

**Hy-Lok** *Cryogenic Valves*  
*Needle, Ball Valves*

Catalog No. H - CRYO100  
May 2006



**HY-LOK CORPORATION**

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Quality System Certificates

- ISO 9001
- ASME QSC
- API Q1 & 6D

HSE Management Certificates

- ISO 14001
- OHSAS 18001

Type Approval Certificates



LR (Needle)



LR (Ball)



KR



ABS

Pioneer in development of cryogenic valves for LNG, Hy-Lok is always keeping its Valves on the cutting edge of technology to provide high performance valves to the great satisfaction of its clients as attested by numerous references.

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## CRYON Series Needle Valves

### Introduction

CRYON series valves have been designed and engineered for use at pressures up to 750 psi (52 bar) and temperatures down to -320 °F (-196 °C). (Stainless Steel extended needle valve with the non-rotating disc design for bubble tight shut-off)

The valve is of the bolted bonnet easy maintenance in-line, with lower bolting torques than union bonnet. Screwed, flanged, butt-weld ends are in standard connection and both reduced and full bore are available from 1/2" to 1-1/2" size.

### Features and Benefits

- Austenite Stainless Steel construction for marine service
- Long cycle life, packing blow thread design
- Metall seat to bubble tight shut-off at all the time
- Anti-blow out proof stem, one piece design
- Non rotating seat contact
- Easy maintenance in-line guarantee
- Compact and easy operation
- Self aligning disc construction
- Bolted extension bonnet
- Dust cap functions as position indicator as well
- Fire safe design to BS 6755 Part 2

### Specifications

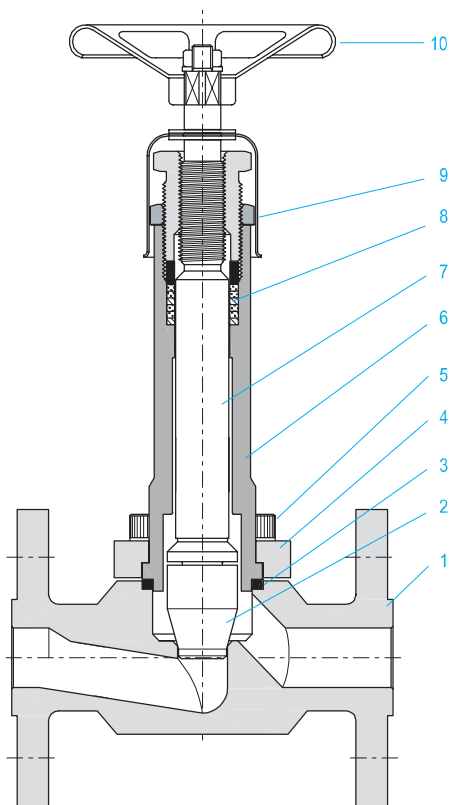
- Pressure Rating  
750 psi (52 bar) at -320 °F to 100 °F (-196 °C to 38 °C)
- Temperature Rating  
-320 °F to 700 °F (-196 °C to 371 °C)
- Size Range  
Screwed ends : 3/8" to 1"  
Flanged ends : 1/2" to 1-1/2"  
Butt - weld ends : 1/2" to 1-1/2"

### Pressure Tests

- Ambient Test(100%) : Nitrogen  
Shell Test : 1.5 times working pressure  
Seat Test : 1.1 time working pressure
- Cryogenic Test(10%) : Helium  
Shell Test : 1.5 times working pressure  
Seat Test : 1.1 times working pressure

### Applications

- Cryogenic, LNG, LPG, and Nitrogen

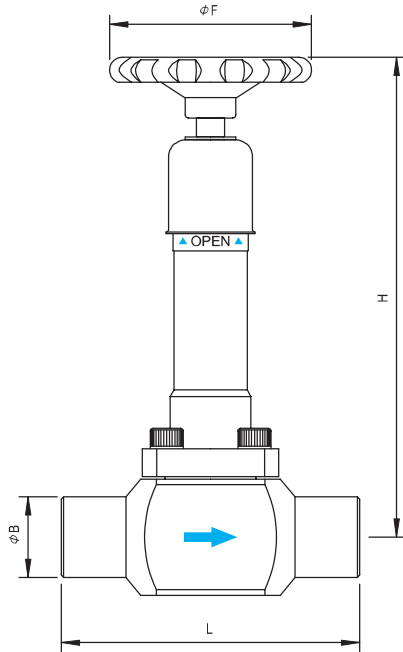


### Materials of Construction

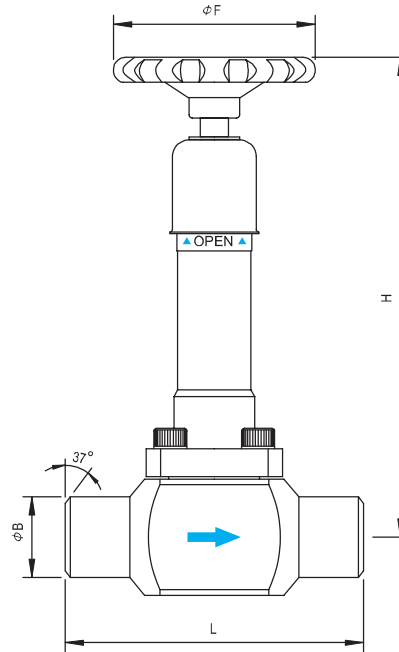
No.	Description	Material
1	Body	ASTM A182 F316/A351 CF 8M
2	Non Rotating Disc	ASTM A479 TP316
3	Bonnet Gasket	Graphite & SS 316
4	Bolted Bonnet	ASTM A479 TP316
5	Bonnet Bolt	ASTM A320 B8M.2
6	Extension Bonnet	ASTM A182 F316/A351 CF 8M
7	Extension Stem	ASTM A479 TP316
8	Stem Packing	Graphite
9	Position Indicator	SS 316
10	Hand Wheel	ASTM A240 TP304

## CRYON Series Needle Valves

### Screwed Ends



### Butt-weld Ends



### Screwed Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)				Flow Data		Weight
	Inlet	Outlet	B	L	H	F	Cv	Kv	Kg
CRYON - 6N	3/8" Female NPT	3/8" Female NPT	22.0	114.0	198.0	80.0	3.6	3.1	2.7
CRYON - 8N	1/2" Female NPT	1/2" Female NPT	26.0						
CRYON - 12N	3/4" Female NPT	3/4" Female NPT	32.0	140.0	260.0	100.0	13.2	11.3	3.9
CRYON - 16N	1" Female NPT	1" Female NPT	42.0						

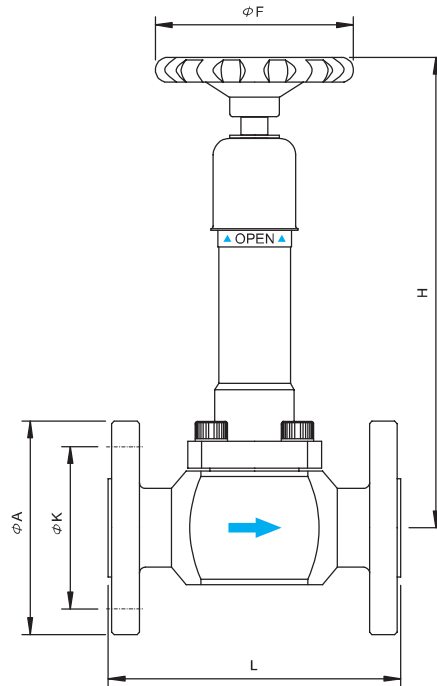
### Butt-weld Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)				Flow Data		Weight
	Inlet	Outlet	B	L	H	F	Cv	Kv	Kg
CRYON - 8BW	1/2" X SCH40	1/2" X SCH40	21.3	114.0	198.0	80.0	3.6	3.1	2.7
CRYON - 12BW	3/4" X SCH40	3/4" X SCH40	26.7						
CRYON - 16BW	1" X SCH40	1" X SCH40	33.4	140.0	260.0	100.0	13.2	11.3	3.9
CRYON - 20BW	1-1/4" X SCH40	1-1/4" X SCH40	42.2						
CRYON - 24BW	1-1/2" X SCH40	1-1/2" X SCH40	48.3	223.0	260.0	120.0	26.5	22.7	4.2

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

## CRYON Series Needle Valves

### Flanged Ends



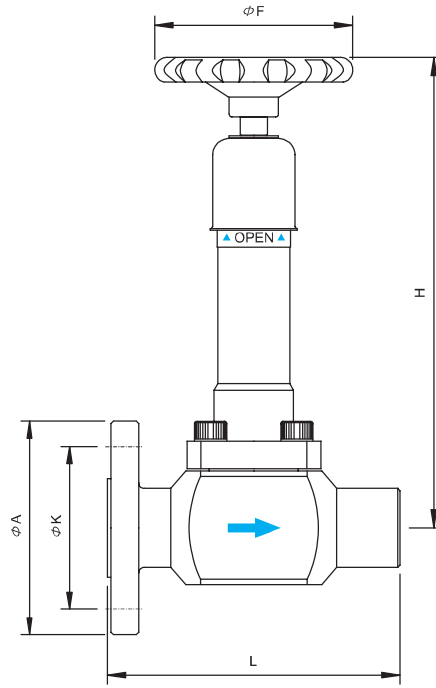
### Flanged Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)					Flow Data		Weight
	Inlet	Outlet	A	K	L	H	F	Cv	Kv	Kg
CRYON - 8FA	1/2" CL150 RF	1/2" CL150 RF	88.9	60.3	114.0	198.0	80.0	3.6	3.1	4.5
CRYON - 12FA	3/4" CL150 RF	3/4" CL150 RF	98.4	69.8	140.0	260.0	100.0	13.2	11.3	6.9
CRYON - 16FA	1" CL150 RF	1" CL150 RF	107.9	79.4						7.5
CRYON - 20FA	1-1/4" CL150 RF	1-1/4" CL150 RF	117.5	88.9	223.0	260.0	120.0	26.5	22.7	9.0
CRYON - 24FA	1-1/2" CL150 RF	1-1/2" CL150 RF	127.0	98.4						10.4

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## CRYON Series Needle Valves

### Flanged to Screwed Ends



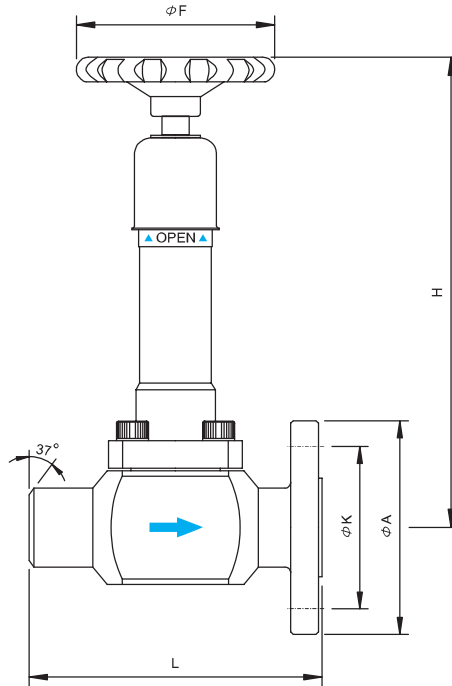
### Flanged to Screwed Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)					Flow Data		Weight
	Inlet	Outlet	A	K	L	H	F	Cv	Kv	Kg
CRYON - 8FA6N	1/2" CL150 RF	3/8" NPT	88.9	60.3	114.0	198.0	80.0	3.6	3.1	3.6
CRYON - 8FA8N	1/2" CL150 RF	1/2" NPT								
CRYON - 12FA8N	3/4" CL150 RF	1/2" NPT	98.4	69.8	140.0	260.0	100.0	13.2	11.3	5.4
CRYON - 12FA12N	3/4" CL150 RF	3/4" NPT								
CRYON - 16FA8N	1" CL150 RF	1/2" NPT	107.9	79.4	140.0	260.0	100.0	13.2	11.3	5.7
CRYON - 16FA12N	1" CL150 RF	3/4" NPT								
CRYON - 16FA16N	1" CL150 RF	1" NPT								
CRYON - 20FA8N	1-1/4" CL150 RF	1/2" NPT	117.5	88.9	223.0	260.0	120.0	26.5	22.7	6.6
CRYON - 20FA12N	1-1/4" CL150 RF	3/4" NPT								
CRYON - 20FA16N	1-1/4" CL150 RF	1" NPT								
CRYON - 24FA8N	1-1/2" CL150 RF	1/2" NPT	127.0	98.4	223.0	260.0	120.0	26.5	22.7	7.3
CRYON - 24FA12N	1-1/2" CL150 RF	3/4" NPT								
CRYON - 24FA16N	1-1/2" CL150 RF	1" NPT								

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

## CRYON Series Needle Valves

### Butt-weld to Flanged Ends



### Butt-weld to Flanged Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)					Flow Data		Weight
	Inlet	Outlet	A	K	L	H	F	Cv	Kv	Kg
CRYON - 8BW8FA	1/2" X SCH40	1/2" CL150 RF	88.9	60.3	114.0	198.0	80.0	3.6	3.1	3.6
CRYON - 12BW12FA	3/4" X SCH40	3/4" CL150 RF	98.4	69.8	140.0	260.0	100.0	13.2	11.3	5.4
CRYON - 16BW16FA	1" X SCH40	1" CL150 RF	107.9	79.4						5.7
CRYON - 20BW20FA	1-1/4" X SCH40	1-1/4" CL150 RF	117.5	88.9	223.0	260.0	120.0	26.5	22.7	6.6
CRYON - 24BW24FA	1-1/2" X SCH40	1-1/2" CL150 RF	127.0	98.4						7.3

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.



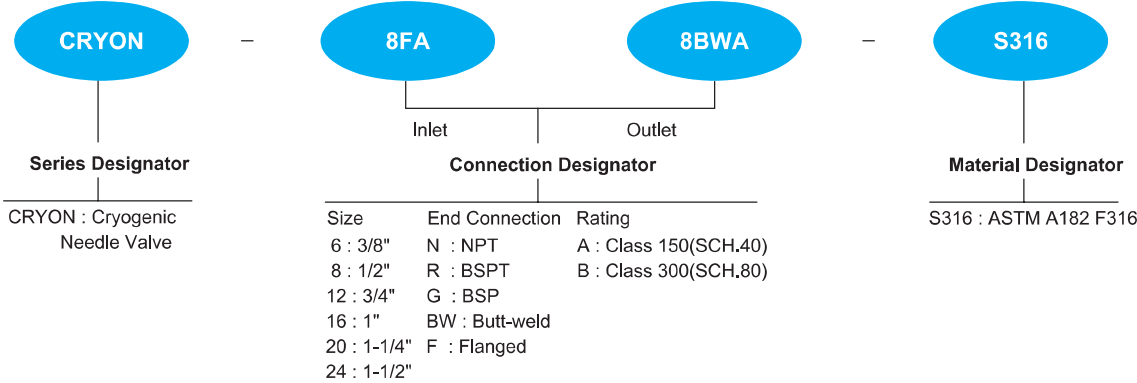
# CRYON Series Needle Valves

## Ordering Information

The correct ordering number is easily derived from the following numbering system. The four designators required are coded as shown below. \*Note : if the inlet and outlet connections are the same, eliminate the inlet connection designator.

## Numbering System

Example :



## CRYOT Series Trunnion Ball Valves

### Introduction

CRYOT series valves have been designed and engineered for use at pressures up to 750 psi (52 bar) and temperatures down to -320 °F (-196 °C). (Stainless Steel extended ball valve with trunnion mounted ball) The valve is of the top entry bolted bonnet easy maintenance in-line. Screwed, flanged, butt-weld ends are instandard connection and both reduced and full bore are available from 1/2" to 1-1/2" size.

### Features and Benefits

- Austenite Stainless Steel construction for marine service
- Long cycle life
- trunnion mounted ball
- Pressure relief device
- Anti-blow out proof stem, two-piece ball & stem
- Anti-static device
- Easy maintenace in-line guarantee
- Low operating torque
- Positive handle stops
- Bolted extension bonnet
- Locking device
- Fire safe design to BS 6755 Part 2

### Specifications

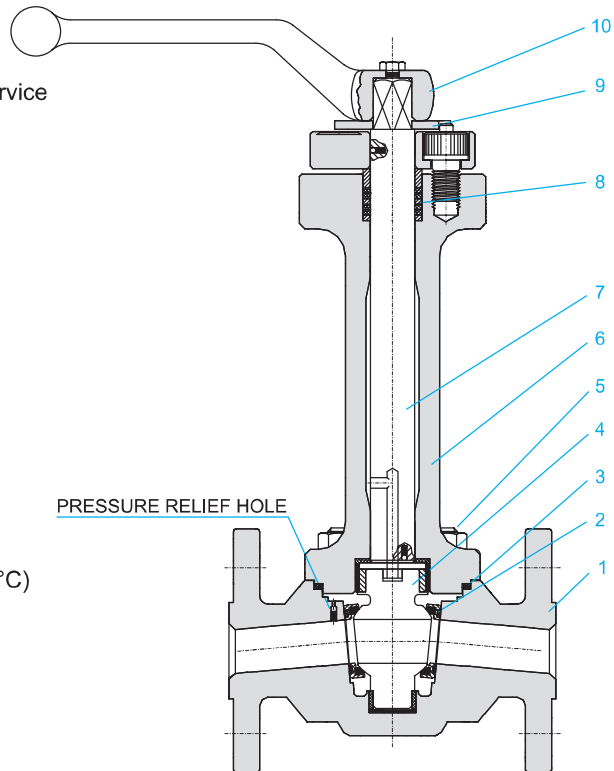
- Pressure Rating  
750 psi (52 bar) at -320 °F to 100 °F (-196 °C to 38 °C)
- Temperature Rating  
-320 °F to 250 °F (-196 °C to 120 °C)
- Size Range  
Screwed ends : 3/8" to 1"  
Flanged ends : 1/2" to 1-1/2"  
Butt - weld ends : 1/2" to 1-1/2"

### Pressure Tests

- Ambient Test(100%) : Nitrogen  
Shell Test : 1.5 times working pressure  
Seat Test : 1.1 time working pressure
- Cryogenic Test(10%) : Helium  
Shell Test : 1.5 times working pressure  
Seat Test : 1.1 times working pressure

### Applications

- Cryogenic, LNG, LPG, and Nitrogen

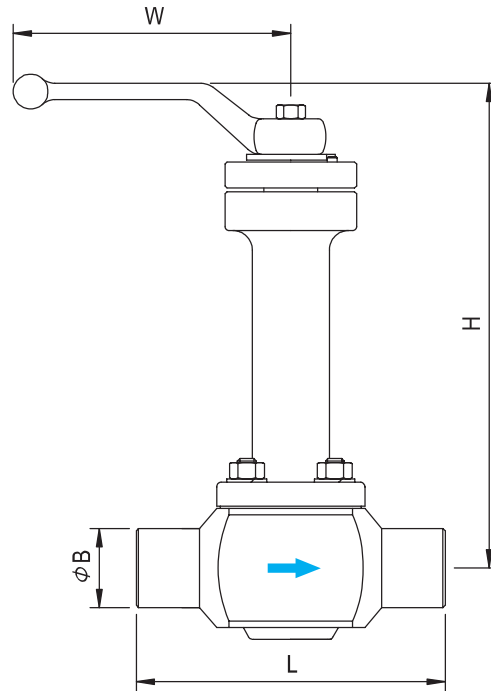


### Materials of Construction

No.	Description	Material
1	Body	ASTM A182 F316/A351 CF 8M
2	Ball Seat	PCTFE & Graphite
3	Bonnet Gasket	Graphite & SS 316
4	Trunnion Ball	ASTM A479 TP316
5	Stud Bolt	ASTM A320 B8M.2
6	Bolted Bonnet	ASTM A182 F316/A351 CF 8M
7	Extension Stem	ASTM A479 TP316
8	Stem Packing	Graphite
9	Locking Device	SS 316
10	Lever Handle	SS 316

## CRYOT Series Trunnion Ball Valves

### Screwed Ends



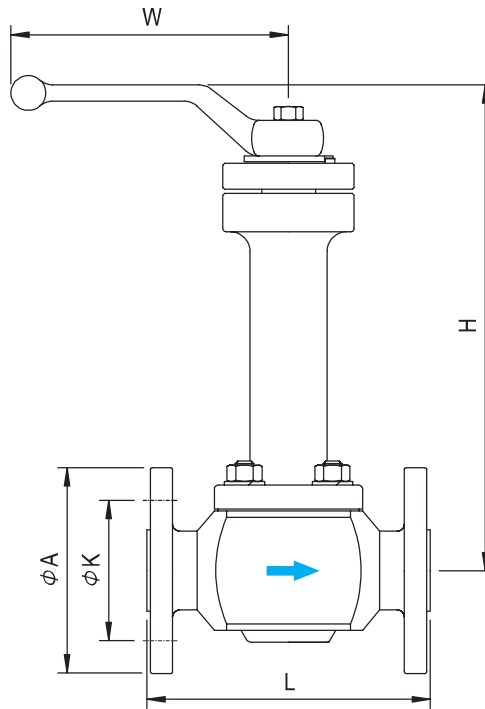
### Screwed Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)				Flow Data		Weight
	Inlet	Outlet	B	L	H	W	Cv	Kv	Kg
CRYOT - 6N	3/8" Female NPT	3/8" Female NPT	22.0	115.0	210.0	140.0	12.0	10.3	4.7
CRYOT - 8N	1/2" Female NPT	1/2" Female NPT	26.0	115.0	210.0	140.0			
CRYOT - 12N	3/4" Female NPT	3/4" Female NPT	32.0	140.0	210.0	240.0	31.0	26.6	7.4
CRYOT - 16N	1" Female NPT	1" Female NPT	42.0	160.0	210.0	240.0	38.0	32.6	12.2

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

## CRYOT Series Trunnion Ball Valves

### Flanged Ends



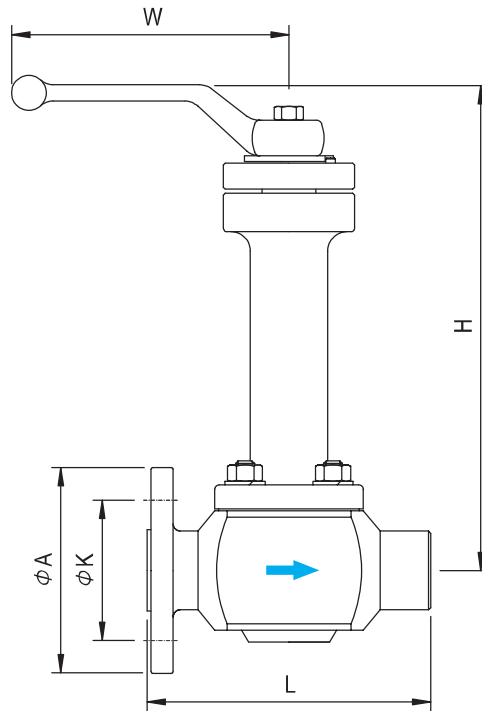
### Flanged Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)					Flow Data		Weight
	Inlet	Outlet	A	K	L	H	W	Cv	Kv	Kg
CRYOT - 8FA	1/2" CL150 RF	1/2" CL150 RF	88.9	60.3	115.0	210.0	140.0	12.0	10.3	6.5
CRYOT - 12FA	3/4" CL150 RF	3/4" CL150 RF	98.4	69.8	140.0	210.0	240.0	31.0	26.6	10.4
CRYOT - 16FA	1" CL150 RF	1" CL150 RF	107.9	79.4	160.0	210.0	240.0	38.0	32.6	15.8
CRYOT - 12FA	1-1/4" CL150 RF	1-1/4" CL150 RF	117.5	88.9	200.0	240.0	240.0	90.0	77.1	17.2
CRYOT - 16FA	1-1/2" CL150 RF	1-1/2" CL150 RF	127.0	98.4	220.0	240.0	240.0	100.0	85.7	20.9

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

## CRYOT Series Trunnion Ball Valves

### Flanged to Screwed Ends



### Flanged to Screwed Ends Dimensions & Weights

Basic Ordering Number	Connection Size		Dimensions(mm)					Flow Data		Weight
	Inlet	Outlet	A	K	L	H	W	Cv	Kv	Kg
CRYOT - 8FA6N	1/2" CL150 RF	3/8" NPT	88.9	60.3	115.0	210.0	140.0	12.0	10.3	5.6
CRYOT - 8FA8N	1/2" CL150 RF	1/2" NPT								
CRYOT - 12FA8N	3/4" CL150 RF	1/2" NPT	98.4	69.8	140.0	210.0	240.0	31.0	26.6	8.9
CRYOT - 12FA12N	3/4" CL150 RF	3/4" NPT								
CRYOT - 16FA8N	1" CL150 RF	1/2" NPT	107.9	79.4	160.0	210.0	240.0	38.0	32.6	14.0
CRYOT - 16FA12N	1" CL150 RF	3/4" NPT								
CRYOT - 16FA16N	1" CL150 RF	1" NPT								
CRYOT - 20FA8N	1-1/4" CL150 RF	1/2" NPT	117.5	88.9	200.0	240.0	240.0	90.0	77.1	14.8
CRYOT - 20FA12N	1-1/4" CL150 RF	3/4" NPT								
CRYOT - 20FA16N	1-1/4" CL150 RF	1" NPT								
CRYOT - 24FA8N	1-1/2" CL150 RF	1/2" NPT	127.0	98.4	220.0	240.0	240.0	100.0	85.7	17.8
CRYOT - 24FA12N	1-1/2" CL150 RF	3/4" NPT								
CRYOT - 24FA16N	1-1/2" CL150 RF	1" NPT								

All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

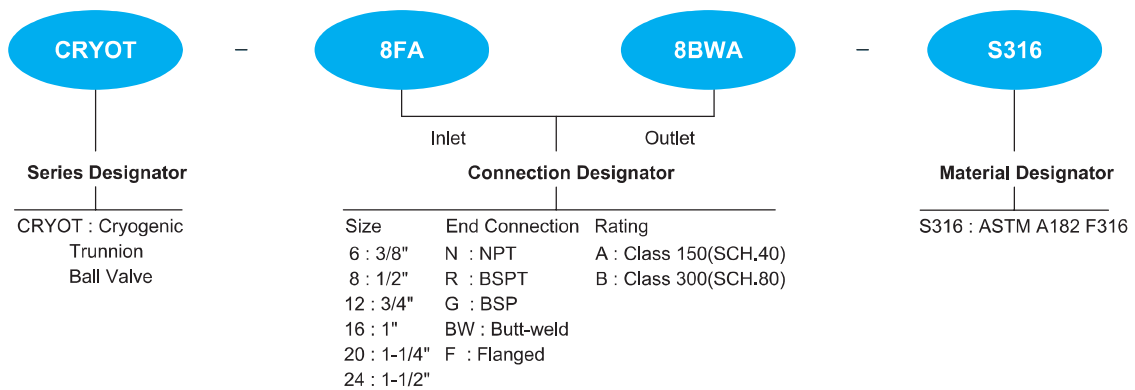
## CRYOT Series Trunnion Ball Valves

### Ordering Information

The correct ordering number is easily derived from the following numbering system. The four designators required are coded as shown below. \*Note : if the inlet and outlet connections are the same, eliminate the inlet connection designator.

### Numbering System

Example :



RUGVÆNGET 19 C  
2630 TAASTRUP  
INFO@PGFLOWTEKNIK.DK  
WWW.PGFLOWTEKNIK.DK