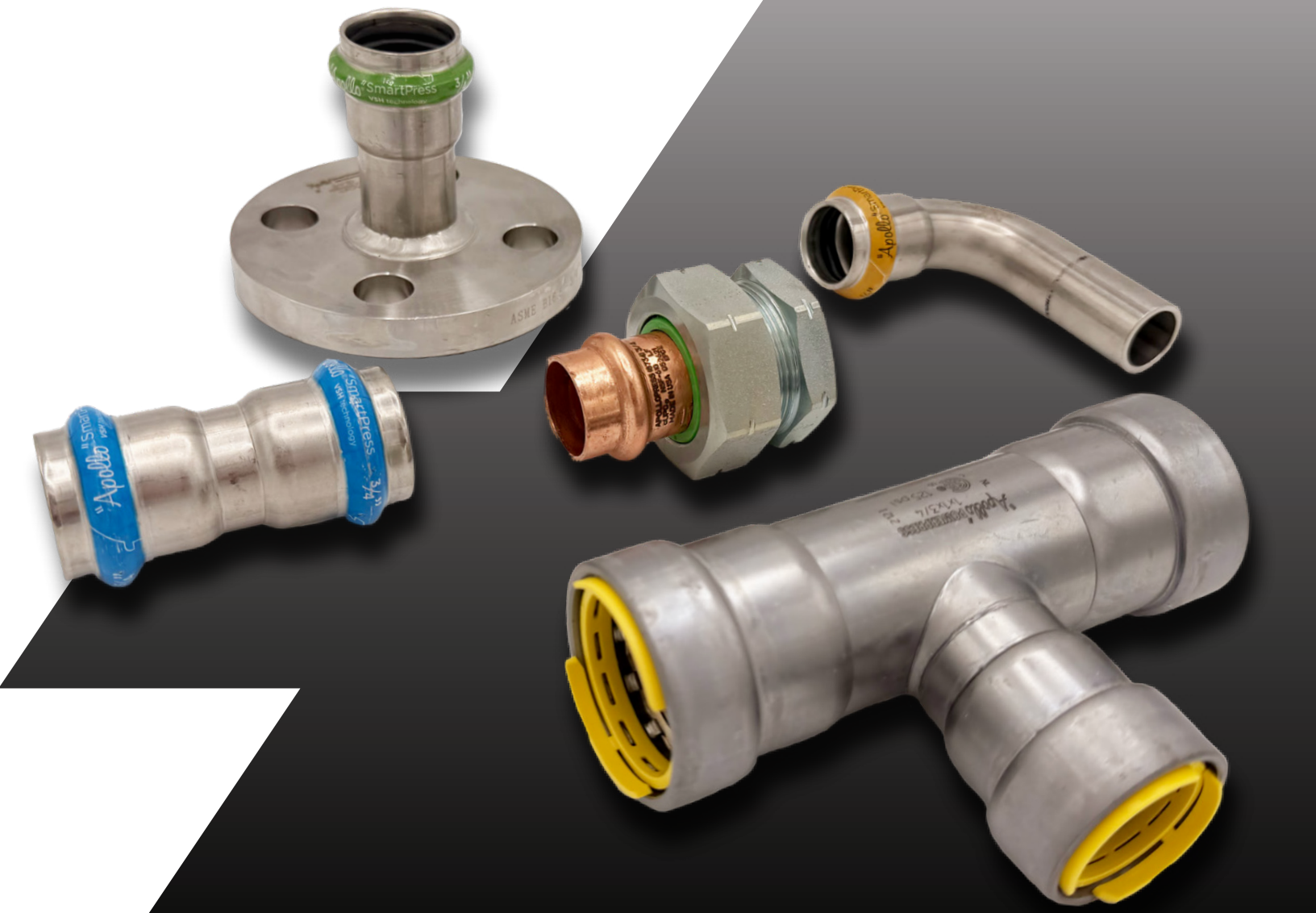
aalberts

all inclusive press submittal package



US

AIP-SUB-07.2026

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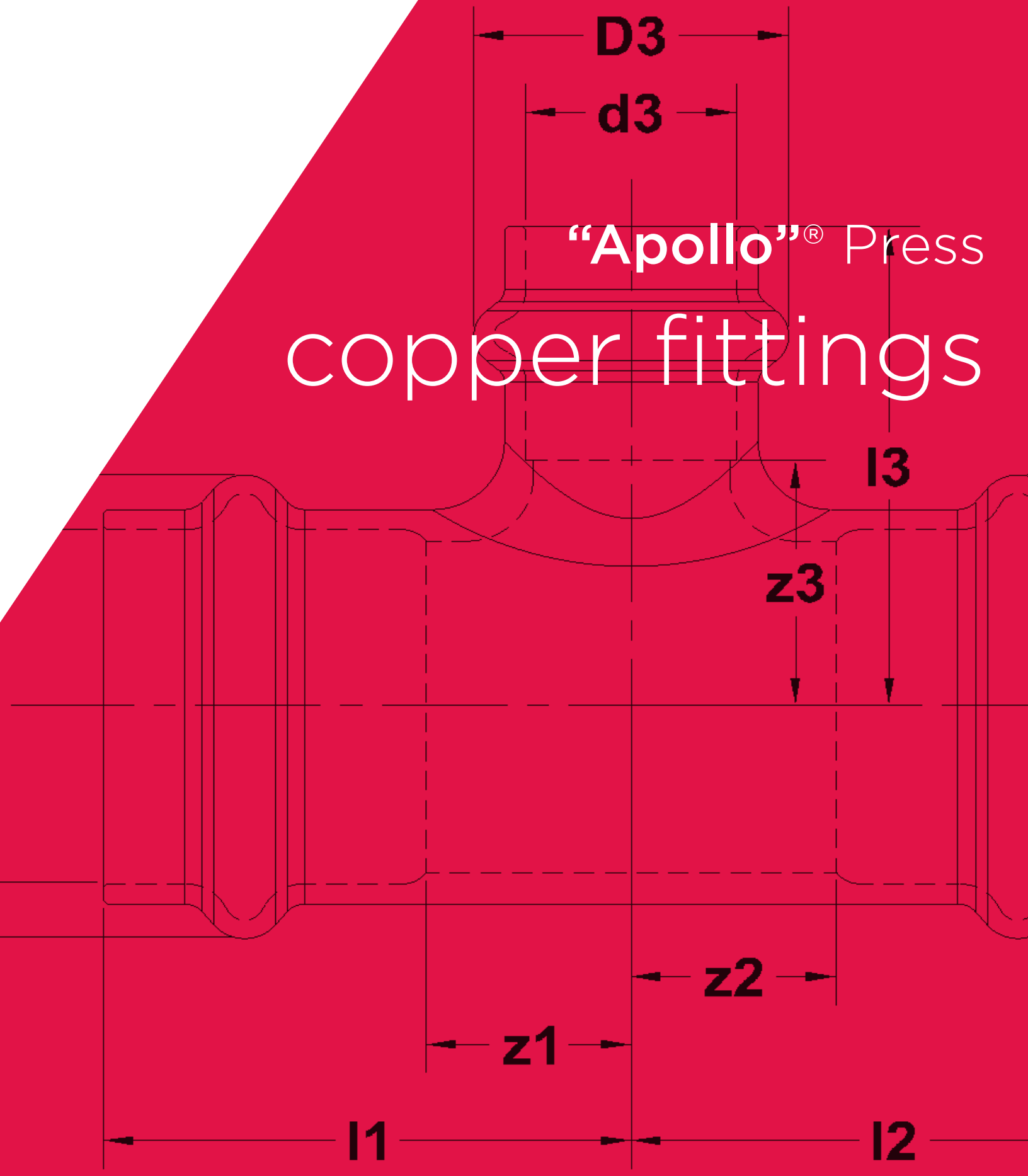
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“Apollo”® Press
copper fittings



system data

product features

- broadest press fitting & valve product offering
- lead free options
- 300 psi max pressure rating
- deeper cut depth - better seat, tighter seal, straighter runs
- patented Leak Before Press® technology
- visual press inspection band for large diameter fittings

“Apollo”® Press is a copper press connection system designed for joining copper pipes ranging in size from ½” through 4”. Like all press systems in our portfolio, “Apollo”® Press utilizes the Leak Before Press® technology, ensuring a secure and reliable connection. The fittings and valves are equipped with EPDM sealing elements and have a pressure rating of up to 300 psi, ideal for a variety of plumbing and heating installations.

“Apollo”® Press stands out with its ease of installation, eliminating the need for heat or flame, and reducing both labor and installation costs. Additionally, our innovative press technology includes color-coded visual control rings (VCR) that offer a clear indication when the joint has been pressed, providing installers with added confidence during installation. With ApolloPress®, you gain the advantage of a high-quality, efficient solution for press fittings and valves.

operating parameters

“Apollo”® Press fittings and valves must be installed using ASTM B88 compliant tubing Types K, L, M hard copper (½” to 4”) or soft drawn annealed (½” to 1¼”)

maximum pressure

- 300 psi

temperature range

- 0°F to 250°F

standard materials list

large diameter fittings	
body	UNS C12200 copper
grab ring	316/304 stainless steel
spacer ring	acetal copolymer
sealing element	EPDM
lubrication	silicone, ANSI/NSF-61 listed

small diameter fittings	
body	UNS C12200 copper
sealing element	EPDM
lubrication	silicone, ANSI/NSF-61 listed

brass fittings	
body	UNS C27451 brass
sealing element	EPDM
lubrication	silicone, ANSI/NSF-61 listed

certifications & listings

- ANSI/IAPMO/CAN Z1117
- CSA TIL-MSE 13
- NSF/ANSI 61
- NSF/ANSI 372

compliant with

- ASME B16.51
- ICC-ES 1002
- Uniform Plumbing Code (UPC®)
- International plumbing code (IPC®)
- International Residential Code® (IRC)
- National Standard Plumbing Code (NSPC)
- National Plumbing Code of Canada

approved tools

- Milwaukee®
- Rigid®
- REMs®
- DeWalt®
- NIBCO® (up to 2”)
- Rothenberger®
- Stanley-Virax®

approved applications

- compressed air
- fire sprinkler system
- heating and cooling
- industrial gas application
- potable water
- steam

Application approval for “Apollo”® Press is dependent on the suitability of the selected sealing element’s performance characteristics and limitations. Please refer to the “Apollo”® Press technical data sections for a full list of approved applications and sealing element-specific requirements.

service	pressure	temperature	EPDM
hot & cold potable water	300 psi	0°F - 250°F	✓
rainwater / gray water	300 psi	0°F - 250°F	✓
chilled water	300 psi	0°F - 250°F	✓
hydronic heating	300 psi	0°F - 250°F	✓
cooling water	200 psi	32°F - 250°F	✓
low-pressure steam	up to 15 psi	248°F	✓
ethanol	200 psi	32°F - 250°F	✓
compressed air	200 psi	32°F - 250°F	✓
oxygen (non-medical)	140 psi	up to 140°F	✓
nitrogen	200 psi	32°F - 250°F	✓
carbon dioxide	200 psi	32°F - 250°F	✓
argon	200 psi	ambient	✓
hydrogen	125 psi	0°F - 250°F	✓
vacuum	29.2 in Hg	0°F - 160°F	✓

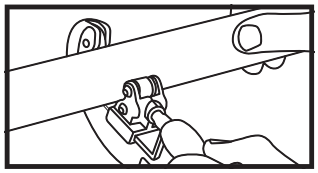
warranty

- “Apollo”® Press® fittings: 50 year warranty
- “Apollo”® Press® valves: 5 year warranty

installation guidelines

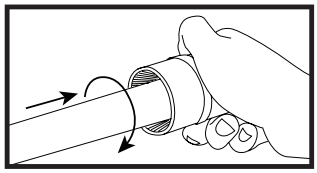
small diameter fitting & valves (½" - 2")

It is the responsibility of the end-user to follow all instructions for installing Apollo® Press fittings and valves. Failure to follow these instructions and safe plumbing practices may result in extensive property damage, serious injury or death.



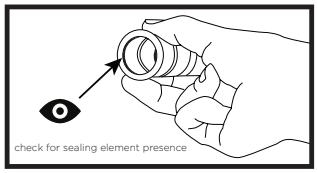
1. cutting the tube to length

After measuring, cut the tube square using a rotary tube cutter, a fine-toothed saw, or displacement-type cutter suitable for copper tubing. The tube must always be cut completely through at a 90° angle. Do not partially cut the tube and break it off as this could potentially cause leakage.
note: do not use grease, oil-cooled saws, or flame cutters when cutting the tube



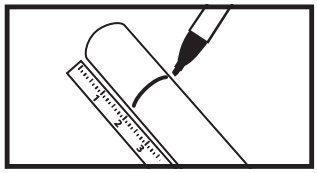
2. deburring and cleaning the tube end

Cut tube ends must be thoroughly deburred on the inside and the outside using a fine-toothed file or commercially available deburring tool. Use a Scotch-briteTM pad, wire brush, sandpaper or cloth to ensure tube ends are free of dirt and debris prior to inserting the tube. Proper tube prep is necessary to avoid any damage to the sealing element when inserting the pipe into the fitting.



3. check the fitting

Inspect the press fitting or valve for any damage or defect. Always ensure the sealing element is present, undamaged, free of dirt and debris, and properly positioned within the fitting bead socket.
note: do not attempt to press the connection if the sealing element is damaged or not present

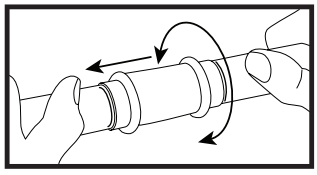


4. marking insertion depth

Using a permanent marker, mark the appropriate insertion depth on the copper tube with respect to the Apollo® Press insertion depth chart.

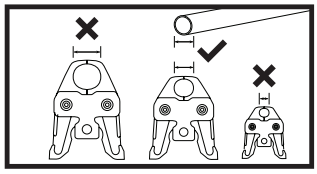
nominal pipe size (in.)	minimum insertion depth (in)
½"	¾ (0.75)
¾"	⅞ (0.91)
1"	⅞ (0.91)
1 ¼"	1 (1.03)
1 ½"	1 7/16 (1.43)
2"	1 9/16 (1.58)

note: fraction estimated



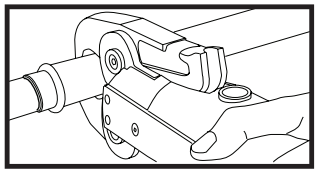
5. fitting the tube end into the connection

Always ensure the tube end does not have any burrs or sharp edges prior to insertion. Insert the copper tube into the fitting or valve with twisting motion until it meets the insertion depth mark or tube stop. Failure to properly follow the required insertion depth requirements can produce an inadequate seal.



6. preparing the press tool and jaw

Using an approved press tool and jaw of correct size, open the jaw and place over the fitting or valve bead at a 90° angle to the tube centerline, ensuring that the bead is properly aligned with the groove on the inside of the jaws. Misalignment of jaws to the bead will result in an incomplete press. Before making the press connection, double-check that the tube is fully inserted to the required insertion depth.

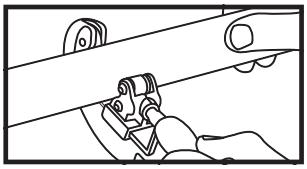


7. pressing the connection

Engage press tool trigger and begin pressing the connection. Confirm that the tool has fully cycled per the approved tool manufacture's instructions. Disengage the trigger and open the press jaws. Be sure to visually inspect that a proper press connection has been made.
note: if desired, a fitting may be pressed a second time by repositioning the press jaw 90° from the precious pressed position, then re-press.

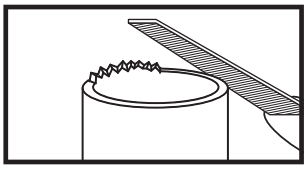
large diameter fittings & valves (2½" - 4")

It is the responsibility of the end-user to follow all instructions for installing Apollo® Press fittings and valves. Failure to follow these instructions and safe plumbing practices may result in extensive property damage, serious injury or death.



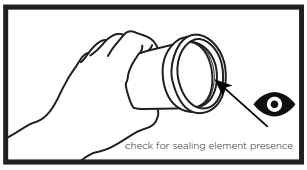
1. cutting the tube to length

After measuring, cut the tube square using a rotary tube cutter, a fine-toothed saw, or displacement-type cutter suitable for copper tubing. The tube must always be cut completely through at a 90° angle. Do not partially cut the tube and break it off as this could potentially cause leakage.
note: do not use grease, oil-cooled saws, or flame cutters when cutting the tube



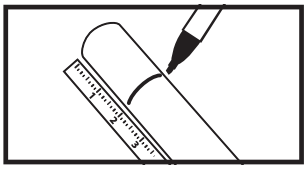
2. deburring and cleaning the tube end

Cut tube ends must be thoroughly deburred on the inside and the outside using a fine-toothed file or commercially available deburring tool. Use a Scotch-briteTM pad, wire brush, sandpaper or cloth to ensure tube ends are free of dirt and debris prior to inserting the tube. Proper tube prep is necessary to avoid any damage to the sealing element when inserting the pipe into the fitting.



3. check the fitting

Inspect the press fitting or valve for any damage or defect. Always ensure the sealing element, spacer ring, and grip ring are present, undamaged, free of dirt and debris, and properly positioned within the fitting cup.
note: do not attempt to press the connection if the aforementioned internal components are damaged or not present

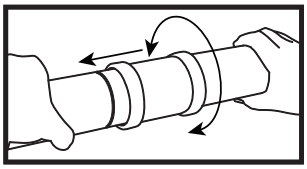


4. marking insertion depth

Using a permanent marker, mark the appropriate insertion depth on the copper tube with respect to the Apollo® Press insertion depth chart.

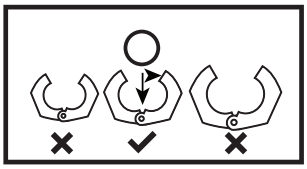
nominal pipe size (in.)	minimum insertion depth (in.)
2 ½"	1 ⅞ (1.9)
3"	2 ⅛ (2.1)
4"	2 ½ (2.5)

note: fraction estimated



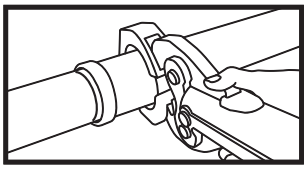
5. fitting the tube end into the connection

Always ensure the tube end does not have any burrs or sharp edges prior to insertion. Insert the copper tube into the fitting or valve with twisting motion until it meets the insertion depth mark or tube stop. Failure to properly follow the required insertion depth requirements can produce an inadequate seal.



6. preparing the press tool and jaw

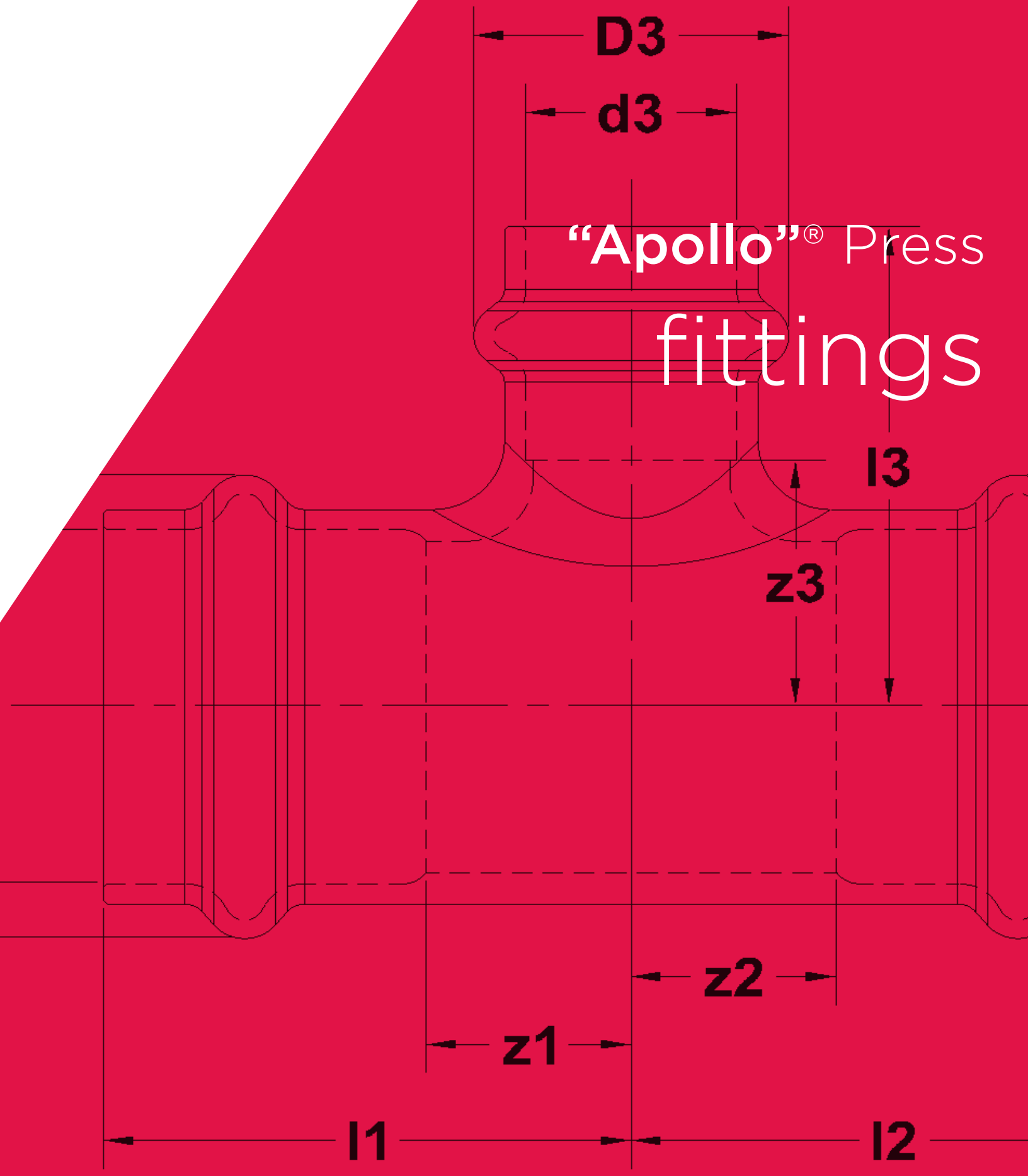
Using an approved press tool, actuator jaw and ring of correct size, open the ring and place over the fitting or valve bead at a 90° angle to the tube centerline, ensuring that the bead is properly aligned with the groove on the inside of the ring. Misalignment of ring to the bead will result in an incomplete press. Before making the press connection, double-check that the tube is fully inserted to the required insertion depth.



7. pressing the connection

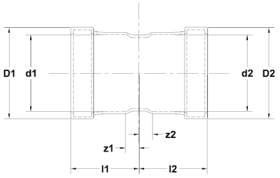
Align the actuator jaw with the ring, engage the press tool trigger, and begin pressing the fitting or valve. Confirm that the tool has fully cycled per the approved tool manufacture’s instructions. Disengage the trigger and open the actuator jaw and press ring. Be sure to visually inspect that a proper press connection has been made.
note: if desired, a fitting may be pressed a second time by repositioning the press jaw 90° from the precious pressed position, then re-press.

“Apollo”® Press fittings



800 coupling | large diameter
(press x press)

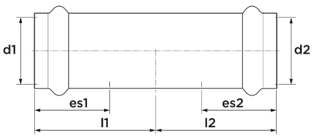




item no.	size	d1	d2	l1	l2	z1	z2
10077701	2½″	2.63	2.63	2.38	2.38	0.48	0.48
10077702	3″	3.13	3.13	2.59	2.59	0.49	0.49
10077703	4″	4.13	4.13	3.03	3.03	0.53	0.53

801L no stop (extended) coupling | small diameter
(press x press)

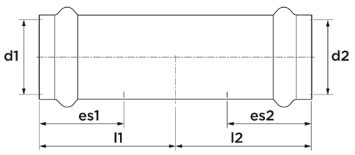




item no.	size	d1	d2	l1	l2	es1	es2
10075030	½″	0.63	0.63	1.64	1.64	0.81	0.81
10075032	¾″	0.88	0.88	1.49	1.49	0.88	0.88
10075034	1″	1.13	1.13	1.78	1.78	0.92	0.92

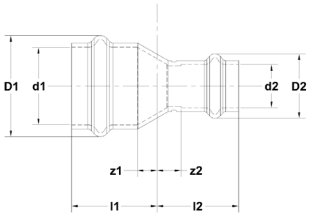
801 | 801R coupling | small diameter
(press x press)





item no.	size	d1	d2	l1	l2	es1	es2
10077691	½″	0.63	0.63	0.81	0.81	0.06	0.06
10077694	¾″	0.88	0.88	0.97	0.97	0.06	0.06
10075517	1″	1.13	1.13	0.97	0.97	0.08	0.08
10077695	1¼″	1.38	1.38	1.10	1.10	0.07	0.07
10077696	1½″	1.63	1.63	1.50	1.50	0.07	0.07
10077697	2″	2.13	2.13	1.66	1.66	0.07	0.07



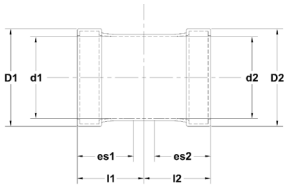


reducing

item no.	size	d1	d2	l1	l2	z1	z2
10015900	¾″ x ½″	0.88	0.63	1.04	1.04	0.13	0.23
10075144	1″ x ½″	1.13	0.63	1.41	0.90	0.42	0.05
10015898	1″ x ¾″	1.13	0.88	1.13	1.13	0.16	0.18
10066001	1¼″ x ¾″	1.38	0.88	1.98	1.96	0.98	0.98
10015896	1¼″ x 1″	1.38	1.13	1.25	1.25	0.15	0.32
10066380	1½″ x ½″	1.63	0.63	2.71	2.20	1.27	1.27
10066381	1½″ x ¾″	1.63	0.88	2.65	2.17	1.19	1.19
10066003	1½″ x 1″	1.63	1.13	2.61	2.16	1.16	1.16
10075128	1½″ x 1¼″	1.63	1.38	1.65	1.32	0.35	0.28
10066398	2″ x ¾″	2.13	0.88	3.21	2.54	1.58	1.58
10066005	2″ x 1″	2.13	1.13	3.05	2.42	1.41	1.41
10066072	2″ x 1¼″	2.13	1.38	2.89	2.31	1.25	1.25
10075130	2″ x 1½″	2.13	1.63	1.84	1.74	0.43	0.43

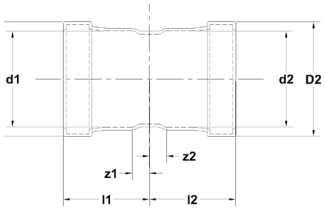
801 | 801R no stop coupling | large diameter
(press x press)





item no.	size	d1	d2	l1	l2	es1	es2
10061932	2½"	2.63	2.63	2.17	2.17	1.90	1.90
10061937	3"	3.13	3.13	2.33	2.33	1.90	1.90
10061942	4"	4.13	4.13	2.77	2.77	2.10	2.10



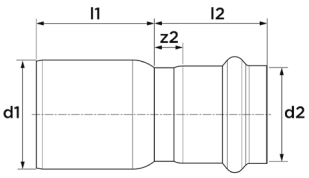


reducing

item no.	size	d1	d2	l1	l2	z1	z2
10066440	2½" x 1"	2.63	1.13	4.29	3.22	2.29	2.29
10066074	2½" x 2"	2.63	2.13	3.88	3.51	1.88	1.88
10066446	3" x 2"	3.13	2.13	4.15	3.60	1.96	1.96
10066076	3" x 2½"	3.13	2.63	4.03	3.79	1.85	1.85
10066447	4" x 2"	4.13	2.13	5.01	4.27	2.52	2.52
10066152	4" x 3"	4.13	3.13	4.75	4.75	2.25	2.65

818 fitting reducer | small diameter
(FTG x press)

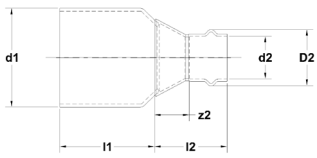




item no.	size	d1	d2	l1	l2	z2
10075146	Ø¾" x ½"	0.88	0.63	1.12	1.04	0.29
10075150	Ø1" x ½"	1.13	0.63	1.43	1.00	0.14
10075148	Ø1" x ¾"	1.13	0.88	1.28	1.12	0.22
10075336	Ø1¼" x ½"	1.38	0.63	1.85	1.02	0.08
10075154	Ø1¼" x ¾"	1.38	0.88	1.61	1.11	0.18
10075156	Ø1¼" x 1"	1.38	1.13	1.45	1.11	0.10
10075334	Ø1½" x ¾"	1.63	0.88	2.25	1.10	0.19
10075158	Ø1½" x 1"	1.63	1.13	2.05	1.20	0.20
10075160	Ø1½" x 1¼"	1.63	1.38	1.52	1.31	0.22
10075338	Ø2" x ½"	2.13	0.63	2.99	1.00	0.19
10075340	Ø2" x ¾"	2.13	0.88	2.76	1.18	0.27
10075162	Ø2" x 1"	2.13	1.13	2.60	1.16	0.17
10075332	Ø1 1/2" x 1/2"	1.63	0.63	2.29	1.03	0.19
10075152	Ø2" x 1¼"	2.13	1.38	2.29	1.24	0.19
10075164	Ø2" x 1½"	2.13	1.63	1.80	1.60	0.23

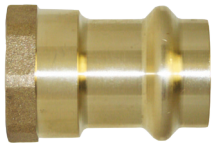
818 fitting reducer | large diameter
(FTG x press)

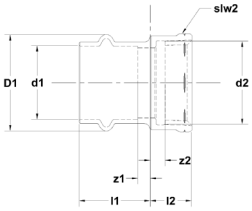




item no.	size	d1	d2	l1	l2	z2
10018001	Ø2½" x ¾"	2.63	0.88	2.79	1.54	0.65
10018002	Ø2½" x 1"	2.63	1.13	2.88	1.71	0.74
10068017	Ø2½" x 1¼"	2.63	1.38	2.67	1.57	0.53
10068004	Ø2½" x 1½"	2.63	1.63	2.54	1.71	0.40
10075165	Ø2½" x 2"	2.63	2.13	2.57	1.79	0.28
10068019	Ø3" x ¾"	3.13	0.88	3.10	1.72	0.83
10068008	Ø3" x 1¼"	3.13	1.38	2.88	1.65	0.61
10018020	Ø3" x 1½"	3.13	1.63	3.39	2.43	0.99
10018010	Ø3" x 2"	3.13	2.13	2.81	2.06	0.55
10057500	Ø3" x 2½"	3.13	2.63	2.85	2.24	0.34
10068022	Ø4" x ¾"	4.13	0.88	3.89	1.98	1.09
10068016	Ø4" x 2"	4.13	2.13	3.45	2.20	0.69
10057503	Ø4" x 2½"	4.13	2.63	3.32	2.55	0.65
10057506	Ø4" x 3"	4.13	3.13	3.23	2.68	0.58

803 | 803R female adapter | small diameter
(FPT x press)





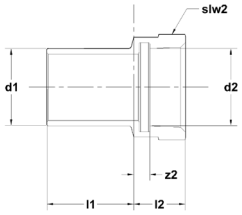
item no.	size	d1	d2	l1	l2	z1	z2
10075750	½″ x FPT ½″	0.63	0.84	0.84	0.85	0.15	0.15
10075752	¾″ x FPT ¾″	0.88	1.05	1.07	0.67	0.07	0.07
10075754	1″ x FPT1″	1.13	1.32	1.13	0.80	0.06	0.06
10075756	1¼″ x FPT 1¼″	1.38	1.66	1.26	0.64	0.13	0.13
10075758	1½″ x FPT 1½″	1.63	1.90	1.56	0.87	0.13	0.13
10075760	2″ x FPT2″	2.13	2.38	1.75	0.86	0.12	0.12

reducing

item no.	size	d1	d2	l1	l2	z1	z2
10075780	½″ x FPT ⅜″	0.63	0.68	0.90	0.44	0.14	0.14
10075782	½″ x FPT ¾″	0.63	1.05	0.98	0.64	0.22	0.22
10075784	¾″ x FPT ½″	0.88	0.84	1.01	0.49	0.09	0.09
10075796	1″ x FPT ½″	1.13	0.84	1.03	0.52	0.12	0.12
10075798	1″ x FPT ¾″	1.13	1.05	1.04	0.52	0.12	0.12
10075800	1″ x FPT 1¼″	1.13	1.66	1.17	0.79	0.25	0.25
10075786	1¼″ x FPT ½″	1.38	0.84	1.15	0.50	0.10	0.10
10075788	1¼″ x FPT 1″	1.38	1.32	1.16	0.64	0.12	0.12
10075790	1¼″ x FPT 1½″	1.38	1.90	1.24	0.74	0.20	0.20
10075792	1½″ x FPT ¾″	1.63	1.05	1.53	0.50	0.10	0.10
10075794	1½″ x FPT 1¼″	1.63	1.66	1.54	0.65	0.11	0.11

803-2 | 803R-2 female street adapter | small diameter
(FTG x FPT)





item no.	size	d1	d2	l1	l2	z1
10075762	½″ x FPT ½″	0.63	0.84	1.26	0.59	0.18
10075768	¾″ x FPT ¾″	0.88	1.05	1.35	0.65	0.23
10075772	1″ x FPT 1″	1.13	1.32	1.27	0.76	0.24
10075774	1¼″ x FPT 1¼″	1.38	1.66	1.41	0.78	0.25
10075776	1½″ x FPT 1½″	1.63	1.90	1.78	0.79	0.23
10075778	2″ x FPT 2″	2.13	2.38	1.96	0.82	0.22

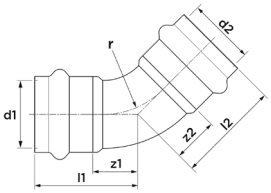
reducing

item no.	size	d1	d2	l1	l2	z1
10075764	½″ x FPT ⅜″	0.63	0.68	1.08	0.58	0.18
10075766	½″ x FPT ¾″	0.63	1.05	1.12	0.69	0.23
10075770	¾″ x FPT ½″	0.88	0.84	1.30	0.54	0.14
10075804	1″ x FPT ½″	1.13	0.84	1.20	0.45	0.05
10075802	1¼″ x FPT ½″	1.38	0.84	1.32	0.55	0.15

45° elbows

806 45° elbow | small diameter
(press x press)

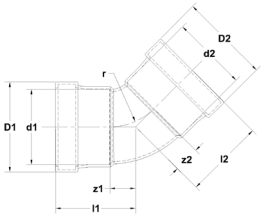




item no.	size	d1	d2	l1	l2	z1	z2
10077682	½"	0.63	0.63	1.05	1.05	0.26	0.26
10077672	¾"	0.88	0.88	1.27	1.27	0.36	0.36
10077674	1"	1.13	1.13	1.46	1.46	0.53	0.53
10077652	1¼"	1.38	1.38	1.54	1.54	0.26	0.26
10077654	1½"	1.63	1.63	2.12	2.12	1.10	1.10
10015094	2"	2.13	2.13	2.58	2.58	0.93	0.93

806 45° elbow | large diameter
(press x press)

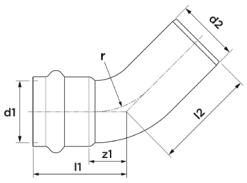




item no.	size	d1	d2	l1	l2	z1	z2
10012052	2½"	2.63	2.63	3.36	3.36	1.46	1.46
10012057	3"	3.13	3.13	3.81	3.81	1.71	1.71
10012062	4"	4.13	4.13	4.68	4.68	2.18	2.18

806-2 45° street elbow | small diameter
(press x FTG)

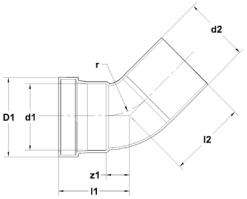




item no.	size	d1	d2	l1	l2	z1
10015054	½"	0.63	0.63	1.15	1.31	0.34
10015056	¾"	0.88	0.88	1.39	1.36	0.37
10015058	1"	1.13	1.13	1.55	1.52	0.56
10015084	1¼"	1.38	1.38	1.52	1.70	0.59
10075086	1½"	1.63	1.63	2.32	2.71	0.78
10015088	2"	2.13	2.13	2.63	2.71	1.05

806-2 45° street elbow | large diameter
(press x FTG)

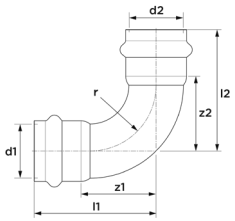




item no.	size	d1	d2	l1	l2	z1
10062037	2½"	2.63	2.63	2.81	3.16	0.91
10012042	3"	3.13	3.13	3.81	3.95	1.71
10012047	4"	4.13	4.13	4.92	4.93	2.42

807 | 807R 90° elbow | small diameter
(press x press)





807

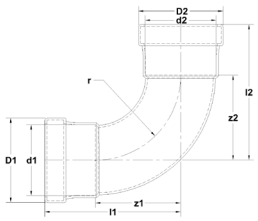
item no.	size	d1	d2	l1	l2	z1	z2
10075554	½″	0.63	0.63	1.53	1.53	0.72	0.72
10075556	¾″	0.88	0.88	1.98	1.98	0.98	0.98
10077680	1″	1.13	1.13	2.25	2.25	1.44	1.44
10077658	1¼″	1.38	1.38	2.69	2.69	1.66	1.66
10075080	1½″	1.63	1.63	3.41	3.41	1.94	1.94
10075082	2″	2.13	2.13	4.10	4.10	2.43	2.43

807R

item no.	size	d1	d2	l1	l2	z1	z2	r
10066101	¾″ x ½″	0.88	0.63	1.96	3.11	1.04	2.26	
10066083	1″ x ¾″	1.13	0.88	2.23	3.53	1.31	2.68	

807L 90° elbow long radius | large diameter
(press x press)

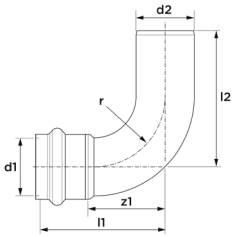




item no.	size	d1	d2	l1	l2	z1	z2	r
10062066	2½″	2.63	2.63	5.09	5.09	3.19	3.19	
10012067	3″	3.13	3.13	5.93	5.93	3.83	3.83	
10062069	4″	4.13	4.13	7.40	7.40	4.90	4.90	

807-2 90° street elbow | small diameter
(press x FTG)

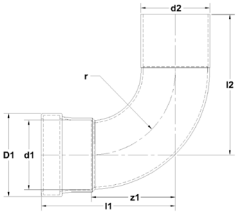




item no.	size	d1	d2	l1	l2	z1
10015566	½″	0.63	0.63	1.50	1.93	0.75
10075044	¾″	0.88	0.88	1.99	2.26	1.07
10015046	1″	1.13	1.13	2.21	2.72	1.26
10015072	1¼″	1.38	1.38	2.56	2.90	1.54
10075074	1½″	1.63	1.63	3.39	3.46	1.96
10015076	2″	2.13	2.13	4.08	4.21	2.50

807L-2 90° elbow long radius | large diameter
(press x FTG)



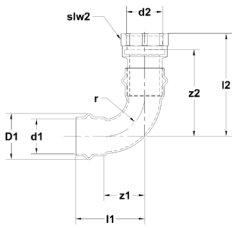


item no.	size	d1	d2	l1	l2	z1
10062071	2½″	2.63	2.63	5.09	5.27	3.85
10012073	3″	3.13	3.13	5.95	6.12	3.85
10012074	4″	4.13	4.13	7.57	7.78	5.07

8707-3 | 8707R-3 female 90° elbow | small diameter

(press x FPT)





8707-3

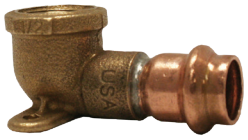
item no.	size	d1	d2	l1	l2	z1	z2
10066560	½" x FPT ½"	0.63	0.84	1.50	2.44	0.75	2.04
10066561	¾" x FPT ¾"	0.88	1.05	1.96	2.92	1.04	2.50
10066562	1" x FPT 1"	1.13	1.32	2.23	3.33	1.31	2.81
10066563	1¼" x FPT 1¼"	1.38	1.66	2.96	4.04	1.87	3.49
10066564	1½" x FPT 1½"	1.63	1.90	3.32	4.04	2.02	3.51
10066565	2" x FPT 2"	2.13	2.38	4.11	5.32	2.52	4.76

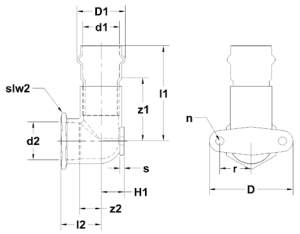
8707R-3

item no.	size	d1	d2	l1	l2	z1	z2
10066566	½" x FPT ⅜"	0.63	0.68	1.50	2.29	0.75	1.68
10066567	½" x FPT ¾"	0.63	1.05	1.50	2.52	0.75	2.10
10066568	¾" x FPT ½"	0.88	0.84	1.96	2.85	1.04	2.45
10066569	1" x FPT ½"	1.13	0.84	2.23	2.95	1.31	2.55

8707-3-5 | 8707R-3-5 drop-ear 90° elbow | small diameter

(press x FPT)





8707-3-5

item no.	size	d1	d2	l1	l2	z1	z2	n	r	D	H1
10075366	½" x FPT ½"	0.63	0.84	2.11	0.77	1.27	0.38	0.18	0.75	2.10	0.40
10075368	¾" x FPT ¾"	0.88	1.05	2.66	0.91	1.74	0.43	0.18	0.75	2.10	0.61

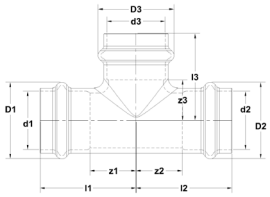
8707R-3-5

item no.	size	d1	d2	l1	l2	z1	z2	n	r	D	H1
10075367	½" x FPT ⅜"	0.63	0.68	2.06	0.71	1.21	0.36	0.18	0.75	2.10	0.41

811 | 811R | 811BH tee | small diameter

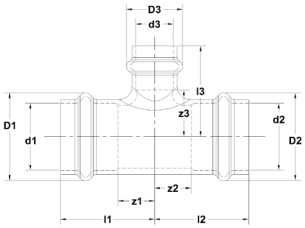
(press x press x press)





item no.	size	d1		d3	l1	l2	l3	z1	z2	z3
10017739	½”	0.63	0.63	0.63	1.49	1.49	1.35	0.71	0.71	0.57
10017740	¾”	0.88	0.88	0.88	1.73	1.73	1.61	0.78	0.78	0.62
10017741	1”	1.13	1.13	1.13	1.81	1.81	1.77	0.90	0.90	0.83
10017742	1¼”	1.38	1.38	1.38	2.06	2.06	1.96	1.00	1.00	0.89
10017743	1½”	1.63	1.63	1.63	2.58	2.58	2.57	1.11	1.11	1.10
10017744	2”	2.13	2.13	2.13	2.98	2.98	3.01	1.33	1.33	1.41



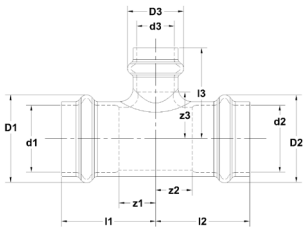


reducing

item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10077810	½” x ½” x ¾”	0.63	0.63	0.88	1.69	1.69	1.50	0.97	0.97	0.62
10017784	¾” x ½” x ½”	0.88	0.63	0.63	1.58	1.75	1.39	0.62	0.97	0.62
10077785	¾” x ½” x ¾”	0.88	0.63	0.88	1.77	1.89	1.52	0.81	1.12	0.54
10017745	¾” x ¾” x ½”	0.88	0.88	0.63	1.60	1.60	1.38	0.65	0.65	0.59
10066071	¾” x ¾” x 1”	0.88	0.88	1.13	3.33	3.33	1.75	2.39	2.39	0.80
10077786	1” x ½” x ¾”	1.13	0.63	0.88	1.75	2.00	1.64	0.78	1.21	0.70
10077787	1” x ½” x 1”	1.13	0.63	1.13	1.85	2.31	1.71	0.91	1.55	0.77
10077788	1” x ¾” x ½”	1.13	0.88	0.63	1.59	1.85	1.56	0.59	1.07	0.79
10077789	1” x ¾” x ¾”	1.13	0.88	0.88	1.72	2.00	1.66	0.71	1.00	0.75
10077790	1” x ¾” x 1”	1.13	0.88	1.13	1.82	1.14	1.70	0.85	0.22	0.79
10017746	1” x 1” x ½”	1.13	1.13	0.63	1.61	1.61	1.55	0.66	0.66	0.80
10017747	1” x 1” x ¾”	1.13	1.13	0.88	1.80	1.80	1.66	0.89	0.89	0.70
10077791	1¼” x ½” x 1¼”	1.38	0.63	1.38	2.06	2.49	1.90	0.98	1.77	0.82
10077792	1¼” x ¾” x ¾”	1.38	0.88	0.88	1.75	2.20	1.76	0.64	1.29	0.87
10077793	1¼” x ¾” x 1”	1.38	0.88	1.13	1.91	2.30	1.80	0.88	1.40	0.90
10077794	1¼” x ¾” x 1¼”	1.38	0.88	1.38	2.01	2.46	1.91	0.93	1.54	0.82
10077795	1¼” x 1” x ½”	1.38	1.13	0.63	1.67	1.77	1.68	0.59	0.86	0.87
10077796	1¼” x 1” x ¾”	1.38	1.13	0.88	1.81	2.00	1.77	0.78	1.12	0.82
10077797	1¼” x 1” x 1”	1.38	1.13	1.13	1.93	2.12	1.81	0.90	1.23	0.91
10077748	1¼” x 1¼” x ½”	1.38	1.38	0.63	1.69	1.69	1.70	0.60	0.60	0.87
10077749	1¼” x 1¼” x ¾”	1.38	1.38	0.88	1.80	1.80	1.81	0.74	0.74	0.85
10077750	1¼” x 1¼” x 1”	1.38	1.38	1.13	1.91	1.91	1.80	0.81	0.81	0.90
10066397	1½” x ¾” x 1”	1.63	0.88	1.13	2.21	3.93	2.14	0.77	3.05	1.19
10077798	1½” x 1” x ¾”	1.63	1.13	0.88	2.11	2.28	2.06	0.58	1.35	1.07
10077799	1½” x 1” x 1”	1.63	1.13	1.13	2.22	2.38	1.96	0.81	1.46	1.05
10066081	1½” x 1” x 1¼”	1.63	1.13	1.38	3.12	3.34	2.14	1.64	2.34	0.83

note continuation on the next page



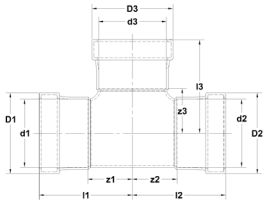


item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10077800	1½” x 1” x 1½”	1.63	1.13	1.63	2.56	2.69	2.56	1.13	1.55	1.13
10077801	1½” x 1¼” x ¾”	1.63	1.38	0.88	2.10	2.12	2.06	0.62	1.09	1.16
10077802	1½” x 1¼” x 1”	1.63	1.38	1.13	2.23	2.33	2.09	0.81	1.31	1.08
10077803	1½” x 1¼” x 1¼”	1.63	1.38	1.38	2.30	2.38	2.18	0.83	1.33	1.09
10077751	1½” x 1½” x ½”	1.63	1.63	0.63	1.92	1.92	1.87	0.40	0.40	1.08
10077752	1½” x 1½” x ¾”	1.63	1.63	0.88	2.10	2.10	2.06	0.64	0.64	1.13
10077753	1½” x 1½” x 1”	1.63	1.63	1.13	2.19	2.19	2.15	0.77	0.77	1.20
10077754	1½” x 1½” x 1¼”	1.63	1.63	1.38	2.29	2.29	2.14	0.91	0.91	1.27
10066090	1½” x 1½” x 2”	1.63	1.63	2.13	5.10	5.10	3,01	3.71	3.71	1.34
10066397	1½” x ¾” x 1”	1.63	0.88	1.13	2.21	3.93	2.14	0.77	3.05	1.19
10066018	2” x 1” x 2”	2.13	1.13	2.13	2.99	5.10	3.00	1.38	4.11	1.37
10066197	2” x 1” x 1½”	2.13	1.13	1.65	2.71	4.85	2.81	1.06	3.90	1.27
10077804	2” x 1¼” x 1¼”	2.13	1.38	1.38	2.52	2.87	2.35	0.94	1.84	1.33
10066125	2” x 1¼” x 1½”	2.13	1.38	1.63	2.72	4.56	2.75	1.09	3.50	1.24
10066064	2” x 1¼” x 2”	2.13	1.38	2.13	2.95	4.71	2.95	1.37	3.67	1.37
10077806	2” x 1½” x 1”	2.13	1.63	1.13	2.40	2.38	2.28	0.77	1.47	1.32
10077807	2” x 1½” x 1¼”	2.13	1.63	1.38	2.53	2.94	2.50	0.92	1.49	1.41
10077808	2” x 1½” x 1½”	2.13	1.63	1.63	2.67	3.08	2.76	1.10	1.68	1.33
10077809	2” x 1½” x 2”	2.13	1.63	2.13	3.53	2.94	2.94	1.96	1.46	1.35
10077755	2” x 2” x ½”	2.13	2.13	0.63	2.12	2.12	2.07	0.53	0.53	1.24
10077756	2” x 2” x ¾”	2.13	2.13	0.88	2.38	2.38	2.19	0.75	0.75	1.30
10077757	2” x 2” x 1”	2.13	2.13	1.13	2.45	2.45	2.28	0.90	0.90	1.44
10077758	2” x 2” x 1¼”	2.13	2.13	1.38	2.64	2.64	2.44	1.07	1.07	1.41
10077759	2” x 2” x 1½”	2.13	2.13	1.63	2.70	2.70	2.80	1.16	1.16	1.33
10077805	2“ x 1½” x ¾”	2.13	1.63	0.88	2.29	2.75	2.29	0.69	1.36	1.35

811 | 811R tee | large diameter

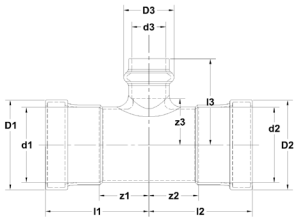
(press x press x press)





item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10017760	2½"	2.63	2.63	2.63	3.66	3.66	3.84	1.76	1.76	1.94
10017761	3"	3.13	3.13	3.13	4.07	4.07	4.31	1.97	1.97	2.21
10017762	4"	4.13	4.13	4.13	4.97	4.97	5.22	2.47	2.47	2.72





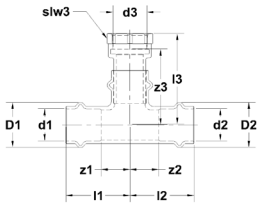
reducing

item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10077763	2½" x 2½" x ½"	2.63	2.63	0.63	2.81	2.81	2.81	0.91	0.91	0.91
10017764	2½" x 2½" x ¾"	2.63	2.63	0.88	3.02	3.02	2.47	1.12	1.12	1.58
10077765	2½" x 2½" x 1"	2.63	2.63	1.13	2.94	2.94	2.74	1.04	1.04	1.77
10077766	2½" x 2½" x 1¼"	2.63	2.63	1.38	3.06	3.06	2.85	1.16	1.16	1.76
10017767	2½" x 2½" x 1½"	2.63	2.63	1.63	3.34	3.34	3.09	1.44	1.44	1.78
10077768	2½" x 2½" x 2"	2.63	2.63	2.13	3.44	3.44	3.34	1.54	1.54	1.75
10066604	3" x 2" x 2"	3.13	2.13	2.13	3.66	6.16	3.58	1.56	4.65	1.99
10066136	3" x 2½" x 2½"	3.13	2.63	2.63	4.03	6.93	4.31	1.92	4.98	2.33
10017769	3" x 3" x ½"	3.13	3.13	0.63	3.20	3.20	2.61	1.18	1.18	1.76
10077770	3" x 3" x ¾"	3.13	3.13	0.88	3.03	3.03	2.69	0.93	0.93	1.80
10077771	3" x 3" x 1"	3.13	3.13	1.13	3.16	3.16	2.99	1.06	1.06	2.02
10077772	3" x 3" x 1¼"	3.13	3.13	1.38	3.28	3.28	3.10	1.18	1.18	2.01
1001773	3" x 3" x 1½"	3.13	3.13	1.63	3.61	3.61	3.34	1.51	1.51	2.03
10017774	3" x 3" x 2"	3.13	3.13	2.13	3.77	3.77	3.59	1.67	1.67	2.00
10077775	3" x 3" x 2½"	3.13	3.13	2.63	3.95	3.95	4.05	1.85	1.85	2.15
10077776	4" x 4" x ½"	4.13	4.13	0.63	3.58	3.58	3.09	1.08	1.08	2.24
10017777	4" x 4" x ¾"	4.13	4.13	0.88	3.80	3.80	3.21	1.30	1.30	2.32
10077778	4" x 4" x 1"	4.13	4.13	1.13	3.86	3.86	3.49	1.36	1.36	2.52
10077779	4" x 4" x 1¼"	4.13	4.13	1.38	3.86	3.86	3.59	1.36	1.36	2.50
10017780	4" x 4" x 1½"	4.13	4.13	1.63	4.06	4.06	3.83	1.56	1.56	2.52
10077781	4" x 4" x 2"	4.13	4.13	2.13	4.09	4.09	4.12	1.59	1.59	2.53
10077782	4" x 4" x 2½"	4.13	4.13	2.63	4.39	4.39	4.55	1.89	1.89	2.65
10077783	4" x 4" x 3"	4.13	4.13	3.13	4.61	4.61	4.79	2.11	2.11	2.69

8712 | 8712R female tee | small diameter

(press x press x FPT)





item no.	size	d1	d2	d3	l1	l2	i3	z1	z2	z3
10066579	½" x ½" x FPT ½"	0.63	0.63	0.84	1.50	1.50	2.21	0.75	0.75	1.81
10066580	¾" x ¾" x FPT ¾"	0.88	0.88	1.05	1.74	1.74	2.65	0.72	0.72	2.10

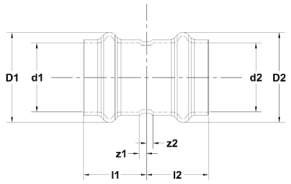
reducing

item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10066581	¾" x ¾" x FPT ½"	0.88	0.88	0.84	1.60	1.60	2.51	0.65	0.65	1.95
10066582	1" x 1" x FPT ½"	1.13	1.13	0.84	1.61	1.61	2.64	0.69	0.69	2.08
10066583	1" x 1" x FPT ¾"	1.13	1.13	1.05	1.75	1.75	2.80	0.78	0.78	2.25
10066584	1¼" x 1¼" x FPT ½"	1.38	1.38	0.84	1.68	1.68	2.81	0.61	0.61	2.26
10066585	1¼" x 1¼" x FPT ¾"	1.38	1.38	1.05	1.82	1.82	2.95	0.81	0.81	2.40
10066586	1½" x 1½" x FPT ½"	1.63	1.63	0.84	1.93	1.93	3.07	0.43	0.43	2.53
10066587	1½" x 1½" x FPT ¾"	1.63	1.63	1.05	2.09	2.09	3.18	0.63	0.63	2.64
10066588	2" x 2" x FPT ½"	2.13	2.13	0.84	2.16	2.16	3.18	0.53	0.53	2.63
10066589	2" x 2" x FPT ¾"	2.13	2.13	1.05	2.37	2.37	3.27	0.71	0.71	2.72

800 coupling | small diameter

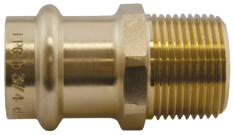
(press x press)

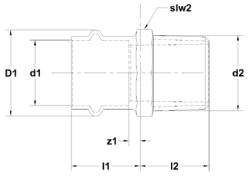




item no.	size	d1	d2	l1	l2	z1	z2
10075500	½"	0.63	0.63	0.81	0.81	0.05	0.05
10077693	¾"	0.88	0.88	0.98	0.98	0.03	0.03
10075504	1"	1.13	1.13	0.98	0.98	0.05	0.05
10077698	1¼"	1.38	1.38	1.10	1.10	0.06	0.06
10077699	1½"	1.63	1.63	1.50	1.50	0.07	0.07
10077000	2"	2.13	2.13	1.65	1.65	0.07	0.07

804 | 804R male adapter | small diameter
(press x MPT)





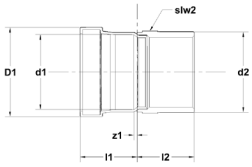
item no.	size	d1	d2	l1	l2	z1
10075806	½″ x MPT ½″	0.63	0.84	1.08	0.84	0.22
10075808	¾″ x MPT ¾″	0.88	1.05	1.30	0.85	0.11
10075844	1″ x MPT 1″	1.13	1.32	1.24	1.15	0.25
10075810	1¼″ x MPT 1¼″	1.38	1.66	1.37	1.02	0.31
10075812	1½″ x MPT 1½″	1.63	1.90	1.66	1.02	0.22
10075814	2″ x MPT 2″	2.13	2.38	1.87	1.10	0.25

reducing

item no.	size	d1	d2	l1	l2	z1
10075836	½″ x MPT ⅜″	0.63	0.68	1.24	0.55	0.49
10075838	½″ x MPT ¾″	0.63	1.05	1.17	0.69	0.42
10075840	¾″ x MPT ½″	0.88	0.84	1.59	0.62	0.68
10075842	¾″ x MPT 1″	0.88	1.32	1.61	0.79	0.70
10075854	1″ x MPT ¾″	1.13	1.05	1.43	0.81	0.52
10075856	1″ x MPT 1¼″	1.13	1.66	1.41	1.03	0.50
10075846	1¼″ x MPT 1″	1.38	1.32	1.40	1.02	0.36
10075848	1¼″ x MPT 1½″	1.38	1.90	1.61	1.01	0.56
10075850	1½″ x MPT 1¼″	1.63	1.66	1.73	1.00	0.30
10075852	1½″ x MPT 2″	1.63	2.38	1.95	0.90	0.52
10075858	2″ x MPT 1½″	2.13	1.90	2.08	1.03	0.49

804 male adapter | large diameter
(press x MPT)

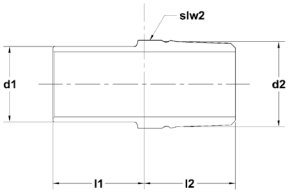




item no.	size	d1	d2	l1	l2	z1
10011982	2½″ x MPT 2½″	2.63	2.88	2.40	1.64	0.50
10061987	3″ x MPT 3″	3.13	3.50	2.60	1.70	0.50
10011992	4″ x MPT 4″	4.13	4.50	3.01	2.11	0.51

804-2 | 804R-2 male street adapter | small diameter
(FTG x MPT)



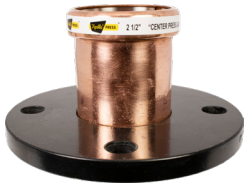


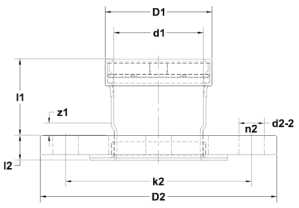
item no.	size	d1	d2	l1	l2	slw2
10075816	½″ x MPT ½″	0.63	0.84	1.24	1.14	-
10075822	¾″ x MPT ¾″	0.88	1.05	1.26	1.15	-
10075826	1″ x MPT 1″	1.13	1.32	1.26	1.24	-
10075828	1¼″ x MPT 1¼″	1.38	1.66	1.32	1.28	-
10075830	1½″ x MPT 1½″	1.63	1.90	1.77	1.51	-
10075834	2″ x MPT 2″	2.13	2.38	1.90	1.56	-

reducing

item no.	size	d1	d2	l1	l2
10075818	½″ x MPT ⅜″	0.63	0.68	1.07	0.92
10075820	½″ x MPT ¾″	0.63	1.05	1.28	1.14
10075824	¾″ x MPT ½″	0.88	0.84	1.23	1.08
10075832	1″ x MPT ¾″	1.13	1.05	1.29	1.26

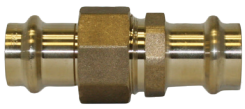
8771 male adapter | large diameter
(press x flange) | ANSI class 150

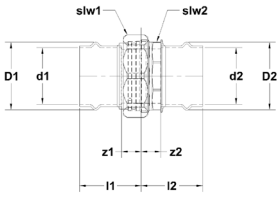




item no.	size	d1	n2	k2	l1	l2	z1
10061763	2½″	2.63	4	0.75	2.74	0.88	0.84
10061769	3″	3.13	4	0.75	2.81	0.94	0.71
10061738	4″	4.13	8	0.75	2.88	0.94	0.38

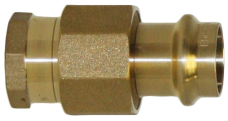
8733 union | small diameter
(press x press)

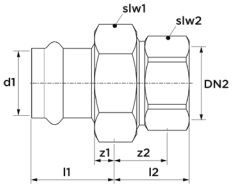




item no.	size	d1	d2	l1	l2	z1	z2
10075860	½″	0.63	0.63	1.48	1.48	0.72	0.72
10075862	¾″	0.88	0.88	1.79	1.79	0.87	0.87
10075864	1″	1.13	1.13	1.90	1.90	0.98	0.98
10075866	1¼″	1.38	1.38	1.89	1.89	0.85	0.85
10075868	1½″	1.63	1.63	1.96	1.96	0.53	0.53
10075870	2″	2.13	2.13	2.32	2.32	0.74	0.74

8733-3 female union | small diameter
(press x FPT)

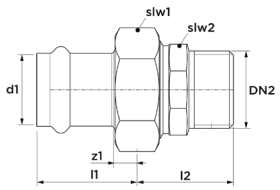




item no.	size	d1	DN2	l1	l2	z1	z2
10075872	½″ x FPT ½″	0.63	0.84	1.38	0.72	0.62	0.32
10075874	¾″ x FPT ¾″	0.88	1.05	1.73	1.11	0.81	0.69
10075876	1″ x FPT 1″	1.13	1.32	1.80	1.04	0.89	0.52
10075878	1¼″ x FPT 1¼″	1.38	1.66	1.80	1.32	0.76	0.78
10075880	1½″ x FPT 1½″	1.63	1.90	1.75	1.30	0.32	0.79
10075882	2″ x FPT 2″	2.13	2.38	2.13	1.17	0.55	0.62

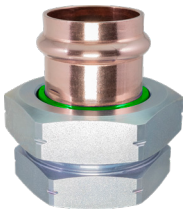
8733-4 male union | small diameter
(press x MPT)

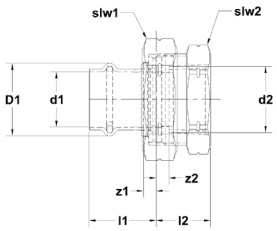




item no.	size	d1	DN2	l1	l2	z1
10075884	½″ x MPT ½″	0.63	0.84	1.38	1.48	0.62
10075886	¾″ x MPT ¾″	0.88	1.05	1.73	1.65	0.81
10075888	1″ x MPT 1″	1.13	1.32	1.80	1.91	0.89
10075890	1¼″ x MPT 1¼″	1.38	1.66	1.82	1.97	0.77
10075892	1½″ x MPT 1½″	1.63	1.90	1.75	1.94	0.32
10075894	2″ x MPT 2″	2.13	2.38	2.13	2.06	0.55

8734 female dielectric union | small diameter
(press x FPT)

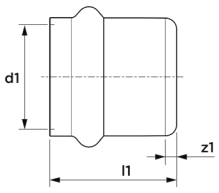




item no.	size	d1	d2	l1	l2	z1	z2
10077914	½″ x FPT ½″	0.63	0.84	1.22	0.97	0.47	0.47
10077920	¾″ x FPT ¾″	0.88	1.05	1.32	0.98	0.41	0.41
10077926	1″ x FPT 1″	1.13	1.32	1.33	1.11	0.42	0.42
10077932	1¼″ x FPT 1¼″	1.38	1.66	1.52	1.17	0.49	0.49
10077938	1½″ x FPT 1½″	1.63	1.90	1.91	1.17	0.48	0.48
10077944	2″ x FPT 2″	2.13	2.38	2.09	1.26	0.51	0.51

817 tube cap | small diameter
(press x cap)

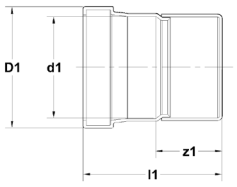




item no.	size	d1	l1	z1
10007850	½″	0.63	0.92	0.17
10007851	¾″	0.88	1.07	0.16
10007852	1″	1.13	1.07	0.16
10015172	1¼″	1.38	1.36	0.22
10005174	1½″	1.63	1.63	0.20
10005176	2″	2.13	1.82	0.24

817 tube cap | large diameter
(press x cap)

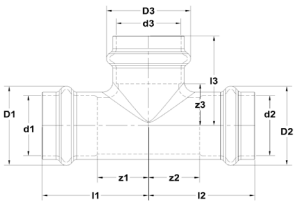




item no.	size	d1	l1	z1
10062142	2½″	2.63	3.64	1.90
10062147	3″	3.13	4.07	2.10
10012152	4″	4.13	4.24	1.78

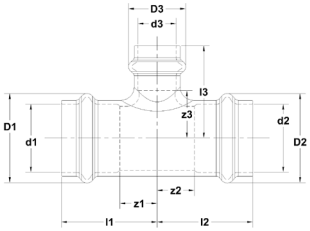
811* | 811R* tee | small diameter
(press x press x press)





item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10077739 OBS	½"	0.63	0.63	0.63	1.50	1.50	1.25	0.75	0.75	0.50
10077740 OBS	¾"	0.88	0.88	0.88	1.75	1.75	1.49	0.85	0.85	0.59
10077741 OBS	1"	1.13	1.13	1.13	1.87	1.87	1.69	0.97	0.97	0.79
10077742 OBS	1¼"	1.38	1.38	1.38	2.05	2.05	1.89	1.02	1.02	0.86
10077743 OBS	1½"	1.63	1.63	1.63	2.56	2.56	2.56	1.13	1.13	1.13
10077744 OBS	2"	2.13	2.13	2.13	2.95	2.95	2.95	1.37	1.37	1.37



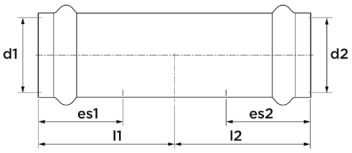


reducing

item no.	size	d1	d2	d3	l1	l2	l3	z1	z2	z3
10077784	¾" x ½" x ½"	0.83	0.63	0.63	1.61	1.74	1.39	0.62	0.98	0.62
10077745 OBS	¾" x ¾" x ½"	0.83	0.88	0.63	1.59	1.59	1.38	0.69	0.69	0.63
10077746 OBS	1" x 1" x ½"	1.13	1.13	0.63	1.59	1.59	1.54	0.69	0.69	0.79
10077747 OBS	1" x 1" x ¾"	1.13	1.13	0.88	1.74	1.74	1.65	0.79	0.79	0.71
10075102 OBS	1¼" x 1¼" x ¾"	1.38	1.38	0.88	1.80	1.89	1.81	0.74	0.74	0.85
10075112 OBS	1½" x 1½" x 1¼"	1.63	1.63	1.38	2.29	2.29	2.14	0.91	0.91	1.27
10017757 OBS	2" x 2" x 1"	2.13	2.13	1.13	2.45	2.45	2.28	0.90	0.90	1.44

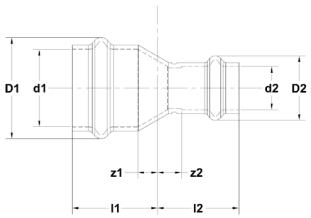
801* | 801R* no stop coupling | small diameter
(press x press)





item no.	size	d1	d2	l1	l2	es1	es2
10075513	½" x ½"	0.63	0.63	0.81	0.81	0.84	0.84
10075515	¾" x ¾"	0.88	0.88	0.97	0.97	0.91	0.91
10077687 OBS	1" x 1"	1.13	1.13	0.97	0.97	0.92	0.92
10077646 OBS	1¼" x 1¼"	1.38	1.38	1.10	1.10	1.04	1.04
10077648 OBS	1½" x 1½"	1.63	1.63	1.50	1.50	1.43	1.43
10077650 OBS	2" x 2"	2.13	2.13	1.66	1.66	1.59	1.59



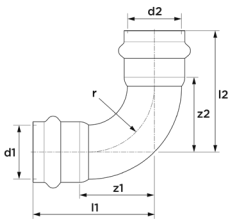


reducing

item no.	size	d1	d2	l1	l2	z1	z2
10075900 OBS	¾" x ½"	0.88	0.63	1.19	0.89	0.28	0.14
10075898 OBS	1" x ¾"	1.13	0.88	1.21	1.09	0.30	0.18
10075896	1¼" x 1"	1.38	1.13	1.30	1.13	0.18	0.20

807* 90° elbow | small diameter
(press x press)

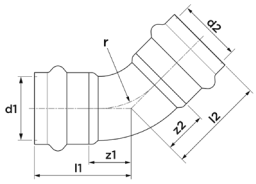




item no.	size	d1	d2	l1	l2	z1	z2
10077676	½"	0.63	0.63	1.50	1.50	0.72	0.72
10077678	¾"	0.88	0.88	2.00	2.00	1.07	1.07
10075052	1"	1.13	1.13	2.19	2.19	1.28	1.28
10075078	1¼"	1.38	1.38	2.68	2.68	1.65	1.65
10077660	1½"	1.63	1.63	3.40	3.40	2.10	2.12
10077662 OBS	2"	2.13	2.13	4.09	4.09	2.48	2.48

806* 45° elbow | small diameter
(press x press)

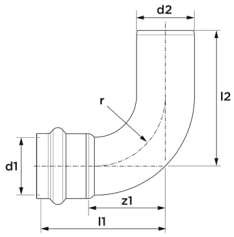




item no.	size	d1	d2	l1	l2	z1	z2
10077670	½"	0.63	0.63	1.06	1.06	0.26	0.26
10075062 OBS	¾"	0.88	0.88	1.27	1.27	0.36	0.36
10075064 OBS	1"	1.13	1.13	1.46	1.46	0.53	0.53
10075090	1¼"	1.38	1.38	1.81	1.81	0.69	0.69
10075092	1½"	1.63	1.63	2.24	2.24	0.81	0.81
10075094	2"	2.13	2.13	2.58	2.58	0.93	0.93

807-2 90° street elbow | small diameter
(press x FTG)

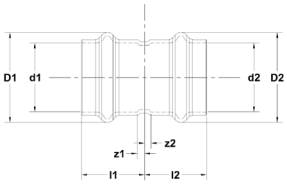




item no.	size	d1	d2	l1	l2	z1
10075566	½"	0.63	0.63	1.50	1.91	0.75
10075568	¾"	0.88	0.88	1.96	2.20	1.02
10075046	1"	1.13	1.13	2.19	2.81	1.28
10075072	1¼"	1.38	1.38	2.68	2.75	1.65
10075076 OBS	2"	1.63	1.63	4.14	4.21	2.56

800* coupling | small diameter
(press x press)



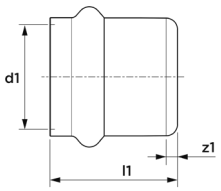


item no.	size	d1	d2	l1	l2	z1	z2
10077692	½" x ½"	0.63	0.63	0.87	0.87	0.03	0.03
10075502	¾" x ¾"	0.88	0.88	0.97	0.97	0.06	0.06
10077683 OBS	1" x 1"	1.13	1.13	0.97	0.97	0.05	0.05
10077640 OBS	1¼" x 1¼"	1.38	1.38	1.10	1.10	0.06	0.06
10077642 OBS	1½" x 1½"	1.63	1.63	1.50	1.50	0.07	0.07
10077644 OBS	2" x 2"	2.13	2.13	1.66	1.66	0.07	0.07

817 tube cap | small diameter

(press x cap)





item no.	size	d1	l1	z1
10017850 OBS	½"	0.63	0.93	0.06
10017851 OBS	¾"	0.88	1.05	0.08
100017852 OBS	1"	1.13	1.04	0.10
10005172	1¼"	1.38	1.33	0.13
10015174 OBS	1½"	1.63	1.63	0.20
10015176 OBS	2"	2.13	1.82	0.24

limited warranty

Aalberts integrated piping systems Americas, Inc. warrants, to its initial purchaser only, that its products which are delivered to this initial purchaser will be of the kind described in the order or price list and will be free of defects in workmanship or material. For Valve products, this warranty is for a period of FIVE years from the date of delivery to you, our initial purchaser. This warranty applies to Apollo brand product with “Made in the USA” markings only. Should any failure to conform to these warranties appear within FIVE years after the date of the initial delivery to our initial purchaser, Aalberts integrated piping systems Americas, Inc. will, upon written notification thereof and substantiation that the goods have been stored, installed, maintained and operated in accordance with Aalberts integrated piping systems Americas, Inc.‘s recommendations and standard industry practice, correct such defects by suitable repair or replacement at Aalberts integrated piping systems Americas, Inc.’s own expense. For all Apollo Press Fittings, this warranty is for a period of FIFTY years from the date of delivery to you, our initial purchaser. Aalberts integrated piping systems also warrants that all fittings will be free from defects in material and workmanship which will impair their usefulness provided they are used in the service for which they are recommended. Any fitting which proves to be defective will be replaced or a credit issued, but no incidental labor charges, expenses or damages will be allowed. Apollo International™ Products: Aalberts integrated piping systems Americas, Inc. warrants its Apollo International™ products, to be of the kind described in the order or price list and will be free of defects in workmanship or material for a period of TWO years from the date of delivery to you, our initial purchaser.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESSED OR IMPLIED, EXCEPT THE WARRANTY OF TITLE AND AGAINST PATENT INFRINGEMENT. Correction of non-conformities, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Aalberts integrated piping systems Americas, Inc. to our initial purchaser, with respect to the goods, whether based on contract, negligence, strict tort or otherwise. It is the intention of Aalberts integrated piping systems, Inc. that no warranty of any kind, whether expressed or implied shall pass through our initial purchaser to any other person or corporation.

LIMITATION OF LIABILITY: Aalberts integrated piping systems Americas, Inc. SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, DAMAGES OR TO LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, COST OF PURCHASED OR REPLACEMENT GOODS, OR CLAIMS OF CUSTOMERS OF OUR INITIAL PURCHASER. THE REMEDIES OF OUR INITIAL PURCHASER, AND ALL OTHERS, SET FORTH HEREIN, ARE EXCLUSIVE, AND THE LIABILITY OF Aalberts inte grated piping systems Americas, Inc. WITH RESPECT TO SAME SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED. * It is the end user’s responsibility to confirm that items intended for use satisfy local codes and standards.

“Apollo”® PowerPress®

carbon press fittings & valves



system data

"Apollo"® PowerPress® is designed for Schedule 10-40 carbon steel pipe, available in sizes from ½" to 4". All fittings and valves feature zinc-nickel coatings for corrosion resistance and EPDM or HNBR sealing elements. With the patented Leak Before Press® technology and color-coded Visual Control Ring (VCR), "Apollo"® PowerPress® ensures clear identification of pressed connections and optimally positions pipes for straighter, cleaner installations. "Apollo"® PowerPress® stands as the leader in quality and reliability, surpassing other carbon press systems.

product features

- carbon steel
- patented Visu-Control Foil™ (LD sizes)
- break-away tabs, color-coded elements
- pipe guide protects & positions pipe
- deeper cups, protective shipping cap
- Leak Before Press®
- 15-year limited warranty (fittings)
- 5-year limited warranty (valves)

operating parameters

parameters	HNBR	EPDM
approved pipe material	• sch 10 & sch 40 • ASTM A53 • ASTM A106 • ASTM A135 • ASTM A795	• sch 10 & sch 40 • ASTM A53 • ASTM A106 • ASTM A135 • ASTM A795
max pressure	125 psi (application dependent)	232 psi (application dependent)
temperature range	-40°F to 194°F	-40°F to 302°F
applications	• general piping systems • LP / natural gas / fuel oil • industrial gas systems • heating fuel oil • engine oil • hydraulic fluid	• general piping systems • heating and cooling • industrial gas systems • compressed air systems • fire protection systems • process and utility water systems

approved applications

service	pressure	temperature	oil concentrate	EPDM	HNBR
natural gas / LP gas / fuel oil	125 psi max.	up to 140°F	-		✓
chilled water	232 psi	down to -40°F	-	✓	
hydronic heating	232 psi	0°F - 302°F	-	✓	
fire sprinkler	175 psi	ambient	-	✓	
low pressure steam	up to 15 psi	max. 302°F	-	✓	
heating fuel oil	125 psi	-40°F - 180°F	-		✓
diesel fuel	125 psi	ambient	-		✓
engine oil	150 psi	104°F	-		✓
gear grease	150 psi	ambient	-		✓
hydraulic fluid	232 psi	ambient	-		✓
transmission fluid	232 psi	-40°F - 180°F	-		✓
compressed air	232 psi	up to 140°F	-	✓	✓
oil concentrate HNBR	-	-	> 25 mg/m³	-	✓
oil concentrate EPDM	-	-	< 25 mg/m³	✓	-
vacuum	max. 29.2in Hg	up to 140°F	-	✓	✓
nitrogen	232 psi	up to 140°F	-	✓	✓
argon	232 psi	up to 140°F	-	✓	✓
carbon dioxide	232 psi	up to 140°F	-	✓	✓

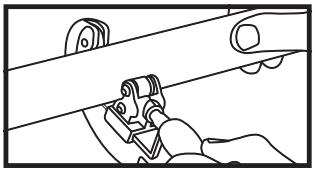
certifications & listings

	HNBR valves	HNBR fittings	EPDM valves	EPDM fittings
approvals & certifications	• CSA 6.32 / ANSI LC 4 • CRN	• CSA 6.32 / ANSI LC 4 • CRN (½" - 2")	• IAPMO / ANSI Z1157 • CRN	• FM 1920 • IAPMO / ANSI Z1157 • CRN (½" - 2") • UL 213
compliances	• ASME B31 • ARRA • NFPA 13, 13R, 13D, 54 & 58 • BAA • UPC® • UMC® • IPC® • IFGC® • National Plumbing Code of America	• ASME B31 • ARRA • NFPA 13, 13R, 13D, 54 & 58 • UPC® • UMC® • IPC® • IFGC® • National Plumbing Code of America	• ASME B31 • ARRA • NFPA 13, 13R, 13D, 54 & 58 • BAA • UPC® • UMC® • IPC® • IFGC® • National Plumbing Code of America	• ASME B31 • ARRA • NFPA 13, 13R, 13D, 54 & 58 • UPC® • UMC® • IPC® • IFGC® • National Plumbing Code of America

installation guidelines

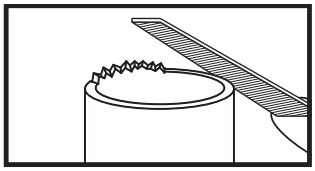
It is the responsibility of the end-user to follow all instructions for installing Apollo® PowerPress fittings and valves. Failure to follow these instructions and safe plumbing practices may result in extensive property damage, serious injury or death.

1. cut pipe to length



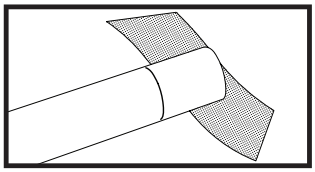
After measuring, the pipes can be cut to length using a pipe cutter, a fine-toothed handsaw or an electrical mechanical saw suitable for the pipe material. The pipe must always be cut completely through. Never partially cut the pipe and break it off as this could cause leakage. When cutting already installed pipes, always take into account a minimum distance to weldings and bends of 4" for pipe sizes 1/2"– 1-1/4", and 3x outside diameter for pipe sizes 1-1/2"– 2".
Do not use oil-cooled saws, grinding wheels or flame cutters.

2. deburr pipe



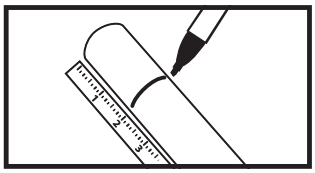
Pipe ends must be carefully and thoroughly deburred in and outside after being cut to length in order to avoid damage to the sealing element when inserting the pipe into the press fitting. A file, hand deburrer, or an electrical pipe deburrer (suitable for the material) may be used to deburr both inside and outside of the pipe. Burrs sticking to the pipe must be removed.

3. clean outside pipe surface



Always ensure that any dirt, scale, excessive paint or corrosion particles are removed from the surface of the pipe. This can be done with a wire brush or fine grit sand paper. The pipe surface of the pipe must be smooth, free of indentations, pits and deformations and must be free of oil and grease.

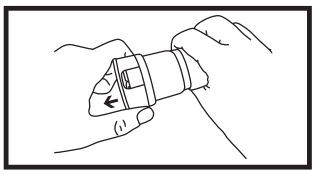
4. mark insertion depth



The required insertion depth must be marked on the pipe or the press fitting (the latter for fittings with pipe ends) in order to guarantee a safe and proper joint. The pressing operation behind the bead is of crucial importance for the tensile strength. The marking on the pipe must remain visible (but close to the fitting) after the connection is pressed to identify any movement before or after pressing.

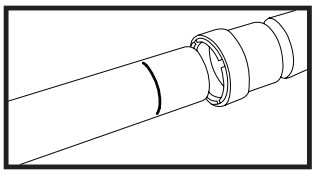
nominal pipe size (in.)	Insertion Depth (in.)
½	1.1
¾	1.2
1	1.4
1¼	1.9
1½	1.9
2	2.1
2½	1.9
3	2.3
4	3.1

5. check fitting & Pipe



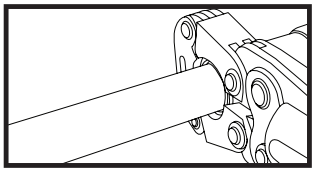
Before assembly, the protective cap must first be removed from fitting. Next, the fitting must be checked to ensure that the sealing element are present and correctly positioned. The pipe, fitting and sealing element must be examined for any foreign materials (e.g. dirt, burrs) and removed, if present. Please make sure that the Visual Control Ring (VCR) ring is properly aligned before pressing.

6. insert Pipe



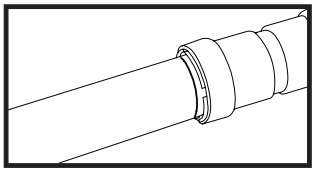
Insert the pipe carefully into the press fitting up to the marked insertion depth, without tilting, pushing it in the direction of the axis. The insertion depth marking must remain visible. In the case of fittings without a stop the fittings should be inserted at least as far as the marked insertion depth. Rough and careless insertion of the pipe into the press fitting may result in damage to the sealing element and is therefore not permitted.

7. press the connection



Before starting to press, the press jaws and slings must be checked for dirt or debris, and removed if present. Furthermore, the press tool must be in good condition and properly maintained in accordance with the instructions for the device, per the manufacturer's instructions. In order to create a correctly pressed connection, the groove of the press tool must enclose the press fitting sealing element bead. Once the pressing has started, always complete the press cycle and under no circumstances interrupt the process.
It is not permitted to press a connection more than once.

8. verify press connection



Once the tool has fully cycled, the pressed connection must be visually inspected to ensure a proper connection has been made. When the press tool has fully cycled, the Visual Control Ring (VCR) tabs will break away, indicating a complete press. In some cases, it is possible for a VCR tab to get stuck between the inner diameter of the fitting and the pipe after breaking away, giving off the appearance of an un-pressed fitting. This shouldn't alarm the installer, as it will have no bearing on the performance or functionality of the fitting itself. Simply remove the tab by hand, or, by using a thin tool such as a flat head screwdriver.

“Apollo”® PowerPress®

EPDM fittings & valves



89FVE non-gas ball valve EPDM
(press x press)



description
the "Apollo"® PowerPress® 89FV ball valve is ideal for installation in chilled water, compressed air, hydronic heating and fire sprinkler applications. This valve design significantly reduces installation time and helps maintain a clean working environment. the "Apollo"® PowerPress® is designed for steel pipe, schedules 10 to 40, as defined by ASTM A53, A106, A135 and A795 standards.

specifications
- patented visual control ring (green)
- EPDM sealing element
- full-port flow
- adjustable stem packing
- fast, reliable, economical press installation
- Ridgid® & milwaukee press tool compatible
- leak before press® technology
- blowout-proof stem
- corrosion resistant materials
- 100% factory tested
- silicone free assembly
- made in USA, ARRA compliant

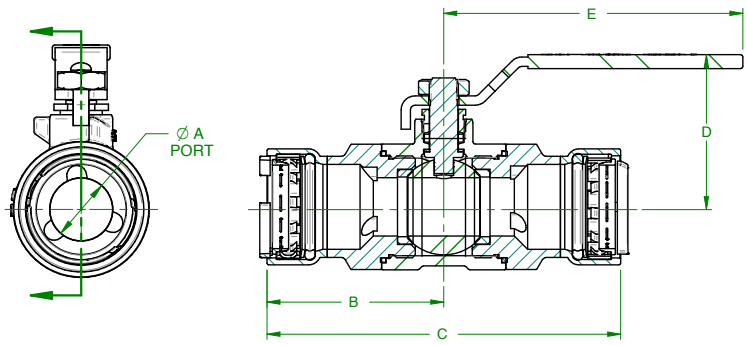
max. operating pressure	operating temperature
200 psi	-40°F to -302°F

standard materials list

component	material
body	carbon steel (ASTM A216-WCB)
seat	reinforced PTFE
ball	stainless steel (ASTM A276-316)
stem packing	multi-fill PTFE
nut	corrosion resistant plated steel
stem	stainless steel (ASTM A276-316)
retainer	carbon steel (ASTM A108-12L14)
sealing element	EPDM
handle	plated steel / insulated polyvinyl
gland	carbon steel (ASTM A108-1215)
stem bearing	reinforced PTFE
body seal	PTFE

options

(-01)	standard (PTFE packing, RPTFE body seal)
(-02)	grounded stem
(-04)	2¼" stem extensions
(-11)	therma-seal™ insulating tee handle
(-24)	graphite stem packing
(-27)	SS latch-lock lever & nut
(-32)	SS tee handle & nut
(-39)	SS hi-rise locking wheel handle with SS nut
(-47)	SS latch lock oval handle
(-48)	SS oval handle (no latch)
(-49)	assembled dry
(-60)	grounded ball & stem



approved application
- chilled water
- hydronic heating (50% glycol max)
- low pressure steam (15 psi max)
- fire sprinkler
- service[1]

compliant with
- uniform plumbing code (UPC)
- international plumbing code (IPC)
- national plumbing code of canada

certifications & listings
- IAPMO/ANSI - Z1157
- CRN #0C10908 ADD11

dimensions

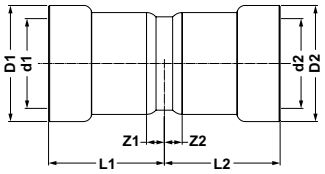
size	item no.	weight [lb]	a	b	c	d	e
½"	89FVE4301	0.60	0.50	2.08	4.16	1.74	3.85
¾"	89FVE4401	0.90	0.75	2.28	4.55	1.96	3.85
1"	89FVE4501	1.40	1.00	2.72	5.44	2.29	4.76
1¼"	89FVE4601	4.20	1.25	3.41	6.82	3.20	7.76
1½"	89FVE4701	4.80	1.50	3.62	7.24	3.30	7.76
2"	89FVE4801	7.20	2.00	3.93	7.85	3.68	7.76

[1]not suitable for flammable gas

400 coupling EPDM

(2 x press)



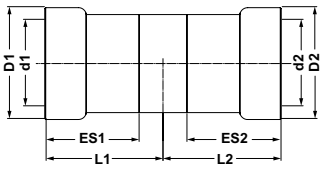


size	item no.	l1/l2	z1/z2	weight [lb]
½"	PWR7480000	1.34	0.24	0.29
¾"	PWR7480011	1.46	0.24	0.38
1"	PWR7480022	1.65	0.23	0.56
1¼"	PWR7480033	2.19	0.30	0.93
1½"	PWR7480044	2.26	0.33	1.18
2"	PWR7480055	2.38	0.30	1.55

401 coupling - no stop EPDM

(2 x press)



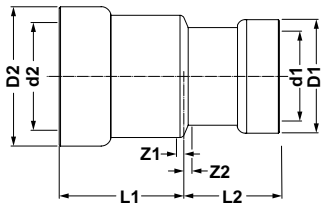


size	item no.	l1/l2	es1/es2	weight [lb]
½"	PWR7480066	1.55	1.10	0.32
¾"	PWR7480077	1.64	1.22	0.41
1"	PWR7480088	1.84	1.42	0.62
1¼"	PWR7480099	2.34	1.89	0.97
1½"	PWR7480101	2.50	1.93	1.27
2"	PWR7480110	2.56	2.09	1.65

401R coupling - reducing EPDM

(2 x press)



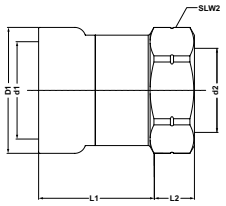


size	item no.	l1	l2	z1	z2	weight [lb]
¾" x ½"	PWR7483025	1.33	1.14	0.11	0.04	0.35
1" x ½"	PWR7483036	1.61	1.13	0.19	0.03	0.33
1" x ¾"	PWR7483047	1.55	1.24	0.13	0.02	0.37
1¼" x ¾"	PWR7483058	2.15	1.24	0.26	0.02	0.36
1¼" x 1"	PWR7483069	2.07	1.43	0.18	0.01	0.60
1½" x 1¼"	PWR7483071	2.09	1.95	0.16	0.06	0.80
2" x 1¼"	PWR7483080	2.39	1.95	0.31	0.06	0.98
2"x 1½"	PWR7483091	2.33	2.00	0.24	0.07	1.22

403 adapter - female EPDM

(press x FPT)



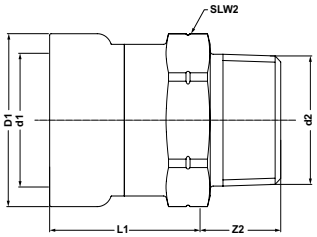


size	item no.	l1	l2	z1	z2	slw2	weight [lb]
½" x FPT ½"	PWR7480902	1.26	0.57	0.16	0.00	1.10	0.22
¾" x FPT ½"	PWR7480913	1.32	0.63	0.10	0.02	1.42	0.38
¾" x FPT ¾"	PWR7480924	1.30	0.63	0.08	0.00	1.42	0.33
1" x FPT ½"	PWR7480935	1.52	0.71	0.10	0.10	1.61	0.60
1" x FPT ¾"	PWR7480946	1.48	0.71	0.06	0.08	1.61	0.53
1" x FPT 1"	PWR7480957	1.56	0.71	0.14	0.00	1.61	0.45
1¼" x FPT ½"	PWR7480968	2.05	0.79	0.16	0.16	1.97	1.07
1¼" x FPT ¾"	PWR7480979	2.11	0.69	0.22	0.06	1.97	0.98
1¼" x FPT 1"	PWR7480981	2.07	0.79	0.18	0.04	1.97	0.93
1¼" x FPT 1¼"	PWR7480990	1.97	0.83	0.08	0.00	1.97	0.74
1½" x FPT ½"	PWR7481001	2.09	0.85	0.16	0.22	2.24	1.44
1½" x FPT ¾"	PWR7481012	2.11	0.79	0.18	0.16	2.24	1.34
1½" x FPT 1"	PWR7481023	2.17	0.79	0.24	0.04	2.24	1.30
1½" x FPT 1¼"	PWR7481034	2.09	0.79	0.16	0.02	2.24	0.80
1½" x FPT1½"	PWR7481045	2.01	0.81	0.08	0.04	2.24	0.90
2" x FPT ½"	PWR7481056	2.46	0.79	0.37	0.18	2.76	2.01
2" x FPT ¾"	PWR7481067	2.46	0.79	0.37	0.16	2.76	1.95
2" x FPT 1"	PWR7481078	2.46	0.79	0.37	0.04	2.76	1.86
2" x FPT 1¼"	PWR7481089	2.46	0.79	0.37	0.02	2.76	1.69
2" x FPT1½"	PWR7481091	2.32	0.79	0.24	0.02	2.76	1.64
2" x FPT 2"	PWR7481100	2.22	0.79	0.14	0.00	2.76	1.21

404 adapter - male EPDM

(press x MPT)



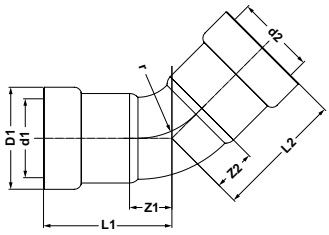


size	item no.	l1	l2	slw2	weight [lb]
½" x MPT ½"	PWR7480847	1.38	0.61	1.10	0.21
¾" x MPT ¾"	PWR7480858	1.40	0.63	1.42	0.30
1" x MPT 1"	PWR7480869	1.61	0.89	1.61	0.43
1¼" x MPT 1¼"	PWR7480871	2.12	0.77	1.97	0.73
1½" x MPT 1½"	PWR7480880	2.13	0.77	2.24	0.89
2" x MPT 2"	PWR7480891	2.33	0.78	2.76	1.23

406 45° elbow EPDM

(2 x press)



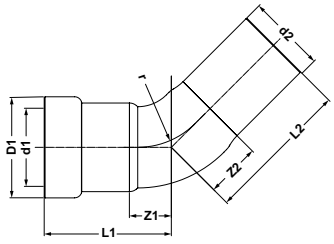


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	PWR7480242	1.59	0.49	0.98	0.32
¾"	PWR7480253	1.79	0.57	1.18	0.44
1"	PWR7480264	2.11	0.69	1.50	0.70
1¼"	PWR7480275	2.78	0.89	1.77	1.09
1½"	PWR7480286	2.91	0.98	1.97	1.44
2"	PWR7480297	3.29	1.20	2.56	2.03

406-2 45° street elbow EPDM

(press x street Ø)



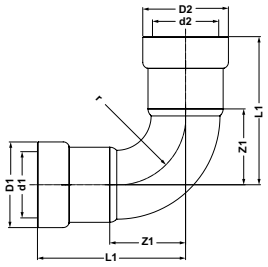


size	item no.	l1	l2	z1	r	weight [lb]
½"	PWR7480308	1.59	2.13	0.49	0.98	0.34
¾"	PWR7480319	1.81	2.26	0.59	1.18	0.45
1"	PWR7480321	2.13	2.68	0.71	1.50	0.71
1¼"	PWR7480330	2.78	3.24	0.89	1.77	1.10
1½"	PWR7480341	3.31	3.35	1.38	1.97	1.46
2"	PWR7480352	3.31	3.99	1.22	2.56	2.17

407 90° elbow EPDM

(2 x press)



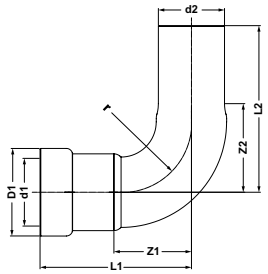


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	PWR7480121	2.17	1.06	0.98	0.39
¾"	PWR7480132	2.48	1.26	1.18	0.53
1"	PWR7480143	2.99	1.57	1.50	0.85
1¼"	PWR7480154	3.80	1.91	1.77	1.33
1½"	PWR7480165	4.06	2.13	1.97	1.77
2"	PWR7480176	4.78	2.70	2.56	2.57

407-2 90° street elbow EPDM

(2 x press)



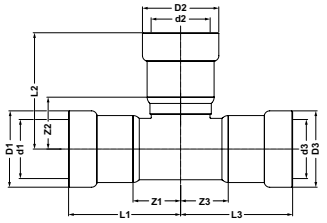


size	item no.	l1	l2	z1	r	weight [lb]
½″	PWR7480187	2.17	2.70	1.06	0.98	0.40
¾″	PWR7480198	2.48	2.95	1.26	1.18	0.55
1″	PWR7480209	2.99	3.56	1.57	1.50	0.89
1¼″	PWR7480211	3.80	4.27	1.91	1.77	1.34
1½″	PWR7480220	4.47	4.49	2.54	1.97	1.78
2″	PWR7480231	4.78	5.49	2.70	2.56	2.72

411 tee EPDM

(3 x press)



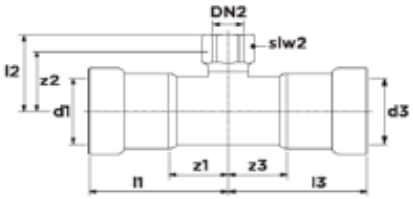


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
½″	PWR7480363	2.05	2.09	0.94	0.98	0.57
¾″	PWR7480374	2.24	2.30	1.02	1.08	0.74
1″	PWR7480385	2.60	2.66	1.18	1.24	1.14
1¼″	PWR7480396	3.23	3.35	1.34	1.46	1.74
1½″	PWR7480407	3.48	3.50	1.56	1.57	2.33
2″	PWR7480418	3.78	3.92	1.69	1.83	3.15

411R tee - reducing EPDM

(3 x press)



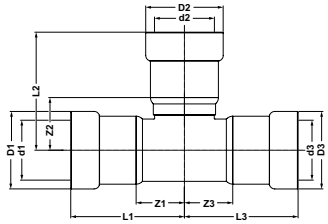


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
¾″ x ¾″ x ½″	PWR7480429	2.24	2.19	1.02	1.08	0.70
1″ x 1″ x ½″	PWR7480431	2.60	2.34	1.18	1.24	1.00
1″ x 1″ x ¾″	PWR7480440	2.60	2.46	1.18	1.24	1.04
1¼″ x 1¼″ x ½″	PWR7483003	3.22	2.50	1.33	1.39	1.24
1¼″ x 1¼″ x ¾″	PWR7483014	3.22	2.60	1.33	1.38	1.43
1¼″ x 1¼″ x 1″	PWR7480451	3.23	2.81	1.34	1.40	1.58
1½″ x 1½″ x ½″	PWR7480462	3.48	2.58	1.56	1.48	1.90
1½″ x 1½″ x ¾″	PWR7480473	3.48	2.69	1.56	1.47	1.94
1½″ x 1½″ x 1″	PWR7480484	3.48	2.89	1.56	1.48	2.02
1½″ x 1½″ x 1¼″	PWR7480495	3.48	3.43	1.56	1.54	2.21
2″ x 2″ x ½″	PWR7480506	3.78	2.87	1.69	1.77	2.55
2″ x 2″ x ¾″	PWR7480517	3.78	2.99	1.69	1.77	2.58
2″ x 2″ x 1″	PWR7480528	3.78	3.19	1.69	1.77	2.70
2″ x 2″ x 1¼″	PWR7480539	3.78	3.72	1.69	1.83	2.88
2″ x 2″ x 1½″	PWR7480541	3.78	3.80	1.69	1.87	2.98

4712 tee - female EPDM

(press x press x FPT)



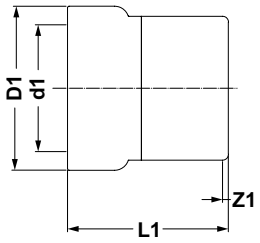


size	item no.	l1/l3	l2	z1/z3	z2	slw2	weight [lb]
¾″ x ¾″ x FPT ½″	PWR7480550	2.24	2.24	1.02	1.03	1.10	0.64
¾″ x ¾″ x FPT ¾″	PWR7480561	2.24	1.71	1.02	1.06	1.26	0.69
1″ x 1″ x FPT ½″	PWR7480572	2.60	1.81	1.18	1.19	1.10	0.96
1″ x 1″ x FPT ¾″	PWR7480583	2.60	1.87	1.18	1.22	1.26	0.96
1¼″ x 1¼″ x FPT ½″	PWR7480594	3.23	1.97	1.34	1.34	1.10	1.40
1¼″ x 1¼″ x FPT ¾″	PWR7483102	3.22	2.02	1.33	1.37	1.26	1.27
1¼″ x 1¼″ x FPT 1″	PWR7483113	3.22	2.17	1.33	1.40	1.61	1.41
1½″ x 1½″ x FPT ½″	PWR7480605	3.48	2.05	1.56	1.43	1.10	1.87
1½″ x 1½″ x FPT ¾″	PWR7480616	3.48	2.11	1.56	1.46	1.26	1.85
1½″ x 1½″ x FPT 1″	PWR7480627	3.48	2.26	1.56	1.49	1.61	1.95
1½″ x 1½″ x FPT 1¼″	PWR7480638	3.48	2.36	1.56	1.57	1.97	1.92
2″ x 2″ x FPT ½″	PWR7480649	3.78	2.34	1.69	1.72	1.10	2.47
2″ x 2″ x FPT ¾″	PWR7480651	3.78	2.40	1.69	1.75	1.26	2.49
2″ x 2″ x FPT 1″	PWR7480660	3.78	2.56	1.69	1.78	1.61	2.60
2″ x 2″ x FPT 1¼″	PWR7480671	3.78	2.66	1.69	1.87	1.97	2.82
2″ x 2″ x FPT 1½″	PWR7480682	3.78	2.66	1.69	1.87	2.36	3.04

417 cap EPDM

(1 x press)



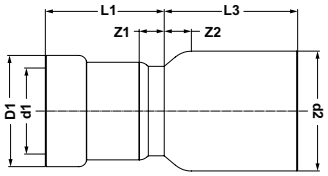


size	item no.	l1	z1	weight [lb]
½"	PWR7481232	1.38	0.28	0.17
¾"	PWR7481243	1.48	0.26	0.22
1"	PWR7481254	1.69	0.28	0.47
1¼"	PWR7481265	2.20	0.31	0.58
1½"	PWR7481276	2.24	0.31	0.74
2"	PWR7481287	2.44	0.35	0.98

418 fitting reducer EPDM

(street Ø x press)



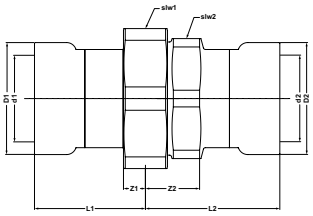


size	item no.	l1	l2	z2	weight [lb]
Ø ¾" x ½"	PWR7480693	1.37	1.15	0.04	0.29
Ø 1" x ½"	PWR7480704	1.56	1.15	0.04	0.40
Ø 1" x ¾"	PWR7480715	1.45	1.26	0.04	0.41
Ø 1¼" x 1"	PWR7480748	1.88	1.46	0.04	0.75
Ø 1½" x ¾"	PWR7480761	2.48	1.80	0.58	0.76
Ø 1½" x 1"	PWR7480770	1.94	1.46	0.04	0.88
Ø 1½" x 1¼"	PWR7480781	1.88	1.93	0.04	0.95
Ø 2" x 1"	PWR7480814	2.71	1.98	0.56	1.13
Ø 2" x 1¼"	PWR7480825	1.88	1.93	0.04	1.37
Ø 2" x 1½"	PWR7480836	1.95	1.97	0.04	1.32

4733 union EPDM

(2 x press)



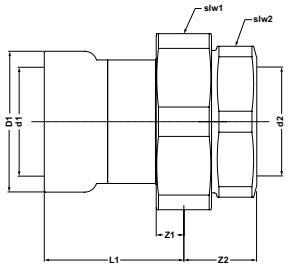


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½"	PWR7481111	1.74	2.04	0.65	0.94	1.61	1.42	0.49
¾"	PWR7481122	2.13	2.00	0.93	0.80	1.61	1.42	0.67
1"	PWR7481133	2.15	2.50	0.76	1.10	2.17	1.97	1.01
1¼"	PWR7481144	2.10	2.88	0.21	0.97	2.76	2.36	1.64
1½"	PWR7481155	2.97	2.85	1.04	0.92	2.76	2.36	2.23
2"	PWR7481166	3.31	3.31	1.21	1.21	3.35	2.95	2.90

4734 union - female EPDM

(press x FPT)



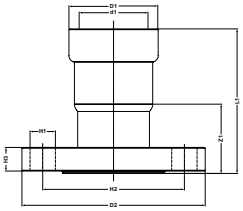


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½" x FPT ½"	PWR7483245	1.83	0.96	0.73	0.96	1.61	1.42	0.49
¾" x FPT ¾"	PWR7483256	2.22	0.91	1.00	0.91	1.61	1.42	0.67
1" x FPT 1"	PWR7483267	2.27	1.16	0.85	1.16	2.17	1.97	1.01
1¼" x FPT 1¼"	PWR7483278	2.22	1.23	0.33	1.23	2.76	2.36	1.64
1½" x FPT1½"	PWR7483289	3.09	1.16	1.16	1.16	2.76	2.36	2.23
2" x FPT 2"	PWR7483291	3.46	1.41	1.37	1.41	3.35	2.95	2.90

4771 flange adapter - class 150 EPDM

(press x flange)





size	item no.	l1	z1	k2	b2	D2	d2-2	n2	weight [lb]
½″	PWR7481177	2.42	1.32	2.38	0.63	3.54	0.63	4	1.16
¾″	PWR7481188	2.62	1.40	3.25	0.63	3.94	0.63	4	1.63
1″	PWR7481199	2.93	1.52	3.13	0.63	4.33	0.63	4	2.23
1¼″	PWR7481201	3.56	1.67	3.50	0.63	4.53	0.63	4	2.81
1½″	PWR7481210	3.80	1.87	3.88	0.63	4.92	0.63	4	3.69
2″	PWR7481221	3.90	1.81	4.74	0.63	5.91	0.75	4	5.44

“Apollo”® PowerPress®

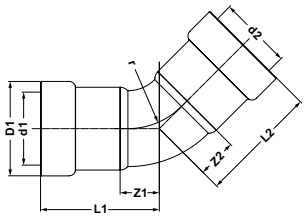
EPDM large diameter



406-LD 45° elbow EPDM

(press x press)



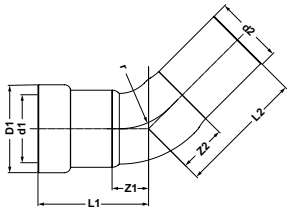


size	item no.	L1	L2	Z1	Z2	D1	d1	D2	d2	weight [lb]
2½″	123461308	3.92	3.92	2.05	2.05	3.54	2.93	3.54	2.93	2.48
3″	123461309	4.69	4.69	2.38	2.38	4.17	3.56	4.17	3.56	3.47
4″	123461310	6.14	6.14	3.01	3.01	5.20	4.58	5.20	4.58	5.69

406-2-LD 45° street elbow EPDM

(press x FTG)



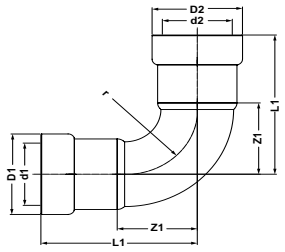


size	item no.	L1	L2	Z1	Z2	D1	d1	d2	weight [lb]
2½″	123461311	3.92	4.23	2.05		3.54	2.93	2.87	2.38
3″	123461312	4.69	4.57	2.38		4.17	3.56	3.50	3.26
4″	123461313	6.14	5.94	3.01		5.20	4.58	4.49	5.36

407-LD 90° elbow EPDM

(press x press)



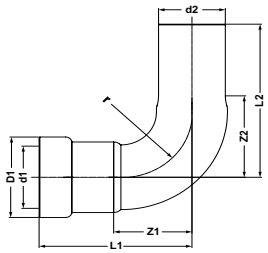


size	item no.	L1	L2	Z1	Z2	D1	d1	D2	d2	weight [lb]
2½″	123461314	5.98	5.98	4.11	4.11	3.54	2.93	3.54	2.93	3.31
3″	123461315	7.09	7.09	4.78	4.78	4.17	3.56	4.17	3.56	4.67
4″	123461316	9.25	9.25	6.12	6.12	5.20	4.58	5.20	4.58	7.60

407-2-LD 90° street elbow EPDM

(press x FTG)

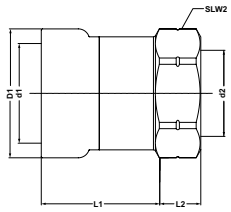




size	item no.	L1	L2	Z1	Z2	D1	d1	d2	weight [lb]
2½″	123461317	5.98	5.98	4.11		3.54	2.93	2.87	3.24
3″	123461318	7.09	6.97	4.78		4.17	3.56	3.50	4.42
4″	123461319	9.25	9.06	6.12		5.20	4.58	4.49	7.18

403-LD adapter-female EPDM
(press x FPT)

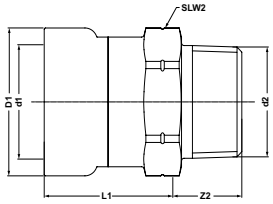




size	item no.	L1	Z2	D1	d1	d2	SLW2	weight [lb]
2½"	123461320			3.54	2.93	2.88		1.83
3"	123461321			4.17	3.56	3.50		2.35
4"	123461322			5.20	4.58	4.50		3.35

404-LD adapter-male EPDM
(press x MPT)

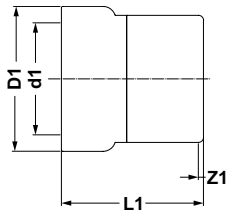




size	item no.	L1	Z2	D1	d1	d2	SLW2	weight [lb]
2½"	123461323			3.54	2.93	2.88		1.72
3"	123461324			4.17	3.56	3.50		2.34
4"	123461325			5.20	4.58	4.50		4.12

417-LD cap EPDM
(press)

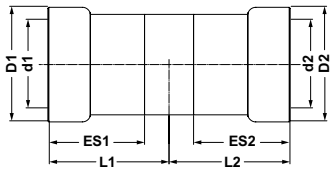




size	item no.	L1	Z1	D1	d1	weight [lb]
2½"	123461326	3.60	1.73	3.54	2.93	1.30
3"	123461327	4.21	1.91	4.17	3.56	1.70
4"	123461328	5.39	2.26	5.20	4.58	2.70

401-LD coupling - no stop EPDM
(press x press)

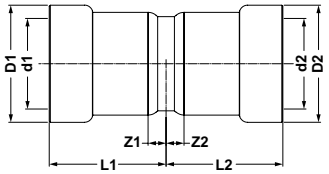




size	item no.	L1	L2	ES1	ES2	D1	d1	D2	d2	weight [lb]
2½"	123461329	2.46	2.46	1.87	1.87	3.54	2.93	3.54	2.93	1.73
3"	123461330	2.99	2.99	2.30	2.30	4.17	3.56	4.17	3.56	2.41
4"	123461331	3.94	3.94	3.13	3.13	5.20	4.58	5.20	4.58	4.01

400-LD coupling EPDM
(press x press)

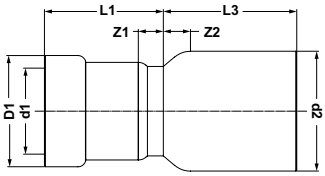




size	item no.	L1	L2	Z1	Z2	D1	d1	D2	d2	weight [lb]
2½"	123461332	2.46	2.46	0.59	0.59	3.54	2.93	3.54	2.93	1.73
3"	123461333	2.99	2.99	0.69	0.69	4.17	3.56	4.17	3.56	2.43
4"	123461334	3.94	3.94	0.81	0.81	5.20	4.58	5.20	4.58	3.96

418-LD fitting reducer EPDM
(FTG x press)

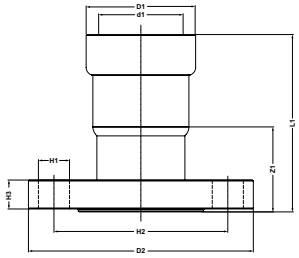




size	item no.	L1	L2	Z1	Z2	D1	d1	d2	weight [lb]
2½" x 1"	123461335	3.44	1.38			1.78	1.36	2.87	1.18
2½" x 1¼"	123461337	3.37	1.82			2.20	1.71	2.87	1.30
2½" x 1½"	123461336	3.30	1.87			2.44	1.95	2.87	1.41
2½" x 2"	123461338	3.13	1.95			2.89	2.42	2.87	1.49
3" x 1¼"	123461340	4.12	1.83			2.20	1.71	3.50	1.77
3" x 1½"	123461339	4.07	1.88			2.44	1.95	3.50	1.88
3" x 2"	123461341	4.26	1.96			2.89	2.42	3.50	1.66
3" x 2½"	123461342	3.81	1.90			3.54	2.93	3.50	1.95
4" x 1½"	123461343	5.56	1.88			2.44	1.95	4.49	3.07
4" x 2"	123461344	5.40	1.96			2.89	2.42	4.49	3.11
4" x 2½"	123461345	5.15	1.90			3.54	2.93	4.49	3.04
4" x 3"	123461346	5.03	2.33			4.17	3.56	4.49	3.26

4771-LD flange adapter (class 150) EPDM
(press x FLG)

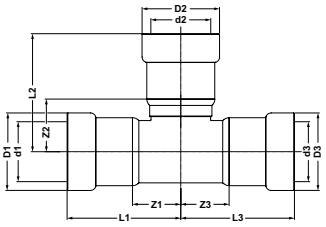




size	item no.	L1	Z1	D1	d1	D2	H1	H2	H3	weight [lb]
2½"	123461347	3.12	1.25	3.54	2.93	7.01	0.75	5.51	0.88	8.43
3"	123461348	3.78	1.48	4.17	3.56	7.48	0.75	6.00	0.94	9.88
4"	123461349	4.72	1.59	5.20	4.58	9.02	0.75	7.50	0.94	13.87

4712-LD tee-female EPDM
(press x press x FPT)





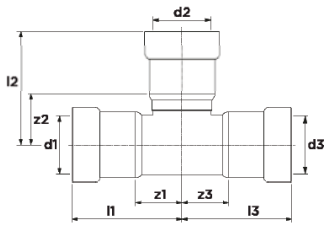
size	item no.	L1	L2	L3	Z1	Z2	Z3	weight [lb]
2½" x 2½" x FPT ¾"	123461350	3.15	1.40	3.15	1.28		1.28	2.24
3" x 3" x FPT ¾"	123461351	3.74	1.53	3.74	1.44		1.44	3.10
4" x 4" x FPT ¾"	123461352	4.72	1.77	4.72	1.59		1.59	4.50

size	item no.	D1	d1	d2	D3	d3	slw2	weight [lb]
2½" x 2½" x FPT ¾"	123461350	3.54	2.93	1.05	3.54	2.93	1.26	2.24
3" x 3" x FPT ¾"	123461351	4.17	3.56	1.05	4.17	3.56	1.26	3.10
4" x 4" x FPT ¾"	123461352	5.20	4.58	1.05	5.20	4.58	1.26	4.50

411R-LD tee-reducing EPDM

(press x press x press)





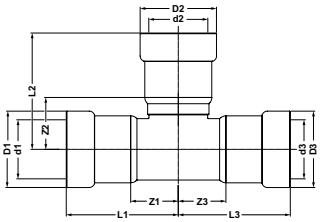
size	item no.	L1	L2	L3	Z1	Z2	Z3	weight [lb]
2½" x 2½" x 1"	123461353	3.9	3.33	3.9	2.03	1.97	2.03	2.36
2½" x 2½" x 1¼"	123461355	3.9	3.9	3.9	2.03	2.1	2.03	2.73
2½" x 2½" x 1½"	123461354	3.9	3.98	3.9	2.03	2.13	2.03	2.82
2½" x 2½" x 2"	123461356	3.9	4.07	3.9	2.03	2.15	2.03	3.25
3" x 3" x 1¼"	123461358	4.74	4.15	4.74	2.44	2.35	2.44	3.58
3" x 3" x 1½"	123461357	4.74	4.23	4.74	2.44	2.38	2.44	3.75
3" x 3" x 2"	123461359	4.74	4.33	4.74	2.44	2.4	2.44	4.08
3" x 3" x 2½"	123461360	4.74	4.15	4.74	2.44	2.28	2.44	4.26
4" x 4" x 1½"	123461361	6.18	4.72	6.18	3.05	2.87	3.05	5.54
4" x 4" x 2"	123461362	6.18	4.82	6.18	3.05	2.89	3.05	5.95
4" x 4" x 2½"	123461363	6.18	4.65	6.18	3.05	2.78	3.05	6.32
4" x 4" x 3"	123461364	6.18	5.2	6.18	3.05	2.89	3.05	6.73

size	item no.	D1	d1	D2	d2	D3	d3	weight [lb]
2½" x 2½" x 1"	123461353	3.54	2.93	1.78	1.36	3.54	2.93	2.36
2½" x 2½" x 1¼"	123461355	3.54	2.93	2.2	1.71	3.54	2.93	2.73
2½" x 2½" x 1½"	123461354	3.54	2.93	2.44	1.95	3.54	2.93	2.82
2½" x 2½" x 2"	123461356	3.54	2.93	2.89	2.42	3.54	2.93	3.25
3" x 3" x 1¼"	123461358	4.17	3.56	2.2	1.71	4.17	3.56	3.58
3" x 3" x 1½"	123461357	4.17	3.56	2.44	1.95	4.17	3.56	3.75
3" x 3" x 2"	123461359	4.17	3.56	2.89	2.42	4.17	3.56	4.08
3" x 3" x 2½"	123461360	4.17	3.56	3.54	2.93	4.17	3.56	4.26
4" x 4" x 1½"	123461361	5.2	4.58	2.44	1.95	5.2	4.58	5.54
4" x 4" x 2"	123461362	5.2	4.58	2.89	2.42	5.2	4.58	5.95
4" x 4" x 2½"	123461363	5.2	4.58	3.54	2.93	5.2	4.58	6.32
4" x 4" x 3"	123461364	5.2	4.58	4.17	3.56	5.2	4.58	6.73

411-LD tee EPDM

(press x press x press)





size	item no.	L1	L2	L3	Z1	Z2	Z3	weight [lb]
2½"	123461365	3.90	3.90	3.90	2.03	2.03	2.03	3.37
3"	123461366	4.74	4.74	4.74	2.44	2.44	2.44	4.80
4"	123461367	6.18	6.18	6.18	3.05	3.05	3.05	7.99

size	item no.	D1	d1	D2	d2	D3	d3	weight [lb]
2½"	123461365	3.54	2.93	3.54	2.93	3.54	2.93	3.37
3"	123461366	4.17	3.56	4.17	3.56	4.17	3.56	4.80
4"	123461367	5.20	4.58	5.20	4.58	5.20	4.58	7.99

“Apollo”® PowerPress®

HNBR fittings & valves



89FVH gas ball valve HNBR
(press x press)



description
the "Apollo"® PowerPress® 89FV ball valve is ideal for installation in compressed air and fuel gas applications. This valve design significantly reduces installation time and helps maintain a clean working environment. the "Apollo"® PowerPress® is designed for steel pipe, schedules 10 to 40, as defined by ASTM A53, A106, A135 and A795 standards.

specifications
- patented visual control ring (yellow)
- HNBR sealing element
- full-port flow
- adjustable stem packing
- fast, reliable, economical press installation
- Ridgid® & milwaukee press tool compatible
- leak before press® technology
- blowout-proof stem
- corrosion resistant materials
- 100% factory tested
- silicone free assembly
- made in USA, ARRA compliant

max. operating pressure	operating temperature
125 psi for fuel applications	-40°F to -194°F
200 psi other applications	

standard materials list

component	material
body	carbon steel (ASTM A216-WCB)
seat	reinforced PTFE
ball	stainless steel (ASTM A276-316)
stem packing	multi-fill PTFE
nut	corrosion resistant plated steel
stem	stainless steel (ASTM A276-316)
retainer	carbon steel (ASTM A108-12L14)
sealing element	HNBR
handle	plated steel / insulated polyvinyl
gland	carbon steel (ASTM A108-1215)
stem bearing	reinforced PTFE
body seal	PTFE

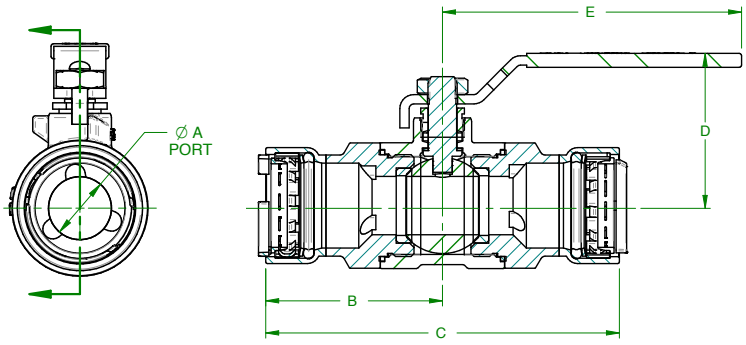
options

(-01)	standard (PTFE packing, RPTFE body seal)
(-02)	grounded stem
(-24)	graphite stem packing
(-49)	assembled dry
(-60)	grounded ball & stem

approved applications
- compressed air
- fuel gas

approvals & listings
- ANSI LC4/CSA 6.32
- IAPMO/ANSI Z1157
- CRN #0C10908 ADD11

compliant with
- uniform plumbing code (UPC)
- international plumbing code (IPC)
- international fuel gas code (IFGC)
- national plumbing code of canada



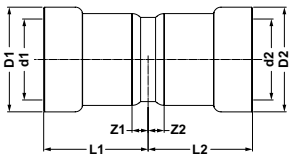
dimensions

size	item no.	weight [lb]	a	b	c	d	e
½"	89FVH4301	0.60	0.50	2.08	4.16	1.74	3.85
¾"	89FVH4401	0.90	0.75	2.28	4.55	1.96	3.85
1"	89FVH4501	1.40	1.00	2.72	5.44	2.29	4.76
1¼"	89FVH4601	4.20	1.25	3.41	6.82	3.20	7.76
1½"	89FVH4701	4.80	1.50	3.62	7.24	3.30	7.76
2"	89FVH4801	7.20	2.00	3.93	7.85	3.68	7.76

400G coupling HNBR

(2 x press)



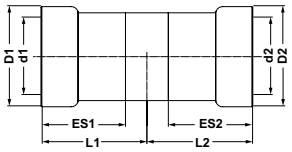


size	item no.	l1/l2	z1/z2	weight [lb]
½"	PWR7481298	1.34	0.24	0.29
¾"	PWR7481309	1.46	0.24	0.38
1"	PWR7481311	1.65	0.23	0.48
1¼"	PWR7481320	2.19	0.30	0.95
1½"	PWR7481331	2.26	0.33	1.20
2"	PWR7481342	2.38	0.30	1.58

401G coupling - no stop HNBR

(2 x press)



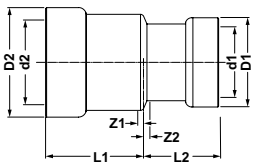


size	item no.	l1/l2	es1/es2	weight [lb]
½"	PWR7481353	1.55	1.10	0.32
¾"	PWR7481364	1.64	1.22	0.41
1"	PWR7481375	1.84	1.42	0.62
1¼"	PWR7481386	2.34	1.89	0.95
1½"	PWR7481397	2.50	1.93	1.29
2"	PWR7481408	2.56	2.09	1.68

401RG coupling - reducing HNBR

(2 x press)



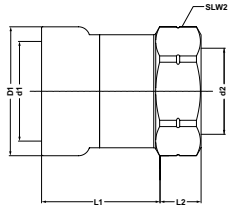


size	item no.	l1	l2	z1	z2	weight [lb]
¾" x ½"	PWR7483168	1.33	1.14	0.11	0.04	0.29
1" x ½"	PWR7483179	1.61	1.13	0.19	0.03	0.32
1" x ¾"	PWR7483181	1.55	1.24	0.13	0.02	0.07
1¼" x ¾"	PWR7483190	2.15	1.24	0.26	0.02	0.63
1¼" x 1"	PWR7483201	2.07	1.43	0.18	0.01	0.60
1½" x 1¼"	PWR7483212	2.09	1.95	0.16	0.06	0.80
2" x 1¼"	PWR7483223	2.39	1.95	0.31	0.06	0.98
2"x 1½"	PWR7483234	2.33	2.00	0.24	0.07	1.22

403G adapter - female HNBR

(press x FPT)



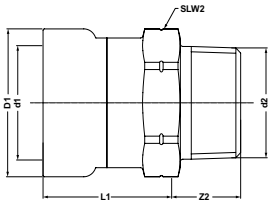


size	item no.	l1	l2	z1	z2	slw2	weight [lb]
½" x FPT ½"	PWR7482145	1.26	0.57	0.16	0.00	1.10	0.23
¾" x FPT ½"	PWR7482156	1.32	0.63	0.10	0.06	1.42	0.36
¾" x FPT ¾"	PWR7482167	1.30	0.63	0.08	0.00	1.42	0.33
1" x FPT ½"	PWR7482178	1.52	0.71	0.10	0.06	1.61	0.60
1" x FPT ¾"	PWR7482189	1.48	0.71	0.06	0.06	1.61	0.53
1" x FPT 1"	PWR7482191	1.56	0.71	0.14	0.00	1.61	0.43
1¼" x FPT ½"	PWR7482200	2.05	0.79	0.16	0.16	1.97	1.07
1¼" x FPT ¾"	PWR7482211	2.11	0.69	0.22	0.06	1.97	0.99
1¼" x FPT 1"	PWR7482222	2.07	0.79	0.18	0.04	1.97	0.73
1¼" x FPT 1¼"	PWR7482233	1.97	0.83	0.08	0.00	1.97	0.74
1½" x FPT ½"	PWR7482244	2.09	0.85	0.16	0.22	2.24	1.44
1½" x FPT ¾"	PWR7482255	2.11	0.79	0.18	0.16	2.24	1.35
1½" x FPT 1"	PWR7482266	2.17	0.79	0.24	0.04	2.24	1.32
1½" x FPT 1¼"	PWR7482277	2.09	0.79	0.16	0.02	2.24	1.08
1½" x FPT1½"	PWR7482288	2.01	0.81	0.08	0.04	2.24	0.91
2" x FPT ½"	PWR7482299	2.46	0.79	0.37	0.18	2.76	1.75
2" x FPT ¾"	PWR7482301	2.46	0.79	0.37	0.16	2.76	1.98
2" x FPT 1"	PWR7482310	2.46	0.79	0.37	0.04	2.76	1.23
2" x FPT 1¼"	PWR7482321	2.46	0.79	0.37	0.02	2.76	1.69
2" x FPT1½"	PWR7482332	2.32	0.79	0.24	0.02	2.76	1.65
2" x FPT 2"	PWR7482343	2.22	0.79	0.14	0.00	2.76	1.21

404G adapter - male HNBR

(press x MPT)



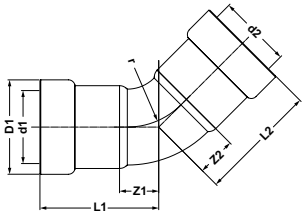


size	item no.	l1	l2	slw2	weight [lb]
½" x MPT ½"	PWR7482081	1.38	0.61	1.10	0.22
¾" x MPT ¾"	PWR7482090	1.40	0.63	1.42	0.31
1" x MPT 1"	PWR7482101	1.61	0.89	1.61	0.40
1¼" x MPT 1¼"	PWR7482112	2.12	0.77	1.97	0.75
1½" x MPT 1½"	PWR7482123	2.13	0.77	2.24	0.91
2" x MPT 2"	PWR7482134	2.33	0.78	2.76	1.23

406G 45° elbow HNBR

(2 x press)



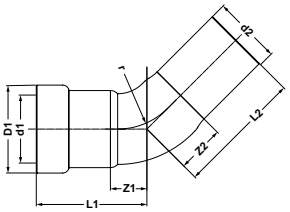


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	PWR7481531	1.59	0.49	0.98	0.33
¾"	PWR7481540	1.79	0.57	1.18	0.44
1"	PWR7481551	2.11	0.69	1.50	0.73
1¼"	PWR7481562	2.78	0.89	1.77	1.12
1½"	PWR7481573	2.91	0.98	1.97	1.48
2"	PWR7481584	3.29	1.20	2.56	2.06

406-2G 45° street elbow HNBR

(press x street Ø)



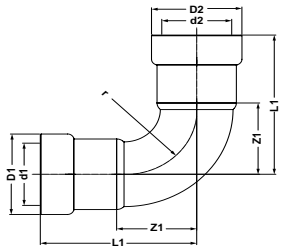


size	item no.	l1	l2	z1	r	weight [lb]
½"	PWR7481595	1.59	2.13	0.49	0.98	0.34
¾"	PWR7481606	1.81	2.26	0.59	1.18	0.45
1"	PWR7481617	2.13	2.68	0.71	1.50	0.71
1¼"	PWR7481628	2.78	3.24	0.89	1.77	1.01
1½"	PWR7481639	3.31	3.35	1.38	1.97	1.51
2"	PWR7481641	3.31	3.99	1.22	2.56	2.19

407G 90° elbow HNBR

(2 x press)



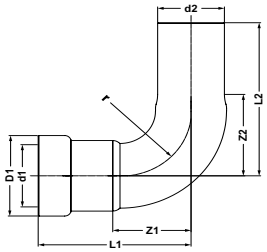


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	PWR7481419	2.17	1.06	0.98	0.40
¾"	PWR7481421	2.48	1.26	1.18	0.54
1"	PWR7481430	2.99	1.57	1.50	0.86
1¼"	PWR7481441	3.80	1.91	1.77	1.33
1½"	PWR7481452	4.06	2.13	1.97	1.80
2"	PWR7481463	4.78	2.70	2.56	2.64

407-2G 90° street elbow HNBR

(2 x press)



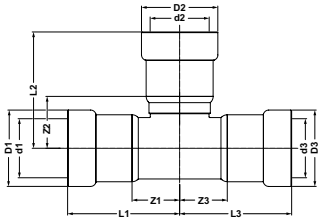


size	item no.	l1	l2	z1	r	weight [lb]
½"	PWR7481474	2.17	2.70	1.06	0.98	0.40
¾"	PWR7481485	2.48	2.95	1.26	1.18	0.54
1"	PWR7481496	2.99	3.56	1.57	1.50	0.89
1¼"	PWR7481507	3.80	4.27	1.91	1.77	1.36
1½"	PWR7481518	4.47	4.49	2.54	1.97	1.80
2"	PWR7481529	4.78	5.49	2.70	2.56	2.76

411G tee HNBR

(3 x press)



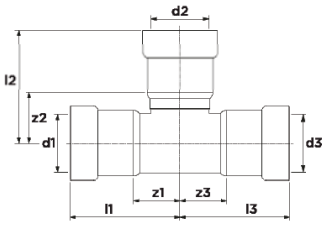


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
½"	PWR7481650	2.05	2.09	0.94	0.98	0.57
¾"	PWR7481661	2.24	2.30	1.02	1.08	0.74
1"	PWR7481672	2.60	2.66	1.18	1.24	1.14
1¼"	PWR7481683	3.23	3.35	1.34	1.46	1.78
1½"	PWR7481694	3.48	3.50	1.56	1.57	2.36
2"	PWR7481705	3.78	3.92	1.69	1.83	3.17

411RG tee reducing HNBR

(3 x press)



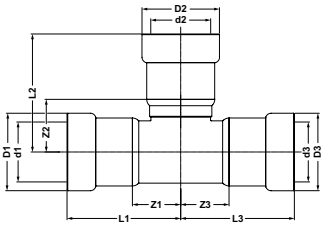


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
¾" x ¾" x ½"	PWR7481716	2.24	2.19	1.02	1.08	0.70
1" x 1" x ½"	PWR7481727	2.60	2.34	1.18	1.24	1.00
1" x 1" x ¾"	PWR7481738	2.60	2.46	1.18	1.24	1.05
1¼" x 1¼" x ½"	PWR7483124	3.22	2.50	1.33	1.39	1.24
1¼" x 1¼" x ¾"	PWR7483135	3.22	2.60	1.33	1.38	1.51
1¼" x 1¼" x 1"	PWR7481749	3.23	2.81	1.34	1.40	1.61
1½" x 1½" x ½"	PWR7481751	3.48	2.58	1.56	1.48	1.91
1½" x 1½" x ¾"	PWR7481760	3.48	2.69	1.56	1.47	1.94
1½" x 1½" x 1"	PWR7481771	3.48	2.89	1.56	1.48	2.05
1½" x 1½" x 1¼"	PWR7481782	3.48	3.43	1.56	1.54	2.23
2" x 2" x ½"	PWR7481793	3.78	2.87	1.69	1.77	2.56
2" x 2" x ¾"	PWR7481804	3.78	2.99	1.69	1.77	2.62
2" x 2" x 1"	PWR7481815	3.78	3.19	1.69	1.77	2.72
2" x 2" x 1¼"	PWR7481826	3.78	3.72	1.69	1.83	2.90
2" x 2" x 1½"	PWR7481837	3.78	3.80	1.69	1.87	3.02

4712G tee female HNBR

(press x press x FPT)



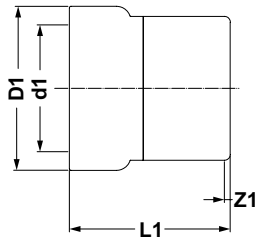


size	item no.	l1/l3	l2	z1/z3	z2	slw2	weight [lb]
¾" x ¾" x FPT ½"	PWR7481848	2.24	2.24	1.02	1.03	1.10	0.68
¾" x ¾" x FPT ¾"	PWR7481859	2.24	1.71	1.02	1.06	1.26	0.70
1" x 1" x FPT ½"	PWR7481861	2.60	1.81	1.18	1.19	1.10	0.98
1" x 1" x FPT ¾"	PWR7481870	2.60	1.87	1.18	1.22	1.26	0.91
1¼" x 1¼" x FPT ½"	PWR7481881	3.23	1.97	1.34	1.34	1.10	1.25
1¼" x 1¼" x FPT ¾"	PWR7483146	3.22	1.37	1.33	1.37	1.26	1.42
1¼" x 1¼" x FPT 1"	PWR7483157	3.22	2.17	1.33	1.40	1.61	1.40
1½" x 1½" x FPT ½"	PWR7481892	3.48	2.05	1.56	1.43	1.10	1.89
1½" x 1½" x FPT ¾"	PWR7481903	3.48	2.11	1.56	1.46	1.26	1.81
1½" x 1½" x FPT 1"	PWR7481914	3.48	2.26	1.56	1.49	1.61	2.04
1½" x 1½" x FPT 1¼"	PWR7481925	3.48	2.36	1.56	1.57	1.97	1.92
2" x 2" x FPT ½"	PWR7481936	3.78	2.34	1.69	1.72	1.10	2.53
2" x 2" x FPT ¾"	PWR7481947	3.78	2.40	1.69	1.75	1.26	2.58
2" x 2" x FPT 1"	PWR7481958	3.78	2.56	1.69	1.78	1.61	2.71
2" x 2" x FPT 1¼"	PWR7481969	3.78	2.66	1.69	1.87	1.97	2.80
2" x 2" x FPT 1½"	PWR7481971	3.78	2.66	1.69	1.87	2.36	3.05

417G cap HNBR

(1 x press)



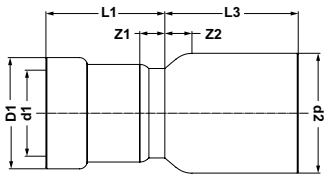


size	item no.	l1	z1	weight [lb]
½"	PWR7482475	1.38	0.28	0.17
¾"	PWR7482486	1.48	0.26	0.22
1"	PWR7482497	1.69	0.28	0.48
1¼"	PWR7482508	2.20	0.31	0.60
1½"	PWR7482519	2.24	0.31	0.75
2"	PWR7482521	2.44	0.35	0.99

418G fitting reducer HNBR

(street Ø x press)



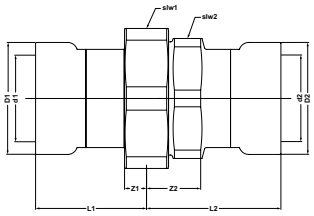


size	item no.	l1	l2	z2	weight [lb]
Ø ¾" x ½"	PWR7481980	1.37	1.15	0.04	0.30
Ø 1" x ½"	PWR7481991	1.56	1.15	0.04	0.40
Ø 1" x ¾"	PWR7482002	1.45	1.26	0.04	0.42
Ø 1¼" x 1"	PWR7482013	1.88	1.46	0.04	0.76
Ø 1½" x ¾"	PWR7482024	2.48	1.80	0.58	0.78
Ø 1½" x 1"	PWR7482035	1.94	1.46	0.04	0.86
Ø 1½" x 1¼"	PWR7482046	1.88	1.93	0.04	0.97
Ø 2" x 1"	PWR7482057	2.71	1.98	0.56	1.13
Ø 2" x 1¼"	PWR7482068	1.88	1.93	0.04	1.39
Ø 2" x 1½"	PWR7482079	1.95	1.97	0.04	1.34

4733G union HNBR

(2 x press)



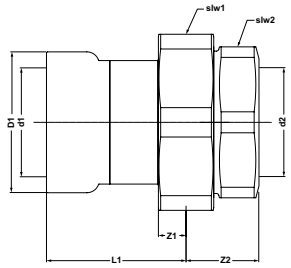


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½"	PWR7482354	1.74	2.04	0.65	0.94	1.61	1.42	0.49
¾"	PWR7482365	2.13	2.00	0.93	0.80	1.61	1.42	0.67
1"	PWR7482376	2.15	2.50	0.76	1.10	2.17	1.97	1.01
1¼"	PWR7482387	2.10	2.88	0.21	0.97	2.76	2.36	1.64
1½"	PWR7482398	2.97	2.85	1.04	0.92	2.76	2.36	2.23
2"	PWR7482409	3.31	3.31	1.21	1.21	3.35	2.95	2.90

4734G union female HNBR

(press x FPT)



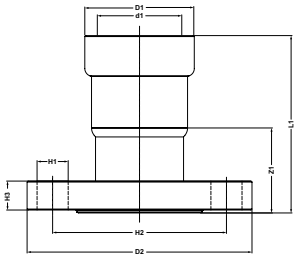


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½" x FPT ½"	PWR7483300	1.83	0.96	0.73	0.96	1.61	1.42	0.49
¾" x FPT ¾"	PWR7483311	2.22	0.91	1.00	0.91	1.61	1.42	0.67
1" x FPT 1"	PWR7483322	2.27	1.16	0.85	1.16	2.17	1.97	1.01
1¼" x FPT 1¼"	PWR7483333	2.22	1.23	0.33	1.23	2.76	2.36	1.64
1½" x FPT1½"	PWR7483344	3.09	1.16	1.16	1.16	2.76	2.36	2.23
2" x FPT 2"	PWR7483355	3.46	1.41	1.37	1.41	3.35	2.95	3.37

4771G flange adapter - class 150 HNBR

(press x flange)





size	item no.	l1	z1	k2	b2	D2	d2-2	n2	weight [lb]
½″	PWR7482411	2.42	1.32	2.38	0.63	3.54	0.63	4	1.15
¾″	PWR7482420	2.62	1.40	3.25	0.63	3.94	0.63	4	1.63
1″	PWR7482431	2.93	1.52	3.13	0.63	4.33	0.63	4	2.24
1¼″	PWR7482442	3.56	1.67	3.50	0.63	4.53	0.63	4	2.82
1½″	PWR7482453	3.80	1.87	3.88	0.63	4.92	0.63	4	3.75
2″	PWR7482464	3.90	1.81	4.74	0.63	5.91	0.75	4	5.42

"Apollo"® PowerPress®

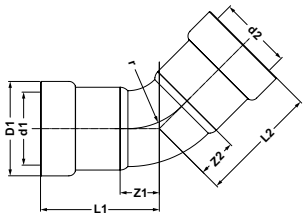
HNBR large diameter



406G-LD 45° elbow HNBR

(press x press)



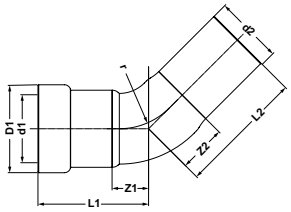


size	item no.	L1	L2	Z1	Z2	D1	d1	D2	d2	weight [lb]
2½″	123461052	3.92	3.92	2.05	2.05	3.54	2.93	3.54	2.93	2.48
3″	123461053	4.69	4.69	2.38	2.38	4.17	3.56	4.17	3.56	3.47
4″	123461054	6.14	6.14	3.01	3.01	5.20	4.58	5.20	4.58	5.69

406-2G-LD 45° street elbow HNBR

(press x FTG)



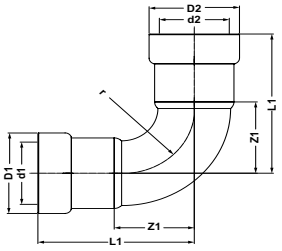


size	item no.	L1	L2	Z1	Z2	D1	d1	d2	weight [lb]
2½″	123461055	3.92	4.23	2.05		3.54	2.93	2.87	2.38
3″	123461056	4.69	4.57	2.38		4.17	3.56	3.50	3.26
4″	123461057	6.14	5.94	3.01		5.20	4.58	4.49	5.36

407G-LD 90° elbow EPDM

(press x press)



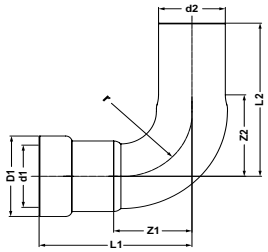


size	item no.	L1	L2	Z1	Z2	D1	d1	D2	d2	weight [lb]
2½″	123461058	5.98	5.98	4.11	4.11	3.54	2.93	3.54	2.93	3.31
3″	123461059	7.09	7.09	4.78	4.78	4.17	3.56	4.17	3.56	4.67
4″	123461060	9.25	9.25	6.12	6.12	5.20	4.58	5.20	4.58	7.60

407-2G-LD 90° street elbow HNBR

(press x FTG)

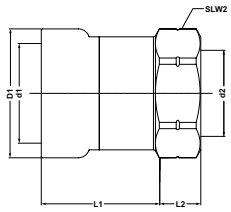




size	item no.	L1	L2	Z1	Z2	D1	d1	d2	weight [lb]
2½″	123461061	5.98	5.98	4.11		3.54	2.93	2.87	3.24
3″	123461062	7.09	6.97	4.78		4.17	3.56	3.50	4.42
4″	123461063	9.25	9.06	6.12		5.20	4.58	4.49	7.18

403G-LD adapter-female HNBR
(press x FPT)

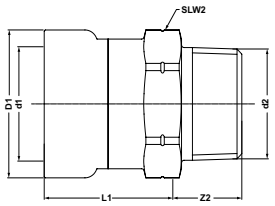




size	item no.	L1	Z2	D1	d1	d2	SLW2	weight [lb]
2½"	123461064			3.54	2.93	2.88		1.83
3"	123461065			4.17	3.56	3.50		2.35
4"	123461066			5.20	4.58	4.50		3.35

404G-LD adapter-male HNBR
(press x MPT)

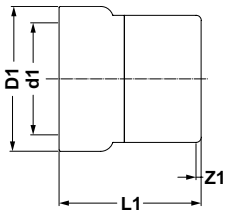




size	item no.	L1	Z2	D1	d1	d2	SLW2	weight [lb]
2½"	123461067			3.54	2.93	2.88		1.72
3"	123461068			4.17	3.56	3.50		2.34
4"	123461069			5.20	4.58	4.50		4.12

417G-LD cap HNBR
(press)

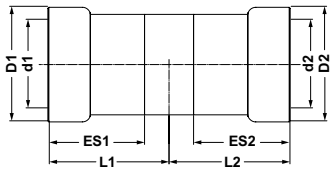




size	item no.	L1	Z1	D1	d1	weight [lb]
2½"	123461070	3.60	1.73	3.54	2.93	1.30
3"	123461071	4.21	1.91	4.17	3.56	1.70
4"	123461072	5.39	2.26	5.20	4.58	2.70

401G-LD coupling - no stop HNBR
(press x press)

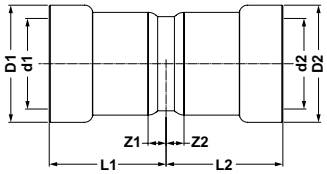




size	item no.	L1	L2	ES1	ES2	D1	d1	D2	d2	weight [lb]
2½"	123461073	2.46	2.46	1.87	1.87	3.54	2.93	3.54	2.93	1.73
3"	123461074	2.99	2.99	2.30	2.30	4.17	3.56	4.17	3.56	2.41
4"	123461075	3.94	3.94	3.13	3.13	5.20	4.58	5.20	4.58	4.01

400G-LD coupling HNBR
(press x press)

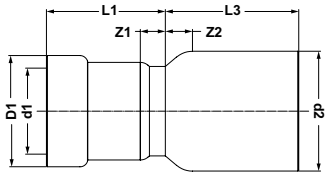




size	item no.	L1	L2	Z1	Z2	D1	d1	D2	d2	weight [lb]
2½”	123461076	2.46	2.46	0.59	0.59	3.54	2.93	3.54	2.93	1.73
3”	123461077	2.99	2.99	0.69	0.69	4.17	3.56	4.17	3.56	2.43
4”	123461078	3.94	3.94	0.81	0.81	5.20	4.58	5.20	4.58	3.96

418G-LD fitting reducer HNBR
(FTG x press)

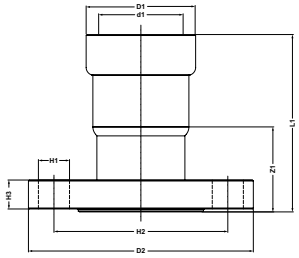




size	item no.	L1	L2	Z1	Z2	D1	d1	d2	weight [lb]
2½” x 1”	123461079	3.44	1.38			1.78	1.36	2.87	1.18
2½” x 1¼”	123461081	3.37	1.82			2.20	1.71	2.87	1.30
2½” x 1½”	123461080	3.30	1.87			2.44	1.95	2.87	1.41
2½” x 2”	123461082	3.13	1.95			2.89	2.42	2.87	1.49
3” x 1¼”	123461084	4.12	1.83			2.20	1.71	3.50	1.77
3” x 1½”	123461083	4.07	1.88			2.44	1.95	3.50	1.88
3” x 2”	123461085	4.26	1.96			2.89	2.42	3.50	1.66
3” x 2½”	123461086	3.81	1.90			3.54	2.93	3.50	1.95
4” x 1½”	123461087	5.56	1.88			2.44	1.95	4.49	3.07
4” x 2”	123461088	5.40	1.96			2.89	2.42	4.49	3.11
4” x 2½”	123461089	5.15	1.90			3.54	2.93	4.49	3.04
4” x 3”	123461090	5.03	2.33			4.17	3.56	4.49	3.26

4771G-LD flange adapter (class 150) HNBR
(press x FLG)

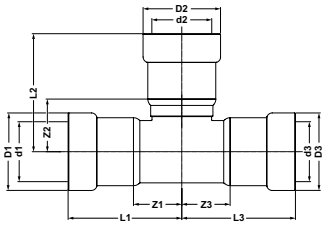




size	item no.	L1	Z1	D1	d1	D2	H1	H2	H3	weight [lb]
2½”	123461091	3.12	1.25	3.54	2.93	7.01	0.75	5.51	0.88	8.43
3”	123461092	3.78	1.48	4.17	3.56	7.48	0.75	6.00	0.94	9.88
4”	123461093	4.72	1.59	5.20	4.58	9.02	0.75	7.50	0.94	13.87

4712G-LD tee-female HNBR
(press x press x FPT)





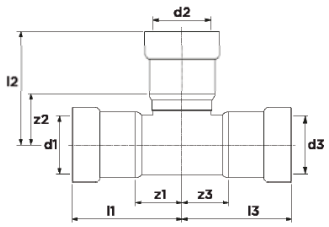
size	item no.	L1	L2	L3	Z1	Z2	Z3	weight [lb]
2½” x 2½” x FPT ¾”	123461094	3.15	1.40	3.15	1.28		1.28	2.24
3” x 3” x FPT ¾”	123461095	3.74	1.53	3.74	1.44		1.44	3.10
4” x 4” x FPT ¾”	123461096	4.72	1.77	4.72	1.59		1.59	4.50

size	item no.	D1	d1	d2	D3	d3	slw2	weight [lb]
2½” x 2½” x FPT ¾”	123461094	3.54	2.93	1.05	3.54	2.93	1.26	2.24
3” x 3” x FPT ¾”	123461095	4.17	3.56	1.05	4.17	3.56	1.26	3.10
4” x 4” x FPT ¾”	123461096	5.20	4.58	1.05	5.20	4.58	1.26	4.50

411RG-LD tee-reducing HNBR

(press x press x press)





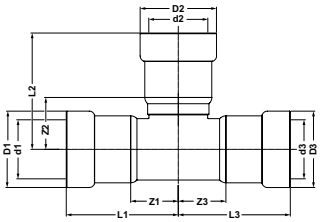
size	item no.	L1	L2	L3	Z1	Z2	Z3	weight [lb]
2½" x 2½" x 1"	123461097	3.9	3.33	3.9	2.03	1.97	2.03	2.36
2½" x 2½" x 1¼"	123461099	3.9	3.9	3.9	2.03	2.1	2.03	2.73
2½" x 2½" x 1½"	123461098	3.9	3.98	3.9	2.03	2.13	2.03	2.82
2½" x 2½" x 2"	123461100	3.9	4.07	3.9	2.03	2.15	2.03	3.25
3" x 3" x 1¼"	123461102	4.74	4.15	4.74	2.44	2.35	2.44	3.58
3" x 3" x 1½"	123461101	4.74	4.23	4.74	2.44	2.38	2.44	3.75
3" x 3" x 2"	123461103	4.74	4.33	4.74	2.44	2.4	2.44	4.08
3" x 3" x 2½"	123461104	4.74	4.15	4.74	2.44	2.28	2.44	4.26
4" x 4" x 1½"	123461105	6.18	4.72	6.18	3.05	2.87	3.05	5.54
4" x 4" x 2"	123461106	6.18	4.82	6.18	3.05	2.89	3.05	5.95
4" x 4" x 2½"	123461107	6.18	4.65	6.18	3.05	2.78	3.05	6.32
4" x 4" x 3"	123461108	6.18	5.2	6.18	3.05	2.89	3.05	6.73

size	item no.	D1	d1	D2	d2	D3	d3	weight [lb]
2½" x 2½" x 1"	123461097	3.54	2.93	1.78	1.36	3.54	2.93	2.36
2½" x 2½" x 1¼"	123461099	3.54	2.93	2.2	1.71	3.54	2.93	2.73
2½" x 2½" x 1½"	123461098	3.54	2.93	2.44	1.95	3.54	2.93	2.82
2½" x 2½" x 2"	123461100	3.54	2.93	2.89	2.42	3.54	2.93	3.25
3" x 3" x 1¼"	123461102	4.17	3.56	2.2	1.71	4.17	3.56	3.58
3" x 3" x 1½"	123461101	4.17	3.56	2.44	1.95	4.17	3.56	3.75
3" x 3" x 2"	123461103	4.17	3.56	2.89	2.42	4.17	3.56	4.08
3" x 3" x 2½"	123461104	4.17	3.56	3.54	2.93	4.17	3.56	4.26
4" x 4" x 1½"	123461105	5.2	4.58	2.44	1.95	5.2	4.58	5.54
4" x 4" x 2"	123461106	5.2	4.58	2.89	2.42	5.2	4.58	5.95
4" x 4" x 2½"	123461107	5.2	4.58	3.54	2.93	5.2	4.58	6.32
4" x 4" x 3"	123461108	5.2	4.58	4.17	3.56	5.2	4.58	6.73

411G-LD tee HNBR

(press x press x press)





size	item no.	L1	L2	L3	Z1	Z2	Z3	weight [lb]
2½"	123461109	3.90	3.90	3.90	2.03	2.03	2.03	3.37
3"	123461110	4.74	4.74	4.74	2.44	2.44	2.44	4.80
4"	123461111	6.18	6.18	6.18	3.05	3.05	3.05	7.99

size	item no.	D1	d1	D2	d2	D3	d3	weight [lb]
2½"	123461109	3.54	2.93	3.54	2.93	3.54	2.93	3.37
3"	123461110	4.17	3.56	4.17	3.56	4.17	3.56	4.80
4"	123461111	5.20	4.58	5.20	4.58	5.20	4.58	7.99

warranty

scope

Subject to the conditions and limitations in this Limited Warranty, Aalberts integrated piping systems warrants to the owner of applicable real property in the United States (including its territories) and Canada that all Apollo® press ttings listed in the Apollo PowerPress® product range, when properly installed in the Approved Applications speci cally mentioned below, under normal conditions of use, shall be free from failure caused by manufacturing defects for the applicable Warranty Period(s). This Limited Warranty applies strictly to products installed in the country in which they were purchased. The terms of this Limited Warranty shall only apply when installation is performed in conformance with Apollo’s written installation instructions. Additionally, all products must be installed in accordance with all then applicable codes, good plumbing practices, and in accordance with any local, state, provincial or federal requirements. This Limited Warranty shall be applicable to Apollo PowerPress® products only during the following Warranty Period(s):

• The terms of this Limited Warranty shall apply to Apollo PowerPress® fittings for a period of 15 years from the date of delivery to the original purchaser.

• The terms of this Limited Warranty shall apply to Apollo PowerPress® valves for a period of 5 years from the date of delivery to the original purchaser.

APPROVED APPLICATIONS

The Apollo PowerPress® system can be used in the following applications:

Apollo PowerPress®

• Closed loop heating installations

• Closed loop cooling installations

• Compressed air installations • Wet sprinkler installations

Apollo PowerPress® Gas system:

• Gas installations

compatibility

Aalberts integrated piping systems guarantees the pressed connection of Apollo PowerPress® fittings when pressed under the following conditions:

1. The steel tubes (or those with epoxy coating, painting, or galvanized layer) comply to EN 10255, EN10220, ASTM A53, ASTM A106, ASTM A135, A795 (schedule 10 to 40).

2. The selected combination of tools, fittings and tube is permitted by the Apollo PowerPress® Catalog* valid at the time of installation.

3. All other terms of the Limited Warranty, as described in this document have been followed.

content of the limited warranty

Aalberts integrated piping systems warrants, to the initial purchaser of the Apollo PowerPress® product range, that such products which are delivered to this initial purchaser will be of the kind described in the order or price list and will be free of defects in workmanship or material. For Apollo PowerPress® valve products, this warranty is for a period of FIVE years from the date of delivery to you, our initial purchaser. Should any failure to conform to these warranties appear within FIVE years after the date of the initial delivery to our initial purchaser, Aalberts integrated piping systems will, upon written notification thereof and substantiation that the goods have been stored, installed, maintained and operated in accordance with Aalberts integrated piping systems’ written instructions and recommendations, as well as standard industry practice, correct such defects by suitable repair or replacement at Aalberts integrated piping systems’ own expense. For Apollo PowerPress® Fittings, this warranty is for a period of FIFTEEN years from the date of delivery to you, our initial purchaser. Should any failure to conform to these warranties appear within FIFTEEN years after the date of the initial delivery to our initial purchaser, Aalberts integrated piping systems will, upon written notification thereof and substantiation that the goods have been stored, installed, maintained and operated in accordance with Aalberts integrated piping systems’ written instructions and recommendations, as well as standard industry practice, correct such defects by suitable repair or replacement at Aalberts integrated piping systems’ own expense. Any Apollo PowerPress® product which proves to be defective will be replaced or a credit issued, but no incidental labor charges, expenses or damages will be allowed. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESSED OR IMPLIED, EXCEPT THE WARRANTY OF TITLE AND AGAINST PATENT INFRINGEMENT. Correction of non-conformities, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Aalberts integrated piping systems to our initial purchaser, with respect to the goods, whether based on contract, negligence, strict tort or otherwise. It is the intention of Aalberts integrated piping systems that no warranty of any kind, whether expressed or implied shall pass through our initial purchaser to any other person or corporation. LIMITATION OF LIABILITY: AALBERTS INTEGRATED PIPING SYSTEMS SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, DAMAGES OR TO LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, COST OF PURCHASED OR REPLACEMENT GOODS, OR CLAIMS OF CUSTOMERS OF OUR INITIAL PURCHASER. THE REMEDIES OF OUR INITIAL PURCHASER, AND ALL OTHERS, SET FORTH HEREIN, ARE EXCLUSIVE, AND THE LIABILITY OF AALBERTS INTEGRATED PIPING SYSTEMS WITH RESPECT TO SAME SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED. This Limited Warranty and any claims arising from breach of contract, breach of warranty, tort, or any other claim arising from sale or use of Apollo® PowerPress® products shall be governed and construed under the laws of the State of North Carolina. * It is the end user’s responsibility to confirm that items intended for use satisfy local codes and standards.

requirements of the installer

The installer is required to:

1. Check if the application of the products is legal and in accordance with local regulations.

2. Comply with the valid and accepted rules and regulations of installation technique.

3. Take any and all measures necessary in order to mitigate any damage.

4. Immediately notify Aalberts integrated piping systems in writing when the installer discovers or should have discovered any damage that has occurred, by giving a description of the event which contains the customer name, address, the time and a description of the damage.

5. Give Aalberts integrated piping systems the opportunity to, after receiving the notification of damage, evaluate the damage itself or to have it appraised by an expert.

6. Send the parts that have caused the damage directly to Aalberts integrated piping systems for further investigation by Aalberts integrated piping systems.

7. If, without written permission by Aalberts integrated piping systems, the installer, end user or any other third party removes, repairs or otherwise influences or modifies the products, the terms of this Limited Warranty shall not apply.

If any of the above mentioned requirements are not met, Aalberts integrated piping systems is relieved from the terms of this Limited Warranty.

requirements of Aalberts integrated piping systems

Aalberts integrated piping systems is required to inform the installer about the results of the investigation by Aalberts integrated piping systems or by a Aalberts integrated piping systems hired expert. Aalberts integrated piping systems is entitled to repair the damage itself or have it repaired by a third party.

remaining definitions

LIMITATION OF LIABILITY: AALBERTS INTEGRATED PIPING SYSTEMS SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, DAMAGES OR TO LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, COST OF PURCHASED OR REPLACEMENT GOODS, OR CLAIMS OF CUSTOMERS OF OUR INITIAL PURCHASER. THE REMEDIES OF OUR INITIAL PURCHASER, AND ALL OTHERS, SET FORTH HEREIN, ARE EXCLUSIVE, AND THE LIABILITY OF AALBERTS INTEGRATED PIPING SYSTEMS WITH RESPECT TO SAME SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED. This Limited Warranty and any claims arising from breach of contract, breach of warranty, tort, or any other claim arising from sale or use of Apollo® PowerPress® products shall be governed and construed under the laws of the State of North Carolina.

Apollo® SmartPress

stainless steel fittings & valves



“Apollo”® SmartPress®

The “Apollo”® SmartPress® product range is a press system designed for joining stainless steel pipes according to ASTM A312 (schedule 5S and 10S) standards. Using the “Apollo”® SmartPress® system significantly reduces installation times and ensures a clean working environment.

the advantages of ““Apollo”® SmartPress®

- complete range of fittings and valves from ½” to 2”
- Visu-Control® foil: visual press indicator
- Smart sealing element detection due to patented design
- Leak Before Press (LBP) function
- simple, fast connection technology
- clear identification of application, material and dimensions
- professional press tools

The “Apollo”® SmartPress® system offers installers a complete solution with high flexibility. The “Apollo”® SmartPress® consists of fittings, valves and tools and can be used on standard stainless steel pipes according to ASTM A312 in AISI 304/304L or 316/316L. “Apollo”® SmartPress® fittings can be installed with various press tool brands.



high-tech production location for “Apollo”® SmartPress®

performance guaranteed

“Apollo”® SmartPress® products are produced using specially developed, ultra-modern machinery, which enables Aalberts integrated piping systems to guarantee a consistent supply and quality. The completely automated factory supplies safe, high-quality products. All welded products undergo a ‘leak test’ to avoid any problems after installation.

reliable

With the “Apollo”® SmartPress® the quality of the joint is primarily determined by the tool and not by the installer. This reduces the risk of installation errors considerably. All fittings are delivered with an LBP function. As a result, the risk of errors during installation is further reduced. This LBP function ensures that fittings, which have not been pressed, will leak during the initial pressure test. The installer can see immediately which fitting has not yet been pressed.

In addition to the LBP function, all fittings are equipped with a Visu-Control® foil. During pressing, the Visu-Control® foil will be compressed, after which you can take it of, immediately showing your fitting has been pressed. This eliminates the need to check already pressed fittings afterwards, which offers additional safety and saves time.





insertion depth marking

Safe and secure connections depend on the insertion depth being correct. However, marking the insertion depth is a very time-consuming task and for that reason, all “Apollo”® SmartPress® couplings with pipe ends supplied are marked with a clearly visible insertion depth mark. This means that 25% of all installed “Apollo”® SmartPress® fittings no longer have to be marked.
A smart plus which makes installations much easier, saves a lot of time and results in greater safety.

easy and clean

Compared to other ‘cold’ connection methods,
“Apollo”® SmartPress® is an extremely user-friendly solution:

- the use of “Apollo”® SmartPress® dispenses with the need for complicated clamping techniques, time-consuming preparations and drying time, making installation faster and cleaner.
- no need to thread the pipes.
- no lubrication needed for installation.
- easy insertion of the pipe into the fitting due to the special design of the fittings.
- short radius bends ensure a compact, space-saving installation.

The above features ensure that no special skills are required for installation and that the work can be carried out in a clean, safe environment.

safe

The installation of the “Apollo”® SmartPress® does not require any heat source (as is the case for welding) or other heavy and potentially dangerous tools. This feature makes “Apollo”® SmartPress® the ideal solution for repairs or renovation projects, since it ensures minimal disturbance at the site.

cost effective

This connection technology is easy, fast and highly cost effective. As the connection is achieved using press tools alone, no other materials, such as gases, adhesives, threading machines, etc. need to be purchased or hired.





“Apollo”® SmartPress®

technical data



system data



Apollo® SmartPress is an innovative press connection system designed for joining ½-2" IPS ASTM A312 schedule 5S and 10S stainless steel pipe (approved for use with both AISI type 304/304L or 316/316L stainless). The Apollo® SmartPress product range consists of V-profile IPS press fittings and valves produced from AISI 316L stainless steel alloy that are fitted with patented sealing elements for a guaranteed safe, leak-tight and lasting connection. The Apollo® SmartPress system offers end-users a complete solution with maximum coverage of commercial and industrial applications requiring HNBR, EPDM, or FKM sealing elements.

For each sealing element variation, available Apollo® SmartPress fitting configurations include: couplings, caps, elbows, thread adapters, tees, threaded tees, fitting reducers, flange adapters, van stone flange adapters, and unions; Apollo® SmartPress valve configurations include: optimized single-piece FullFlow ball valves and 3-piece ball valves (stem extensions and press x thread end-connections available).

operating parameters

Apollo® SmartPress products are approved for use with stainless steel pipes according to ASTM A312 in AISI 304/304L or 316/316L (schedule 5S or 10S).

maximum pressure1

- schedule 5S: 300 psi
- schedule 10S: 500 psi

temperature range

- HNBR: -22°F to 212°F (230°F short term)
- EPDM: -31°F to 275°F (302°F short term)
- FKM: -4°F to 392°F (446°F short term)

approved applications

- potable water
- vacuum
- heating & cooling
- compressed air
- instrument & utility air
- solar
- steam
- fire sprinkler

Application approval dependent on suitability of selected sealing element's performance characteristics and limitations. Please refer to the Apollo® SmartPress technical data sections for additionally approved applications and sealing element specific requirements.

certifications & listings

press fittings

- ASTM F3226
- CRN# OA24744
- IAPMO/ANSI/CAN Z1117 (formerly IAPMO PS 117)
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372
- FM Approvals Class: 1920
- UL 213

press valves

- ASTM F3226
- CRN# OC24868
- IAPMO/ANSI Z1157
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- NFPA 13, 13R, 13D
- Uniform Plumbing Code (UPC®)
- Uniform Mechanical Code (UMC®)

Standard(s) certification and code compliance are specific to Apollo® SmartPress product/sealing element selection.

warranty

- Apollo® SmartPress fittings: 10-year limited warranty
- Apollo® SmartPress valves: 5-year limited warranty

approved tools

make	model	size range	press jaws/rings
Milwaukee™	M18™ Force Logic™ Long Throw Press Tool (2773-20L)	½–2"	Milwaukee™ IPS-ASP jaws: ½–1" Milwaukee™ IPS-ASP rings + r2 jaw: 1½–2"
	M18™ Force Logic™ Press Tool w/ ONE-KEY (2922-20)	½–¾"	Milwaukee™ IPS-ASP jaws: ½–¾"
Novopress	ACO202/203XL press tool ACO203BT (XL)	½–2"	SmartPress IPS-ASP jaws: ½–1" SmartPress IPS-ASP + ZB221 adapter: ¼–2"
Victaulic	Vic-Press™ PFT510 Press Tool	½–2"	Vic-Press PFT510 rings + adapter: 1½ -2"

1 Apollo® SmartPress SM500 FullFlow ball valves are rated to a maximum operating pressure of 300 psi regardless of pipe schedule (schedule 5S/10S).

applications

potable water installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S).

sealing elements:	HNBR (black with yellow marking)
Visu-Control® foil:	yellow
operating temperature:	-22°F to 212°F
max. temperature (short term):	230°F
max. operating pressure1:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 275°F
max. temperature (short term):	302°F
max. operating pressure*:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S

"Apollo"® SmartPress® EPDM and HNBR products certified to NSF/ANS/CAN 61 & 372. The content of water-soluble chloride ions may not exceed 250 mg/l for potable water installations.

heating installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S).

sealing elements:	HNBR (black with yellow marking)
Visu-Control® foil:	yellow
operating temperature:	-22°F to 212°F
max. temperature (short term):	230°F
max. operating pressure*:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 275°F
max. temperature (short term):	302°F
max. operating pressure*:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S

cooling water installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S).

sealing elements:	HNBR (black with yellow marking)
Visu-Control® foil:	yellow
operating temperature:	-22°F to 212°F
max. temperature (short term):	230°F
max. operating pressure*:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S

note: HNBR not recommended for Propylene Glycol

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 275°F
max. temperature (short term):	302°F
max. operating pressure*:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S

compressed air installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S) and can be used for compressed air under the following conditions:

water content:	max. 880 mg/m³, class 3, ISO8573 part 1
oil content:	max. 25 mg/m³, class 5, ISO8573 part 1

class	water content [mg/m³]	oil content [mg/m³]	sealing element
1	3	0.01	all
2	120	0.1	all
3	880	1	all
4	6,000	5	all
5	7,800	25	all
6	9,400	>25	HNBR or FKM

ISO classification for compressed air

EPDM sealing elements may only be used for synthetic oil or dry compressed air (not exceeding 25 mg/m³).

sealing elements:	HNBR (black with yellow marking)
Visu-Control® foil:	yellow
operating temperature:	-22°F to 225°F
max. temperature (short term):	230°F
max. operating pressure:	232 psi (16 bar)

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 275°F
max. temperature (short term):	302°F
max. operating pressure:	232 psi (16 bar)

1"Apollo"® SmartPress® SM500 FullFlow ball valves are rated to a maximum operating pressure of 300 psi regardless of pipe schedule (schedule 5S/10S) or sealing element selection.

sealing elements:	FKM (blue)
Visu-Control® foil:	blue
operating temperature2:	-4°F to 392°F
max. temperature (short term):	446°F
max. operating pressure:	232 psi (16 bar)

Compressed air piping systems must be properly tested as soon as the installation work is finished. The system designer and installation contractor must ensure safe methods are selected for testing the system. The methods must comply with all current health and safety regulations.

They may include testing compressed air lines with fluids or compressed air at a specific pressure, or a combination of both. We recommend that the maximum working pressure of the product not be exceeded under any circumstances during this process.

Since 30 May 2002, most pressure equipment and installations on the market have had to comply with the Pressure Equipment Directive (PED) 1999. The Directive concerns items such as vessels, pressurized storage containers, heat exchangers, steam generators, boilers, industrial piping, safety equipment and pressure accessories.

Please note that Article 3(3) of the PED applies to "Apollo"® SmartPress®. This means that only sound design and safe instructions for use and maintenance are required.



solar installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S) can be installed in high temperature applications for both closed-looped systems and systems with return.

sealing elements:	FKM (blue)
Visu-Control® foil:	blue
operating temperature*:	-4°F to 392°F
max. temperature (short term):	446°F
max. operating pressure3:	300 psi (20.7 bar) for 5S 500 psi (34.5 bar) for 10S



sprinkler installations

"Apollo"® SmartPress® fittings with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S); may be used in wet and dry sprinkler installations in accordance with UL and FM.

sealing elements:	HNBR (black with yellow marking)
Visu-Control® foil:	yellow
operating temperature:	-22°F to 225°F
max. temperature (short term):	230°F
max. operating pressure:	175 psi (12.1 bar) for 10S (UL 213) 300 psi (20.7 bar) for 10S (FM)

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 225°F
max. temperature (short term):	302°F
max. operating pressure:	175 psi (12.1 bar) for 10S (UL 213) 300 psi (20.7 bar) for 10S (FM)



vacuum installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S).

"Apollo"® SmartPress® is suitable for vacuum applications with a relative pressure of -12.328 psi (-0.85 bar).



steam installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S).

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 230°F
max. temperature (short term):	248°F
max. operating pressure:	20.3 psi (1.4 bar)

For steam containing additives, it may be necessary to use alternative sealing element compounds. Please contact Aalberts integrated piping systems for additional assistance.

2"Apollo"® SmartPress® SM500F FullFlow ball valves operating temperature of -4°F to 275°F (short term max of 302°F).
3""Apollo"®"® SmartPress®® SM500 FullFlow ball valves are rated to a maximum operating pressure of 300 psi regardless of pipe schedule (schedule 5S/10S) or sealing element selection..

industrial installations

"Apollo"® SmartPress® with stainless steel pipes that meet ASTM A312 (schedule 5S or 10S). The maximum operating pressure can be higher, depending on the used safety factor in your installation.

sealing elements:	HNBR (black with yellow marking)
Visu-Control® foil:	yellow
operating temperature:	-22°F to 212°F
max. temperature (short term):	230°F
max. operating pressure4:	300 psi (20.7 bar) for 5S
	500 psi (34.5 bar) for 10S

sealing elements:	EPDM (black)
Visu-Control® foil:	green
operating temperature:	-31°F to 275°F
max. temperature (short term):	302°F
max. operating pressure*:	300 psi (20.7 bar) for 5S
	500 psi (34.5 bar) for 10S

sealing elements:	FKM (blue)
Visu-Control® foil:	blue
operating temperature5:	-4°F to 392°F
max. temperature (short term):	446°F
max. operating pressure*:	300 psi (20.7 bar) for 5S
	500 psi (34.5 bar) for 10S

It may be possible to have higher working pressures depending on the different safety factors that may apply in industrial applications. For pressures higher than 500 psi (34.5 bar) please contact Aalberts integrated piping systems.

For applications other than water, such as oil, fuel and hydrocarbons, it may be necessary to use altenrative sealing element compounds. Please contact Aalberts integrated piping systems for additional assistance.

underground statement

"Apollo"® SmartPress 316 stainless steel fittings are approved for underground installations when permitted by state of local codes. In locations where soil or environmental conditions may promote corrosion, both the pipe and fittings should be protected with an appropriate wrap or coating to ensure long-term performance.

4"Apollo"® SmartPress® SM500 FullFlow ball valves are rated to a maximum operating pressure of 300 psi regardless of pipe schedule (schedule 5S/10S) or sealing element selection.
5"Apollo"® SmartPress® SM500F FullFlow ball valves operating temperature of -4°F to 275°F (short term max of 302°F).

fittings



technical characteristics

"Apollo"® SmartPress® fittings are produced from AISI 316L stainless steel and fitted with a patented 'Leak Before Pressed' (LBP) function. The "Apollo"® SmartPress® fittings are fitted with an HNBR (black with yellow marking), EPDM (black) or FKM (blue) sealing element.

threaded fittings

The "Apollo"® SmartPress® range also contains components with inner and outer threads and is produced in accordance with ANSI/ASME B1.20.1 or ISO 7/1. With threaded couplings, we recommend that the sealing be performed before pressing in order not to stress the press connection.

markings

"Apollo"® SmartPress® fittings

	marking	packaging label
	"Apollo"® SmartPress® VSH technology dimension certificates traceability code country of origin	"Apollo"® SmartPress® VSH technology type dimension (compound) GTIN no. certificates art. no. number

sealing elements

The standard fittings are fitted with an HNBR, EPDM or FKM sealing element. The sealing elements have been designed so that a leak-tight connection is always guaranteed, even with uneven surfaces.

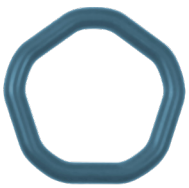
HNBR (black with yellow marking)

	temperature	applications
	-22°F to 212°F (230°F short term)	For all installations for hot and cold water, circulation pipes, compressed air, fuel oil, mineral oil, fuels, sprinkler, etc.

EPDM (black)

	temperature	applications
	-31°F to 275°F (302°F short term)	For all installations for hot and cold water, circulati-on pipes, compressed air, sprinkler, etc.

FKM (blue)

	temperature	applications
	-4°F to 392°F (446°F short term)	installations for compressed air, fuel oil, mineral oil, fuels, greases and industrial purposes, ozone-resistant (industrial design). Not suitable for hot water applications.

Leak Before Press (LBP) function

All "Apollo"® SmartPress® fttings and valves come equipped with Leak Before Press® technology, a built-in safety feature that allows media to slowly leak for mechanical detection of unpressed connections during initial pressure testing. This means that an incomplete press connection can easily be identified. If correctly assembled, the fittings will be water and air tight after being pressed.



pipes

Visu-Control® foil (VCF)

All “Apollo”® SmartPress® fittings and valves come equipped with Visu-Control® foil, a isual safety feature consisting of a plastic sleeve on each press-end for ease of material identification and visual press indication. Prior to installation, the color-coded VCF indicates the size and sealing element compound within the press fitting or valve to reduce the risk of misapplication. During the pressing operation, the VCF splits and can easily be removed thereafter; this ensures that un-pressed connections stand out and are easily recognizable prior to system pressurization.

alternative applications

The choice of fittings and pipes depends on what the purpose of the system is, the medium and the operating conditions. Please contact us regarding approval for the use of “Apollo”® SmartPress® fittings for applications other than for heating, cooling, sprinkler and compressed air. Installations must always comply with local regulations.

electrical heat tracing

“Apollo”® SmartPress® may be used with electrical heat tracing in order to maintain the pipe temperature. Sealed pipes must not be heated because of the danger posed by the excessive and inadmissible increase in pressure in the pipes.

equipotential bonding

All metal piping systems using equipotential bonding must comply with the requirements. Continuity checks must be conducted by a qualified electrician in accordance with the regulations, once the installation work has been finished. In combination with the associated pipes, “Apollo”® SmartPress® is an electrically conductive piping system and must therefore be included in the equipotential bonding.

stainless steel pipes for “Apollo”® SmartPress®

“Apollo”® SmartPress® products in the dimensions ½” up to and including 2” must be combined with stainless steel pipes in accordance with ASTM A312. This section shows technical parameters that are especially relevant when working with “Apollo”® SmartPress® and stainless steel pipes.

insulation

The following regulations apply to the insulation of potable water piping systems:

- cold water lines must be protected against condensation and overheating in accordance with DIN 1988, Part 200.
  For installations in the Netherlands, the ‘Water Work Sheets’ must be followed.
- hot water lines must be insulated to prevent heat loss in accordance with the Energy-Conservation Act (EnEG). For installations in the Netherlands, the ‘Water Work Sheets’ must be followed.

The soluble chloride content in insulation materials must not exceed 0.05% by weight in accordance with DIN 1988, Part 7.

Important: AS-quality insulation materials (see also AGI Q 135) contain significantly less chloride than the maximum permissible content.

pipe surface

for each type of pipe, the surface must be smooth, free of indentations, pits and deformations and must be clean and free of debris, rust, scale, oil and grease.

pipes according ASTM A312 (Schedule 5S)

“Apollo”® SmartPress® can be used in combination with the ASTM A312 pipe in materials AISI 304/304L and AISI 316/316L Schedule 5S.

		external diameter [mm]			
dimension	DN	d	min.	max.	wall thickness [mm]
½”	15	21.3	20.55	21.72	1.65
¾”	20	26.7	25.88	27.05	1.65
1”	25	33.4	32.61	33.78	1.65
1¼”	32	42.2	41.37	42.54	1.65
1½”	40	48.3	47.47	48.64	1.65
2”	50	60.3	59.54	61.11	1.65

pipes in line with ASTM A312 (schedule 5S)

press tools

pipes according ASTM A312 (Schedule 10S)

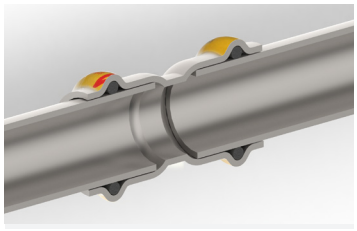
"Apollo"® SmartPress® can be used in combination with the ASTM A312 pipe in materials AISI 304/304L and AISI 316/316L Schedule 10S.

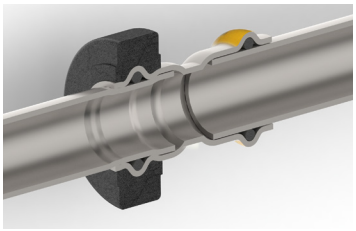
		external diameter [mm]			
dimension	DN	d	min.	max.	wall thickness [mm]
½"	15	21.3	20.55	21.72	2.11
¾"	20	26.7	25.88	27.05	2.11
1"	25	33.4	32.61	33.78	2.77
1¼"	32	42.2	41.37	42.54	2.77
1½"	40	48.3	47.47	48.64	2.77
2"	50	60.3	59.54	61.11	2.77

pipes in line with ASTM A312 (schedule 10S)



Press tools consist of a press machine and the corresponding press jaw or sling. The press machine can be either battery or electrically powered. The corresponding press slings must be used for each diameter of pipe in the system in order to achieve a perfect connection. The figure below shows a cross-section of the SmartPress®® profile before and after pressing.





before pressing *after pressing*

All "Apollo"® SmartPress® products with a diameter of ½" to 2" can be pressed using the appropriate press tools. Use the SmartPress®® profile that matches the diameter for installation of "Apollo"® SmartPress®. A special adapter may be required in addition to the press slings.

maintenance and correct usage of press tools

Aalberts integrated piping systems guarantees an excellent press connection, provided the tools are used correctly. Regular maintenance and lubrication of the press jaws, slings and tools is necessary. Please observe the manufacturer's instructions for use and maintenance. Poorly maintained and/or damaged press jaws pose a risk.

approved press tools for "Apollo"® SmartPress®

dimension	make	press tool	press saws/slings
½"–2"	Novopress	ACO202/203(XL) ACO203BT(XL) (18V)	"Apollo"® SmartPress® ASP jaws or Novopress jaws: ½"- 1" Slings: 1¼"–2" with adapter ZB221
½"–2"	Milwaukee™	M18 (18V) M18 Long Throw	Milwaukee™ M18 ASP jaws: ½"–1" Milwaukee™ M18 ASP slings: 1½"–2" with adapter ring jaw 2
½"–2"	Victaulic	PFT510	Victaulic PFT510 jaws: ½"–1" Victaulic PFT510 slings: 1½"–2" with Vic-Press adapter jaw

press tools approved for "Apollo"® SmartPress®

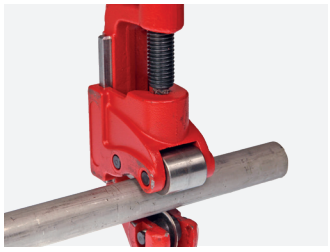
installation guidelines

When installing “Apollo”® SmartPress®, always make sure to take proper care in using protective gear on the building site. Safety shoes, a safety helmet and safety glasses should be worn at the minimum when installing “Apollo”® SmartPress®.

1. transport and storage

When transporting and storing “Apollo”® SmartPress® fittings or valves, damage and contamination must be avoided. The optimal storage temperature is between 50°F and 77°F. The products should be stored in their original packaging in a dry place (max. humidity 65%). It is advised to not remove the product from the packaging before installing.

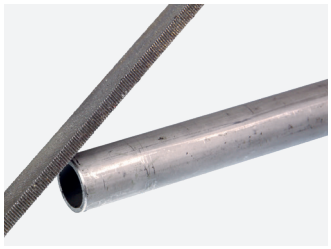
2. cutting the pipe to length



After measuring, the pipes can be cut to length using a pipe cutter designed for stainless steel, a fine-toothed handsaw or an electrical mechanical saw suitable for the pipe material. The pipe must always be cut completely through. Do not partially cut the pipe and break it off, as this could cause leakage. When cutting already installed pipes, always take into account a minimum distance to welds and bends of 3 x d (minimum of 3.94” or 100 mm).

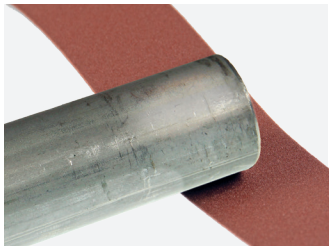
Note: Do not use oil-cooled saws, grinding wheels or flame cutters.

3. deburring the pipe end



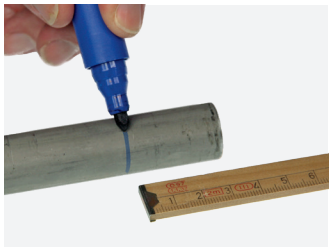
Pipe ends must be thoroughly deburred on the inside and the outside once they have been cut to length. This is necessary to avoid any damage to the sealing element when inserting the pipe into the press fitting. A file or hand deburrer or an electrical pipe deburrer suitable for the material may be used to deburr both the inside and outside of the pipe. Any burrs on the pipe should be removed.

4. cleaning the outside of the pipe



Always ensure that any dirt or particles are removed from the surface of the pipe. This can be done with a stainless steel wire brush or fine grit sand paper. The surface of the pipe must be smooth, free of indentations, pits and deformations and must be free of oil and grease.

5. marking insertion depth



The required insertion depth (table in step 7 of installation guidelines) must be marked on the pipe in order to guarantee a safe and proper joint. The fittings with pipe ends already have a pre-marked insertion depth, thereby rendering any marking unnecessary. The marking on the pipe must remain visible (close to the union) after the connection is pressed to identify any movement before or after pressing.

6. check the fitting

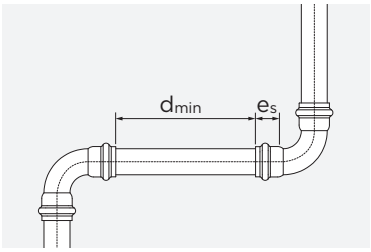
Before connecting the pipe into the fitting, check if the fitting is thecorrect one for the intended use and the required sealing element is present.

7. fitting the pipe end into the fitting



Insert the pipe end carefully into the fitting while turning and pushing it in the direction of the axis until it comes to a stroke stop in the socket. The patented sealing element design also functions as a sealing element detection solution. This means that there will always be some friction between the sealing element and pipe during insertion. The insertion depth marking must remain visible. In the case of fittings without a stop, the fittings should be inserted at least as far as the marked insertion depth. Rough and careless insertion may result in damage to the sealing element and is therefore not permitted.

If assembly is difficult because of the permitted tolerances in size, a lubricant, such as water or soap, may be used. Under no circumstances may oils, fats or grease be used as lubricants.



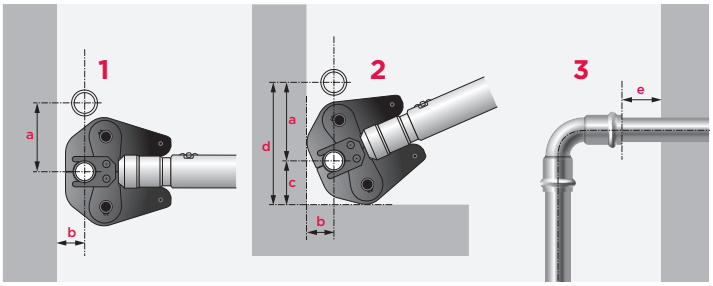
To optimise installation time, you may assemble a number of connections first and then press the various pipe connections, one after the other.

Marking the insertion depth (e_S) makes it possible to check whether the pipe was pressed out of the socket during the pressing process. Prior to installation of the various connections, it is important to check the minimum desired clearances (see table).

dimension	insertion depth e_S	minimum distance d_{min}	minimum pipe length $2e_S + d_{min}$
½"	1⅛" (29 mm)	0.98" (25 mm)	3.27" (83 mm)
¾"	1⅛" (29 mm)	0.98" (25 mm)	3.27" (83 mm)
1"	1¼" (32 mm)	1.65" (42 mm)	4.17" (106 mm)
1¼"	1⅜" (35 mm)	1.14" (29 mm)	3.89" (99 mm)
1½"	1⅛" (37 mm)	0.75" (19 mm)	3.66" (93 mm)
2"	1¹⁵⁄₁₆" (43 mm)	0.79" (20 mm)	4.17" (106 mm)

insertion depth and minimum distances between joints when using Milwaukee™ and Novopress press tools

The table gives the minimum required working space so that the fittings/valves can be pressed correctly using Milwaukee™ and Novopress press tools. These distances relate to the general installation configurations as schematically depicted in figures 1, 2 and 3 below. Consult the relevant user manual when using another type of press tool.



dimension	figure 1		figure 2			figure 3
	a	b	a	b	c	e
½"	4.02" (102 mm)	1.73" (44 mm)	5.75" (146 mm)	2.24" (57 mm)	2.76" (70 mm)	1.57" (40 mm)
¾"	4.02" (102 mm)	1.73" (44 mm)	6.26" (159 mm)	2.52" (64mm)	2.76" (70 mm)	1.57" (40 mm)
1"	4.02" (102 mm)	1.73" (44 mm)	7.00" (178 mm)	3.00" (76 mm)	2.76" (70 mm)	1.57" (40 mm)
1¼"	4.33" (110 mm)	3.54" (90 mm)	5.51" (140 mm)	3.54" (90 mm)	4.33" (110 mm)	1.57" (40 mm)
1½"	5.00" (127 mm)	4.76" (121 mm)	6.26" (159 mm)	4.76" (121 mm)	5.00" (127 mm)	1.57" (40 mm)
2"	5.24" (133 mm)	4.76" (121 mm)	6.73" (171 mm)	4.76" (121 mm)	5.24" (133 mm)	1.57" (40 mm)

required installation space for Milwaukee™ and Novopress press tools

8. pressing



Before pressing, the press jaws and rings must be checked for dirt, which should be removed if present. To make a correctly pressed connection, the press tool should enclose the collar of the fitting. Once the pressing cycle starts, it should be completed before releasing. Under no circumstances interrupt the process. Please consult our online tool selector for the most recent overview of approved machines, press jaws and rings: www.aalberts-ips.eu/presstool.

it is not permitted to press a connection more than once.

The pressing process can cause deflection (angular displacement). This behavior can be corrected by adapting the position of the press jaw/ring on each connection. As an example, you could choose to place the machine on the left side first of all; then, for the next connection, the machine would be placed on the right side. The deflection of the joint is not something that can be prevented, but it can be minimized using the above method.

9. Visu-Control®



As a visual indication that the connection has been pressed, the Visu-Control® foil should be damaged. Remove the foil as an indication that the connection has been pressed and checked.

general installation information

thermal expansion

The level of thermal expansion within piping systems depends on the type of materials used. This linear expansion needs to be taken into account during the installation. Minor changes in length can be accommodated by having adequate space for expansion as well as by the elastic properties of the piping system itself. More substantial changes in length need to be offset by other means, e.g. installation of special expansion compensation devices, fixed anchoring points and sliding points.
Expansion can be offset by the use of a pipe segment, U-bend or compensators. The level of expansion to be offset can be determined beforehand by calculating the changes in length.
The equation for calculating the changes in length is as follows:

$$\Delta l = l \times \alpha \times \Delta T$$

- Δl = total linear expansion in [mm]
- l = length of the segment in question [m]
- ΔT = temperature difference [K]
- α = linear coefficient of expansion

pressure drop

Every fluid that flows through a piping system experiences continuous and local flow resistance. This is called a pressure drop. There is a difference between the continuous and the local pressure drop. A continuous pressure drop is primarily caused by the flow resistance in straight pipe sections, which is essentially the result of the friction between the fluid and the pipe wall. Local pressure drops, on the other hand, are caused by the flow resistance at a number of places on the circulation system, such as a change in the internal diameter, a pipe branch, an elbow, etc.

continuous pressure drop

To calculate the resistance of a fluid flow in a straight section of a piping system, first determine the resistance in a unit of length and then multiply the total length by this value. This value can be determined analytically using the Hazen-Williams formula.

$$p = \frac{6.05 \times 105}{C^{1.85} \times di^{4.87}} \times Q1.85$$

- p = pressure drop in the pipe [bar/m]
- Q = flow [l/m]
- di = internal diameter of the pipe [mm]
- C = constant for type and condition of the pipe

If you wish to perform these calculations, please consult the relevant specialised literature.

local pressure drops

A local pressure drop is the flow resistance that is the result of changes in the flow direction, changes in diameter, flow splitting over multiple channels, etc. There are, in principle, two ways of calculating such flow resistance: the direct analytical method and the method that uses “equivalent lengths”.

equivalent length method

This method assumes that the pressure drop at a particular point can be considered to be the same as an equivalent increase in the length of a straight piping system with the same internal diameter. The final result is a pressure drop that is equal to the real pressure drop. In other words, the equivalent lengths of the individual joints are added to the actual length of the piping system (see below). The actual length is then multiplied by the pressure drop per unit length to be able to calculate the total system pressure drop.
This method is not as accurate as the direct method but has the advantage that the calculation can be carried out faster.

direct analytical method [ζ] / equivalent length method [m]

													
Ø	DN	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]
½"	15												
¾"	20	0.61	0.37	0.51	0.32	0.38	0.24	0.96	0.59	0.32	0.20	-	-
1"	25	0.64	0.53	0.54	0.46	0.42	0.35	1.06	0.89	0.29	0.24	0.32	0.20
1¼"	32	0.51	0.62	0.38	0.47	0.32	0.39	0.93	1.13	0.26	0.31	0.35	0.29
1½"	40	0.45	0.65	0.32	0.47	0.29	0.42	0.83	1.22	0.22	0.33	0.26	0.31
2"	50	0.48	0.94	0.35	0.69	0.29	0.57	0.93	1.82	0.22	0.44	0.26	0.38

equivalent lengths and zeta values

direct analytical method

The local pressure drop can be calculated using the following equation:

$$\Delta p_L = \sum\zeta \times v^2 \times \gamma/2 \times 10^{-5} \text{ [bar]}$$

- v = flow velocity of the fluid [m/s]
- γ = specific density of the fluid [kg/m³]
- ζ = local flow resistance coefficient

The table above shows the zeta [ζ] value for each type of fitting. We can assume that the zeta value is velocity independent for those velocities that occur in domestic installations or in other normal applications; this is supported by the fact that the change in zeta as a function of the Reynolds number in these velocity ranges is minimal. Once the zeta value is known, you can calculate the corresponding local pressure drop using the formula above.

heat loss

Just as with all other types of pipes made from metal or plastic, adequate measures must be taken to limit heat losses. Please consult the relevant regulations on minimum insulation thicknesses and the insulation standards.

built-in

welding requirement

The following requirements have to be considered when welding in the same vicinity as "Apollo"® SmartPress® products.

welding adjacent to already installed "Apollo"® SmartPress® fittings/valves

When welding close to an installed "Apollo"® SmartPress® connection, the pressed joint must remain at least 10 cm away from the connection to prevent damage to the sealing element.
The installer should take the following precautions to protect the "Apollo"® SmartPress® connections while welding:

- make the welded connections before the press connections are made. The pipe must have cooled down before the fitting/valve is installed.
- wrap the connection in a cold, wet rag.
- protect the connection with a weld blanket.
- use spray as a coolant.

welding in an installation with "Apollo"® SmartPress® fittings/valves

When welding a pipe with an installed "Apollo"® SmartPress® connection, the installer must remain at least 90 cm away from the connection to prevent damage to the sealing element.
The installer should take the following precautions to keep the "Apollo"® SmartPress® connections cool while welding:

- make the welded connections before the press connections are made. The pipe must have cooled down before the fitting/valve is installed.
- wrap the connection in a cold, wet rag.
- protect the connection with a weld blanket.
- use spray as a coolant.

guidelines for distances of mounting brackets

Always make sure to have hangers and supports conform to local requirements. All parts of the hangers and supports must be designed and installed so that they support the piping. Always make sure to place sliding hangers so that they do not become rigid hangers by accident.

Ø pipe	max. distance [m]				
	B31.1	B31.3	B31.9	FM	NFPA13
½"	2.0	2.0	2.1	n.a.	n.a.
¾"	2.3	2.3	2.4	n.a.	n.a.
1"	2.4	2.4	2.9	n.a.	n.a.
1¼"	2.7	2.7	3.2	n.a.	n.a.
1½"	2.9	2.9	3.4	n.a.	n.a.
2"	3.2	3.2	3.5	n.a.	n.a.

distance between mounting brackets for schedule 5S (water)

Ø pipe	max. distance [m]				
	B31.1	B31.3	B31.9	FM	NFPA13
½"	2.0	2.0	2.1	3.66	3.66
¾"	2.3	2.3	2.4	3.66	3.66
1"	2.6	2.6	3.1	3.66	3.66
1¼"	2.9	2.9	3.5	3.66	3.66
1½"	3.1	3.1	3.8	3.66	3.66
2"	3.6	3.6	4.0	3.66	3.66

distance between mounting brackets for schedule 10S (water)

Ø pipe	max. distance [m]		
	B31.1	B31.3	B31.9
½"	2.1	2.1	2.3
¾"	2.4	2.4	2.7
1"	2.7	2.7	3.2
1¼"	3.1	3.1	3.7
1½"	3.4	3.4	4.3
2"	3.8	3.8	4.7

distance between mounting brackets for schedule 5S (air/gas)

Ø pipe	max. distance [m]		
	B31.1	B31.3	B31.9
½"	2.1	2.1	2.3
¾"	2.4	2.4	2.7
1"	2.7	2.7	3.2
1¼"	3.2	3.2	3.7
1½"	3.6	3.6	4.1
2"	3.8	3.8	4.7

distance between mounting brackets for schedule 10S (air/gas)

Observance of the above distances between attachment points is not sufficient in itself. Heat expansion also needs to be appropriately compensated for in horizontal stretches The distances stated above will possibly have to be adapted for this purpose.

mounting pipes

When securing the pipes, the following should be kept in mind:
The load-bearing capacity of the mounting brackets must correspond to the weight of the (filled) pipes and withstand expansion and torsion forces. Mounting brackets, such as fixed mounting points and clips, must therefore be correctly placed and assembled.
Attachment points may only be fitted onto straight pipe sections. Mounting brackets on fittings and valves is not permitted.

pressure test

Once a piping system has been installed it must be checked for leaks before being built in and concealed. With heating and cooling installations, the pressure test can be carried out with water, air or inert gases. The test medium and the results of the pressure test should be documented in a pressure test report.

Important: The piping system must be pressure-tested in all cases for "Apollo"® SmartPress®. Before being covered up, insulated, painted or walled in, a piping system must first undergo a pressure test to be certain that there are no leaks. Pressure tests must always be performed in accordance with local regulations. As a rule of thumb, a pressure of 1.5 times the operating pressure is used for pressure tests with water.

Important: When testing a "Apollo"® SmartPress® installation, make sure no water remains in the system afterwards, in order to avoid the risk of corrosion, unless the system is going to be put into service shortly afterwards.

pressure test for heating systems and cooling systems

Important: As a rule, the pressure test for a piping system that has already been installed is carried out with water in accordance with DIN-VOB 18380.

- the test pressure at each point of the system must be 1.3 times the operating pressure with overpressure of at least 1 bar
- immediately after the cold water pressure test, the water must be heated up to the highest hot water temperature on which the calculations were based in order to be certain that the system remains watertight at high temperatures
- there must be no drop in pressure during the pressure test
- the pressure test must be adequately documented

pressure test with air

Important: The pressure test with air or inert gases can be carried out in accordance with the ZVSHK/BHKS technical bulletins, "Pressure Test with Air or Inert Gases", (at 100 l pipe capacity a leak tightness test at 110 mbar for at least 30 minutes. For every additional 100 l, the time must be increased by 10 minutes. After the leak tightness test, the strength of the connection is to be tested during 10 minutes at: max. 3 bar up to and including DN50). For safety reasons, the maximum test pressure is set at 3 bars.

pressure testing of sprinkler systems

The pipes of a sprinkler system must be subjected to a pressure test in accordance with the applicable standards such as NFPA 13 for at least two hours. A pressure (measured at the alarm valves) corresponding to 1.5 times the permitted positive operating pressure – but of at least 15 bars – must be maintained during the test. This pressure test is a check of both the strength and tightness of the system. The system must be monitored for 24 hours for any pressure drop due, for example, to temperature changes. Any faults identified, such as permanent deformations, ruptures or leakages must be corrected and the pressure test repeated.

corrosion

There are different kinds of corrosion: chemical corrosion, electro-chemical corrosion, internal and external local corrosion, stray current corrosion, etc. All these kinds of corrosion have very particular chemical or mechanical causes. The following paragraphs provide some simple hints on how to avoid such problems.

electro-chemical corrosion

Electro-chemical corrosion occurs under the following circumstances:

- an electrochemical potential difference between both parts.
- the presence of a conductive fluid (electrolyte), such as water.
- the presence of oxygen (O_2).

A distinction must be made between heating installations and water supply installations. When properly installed and operated there will be no significant amounts of oxygen in heating installations, and therefor very little corrosion. In potable water installations, however, oxygen contents are very high, nearly reaching the saturation point. It is of primary importance that "Apollo"® SmartPress® components are installed only downstream of other, metallurgically inferior (less noble), components that are possibly present in these kinds of installations. For example, it is possible to install branches with "Apollo"® SmartPress® stainless steel pipes from a piping system consisting of carbon steel pipes. In such cases, non-ferrous metal or synthetic connection pieces must be used (see DIN1988).

Another important factor is the ratio between the surface of the noble metal and that of the less noble metal. The higher this ratio, the greater the corrosion rate may be. It is, therefore, recommended that you avoid using carbon steel extensions and connection pieces and use stainless steel or brass fittings instead.

stray currents corrosion

Corrosion by stray currents rarely occurs in practice and is immediately recognisable as pitting occurs on the outside of the pipe. Stray current corrosion requires a direct current that turns the metal into an anode. The current, which in practice and despite insulation measures penetrates into earth and from there into other neighbouring metal structures, such as a water supply installation, runs through a particular stretch of the system before it returns to earth again. In order to penetrate into the piping system, earth current must have an entry point at a spot where the normal protective pipe cover or connection is damaged or missing.

For this reason, metal piping systems must be earthed (see EU Regulations). Direct current installations are generally not used in domestic housing and no serious problems occur with alternating current. Research has shown that problems with stray currents rarely occur and do not depend on the type of metal.

stainless steel

internal corrosion

"Apollo"® SmartPress® stainless fittings are completely passive when in contact with potable water and, therefore, not at risk from corrosion. Potable water is considered to be water with properties that comply with current regulations on physical-chemical tolerances.
The fittings and pipes also react in a safe and problem free manner as regards a water chlorine content if 1.34 mg/l is added for disinfection purposes. "Apollo"® SmartPress® can also be used for all water treatment plants for domestic purposes (e.g. for water softeners).

It is corrosion-resistant as regards demineralized and distilled water, and water containing glycol. Hygiene problems regarding heavy metal contamination do not occur with stainless steel. Point or crack corrosion can only occur if the maximum values for the water chloride content, as defined in the applicable regulations, are significantly exceeded.

external corrosion

External corrosion of the "Apollo"® SmartPress® stainless steel components can only occur when wet potable water pipes come into contact with mortar, droplets or covering materials that contain or cause chlorides to be created. Ensure that the outer insulating layer of the fittings and pipes is continuous and that, if necessary, sufficient corrosion-protective insulation tape is applied. Correctly applied closed-cell insulation is an effective protection against corrosion.

The necessary additives should be added to prevent frost damage, calcification or corrosion. We are always happy to answer enquiries about the use of additives. Please observe the applicable legislation, regulations and local rules regarding corrosion.

prevention of corrosion

Instructions will be found in the following paragraphs on how to prevent corrosion problems in the most common places. A distinction is made between inner and outer corrosion, and the application area. We shall also examine the various application possibilities of various materials that can be combined in an installation (combi-installations).

internal corrosion

heating installations

The penetration of oxygen in closed-loop heating installations will be prevented if high-quality accessories and compensators with closed membranes are used. When filling the installation, the small quantity of oxygen contained in the water is directly absorbed into the inner pipe surface, in the process of which a thin layer of iron oxide is formed and after which there is no longer any possibility of corrosion. The loss in wall thickness can be disregarded and the piping system is practically oxygen-free after this reaction.

stainless steel

Stainless steel fittings and pipes are suitable for all open and closed-loop heating installations.
Combi-installations: Stainless steel can be used in combi-installations with other materials in any sequence.

other possible combinations

Galvanized steel – copper – stainless steel.
Combi-installations: These materials can be combined in all closed-loop systems.

water additives

Oxygen scavengers and corrosion inhibitors can be added to the heating-circuit water as a preventive measure against inadmissible oxygen absorption. Observe the supplier's instructions for use.

(potable) water installations

stainless steel

"Apollo"® SmartPress® has the advantage of being passive in potable water. The physical and chemical properties of potable water are not affected by stainless steel. In this passive state, no internal corrosion will occur. The danger of heavy metal contamination and growth of bacteria is avoided by using stainless steel fittings and pipes.
Pitting or ring corrosion can only occur if the chloride content of the water is significantly higher than the maximum level allowed under current regulations. "Apollo"® SmartPress® components are suitable for all water treatment methods (water softening) for potable water and are also corrosion-resistant regarding demineralized and distilled water and water containing glycol.

"Apollo"® SmartPress® fittings are, however, not suitable for operation in dosing systems for e.g. disinfectants, which are added to the potable water. "Apollo"® SmartPress® fittings are also suitable for all other open and closed-loop water systems (e.g. cooling water).

Combi-installations: The corrosion behaviour of stainless steel is not influenced by its use in combi-installations independent of the direction of the flow of water (no flow rule). Stainless steel can be used in any sequence in combi-installations. Discolouration from a deposit of foreign corrosion products does not indicate corrosion on stainless steel.
Stainless steel can be used with all copper alloys (bronze, copper or brass) in a combi-installation. There is no risk of contact corrosion with stainless steel.

external corrosion

There are few situations in which outer corrosion occurs in buildings. It is, however, possible in many cases that installations are exposed for a longer period to undesired penetration of rain, humidity or dampness and this can lead to problems. Responsibility for taking relevant measures rests, however, with the user and the installer. Only suitable corrosion protection can offer permanent certainty against corrosion. One way of doing so is to use 'closed cell' insulation, which must be applied in a guaranteed waterproof condition.
Suitable primers–or metallic paints may offer minimal corrosion protection. It is advisable to always use corrosion protection on the piping in situations where corrosion is likely to occur (damp room, crawl spaces, etc.).

stainless steel

Outer corrosion can only occur in the following circumstances:

- If a stainless steel heat-conducting piping system (50°C) comes into contact with building and insulating materials containing chlorides (as the result of humidity);
- If water vapour on stainless steel heat-conducting pipelines leads to a local chloride concentration; and
- If "Apollo"® SmartPress® (including cold water) comes into contact with chlorine gas, saltwater or brine or (oxygen-saturated) water with a high chlorine content.

If there is the danger of building materials coming into contact over a long period with highly chlorinated water, suitable corrosion protection must be used. "Apollo"® SmartPress® pipes in cement floors will not be subject to electrolytic outer corrosion in connection with potential equalisation.

impact of application and processing

Corrosion may occur due to incorrectly designed installations and faulty applications. The following points must be observed:

cutting stainless steel

Cutting through stainless steel pipes is not allowed due to the amount of heat developed.

bending stainless steel pipes
Stainless steel pipes may not be bent warm. The heating of the stainless steel pipes alters the structure of the material (sensitisation) and inter-crystalline corrosion can take place.

heat transfer (e.g. with a heating band)
Heat transfer from outside inwards must be prevented as this can lead to the build-up of film on the inside of the pipe wall. This film can cause an increase in the concentration of chloride ions, which cause pitting in critical concentrations.

connections
Welding of stainless steel pipes may cause pitting or ring corrosion. In the case of TIG welding of stainless steel, discolouration occurs at the welding joints, which may lead to corrosion on contact with salt water. This discolouration, mainly on the inside of the pipe, can only be removed by staining, which is not practical with a piping systems that has already been installed.

stainless steel – carbon steel – copper
With all three materials (stainless steel, carbon steel, copper), waterline corrosion can occur as a result of interaction between three actors (water – metal – gas (air)). This corrosion can be prevented if the piping system remains permanently filled once filled for the first time. Partial filling will take place, for example, if the pipes are emptied again after a pressure test with water, in which case a pressure test using gas/air is to be recommended.

effect of insulation

Insulation does not, as a rule, offer any protection against corrosion except in the case of 'closed cell insulation' (sealed watertight), which offers effective protection against corrosion. The installation instructions of the supplier of the insulation material must always be followed carefully. Remove dust, dirt, oil or water from the piping system prior to insulating.
The different sections of the insulation material must be carefully joined, taking care that no moisture or water can enter the material. Also take care that the water barrier of the insulation material is not damaged during installation as moisture could otherwise penetrate under the insulation material.

stainless steel
Insulating materials that release chloride ions in water or which could cause a local increase in chloride ions are not permitted. The weight ratio of water-solution chloride ions in the thermal insulation of the pipes may not exceed 0.05% (AS quality).

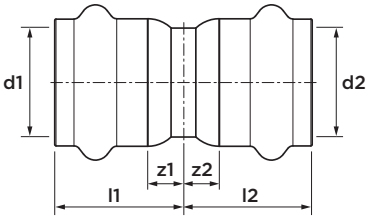
“Apollo”® SmartPress®
fittings HNBR



500H coupling HNBR

(2 x press)



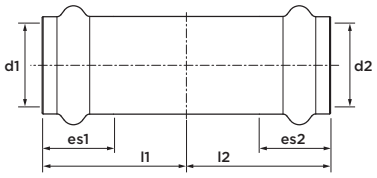


size	item no.	l1/l2	z1/z2	weight [lb]
½"	123 456 811	1.39	0.37	0.190
¾"	123 456 812	1.39	0.37	0.231
1"	123 456 813	1.56	0.37	0.425
1¼"	123 460 766	1.68	0.36	0.589
1½"	123 456 814	1.74	0.36	0.683
2"	123 456 815	1.98	0.37	0.981

501H coupling - no stop HNBR

(2 x press)



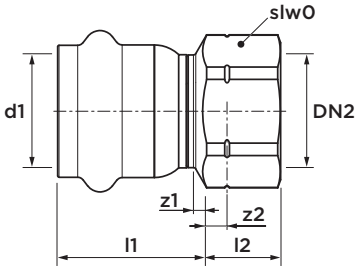


size	item no.	l1/l2	es1/es2	weight [lb]
½"	123 456 816	1.89	1.06	0.256
¾"	123 456 817	1.96	1.06	0.320
1"	123 456 818	2.28	1.18	0.608
1¼"	123 460 767	2.54	1.32	0.858
1½"	123 456 819	2.67	1.38	1.008
2"	123 456 820	3.09	1.61	1.464

503H adapter - female HNBR

(press x FPT)



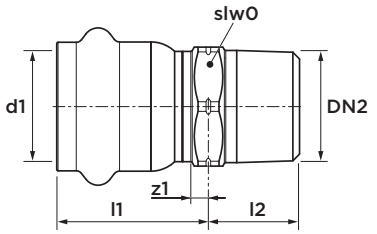


size	item no.	l1	l2	z1	z2	slw0	weight [lb]
½" x FPT ½"	123 456 830	1.33	0.94	0.27	0.63	1.10	0.240
¾" x FPT ½"	123 456 831	1.33	0.94	0.27	0.63	1.10	0.260
¾" x FPT ¾"	123 456 832	1.33	0.98	0.27	0.63	1.26	0.260
1" x FPT ½"	123 456 833	1.50	0.87	0.31	0.55	1.42	0.474
1" x FPT ¾"	123 456 834	1.50	0.87	0.31	0.55	1.42	0.428
1" x FPT 1"	123 456 835	1.50	1.10	0.31	0.71	1.61	0.520
1¼" x FPT 1¼"	123 460 768	1.62	1.17	0.30	0.42	1.97	1.970
1½" x FPT 1"	123 456 836	1.68	1.02	0.30	0.63	1.97	0.897
1½" x FPT ¼"	123 456 837	1.68	1.02	0.30	0.59	1.97	0.723
1½" x FPT 1½"	123 456 838	1.68	1.14	0.30	0.75	2.36	1.001
2" x FPT 1¼"	123 456 839	1.92	1.18	0.31	0.75	2.56	1.512
2" x FPT 1½"	123 456 840	1.92	1.18	0.31	0.75	2.56	1.356
2"x FPT 2"	123 456 841	1.92	1.38	0.31	0.94	2.76	1.338

504H adapter - male HNBR

(press x MPT)



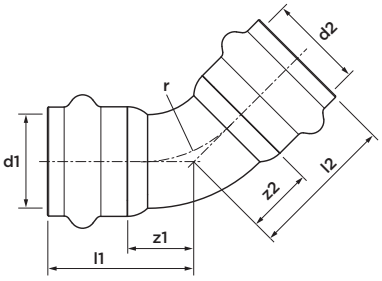


size	item no.	l1	l2	z1	slw0	weight [lb]
½" x MPT ½"	123 456 821	1.33	1.22	0.27	0.87	0.187
¾" x MPT ½"	123 456 822	1.33	1.26	0.27	1.10	0.236
¾" x MPT ¾"	123 456 823	1.33	1.26	0.27	1.26	0.289
¾" x MPT 1"	123 456 824	1.33	1.42	0.27	1.42	0.379
1" x MPT ¾"	123 456 825	1.50	1.26	0.31	1.42	0.410
1" x MPT 1"	123 456 826	1.50	1.42	0.31	1.42	0.454
1½" x MPT ¾"	123 456 827	1.68	1.50	0.30	1.97	0.697
1¼" x MPT 1¼"	123 460 769	1.62	1.64	0.30	1.81	0.721
1½" x MPT 1½"	123 456 828	1.68	1.65	0.30	2.17	0.966
2" x MPT 2"	123 456 829	1.92	1.69	0.31	2.56	1.217

506H 45° elbow HNBR

(2 x press)



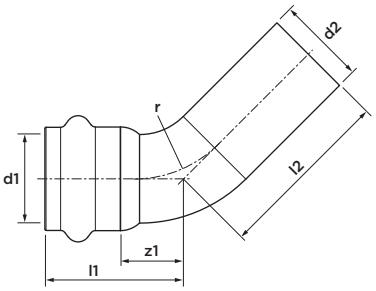


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	123 456 852	1.64	0.62	1.02	0.214
¾"	123 456 853	1.74	0.68	1.26	0.276
1"	123 456 854	2.06	0.88	1.57	0.534
1¼"	123 460 770	2.35	1.03	2.01	0.767
1½"	123 456 855	2.53	1.15	2.28	0.924
2"	123 456 856	3.00	1.39	2.83	1.373

506-2H 45° street elbow HNBR

(press x street Ø)



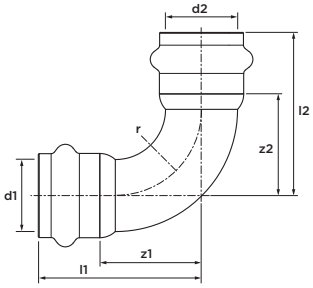


size	item no.	l1	l2	z1	r	weight [lb]
½"	123 456 857	1.64	2.22	0.62	1.02	0.207
¾"	123 456 858	1.74	2.26	0.68	1.26	0.291
1"	123 456 859	2.06	2.62	0.88	1.57	0.542
1¼"	123 460 771	2.35	2.88	1.03	2.01	0.789
1½"	123 456 860	2.53	3.00	1.15	2.28	0.968
2"	123 456 861	3.00	3.58	1.39	2.83	1.459

507H 90° elbow HNBR

(2 x press)



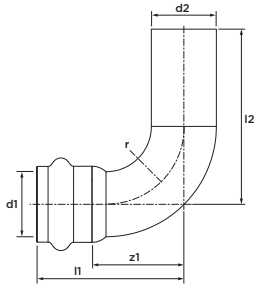


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	123 456 842	2.24	1.18	1.02	0.256
¾"	123 456 843	2.48	1.41	1.26	0.342
1"	123 456 844	2.98	1.80	1.57	0.664
1¼"	123 460 772	3.53	1.03	2.01	0.767
1½"	123 456 845	3.87	2.219	2.01	0.992
2"	123 456 846	4.66	3.05	2.83	1.817

507-2H 90° street elbow HNBR

(press x street Ø)



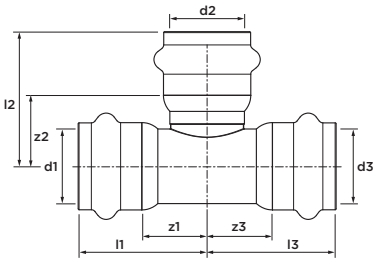


size	item no.	l1	l2	z1	r	weight [lb]
½"	123 456 847	2.24	2.82	1.18	1.02	0.265
¾"	123 456 848	2.48	3.00	1.41	1.26	0.357
1"	123 456 849	2.98	3.54	1.80	1.57	0.686
1¼"	123 460 773	3.53	4.06	2.01	0.767	1.014
1½"	123 456 850	3.87	4.38	2.21	2.01	1.259
2"	123 456 851	4.66	5.24	3.05	2.83	1.898

511H tee HNBR

(3 x press)



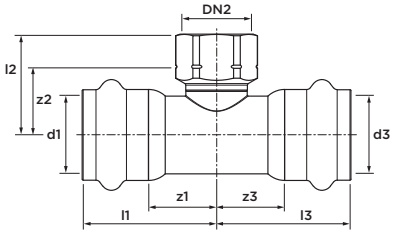


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
½"	123 456 862	1.71	1.93	0.65	0.87	0.313
¾"	123 456 863	2.01	1.93	0.94	0.87	0.419
1"	123 456 864	2.27	2.24	1.09	1.06	0.780
1¼"	123 460 774	2.58	2.55	1.26	1.33	1.093
1½"	123 456 865	2.72	2.72	1.35	1.34	1.301
2"	123 456 866	3.21	3.35	1.59	1.73	1.905

5712H tee - female HNBR

(press x press x FPT)



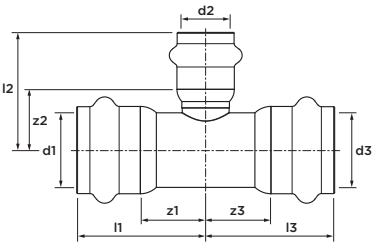


size	item no.	l1/l3	l2	z1/z3	z2	slw2	weight [lb]
½" x ½" x FPT ½"	123 456 877	1.71	1.46	0.65	1.14	1.10	0.370
¾" x ¾" x FPT ½"	123 456 878	2.01	1.57	0.94	1.26	1.10	0.459
¾" x ¾" x FPT ¾"	123 456 879	2.01	1.54	0.94	1.22	1.26	0.454
1" x 1" x FPT ½"	123 456 880	2.27	1.69	1.09	1.38	1.10	0.730
1" x 1" x FPT ¾"	123 456 881	2.27	1.69	1.09	1.38	1.26	0.728
1" x 1" x FPT 1"	123 456 882	2.27	2.85	1.09	1.34	1.61	0.888
1¼" x 1¼" x FPT ½"	123 460 778	2.58	1.87	1.26	1.55	1.10	0.992
1¼" x 1¼" x FPT ¾"	123 460 779	2.58	1.87	1.26	1.55	1.26	0.983
1¼" x 1¼" x FPT 1"	123 460 780	2.58	2.0	1.26	1.60	1.61	1.142
1½" x 1½" x FPT ½"	123 456 883	2.72	2.01	1.35	1.69	1.10	1.149
1½" x 1½" x FPT ¾"	123 456 884	2.72	2.01	1.35	1.65	1.26	1.144
1½" x 1½" x FPT 1"	123 456 885	2.72	2.13	1.35	1.73	1.61	1.305
2" x 2" x FPT ½"	123 456 886	3.21	2.24	1.59	1.93	1.10	1.631
2" x 2" x FPT ¾"	123 456 887	3.21	2.24	1.59	1.89	1.26	1.627
2" x 2" x FPT 1"	123 456 888	3.21	2.36	1.59	1.97	1.61	1.788

511RH tee - reducing HNBR

(3 x press)



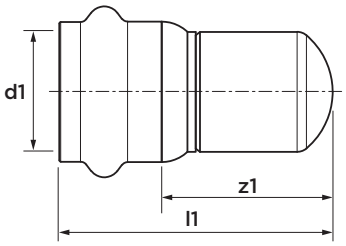


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
¾" x ¾" x ½"	123 456 867	2.01	2.01	0.94	0.94	0.401
1" x 1" x ½"	123 456 868	2.27	2.17	1.09	1.10	0.672
1" x 1" x ¾"	123 456 869	2.27	2.09	1.09	1.02	0.688
1¼" x 1¼" x ½"	123 460 775	2.58	2.32	1.26	1.30	0.944
1¼" x 1¼" x ¾"	123 460 776	2.58	2.24	1.26	1.22	0.952
1¼" x 1¼" x 1"	123 460 777	2.58	2.42	1.26	1.23	1.041
1½" x 1½" x ½"	123 456 870	2.72	2.44	1.35	1.38	1.091
1½" x 1½" x ¾"	123 456 871	2.72	2.36	1.35	1.30	1.107
1½" x 1½" x 1"	123 456 872	2.72	2.52	1.35	1.34	1.197
2" x 2" x ½"	123 456 873	3.21	2.68	1.59	1.61	1.574
2" x 2" x ¾"	123 456 874	3.21	2.60	1.59	1.54	1.587
2" x 2" x 1"	123 456 875	3.21	2.76	1.59	1.57	1.678
2" x 2" x 1½"	123 456 876	3.21	2.99	1.59	1.61	1.781

517H cap HNBR

(1 x press)



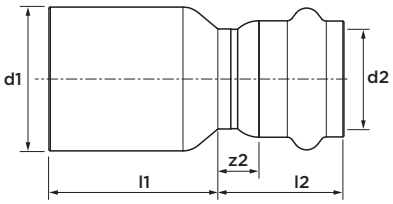


size	item no.	l1	z1	weight [lb]
½"	123 456 919	2.33	0.87	0.209
¾"	123 456 920	2.33	0.87	0.265
1"	123 456 921	2.99	1.81	0.452
1¼"	123 460 781	3.12	1.80	0.518
1½"	123 456 922	3.18	1.80	0.705
2"	123 456 923	3.43	1.81	0.992

518H fitting reducer HNBR

(street Ø x press)



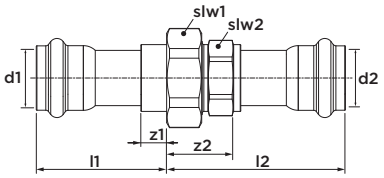


size	item no.	l1	l2	z2	weight [lb]
Ø ¾" x ½"	123 456 889	1.52	1.65	0.46	0.216
Ø 1" x ½"	123 456 890	1.54	1.97	0.48	0.326
Ø 1" x ¾"	123 456 891	1.54	1.85	0.48	0.337
Ø 1¼" x 1"	123 460 782	1.71	2.00	0.81	0.527
Ø 1½" x 1¼"	123 460 783	1.77	2.04	0.72	0.644
Ø 1½" x ½"	123 456 892	1.50	2.52	0.43	0.507
Ø 1½" x ¾"	123 456 893	1.50	2.40	0.44	0.518
Ø 1½" x 1"	123 456 894	1.65	2.24	0.47	0.597
Ø 2" x ½"	123 456 895	1.50	2.99	0.44	0.701
Ø 2" x ¾"	123 456 896	1.51	2.87	0.44	0.712
Ø 2" x 1"	123 456 897	1.65	2.72	0.47	0.791
Ø 2" x 1 ½"	123 456 898	1.84	2.36	0.46	0.860

5733H union HNBR

(2 x press)



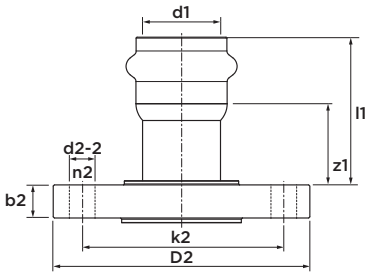


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½"	123 456 909	3.16	3.31	2.09	2.25	1.61	1.10	3.086
¾"	123 456 910	3.37	3.45	2.31	2.39	1.81	1.42	3.748
1"	123 456 911	3.56	3.80	2.38	2.61	2.17	1.61	4.409
1¼"	123 460 784	3.65	4.03	2.33	2.71	2.98	2.39	2.798
1½"	123 456 912	3.91	4.11	2.53	2.73	2.95	2.36	3.483
2"	123 456 913	4.02	4.10	2.41	2.48	3.66	2.91	5.071

5771H flange adapter - class 150 HNBR

(press x flange)



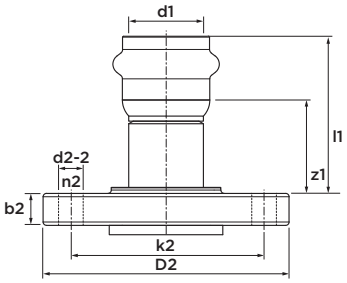


size	item no.	l1	z1	b2	d2-2	k2	D2	n2	weight [lb]
½"	123 456 899	2.81	1.75	0.43	0.63	2.38	3.54	4	1.190
¾"	123 456 900	2.87	1.81	0.51	0.63	3.25	3.94	4	1.664
1"	123 456 901	3.13	1.95	0.55	0.63	3.13	4.33	4	2.363
1¼"	123 460 785	2.65	1.33	0.62	0.63	3.50	4.53	4	2.895
1½"	123 456 902	3.41	2.04	0.67	0.63	3.88	4.92	4	3.638
2"	123 456 903	3.42	1.81	0.75	0.75	4.74	5.91	4	5.490

5772H van stone flange adapter - class 150 HNBR

(press x flange)





size	item no.	l1	z1	b2	d2-2	k2	D2	n2	weight [lb]
½"	123 456 904	3.33	2.27	0.43	0.63	2.38	3.54	4	1.371
¾"	123 456 905	3.33	2.27	0.51	0.63	3.25	3.94	4	1.742
1"	123 456 906	3.50	2.31	0.55	0.63	3.13	4.33	4	2.623
1¼"	123 460 786	2.83	1.33	0.63	0.63	3.50	4.53	4	3.042
1½"	123 456 907	3.68	2.30	0.67	0.63	3.88	4.92	4	4.211
2"	123 456 908	4.42	2.81	0.75	0.75	4.74	5.91	4	7.412

599H sealing element HNBR

(lubricant free)



size	item no.	weight [lb]
½"	123 457 150	0.002
¾"	123 457 151	0.004
1"	123 457 152	0.004
1¼"	123 460 834	0.008
1½"	123 457 153	0.009
2"	123 457 154	0.011

“Apollo”® SmartPress®

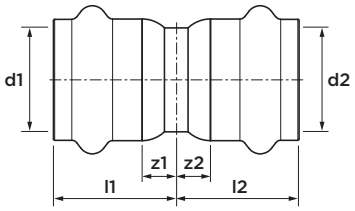
fittings EPDM



500E coupling EPDM

(2 x press)



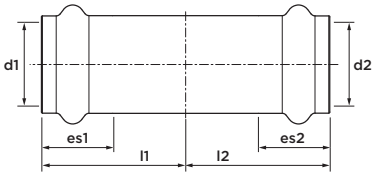


size	item no.	l1/l2	z1/z2	weight [lb]
½"	123 456 924	1.39	0.37	0.190
¾"	123 456 925	1.39	0.37	0.231
1"	123 456 926	1.56	0.37	0.425
1¼"	123 460 787	1.68	0.36	0.589
1½"	123 456 927	1.74	0.36	0.683
2"	123 456 928	1.98	0.37	0.981

501E coupling - no stop EPDM

(2 x press)



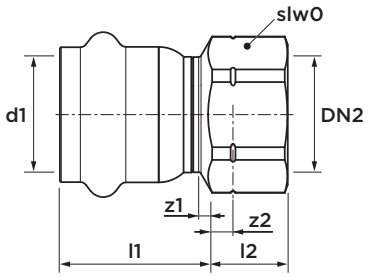


size	item no.	l1/l2	es1/es2	weight [lb]
½"	123 456 929	1.89	1.06	0.256
¾"	123 456 930	1.96	1.06	0.320
1"	123 456 931	2.28	1.18	0.608
1¼"	123 460 788	2.54	1.32	0.858
1½"	123 456 932	2.67	1.38	1.008
2"	123 456 933	3.09	1.61	1.464

503E adapter - female EPDM

(press x FPT)



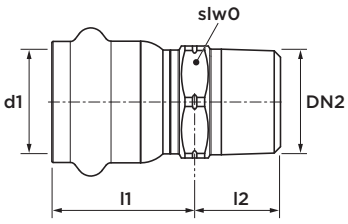


size	item no.	l1	l2	z1	z2	slw0	weight [lb]
½" x FPT ½"	123 456 943	1.33	0.94	0.27	0.63	1.10	0.240
¾" x FPT ½"	123 456 944	1.33	0.94	0.27	0.63	1.10	0.260
¾" x FPT ¾"	123 456 945	1.33	0.98	0.27	0.63	1.26	0.260
1" x FPT ½"	123 456 946	1.50	0.87	0.31	0.55	1.42	0.474
1" x FPT ¾"	123 456 947	1.50	0.87	0.31	0.55	1.42	0.428
1" x FPT 1"	123 456 948	1.50	1.10	0.31	0.71	1.61	0.520
1¼" x FPT 1¼"	123 460 789	1.62	1.17	0.30	0.42	1.97	1.970
1½" x FPT 1"	123 456 949	1.68	1.02	0.30	0.63	1.97	0.897
1½" x FPT ¼"	123 456 950	1.68	1.02	0.30	0.59	1.97	0.723
1½" x FPT 1½"	123 456 951	1.68	1.14	0.30	0.75	2.36	1.001
2" x FPT 1¼"	123 456 952	1.92	1.18	0.31	0.75	2.56	1.512
2" x FPT 1½"	123 456 953	1.92	1.18	0.31	0.75	2.56	1.356
2" x FPT 2"	123 456 954	1.92	1.38	0.31	0.94	2.76	1.338

504E adapter - male EPDM

(press x MPT)



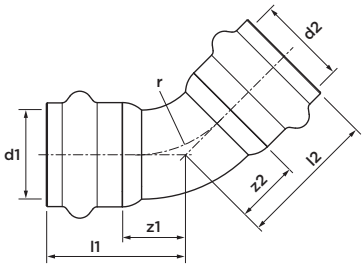


size	item no.	l1	l2	z1	slw0	weight [lb]
½" x MPT ½"	123 456 934	1.33	1.22	0.27	0.87	0.187
¾" x MPT ½"	123 456 935	1.33	1.26	0.27	1.10	0.236
¾" x MPT ¾"	123 456 936	1.33	1.26	0.27	1.26	0.289
¾" x MPT 1"	123 456 937	1.33	1.42	0.27	1.42	0.379
1" x MPT ¾"	123 456 938	1.50	1.26	0.31	1.42	0.410
1" x MPT 1"	123 456 939	1.50	1.42	0.31	1.42	0.454
1¼" x MPT 1¼"	123 460 790	1.62	1.64	0.30	1.81	0.721
1½" x MPT ¾"	123 456 940	1.68	1.50	0.30	1.97	0.697
1½" x MPT 1½"	123 456 941	1.68	1.65	0.30	2.17	0.966
2" x MPT 2"	123 456 942	1.92	1.69	0.31	2.56	1.217

506E 45° elbow EPDM

(2 x press)



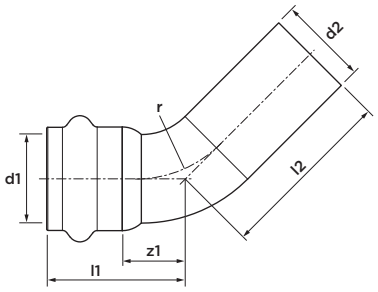


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	123 456 965	1.64	0.62	1.02	0.214
¾"	123 456 966	1.74	0.68	1.26	0.276
1"	123 456 967	2.06	0.88	1.57	0.534
1¼"	123 460 791	2.35	1.03	2.01	0.767
1½"	123 456 968	2.53	1.15	2.28	0.924
2"	123 456 969	3.00	1.39	2.83	1.373

506-2E 45° street elbow EPDM

(press x street Ø)



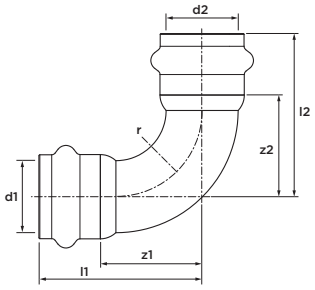


size	item no.	l1	l2	z1	r	weight [lb]
½"	123 456 970	1.64	2.22	0.62	1.02	0.207
¾"	123 456 971	1.74	2.26	0.68	1.26	0.291
1"	123 456 972	2.06	2.62	0.88	1.57	0.542
1¼"	123 460 792	2.35	2.88	1.03	2.01	0.789
1½"	123 456 973	2.53	3.00	1.15	2.28	0.968
2"	123 456 974	3.00	3.58	1.39	2.83	1.459

507E 90° elbow EPDM

(2 x press)



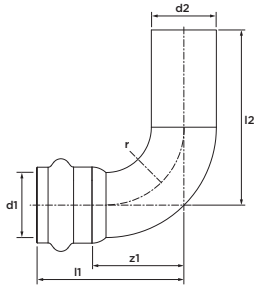


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	123 456 955	2.24	1.18	1.02	0.256
¾"	123 456 956	2.48	1.41	1.26	0.342
1"	123 456 957	2.98	1.80	1.57	0.664
1¼"	123 460 793	3.53	1.03	2.01	0.767
1½"	123 456 958	3.87	2.09	2.28	1.215
2"	123 456 959	4.66	3.05	2.83	1.817

507-2E 90° street elbow EPDM

(press x street Ø)



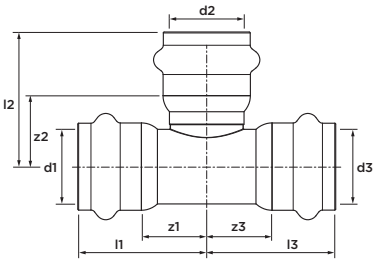


size	item no.	l1	l2	z1	r	weight [lb]
½"	123 456 960	2.24	2.82	1.18	1.02	0.265
¾"	123 456 961	2.48	3.00	1.41	1.26	0.357
1"	123 456 962	2.98	3.54	1.80	1.57	0.686
1¼"	123 460 794	3.53	4.06	2.01	0.767	1.014
1½"	123 456 963	3.87	4.38	2.09	2.28	1.259
2"	123 456 964	4.66	5.24	3.05	2.83	1.898

511E tee - EPDM

(3 x press)



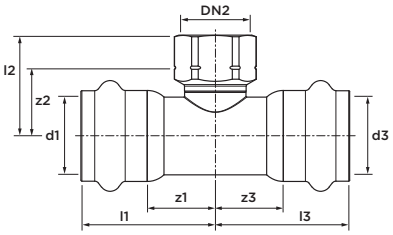


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
½"	123 456 975	1.71	1.93	0.65	0.87	0.313
¾"	123 456 976	2.01	1.93	0.94	0.87	0.419
1"	123 456 977	2.27	2.24	1.09	1.06	0.780
1¼"	123 460 795	2.58	2.55	1.26	1.33	1.093
1½"	123 456 978	2.72	2.72	1.35	1.34	1.301
2"	123 456 979	3.21	3.35	1.59	1.73	1.905

5712E tee - female EPDM

(press x press x FPT)



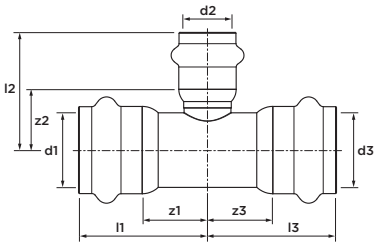


size	item no.	l1/l3	l2	z1/z3	z2	slw2	weight [lb]
½" x ½" x FPT ½"	123 456 990	1.71	1.46	0.65	1.14	1.10	0.370
¾" x ¾" x FPT ½"	123 456 991	2.01	1.57	0.94	1.26	1.10	0.459
¾" x ¾" x FPT ¾"	123 456 992	2.01	1.54	0.94	1.22	1.26	0.454
1" x 1" x FPT ½"	123 456 993	2.27	1.69	1.09	1.38	1.10	0.730
1" x 1" x FPT ¾"	123 456 994	2.27	1.69	1.09	1.38	1.26	0.728
1" x 1" x FPT 1"	123 456 995	2.27	2.85	1.09	1.34	1.61	0.888
1¼" x 1¼" x FPT ½"	123 460 799	2.58	1.87	1.26	1.55	1.10	0.992
1¼" x 1¼" x FPT ¾"	123 460 800	2.58	1.87	1.26	1.55	1.26	0.983
1¼" x 1¼" x FPT 1"	123 460 801	2.58	2.0	1.26	1.60	1.61	1.142
1½" x 1½" x FPT ½"	123 456 996	2.72	2.01	1.35	1.69	1.10	1.149
1½" x 1½" x FPT ¾"	123 456 997	2.72	2.01	1.35	1.65	1.26	1.144
1½" x 1½" x FPT 1"	123 456 998	2.72	2.13	1.35	1.73	1.61	1.305
2" x 2" x FPT ½"	123 456 999	3.21	2.24	1.59	1.93	1.10	1.631
2" x 2" x FPT ¾"	123 457 000	3.21	2.24	1.59	1.89	1.26	1.627
2" x 2" x FPT 1"	123 457 001	3.21	2.36	1.59	1.97	1.61	1.788

511RE tee - reducing EPDM

(3 x press)



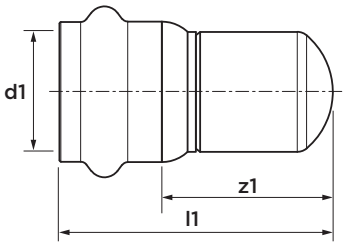


size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
¾" x ¾" x ½"	123 456 980	2.01	2.01	0.94	0.94	0.401
1" x 1" x ½"	123 456 981	2.27	2.17	1.09	1.10	0.672
1" x 1" x ¾"	123 456 982	2.27	2.09	1.09	1.02	0.688
1¼" x 1¼" x ½"	123 460 796	2.58	2.32	1.26	1.30	0.944
1¼" x 1¼" x ¾"	123 460 797	2.58	2.24	1.26	1.22	0.952
1¼" x 1¼" x 1"	123 460 798	2.58	2.42	1.26	1.23	1.041
1½" x 1½" x ½"	123 456 983	2.72	2.44	1.35	1.38	1.091
1½" x 1½" x ¾"	123 456 984	2.72	2.36	1.35	1.30	1.107
1½" x 1½" x 1"	123 456 985	2.72	2.52	1.35	1.34	1.197
2" x 2" x ½"	123 456 986	3.21	2.68	1.59	1.61	1.574
2" x 2" x ¾"	123 456 987	3.21	2.60	1.59	1.54	1.587
2" x 2" x 1"	123 456 988	3.21	2.76	1.59	1.57	1.678
2" x 2" x 1½"	123 456 989	3.21	2.99	1.59	1.61	1.781

517E cap EPDM

(1x press)



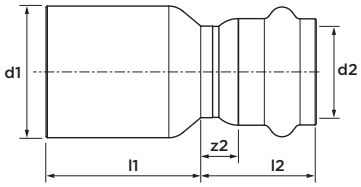


size	item no.	l1	z1	weight [lb]
½"	123 457 032	2.33	0.87	0.209
¾"	123 457 033	2.33	0.87	0.265
1"	123 457 034	2.99	1.81	0.452
1¼"	123 460 802	3.12	1.80	0.518
1½"	123 457 035	3.18	1.80	0.705
2"	123 457 036	3.43	1.81	0.992

518E fitting reducer EPDM

(street Ø x press)



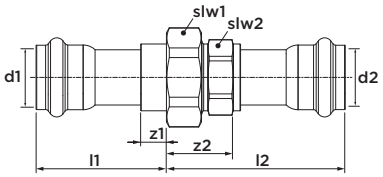


size	item no.	l1	l2	z2	weight [lb]
Ø ¾" x ½"	123 457 002	1.52	1.65	0.46	0.216
Ø 1" x ½"	123 457 003	1.54	1.97	0.48	0.326
Ø 1" x ¾"	123 457 004	1.54	1.85	0.48	0.337
Ø 1¼" x 1"	123 460 803	1.71	2.00	0.81	0.527
Ø 1½" x 1¼"	123 460 804	1.77	2.04	0.72	0.644
Ø 1½" x ½"	123 457 005	1.50	2.52	0.43	0.507
Ø 1½" x ¾"	123 457 006	1.50	2.40	0.44	0.518
Ø 1½" x 1"	123 457 007	1.65	2.24	0.47	0.597
Ø 2" x ½"	123 457 008	1.50	2.99	0.44	0.701
Ø 2" x ¾"	123 457 009	1.51	2.87	0.44	0.712
Ø 2" x 1"	123 457 010	1.65	2.72	0.47	0.791
Ø 2" x 1 ½"	123 457 011	1.84	2.36	0.46	0.860

5733E union EPDM

(2 x press)



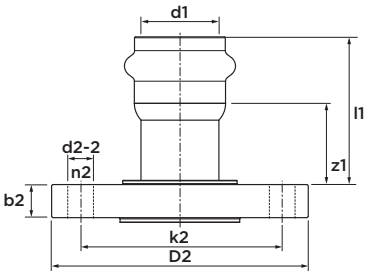


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½"	123 457 022	3.16	3.31	2.09	2.25	1.61	1.10	3.086
¾"	123 457 023	3.37	3.45	2.31	2.39	1.81	1.42	3.748
1"	123 457 024	3.56	3.80	2.38	2.61	2.17	1.61	4.409
1¼"	123 460 805	3.65	4.03	2.33	2.71	2.98	2.39	2.798
1½"	123 457 025	3.91	4.11	2.53	2.73	2.95	2.36	3.483
2"	123 457 026	4.02	4.10	2.41	2.48	3.66	2.91	5.071

5771E flange adapter - class 150 EPDM

(press x flange)



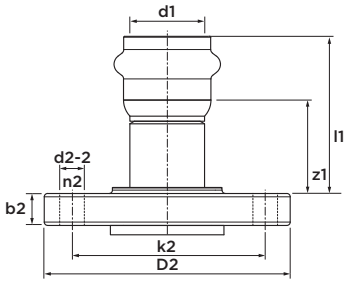


size	item no.	l1	z1	b2	d2-2	k2	D2	n2	weight [lb]
½"	123 457 012	2.81	1.75	0.43	0.63	2.38	3.54	4	1.190
¾"	123 457 013	2.87	1.81	0.51	0.63	3.25	3.94	4	1.664
1"	123 457 014	3.13	1.95	0.55	0.63	3.13	4.33	4	2.363
1¼"	123 460 806	2.65	1.33	0.62	0.63	3.50	4.53	4	2.895
1½"	123 457 015	3.41	2.04	0.67	0.63	3.88	4.92	4	3.638
2"	123 457 016	3.42	1.81	0.75	0.75	4.74	5.91	4	5.490

5772E van stone flange adapter -class 150 EPDM

(press x flange)





size	item no.	l1	z1	b2	d2-2	k2	D2	n2	weight [lb]
½"	123 457 017	3.33	2.27	0.43	0.63	2.38	3.54	4	1.371
¾"	123 457 018	3.33	2.27	0.51	0.63	3.25	3.94	4	1.742
1"	123 457 019	3.50	2.31	0.55	0.63	3.13	4.33	4	2.623
1¼"	123 460 807	2.83	1.33	0.63	0.63	3.50	4.53	4	3.042
1½"	123 457 020	3.68	2.30	0.67	0.63	3.88	4.92	4	4.211
2"	123 457 021	4.42	2.81	0.75	0.75	4.74	5.91	4	7.412

599E sealing element EPDM

(lubricant free)



size	item no.	weight [lb]
½"	123 457 027	0.002
¾"	123 457 028	0.004
1"	123 457 029	0.004
1¼"	123 460 831	0.008
1½"	123 457 030	0.009
2"	123 457 031	0.011

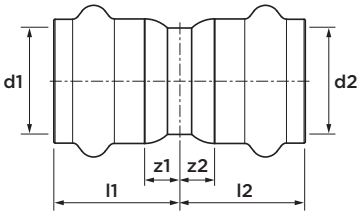
“Apollo”® SmartPress®

fittings FKM



500F coupling FKM
(2 x press)

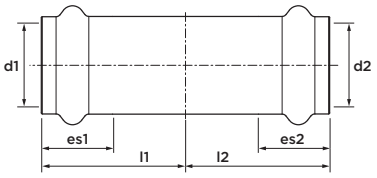




size	item no.	l1/l2	z1/z2	weight [lb]
½"	123 457 037	1.39	0.37	0.190
¾"	123 457 038	1.39	0.37	0.231
1"	123 457 039	1.56	0.37	0.425
1¼"	123 460 808	1.68	0.36	0.589
1½"	123 457 040	1.74	0.36	0.683
2"	123 457 041	1.98	0.37	0.981

501F coupling - no stop FKM
(2 x press)

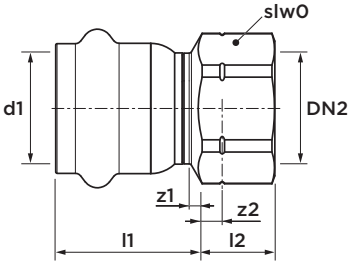




size	item no.	l1/l2	es1/es2	weight [lb]
½"	123 457 042	1.89	1.06	0.256
¾"	123 457 043	1.96	1.06	0.320
1"	123 457 044	2.28	1.18	0.608
1¼"	123 460 809	2.54	1.32	0.858
1½"	123 457 045	2.67	1.38	1.008
2"	123 457 046	3.09	1.61	1.464

503F adapter - female FKM
(press x FPT)

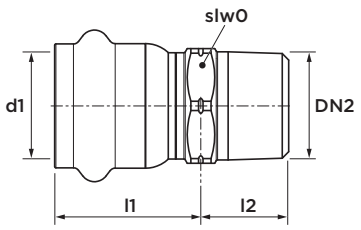




size	item no.	l1	l2	z1	z2	slw0	weight [lb]
½" x FPT ½"	123 457 056	1.33	0.94	0.27	0.63	1.10	0.240
¾" x FPT ½"	123 457 057	1.33	0.94	0.27	0.63	1.10	0.260
¾" x FPT ¾"	123 457 058	1.33	0.98	0.27	0.63	1.26	0.260
1" x FPT ½"	123 457 059	1.50	0.87	0.31	0.55	1.42	0.474
1" x FPT ¾"	123 457 060	1.50	0.87	0.31	0.55	1.42	0.428
1" x FPT 1"	123 457 061	1.50	1.10	0.31	0.71	1.61	0.520
1¼" x FPT 1¼"	123 460 810	1.62	1.17	0.30	0.42	1.97	1.970
1½" x FPT 1"	123 457 062	1.68	1.02	0.30	0.63	1.97	0.897
1½" x FPT ¼"	123 457 063	1.68	1.02	0.30	0.59	1.97	0.723
1½" x FPT 1½"	123 457 064	1.68	1.14	0.30	0.75	2.36	1.001
2" x FPT 1¼"	123 457 065	1.92	1.18	0.31	0.75	2.56	1.512
2" x FPT 1½"	123 457 066	1.92	1.18	0.31	0.75	2.56	1.356
2"x FPT 2"	123 457 067	1.92	1.38	0.31	0.94	2.76	1.338

504F adapter - male FKM
(press x MPT)



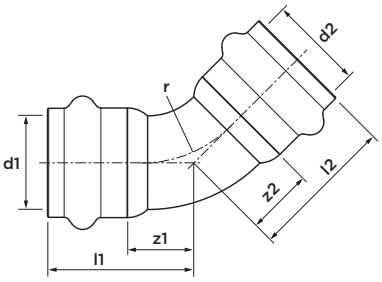


size	item no.	l1	l2	z1	slw0	weight [lb]
½" x MPT ½"	123 457 047	1.33	1.22	0.27	0.87	0.187
¾" x MPT ½"	123 457 048	1.33	1.26	0.27	1.10	0.236
¾" x MPT ¾"	123 457 049	1.33	1.26	0.27	1.26	0.289
¾" x MPT 1"	123 457 050	1.33	1.42	0.27	1.42	0.379
1" x MPT ¾"	123 457 051	1.50	1.26	0.31	1.42	0.410
1" x MPT 1"	123 457 052	1.50	1.42	0.31	1.42	0.454
1¼" x MPT 1¼"	123 460 811	1.62	1.64	0.30	1.81	0.721
1½" x MPT ¾"	123 457 053	1.68	1.50	0.30	1.97	0.697
1½" x MPT 1½"	123 457 054	1.68	1.65	0.30	2.17	0.966
2" x MPT 2"	123 457 055	1.92	1.69	0.31	2.56	1.217

506F 45° elbow FKM

(2 x press)



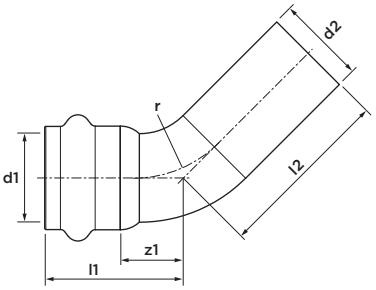


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	123 457 078	1.64	0.62	1.02	0.214
¾"	123 457 079	1.74	0.68	1.26	0.276
1"	123 457 080	2.06	0.88	1.57	0.534
1¼"	123 460 812	2.35	1.03	2.01	0.767
1½"	123 457 081	2.53	1.15	2.28	0.924
2"	123 457 082	3.00	1.39	2.83	1.373

506-2F 45° street elbow FKM

(press x street Ø)



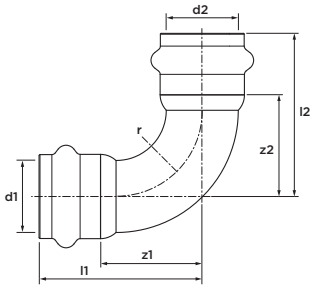


size	item no.	l1	l2	z1	r	weight [lb]
½"	123 457 083	1.64	2.22	0.62	1.02	0.207
¾"	123 457 084	1.74	2.26	0.68	1.26	0.291
1"	123 457 085	2.06	2.62	0.88	1.57	0.542
1¼"	123 460 813	2.35	2.88	1.03	2.01	0.789
1½"	123 457 086	2.53	3.00	1.15	2.28	0.968
2"	123 457 087	3.00	3.58	1.39	2.83	1.459

507F 90° elbow FKM

(2 x press)



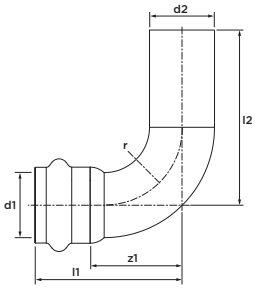


size	item no.	l1/l2	z1/z2	r	weight [lb]
½"	123 457 068	2.24	1.18	1.02	0.256
¾"	123 457 069	2.48	1.41	1.26	0.342
1"	123 457 070	2.98	1.80	1.57	0.664
1¼"	123 460 814	3.53	1.03	2.01	0.767
1½"	123 457 071	3.87	2.09	2.28	1.215
2"	123 457 072	4.66	3.05	2.83	1.817

507-2F 90° street elbow FKM

(press x street Ø)

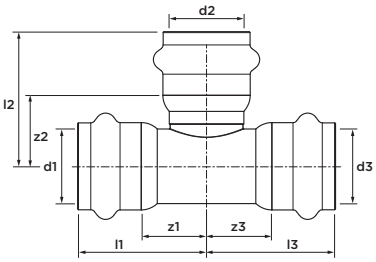




size	item no.	l1	l2	z1	r	weight [lb]
½"	123 457 073	2.24	2.82	1.18	1.02	0.265
¾"	123 457 074	2.48	3.00	1.41	1.26	0.357
1"	123 457 075	2.98	3.54	1.80	1.57	0.686
1¼"	123 460 815	3.53	4.06	2.01	0.767	1.014
1½"	123 457 076	3.87	4.38	2.09	2.28	1.259
2"	123 457 077	4.66	5.24	3.05	2.83	1.898

511F tee FKM
(3 x press)

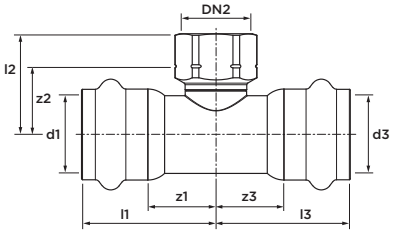




size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
½"	123 457 088	1.71	1.93	0.65	0.87	0.313
¾"	123 457 089	2.01	1.93	0.94	0.87	0.419
1"	123 457 090	2.27	2.24	1.09	1.06	0.780
1¼"	123 460 816	2.58	2.55	1.26	1.33	1.093
1½"	123 457 091	2.72	2.72	1.35	1.34	1.301
2"	123 457 092	3.21	3.35	1.59	1.73	1.905

5712F tee - female FKM
(press x press x FPT)

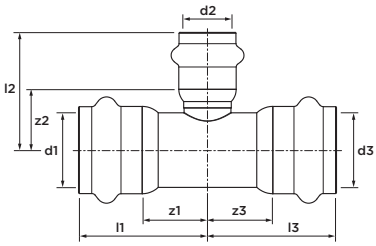




size	item no.	l1/l3	l2	z1/z3	z2	slw2	weight [lb]
½" x ½" x FPT ½"	123 457 103	1.71	1.46	0.65	1.14	1.10	0.370
¾" x ¾" x FPT ½"	123 457 104	2.01	1.57	0.94	1.26	1.10	0.459
¾" x ¾" x FPT ¾"	123 457 105	2.01	1.54	0.94	1.22	1.26	0.454
1" x 1" x FPT ½"	123 457 106	2.27	1.69	1.09	1.38	1.10	0.730
1" x 1" x FPT ¾"	123 457 107	2.27	1.69	1.09	1.38	1.26	0.728
1" x 1" x FPT 1"	123 457 108	2.27	2.85	1.09	1.34	1.61	0.888
1¼" x 1¼" x FPT ½"	123 460 820	2.58	1.87	1.26	1.55	1.10	0.992
1¼" x 1¼" x FPT ¾"	123 460 821	2.58	1.87	1.26	1.55	1.26	0.983
1¼" x 1¼" x FPT 1"	123 460 822	2.58	2.0	1.26	1.60	1.61	1.142
1½" x 1½" x FPT ½"	123 457 109	2.72	2.01	1.35	1.69	1.10	1.149
1½" x 1½" x FPT ¾"	123 457 110	2.72	2.01	1.35	1.65	1.26	1.144
1½" x 1½" x FPT 1"	123 457 111	2.72	2.13	1.35	1.73	1.61	1.305
2" x 2" x FPT ½"	123 457 112	3.21	2.24	1.59	1.93	1.10	1.631
2" x 2" x FPT ¾"	123 457 113	3.21	2.24	1.59	1.89	1.26	1.627
2" x 2" x FPT 1"	123 457 114	3.21	2.36	1.59	1.97	1.61	1.788

511RF tee - reducing FKM
(3 x press)

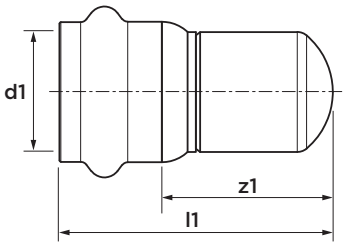




size	item no.	l1/l3	l2	z1/z3	z2	weight [lb]
¾" x ¾" x ½"	123 457 093	2.01	2.01	0.94	0.94	0.401
1" x 1" x ½"	123 457 094	2.27	2.17	1.09	1.10	0.672
1" x 1" x ¾"	123 457 095	2.27	2.09	1.09	1.02	0.688
1¼" x 1¼" x ½"	123 460 817	2.58	2.32	1.26	1.30	0.944
1¼" x 1¼" x ¾"	123 460 818	2.58	2.24	1.26	1.22	0.952
1¼" x 1¼" x 1"	123 460 819	2.58	2.42	1.26	1.23	1.041
1½" x 1½" x ½"	123 457 096	2.72	2.44	1.35	1.38	1.091
1½" x 1½" x ¾"	123 457 097	2.72	2.36	1.35	1.30	1.107
1½" x 1½" x 1"	123 457 098	2.72	2.52	1.35	1.34	1.197
2" x 2" x ½"	123 457 099	3.21	2.68	1.59	1.61	1.574
2" x 2" x ¾"	123 457 100	3.21	2.60	1.59	1.54	1.587

517F cap FKM
(1x press)



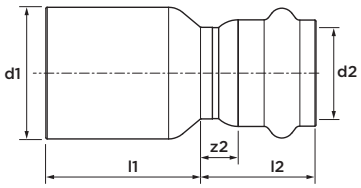


size	item no.	l1	z1	weight [lb]
½"	123 457 145	2.33	0.87	0.209
¾"	123 457 146	2.33	0.87	0.265
1"	123 457 147	2.99	1.81	0.452
1¼"	123 460 823	3.12	1.80	0.518
1½"	123 457 148	3.18	1.80	0.705
2"	123 457 149	3.43	1.81	0.992

518F fitting reducer FKM

(street Ø x press)



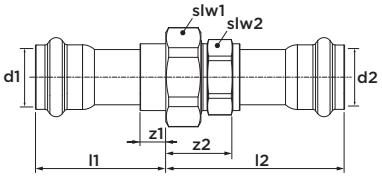


size	item no.	l1	l2	z2	weight [lb]
Ø ¾" x ½"	123 457 115	1.52	1.65	0.46	0.216
Ø 1" x ½"	123 457 116	1.54	1.97	0.48	0.326
Ø 1" x ¾"	123 457 117	1.54	1.85	0.48	0.337
Ø 1¼" x 1"	123 460 824	1.71	2.00	0.81	0.527
Ø 1½" x 1¼"	123 460 825	1.77	2.04	0.72	0.644
Ø 1½" x ½"	123 457 118	1.50	2.52	0.43	0.507
Ø 1½" x ¾"	123 457 119	1.50	2.40	0.44	0.518
Ø 1½" x 1"	123 457 120	1.65	2.24	0.47	0.597
Ø 2" x ½"	123 457 121	1.50	2.99	0.44	0.701
Ø 2" x ¾"	123 457 122	1.51	2.87	0.44	0.712
Ø 2" x 1"	123 457 123	1.65	2.72	0.47	0.791

5733F union FKM

(2 x press)



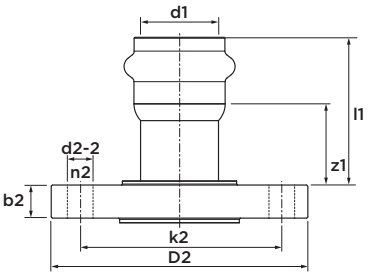


size	item no.	l1	l2	z1	z2	slw1	slw2	weight [lb]
½"	123 457 135	3.16	3.31	2.09	2.25	1.61	1.10	3.086
¾"	123 457 136	3.37	3.45	2.31	2.39	1.81	1.42	3.748
1"	123 457 137	3.56	3.80	2.38	2.61	2.17	1.61	4.409
1¼"	123 460 826	3.65	4.03	2.33	2.71	2.98	2.39	2.798
1½"	123 457 138	3.91	4.11	2.53	2.73	2.95	2.36	3.483
2"	123 457 139	4.02	4.10	2.41	2.48	3.66	2.91	5.071

5771F flange adapter - class 150 FKM

(press x flange)



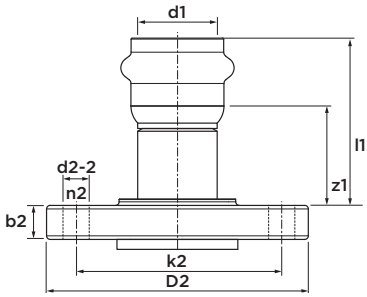


size	item no.	l1	z1	b2	d2-2	k2	D2	n2	weight [lb]
½"	123 457 125	2.81	1.75	0.43	0.63	2.38	3.54	4	1.190
¾"	123 457 126	2.87	1.81	0.51	0.63	3.25	3.94	4	1.664
1"	123 457 127	3.13	1.95	0.55	0.63	3.13	4.33	4	2.363
1¼"	123 460 827	2.65	1.33	0.62	0.63	3.50	4.53	4	2.895
1½"	123 457 128	3.41	2.04	0.67	0.63	3.88	4.92	4	3.638
2"	123 457 129	3.42	1.81	0.75	0.75	4.74	5.91	4	5.490

5772F van stone flange adapter - class 150 FKM

(press x flange)

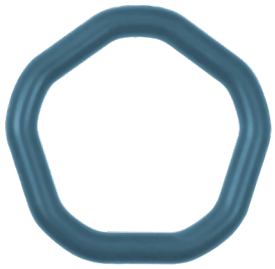




size	item no.	l1	z1	b2	d2-2	k2	D2	n2	weight [lb]
½"	123 457 130	3.33	2.27	0.43	0.63	2.38	3.54	4	1.371
¾"	123 457 131	3.33	2.27	0.51	0.63	3.25	3.94	4	1.742
1"	123 457 132	3.50	2.31	0.55	0.63	3.13	4.33	4	2.623
1¼"	123 460 828	2.83	1.33	0.63	0.63	3.50	4.53	4	3.042
1½"	123 457 133	3.68	2.30	0.67	0.63	3.88	4.92	4	4.211
2"	123 457 134	4.42	2.81	0.75	0.75	4.74	5.91	4	7.412

599F sealing element FKM

(silicone free lubricant)



size	item no.	weight [lb]
½"	123 457 140	0.002
¾"	123 457 141	0.004
1"	123 457 142	0.004
1¼"	123 460 837	0.008
1½"	123 457 143	0.009
2"	123 457 44	0.011

“Apollo”® SmartPress®

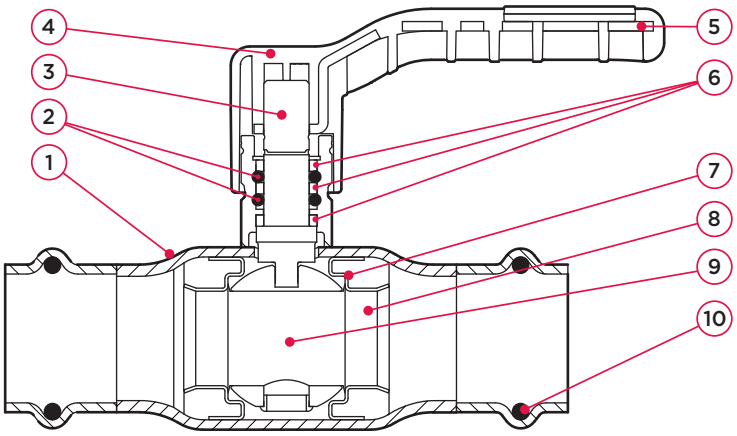
valves

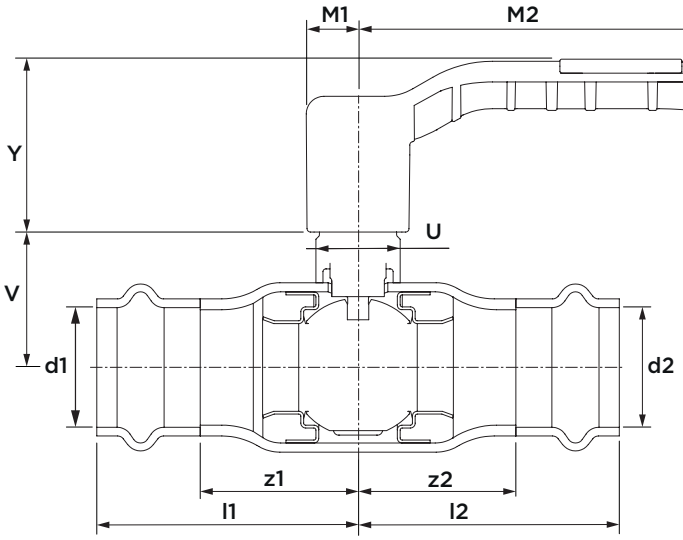


SM500H FullFlow ball valve HNBR

(2 x press)







specifications

- stainless steel AISI 316
- 100% full port
- compact, one piece design
- blow-out proof stem design
- max. pressure 300 psi (20.7 bar)
- operating temperature -22°F to 212°F (230°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- double o-ring HNBR stem seal
- unique valve identification
- 5-year limited warranty

no.	component	material
1	body	stainless steel (AISI 316L/1.4404)
2	stem seal	HNBR
3	stem	stainless steel (AISI 316L/1.4404)
4	handle	fiberglass reinforced composite (PA66)
5	handle reinforcement	stainless steel (AISI 316L/1.4404)
6	stem bearing	PTFE
7	seat	PTFE
8	sprung support ring	stainless steel (AISI 316L/1.4404)
9	ball	stainless steel (AISI 316L/1.4404)
10	sealing element	HNBR

maximum pressure

operating pressure	test pressure shell	test pressure seat
300 psi (20.7 bar)	451 (31.1 bar)	331 psi (22.8 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings
NSF/ANSI/CAN 61
NSF/ANSI/CAN 372

compliant with
ASTM A312
ASTM A554
ASME B31.1, 31.3, 31.9
IAPMO/ANSI/CAN Z1117 (press ends)

size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 171	0.66	24.4	2.24	1.20	0.47	2.95	1.14	1.69	0.71
¾"	(DN20)	123 457 172	0.90	42.9	2.51	1.47	0.47	2.95	1.26	1.69	0.71
1"	(DN25)	123 457 173	1.69	75.7	2.93	1.77	0.59	3.94	1.54	1.97	0.71
1½"	(DN40)	123 457 174	3.77	163.6	4.06	2.72	0.67	6.50	1.93	2.01	1.10
2"	(DN50)	123 457 175	5.84	356.5	4.69	3.11	0.67	6.50	2.24	2.01	1.10

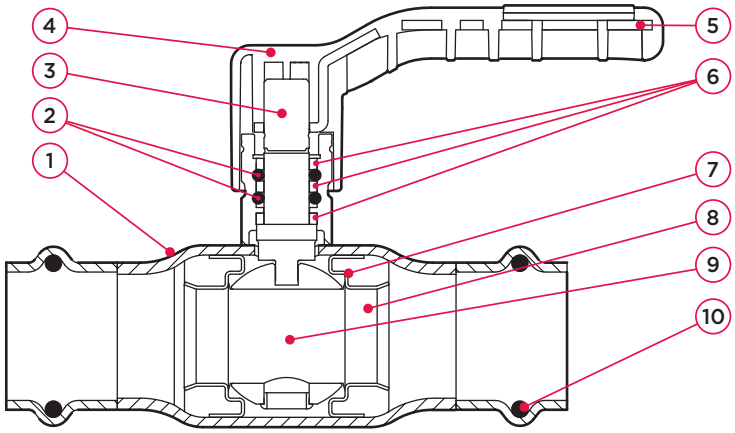
SM500E FullFlow ball valve EPDM

(2 x press)



specifications

- stainless steel AISI 316
- 100% full port
- compact, one piece design
- blow-out proof stem design
- max. pressure 300 psi (20.7 bar)
- operating temperature -31°F to 275°F (302°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- double o-ring EPDM stem seal
- unique valve identification
- 5-year limited warranty

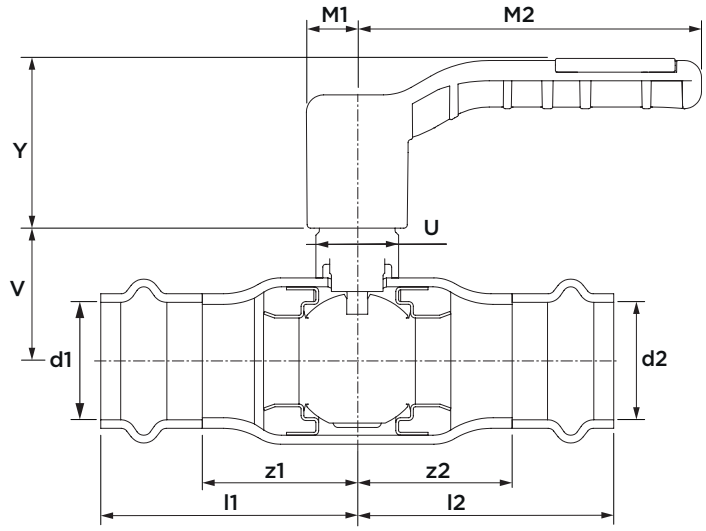


no.	component	material
1	body	stainless steel (AISI 316L/1.4404)
2	stem seal	EPDM
3	stem	stainless steel (AISI 316L/1.4404)
4	handle	fiberglass reinforced composite (PA66)
5	handle reinforcement	stainless steel (AISI 316L/1.4404)
6	stem bearing	PTFE
7	seat	PTFE
8	sprung support ring	stainless steel (AISI 316L/1.4404)
9	ball	stainless steel (AISI 316L/1.4404)
10	sealing element	EPDM

maximum pressure

operating pressure	test pressure shell	test pressure seat
300 psi (20.7 bar)	451 psi (31.1 bar)	331 psi (22.8 bar)

pressure equipment directive category	
all sizes	SEP



certifications & listings
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with
- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- IAPMO/ANSI/CAN Z1117 (press ends)

size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 176	0.66	24.4	2.24	1.20	0.47	2.95	1.14	1.69	0.71
¾"	(DN20)	123 457 177	0.90	42.9	2.51	1.47	0.47	2.95	1.26	1.69	0.71
1"	(DN25)	123 457 178	1.69	75.7	2.93	1.77	0.59	3.94	1.54	1.97	0.71
1½"	(DN40)	123 457 179	3.77	163.6	4.06	2.72	0.67	6.50	1.93	2.01	1.10
2"	(DN50)	123 457 180	5.84	356.5	4.69	3.11	0.67	6.50	2.24	2.01	1.10

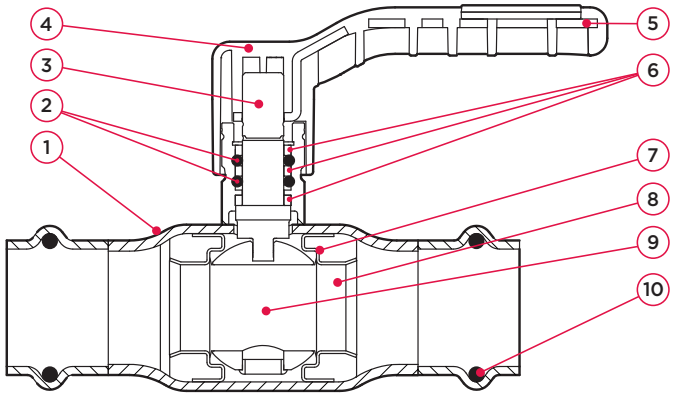
SM500F FullFlow ball valve FKM

(2 x press)



specifications

- stainless steel AISI 316
- 100% full port
- compact, one piece design
- blow-out proof stem design
- max. pressure 300 psi (20.7 bar)
- operating temperature -4°F to 275°F (302°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- double o-ring FKM stem seal
- unique valve identification
- 5-year limited warranty



no.	component	material
1	body	stainless steel (AISI 316L/1.4404)
2	stem seal	FKM
3	stem	stainless steel (AISI 316L/1.4404)
4	handle	fiberglass reinforced composite (PA66)
5	handle reinforcement	stainless steel (AISI 316L/1.4404)
6	stem bearing	PTFE
7	seat	PTFE
8	sprung support ring	stainless steel (AISI 304/1.4401)
9	ball	stainless steel (AISI 304/1.4401)
10	sealing element	FKM

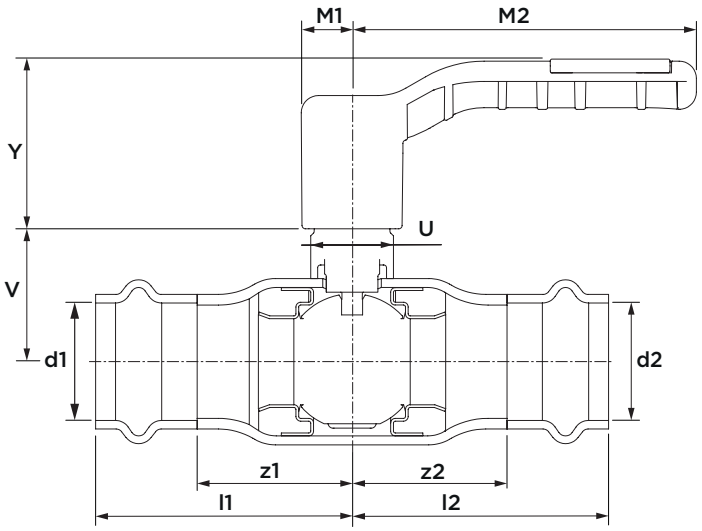
maximum pressure

max. operating pressure	test pressure shell	test pressure seat
300 psi (20.7 bar)	451 (31.1 bar)	331 psi (22.8 bar)

pressure equipment directive category	
all sizes	SEP

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- IAPMO/ANSI/CAN Z1117 (press ends)



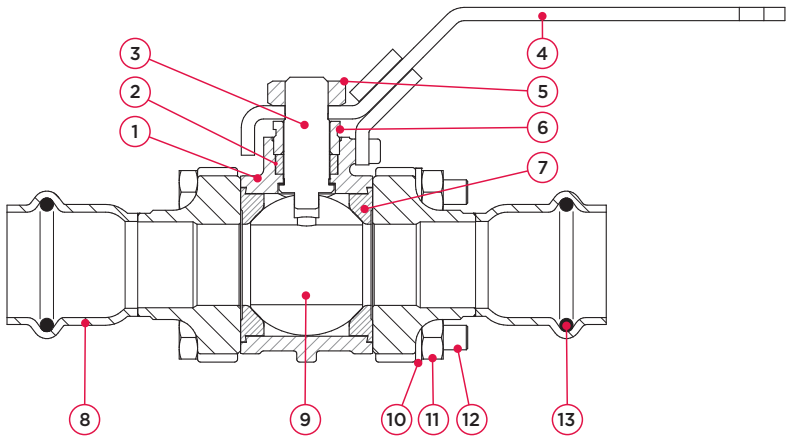
size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 181	0.66	24.4	2.24	1.20	0.47	2.95	1.14	1.69	0.71
¾"	(DN20)	123 457 182	0.90	42.9	2.51	1.47	0.47	2.95	1.26	1.69	0.71
1"	(DN25)	123 457 183	1.69	75.7	2.93	1.77	0.59	3.94	1.54	1.97	0.71
1½"	(DN40)	123 457 184	3.77	163.6	4.06	2.72	0.67	6.50	1.93	2.01	1.10
2"	(DN50)	123 457 185	5.84	356.5	4.69	3.11	0.67	6.50	2.24	2.01	1.10

* factory installed FKM sealing elements for "Apollo"® SmartPress® SM500F FullFlow ball valves are pre-lubricated with silicone based lubricant

86VH 3-piece ball valve HNBR

(2 x press)

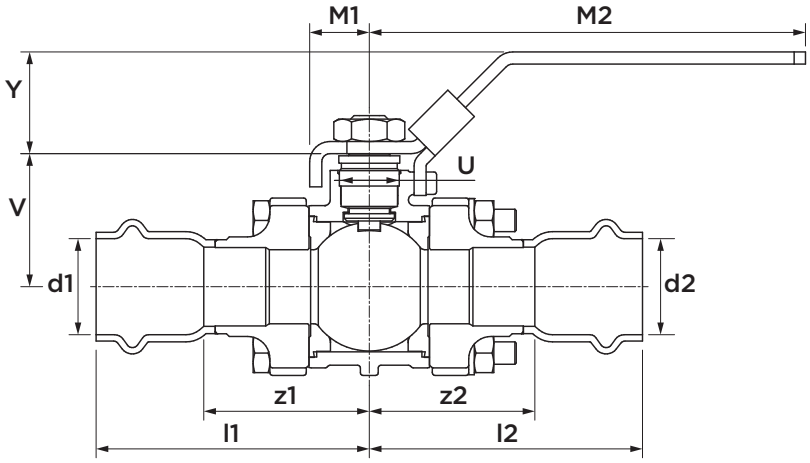




specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -22°F to 212°F (230°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- standardized locking handle (latch-lock lever)
- 5-year limited warranty

no.	component	material
1	body	stainless steel (ASTM A351-CF8M)
2	stem packing	MPTFE
3	stem	stainless steel (ASTM A276-316)
4	handle	stainless steel (AISI 304/1.4301), vinyl coated
5	handle nut	stainless steel (AISI 304/1.4301)
6	packing gland nut	stainless steel (ASTM A276-316)
7	seat	RPTFE
8	press end cap	stainless steel (ASTM A351-CF3M, 316L)
9	ball	stainless steel (ASTM A276-316)
10	lockwasher	stainless steel (AISI 304/1.4301)
11	hex nut	stainless steel (18-8)
12	body bolt	stainless steel (18-8)
13	sealing element	HNBR



maximum pressure		
operating pressure	**test pressure shell**	**test pressure seat**
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings

- IAPMO/ANSI Z1157*
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- Uniform Plumbing Code (UPC®)
- International Plumbing Code (IPC®)
- National Plumbing Code of Canada (NPCC)
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 461	1.61	25.4	2.74	1.67	0.67	4.90	1.30	1.17	0.87
¾"	(DN20)	123 457 462	2.22	50.9	3.05	2.00	0.67	4.90	1.49	1.17	0.87
1"	(DN25)	123 457 463	3.42	68.2	3.42	2.22	0.94	6.15	1.95	1.04	1.31
1½"	(DN40)	123 457 464	7.55	169.9	4.28	2.88	1.25	7.53	2.45	1.53	1.37
2"	(DN50)	123 457 465	12.97	374.6	4.94	3.31	1.25	7.53	2.79	1.53	1.37

* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

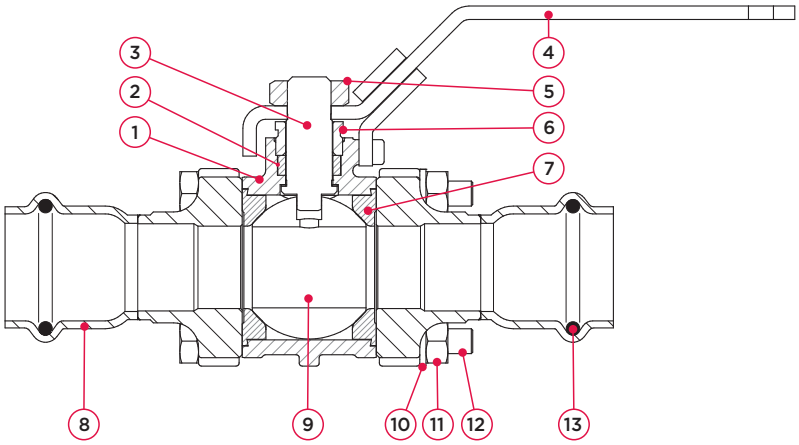
86VE 3-piece ball valve EPDM

(2 x press)

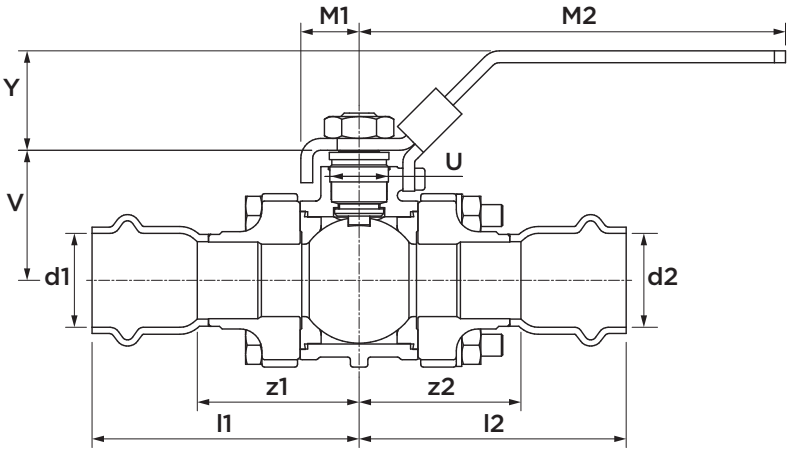


specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -31°F to 275°F (302°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- standardized locking handle (latch-lock lever)
- 5-year limited warranty



no.	component	material
1	body	stainless steel (ASTM A351-CF8M)
2	stem packing	MPTFE
3	stem	stainless steel (ASTM A276-316)
4	handle	stainless steel (AISI 304/1.4301), vinyl coated
5	handle nut	stainless steel (AISI 304/1.4301)
6	packing gland nut	stainless steel (ASTM A276-316)
7	seat	RPTFE
8	press end cap	stainless steel (ASTM A351-CF3M, 316L)
9	ball	stainless steel (ASTM A276-316)
10	lockwasher	stainless steel (AISI 304/1.4301)
11	hex nut	stainless steel (18-8)
12	body bolt	stainless steel (18-8)
13	sealing element	EPDM



maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings
- IAPMO/ANSI Z1157*
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with
- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- Uniform Plumbing Code (UPC®)
- International Plumbing Code (IPC®)
- National Plumbing Code of Canada (NPCC)
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

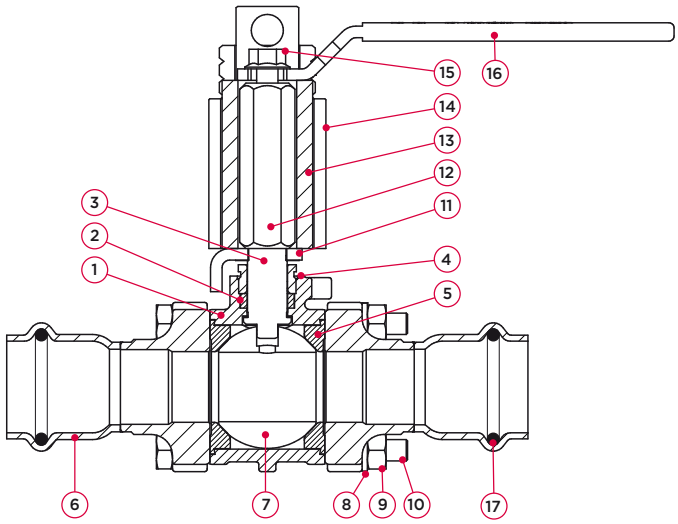
size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 451	1.61	25.4	2.74	1.67	0.67	4.90	1.30	1.17	0.87
¾"	(DN20)	123 457 452	2.22	50.9	3.05	2.00	0.67	4.90	1.49	1.17	0.87
1"	(DN25)	123 457 453	3.42	68.2	3.42	2.22	0.94	6.15	1.95	1.04	1.31
1½"	(DN40)	123 457 454	7.55	169.9	4.28	2.88	1.25	7.53	2.45	1.53	1.37
2"	(DN50)	123 457 455	12.97	374.6	4.94	3.31	1.25	7.53	2.79	1.53	1.37

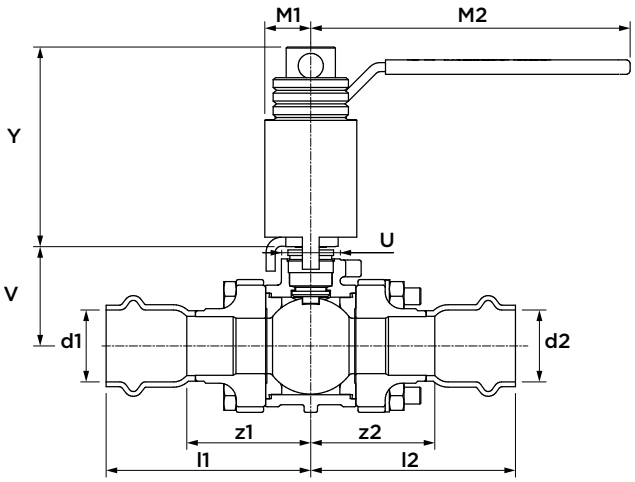
* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

86VESE 3-piece ball valve - stem extension EPDM

(2 x press)







specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -31°F to 275°F (302°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- 2 ¼" locking stem extension
- standardized locking handle (latch-lock lever)
- 5-year limited warranty

no.	component	material
1	body	stainless steel (ASTM A351-CF8M)
2	stem packing	MPTFE
3	stem	stainless steel (ASTM A27-316)
4	packing gland nut	stainless steel (ASTM A27-316)
5	seat	RPTFE
6	press end cap	stainless steel (ASTM A351-CF3M, 316L)
7	ball	stainless steel (ASTM A276-316)
8	lockwasher	stainless steel (AISI 304/1.4301)
9	hex nut	stainless steel (18-8)
10	body bolt	stainless steel (18-8)
11	handle stop	carbon steel (ASTM A108-1215), zinc plated
12	stem extension	carbon steel (ASTM A108-1215), zinc plated
13	inner sleeve	carbon steel (ASTM A108-1215), zinc plated
14	outer sleeve	carbon steel (ASTM A108-1215), zinc plated
15	lever screw	steel, zinc plated
16	handle	stainless steel (AISI 304/1.4301, vinyl coated
17	sealing element	EPDM

maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category

all sizes	SEP

certifications & listings

- IAPMO/ANSI Z1157*
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- Uniform Plumbing Code (UPC®)
- International Plumbing Code (IPC®)
- National Plumbing Code of Canada (NPCC)
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 456	2.30	25.4	2.74	1.67	0.69	4.78	1.30	2.97	0.87
¾"	(DN20)	123 457 457	2.91	50.9	3.05	2.00	0.69	4.78	1.49	2.97	0.87
1"	(DN25)	123 457 458	4.43	68.2	3.42	2.22	0.98	5.60	1.95	3.00	1.31
1½"	(DN40)	123 457 459	8.91	169.9	4.28	2.88	1.25	7.75	2.45	3.15	1.37
2"	(DN50)	123 457 460	14.38	374.6	4.94	3.31	1.25	7.75	2.79	3.15	1.37

* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

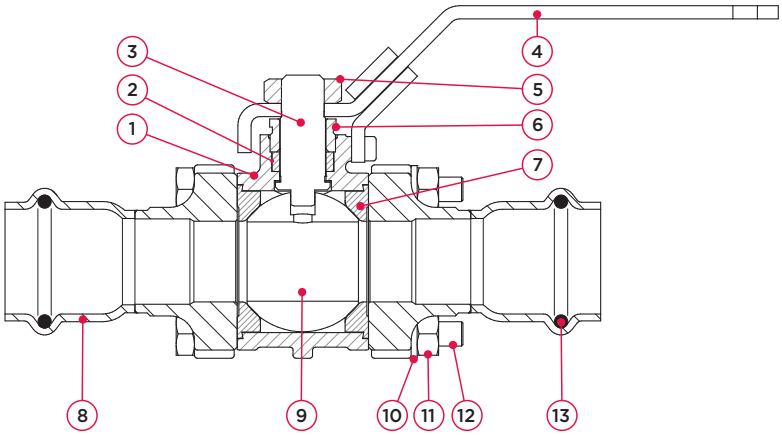
86VF 3-piece ball valve FKM

(2 x press)



specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -4°F to 392°F (446°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- standardized locking handle (latch-lock lever)
- 5-year limited warranty

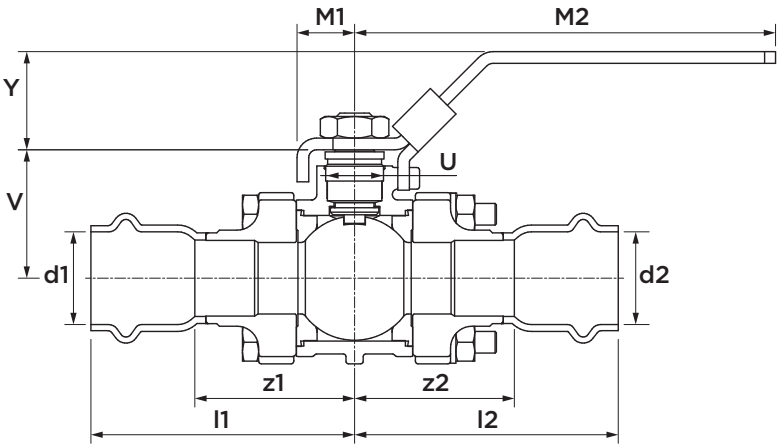


no.	component	material
1	body	stainless steel (ASTM A351-CF8M)
2	stem packing	MPTFE
3	stem	stainless steel (ASTM A276-316)
4	handle	stainless steel (AISI 304/1.4301), vinyl coated
5	handle nut	stainless steel (AISI 304/1.4301)
6	packing gland nut	stainless steel (ASTM A276-316)
7	seat	RPTFE
8	press end cap	stainless steel (ASTM A351-CF3M, 316L)
9	ball	stainless steel (ASTM A276-316)
10	lockwasher	stainless steel (AISI 304/1.4301)
11	hex nut	stainless steel (18-8)
12	body bolt	stainless steel (18-8)
13	sealing element	FKM

maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP



certifications & listings
- IAPMO/ANSI Z1157*

compliant with
- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

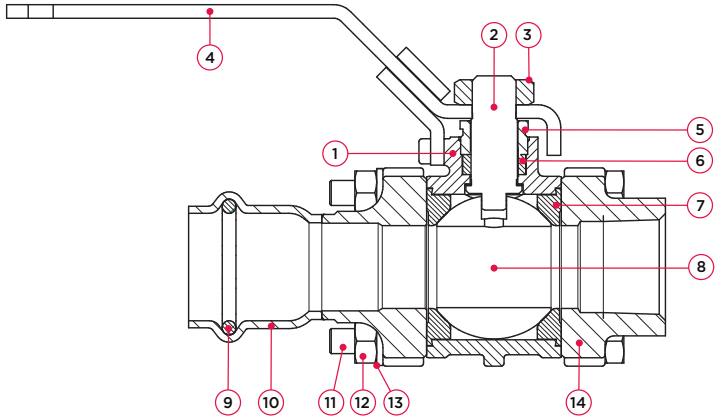
size		item no.	weight [lb]	Cv [gpm]	l1/l2	z1/z2	M1	M2	V	Y	U
½"	(DN10)	123 457 466	1.61	25.4	2.74	1.67	0.67	4.90	1.30	1.17	0.87
¾"	(DN20)	123 457 467	2.22	50.9	3.05	2.00	0.67	4.90	1.49	1.17	0.87
1"	(DN25)	123 457 468	3.42	68.2	3.42	2.22	0.94	6.15	1.95	1.04	1.31
1½"	(DN40)	123 457 469	7.55	169.9	4.28	2.88	1.25	7.53	2.45	1.53	1.37
2"	(DN50)	123 457 470	12.97	374.6	4.94	3.31	1.25	7.53	2.79	1.53	1.37

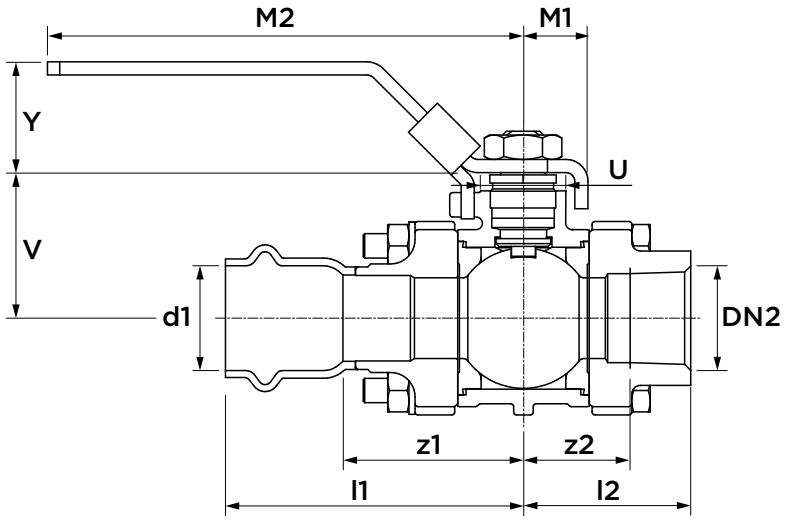
* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

86VHFP 3-piece ball valve HNBR

(press x FPT)







specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -22°F to 212°F (230°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- standardized locking handle (latch-lock lever)
- 5-year limited warranty

no.	component	material
1	body	ASTM A354-CF8M
2	stem	stainless steel (ASTM A276-316)
3	handle nut	stainless steel (AISI 304/1.4301)
4	handle	stainless steel (AISI 304/1.4301), vinyl coated
5	packing gland nut	stainless steel (ASTM A276-316)
6	packing	MPTFE
7	seat	RPTFE
8	ball	stainless steel (ASTM A276-316)
9	sealing element	HNBR
10	press end cap	stainless steel (ASTM A351-CF3M, 316L)
11	body bolt	stainless steel (18-8)
12	hex nut	stainless steel (18-8)
13	lockwasher	stainless steel (AISI 304/1.4301)
14	FPT end cap	stainless steel (ASTM A351-CF3M)

maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings

- IAPMO/ANSI Z1157*
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- Uniform Plumbing Code (UPC®)
- International Plumbing Code (IPC®)
- National Plumbing Code of Canada (NPCC)
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

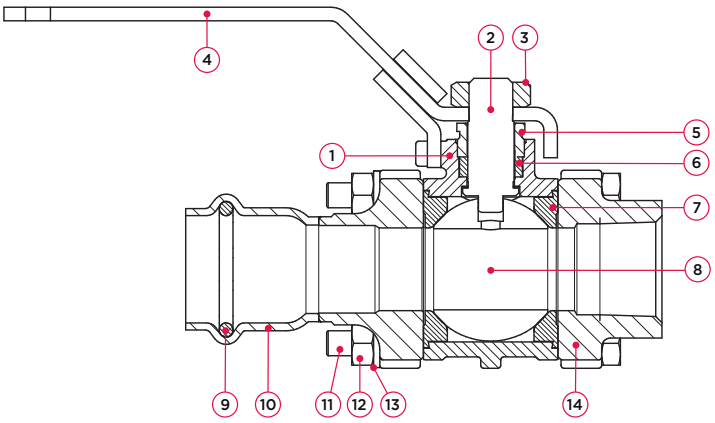
size		item no.	weight [lb]	Cv [gpm]	l1	l2	z1	z2	M1	M2	V	Y	U
½" x FPT½"	(DN10)	123 457 481	1.54	25.4	1.42	2.74	1.67	0.88	0.67	4.90	1.30	1.17	0.87
¾" x FPT¾"	(DN20)	123 4574 82	2.16	50.9	1.71	3.05	2.00	1.16	0.67	4.90	1.49	1.17	0.87
1" x FPT1"	(DN25)	123 457 483	3.27	68.2	1.93	3.42	2.22	1.27	0.94	6.15	1.95	1.04	1.31
1½" x FPT1½"	(DN40)	123 457 484	7.39	169.9	2.59	4.28	2.88	1.91	1.25	7.53	2.45	1.53	1.37
2" x FPT2"	(DN50)	123 457 485	12.74	374.6	3.02	4.94	3.31	2.32	1.25	7.53	2.79	1.53	1.37

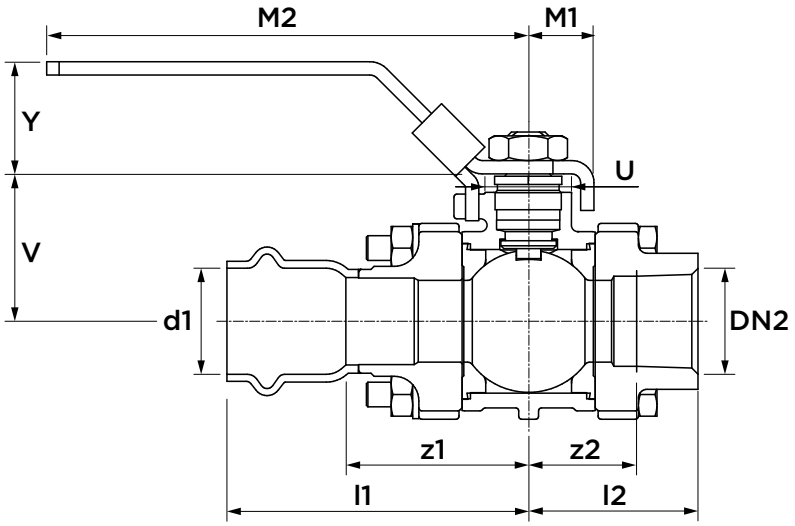
* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

86VEFP 3-piece ball valve EPDM

(press x FPT)







specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -31°F to 275°F (302°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- standardized locking handle (latch-lock lever)
- 5-year limited warranty

no.	component	material
1	body	ASTM A354-CF8M
2	stem	stainless steel (ASTM A276-316)
3	handle nut	stainless steel (AISI 304/1.4301)
4	handle	stainless steel (AISI 304/1.4301), vinyl coated
5	gland nut	stainless steel (ASTM A276-316)
6	packing	MPTFE
7	seat	RPTFE
8	ball	stainless steel (ASTM A276-316)
9	sealing element	EPDM
10	press end cap	stainless steel (ASTM A351-CF3M, 316L)
11	body bolt	stainless steel (18-8)
12	hex nut	stainless steel (18-8)
13	lockwasher	stainless steel (AISI 304/1.4301)
14	FPT end cap	stainless steel (ASTM A351-CF3M)

maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings

- IAPMO/ANSI Z1157*
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- Uniform Plumbing Code (UPC®)
- International Plumbing Code (IPC®)
- National Plumbing Code of Canada (NPCC)
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

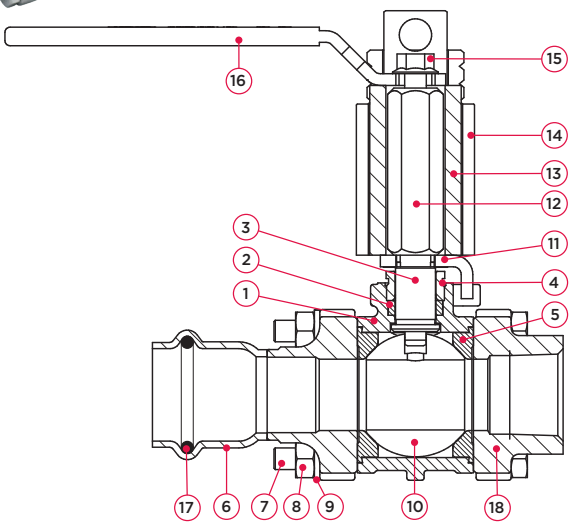
size		item no.	weight [lb]	Cv [gpm]	l1	l2	z1	z2	M1	M2	V	Y	U
½" x FPT½"	(DN10)	123 457 471	1.54	25.4	1.42	2.74	1.67	0.88	0.67	4.90	1.30	1.17	0.87
¾" x FPT¾"	(DN20)	123 457 472	2.16	50.9	1.71	3.05	2.00	1.16	0.67	4.90	1.49	1.17	0.87
1" x FPT1"	(DN25)	123 457 473	3.27	68.2	1.93	3.42	2.22	1.27	0.94	6.15	1.95	1.04	1.31
1½" x FPT1½"	(DN40)	123 457 474	7.39	169.9	2.59	4.28	2.88	1.91	1.25	7.53	2.45	1.53	1.37
2" x FPT2"	(DN50)	123 457 475	12.74	374.6	3.02	4.94	3.31	2.32	1.25	7.53	2.79	1.53	1.37

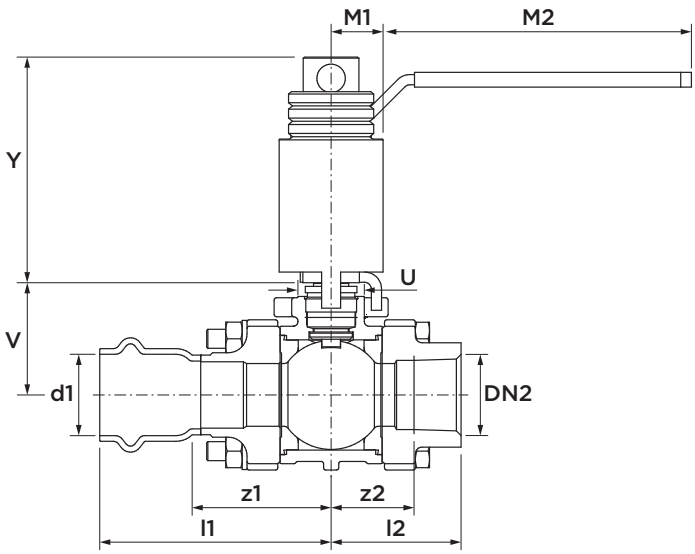
* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

86VESEFP 3-piece ball valve - stem extension EPDM

(press x FPT)







specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -31°F to 275°F (302°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- 2 ¼" locking stem extension
- standardized locking handle (latch-lock lever)
- 5-year liimted warranty

no.	component	material
1	body	stainless steel (ASTM A351-CF8M)
2	stem packing	MPTFE
3	stem	stainless steel (ASTM A276-316)
4	packing gland nut	stainless steel (ASTM A276-316))
5	seat	RPTFE
6	press end cap	stainless steel (ASTM A351-CF3M, 316L)
7	body bolt	stainless steel (18-8)
8	nut	stainless steel (18-8))
9	lockwasher	stainless steel (AISI 304/1.4301)
10	ball	stainless steel (ASTM A276-316)
11	handle stop	carbon steel (ASTM A108-1215) zinc plated
12	stem extension	carbon steel (ASTM A108-1215) zinc plated
13	inner sleeve	carbon steel (ASTM A108-1215) zinc plated
14	outer sleeve	carbon steel (ASTM A108-1215) zinc plated
15	lever screw	steel, zinc plated
16	handle	stainless steel (AISI 304/1.4301), vinyl coated
17	sealing element	EPDM
18	FPT end cap	stainless steel (ASTM A351-CF3M)

maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings

- IAPMO/ANSI Z1157*
- NSF/ANSI/CAN 61
- NSF/ANSI/CAN 372

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- Uniform Plumbing Code (UPC®)
- International Plumbing Code (IPC®)
- National Plumbing Code of Canada(NPCC)
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

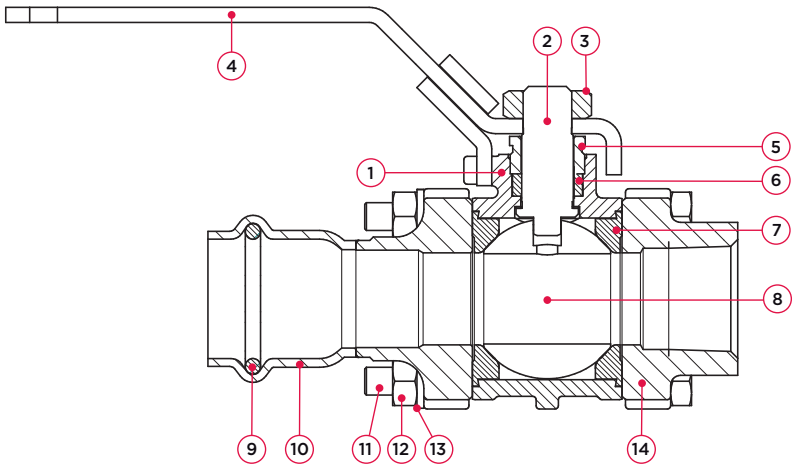
size		item no.	weight [lb]	Cv [gpm]	l1	l2	z1	z2	M1	M2	V	Y	U
½" x FPT½"	(DN10)	123 457 476	2.23	25.4	1.42	2.74	1.67	0.88	0.69	4.78	1.30	2.97	2.23
¾" x FPT¾"	(DN20)	123 457 477	2.85	50.9	1.71	3.05	2.00	1.16	0.69	4.78	1.49	2.97	2.85
1" x FPT1"	(DN25)	123 457 478	4.28	68.2	1.93	3.42	2.22	1.27	0.88	5.60	1.95	4.95	4.28
1½" x FPT1½"	(DN40)	123 457 479	8.76	169.9	2.59	4.28	2.88	1.91	1.00	7.75	2.45	3.15	8.76
2" x FPT2"	(DN50)	123 457 480	14.14	374.6	3.02	4.94	2.32	2.32	1.00	7.75	2.79	3.15	14.14

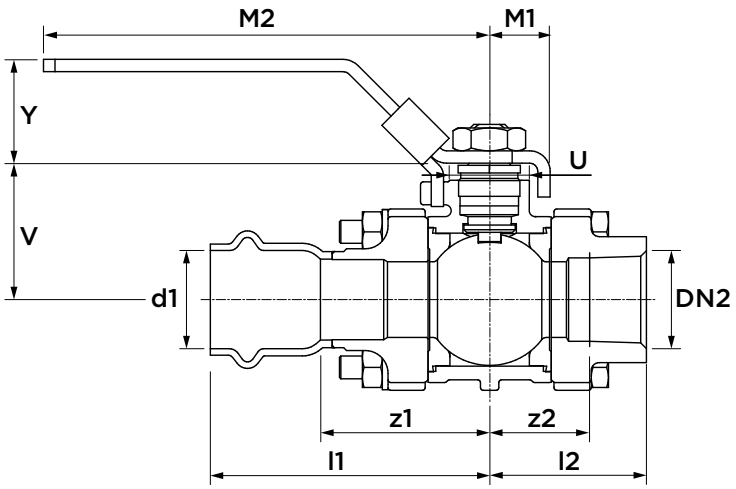
* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

86VFFP 3-piece ball valve FKM

(press x FPT)







specifications

- stainless steel ASTM A351-CF8M
- 100% full port
- easy to maintain, 3 piece design
- blow-out proof stem design
- max. pressure 500 psi (34.5 bar)
- operating temperature -4°F to 392°F (446°F short term)
- Leak Before Press® technology
- Visu-Control® foil material and press identifier
- MPFTE stem packing
- ISO 5211 actuator mounting pad
- standardized locking handle (latch-lock lever)
- 5-year limited warranty

no.	component	material
1	body	ASTM A354-CF8M
2	stem	stainless steel (ASTM A276-316)
3	handle nut	stainless steel (AISI 304/1.4301)
4	handle	stainless steel (AISI 304/1.4301), vinyl coated
5	packing gland nut	stainless steel (ASTM A276-316)
6	packing	MPTFE
7	seat	RPTFE
8	ball	stainless steel(ASTM A276-316)
9	sealing element	FKM
10	press end cap	stainless steel(ASTM A351-CF3M, 316L)
11	body bolt	stainless steel (18-8)
12	stem extension	stainless steel (18-8)
13	lockwasher	stainless steel (AISI 304/1.4301)
14	FPT end cap	stainless steel (ASTM A351-CF3M)

maximum pressure

operating pressure	test pressure shell	test pressure seat
500 psi (34.5 bar)	750 psi (51.7 bar)	550 psi (37.9 bar)

pressure equipment directive category	
all sizes	SEP

certifications & listings

- IAPMO/ANSI Z1157*

compliant with

- ASTM A312
- ASTM A554
- ASME B31.1, 31.3, 31.9
- MSS SP-110
- IAPMO/ANSI/CAN Z1117 (press ends)

size		item no.	weight [lb]	Cv [gpm]	l1	l2	z1	z2	M1	M2	V	Y	U
½" x FPT½"	(DN10)	123 457 486	1.54	25.4	1.42	2.74	1.67	0.88	0.67	4.90	1.30	1.17	0.87
¾" x FPT¾"	(DN20)	123 457 487	2.16	50.9	1.71	3.05	2.00	1.16	0.67	4.90	1.49	1.17	0.87
1" x FPT1"	(DN25)	123 457 488	3.27	68.2	1.93	3.42	2.22	1.27	0.94	6.15	1.95	1.04	1.31
1½" x FPT1½"	(DN40)	123 457 489	7.39	169.9	2.59	4.28	2.88	1.91	1.25	7.53	2.45	1.53	1.37
2" x FPT2"	(DN50)	123 457 490	12.74	374.6	3.02	4.94	3.31	2.32	1.25	7.53	2.79	1.53	1.37

* IAPMO/ANSI Z1157 applicable to ½"- 1" "Apollo"® SmartPress® 86V 3-piece valve item numbers listed above; for sizes 1½"- 2" requiring IAPMO/ANSI Z1157 approval, please contact Aalberts integrated piping systems technical support team for alternatively approved part numbers (300 psi max. pressure rating, PTFE seat).

“Apollo”® SmartPress®

tools and accessories

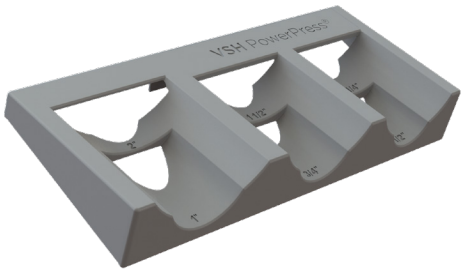


P6201/P6016 pressjaws/-slings Novopress



article	dimension	article nr.
SmartPress** jaw PB2	½"	123459889
SmartPress** jaw PB2	¾"	123459890
SmartPress** jaw/snap-on sling PB2	1"	123459891
SmartPress** adapter ZB221	1"–2"	6341896
SmartPress** snap-on sling	1½"	123459892
SmartPress** snap-on sling	2"	123459893

P6202 insertion depth marker



article	dimension	article nr.
insertion depth marker for "Apollo"® SmartPress®	½"–2"	123459894

stem extension kits

dimension	article nr.
½" - ¾"	78279901
1"	78280001
1½" - 2"	78280101

limited warranty

scope

Subject to the conditions and limitations in this Limited Warranty, Aalberts integrated piping systems Americas, Inc. ('Aalberts') warrants that "Apollo"® SmartPress® valves and fittings (collectively '"Apollo"® SmartPress® Products'), when properly installed in the approved applications specifically mentioned below, under normal conditions of use, shall be free of defects in workmanship or material for the applicable warranty period identified below. The terms of this Limited Warranty shall only apply when installation is performed in conformance with the "Apollo"® SmartPress® technical documentation (available at aalberts-ips.us). Additionally, "Apollo"® SmartPress® Products must be installed in accordance with applicable codes and standards, sound pipe fitting practices and in accordance with all local, state, provincial or federal requirements.

This Limited Warranty shall be applicable to "Apollo"® SmartPress® fittings for a period of 10 years from the date of delivery to the original purchaser. This Limited Warranty shall be applicable to "Apollo"® SmartPress® valves for a period of 5 years from the date ofdelivery to the original purchaser.

approved applications

"Apollo"® SmartPress® products can be used in the following applications:

- potable water installations
- heating and cooling installations
- compressed air installations
- solar Installations
- wet and dry sprinkler installations
- steam installations
- vacuum installations

Application approval dependent on suitability of selected product and/or sealing element's performance characteristics and limitations. It is the designer's responsibility to select products suitable for the intended purpose and to ensure that pressure ratings and performance data are not exceeded per "Apollo"® SmartPress® technical documentation (available ataalberts-ips.us).

compatibility

Aalberts warrants the pressed connection of "Apollo"® SmartPress® Products when pressed under the following conditions:

1. "Apollo"® SmartPress® Products must be installed with schedule 5S or 10S stainless steel pipe (AISI type 304/304L or 316/316L) compliant with ASTM A312
2. the selected combination of tools, fittings, valves, and pipe ispermitted by "Apollo"® SmartPress® technical documentation validat the time of installation.
3. all other terms of the Limited Warranty, as described in thisdocument have been followed.

terms of the limited warranty

Aalberts warrants that "Apollo"® SmartPress® Products which are delivered to the initial purchaser will be free of defects in workmanship or material. This warranty is for a period of 10 years from the date of delivery of "Apollo"® SmartPress® fittings to the initial purchaser and is for a period of 5 years from thedate of delivery of "Apollo"® SmartPress® valves. Should any failure to conform to this warranty appear within 10 years for "Apollo"® SmartPress® fittings after the date of the initial deliveryto the initial purchaser or within 5 years for "Apollo"® SmartPress® valves after the date of the initial delivery to the initial purchaser, Aalberts will, upon written notification there of and substantiation by Aalberts of the claimed defect and that the "Apollo"® SmartPress® Products have been properly stored, installed, maintained and operated, correct such defects by suitable repair or replacement of the "Apollo"® SmartPress® Products at Aalberts' expense, or inssuance of a credit for the purchase price. This Limited Warranty excludes the expense of removing or replacing any defective "Apollo"® SmartPress® Products, or any other any incidental or consequential labor charges, expenses or other damages or loss.

this warranty is exclusive and is in lieu of any implied warranty of merchantability, fitness for a particular purpose or other warranty of quality, whether expressed or implied, except thewarranty of title and against patent infringement.

Correction of non-conformities, in the manner and for the periodof time provided above, shall constitute fulfillment of all liabilities of Aalberts with respect to the "Apollo"® SmartPress® Products, whether based on contract, negligence, strict tort/ product liability or otherwise.

limitation of liability: Aalberts and any affiliated entity shallnot under any circumstances be liable for special, incidental or consequential damages of any kind such as, but not limited to, damage to or loss of other property or equipment, injury to persons, loss of profits or revenue, cost of capital, cost of replacement goods. the remedies set forth here in are exclusive and the liability of Aalberts and affiliated entities with respect to same shall not exceed the price of the goods upon which suchliability is based.

This Limited Warranty and any claims arising from breach of contract, breach of warranty, tort, or any other claim arising from sale or use of “Apollo”® SmartPress® products shall be governed andconstrued under the laws of the State of North Carolina.

requirements of the installer

The installer is required to:

1. confirm that the application of the “Apollo”® SmartPress® Productsis legal and in accordance with local, state, provincial and federal regulations and codes.
2. install all “Apollo”® SmartPress® Products in compliance with the “Apollo”® SmartPress® technical documentation (available ataalberts-ips.us) and in accordance with all applicable codes and standards, sound pipe fitting practices, and local, state, provincial and federal requirements.
3. take any and all measures necessary in order to mitigate any damage.
4. immediately notify Aalberts in writing when the installer discovers or should have discovered any damage that has occurred, by giving a description of the event which contains the customer name, address, the time and a description of thedamage.
5. give Aalberts the opportunity to, after receiving the notificationof damage, evaluate the damage itself or to have it appraised by an expert.
6. send the “Apollo”® SmartPress® Product that have caused the damage directly to Aalberts for further investigation by Aalberts.
7. except to the extent necessary for immediate mitigation of damages, obtain Aalberts’ written permission to remove, repair or otherwise influence or modify the “Apollo”® SmartPress® product.

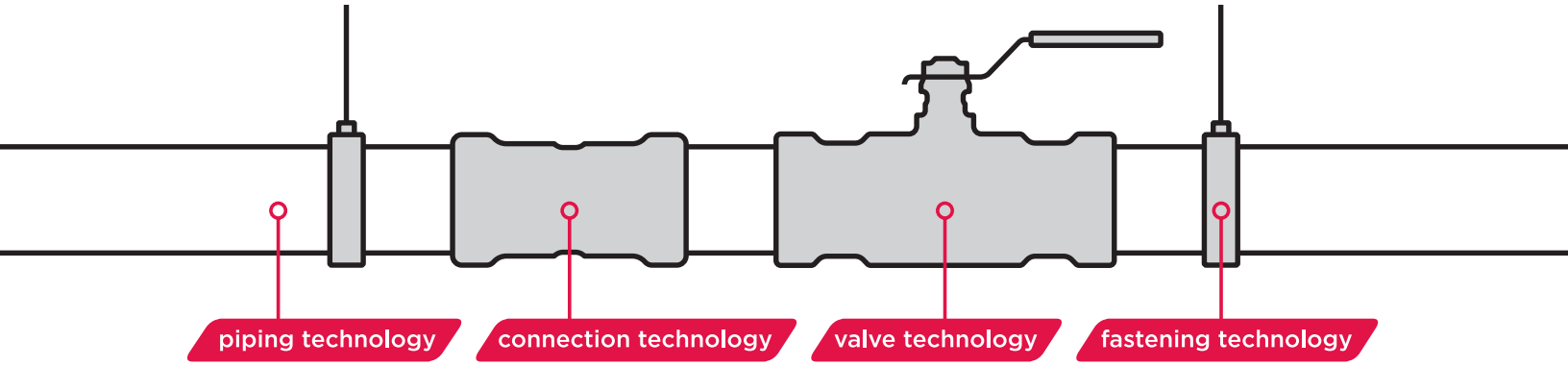
aalberts

more information?

For a complete and up-to-date product range and our additional services, visit: aalberts-ips.us

Would you like to make an appointment to meet an account manager in your region or receive advice and support from one of our experts?
Please contact:

Aalberts integrated piping systems customer service
704.841.6000 (US)
905.851.9494 (CAN)



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