



Casing spacer data and specification sheet
Rev. June 17 2013

Silvertip™ CSM (Carbon Steel Multi-Pipe) Casing Spacers

ABOUT SILVERTIP™ CASING SPACERS

Silvertip™ casing spacers are designed to provide effective mechanical and dielectric protection to essential infrastructure piping installed in casings beneath roadways, bridges and other critical structures.

Carrier pipes passing through casings are susceptible to damage if there is physical contact with the casing pipe. Contact between metal carrier pipes and casings can also result in accelerated corrosion and a shortened pipeline service life. Using an CSM multi-pipe casing spacer allows more than one carrier pipe to be protected in a casing.

Silvertip™ casing spacers offer engineers a reliable method to ensure that piping inside of casings will be consistent with the rest of the system design. Contractors appreciate the durability and predictable installation process. Owners appreciate the lower life cycle costs related to well designed and constructed details that are expensive to revisit.

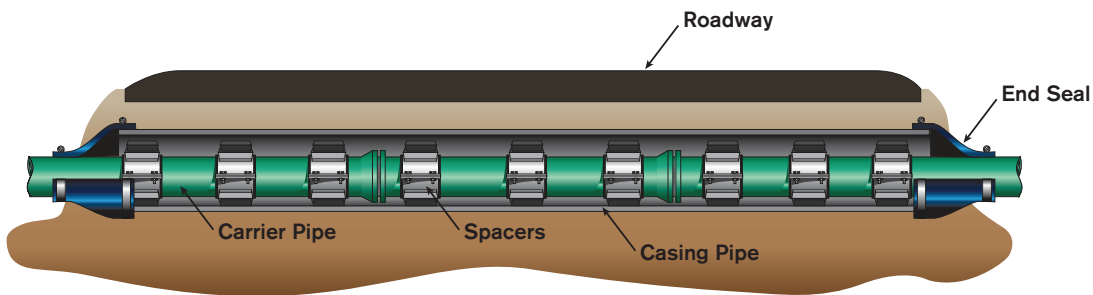


Fig 1. Diagram of typical casing spacer installation.

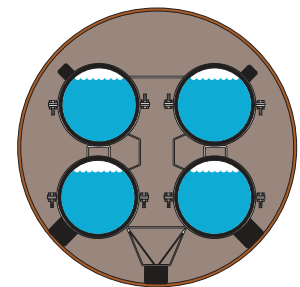


Fig 2. Multi-pipe casing spacer with four carriers in one casing.



Silvertip™ Casing Spacers by InfraChoice
<http://drivingstrategicsales.com/infrastructure>
800-461-0006



CARBON STEEL BAND (CSM) CASING SPACER SPECIFICATIONS

Band and Risers

Band – 14-gauge, hot rolled, pickled & oiled steel
Riser – 10-gauge, hot rolled, pickled & oiled steel
Width – 200mm (8”) and 300mm (12”) band widths available.
Copolymer-based thermoplastic epoxy coating
Adhesion (ASTM D 4541) – greater than 5.51 MPa (800 psi)
Durometer (Shore D) (ASTM D 2240) – 53
Maximum Operating Temperature (Constant) – 65°C (150°F)

Runners

25mm (1”) or 50mm (2”) wide glass-filled polymer runners, 178mm (7”) long
Effective Heights for 178mm runners – 25mm (1”) or 38mm (1.5”)

Runner Material Specifications

Rockwell Hardness (M) (ASTM D785) – 100
Tensile Strength (ASTM D638) – 186 MPa (27,000 psi)
Flexural Strength (ASTM D790) – 275 MPa (40,000 psi)
Compression Strength (ASTM D 695) – 227 MPa (33,000 psi)
Deflection Temperature @ 264 psi (ASTM D648) – 248° C (478° F)
Deformation Under Load @ 50° C (122° F) (4000 lb. load) (ASTM D 648) – 1.2%
Friction Coefficient – 0.1

EPDM Liner (PVC alternative)

Liner Thickness – 2.29mm (0.090”) minimum thickness
Hardness – Durometer A 85-90
Dielectric Strength – 3,000 VPM
Water Absorption – 1% max.
Liner edges overlap

Bolt, Nuts and Washers

Electro plated 6.4mm (1/4”) 20UNC x 50mm (2”) long bolts, 6.4mm hex nuts and 6.4mm washers SAE 2330 for nominal OD up to 400mm (16”). For nominal OD greater than 400mm, bolts, nuts and washers are 7.9mm (5/16”).

Welding

All risers are welded to the band by MIG welding.





SELECTING CASING SPACERS

1. Select your spacer model.

Silvertip™ Carbon Steel Band (CSM) casing spacers feature epoxy coated bands made of 14-gauge carbon steel for economical applications that are likely to remain dry and free from chemical exposure. Use CSM multi-pipe spacers when more than one carrier needs to go through the casing.

2. Identify your pipe dimensions.

- a. Carrier pipe OD
- b. Maximum OD of the carrier pipe's mechanical connection
- c. ID of the casing

3. Position your carrier pipe in the casing.

Silvertip™ spacers will enable you to position your pipe correctly inside the casing:

- **Standard (S)** - elevates mechanical joints, protects metal carrier pipe coatings from damage.
- **Restrained (R)** - same as Standard, with top runners positioned to prevent loss of grade in carrier pipe elevation.
- **Centered (C)** - positions the carrier pipe to work with a specific casing installation elevation or with modular rubber end seals for sealing off casing ends.
- **Centered Restrained (CR)** - carrier is centered in casing, top runners prevent loss of grade in carrier elevation.

Note for Restrained (R), Centered (C) and Centered Restrained (CR) positions: there will be an engineered gap of 25mm at the crown to allow for casing pipe ovality, weld slag and/or rock dimples.

The low flow and large diameter of gravity flow carrier pipes means they could float like a boat if the casing floods! Choose restrained or center restrained Silvertip™ spacers to prevent a floating carrier pipe in a flooded casing.

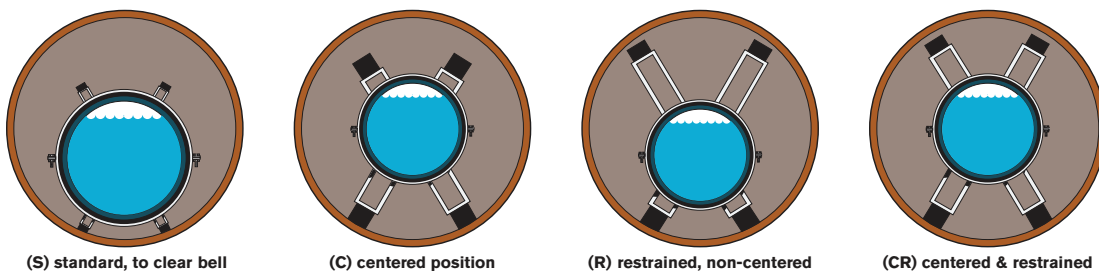


Fig 3. Different positions for carrier pipe inside the casing pipe.

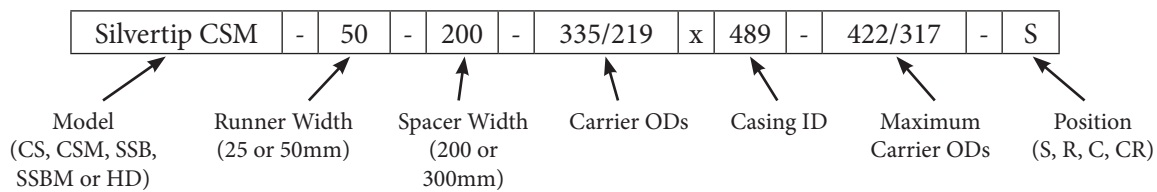




4. Write your requirements as a part number.

Describe your specific casing spacer requirements as a when ordering. Note that you can use either millimeters or inches to describe your casing spacer measurements.

CASING SPACER PART NUMBERS:



For the “Carrier OD” attribute, include each carrier pipe’s OD. If applicable, include the maximum carrier OD (bell OD) for the “Maximum Carrier OD” attribute.

Example 1 (millimeters): a stainless steel casing spacer with 50mm runner width and 200mm spacer width for a nominal 300mm and a 200mm PVC DR18 water pipe with standard positioning in a 1000mm steel casing

- Silvertip CSM-50-200-335/230x1000-422/317-S

Example 2 (inches): a stainless steel casing spacer with 1” runner width and 8” spacer width for an 12” and 8” SDR35 PVC sewer pipe with center-restrained positioning in a 28” steel casing

- Silvertip CSM-1-8-12.5/8.4x27.50-13.75/9.65-CR

One spacer is recommended for every 1.8 to 2.4 meters (6 to 8 feet) of pipeline, unless pipe span limitations require closer placement. Additionally, we recommend placing a spacer within 300mm of both ends of the casing to prevent a “fulcrum” effect on the carrier at the casing ends.

Silvertip™ CSM carbon steel band casing spacers are available in two widths: 200mm width (for carrier pipe 100mm to 600mm) and a 300mm width (for 660mm to 3m or larger). 300mm bands are recommended for heavier carrier pipe loads or long insertions. Welded joint steel or plastic carrier pipes can usually be installed in a casing that is one or two nominal sizes larger.





Carrier pipes with a mechanical joint or bell/spigot connection typically require a casing that is three nominal pipe sizes larger than the carrier pipe diameter. On bell/spigot connected pipes, we suggest:

- Plastic Pipe: three spacers on 6m (20') pipe lengths, and two spacers on 3m (10') pipe lengths.
- Concrete Pipe: two spacers per length of pipe. Spacer band widths should be 300mm (12"), and runners should be 50mm (2") wide.

Silvertip™ Casing Spacers are manufactured with ISO 9001 certified quality management.

ENGINEER'S SPECIFICATION

The casing spacers shall be model Silvertip™ CSM and shall be constructed of circular carbon steel bands which bolt together forming a shell around the carrier pipes. When deemed necessary by the engineer, the spacers shall be designed with risers and runners to support the carriers within the casing and maintain a minimum clearance of 25mm (1") between the casing ID and the spacer OD. On large-diameter carrier pipes with a nominal OD above 600mm (24"), Silvertip™ reserves the right to submit a casing spacer design best suited for the application. Plated steel bolts, nuts and washers shall be supplied with the casing spacers.

The band shall be manufactured of 200mm (8") or 300mm (12") wide 14-gauge hot rolled, pickled and oiled carbon steel. The risers (when applicable) shall be constructed of 10-gauge hot rolled, pickled and oiled carbon steel having a minimum length of 150mm (6") and a height to be determined based on the annular space between the carrier OD and the casing ID.

Abrasion resistant runners, having a minimum length of 175mm (7") and a minimum width of 25mm (1"), shall be attached to each band and/or riser (depending on design criteria) to minimize friction between the casing pipe and the carrier pipe as it is installed. Runner material shall be of glass filled polymer with a compression strength of 227 MPa (33,000 psi), flexural strength of 275 MPa (40,000 psi) and tensile strength of 186 MPa (27,000 psi). The ends of all runners shall be beveled to facilitate installation over rough weld beads or the welded ends of misaligned or deformed casing pipe.

Interior surfaces of the circular stainless steel band shall be lined with EPDM, or PVC alternate, having a minimum thickness of 2.29mm (0.090") with a hardness of Durometer A 85-90.

Spacers shall be placed 300mm on each side of the bell joint, within 300mm of each end of the casing and every 1.8 to 2.4 meters (6 to 8 feet) on the carrier pipe thereafter. For special applications or positioning options, consult a Silvertip™ technical sales representative.

