City Of Lewisville
Department of Public Services

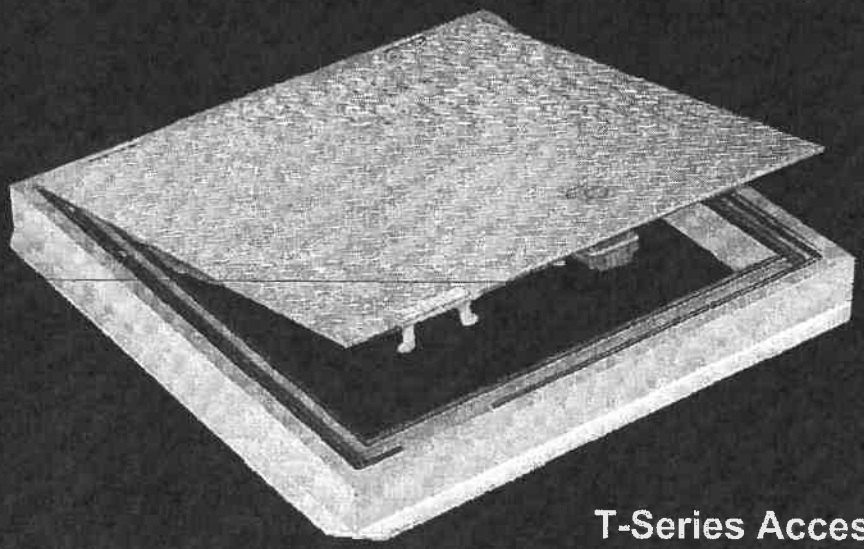
Aluminum Floor Access Doors
Sump Pump
Pipe Supports
Link Seal

1. U.S.F. Fabrication Inc. YHD Trough Frame, Heavy Duty Double Cover Aluminum Acess Door
2. Dayton 3/4 hp Sump Pump Grainger #3BB80
3. Adjustable Pipe Supports.
4. Link Seal
   Mueller Check Valves

The enclosed drawings are non-engineered depictions of Aluminum Floor Access Doors
They are not intended to reflect building standards for load bearing.
electrical connectivity or any other engineering requirement

LEWISVILLE
Deep Roots. Broad Wings. Bright Future.

GENERAL PURPOSE



T-Series Access Hatches
Trough Frame, Aluminum, Pedestrian or H-20 Vehicle Load Ratings, Single, Double and Multiple Covers. Model TPS shown with optional recessed cylinder lock.

Specify T-Series trough frame access hatches as a universal solution for sidewalk, floor and utility applications where rainwater control is a requirement.

Options include hinged safety grate

Manufacturing a complete line of engineered metal products for the construction industry, we set the standard for quality, service and innovation. For product specifications and details, visit:

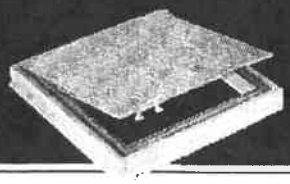
www.usffab.com

U.S.F. FABRICATION
Manufacturing in the USA since 1916

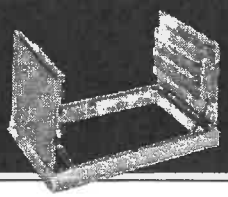
U.S.F. Fabrication, Inc., Hialeah, Florida USA 1-800-258-6873 Fax: 305-882-1577 service@usffab.com
Outside USA & Canada: 1-305-364-8221 Fax: 1-305-512-7721 export@usffab.com

T-SERIES GENERAL PURPOSE HATCHES

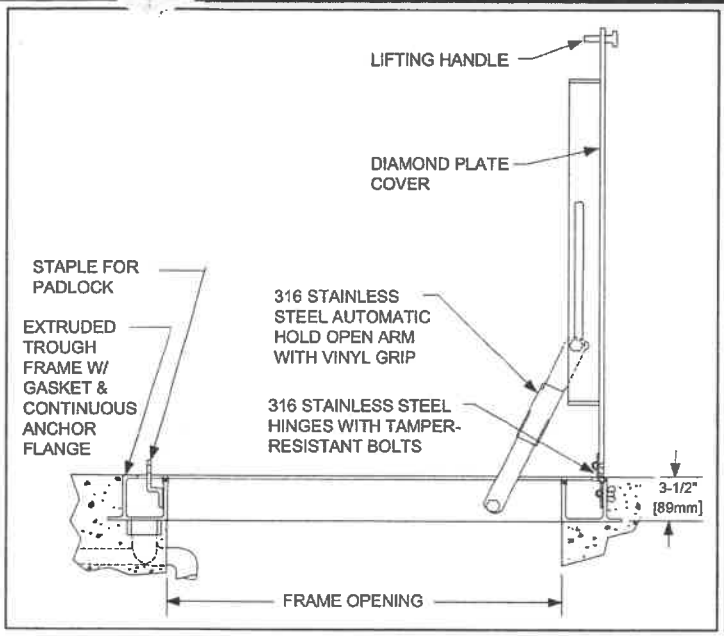
Trough Frame, Aluminum

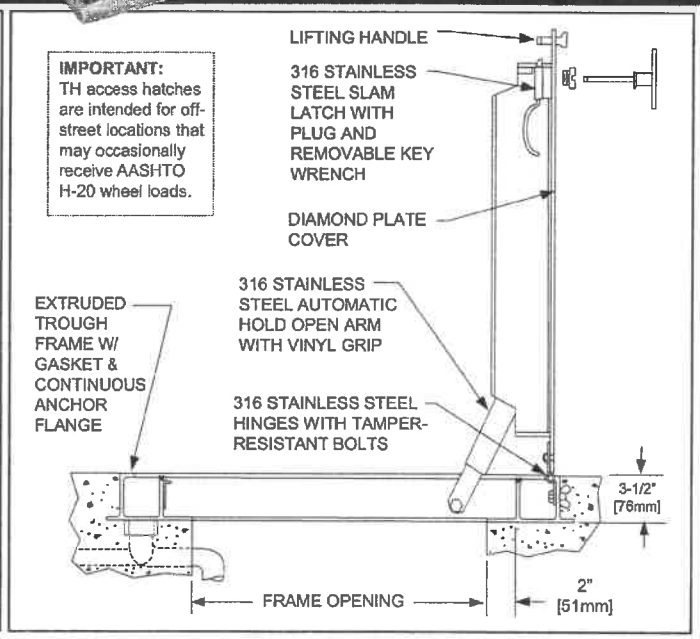


Model TPS & TPD
Pedestrian Load Rating



Model THS & THD
H-20 Vehicle Load Rating
(Double Cover Shown)



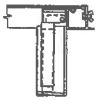


SPECIFICATIONS

The access hatch shall be Model (select from chart) as manufactured by U.S.F. Fabrication, Inc., Hialeah, Florida with the size being specified on the plans.
Cover: Cover shall be ¼" [6mm] aluminum diamond plate (see chart for load rating). Cover shall be equipped with a flush lifting handle and 316 stainless steel hold-open arm with red vinyl grip that automatically locks the cover in the 90 degree open position.
Frame: Trough frame shall be extruded aluminum with 1-1/2" [38mm] threaded drain coupling, odor-reducing gasket, and continuous anchor flange on all four sides.
Hinges: 316 stainless steel hinges with 316 stainless steel tamper-resistant bolts/locknuts.
Latch: AP hatches shall include a staple for user-supplied padlock. AH hatches shall include a 316 stainless steel slam latch with plug and removable key wrench
Finish: Cover and frame shall be mill finish aluminum. Hardware shall be 316 stainless steel. Cover and frame shall have an adhesive backed vinyl material that protects the product during shipping and installation.
Installation: Installation shall be in accordance with the manufacturer's instructions.
Warranty: The hatch shall be manufactured in the United States. Manufacturer shall guarantee against defects in materials and workmanship for a period of ten [10] years.

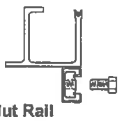
OPTIONS

Horizontal Springs
(open or enclosed)



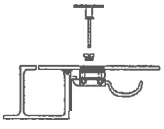
Bolt-on Vertical Springs
(open or enclosed)

Debris / Odor Control Gasket

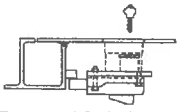


Nut Rail
(with sliding nuts)

Recessed Padlock Staple



Slam Latch (stainless, standard on THS & THD)



Recessed Cylinder Lock
(with threaded lid)

Frame Skirt to match slab thickness for easy precasting

Posts and Chains
(on TPS and THS)

Hinged Safety Grate

Additional Options:
- *Bituminous Paint*
- *Anodized Finish*
- *Slip Resistant Surface bonded to Cover Plate*
- *Insulation under Cover*

STANDARD SIZES (Custom sizes and load ratings available. Steel units also available.)

Single Cover	Model TPS 300 PSF Load Rating	Model THS H-20 Load Rating
FRAME OPENING Width x Hinge Side in [mm]	WEIGHT Lbs [KG]	
24 x 24 [610 x 610]	60 [27]	80 [36]
24 x 30 [610 x 762]	69 [31]	n/a
24 x 36 [610 x 914]	77 [35]	109 [49]
30 x 30 [762 x 762]	79 [36]	108 [49]
30 x 36 [762 x 914]	88 [40]	124 [56]
30 x 48 [762 x 1219]	108 [49]	156 [71]
36 x 36 [914 x 914]	99 [45]	142 [64]
36 x 48 [914 x 1219]	121 [55]	n/a
42 x 42 [1067 x 1067]	123 [56]	n/a

Double Cover	Model TPD 300 PSF Load Rating	Model THD H-20 Load Rating
FRAME OPENING Width x Hinge Side in [mm]	WEIGHT Lbs [KG]	
30 x 48 [762 x 1219]	115 [52]	173 [78]
30 x 54 [762 x 1372]	124 [56]	191 [87]
36 x 48 [914 x 1219]	129 [59]	198 [90]
36 x 60 [914 x 1524]	152 [69]	241 [109]
42 x 48 [1067 x 1219]	144 [65]	230 [104]
48 x 48 [1219 x 1219]	158 [72]	252 [114]
48 x 54 [1219 x 1372]	173 [78]	279 [127]
48 x 72 [1219 x 1829]	215 [98]	365 [166]
60 x 60 [1524 x 1524]	223 [101]	373 [169]

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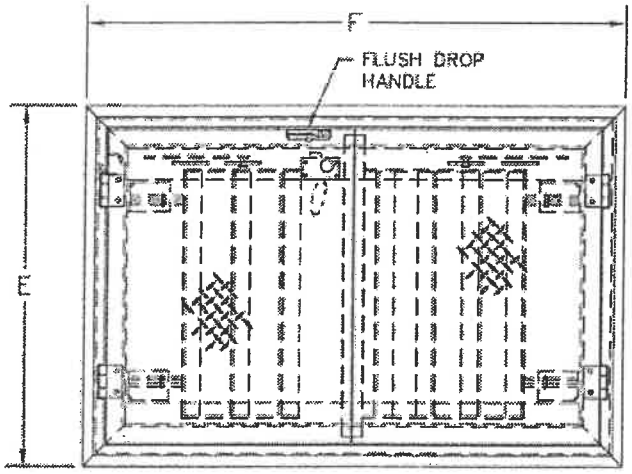
Outside USA & Canada: 1-305-364-8221 Fax: 1-305-512-7721 Email: export@usffab.com

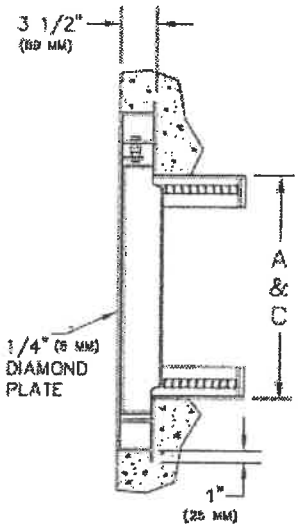
PRODUCT DETAIL

THD

Trough frame,Heavy-duty,Double cover

Flush installation in new cast-in-concrete applications, reinforced for occasional, off-street AASHTO H20-44 wheel loading.





STANDARD SIZES (custom sizes available)

FRAME OPENING Width x Hinge Side	
30" x 48" [762mm x 1219mm]	48" x 48" [1219mm x 1219mm]
30" x 54" [762mm x 1372mm]	48" x 54" [1219mm x 1372mm]
36" x 48" [914mm x 1219mm]	48" x 72" [1219mm x 1829mm]
36" x 60" [914mm x 1524mm]	60" x 60" [1524mm x 1524mm]
42" x 48" [1067mm x 1219mm]	

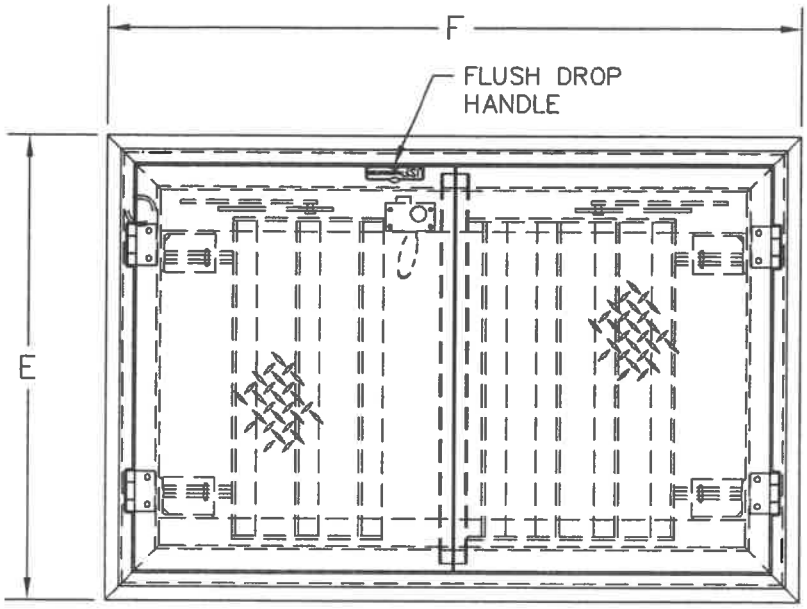
OPTIONS

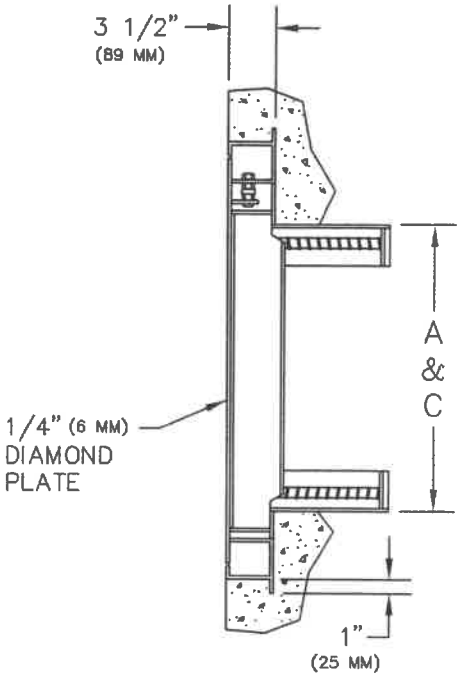
- Enclosed stainless steel vertical springs for easy opening (also available with removable bolt-on spring housings)
- Recessed staple and other locking devices
- Frame skirts for easy casting into a concrete top slab
- Debris gasket
- Fiberglass insulation with metal liner
- Nut rails with stainless steel sliding nuts for attaching cable holders, brackets and other hardware
- Custom lettering
- Anodized finish
- Stainless steel safety chains
- Fall Trough Prevention Systems
- Slip resistant surface bonded to cover plate
- Side drain threaded coupling (instead of standard bottom drain)
- Hinge covers on same long side (springs would be horizontal)

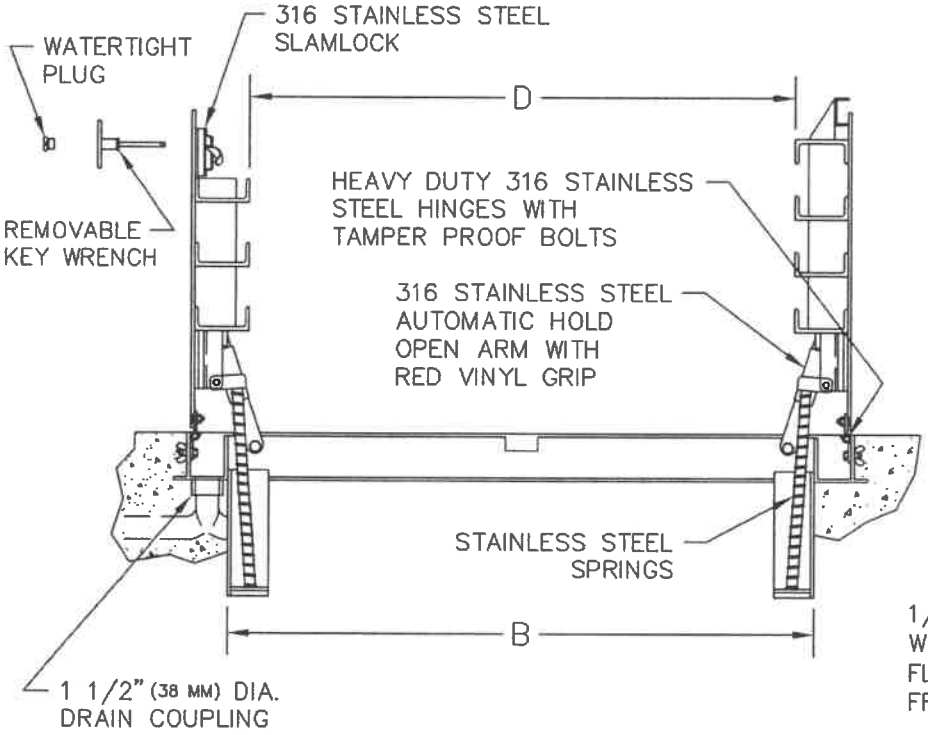
STANDARD SPECIFICATIONS

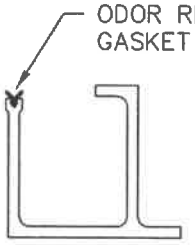
The trough frame floor access door shall be **Model THD** as manufactured by U.S.F. Fabrication, Inc. with the size being specified on the plans.

Covers: 1/4-inch (6.4mm) aluminum diamond plate covers reinforced for occasional, off-street AASHTO H20-44 wheel loading. Equipped with a cast aluminum flush lifting handle and 316 stainless steel hold-open arms with red vinyl grips that automatically keep the covers in their open/upright positions. (Upon request, manufacturer shall provide structural calculations showing that the door design meets the loading requirements of AASHTO H20-44.)
Lift Assist: Open stainless steel vertical springs for easy opening
Frame: Extruded aluminum trough section with integral anchor flange on all four sides. Frame has an EPDM odor reduction gasket and 1 1/2-inch (38mm) threaded drain coupling. Bituminous coating on frame surface in contact with concrete.
Hardware: 316 stainless steel hinges and tamper resistant bolts/lock nuts.
Security: A 316 stainless steel slamlock with thread plug, removable outside key and fixed inside handle. The slamlock latches onto a 316 stainless steel striker plate that is bolted to the frame.
Finish: Aluminum covers and frame have mill finish which is protected during shipping and installation by an attached adhesive-backed vinyl material.
Installation: Installation shall be in accordance with the manufacturer's instructions. The entire frame, including the seat on which the reinforcing rests, shall be supported by concrete or other material designed to support the specified loading.
Warranty: Manufacturer shall guarantee against defects in materials and workmanship for a period of ten years.









1/4" EXTRUDED TROUGH SECTION W/INTEGRAL CONTINUOUS ANCHOR FLANGE & GROOVE FOR GASKET
FRAME MAT'L: ALUMINUM 6063-T5

FRAME DETAIL

NOTE:
- MATERIAL: ALUMINUM WITH STAINLESS STEEL SPRINGS, 316 STAINLESS STEEL NUTS & BOLTS, HINGES, AND HOLD OPEN ARM.
- LOADING: DESIGNED FOR OFF-STREET LOCATIONS WHICH MAY OCCASIONALLY RECEIVE H-20 WHEEL LOADS.
- BITUMINOUS COATING IS APPLIED TO AREA OF FRAME IN CONTACT WITH CONCRETE.

OPTIONAL FEATURES
☐ RECESSED STAPLE FOR PADLOCK ☐ OTHERS: _____
U.S.F. FABRICATION, INC. HIALEAH, FLORIDA
THD ____ (A) X ____ (B)

GRAINGER
FOR THE ONES WHO GET IT DONE

Pump,Sump,3/4 HP

Submersible Cast Iron Sump Pump, Rated Commercial/Industrial, HP Rating 3/4, Voltage @ 60 Hz 120 Current @ 120 VAC 10 Amps, Automatic Air Operated Diaphragm Switch, Off Point 4.34 Inches, On Point 10.34 Inches, Water Flow @ 5 Feet of Head 113 GPM, Shut Off @ 43 Feet, Discharge NPT 1 1/2 Inches, Maximum Solid Handling 1/2 inch, Maximum Temperature 104 Degrees F, Cord Size14/3 x 15 Feet, Fits Sumps 12 Inches in Diameter x 24 Inches Deep or Greater, Pump Diameter 9.5 Inches, Height 12.38 Inches

Grainger Item #	3BB80
Price (ea.)	**$352.25**
Brand	DAYTON
Mfr. Model #	3BB80
Ship Qty.	1
Sell Qty. (Will-Call)	1
Ship Weight (lbs.)	44.05
Usually Ships	Today
Catalog Page No.	3316

Price shown may not reflect your price. Log in or register.

Additional Info

Submersible Sump Pumps

- Powerful single-phase motors
- Permanently lubricated; thermally protected
- Convenient carrying handle

Dayton

Premium quality pumps are built for years of trouble-free operation.
Efficient PSC motors have thermal overload protection. Commercial grade pumps offer high performance and a longer cord.

Tech Specs

Item: Submersible Sump Pump
Type: Commercial
HP: 3/4
Switch Type: Diaphragm
Voltage: 120
Amps: 10.5
Cord Length (Ft.): 15
On Point (In.): 14 1/2
Off Point (In.): 5
GPM of Water @ 10 Ft. of Head: 101
GPM of Water @ 20 Ft. of Head: 80
GPM of Water @ 30 Ft. of Head: 43
Max. Head (Ft.): 37
Height (In.): 13
Dia. (In.): 10
Max. Dia. Solids (In.): 1/2
Max. Temp. (F): 104
Base Material: Cast Iron
Housing: Cast Iron

Optional Accessories

Hose,Suction,1 1/2 In

Item #: 2P566
Brand: ALLIANCE HOSE & RUBBER
Usually Ships: Today
Price (ea): $46.85

Valve,Check,1 1/2 In

Item #: 2P843
Brand: ZOELLER
Usually Ships: Today
Price (ea): $13.96

Nipple,1 1/2 X 4 In

Top Material: Cast Iron
Impeller Material: Cast Iron
Duty: Continuous
Bearing Type: Upper and Lower
Shaft Seal: Silicon Carbide
Discharge NPT (In.): 1 1/2
GPM of Water @ 15 Ft. of Head: 92
GPM of Water @ 25 Ft. of Head: 63
GPM of Water @ 5 Ft. of Head: 113
Mechanical Seal: Silicon Carbide
Motor Type: Oil-Cooled
Shaft Material: Stainless Steel

Notes & Restrictions

There are currently no notes or restrictions for this item.

MSDS

This item does not require a **Material Safety Data Sheet (MSDS).**

Required Accessories

There are currently no required accessories for this item.

Item #: 6MW27
Brand: GEORGE FISCHER SLOANE
Usually Ships: Today
Price (ea): $1.93

Alternate Products

Pump,Sump,3/4 HP

Item #: 3BB75
Brand: DAYTON
Usually Ships: Today
Price (ea): $308.25

Repair Parts

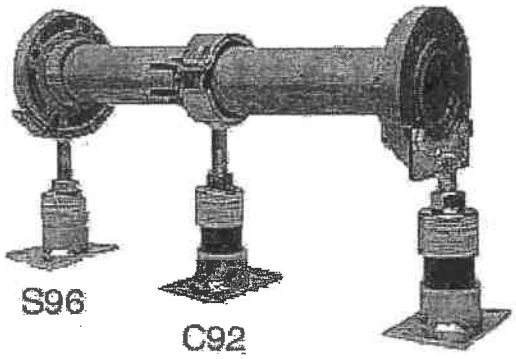
Repair Parts Information is available for this item.

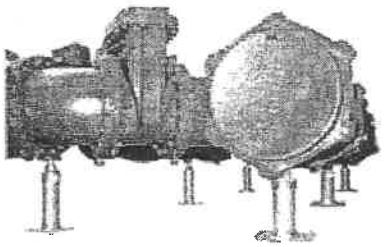
STANDON ADJUSTABLE PIPE SUPPORTS

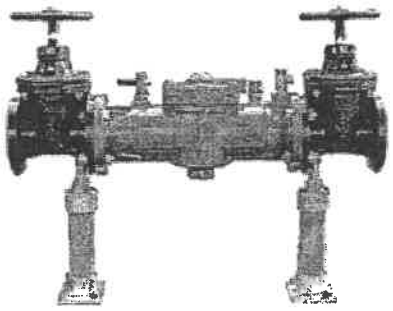
"Quality pipe support products for the water and wastewater industry"
Manufactured By-
Material Resources Inc.

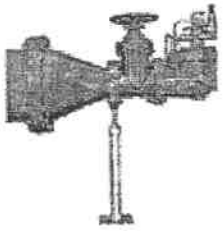
sales@standon.net

Material Resources Inc. has responded to a lack of adequate pipe supports for flanged valve and piping systems by introducing a cost effective and innovative line of adjustable pipe supports. The Standon Adjustable Pipe Supports are completely adjustable and come with an anchor-able base plate and collar that allows up to 4" of fine adjustment. Complete installation takes only five minutes and requires no threading or welding.









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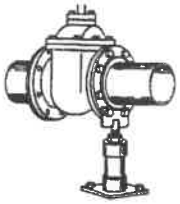
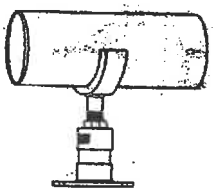
2800 Taylor Way Bldg. 2-C
PO Box 247
Forest Grove, OR 97116
Toll Free - (877)693-0727 Fax - (503)533-5501



Material Resources, Inc.

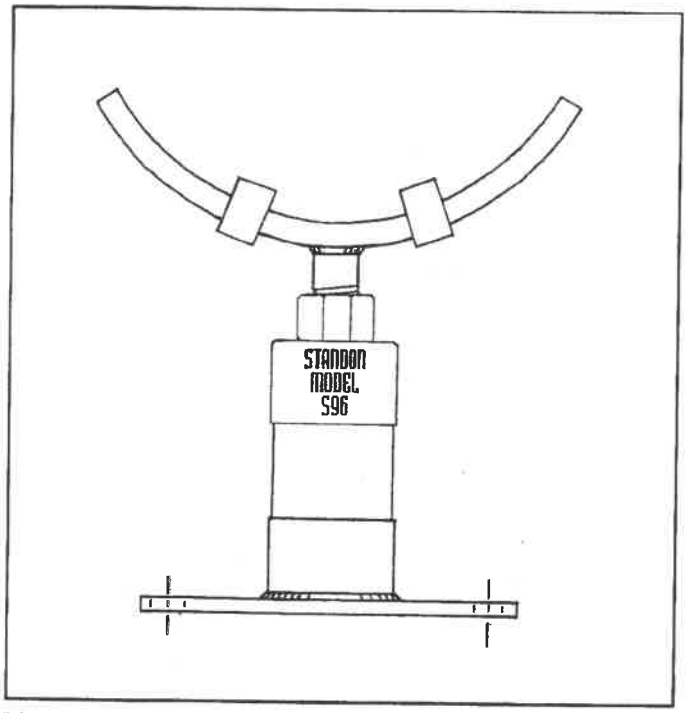
STANDON ADJUSTABLE PIPE SUPPORTS



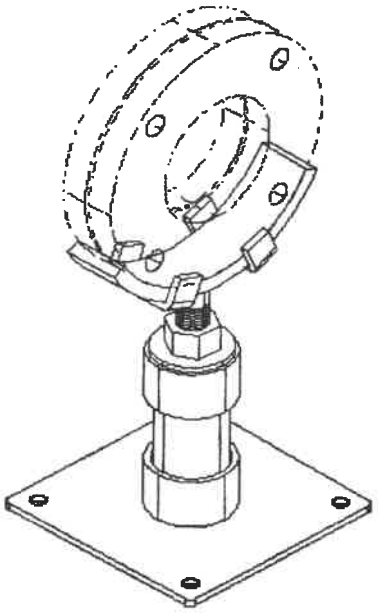
Standon Model S96 Flange Cradle Support

The Standon Model S96 Flange Cradle Support was designed for use not only in new installations, but also as an economical replacement in existing facilities. The innovative saddle design is radiused to fit snugly under your assembled flange configurations. Centering tabs maintain position during seismic activity, and are spaced to avoid bolt position conflict.

The Standon Flange Cradle Support comes with an oversized base and an adjustable collar allowing up to 3" of fine adjustment.



The Standon Flange Cradle Support is offered in A36 mild steel. To help reduce corrosion, the entire assembly is Galvanized. This is our standard finish, it is not considered an "option". For ultimate endurance, we offer a 100% 304 Stainless Steel version.



All cradles are manufactured to rest under CL125 Flanges. They match the flange outside diameter with a form fitting radius which encompasses a full 120° of the flange. There are two sturdy centering tabs which protrude above the cradle to eliminate the possibility of position failure.

"Quality you can Stand On"

"All Models Tested to 10,000 lbs. Compressive Strength"

For product availability and ordering information on these and other products offered by Material Resources Inc, please call:

(503) 693-0727 or FAX (503) 693-0636

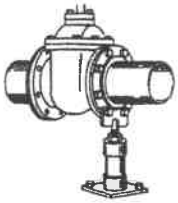
or visit our website at

www.standon.net

MATERIAL RESOURCES, INC.

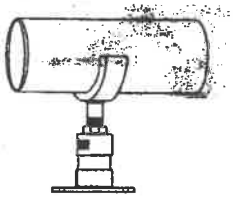
22700 N.W. Quatama Street

Hillsboro, Oregon 97124



Material Resources, Inc.

STANDON ADJUSTABLE PIPE SUPPORTS



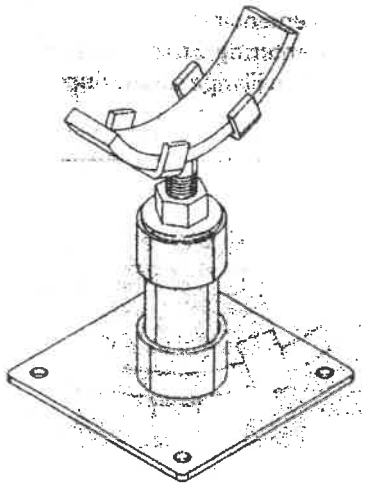
Standon Model S96 Flange Cradle Support – PRODUCT SPECIFICATION SHEET

ALL MODELS TESTED TO OVER 10,000 POUNDS - COMPRESSIVE STRENGTH

MATERIAL -

Flange Cradle:	ASTM A36
Collar / base cups:	ASTM A53 D.O.M. tubing
Thread stud:	ASTM A36, rolled thread, grade ASTM A307
Base plate:	ASTM A36 sheet steel

Optional Material - 100% 304 Stainless steel



FABRICATION -

All welds:	100% MIG welding, electrode E70XX
Cradle:	Radiused to CL125 flange diameter, 120° coverage (not designed for Sch. 80 PVC flanges)

FINISH -

All supports have corrosion resistant, galvanized finish.

DIMENSIONS -

FLANGE cl 125	CRADLE MATERIAL	THRD STUD	BASE PLATE	EXTENSION PIPE REQ.	MINIMUM DIST. TO FLOOR	ANCHOR HOLES
2"	.375" x 1.5"	1" x 6"	4" x 6" x .25"	2" Sch. 40	7"	2 ea. - 9/16"
2.5"	.375" x 1.5"	1" x 6"	4" x 6" x .25"	2" Sch. 40	7"	2 ea. - 9/16"
3"	.375" x 1.5"	1" x 6"	4" x 6" x .25"	2" Sch. 40	7"	2 ea. - 9/16"
4"	.50" x 2.0"	1" x 6"	8" x 8" x .25"	2" Sch. 40	7"	4 ea. - 9/16"
6"	.50" x 2.0"	1" x 6"	8" x 8" x .25"	2" Sch. 40	7"	4 ea. - 9/16"
8"	.50" x 2.5"	1" x 6"	8" x 8" x .25"	2" Sch. 40	7"	4 ea. - 9/16"
10"	.50" x 2.5"	1" x 6"	8" x 8" x .25"	2" Sch. 40	7"	4 ea. - 9/16"
12"	.50" x 2.5"	1" x 6"	8" x 8" x .25"	2" Sch. 40	7"	4 ea. - 9/16"
14"	.625" x 3.0"	1.5" x 6"	8" x 8" x .5"	3" Sch. 40	9.5"	4 ea. - 3/4"
16"	.625" x 3.0"	1.5" x 6"	8" x 8" x .5"	3" Sch. 40	9.5"	4 ea. - 3/4"
18"	.75" x 3.5"	2" x 6"	8" x 8" x .5"	4" Sch. 40	10"	4 ea. - 3/4"
20"	.75" x 3.5"	2" x 6"	8" x 8" x .5"	4" Sch. 40	10"	4 ea. - 3/4"
24"	.75" x 4"	2" x 6"	8" x 8" x .5"	4" Sch. 40	10"	4 ea. - 3/4"

NOTE: Seismic tabs are .75" or 1" wide x .25" thick, depending on support size.

INSTALLATION -

To insure proper Support performance and stability; After final height adjustment is attained, apply tack welds to both support cups and extension pipe. Use E70XX electrode for welds. The base plate should be anchored to the floor with removable anchor bolts. If readjustment is required at a later date, remove anchor bolts and rotate entire lower unit using collar nut. Re-anchor base plate.

For product availability and ordering information on these and other products offered by Material Resources Inc, please call:

(503) 693-0727 or FAX (503) 693-0636

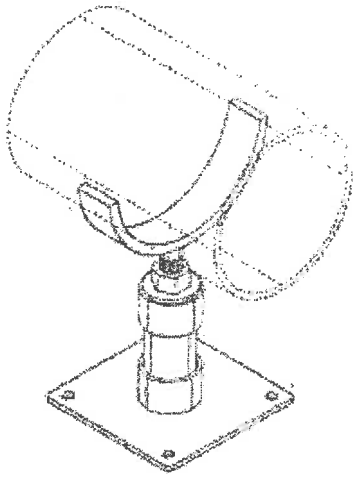
LOCAL SUPPLIER:

MATERIAL RESOURCES, INC.

22700 N.W. Quatama Street

Hillsboro, Oregon 97124

Standon Model S92 Adjustable Pipe Saddle Support



The "Standon" model #**S92** pipe support is specifically designed to fit ductile iron pipe. A nearly 50% circumferential cradle, and a pipe to saddle gap of less than .125" guarantees excellent performance. A neoprene liner is available for IPS size pipe for a perfect fit.

- Accepts standard IPS pipe - No threading required.
- Comes complete with over-sized anchorable base plate.
- Available in sizes 2" through 36".
- Also available in 100% 304 Stainless Steel.

MATERIAL

Saddle Strap:	ASTM A36
Collar/ Base Cups:	ASTM A53 D.O.M. tubing
Threaded Stud:	ASTM A36; rolled thread Grade ASTM A307
Base Plate:	ASTM A36 Sheet Steel - .25" plate
Optional Material:	100% 304 Stainless Steel

FABRICATION

All welds:	100% MIG welding, electrode E70XX
Saddles:	Formed to ductile iron radius.

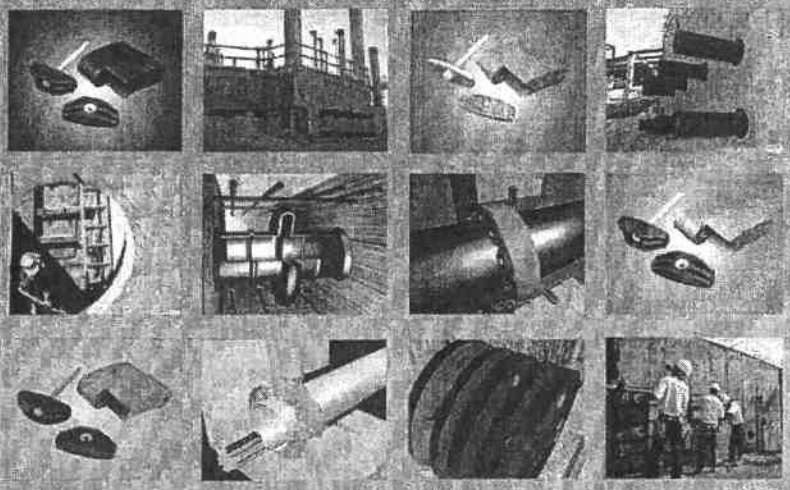
FINISH

All pipe supports have a corrosion resistant, galvanized finish.

DIMENSIONS

SUPPORT SIZE	*PIPE O.D.*	*STRAP SIZE*	*THREAD STUD*	*BASE PLATE*	*EXTENSION PIPE REQ'D*	*MINIMUM DIST. TO FLOOR*
2"	2.5"	3/8" x 2"	1" x 6"	4"x6"x¼"	2" SCH. 40	7"
2½"	3"	3/8" x 2"	1" x 6"	4"x6"x¼"	2" SCH. 40	7"
3"	3.96"	3/8" x 2"	1" x 6"	4"x6"x¼"	2" SCH. 40	7"
4"	4.80"	½" x 2"	1" x 6"	8"x8"x¼"	2" SCH. 40	7"
6"	6.90"	½" x 2"	1" x 6"	8"x8"x¼"	2" SCH. 40	7"
8"	9.05"	½" x 2"	1" x 6"	8"x8"x¼"	2" SCH. 40	7"
10"	11.10"	½" x 2"	1" x 6"	8"x8"x¼"	2" SCH. 40	7"
12"	13.20"	½" x 2"	1" x 6"	8"x8"x¼"	2" SCH. 40	7"
14"	15.30"	5/8" x 3"	1½" x 6"	8"x8"x½"	3" SCH. 40	9½"
16"	17.40"	5/8" x 3"	1½" x 6"	8"x8"x½"	3" SCH. 40	9½"
18"	19.50"	¾" x 4"	2" x 6"	8"x8"x½"	4" SCH. 40	10"
20"	21.60"	¾" x 4"	2" x 6"	8"x8"x½"	4" SCH. 40	10"
24"	25.80"	¾" x 4"	2" x 6"	8"x8"x½"	4" SCH. 40	10"
30"	32.00"	1" x 5"	3" x 6"	15"x15"x½"	6" DIP	10"
36"	38.30"	1" x 5"	3" x 6"	15"x15"x½"	6" DIP	10"

EXPERIENCE COUNTS



Information and sizing charts updated 2-08.

The Selection Guide

for Hole Forming and Sealing Pipe Penetrations

APPROVED
THE INDUSTRY'S HEAVY DUTY PENETRATION SEAL

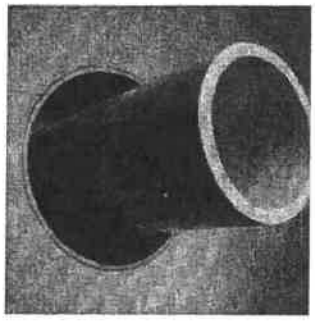
THUNDERLINE®
Link-Seal®
MODULAR SEALS

Pipe-Seal® SLEEVES

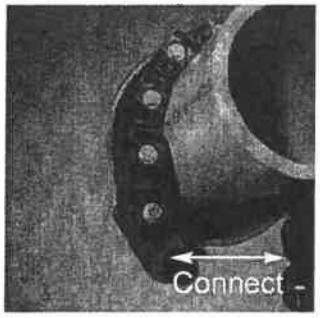
Pipe-Seal® DISKS

Installation Techniques - Link-Seal® Modular Seals

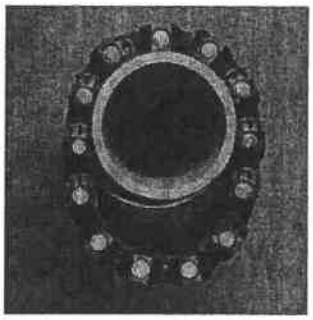
Online Installation Video
Visit www.linkseal.com



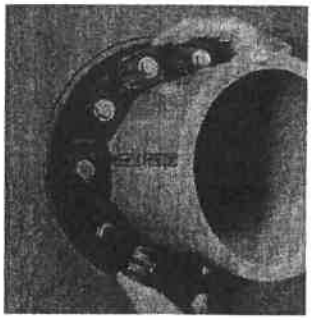
1. Center the pipe, cable or conduit in wall opening or casing. Make sure the pipe will be adequately supported on both ends. Link-Seal® modular seals are not intended to support the weight of the pipe.



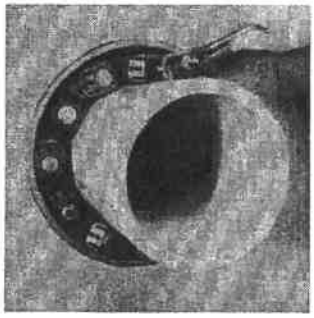
2. Loosen rear pressure plate with nut just enough so links move freely. Connect both ends of belt around the pipe.



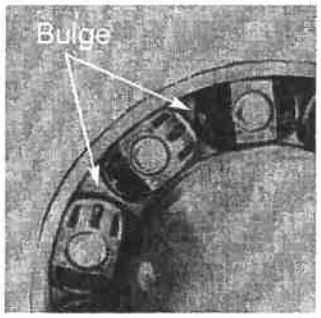
3. Check to be sure all bolt heads are facing the installer. Extra slack or sag is normal. Do not remove links if extra slack exists. **Note:** On smaller diameter pipe, links may need to be stretched.



4. Slide belt assembly into annular space. For larger size belts, start inserting Link-Seal modular seal assembly at the 6 O'Clock position and work both sides up toward the 12 O'Clock position in the annular space.



5. Using a hand socket or offset wrench ONLY, start at 12 O' Clock. Do not tighten any bolt more than 4 turns at a time. Continue in a clockwise manner until links have been uniformly compressed. (Approx. 2 or 3 rotations)



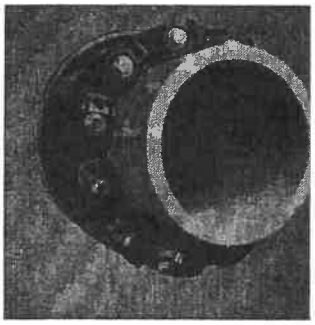
6. Make 2 or 3 more passes at 4 turns per bolt MAXIMUM, tightening all bolts clockwise until all sealing elements **"bulge"** around all pressure plates. On type 316 stainless steel bolts, hand tighten ONLY without power tool.

7. If the seal doesn't appear to be correct using the instructions provided, **Call PSI at 800-423-2410.**

Installation Notes: The Link-Seal® modular seal bolt heads are usually recessed below the wall opening or the edge of casing pipe and therefore a socket or offset wrench must be used.
Hand Tools: Use 5/16" hex or #6 screwdriver for LS-200. 1/2" hex requires 3/8" drive socket wrench. 9/16" and 3/4" hex requires 1/2" drive socket wrench. (Tools not provided.)

Always Wear Safety Equipment When Installing Link-Seal® modular seals!

Always Wear Safety Equipment When Using Link-Seal® Modular Seals!



Link-Seal® Modular Seal - Do's

1. Make sure pipe is centered.
2. Install the belt with the pressure plates evenly spaced.
3. Install the exact number of links indicated in sizing charts.
4. Check to make sure pipe is supported properly during backfill operations. Note: Link-Seal modular seals are not intended to support the weight of the pipe.
5. Make sure seal assembly and pipe surfaces are free from dirt.
6. For tight fits, use non-polluting liquid detergent to assist installation.

Link-Seal® Modular Seal - Don'ts

1. Don't Install the belt with the pressure plates aimed in irregular directions. (Staggered)
2. Don't Install Link-Seal® modular seals where weld-beads or other irregular surfaces exist without consideration of the sealing requirements.
3. Don't torque each bolt completely before moving on to the next.
4. Don't use high speed power tools (450 rpm or more)
5. Do not use power tools on Link-Seal modular seal 316 stainless steel bolts.
6. Don't use grease installing Link-Seal modular seals.

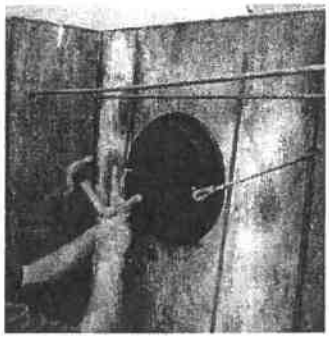
If the seal doesn't appear to be correct using the techniques provided, **Call PSI at 713-747-6948 or 800-423-2410.**

Installation Techniques - Century-Line® Sleeves

Online Installation Video
Visit www.linkseal.com

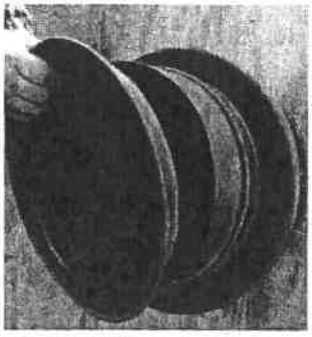
Century-Line® Sleeves are thermoplastic wall or floor pipe penetration sleeves. One person working alone can usually install a Century-Line® Sleeve regardless of the size.

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

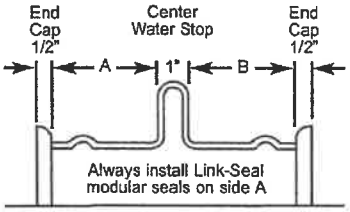


2. Nail one of the end caps at the marked center line.

3. Place the Century-Line® Sleeve on the end cap. When field cutting non standard CS sleeve lengths, the sleeve and endcaps total length should be one-fourth (1/4") longer than the thickness of the wall.
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.***



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

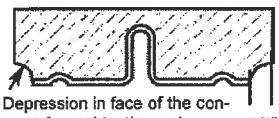


Always Wear Safety Equipment When Using Century-Line Sleeves & Link-Seal Modular Seals!

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

Wall Thickness	Cut From Left End	Dimension A	Cut From Right End	Dimension B
16"	0.0"	7.125"	0.0"	7.125"
14"	.875"	6.125"	.875"	6.125"
12"	1.875"	5.125"	1.875"	5.125"
10"	2.375"	4.625"	3.375"	3.625"
8"	2.375"	4.625"	5.375"	1.625"

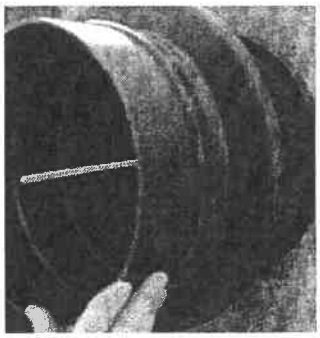


Depression in face of the concrete formed by the endcaps.

Notes:
1. Example: To convert 16" to 12", cut 1.875" off each end.
2. Endcaps leave 1/2" depression in face of concrete.
3. On sleeves under 12" length, install Link-Seal® modular seal on the "long side" of the waterstop.
(a) 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.
(b) For Link-Seal® modular seals models LS-325, LS-400, LS-410, LS-425 and LS-475 - install with presure plates partially inserted into the sleeve. When tightened, the pressure plates will "pull" into the sleeve.
(c) For Link-Seal® modular seals models LS-500, LS-525, LS-575, LS-600 and LS-650 - the minimum sleeve length is 10". Follow the instructions in 3 above.

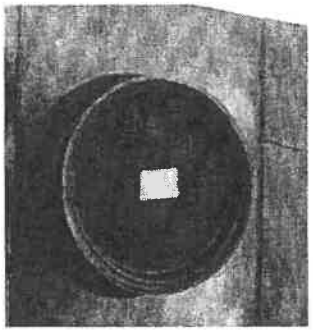
Alternative Technique Using Threaded Rod

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.

If you should have questions using the techniques provided, **Call PSI at 713-747-6948 or 800-423-2410.**

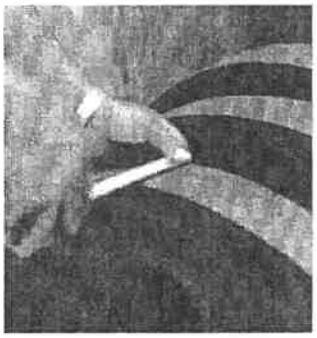
Installation Techniques - Cell-Cast® Disks

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.

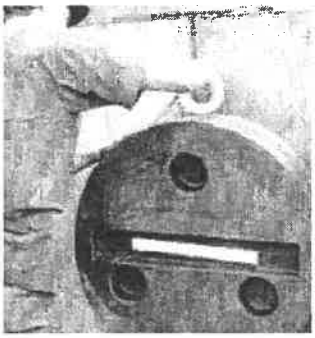
3. Slide the first Cell-Cast® disk over the *threaded rod. **Note:** Use only 1 threaded rod for equal distribution. More than one rod could take disks out of shape.

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. Finish installing concrete forms and pour concrete.

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.

If you should have questions using the techniques provided, **Call PSI at 713-747-6948 or 800-423-2410.**
Note: For walls greater than 16", please contact PSI.
***Note:** Threaded rod must be requested when ordered. Make sure TRA is added to the end of the ordering code.

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

Ductile Iron Pipe (DIPS, AWWA-C900, AWWA-C905, PVC Water Pipe)

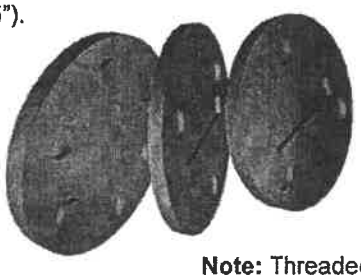
PIPE SIZE (Nom.)	ACTUAL O.D. (Inches)	CS MODEL NON-METALLIC SLEEVE			WS MODEL STEEL SLEEVE			CAST OR CORE BIT DRILLED HOLE		
		MODEL NUMBER	LINK-SEAL® SIZE	LINKS PER SEAL	MODEL NUMBER	LINK-SEAL® SIZE	LINKS PER SEAL	HOLE I.D.	LINK-SEAL® SIZE	LINKS PER SEAL
2	2.500	CS-4-*	LS-300-***	6	WS-3-1/2-22-S-*	LS-200-***	8	4.000	LS-300-***	6
2-1/4	2.750	CS-4-*	LS-275-***	10	WS-4-23-S-*	LS-200-***	9	4.000	LS-200-***	9
3	3.960	CS-6-*	LS-340-***	10	WS-6-28-S-*	LS-340-***	9	6.000	LS-315-***	10
4	4.800	CS-8-*	LS-475-***	8	WS-8-32-S-*	LS-410-***	7	8.000	LS-410-***	7
6	6.900	CS-10-*	LS-475-***	10	WS-10-36-S-*	LS-410-***	10	10.000	LS-410-***	10
8	9.050	CS-12-*	LS-400-***	9	WS-12-37-S-*	LS-400-***	9	12.000	LS-400-***	9
10	11.100	CS-14-*	LS-410-***	15	WS-14-37-S-*	LS-340-***	24	14.000	LS-400-***	10
12	13.200	CS-18-*	LS-575-***	15	WS-18-37-S-*	LS-475-***	18	16.000	LS-360-***	21
14	15.300	CS-20-*	LS-475-***	20	WS-20-37-S-*	LS-575-***	17	18.000	LS-360-***	24
16	17.400	CS-22-*	LS-360-***	28	WS-22-37-S-*	LS-475-***	23	20.000	LS-360-***	27
18	19.500	CS-24-*	LS-410-***	25	WS-24-37-S-*	LS-575-***	21	24.000	LS-525-***	17
20	21.600	CS-25-*	LS-400-***	20	WS-26-37-S-*	LS-475-***	27	26.000	LS-525-***	19
24	25.800	CC-30-**	LS-400-***	23	WS-30-37-S-*	LS-400-***	23	28.000	LS-425-***	23
30	32.000	CC-38-**	LS-500-***	28	WS-36-37-S-*	LS-400-***	29	36.000	LS-575-***	34
36	38.300	CC-44-**	LS-500-***	33	WS-44-1/2-37-S-*	LS-500-***	33	42.000	LS-575-***	40
42	44.500	CC-50-**	LS-500-***	38	WS-50-37-S-*	LS-500-***	38	50.000	LS-500-***	38
48	50.800	CC-56-**	LS-500-***	43	WS-57-37-S-*	LS-500-***	43	56.000	LS-500-***	43

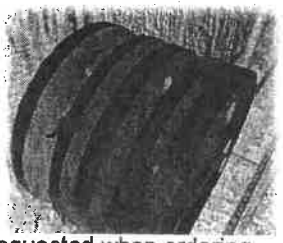
* = Specify sleeve length in inches ** = See Cell-Cast® *** = Specify LS Model C, S-316, L...etc when ordering (Example LS-475-C-17)
Technically there is no limit to the pipe size that can be sealed using Link-Seal® modular seals. Please contact factory for sizes not listed and for CS model plastic sleeves for walls less than 8" thick.

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 diameters.
Disks are either 3" or 4" thick allowing one to form a hole in 3" walls or thicker (except 5").

Weight Comparison	
WS Steel Sleeve	**Cell-Cask Disks**
WS-48-37-2-12 = 250 lbs.	CC-48-4(3) = 62 lbs.





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.

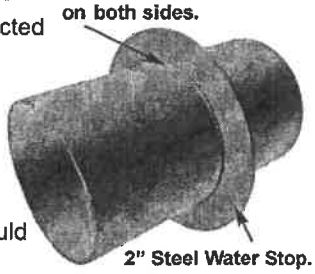
For example:
- Combine two 3" cells and one 4" cell for 10" walls.
- Combine two 4" cells and one 3" cell for 11" walls.
- Combine three 4" cells for 12" walls.

Note: Threaded rod must be requested when ordering. Specify TRA at the end of the ordering code.

Cell-Cast® Hole Forming Disks - Model CC
Weights and Dimensional Data

CELL-CAST® MODEL NO.	HOLE I.D.	3" THICKNESS lbs.	3" THICKNESS KG	4" THICKNESS lbs.	4" THICKNESS 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

WS Steel Wall Sleeves



WS Wall Sleeves are constructed from steel and available in a wide range of diameters and lengths.
They are an excellent choice for installations where the Link-Seal® Modular Seal and WS sleeve assembly would be subject to extremely high temperatures or where fire seals are specified.

Note: WS sizes thru. 10" are schedule 40. WS sizes 12" and up have a standard .375" wall thickness. ws rolled sleeves (6" & 8") = .1875" wall thickness; (10") = .25" wall thickness.

How To Order

Please see Page 5 for ordering information on Link-Seal® modular seals and WS Steel Sleeves. For diameters larger than 24", contact PSI at 1-800-423-2410

Weight Comparison	
WS Steel Sleeve	**Century-Line Sleeve**
WS-12-37-S-12 = 60 lbs.	CS-12-12 = 6.5 lbs

Model WS (12" length)

MODEL	I.D.	lbs.	Kg.
WS-2-15-S-12	2.07	5.53	2.51
WS-2-1/2-20-S-12	2.47	7.91	3.58
WS-3-21-S-12	3.07	9.93	4.51
WS-3-1/2-22-S-12	3.55	11.70	5.31
WS-4-23-S-12	4.03	13.61	6.17
WS-5-25-S-12	5.05	17.91	8.12
WS-6-28-S-12	6.07	22.73	10.31
ws-6-18-S-12	6.25	14.82	6.72
WS-8-32-S-12	7.98	33.55	15.22
ws-8-18-S-12	8.25	21.94	9.95
WS-10-36-S-12	10.02	46.12	20.92
ws-10-25-S-12	10.25	33.67	15.27
WS-12-37-S-12	12.00	60.14	27.28
WS-14-37-S-12	13.25	62.04	28.14
WS-16-37-S-12	15.25	71.04	32.22
WS-18-37-S-12	17.25	79.98	36.28
WS-20-37-S-12	19.25	90.00	40.82
WS-22-37-S-12	21.25	98.00	44.45
WS-24-37-S-12	23.25	107.00	48.53

Note: Intermediate sleeves available, model information on-line in a pdf file.