Position pipe within casing under roadways, railroads, bridges, and canals. Ideal for sliplining.
CASING SPACER INSTALLATIONS

LOW COEFFICIENT OF FRICTION

48” DIP into 60” Casing, 110’ up 10% Grade
Owner: Cobb Marietta Water Authority, Hwy 41 Transmission main
Engineer: Welker and Associates
Contractor: John D. Stephens
Contractor planned on a full day with a wench cable to pull, jacking equipment to push, plus a 7 man crew. With CASCADE’S spacers the entire 110’ was installed in 1 hour 45 minutes using only a back hoe.

CORRECTING FOR GRADE

8” DIP into 24” casing, 380’ gravity sewer.
Owner: City of Atlanta
Engineer: Dept. of Pollution Control
Contractor: Newell
Bore for casing turned up and lost 8” of grade over last 90’. CASCADE provided numbered spacers that when installed in sequence, brought the carrier back to grade. Spacers are also field adjustable.

CENTERING

54” steel into 72” and 64”, CMP casing, 200’
Owner: City of Seattle — Tolt River Pipeline
Engineer: CH2 M Hill
Contractor: Frank Coluccio
CASCADE spacers center the carrier within the casing to maintain alignment and restrain carrier against floatation or other movement.

PVC INSTALLATION-RESTRAINING

30” Vylon® PVC into 48” casing, 750’ gravity sewer
Owner: Trinity River Authority
Engineer: McDonald and Associates
Contractor: Pate Bros.
Spacers placed on spigot end at limit line for Bell insertion. When assembled, spacer pushes Bell relieving stress and reducing chances of telescoping pipes. Spacers maintain proper flow line while restraining against floatation.
The CASCADE Casing Spacer system replaces the old method of banding wooden skids to the carrier pipe with steel straps. Compare CASCADE’S method with the obsolete one. In addition to the typical positioning design shown on this page, CASCADE has also developed designs for:

- Placing multiple carriers within one casing
- Positioning thermally insulated pipe without damage to insulation
- Centering small carriers within large casings
- Positioning gravity sewer to on grade requirements

**CASCADE FEATURES**

- Lowest coefficient of friction in the industry — easy to push
- High corrosion resistance — eliminate backfill
- Dielectric insulator — cathodic protection
- Design flexibility — position carrier positively
- Simple to use — trouble free insertion

**CASCADE ALL STAINLESS STEEL CASING SPACERS**

- Easily attached by a single person.
- No special tools needed.
- Slide into casing with minimum pushing force. **Low coefficient of friction** lets runners glide over rough spots insuring trouble free insertion. **Lowest Coefficient of Friction in the Industry.**
- High Corrosion Resistance - 100% chemically passivated; Dielectrically insulates carrier and holds securely without any backfill.
- No Backfill – Lowers construction costs and allows for future access.

**WOODEN SKIDS AND STRAPS**

- Require at least two sets of hands to attach.
- Cumbersome, time consuming, greasy. Notching and banding tools needed.
- Hard to push. Catch on weld beads. Carrier rotates. Joints are destabilized. Binding can break straps or skids, making removal and reinsertion necessary.
- Corrodes. Requires backfill to insure long term stability. Allows bacteria to concentrate.
- Backfill of sand, gravel, or grout is expensive and makes future access difficult or impossible.

**WHY CASCADE?**

**EXPERIENCE**

CASCADE IS THE LEADER in casing spacers for the water and sewer industry with literally thousands of successful installations across the nation. CASCADE has worked with every type of pipe used in water and sewer systems. New challenges are welcome, but chances are if it is a water or sewer application - we’ve already done it.

**QUALITY**

CASCADE is the leader in quality as well as experience from the liner to the runner - inside to out - there is no corner cutting. Each component material was carefully selected so that the product would be top notch - the best available. Imitators make cheaper products - not equal products.
When deciding the width and placement intervals of CASCADE spacers, the main concerns are pipe stiffness, joint stability, height of separation between carrier and casing, and live load. Generally, stiffer pipe can be supported adequately at greater intervals than more flexible pipe. Casing pipes have deflections, ridges, or otherwise uneven surfaces. Care should be taken to maintain joint stability during, as well as after, installation.

In all instances, a spacer should be placed so as to support the carrier within 2' of the end of the casing pipe.

All variations of PVC pipes (sewer, C-900 and thinner wall PVC) need support at closer intervals and should be supported every 6’.

Polyethylene pipes vary widely in the interval required and depends on the wall thickness and the maximum allowable deflection between supports. The pipe manufacturer should be consulted if intervals longer than 6’ are desired.

Concrete and prestressed concrete cylinder pipe require shorter intervals. Always use Model CCS-ER Spacers.

Unless special circumstances exist, CASCADE recommends 8” wide spacers on sizes up to 48” pipe. Pipes over 48” O.D. should be supported with 12” wide spacers.

For ductile iron carrier pipes, 10’ intervals are adequate through 60” O.D. For steel carrier pipes, 8’ intervals are adequate through 60” O.D. For 24” and larger pipe with the separation between carrier and casing greater than 5 inches, 6’ intervals and/or 12” wide spacers should be considered.

Please consult Cascade if there are any special conditions or if any questions arise.

For multiple pipe Casing Spacers, consult factory.
ORDERING INFORMATION

MATERIAL SPECIFICATIONS

SHELL - Minimum 14 gauge T-304 stainless steel. All surfaces are fully chemically passivated. Flanges are ribbed for strength.

RISERS - Max 10 ga. T-304 stainless steel, reinforced 6" and over height. (when applicable)

FASTENERS - 5/16-18 T-304 stainless steel

LINER - PVC - .090 thick, 85-90 durometer (ASTM D1706-61T) - 80
Max constant operating temperature - 150°F (64°C)
Electrical properties - (ASTM - DI49-61) 1380 V/min.
Resistance: Salt Spray (ASTM - B117) - Excellent
Acids - Good

RUNNERS - Ultra High Molecular Weight Polyethylene
Low coefficient of friction
High resistance to abrasion and sliding wear
Toughness under impact
Low deflection under compression
Dielectric insulation

TYPICAL DATA - RUNNERS

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<th>PROPERTY</th>
<th>ASTM METHOD</th>
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<tr>
<td>Specific Gravity</td>
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<tr>
<td>Tensile Strength (Break)</td>
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<td>Heat Distortion Temp. 66PSI</td>
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<td>Coefficient of Thermal Expansion</td>
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ELECTRICAL PROPERTIES

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<td>Surface Resistivity</td>
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<td>Dielectric strength</td>
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ABRASION CHARACTERISTICS

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<td>Taber Abrasion</td>
<td>D-1044</td>
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<td>Sand Slurry*</td>
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* Sand Slurry condition - 7 hours in one part water at 1725 RPM.
Carbon Steel = 100. UHMW 1900 = 15. Lower value more resistant to abrasion.

EXAMPLES

1) Carrier - 12" DIP or C-900 PVC
   Casing - 24" Steel - .375 wall
   Spacer Width - 8"
   Configuration - Centered
   CCS - 1320-8 / C23.25 CTR

2) Carrier - 48" Steel
   Casing - 66" concrete
   Spacer width - 12"
   Configuration - Restrained
   CCS - 4800-12 / C66 RES

3) Carrier - 6" SCH 40 PVC
   Casing - 16" Steel .25" wall
   Spacer width - 8"
   Configuration - Standard
   CCS - 663-8 / C15.5 STD

RISER/RUNNER HEIGHTS FOR STANDARD SPACERS

2" Height through 10" pipe size.
2 1/2" Height through 48" pipe size.
3" through 64" pipe

CASCADE provides drawings for approval on all special applications.

IMPORTANT

WHEN ORDERING CASING SPACERS, PLEASE HAVE THE FOLLOWING INFORMATION AT HAND:

- Job Name/Engineer's Name
- Type and O.D. of carrier pipe
- Type of joint
- Type and I.D. of casing pipe
- Length of casing or quantity of spacers needed
- Configuration Requirement: Standard, Centered, or Restrained; any special installation requirements
CASCADE SPECIFICATIONS

STYLE CCS - CASING SPACERS

Casing spacer shall be a two-piece shell per carrier pipe and made from T-304 stainless steel of a minimum 14 gauge thickness. Each shell section shall be lined with a 0.090” thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polyethylene (UHMW) to provide abrasion resistance and a low coefficient of friction (0.12). The runners shall be attached to support structures at appropriate positions to properly support the carrier pipe within the casing pipe and to ease installation. The runners shall be mechanically bolted to the spacer. Risers shall be made of T-304 stainless steel of a maximum 10 gauge and the bolt heads are welded to the inside of the risers for strength. When applicable, all risers shall be MIG welded to the shell. Bottom risers 6” and over in height shall be reinforced. All reinforcing plates shall be 10 ga. T-304 stainless steel and shall be MIG welded to mating parts. Standard positioning within the casing pipe shall be sized such that the carrier rests near the bottom of the casing pipe and the height of the risers and runners are to provide a bottom clearance not less than one-half inch between the casing pipe and the extreme outside diameter of the joint (bell, seam weld, joint clamp, ...) of the carrier pipe.

Centered & Restrained positioning within the casing pipe shall be sized such that the height of the risers and runners are to center the carrier pipe in the casing pipe with a top clearance of three-fourths inch minimum. Restricted positioning within the casing pipe shall be sized such that the carrier rests near the bottom of the casing pipe and the risers and runners are to provide a bottom clearance not less than one-half inch between the casing pipe and the extreme outside diameter of the joint (bell, seam weld, joint clamp, ...) of the carrier pipe and a top clearance of three-fourths inch minimum. Multiple Carrier pipes within the casing pipe shall be sized such that the carrier pipes are held at fixed distances relative to each other, with the height of the risers and runners to provide not less than three-fourths inch between the casing pipe and the outside diameter of the riser/runner combinations. Special reinforcing plates may be required to stabilize and support structure. All welds and metal surfaces shall be chemically passivated. Due to the numerous application possibilities, consult factory for spacing requirements. Casing spacers shall be Model CCS as manufactured by Cascade Waterworks Mfg. Co. of Yorkville, IL or approved equal.

STYLE CCES CASING END SEALS

CASCADE Model CCES End Seals pull over the casing and carrier pipes after installation to provide a barrier to backfill debris and seepage.

MATERIAL SPECIFICATIONS:
SEAL - Neoprene - Other compounds available
BANDS - T-304 Stainless Steel

Cascade’s Runners can be replaced in the field if bore is offgrade or installation is not to design.
**SPECIFICATIONS**

**STYLE CCS-ER - CASING SPACERS (EXTENDED RANGE)**

Pipe 36” Diameter and Up
Casing spacer shall be made from T-304 stainless steel of a minimum thickness of 14 gauge. Each shell section shall be a maximum of 12” wide, and shall be a two-piece design. Each shell section shall have a stud bar and receiver bar TIG welded to the shell. Studs shall be T-304 and threaded as 5/8-11x7” long. Each stud bar shall include up to three studs, and shall allow a maximum of 1” adjustment to circumference to compensate for the variations in large diameter (non-uniform) pipe. The shell shall be lined with a 0.090” thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polyethylene (UHMW) to provide high abrasion resistance and a low coefficient of friction (0.12). The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier within the casing and to ease installation. The runners shall be mechanically bolted to the riser. The bolt heads are welded to the inside of the risers for strength. Risers shall be made of T-304 stainless steel of a maximum 10 gauge. Bottom risers 6” and over in height shall be reinforced. All risers shall be MIG welded to the shell. *Standard positioning within the casing pipe* shall be sized such that the carrier rests near the bottom of the casing pipe and the height of the risers and runners are to provide a bottom clearance not less than one-half inch between the casing pipe and the extreme outside diameter of the joint (bell, seam weld, joint clamp, ...) of the carrier pipe. *Centered & Restrained positioning within the casing pipe* shall be sized such that the height of the risers and runners are to center the carrier pipe in the casing pipe with a top clearance of three-fourths inch minimum. *Restrained positioning within the casing pipe* shall be sized such that the carrier rests near the bottom of the casing pipe and the height of the risers and runners are to provide a bottom clearance not less than one-half inch between the casing pipe and the extreme outside diameter of the joint (bell, seam weld, joint clamp, ...) of the carrier pipe and a top clearance of three-fourths inch minimum. All welds and metal surfaces shall be chemically passivated. Due to the numerous application possibilities, consult factory for spacing requirements. Casing spacers shall be Model CCS-ER as manufactured by Cascade Waterworks Mfg. Co. of Yorkville, IL or approved equal.

**WARRANTY**

Cascade Waterworks Mfg. Co. warrants its product(s) for one year from the date of shipment to be free of defects in material or workmanship. Cascade will repair or replace this product if it is found to be defective within the above stated one year warranty period provided that the buyer submits his claim in writing and delivers the original claimed defective product in its entirety, freight prepaid to Cascade Waterworks Mfg. Co., 1213 Badger Street, Yorkville, IL, 60560 for inspection within 30 days. Written notice or products sent to Mfg. Reps or any other agents will not be honored as valid warranty claims. Cascade is not liable or responsible for any loss, damage or injury to any person(s) or property directly or indirectly arising from the use or inability to use this product. The user shall determine the suitability of the product for its intended use prior to any application and said user assumes all risks in connection with the use of this product. No claims for labor or damage will be allowed. Buyer must advise Cascade within 30 days of discovery of the alleged defect or the claim will be barred. This warranty is exclusive and in lieu of all others, whether written, oral or implied. Upon the product(s) purchase from Cascade Waterworks Mfg. Co., or any of its Agents, the purchaser agrees to all of the above terms of warranty.

04/09