FLOWTEKNIK
SCANDINAVIA APS

Hy-Lok Cryogenic Valves

Needle, Ball Valves

Catalog No. H - CRYO100
May 2006

HY-LOK CORPORATION

Quality System Certificates

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

HSE Management Certificates

- ISO 14001
- OHSAS 18001

Type Approval Certificates

LR Type Approval Certificate

LR (Needle)

Type Approval Certificate

LR (Ball)

TYPE APPROVAL CERTIFICATE

KR

ABS

Confirmation of Type Approval

ABS

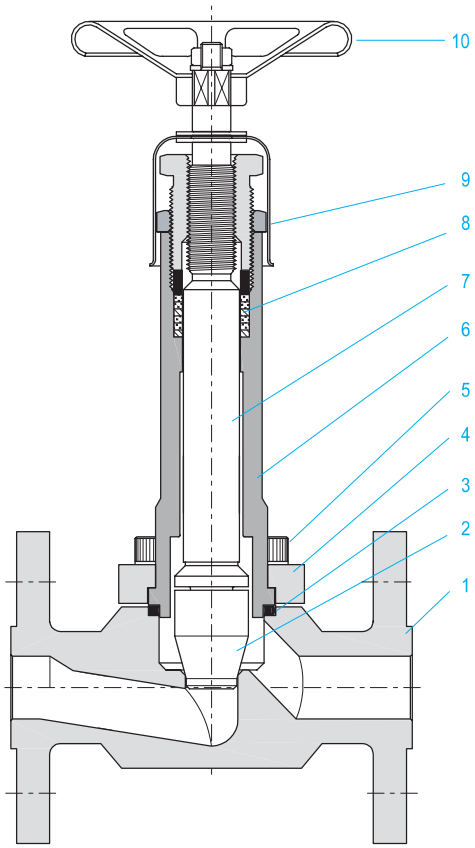
Pioneer in development of cryogenic valves for LNG, Hy-Lok is always keeping its Valves on the cutting edge of technology to provide high performance valves to the great satisfaction of its clients as attested by numerous references.

Contents

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 shutt-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 bleow 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 maintenace 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

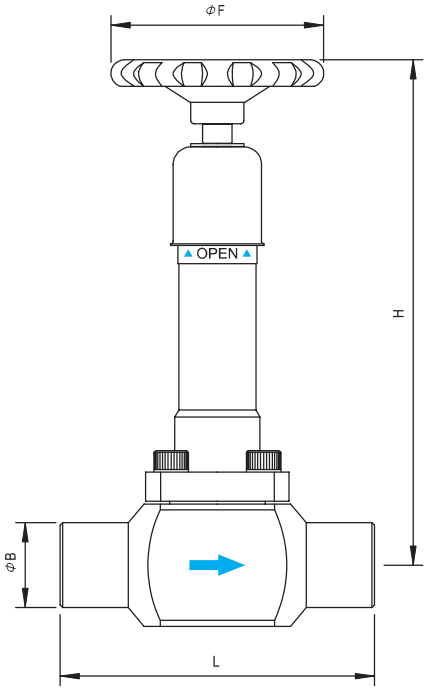
- Cryogenic, LNG, LPG, and Nitorogen

Materials of Construction

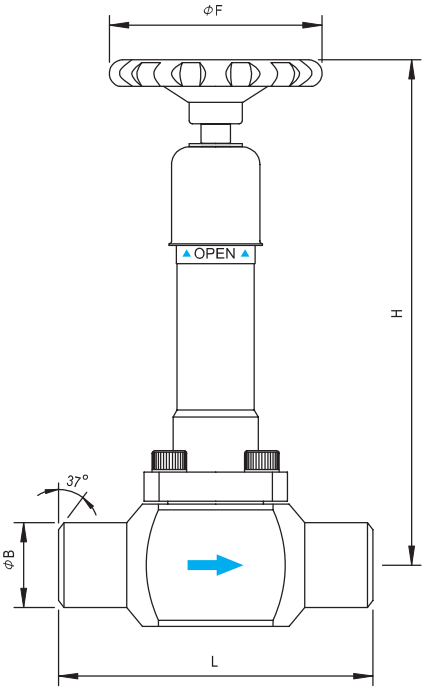
No.	Description	Material
1	Body	ASTM A182 F316/A351 CF 8M
2	Non Rotating Disc	ASTM A479 TP316
3	Bonnet Gasket	Graphite & SS 316
4	Bolted Bonnet	ASTM A479 TP316
5	Bonnet Bolt	ASTM A320 B8M.2
6	Extension Bonnet	ASTM A182 F316/A351 CF 8M
7	Extension Stem	ASTM A479 TP316
8	Stem Packing	Graphite
9	Position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

CRYON Series Needle Valves

Screwed Ends



Butt-weld Ends



Screwed Ends Dimensions & Weights

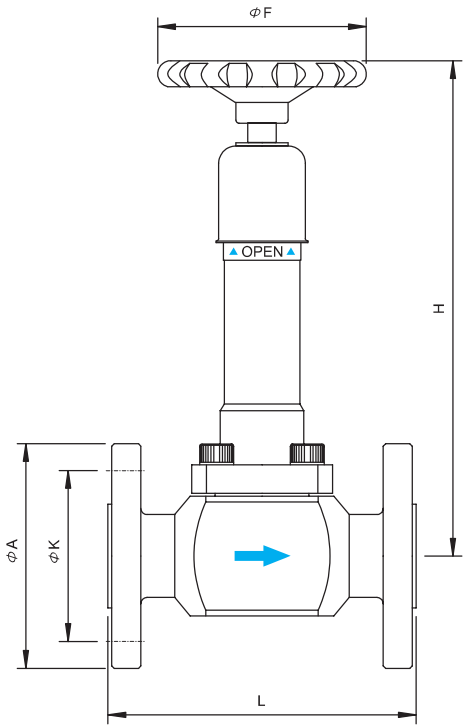
Basic Ordering Number	Connection Size		Dimensions(mm)				Flow Data		Weight
	Inlet	Outlet	B	L	H	F	Cv	Kv	Kg
CRYON - 6N	3/8" Female NPT	3/8" Female NPT	22.0	114.0	198.0	80.0	3.6	3.1	2.7
CRYON - 8N	1/2" Female NPT	1/2" Female NPT	26.0						
CRYON - 12N	3/4" Female NPT	3/4" Female NPT	32.0	140.0	260.0	100.0	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	140.0	260.0	100.0	13.2	11.3	3.9
CRYON - 16BW	1" X SCH40	1" X SCH40	33.4						
CRYON - 20BW	1-1/4" X SCH40	1-1/4" X SCH40	42.2	223.0	260.0	120.0	26.5	22.7	4.2
CRYON - 24BW	1-1/2" X SCH40	1-1/2" X SCH40	48.3						

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

Flanged Ends



Flaged 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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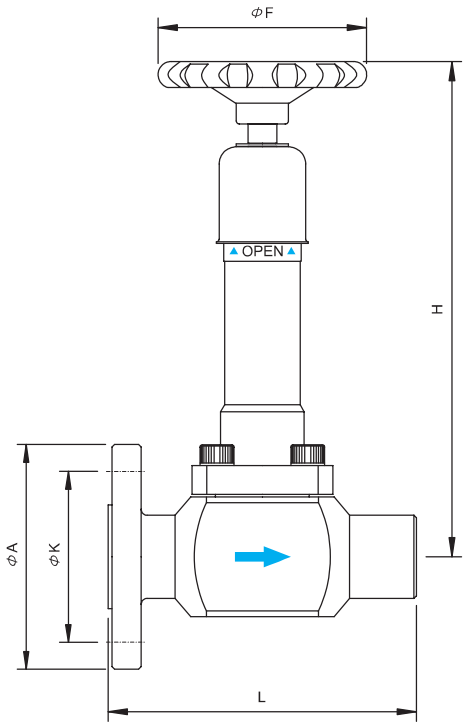
Flanged to Screwed Ends

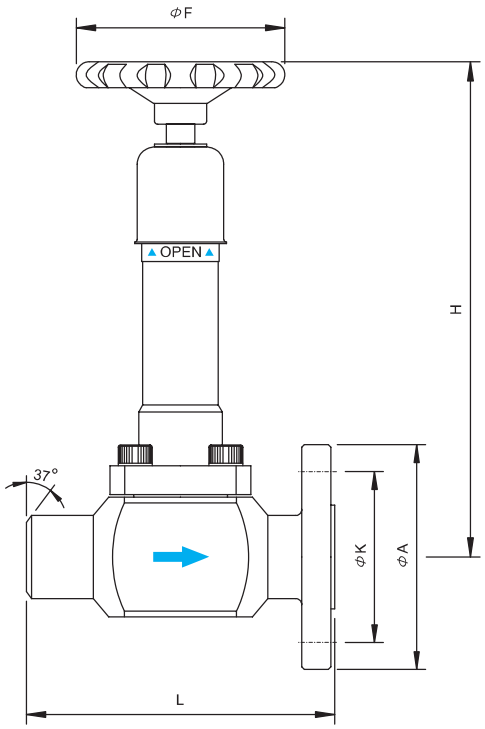


Flanged to Screwed Ends Dimensions & Weights

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.

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

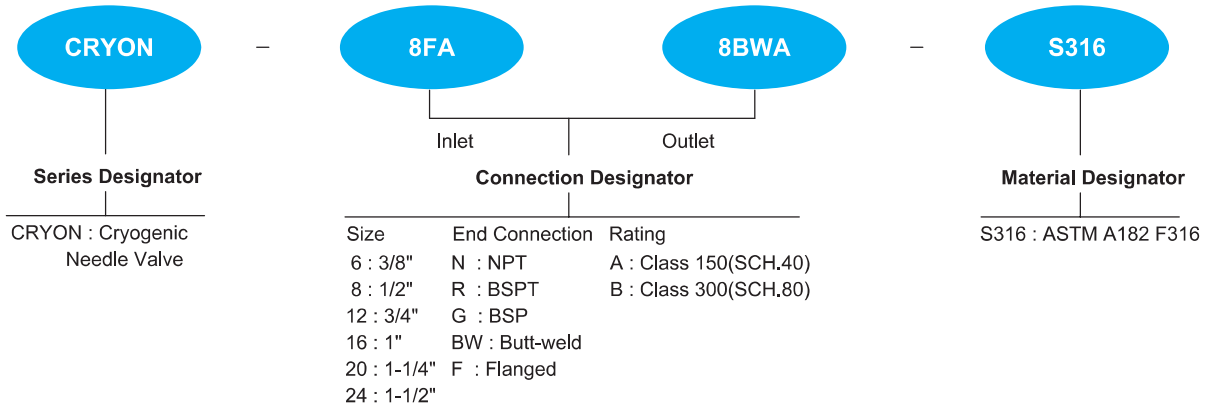
All dimensions are in millimeters unless otherwise specified. Dimensions are for reference only, subject to change.

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 snd outlet connections are the same, eliminate the inlet connection designator.

Numbering System

Example :



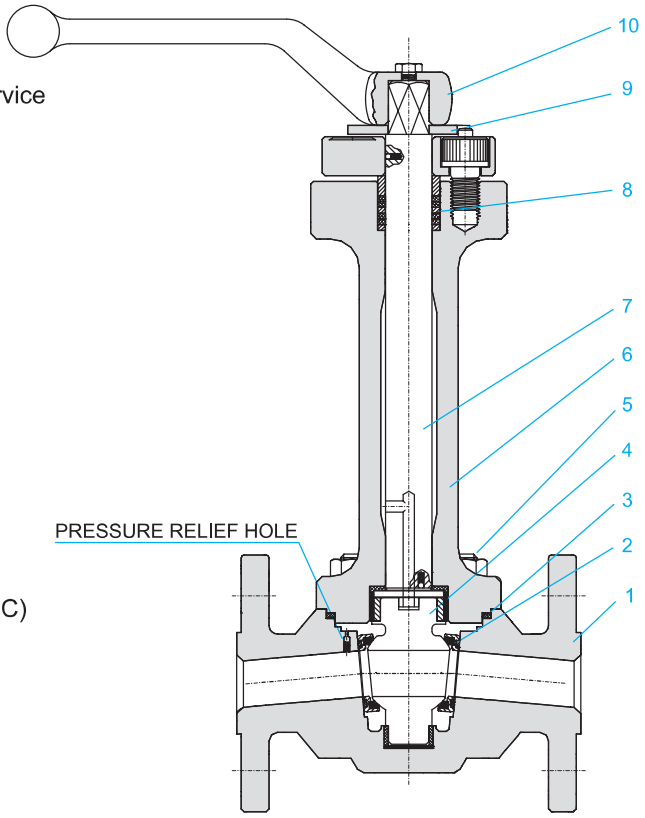
CRYOT Series Trunnion Ball Valves

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

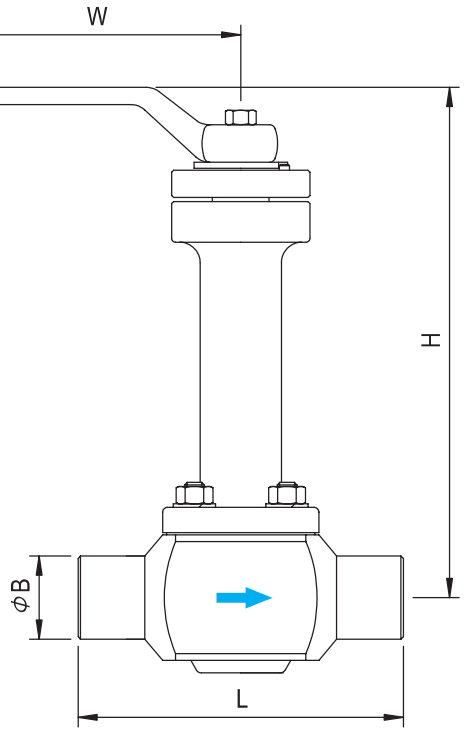
Applications

- Cryogenic, LNG, LPG, and Nitorogen

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

Screwed Ends

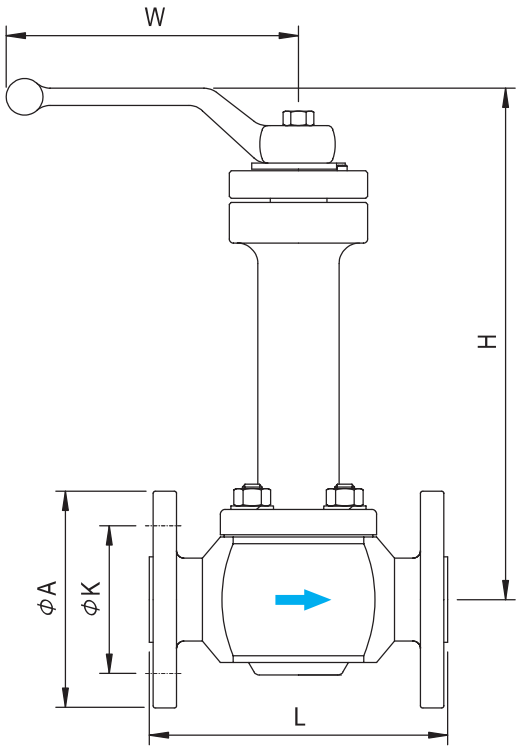


Screwed Ends Dimensions & Weights

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.

Flaged Ends



Flaged 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

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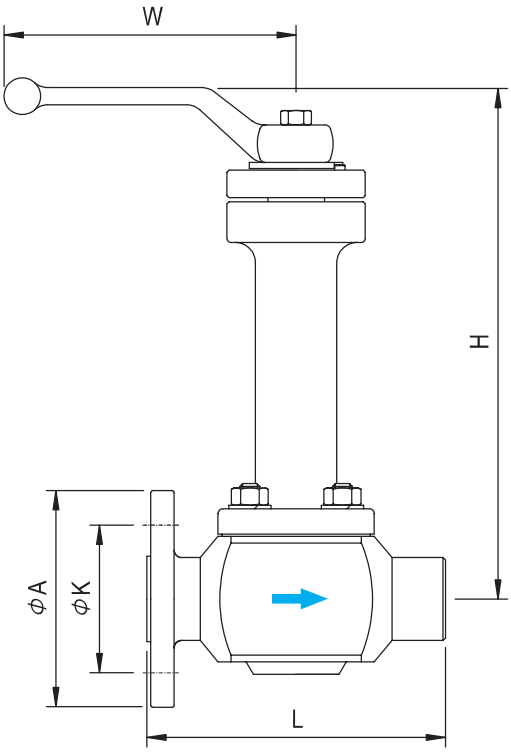
Flanged to Screwed Ends



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.

Ordering Information

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Numbering System

Example :