CNC FLOW CONTROL

CAST TRUNNION BALL VALVE

Atlas Series

C&C

C&C is a product brand of CNC Flow Control

ABOUT CNC FLOW CONTROL

Founded in 2017, CNC Flow Control is new only in name. Headquartered in Houston, this single business entity unifies several trusted valve and flow line brands from across industry, creating an experienced, collaborative and diverse team. From extensive, long range projects to same-day delivery of commodity valves, our team is dedicated to understanding customers' needs in order to ensure exceptional service and the best solutions.

A full service Valve Repair & Modification Shop is on site at the manufacturing facility as well as an in-house engineering team for technical assistance and expertise. Product brands in the CNC Flow Control family include C&C, SMITH, Diamond Gear, Econ and Force.

ABOUT C&C

C&C's breadth of available products is diverse. From hammer unions to ball valves, C&C products complement most any stocking portfolio. C&C has provided the market with quality valves and fittings for nearly two decades. Today, C&C products are seen in almost all upstream oil and gas applications throughout North America.

CONTENTS

FLOW CONTROL SOLUTIONS FOR THE PETROLEUM & NATURAL GAS INDUSTRIES	02
DESIGN HIGHLIGHTS	03
HOW TO ORDER	04
SERVICE CAPABILITIES	05
STANDARD MATERIALS OF CONSTRUCTION	06-07
FULL PORT DIMENSIONS - IMPERIAL UNITS	08-09
REDUCED PORT DIMENSIONS - IMPERIAL UNITS	10-11
FULL PORT DIMENSIONS - METRIC UNITS	12-13
REDUCED PORT DIMENSIONS - METRIC UNITS	14-15
ACTUATOR MOUNTING DIMENSIONS - IMPERIAL & METRIC UNITS	16-17
TECHNICAL DATA	18-19
ADDITIONAL API 6D OFFERINGS	20
NOTES	21
CONTACT DETAILS	

FLOW CONTROL SOLUTIONS FOR THE PETROLEUM & NATURAL GAS INDUSTRIES

Industry Specific Solutions

Production, transportation, storage and processing of oil and gas require the highest quality piping components. This is our world.

In conjunction with our sister companies we supply customers with valves, hammer unions, couplings, connectors, actuators and other valve accessories for high pressure process and piping at oil and gas facilities, both above ground and offshore.

World Class and Worldwide Service

We are dedicated to providing our customers with the best — the best brands, the best service and the best quality. Whether you require an automated valve for a highly engineered project or a replacement valve delivered same day, we are here to help. Our industry experience, product selection and access to a global network of partners enable us to tailor a solution to solve your most difficult problem.

Expanding Our Product Portfolio

While others are collapsing their portfolios and cutting costs, we have an aggressive strategy to supply complimentary products to served markets and increase service levels to establish ourselves as your single source provider for valve and flow control solutions.

STANDARDS

- Design/Materials: API 6D 24th Edition, ASME B16.34
- Fugitive Emissions: API 641
- Fire Safe: API 6FA/API 607 7th Edition
- End to End: ASME B16.10
- Flanged End: ASME B16.5
- Mounting: ISO 5211
- Testing: API 598/API 6D, CSA Z245.15-17
- API 6D Monogrammed
- PED 2014/68/EU Annex III, Module H

SPECIFICATIONS

- Sizes 2” – 16”
- ANSI Class 150 – 1500
- Full Material Traceability
- ISO 5211 Actuator Adaptation
- Large Material Selection
- Low Operating Torques
- Anti-Static Blowout Proof Stem
- 100% Factory Testing
- Conforms to NACE MR0175/ISO 15156-1

APPLICATIONS

- Transmission Pipelines
- Metering Skids
- Gas Gathering
- Terminals & Storage
- Natural Gas Plants
- Compression Stations

DESIGN HIGHLIGHTS

1 BLOWOUT PROOF STEM

Positive stem retention is achieved within the valve body.

2 ANTI-STATIC DESIGN

Positive anti-static grounding between the ball, stem and trunnion is a standard feature on the Atlas Series.

3 BODY SEALING

The double sealing design of the O-Rings and fire safe graphite gaskets ensure zero leakage at the body and closure connections.

4 EMERGENCY SEALANT INJECTION

Valves are equipped with sealant injection fittings at the stem and seat area. The seat injection fittings have an integral buried check valve to provide backup sealing. Should leakage occur at either the seat or gland packing area, leakage can temporarily be stopped by injecting sealant into the secondary sealing system.

5 FIRE SAFE CERTIFIED

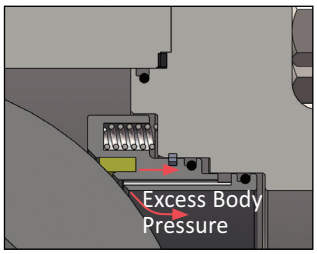
Fire safe construction is standard on all trunnion mounted ball valves. In the event of a fire, secondary graphite seals and gaskets prevent leakage to atmosphere and seat ring to ball contact minimizes through leakage.

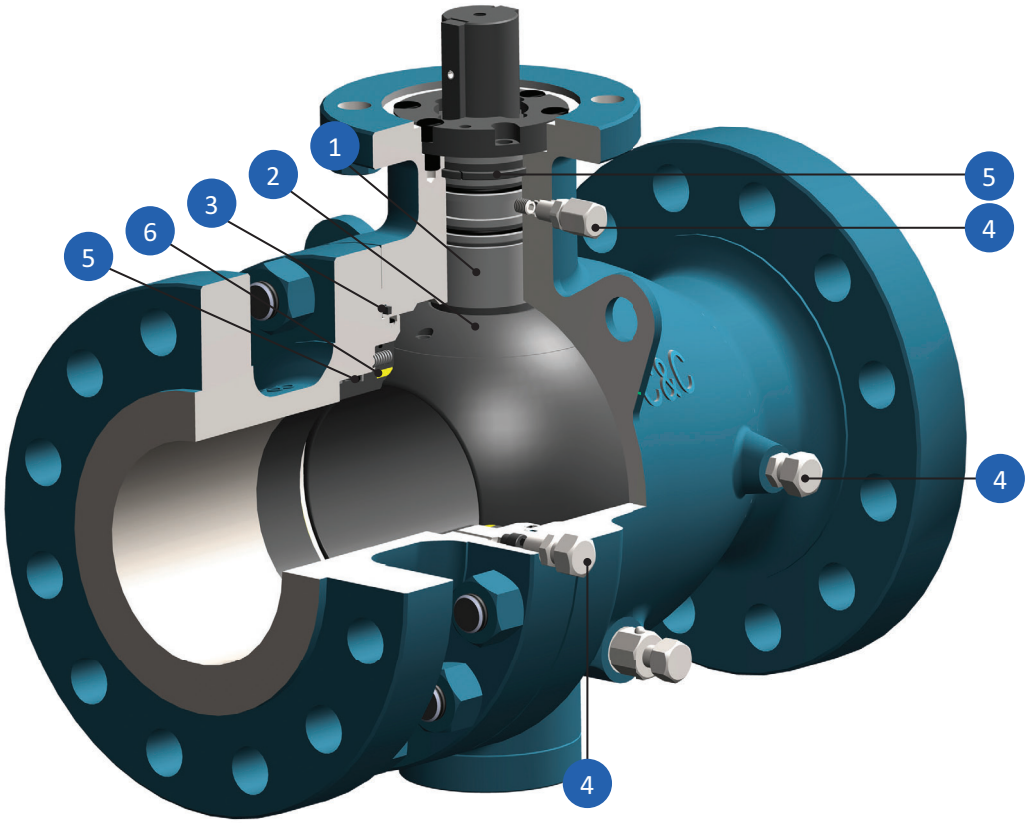
6 SINGLE PISTON EFFECT SEATS

In very low line pressure applications, sealing between the seats and ball is achieved by seat springs forcing the seat into the ball, resulting in a seal. In high line pressure applications, the line pressure, in conjunction with the spring load, forces the upstream seat ring against the ball resulting in tighter sealing.

The self-relieving seat, a standard design feature, prevents excessive pressure buildup within the valve by automatically relieving when body cavity pressure exceeds the spring and line seat pressure.

STANDARD
Self-Relieving Seats





HOW TO ORDER

EXAMPLE:

A 6", Class 600, 2 Piece Full Port Trunnion Ball Valve with Raised Face End Connections, Carbon Steel Body and 3mil Ball and Stem with Single Piston Effect Devlon® Seats, LT HNBR 90 Durometer Seals and Lockable Worm Gear Operated is written as 606T2FRC3DHG.

A	B	C	D	E	F	G	H	I	J
6	06	T2	F	R	C	3	D	H	G

A	Size	
	INCHES	DN
2	2"	50
3	3"	80
4	4"	100
6	6"	150
8	8"	200
10	10"	250
12	12"	300
14	14"	350
16	16"	400

B	Pressure Class
01	Class 150
03	Class 300
06	Class 600
09	Class 900
15	Class 1500

C	Valve Type
T2	2 Piece Trunnion Ball Valve

D	Port
F	Full
R	Reduced

E	End Connection
R	RF Flange
J	RTJ Flange

Buttweld ends available. Contact CNC Flow Control for configurations.

F	Body Material	
C	Carbon Steel	ASTM A216 WCB
L	Low Temperature Carbon Steel	ASTM A352 LCC
S	Stainless Steel	ASTM A351 CF8M

G	Trim Material	
3	Carbon Steel	See Trim Table (pg 17)
4	Low Temperature Carbon Steel	See Trim Table (pg 17)
5	Stainless Steel	See Trim Table (pg 17)

H	Seat Material
D	Devlon®
P	PEEK
T	TFM 1600

I	Seal Material
H	LT HNBR 90
V	LT Viton® 90

J	Operator
B	Bare Shaft
L	Lockable Wrench
G	Lockable Worm Gear

Warning: Metallic materials selected using ANSI/NACE MR0175/ISO 15156 are resistant to cracking in defined H2S containing environments in oil and gas production but not necessarily immune to cracking under all service conditions. It is the equipment user's responsibility to select materials suitable for the intended service.

Devlon® is a registered trademark of Devol Engineering, Ltd. Viton® is a registered trademark of DuPont Dow Elastomers.

SERVICE CAPABILITIES

Trusted Partner. Reliable Solutions.

Our extensive product and application expertise allows us to be more than just a supplier. Our customers view us as the people they trust to integrate flow controls with their equipment and ensure the successful achievement of their project goals. Our increased involvement with a diverse range of projects, spanning an array of industries provides us with a multitude of references for successful integration.

PEOPLE

- Product and Application Know-How
- Technically Trained Sales Staff
- Exceptional Customer Service

PRODUCTS

- Ball, Butterfly, Check, Gate, Globe, Needle and Plug Valves Adapters, Fittings, Gaskets, Joints, Couplings, Seals and Hammer Unions
- Product Leadership — Quality, Reliable and Innovative Products
- Replacement and Spare Parts
- ISO 9001:2015 Certified Organization

SERVICES

- Distribution Network Located throughout North, Central and South America
- Customer Specific Labeling and Packaging
- Strategic Account Partnerships
- Express Delivery
- Quality and Materials Assurance
- Valve Customization and Automation

Valve Quality Development Team

Before the decision is made to brand a product C&C, our Valve Quality Development Team conducts comprehensive manufacturers audits and inspections on both the product and the manufacturer's production and testing process. These stringent audits and inspections ensure the manufacturer's ability to produce and provide products of consistent quality demanded by our customers and in accordance with documented procedures. Once manufacturers are qualified, the VQDT performs onsite witnessing and inspections of the product prior to releasing it for shipment. This added capability and oversight differentiates us from other suppliers.

API 6D Pressure Test Capability

Reports providing proof of quality and testing are available to our customers. Additional tests can be provided upon request.

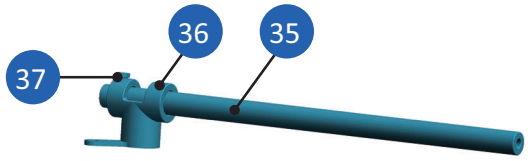
- Positive Material Identification
- Material Test Reports
- Dye Penetrant Testing
- Quality and Technical Documentation
- Supplementary Testing per Customer Requirements

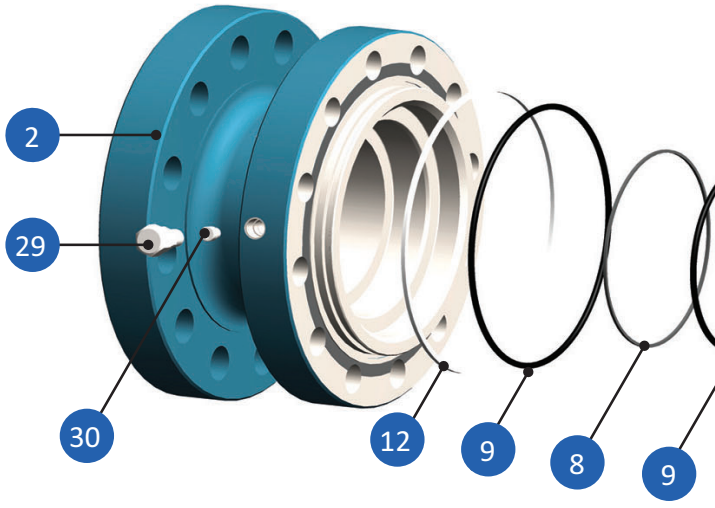
Proof of Product Quality and Compliance

STANDARD MATERIALS OF CONSTRUCTION

ITEM	COMPONENT	MATERIAL	SPECIFICATION
1	Body	Carbon Steel	ASTM A216 WCB
2	Closure	Carbon Steel	ASTM A216 WCB
3	Ball[1]	Carbon Steel	ASTM A105 + 3 mil ENP
4	Stem	Low Alloy Steel	AISI 4140 + 3 mil ENP
5	Trunnion	Low Alloy Steel	AISI 4140 + 3 mil ENP
6	Seat Ring	Carbon Steel	ASTM A105N + 3 mil ENP
7	Seat Insert	Plastic	Devlon®
8	Seat Fire Safe Seal	Flexible Graphite	Flexible Graphite
9	O-Ring	Rubber	LT HNBR 90
10	Backup Ring	Plastic	PTFE
11	Spring	Inconel® X-750	UNS N07750
12	Gasket	316 + Graphite	316 + Graphite
13	Body Stud	Carbon Steel	ASTM A193 B7M
14	Body Nut	Carbon Steel	ASTM A194 2HM
15	Anti-static Plunger	Stainless Steel	ASTM A276 316
16	Anti-static Spring	Stainless Steel	ASTM A276 316
17	Thrust Washer	Stainless Steel	304 + PTFE
18	Bearing	Stainless Steel	316 + PTFE
19	Lantern Ring	Stainless Steel	ASTM A276 410
20	Segment Ring	Stainless Steel	ASTM A182 F6a
21	Segment Ring Retainer	Stainless Steel	ASTM A182 F6a
22	Stem Key	Carbon Steel	AISI 1045
23	Stem Pin	Stainless Steel	ASTM A276 304
24	Stem Retaining Pin	Carbon Steel	ASTM A193 B7M
25	Stem Fire Safe Seal	Graphite	Graphite
26	Gland Flange	Carbon Steel	AISI 1045
27	Gland Pin	Carbon Steel	AISI 1045
28	Cap Screw	Carbon Steel	ASTM A193 B7M
29	Seat Injection Fitting	Stainless Steel	ASTM A276 316
30	Check Valve	Stainless Steel	ASTM A276 316L
31	Bleed Fitting	Stainless Steel	ASTM A276 316
32	Gear Stud	Carbon Steel	AISI 1035
33	Gear Nut	Carbon Steel	AISI 1035
34	Gear	Carbon Steel	ASTM A216 WCB
35	Lever	Carbon Steel	AISI 1045
36	T-Lever	Carbon Steel	ASTM A216 WCB
37	Cap Screw, T-Lever	Carbon Steel	AISI 1035

LEVER OPERATOR
4" and below

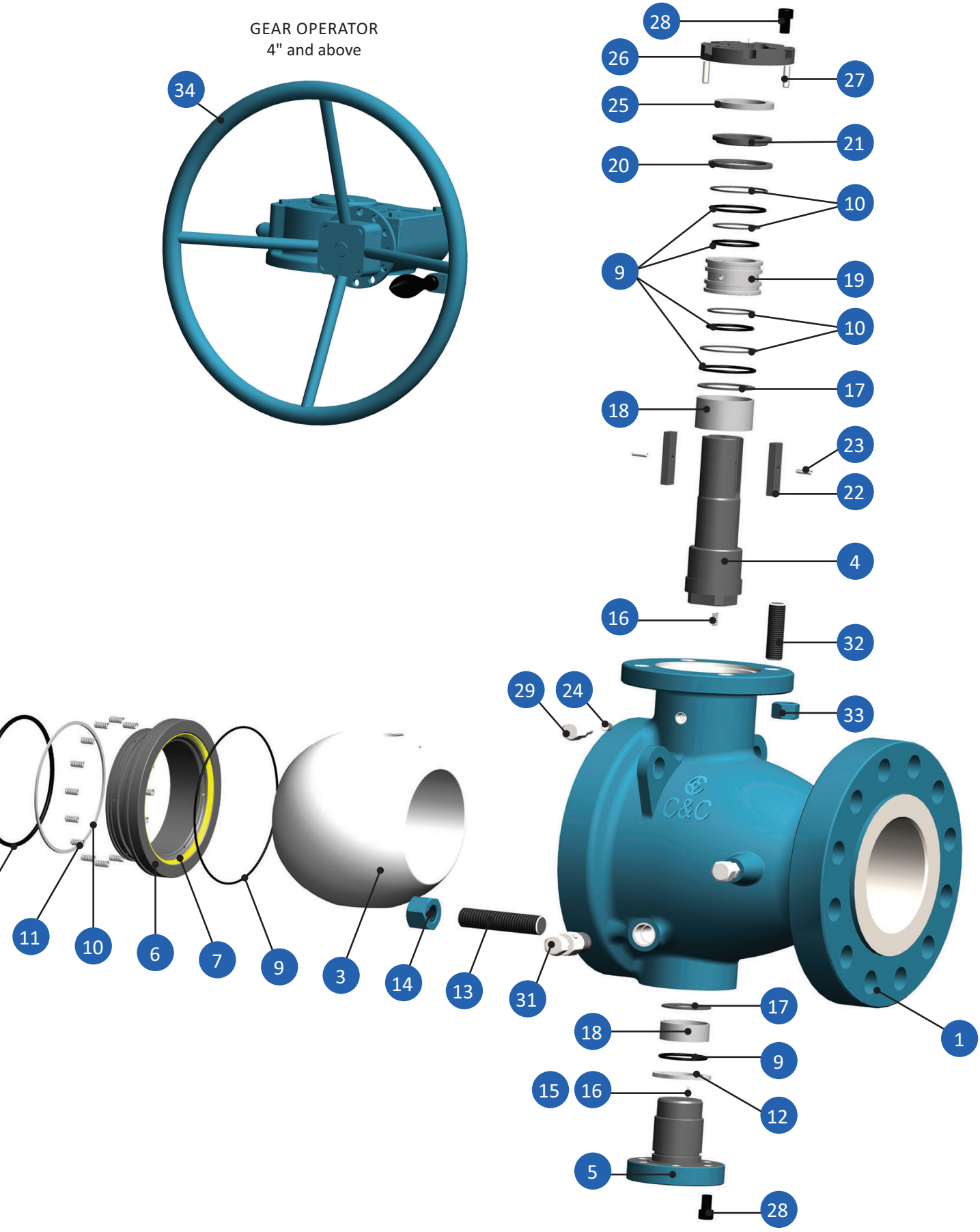




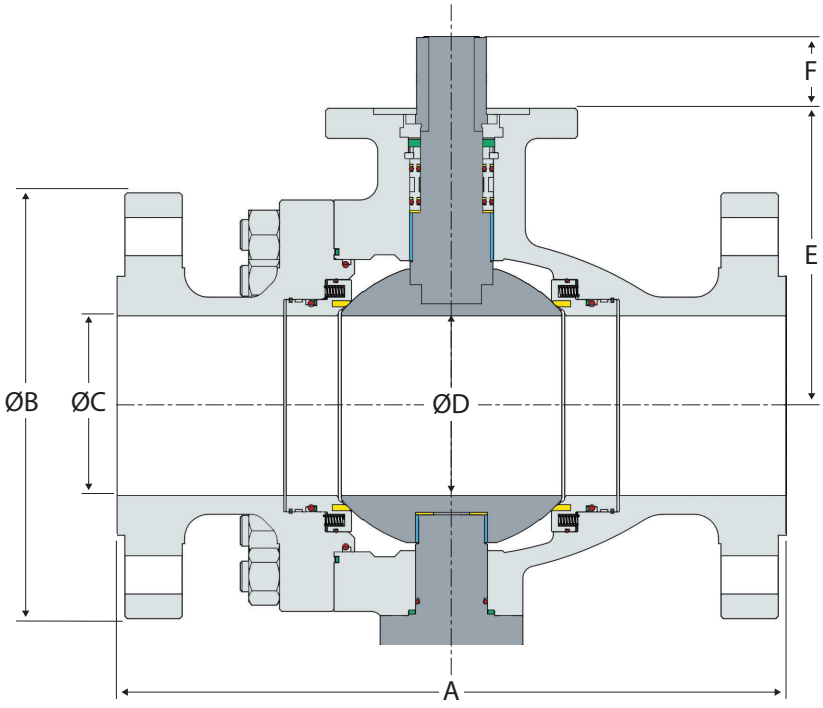
1. For Class 1500, Ball is made of Low Alloy Steel (AISI 4140 + 3 mil ENP)

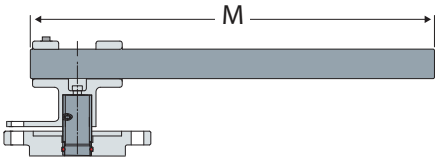
Consult factory for list of material options and specification per valve size and pressure class, as components may vary according to design.

GEAR OPERATOR
4" and above

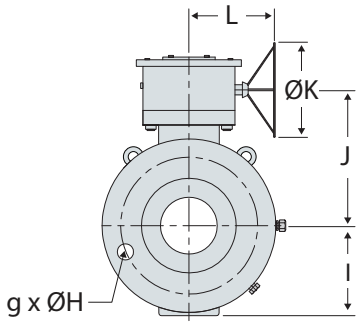


FULL PORT DIMENSIONS IMPERIAL UNITS





Sizes 2″ - 4″



Sizes 6″ - 16″

CLASS 150

FULL PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
2"	7.00	6.00	1.94	1.94	4.29	0.71	4 x 3/4	3.23	-	-	-	19.69	55
3"	8.00	7.50	2.94	2.94	5.20	0.94	4 x 3/4	4.39	-	-	-	19.69	75
4"	9.00	9.00	3.94	3.94	6.22	1.38	8 x 3/4	5.20	7.64	13.78	8.72	19.69	114
6"	15.50	11.00	5.94	5.94	8.94	2.17	8 x 7/8	7.24	10.51	13.78	9.43	-	205
8"	18.00	13.50	7.94	7.94	10.39	2.56	8 x 7/8	8.90	12.80	23.62	14.27	-	366
10"	21.00	16.00	9.94	9.94	11.97	2.80	12 x 1	10.47	14.63	23.62	15.51	-	750
12"	24.00	19.00	11.94	11.94	13.82	2.95	12 x 1	11.93	16.48	23.62	15.51	-	1047
14"	27.00	21.00	13.19	13.19	16.14	3.35	12 x 1-1/8	13.98	16.14	23.62	20.10	-	1542
16”	30.00	23.50	15.19	15.19	17.76	3.54	16 x 1-1/8	15.12	20.28	23.62	20.10	-	1715

CLASS 300

FULL PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
2"	8.50	6.50	1.94	1.94	4.29	0.71	8 x 3/4	3.23	-	-	-	19.69	65
3"	11.12	8.25	2.94	2.94	5.20	0.94	8 x 7/8	4.39	-	-	-	19.69	88
4"	12.00	10.00	3.94	3.94	6.22	1.38	8 x 7/8	5.20	7.64	13.78	8.72	19.69	136
6"	15.88	12.50	5.94	5.94	8.94	2.17	12 x 7/8	7.24	10.51	13.78	9.43	-	331
8"	19.75	15.00	7.94	7.94	10.41	2.54	12 x 1	8.90	12.81	23.62	14.27	-	529
10"	22.38	17.50	9.94	9.94	12.40	2.80	16 x 1-1/8	10.47	15.06	23.62	15.51	-	612
12"	25.50	20.50	11.94	11.94	14.33	2.95	16 x 1-1/4	12.72	16.99	23.62	15.51	-	1118
14"	30.00	23.00	13.19	13.19	16.54	3.35	20 x 1-1/4	14.76	16.54	23.62	20.10	-	1876
16"	33.00	25.50	15.19	15.19	18.31	4.33	20 x 1-3/8	15.51	20.83	23.62	20.10	-	2200

FULL PORT DIMENSIONS IMPERIAL UNITS

CLASS 600

FULL PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
2"	11.50	6.50	1.94	1.94	5.51	1.38	8 x 3/4	4.25	-	-	-	19.69	60
3"	14.00	8.25	2.94	2.94	6.46	1.61	8 x 7/8	4.92	-	-	-	27.56	110
4"	17.00	10.75	3.94	3.94	7.68	1.77	8 x 1	6.06	9.25	13.78	9.43	43.31	176
6"	22.00	14.00	5.94	5.94	9.76	2.36	12 x 1-1/8	7.87	11.34	23.62	14.27	-	450
8"	26.00	16.50	7.94	7.94	11.10	2.80	12 x 1-1/4	9.41	13.76	23.62	15.51	-	529
10"	31.00	20.00	9.94	9.94	12.87	2.95	16 x 1-3/8	11.54	15.04	18.31	14.17	-	1430
12"	33.00	22.00	11.94	11.94	15.35	4.33	20 x 1-3/8	13.62	17.87	23.62	20.10	-	1800

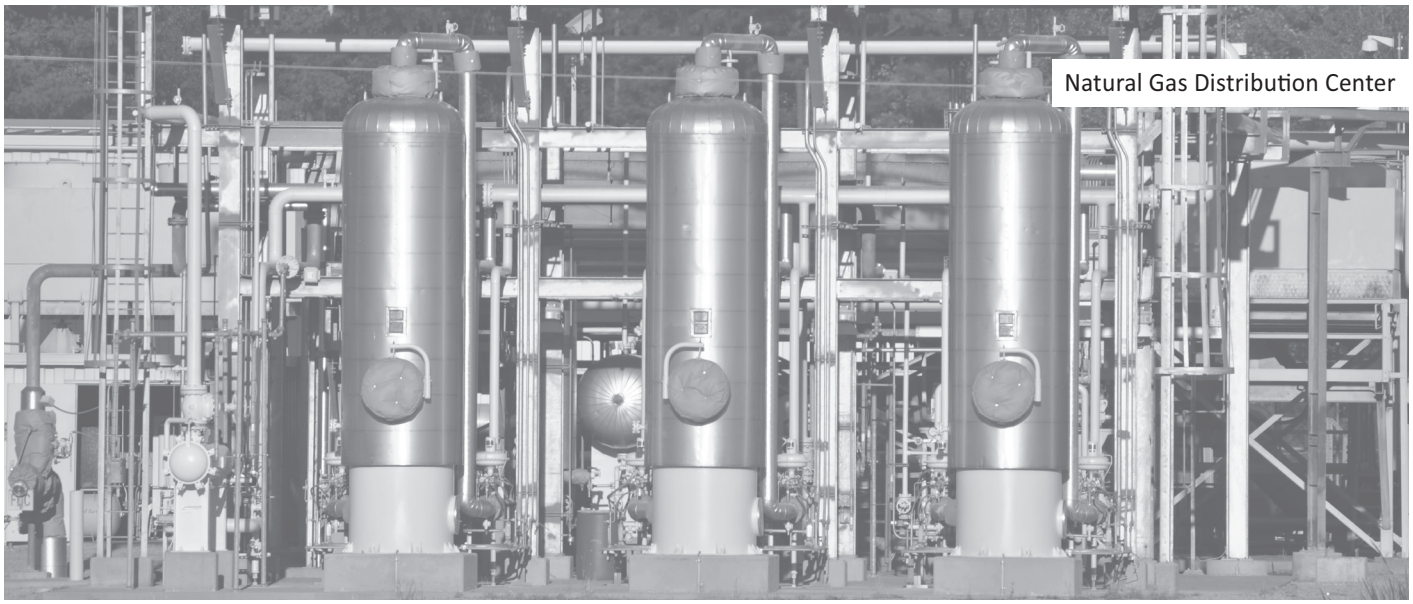
CLASS 900

FULL PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
2"	14.50	8.50	1.94	1.94	5.51	1.38	8 x 1	4.45	-	-	-	27.56	115
3"	15.00	9.50	2.94	2.94	6.46	1.61	8 x 1	5.12	-	-	-	43.31	214
4"	18.00	11.50	3.94	3.94	7.68	1.77	8 x 1-1/4	6.26	9.25	13.78	9.43	55.12	304
6"	24.00	15.00	5.94	5.94	9.76	2.64	12 x 1-1/4	8.74	12.42	23.62	15.51	-	770

CLASS 1500

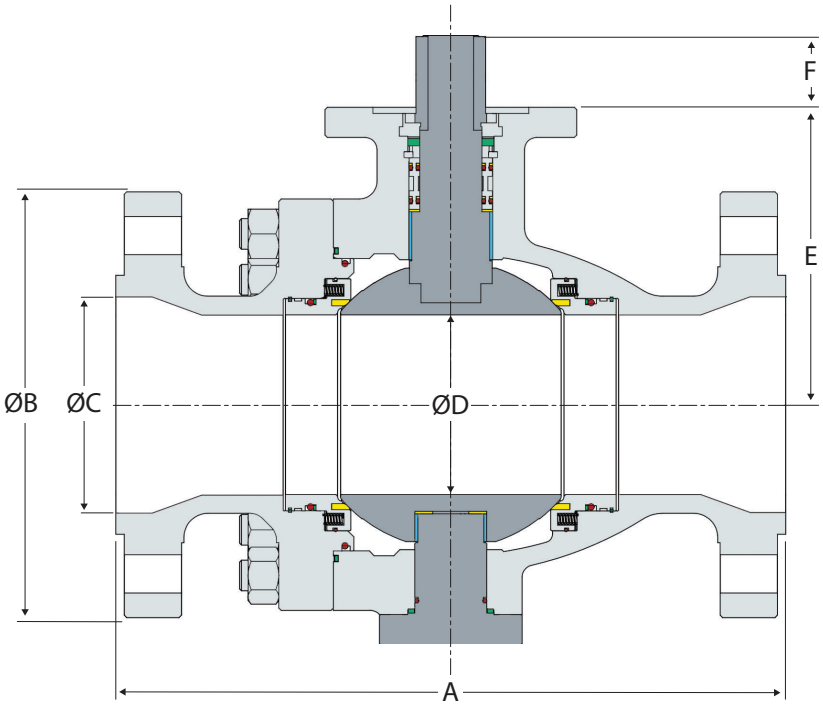
FULL PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
2"	14.50	8.50	1.94	1.94	5.51	1.38	8 x 1	4.45	-	-	-	27.56	190
3"	18.50	10.50	2.94	2.94	6.89	1.77	8 x 1-1/4	5.71	-	-	-	47.24	300
4"	21.50	12.25	3.94	3.94	7.87	2.28	8 x 1-3/8	6.99	10.28	23.62	14.27	-	487
6"	27.75	15.50	5.69	5.69	11.46	2.95	12 x 1-1/2	10.96	13.62	18.31	14.17	-	1300

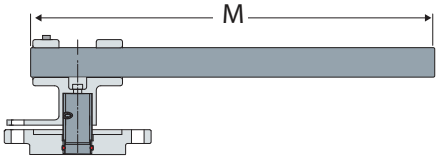
All weights listed are estimated.



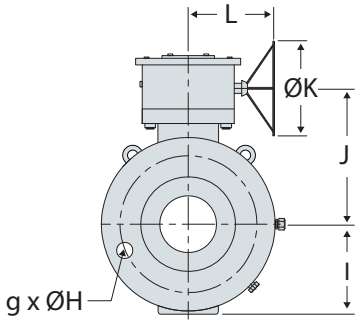
Natural Gas Distribution Center

REDUCED PORT DIMENSIONS IMPERIAL UNITS





Sizes 2" - 4"



Sizes 6" - 16"

CLASS 150

REDUCED PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
3 x 2	8.00	7.50	2.94	1.94	4.29	0.71	4 x 3/4	3.23	-	-	-	19.69	66
4 x 3	9.00	9.00	3.94	2.94	5.20	0.94	8 x 3/4	4.39	-	-	-	19.69	104
6 x 4	15.50	11.00	5.94	3.94	6.22	1.38	8 x 7/8	5.20	7.64	13.78	8.72	19.69	198
8 x 6	18.00	13.50	7.94	5.94	8.94	2.17	8 x 7/8	7.24	10.51	13.78	9.43	-	355
10 x 8	21.00	16.00	9.94	7.94	10.39	2.56	12 x 1	8.90	12.80	23.62	14.27	-	591
12 x 10	24.00	19.00	11.94	9.94	11.97	2.80	12 x 1	10.47	14.63	23.62	15.51	-	1030

CLASS 300

REDUCED PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
3 x 2	11.12	8.25	2.94	1.94	4.29	0.71	8 x 7/8	3.23	-	-	-	19.69	84
4 x 3	12.00	10.00	3.94	2.94	5.20	0.94	8 x 7/8	4.39	-	-	-	19.69	132
6 x 4	15.88	12.50	5.94	3.94	6.22	1.38	12 x 7/8	5.20	7.64	13.78	8.72	19.69	198
8 x 6	19.75	15.00	7.94	5.94	8.94	2.17	12 x 1	7.24	10.51	13.78	9.43	-	331
10 x 8	22.38	17.50	9.94	7.94	10.41	2.54	16 x 1-1/8	8.90	12.81	23.62	14.27	-	650
12 x 10	25.50	20.50	11.94	9.94	12.40	2.80	16 x 1-1/4	10.47	15.06	23.62	15.51	-	1076

REDUCED PORT DIMENSIONS IMPERIAL UNITS

CLASS 600

REDUCED PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
3 x 2	14.00	8.25	2.94	1.94	5.51	1.38	8 x 7/8	4.25	-	-	-	19.69	90
4 x 3	17.00	10.75	3.94	2.94	6.46	1.61	8 x 1	4.92	-	-	-	27.56	154
6 x 4	22.00	14.00	5.94	3.94	7.68	1.77	12 x 1-1/8	6.06	9.25	13.78	9.43	43.31	270
8 x 6	26.00	16.50	7.94	5.94	9.76	2.36	12 x 1-1/4	7.87	11.34	23.62	14.27	-	762
10 x 8	31.00	20.00	9.94	7.94	11.10	2.80	16 x 1-3/8	9.41	13.76	23.62	15.51	-	1310
12 x 10	33.00	22.00	11.94	9.94	12.87	2.95	20 x 1-3/8	11.54	15.04	18.31	14.17	-	1870

CLASS 900

REDUCED PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
3 x 2	15.00	9.50	2.94	1.94	5.51	1.38	8 x 1	4.45	-	-	-	27.56	183
4 x 3	18.00	11.50	3.94	2.94	6.46	1.61	8 x 1-1/4	5.12	-	-	-	43.31	227
6 x 4	24.00	15.00	5.94	3.94	7.68	1.77	12 x 1-1/4	6.26	9.25	13.78	9.43	55.12	443

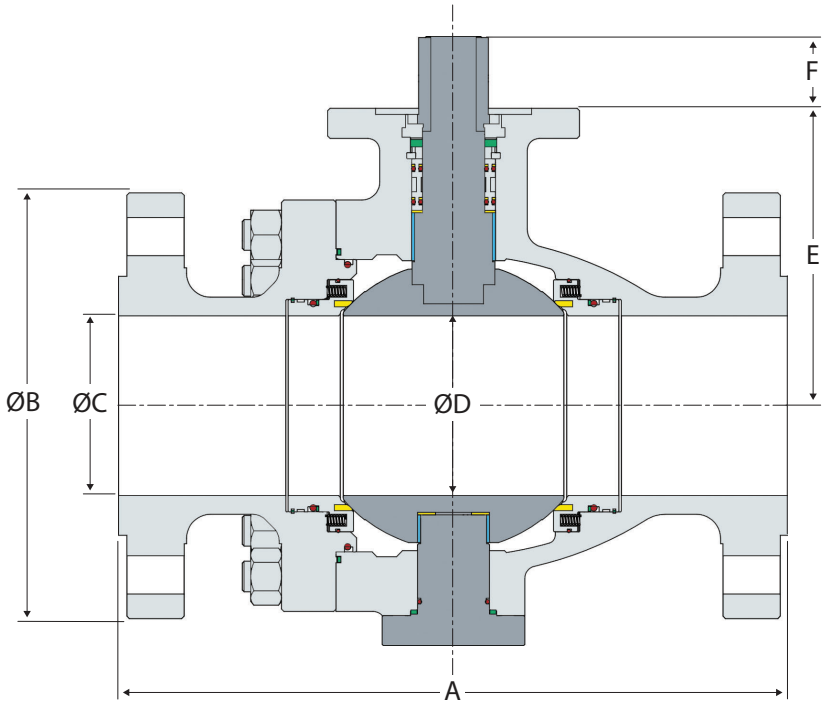
CLASS 1500

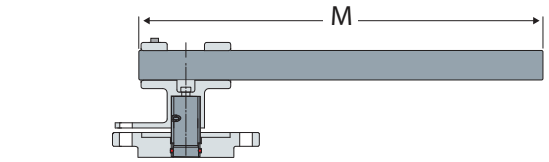
REDUCED PORT VALVE - DIMENSIONS IN INCHES (IN)													
SIZE	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (LB)
3 x 2	18.50	10.50	2.94	1.94	5.51	1.38	8 x 1-1/4	4.45	-	-	-	27.56	216
4 x 3	21.50	12.25	3.94	2.94	6.89	1.77	8 x 1-3/8	5.71	-	-	-	47.24	315
6 x 4	27.75	15.50	5.69	3.94	7.87	2.28	12 x 1-1/2	6.99	10.28	23.62	14.27	-	628

All weights listed are estimated.

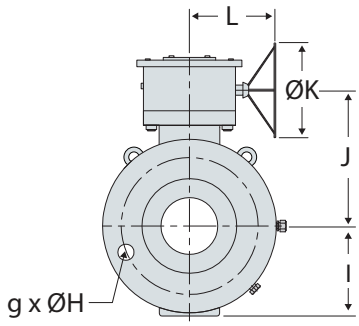
Natural Gas Compression Station

FULL PORT DIMENSIONS METRIC UNITS





Sizes 2" - 4"



Sizes 6" - 16"

CLASS 150

FULL PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
50	178	150	49	49	109	18	4 x 19	82	-	-	-	500	25
80	203	190	74	74	132	24	4 x 19	111.5	-	-	-	500	34
100	229	230	100	100	158	35	8 x 19	132	194	350	221.5	500	52
150	394	280	150	150	227	55	8 x 22	184	267	350	239.5	-	93
200	457	345	201	201	264	65	8 x 22	226	325	600	362.5	-	116
250	533	405	252	252	304	71	12 x 25	266	371.5	600	394	-	361
300	610	485	303	303	351	75	12 x 25	303	418.5	600	394	-	475
350	686	535	334	334	410	85	12 x 29	355	410	600	510.5	-	700
400	762	595	385	385	451	90	16 x 29	384	515	600	510.5	-	778

CLASS 300

FULL PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
50	216	165	49	49	109	18	8 x 19	82	-	-	-	500	29
80	283	210	74	74	132	24	8 x 22	111.5	-	-	-	500	40
100	305	255	100	100	158	35	8 x 22	132	194	350	221.5	500	62
150	403	320	150	150	227	55	12 x 22	184	267	350	239.5	-	150
200	502	380	201	201	264.5	64.5	12 x 25	226	325.5	600	362.5	-	240
250	568	445	252	252	315	71	16 x 29	266	382.5	600	394	-	305
300	648	520	303	303	364	75	16 x 32	323	431.5	600	394	-	507
350	762	585	334	334	420	85	20 x 32	375	420	600	510.5	-	851
400	838	650	385	385	465	110	20 x 35	394	529	600	510.5	-	998

FULL PORT DIMENSIONS METRIC UNITS

CLASS 600

FULL PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
50	292	165	49	49	140	35	8 x 19	108	-	-	-	500	27
80	356	210	74	74	164	41	8 x 22	125	-	-	-	700	50
100	432	275	100	100	195	45	8 x 25	154	235	350	239.5	1100	80
150	559	355	150	150	248	60	12 x 29	200	288	600	362.5	-	204
200	660	420	201	201	282	71	12 x 32	239	349.5	600	394	-	240
250	787	510	252	252	327	75	16 x 35	293	382	465	360	-	648
300	838	560	303	303	390	110	20 x 35	346	454	600	510.5	-	816

CLASS 900

FULL PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
50	368	215	49	49	140	35	8 x 25	113	-	-	-	700	52
80	381	240	74	74	164	41	8 x 25	130	-	-	-	1100	47
100	457	290	100	100	195	45	8 x 32	159	235	350	239.5	1400	138
150	610	380	150	150	248	67	12 x 32	222	315.5	600	394	-	349

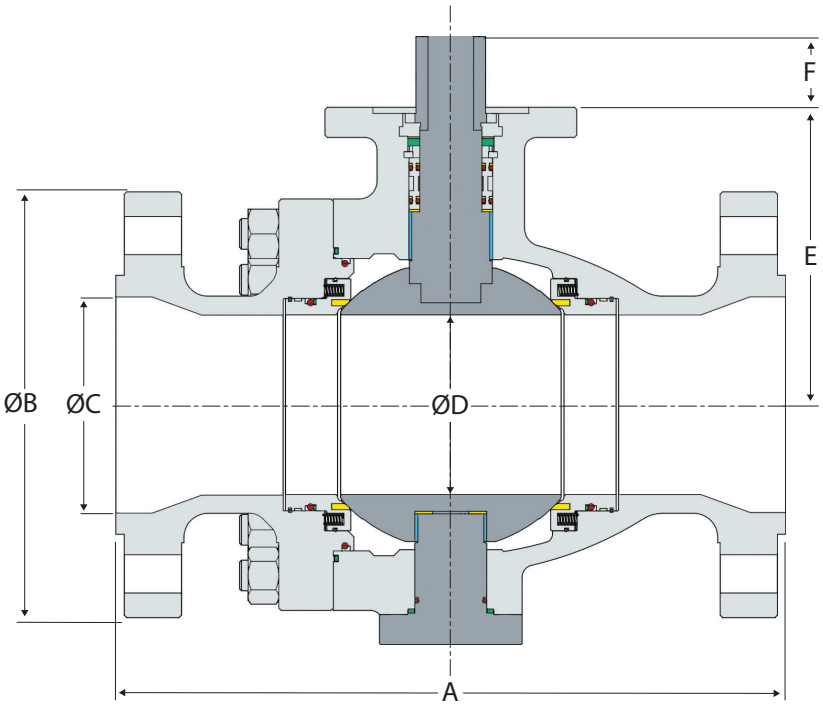
CLASS 1500

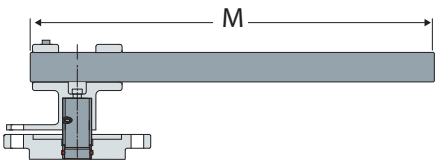
FULL PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
50	368	215	49	49	140	35	8 x 25	113	-	-	-	700	86
80	470	265	74	74	175	45	8 x 32	145	-	-	-	1200	139
100	546	310	100	100	200	58	8 x 35	177.5	261	600	362.5	-	221
150	705	395	144	144	291	75	12 x 38	278.5	346	465	360	-	589

All weights listed are estimated.

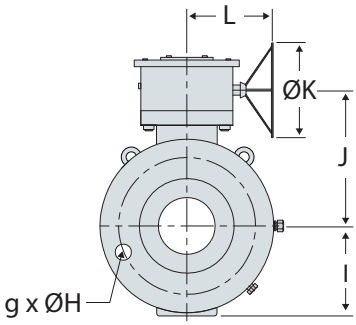
Pipelines near Refinery

REDUCED PORT DIMENSIONS METRIC UNITS





Sizes 2″ - 4″



Sizes 6″ - 16″

CLASS 150

REDUCED PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
80 x 50	203	190	74	49	109	18	4 x 19	82	-	-	-	500	30
100 x 80	229	230	100	74	132	24	8 x 19	111.5	-	-	-	500	47
150 x 100	394	280	150	100	158	35	8 x 22	132	194	350	221.5	500	90
200 x 150	457	345	201	150	227	55	8 x 22	184	267	350	239.5	-	161
250 x 200	533	405	252	201	264	65	12 x 25	226	325	600	362.5	-	268
300 x 250	610	485	303	252	304	71	12 x 25	266	371.5	600	394	-	467

CLASS 300

REDUCED PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
80 x 50	283	210	74	49	109	18	8 x 22	82	-	-	-	500	38
100 x 80	305	255	100	74	132	24	8 x 22	111.5	-	-	-	500	60
150 x 100	403	320	150	100	158	35	12 x 22	132	194	350	221.5	500	90
200 x 150	502	380	201	150	227	55	12 x 25	184	267	350	239.5	-	151
250 x 200	568	445	252	201	264.5	64.5	16 x 29	226	325.5	600	362.5	-	295
300 x 250	648	520	303	252	315	71	16 x 32	266	382.5	600	394	-	488

REDUCED PORT DIMENSIONS METRIC UNITS

CLASS 600

REDUCED PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
80 x 50	356	210	74	49	140	35	8 x 22	108	-	-	-	500	41
100 x 80	432	275	100	74	164	41	8 x 25	125	-	-	-	700	70
150 x 100	559	355	150	100	195	45	12 x 29	154	235	350	239.5	1100	122
200 x 150	660	420	201	150	248	60	12 x 32	200	288	600	362.5	-	246
250 x 200	787	510	252	201	282	71	16 x 35	239	349.5	600	394	-	399
300 x 250	838	560	303	252	327	75	20 x 35	293	382	465	360	-	848

CLASS 900

REDUCED PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
80 x 50	381	240	74	49	140	35	8 x 25.4	113	-	-	-	700	83
100 x 80	457	290	100	74	164	41	8 x 32	130	-	-	-	1100	103
150 x 100	610	380	150	100	195	45	12 x 32	159	235	350	239.5	1400	201

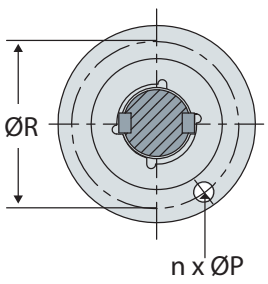
CLASS 1500

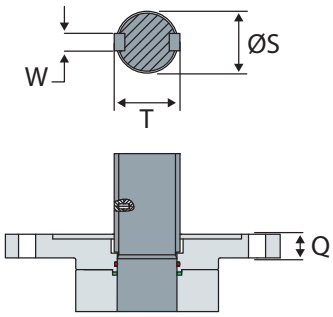
REDUCED PORT VALVE - DIMENSIONS IN MILLIMETERS (MM)													
SIZE (DN)	A	ØB	ØC	ØD	E	F	G X ØH	I	J	ØK	L	M	WEIGHT (KG)
80 x 50	470	265	74	49	140	35	8 x 32	113	-	-	-	700	98
100 x 80	546	310	100	74	175	45	8 x 35	145	-	-	-	1200	143
150 x 100	705	395	144	100	200	58	12 x 38	177.5	261	600	362.5	-	285

All weights listed are estimated.

Storage Tank Facility

ACTUATOR MOUNTING DIMENSIONS IMPERIAL UNITS





n = Number of Bolts
ØP = Hole Diameter
Q = Min. Flange Thickness
ØR = Bolt Circle Diameter

ØS = Stem Diameter
T = Stem Diameter Over Keys
W = Key Width

CLASS 600

ISO 5211 FLANGE IN INCHES (IN)								
SIZE	ISO	N	ØP	Q	ØR	ØS	T	W
2"	F12	4	0.55	0.59	4.92	1.18	1.42	0.31
3"	F14	4	0.71	0.79	5.51	1.42	1.65	0.39
4"	F16	4	0.87	0.98	6.50	1.69	1.93	0.47
6"	F16	4	0.87	0.98	6.50	1.97	2.24	0.55
8"	F25	8	0.71	0.98	10.00	2.36	2.68	0.71
10"	F25	8	0.71	0.98	10.00	2.76	3.11	0.79
12"	F25	8	0.71	0.98	10.00	3.15	3.54	0.87

CLASS 150

ISO 5211 FLANGE IN INCHES (IN)								
SIZE	ISO	N	ØP	Q	ØR	ØS	T	W
2"	F10	4	0.47	0.47	4.02	0.79	0.98	0.24
3"	F10	4	0.47	0.47	4.02	0.94	1.18	0.31
4"	F12	4	0.55	0.59	4.92	1.26	1.50	0.39
6"	F16	4	0.87	0.98	6.50	1.57	1.81	0.47
8"	F16	4	0.87	0.98	6.50	1.97	2.24	0.55
10"	F25	8	0.71	0.98	10.00	2.36	2.68	0.71
12"	F25	8	0.71	0.98	10.00	2.76	3.11	0.79
14"	F25	8	0.71	0.98	10.00	2.87	3.23	0.79
16"	F25	8	0.71	0.98	10.00	2.87	3.23	0.79

CLASS 900

ISO 5211 FLANGE IN INCHES (IN)								
SIZE	ISO	N	ØP	Q	ØR	ØS	T	W
2"	F12	4	0.55	0.59	4.92	1.18	1.42	0.31
3"	F14	4	0.71	0.79	5.51	1.42	1.65	0.39
4"	F16	4	0.87	0.98	6.50	1.69	1.93	0.47
6"	F16	4	0.87	0.98	6.50	2.09	2.40	0.63

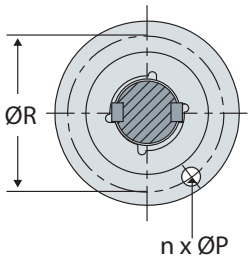
CLASS 300

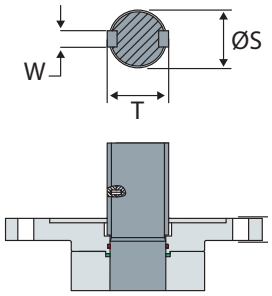
ISO 5211 FLANGE IN INCHES (IN)								
SIZE	ISO	N	ØP	Q	ØR	ØS	T	W
2"	F10	4	0.47	0.47	4.02	0.79	0.98	0.24
3"	F10	4	0.47	0.47	4.02	0.94	1.18	0.31
4"	F12	4	0.55	0.59	4.92	1.26	1.50	0.39
6"	F16	4	0.87	0.98	6.50	1.57	1.81	0.47
8"	F16	4	0.87	0.98	6.50	1.97	2.24	0.55
10"	F25	8	0.71	0.98	10.00	2.36	2.68	0.71
12"	F25	8	0.71	0.98	10.00	2.76	3.11	0.79
14"	F25	8	0.71	0.98	10.00	2.87	3.23	0.79
16"	F25	8	0.71	0.98	10.00	3.15	3.54	0.87

CLASS 1500

ISO 5211 FLANGE IN INCHES (IN)								
SIZE	ISO	N	ØP	Q	ØR	ØS	T	W
2"	F12	4	0.55	0.59	4.92	1.18	1.42	0.31
3"	F16	4	0.87	0.98	6.50	1.69	1.93	0.47
4"	F16	4	0.87	0.98	6.50	1.97	2.24	0.55
6"	F25	8	0.71	0.98	10.00	2.44	2.76	0.71

ACTUATOR MOUNTING DIMENSIONS METRIC UNITS





n = Number of Bolts
ØP = Hole Diameter
Q = Min. Flange Thickness
ØR = Bolt Circle Diameter

ØS = Stem Diameter
T = Stem Diameter Over Keys
W = Key Width

CLASS 600

ISO 5211 FLANGE IN MILLIMETERS (MM)								
SIZE (DN)	ISO	N	ØP	Q	ØR	ØS	T	W
50	F12	4	14	15	125	30	36	8
80	F14	4	18	20	140	36	42	10
100	F16	4	22	25	165	43	49	12
150	F16	4	22	25	165	50	57	14
200	F25	8	18	25	254	60	68	18
250	F25	8	18	25	254	70	79	20
300	F25	8	18	25	254	80	90	22

CLASS 150

ISO 5211 FLANGE IN MILLIMETERS (MM)								
SIZE (DN)	ISO	N	ØP	Q	ØR	ØS	T	W
50	F10	4	12	12	102	20	25	6
80	F10	4	12	12	102	24	30	8
100	F12	4	14	15	125	32	38	10
150	F16	4	22	25	165	40	46	12
200	F16	4	22	25	165	50	57	14
250	F25	8	18	25	254	60	68	18
300	F25	8	18	25	254	70	79	20
350	F25	8	18	25	254	73	82	20
400	F25	8	18	25	254	73	82	20

CLASS 900

ISO 5211 FLANGE IN MILLIMETERS (MM)								
SIZE (DN)	ISO	N	ØP	Q	ØR	ØS	T	W
50	F12	4	14	15	125	30	36	8
80	F14	4	18	20	140	36	42	10
100	F16	4	22	25	165	43	49	12
150	F16	4	22	25	165	53	61	16

CLASS 300

ISO 5211 FLANGE IN MILLIMETERS (MM)								
SIZE (DN)	ISO	N	ØP	Q	ØR	ØS	T	W
50	F10	4	12	12	102	20	25	6
80	F10	4	12	12	102	24	30	8
100	F12	4	14	15	125	32	38	10
150	F16	4	22	25	165	40	46	12
200	F16	4	22	25	165	50	57	14
250	F25	8	18	25	254	60	68	18
300	F25	8	18	25	254	70	79	20
350	F25	8	18	25	254	73	82	20
400	F25	8	18	25	254	80	90	22

CLASS 1500

ISO 5211 FLANGE IN MILLIMETERS (MM)								
SIZE (DN)	ISO	N	ØP	Q	ØR	ØS	T	W
50	F12	4	14	15	125	30	36	8
80	F16	4	22	25	165	43	49	12
100	F16	4	22	25	165	50	57	14
150	F25	8	18	25	254	62	70	18

TECHNICAL DATA

C_V FOR FULL PORT BALL

CV VALUE OF FULL PORT BALL VALVE						
SIZE		CL 150	CL 300	CL 600	CL 900	CL 1500
IN	DN					
2"	50	420	420	420	330	330
3"	80	1200	1200	1200	910	820
4"	100	2200	2200	2200	1800	1700
6"	150	5150	5150	4400	4380	3800
8"	200	9500	9500	8450	-	-
10"	250	15000	15000	14700	-	-
12"	300	23000	23000	22550	-	-
14"	350	28000	28000	-	-	-
16"	400	37200	37200	-	-	-

C_V FOR REDUCED PORT BALL

CV VALUE OF REDUCED PORT BALL VALVE						
SIZE		CL 150	CL 300	CL 600	CL 900	CL 1500
IN	DN					
3 x 2	80 x 50	200	200	200	190	180
4 x 3	100 x 80	600	600	600	590	550
6 x 4	150 x 100	800	800	790	790	780
8 x 6	200 x 150	2150	2150	2150	-	-
10 x 8	250 x 200	4300	4300	4300	-	-
12 x 10	300 x 250	7550	7550	7550	-	-

OPERATING TORQUE

BREAK TORQUE IN INCH POUNDS (IN-LB)					
SIZE	CL 150	CL 300	CL 600	CL 900	CL 1500
2"	354	620	1018	2655	2655
3"	797	1062	1593	3983	5753
4"	1239	2478	3098	6196	9736
6"	3585	5133	8408	14161	24782
8"	6638	9736	15046	-	-
10"	11506	15931	26552	-	-
12"	15931	23012	39828	-	-
14"	19472	30978	-	-	-
16"	30978	39828	-	-	-

BREAK TORQUE IN NEWTON METERS (NM)					
SIZE (DN)	CL 150	CL 300	CL 600	CL 900	CL 1500
50	40	70	115	300	300
80	90	120	180	450	650
100	140	280	350	700	1100
150	405	580	950	1600	2800
200	750	1100	1700	-	-
250	1300	1800	3000	-	-
300	1800	2600	4500	-	-
350	2200	3500	-	-	-
400	3500	4500	-	-	-

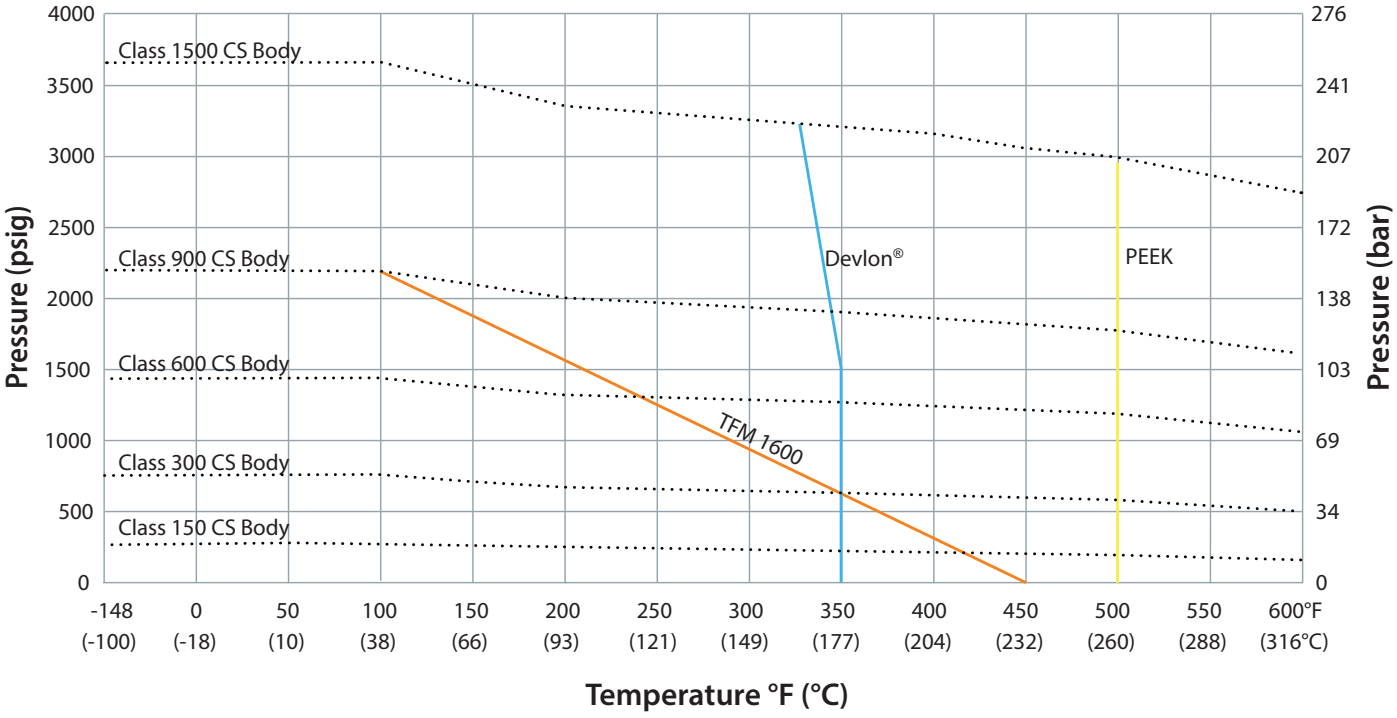
- Devlon seat material used in calculating operating torque values.
- The above values are new valve torque values, at maximum differential pressure.
- The run (operating) torque is 60% of break torque. Closing torque is 80% of break torque.
- The above torque values do not contain service factors.
- When selecting an actuator, add 25% safety factor to the required torque as a minimum.
- For sizes not listed, contact factory.
- Actuator selection should be made on customer experience and appropriate service factors.

PRESSURE RATINGS

MATERIAL MAXIMUM PRESSURE RATING BY CLASS AT AMBIENT TEMPERATURE						
CLASS	CARBON STEEL		LOW TEMP CARBON STEEL		STAINLESS STEEL	
	PSIG	BAR	PSIG	BAR	PSIG	BAR
150	285	20	290	20	275	19
300	740	51	750	52	720	50
600	1480	102	1500	103	1440	99
900	2220	153	2250	155	2160	149
1500	3705	255	3750	259	3600	248

TECHNICAL DATA

SEAT PERFORMANCE CAPABILITIES



TEMPERATURE LIMITS

MATERIAL TEMPERATURE LIMITS						
MATERIAL		SPECIFICATION	FAHRENHEIT (°F)		CELSIUS (°C)	
			MIN.	MAX.	MIN.	MAX.
BODY	**Carbon Steel**	ASTM A216 WCB	-20	800	-29	427
	Low Temp Carbon Steel	ASTM A352 LCC	-50	650	-46	343
	Stainless Steel	ASTM A351 CF8M	-325	1500	-196	816
SEAT	**TFM 1600**	TFM 1600	-148	450	-100	232
	Devlon®	Devlon®	-50	350	-46	177
	PEEK	PEEK	-148	500	-100	260
SEAL	**LT HNBR 90**	LT HNBR 90	-50	302	-46	150
	LT Viton® 90	LT Viton® 90	-49	390	-45	200

TRIM OPTIONS

TRIM OPTIONS & MATERIALS			
COMPONENT	CARBON STEEL	LOW TEMP CARBON STEEL	STAINLESS STEEL
	TRIM 3	TRIM 4	TRIM 5
Ball	ASTM A105 /AISI 4140 + 3 mil ENP[1]	ASTM A350 LF2/AISI 4140 + 3 mil ENP[1]	ASTM A182 F316/F51[2]
Stem	AISI 4140 + 3 mil ENP	AISI 4140 + 3 mil ENP	ASTM A182 F51
Trunnion	AISI 4140 + 3 mil ENP	AISI 4140 + 3 mil ENP	ASTM A182 F51
Seat Ring	ASTM A105 + 3 mil ENP	ASTM A350 LF2 + 3 mil ENP	ASTM A182 F316

1 For Class 1500, Ball is made of Low Alloy Steel (AISI 4140 + 3mil ENP)
2 For Class 1500, Ball is made of Duplex Stainless Steel (ASTM A182 F51)

ADDITIONAL API 6D OFFERINGS

PISTON CHECK VALVE

GUARDIAN SERIES

The C&C Cast Piston Check Valve provides system protection through back flow control. It is used in applications where there is a need to reduce excessive wear associated with reciprocating service, such as with compressors and pumps. The Piston Check is outfitted with a top entry flange, allowing for ease of maintenance and repair of internal parts, ultimately reducing downtime.

- Sizes 2” to 12”, ASME Class 150 through 1500
- Suitable for Liquid or Gaseous Applications
- NACE MR0175/ISO 15156-1
- API 6D Monogrammed, ISO 14313, CSA Z245.15-17
- PED 2014/68/EU Annex III, Module H
- Material Traceability to ASME B31.1

3 PIECE FORGED TRUNNION BALL VALVE

TRIDENT SERIES

The C&C 3 piece Forged Trunnion Mounted Ball Valve complies with API 6D, ASME B16.34, API 608, API 607 and other relevant ASTM specifications. It is suited for pipeline and other applications within the global energy infrastructure where zero leakage positive shutoff is critical. API Monogrammed and compliant with all relevant industry specifications, C&C trunnion ball valves should be an integral component of your piping network.

- Sizes 2” to 36”, ASME Class 150 through 2500
- API 6D Monogrammed, ISO 14313, CSA Z245.15-17
- Fugitive Emissions: API 641
- NACE MR0175/ISO 15156-1
- PED 2014/68/EU Annex III, Module H
- Compliant with ASME B16.5, B16.10 and ISO 5211
- Material Traceability to ASME B31.1
- Fire Safe: API6FA/API 607 7th Edition

NOTES

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