opening is important for a proper Link-Seal® modular seal installation. Repair voids and grind smooth any ridges.

**Always Wear Safety Equipment When Using Cell-Cast® Disks!**

# Typical Concrete Hole Specification

## 1.0 General

Furnish and install either a Century-Line® Sleeve or Cell-Cast® Disk, 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. The wall opening for pipe penetrations shall be created with either thermoplastic (HDPE) Century-Line® Sleeves per paragraph 2A or with Cell-Cast® Disks per paragraph 2B.

## 2.0 Wall Opening

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

Where pipes pass through concrete 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 prior to pipe insertion.

### B. Cell-Cast® Disks (29.25" to 64.75" in diameter)

The contractor shall install PSI/Thunderline/Link-Seal® Cell-Cast® disks, to create 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.

## 3.0 Quality Assurance

All modular seal components and systems shall be manufactured at a plant with a current ISO-9002 registration. A copy of registration shall be provided along with submitted data.



# 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 Pipeline Seal and Insulator published specifications.

The limit of Pipeline Seal and Insulator'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.

