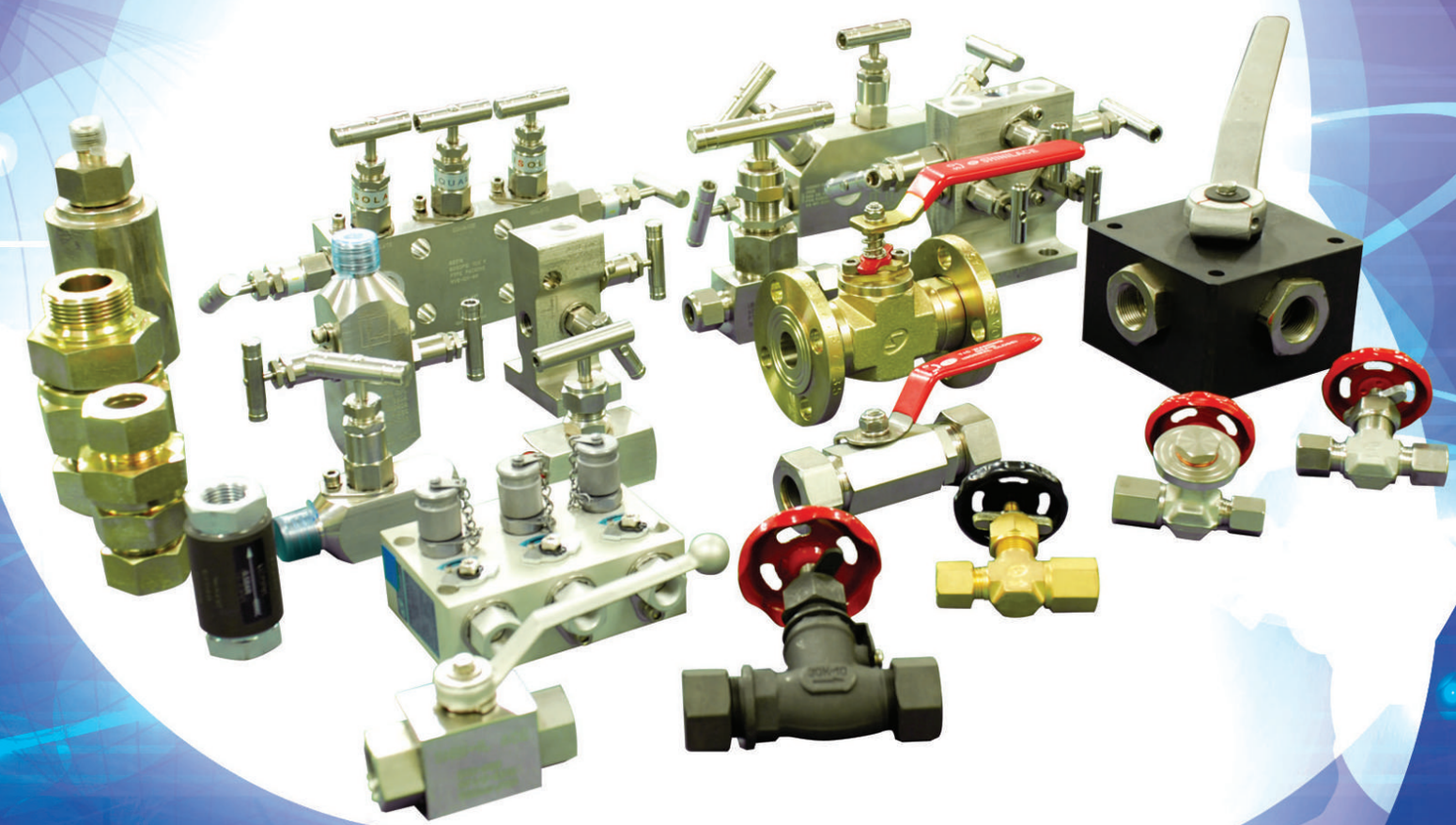
Shinilace Valves

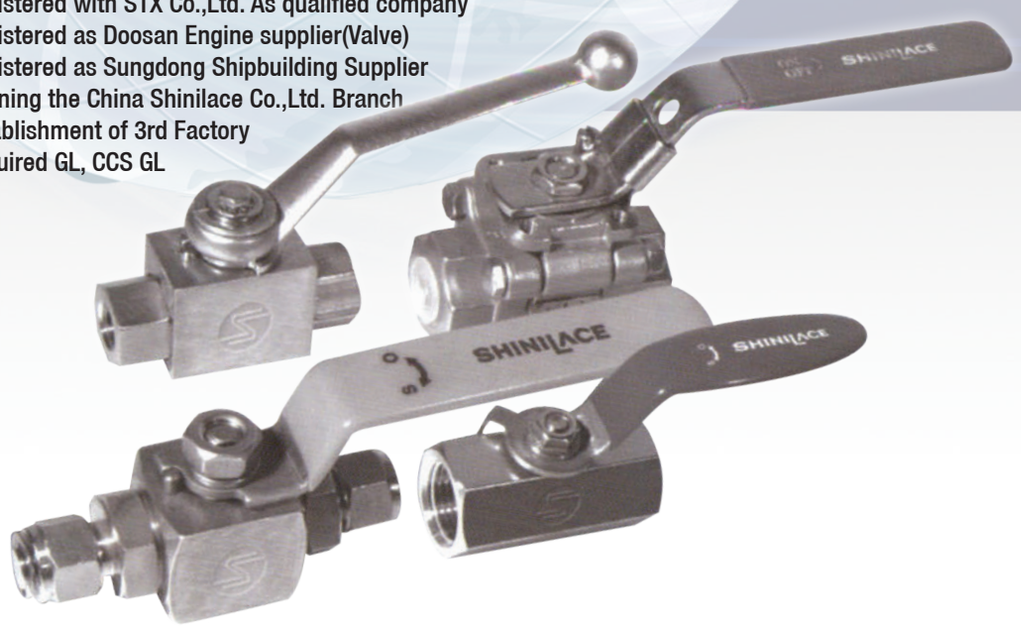


Catalog No. S-330TF Aug.2010

SHINILACE

Corporate Milestone

Apr.	20	1998	Establishment of Shin-il Ace Co., Ltd
Jun.	07	1998	Reeister the brand and firm name of Shin-il Ace Co., Ltd
Aug.	01	1998	Register the Shin-il Industry Plant
Apr.	01	1998	Reeister with Korean Standard Association
Apr.	20	1998	Eatablishment of SHIN IL ACE Co., Ltd
Jun.	07	1998	Register the brand firm name of SHIN IL ACE Co.,Ltd
Apr.	21	1999	Register with Korea Standard Association
May.	21	1999	Expanded and moved the homemade plant (Jangrim-dong, Saha-gu, Busan)
Feb.	22	2000	Registered with Han-Jin Heavy Industry Co., Ltd. as cooperative enterprise
May.	22	2000	Expanded and moved the homemade plant(jangrim-dong,Saha-gu,Busan)
Oct.	15	2001	Guided the QM technique by Small Business Corporation (April-October)
Nov.	01	2001	Registered with KITA
Nov.	17	2001	Acquired the IS09001 QMS Assurance
Jan.	31	2002	Open the homepage (www.shinilind.com)
Nov.	11	2002	Registered with Samsung Heavy Industry Co., Ltd. (Kyu-Je Dockyard) as cooperative enterprise
Aug.	01	2003	Converted to Shin-il Co., Ltd.
Sep.	25	2004	Expanded and moved at the place, #541, Shinpyune-done, Saha-eu, Busan
Oct.	08	2004	Taken the excellent SMBA Award by Busan - Ulsan SMBA
Dec.	12	2004	Registered with Korea Midland Power Co., Ltd. as qualified company (Stainless tube fitting & valve)
Dec.	30	2004	Assured as CLEAN work-place
Jan.	21	2005	Designated by Busan Bank as promising small and medium enterprise
Mar.	02	2005	Opening the Seoul Branch
Mar.	25	2005	Registered again the IS09001 Certificate of BVQI
Apr.	08	2005	Increasing the capital (450 million W)
Jul.	07	2005	Registered with KOSEP as qualified company (Stainless tube fitting & valve)
Jul.	08	2005	Designated by SMBA as small and medium enterprise for export business
Jul.	13	2005	Assured "TYPE APPROVAL LR Shipping (BITE TYPE , DIN TYPE , LOK TYPE)"
Jul.	15	2005	Registered with Korea Southem Power Co., Ltd. as qualified company (Stainless tube fitting & valve)
Jul.	18	2005	Registered the I-LOK brand
Oct.	19	2005	Registered with Korea Western Power Co., Ltd. as qualified company (Stainless tube fitting & valve)
Nov.	25	2005	Assured " TYPE APPROVAL of DNV Shipping (BITETYPE,DINTYPE,LOKTYPE)"
Mar.	30	2006	Registered with Korea hydro & Nuclear Power Co.,Ltd. As qualified company Registered with Korea East
Jan.	26	2006	West Power Co.,Ltd. As qualified company
Jul.	15	2006	Establishment of 2nd Factory
Jul.	26	2006	Registered with Dae Woo. As qualified company
Aug.	21	2006	Registered with Doo San Heavy Industry Co.,Ltd. As qualified company
Sep.	20	2006	Head office & Factory moved in #512, ShinPyong-Dong
Mar.	16	2007	Designated by SMBA as small and medium enterprise for export business
Apr.	05	2007	Registered with Doo San Engine Co.,Ltd. As qualified company
Aug.	08	2007	Registered with STX Co.,Ltd. As qualified company
Jan.	01	2009	Registered as Doosan Engine supplier(Valve)
Jan.	22	2009	Registered as Sungdong Shipbuilding Supplier
May.	15	2009	Opening the China Shinilace Co.,Ltd. Branch
Oct.	10	2010	Establishment of 3rd Factory
Oct.	15	2010	Acquired GL, CCS GL



Greetings

We, all staffs SHINILACE CO., LTD.

Deeply thank you for your continuous support and encouragement. As we have accomplished high growth for short time since the foundation in 1998, we have supplied our customers the best product at the most proper price with the best delivery and service under the motto,"Let's Do Our Best." On the basis of quality management system, we are making continuous efforts to make our customers satisfied, focusing on their need, with staffs' ideas and guarantee on the products by increasing working efficiency of all staffs.

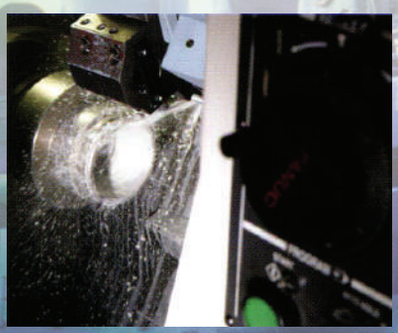
We, all staffs with one accord, will focus on the customers' satisfaction with continuous research and development, increase of quality and technological stability in order to occupy technologically higher position prior to others in the 21st market on the basis of continuous efforts and faith fulness. We expect your endless interest and encouragement to our SHINILACE CO., LTD.

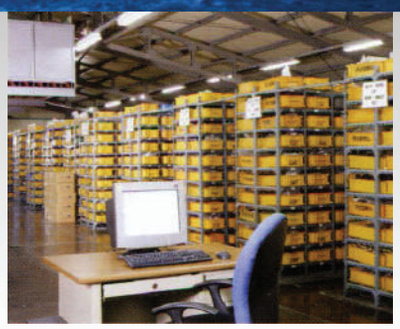
All staffs of SHINILACE CO., LTD.

SHINILACE

Shinil System

Shin-il Ace Co., Ltd. is the professional production company for piping material. Shin-il Ace Co., Ltd. has produced the first-class products satisfied with best tech-nique, customer satisfaction, global standardization that are company man-agementideology since it has harmonized with fluent technology and business experienceand it is also assured by various foreign and domestic certificates. And Shin-il AceCo., Ltd. has applied the high sense technique to all products and has done its beston technique development to meet the various required conditions since it hasexcellent technique, many research members and state-of-the-art re-search facilities.





Shinil Valves Index

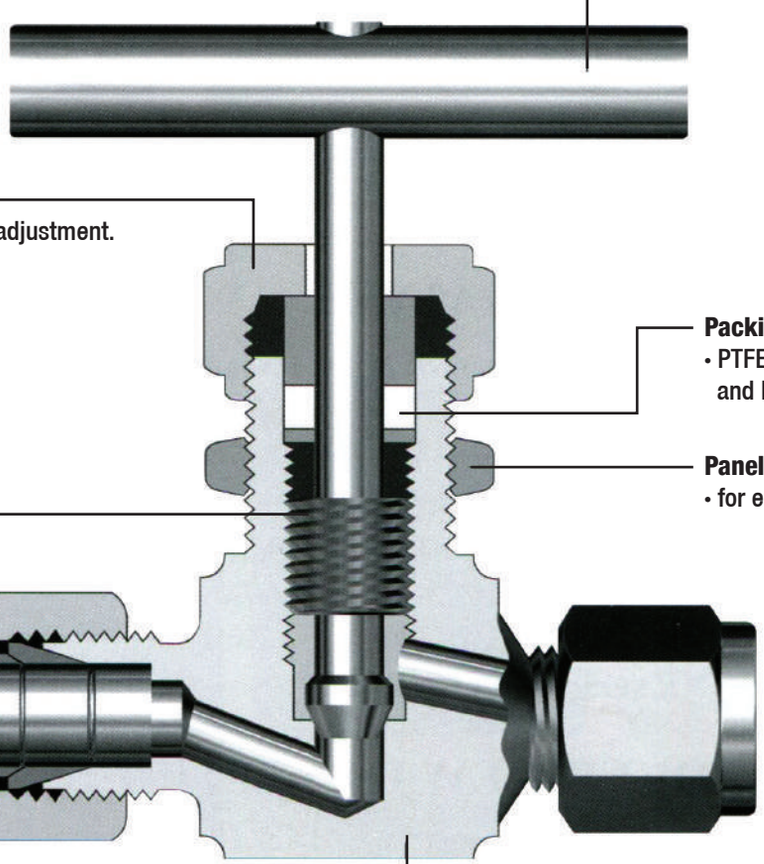
SHINIL VALVES

OVERVIEW OF FITTINGS

NV series
Integral Bonnet Needle Valves

Features

- **Pressure rating** up to 5000psig (340Bar) @ 100°F (38°C)
- **Temperature rating** from -65°F to 450°F (-54°C to 232°C) with standard PTFE packing.
- **Body materials** available in 316 stainless steel and brass
- **100% factory tested.**



Handle
• is available stainless steel bar and black phenolic knob.

Gland Nut
• allows smooth packing adjustment.

Packing Materials
• PTFE (standard) and PEEK(option).

Panel Mounting Nut
• for easy mounting.

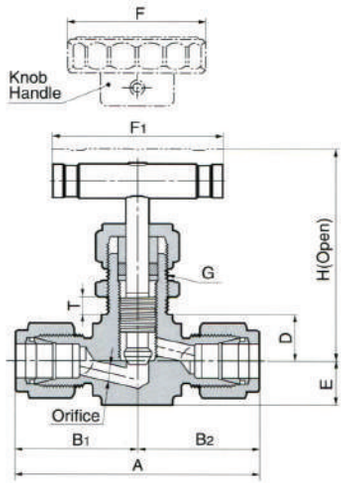
Stem Threads
• are rolled and plated for long service life.

Variety of End Connections
• I-Lok tube fittings
• Male/ Female NPT threads
• Male/ Female ISO threads

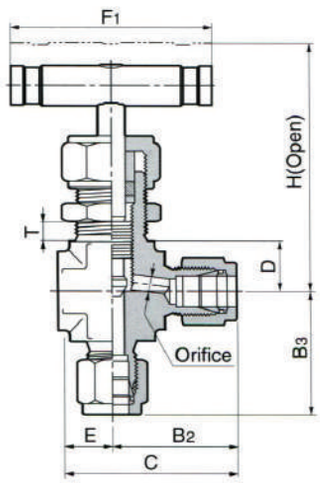
One Piece body
• is available with straight and angle pattern.

▪ Dimensions

G : Panel Hole Drill
T : Panel Mount Thickness(3.2~6.4)



Straight Pattern



Angle Pattern

Part NO.		Orifice	Cv	End Connections		Dimensions, mm										
				Inlet	Outlet	A	B_1	B_2	B_3	C	D	E	F	F_1	G	H
NV1	-F2N	2.0	0.09	1/8" Female NPT	1/8" Female NPT	42.0	21.0	21.0	21.0	30.5	11.0	9.5	28.0	32.0	13.5	51.2
	-M2N			1/8" Male NPT	1/8" Male NPT	42.0		20.0		29.5						
	-M2N2T			1/8" Male NPT	1/8" I-Lok	47.0		26.0		35.5						
	-L2T			1/8" I-Lok	1/8" I-Lok	52.0	26.0	26.0	26.0	35.5						
	-L3M			3mm I-Lok	3mm I-Lok											
	-F2N	4.3	0.37	1/8" Female NPT	1/8" Female NPT	42.0	21.0	21.0	21.0	30.5	11.0	9.5	38.0	45.0	13.5	51.2
	-M2N			1/8" Male NPT	1/8" Male NPT											
	-M4N			1/4" Male NPT	1/4" Male NPT	50.0	25.0	25.0	25.0	34.5						
	-M4N4T			1/4" Male NPT	1/4" I-Lok	53.8		28.8		38.3						
	-L6M			6mm I-Lok	6mm I-Lok	57.6	28.8	28.8	28.8	38.3						
	-L4T			1/4" I-Lok	1/4" I-Lok											
	-L8M			8mm I-Lok	8mm I-Lok	59.2	29.6	29.6	29.6	39.1						
	-F4N	6.3	0.73	1/4" Female NPT	1/4" Female NPT	56.0	28.0	28.0	28.0	41.0	13.5	13.0	50.0	64.0	20.0	63.6
	-F4R			1/4" Female PT	1/4" Female PT											
	-MF4N			1/4" Male NPT	1/4" Female NPT											
	-M4N6T			1/4" Male NPT	3/8" I-Lok	61.2		33.2		46.2						
	-M6N			3/8" Male NPT	3/8" Male NPT	58.0	29.0	29.0	29.0	42.0						
	-M6N6T			3/8" Male NPT	3/8" I-Lok	62.2		33.2		46.2						
	-M6N8T			3/8" Male NPT	1/2" I-Lok	65.0		36.0		49.0						
	-L10M			10mm I-Lok	10mm I-Lok	66.4	33.2	33.2	33.2	46.2						
	-L6T			3/8" I-Lok	3/8" I-Lok											
	-L12M			12mm I-Lok	12mm I-Lok	72.0	36.0	36.0	36.0	49.0						
	-L8T			1/2" I-Lok	1/2" I-Lok											
	-F6N	9.5	1.8	3/8" Female NPT	3/8" Female NPT	76.0	38.0	38.0	38.0	57.0	19.0	19.0	63.5	76.0	22.5	99.4
	-F6R			3/8" Female PT	3/8" Female PT											
	-F8N			1/2" Female NPT	1/2" Female NPT											
	-F8R			1/2" Female PT	1/2" Female PT											
	-M8N			1/2" Male NPT	1/2" Male NPT											
	-M8N			1/2" Male NPT	1/2" Female NPT											
	-L8T			1/2" I-Lok	1/2" I-Lok	97.0	48.5	48.5	48.5	67.5						
	-L12T			3/4" I-Lok	3/4" I-Lok											

Dimensions shown with I-Lok nuts finger-tight.
Bite type tube fitting are available upon request.

▪ Technical Data

Materials of Construction

Component		Grade / ASTM Specification	
		Valve Body Materials	
		SS 316	Brass
Handle	Bar	Stainless Steel	-
	Knob	-	Black Phenolic
Packing Nut		SS316 / A276	Brass 360 / B16
Packing		PTFE (TFE)	
Packing Ring		SS316 / A276	Brass 360 / B16
Stem	Vee	SS316 / A276	Brass 360 / B16
	Regulating		
	Soft Seat		
Panel Nut		SS316 / A276	Brass 360 / B16
Body		SS316 / A182	Brass 377 / B283

Nickel anti-seize lubricant on non-wetted parts.

Pressure - Temperature Ratings

Temperature		Woeking Pressure,Psig	
		Materials	
		SS 316	Brass
-65°F(-54°C)to	100°F (38°C)	5000	3000
	200°F (93°C)	4290	2600
	300°F (148°C)	3870	2210
	350°F (176°C)	3710	1470
	400°F (204°C)	3560	740
	450°F (232°C)	3430	-

- To determine kPa, multiply psig by 6.89 and bar by 0.0689
- Pressure rating for tubing with I-Lok tube fitting ended valves are determined by the tubing material and wall thickness.
- The above ratings are a standard valve with PTFE packing. For optional packing materials refer to the table shown below.
- Extreme temperature fluctuations may require grand nut adjustment.

Packings & Temperature Rating

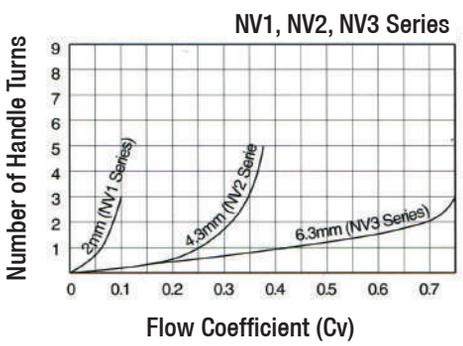
Packing Material	Temperature	Pressure @ Temp Rating
PTFE (Standard)	-65°F~450°F (-54°C~232°C)	3430 psig
PEEK (Optional)	-65°F~600°F (-54°C~315°C)	3130 psig

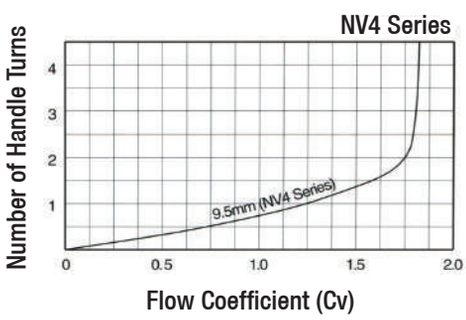
* PEEK is not recommended for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

Handle

- Stainless steel bar is standard on all SS316 body valves.
- Black phenolic knob is standard for brass body and soft seat stem valves.

Flow Coefficient (Cv) at Turns Open

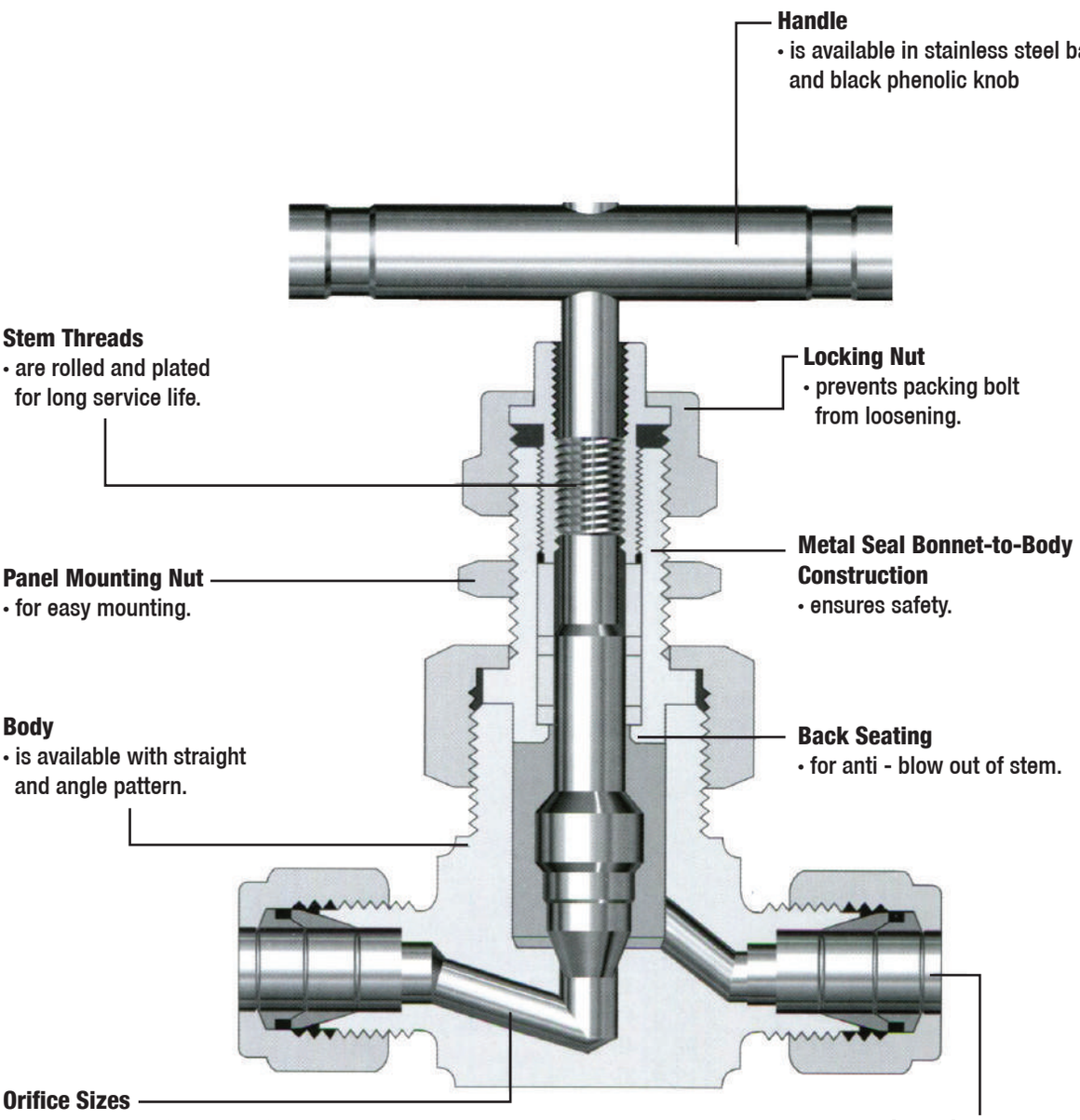




UB series
Union Bonnet Valves

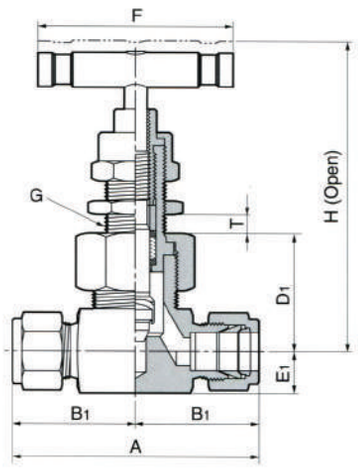
Features

- **Pressure rating** up to 5000psig (340Bar) @ 100°F (38°C)
- **Temperature rating** from -65°F to 450°F (-54°C to 232°C) with standard PTFE packing. and up to 600°F (315°C) with optional PEEK packing
- **Body materials** 316 stainless steel
- **100% factory tested.**

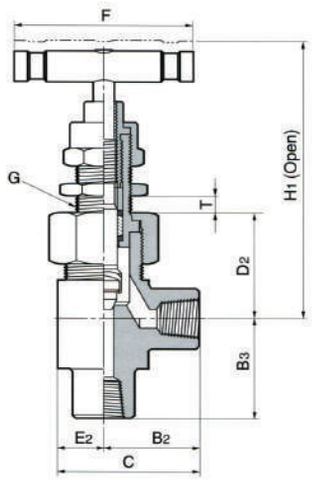


▪ Dimensions

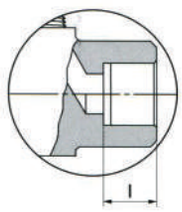
G : Panel Hole Drill
T : Panel Mount Thickness(1/16"~3/8")



Straight Pattern



Angle Pattern



Weld End

Part NO.		Orifice	Cv	End Connections	Dimensions, mm													
				Inlet / Outlet	A	B1	B2	B3	C	D1	D2	E1	E2	F	G	H	H1	I
UB1	-F2N	4.0	0.35	1/8" Female NPT	50.8	25.4	23.0	25.4	32.6	27.8	32.6	9.6	9.6	45	15.1	77.8	82.6	-
	-F4N			1/4" Female NPT	52.4	26.2												
	-M4N			1/4" Male NPT	50.8	25.4	25.4		35.0									
	-MF4N			1/4" Male/ Female NPT	52.4	26.2	23.0		32.6									
	-L6M			6mm I-Lok	61.9	31.0	29.4	37.3	38.9		27.8						77.8	
	-L4T			1/4" I-Lok														
	-SW4T			1/4" Tube Weld	46.0	23.0	22.3	30.2	31.8									7.2
	-L8M			8mm I-Lok	61.9	31.0	29.4	37.3	38.9									-
UB2	-F4N	6.4	0.86	1/4" Female NPT	57.2	28.6	25.4	28.6	38.1	34.1	37.3	12.7	12.7	64	19.9	93.7	96.9	-
	-F6N			3/8" Female NPT														
	-L10M			10mm I-Lok	73.8	36.5	33.3	39.7	46.1		34.2						93.7	
	-L6T			3/8" I-Lok			32.5	42.9	45.3		31.0						90.5	
	-L12M			12mm I-Lok	77.8	38.9	35.7	42.1	48.4		34.2						93.7	
	-L8T			1/2" I-Lok			34.9		47.6									
	-SW4P			1/4" Pipe Weld	57.2	28.6	25.4	28.6	38.1		37.3						93.7	9.6
	-SW6T			3/8" Tube Weld														8.0
	-SW8T			1/2" Tube Weld				25.4			35.7						95.3	9.6
UB3	-F8N	11.0	2.2	1/2" Female NPT	79.4	39.7	33.3	39.7	50.8	46.1	50.8	15.9	17.5	89	26.2	121.5	126.2	-
	-F12N			3/4" Female NPT	82.6	41.3	-	-	-	48.4	-	19.9	-			123.9	-	
	-F16N			1" Female NPT	92.1	46.0	-	-	-	54.0	-	25.4	-			129.4	-	
	-MF8N			1/2" Male/ Female NPT	79.4	39.7	33.3	39.7	50.8	46.0	50.8	15.9	17.5			121.5	126.2	
	-MF12N			3/4" Male/ Female NPT	82.6	41.3	-	-	-	48.4	-	19.9	-			123.9	-	
	-MF16N			1" Male/ Female NPT	92.1	46.0	-	-	-	54.0	-	25.4	-			129.4	-	
	-L12N			12mm I-Lok	100.0	50.0	-	-	-	46.0	-	15.9	-			121.5	-	
	-L8T			1/2" I-Lok			43.7	53.2	61.1		47.6		17.5				123.1	
	-L12T			3/4" I-Lok														
	-L16T			1" I-Lok			-	-	-	47.6	-	17.5	-			123.1	-	9.6
	-SW8P			1/2" Pipe Weld	79.4	39.7	33.3	39.7	50.8		50.8		17.5				126.2	9.6
	-SW8T			1/2" Tube Weld				42.9		46.0	47.6	15.9				121.5	123.1	11.1
	-SW12T			3/4" Tube Weld			-	-	-		-		-				-	-

Dimensions shown with I-Lok nuts finger-tight.
Bite type tube fitting are available upon request.

▪ Technical Data

Materials of Construction

Component		Grade / ASTM Specification
		Valve Body Materials
Handle		Stainless Steel
Lock Nut		SS316 / A276
Packing Bolt		SS316 / A276
Packing Gland		SS316 / A276
Packing Washer		Glass Filled PTFE
Packing*		PTFE
Bonnet*		SS316 / A276
Stem*	Vee Tip	SS316 / A276
	Ball Tip	
	Soft Tip	
	Regulating	
Body*		SS316 / A276

Note : "*" marked are wetted parts.
Nickel anti-seize lubricant for PTFE packed valves and fluorinated grease for PEEK and Grafoil packed valves.

Pressure - Temperature Ratings

Materials		SS 316
Temperature		Working Pressure,Psig
-65°F(-54°C)to	100°F (38°C)	6000
	200°F (93°C)	5160
	300°F (148°C)	4660
	350°F (176°C)	4470
	400°F (204°C)	4280
	400°F (232°C)	4130

- To determine kPa, multiply psig by 6.89 and bar by 0.0689.
- Pressure ratings for tubing used with I-Lok tube fitting ended valves are determined by the tubing material and wall thickness.
- The above ratings are for a standard valve with PTFE packing. For optional packing material,refer to the table shown below. bolt adjustment.

Packings & Temperature Rating

Packing Material	Temperature	Working Pressure
PTFE (Standard)	-65°F~450°F (-54°C~232°C)	4130 psig
PEEK*	-65°F~600°F (-54°C~315°C)	3760 psig
Grafoil	-65°F~1200°F (-54°C~648°C)	1715 psig

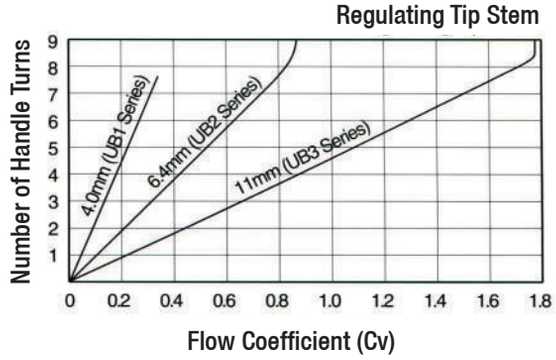
* PEEK is not recommended for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

Handle

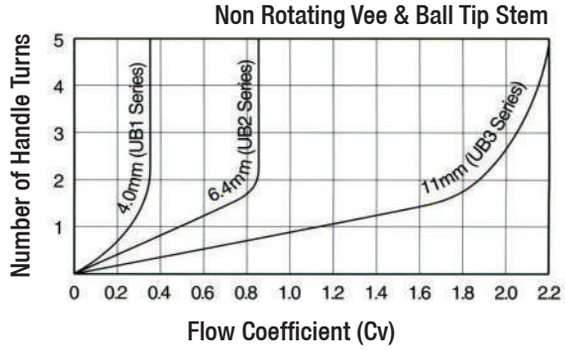
- Stainless steel bar is standard of all SS316 body valves.
- Black phenolic knob is available for UB1 and UB2 series with option.

Flow Coefficient (Cv) at Turns Open

Regulating Tip Stem



Non Rotating Vee & Ball Tip Stem



M series
Manifold Valves

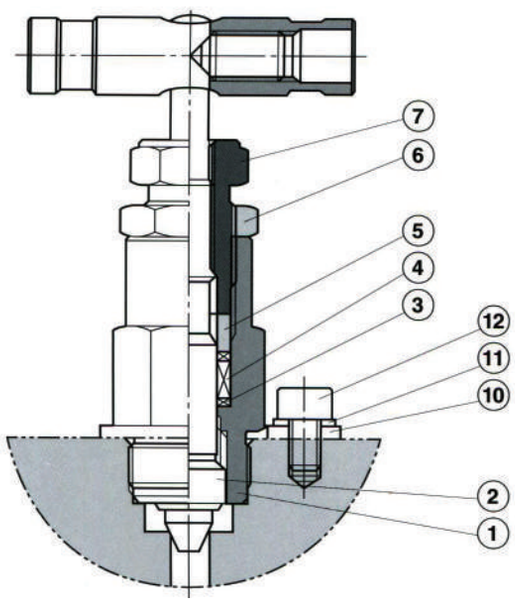
▪ MANIFOLD VALVES

MV2	MV3	MV5
		
MV3DM	**MV3F1**	**MV5DM**
		

▪ GAUGE / ROOT VALVES

GV	GRV	GV2
		

▪ BONNET FEATURES & MATERIALS



Features

- Pressure rating up to 6000psig(410bar)@100°F(38°C)
- Temperature rating up to 1200°F(648°C)with optional Grafoil packing
- Flange seal grooves meet the requirements of MSS-SP-99
- Body materials available in 316 stainless steel
- 100% factory tested

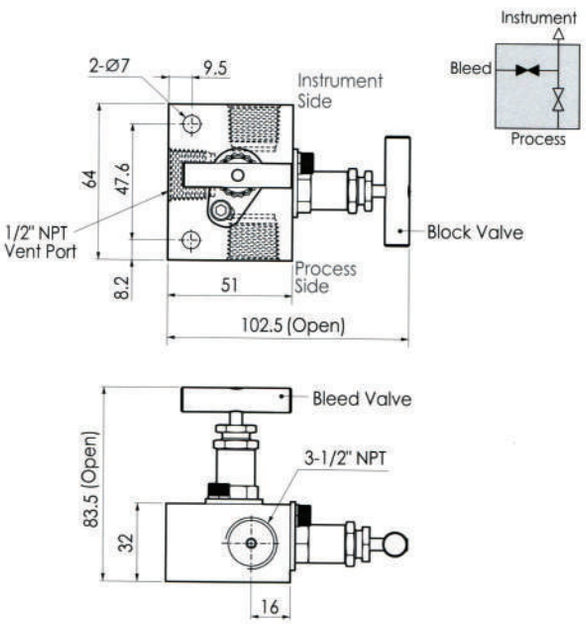
Temperature and Pressure Rating

Packing Material	Temperature Range	Pressure Rating@100°F	Pressure Rating @Max.Temperature
PTFE	-65°F~450°F (-54°C~232°C)	6000 psig	4130 psig@450°F (280 bar@232°C)
Grafoil	-65°F~1200°F (-54°C~648°C)	6000 psig	1715psig@1200°F® (118bar@648°C)

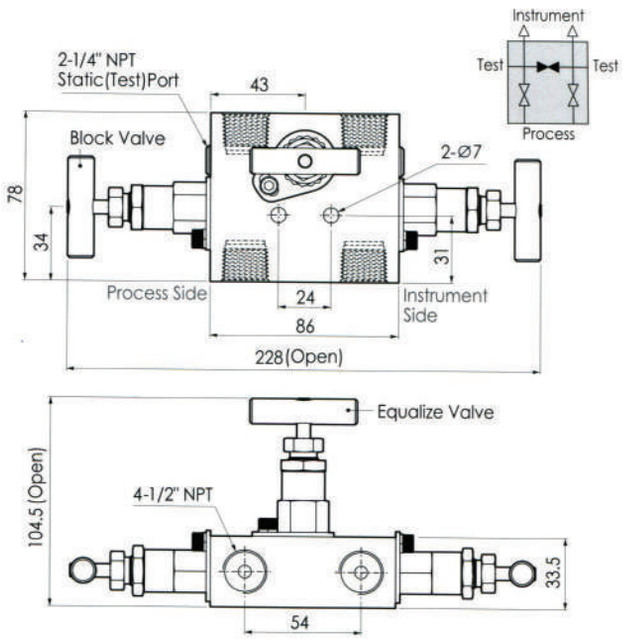
NO.	Description	Material
①	Bonnet Mvb	SS 316
②	Stem	SS 316
③	Packing Washer	RTFE
④	V-Packing	RTFE
⑤	Gland Ring	SS 316
⑥	Lock Nut	SS 316

NO.	Description	Material
⑦	Packing Bolt	SS 316
⑧	Set Screw	SS 304
⑨	Bar Handle	SS 304
⑩	Locking Plate	SS 304
⑪	Spring Washer	SS 304
⑫	Wrench Bolt	SS 304

▪ MANIFOLD VALVES

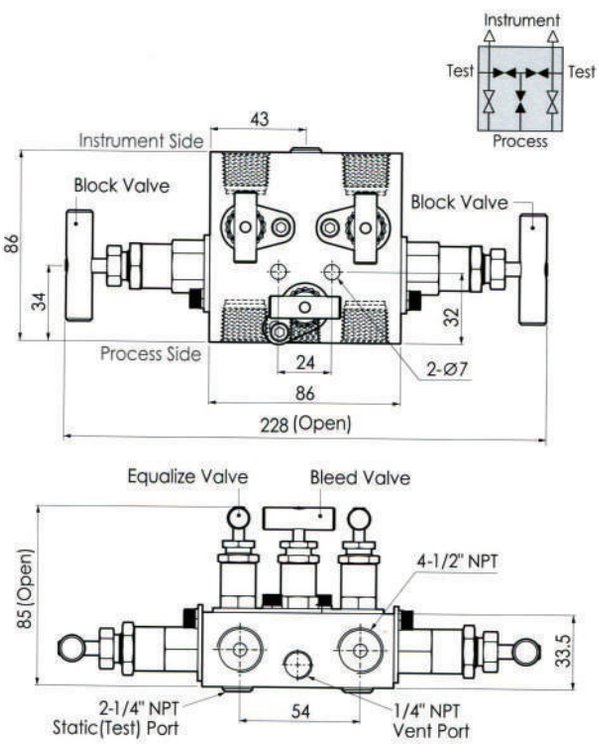


▲MV2-8N 2-Valves Block 0.8kg

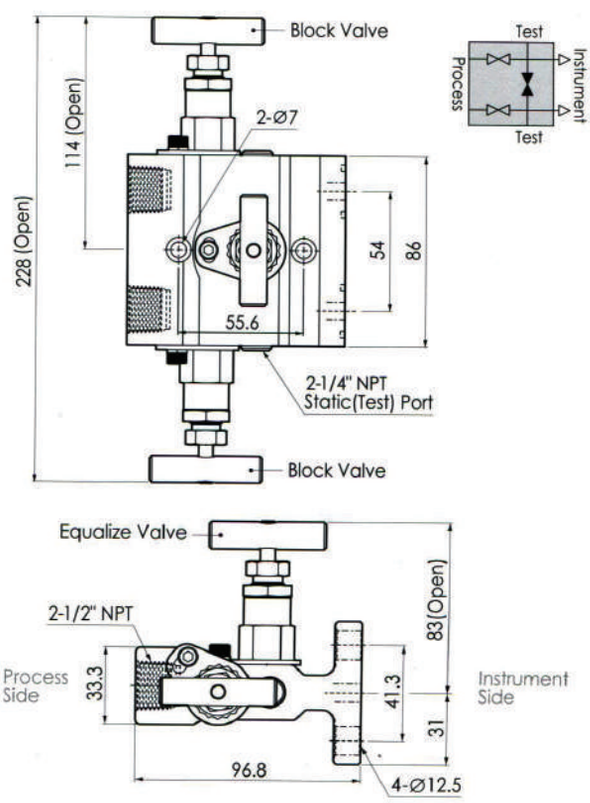


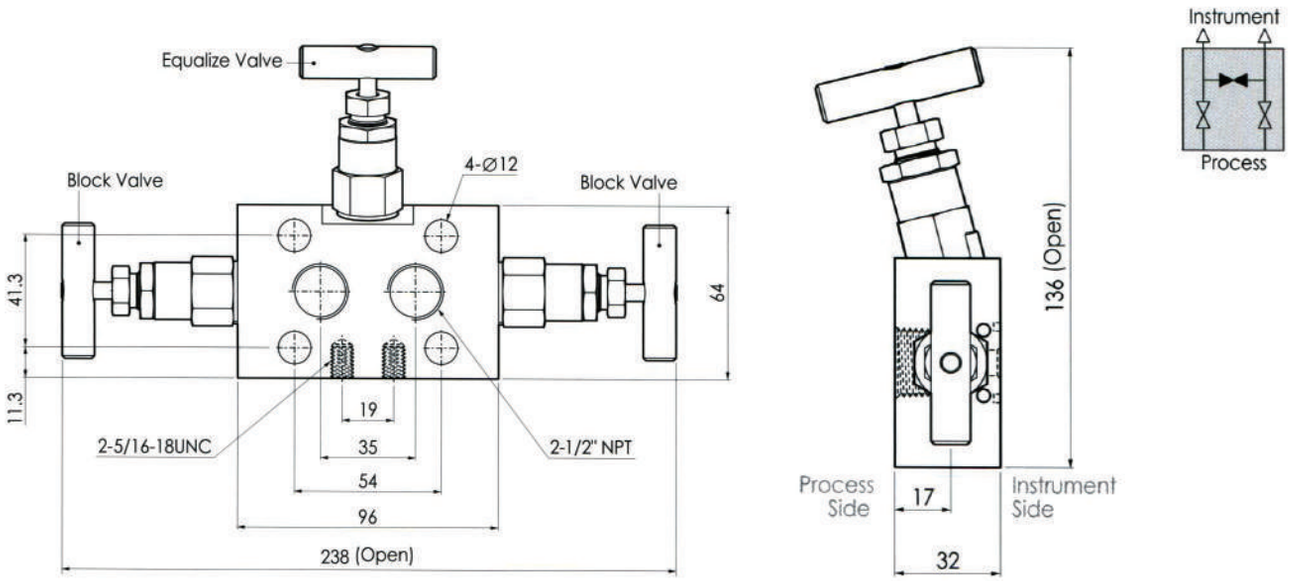
▲MV3-8N 3-Valves Block 2.0kg

▼MV5-8N 5-Valves Block 2.2kg



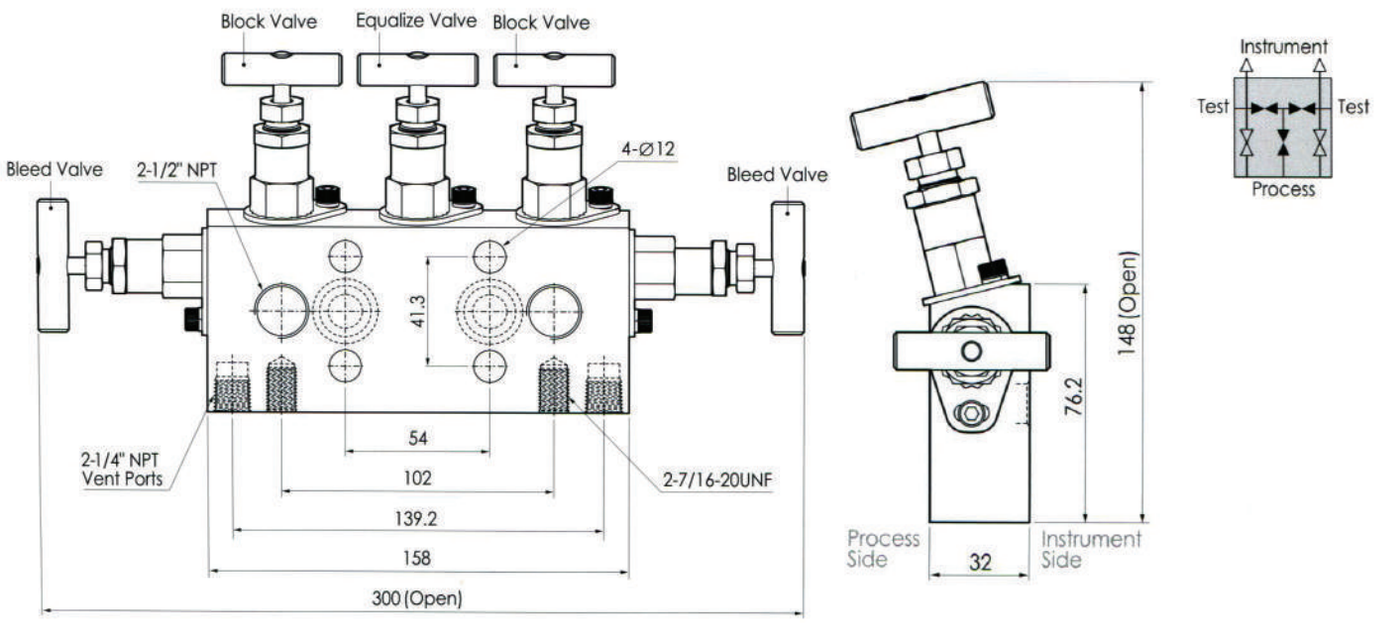
▼MV3F1-8N 3-Valves Single Flange 2.2kg





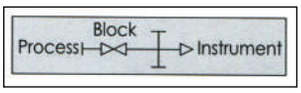
▲MV3DM-8N **3-Valves Bar Type Direct Mounting**
1.7kg

▼MV5DM-8N **5-Valves Bar Type Direct Mounting**
3.3kg

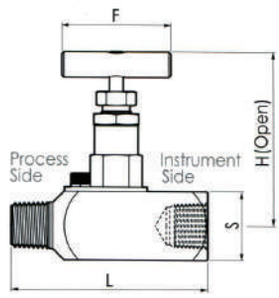


G series
Gauge/Root Valves

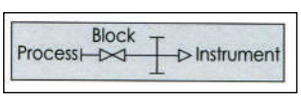
▼GV Gauge Valves



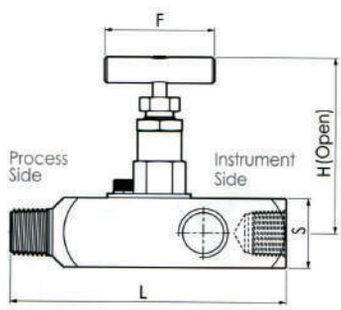
Part No.	End Connections		Dimensions				Weight (kg)
	Process	Instrument	L	H	F	S	
GV-MF8N	Male NPT 1/2"	Female NPT 1/2"	90	87	50	32	0.6
GV-M12NF8N	Male NPT 3/4"	Female NPT 1/2"					0.7
GV-M8NF12N	Male NPT 1/2"	Female NPT 3/4"		104.5		35	0.7
GV-F8N	Female NPT 1/2"	Female NPT 1/2"	84	87		32	0.7



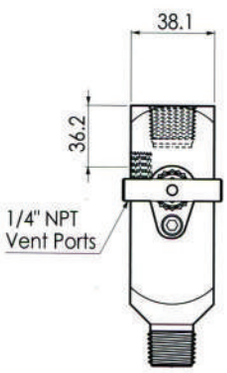
▼GRV Root Valves

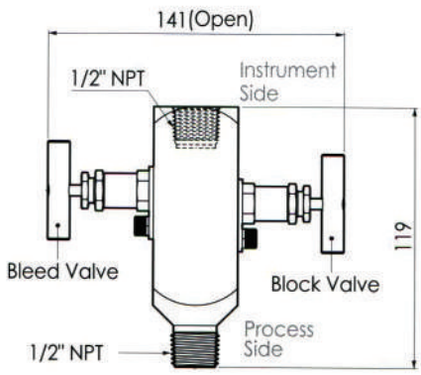


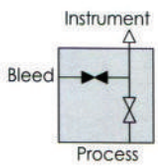
Part No.	End Connections		Dimensions				Weight (kg)
	Process	Instrument	L	H	F	S	
GRV-MF8N	Male NPT 1/2"	Female NPT 1/2"	136	87	50	32	0.9
GRV-M12NF8N	Male NPT 3/4"	Female NPT 1/2"					1.0
GRV-M8NF12N	Male NPT 1/2"	Female NPT 3/4"		104.5		35	1.0
GRV-F8N	Female NPT 1/2"	Female NPT 1/2"	102	87		32	0.8



▼GV2-MF8N Gauge 2-Valves
1.2kg







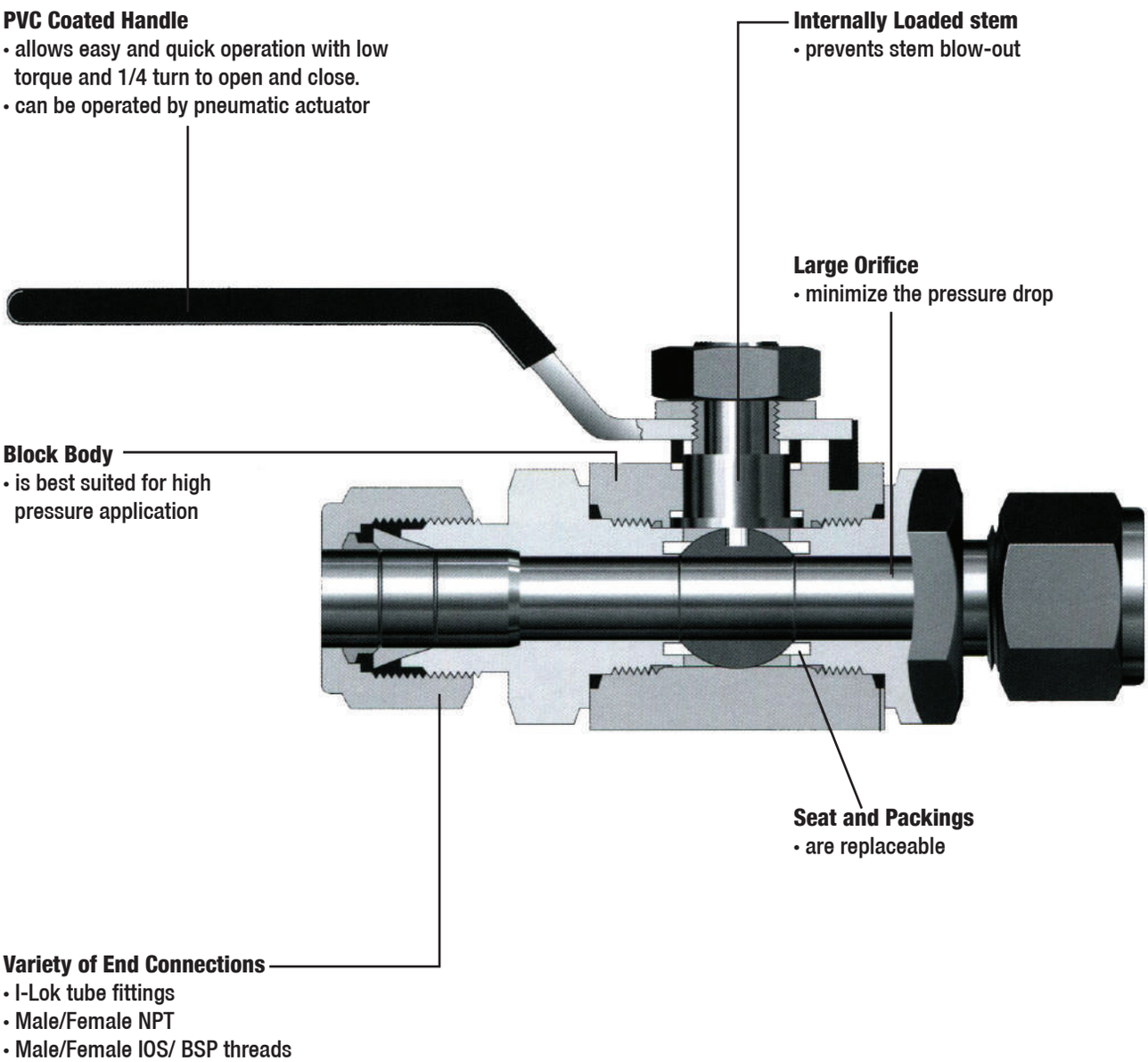
Note : Other size thread are available upon request.

All dimensions are in millimeters. Dimensions shown with I-Lok nuts in finger-tight position, Where applicable.

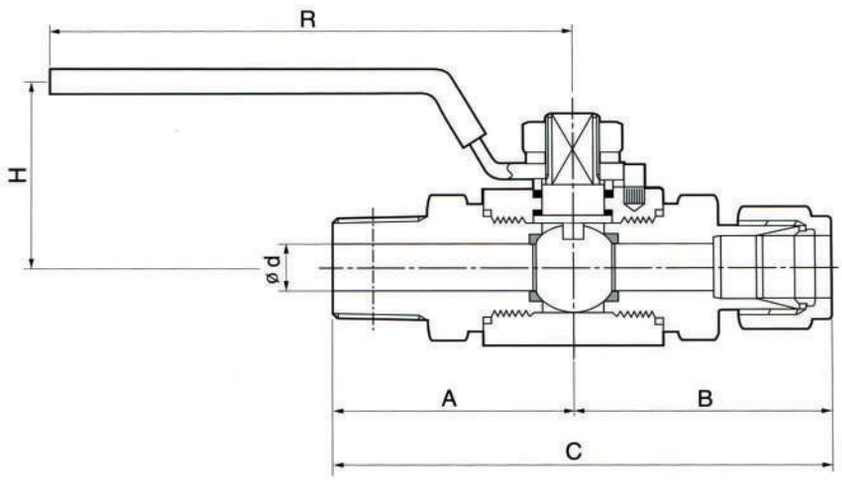
B40 series
High Pressure Ball Valves

Features

- **Pressure rating** up to 10,000psig (690Bar) @ 70°F (21°C)
- **Temperature rating** from -22°F to 265°F (-30°C to 130°C) with PVDF seat or
  from -65°F to 500°F (-54°C to 260°C) with PEEK seat
- **Compact design**
- **Materials available** in 316 stainless steel and alloy 400
- **100% factory tested.**



▪ Dimensions



Part NO.		Orifice	Cv	End Connections	d Min.	Dimensions, mm				
				Inlet / Outlet		A	B	C	H	R
B41	-L4T	10.0	1.2	1/4" I-Lok	4.8	45.8	45.8	91.6	38.0	126.5
	-L6T		3.7	3/8" I-Lok	7.1	47.3	47.3	94.6		
	-L8T		7.5	1/2" I-Lok	10.0	49.8	49.8	99.6		
	-F4N			1/4" Female NPT		32.0	32.0	64.0		
	-F6N			3/8" Female NPT		35.5	35.5	71.0		
	-F8N			1/2" Female NPT		39.5	39.5	79.0		
	-M4N		3.7	1/4" Male NPT	7.1	42.7	42.7	85.4		
	-M6N		7.2	3/8" Male NPT	9.6	42.7	42.7	85.4		
	-M8N		7.5	1/2" Male NPT	10.0	47.6	47.6	95.2		
B42	-F8N	12.7	10.0	1/2" Female NPT	12.7	45.0	45.0	90.0	50.8	162.0
	-F12N			3/4" Female NPT		45.0	45.0	90.0		
	-M12N			3/4" Male NPT		52.6	52.6	105.2		
	-L10N			5/8" I-Lok		55.3	55.3	110.6		
	-L12N			3/4" I-Lok		55.3	55.3	110.6		
B43	-F12N	19.0	30.0	3/4" Female NPT	20.0	45.0	45.0	90.0	55.6	162.0
	-F16N			1" Female NPT		49.1	49.1	98.2		
	-L12T		19.0	3/4" I-Lok	15.7	58.3	58.3	116.6		
	-L16T		30.0	1" I-Lok	20.0	64.9	64.9	129.8		
	-M12N		19.0	3/4" Male NPT	15.7	57.6	57.6	115.2		
	-M16N		30.0	1" Male NPT	20.0	62.4	62.4	124.8		

Dimensions shown with I-Lok nuts finger-tight.
Bite type tube fitting are available upon request.

▪ Technical Data

Materials of Construction

Component	Grade / ASTM Specification
	Valve Body Materials
Handle	Stainless Steel with PVC Coating
Lock Nut	Stainless Steel with Washer
Pin	Stainless Steel
Stem	SS 316 / A 276
Stem Packing	PTFE
Ball	SS 316 / A 276
Seats	PVDF (standard)
End Connector	SS 316 / A 276
End Seats	PTFE / Viton
Body	SS 316 / A 276

Handle

· Handle is made of stainless steel with PVC coat.

Pressure - Temperature Ratings

B41 Types

Material			Pressure Rating @-65°F~70°F (-54°C~21°C)	Temperature Rating
Seat	Stem Packing	End Seal		
PVDF (Standard)	PTFE		6000 psig (410 bar)	-22°F~265°F (-30°C~130°C)
PCTFE				-22°F~355°F (-30°C~180°C)
PEEK			10,000 psig (690 bar)	-65°F~500°F (-54°C~260°C)

B42, B43 Types

Material			Pressure Rating @-65°F~70°F (-54°C~21°C)	Temperature Rating
Seat	Stem Packing	End Seal		
PVDF (Standard)	PTFE	Vion	5,000 psig (340 bar)	-10°F~375°F (-23°C~191°C)
PCTFE				
PEEK			6,000 psig (410 bar)	

Note 1. The above pressure rating is for 2-way straight pattern valves. 80% of the above rating shall be applicable to 2-way angle pattern valves.

2. The rated pressure shown above is the maximum allowable pressure to the seat. If the system requires higher pressure to test, the valve must be in open position before and during test so as not to damage the seat.

3. Pressure ratings for tubing used with I-Lok tube fitting ended valves are determined by the tubing material and wall thickness.

B50 series
Ball Valves for DIN

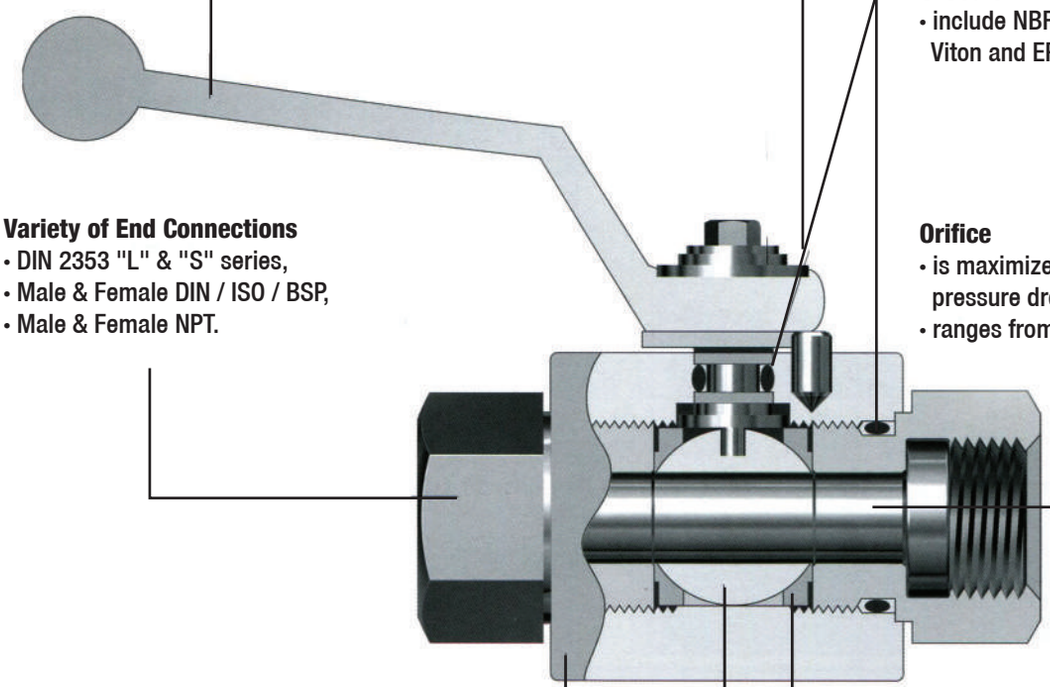
Features

- **Pressure rating** up to 500 Bar @ 21°C
- **Temperature rating** from -20°F to 100°F
- **Conforms to** DIN standard
- **Compact design** with max orifice
- **100% factory tested.**

Handle
- is available in cast stainless steel (standard) and zinc plated carbon steel (optional)

Indicator on Washer
- allows easy Identification of flow direction

O-Seals
- include NBR (standard), Viton and EPDM(optional).



Variety of End Connections
- DIN 2353 "L" & "S" series,
- Male & Female DIN / ISO / BSP,
- Male & Female NPT.

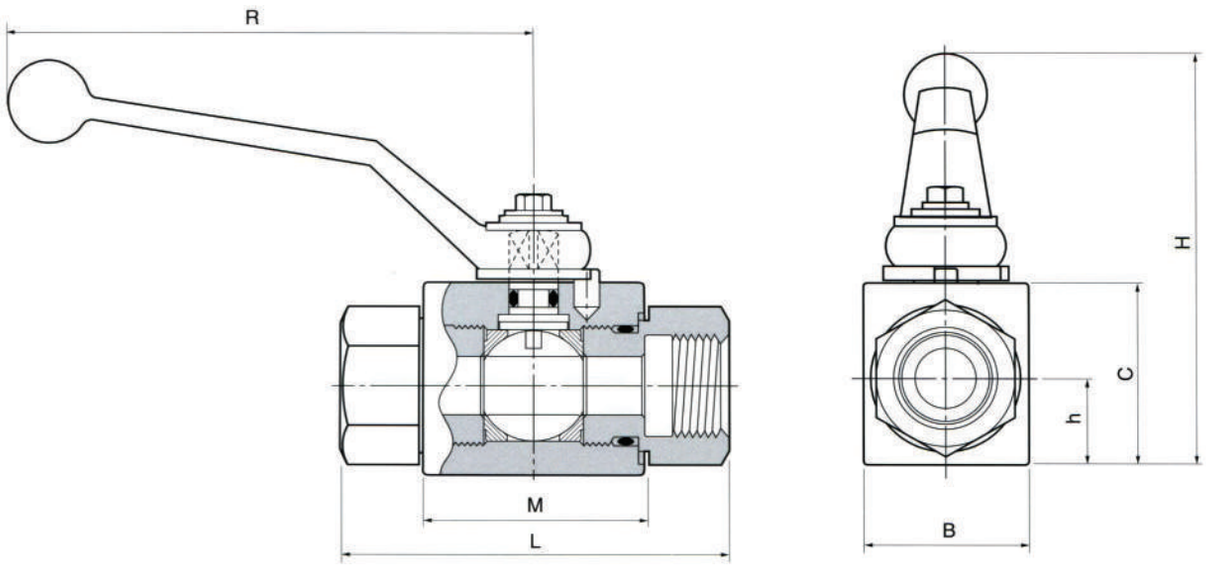
Orifice
- is maximized for minimal pressure drop
- ranges from DN 4 to DN 25.

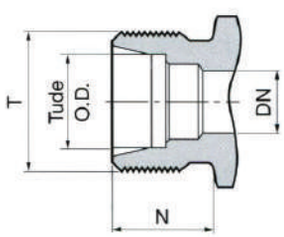
Body
- is machined from bar stock
- is available in stainless steel, carbon steel, and zinc plated carbon steel upon request.

Seats Rings
- are available in POM(standard) and PTFE(optional).

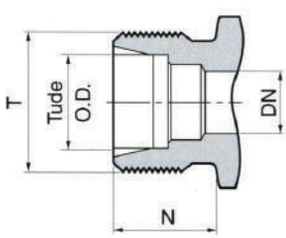
Floating ball
- is machined from bar stock
- is available in stainless steel and hard chrome plated carbon steel.

Technical Data

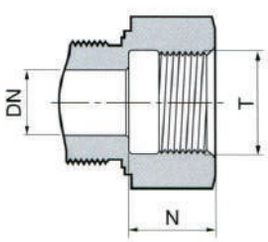




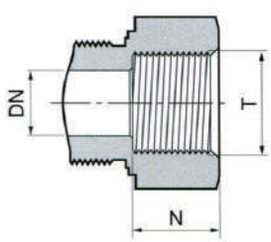
Tube Connection
DIN 2353
Light Series (L)



Tube Connection
DIN 2353
Heavy Series (S)



Female Thread
BSP
DIN / ISO 228/BSP



Female Thread
NPT
ASME / ANSI B1.20.1

Materials of Construction

Component	Specification / Grade			
	Valve Body Materials			
	SS 316		Carbon Steel	
	ASTM	DIN	ASTM	DIN
Body End Connector Stem	A 479 SS 316	17440 1.4541	A 108 12L14	1651 95Mn28K
Ball	316 Stainless Steel			
Seat Rings	POM (Standard)			
O-Seals	NBR (Standard)			
Handle	SS 316 / A276		Carbon Steel	
Locking Device	Stainless Steel			

Temperature Rating

Seals

Material	Temperature Rating
NBR (Buna N)	-23°C to 121°C
Viton	-23°C to 200°C
EPDM	-40°C to 149°C

Ball Seals

Material	Temperature Rating
POM	-30°C to 100°C
PTFE	-54°C to 65°C

▪ Dimensions

DIN 2353 LIGHT SERIES TUBE(L)

Part NO.	Tube O.D.	DN(1)	PN(2)	B	C	h	L	M	N	H	R	Thread T	Weight (kg)
B50 - 6L	6	4	315	26	33	13.5	67	40	10	83	115	M 12 × 1.5	0.4
B50 - 8L	8	6	315	26	33	13.5	67	40	10	83	115	M 14 × 1.5	0.4
B50 - 10L	10	6	315	26	33	13.5	74	40	11	83	115	M 16 × 1.5	0.5
B50 - 12L	12	10	315	32	38	17.5	74	43	11	88.5	115	M 18 × 1.5	0.6
B50 - 15L	15	13	315	35	40	19.0	82	48	12	90	115	M 22 × 1.5	0.7
B50 - 18L	18	13	315	35	40	19.0	82	48	12	90	115	M 26 × 1.5	0.8
B50 - 22L	22	20	160	49	57	24.5	101	62	14	113	160	M 30 × 2.0	2.1
B50 - 28L	28	25	160	58	65	29.5	108	66.2	14	121	160	M 36 × 2.0	2.3
B50 - 35L	35	25	160	58	65	29.5	112	66.2	16	121	160	M 45 × 2.0	2.3

DIN 2353 HEAVY SERIES TUBE(S)

Part NO.	Tube O.D.	DN(1)	PN(2)	B	C	h	L	M	N	H	R	Thread T	Weight (kg)
B50 - 8S	8	4	500	26	33	13.5	73	40	12	83	115	M 16 × 1.5	0.4
B50 - 10S	10	6	500	26	33	13.5	73	40	12	83	115	M 18 × 1.5	0.4
B50 - 12S	12	6	500	32	38	17.5	76	43	12	88.5	115	M 20 × 1.5	0.5
B50 - 14S	14	10	500	32	38	17.5	80	43	14	88.5	115	M 22 × 1.5	0.6
B50 - 16S	16	13	400	35	40	19.0	86	48	14	90	115	M 24 × 1.5	0.7
B50 - 20S	20	13	400	35	40	19.0	90	48	16	90	115	M 30 × 2.0	0.8
B50 - 25S	25	20	315	49	57	24.5	109	62	18	113	160	M 36 × 2.0	2.1
B50 - 30S	30	25	315	58	65	29.5	120	66.2	20	121	160	M 42 × 2.0	2.3
B50 - 38S	38	25	315	58	65	29.5	124	66.2	22	121	160	M 52 × 2.0	2.3

FEMALE DIN / ISO 228 / BSP

Part NO.	DN(1)	PN(2)	B	C	h	L	M	N	H	R	Thread T	Weight (kg)
B50 - 2G	6	500	26	33	13.5	68.8	40	10	83	115	PF 1/8"	0.4
B50 - 4G	6	500	26	33	13.5	68.8	40	14	83	115	PF 1/4"	0.4
B50 - 6G	10	500	32	38	17.5	71.9	43	14	88.5	115	PF 3/8"	0.6
B50 - 8G	13	500	35	40	19.0	82.3	48	16.5	90	115	PF 1/2"	0.7
B50 - 12G	20	315	49	57	24.5	95.4	62	18	113	160	PF 3/4"	1.6
B50 - 16G	25	315	58	65	29.5	112.7	66.2	20	121	160	PF 1"	2.3
B50 - 20G	25	315	58	65	29.5	120	66.2	22	121	160	PF 1 1/4"	2.3

FEMALE NPT (ANSI / ASME B1.20.1)

Part NO.	DN(1)	PN(2)	B	C	h	L	M	N	H	R	Thread T	Weight (kg)
B50 - 4N	6	500	26	33	13.5	68.8	40	15	83	115	NPT 1/4"	0.4
B50 - 6N	10	500	32	38	17.5	78	43	15	88	115	NPT 3/8"	0.6
B50 - 8N	13	500	35	40	19.0	104	48	20.5	90	115	NPT 1/2"	0.7
B50 - 12N	20	315	49	57	24.5	102	62	21.5	113	160	NPT 3/4"	1.6
B50 - 16N	25	315	58	65	29.5	119	66.2	25.4	121	160	NPT 1"	2.3
B50 - 20N	25	315	58	65	29.5	130	66.2	25.4	121	160	NPT 1 1/4"	2.3

Note : (1) DN is the max orifice.

(2) PN in Bar with a safety factor of 1.5.

All dimensions are in millimeters. Tube connections complete with sleeves and nuts.

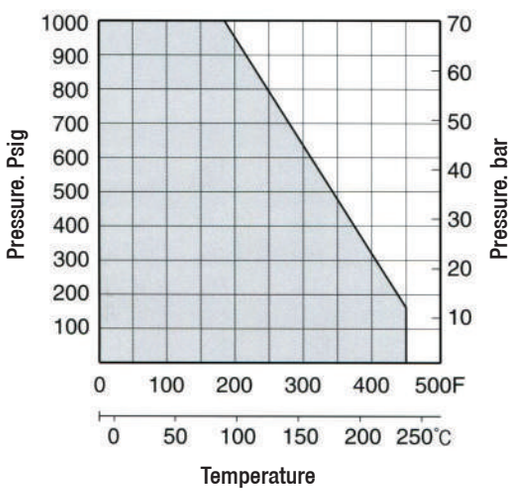
B60 series
Ball Valves of Hexagonal bar Stock

Features

- **Maximum Operating Pressure** of 1000Psig (69Bar) @ 180°F(82°C) with reinforced PTFE
- **Compact design** with one piece hexagonal bar
- **Low torque** for easy operation

Applications
Chemical plants, refineries, steel mills, Fuel Lines, Heavy Vehicles

Pressure - Temperature Ratings

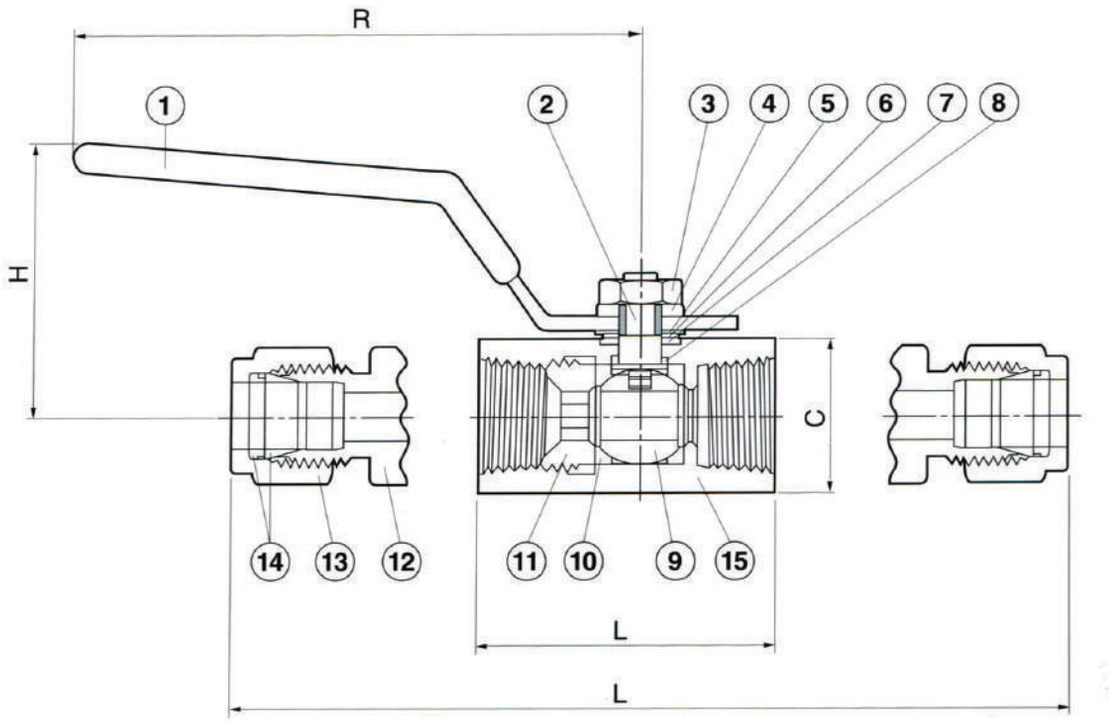


Materials of Construction

Item	Component	Grade / ASTM Specification	
		SS 316	Brass
①	Handle	SS 304	
②	Stem	SS 316	
③	Lock Nut	SS 304	
④	Spring Washer	SS 304	
⑤	Gland Washer	SS 304	
⑥	Gland	SS 304	
⑦	Outer Packing	Reinforced PTFE	
⑧	Inner Packing	Reinforced PTFE	
⑨	Ball	SS 316 / A276	
⑩	Seat Ring	Reinforced PTFE	
⑪	Insert	SS 316 / A276	
⑫	End Connector	SS 316 / A276	Brass / B16
		with O-Ring*	
⑬	Nut	SS 316 / A276	Brass / B16
⑭	Ferrules	SS 316 / A276	Brass / B16
⑮	Body	SS 316 / A276	Brass / B16

"*" O-Ring of NBR standard, FPM (viton) on request.

▪ Dimensions

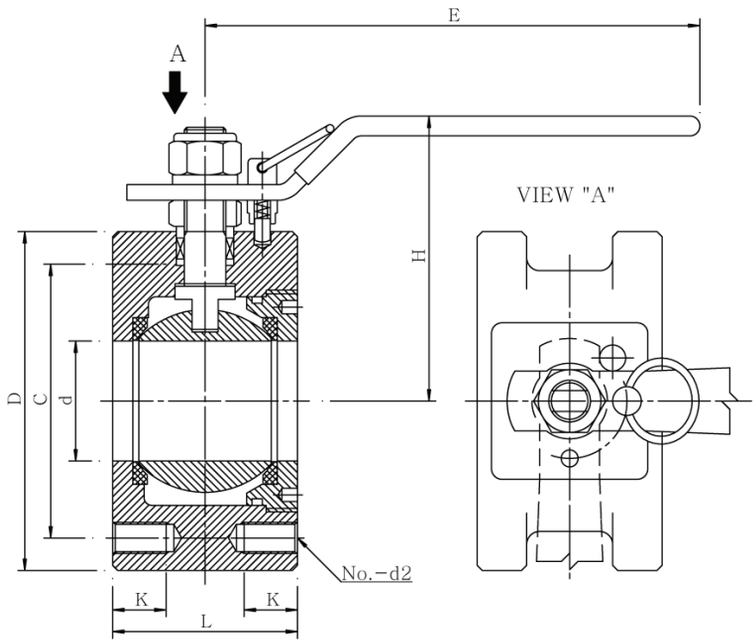


Part NO.	Orifice	End Connections	Dimensions, mm				Weight (kg)
		Both Ends	C (Hex)	H	L	R	
B60 - 6M	5.0	6mm I-Lok	17	31	79.5	60	0.13
B60 - 4T		1/4" I-Lok			79.5		0.13
B60 - 4N	10,100	1/4" Female NPT	8,700		40		0.07
B60 - 10M	7.5	10mm I-Lok	20.6	40	90	80	0.22
B60 - 6T		3/8" I-Lok			90		0.22
B60 - 6N	12,120	3/8" Female NPT	10,500		45		0.13
B60 - 12M	9.0	12mm I-Lok	27	42	99	80	0.34
B60 - 8T		1/2" I-Lok			99		0.34
B60 - 8N	17,330	1/2" Female NPT	15,000		54.5		0.21
B60 - 16M	12.5	16mm I-Lok	32	51	109	100	0.49
B60 - 10T		5/8" I-Lok			109		0.49
B60 - 12N		3/4" Female NPT			61		0.33
B60 - 12T	28,880	3/4" I-Lok	25,000		110		0.57
B60 - 16T	16.0	1" I-Lok	38	55	134	100	0.85
B60 - 16M	40,770	1" Female NPT	35,100		75		0.60

Dimensions shown with I-Lok nuts finger-tight.
Bite type tube fitting are available upon request.

COMPACT BALL VAVLE / 5KG

COMPACT BALL VAVLE
5kg/㎠



NOMINAL SIZE	d	L	E	H	D	BOLT HOLE				SPEC. NO.
						K	C	d_2	No.	
20A	20	38	150	66	33	12	65	M10	4	F05020
25A	25	42	150	85	33	12	75	M10	4	F05025
32A	32	50	170	100	33	15	90	M12	4	F05032
40A	39	60	170	105	38	15	95	M12	4	F05040
50A	46	70	190	110	40	20	105	M12	4	F05050
65A	62	95	210	122	40	20	130	M12	4	F05065
80A	72	110	230	140	57	25	145	M16	4	F05080
100A	85	130	250	150	65	25	165	M16	8	F05100
125A	100	155	270	170	65	30	200	M16	8	F05125

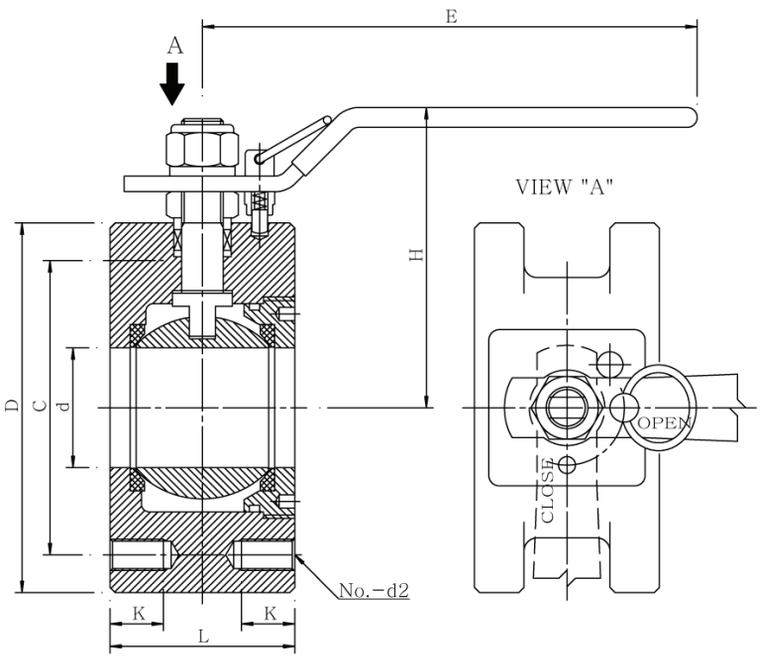
NO.	DESCRIPTION	Q'TY	MATERIAL	REMARKS
01	BODY	1	FCD450	-
02	COVER	1	SS400	-
03	BALL	1	SUS304	-
04	STEM	1	SUS304	-
05	SEAT RING	2	TEFLON+GLASS	-
06	O-RING	1	VITON	-
07	THRUST	1	POM	-
08	RING	1	C3604	-
09	V-PACKING	2	PTFE	-

NO.	DESCRIPTION	Q'TY	MATERIAL	REMARKS
10	BUSH	1	C3604	-
11	HEX NUT	1	SS400	-
12	SPRING WASHER	1	SWRH	-
13	LOCK NUT	1	SS400	-
14	LOCKING DEVICE	1	SUS400	-
15	RING	1	SUS400	-
16	HANDLE	1	SS400	-
17	STOPPER	1	SUS304	-

NOTE

① THIS DRAWING IS ACCORDANCE HSA STANDARD SN601-F05
② DESIGN PRESSURE : 20kg/㎠ Max.
③ DESIGN TEMPERATURE : 150° C Max.
④ USE : FOR FUEL OIL SYSTEM IN FRONT OF CYL.
⑤ SYSTEM FLUID : FUEL OIL

COMPACT BALL VAVLE
20kg/㎠



NOMINAL SIZE	d	L	E	H	D	BOLT HOLE				SPEC. NO.
						K	C	d_2	No.	
20A	20	38	150	80	100	12	75	M12	4	F20020
25A	25	42	150	100	125	15	90	M16	4	F20025
32A	32	50	170	110	135	15	100	M16	4	F20032
40A	39	60	170	115	140	20	105	M16	4	F20040
50A	46	70	190	123	155	25	120	M16	8	F20050
65A	62	95	210	132	175	30	140	M16	8	F20065
80A	72	110	230	150	200	35	160	M20	8	F20080
100A	85	130	250	160	225	35	185	M20	8	F20100
125A	100	155	270	180	270	40	225	M22	8	F20125

NO.	DESCRIPTION	Q'TY	MATERIAL	REMARKS
01	BODY	1	SC480	-
02	COVER	1	S20C	-
03	BALL	1	SUS304	-
04	STEM	1	SUS304	-
05	SEAT RING	2	TEFLON+GLASS	-
06	O-RING	1	VITON	-
07	THRUST	1	POM	-
08	RING	1	C3604	-
09	V-PACKING	2	PTFE	-

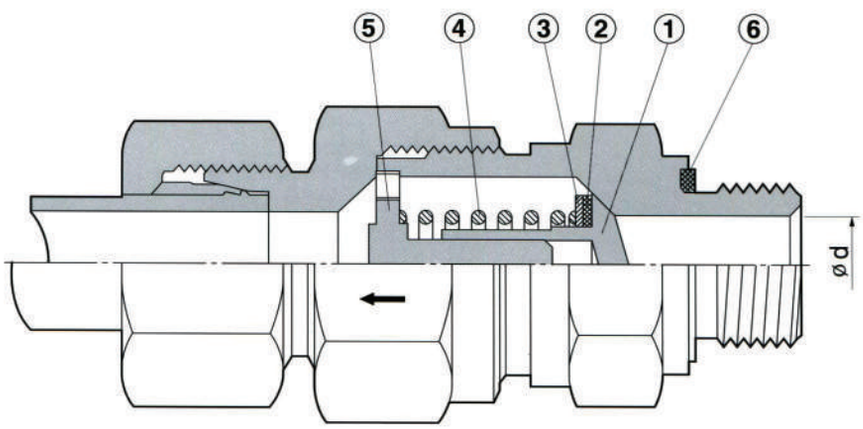
NO.	DESCRIPTION	Q'TY	MATERIAL	REMARKS
10	BUSH	1	C3604	-
11	HEX NUT	1	SS400	-
12	SPRING WASHER	1	SWRH	-
13	LOCK NUT	1	SS400	-
14	LOCKING DEVICE	1	SUS400	-
15	RING	1	SUS400	-
16	HANDLE	1	SS400	-
17	STOPPER	1	SUS304	-

NOTE
① THIS DRAWING IS ACCORDANCE HSA STANDARD SN601-F05
② DESIGN PRESSURE : 20kg/㎠ Max.
③ DESIGN TEMPERATURE : 150° C Max.
④ USE : FOR FUEL OIL SYSTEM IN FRONT OF CYL.
⑤ SYSTEM FLUID : FUEL OIL

NR series
Non Return Valves

Features

- **Pressure rating** PN100 to PN400 accoding to 'L'series or 's'series (See tables.)
- **Temperature rating** from -35°C to 100°C with NBR seal (Standard)
  from -25°C to 150°C with viton seal (Option)



① : Cone
② : Packing Dise
③ : Top Dise
④ : Spring
⑤ : Passage Dise with Guide Pin
⑥ : ED-Ring
ød = Inlet Diameter(mm)

Characteristics:

- Sealing achieved by using a 90° cone with a packing washer of synthetic material. Valve has a lift stop therefore safe free outlet.
  Shock-absorbing and muffled opening.
- No reduction of cross section.
- Maximum flow velocity not more than 8 m/sec (for higher flow velocities special tests are required).
- Sealing of male stud thread by ED-ring soft seal with types NRV and NRZ.

Material:

Steel zinc-plated. Seals of NBR(buna N).
On request of FPM(viton)

On request:

- Made of Brass with internal parts of SS316 or completely of stainless steel, for applications with corrosive media.

Opening pressure:

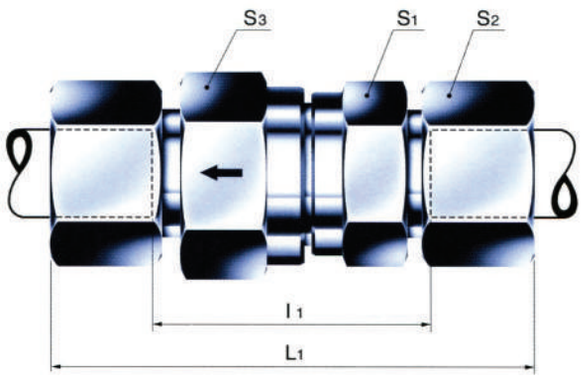
- Approx. 1 bar.
  (on request also 0.2-2 and 3 bar are available.
  Please specify for order)
- Tolerance of opening pressure : ±20%

Seals and Temperature:

- Temperature without pressure reductions of steel non-return valves with sealings of
  NBR(buna N-standard): -35°C up to +100°C
  FPM(viton on request): -25°C up to +150°C

NRD-Non return valves

DIN Type connection at both ends



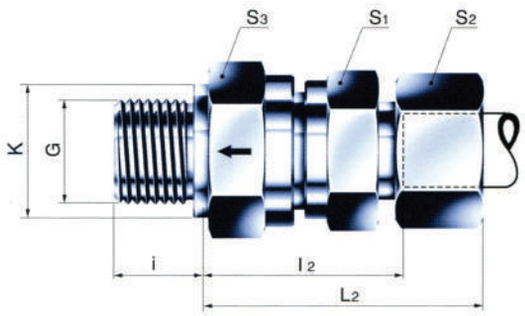
Series.	Part NO.	Tube O.D	S_1	S_2	S_3	L_1	l_1	⌀d bore	kg per 100pcs Steel/SS
L light PN 250	NRD - 06 L	6	17	14	17	58	29	3.5	6.8
	NRD - 08 L	8	19	17	19	59	30	5.5	8.7
	NRD - 10 L	10	22	19	24	69.5	40.5	7.5	14.4
	NRD - 12 L	12	27	22	30	72.5	43.5	9.5	21.9
	NRD - 15 L	15	27	27	32	77.5	47.5	11.5	27.9
PN 160	NRD - 18 L	18	36	32	36	83.5	51.5	14.0	41.7
	NRD - 22 L	22	41	36	46	93.5	61.5	18.0	63.5
PN 100	NRD - 28 L	28	50	41	55	120.5	69.5	23.0	93.0
	NRD - 35 L	35	60	50	60	117.5	74.5	29.0	133.7
	NRD - 42 L	42	65	60	70	119	74	29.0	200.7
S heavy PN 400	NRD - 06 S	6	19	17	19	63.5	34.5	3.5	10.5
	NRD - 08 S	8	19	19	19	63.5	34.5	3.5	11.7
	NRD - 10 S	10	22	22	24	72.5	40.5	5.5	18.5
	NRD - 12 S	12	24	24	27	74.5	42.5	7.5	22.0
	NRD - 14 S	14	27	27	32	82.5	47.5	9.5	(31.7)
	NRD - 16 S	16	32	30	36	86.	50.5	11.5	42.5
	NRD - 20 S	20	41	36	46	97.5	54.5	15.0	72.4
PN 250	NRD - 25 S	25	46	46	50	106.5	58.5	19.0	108.5
	NRD - 30 S	30	60	50	60	122.5	69.5	24.0	156.0
	NRD - 38 S	38	65	60	70	136.5	75.5	29.0	232.8

Dimensions shown with DIN type nuts finger- tight. If non-return valves with other than 1 bar opening pressure are required, than show the opening pressure in order.

NRZ-Non return valves

Male stud thread seal by ED-Ring

Inlet = DIN type connection
Outlet = PF thread



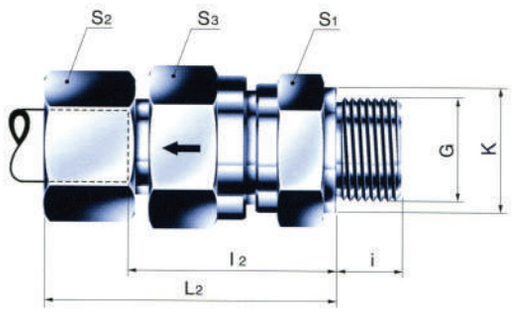
Series	Part NO.	Tube O.D	S1	S2	S3	L2	l2	i	BSP thread G	K	⌀d bore
L light PN 250	NRZ - 06LG	6	17	14	17	41	26.5	8	G 1/8	14	3.5
	NRZ - 08LG	8	19	17	19	43	28.5	12	G 1/4	19	5.5
	NRZ - 10LG	10	22	19	24	53	38.5	12	G 1/4	19	7.5
	NRZ - 12LG	12	27	22	30	55	40.5	12	G 3/8	22	9.5
	NRZ - 15LG	15	27	27	32	57.5	42.5	14	G 1/2	27	11.5
PN 160	NRZ - 18LG	18	36	32	36	64	48	14	G 1/2	27	14.0
	NRZ - 22LG	22	41	36	46	72	56	16	G 3/4	32	18.0
PN 100	NRZ - 28LG	28	50	41	55	80.5	64	18	G 1	40	23.0
	NRZ - 35LG	35	60	50	60	91.5	70	20	G 1 1/4	50	29.0
	NRZ - 42LG	42	65	60	70	93	70.5	22	G 1 1/2	55	29.0
S heavy PN 400	NRZ - 06SG	6	19	17	19	46	31.5	12	G 1/4	19	3.5
	NRZ - 08SG	8	19	19	19	46	31.5	12	G 1/4	19	3.5
	NRZ - 10SG	10	22	22	24	54	38	12	G 3/8	22	5.5
	NRZ - 12SG	12	24	24	27	57	41	12	G 3/8	22	7.5
	NRZ - 14SG	14	27	27	32	61	43.5	14	G 1/2	27	9.5
	NRZ - 16SG	16	32	30	36	64	46	14	G 1/2	27	11.5
	NRZ - 20SG	20	41	36	46	71.5	50	16	G 3/4	32	15.0
PN 250	NRZ - 25SG	25	46	46	50	78.5	54.5	18	G 1	40	19.0
	NRZ - 30SG	30	60	50	60	90.5	64	20	G 1 1/4	50	24.0
	NRZ - 38SG	38	65	60	70	102	71.5	22	G 1 1/2	55	29.0

Series	Part NO.	Tube O.D	S1	S2	S3	L2	l2	i	BSP thread G	K	⌀d bore
L light PN 250	NRZ - 06LM	6	17	14	17	41	26.5	8	M 10 × 1	14	3.5
	NRZ - 08LM	8	19	17	19	43	28.5	12	M 12 × 1.5	17	5.5
	NRZ - 10LM	10	22	19	24	53	38.5	12	M 14 × 1.5	19	7.5
	NRZ - 12LM	12	27	22	30	55	40.5	12	M 16 × 1.5	22	9.5
	NRZ - 15LM	15	27	27	32	57.5	42.5	12	M 18 × 1.5	24	11.5
PN 160	NRZ - 18LM	18	36	32	36	64	48	14	M 22 × 1.5	27	14.0
	NRZ - 22LM	22	41	36	46	72	56	16	M 26 × 1.5	32	18.0
PN 100	NRZ - 28LM	28	50	41	55	80.5	64	18	M 33 × 2	40	23.0
	NRZ - 35LM	35	60	50	60	91.5	70	20	M 42 × 2	50	29.0
	NRZ - 42LM	42	65	60	70	93	70.5	22	M 48 × 2	55	29.0
S heavy PN 400	NRZ - 06SM	6	19	17	19	46	31.5	12	M 12 × 1.5	17	3.5
	NRZ - 08SM	8	19	19	19	46	31.5	12	M 14 × 1.5	19	3.5
	NRZ - 10SM	10	22	22	24	54	38	12	M 16 × 1.5	22	5.5
	NRZ - 12SM	12	24	24	27	57	41	12	M 18 × 1.5	22	7.5
	NRZ - 14SM	14	27	27	32	61	43.5	14	M 20 × 1.5	27	9.5
	NRZ - 16SM	16	32	30	36	64	46	14	M 22 × 1.5	27	11.5
	NRZ - 20SM	20	41	36	46	71.5	50	16	M 27 × 2	32	15.0
PN 250	NRZ - 25SM	25	46	46	50	78.5	54.5	18	M 33 × 2	40	19.0
	NRZ - 30SM	30	60	50	60	90.5	64	20	M 42 × 2	50	24.0
	NRZ - 38SM	38	65	60	70	102	71.5	22	M 48 × 2	55	29.0

NRV-Non return valves

Male stud thread seal by ED-Ring

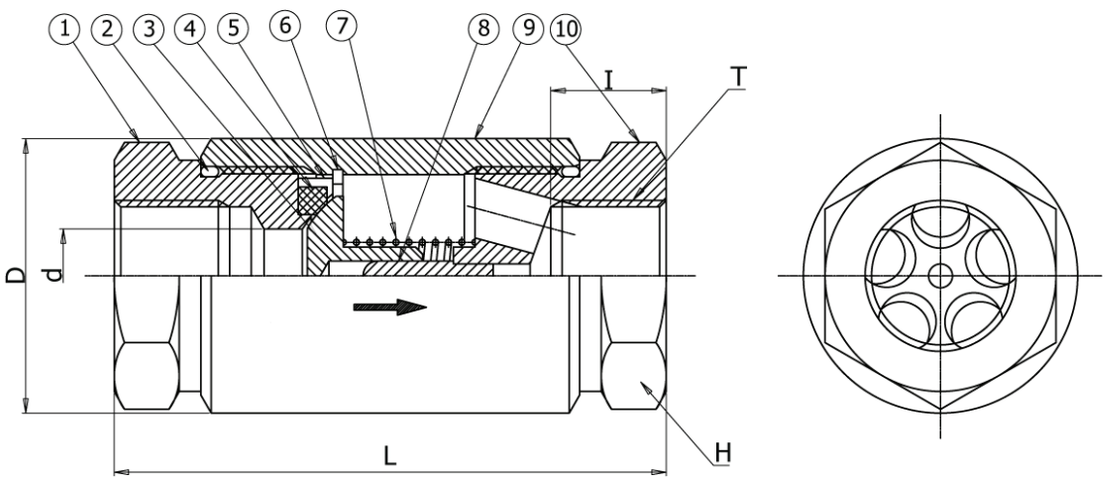
Inlet = male stud thread
Outlet = DIN type connection



Series	Part NO.	Tube O.D	S1	S2	S3	L2	l2	i	BSP thread G	K	ød bore
L light PN 250	NRV - 06LG	6	17	14	17	42.5	28	8	G 1/8	14	3.5
	NRV - 08LG	8	19	17	19	44.5	30	12	G 1/4	19	5.5
	NRV - 10LG	10	22	19	24	53	38.5	12	G 1/4	19	7.5
	NRV - 12LG	12	27	22	30	57	42.5	12	G 3/8	22	9.5
	NRV - 15LG	15	27	27	32	60.5	45.5	14	G 1/2	27	11.5
PN 160	NRV - 18LG	18	36	32	36	66	50	14	G 1/2	27	14.0
	NRV - 22LG	22	41	36	46	71	55	16	G 3/4	32	18.0
PN 100	NRV - 28LG	28	50	41	55	79.5	63	18	G 1	40	23.0
	NRV - 35LG	35	60	50	60	90.5	69	20	G 1 1/4	50	29.0
	NRV - 42LG	42	65	60	70	91	69	22	G 1 1/2	55	29.0
S heavy PN 400	NRV - 06SG	6	19	17	19	46	31.5	12	G 1/4	19	3.5
	NRV - 08SG	8	19	19	19	46	31.5	12	G 1/4	19	3.5
	NRV - 10SG	10	22	22	24	54	38	12	G 3/8	22	5.5
	NRV - 12SG	12	24	24	27	57	41	12	G 3/8	22	7.5
	NRV - 14SG	14	27	27	32	62	44.5	14	G 1/2	27	9.5
	NRV - 16SG	16	32	30	36	66	48	14	G 1/2	27	11.5
	NRV - 20SG	20	41	36	46	73.5	52	16	G 3/4	32	15.0
PN 250	NRV - 25SG	25	46	46	50	78.5	54.5	18	G 1	40	19.0
	NRV - 30SG	30	60	50	60	90.5	64	20	G 1 1/4	50	24.0
	NRV - 38SG	38	65	60	70	100	69.5	22	G 1 1/2	55	29.0

Series	Part NO.	Tube O.D	S1	S2	S3	L2	l2	i	BSP thread G	K	ød bore
L light PN 250	NRV - 06LM	6	17	14	17	42.5	28	8	M 10 × 1	14	3.5
	NRV - 08LM	8	19	17	19	43.5	29	12	M 12 × 1.5	17	5.5
	NRV - 10LM	10	22	19	24	53	38.5	12	M 14 × 1.5	19	7.5
	NRV - 12LM	12	27	22	30	57	42.5	12	M 16 × 1.5	22	19.5
	NRV - 15LM	15	27	27	32	60.5	45.5	12	M 18 × 1.5	24	11.5
PN 160	NRV - 18LM	18	36	32	36	66	50	14	M 22 × 1.5	27	14.0
	NRV - 22LM	22	41	36	46	71	55	16	M 26 × 1.5	32	18.0
PN 100	NRV - 28LM	28	50	41	55	79.5	63	18	M 33 × 2	40	23.0
	NRV - 35LM	35	60	50	60	90.5	69	20	M 42 × 2	50	29.0
	NRV - 42LM	42	65	60	70	91	69	22	M 48 × 2	55	29.0
S heavy PN 400	NRV - 06SM	6	19	17	19	46	31.5	12	M 12 × 1.5	17	3.5
	NRV - 08SM	8	19	19	19	46	31.5	12	M 14 × 1.5	19	3.5
	NRV - 10SM	10	22	22	24	54	38	12	M 16 × 1.5	22	5.5
	NRV - 12SM	12	24	24	27	57	41	12	M 18 × 1.5	24	7.5
	NRV - 14SM	14	27	27	32	62	44.5	14	M 20 × 1.5	26	9.5
	NRV - 16SM	16	32	30	36	66	48	14	M 22 × 1.5	27	11.5
	NRV - 20SM	20	41	36	46	73.5	52	16	M 27 × 2	32	15.0
PN 250	NRV - 25SM	25	46	46	50	78.5	54.5	18	M 33 × 2	40	19.0
	NRV - 30SM	30	60	50	60	90.5	64	20	M 42 × 2	50	24.0
	NRV - 38SM	38	65	60	70	100	69.5	22	M 48 × 2	55	29.0

NRS-Non return valves
FEMALE TYPE



NOMINAL SIZE	T	d	L	I	D	HEX. H	TEST PRESSURE kg/cm²	SPEC. NO. OPENING PRESSURE 0.5kg/cm²	SPEC. NO. OPENING PRESSURE 4.5kg/cm²	WEIGHT (kg)
06A	G 1/4	6.5	73	14	24	22	400	G05006	G45006	
08A	G 1/4	6.5	74	14	26	25	400	G05008	G45008	
10A	G 3/8	9.5	76	14	30	27	350	G05010	G45010	
15A	G 1/2	13	77	16	38	32	300	G05015	G45015	
20A	G 3/4	19	92	18	48	41	250	G05020	G45020	
25A	G 1	25	100	20	58	50	200	G05025	G45025	
32A	G 1-1/4	32	123	22	72	65	150	G05032	G45032	
40A	G 1-1/2	38	141	24	80	70	100	G05040	G45040	
50A	G 2	50	164	26	100	90	100	G05050	G45050	

NO.	DESCRIPTION	Q'TY	MATERIAL	REMARKS
01	INLET CONNECTOR	1	S45C-N	CALV.
02	O-RING	2	VITON	
03	DISC	1	SUS304	
04	SEAT	1	TEFLON	+ CARBON 20%
05	DISC CAP	1	SS400	
06	C-RING	1	SK5	
07	SPRING	1	SWP-A	
08	GUIDE PIN	1	SUS304	
09	BODY	1	STPG370	PARKERIZING
10	OUTLET CONNECTOR	1	S45C-N	CALV.

Note :

1. Nominal working Pressure : 250kgf/cm²
2. Hydro Test pressure : 375kg/cm²
3. Maximum working temperature : 240°C
4. Opening Pressure : 0.5kgf/cm² or 4.5kgf/cm²
5. Applicable system : Fuel oil , Lub. oil
6. Valve to be parkertzing after machining

BITE Type Fittings

Shinilace Bite Type Tybe Fitting is manufactured to JIS B2351 & KS B1535 Under strict ISO 9001 procedure and Type

Construction of Bite Type Fittings

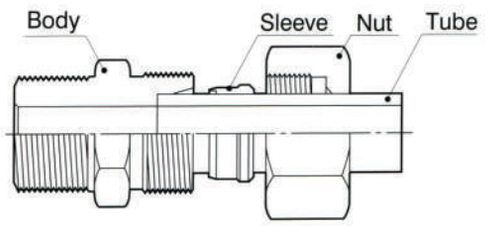


Fig-1

When tightening nut, sleeve is driven forward on the tube then bites the tube with the edge of sleeve. This is how sealing is achieved and results in internal ridge inside the tube. See Fig-2.

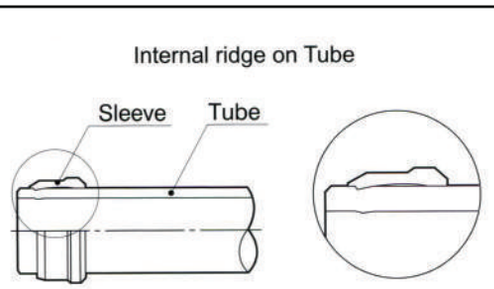


Fig- 2

Applicable Materials

Carbon Steel	Stainless Steel	Brass
JIS G 4051 S 20C S 45C	JIS G 4303 SUS 304 SUS 316	JIS H 3250 I 3604 I 3771

Material Pressure Ranges

O.D(mm)	I.Steel & S.Steel	Brass
4-15	500	250
6-22	400	210
25-28	350	170
30-38	250	150
40-50	210	120

Working Temperature

1. For fitting materials

Material	Temperature
Steel Brass Stainless Steel	-40°C to 120°C -60°C to 175°C -60°C to 400°C

Note : Temperature limits can greatly depend on the medium.

2. For Elastomer seals

Material	Temperature
NBR (Buna N) FPM (Viton) PTEF (Teflon)	-39°C to 100°C -29°C to 204°C -29°C to 204°C

Note : When seal is used in the fitting, compare allowable working temperature between seal and fitting material and apply the lowest temperature.

Applicable Size

Kind		Size
Tube		6 ~ 48mm
Pipe		6A ~ 40A
Thread	NPT	1/8" ~ 2"
	PT	
	PF	

1 UNIONS

BU
Straight Union

BBU
Bulkhead Union

BBUW
Welding
Bulkhead Union

BHUM
Hose Male
Union

BHUF
Hose Female
Union

BHBM
Hose Bulkhead
Male Union

BHBF
Hose Bulkhead
Female Union

2 ELBOWS

BL
Union Elbow

BLM
Male Elbow

BSLM
Banjo Elbow

BOLM
O-Seal
Male Elbow

BLF
Female Elbow

BLA
Adjustable
Elbow

BHLM
Hose Male
Elbow

BHLF
Hose Female
Elbow

3 TEES

BT
Union Tee

BBTM
Male Branch Tee

BBTF
Female
Branch Tee

BRTM
Male Run Tee

BBTA
Adjustable
Branch Tee

BRTA
Adjustable
Run Tee

4 CONNECTORS

BMC-R
Male Connector

BMC-G
Male Connector
(For gasket)

BOM
Male Connetor
(For O-Ring)

BFC
Female
Connector

BA-R
Male Adaptor

BA-G
Male Adaptor
(For Coppper Gasket)

5 OTHER

BCW
Welding
Connector

BR
Reducer

BC
Cap

BP
Plug

6 PARTS

BN
Nut

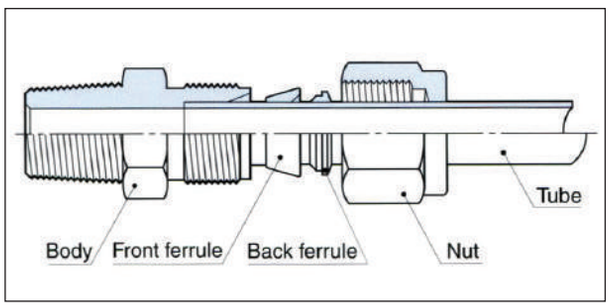
BS
Sleeve

I-Lok series

Introduction

I-Lok Tube Fittings have been designed specifically for the many demanding applications chemical, petroleum, power generating, pulp, paper and various types of manu facturing industries. They provide a highly reliable, leakproof and torque free seal on all tubing connections. I-Lok Tube Fittings are commonly used on instrumentation, process and control systems or any other application where a high quality tube fitting is required.

Construction of I-Lok Fittings



Applicable Materials

Fitting Material	Bar Stock	Forging	Tubing
Stainless Steel Type 316	ASTM A479 ASTM A276 JIS G 4303	ASTM A182 F 316 JIS G 3214	ASTM A269 ASTM A213 ASTM A249
Brass	ASTM B16 Alloy 360 ASTM B453 Alloy 345 JIS H 3250 Alloy C 3604	ASTM B124 Alloy 377 JIS H 3771 Alloy C3771	ASTM B68 ASTM B75 ASTM B88 DIN 1786
Carbon Steel	JIS H 3250 S 20C, S 45C	JIS G 4051 S 20C, S 45C	ASTM A161 ASTM A179 DIN 1786

Applicable Size

Kind		Size
Tube		1/8" ~ 2" 3mm ~ 38mm
Thread	NPT	1/8" ~ 2"
	PT,PF	
	UN	5/16" ~ 2 1/2"

Working Temperature

The Maximum and Minimum operating Temperatures for various tubing material

Tubing Meterial	Temperature Range
Stainless Steel 316	-321°F to 1200°F(-196°C to 649°C)
Carbon Steel	-65°F to 799°F(-53°C to 426°C)
Copper	-40°F to 400°F(-40°C to 205°C)
Alloy 400	-324°F to 800°F(-198°C to 427°C)
Alloy C276	-320°F to 1000°F(-195°C to 537°C)
Alloy 600	-205°F to 1200°F(-130°C to 648°C)
Titanium	-320°F to 600°F(-195°C to 315°C)
Teflon	-0°F to 150°F(-15°C to 65°C)

Temperature DE-Rating Factors

The allowable working pressure is determined by various temperature

To determine the working pressure at the specific temperatures, multiply the working pressure at ambient temperture shown in table 2~8 by the factor shown in below table.

Temperature °F(°C)	Stainless Steel ASTM A269		C.Steel ASTM A179	Copper ASTM B75	Alloy 400
	304	316			
100 (37)	1.00	1.00	1.00	1.00	1.00
200 (93)	1.00	1.00	0.95	0.80	0.88
300 (148)	1.00	1.00	0.90	0.78	0.82
400 (204)	0.93	0.96	0.86	0.50	0.79
500 (206)	0.87	0.90	0.82	0.13	0.79
600 (315)	0.82	0.85	0.77	-	0.79
700 (370)	0.80	0.82	0.73	-	0.76
800 (426)	0.76	0.79	0.59	-	0.76
900 (480)	0.73	0.78	-	-	-
1000 (537)	0.69	0.76	-	-	-
1200 (649)	0.30	0.37	-	-	-

Seal Working Temperature

When Elastomer seal is used in the fitting, care must be taken for allowable working temperature.
See working temperature below.

Elastomer seal material	Working Temperature
NBR (Perbunan)	-45°C to 100°C (-40°F to 230°F)
FPM (Viton)	-29°C to 204°C (-20°F to 400°F)
PTFE (Teflon)	-29°C to 204°C (-20°F to 400°F)

1 UNIONS

CUA
Union

CUR
Reducing Union

CBU
Bulkhead Union

CFU
An Union

CBFU
An Bulkhead Union

2 ELBOWS

CLA
Union Elbow

CLMA
Male Elbow

CLMB
45°Male Elbow

CLF
Famale Elbow

CSLA
SAE/MS Male Elbow

CSLB
SAE/MS 45° Male Elbow

CLW
Male Pipe Weld Elbow

CLSW
Tube Socket Weld Elbow

3 TEES

CTA
Union Tee

CRTM
Male Run Tee

CBTM
Male Branch Tee

CRTF
Female Run Tee

CBTF
Female Branch Tee

CSRT
SAE/MS Male Run Tee

CSBT
SAE/MS Male Branch Tee

4 CONNECTORS

CMC
Male Connector

CMCT
Thermocouple Male Connentor

CMC-G
Male Connector For Metal Gasket Seal

COM
Male Connector For Metal Gasket Seal

CFC
Female Connector

CGC
Gauge Connector

CBFC
Bulkhead Female Connector

5 OTHERS

CR
Reducer

CBR
Bulkhead Reducer

CPC
Port Connector

CWC
Male Pipe Weld Connector

CSWC
Tube Socket Weld Connector

CAM
Male Adaptor

CAF
Female Adaptor

CPA
Plug

CCA
Cap

CI
Tube Insert

6 PARTS

CN
Nut

CFF
Front Ferrule

CFB
Back Ferrule

DIN Type Fttings

Shinilace Din Type Tube Ftting is manufactured to DIN 2353 with LL, L and S series

CONSTRUCTIONS OF DIN TYPE FITTINGS

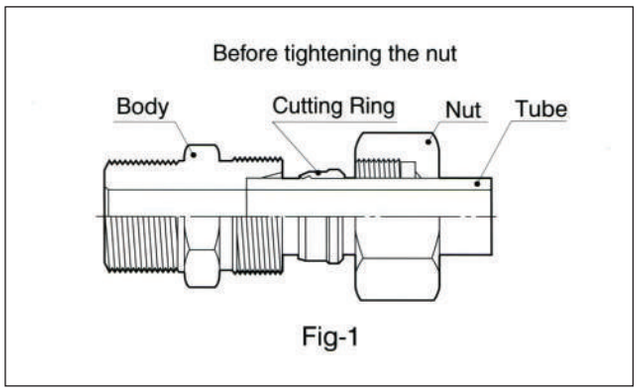


Fig-1

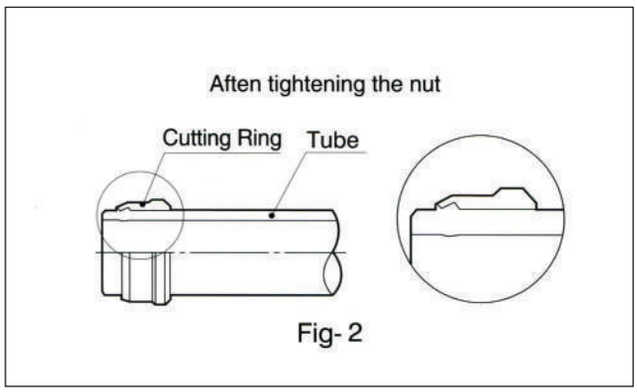


Fig- 2

Applicable Materials

Carbon Steel	Stainless Steel	Brass
JIS G 4051	JIG G 4303	JIS H 3250
S 20C	SUS 304	C 3604
S 45C	SUS 316	C 3771

Working Temperature

1. For fitting material

Material	Temperature
Steel	-40°C to 120°C (DIN3859)
Brass	-60°C to 175°C
Stainless Steel	-60°C to 400°C (DIN17440)

Note : Temperature limits can greatly depend on the medium.

1. For Elastomer seals

Material	Temperature
NBR(Perbunan)	-35°C to 100°C
FPM(Viton)	-29°C to 204°C
PTEF(Teflon)	-29°C to 204°C

Note : When seal is used in the fitting, compare allowable working temperature between seal and fitting material and apply the lowest temperature

Applicable Size & Pressure

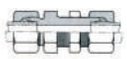
Series	Tube O.D	Male stud thread		
		Steel	SS316	Brass
LL	4	100	100	30
	6			
	8			
	10			
	12			
LL	6	315	250	95
	8			
	10			
	12			
	15			
	18		160	
	22	160		48
	28		100	
	35			
	42			
S	6	630	630	190
	8			
	10			
	12			
	14			
	16	400	400	120
	20			
	25			
	30			
	38	315	315	95

1 UNIONS

DU
Straight Union

DUR
Reducing Union

DBU
Bulkhead Union

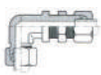


DBUW
Welding Bulkhead Union

2 ELBOWS

DL
Union Elbow

DBL
Bulkhead Union Elbow



DLM-R/M
Male Elbow
(BSP Tapered/Metric Tapered)

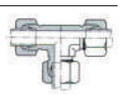
DLA
Adjustable Elbow With Standpipe

DEW
Swivel Adjustable Elbow with Cone

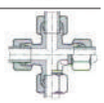
DSWVE-G/M
Banjo Fittings
(BSP Paralled/Metric Parallde)
With DKA-Ring

3 TEES

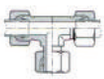
DT
Union Tee



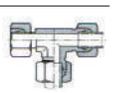
DC
Union Cross



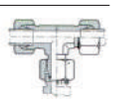
DBTA
Adjustable Branch Tee With Standpipe



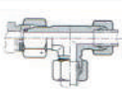
DRTA
Adjustable Run Tee with Standpipe



DET
Swivel Adjustable Branch Tee with Cone



BEL
Swivel Adjustable Run Tee with Cone



4 CONNECTORS

DOM-U/M
Male Connector
(UNF/Metric)with O-Ring

DMC-R
Male Connector(BSP Tapered)

DMC-G
Male Connector(BSP Pallaed)

DMC-M
Male Connector(Metric Pallaed)

DMC-GED
Male Connector(BSP Paralled)with ED-Ring

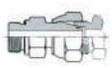
DMC-MED
Male Connector With ED-Ring

DMC-N
Male Connector
(NPT Thread)

DFC-G/M
Female Connector (BSP Paralled/Metric Paralled)

DA-GED/MED
Adaptor
(BSP Paralled/Metric pralled) with ED-Ring

DEGE-G/M
Swivel Adaptor
(BSP Paralled/Metric pralled) with ED-Ring

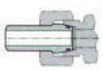


5 CONES

DAS
Welding Connector

DASK
Welding Connector with DAK

DAK
Welding nipple with O-Ring



DAKR
Reducing Welding Nipple with O-Ring

6 GAUGE & TEST

DGC-G
Pressure Gauge Connector
(BSP Paralled)with DKI-Ring

DGE-G
USwivel Gauge Adaptor
(BSP Paralled)
with Cone and DKI-Ring

DGA-G
Gauge Connector
(BSP Paralled)
with Standpipe and DKI-Ring

DGMA
Tee Test Coupling
With Threaded Connector
DEMA 3-02G

DEMA3
Test Coupling with Threaded Connection M16

7 THREADS

MFAD
Male Female Adaptor
(BSP Paralled)

MFAE
Male Female Adapot
(BSP Paralled)

MFAD-ED
Male Female Adaptor
(BSP Paralled)with ED-Ring

MFAE-ED
Male Female Adaptor
(BSP Paralled)with ED-Ring

DVSTI-GED/MED
Plugs for Port
with ED-Ring

DVSTI
Plugs with O-Ring
(accord.to ISO 6149-3/DIN3582)

8 OTHER

DKOR
Standpipe Reducer

DR
Reducer

DRED
Swivel Reducing Adaptor
with Cone

DVKA
Blanking Plug with O-Ring

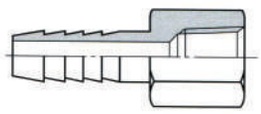
DCA
Tube Cap

DN
Nut

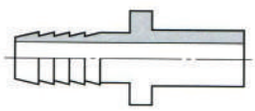
DS
Cutting Ring

Hose Fittings

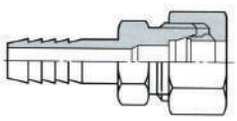
HNF
Female Nipple-10K



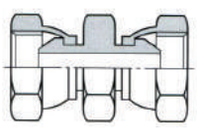
HNT
Tubed Nipple-10K



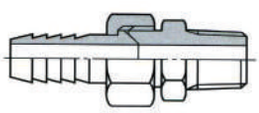
HNB
Bite Nipple-10K



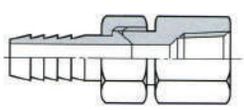
HSU
Swaged union-210K



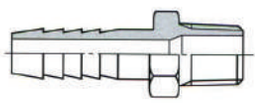
HUM
Male Union-10K



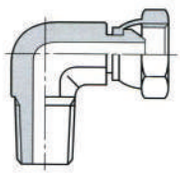
HUF
Female Union-10K



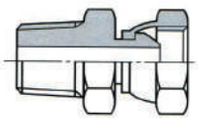
HNM
Male Nipple-10K



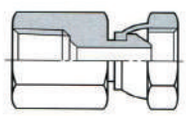
HSLM
Swaged Male
Elbow-210K



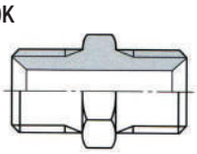
HSCM
Swaged Male
Connector-210K



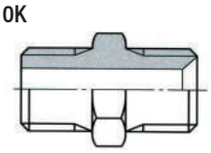
HSCF
Swaged Female
Connector-210K



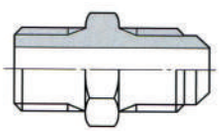
HHNA
Hex Nipple(A)-210K



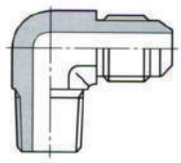
HHNB
Hex Nipple(B)-210K



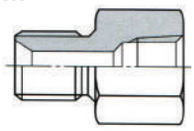
HHNC
Hex Nipple(B)-210K



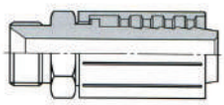
HLM
Male Elbow-210K



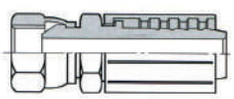
HAF
Female Adaptor-210K



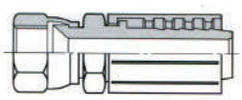
HN
Nipple-210K



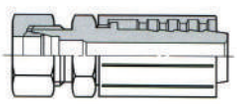
HSNM
Swaged Nipple(M)-210K



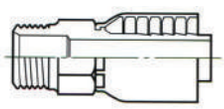
HSNF
Swaged Nipple(F)-210K



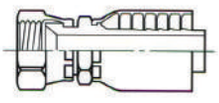
HNB
Bite Nipple-210K



HN143
Swaged Nipple



HSNF643
Nipple



AL BLOCK VALVE

AL BLOCK VALVE

B130 SERIES

B130 3-WAY TEST VALVE

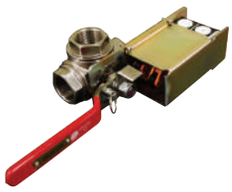
B130 3-WAY TEST VALVE

B200 2WAY BALL VALVE

B200 2-WAY BALL VALVE

B310 3-WAY BALL VAVLE

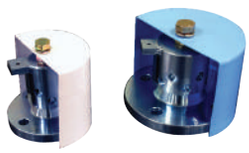
B310 3-WAY BALL VALVE



B330 3WAY BALL VALVE

B410 4-WAY BALL VALVE

B60 2-WAY HEX BALL VALVE



BUSTING CAP

BUSTING CAP

BUSTING CAP

CAOMPACT BALL VAVLE

ENGINE VALVE

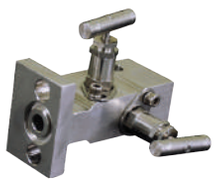
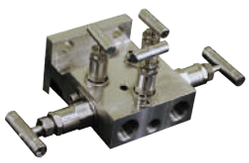
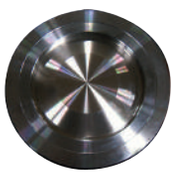
FLT SIERES

GRV

GATE VALVE

GLOBE VALVE

Shinilace Valves

 GLOBE VALVE	 GLOBE VALVE	 M Series Valves	 MV2	 MV2F1
 MV3	 MV3F1	 MV5	 MV5F1	 NRM
 NRF	 NRF	 NRV	 NV SERIES	 NV SIERES
 NV SERIES	 NV SERIES	 NV SERIES	 NV SERIES	 VENT VALVE