

Job Name:	
Job Location:	
Engineer:	
Contractor:	
Tag:	
PO#:	
Repr:	
Wholesale Dist.:	

carbon press system

intended application

fluids and water

- chilled water
- hydronic heating
- fire sprinkler
- low-pressure steam

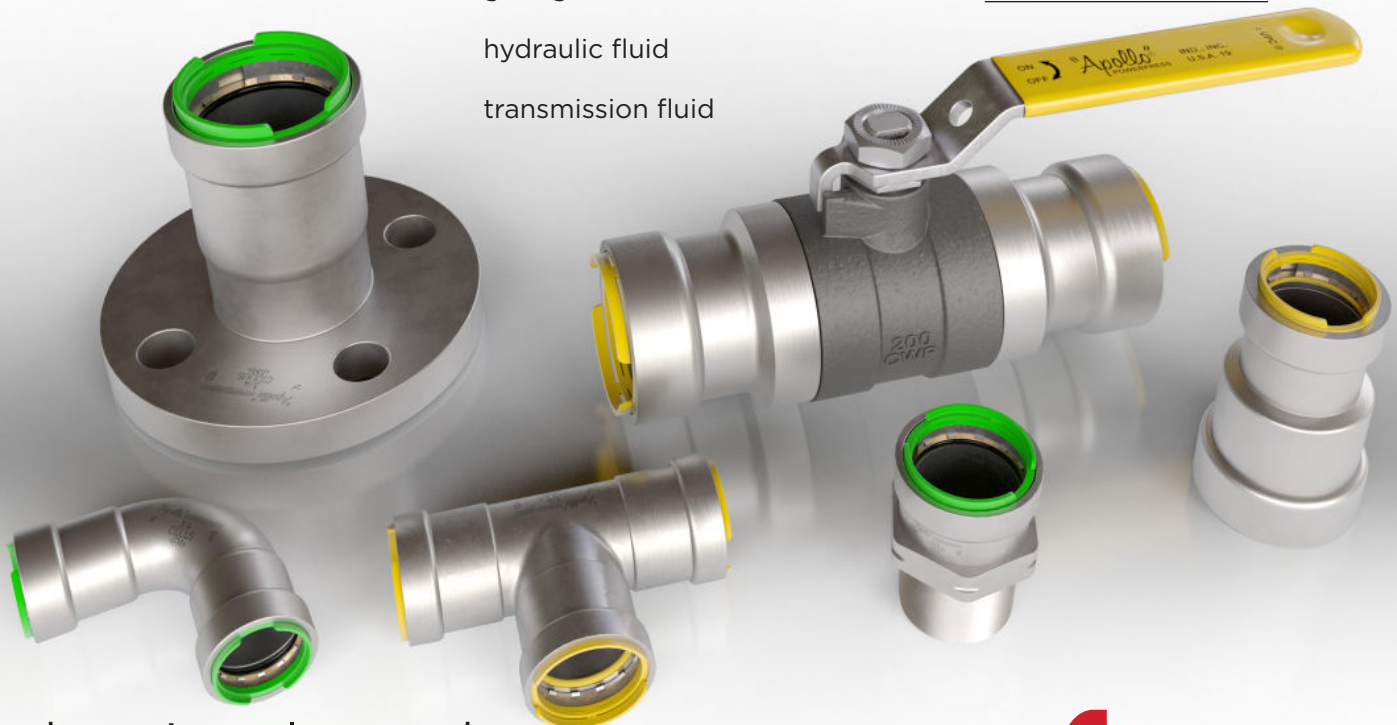
oil and lubricant

- heating fuel oil
- diesel fuel
- engine oil
- gear grease
- hydraulic fluid
- transmission fluid

gases

- natural gas, LP gas & fuel oil
- compressed Air
- nitrogen - N₂
- carbon dioxide - CO₂
- argon - Ar
- vacuum

other



submittal package

aalberts-ips.us
customer service 704.841.6000

Apollo PowerPress® is a carbon steel press system designed to be used with schedule 10 through 40 thick wall steel pipe for sizes ranging from ½" through 2".

all Apollo PowerPress® fittings and valves are zinc-nickel coated to protect against corrosion and come equipped with either an EPDM or HNBR sealing element. in addition to a mechanical leak before press® system, Apollo PowerPress® products feature a patented, color-coded, visual control ring (VCR) that clearly indicates when a connection has been pressed. our innovative visual control ring (VCR) not only provides installers double assurance when identifying un-pressed connections, it also optimally positions the pipe while pressing, significantly reducing pipe deflection for a far straighter and cleaner press connection. when compared to other carbon press systems, Apollo PowerPress® is the undisputed leader in quality and reliability.

operating parameters

Apollo PowerPress® is designed to be used with schedule 10 through 40 thick wall steel pipe (black steel, galvanized steel, and epoxy coated steel) as defined by ASTM A53, A106, A135, A795 standards.

- | | |
|---|---|
| • sealing element: EPDM | • sealing element: HNBR |
| • operating pressure: 230 PSI max | • operating pressure: 150 PSI max |
| • operating temperature: -40°F to 302°F | • operating temperature: -40°F to 194°F |

features & benefits

- Leak Before Press® - un-pressed fittings will visibly leak during low pressure testing
- visual control ring (VCR)
 - patented
 - tabs that "break-away" when pressed
 - color coded for easy identification of sealing element type
 - acts as a "pipe guide", optimally positioning the inserted pipe, significantly reducing pipe deflection for a clean and straight connection
 - protects sealing element from debris or paint
- increased cup depths - better seat, tighter seal, straighter runs
- color coded protective shipping cap
- protects visual control ring (VCR) and fitting/valve ends during shipping
- first and only carbon steel press ball valve in the market
- no need for adapters - materials & cost savings, shorter laying lengths, reduced likelihood of potential leak paths

approvals & certifications

APPROVALS	NON-GAS		GAS	
	FITTINGS	VALVES	FITTINGS	VALVES
CSA 6.32/ANSI LC 4	-	-	✓	✓
FM 1920	✓	-	-	-
IAPMO PS 117	✓	-	-	-
IAPMO/ANSI Z1157	-	✓	-	-
Canadian Registration No. (CRN)	✓	✓	✓	✓
UL 213	✓	-	-	-

compliant with

- uniform plumbing code (UPC®)
- uniform mechanical code (UMC®)
- national plumbing code of canada
- international plumbing code (IPC®)
- international fuel gas code (IFGC®)
- ASME B31
- nfpa 13, 13D & 13R, 54 & 58
- buy american act (BAA)
- ARRA

warranty



approved tool manufacturers*

- Milwaukee®
- Ridgid®

*PLEASE CONTACT LOCAL POWERPRESS' REPRESENTATIVE FOR ADDITIONAL INFORMATION ON APPROVED TOOL & JAW MANUFACTURERS

TYPE OF SERVICE	SYSTEM OPERATING CONDITIONS			SEALING ELEMENT	
	COMMENTS	PRESSURE	TEMPERATURE	EPDM	HNBR
FLUIDS/WATER					
Chilled Water	Ethylene Glycol ProPylene Glycol	230 PSI	Down to -40°F	✓	
Hydronic Heating	Ethylene Glycol ProPylene Glycol	230 PSI	0°F - 302°F	✓	
Fire Sprinkler	Compliant with UL and FM for NFPA 13, 13D and 13R	175 PSI	Ambient	✓	
Low Pressure Steam	Low Pressure Steam Supply Lines	Up to 15 PSI	max. 302°F	✓	
OIL AND LUBRICANT					
Heating Fuel Oil		125 PSI	-40°F - 180°F		✓
Diesel Fuel	Compliant with NFPA 30 and 30A	125 PSI			✓
Engine Oil		150 PSI	Ambient		✓
Gear Grease		150 PSI	104°F		✓
Hydraulic Fluid	Mineral Based	230 PSI	Ambient		✓
Transmission Fluid		230 PSI	Ambient		✓
GASES					
Natural Gas, LP Gas and Fuel Oil		125 PSI max.	-40°F - 180°F		✓
Compressed Air	Oil Concentrate < 25mg/m ³	230 PSI	up to 140°F	✓	✓
	Oil Concentrate > 25mg/m ³	230 PSI	up to 140°F		✓
Vacuum		Max. 29.2in Hg	up to 140°F	✓	✓
Nitrogen - N ₂		230 PSI	up to 140°F	✓	✓
Argon - Ar		230 PSI	up to 140°F	✓	✓
Carbon Dioxide - CO ₂		230 PSI	up to 140°F	✓	✓

1. consult the Apollo technical support department for information on applications not listed and applications outside the temperature and pressure ranges listed above.
2. all systems are recommended to be clearly labeled with the fluid or gas being conveyed.

underground installations

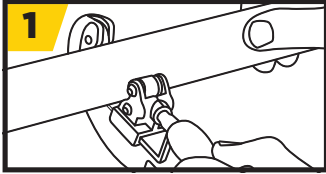
when permitted by state and local codes, Apollo PowerPress fittings are approved for use in underground installations. when buried in an area with corrosive soil conditions, the fitting must be protected.

outdoor installations

special attention must be paid to prevent outer corrosion to pipes in an environment that remains damp or humid for longer periods of time. responsibility for taking relevant measures rests with the user/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, outdoor installations, etc.).

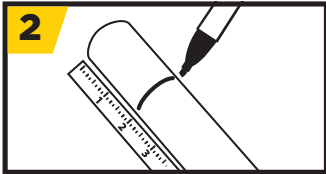
WARNING

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.



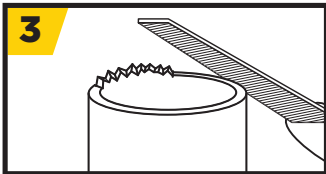
cut pipe to length

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.



deburr pipe

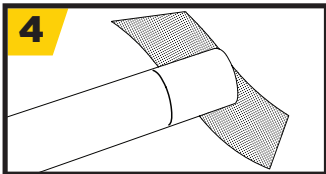
Pipe ends must be carefully and thoroughly deburred in and outside after being cut to length in order to avoid damage to the sealing element when inserting the pipe into the press fitting. A file, hand deburrer, or an electrical pipe deburrer (suitable for the material) may be used to deburr both inside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



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.

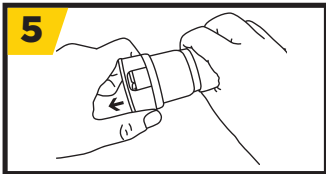


mark insertion depth

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.

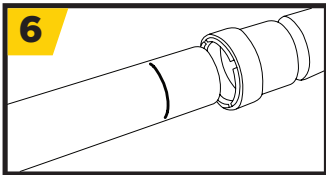
The marking on the pipe must remain visible (but close to the fitting) after the connection is pressed to identify any movement before or after pressing.

NOMINAL PIPE SIZE (IN.)	INSERTION DEPTH (IN.)
1/2	1.1
3/4	1.2
1	1.4
1-1/4	1.9
1-1/2	1.9
2	2.1



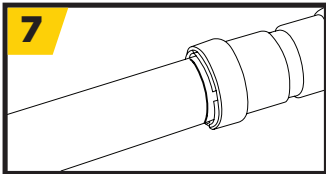
check fitting & Pipe

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.



insert Pipe

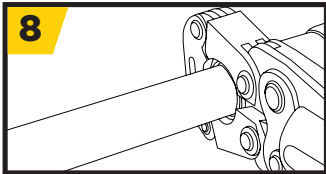
Insert the pipe carefully into the press fitting up to the marked insertion depth, without tilting, pushing it in the direction of the axis. The insertion depth marking must remain visible. In the case of fittings without a stop the fittings should be inserted at least as far as the marked insertion 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.



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 operating 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.



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
VSH technology

standard valves & fittings



integrated
piping systems

89FVE series non-gas ball valve



standard materials list

BODY	ASTM A216-WCB carbon steel
SEAT	Reinforced PTFE
BALL	ASTM A276-316 Stainless Steel
STEM PACKING	Multi-Fill PTFE
NUT	Corrosion Resistant Plated Steel
STEM	ASTM A276-316 Stainless Steel
RETAINER	ASTM A108-12L14 carbon steel
SEALING ELEMENT	EPDM (Black)
HANDLE	Plated Steel/Insulated Polyvinyl
GLAND	ASTM A108-1215 carbon steel
STEM BEARING	Reinforced PTFE
BODY SEAL	PTFE

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.

features

- 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

performance rating

- maximum operating pressure: 200 PSI
- temperature range: -40°F - 302°F

approved applications

- chilled water
- hydronic heating (50% glycol max)
- low pressure steam, 15 PSI max
- compressed air
- fire sprinkler
- not suitable for flammable gas service

options

- (-01) standard (ptfe packing, rptfe body seal)
- (-02) grounded stem
- (-04) 2¼" stem extension
- (-11) therma-seal™ insulating tee handle
- (-14) side vented ball (uni-directional)
- (-24) graphite stem packing
- (-27) SS latch-lock lever and nut
- (-32) SS tee handle and nut
- (-39) SS hi-rise locking wheel handle with SS nut
- (-45) less lever and nut
- (-47) SS latch lock oval handle
- (-48) SS oval handle (no latch)
- (-49) assembled dry
- (-60) grounded ball and stem

approvals

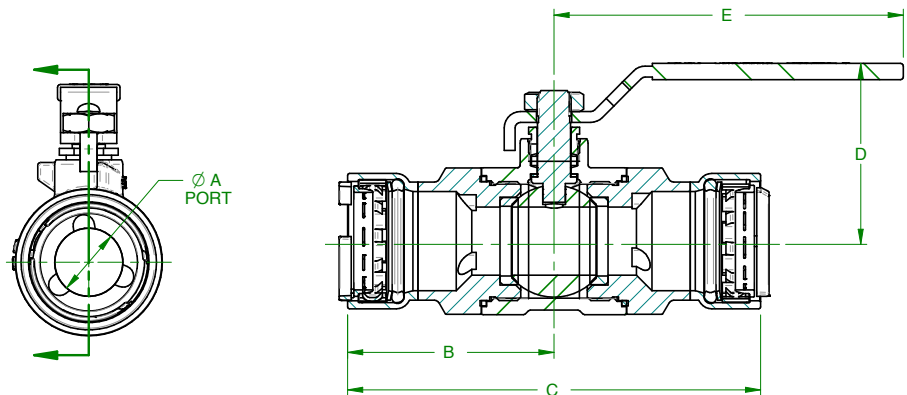
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- CRN # OC10908 ADD11

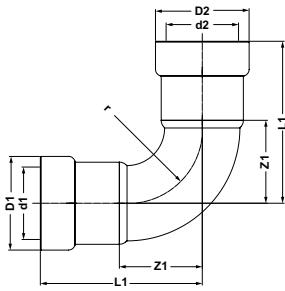
compliant with

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

dimensions

PART NUMBER	SIZE (IN.)	DIMENSIONS (IN.)					WT (LB.)
		A	B	C	D	E	
89FVE4301	½"	0.50	2.08	4.16	1.74	3.85	0.6
89FVE4401	¾"	0.75	2.28	4.55	1.96	3.85	0.9
89FVE4501	1"	1.00	2.72	5.44	2.29	4.76	1.4
89FVE4601	1¼"	1.25	3.41	6.82	3.20	7.76	4.2
89FVE4701	1½"	1.50	3.62	7.24	3.30	7.76	4.8
89FVE4801	2"	2.00	3.93	7.85	3.68	7.76	7.2

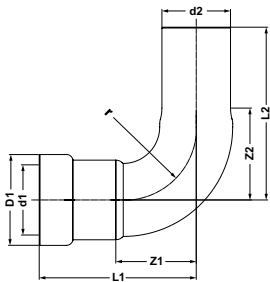




90° elbow
model 407

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P

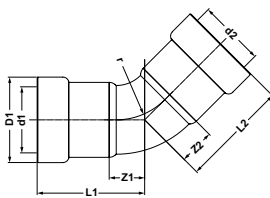
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1	D2	d1	d2	L1	L2	Z1	Z2	r
PWR7480121	1/2	1.26	1.26	0.84	0.84	2.17	2.17	1.10	1.10	0.98
PWR7480132	3/4	1.49	1.49	1.05	1.05	2.48	2.48	1.32	1.32	1.18
PWR7480143	1	1.79	1.79	1.31	1.31	2.99	2.99	1.63	1.63	1.50
PWR7480154	1-1/4	2.20	2.20	1.66	1.66	3.80	3.80	1.95	1.95	1.77
PWR7480165	1-1/2	2.44	2.44	1.90	1.90	4.06	4.06	2.19	2.19	1.97
PWR7480176	2	2.91	2.91	2.37	2.37	4.78	4.78	2.78	2.78	2.56



90° street elbow
model 407-2

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x FTG

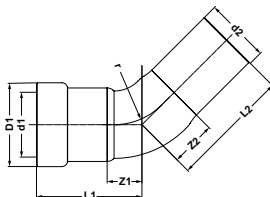
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	d1	d2	L1	L2	Z1	Z2	r
PWR7480187	1/2	1.26	0.84	0.84	2.17	2.70	1.10	1.63	0.98
PWR7480198	3/4	1.49	1.05	1.05	2.48	2.95	1.32	1.79	1.18
PWR7480209	1	1.79	1.31	1.31	2.99	3.56	1.63	2.20	1.50
PWR7480211	1-1/4	2.20	1.66	1.66	3.80	4.27	1.95	2.34	1.77
PWR7480220	1-1/2	2.44	1.90	1.90	4.47	4.49	2.52	2.42	1.97
PWR7480231	2	2.91	2.37	2.37	4.78	5.49	2.78	3.40	2.56



45° elbow
model 406

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P

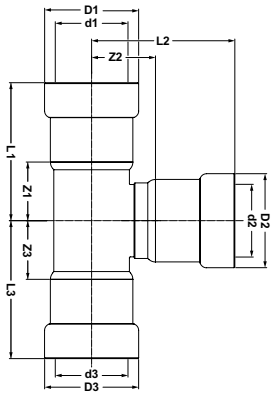
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1	D2	d1	d2	L1	L2	Z1	Z2	r
PWR7480242	1/2	1.26	1.26	0.84	0.84	1.59	1.59	0.53	0.53	0.98
PWR7480253	3/4	1.49	1.49	1.05	1.05	1.79	1.79	0.63	0.63	1.18
PWR7480264	1	1.79	1.79	1.31	1.31	2.11	2.11	0.75	0.75	1.50
PWR7480275	1-1/4	2.20	2.20	1.66	1.66	2.78	2.78	0.93	0.93	1.77
PWR7480286	1-1/2	2.44	2.44	1.90	1.90	2.91	2.91	1.04	1.04	1.97
PWR7480297	2	2.91	2.91	2.37	2.37	3.29	3.29	1.28	1.28	2.56



45° street elbow
model 406-2

- ZnNi coated Carbon S I
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x FTG

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	d1	d2	L1	L2	Z1	Z2	r
PWR7480306	1/2 x 1/2	1.26	0.84	0.84	1.59	2.13	0.53	1.06	0.98
PWR7480319	3/4 x 3/4	1.49	1.05	1.05	1.81	2.26	0.63	1.10	1.18
PWR7480321	1 x 1	1.79	1.31	1.31	2.13	2.68	0.75	1.32	1.50
PWR7480330	1-1/4 x 1-1/4	2.20	1.66	1.66	2.78	3.24	0.91	1.31	1.77
PWR7480341	1-1/2 x 1-1/2	2.44	1.90	1.90	3.31	3.35	1.36	1.28	1.97
PWR7480352	2 x 2	2.91	2.37	2.37	3.31	3.99	1.28	1.90	2.56

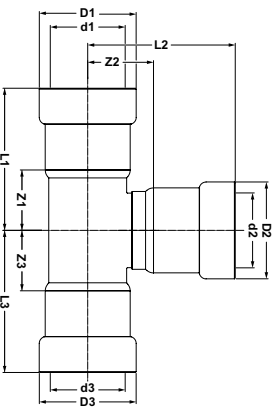


tee

model 411

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1/D3	D2	d1/d3	d2	L1/L3	L2	Z1/Z3	Z2	
PWR7480363	1/2	1.26	1.26	0.84	0.84	2.05	2.09	0.98	1.02	
PWR7480374	3/4	1.49	1.49	1.05	1.05	2.24	2.30	1.08	1.14	
PWR7480385	1	1.79	1.79	1.31	1.31	2.60	2.66	1.24	1.30	
PWR7480396	1-1/4	2.20	2.20	1.66	1.66	3.23	3.35	1.38	1.50	
PWR7480407	1-1/2	2.44	2.44	1.90	1.90	3.48	3.50	1.61	1.63	
PWR7480418	2	2.91	2.91	2.37	2.37	3.78	3.92	1.77	1.91	

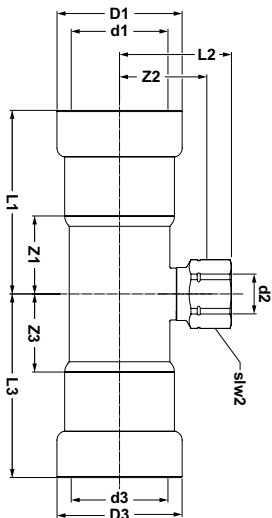


tee | reducing

model 411R

- ZnNi coated Carbon Steel Element
- Green Visual Control Ring (VCR)
- P x P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1/D3	D2	d1/d3	d2	L1/L3	L2	Z1/Z3	Z2	
PWR7480429	3/4 x 3/4 x 1/2	1.49	1.26	1.05	0.84	2.24	2.19	1.08	1.12	
PWR7480431	1 x 1 x 1/2	1.79	1.26	1.31	0.84	2.60	2.34	1.24	1.28	
PWR7480440	1 x 1 x 3/4	1.79	1.49	1.31	1.05	2.60	2.46	1.24	1.30	
PWR7483003	1-1/4 x 1-1/4 x 1/2	2.20	1.26	1.67	0.84	3.22	2.50	1.33	1.39	
PWR7483014	1-1/4 x 1-1/4 x 3/4	2.20	1.49	1.67	1.06	3.22	2.60	1.33	1.38	
PWR7480451	1-1/4 x 1-1/4 x 1	2.20	1.79	1.66	1.31	3.23	2.81	1.38	1.46	
PWR7480462	1-1/2 x 1-1/2 x 1/2	2.44	1.26	1.90	0.84	3.48	2.58	1.61	1.52	
PWR7480473	1-1/2 x 1-1/2 x 3/4	2.44	1.49	1.90	1.05	3.48	2.69	1.61	1.53	
PWR7480484	1-1/2 x 1-1/2 x 1	2.44	1.79	1.90	1.31	3.48	2.89	1.61	1.54	
PWR7480495	1-1/2 x 1-1/2 x 1-1/4	2.44	2.20	1.90	1.66	3.48	3.43	1.61	1.57	
PWR7480506	2 x 2 x 1/2	2.91	1.26	2.37	0.84	3.78	2.87	1.77	1.81	
PWR7480517	2 x 2 x 3/4	2.91	1.49	2.37	1.05	3.78	2.99	1.77	1.83	
PWR7480528	2 x 2 x 1	2.91	1.79	2.37	1.31	3.78	3.19	1.77	1.83	
PWR7480539	2 x 2 x 1-1/4	2.91	2.20	2.37	1.66	3.78	3.72	1.77	1.87	
PWR7480541	2 x 2 x 1-1/2	2.91	2.44	2.37	1.90	3.78	3.80	1.77	1.93	

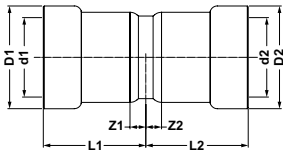


tee | female

model 4712

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P x FPT

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1/D3	d1/d3	d2	L1	L3	L2	Z1/Z3	SLW2	
PWR7480550	3/4 x 3/4 x FPT 1/2	1.49	1.05	0.84	2.24	2.24	2.24	1.08	1.10	
PWR7480561	3/4 x 3/4 x FPT 3/4	1.49	1.05	1.05	2.24	2.24	1.71	1.08	1.26	
PWR7480572	1 x 1 x FPT 1/2	1.79	1.31	0.84	2.60	2.60	1.81	1.24	1.10	
PWR7480583	1 x 1 x FPT 3/4	1.79	1.31	1.05	2.60	2.60	1.87	1.24	1.26	
PWR7480594	1-1/4 x 1-1/4 x FPT 1/2	2.20	1.66	0.84	3.23	3.23	1.97	1.38	1.26	
PWR7483102	1-1/4 x 1-1/4 x FPT 3/4	2.20	1.67	1.05	3.22	3.22	2.02	1.33	1.26	
PWR7483113	1-1/4 x 1-1/4 x FPT 1	2.20	1.67	1.31	3.22	3.22	2.17	1.33	1.61	
PWR7480605	1-1/2 x 1-1/2 x FPT 1/2	2.44	1.90	0.84	3.48	3.48	2.05	1.61	1.10	
PWR7480616	1-1/2 x 1-1/2 x FPT 3/4	2.44	1.90	1.05	3.48	3.48	2.11	1.61	1.26	
PWR7480627	1-1/2 x 1-1/2 x FPT 1	2.44	1.90	1.31	3.48	3.48	2.26	1.61	1.61	
PWR7480638	1-1/2 x 1-1/2 x FPT 1-1/4	2.44	1.90	1.66	3.48	3.48	2.36	1.61	1.97	
PWR7480649	2 x 2 x FPT 1/2	2.91	2.37	0.84	3.78	3.78	2.34	1.77	1.10	
PWR7480651	2 x 2 x FPT 3/4	2.91	2.37	1.05	3.78	3.78	2.40	1.77	1.26	
PWR7480660	2 x 2 x FPT 1	2.91	2.37	1.31	3.78	3.78	2.56	1.77	1.61	
PWR7480671	2 x 2 x FPT 1-1/4	2.91	2.37	1.66	3.78	3.78	2.66	1.77	1.97	
PWR7480682	2 x 2 x FPT 1-1/2	2.91	2.37	2.37	3.78	3.78	2.66	1.77	2.36	

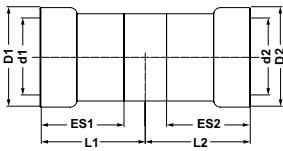


coupling

model 400

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	Z1	Z2
PWR7480000	1/2	1.26	1.26	0.84	0.84	1.34	1.34	0.28	0.28
PWR7480011	3/4	1.49	1.49	1.05	1.05	1.46	1.46	0.30	0.30
PWR7480022	1	1.79	1.79	1.31	1.31	1.65	1.65	0.30	0.30
PWR7480033	1-1/4	2.20	2.20	1.66	1.66	2.20	2.20	0.35	0.35
PWR7480044	1-1/2	2.44	2.44	1.90	1.90	2.26	2.26	0.39	0.39
PWR7480055	2	2.91	2.91	2.37	2.37	2.40	2.40	0.39	0.39

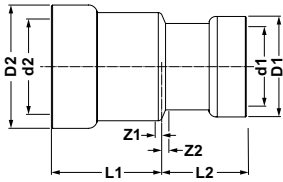


coupling | no stop

model 401

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	ES1	ES2
PWR7480066	1/2	1.26	1.26	0.84	0.84	1.54	1.54	1.14	1.14
PWR7480077	3/4	1.49	1.49	1.05	1.05	1.63	1.63	1.24	1.24
PWR7480088	1	1.79	1.79	1.31	1.31	1.83	1.83	1.44	1.44
PWR7480099	1-1/4	2.20	2.20	1.66	1.66	2.32	2.32	1.93	1.93
PWR7480101	1-1/2	2.44	2.44	1.90	1.90	2.46	2.46	1.95	1.95
PWR7480110	2	2.91	2.91	2.37	2.37	2.56	2.56	2.09	2.09

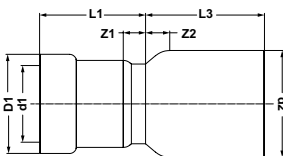


coupling | reducing

model 420R

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	Z1	Z2
PWR7483025	3/4 x 1/2	1.26	1.49	0.84	1.17	1.20	1.26	0.10	0.04
PWR7483036	1 x 1/2	1.26	1.79	0.84	1.33	1.28	1.46	0.18	0.04
PWR7483047	1 x 3/4	1.49	1.79	1.06	1.33	1.33	1.46	0.11	0.04
PWR7483058	1-1/4 x 3/4	1.49	2.20	1.06	1.67	1.43	1.95	0.21	0.06
PWR7483069	1-1/4 x 1	1.79	2.20	1.33	1.67	1.54	1.95	0.12	0.06
PWR7483071	1-1/2 x 1-1/4	2.20	2.44	1.67	1.90	2.04	2.00	0.15	0.07
PWR7483080	2 x 1-1/4	2.20	2.91	1.67	2.37	2.17	2.17	0.28	0.08
PWR7483091	2 x 1-1/2	2.44	2.91	1.90	2.37	2.15	2.18	0.22	0.09

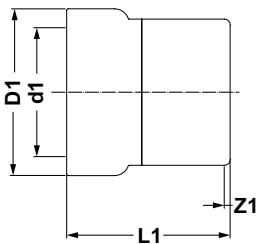


fitting reducer

model 418

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- FTG x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	Z1	Z2
PWR7480693	3/4 x 1/2	1.05	1.26	1.05	0.84	1.10	1.42	0.04	0.18
PWR7480704	1 x 1/2	1.31	1.26	1.31	0.84	1.00	1.69	-0.06	0.26
PWR7480715	1 x 3/4	1.31	1.49	1.31	1.05	1.12	1.57	-0.04	0.14
PWR7480748	1-1/4 x 1	1.66	1.79	1.66	1.31	1.30	2.05	-0.06	0.12
PWR7480761	1-1/2 x 3/4	1.90	1.49	1.90	1.05	2.24	2.05	1.08	0.10
PWR7480770	1-1/2 x 1	1.90	1.79	1.90	1.31	1.38	2.03	0.02	0.08
PWR7480781	1-1/2 x 1-1/4	1.90	2.20	1.90	1.66	1.85	1.97	0.00	0.02
PWR7480814	2 x 1	2.37	1.79	2.37	1.31	2.52	2.17	1.16	0.08
PWR7480825	2 x 1-1/4	2.37	2.20	2.37	1.66	1.77	2.17	-0.08	0.08
PWR7480836	2 x 1-1/2	2.37	2.44	2.37	1.90	1.77	2.15	-0.10	0.06

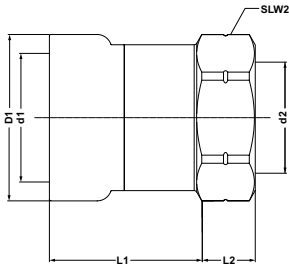


cap

model 417

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P

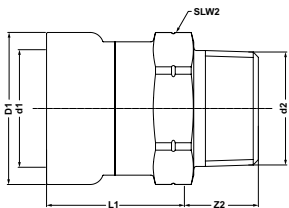
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)			
		D1	d1	L1	Z1
PWR7481232	1/2	1.26	0.84	1.38	0.31
PWR7481243	3/4	1.49	1.05	1.48	0.31
PWR7481254	1	1.79	1.31	1.69	0.33
PWR7481265	1-1/4	2.20	1.66	2.20	0.35
PWR7481276	1-1/2	2.44	1.90	2.24	0.37
PWR7481287	2	2.91	2.37	2.44	0.43



adapter | female
model 403

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x FPT

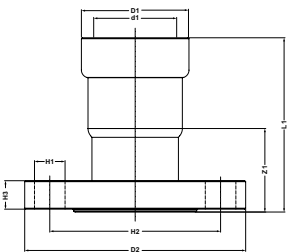
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)						
		D1	D2	d1	d2	L1	L2	SLW2
PWR7480902	1/2 x FPT 1/2	1.26	0.84	0.84	0.84	1.26	0.57	1.10
PWR7480913	3/4 x FPT 1/2	1.49	0.84	1.05	0.84	1.32	0.63	1.42
PWR7480924	3/4 x FPT 3/4	1.49	1.05	1.05	1.05	1.30	0.63	1.42
PWR7480935	1 x FPT 1/2	1.79	0.84	1.31	0.84	1.52	0.71	1.61
PWR7480946	1 x FPT 3/4	1.79	1.05	1.31	1.05	1.48	0.71	1.61
PWR7480957	1 x FPT 1	1.79	1.31	1.31	1.31	1.56	0.71	1.61
PWR7480968	1-1/4 x FPT 1/2	2.20	0.84	1.66	0.84	2.05	0.79	1.97
PWR7480979	1-1/4 x FPT 3/4	2.20	1.05	1.66	1.05	2.11	0.69	1.97
PWR7480981	1-1/4 x FPT 1	2.20	1.31	1.66	1.31	2.07	0.79	1.97
PWR7480990	1-1/4 x FPT 1-1/4	2.20	1.66	1.66	1.66	1.97	0.83	1.97
PWR7481001	1-1/2 x FPT 1/2	2.44	0.84	1.90	0.84	2.09	0.85	2.36
PWR7481012	1-1/2 x FPT 3/4	2.44	1.05	1.90	1.05	2.11	0.79	2.36
PWR7481023	1-1/2 x FPT 1	2.44	1.31	1.90	1.31	2.17	0.79	2.36
PWR7481034	1-1/2 x FPT 1-1/4	2.44	1.66	1.90	1.66	2.09	0.79	2.36
PWR7481045	1-1/2 x FPT 1-1/2	2.44	1.90	1.90	1.90	2.01	0.81	2.36
PWR7481056	2 x FPT 1/2	2.91	0.84	2.37	0.84	2.46	0.79	2.76
PWR7481067	2 x FPT 3/4	2.91	1.05	2.37	1.05	2.46	0.79	2.76
PWR7481078	2 x FPT 1	2.91	1.31	2.37	1.31	2.46	0.79	2.76
PWR7481089	2 x FPT 1-1/4	2.91	1.66	2.37	1.66	2.46	0.79	2.76
PWR7481091	2 x FPT 1-1/2	2.91	1.90	2.37	1.90	2.32	0.79	2.76
PWR7481100	2 x FPT 2	2.91	2.37	2.37	2.37	2.22	0.79	2.76



adapter | male
model 404

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x MPT

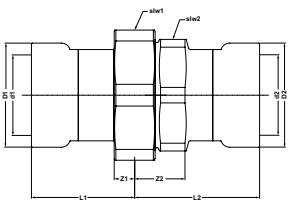
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)						
		D1	D2	d1	d2	L1	Z2	SLW2
PWR7480847	1/2 x MPT 1/2	1.26	0.84	0.84	0.84	1.06	1.04	1.10
PWR7480858	3/4 x MPT 3/4	1.49	1.05	1.05	1.05	1.16	1.04	1.42
PWR7480869	1 x MPT 1	1.79	1.31	1.31	1.31	1.36	1.14	1.61
PWR7480871	1-1/4 x MPT 1-1/4	2.20	1.66	1.66	1.66	1.85	1.18	1.97
PWR7480880	1-1/2 x MPT 1-1/2	2.44	1.90	1.90	1.90	1.87	1.16	2.36
PWR7480891	2 x MPT 2	2.91	2.37	2.37	2.37	2.01	1.26	2.76



flange adapter |
ANSI class 150
model 4771

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x FLG (BP:4)

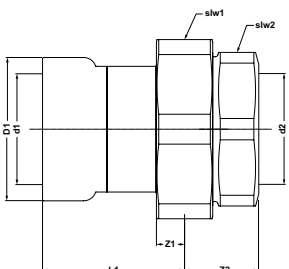
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1	D2	d1	d2	L1	Z1	H1	H2	H3
PWR7481177	1/2	1.26	3.54	0.84	0.84	2.42	1.36	0.63	2.38	0.40
PWR7481188	3/4	1.49	3.94	1.05	1.05	2.62	1.46	0.63	2.76	0.45
PWR7481199	1	1.79	4.33	1.31	1.31	2.93	1.57	0.63	3.13	0.51
PWR7481201	1-1/4	2.20	4.53	1.66	1.66	3.56	1.71	0.63	3.50	0.59
PWR7481210	1-1/2	2.44	4.92	1.90	1.90	3.80	1.93	0.63	3.88	0.65
PWR7481221	2	2.91	5.91	2.37	2.37	3.90	1.89	0.75	4.74	0.71



union
model 4733

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)									
		D1	D2	d1	d2	L1	L2	Z1	Z2	SLW1	SLW2
PWR7481111	1/2	1.26	1.26	0.84	0.84	1.75	1.75	0.69	0.98	1.61	0.45
PWR7481122	3/4	1.49	1.49	1.05	1.05	2.13	2.13	0.96	0.81	1.61	0.49
PWR7481133	1	1.79	1.79	1.31	1.31	2.15	2.15	0.79	1.14	2.17	0.57
PWR7481144	1-1/4	2.20	2.20	1.66	1.66	2.11	2.11	0.26	1.02	2.76	0.76
PWR7481155	1-1/2	2.44	2.44	1.90	1.90	2.97	2.97	1.10	0.98	2.76	0.77
PWR7481166	2	2.91	2.91	2.37	2.37	3.31	3.31	1.30	1.30	3.35	0.82



union | female
model 4734

- ZnNi coated Carbon Steel
- EPDM Sealing Element
- Green Visual Control Ring (VCR)
- P x FPT

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	d1	d2	L1	Z1	Z2	SLW1	SLW2
PWR7483245	1/2 x FPT 1/2	1.26	0.84	0.84	1.83	0.67	0.96	1.61	1.42
PWR7483256	3/4 x FPT 3/4	1.49	1.06	1.05	2.22	0.68	0.91	1.61	1.42
PWR7483267	1 x FPT 1	1.79	1.33	1.31	2.27	0.85	1.16	2.17	1.97
PWR7483278	1-1/4 x FPT 1-1/4	2.20	1.67	1.66	2.22	0.33	1.23	2.76	2.36
PWR7483289	1-1/2 x FPT 1-1/2	2.44	1.90	1.90	3.09	1.16	1.16	2.76	2.36

"Apollo"® PowerPress
VSH technology

gas valves & fittings



integrated
piping systems

89FVH series gas ball valve



standard materials

BODY	ASTM A216-WCB carbon steel
SEAT	Reinforced PTFE
BALL	ASTM A276-316 Stainless Steel
STEM PACKING	Multi-Fill PTFE
NUT	Corrosion Resistant Plated Steel
STEM	ASTM A276-316 Stainless Steel
RETAINER	ASTM A108-12L14 carbon steel
SEALING ELEMENT	HNBR (Yellow)
HANDLE	Plated Steel/Insulated Polyvinyl
GLAND	ASTM A108-1215 carbon steel
STEM BEARING	Reinforced PTFE
BODY SEAL	PTFE

description

the Apollo PowerPress[®] 89FV gas 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.

features

- 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

approved applications

- compressed air
- fuel gas

options

- (-01) standard (PTFE packing, RPTFE body seal)
- (-02) grounded stem
- (-04) 2¼" stem extension
- (-11) Thermo-Seal[™] insulating tee handle
- (-14) side vented ball (uni-directional)
- (-24) graphite stem packing
- (-27) ss latch-lock lever and nut
- (-32) ss tee handle and nut
- (-39) ss hi-rise locking wheel handle with ss nut
- (-45) less lever and nut
- (-47) SS latch lock oval handle
- (-48) SS oval handle (no latch)
- (-49) assembled dry
- (-60) grounded ball and stem

performance rating

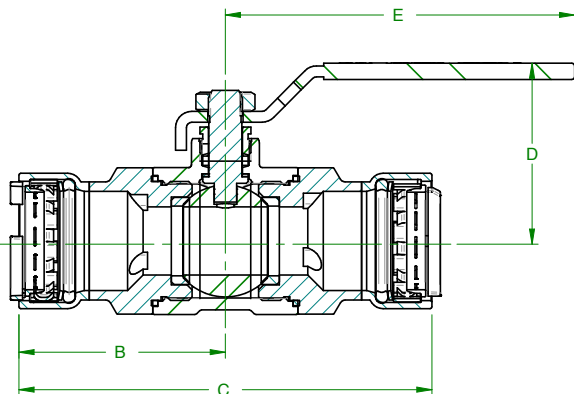
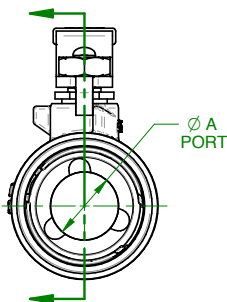
- maximum operating pressure:
125 PSI max for fuel gas applications
200 PSI max for other approved applications
- temperature range: -40°F - 194°F

approvals

- ANSI LC4/CSA 6.32
- IAPMO LC 4
- CRN # OC10908 ADD11

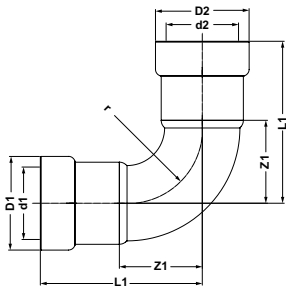
compliant with

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



dimensions (in)

PART NUMBER	SIZE (IN.)	DIMENSIONS (IN.)					WT (LB.)
		A	B	C	D	E	
89FVH4301	½"	0.50	2.08	4.16	1.74	3.85	0.6
89FVH4401	¾"	0.75	2.28	4.55	1.96	3.85	0.9
89FVH4501	1"	1.00	2.72	5.44	2.29	4.76	1.4
89FVH4601	1¼"	1.25	3.41	6.82	3.20	7.76	4.2
89FVH4701	1½"	1.50	3.62	7.24	3.30	7.76	4.8
89FVH4801	2"	2.00	3.93	7.85	3.68	7.76	7.2
89FVH4324	½"	0.50	2.08	4.16	1.74	3.85	0.6
89FVH4424	¾"	0.75	2.28	4.55	1.96	3.85	0.9
89FVH4524	1"	1.00	2.72	5.44	2.29	4.76	1.4
89FVH4624	1¼"	1.25	3.41	6.82	3.20	7.76	4.2
89FVH4724	1½"	1.50	3.62	7.24	3.30	7.76	4.8
89FVH4824	2"	2.00	3.93	7.85	3.68	7.76	7.2

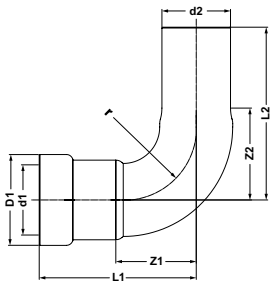


90° elbow

model 407G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1	D2	d1	d2	L1	L2	Z1	Z2	r
PWR7480121	1/2	1.26	1.26	0.84	0.84	2.17	2.17	1.10	1.10	0.98
PWR7480132	3/4	1.49	1.49	1.05	1.05	2.48	2.48	1.32	1.32	1.18
PWR7480143	1	1.79	1.79	1.31	1.31	2.99	2.99	1.63	1.63	1.50
PWR7480154	1-1/4	2.20	2.20	1.66	1.66	3.80	3.80	1.95	1.95	1.77
PWR7480165	1-1/2	2.44	2.44	1.90	1.90	4.06	4.06	2.19	2.19	1.97
PWR7480176	2	2.91	2.91	2.37	2.37	4.78	4.78	2.78	2.78	2.56

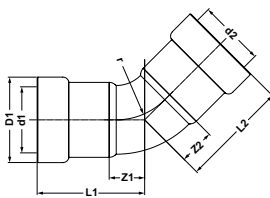


90° street elbow

model 407-2G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x FTG

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	d1	d2	L1	L2	Z1	Z2	r
PWR7481474	1/2	1.26	0.84	0.84	2.17	2.70	1.10	1.63	0.98
PWR7481485	3/4	1.49	1.05	1.05	2.48	2.95	1.32	1.79	1.18
PWR7481496	1	1.79	1.31	1.31	2.99	3.56	1.63	2.20	1.50
PWR7481507	1-1/4	2.20	1.66	1.66	3.80	4.27	1.95	2.34	1.77
PWR7481518	1-1/2	2.44	1.90	1.90	4.47	4.49	2.52	2.42	1.97
PWR7481529	2	2.91	2.37	2.37	4.78	5.49	2.78	3.40	2.56

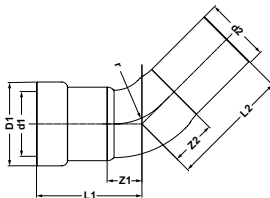


45° elbow

model 406G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1	D2	d1	d2	L1	L2	Z1	Z2	r
PWR7481531	1/2	1.26	1.26	0.84	0.84	1.59	1.59	0.53	0.53	0.98
PWR7481540	3/4	1.49	1.49	1.05	1.05	1.79	1.79	0.63	0.63	1.18
PWR7481551	1	1.79	1.79	1.31	1.31	2.11	2.11	0.75	0.75	1.50
PWR7481562	1-1/4	2.20	2.20	1.66	1.66	2.78	2.78	0.93	0.93	1.77
PWR7481573	1-1/2	2.44	2.44	1.90	1.90	2.91	2.91	1.04	1.04	1.97
PWR7481584	2	2.91	2.91	2.37	2.37	3.29	3.29	1.28	1.28	2.56

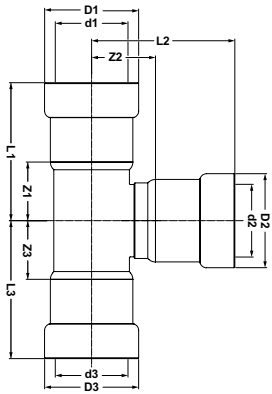


45° street elbow

model 406-2G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x FTG

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	d1	d2	L1	L2	Z1	Z2	r
PWR7481595	1/2 x 1/2	1.26	0.84	0.84	1.59	2.13	0.53	1.06	0.98
PWR7481606	3/4 x 3/4	1.49	1.05	1.05	1.81	2.26	0.63	1.10	1.18
PWR7481617	1 x 1	1.79	1.31	1.31	2.13	2.68	0.75	1.32	1.50
PWR7481628	1-1/4 x 1-1/4	2.20	1.66	1.66	2.78	3.24	0.91	1.31	1.77
PWR7481639	1-1/2 x 1-1/2	2.44	1.90	1.90	3.31	3.35	1.36	1.28	1.97
PWR7481641	2 x 2	2.91	2.37	2.37	3.31	3.99	1.28	1.90	2.56

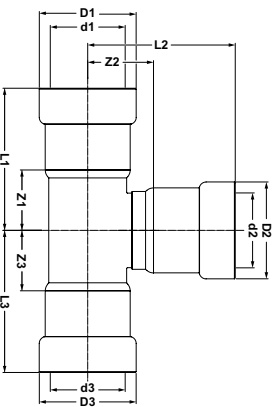


tee

model 411G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1/D3	D2	d1/d3	d2	L1/L3	L2	Z1/Z3	Z2	
PWR7481650	1/2	1.26	1.26	0.84	0.84	2.05	2.09	0.98	1.02	
PWR7481661	3/4	1.49	1.49	1.05	1.05	2.24	2.30	1.08	1.14	
PWR7481672	1	1.79	1.79	1.31	1.31	2.60	2.66	1.24	1.30	
PWR7481683	1-1/4	2.20	2.20	1.66	1.66	3.23	3.35	1.38	1.50	
PWR7481694	1-1/2	2.44	2.44	1.90	1.90	3.48	3.50	1.61	1.63	
PWR7481705	2	2.91	2.91	2.37	2.37	3.78	3.92	1.77	1.91	

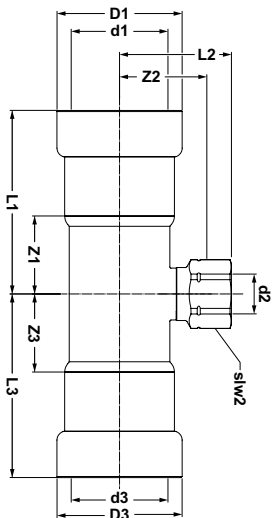


tee | reducing

model 411RG

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1/D3	D2	d1/d3	d2	L1/L3	L2	Z1/Z3	Z2	
PWR7481716	3/4 x 3/4 x 1/2	1.49	1.26	1.05	0.84	2.24	2.19	1.08	1.12	
PWR7481727	1 x 1 x 1/2	1.79	1.26	1.31	0.84	2.60	2.34	1.24	1.28	
PWR7481738	1 x 1 x 3/4	1.79	1.49	1.31	1.05	2.60	2.46	1.24	1.30	
PWR7483124	1-1/4 x 1-1/4 x 1/2	2.20	1.26	1.67	0.84	3.22	2.50	1.33	1.39	
PWR7483135	1-1/4 x 1-1/4 x 3/4	2.20	1.49	1.67	1.06	3.22	2.60	1.33	1.38	
PWR7481749	1-1/4 x 1-1/4 x 1	2.20	1.79	1.66	1.31	3.23	2.81	1.38	1.46	
PWR7481751	1-1/2 x 1-1/2 x 1/2	2.44	1.26	1.90	0.84	3.48	2.58	1.61	1.52	
PWR7481760	1-1/2 x 1-1/2 x 3/4	2.44	1.49	1.90	1.05	3.48	2.69	1.61	1.53	
PWR7481771	1-1/2 x 1-1/2 x 1	2.44	1.79	1.90	1.31	3.48	2.89	1.61	1.54	
PWR7481782	1-1/2 x 1-1/2 x 1-1/4	2.44	2.20	1.90	1.66	3.48	3.43	1.61	1.57	
PWR7481793	2 x 2 x 1/2	2.91	1.26	2.37	0.84	3.78	2.87	1.77	1.81	
PWR7481804	2 x 2 x 3/4	2.91	1.49	2.37	1.05	3.78	2.99	1.77	1.83	
PWR7481815	2 x 2 x 1	2.91	1.79	2.37	1.31	3.78	3.19	1.77	1.83	
PWR7481826	2 x 2 x 1-1/4	2.91	2.20	2.37	1.66	3.78	3.72	1.77	1.87	
PWR7481837	2 x 2 x 1-1/2	2.91	2.44	2.37	1.90	3.78	3.80	1.77	1.93	

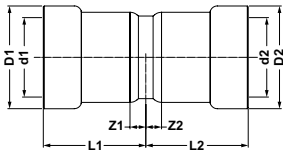


tee | female

model 4712G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P x FPT

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1/D3	d1/d3	d2	L1	L3	L2	Z1/Z3	SLW2	
PWR7481848	3/4 x 3/4 x FPT 1/2	1.49	1.05	0.84	2.24	2.24	2.24	1.08	1.10	
PWR7481859	3/4 x 3/4 x FPT 3/4	1.49	1.05	1.05	2.24	2.24	1.71	1.08	1.26	
PWR7481861	1 x 1 x FPT 1/2	1.79	1.31	0.84	2.60	2.60	1.81	1.24	1.10	
PWR7481870	1 x 1 x FPT 3/4	1.79	1.31	1.05	2.60	2.60	1.87	1.24	1.26	
PWR7481881	1-1/4 x 1-1/4 x FPT 1/2	2.20	1.66	0.84	3.23	3.23	1.97	1.38	1.26	
PWR7483146	1-1/4 x 1-1/4 x FPT 3/4	2.20	1.67	1.05	3.22	3.22	2.02	1.33	1.26	
PWR7483157	1-1/4 x 1-1/4 x FPT 1	2.20	1.67	1.31	3.22	3.22	2.17	1.33	1.61	
PWR7481892	1-1/2 x 1-1/2 x FPT 1/2	2.44	1.90	0.84	3.48	3.48	2.05	1.61	1.10	
PWR7481903	1-1/2 x 1-1/2 x FPT 3/4	2.44	1.90	1.05	3.48	3.48	2.11	1.61	1.26	
PWR7481914	1-1/2 x 1-1/2 x FPT 1	2.44	1.90	1.31	3.48	3.48	2.26	1.61	1.61	
PWR7481925	1-1/2 x 1-1/2 x FPT 1-1/4	2.44	1.90	1.66	3.48	3.48	2.36	1.61	1.97	
PWR7481936	2 x 2 x FPT 1/2	2.91	2.37	0.84	3.78	3.78	2.34	1.77	1.10	
PWR7481947	2 x 2 x FPT 3/4	2.91	2.37	1.05	3.78	3.78	2.40	1.77	1.26	
PWR7481958	2 x 2 x FPT 1	2.91	2.37	1.31	3.78	3.78	2.56	1.77	1.61	
PWR7481969	2 x 2 x FPT 1-1/4	2.91	2.37	1.66	3.78	3.78	2.66	1.77	1.97	
PWR7481971	2 x 2 x FPT 1-1/2	2.91	2.37	2.37	3.78	3.78	2.66	1.77	2.36	

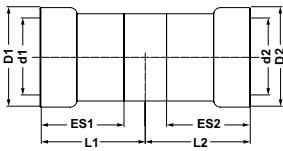


coupling

model 400G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	Z1	Z2
PWR7481298	1/2	1.26	1.26	0.84	0.84	1.34	1.34	0.28	0.28
PWR7481309	3/4	1.49	1.49	1.05	1.05	1.46	1.46	0.30	0.30
PWR7481311	1	1.79	1.79	1.31	1.31	1.65	1.65	0.30	0.30
PWR7481320	1-1/4	2.20	2.20	1.66	1.66	2.20	2.20	0.35	0.35
PWR7481331	1-1/2	2.44	2.44	1.90	1.90	2.26	2.26	0.39	0.39
PWR7481342	2	2.91	2.91	2.37	2.37	2.40	2.40	0.39	0.39

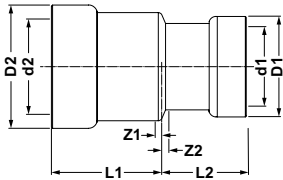


coupling | no stop

model 401G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	ES1	ES2
PWR7481353	1/2	1.26	1.26	0.84	0.84	1.54	1.54	1.14	1.14
PWR7481364	3/4	1.49	1.49	1.05	1.05	1.63	1.63	1.24	1.24
PWR7481375	1	1.79	1.79	1.31	1.31	1.83	1.83	1.44	1.44
PWR7481386	1-1/4	2.20	2.20	1.66	1.66	2.32	2.32	1.93	1.93
PWR7481397	1-1/2	2.44	2.44	1.90	1.90	2.46	2.46	1.95	1.95
PWR7481408	2	2.91	2.91	2.37	2.37	2.56	2.56	2.09	2.09

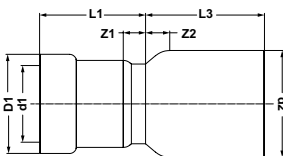


coupling | reducing

model 420G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	Z1	Z2
PWR7483168	3/4 x 1/2	1.26	1.49	0.84	1.17	1.20	1.26	0.10	0.04
PWR7483179	1 x 1/2	1.26	1.79	0.84	1.33	1.28	1.46	0.18	0.04
PWR7483181	1 x 3/4	1.49	1.79	1.06	1.33	1.33	1.46	0.11	0.04
PWR7483190	1-1/4 x 3/4	1.49	2.20	1.06	1.67	1.43	1.95	0.21	0.06
PWR7483201	1-1/4 x 1	1.79	2.20	1.33	1.67	1.54	1.95	0.12	0.06
PWR7483212	1-1/2 x 1-1/4	2.20	2.44	1.67	1.90	2.04	2.00	0.15	0.07
PWR7483223	2 x 1-1/4	2.20	2.91	1.67	2.37	2.17	2.17	0.28	0.08
PWR7483234	2 x 1-1/2	2.44	2.91	1.90	2.37	2.15	2.18	0.22	0.09

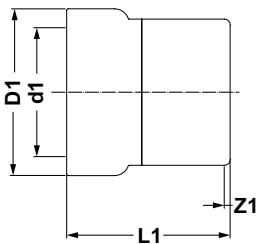


fitting reducer

model 418G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- FTG x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	D2	d1	d2	L1	L2	Z1	Z2
PWR7481980	3/4 x 1/2	1.05	1.26	1.05	0.84	1.10	1.42	0.04	0.18
PWR7481991	1 x 1/2	1.31	1.26	1.31	0.84	1.00	1.69	-0.06	0.26
PWR7482002	1 x 3/4	1.31	1.49	1.31	1.05	1.12	1.57	-0.04	0.14
PWR7482013	1-1/4 x 1	1.66	1.79	1.66	1.31	1.30	2.05	-0.06	0.12
PWR7482024	1-1/2 x 3/4	1.90	1.49	1.90	1.05	2.24	2.05	1.08	0.10
PWR7482035	1-1/2 x 1	1.90	1.79	1.90	1.31	1.38	2.03	0.02	0.08
PWR7482046	1-1/2 x 1-1/4	1.90	2.20	1.90	1.66	1.85	1.97	0.00	0.02
PWR7482057	2 x 1	2.37	1.79	2.37	1.31	2.52	2.17	1.16	0.08
PWR7482068	2 x 1-1/4	2.37	2.20	2.37	1.66	1.77	2.17	-0.08	0.08
PWR7482079	2 x 1-1/2	2.37	2.44	2.37	1.90	1.77	2.15	-0.10	0.06

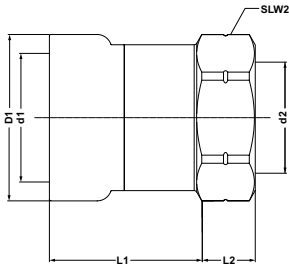


cap

model 417G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P

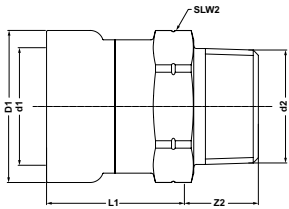
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)			
		D1	d1	L1	Z1
PWR7482475	1/2	1.26	0.84	1.38	0.31
PWR7482486	3/4	1.49	1.05	1.48	0.31
PWR7482497	1	1.79	1.31	1.69	0.33
PWR7482508	1-1/4	2.20	1.66	2.20	0.35
PWR7482519	1-1/2	2.44	1.90	2.24	0.37
PWR7482521	2	2.91	2.37	2.44	0.43



adapter | female
model 403G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x FPT

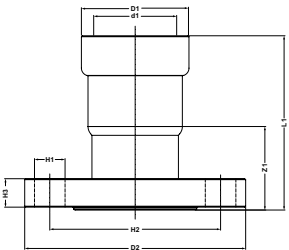
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)						
		D1	D2	d1	d2	L1	L2	SLW2
PWR7482145	1/2 x FPT 1/2	1.26	0.84	0.84	0.84	1.26	0.57	1.10
PWR7482156	3/4 x FPT 1/2	1.49	0.84	1.05	0.84	1.32	0.63	1.42
PWR7482167	3/4 x FPT 3/4	1.49	1.05	1.05	1.05	1.30	0.63	1.42
PWR7482178	1 x FPT 1/2	1.79	0.84	1.31	0.84	1.52	0.71	1.61
PWR7482189	1 x FPT 3/4	1.79	1.05	1.31	1.05	1.48	0.71	1.61
PWR7482191	1 x FPT 1	1.79	1.31	1.31	1.31	1.56	0.71	1.61
PWR7482200	1-1/4 x FPT 1/2	2.20	0.84	1.66	0.84	2.05	0.79	1.97
PWR7482211	1-1/4 x FPT 3/4	2.20	1.05	1.66	1.05	2.11	0.69	1.97
PWR7482222	1-1/4 x FPT 1	2.20	1.31	1.66	1.31	2.07	0.79	1.97
PWR7482233	1-1/4 x FPT 1-1/4	2.20	1.66	1.66	1.66	1.97	0.83	1.97
PWR7482244	1-1/2 x FPT 1/2	2.44	0.84	1.90	0.84	2.09	0.85	2.36
PWR7482255	1-1/2 x FPT 3/4	2.44	1.05	1.90	1.05	2.11	0.79	2.36
PWR7482266	1-1/2 x FPT 1	2.44	1.31	1.90	1.31	2.17	0.79	2.36
PWR7482277	1-1/2 x FPT 1-1/4	2.44	1.66	1.90	1.66	2.09	0.79	2.36
PWR7482288	1-1/2 x FPT 1-1/2	2.44	1.90	1.90	1.90	2.01	0.81	2.36
PWR7482299	2 x FPT 1/2	2.91	0.84	2.37	0.84	2.46	0.79	2.76
PWR7482301	2 x FPT 3/4	2.91	1.05	2.37	1.05	2.46	0.79	2.76
PWR7482310	2 x FPT 1	2.91	1.31	2.37	1.31	2.46	0.79	2.76
PWR7482321	2 x FPT 1-1/4	2.91	1.66	2.37	1.66	2.46	0.79	2.76
PWR7482332	2 x FPT 1-1/2	2.91	1.90	2.37	1.90	2.32	0.79	2.76
PWR7482343	2 x FPT 2	2.91	2.37	2.37	2.37	2.22	0.79	2.76



adapter | male
model 404G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x MPT

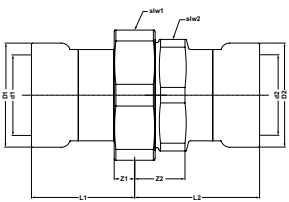
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)						
		D1	D2	d1	d2	L1	Z2	SLW2
PWR7482081	1/2 x MPT 1/2	1.26	0.84	0.84	0.84	1.06	1.04	1.10
PWR7482090	3/4 x MPT 3/4	1.49	1.05	1.05	1.05	1.16	1.04	1.42
PWR7482101	1 x MPT 1	1.79	1.31	1.31	1.31	1.36	1.14	1.61
PWR7482112	1-1/4 x MPT 1-1/4	2.20	1.66	1.66	1.66	1.85	1.18	1.97
PWR7482123	1-1/2 x MPT 1-1/2	2.44	1.90	1.90	1.90	1.87	1.16	2.36
PWR7482134	2 x MPT 2	2.91	2.37	2.37	2.37	2.01	1.26	2.76



flange adapter | ANSI class 150
model 4771G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x FLG (BP:4)

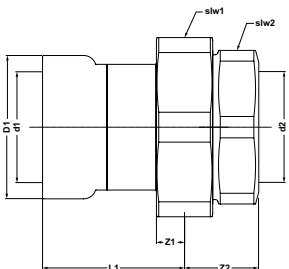
PART NO.	SIZE (IN.)	DIMENSIONS (IN.)								
		D1	D2	d1	d2	L1	Z1	H1	H2	H3
PWR7482411	1/2	1.26	3.54	0.84	0.84	2.42	1.36	0.63	2.38	0.40
PWR7482420	3/4	1.49	3.94	1.05	1.05	2.62	1.46	0.63	2.76	0.45
PWR7482431	1	1.79	4.33	1.31	1.31	2.93	1.57	0.63	3.13	0.51
PWR7482442	1-1/4	2.20	4.53	1.66	1.66	3.56	1.71	0.63	3.50	0.59
PWR7482453	1-1/2	2.44	4.92	1.90	1.90	3.80	1.93	0.63	3.88	0.65
PWR7482464	2	2.91	5.91	2.37	2.37	3.90	1.89	0.75	4.74	0.71



union
model 4733G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x P

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)									
		D1	D2	d1	d2	L1	L2	Z1	Z2	SLW1	SLW2
PWR7482398	1/2	1.26	1.26	0.84	0.84	1.75	1.75	0.69	0.98	1.61	0.45
PWR7482409	3/4	1.49	1.49	1.05	1.05	2.13	2.13	0.96	0.81	1.61	0.49
PWR7482398	1	1.79	1.79	1.31	1.31	2.15	2.15	0.79	1.14	2.17	0.57
PWR7482409	1-1/4	2.20	2.20	1.66	1.66	2.11	2.11	0.26	1.02	2.76	0.76
PWR7482398	1-1/2	2.44	2.44	1.90	1.90	2.97	2.97	1.10	0.98	2.76	0.77
PWR7482409	2	2.91	2.91	2.37	2.37	3.31	3.31	1.30	1.30	3.35	0.82



union | female
model 4734G

- ZnNi coated Carbon Steel
- HNBR Sealing Element
- Yellow Visual Control Ring (VCR)
- P x FPT

PART NO.	SIZE (IN.)	DIMENSIONS (IN.)							
		D1	d1	d2	L1	Z1	Z2	SLW1	SLW2
PWR7483300	1/2 x FPT 1/2	1.26	0.84	0.84	1.83	0.67	0.96	1.61	1.42
PWR7483311	3/4 x FPT 3/4	1.49	1.06	1.05	2.22	0.68	0.91	1.61	1.42
PWR7483322	1 x FPT 1	1.79	1.33	1.31	2.27	0.85	1.16	2.17	1.97
PWR7483333	1-1/4 x FPT 1-1/4	2.20	1.67	1.67	2.22	0.33	1.23	2.76	2.36
PWR7483344	1-1/2 x FPT 1-1/2	2.44	1.90	1.90	3.09	1.16	1.16	2.76	2.36
PWR7483355	2 x FPT 2	2.91	2.37	2.37	3.46	1.37	1.41	3.35	2.95

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 fittings listed in the Apollo POWERPRESS® product range, when properly installed in the Approved Applications specifically 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® | Apollo POWERPRESS® Gas system: |
| • Closed loop heating installations | • Gas installations |
| • Closed loop cooling installations | |
| • Compressed air installations | |
| • Wet sprinkler 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 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.

terms & condistions of sale

- Payment net 30 days.
- All prices F.O.B. shipping point with freight allowed on shipments of 750 pounds and/or \$3,000 net minimum to all shipping points within the United States excluding Alaska and Hawaii. No freight allowed on Air Freight or Parcel Post shipments. Claims for shortages must be made within 10 days of receipt of material. Our responsibility ends when a delivery receipt is furnished us by the carrier.
- No invoice rendered For Less than \$50.00.
- No freight will be allowed on Air Freight, Air Express, Parcel Post or U.P.S. shipments.
- All Aalberts integrated piping systems' products may be combined to make sufficient weight for full freight allowance.
- Phone order quoted prices are subject to correction. Prices and designs are subject to change without notice.
- Orders for material of special design or specification are made to customer's order and are not subject to cancellation or return.
- All goods returned to us will not be accepted unless a full explanation has been made and our written authorized permission obtained in advance. All goods returned - if accepted - will be credited at invoice price, less 30% for service and rehandling charges, plus shipping expenses.
- We reserve the right to adjust orders to box quantities.