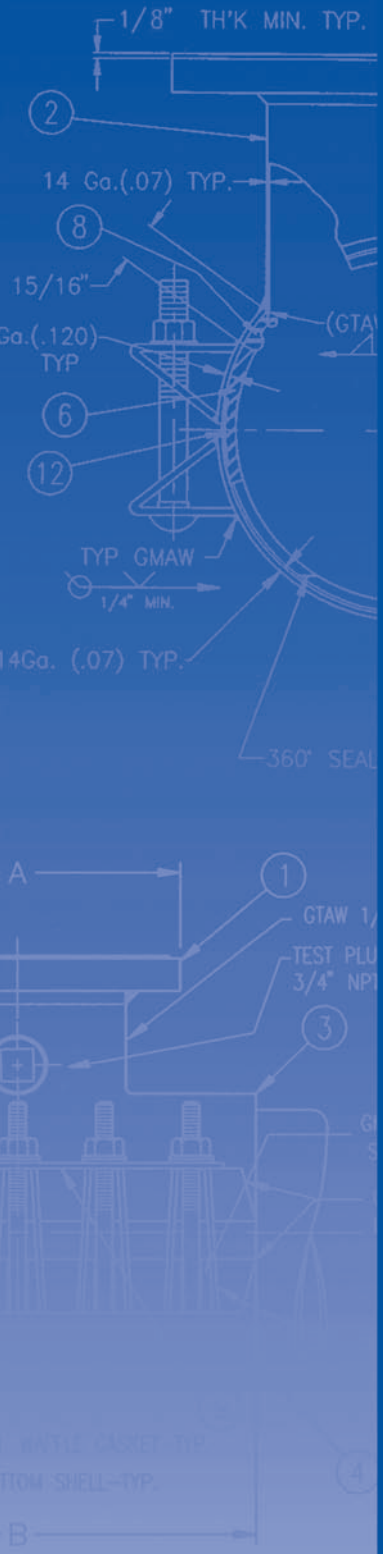




PHOENIX GOLD SERIES



"The Standard of Excellence in the Industry"



Patented 6,571,332 B1

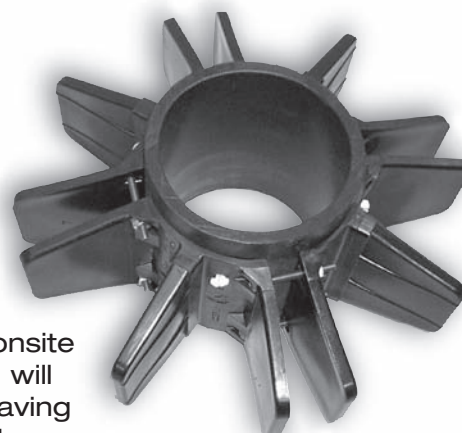
1213 BADGER STREET • YORKVILLE, ILLINOIS 60560
(630) 553-0840 • (800) 426-4301 • FAX (630) 553-0181
www.cascademfg.com

THE PHOENIX ADVANTAGE



With Cascade's revolutionary exclusive design incorporating two positive TPR molded gripping pads in each and every segment, our **Phoenix**

Series Casing Spacer simply rises above the competition to isolate any carrier pipe into a casing pipe, and all with the assurance that our spacer will simply stay where it is placed.



Installation is a snap whether our **Phoenix Spacers** are installed onsite or ordered pre-assembled for your job's specific requirements; you will always enjoy the advantage of lightning fast installation, therefore saving you valuable money, time and labor. With one of the largest available on-hand spacer inventories of all available sizes, and the most competitive pricing, inventory is a thing of the past.

Please note that only common tools are required for assembling the **Phoenix Spacer** because we even ship, at no charge to you, the proper amount of assembly tools to get the job done. Leave it to Cascade Waterworks Mfg. Co. to again raise the bar in excellence for quality and service, and all at competitive prices. **Phoenix, there is no other product like it on the market today.**

CARRIER PIPE O.D.

NOM. SIZE	RANGE	TYPE OF PIPE	NO. OF SEGMENTS	TYPE OF SEGMENT
4" & 5"	3.96-5.12	DI, PVC, SEWER, AC, STEEL	3	CCSP1
5" & 6"	5.50-6.28	PVC, SEWER, STEEL	4	CCSP1
6"	6.60-6.90	DI, PVC, STEEL	1 / 2	CCSP1 / CCSP2
8"	7.85-8.85	DI, PVC, SEWER, STEEL	3	CCSP2
8" & 10"	8.15-9.55	DI, PVC, SEWER, STEEL	2 / 2	CCSP1 / CCSP2
10"	9.50-11.08	PVC, SEWER, AC, STEEL	1 / 3	CCSP1 / CCSP2
10" & 12"	10.60-12.40	DI, PVC, AC, STEEL	4	CCSP2
12" & 14"	12.10-14.30	DI, PVC, SEWER, AC, STEEL	1 / 4	CCSP1 / CCSP2
12" & 14"	13.50-15.50	PVC, 15" SEWER, STEEL	2 / 4	CCSP1 / CCSP2
14" & 16"	14.75-16.50	PVC, STEEL	1 / 5	CCSP1 / CCSP2
16"	17.40	C900	6	CCSP2

The universal application of Cascade's Phoenix Series Casing Spacers provide two special advantages: variable spacer diameter and only two segment sizes required for assembly. A decisive edge for inventory reduction and cost savings.

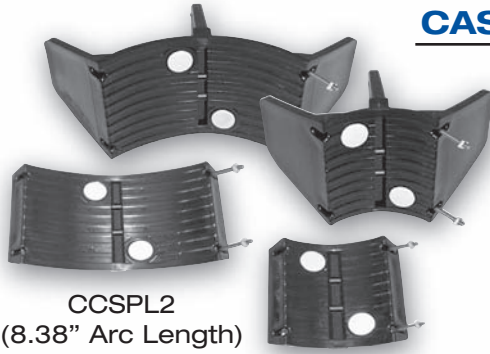
The runner height is calculated from the difference in the diameter of the carrier pipe and the inside diameter of the casing. It is very important to consider the actual dimensions, including coatings and wall thicknesses, rather than the nominal sizes.

Phoenix Series Spacers can be pre-assembled leaving the last two bolts disconnected. The completed spacer assembly is then wrapped around the carrier pipe at its proper interval location and the remaining two bolts installed and tightened.

The segments are assembled with Grade 8 bolts using a supplied ball tip Allen wrench. Tighten evenly so the spacer cannot slide on pipe. Stainless steel bolts can be supplied if required or specified for an additional charge. Please call Cascade for current pricing with stainless bolts.

All Phoenix Series Spacer (HDPE) segments are supplied with a molded TPR (Thermo Plastic Rubber button insert) that is designed to grip all types of pipe, especially conducive for PVC applications. This again is an industry first and is patented by Cascade Waterworks Mfg.

CASCADE PHOENIX SERIES ASSEMBLY

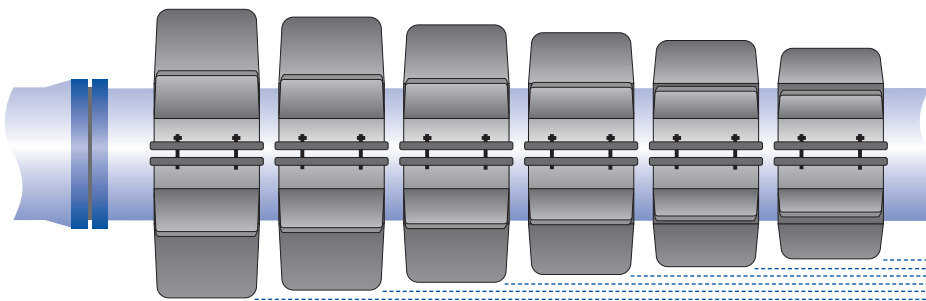


CCSPL2
(8.38" Arc Length)

CCSPL1
(4.19" Arc Length)

- Quick assembly with Grade 8, 1/4-20 X 2-1/2 button head (Allen) machine screw
- Many size configurations possible with two basic style segments.
- Patented gripping technology with the molded TPR (Thermo Plastic Rubber) Button
- Available runner heights of 0.99, 1.42, 2.17, 2.96, 3.55, 4.33 inches
- Variable load capabilities

CHOOSING THE RUNNER HEIGHT



Choose type of segments and designate height over pipe to clear bell or restrainer and fit snug inside of casing.

.99" 1.42" 2.17" 2.96" 3.55" 4.33"

Part Number Indicator

CCSPL1 -



- | | | | |
|--------------------|--------------|--------------------|--------------|
| Clock Setting 1 => | 0.99" Runner | Clock Setting 4 => | 2.96" Runner |
| Clock Setting 2 => | 1.42" Runner | Clock Setting 5 => | 3.55" Runner |
| Clock Setting 3 => | 2.17" Runner | Clock Setting 6 => | 4.33" Runner |

HOW TO ORDER

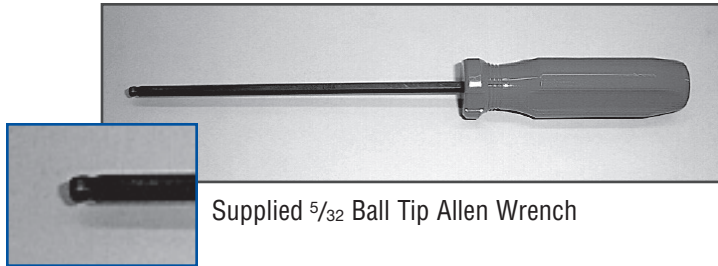
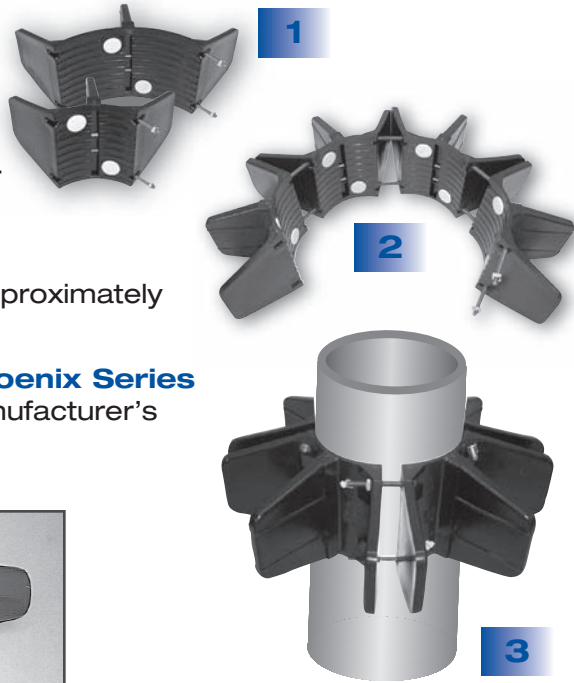
SEGMENT PART NO.	CARRIER SIZE	CARRIER PIPE RANGE	TOTAL RUNNER HGT.	CCSP1 SEG.	CCSP2 SEG.	SPACER PART NO.
CCSPL1-0.99	4" & 5"	3.96 - 5.12	1.98	3		CCSPL-0512-099
CCSPL1-1.42	4" & 5"	3.96 - 5.12	2.84	3		CCSPL-0512-142
CCSPL1-2.17	4" & 5"	3.96 - 5.12	4.34	3		CCSPL-0512-217
CCSPL1-2.96	4" & 5"	3.96 - 5.12	5.92	3		CCSPL-0512-296
CCSPL1-3.55	4" & 5"	3.96 - 5.12	7.10	3		CCSPL-0512-355
CCSPL1-4.33	4" & 5"	3.96 - 5.12	8.66	3		CCSPL-0512-433
CCSPL1-0.99	5" & 6"	5.50 - 6.28	1.98	4		CCSPL-0628-099
CCSPL1-1.42	5" & 6"	5.50 - 6.28	2.84	4		CCSPL-0628-142
CCSPL1-2.17	5" & 6"	5.50 - 6.28	4.34	4		CCSPL-0628-217
CCSPL1-2.96	5" & 6"	5.50 - 6.28	5.92	4		CCSPL-0628-296
CCSPL1-3.55	5" & 6"	5.50 - 6.28	7.10	4		CCSPL-0628-355
CCSPL1-4.33	5" & 6"	5.50 - 6.28	8.66	4		CCSPL-0628-433
CCSPL1&2-0.99	6" & 8"	6.60 - 6.90	1.98	1	2	CCSPL-0690-099
CCSPL1&2-1.42	6" & 8"	6.60 - 6.90	2.84	1	2	CCSPL-0690-142
CCSPL1&2-2.17	6" & 8"	6.60 - 6.90	4.34	1	2	CCSPL-0690-217
CCSPL1&2-2.96	6" & 8"	6.60 - 6.90	5.92	1	2	CCSPL-0690-296
CCSPL1&2-3.55	6" & 8"	6.60 - 6.90	7.10	1	2	CCSPL-0690-355
CCSPL1&2-4.33	6" & 8"	6.60 - 6.90	8.66	1	2	CCSPL-0690-433
CCSPL2-0.99	8"	7.85 - 8.85	1.98		3	CCSPL-0885-099
CCSPL2-1.42	8"	7.85 - 8.85	2.84		3	CCSPL-0885-142
CCSPL2-2.17	8"	7.85 - 8.85	4.34		3	CCSPL-0885-217
CCSPL2-2.96	8"	7.85 - 8.85	5.92		3	CCSPL-0885-296
CCSPL2-3.55	8"	7.85 - 8.85	7.10		3	CCSPL-0885-355
CCSPL2-4.33	8"	7.85 - 8.85	8.66		3	CCSPL-0885-433
CCSPL1&2-0.99	8" & 10"	8.15 - 9.55	1.98	2	2	CCSPL-0955-099
CCSPL1&2-1.42	8" & 10"	8.15 - 9.55	2.84	2	2	CCSPL-0955-142
CCSPL1&2-2.17	8" & 10"	8.15 - 9.55	4.34	2	2	CCSPL-0955-217
CCSPL1&2-2.96	8" & 10"	8.15 - 9.55	5.92	2	2	CCSPL-0955-296
CCSPL1&2-3.55	8" & 10"	8.15 - 9.55	7.10	2	2	CCSPL-0955-355
CCSPL1&2-4.33	8" & 10"	8.15 - 9.55	8.66	2	2	CCSPL-0955-433
CCSPL1&2-0.99	10"	9.50 - 11.08	1.98	1	3	CCSPL-1108-099
CCSPL1&2-1.42	10"	9.50 - 11.08	2.84	1	3	CCSPL-1108-142
CCSPL1&2-2.17	10"	9.50 - 11.08	4.34	1	3	CCSPL-1108-217

SEGMENT PART NO.	CARRIER SIZE	CARRIER PIPE RANGE	TOTAL RUNNER HGT.	CCSP1 SEG.	CCSP2 SEG.	SPACER PART NO.
CCSPL1&2-2.96	10"	9.50 - 11.08	5.92	1	3	CCSPL-1108-296
CCSPL1&2-3.55	10"	9.50 - 11.08	7.10	1	3	CCSPL-1108-355
CCSPL1&2-4.33	10"	9.50 - 11.08	8.66	1	3	CCSPL-1108-433
CCSPL2-0.99	10" & 12"	10.60 - 12.40	1.98		4	CCSPL-1240-099
CCSPL2-1.42	10" & 12"	10.60 - 12.40	2.84		4	CCSPL-1240-142
CCSPL2-2.17	10" & 12"	10.60 - 12.40	4.34		4	CCSPL-1240-217
CCSPL2-2.96	10" & 12"	10.60 - 12.40	5.92		4	CCSPL-1240-296
CCSPL2-3.55	10" & 12"	10.60 - 12.40	7.10		4	CCSPL-1240-355
CCSPL2-4.33	10" & 12"	10.60 - 12.40	8.66		4	CCSPL-1240-433
CCSPL1&2-0.99	12" & 14"	12.10 - 14.30	1.98	1	4	CCSPL-1430-099
CCSPL1&2-1.42	12" & 14"	12.10 - 14.30	2.84	1	4	CCSPL-1430-142
CCSPL1&2-2.17	12" & 14"	12.10 - 14.30	4.34	1	4	CCSPL-1430-217
CCSPL1&2-2.96	12" & 14"	12.10 - 14.30	5.92	1	4	CCSPL-1430-296
CCSPL1&2-3.55	12" & 14"	12.10 - 14.30	7.10	1	4	CCSPL-1430-355
CCSPL1&2-4.33	12" & 14"	12.10 - 14.30	8.66	1	4	CCSPL-1430-433
CCSPL1&2-2.17	14" & 16"	13.50 - 15.50	1.98	2	4	CCSPL-1550-099
CCSPL1&2-2.96	14" & 16"	13.50 - 15.50	2.84	2	4	CCSPL-1550-142
CCSPL1&2-3.55	14" & 16"	13.50 - 15.50	4.34	2	4	CCSPL-1550-217
CCSPL1&2-4.33	14" & 16"	13.50 - 15.50	5.92	2	4	CCSPL-1550-296
CCSPL1&2-2.17	14" & 16"	13.50 - 15.50	7.10	2	4	CCSPL-1550-355
CCSPL1&2-2.96	14" & 16"	13.50 - 15.50	8.66	2	4	CCSPL-1550-433
CCSPL1&2-0.99	14" & 16"	14.75 - 16.50	1.98	1	5	CCSPL-1650-099
CCSPL1&2-1.42	14" & 16"	14.75 - 16.50	2.84	1	5	CCSPL-1650-142
CCSPL1&2-2.17	14" & 16"	14.75 - 16.50	4.34	1	5	CCSPL-1650-217
CCSPL1&2-2.96	14" & 16"	14.75 - 16.50	5.92	1	5	CCSPL-1650-296
CCSPL1&2-3.55	14" & 16"	14.75 - 16.50	7.10	1	5	CCSPL-1650-355
CCSPL1&2-4.33	14" & 16"	14.75 - 16.50	8.66	1	5	CCSPL-1650-433
CCSPL2-0.99	16"	17.40	1.98		6	CCSPL-1740-099
CCSPL2-1.42	16"	17.40	2.84		6	CCSPL-1740-142
CCSPL2-2.17	16"	17.40	4.34		6	CCSPL-1740-217
CCSPL2-2.96	16"	17.40	5.92		6	CCSPL-1740-296
CCSPL2-3.55	16"	17.40	7.10		6	CCSPL-1740-355
CCSPL2-4.33	16"	17.40	8.66		6	CCSPL-1740-433

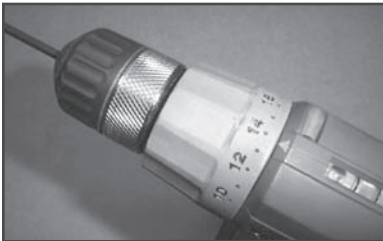
INSTALLATION

BASIC INSTALLATION PROCEDURES

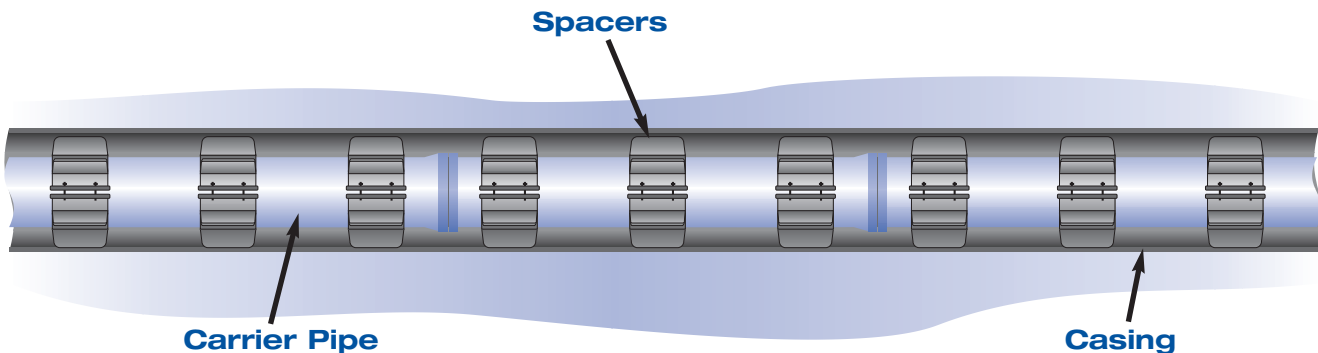
- 1) Determine your carrier pipe's OD to select the correct spacer needed for your application.
- 2) For ease of installation, pre-assemble the segments except for one joint.
- 3) Wrap pre-assembled segments around the carrier pipe and install remaining two bolts to complete assembly.
- 4) Torque all bolts to 14 in.-lbs. (± 1 in.-lbs.) leaving approximately the same gap between all segments.
- 5) Continue the previous above steps until all the **Phoenix Series Spacers** are installed in accordance with the manufacturer's recommended spacing intervals.



Safety Warning: Keep hands & fingers clear of pinch points. Wear eye protection while installing spacers.



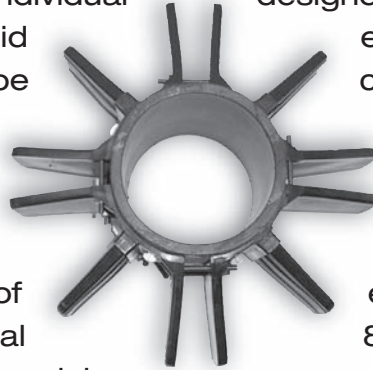
PHOENIX SERIES SPACERS INSTALLED



SPECIFICATIONS



High density polyethylene casing spacer shall be non-metallic and molded in segments for field assembly with a supplied ball tip allen wrench. The casing spacer shall have integrally molded runners extending beyond the bell, mechanical joint, or restrainer of the carrier pipe. Individual segments shall have a solid core and each runner shall be within 1.5" of the casing pipe to center the carrier pipe within the casing. Phoenix Plastic Casing Spacers shall be spaced within two feet of both ends of each individual casing pipe section with all remaining



in-between spacers assembled along the length of the pipe section at an equal distance apart not exceeding eight feet in length. All Phoenix Series Spacers are supplied with a molded TPR (Thermo Plastic Rubber) non-slip button comprised of pliable material having a high surface coefficient of friction that is designed to grip all types of pipe, especially good for PVC. The casing spacers shall be Cascade Phoenix Series, as manufactured by Cascade Waterworks Mfg. Company, Yorkville, Illinois, or equal. Toll-Free phone number 800-426-4301.

PHYSICAL CHARACTERISTICS FOR PLASTIC CASING SPACERS

Yield Strength	ASTM D 638	3900 PSI
Tensile Strength	ASTM D 638-D 651	3600 PSI
Hardness Shore D	ASTM D 2240	65
Minimum/Maximum Working Temp.		-60°F/180°F
Dielectric Strength	ASTM D 149	460 V/mil
Flexural Strength/Modulus	ASTM D 790	151000 PSI
Compressive Strength	ASTM D 695 (%=Strain)	3360 PSI @ 5% 4210 PSI @ 10% 4740 PSI @ 15%
Water Absorption	ASTM D 570	0.03%
Notched Impact Strength	ASTM D 256	1 ft.-lbs./in. ²
Min.-Max. Torque Requirements	14 in.-lbs. ± 1 in.-lbs./fastener	
Maximum Compression Load on One Runner		3500 lbs.

WARRANTY



Cascade Waterworks Mfg. Co. warrants this product for one year from the date of purchase 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 prior to our review will void all warranties. **Cascade** will not be 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 any resultant labor or damage will be allowed. The forgoing warranties and remedies are exclusive and in lieu of all others, whether written, oral or implied. There is no warranty on the merchandise or fitness for a specific use of any product. Upon this product's purchase from **Cascade Waterworks Mfg. Co.** or any of its **Agents**, the purchaser agrees to **all the above terms of warranty.**



CASCADE WATERWORKS MANUFACTURING



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