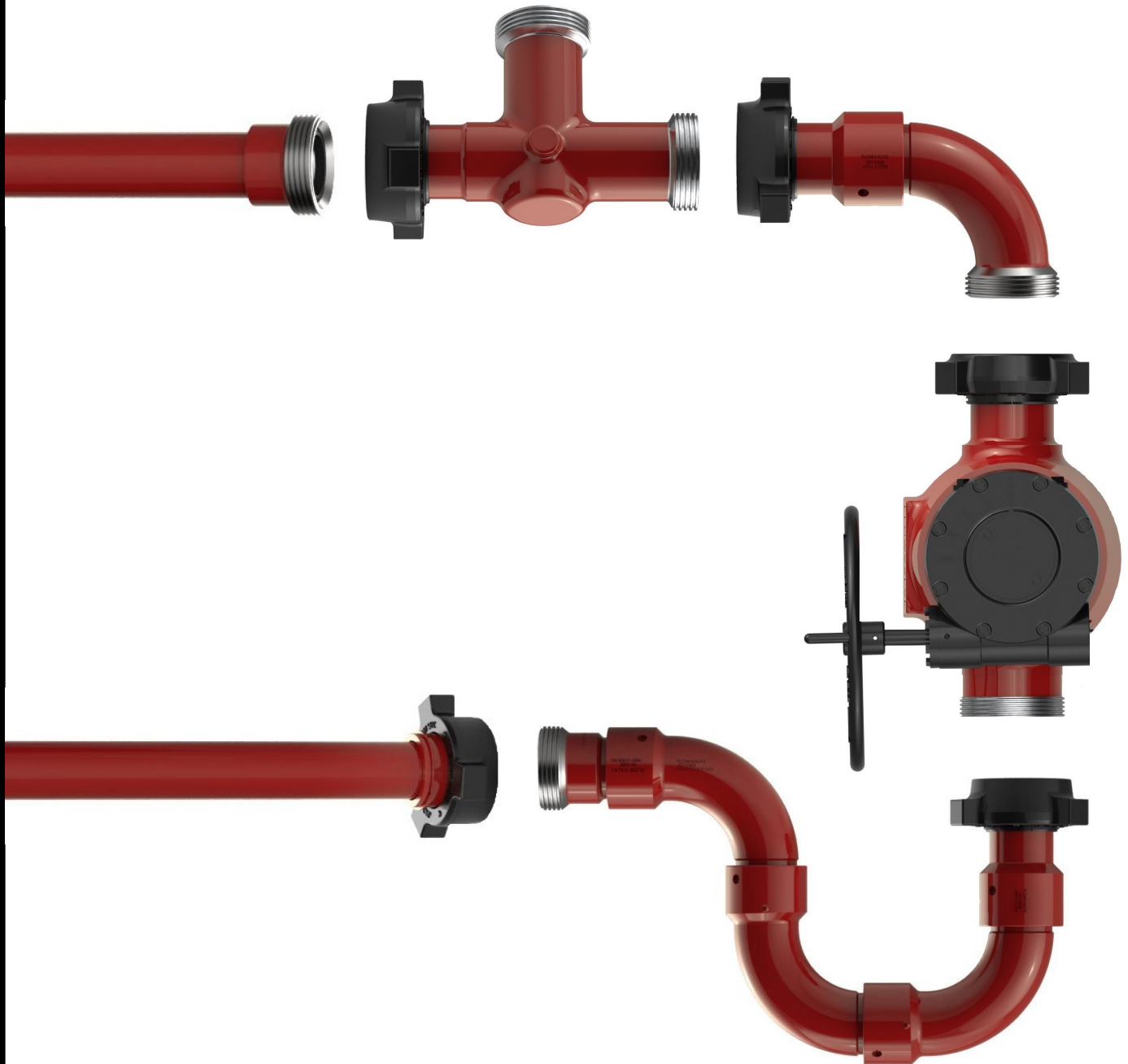




FLOWVALVE



PRODUCT CATALOG

Contents

<u>About FlowValve</u>	<u>3</u>
<u>Manifold Assemblies</u>	<u>4</u>
<u>Service & Sales</u>	<u>5</u>
<u>Swivel Joint Assemblies</u>	<u>6</u>
<u>Plug Valve Assemblies</u>	<u>10</u>
<u>Check Valve Assemblies</u>	<u>12</u>
<u>Integral Fitting Assemblies</u>	<u>14</u>
<u>Pup Joint Assemblies</u>	<u>22</u>
<u>Hose Loop Assemblies</u>	<u>27</u>
<u>Extreme Duty Wing Nut</u>	<u>28</u>
<u>Plug Assemblies</u>	<u>29</u>
<u>Wing Nut Assemblies</u>	<u>31</u>
<u>Swage Assemblies</u>	<u>32</u>
<u>Product Innovation</u>	<u>36</u>
<u>Material Traceability</u>	<u>37</u>
<u>PQC™ with iPAR™ Technology</u>	<u>38</u>



FlowValve



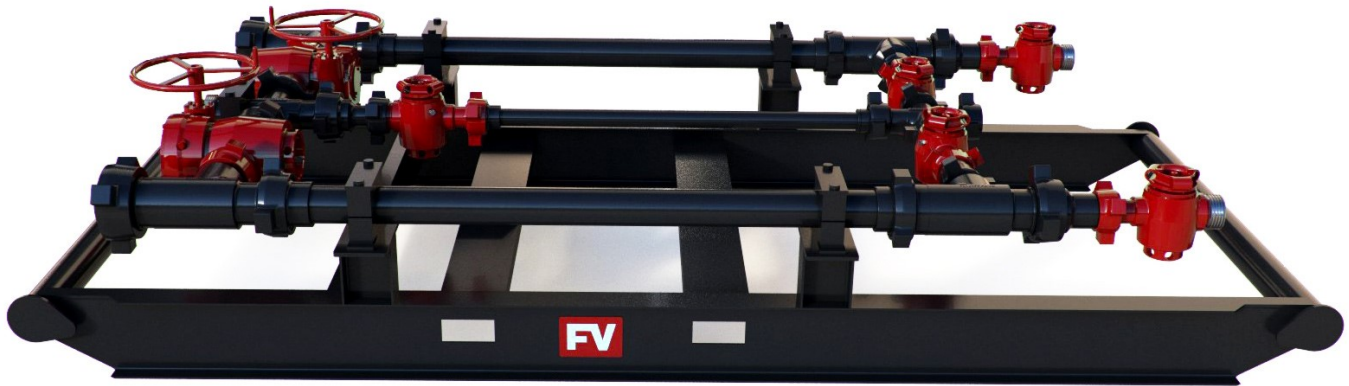
Over 230,000 sq. ft. of manufacturing space under one roof—our facility offers unmatched machining, fabricating and assembling capabilities. Our organization boasts over 255 machines, which gives us the ability to rapidly respond to customer demand. Our machine arsenal includes live tooling lathes, 5-axis boring mills, vertical machining centers and horizontal machining centers. FlowValve and KERR Pumps are one of the largest machining companies in all of Oklahoma.

FlowValve meets and exceeds the requirements stated in the ISO 9001:2015 quality manual. We believe in not only meeting, but exceeding our customers' needs through continuous improvement. All of our products meet or exceed API standards. Our commitment for perfection is the gold standard for well service products. Every FlowValve part is hydro-tested at 1 ½ times CWP. During the testing each part is inspected with a high focus camera lens to check for leaks. Once each part passes the test, results are charted and stored in our database by serial number.



Our PQC™ with iPAR™ technology is a revolutionary quality system that uses a touch trigger probe to inspect every part in the machine as it is made. It detect deviations of the machine and automatically recalibrates itself during the machining process.

Manifold Assemblies



Made for fast rig ups and ease of operation, our plugcatchers are mounted on a skid with heavy-duty pipe clamps. With forklift slots designed into the skid, the plugcatcher manifold is easy to load on and off trailers for easy transportation.

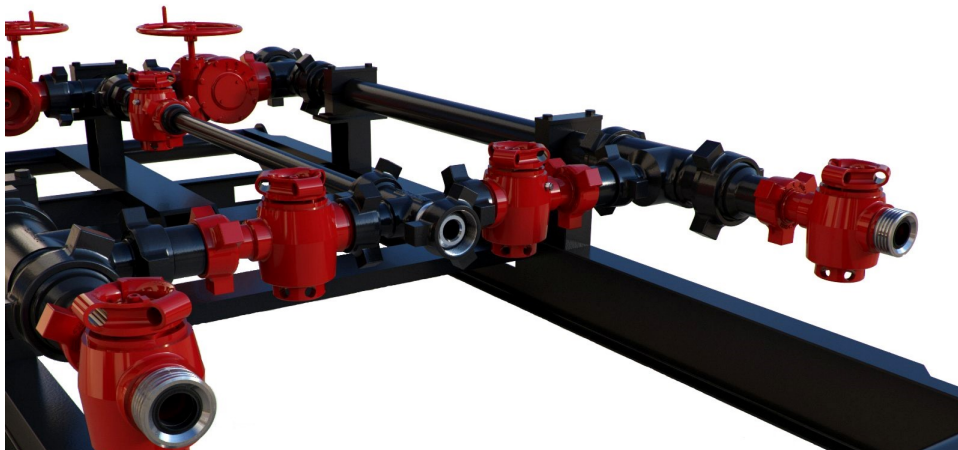
Our standard plugcatcher design flows in at 3" Fig 1502 and flows out at 2" Fig 1502 or 3" fig 1502 to handle normal flowback operations. Customizable design options are available upon request. With customizable options, our plugcatchers are rated for 10,000 or 15,000 CWP. Depending on your requirements we can use different styles of crossovers and pup joints to get the solution you need.



With laser cut slots or holes, our integrated screen system is the best way to catch trash on flowback operations. The screens are threaded on the O.D. to easily detach from the crossover. This

makes it amazingly quick and easy to clean out or replace screens when needed.

We test every one of our plugcatchers at time and a half CWP before they ship.



Service & Sales

Iron Recertification Service

- Visual Inspections
- Ultrasonic Thickness Inspections
- Magnetic Particle Inspections
- Hydrostatic Pressure Testing
- Rebuild & Repair
- Sandblasting
- Painting
- Banding



All inspections are performed “in-house” to promote process and quality control.

FlowValve Sales

2214 W 14th St
Sulphur, OK 73086
P. 580.622.4207
F. 580.622.4206
sales@flowvalve.com



Fabrication Service

- Structural Welding
- Piping & Vessel Welding
- Acetylene Cutting
- Plasma Cutting
- CNC Water Jet Cutting

Swivel Joint Assemblies

World's Best Swivel Joints

It all begins with a **perfect bend**. That is what makes swivel joints great. We have an innovative process that gives us a consistent bend. This repeatable bend creates a concentric through-bore which minimizes turbulence, creates a smoother flow and reduces wear.

FlowValve swivels are designed with a **thicker body** in common wear areas. This extra thickness extends the life of our swivel joints. In a world of cost cutting, we are adding more value. The longer you stay running in the field, the more often you will turn to us.

Our swivels last longer than any other brand in the world. We have conducted **rigorous field tests** and each one has concluded that FlowValve outperforms everyone in the categories of wear, durability and overall performance.

Our **high alloy steel** is made from the absolute perfect metallic chemistry. Combine that with the fact that all of our steel is poured in the U.S. and you have a recipe for success.

Customized heat treat processes give our swivels **ultimate durability**. Our extraordinary tensile yield produces a unique combination of strength and ductility. Each swivel is heat treated and case hardened to withstand the toughest well service environments.

Our engineers conduct a **finite element analysis** to ensure each swivel joint will perform at the highest level. This extraordinary focus on design has produced amazing results.

Elevation & Direction Changes Made EASY!

Swivel Joint Assemblies 1502



15,000 PSI CWP

Nominal	Part #	ID (in)	Style	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
1"	2A151101	0.880	10	MxF	15,000	1034.2	1502	20151R1	20151P1	3
	2A151102	0.880	10	MxM	15,000	1034.2	1502	20151R1	20151P1	3
	2A151201	0.880	20	MxF	15,000	1034.2	1502	20151R1	20151P1	1
	2A151202	0.880	20	MxM	15,000	1034.2	1502	20151R1	20151P1	1
	2A151301	0.880	30	MxF	15,000	1034.2	1502	20151R1	20151P1	1
	2A151501	0.880	50	MxF	15,000	1034.2	1502	20151R1	20151P1	2
	2A151601	0.880	60	MxF	15,000	1034.2	1502	20151R1	20151P1	2
	2A151602	0.880	60	MXM	15,000	1034.2	1502	20151R1	20151P1	2
	2A151801	0.880	80	MxF	15,000	1034.2	1502	20151R1	20151P1	3
	2A1511001	0.880	100	MxF	15,000	1034.2	1502	20151R1	20151P1	4
	2A1511002	0.880	100	MxM	15,000	1034.2	1502	20151R1	20151P1	4

Nominal	Part #	ID (in)	Style	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
1.5"	2A1515101	1.300	10	MxF	15,000	1034.2	1502	201515R1	201515P1	3
	2A1515102	1.300	10	MxM	15,000	1034.2	1502	201515R1	201515P1	3
	2A1515201	1.300	20	MxF	15,000	1034.2	1502	201515R1	201515P1	1
	2A1515202	1.300	20	MxM	15,000	1034.2	1502	201515R1	201515P1	1
	2A1515301	1.300	30	MxF	15,000	1034.2	1502	201515R1	201515P1	1
	2A1515501	1.300	50	MxF	15,000	1034.2	1502	201515R1	201515P1	2
	2A1515601	1.300	60	MxF	15,000	1034.2	1502	201515R1	201515P1	2
	2A1515602	1.300	60	MXM	15,000	1034.2	1502	201515R1	201515P1	2
	2A1515801	1.300	80	MxF	15,000	1034.2	1502	201515R1	201515P1	3
	2A15151001	1.300	100	MxF	15,000	1034.2	1502	201515R1	201515P1	4
	2A15151002	1.300	100	MxM	15,000	1034.2	1502	201515R1	201515P1	4

Swivel Joint Assemblies 1502

Nominal	Part #	ID (in)	Style	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
2"	2A152101	1.750	10	MxF	15,000	1034.2	1502	20152R1	20152P1	3
	2A152102	1.750	10	MxM	15,000	1034.2	1502	20152R1	20152P1	3
	2A152201	1.750	20	MxF	15,000	1034.2	1502	20152R1	20152P1	1
	2A152202	1.750	20	MxM	15,000	1034.2	1502	20152R1	20152P1	1
	2A152301	1.750	30	MxF	15,000	1034.2	1502	20152R1	20152P1	1
	2A152501	1.750	50	MxF	15,000	1034.2	1502	20152R1	20152P1	2
	2A152601	1.750	60	MxF	15,000	1034.2	1502	20152R1	20152P1	2
	2A152602	1.750	60	MXM	15,000	1034.2	1502	20152R1	20152P1	2
	2A152801	1.750	80	MxF	15,000	1034.2	1502	20152R1	20152P1	3
	2A1521001	1.750	100	MxF	15,000	1034.2	1502	20152R1	20152P1	4
	2A1521002	1.750	100	MxM	15,000	1034.2	1502	20152R1	20152P1	4

Nominal	Part #	ID (in)	Style	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
3"	2A153101	2.630	10	MxF	15,000	1034.2	1502	20153R1	20153P1	3
	2A153102	2.630	10	MxM	15,000	1034.2	1502	20153R1	20153P1	3
	2A153201	2.630	20	MxF	15,000	1034.2	1502	20153R1	20153P1	1
	2A153202	2.630	20	MxM	15,000	1034.2	1502	20153R1	20153P1	1
	2A153301	2.630	30	MxF	15,000	1034.2	1502	20153R1	20153P1	1
	2A153501	2.630	50	MxF	15,000	1034.2	1502	20153R1	20153P1	2
	2A153601	2.630	60	MxF	15,000	1034.2	1502	20153R1	20153P1	2
	2A153602	2.630	60	MXM	15,000	1034.2	1502	20153R1	20153P1	2
	2A153801	2.630	80	MxF	15,000	1034.2	1502	20153R1	20153P1	3
	2A1531001	2.630	100	MxF	15,000	1034.2	1502	20153R1	20153P1	4
	2A1531002	2.630	100	MxM	15,000	1034.2	1502	20153R1	20153P1	4

Nominal	Part #	ID (in)	Style	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
4"	2A154101	3.500	10	MxF	15,000	1034.2	1502	20154R1	2A154P1	3
	2A154102	3.500	10	MxM	15,000	1034.2	1502	20154R1	2A154P1	3
	2A154201	3.500	20	MxF	15,000	1034.2	1502	20154R1	2A154P1	1
	2A154202	3.500	20	MxM	15,000	1034.2	1502	20154R1	2A154P1	1
	2A154301	3.500	30	MxF	15,000	1034.2	1502	20154R1	2A154P1	1
	1A154501	3.500	50	MxF	15,000	1034.2	1502	20154R1	2A154P1	2
	2A154601	3.500	60	MxF	15,000	1034.2	1502	20154R1	2A154P1	2
	2A154602	3.500	60	MXM	15,000	1034.2	1502	20154R1	2A154P1	2
	2A154801	3.500	80	MxF	15,000	1034.2	1502	20154R1	2A154P1	3
	2A1541001	3.500	100	MxF	15,000	1034.2	1502	20154R1	2A154P1	4
	2A1541002	3.500	100	MxM	15,000	1034.2	1502	20154R1	2A154P1	4

Swivel Joint Assemblies 1002



10,000 PSI CWP ****Greater Performance****

Nominal	Part #	ID (in)	Style	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
4"	GP2A124101	3.750	10	MxF	10,000	689.5	1002	20124R1	20124P1	3
	GP2A124102	3.750	10	MxM	10,000	689.5	1002	20124R1	20124P1	3
	GP2A124201	3.750	20	MxF	10,000	689.5	1002	20124R1	20124P1	1
	GP2A124301	3.750	30	MxF	10,000	689.5	1002	20124R1	20124P1	1
	GP2A124501	3.750	50	MxF	10,000	689.5	1002	20124R1	20124P1	2
	GP2A124601	3.750	60	MxF	10,000	689.5	1002	20124R1	20124P1	2
	GP2A124801	3.750	80	MxF	10,000	689.5	1002	20124R1	20124P1	3

FlowValve GP (Greater Performance) swivels have a larger bore, longer radius, and **12% thicker walls** compared to standard swivel joints. The GP's smoother bore prevents wash out. *Only available in 4" 1002*



Plug Valve Assemblies

Super Seal Plug Valve - 10X the Life

We didn't try to reinvent the wheel, **we perfected it!** Our new patent-pending plug valve design removes the most common failure point of traditional plug valves. This new innovation adds incredible performance life to the plug valve body. Our new plug valve significantly reduces **operating costs**.

Most plug valves fail at the sealing surface inside the body of the plug valve. This is where the body seals against the O-ring installed into the insert. Over time, the sealing surface of the body wears out and loses its ability to hold pressure. Our **patent-pending design** removes this issue by transferring the seal groove from the plug valve inserts to the plug valve body.

When we reinvented the plug valve, we didn't stop at the groove. We designed a new seal to exclusively handle the extreme services of plug valves. The **Super Seal** was engineered with a proprietary elastomer that outperforms the standard O-ring used in traditional plug valves. The Super Seal is molded to snap right into the plug valve body groove, making assembly simple and easy.

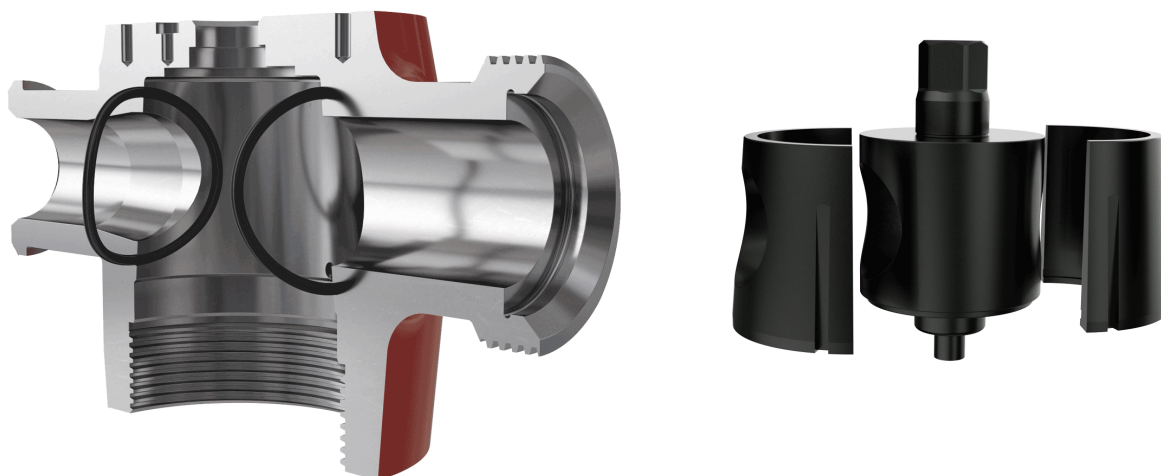
Our patent-pending **Grooveless Inserts** were reimagined for performance. The outside diameter of the insert now seals against the Super Seal that's installed in the body of the plug valve. This new design transfers the wear from the plug valve body to the replaceable inserts. Now every time you rebuild a plug valve you get a brand new sealing surface!

Each plug valve adjusting nut is set to an **exact torque** level with our advanced torque system. Combined with our innovative manufacturing technologies, this assembly procedure produces parts that are always reliable. This process design was engineered to ensure a new level of confidence.

We took all of our experience and packed it into a design that is truly remarkable. From engineering to manufacturing, our plug valves utilize the most advanced **well service technologies**.

10X the Life = A Work of Genius!

Plug Valve Assemblies



Nominal	Part #	Operation	ID (in)		Config.	CWP	BAR	Type	Figure	Repair Kit	Seal Kit
			Male	Female							
1"	PV1512FMC-SS	Manual	1.000	1.000	MxF	15,000	1034.2	Std.	1502	PV1KA-SS	PV1SKSS
2"	PV152FMA-SS	Manual	1.750	2.060	MxF	15,000	1034.2	Std.	1502	PV2KA-SS	PV2SKSS
3"	PV153FMA-M-SS-PP	Manual	2.630	3.060	MxF	15,000	1034.2	Std.	1502	PV3KA-SS	PV3SKSS
3"	PV153FMS-AA-PP	Gear	2.630	3.060	MxF	15,000	1034.2	Std.	1502	PV3KA-SS	PV3SKSS
4"	PV124FMA-M-SS-PP	Manual	3.750	4.060	MxF	10,000	689.5	Std.	1002	PV4KA-SS	PV4SKSS
4"	PV124FMA-SS-PP	Gear	3.750	4.060	MxF	10,000	689.5	Std.	1002	PV4KA-SS	PV4SKSS
4"	PV154FMA-M-SS-PP	Manual	3.750	4.060	MxF	15,000	1034.2	Std.	1502	PV4KA-SS	PV4SKSS
4"	PV154FMA-SS-PP	Gear	3.750	4.060	MxF	15,000	1034.2	Std.	1502	PV4KA-SS	PV4SKSS
5-1/8"	PV155FLAS-SS	Hydraulic	5.130	5.130	API 6A	15,000	1034.2	Sour	1502	PV5KA-SS	PV155SKSS
5-1/8"	PV155FLAS-SS-PP	Hydraulic	5.130	5.130	API 6A	15,000	1034.2	Std.	1502	PV5KA-SS	PV5SKSS



Check Valve Assemblies

Super Seal Check Valve

Our revolutionary patent-pending Super Seal™ check valve is designed to transfer the wear from the normal failure points. We have re-engineered the flapper, seat, pin, and halo to perform at a whole new level. Now, for the first time ever, there is a check valve designed to hold up to today's frac jobs!

Our patent-pending flapper design has a unique geometry that Transfers the Wear away from the sealing surfaces of the flapper. This hydro-dynamic feature provides extra liftoff for the flapper, redirecting the flow down to the through bore without having direct contact with the sealing surfaces of the flapper.

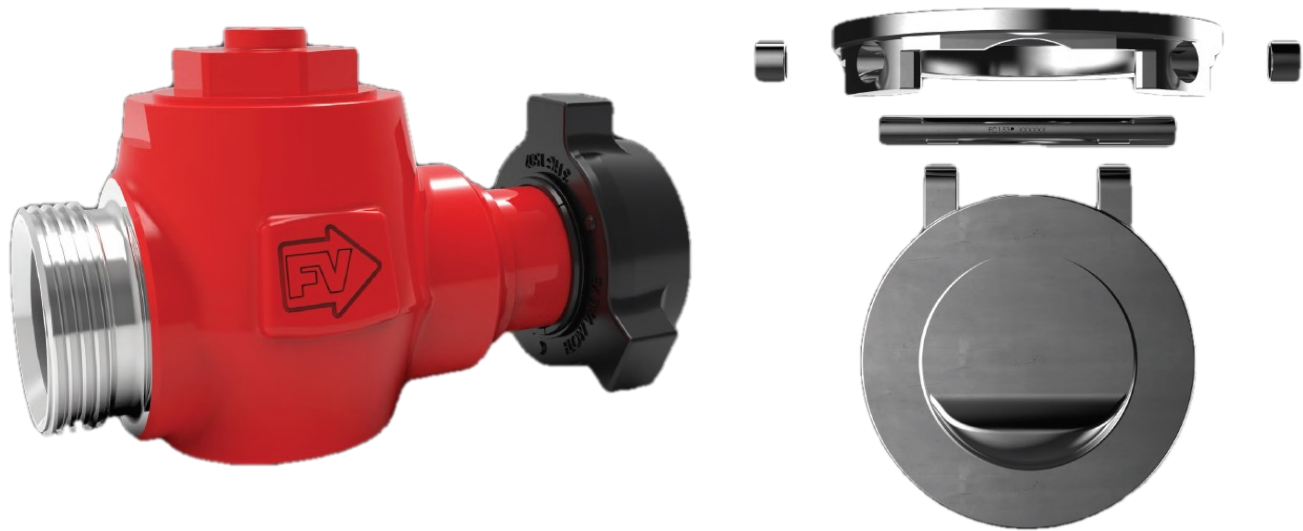
We designed the Check Valve SS™ flapper to last well beyond 40 stages! Our proprietary coating is 10X more wear and erosion resistant than standard polyurethane. Frequent flapper kit changes are now a thing of the past.

The standard flapper pin looks as if it was put through a pencil sharpener after only a few stages. Not ours! Our pin is made from proprietary, wear resistant material designed for extreme wear reduction. Each pin is precision ground and pressed into the flapper, eliminating wear between the flapper and pin. This innovative design prevents the flapper from dropping and losing its ability to seal properly.

In standard bushing systems, as the pin and halo wear, the flapper begins to drop, causing an inadequate seal. Our Super Seal Check Valve™ HALO is engineered with a patent-pending, tungsten carbide bushing system that virtually eliminates the wear from the rotating pin. This new design feature prevents the flapper from dropping, maintaining a proper seal. Our advanced bushing system gives the degree of freedom necessary for sealing performance, while extend-



Check Valve Assemblies



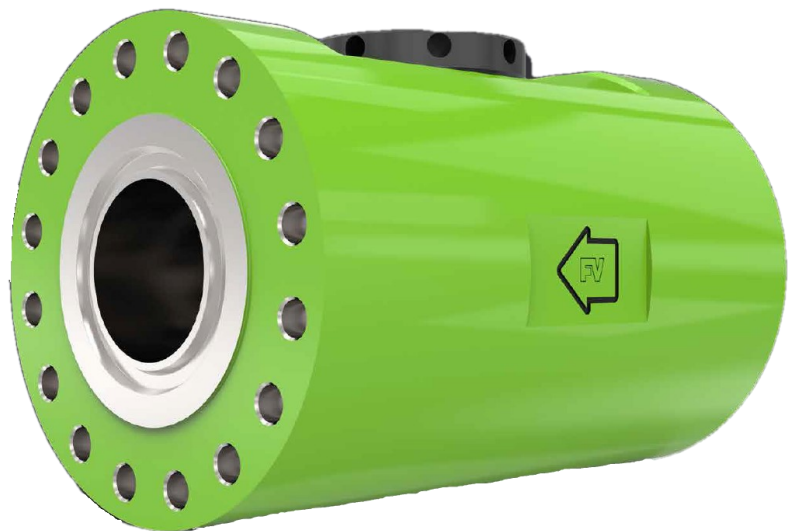
Nominal	Part #	Flow	ID (in)		Config.	CWP	BAR	Figure	Repair Kit	Seal Kit
			Male	Female						
3"	CV153FMA-SS	Standard	2.750	3.060	MxF	15,000	1034.2	1502	CV3KA-SS	3CVSKSS
3"	CV153FMRA-SS	Reverse	2.750	3.060	MxF	15,000	1034.2	1502	CV3KA-SS	3CVSKSS
7-1/16"	CV157SXSA-SS	Standard	7.063	7.063	API 6A	15,000	1034.2	1502	CV7KA-SS	CV7SKSS

7-1/16" Check Valve

API 6A Studded Connections

Big Inch Iron Isolation

**** Super Seal Technology ****



Integral Fitting Assemblies



Cushion



Long Radius 90



Long Radius 45

Cushion Ell

Cushion from the male or female. With extra material at the end of the elbow, our cushion ells are designed for extended service life. This feature behaves as a shock absorber, helping combat wear from abrasive slurry used in high pressure pumping.

Long Radius Ell 90 Degree

Bent 90 degrees for a smoother flow. With our swivel bending technology, we are able to bend a 90 degree elbow that can be used as an additional option for flowing 90 degrees. Because of their low wear rate and smoother flow, long radius 90s are a very popular choice for flowback operations.

Long Radius Ell 45 Degree

Repeatable bends, repeatable results. Consistency is achieving the same results over and over again. That is what you will see with our 45 degree ells. To bend a part at a 45, you need to have the right parameters in place. We have developed a process that delivers the consistency you can count on.

Making Hard Plumbing EASY...

Integral Fitting Assemblies

Ells

Nominal	Part #	ID (in)	Type	Configuration	CWP (PSI)	BAR	Figure
2"	40152MFA	1.750	Long Radius 90 Degree	MxF	15,000	1034.2	1502
2"	CE152FFA	1.750	Cushion	FxF	15,000	1034.2	1502
2"	CE152FMA	1.750	Cushion	Fxm	15,000	1034.2	1502
2"	CE152MFA	1.750	Cushion	MxF	15,000	1034.2	1502
2"	CE152MMA	1.750	Cushion	MxM	15,000	1034.2	1502
2"	E153MF45A	1.750	Long Radius 45 Degree	MxF	15,000	1034.2	1502
3"	40153MFA	2.630	Long Radius 90 Degree	MxF	15,000	1034.2	1502
3"	CE153FMA	2.630	Cushion	FxM	15,000	1034.2	1502
3"	CE153MFA	2.630	Cushion	MxF	15,000	1034.2	1502
3"	CE153MMA	2.630	Cushion	MxM	15,000	1034.2	1502
3"	E153MF30A	2.630	Long Radius 30 Degree	MxF	15,000	1034.2	1502
4"	CE124FMA	3.750	Cushion	FxM	10,000	689.5	1002
4"	CE124MFA	3.750	Cushion	MxF	10,000	689.5	1002
4"	CE154FMA	3.500	Cushion	FxM	15,000	1034.2	1502
4"	CE154MFA	3.500	Cushion	MxF	15,000	1034.2	1502
4"x2"	CE154M152FA	3.500x1.750	Cushion	MxF	15,000	1034.2	1502
4"x2"	CE154M152MA	3.500x1.750	Cushion	MxM	15,000	1034.2	1502



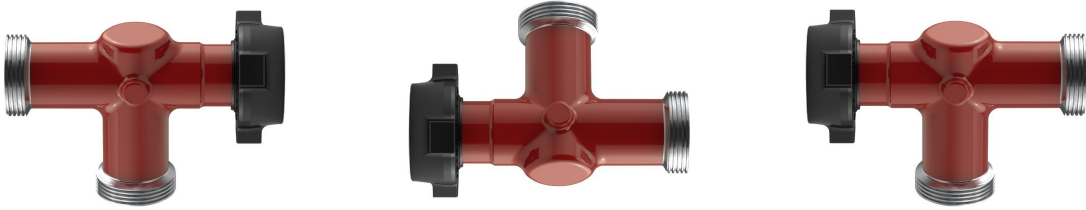
Integral Fitting Assemblies

Tees

FlowValve tees are widely used in hard plumbing applications. Our tees have an amazing repeatability for overall part length. This reliability makes it easy to hard plumb your red iron. With multiple configurations and sizes, our tees are the best way to wing up. *Special configurations available upon request.*

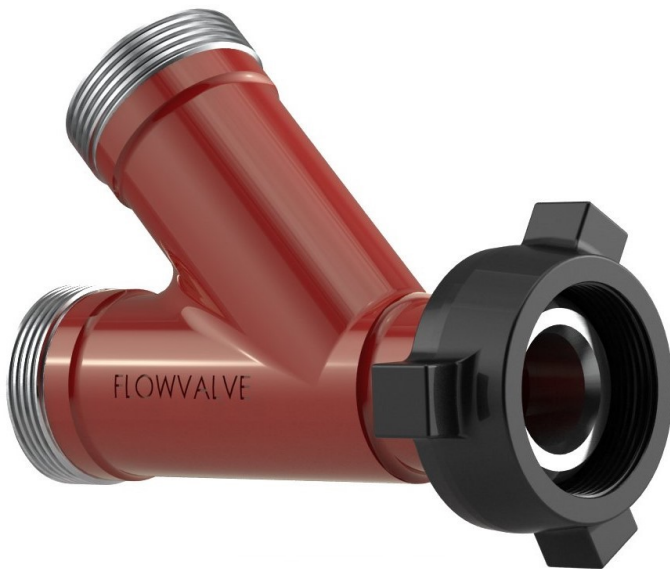
Nominal	Part #	ID (in)	Configuration	CWP (PSI)	BAR	Figure
2"	T152FFFA	1.750	FxFxF	15,000	1034.2	1502
2"	T152FFMA	1.750	FxFxM	15,000	1034.2	1502
2"	T152FMA	1.750	FxMxF	15,000	1034.2	1502
2"	T152FMMA	1.750	FxMxM	15,000	1034.2	1502
2"	T152MFFA	1.750	MxFxF	15,000	1034.2	1502
2"	T152MFMA	1.750	MxFxM	15,000	1034.2	1502
2"	T152MMMA	1.750	MxMxM	15,000	1034.2	1502
2"x2"x3"	T152F152F153MSPA	1.750x1.750x2.630	FxFxM	15,000	1034.2	1502
2"x2"x4"	T152F152F154MA	1.750x1.750x3.500	FxFxM	15,000	1034.2	1502
3"	T153FFFA	2.630	FxFxF	15,000	1034.2	1502
3"	T153FMFA	2.630	FxMxF	15,000	1034.2	1502
3"	T153FMMA	2.630	FxMxM	15,000	1034.2	1502
3"	T153MFFA	2.630	MxFxF	15,000	1034.2	1502
3"	T153MFMA	2.630	MxFxM	15,000	1034.2	1502
3"	T153MMMA	2.630	MxMxM	15,000	1034.2	1502
3"x2"x3"	T153F152F153FA	2.630x1.750x2.630	FxFxF	15,000	1034.2	1502
3"x2"x3"	T153F152M153FA	2.630x1.750x2.630	FxMxF	15,000	1034.2	1502
3"x2"x3"	T153F152M153MA	2.630x1.750x2.630	FxMxM	15,000	1034.2	1502
3"x2"x3"	T153M152F153FA	2.630x1.750x2.630	MxFxF	15,000	1034.2	1502
3"x2"x3"	T153M152F153MA	2.630x1.750x2.630	MxFxM	15,000	1034.2	1502
3"x3"x2"	T153F153M152FA	2.630x2.630x1.750	FxMxF	15,000	1034.2	1502
3"x3"x2"	T153M153F152F	2.630x2.630x1.750	MxFxF	15,000	1034.2	1502
3"x3"x2"	T153M153M152FA	2.630x2.630x1.750	MxMxF	15,000	1034.2	1502
3"x3"x4"	T153F153F124MA	2.630x2.630x3.750	FxFxM	10,000	689.5	1002
3"x3"x4"	T153F153F154MA	2.630x2.630x3.500	FxFxM	15,000	1034.2	1502
3"x4"x3"	T153F154M153FA	2.630x3.500x2.630	FxMxF	15,000	1034.2	1502
4"	T124FFFA	3.750	FxFxF	10,000	689.5	1002
4"	T124FFMA	3.750	FxFxM	10,000	689.5	1002
4"	T124FMMA	3.750	FxMxM	10,000	689.5	1002
4"	T124MFMA	3.750	MxFxM	10,000	689.5	1002

Integral Fitting Assemblies



Nominal	Part #	ID (in)	Configuration	CWP (PSI)	BAR	Figure
4"	T124MMMA	3.750	MxMxM	10,000	689.5	1002
4"	T154FFFA	3.500	FxFxF	15,000	1034.2	1502
4"	T154FFMA	3.500	FxFxM	15,000	1034.2	1502
4"	T154FMFA	3.500	FxMxF	15,000	1034.2	1502
4"	T154MFMA	3.500	MxFxM	15,000	1034.2	1502
4"	T154MMFA	3.500	MxMxF	15,000	1034.2	1502
4"	T154MMMA	3.500	MxMxM	15,000	1034.2	1502
4"x2"x2"	T124F152M152MA	3.750x1.750x1.750	FxMxM	10,000	689.5	1002
4"x2"x2"	T154F152F152FA	3.500x1.750x1.750	FxFxF	15,000	1034.2	1502
4"x2"x4"	T124F152F124MA	3.750x1.750x3.750	FxFxM	10,000	689.5	1002
4"x2"x4"	T124F152M124FA	3.750x1.750x3.750	FxMxF	10,000	689.5	1002
4"x2"x4"	T124F152M124MA	3.750x1.750x3.750	FxMxM	10,000	689.5	1002
4"x2"x4"	T154F152F154FA	3.500x1.750x3.500	FxFxF	15,000	1034.2	1502
4"x2"x4"	T154F152F154MA	3.500x1.750x3.500	FxFxM	15,000	1034.2	1502
4"x2"x4"	T154F152M154FA	3.500x1.750x3.500	FxMxF	15,000	1034.2	1502
4"x2"x4"	T154F152M154M	3.500x1.750x3.500	FxMxM	15,000	1034.2	1502
4"x3"x3"	T124F153F153FA	3.750x2.630x2.630	FxFxF	10,000	689.5	1002
4"x3"x3"	T154F153F153FA	3.500x2.630x2.630	FxFxF	15,000	1034.2	1502
4"x3"x3"	T154F153M153MA	3.500x2.630x2.630	FxMxM	15,000	1034.2	1502
4"x3"x4"	T124F153F124FA	3.750x2.630x3.750	FxFxF	10,000	689.5	1002
4"x3"x4"	T124F153F124MA	3.750x2.630x3.750	FxFxM	10,000	689.5	1002
4"x3"x4"	T124F153M124FA	3.750x2.630x3.750	FxMxF	10,000	689.5	1002
4"x3"x4"	T124F153M124MA	3.750x2.630x3.750	FxMxM	10,000	689.5	1002
4"x3"x4"	T124M153F124MA	3.750x2.630x3.750	MxFxM	10,000	689.5	1002
4"x3"x4"	T154F153F154FA	3.500x2.630x3.500	FxFxF	15,000	1034.2	1502
4"x3"x4"	T154F153F154MA	3.500x2.630x3.500	FxFxM	15,000	1034.2	1502
4"x3"x4"	T154F153M154FA	3.500x2.630x3.500	FxMxF	15,000	1034.2	1502
4"x3"x4"	T154F153M154MA	3.500x2.630x3.500	FxMxM	15,000	1034.2	1502
4"x3"x4"	T154M153F154MA	3.500x2.630x3.500	MxFxM	15,000	1034.2	1502
4"x4"x2"	T124F124M152MA	3.750x3.750x1.750	FxMxM	10,000	689.5	1002
4"x4"x2"	T124M124F152MA	3.750x3.750x1.750	MxFxM	10,000	689.5	1002
4"x4"x3"	T124F124F153FA	3.750x3.750x2.630	FxFxF	10,000	689.5	1002

Integral Fitting Assemblies



Laterals

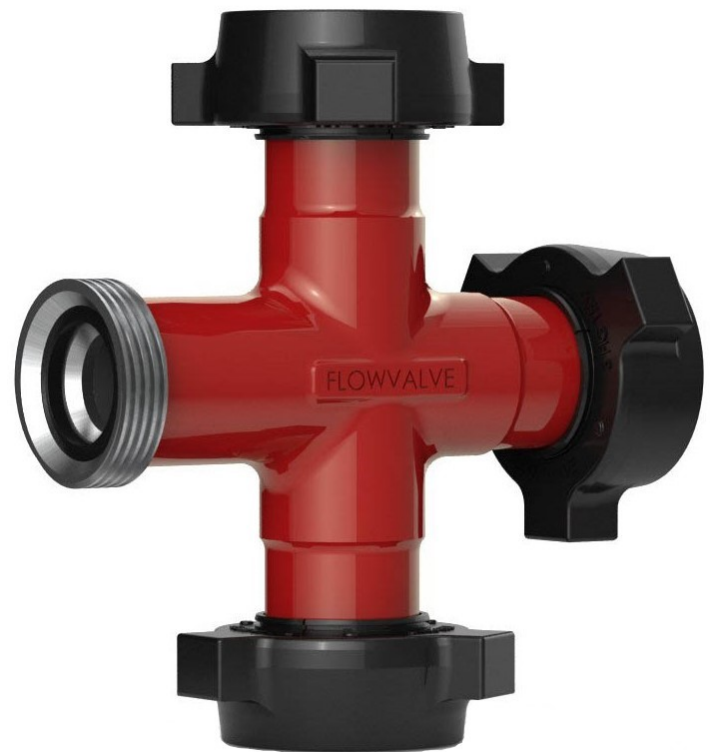
A great way to branch out. Our laterals are frequently used in fracturing manifolds and other high pressure manifolds. Each lateral is machined from U.S. forged, heat treated steel. They are available in 3" Fig 1502, 4" Fig 1502 and

Nominal	Part #	ID (in)	Configuration	CWP (PSI)	BAR	Figure
2"	L152F152F152MA	1.750	FxFxM	15,000	1034.2	1502
3"	L153F153F153FA	2.630	FxFxF	15,000	1034.2	1502
3"	L153FMMA	2.630	FxMxM	15,000	1034.2	1502
3"	L153MFFA	2.630	MxFxF	15,000	1034.2	1502
3"	L153MFMA	2.630	MxFxM	15,000	1034.2	1502
3"x3"x4"	L153F153F124MA	2.630x2.630x3.750	FxFxM	15,000	1034.2	1502
4"	L124FFMA	3.750	FxFxM	10,000	689.5	1002
4"	L124FMMA	3.750	FxMxM	10,000	689.5	1002
4"	L124MFFA	3.750	MxFxF	10,000	689.5	1002
4"	L154FFMA	3.500	FxFxM	15,000	1034.2	1502
4"x2"x4"	L124F152F124MA	3.750x1.750x3.750	FxFxM	10,000	689.5	1002
4"x2"x4"	L124M152F124FA	3.750x1.750x3.750	MxFxF	10,000	689.5	1002
4"x2"x4"	L154F152F154MA	3.500x1.750x3.500	FxFxM	15,000	1034.2	1502
4"x3"x3"	L154F153M153MA	3.500x2.630x2.630	FxMxM	15,000	1034.2	1502
4"x3"x3"	L154M153F153FA	3.500x2.630x2.630	MxFxF	15,000	1034.2	1502
4"x3"x4"	L124F153F124MA	3.750x2.630x3.750	FxFxM	10,000	689.5	1002
4"x3"x4"	L124M153F124FA	3.750x2.630x3.750	MxFxF	10,000	689.5	1002
4"x3"x4"	L154F153F154MA	3.500x2.630x3.500	FxFxM	15,000	1034.2	1502
4"x3"x4"	L154F153M154MA	3.500x2.630x3.500	FxMxM	15,000	1034.2	1502

Integral Fitting Assemblies

Crosses

A cross between precision and performance. With precision hammer unions and the best sealing technology available, our crosses are great for applications where an intersecting flow is needed. Each cross is machined from high alloy forged steel that is heat treated for long lasting performance.



Nominal	Part #	ID (in)	Configuration	CWP (PSI)	BAR	Figure
2"	CX152FFFFA	1.750	FxFxFxF	15,000	1034.2	1502
2"	CX152FFMMA	1.750	FxFxFxM	15,000	1034.2	1502
2"	CX152FFMMA	1.750	FxFxMxM	15,000	1034.2	1502
2"	CX152FMFMA	1.750	FxMxFxM	15,000	1034.2	1502
2"	CX152FMMFA	1.750	FxMxMxF	15,000	1034.2	1502
2"	CX152FMMMA	1.750	FxMxMxM	15,000	1034.2	1502
2"	CX152MMMMMA	1.750	MxMxMxM	15,000	1034.2	1502
2"x2"x2"x3"	CX152M152F152F153FA	1.750x1.750x1.750x2.630	MxFxFxF	15,000	1034.2	1502
2"x2"x2"x3"	CX152M152F152F153MA	1.750x1.750x1.750x2.630	MxFxFxM	15,000	1034.2	1502
3"	CX153FFFFA	2.630	FxFxFxF	15,000	1034.2	1502
3"	CX153FFMMA	2.630	FxFxFxM	15,000	1034.2	1502
3"	CX153FFMMA	2.630	FxFxMxM	15,000	1034.2	1502
3"	CX153FMFMA	2.630	FxMxFxM	15,000	1034.2	1502
3"	CX153FMMMA	2.630	FxMxMxM	15,000	1034.2	1502
3"x2"x3"x2"	CX153M152F153F152FA	2.630x1.750x2.630x1.750	MxFxFxF	15,000	1034.2	1502
3"x3"x3"x2"	CX153M153F153M152MA	2.630x2.630x2.630x1.750	MxFxMxM	15,000	1034.2	1502

Integral Fitting Assemblies

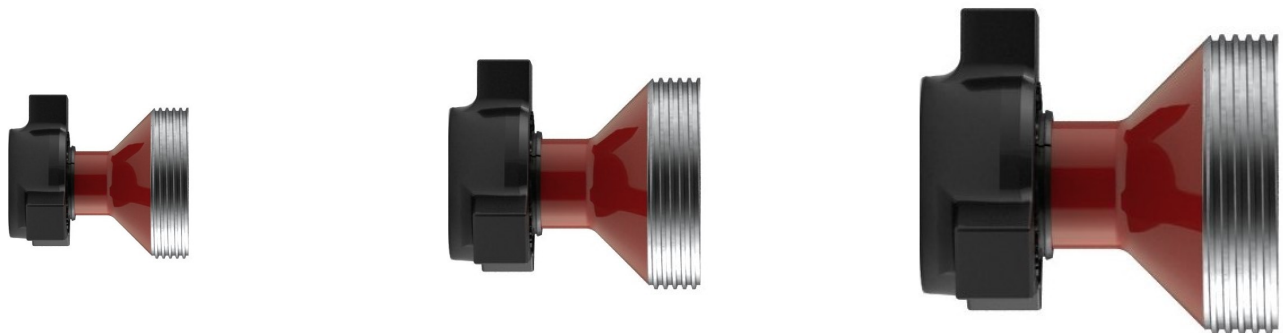
Crossovers

Change over from one size to another. We offer every combination of crossovers in 1", 1 ½", 2", 3", 4" Fig 1502, 1002, 2002, 2202, and 602 connections. We carry an assortment of crossovers in stock, and can make to order with our state of the art machining cells. *We also machine special length crossovers on request.*

Nominal	Part #	ID (in)	Configuration	CWP (PSI)	BAR	Figure
1"	X151F151FA	0.880	FxF	15,000	1034.2	1502
1"	X151FFA	0.880	FxF	15,000	1034.2	1502
1"	X151M151FA	0.880	MxF	15,000	1034.2	1502
1"	X151M151MA	0.880	MxM	15,000	1034.2	1502
1"	X151MMA	0.880	MxM	15,000	1034.2	1502
1"x1.5"	X151F1515FA	.880x1.300	FxF	15,000	1034.2	1502
1"x1.5"	X151M1515FA	.880x1.300	MxF	15,000	1034.2	1502
1"x1.5"	X151M1515MA	.880x1.300	MxM	15,000	1034.2	1502
1"x2"	X151F152FA	.880x1.750	FxF	15,000	1034.2	1502
1"x2"	X151M152FA	.880x1.750	MxF	15,000	1034.2	1502
1.5"	X1515FFA	1.300	FxF	15,000	1034.2	1502
1.5"	X1515M1515FA	1.300	MxF	15,000	1034.2	1502
1.5"	X1515M1515MA	1.300	MxM	15,000	1034.2	1502
1.5"	X1515M151FA	1.300	MxF	15,000	1034.2	1502
1.5"	X1515M15FA	1.300	MxF	15,000	1034.2	1502
1.5"	X1515MMA	1.300	MxM	15,000	1034.2	1502
1.5"x2"	X1515M152FA	1.300x1.750	MxF	15,000	1034.2	1502
2"	X152FFA	1.750	FxF	15,000	1034.2	1502
2"	X152M152FA	1.750	MxF	15,000	1034.2	1502
2"	X152M152MA	1.750	MxM	15,000	1034.2	1502
2"x1"	X152F151FA	1.750x.880	FxF	15,000	1034.2	1502
2"x1"	X152M151FA	1.750x.880	MxF	15,000	1034.2	1502
2"x1"	X152M151MA	1.750x.880	MxM	15,000	1034.2	1502
2"x1.5"	X152F1515FA	1.750x1.300	FxF	15,000	1034.2	1502
2"x1.5"	X152M1515FA	1.750x1.300	MxF	15,000	1034.2	1502
2"x1.5"	X152M1515MA	1.750x1.300	MxM	15,000	1034.2	1502
2"x3"	X152M153FA	1.750x2.630	MxF	15,000	1034.2	1502
2"x4"	X152F124FA	1.750x3.750	FxF	10,000	689.5	1002
2"x4"	X152M124FA	1.750x3.750	MxF	10,000	689.5	1002
2"x4"	X152M124MA	1.750x3.750	MxM	10,000	689.5	1002
2"x4"	X152M154FA	1.750x3.500	MxF	15,000	1034.2	1502

Integral Fitting Assemblies

Nominal	Part #	ID (in)	Configuration	CWP (PSI)	BAR	Figure
3"	X153F153FA	2.630	FxF	15,000	1034.2	1502
3"	X153M153FA	2.630	MxF	15,000	1034.2	1502
3"	X153M153MA	2.630	MxM	15,000	1034.2	1502
3"x1.5"	X153M1515FA	2.630x1.300	MxF	15,000	1034.2	1502
3"x2"	X153F152FA	2.630x1.750	FxF	15,000	1034.2	1502
3"x2"	X153M152FA	2.630x1.750	MxF	15,000	1034.2	1502
3"x2"	X153M152MA	2.630x1.750	MxM	15,000	1034.2	1502
3"x4"	X153F124FA	2.630x3.750	FxF	10,000	689.5	1002
3"x4"	X153F154FA	2.630x3.500	FxF	15,000	1034.2	1502
3"x4"	X153M124FA	2.630x3.750	MxF	10,000	689.5	1002
3"x4"	X153M124MA	2.630x3.750	MxM	10,000	689.5	1002
3"x4"	X153M154FA	2.630x3.500	MxF	15,000	1034.2	1502
3"x4"	X154M153MA	2.630x3.500	MxM	15,000	1034.2	1502
4"	X124F124FA	3.750	FxF	10,000	689.5	1002
4"	X124M124FA	3.750	MxF	10,000	689.5	1002
4"	X124M124MA	3.750	MxM	10,000	689.5	1002
4"	X124M154FA	3.750x3.500	MxF	10,000	689.5	1002
4"	X154F124FA	3.500x3.750	FxF	10,000	689.5	1002
4"	X154F154FA	3.500	FxF	15,000	1034.2	1502
4"	X154M124FA	3.500x3.750	MxF	10,000	689.5	1002
4"	X154M154FA	3.500	MxF	15,000	1034.2	1502
4"	X154M154MA	3.500	MxM	15,000	1034.2	1502
4"x2"	X124M152FA	3.750x1.750	MxF	10,000	689.5	1002
4"x2"	X154F152FA	3.500x1.750	FxF	15,000	1034.2	1502
4"x2"	X154M152FA	3.500x1.750	MxF	15,000	1034.2	1502
4"x2"	X154M152MA	3.500x1.750	MxM	15,000	1034.2	1502
4"x3"	X124F153FA	3.750x2.630	FxF	10,000	689.5	1002
4"x3"	X124M153FA	3.750x2.630	MxF	10,000	689.5	1002
4"x3"	X124M153MA	3.750x2.630	MxM	10,000	689.5	1002
4"x3"	X154M153FA	3.500x2.630	MxF	15,000	1034.2	1502



Pup Joint Assemblies

NPST Pup Joints



The design of the NPST pup joint takes end connections and attaches them to threaded pipe. The quality of these parts is critical to form and function. Our process is designed for a seamless integration between pipe and union. It's hard to tell where one part begins and the other ends.

Our standard pup joints come in a variety of lengths from one foot to twenty feet. We also make custom lengths everywhere in between. At FlowValve, we are certain that getting the perfect fit is easy with size configurations offered in 2", 3", 4" Fig 1502 and 4" Fig 1002.

Saying our NPST pup joint production process is efficient is an understatement. From saw cutting to shipping, our industrial engineers mapped the most streamlined production processes. We reviewed every detail and designed a system that makes FlowValve's flowline flow.

Nominal	Length	Part #	ID (in)	Type	Configuration	Wing	CWP (PSI)	BAR	Figure
2"	10'	30152MF-120A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	1'	30152MF-12A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	12'	30152MF-144A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	13'	30152MF-156A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	15'	30152MF-180A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	20'	30152MF-240A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	2'	30152MF-24A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	3'	30152MF-36A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	4'	30152MF-48A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	5'	30152MF-60A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	6'	30152MF-72A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	7'	30152MF-84A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	8'	30152MF-96A	1.690	NPST	MxF	Non-Detch	15,000	1034.2	1502
2"	10'	30152MFD-120A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	1'	30152MFD-12A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	12'	30152MFD-144A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	15'	30152MFD-180A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	20'	30152MFD-240A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	2'	30152MFD-24A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	3'	30152MFD-36A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502

Pup Joint Assemblies

**** Special Lengths and Configurations Available Upon Request ****



Nominal	Length	Part #	ID (in)	Type	Configuration	Wing	CWP (PSI)	BAR	Figure
2"	4'	30152MFD-48A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	5'	30152MFD-60A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	6'	30152MFD-72A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
2"	8'	30152MFD-96A	1.690	NPST	MxF	Detachable	15,000	1034.2	1502
3"	10'	30153XMF-120A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	1'	30153XMF-12A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	15'	30153XMF-180A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	2'	30153XMF-24A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	3'	30153XMF-36A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	4'	30153XMF-48A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	5'	30153XMF-60A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	6'	30153XMF-72A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	7'	30153XMF-84A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	8'	30153XMF-96A	2.620	NPST	MxF	Non-Detch	15,000	1034.2	1502
3"	10'	30153XMFD-120A	2.620	NPST	MxF	Detachable	15,000	1034.2	1502
3"	2'	30153XMFD-24A	2.620	NPST	MxF	Detachable	15,000	1034.2	1502
3"	3'	30153XMFD-36A	2.620	NPST	MxF	Detachable	15,000	1034.2	1502
3"	4'	30153XMFD-48A	2.620	NPST	MxF	Detachable	15,000	1034.2	1502
3"	6'	30153XMFD-72A	2.620	NPST	MxF	Detachable	15,000	1034.2	1502

Pup Joint Assemblies

NPST Pup Joints



Nominal	Length	Part #	ID (in)	Type	Configuration	Wing	CWP (PSI)	BAR	Figure
4"	10'	30124MF-120A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	1'	30124MF-12A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	12'	30124MF-144A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	15'	30124MF-180A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	20'	30124MF-240A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	2'	30124MF-24A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	3'	30124MF-36A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	4'	30124MF-48A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	5'	30124MF-60A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	6'	30124MF-72A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	7'	30124MF-84A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	8'	30124MF-96A	3.600	NPST	MxF	Non-Detch	10,000	689.5	1002
4"	10'	30154MF-120A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	1'	30154MF-12A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	12'	30154MF-144A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	15'	30154MF-180A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	20'	30154MF-240A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	2'	30154MF-24A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	3'	30154MF-36A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	4'	30154MF-48A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	5'	30154MF-60A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	6'	30154MF-72A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	7'	30154MF-84A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502
4"	8'	30154MF-96A	3.500	NPST	MxF	Detachable	15,000	1034.2	1502

**** Special Lengths and Configurations Available Upon Request ****

Pup Joint Assemblies

Integral Pup Joints

Our integral (*one piece*) pup joints are manufactured from *seamless* alloy steel tubing. The process of *hot upset forging* and heat treating provides remarkable grain structure and *tensile strength*. Then they are precisely machined to comply with our high quality standards. They are designed for longevity, with optimal wall thickness to provide erosion resistance.

Nominal	Length	Part #	ID (in)	Type	Configuration	Wing	CWP (PSI)	BAR	Figure
2"	10'	IP152MF-120A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
2"	2'	IP152MF-24A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
2"	3'	IP152MF-36A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
2"	4'	IP152MF-48A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
2"	5'	IP152MF-60A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
2"	6'	IP152MF-72A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
2"	8'	IP152MF-96A	1.750	INT	MxF	Detachable	15,000	1034.2	1502
3"	10'	IP153MF-120A	2.500	INT	MxF	Detachable	15,000	1034.2	1502
3"	2'	IP153MF-24A	2.500	INT	MxF	Detachable	15,000	1034.2	1502
3"	3'	IP153MF-36A	2.500	INT	MxF	Detachable	15,000	1034.2	1502
3"	4'	IP153MF-48A	2.500	INT	MxF	Detachable	15,000	1034.2	1502
3"	5'	IP153MF-60A	2.500	INT	MxF	Detachable	15,000	1034.2	1502
3"	6'	IP153MF-72A	2.500	INT	MxF	Detachable	15,000	1034.2	1502
3"	8'	IP153MF-96A	2.500	INT	MxF	Detachable	15,000	1034.2	1502



Pup Joint Assemblies

Blast Joints

These are heavy wall *integral* joints that minimize the effect of internal and external erosive actions. Blast joints are often used in dual completions or in high *proppant laden* frac fluid situations.



**** Special Lengths and Configurations Available Upon Request ****

Nominal	Part #	ID (in)	Length	Configuration	CWP (PSI)	BAR	Figure
2"	B152MF-11A	1.750	11"	MxF	15,000	1034.2	1502
2"	B152MF-13A	1.750	13"	MxF	15,000	1034.2	1502
2"	B152MF-23A	1.750	23"	MxF	15,000	1034.2	1502
2"	B152MF-28SPA	1.750	28"	MxF	15,000	1034.2	1502
2"	B152MF-24A	1.750	24"	MxF	15,000	1034.2	1502
3"	B153MF-29A	2.630	29"	MxF	15,000	1034.2	1502
3"	B153MF-12A	2.630	12"	MxF	15,000	1034.2	1502
3"	B153MF-14A	2.630	14"	MxF	15,000	1034.2	1502
3"	B153MF-15A	2.630	15"	MxF	15,000	1034.2	1502
3"	B153MF-16A	2.630	16"	MxF	15,000	1034.2	1502
3"	B153MF-24A	2.630	24"	MxF	15,000	1034.2	1502
3"	B153MF-46A	2.630	46"	MxF	15,000	1034.2	1502
3"	B153MF-48A	2.630	48"	MxF	15,000	1034.2	1502
3"	B153MF-65A	2.630	65"	MxF	15,000	1034.2	1502
3"	B153MF-72A	2.630	72"	MxF	15,000	1034.2	1502
4"	B154MF-12A	3.500	12"	MxF	15,000	1034.2	1502
4"	B154MF-16A	3.500	16"	MxF	15,000	1034.2	1502
4"	B154MF-24A	3.500	24"	MxF	15,000	1034.2	1502
4"	B154MF-9A	3.500	9"	MxF	15,000	1034.2	1502

Plug Assemblies

Hose Loops

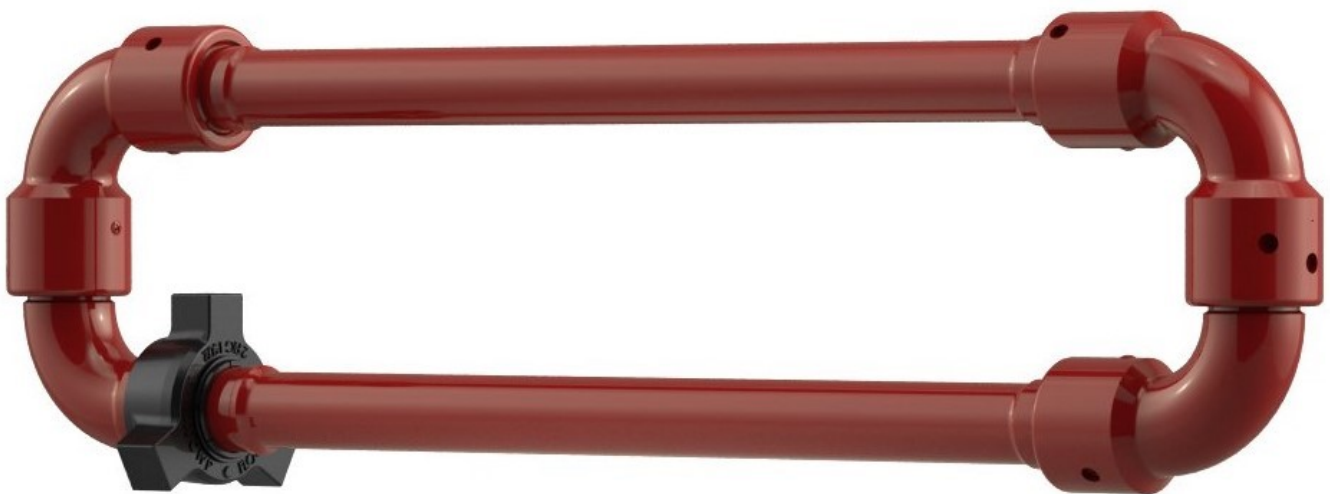
FlowValve hose loops are used in a wide variety of well service applications, such as circulating lines, water lines, discharge lines, well test lines and temporary flow lines. Our hose loops are used most extensively for primary and secondary cementing operations.

Different jobs require different solutions, and that is why we offer our hose loops in 8', 10' and 12' lengths. This variety of lengths gives you the opportunity to choose the right products for your job.

Implementing an innovative and unique swivel joint technology, FlowValve hose loops can easily move in any lateral direction. The swivel joint used in our hose loops is also used to control vibration and absorb shock. Once you try our hose loops, you will want to use them forever.

FlowValve hose loops are made from high alloy U.S. steel. Our new advanced material results in better heat treatment and more durable products. With this new material, we have been able to extend the life of our hose loops even further.

Nominal	Part #	ID (in)	Length	Configuration	CWP (PSI)	BAR	Figure	Repair Kit	Seal-Only Kit	Kit Qty
2"	2A152MF8	1.750	8'	MxF	15,000	1034.2	1502	20152R1	20152P1	6
2"	2A152MF10	1.750	10'	MxF	15,000	1034.2	1502	20152R1	20152P1	6
2"	2A152MF12	1.750	12'	MxF	15,000	1034.2	1502	20152R1	20152P1	6



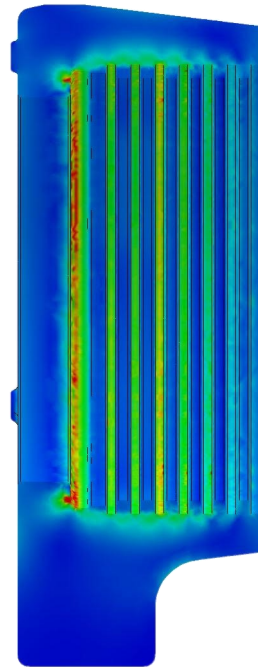
XD Wing Technology

Standard Wing

VS.

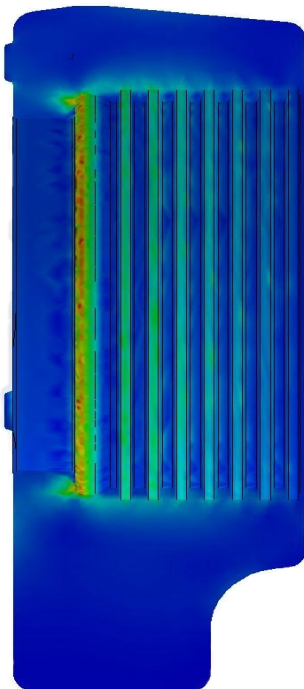
Extreme Duty Wing

The finite element analysis at **right** highlights the common fatigue areas of a **standard duty wing**. The most common failure point is the third thread from the wing face. This is generally where the wing will split in half and fail.



Standard Wing FEA

XD Wing FEA



The finite element analysis at **left** represents FlowValve’s Extreme Duty or “**XD Wing**”. The high stress area in the third thread has been reduced to help eliminate failures. This reduction in stress provides the pressure pumper with peace of mind during pumping activities.

The **FlowValve XD Wing** is available on all 3” 1502 products and **seamlessly integrates** with your **standard 3” threaded iron**. No crossovers or special “threaded” pieces are required in your rig-up!

Upon special request, FlowValve offers equivalent HD connections produced by various other manufacturers to help support our customers. However, it is recommended that our XD option be utilized in lieu of HD.

Plug Assemblies

Bull Plugs & Gage Plugs



Nominal	Part #	Type	Tap ID (in)	Config.	CWP (PSI)	BAR	Figure
1"	FB151A	Bull Plug	N/A	F	15,000	1034.2	1502
1"	MB151A	Bull Plug	N/A	M	15,000	1034.2	1502
1"	FG151A-.50	Gage Plug	1/2	F	15,000	1034.2	1502
1"	FG151A-1	Gage Plug	1	F	15,000	1034.2	1502
1"	FG151A-916	Gage Plug	9/16	F	15,000	1034.2	1502
1"	MG151A	Gage Plug	9/16	M	15,000	1034.2	1502
1"	MG151A-.50	Gage Plug	1/2	M	15,000	1034.2	1502
1"	MG151A-1	Gage Plug	1	M	15,000	1034.2	1502
1"	MG151A-916	Gage Plug	9/16	M	15,000	1034.2	1502
1.5"	FB1515A	Bull Plug	N/A	F	15,000	1034.2	1502
1.5"	MB1515A	Bull Plug	N/A	M	15,000	1034.2	1502
1.5"	FG1515A-.50	Gage Plug	1/2	F	15,000	1034.2	1502
1.5"	FG1515A-1	Gage Plug	1	F	15,000	1034.2	1502
1.5"	FG1515A-916	Gage Plug	9/16	F	15,000	1034.2	1502
1.5"	MG1515A-.50	Gage Plug	1/2	M	15,000	1034.2	1502
1.5"	MG1515A-1	Gage Plug	1	M	15,000	1034.2	1502
1.5"	MG1515A-916	Gage Plug	9/16	M	15,000	1034.2	1502
2"	FB152A	Bull Plug	N/A	F	15,000	1034.2	1502
2"	MB152A	Bull Plug	N/A	M	15,000	1034.2	1502
2"	FG152A-.50	Gage Plug	1/2	F	15,000	1034.2	1502
2"	FG152A-1	Gage Plug	1	F	15,000	1034.2	1502
2"	FG152A-916	Gage Plug	9/16	F	15,000	1034.2	1502
2"	MG152-.50	Gage Plug	1/2	M	15,000	1034.2	1502
2"	MG152A-.50	Gage Plug	1/2	M	15,000	1034.2	1502

Plug Assemblies

Bull Plugs & Gage Plugs



Nominal	Part #	Type	Tap ID (in)	Config.	CWP (PSI)	BAR	Figure
2"	MG152A-1	Gage Plug	1	M	15,000	1034.2	1502
2"	MG152A-916	Gage Plug	9/16	M	15,000	1034.2	1502
3"	FB153A	Bull Plug	N/A	F	15,000	1034.2	1502
3"	MB153A	Bull Plug	N/A	M	15,000	1034.2	1502
3"	FG153A-.50	Gage Plug	1/2	F	15,000	1034.2	1502
3"	FG153A-1	Gage Plug	1	F	15,000	1034.2	1502
3"	FG153A-916	Gage Plug	9/16	F	15,000	1034.2	1502
3"	MG153A-.50	Gage Plug	1/2	M	15,000	1034.2	1502
3"	MG153A-1	Gage Plug	1	M	15,000	1034.2	1502
3"	MG153A-1.125	Gage Plug	1-1/8	M	15,000	1034.2	1502
3"	MG153A-916	Gage Plug	9/16	M	15,000	1034.2	1502
4"	FB154A	Bull Plug	N/A	F	15,000	1034.2	1502
4"	FB124A	Bull Plug	N/A	F	10,000	689.5	1002
4"	MB124A	Bull Plug	N/A	M	10,000	689.5	1002
4"	MB154A	Bull Plug	N/A	M	15,000	1034.2	1502
4"	FG124A-.50	Gage Plug	1/2	F	10,000	689.5	1002
4"	FG124A-1	Gage Plug	1	F	10,000	689.5	1002
4"	FG124A-916	Gage Plug	9/16	F	10,000	689.5	1002
4"	FG154A-.50	Gage Plug	1/2	F	15,000	1034.2	1502
4"	FG154A-1	Gage Plug	1	F	15,000	1034.2	1502
4"	FG154A-916	Gage Plug	9/16	F	15,000	1034.2	1502
4"	MG124A-.50	Gage Plug	1/2	M	10,000	689.5	1002
4"	MG124A-1	Gage Plug	1	M	10,000	689.5	1002
4"	MG124A-916	Gage Plug	9/16	M	10,000	689.5	1002
4"	MG154A-.50	Gage Plug	1/2	M	15,000	1034.2	1502
4"	MG154A-1	Gage Plug	1	M	15,000	1034.2	1502
4"	MG154A-916	Gage Plug	9/16	M	15,000	1034.2	1502

Wing Nut Assemblies

Hammer Union Wings



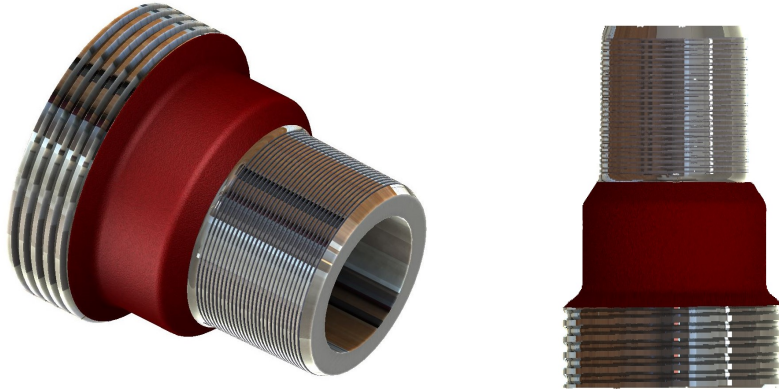
Nominal	Part #	Type	Config.	CWP (PSI)	BAR	Figure
1.5"	N1515	Wing	Male	15,000	1034.2	1502
1"	N151	Wing	Male	15,000	1034.2	1502
2"	N152	Wing	Male	15,000	1034.2	1502
3"	N153	Wing	Male	15,000	1034.2	1502
3"	N153HD	Wing	Male	15,000	1034.2	1502
4"	N124	Wing	Male	10,000	689.5	1002
4"	N154	Wing	Male	15,000	1034.2	1502

The design of the FlowValve wing takes end connections and attaches them seamlessly. The quality of these parts are critical to form and function. Our process is designed for a uniform integration between union connections. It's hard to tell where one part begins and the other ends.



Swage Assemblies

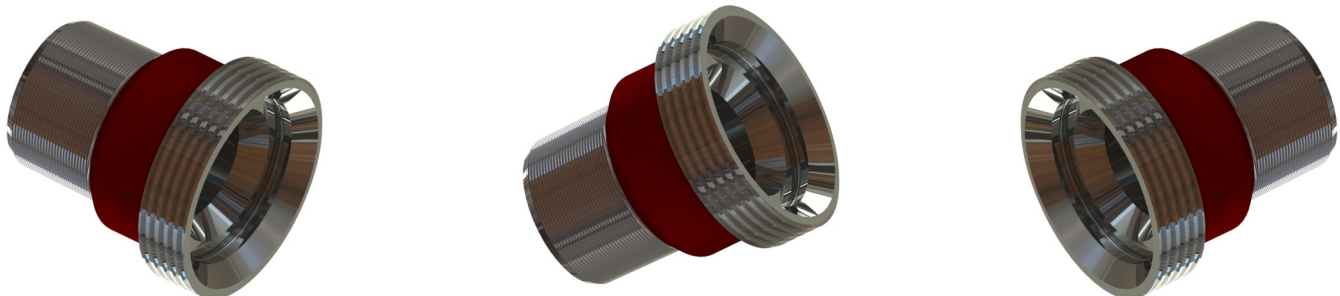
Swages



Nominal	Part #	Description
1"	SW151F15LA	SWAGE 1" FIG 1502 FEMALE X 1 1/2" NPT THREAD
1"	SW151F1LA	SWAGE 1" FIG 1502 FEMALE X 1" NPT THREAD
1"	SW151F238A	SWAGE 1" FIG 1502 FEMALE X 2 3/8" EUE 10 RND THREAD
1"	SW151F278EA	SWAGE 1" FIG 1502 FEMALE X 2 7/8" EUE 8 RND THREAD
1"	SW151F2LA	SWAGE 1" FIG 1502 FEMALE X 2" NPT THREAD
1"	SW151F35EA	SWAGE 1" FIG 1502 FEMALE X 3 1/2" EUE 8 RND THREAD
1"	SW151F75LA	SWAGE 1" FIG 1502 FEMALE X 3/4" NPT THREAD
1"	SW151M15LA	SWAGE 1" FIG 1502 MALE X 1 1/2" NPT THREAD
1"	SW151M1LA	SWAGE 1" FIG 1502 MALE X 1" NPT THREAD
1"	SW151M238A	SWAGE 1" FIG 1502 MALE X 2 3/8" EUE 10 RND THREAD
1"	SW151M278EA	SWAGE 1" FIG 1502 MALE X 2 7/8" EUE 8 RND THREAD
1"	SW151M2LA	SWAGE 1" FIG 1502 MALE X 2" NPT THREAD
1"	SW151M35EA	SWAGE 1" FIG 1502 MALE X 3 1/2" EUE 8 RND THREAD
1"	SW151M75LA	SWAGE 1" FIG 1502 MALE X 3/4" NPT THREAD
1"	SW151F238EA	SWAGE 1" FIG 1502 FEMALE X 2 3/8" EUE 8 RND THREAD
1.5"	SW1515F1LA	SWAGE 1 1/2" FIG 1502 FEMALE X 1" NPT THREAD
1.5"	SW1515F238EA	SWAGE 1 1/2" FIG 1502 FEMALE X 2 3/8" EUE 8 RND THREAD
1.5"	SW1515F278EA	SWAGE 1 1/2" FIG 1502 FEMALE X 2 7/8" EUE 8 RND THREAD
1.5"	SW1515F2LA	SWAGE 1 1/2" FIG 1502 FEMALE X 2" NPT THREAD
1.5"	SW1515F35EA	SWAGE 1 1/2" FIG 1502 FEMALE X 3 1/2" EUE 8 RND THREAD
1.5"	SW1515F55SCA	SWAGE 1 1/2" FIG 1502 FEMALE X 3 1/2" SHORT CASING 8 RND THREAD
1.5"	SW1515M1LA	SWAGE 1 1/2" FIG 1502 MALE X 1" NPT THREAD
1.5"	SW1515M238EA	SWAGE 1 1/2" FIG 1502 MALE X 2 3/8" EUE 8 RND THREAD
1.5"	SW1515M278EA	SWAGE 1 1/2" FIG 1502 MALE X 2 7/8" EUE 8 RND THREAD
1.5"	SW1515M2LA	SWAGE 1 1/2" FIG 1502 MALE X 2" NPT THREAD
1.5"	SW1515M55SCA	SWAGE 1 1/2" FIG 1502 MALE X 5 1/2" SHORT CASING 8 RND THREAD
2"	SW152F15LA	SWAGE 2" FIG 1502 FEMALE X 1 1/2" NPT THREAD
2"	SW152F1LA	SWAGE 2" FIG 1502 FEMALE X 1" NPT THREAD
2"	SW152F238EA	SWAGE 2" FIG 1502 FEMALE X 2 3/8" EUE 8 RND THREAD

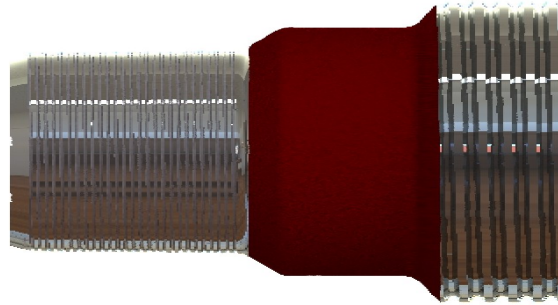
Swage Assemblies

Nominal	Part #	Description
2"	SW152F278EA	SWAGE 2" FIG 1502 FEMALE X 2 7/8" EUE 8 RND THREAD
2"	SW152F2LA	SWAGE 2" FIG 1502 FEMALE X 2" NPT THREAD
2"	SWG152F2LA	SWAGE 2" FIG 1502 FEMALE X 2" NPT THREAD WITH 1/2" TAP
2"	SW152F35EA	SWAGE 2" FIG 1502 FEMALE X 3 1/2" EUE 8 RND THREAD
2"	SW152F3LA	SWAGE 2" FIG 1502 FEMALE X 3" NPT THREAD
2"	SW152F45EA	SWAGE 2" FIG 1502 FEMALE X 4 1/2" EUE 8 RND THREAD
2"	SW152F45SCA	SWAGE 2" FIG 1502 FEMALE X 4 1/2" SHORT CASING 8 RND THREAD
2"	SW152F4LA	SWAGE 2" FIG 1502 FEMALE X 4" NPT THREAD
2"	SW152F55SCA	SWAGE 2" FIG 1502 FEMALE X 5 1/2" SHORT CASING 8 RND THREAD
2"	SW152F7SCA	SWAGE 2" FIG 1502 FEMALE X 7" IN SHORT CASING 8 RND THREAD
2"	SW152F858SCA	SWAGE 2" FIG 1502 FEMALE X 8 5/8" SHORT CASING 8RND THREAD W/ THRU HOLE
2"	SW152F958SCA	SWAGE 2" FIG 1502 FEMALE X 9 5/8" IN SHORT CASING 8 RND THREAD
2"	SW152M15LA	SWAGE 2" FIG 1502 MALE X 1 1/2" NPT THREAD
2"	SW152M1LA	SWAGE 2" FIG 1502 MALE X 1" NPT THREAD
2"	SW152M238EA	SWAGE 2" FIG 1502 MALE X 2 3/8" EUE 8 RND THREAD
2"	SW152M278EA	SWAGE 2" FIG 1502 MALE X 2 7/8" EUE 8 RND THREAD
2"	SW152M2LA	SWAGE 2" FIG 1502 MALE X 2" NPT THREAD
2"	SW152M35EA	SWAGE 2" FIG 1502 MALE X 3 1/2" EUE 8 RND THREAD
2"	SW152M3LA	SWAGE 2" FIG 1502 MALE X 3" NPT THREAD
2"	SW152M45EA	SWAGE 2" FIG 1502 MALE X 4 1/2" EUE 8 RND THREAD
2"	SW152M45SCA	SWAGE 2" FIG 1502 MALE X 4 1/2" SHORT CASING 8 RND THREAD
2"	SW152M4LA	SWAGE 2" FIG 1502 MALE X 4" NPT THREAD
2"	SW152M55SCA	SWAGE 2" FIG 1502 MALE X 5 1/2" SHORT CASING 8 RND THREAD
2"	SW152M7SCA	SWAGE 2" FIG 1502 MALE X 7" SHORT CASING 8 RND THREAD
2"	SW152M958SCA	SWAGE 2" FIG 1502 MALE X 9 5/8" SHORT CASING 8 RND THREAD
3"	SW153F238EA	SWAGE 3" FIG 1502 FEMALE X 2 3/8" EUE 8 RND THREAD
3"	SW153F278EA	SWAGE 3" FIG 1502 FEMALE X 2 7/8" EUE 8 RND THREAD
3"	SW153F2LA	SWAGE 3" FIG 1502 FEMALE X 2" NPT THREAD
3"	SW153F35EA	SWAGE 3" FIG 1502 FEMALE X 3 1/2" EUE 8 RND THREAD
3"	SW153F3LA	SWAGE 3" FIG 1502 FEMALE X 3" NPT THREAD



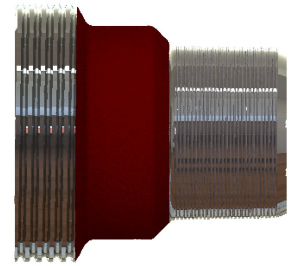
Swage Assemblies

Swages



Nominal	Part #	Description
3"	SW153F45SCA	SWAGE 3" FIG 1502 FEMALE X 4 1/2" SHORT CASING 8 RND THREAD
3"	SW153F4LA	SWAGE 3" FIG 1502 FEMALE X 4" NPT THREAD
3"	SW153F55SCA	SWAGE 3" FIG 1502 FEMALE X 5 1/2" SHORT CASING 8 RND THREAD
3"	SW153F7SCA	SWAGE 3" FIG 1502 FEMALE X 7" SHORT CASING 8 RND THREAD
3"	SW153F958SCA	SWAGE 3" FIG 1502 FEMALE X 9 5/8" SHORT CASING 8 RND THREAD
3"	SW153M238A	SWAGE 3" FIG 1502 MALE X 2 3/8" EUE 10 RND THREAD
3"	SW153M238EA	SWAGE 3" FIG 1502 MALE X 2 3/8" EUE 8 RND THREAD
3"	SW153M278EA	SWAGE 3" FIG 1502 MALE X 2 7/8" EUE 8 RND THREAD
3"	SW153M2LA	SWAGE 3" FIG 1502 MALE X 2" NPT THREAD
3"	SW153M35EA	SWAGE 3" FIG 1502 MALE X 3 1/2" EUE 8 RND THREAD
3"	SW153M3LA	SWAGE 3" FIG 1502 MALE X 3" NPT THREAD
3"	SW153M45EA	SWAGE 3" FIG 1502 MALE X 4 1/2" EUE 8 RND THREAD
3"	SW154M45NA	SWAGE 3" FIG 1502 MALE X 4 1/2" NUE 8 RND THREAD
3"	SW153M45SCA	SWAGE 3" FIG 1502 MALE X 4 1/2" SHORT CASING 8 RND THREAD
3"	SW154M45SCA	SWAGE 3" FIG 1502 MALE X 4 1/2" SHORT CASING 8 RND THREAD
3"	SW153M4LA	SWAGE 3" FIG 1502 MALE X 4" NPT THREAD
3"	SW153M55SCA	SWAGE 3" FIG 1502 MALE X 5 1/2" SHORT CASING 8 RND THREAD
3"	SW153M7SCA	SWAGE 3" FIG 1502 MALE X 7" SHORT CASING 8 RND THREAD
3"	SW153M958SCA	SWAGE 3" FIG 1502 MALE X 9 5/8" SHORT CASING 8 RND THREAD
4"	SW124F238EA	SWAGE 4" FIG 1002 FEMALE X 2 3/8" EUE 8 RND THREAD
4"	SW124F278EA	SWAGE 4" FIG 1002 FEMALE X 2 7/8" EUE 8 RND THREAD
4"	SW124F2LA	SWAGE 4" FIG 1002 FEMALE X 2" NPT THREAD
4"	SW124F35EA	SWAGE 4" FIG 1002 FEMALE X 3 1/2" EUE 8 RND THREAD
4"	SW124F3LA	SWAGE 4" FIG 1002 FEMALE X 3" NPT THREAD
4"	SW124F45NA	SWAGE 4" FIG 1002 FEMALE X 4 1/2" EUE 8 RND THREAD
4"	SW124F45SCA	SWAGE 4" FIG 1002 FEMALE X 4 1/2" SHORT CASING 8 RND THREAD
4"	SW124F4LA	SWAGE 4" FIG 1002 FEMALE X 4" NPT THREAD
4"	SW124F55SCA	SWAGE 4" FIG 1002 FEMALE X 5 1/2' SHORT CASING 8 RND THREAD
4"	SW124F7SCA	SWAGE 4" FIG 1002 FEMALE X 7" SHORT CASING 8 RND THREAD
4"	SW124M238EA	SWAGE 4" FIG 1002 MALE X 2 3/8" EUE 8 RND THREAD

Swage Assemblies

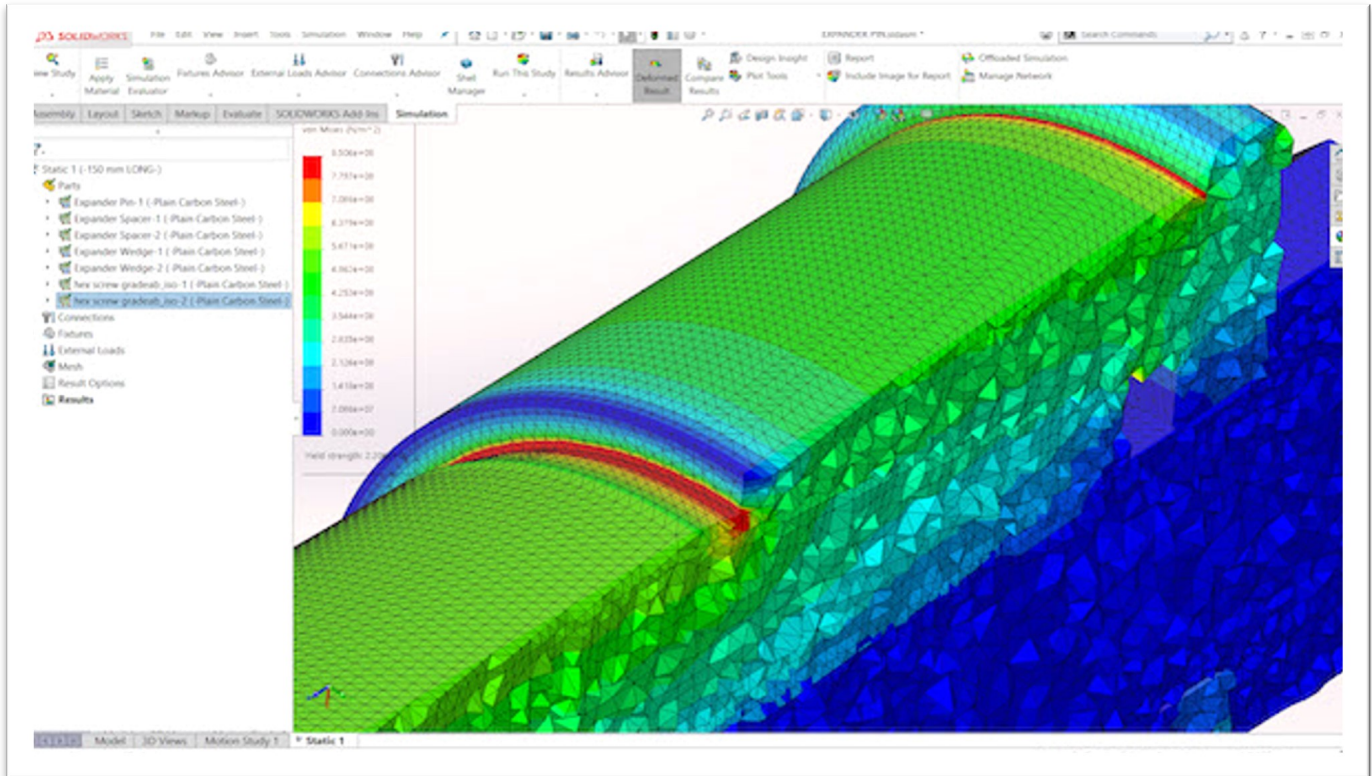


Nominal	Part #	Description
4"	SW124M278EA	SWAGE 4" FIG 1002 MALE X 2 7/8" EUE 8 RND THREAD
4"	SW124M2LA	SWAGE 4" FIG 1002 MALE X 2" NPT THREAD
4"	SW124M35EA	SWAGE 4" FIG 1002 MALE X 3 1/2" EUE 8 RND THREAD
4"	SW124M3LA	SWAGE 4" FIG 1002 MALE X 3" NPT THREAD
4"	SW124M45SCA	SWAGE 4" FIG 1002 MALE X 4 1/2" SHORT CASING 8 RND THREAD
4"	SW124M4LA	SWAGE 4" FIG 1002 MALE X 4" NPT THREAD
4"	SW124M55SCA	SWAGE 4" FIG 1002 MALE X 5 1/2" SHORT CASING 8 RND THREAD
4"	SW124M7SCA	SWAGE 4" FIG 1002 MALE X 7" SHORT CASING 8 RND THREAD
4"	SW154F238E	SWAGE 4" FIG 1502 FEMALE X 2 3/8" EUE 8 RND THREAD
4"	SW154F238EA	SWAGE 4" FIG 1502 FEMALE X 2 3/8" EUE 8 RND THREAD
4"	SW154F278E	SWAGE 4" FIG 1502 FEMALE X 2 7/8" EUE 8 RND THREAD
4"	SW154F278EA	SWAGE 4" FIG 1502 FEMALE X 2 7/8" EUE 8 RND THREAD
4"	SW154F45E	SWAGE 4" FIG 1502 FEMALE X 4 1/2" EUE 8 RND THREAD
4"	SW154F45EA	SWAGE 4" FIG 1502 FEMALE X 4 1/2" EUE 8 RND THREAD
4"	SW154F45NA	SWAGE 4" FIG 1502 FEMALE X 4 1/2" NUE 8 RND THREAD
4"	SW154F45SCA	SWAGE 4" FIG 1502 FEMALE X 4 1/2" SHORT CASING 8 RND THREAD
4"	SW154F55SCA	SWAGE 4" FIG 1502 FEMALE X 5 1/2" SHORT CASING 8 RND THREAD
4"	SW154F7SCA	SWAGE 4" FIG 1502 FEMALE X 7" SC 8 RND THREAD
4"	SW624F238EA	SWAGE 4" FIG 602 FEMALE X 2 3/8" EUE 8 RND THREAD
4"	SW624F278EA	SWAGE 4" FIG 602 FEMALE X 2 7/8" EUE 8 RND THREAD
4"	SW624F2LA	SWAGE 4" FIG 602 FEMALE X 2" NPT THREAD
4"	SW624F35EA	SWAGE 4" FIG 602 FEMALE X 3 1/2" EUE 8 RND THREAD
4"	SW624F3LA	SWAGE 4" FIG 602 FEMALE X 3" NPT THREAD
4"	SW624F45SCA	SWAGE 4" FIG 602 FEMALE X 4 1/2" SHORT CASING 8 RND THREAD
4"	SW624F4LA	SWAGE 4" FIG 602 FEMALE X 4" NPT THREAD
4"	SW624F55SCA	SWAGE 4" FIG 602 FEMALE X 5 1/2" SHORT CASING 8 RND THREAD
4"	SW624F7SCA	SWAGE 4" FIG 602 FEMALE X 7" SHORT CASING 8 RND THREAD

**** Special Configurations & Lengths Available Upon Request ****

Product Innovation

Engineering & Innovation



At FlowValve we are constantly innovating. Through engineering, design and field trials, we work to ensure that the flowline market does not remain stagnant. We are always looking for better ways to reduce costs associated with pressure pumping. Partnering with our customers to bring innovative products to market is our forte. If you have an idea that would save your organization money and would like to see it come to fruition, contact us to make it happen!

Material Traceability



MTR Report

Invoice Number: 12345 Customer PO: 007 Date Tested: 10 December 20XX
Assembly Serial Number: 8675309 Assembly Item: T154FFMA

Description:
TEE ASSEMBLY 4" FIG 1502 FEMALE X FEMALE X MALE

Qty	Assembly	Heat Code/Serial #	Description
1	T154FFM	BQ16	TEE 4" FIG 1002 FEMALE X FEMALE X MALE PLUG CATCHER
1	SG154	BM94	SEGMENT 4" FIG 1502 RING
1	N154	BP62	NUT 4" FIG 1502

The serial number assembly listed has been manufactured, inspected and assembled according to FlowValve drawing requirements, with material and processes that meet applicable FlowValve Engineering specifications and API specifications. 6A requirements and has passed hydrostatic testing in ambient water to 1.5 times CWP without leaks or operational issues.

I declare that the information on this certificate is true and correct to the best of my knowledge.

Available for all Flow Iron!

Mike May, P.E.
V.P. of Engineering
FlowValve LLC



2214 West 14th Street
P.O. Box 695
Sulphur, Oklahoma 73086

PQC™ with iPAR™ Technology

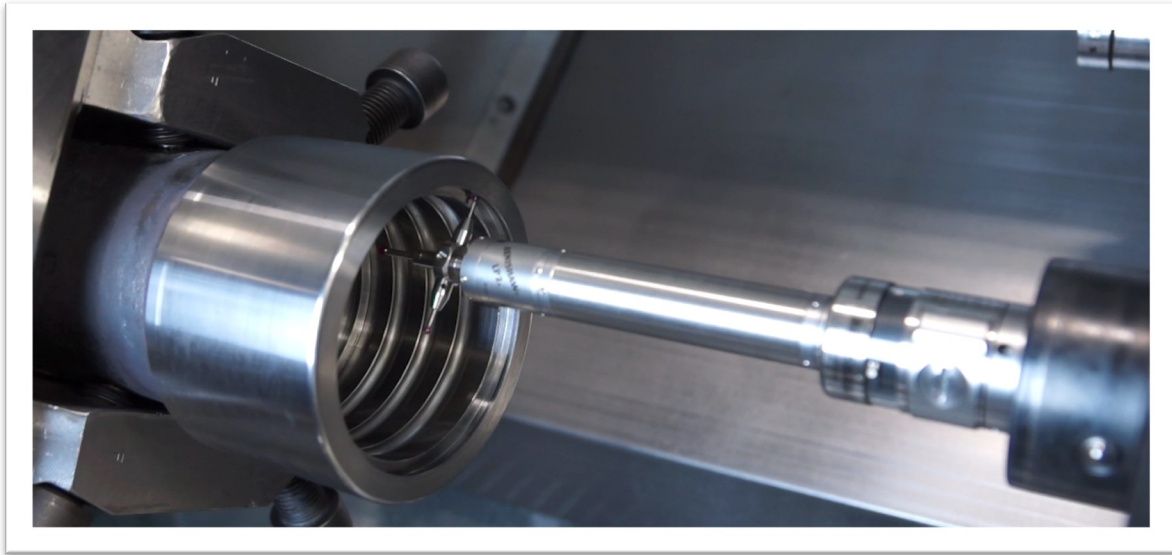


At FlowValve, we believe **quality** should be designed into the process. You cannot inspect it in with a quality control department, by then it is way too late. For that very reason, we took our **best programmers** and spent over **two years** developing PQC™ with iPAR™. For the first time ever quality has been programmed right into the process. Defects are not just reduced they are being **eliminated!**

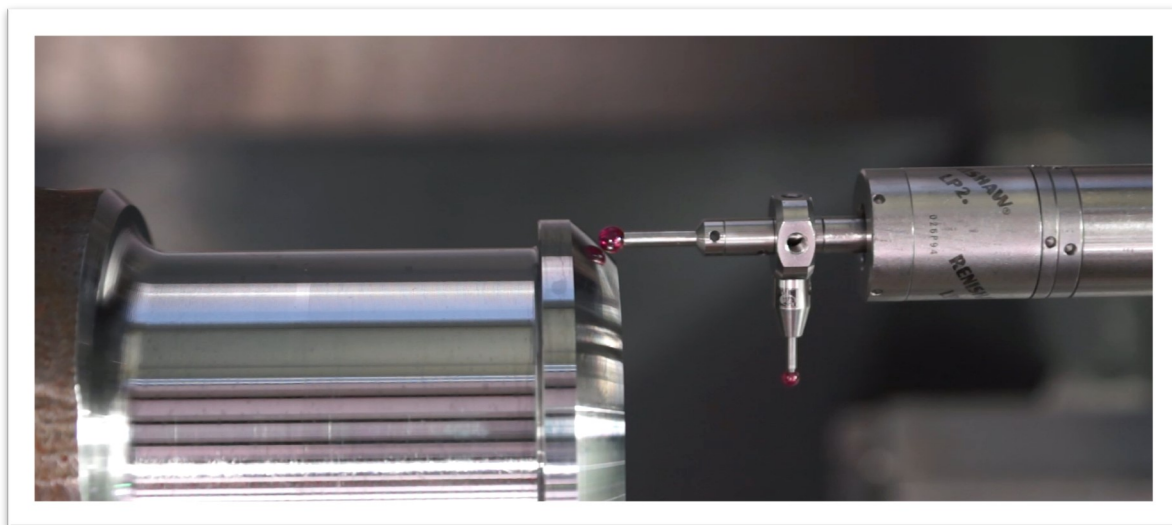
PQC™ is an acronym for Programmable Quality Control™.

iPAR™ is an acronym for in-Process Automatic Recalibration™.

PQC™ with iPAR™ Technology



PQC™ works so well because of the foundation it is built on. PQC™ runs with patent-pending iPAR™ technology. iPAR™ stands for in-Process Automatic Recalibration™. CNC machines have no way to stay calibrated because of inherent movements. A calibrated probe can quickly measure incorrectly with coordinate drift. iPAR™, however, can detect deviations of the machine and automatically recalibrate itself. It works like magic! Putting a probe in a CNC machine is nothing spectacular, but turning the probe and machine into a smart system that can autocorrect is a work of genius.





FlowValve, LLC
2214 West 14th Street
Sulphur, Oklahoma 73086
Phone 580.622.4207
Fax 580.622.4206

We design safety right into the product. All of our products meets or exceeds **API standards**. Every design element from product to process is audited regularly to ensure that FlowValve is the cornerstone of product safety.

