



# FLOATING AND TRUNNION MOUNTED BALL VALVES



# BALL VALVES

## REFERENCES



## APPLICATIONS



Oil & Gas



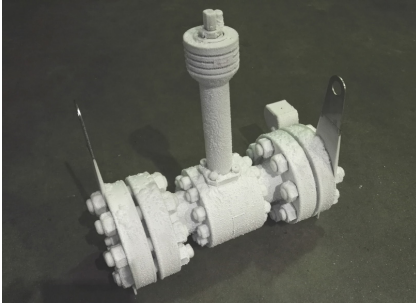
Refining



Petrochemical



Chemical



Cryogenic Service



Marine

# FLOATING & TRUNNION MOUNTED

Series	Connect.	Material	ASME C150	ASME C300	ASME C600/400	ASME C900/800	ASME C1500	ASME C2500	Page
			PN20	PN50	PN100/69	PN150/138	PN250	PN420	
<b>FLOATING BALL - SOFT SEATS</b>			<b>FULL BORE SIZES (DN)</b>						
<b>XF</b>	Theaded SW-BW Nipple	Cast		$\frac{4''}{100}$	$\frac{\frac{3}{8}'' \text{ to } 3''}{10 \text{ to } 80}$				3
<b>SF</b>	Theaded SW-BW Nipple	Forged or Barstock			$\frac{2'' \text{ to } 4''}{50 \text{ to } 100}$	$\frac{\frac{3}{8}'' \text{ to } 1\frac{1}{2}''}{10 \text{ to } 40}$			4
<b>HF</b>	Theaded SW-BW Nipple	Forged or Barstock				$\frac{2'' \text{ to } 3''}{50 \text{ to } 80}$	$\frac{\frac{1}{2}'' \text{ to } 1\frac{1}{2}''}{15 \text{ to } 40}$	$\frac{\frac{1}{2}'' \text{ to } 1\frac{1}{2}''}{15 \text{ to } 40}$	5
<b>CF</b>	Flanged	Cast	$\frac{\frac{1}{2}'' \text{ to } 8''}{15 \text{ to } 200}$	$\frac{\frac{1}{2}'' \text{ to } 8''}{15 \text{ to } 200}$	$\frac{\frac{1}{2}'' \text{ to } 2''}{15 \text{ to } 50}$				6
<b>BF</b>	Flanged	Forged or Barstock	$\frac{\frac{1}{2}'' \text{ to } 6''}{15 \text{ to } 150}$	$\frac{\frac{1}{2}'' \text{ to } 6''}{15 \text{ to } 150}$	$\frac{\frac{1}{2}'' \text{ to } 4''}{15 \text{ to } 100}$				7
<b>HF</b>	Flanged	Forged or Barstock				$\frac{2'' \text{ to } 3''}{50 \text{ to } 80}$	$\frac{\frac{1}{2}'' \text{ to } 1\frac{1}{2}''}{15 \text{ to } 40}$	$\frac{\frac{1}{2}'' \text{ to } 1\frac{1}{2}''}{15 \text{ to } 40}$	8
<b>TRUNNION MOUNTED - SOFT SEATS</b>			<b>FULL BORE SIZES (DN)</b>						
<b>VTR</b>	Flanged Nipples	Forged or Barstock	$\frac{2'' \text{ to } 12''}{50 \text{ to } 300}$	$\frac{2'' \text{ to } 12''}{50 \text{ to } 300}$	$\frac{2'' \text{ to } 10''}{50 \text{ to } 250}$	$\frac{2'' \text{ to } 10''}{50 \text{ to } 250}$	$\frac{\frac{1}{2}'' \text{ to } 8''}{15 \text{ to } 200}$	$\frac{\frac{1}{2}'' \text{ to } 6''}{15 \text{ to } 150}$	9
<b>KTR</b>	Flanged	Cast	$\frac{6'' \text{ to } 12''}{150 \text{ to } 300}$	$\frac{6'' \text{ to } 12''}{150 \text{ to } 300}$					10
<b>CRYOGENIC SERVICE</b>									11
<b>METAL SEATED</b>									12
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<b>ACTUATION</b>									14

## CERTIFICATES

**ISO 9001** Quality Assurance System

**Fire Safe** acc. to ISO 10497 and API 607

**CE marking** Pressure equipment (2014/68/EU Directive)

**Fugitive emissions** tightness acc. to ISO 15848 and TA-Luft

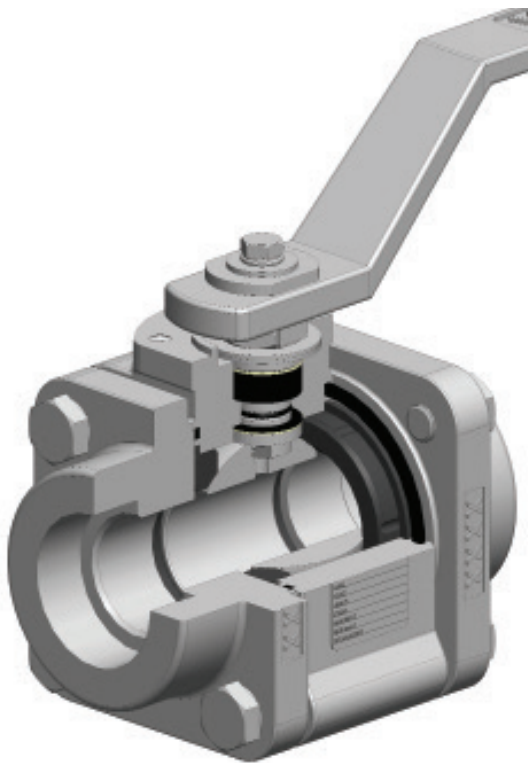
**ATEX** Conformity with Directive 2014/34/EU ( II2GD)

**Cryogenic service** valves acc. to ISO 28921

# FLOATING BALL

## XF Series

<p><b>CI600 (PN100)</b> DN ¾" to 1½" FB DN ½" to 2" RB</p> <p><b>CI400 (PN64)</b> DN 2" to 3" FB DN 2½" to 4" RB</p> <p><b>CI300 (PN50)</b> DN 4" FB DN 6" RB</p> <p>ASME Pressure Ratings</p>	<p><b>Connections</b></p> <p>Threaded BSP/BSPP; BSPT; NPT Socketweld B16.11 Buttweld Sch.10 to XXS Nipples</p>
	<p><b>General Features</b></p> <p>3 Piece Bolted Construction   Floating Ball Top Flange ISO 5211   Fire Safe and Antistatic Temperature range -29° up to + 260°C</p>



### Materials

	Standard	Optional
<b>Body / Ends</b>	Carbon Steel A216 WCB A352 LCC	Duplex CD3MN equiv. 4A
	Stainless Steel A351 CF3M A351 CF3	Super Duplex CD3MWCuN equiv. 6A
<b>Ball</b>	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F55
<b>Seats</b>	CG-RPTFE	PTFE; TFM; PEEK; DEVLON
<b>Packing / Seals</b>	GRAPHITE	TFM; RPTFE
<b>Bolting</b>	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials available on request

### Options

CI800 | DN ¾" to 1½" FB  
DN ½" to 2" RB

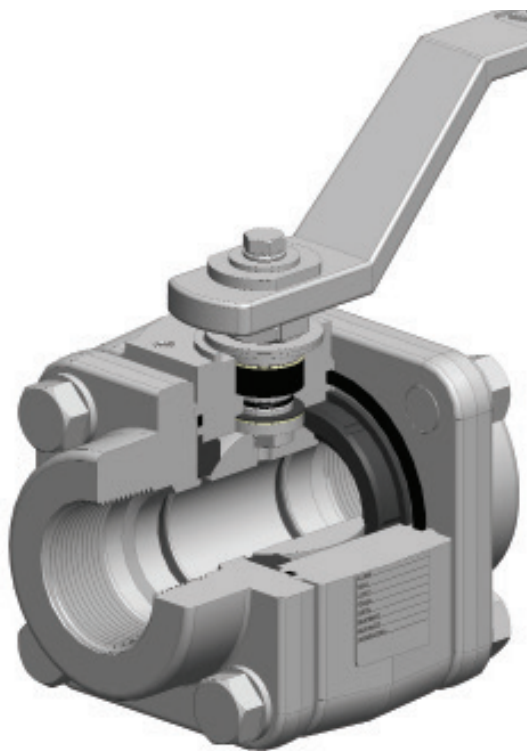
CI600 | DN2" FB  
DN 2½" RB



## SF Series

Connections	Threaded BSP/BSPP; BSPT; NPT Socketweld B16.11 Buttweld Sch.10 to XXS Nipples	<b>CI800 (PN138)</b> DN ¾" to 1½" FB DN ½" to 2" RB  <b>CI600 (PN100)</b> DN 2" to 3" FB DN 2½" to 4" RB  <b>CI400 (PN64)</b> DN 4" FB DN 6" RB  ASME Pressure Ratings
General Features	3 Piece Bolted Construction   Floating Ball Top Flange ISO 5211   Fire Safe and Antistatic Temperature range -29° up to + 260°C	

### Materials



	Standard	Optional
Body / Ends	Carbon Steel A105N A350 LF2  Stainless Steel A182 F316-316L A182 F304-304L	Duplex A182 F51 (S31803)  Super Duplex A182 F53 (S32750) A182 F55 (S32760)
Ball	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F53; F55
Seats	CG-RPTFE	PTFE; TFM; PEEK; DEVLON
Packing / Seals	GRAPHITE	TFM; RPTFE
Bolting	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials : LF3; F44; INCONEL; MONEL; TITANIUM; BRONZE

### Options

CI900 | DN ¾" to 2" FB  
DN ½" to 2 ½" RB

CI150/300 | DN 6" to 8" FB  
DN 8" to 10" RB



# FLOATING BALL

## HF Series

### CI900 (PN150)

DN 2" to 3" FB  
DN 2½" to 4" RB

### CI1500 (PN250)

DN ½" to 1½" FB  
DN ¾" to 2" RB

### CI2500 (PN420)

DN ½" to 1½" FB  
DN ¾" to 2" RB

ASME Pressure Ratings

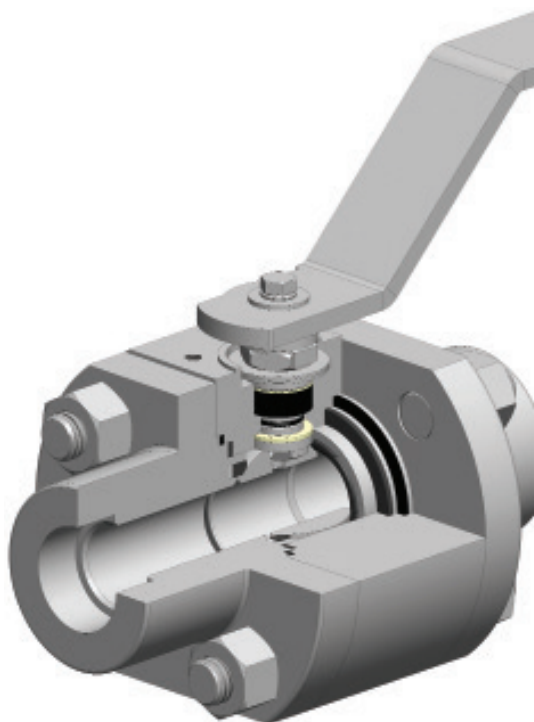
#### Connections

Threaded BSPT; NPT  
Socketweld B16.11  
Buttweld Sch.40 to XXS  
Nipples

#### General Features

3 Piece Bolted Construction | Floating Ball  
Top Flange ISO 5211 | Fire Safe and Antistatic  
Temperature range -29° up to + 260°C

### Materials



	Standard	Optional
Body / Ends	Carbon Steel A105N A350 LF2	Duplex A182 F51 (S31803)
	Stainless Steel A182 F316-316L A182 F304-304L	Super Duplex A182 F53 (S32750) A182 F55 (S32760)
Ball	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F53; F55
Seats	DEVLON	PEEK; DELRIN
Packing / Seals	GRAPHITE	TFM; RPTFE
Bolting	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials : LF3; F44; INCONEL; MONEL; TITANIUM

### Options

ASME and DIN Flanged Ends



## CF Series

Connections ASME Flanged RF  
ASME Flanged RTJ  
ASME Flanged PF

General Features 2 Piece Split Body Construction | Floating Ball  
Top Flange ISO 5211 | Fire Safe and Antistatic  
Temperature range -29° up to + 260°C

**CI150** (PN20)

DN ½" to 8" FB

**CI300** (PN50)

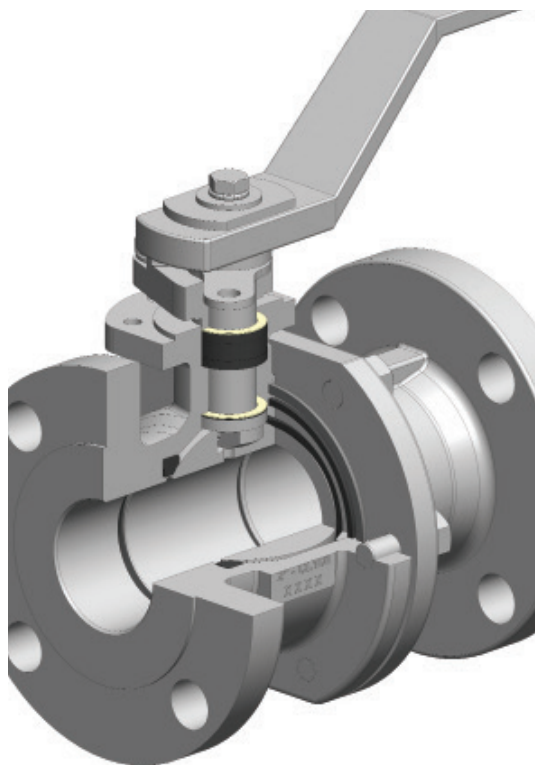
DN ½" to 8" FB

**CI600** (PN100)

DN ½" to 2" FB

ASME Pressure Ratings

### Materials



	<i>Standard</i>	<i>Optional</i>
<b>Body / Ends</b>	Carbon Steel A216 WCB A352 LCC  Stainless Steel A351 CF8M A351 CF8	Duplex CD3MN equiv. 4A  Super Duplex CD3MWCuN equiv. 6A
<b>Ball</b>	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F55
<b>Seats</b>	CG-RPTFE	PTFE; TFM; PEEK; DEVLON
<b>Packing / Seals</b>	GRAPHITE	TFM; RPTFE
<b>Bolting</b>	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials available on request

### Options

CI300 | DN 6" FB and 8" FB Supported Ball

DIN Flanged Ends



# FLOATING BALL

## BF Series

### CI150 (PN20)

DN ½" to 6" FB

### CI300 (PN50)

DN ½" to 6" FB

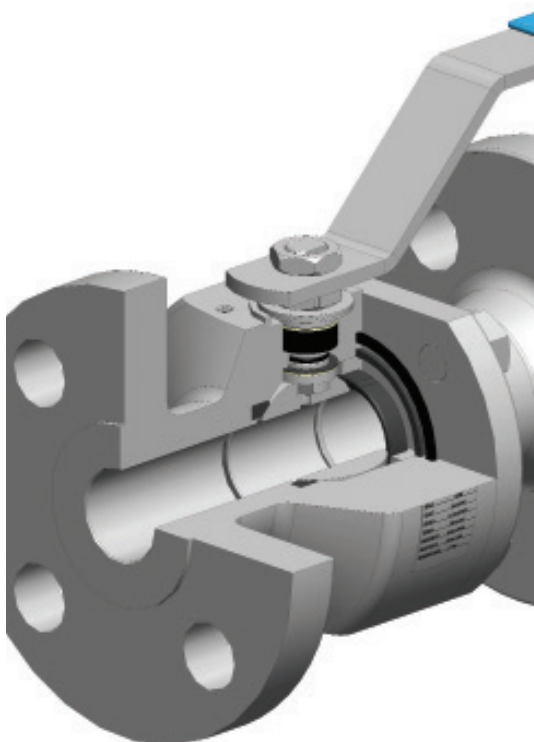
### CI600 (PN100)

DN ½" to 4" FB

ASME Pressure Ratings

Connections  
ASME Flanged RF  
ASME Flanged RTJ  
ASME Flanged PF

General Features  
2 Piece Split Body Construction | Floating Ball  
Top Flange ISO 5211 | Fire Safe and Antistatic  
Temperature range -29° up to + 260°C



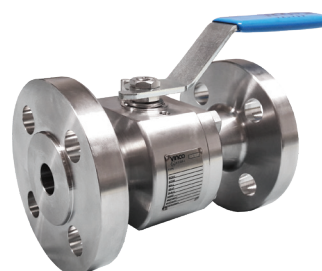
### Materials

	Standard	Optional
Body / Ends	Carbon Steel A105N A350 LF2	Duplex A182 F51 (S31803)
	Stainless Steel A182 F316-316L A182 F304-304L	Super Duplex A182 F53 (S32750) A182 F55 (S32760)
Ball	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F53; F55
Seats	CG-RPTFE	PTFE; TFM; PEEK; DEVLON
Packing / Seals	GRAPHITE	TFM; RPTFE
Bolting	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials : LF3; F44; INCONEL; MONEL; TITANIUM; BRONZE

### Options

DIN Flanged Ends  
Reduced Bore Version





## HF Series

Connections ASME Flanged RF  
ASME Flanged RTJ

General Features 3 Piece Bolted Construction | Floating Ball  
Top Flange ISO 5211 | Fire Safe and Antistatic  
Temperature range -29° up to + 260°C

CI900 (PN150)

DN 2" to 3" FB

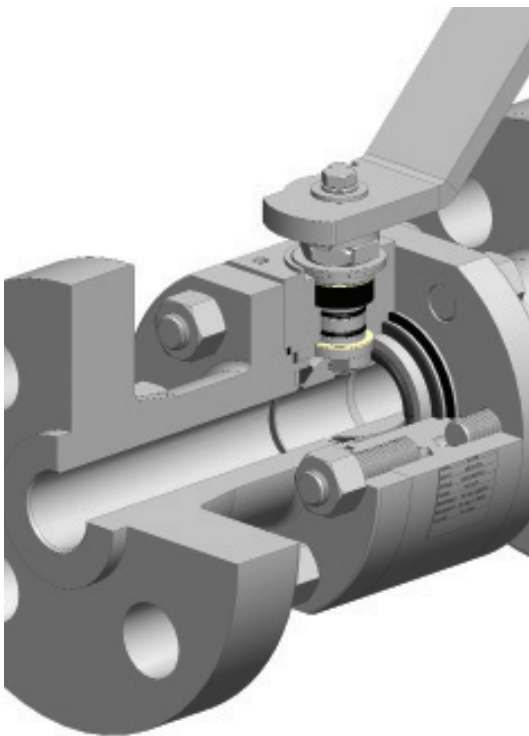
CI1500 (PN250)

DN ½" to 1½" FB

CI2500 (PN420)

DN ½" to 1½" FB

ASME Pressure Ratings



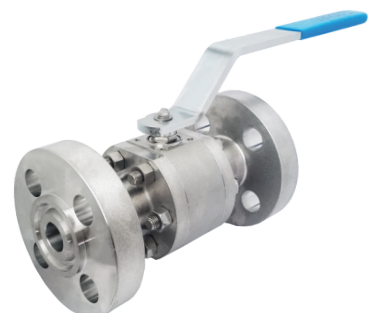
### Materials

	<i>Standard</i>	<i>Optional</i>
<b>Body / Ends</b>	Carbon Steel A105N A350 LF2  Stainless Steel A182 F316-316L A182 F304-304L	Duplex A182 F51 (S31803)  Super Duplex A182 F53 (S32750) A182 F55 (S32760)
<b>Ball</b>	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F53; F55
<b>Seats</b>	DEVLON	PEEK; DELRIN
<b>Packing / Seals</b>	GRAPHITE	TFM; RPTFE
<b>Bolting</b>	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials : LF3; F44; INCONEL; MONEL; TITANIUM; BRONZE

### Options

DIN Flanged Ends  
Reduced Bore Version

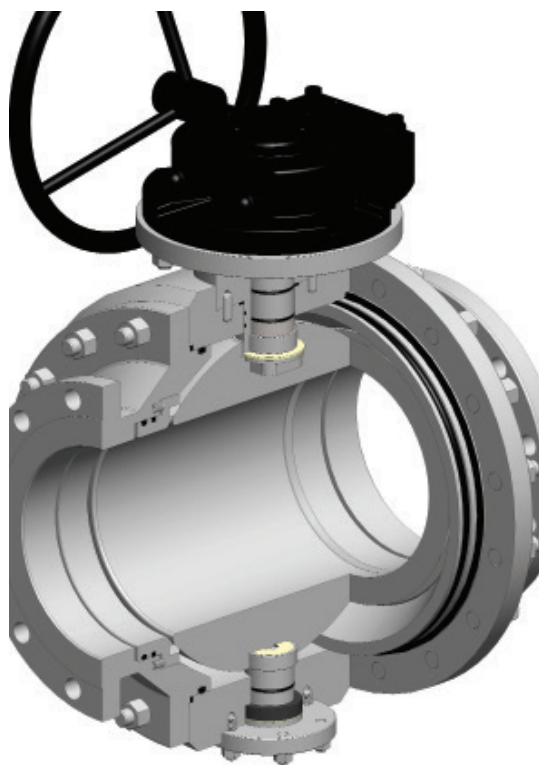


# TRUNNION MOUNTED

## VTR Series

Connections	ASME Flanged RF ASME Flanged RTJ Nipples
General Features	3 Piece Bolted Construction   Trunnion Mounted Top Flange ISO 5211   Fire Safe and Antistatic Temperature range -29° up to + 260°C

<b>CI150 (PN20)</b>	<b>CI900 (PN150)</b>
DN 2" to 12" FB DN 3" to 14" RB	DN 2" to 10" FB DN 3" to 12" RB
<b>CI300 (PN50)</b>	<b>CI1500 (PN250)</b>
DN 2" to 12" FB DN 3" to 14" RB	DN ½" to 8" FB DN ¾" to 10" RB
<b>CI600 (PN100)</b>	<b>CI2500 (PN420)</b>
DN 2" to 10" FB DN 3" to 12" RB	DN ½" to 6" FB DN ¾" to 8" RB
ASME Pressure Ratings	



### Materials

	Standard	Optional
Body / Ends	Carbon Steel A105N A350 LF2	Duplex A182 F51 (S31803)
	Stainless Steel A182 F316-316L A182 F304-304L	Super Duplex A182 F53 (S32750) A182 F55 (S32760)
Ball	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F53; F55
Seats	CG-RPTFE; DEVLON	PTFE; TFM; PEEK; DELRIN
Spring	INCONEL X-750	INCONEL 718
Packing / Seals	GRAPHITE	TFM; RPTFE
Bolting	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials : LF3; F44; INCONEL; MONEL; TITANIUM

### Options

- Single or Double Piston
- Lip Seal
- Sealant Injection
- Drain and Vent Plug



## KTR Series

Connections ASME Flanged RF  
ASME Flanged RTJ

General Features 2 Piece Split Body Construction | Trunnion Mounted  
Top Flange ISO 5211 | Fire Safe and Antistatic  
Temperature range -29° up to + 260°C

**Cl150** (PN20)

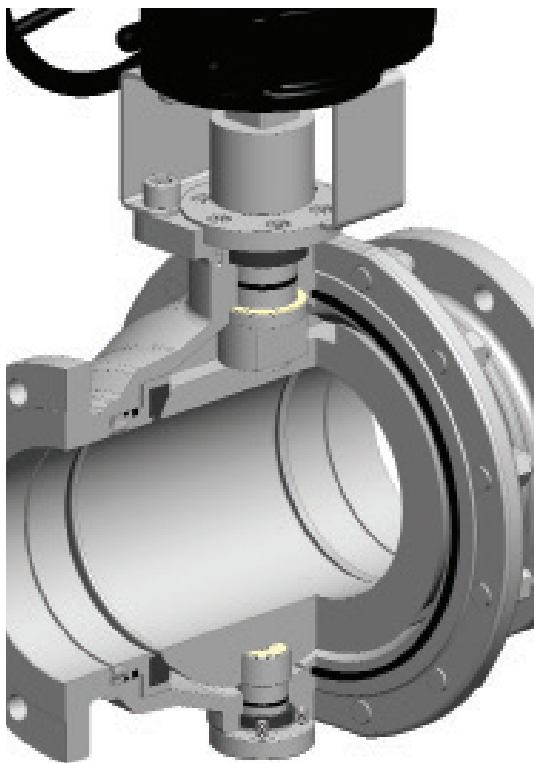
DN 6" to 12" FB

**Cl300** (PN50)

DN 6" to 12" FB

ASME Pressure Ratings

### Materials

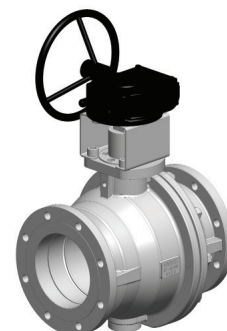


	<i>Standard</i>	<i>Optional</i>
<b>Body / Ends</b>	Carbon Steel A216 WCB A352 LCC  Stainless Steel A351 CF3M A351 CF3	Duplex CD3MN equiv. 4A  Super Duplex CD3MWCuN equiv. 6A
<b>Ball</b>	F316/CF8M F304/CF8	AISI 410/CA15 A182 F51; F55
<b>Seats</b>	CG-RPTFE	PTFE; TFM; PEEK; DEVLON
<b>Spring</b>	INCONEL X-750	INCONEL 718
<b>Packing / Seals</b>	GRAPHITE	TFM; RPTFE
<b>Bolting</b>	A193 Gr. B7 A193 Gr. B8M	A193 Gr. B7M A320 Gr. L7; A320 Gr. L7M

Other materials available on request

### Options

- Single or Double Piston
- Lip Seal
- Sealant Injection
- Drain and Vent Plug



# CRYOGENIC SERVICE

Series	Material	ASME C150	ASME C1300	ASME C1600/400	ASME C1900/800	ASME C1500
		PN20	PN50	PN100/69	PN150/138	PN250
<b>FLOATING BALL - SOFT SEATS</b>		<b>FULL BORE SIZES (DN)</b>				
XC	Cast		4" 100	¾" to 3" 10 to 80		
SC	Forged Barstock			2" to 4" 50 to 100	¾" to 1½" 10 to 40	
CC	Cast	½" to 8" 15 to 200	½" to 8" 15 to 200	½" to 2" 15 to 50		
BC	Forged Barstock	½" to 6" 15 to 150	½" to 6" 15 to 150	½" to 4" 15 to 100		
<b>TRUNNION MOUNTED - SOFT SEATS</b>		<b>FULL BORE SIZES (DN)</b>				
VTC	Forged Barstock	2" to 12" 50 to 300	2" to 12" 50 to 300	2" to 10" 50 to 250	2" to 10" 50 to 250	½" to 8" 15 to 200
KTC	Cast	6" to 12" 150 to 300	6" to 12" 150 to 300			

## Temperature Range Levels

### Type A

-29°C (-20°F) to -50°C (-58°F)

#### Features:

- Stem Extension 100- 200mm length
- Standard TFM Seats

### Type B

-51°C (-60°F) to -109°C (-164°F)

#### Features:

- Stem Extension 200- 400mm length
- Standard TFM Seats

### Type C

-110°C (-166°F) to -196°C (-321°F)

#### Features:

- Stem Extension 200- 400mm length
- Spring-loaded TFM Seats
- Uni-directional Flow



Series	Material	ASME C150	ASME C300	ASME C600/400	ASME C900/800	ASME C1500
		PN20	PN50	PN100/69	PN150/138	PN250
<b>FLOATING BALL</b>		<b>FULL BORE SIZES (DN)</b>				
<b>XM</b>	Cast	$\frac{2\frac{1}{2}}{65}$ to $\frac{4}{100}$ "	$\frac{1}{2}$ to $\frac{2}{50}$ "			
<b>SM</b>	Forged Barstock	$\frac{2\frac{1}{2}}{65}$ to $\frac{4}{100}$ "	$\frac{1}{2}$ to $\frac{2}{50}$ "			
<b>CM</b>	Cast	$\frac{1}{2}$ " to $\frac{6}{150}$ "	$\frac{1}{2}$ " to $\frac{2}{50}$ "			
<b>BM</b>	Forged Barstock	$\frac{1}{2}$ " to $\frac{6}{150}$ "	$\frac{1}{2}$ " to $\frac{2}{50}$ "			
<b>TRUNNION MOUNTED</b>		<b>FULL BORE SIZES (DN)</b>				
<b>VTM</b>	Forged Barstock	$\frac{2}{50}$ to $\frac{8}{200}$ "	$\frac{2}{50}$ to $\frac{8}{200}$ "	$\frac{2}{50}$ to $\frac{6}{150}$ "	$\frac{2}{50}$ to $\frac{6}{150}$ "	$\frac{1}{2}$ to $\frac{4}{100}$ "
<b>KTM</b>	Cast	$\frac{6}{150}$ to $\frac{8}{200}$ "	$\frac{6}{150}$ to $\frac{8}{200}$ "			

## Temperature Range Levels

**Type A**      -29°C (-20°F) to 250°C (482°F)

**Features:**

- Ball/ Seat Coatings: TCC, CCC
- Floating Ball Uni-directional
- Trunnion Mounted Bi-directional

**Applications:**

Slurries (Abrasive), Pulp Stock, Solid-containing fluids

**Type B**      -29°C (-20°F) to 400°C (752°F)

**Features:**

- Ball/ Seat Coatings: TCC, CCC
- Bonnets for actuation
- Floating Ball Uni-directional
- Trunnion Mounted Bi-directional

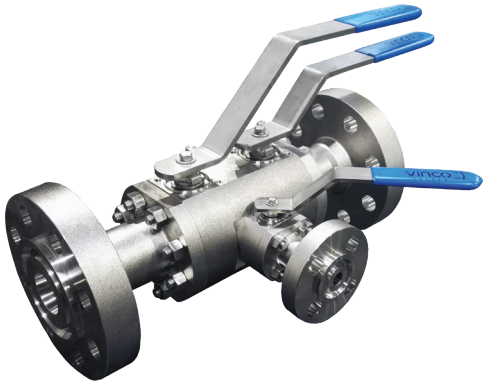
**Applications:**

Slurries, Steam, Solid-containing fluids, High-Temperature fluids



# OTHER SERIES

## DF/DTR SERIES



**Twin Ball - Double Block & Bleed  
Floating Ball and Trunnion Mounted**

Cl150 to Cl2500

DN ½" (15) to 8" (200)

Threaded, Socketweld, Buttweld and Flanged Ends

CS A105; LF2 and SS F316; F304

Duplex, Super Duplex, others.

## MF SERIES

**Multi Ways - 4 Seats  
Floating Ball**

Cl150 to Cl600

DN ½" (15) to 2" (50)

Threaded, Socketweld, Buttweld

Nipples, Flanged Ends

CS A105; LF2 and SS F316; F304

Duplex, Super Duplex, others.



## MANUAL OPERATION AND CONTROLS

- Locking Systems
- Raised and Oval Handles
- Gear Boxes
- Spring Return Handles
- Fire Fail Safe System
- Limit Switches




## AUTOMATION




- Actuators
  - Pneumatic*
  - Electric*
  - Hydraulic*
- Accessories
  - Limit Switches*
  - Solenoids*
  - Positioners*



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