

PIGGING PRODUCTS



Production Optimization & Corrosion Mitigation



SPECIFICATIONS



Spec. 6D – 0225
Edmonton, AB, Canada



**We are committed to product safety and quality.
Argus Pig Ball Valves conform to the following standards:**

API	AMERICAN PETROLEUM INSTITUTE
SPEC. 6D**	Specification for Pipeline Valves
SPEC. 6FA*	Fire Test for Valves
STD. 607*	Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats
STD. 598	Valve Inspection and Testing
SPEC. Q1	Specification for Quality Programs for the Petroleum and Natural Gas Industry
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
B1.20.1	Pipe Threads, General Purpose
B16.5	Pipe Flanges and Flange Fittings
B16.10	Face-to-Face and End-to-End Dimensions of Valves
B16.34	Valves - Flanged, Threaded, and Welding End
B31.3	Process Piping
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ISO 9001	Quality Management System
ISO 15156	Materials for Use in H ₂ S Containing Environments in Oil and Gas Production
ISO 10497*	Testing of Valves - Fire Type Testing
NACE	NATIONAL ASSOCIATION OF CORROSION ENGINEERS
MR0175	Materials for Use in H ₂ S Containing Environments in Oil and Gas Production
CSA	CANADIAN STANDARDS ASSOCIATION
Z245.12	Steel Flanges
Z245.15	Steel Valves
Z662	Oil and Gas Pipeline Systems
CRN	CANADIAN REGISTRATION NUMBERS
OC02161.2	2" - 6" Pig Valves
OC12579.2	6" - 20" Pig Valves

* Certification available for 6" - 12" 900 & 1500 ASME, 8" & Larger 300 & 600 ASME

** Pig Ball Valves with a "Left to Right" flow direction are marked with the API 6D Monogram as they are in full compliance with API 6D 24th Edition, Addendum 2. Pig Ball Valves with a "Right to Left" flow direction are not marked with the API Monogram; although they meet the design requirements of API 6D 24th Edition, Addendum 2, their closing direction is required to be counter-clockwise which does not meet the clockwise to close requirement specified in API 6D.

PIG BALL VALVES

Designed to achieve optimal flow line and pipeline performance, the Argus Pigging Ball Valve offers unsurpassed quality and reliability.

CONSIDER THESE BENEFITS

- Optimize production and mitigate corrosion through effective liquids sweeping and debris removal.
- Reduce emissions by up to 91% compared to traditional launching method.
- Significantly smaller footprint reduces the space required for pigging facilities.
- Reduced requirement for infrastructure decreases field construction time.
- Functionally simple design minimizes training and maintenance costs.
- Double block and bleed construction facilitates use as a traditional block valve, thus reducing the number of valves required in the pigging facility.
- Built in features enhance safety for operations personnel.
- Adaptable to batch, corrosion inhibition programs.
- Designed in accordance to NACE for sour service.

Temperature Range

-50°F to +250°F (-46°C to +121°C)

Pressure Range

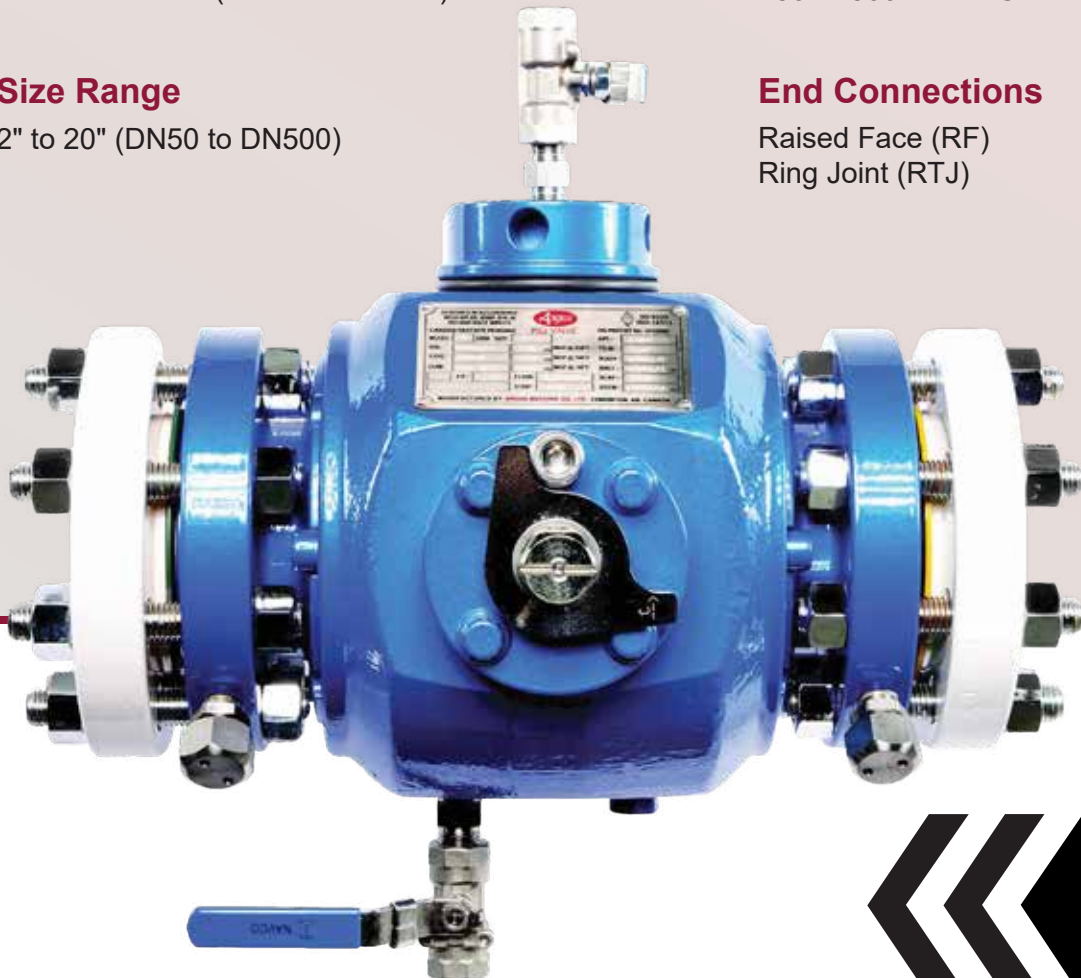
150 - 1500 ASME Class

Size Range

2" to 20" (DN50 to DN500)

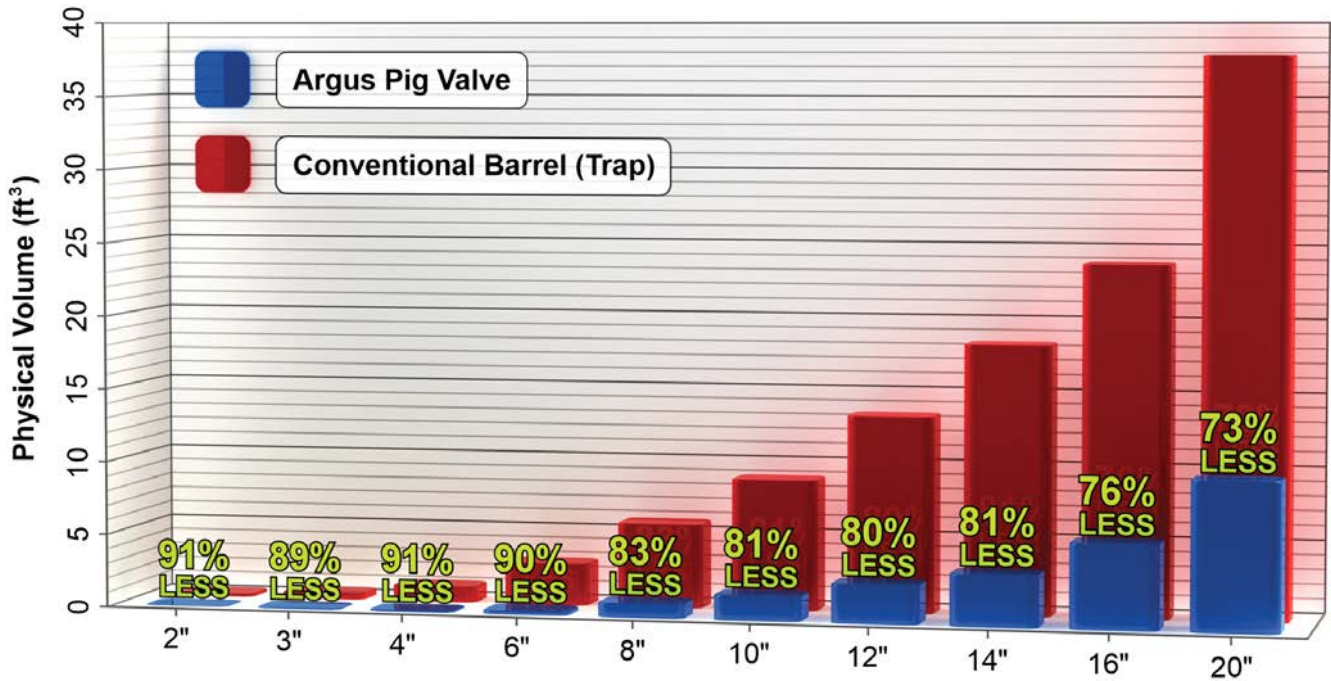
End Connections

Raised Face (RF)
Ring Joint (RTJ)



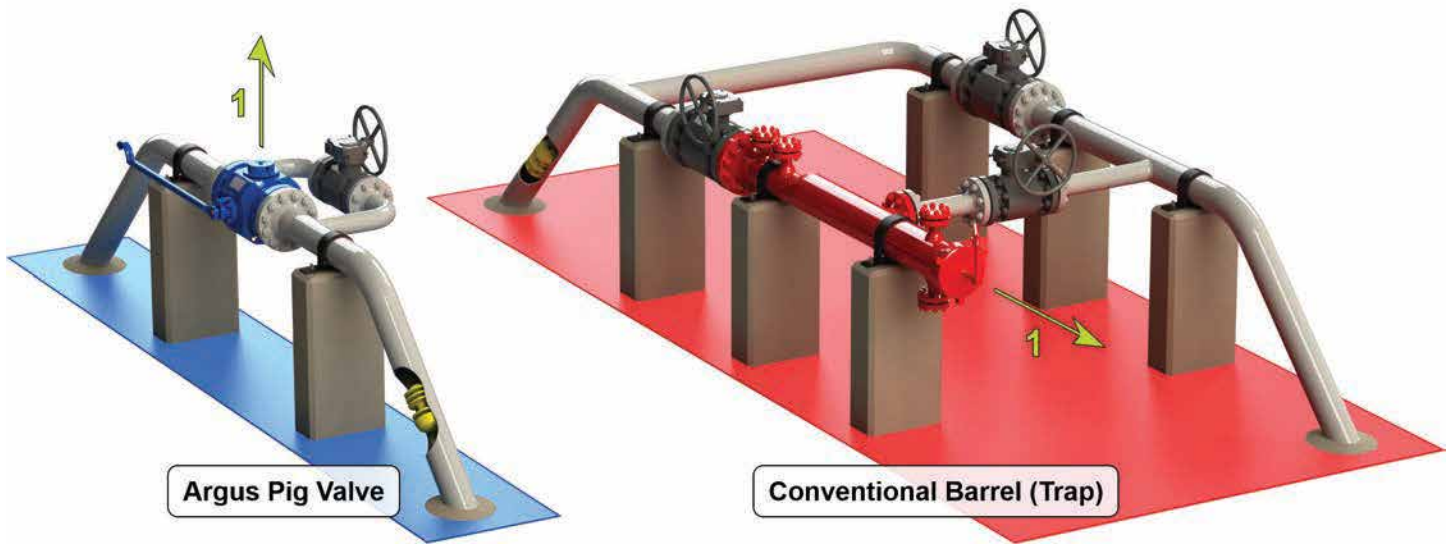
REDUCE EMISSIONS BY UP TO 91%

Emissions Comparison
Argus Pig Valve vs. Conventional Barrel (Trap)



SIGNIFICANT SPACE AND COST SAVINGS

In addition to reduced emissions, the small footprint of the Argus Pig Valve minimizes environmental impact. Compared to conventional barrel-style launching and receiving traps, Argus Pig Valves are also operationally more efficient and require less space, ultimately decreasing infrastructure costs.



SAFETY FEATURES - 6" 600 ASME AND BELOW

1	Closure Orientation (Also See Opposite Page) Vertical orientation of all Argus Pig Valve closures eliminates the threat of horizontal pressurized openings
2	Pressure Alert Port Can visually and audibly warn the operator that pressurized media is still present before the closure is fully opened
3	Non-Impact Wrench and Closure Eliminates hammering on the closure and the associated material failure and sparking hazards
4	Flow Direction and Valve Type Labels High visibility stenciling minimizes potential confusion or misapplication during installation
5	Optional Interlock System (Not Shown) Provides an enhanced level of safety by ensuring operators can only follow the safest process for operation



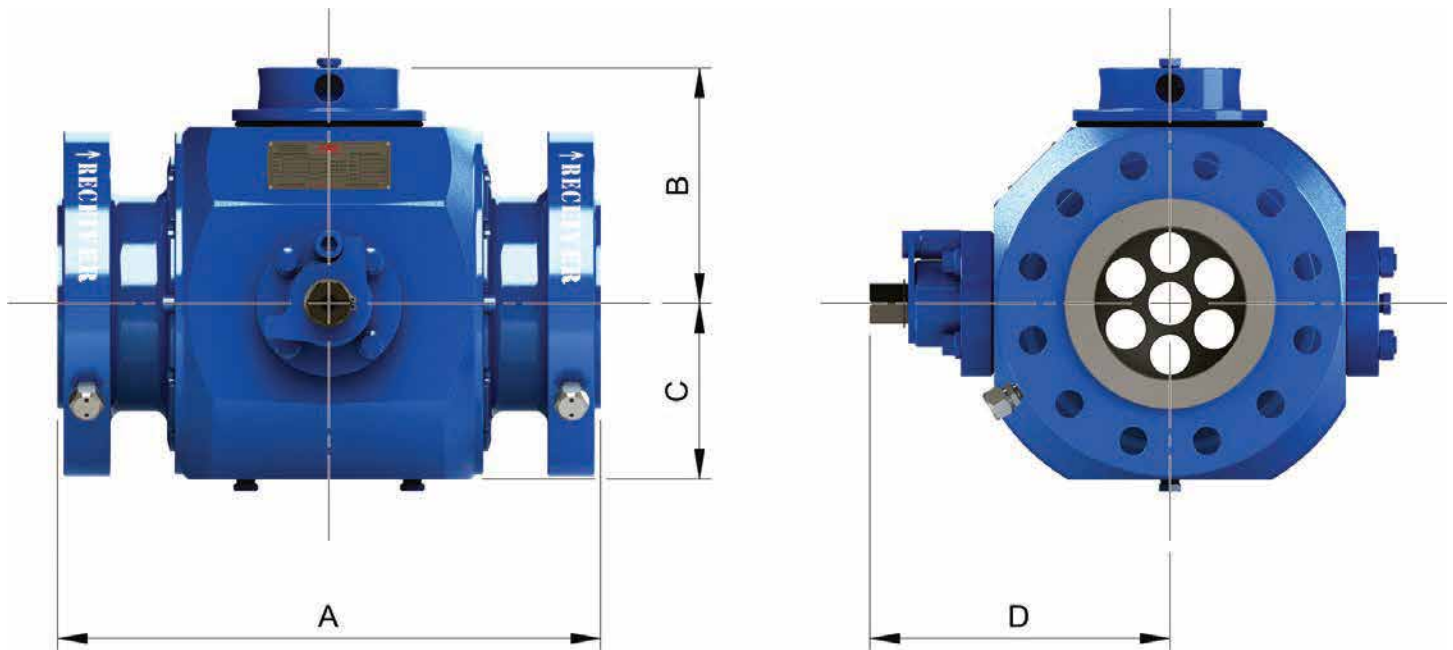
TRIM MATERIALS

STANDARD TRIM MATERIALS (6" 600 ASME & BELOW)	
Body	ASTM A350-LF2, Class 1
End Connections	ASTM A350-LF2, Class 1
Ball	ASTM A350-LF2 c/w 0.001" High-Phosphorus ENC
Entry Cap	ASTM A350-LF2, Class 1
Trunnion	ASTM A350-LF2 c/w 0.001" ENC
Seat Springs	Inconel X-750
Seat Support	AISI 1026 c/w 0.001" ENC (2") ASTM A350-LF2 c/w 0.001" (3", 4", & 6" 150-600 ASME)
Seat Insert	Devlon 'V'
Primary Seals	Highly Saturated Nitrile (HSN), Carboxylated Nitrile (XNBR)
Bolting - Pressure Containing	ASTM A320 L7M/ASTM A194 L7M

Note: Alternative trim materials available upon request.



DIMENSIONS - 6" 600 ASME & BELOW



PIG VALVE		A (OVERALL LENGTH)*				B		C		D		VALVE BORE		BALL CORE ID		ENTRY PLUG BORE		APPROX. WT.	
		RF		RTJ															
Size	ASME	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	lbs	(kg)
2"	150*	11.50	(292)	11.88	(302)	5.62	(143)	4.00	(102)	7.62	(194)	2.06	(52)	2.50	(64)	2.56	(65)	135	(61)
2"	300 / 600*	14.25	(362)	14.62	(371)	5.62	(143)	4.00	(102)	7.62	(194)	2.06	(52)	2.50	(64)	2.56	(65)	145	(66)
2"	900	14.50	(368)	14.62	(371)	5.62	(143)	4.00	(102)	7.62	(194)	2.06	(52)	2.50	(64)	2.56	(65)	175	(79)
3"	150*	12.75	(324)	13.12	(333)	6.38	(162)	4.75	(121)	8.38	(213)	3.12	(79)	3.56	(90)	3.59	(91)	190	(86)
3"	300* / 600	14.00	(356)	14.12	(359)	6.38	(162)	4.75	(121)	8.38	(213)	3.12	(79)	3.56	(90)	3.59	(91)	210	(95)
3"	900	15.00	(381)	15.12	(384)	6.38	(162)	4.75	(121)	8.38	(213)	3.12	(79)	3.56	(90)	3.59	(91)	230	(104)
4"	150*	15.50	(394)	16.00	(406)	7.34	(186)	5.35	(136)	10.03	(255)	4.12	(105)	4.56	(116)	4.59	(117)	310	(141)
4"	300*	16.00	(406)	16.50	(419)	7.34	(186)	5.35	(136)	10.03	(255)	4.12	(105)	4.56	(116)	4.59	(117)	325	(147)
4"	600	17.00	(432)	17.12	(435)	7.34	(186)	5.35	(136)	10.03	(255)	4.12	(105)	4.56	(116)	4.59	(117)	350	(159)
4"	900	18.00	(457)	18.12	(460)	7.34	(186)	5.35	(136)	10.03	(255)	4.12	(105)	4.56	(116)	4.59	(117)	370	(168)
4"	1500†	21.50	(546)	21.62	(549)	7.50	(191)	6.25	(159)	15.38	(391)	4.00	(102)	4.75	(121)	4.97	(126)	600	(272)
6"	150*	18.00	(457)	18.38	(467)	9.50	(241)	7.12	(181)	12.12	(308)	6.12	(155)	6.75	(172)	6.72	(171)	580	(263)
6"	300*	18.88	(480)	19.38	(492)	9.50	(241)	7.12	(181)	12.12	(308)	6.12	(155)	6.75	(172)	6.72	(171)	620	(281)
6"	600	22.00	(559)	22.12	(562)	9.50	(241)	7.12	(181)	12.12	(308)	6.12	(155)	6.75	(172)	6.72	(171)	700	(317)

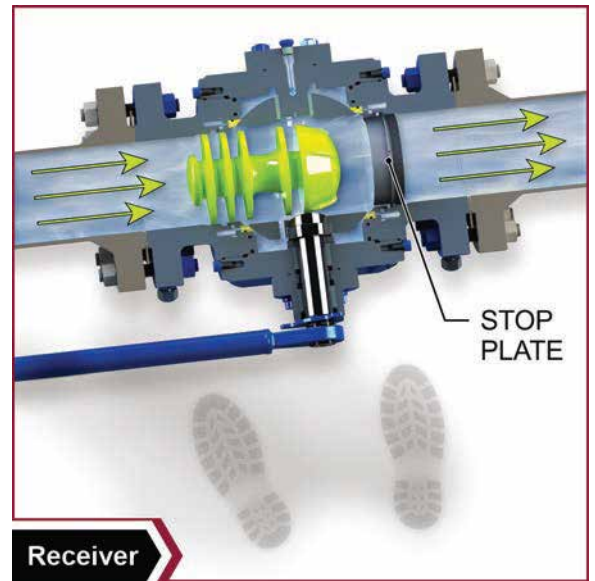
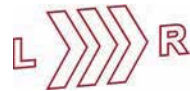
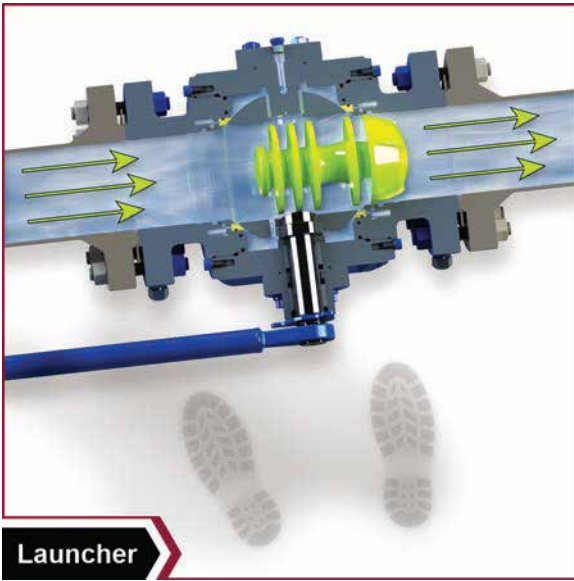
* Face to Face Length does not meet API Spec. '6D', ASME 'B16.10', or CSA Z245.15.

† Supplied with Gear Operator.

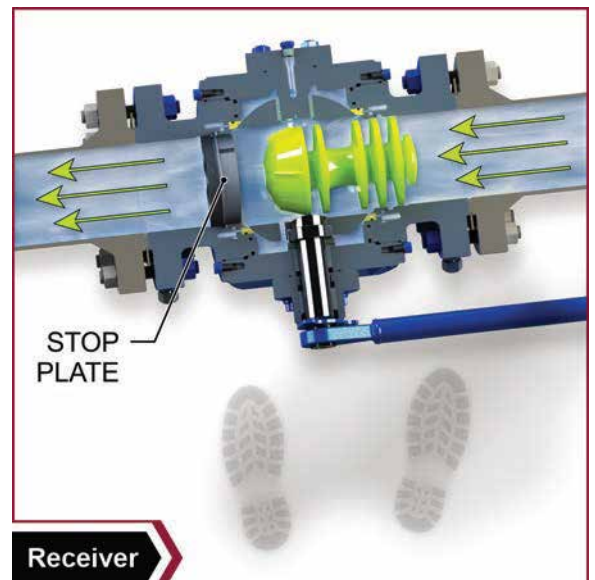
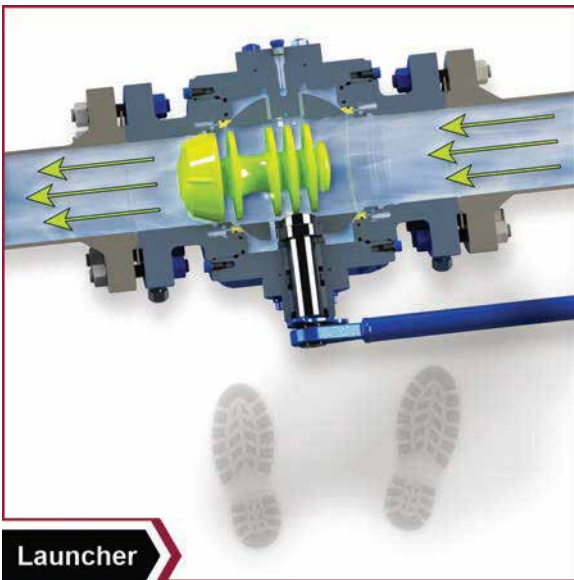
Note: Design specifications subject to change without prior notice.

PIG VALVE ORIENTATION

Orientation 1
Flow Direction: Left to Right

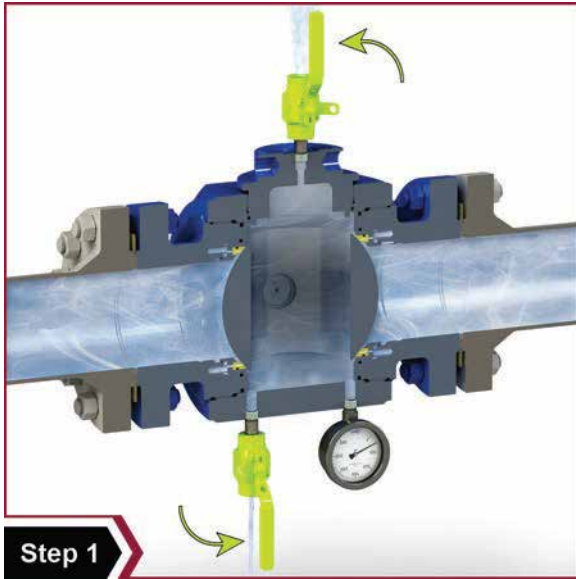


Orientation 2
Flow Direction: Right to Left

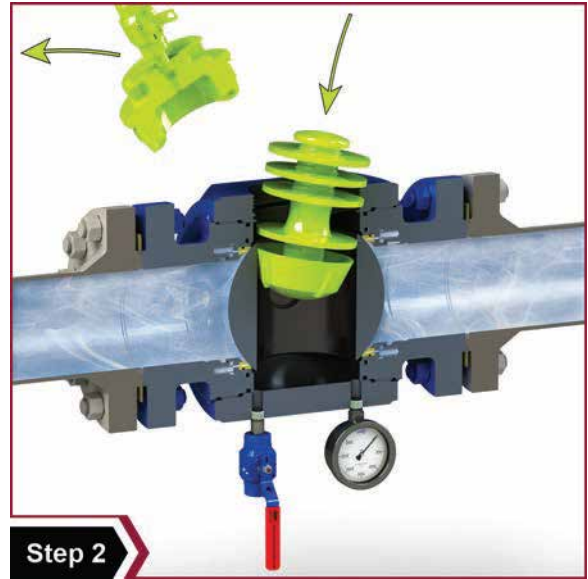


OPERATIONAL SEQUENCE - 6" 600 ASME & BELOW

Launching

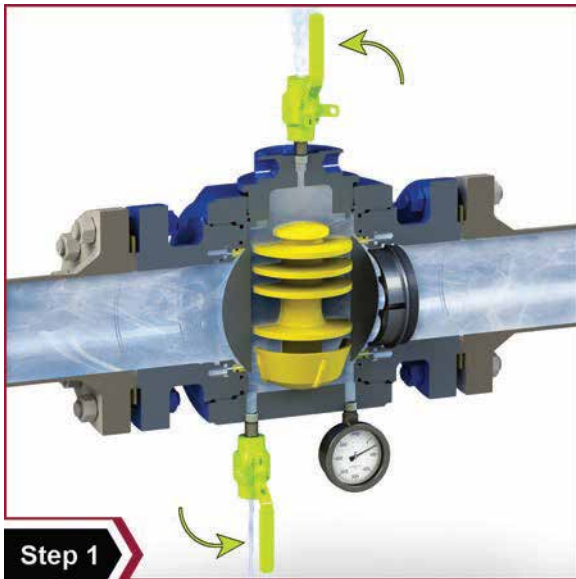


In the **closed** position, vent and/or drain the Argus Pig Valve body cavity. The pressure gauge will drop to zero.

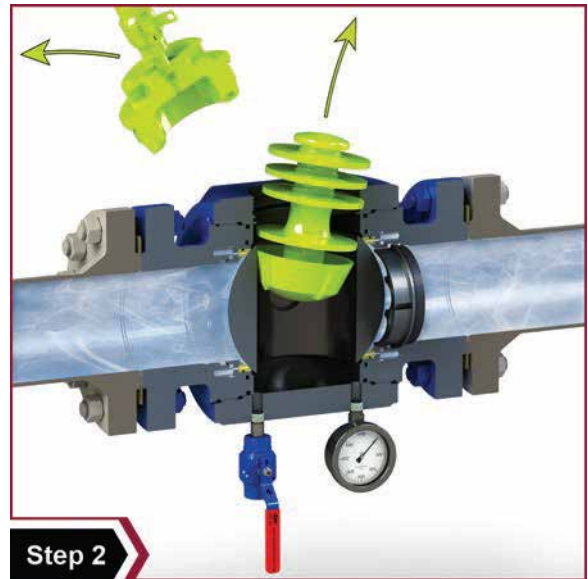


Remove the entry closure (with the non-impact wrench) and insert a pig.

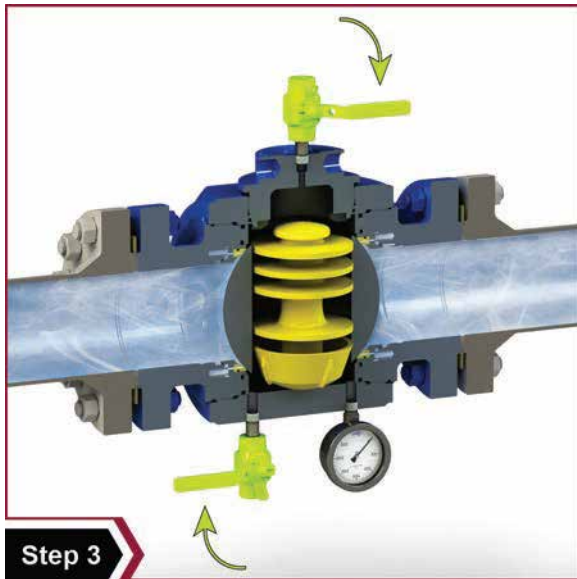
Receiving



After receiving a pig, and with the Argus Pig Valve in the **closed** position, vent and/or drain the body cavity. The pressure will drop to zero.

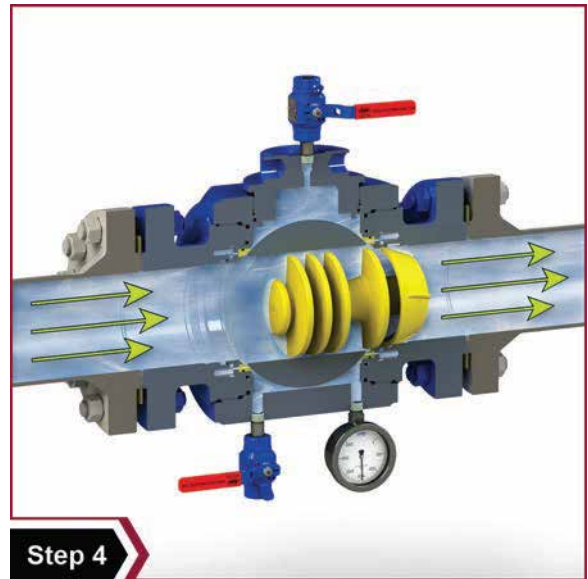


Remove the entry closure (with the non-impact wrench) and remove the pig.



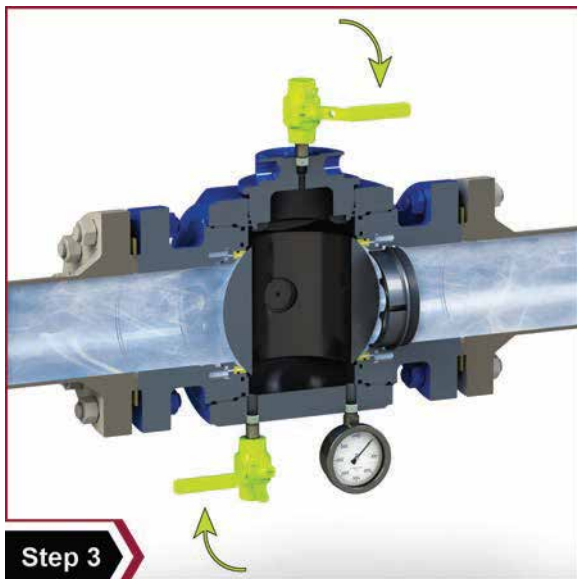
Step 3

With the entry closure replaced and fully tightened (with the non-impact wrench), close all vent and/or drain valves.



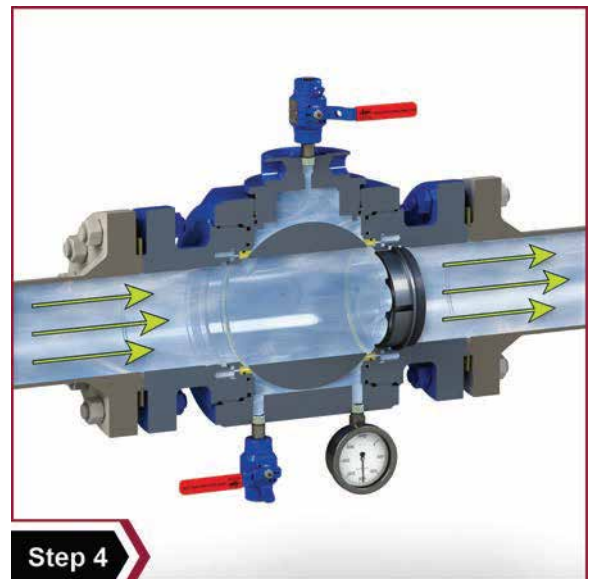
Step 4

Now in the **open** position, pipeline flow and pressure moves the pig downstream.



Step 3

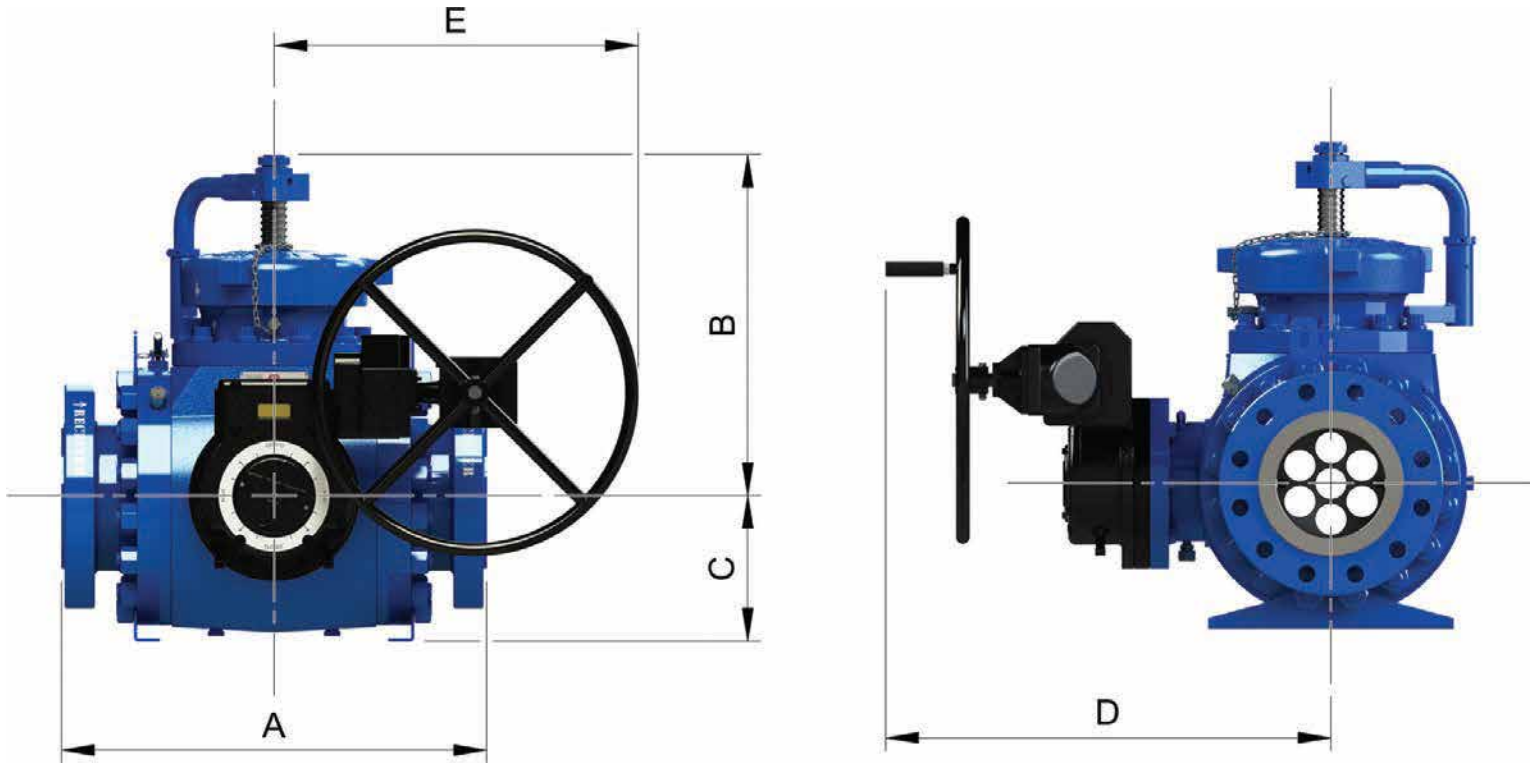
With the entry closure replaced and fully tightened (with the non-impact wrench), close all vent and/or drain valves.



Step 4

Now in the **open** position, pipeline media flows through the Argus Pig Valve.

DIMENSIONS - 6" 900 ASME & ABOVE



PIG VALVE		A (OVERALL LENGTH) *				B		C		D		E		VALVE BORE		BALL CORE ID		ENTRY PLUG BORE		APPROX. WT.	
Size	ASME	RF		RTJ		in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	in	(mm)	lbs	(kg)
6"	900	29.00	(737)	29.12	(740)	22.38	(568)	8.79	(223)	29.97	(761)	24.65	(626)	6.00	(152)	6.63	(168)	6.75	(171)	1460	(662)
6"	1500	35.00	(889)	35.25	(895)	25.11	(638)	11.11	(282)	32.71	(831)	26.72	(679)	6.00	(152)	6.63	(168)	6.75	(171)	2600	(1179)
8"	150	28.50	(724)	**	**	23.37	(594)	10.67	(271)	32.70	(831)	26.72	(679)	8.00	(203)	9.00	(229)	8.75	(222)	1937	(878)
8"	300	28.50	(724)	29.00	(737)	23.37	(594)	10.67	(271)	32.70	(831)	26.72	(679)	8.00	(203)	9.00	(229)	8.75	(222)	2075	(941)
8"	600	31.20	(792)	31.32	(796)	23.37	(594)	10.67	(271)	32.70	(831)	26.72	(679)	8.00	(203)	9.00	(229)	8.75	(222)	2225	(1009)
8"	900	35.00	(889)	35.12	(892)	24.65	(626)	11.24	(285)	33.34	(847)	31.72	(806)	8.00	(203)	8.88	(226)	8.75	(222)	2785	(1263)
8"	1500	42.00	(1067)	42.38	(1076)	31.51	(800)	12.74	(324)	35.61	(904)	32.33	(821)	8.00	(203)	8.88	(226)	8.75	(222)	4150	(1882)
10"	150	35.36	(898)	35.86	(911)	26.09	(663)	12.00	(305)	34.56	(878)	32.33	(821)	10.00	(254)	11.00	(279)	10.75	(273)	2985	(1354)
10"	300	35.36	(898)	35.86	(911)	26.09	(663)	12.00	(305)	34.56	(878)	32.33	(821)	10.00	(254)	11.00	(279)	10.75	(273)	3225	(1463)
10"	600	37.12	(943)	37.25	(946)	26.09	(663)	12.00	(305)	34.56	(878)	32.33	(821)	10.00	(254)	11.00	(279)	10.75	(273)	3400	(1542)
10"	900/1500	**																			
12"	150	40.75	(1035)	41.25	(1048)	29.15	(740)	14.17	(360)	38.88	(988)	32.33	(821)	12.00	(305)	13.00	(330)	12.75	(324)	4593	(2083)
12"	300	40.75	(1035)	41.25	(1048)	29.15	(740)	14.17	(360)	38.88	(988)	36.67	(931)	12.00	(305)	13.00	(330)	12.75	(324)	5120	(2322)
12"	600	42.06	(1068)	42.19	(1071)	29.15	(740)	14.17	(360)	38.88	(988)	36.67	(931)	12.00	(305)	13.00	(330)	12.75	(324)	5300	(2404)
12"	900	47.00	(1194)	47.12	(1197)	32.15	(817)	15.38	(391)	37.67	(957)	32.33	(821)	12.00	(305)	13.00	(330)	12.75	(324)	6340	(2875)
12"	1500	**																			
14"	600	45.00	(1143)	45.12	(1146)	49.00	(1245)	16.31	(414)	44.84	(1139)	36.70	(932)	13.25	(337)	14.25	(362)	14.25	(362)	7062	(3203)
16"	150	47.62	(1210)	**	**	48.51	(1232)	17.12	(435)	41.57	(1056)	36.67	(931)	15.25	(387)	16.25	(413)	16.25	(413)	8860	(4018)
16"	300	54.00	(1372)	54.50	(1384)	48.51	(1232)	17.12	(435)	41.57	(1056)	36.67	(931)	15.25	(387)	16.25	(413)	16.25	(413)	8860	(4018)
16"	600	54.00	(1372)	54.12	(1375)	48.51	(1232)	17.12	(435)	41.57	(1056)	36.67	(931)	15.25	(387)	16.25	(413)	16.25	(413)	9035	(4098)
16"	900/1500	**																			
20"	150	49.38	(1254)	**	**	50.15	(1274)	19.43	(494)	47.63	(1210)	36.69	(932)	19.25	(489)	20.25	(514)	20.25	(514)	7525	(3413)

* Face to Face Length does not meet API Spec. '6D', ASME 'B16.10', or CSA Z245.15.

** Contact Argus for dimensional details.

Note: Design specifications subject to change without prior notice.

SAFETY FEATURES - 6" 900 ASME & ABOVE

1	Pressure Alert Valve Must be opened before the closure will fully open and can audibly warn the operator of existing pressure	
2	Pressure Alert Groove Safety redundancy in the unlikely event the pressure alert valve malfunctions that can also audibly warn the operator	
3	Non-Impact Wrench and Closure Eliminates hammering on the closure and the associated material failure and sparking hazards	
4	Equalization Valve Safety Pin Prevents accidental operation of the pressure equalization valve during operation	
5	Lifting Lugs Allows for safer handling of the Argus Pig Valve during installation and repair	
6	Closure Alignment Arrows High visibility painted arrows and tactile drive pins line up when the closure is closed and properly tightened	
7	Flow Direction and Valve Type Labels High visibility stenciling minimizes potential confusion or misapplication during installation	
8	Closure Orientation Vertical orientation of all Argus Pig Valve closures eliminates the threat of horizontal pressurized openings	
9	Optional Interlock System (Not Shown) Provides an enhanced level of safety by ensuring operators can only follow the safest process for operation	

TRIM MATERIALS

STANDARD TRIM MATERIALS (6" 600 ASME & ABOVE)	
Body	ASTM A350-LF2, Class 1
End Connections	ASTM A350-LF2, Class 1
Ball	ASTM A350-LF2 c/w 0.001" High-Phosphorus ENC
Entry Cap	ASTM A350-LF2, Class 1
Trunnion Bearing Plate	ASTM A516-Gr. 70
Seat Springs	Inconel X-750
Seat Support	ASTM A350-LF2 c/w 0.001" ENC
Seat Insert	Devlon 'V'
Primary Seals	Highly Saturated Nitrile (HSN)
Bolting - Pressure Containing	ASTM A320 L7M/ASTM A194 L7M

Note: Alternative trim materials available upon request.

OPERATIONAL SEQUENCE - 6" 900 ASME & ABOVE

Launching



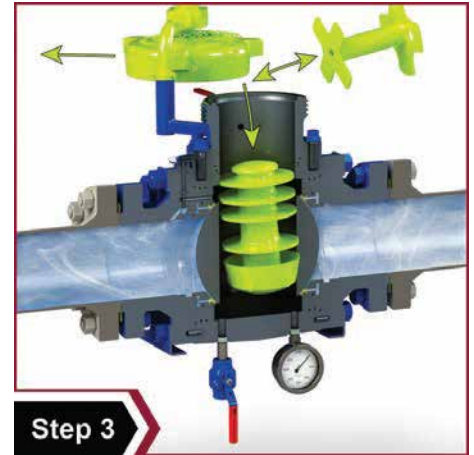
Step 1

In the **closed** position, vent and/or drain the Argus Pig Valve body cavity. The pressure gauge will drop to zero.



Step 2

Remove the pressure alert valve stem to allow for open of the closure.



Step 3

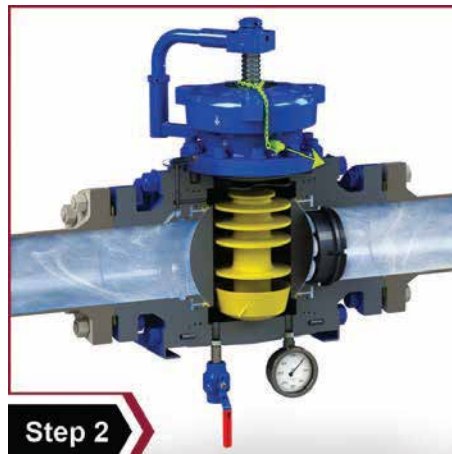
Open the closure (with the non-impact wrench) and swing to the side. Remove the pig restrictor. Insert a pig then replace the pig restrictor over top.

Receiving



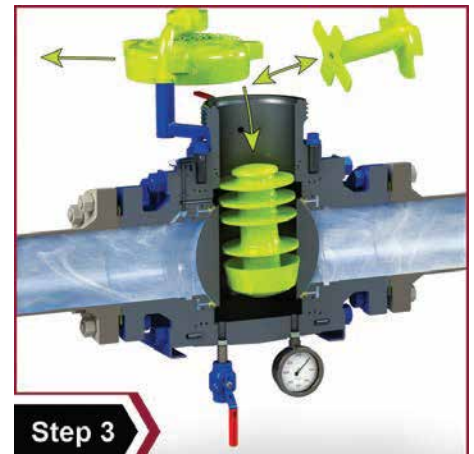
Step 1

After receiving a pig, and with the Argus Pig Valve in the **closed** position, vent and/or drain the body cavity. The pressure gauge will drop to zero.



Step 2

Remove the pressure alert valve stem to allow opening of the closure.



Step 3

Open the closure (with the non-impact wrench) and swing to the side. Remove the pig restrictor and pig. Replace the pig restrictor.



Step 4

Fully tighten the closure up to the alignment arrows (with the non-impact wrench), replace the pressure alert valve stem, and close all drain valves.



Step 5

Remove the pressure equalization valve safety pin and depress the lever to equalize the cavity pressure. The pressure gauge will increase to relative downstream pressure. Replace the pin.



Step 6

Now in the **open** position, pipeline flow and pressure moves the pig downstream.



Step 4

Fully tighten the closure up to the alignment arrows (with the non-impact wrench), replace the pressure alert valve stem, and close all drain valves.



Step 5

Remove the pressure equalization valve safety pin and depress the lever to equalize the cavity pressure. The pressure gauge will increase to relative downstream pressure. Replace the pin.



Step 6

Now in the **open** position, pipeline media flows through the Argus Pig Valve.

ARGUS URETHANE PIGS

Cup and Disc Pigs



- Argus offers a full range of cup and disc urethane pigs that are also compatible with fiber reinforced pipelines.

Specialty Pigs



- Mag Pigs** supplied with rare earth magnets for non-intrusive pig signaling.
- Filming Pigs** for batch, corrosion inhibition programs.
- Low-Flow Pigs** with a two-cup design for pigging at low pressure differentials.

NOMINAL PIG SIZE	PIPE WALL THICKNESS		PIG LENGTH		COLOR	DUROMETER (SHORE 'A')
	in	(mm)	in	(mm)		
2 INCH	.154 - .188	(3.91 - 4.78)	4.50	(114.3)	Grey	60
					Yellow	70
					Blue	80
					Black	90
3 INCH	.109 - .125	(2.77 - 3.18)	5.75	(146.0)	Purple	60
					Green	70
					Red	80
					Orange	90
	.156 - .188	(3.96 to 4.78)	5.75	(146.0)	Grey	60
					Yellow	70
					Blue	80
					Black	90
4 INCH	.109 - .125	(2.77 - 3.18)	7.50	(190.5)	Purple	60
					Green	70
					Red	80
					Orange	90
	.156 - .188	(3.96 to 4.78)	7.50	(190.5)	Grey	60
					Yellow	70
					Blue	80
					Black	90
6 INCH	.109 - .125	(2.77 - 3.18)	10.50	(266.7)	Purple	60
					Green	70
					Red	80
					Orange	90
	.156 - .280	(3.96 - 7.11)	10.50	(266.7)	Grey	60
					Yellow	70
					Blue	80
					Black	90
8 INCH	.250 - .375	(6.35 - 9.53)	14.25	(362.0)	Grey	60
					Yellow	70
					Blue	80
					Black	90
10 INCH	.250 - .438	(6.35 - 11.13)	17.25	(438.2)	Grey	60
					Yellow	70
					Blue	80
					Black	90
12 INCH	.250 - .500	(6.35 - 12.70)	20.00	(508.0)	Grey	60
					Yellow	70
					Blue	80
					Black	90
14 INCH	.250 - .500	(6.35 - 12.70)	22.38	(568.5)	Grey	60
					Yellow	70
					Blue	80
					Black	90
16 INCH	.500 - 1.125	(12.70 - 28.70)	24.63	(625.6)	Grey	60
					Yellow	70
					Blue	80
					Black	90
20 INCH	.500 - 1.125	(12.70 - 28.70)	30.63	(778.0)	Grey	60
					Yellow	70
					Blue	80
					Black	90

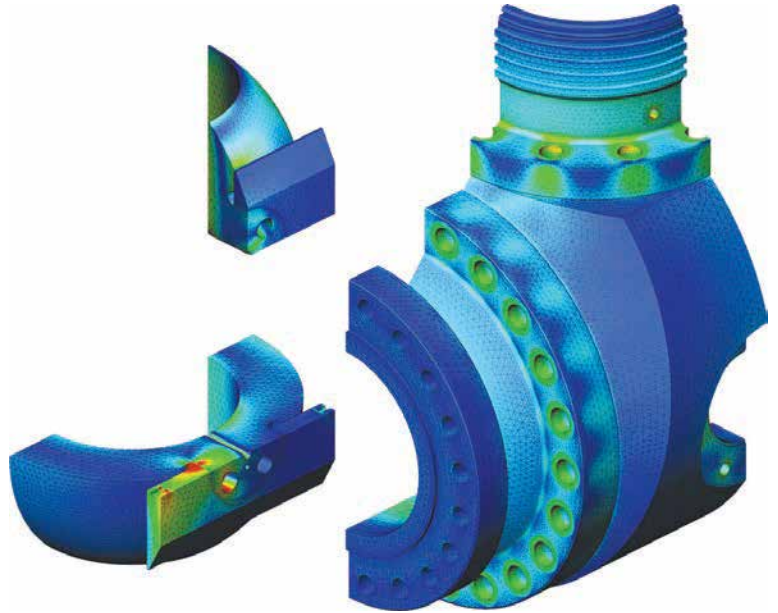
COMPLEX ANALYSIS

Argus Engineering leverages finite element analysis (FEA) in the design of Argus Pig Ball Valves.

This computational method allows for a comprehensive assessment of components under load. Compared to only using traditional analysis techniques, this method of analysis also provides greater insight into how these components function as an assembly.

Our expertise in this approach offers a number of unique benefits to the customer:

- Confidence for all applications, with stringent compliance to industry standards.
- More reliable, standardized, and predictable operation characteristics.
- Optimized geometry - reducing mass and cost of materials - while providing unmatched safety of the Argus Pig Ball Valve.



APPLICATIONS



3" 600 ASME
Bahia, Brazil



6" 600 ASME with 6" Bypass Line
Tamaulipas, Mexico



8" 600 ASME
Haynesville Shale Gas, Louisiana, USA



12" 600 ASME
Eagleford Shale Gas, Texas, USA

SINCE 1958

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