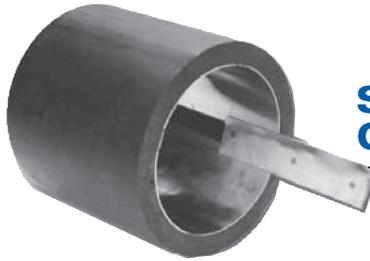




“The Standard of Excellence in the Industry”

HDPE HIGH DENSITY POLYETHYLENE PRODUCTS



STYLE CPS-IPS



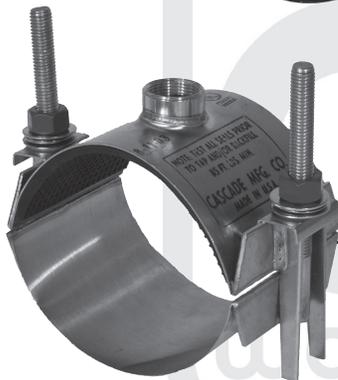
STYLE PECST-SL



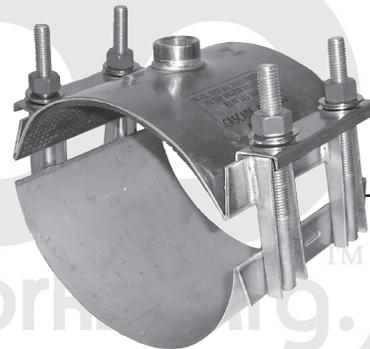
STYLE PECR1



STYLE PECR2



STYLE PECS-12



STYLE PECS-22



STYLE PECSC-1



STYLE PECSC-2



WATER QUALITY
NSF/ANSI 61 23°C
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SYSTEM COMPONENTS
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CERTIFIED TO
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CASCADE PRODUCTS FOR HDPE HIGH DENSITY POLYETHYLENE PIPE

Cascade Waterworks Manufacturing has redesigned a number of its high performance service and repair products for use with HDPE pipe. Polyethylene has a low modulus of elasticity and a high coefficient of thermal expansion when compared with other traditional piping materials. Therefore, HDPE pipe expands and contracts more from changes in temperature and pressure than other pipes. That means special care should be taken when choosing the fittings and repair products used. Cascade products shown in this brochure are designed with these criteria in mind.

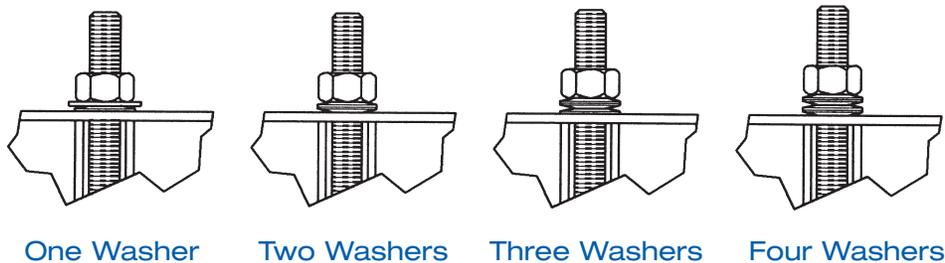


LIMITATIONS OF CASCADE PRODUCTS ON HDPE PIPE

- Pipe must be manufactured in accordance with AWWA Standard ANSI/AWWA C906-Latest Revision.
- Operating temperatures are limited to 85°F maximum and 32°F minimum.
- Operating pressure is limited to 150 psi or the rating of the pipe, whichever is less.
- Pipe systems must be designed to compensate for pipe movement so as to prevent fittings from migrating or rotating on the pipe.
- Products for HDPE pipe are designed for underground applications only and only on pipe with wall thickness of SDR 26 or greater.
- Couplings used on pipe ends must be used with Cascade pipe stiffeners.
- Proper restraint must be used when coupling pipe ends to prevent pullout from hydraulic forces or temperature changes.

BELLEVILLE WASHERS

Belleville washers are used with Cascade HDPE products to help counteract the pipe contraction during pressure and temperature changes. The washers are made from special spring grade stainless steel.



Cascade Style CPS pipe stiffeners provide internal circumferential support of HDPE pipe ends. Constructed of T304 stainless steel, each stiffener is provided with a reinforced wedge* designed to expand it to the full inside diameter of the pipe. Cascade designed style CPS stiffeners for easy field insertion. Each must be ordered to match the SDR of the pipe on which it is to be used.

STYLE CPS MUST BE USED IN EACH END OF THE HDPE PIPE



- Clean and square cut end of pipe.
- Reduce diameter of stiffener and insert plain end into pipe end.
- Using a rubber hammer striking firmly on end, insert stiffener approximately 6 inches into pipe.
- Insert wedge into stiffener and using hammer firmly push wedge and stiffener down to dimpled end.
- Cut off excess wedge if necessary for insertion into fitting.
- When coupling two plain end pipes, repeat process on other end making sure wedges are not directly opposed.

IPS

Normal Pipe Size (inches)	Pipe Outside Diameter (inches)	SDR Options							Model Number (Std. Part Length)
		7.3	9.0	11.0	13.5	15.5	17.0	21.0	
2*	2.38	•	•	•	•	•	•	•	CPS-2IPS-Exact SDR (6" Long)
3	3.50	•	•	•	•	•	•	•	CPS-3IPS-Exact SDR (6" Long)
4	4.50	•	•	•	•	•	•	•	CPS-4IPS-Exact SDR (6" Long)
6	6.63	•	•	•	•	•	•	•	CPS-6IPS-Exact SDR (8" Long)
8	8.63	•	•	•	•	•	•	•	CPS-8IPS-Exact SDR (8" Long)
10	10.75	•	•	•	•	•	•	•	CPS-10IPS-Exact SDR (8" Long)
12	12.75	•	•	•	•	•	•	•	CPS-12IPS-Exact SDR (8" Long)
14	14.00	•	•	•	•	•	•	•	CPS-14IPS-Exact SDR (8" Long)
16	16.00	•	•	•	•	•	•	•	CPS-16IPS-Exact SDR (8" Long)
18	18.00	•	•	•	•	•	•	•	CPS-18IPS-Exact SDR (8" Long)
20	20.00	•	•	•	•	•	•	•	CPS-20IPS-Exact SDR (8" Long)

DIPS

Normal Pipe Size (inches)	Pipe Outside Diameter (inches)	SDR Options						Model Number (Std. Part Length)
		7.3	9.0	11.0	13.5	17.0	21.0	
3	3.96	•	•	•	•	•	•	CPS-3DIPS-Exact SDR (6" Long)
4	4.80	•	•	•	•	•	•	CPS-4DIPS-Exact SDR (6" Long)
6	6.90	•	•	•	•	•	•	CPS-6DIPS-Exact SDR (8" Long)
8	9.05	•	•	•	•	•	•	CPS-8DIPS-Exact SDR (8" Long)
10	11.10	•	•	•	•	•	•	CPS-10DIPS-Exact SDR (8" Long)
12	13.20	•	•	•	•	•	•	CPS-12DIPS-Exact SDR (8" Long)
14	15.30	•	•	•	•	•	•	CPS-14DIPS-Exact SDR (8" Long)
16	17.40	•	•	•	•	•	•	CPS-16DIPS-Exact SDR (8" Long)
18	19.50	•	•	•	•	•	•	CPS-18DIPS-Exact SDR (8" Long)
20	21.60	•	•	•	•	•	•	CPS-20DIPS-Exact SDR (8" Long)

Products for HDPE pipe are designed for underground applications only.

Patent No. 6,095,197. Other sizes available. Please contact factory.

* 2" PIPE STIFFENERS ARE SINGLE PIECE ASSEMBLIES, AND DO NOT CONTAIN A WEDGE.

Example: A stiffener for 6" Ductile Iron Pipe size SDR11 would be **CPS-6DIPS-11**.

Note: Due to manufacturer's tolerances, Cascade requests the pipe brand as well as the SDR when orders are placed.

STYLE PECR1, PECR2 HDPE REPAIR CLAMPS



MATERIAL SPECIFICATIONS

Shell, Lugs/Bar: T304 Stainless Steel, Chemically Passivated in accordance with ASTM A380

Fasteners: T304 Stainless Steel; 5/8x11 NC Rolled Threads; Xylan Coated Hex Nuts; Stainless Steel Belleville Washers

Gaskets: Virgin SBR (Other Compounds Available)



Nominal Pipe Size (inches)	Pipe O.D. (inches)	Catalog Number	Length and Approximate Shipping Weight (lbs.)				
			6"	8"	12"	16"	20"
3	3.50	PECR1-0350 - Length	4	5	7	9	—
	4.50	PECR1-0450 - Length	4	5	8	10	—
4	4.80	PECR1-0480 - Length	4	5	8	10	—
	6.63	PECR1-0663 - Length	—	6	9	11	—
6	6.90	PECR1-0690 - Length	—	7	10	12	—
	8.63	PECR1-0863 - Length	—	7	11	14	—
8	9.05	PECR1-0905 - Length	—	8	12	15	—
	10.75	PECR1-1075 - Length	—	11	15	18	24
10	11.10	PECR1-1110 - Length	—	12	16	20	27
	12.75	PECR1-1275 - Length	—	14	19	27	31
12	13.20	PECR1-1320 - Length	—	15	20	28	32
	4	4.50	PECR2-0450 - Length	—	12	17	24
4.80		PECR2-0480 - Length	—	13	18	26	—
6	6.63	PECR2-0663 - Length	—	14	21	28	—
	6.90	PECR2-0690 - Length	—	15	23	29	—
8	8.63	PECR2-0863 - Length	—	17	25	30	—
	9.05	PECR2-0905 - Length	—	18	25	30	—
10	10.75	PECR2-1075 - Length	—	—	27	33	40
	11.10	PECR2-1110 - Length	—	—	27	3	40
12	12.75	PECR2-1275 - Length	—	—	29	36	42
	13.20	PECR2-1320 - Length	—	—	29	36	42

Products for HDPE pipe are designed for underground applications only and only on pipe with wall thickness of SDR 26 or greater.

For higher working pressure clamp length should equal or exceed pipe O.D.
Larger sizes or other lengths are available. Please contact factory.

Example: A Single Band Repair Clamp to fit 4" DIPS, 12" long would be **PECR1-480-12**.



5" Wide



8" Wide

MATERIAL SPECIFICATIONS



Body: T304 Stainless Steel, Chemically Passivated in accordance with ASTM A380

Outlet: T304 Stainless Steel

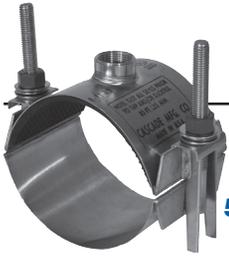
Fasteners: T304 Stainless Steel; 5/8" NC Rolled Threads; Xylan Coated Hex Nuts; Stainless Steel Belleville Washers

Gaskets: Triple O-Ring Surrounded by Full Grid Mat-SBR, Patent 6,173,967 B1 & 6,588,767

	Nominal Pipe Size (inches)	Pipe O.D. (inches)	Catalog Number	Approximate Part Wt. (lbs.) by Tap Style		
				3/4" – 1" IP or CC	1 1/4" – 1 1/2" IP or CC	2" IP or CC
5" WIDE	2	2.38	PECSC1-0238-Tap	3.00	SEE PECS22	
	2-1/2	2.88	PECSC1-0288-Tap	3.25		
	3	3.50	PECSC1-0350-Tap	3.25		
		3.96	PECSC1-0396-Tap	3.50		
	4	4.50	PECSC1-0450-Tap	3.50		
		4.80	PECSC1-0480-Tap	3.50		
	5	5.56	PECSC1-0556-Tap	3.75		
	6	6.63	PECSC1-0663-Tap	3.75		
		6.90	PECSC1-0690-Tap	3.75		
	8	8.63	PECSC1-0863-Tap	4.25		
9.05		PECSC1-0905-Tap	4.25			
10	10.75	PECSC1-1075-Tap	4.50			
	11.10	PECSC1-1110-Tap	4.50			
12	12.75	PECSC1-1275-Tap	4.75			
	13.20	PECSC1-1320-Tap	5.00			
8" WIDE	3	3.96	PECSC2-0396-Tap	5.50	SEE PECS22	
	4	4.50	PECSC2-0450-Tap	5.75		
		4.80	PECSC2-0480-Tap	5.75		
	5	5.56	PECSC2-0556-Tap	6.00		
	6	6.63	PECSC2-0663-Tap	6.25		
		6.90	PECSC2-0690-Tap	6.25		
	8	8.63	PECSC2-0863-Tap	6.75		
		9.05	PECSC2-0905-Tap	7.00		
	10	10.75	PECSC2-1075-Tap	7.50		
		11.10	PECSC2-1110-Tap	7.50		
12	12.75	PECSC2-1275-Tap	8.00			
	13.20	PECSC2-1320-Tap	8.00			

Products for HDPE pipe are designed for underground applications only and only on pipe with wall thickness of SDR 26 or greater.

Example: An 8" Wide Saddle to fit 8" IPS with a 1" CC tap would be **PECSC2-0863-1CC**.



5" Wide



8" Wide

MATERIAL SPECIFICATIONS

Body: T304 Stainless Steel, Chemically Passivated in accordance with ASTM A380

Outlet: T304 Stainless Steel

Fasteners: T304 Stainless Steel; 5/8" NC Rolled Threads; Xylan Coated Hex Nuts; Stainless Steel Belleville Washers

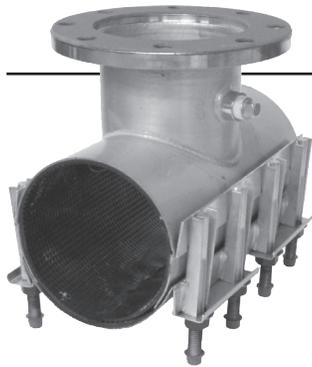
Gaskets: Triple O-Ring Surrounded by Full Grid Mat-SBR, Patent 6,173,967 B1 & 6,588,767



	Nominal Pipe Size (Inches)	Pipe O.D. (Inches)	Catalog Number	Approximate Part Wt. (lbs.) by Tap Style		
				3/4" – 1" IP or CC	1 1/4" – 1 1/2" IP or CC	2" IP or CC
5" WIDE	4	4.50	PECS12-0450-TAP	5.50	SEE PECS22	
		4.80	PECS12-0480-TAP	5.50		
	5	5.56	PECS12-0556-TAP	5.50		
		6.63	PECS12-0663-TAP	6.00		
	6	6.90	PECS12-0690-TAP	6.00		
		8.63	PECS12-0863-TAP	6.50		
	8	9.05	PECS12-0905-TAP	6.50		
		10.75	PECS12-1075-TAP	6.75		
10	11.10	PECS12-1110-TAP	6.75			
	12.75	PECS12-1275-TAP	7.25			
12	13.20	PECS12-1320-TAP	7.25			
	8" WIDE	4	PECS22-0450-TAP	9.50	10.25	10.50
PECS22-0480-TAP			9.50	10.25	10.50	
5		PECS22-0556-TAP	9.75	10.50	10.75	
		PECS22-0663-TAP	10.50	11.25	11.50	
6		PECS22-0690-TAP	10.50	11.25	11.50	
		PECS22-0863-TAP	11.25	12.00	12.25	
8		PECS22-0905-TAP	11.25	12.00	12.25	
		PECS22-1075-TAP	11.75	12.50	12.75	
10		PECS22-1110-TAP	11.75	12.50	12.75	
		PECS22-1275-TAP	12.25	13.00	13.25	
12		PECS22-1320-TAP	12.25	13.00	13.25	
		PECS22-1400-TAP	12.25	13.00	13.25	
14		PECS22-1530-TAP	12.75	13.50	13.75	
		PECS22-1600-TAP	13.00	13.75	14.00	
16		PECS22-1740-TAP	13.25	14.00	14.25	
		PECS22-1800-TAP	13.50	14.25	14.50	
18		PECS22-1950-TAP	14.25	15.00	15.25	
		PECS22-2000-TAP	14.25	15.00	15.25	
20	PECS22-2160-TAP	16.25	17.00	17.25		
	PECS22-2400-TAP	16.25	17.00	17.25		
24	PECS22-2580-TAP	17.00	17.75	18.00		

Products for HDPE pipe are designed for underground applications only and only on pipe with wall thickness of SDR 26 or greater.

Example: An 8" Wide Saddle to fit 10" IPS with a 2" CC tap would be **PECS22-1075-2CC**.



MATERIAL SPECIFICATIONS

Complies w/AWWA C223



Shell/Lugs/Bars/Outlets: T304 Stainless Steel, Chemically Passivated in accordance with ASTM A380

Flange: T304 Stainless Steel (AWWA C228) or Low Alloy (AWWA C207)

Fasteners: T304 Stainless Steel; 5/8-11 NC Rolled Thread; Xylan Coated Hex Nuts; Stainless Steel Belleville Washers

Gaskets: Virgin SBR, Branch Gasket Patent 6,173,967

Nominal Pipe Size (inches)	Pipe O.D. (inches)	Catalog Number			Approx. Shipping Wt. (lbs.)			
		Sleeve	By	Outlet	W/S.S. Flange	W/L.A. Flange		
4	4.50	PECST - SL - 450	-	4	37	37		
	4.80	PECST - SL - 480		4				
6	6.63	PECST - SL - 663	-	4	44	44		
	6.90	PECST - SL - 690		6				
8	8.63	PECST - SL - 863	-	4	49	49		
				6			53	53
	9.05	PECST - SL - 905		8	59	59		
				4	54	54		
10	10.75	PECST - SL - 1075	-	6	58	58		
	11.10	PECST - SL - 1110		8			61	61
				10			75	75
12	12.75	PECST - SL - 1275	-	4	64	64		
				6			68	68
	13.20	PECST - SL - 1320		8	74	74		
				10	96	96		
				12	101	101		

Products for HDPE pipe are designed for underground applications only and only on pipe with wall thickness of SDR 26 or greater.

Other sizes and 3" flange outlets available on request. Available in other styles. Please contact factory.

Example: A Super-Light Tapping Sleeve for 10" DIPS with a 6" stainless flange outlet would be **PECST-SL-1110-6SS**.

* This product carries the same 10 year warranty as the CST-SL Tapping Sleeves. See Standard Tapping Sleeve warranty in SS Tapping Sleeve brochure.

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 found to be defective within the 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. Any written notice and/or product shall be sent directly to Cascade unless otherwise instructed. Sending these to a manufacturer's representative or any other agent prior to **Cascade's** review will void all warranties. **Cascade** will not be liable

nor responsible for any loss, damage or injury to any persons 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. The foregoing warranties and remedies are exclusive and in lieu of all others, whether written, oral, or implied. Buyer must advise Cascade within 30 days of discovery of the alleged defect or the claim will be barred. Upon the products' purchase from **Cascade Waterworks Mfg. Co.**, or any of its Agents, the purchaser agrees to **all of the above terms of warranty.**



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