HYDROFIRE ΕΠΕ
Buildings - Industry - Marine – Waterworks
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Victaulic® Coupling for Plain End HDPE Pipe
Style 905

19.07

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 14" IPS high-density polyethylene (HDPE) and IPS high-density polyethylene of raised temperature (PE-RT)
- 63 – 355 mm ISO high-density polyethylene (HDPE)

Pipe Material

- HDPE pipe conforming to ASTM D3035 and ASTM F714 or ISO 4427-2 (SDR 7 – 26)
- PE-RT pipe conforming to ASTM D3350, cell class PE445574C, ASTM F2619, and ASTM F714 (SDR 7 – 26)
- Contact Victaulic for other pipe materials

Maximum Working Pressure

- Meets or exceeds the pressure rating of the HDPE or PE-RT pipe

Operating Temperature

- Dependent upon pipe manufacturer rating and gasket selection
- Reference section 3.0 for gasket performance options
- Consult pipe manufacturer for pipe material performance limitations

Function

- Joins plain end HDPE pipe
- Utilizes patented Installation-Ready™ technology to eliminate loose parts

Pipe Preparation

- For use on plain end HDPE or PE-RT pipe

NOTE

- All references to HDPE within this document are inclusive of PE-RT

2.0 CERTIFICATION/LISTINGS

NOTE

- See Publication 10.01: Victaulic Fire Protection Approval Reference Guide for details.
- See Publication 02.06: Victaulic Approvals for Potable Water Products – ANSI/NSF 61 and ANSI/NSF 372 if applicable.
- WaterMark™ certification only applies to fusion bonded epoxy-coated couplings with Grade "E" EPDM gaskets. Contact Victaulic for further details.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

3.0 SPECIFICATIONS – MATERIAL

Housing: Ductile iron conforming to ASTM A536, Grade 65-45-12.

Housing Coating: (specify choice)

- ☐ Orange enamel for ANSI size and 355 mm ISO. Black enamel for ISO sizes and 5" IPS.
- ☐ Liquid bonded epoxy.
- ☐ Fusion bonded epoxy, galvanized and other coatings are available. Contact Victaulic for details.

Retaining Ring: Type 316 stainless steel.

Coupling Gasket: (specify choice[1])

- ☐ **Grade "T" Nitrile (Standard or Flush-Seal™)**
  Nitrile (Orange stripe color code). Temperature range -20°F to +180°F/-29°C to +82°C. May be specified for petroleum products, hydrocarbons, air with oil vapors, vegetable and mineral oils within the specified temperature range; not compatible for hot dry air over 140°F/ 60°C and water over +150°F/+66°C. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES
- ☐ **Grade "E" EPDM (Standard or Flush-Seal™)**
  EPDM (Green stripe color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/ NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. NOT COMPATIBLE FOR PETROLEUM SERVICES OR STEAM SERVICES.
- ☐ **Grade "EF" EPDM**
  EPDM (Green "X" color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified for hot and cold water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. Also meets hot and cold potable water requirements per DVGW, KTW, ÖVGW, SVGW, and French ACS (Crecep), approved for W534, approved for EN681-1 Type WA cold potable, and Type WB hot potable water service. NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.
- ☐ **Grade "O" Fluoroelastomer**
  Fluoroelastomer (Blue stripe color code). Temperature range +20°F to +300°F/-7°C to +149°C. May be specified for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

[1] Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service guidelines and for a listing of services which are not compatible.

NOTE

- The maximum temperature ratings shown exceed the temperature ratings for HDPE pipe. Consult individual pipe manufacturers for specific temperature limits.

Hardware:

Bolts/Nuts: (specify choice[2])

- ☐ Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - heavy hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 ZN/FE5, finish Type III (imperial) or Type II (metric), with blue (imperial) or black (metric) fluoropolymer top coat. Hardened steel washers conforming to ASTM F436 Type 3 (weathering steel).
- ☐ 2 – 4", 63 – 110 mm: Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel heavy hex nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing coating. Hardened steel washers conforming to ASTM F436 Type 3 (weathering steel).

  5 – 14", 125 – 355 mm: Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM A193, Class 2 (316 stainless steel), Grade B8M. Stainless steel heavy hex nuts meeting the mechanical property requirements of ASTM A194 Grade 8M Heavy Hex, with galling reducing coating. Hardened steel washers conforming to ASTM F436 Type 3 (weathering steel).

[2] Stainless steel bolts/nuts available in imperial size only

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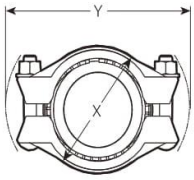
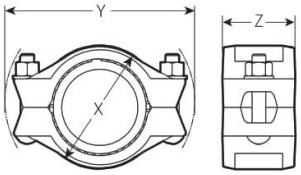
4.0 DIMENSIONS

Style 905 – IPS Standard



Style 905 Pre-Assembled (Installation-Ready Condition)

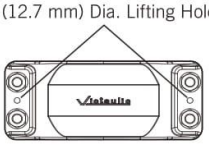


Style 905 Joint Assembled

2 – 6" IPS

8" IPS

½" (12.7 mm) Dia. Lifting Holes[3]



10 – 14" IPS

IPS Size		Bolt/Nut		Dimensions					Weight
				Pre-assembled (Installation-Ready™ condition)		Joint Assembled			
Nominal inches	Actual Outside Diameter inches mm	Qty.	Size inches	X inches mm	Y inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
2	2.375 60.3	2	½ x 3 ¼	3.88 99	6.38 162	3.50 89	6.63 168	4.13 105	5.5 2.5
3	3.500 88.9	2	⅝ x 3 ½	5.13 130	8.13 207	4.63 118	8.13 209	4.13 105	8.5 3.9
4	4.500 114.3	2	⅝ x 4 ¼	6.50 165	9.25 235	6.00 152	9.38 238	4.75 121	13.1 5.9
5	5.563 141.3	2	¾ x 4 ¼	7.63 194	10.88 276	6.88 175	11.25 286	4.88 124	18.7 8.5
6	6.625 168.3	2	¾ x 5	8.88 226	12.13 308	8.13 207	12.63 321	4.75 121	19.4 8.8
8	8.625 219.1	4	¾ x 6 ¼	11.00 279	14.50 368	10.00 254	14.88 378	5.00 127	28.0 12.7
10	10.750 273.0	4	⅞ x 6 ½	13.73 349	17.75 451	12.73 323	18.25 464	7.09 180	73.5 33.3
12	12.750 323.9	4	⅞ x 6 ½	15.83 402	19.63 499	14.83 377	20.07 510	7.11 181	86.5 39.2
14	14.000 355.6	4	1 ⅛ x 7	17.67 449	21.38 543	16.42 417	21.89 556	8.42 214	112.6 51.1

[3] Unthreaded through holes for appropriately sized lifting eyes or hooks.

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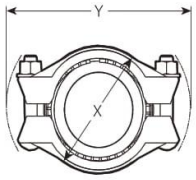
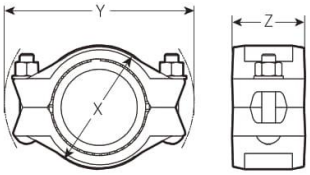
4.1 DIMENSIONS

Style 905 – ISO Standard



Style 905 Pre-Assembled
(Installation-Ready Condition)

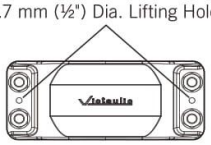


Style 905 Joint Assembled

63 – 160 mm ISO

180 - 225 mm ISO

12.7 mm (½") Dia. Lifting Holes[3]



250 - 355 mm ISO

ISO Size	Bolt/Nut		Dimensions					Weight
			Pre-assembled (Installation-Ready™ condition)		Joint Assembled			Approximate (Each)
Nominal mm	Qty.	Size[4] mm inches	X mm inches	Y mm inches	X mm inches	Y mm inches	Z mm inches	kg lb
63	2	M12 x 83 ½ x 3 ¼	99 3.88	152 6.00	89 3.50	168 6.63	105 4.13	2.5 5.5
75	2	M16 x 83 ⅝ x 3 ¼	114 4.50	184 7.25	102 4.00	194 7.63	105 4.13	3.7 8.1
90	2	M16 x 102 ⅝ x 4	130 5.13	195 7.68	118 4.63	210 8.25	105 4.13	3.9 8.5
110	2	M16 x 102 ⅝ x 4	159 6.25	219 8.63	143 5.75	232 9.13	121 4.75	5.9 13.0
125	2	M20 x 108 ¾ x 4 ¼	175 6.88	264 10.38	159 6.25	273 10.75	124 4.88	7.8 17.3
140	2	M20 x 108 ¾ x 4 ¼	194 7.63	276 10.88	175 6.88	286 11.25	124 4.88	8.5 18.7
160	2	M20 x 127 ¾ x 5	210 8.25	292 11.50	194 7.63	305 12.00	121 4.75	8.8 19.3
180	4	M20 x 159 ¾ x 6 ¼	248 9.75	337 13.25	219 8.63	353 13.88	127 5.00	11.5 25.4
200	4	M20 x 159 ¾ x 6 ¼	267 10.50	353 13.88	238 9.38	368 14.50	127 5.00	12.2 26.8
225	4	M20 x 159 ¾ x 6 ¼	295 11.63	373 14.68	267 10.50	387 15.25	127 5.00	13.0 28.7
250	4	M22 x 165 ⅞ x 6 ½	326 12.84	427 16.83	301 11.84	441 17.35	180 7.09	30.9 68.1
280	4	M22 x 165 ⅞ x 6 ½	359 14.14	458 18.03	334 13.14	470 18.50	180 7.09	35.4 78.0
315	4	M22 x 165 ⅞ x 6 ½	394 15.50	489 19.25	368 14.50	500 19.69	180 7.09	38.1 83.9
355	4	M27 x 178 1 ⅛ x 7	449 17.67	543 21.38	417 16.42	556 21.89	214 8.42	51.1 112.6

[3] Unthreaded through holes for appropriately sized lifting eyes or hooks.

[4] Metric bolts/nuts standard, with the exception of North American, South American, and Australian shipments, where imperial sizes are standard.

5.0 PERFORMANCE

Style 905 – IPS Standard

Pressure Rating: joints made with Style 905 couplings meet the pressure rating of the HDPE pipe.

IPS Size	PE4710 HDPE Pipe[5] DR						
Nominal Size inches	7	9	11	13.5	17	21	26
	Pressure Rating psi kPa						
2 – 4	333 2295	250 1725	200 1380	160 1100	125 860	100 690	– –
6 – 14	333 2295	250 1725	200 1380	160 1100	125 860	100 690	80 550

[5] HDPE pipe conforming to ASTM D3035 and F714 at 73°F/23°C. Reference plastic pipe manufacture data for derating factors at other temperatures

NOTE

- Victaulic coupling gaskets have been demonstrated to seal under full (29" of Hg/3.4 kPa [absolute]) vacuum requirements. Consult the specific HDPE pipe manufacturer for their recommended limitations regarding maximum vacuum as well as the effects of temperature and pipe ovality.
- Contact Victaulic for other pipe materials.

5.1 PERFORMANCE

Style 905 – ISO Standard

Pressure Rating: joints made with Style 905 couplings meet the pressure rating of the HDPE pipe.

ISO Size	PE100 HDPE Pipe[6] SDR						
Nominal Size mm	7.4	9	11	13.6	17	21	26
	Pressure Rating Bar kPa psi						
63 – 140	25 2500 363	20 2000 290	16 1600 232	12.5 1250 182	10 1000 145	8 800 116	– – –
160 – 355	25 2500 363	20 2000 290	16 1600 232	12.5 1250 182	10 1000 145	8 800 116	6 600 87

[6] HDPE pipe conforming to ISO 4427-2 at 68°F/20°C. Reference plastic pipe manufacture data for derating factors at other temperatures

NOTE

- Victaulic coupling gaskets have been demonstrated to seal under full (29" of Hg/3.4 kPa [absolute]) vacuum requirements. Consult the specific HDPE pipe manufacturer for their recommended limitations regarding maximum vacuum as well as the effects of temperature and pipe ovality.
- Contact Victaulic for other pipe materials.

5.2 PERFORMANCE

Style 905 – IPS Standard

Allowable Tensile Load (ATL): joints made with style 905 couplings can sustain tensile loads noted below.

IPS Size	Allowable Tensile Load[7] DR						
Nominal Size inches	**7** lb N	**9** lb N	**11** lb N	**13.5** lb N	**17** lb N	**21** lb N	**26** lb N
2	2369 10540	1911 8501	1599 7114	1327 5904	1071 4765	878 3906	– –
3	5146 22890	4151 18463	3473 15449	2882 12821	2327 10349	1906 8478	– –
4	8507 37839	6861 30520	5741 25539	4765 21195	3846 17108	3151 14016	– –
5	12292 54678	10388 46208	8692 38664	7165 31872	5823 25902	4815 21418	– –
6	18437 82013	14871 66151	12444 55353	10327 45938	8336 37081	6829 30377	5568 24768
8	31200 138784	25200 112095	21100 93857	17500 77844	14100 62720	11574 51484	9438 41982
10	48500 215738	39100 173926	32800 145901	27200 120991	21900 97416	17900 79623	14662 65220
12	68300 303814	55100 245096	46100 205062	38300 170366	30900 137449	25200 112095	20625 91745
14	72000 320270	64000 284686	55600 247320	46100 205062	37200 165473	30400 135226	24867 110614

[7] Allowable tensile loads shown are for straight pulling of unpressurized assembled pipe sections for a maximum period of one half hour at 68°F/20°C. Consult pipe manufacturer's recommendation for ATL reduction factors at elevated temperatures.

5.3 PERFORMANCE

Style 905 – ISO Standard

Allowable Tensile Load (ATL): joints made with style 905 couplings can sustain tensile loads noted below.

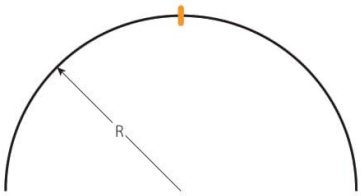
ISO Size	Allowable Tensile Load[8] SDR						
Nominal Size mm	7.4 N lb	9 N lb	11 N lb	13.6 N lb	17 N lb	21 N lb	26 N lb
63	11076 2490	9360 2104	7832 1761	6456 1451	5247 1179	4297 966	– –
75	15702 3530	13269 2983	11103 2496	9150 2057	7437 1672	6094 1370	– –
90	22616 5084	19112 4297	15992 3595	13182 2864	10713 2408	8776 1973	– –
110	33748 7587	28519 6411	23864 5365	19671 4422	15987 3594	13096 2944	– –
125	43610 9804	36854 8285	30840 6933	25422 5715	20658 4644	16921 3804	– –
140	54678 12292	46208 10388	38664 8692	31872 7165	25902 5823	21218 4770	– –
160	71440 16061	60372 13572	50517 11357	41641 9361	33841 7608	27721 6232	22606 5082
180	90415 20326	76407 17177	63934 14373	52698 11847	42827 9628	35083 7887	28611 6432
200	111561 25080	94276 21194	78889 17735	65029 14619	52849 11881	43290 9732	35301 7936
225	141271 31759	119381 26838	99898 22458	82345 18512	66919 15044	54820 12324	44705 10050
250	173925 39100	146791 33000	122770 27600	101419 22800	82292 18500	67613 15200	54713 12300
280	218408 49100	184601 41500	154576 34750	127219 28600	103421 23250	84516 19000	68947 15500
315	276679 62200	233531 52500	195721 44000	161025 36200	130777 29400	107202 24100	87185 19600
355	351410 79000	296695 66700	248565 55880	204617 46000	166363 37400	136116 30600	110761 24900

[8] Allowable tensile loads shown are for straight pulling of unpressurized assembled pipe sections for a maximum period of one half hour at 68°F/20°C. Consult pipe manufacturer's recommendation for ATL reduction factors at elevated temperatures.

5.4 PERFORMANCE

Style 905 – IPS Standard

Bend Radius: joints made with style 905 couplings can sustain a radius as recommended by the Plastic Pipe Institute (PPI) in the Handbook of PE Pipe (2nd ed, Chapter 7, Table 4).

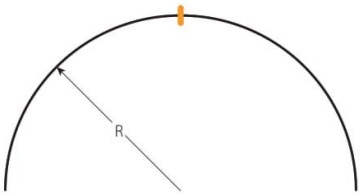


IPS Size	Minimum Recommended Bend Radius DR						
Nominal Size inches	7 inches mm	9 inches mm	11 inches mm	13.5 inches mm	17 inches mm	21 inches mm	26 inches mm
2	48 1207	48 1207	59 1508	59 1508	64 1629	155 3937	– –
3	70 1778	70 1778	88 2223	88 2223	95 2400	95 2400	– –
4	90 2286	90 2286	113 2858	113 2858	122 3086	122 3086	– –
5	111 2813	111 2813	138 3516	138 3516	149 3797	149 3797	– –
6	133 3366	133 3366	166 4207	166 4207	179 4543	179 4543	225 5715
8	173 4382	173 4382	216 5477	216 5477	233 5915	233 5915	293 7442
10	215 5461	215 5461	269 6826	269 6826	290 7372	290 7372	366 9296
12	255 6477	255 6477	319 8096	319 8096	344 8744	344 8744	434 11024
14	280 7112	280 7112	350 8890	350 8890	378 9601	378 9601	476 12090

5.5 PERFORMANCE

Style 905 – ISO Standard

Bend Radius: joints made with style 905 couplings can sustain a bending radius as recommended by the Plastic Pipe Institute (PPI) in the Handbook of PE Pipe (2nd ed, Chapter 7, Table 4).



ISO Size	Minimum Recommended Bend Radius SDR						
Nominal Size mm	7.4 mm inches	9 mm inches	11 mm inches	13.6 mm inches	17 mm inches	21 mm inches	26 mm inches
63	1266 50	1266 50	1582 62	1582 62	1709 67	4090 161	– –
75	1507 59	1507 59	1884 74	1884 74	2035 80	4877 192	– –
90	1809 71	1809 71	2261 89	2261 89	2442 96	2442 96	– –
110	2210 87	2210 87	2762 109	2762 109	2983 117	2983 117	– –
125	2512 99	2512 99	3140 124	3140 124	3391 134	3391 134	– –
140	2813 111	2813 111	3516 138	3516 138	3797 149	3797 149	– –
160	3215 127	3215 127	4019 158	4019 158	4340 171	4340 171	5461 215
180	3617 142	3617 142	4521 178	4521 178	4883 192	4883 192	6147 242
200	4018 158	4018 158	5022 198	5022 198	5424 214	5424 214	6833 269
225	4521 178	4521 178	5652 223	5652 223	6104 240	6104 240	7671 302
250	5000 197	5000 197	6250 246	6250 246	6750 266	6750 266	8534 336
280	5600 220	5600 220	7000 276	7000 276	7560 298	7560 298	9550 376
315	6300 248	6300 248	7875 310	7875 310	8505 335	8505 335	10744 423
355	7100 280	7100 280	8875 349	8875 349	9585 377	9585 377	12116 477

