

CNC

FLOW CONTROL



NON-SLAM PISTON CHECK VALVE

Guardian Series



C&C is a product brand of CNC Flow Control



ABOUT CNC FLOW CONTROL

CNC Flow Control is headquartered in Houston, Texas with multiple other locations in the U.S. and Canada. Our company unifies several trusted valve and flow line brands that have been serving numerous industries in North America for nearly three decades. From long range projects to same-day delivery, our diverse team is dedicated to understanding customers' needs in order to ensure exceptional service and the best solutions. Our extensive product portfolio ranges from commodity products like hammer unions and needle valves, to highly engineered products like API 6D trunnion mounted ball valves.

Quality assurance is critical to CNC Flow Control's process and we hold multiple internationally recognized quality standards certifications and management system. We are dedicated to understanding our customers' needs to ensure exceptional service by offering an in-house engineering and product management team, an extremely large product portfolio and extensive inventory to support same day shipments.



ABOUT OUR C&C BRAND

C&C's breadth of available products is extremely 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 three decades. Today, C&C products are seen in almost all upstream oil and gas applications throughout North America.

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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, gears, connectors, actuators and other valve accessories for high pressure process and piping for 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 provide complimentary products to currently served markets and increase service levels in order to establish ourselves as your single source provider for valve and flow control solutions.

STANDARDS

- Design/Materials: API 6D, ASME B16.34
- End to End: ASME B16.10
- Flanged End: ASME B16.5
- Testing: API 598/API 6D, CSA Z245.15-17
- API 6D Monogrammed
- PED 2014/68/EU
- Canadian Registration Number approved

SPECIFICATIONS

- Sizes 2" – 12"
- ASME Class 150 – 1500
- Full Material Traceability
- Large Material Selection
- 100% Factory Testing
- Non-Slam Design
- Conforms to NACE MR0175/ISO 15156

APPLICATIONS

- Compression Stations
- Metering Skids
- Gas Gathering
- Natural Gas Plants
- Reciprocating Compressors
- Chemical Processing



DESIGN HIGHLIGHTS



1 ACCESSIBILITY

Full accessibility to valve internals through the cover means reduced maintenance down time.

2 SPRING LOADED

Valve is spring assisted to ensure piston is seated and positive shutoff is achieved.

3 SLEEVE

Positively retained sleeve with smooth finish provides long lasting, trouble free operation.

4 FAST ACTING

Quick opening is achieved by installation of a ball check valve located inside the piston.

5 ORIFICE

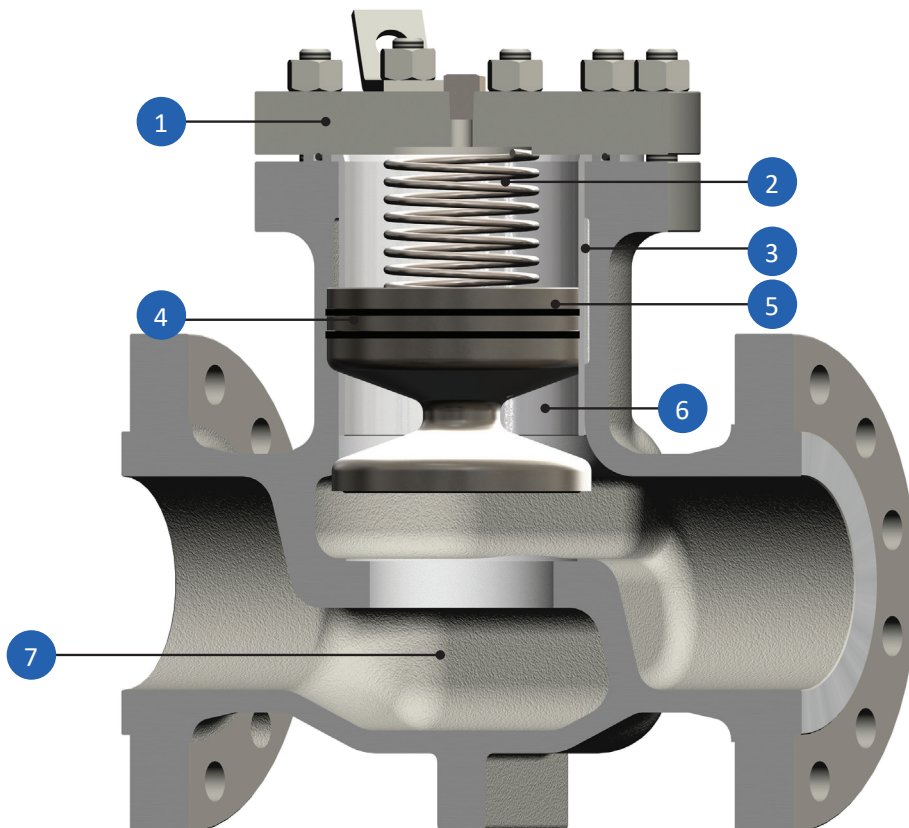
By dampening the piston's response to changes in flow, the orifice is able to control the closing speed of the non-slam piston design.

6 BACKFLOW

The design of the piston is such that the greater the backflow pressure, the tighter the seal between the body and piston.

7 APPLICATION SPECIALIST

The piston check valve succeeds where other check valves fail - pulsating and reciprocating applications. The unique design of the piston check orifice is specially suited to dampen the piston's response to sudden or rapid changes in flow, typically found immediately downstream of a pump or compressor.



STANDARD MATERIALS OF CONSTRUCTION

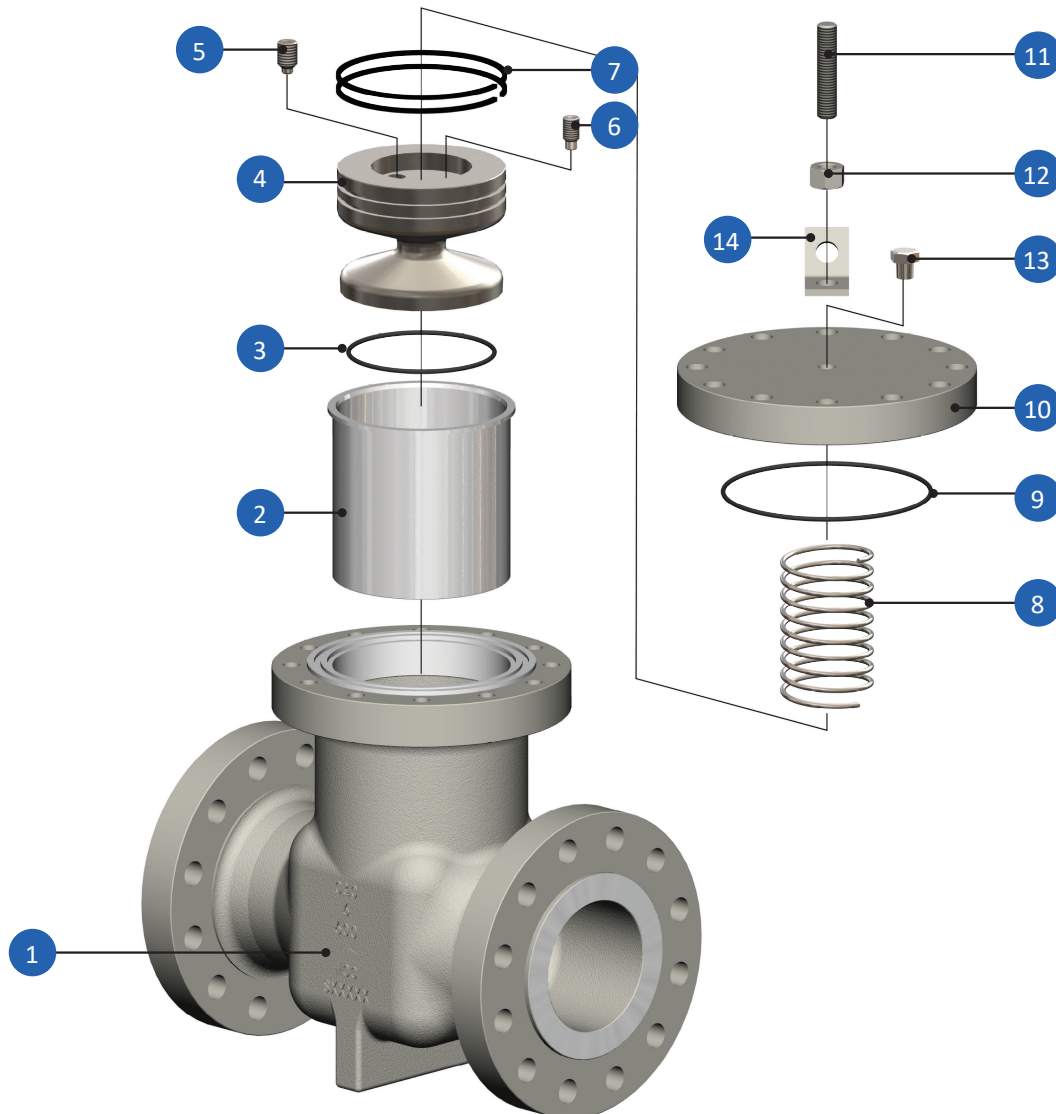


ITEM	COMPONENT	MATERIAL	SPECIFICATION
1	Body	Carbon Steel + 410 Overlay	ASTM A216 WCC+ UNS S41000
2	Liner	Carbon Steel	AISI 1020 + ENP
3	Piston Seal	Rubber	LT HNBR 90
4	Piston	Stainless Steel	ASTM A182 F6a
5	Ball Check Valve	Stainless Steel	ASTM A276 316
6	Orifice Screw	Carbon Steel	ASTM A193 B7M
7	Piston Ring	Carbon Steel	AISI 1066/Nitriding
8	Spring	Inconel® X-750	UNS N07750

ITEM	COMPONENT	MATERIAL	SPECIFICATION
9	Cover Seal	Rubber	LT HNBR 90
10	Cover	Carbon Steel	ASTM A105N
11	Stud	Carbon Steel	ASTM A193 B7M
12	Nut	Carbon Steel	ASTM A194 2HM
13	Plug	Stainless Steel	ASTM A276 316
14	Lifting Lug	Carbon Steel	ASTM A283 Gr.D

Consult CNC Flow Control for full list of material options and specifications per valve size and pressure class, as components may vary according to design.

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HOW TO ORDER GUIDE



EXAMPLE:

A 6", Class 600, API 6D Non-Slam Piston Check Valve with Raised Face Flanged End Connections, WCC Carbon Steel Body, 410 SS Piston with Integral Seats and LT HNBR 90 Seals is written as 606PCNRC4IIB.

A	B	C	D	E	F	G	H	I
6	06	PC	N	R	C	4	I	B

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

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

C	Valve Type
PC	API 6D Non-Slam Piston Check Valve

D	Port
N	Full (Non-Piggable)

E	End Connection
R	RF Flange
J	RTJ Flange

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

G	Piston Material	
4	410 Stainless Steel	ASTM A182 F6a Cl.2
S	316 Stainless Steel	ASTM A182 F316

H	Seat Material
I	Integral

I	Seal Material
B	LT HNBR 90
V	Viton® GLT 90

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.

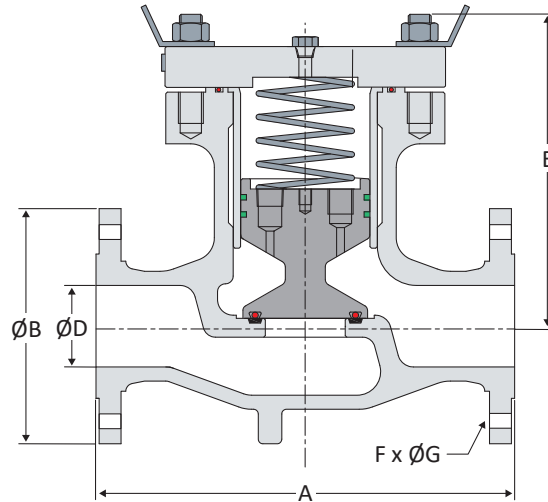
Viton® is a registered trademark of The Chemours Company.

Consult CNC Flow Control if this valve is for gas service, as a reduced size orifice screw may be needed to retard the closing speed of the piston.



Gas Booster Compressor For Vapor Recovery Unit

WEIGHTS & DIMENSIONS



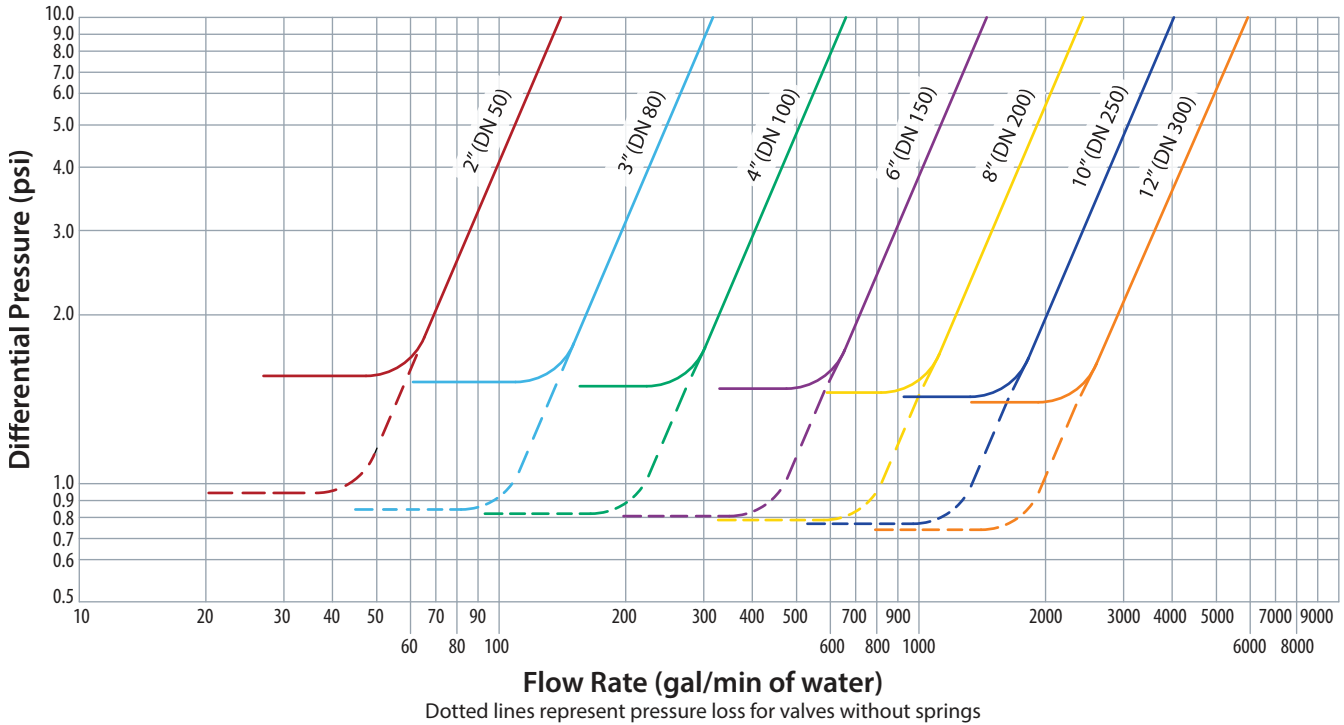
DIMENSIONS IN INCHES (IN)							
CLASS	SIZE	A	ØB	ØD	E	F X ØG	APPROX. WEIGHT (LB)
150	2"	10.50*	6.00	1.94	8.03	4 x 3/4	71
	3"	12.50*	7.50	2.94	8.94	4 x 3/4	107
	4"	14.00 *	9.00	3.94	10.76	8 x 3/4	165
	6"	17.50*	11.00	5.94	13.82	8 x 7/8	281
	8"	19.50	13.50	7.94	16.46	8 x 7/8	484
	10"	24.50	16.00	9.94	18.50	12 x 1	730
	12"	27.50	19.00	11.94	22.50	12 x 1	966
300	2"	10.50	6.50	1.94	8.03	8 x 3/4	74
	3"	12.50	8.25	2.94	8.94	8 x 7/8	120
	4"	14.00	10.00	3.94	10.76	8 x 7/8	198
	6"	17.50	12.50	5.94	14.17	12 x 7/8	376
	8"	21.00	15.00	7.94	17.09	12 x 1	695
	10"	24.50	17.50	9.94	18.50	16 x 1-1/8	974
	12"	28.00	20.50	11.94	22.50	16 x 1-1/4	1265
600	2"	11.50	6.50	1.94	8.18	8 x 3/4	84
	3"	14.00	8.25	2.94	9.13	8 x 7/8	141
	4"	17.00	10.75	3.94	11.26	8 x 1	240
	6"	22.00	14.00	5.94	15.16	12 x 1-1/8	593
	8"	26.00	16.50	7.94	17.91	12 x 1-1/4	942
	10"	31.00	20.00	9.94	18.50	16 x 1-3/8	1625
	12"	33.00	22.00	11.94	22.50	20 x 1-3/8	2220
900	2"	14.50	8.50	1.94	9.00	8 x 1	181
	3"	15.00	9.50	2.94	9.80	8 x 1	182
	4"	18.00	11.50	3.94	12.15	8 x 1-1/4	320
	6"	24.00	15.00	5.94	16.45	12 x 1-1/4	728
	8"	29.00	18.50	7.94	19.38	12 x 1-1/2	1266
	10"	33.00	21.50	9.94	18.50	16 x 1-1/2	1932
	12"	38.00	24.00	11.94	22.50	20 x 1-1/2	2635
1500	2"	14.50	8.50	1.94	9.00	8 x 1	181
	3"	18.50	10.50	2.94	11.50	8 x 1-1/4	371
	4"	21.50	12.25	3.94	13.25	8 x 1-3/8	485
	6"	27.75	15.50	5.69	19.00	12 x 1-1/2	1478

DIMENSIONS IN MILLIMETERS (MM)								
CLASS	SIZE (DN)	A	ØB	ØD	E	F X ØG	APPROX. WEIGHT (KG)	
150	50	267*	150	49	204	4 x 19	32	
	80	318*	190	74	227	4 x 19	49	
	100	356*	230	100	273	8 x 19	75	
	150	445*	280	150	351	8 x 22	127	
	200	495	345	201	418	8 x 22	220	
	250	622	405	252	470	12 x 25	331	
	300	699	485	303	572	12 x 25	438	
	300	50	267	165	49	204	8 x 19	34
300	80	318	210	74	227	8 x 22	54	
	100	356	255	100	273	8 x 22	90	
	150	445	320	150	360	12 x 22	171	
	200	533	380	201	434	12 x 25	315	
	250	622	445	252	470	16 x 29	442	
	300	711	520	303	572	16 x 32	574	
	600	50	292	165	49	208	8 x 19	38
	600	80	356	210	74	232	8 x 22	64
100		432	275	100	286	8 x 25	109	
150		559	355	150	385	12 x 29	269	
200		660	420	201	455	12 x 32	427	
250		787	510	252	470	16 x 35	737	
300		838	560	303	572	20 x 35	1007	
900		50	368	215	49	229	8 x 25	82
900		80	381	240	74	249	8 x 25	83
	100	457	290	100	309	8 x 32	145	
	150	610	380	150	418	12 x 32	330	
	200	737	470	201	492	12 x 38	574	
	250	838	545	252	470	16 x 38	876	
	300	965	610	303	572	20 x 38	1195	
	1500	50	368	215	49	229	8 x 25	82
	1500	80	470	265	74	292	8 x 32	168
100		546	310	100	337	8 x 35	220	
150		705	395	144	483	12 x 38	670	

* All lengths listed are Manufacturer's Standard.

** All weights listed are estimated and may vary slightly.

PRESSURE LOSS CURVES



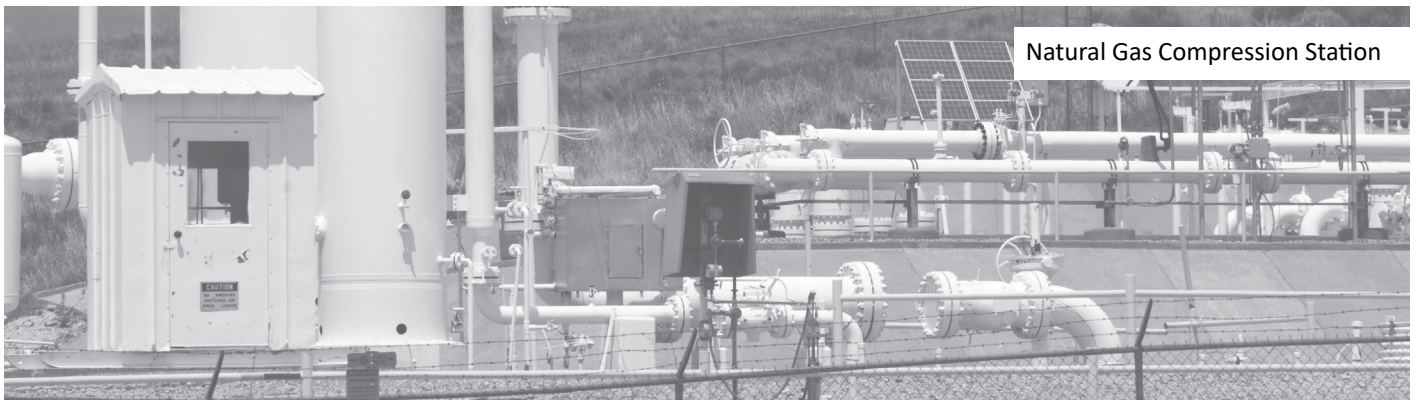
C_v FOR PISTON CHECK VALVE

CV VALUE OF FULLY OPEN VALVE	
SIZE	CV
2"	43
3"	106
4"	205
6"	470
8"	855
10"	1350
12"	1935

TEMPERATURE LIMITS

MATERIAL TEMPERATURE LIMITS						
	MATERIAL	SPECIFICATION	FAHRENHEIT (°F)		CELSIUS (°C)	
			MIN.	MAX.	MIN.	MAX.
BODY	Carbon Steel	ASTM A216 WCC	-20	800	-29	427
	Low Temp Carbon Steel	ASTM A352 LCC	-50	650	-46	343
	Stainless Steel	ASTM A351 CF8M	-425	1500	-254	816
SEAL	LT HNBR 90	LT HNBR 90	-50	302	-46	150
	Viton® GLT 90	Viton® GLT 90	-50	392	-46	200

*Contact CNC Flow Control for additional materials based on application.



Natural Gas Compression Station

ADDITIONAL API 6D OFFERINGS



2 PIECE CAST TRUNNION BALL VALVE

ATLAS SERIES

The C&C Cast Trunnion Mounted Ball Valve's split body construction complies with API 6D, ASME B16.34, API 608, API 607 and other relevant ASTM specifications. With a variety of material selections available, as well as ISO 5211 compliant direct mount actuator pad, the Atlas Series ball trunnion mounted ball valve can be customized and automated to suit a complete range of oil and gas applications.

- Sizes 2" to 12", ASME Class 150 through 600
- API 6D Monogrammed, ISO 14313, CSA Z245.15-17
- NACE MR0175/ISO 15156-1
- Material Traceability to ASME B31.1
- Compliant with ASME B16.5, B16.10 and ISO 5211
- PED 2014/68/EU Annex III, Module H
- Fire Safe: API 607 7th Edition
- Fugitive Emissions: API 641



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 mounted ball valves should be an integral component of your piping network.

- Sizes 2" to 48", ASME Class 150 through 2500
- Available with DBB, DIB-1, & DIB-2 seat configurations
- DIB1 inventory can be converted to DIB2 (conversion kits stocked)
- API 6D Monogrammed, ISO 14313, CSA Z245.15-17
- 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: API 6FA/API 607 7th Edition
- Fugitive Emissions: API 641



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, Needle, Globe 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



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
- Non-Destructive Testing
- Quality and Technical Documentation
- Supplementary Testing per Customer Requirements

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.



Proof of Product Quality and Compliance

About Our Company



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