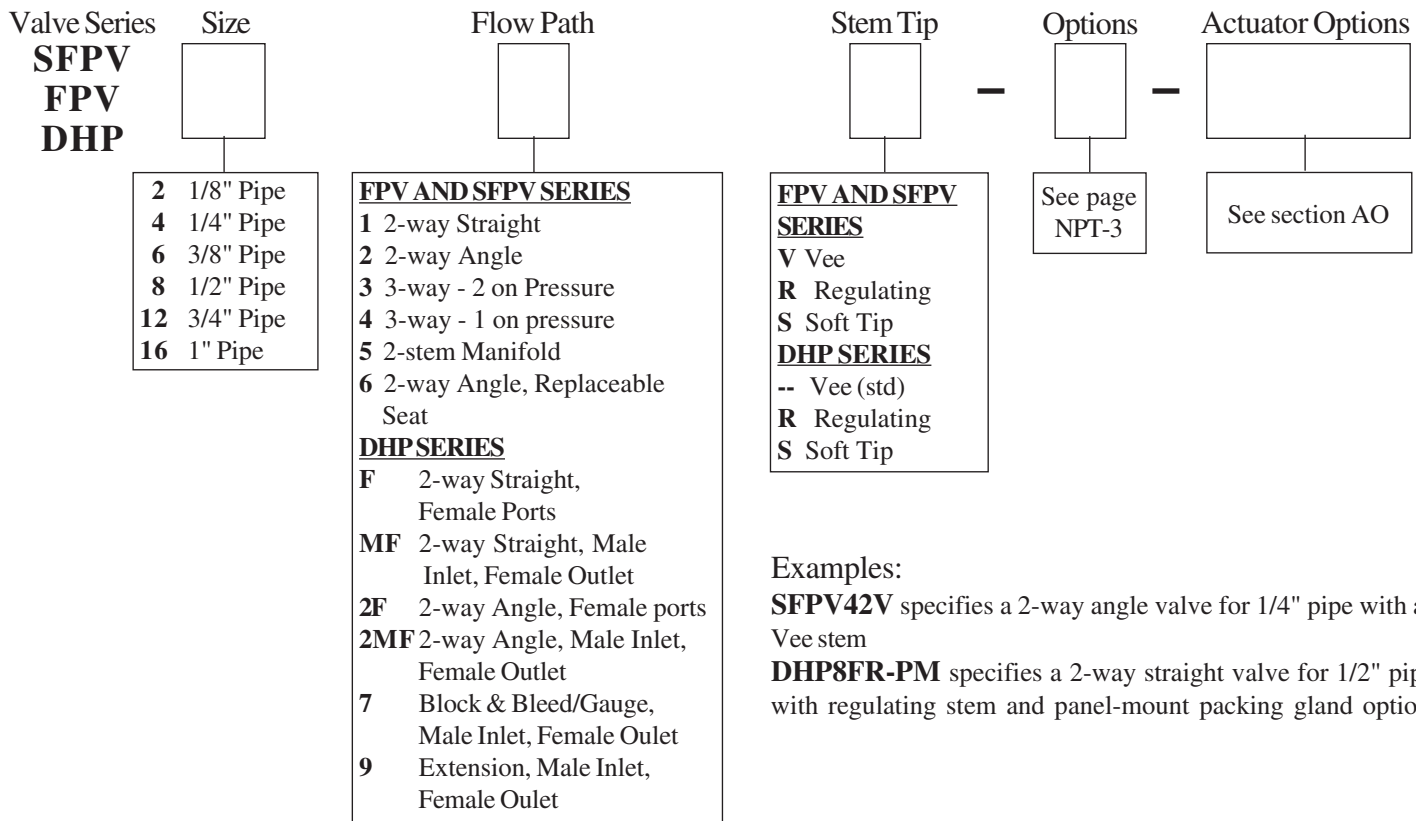


# ORDERING INFORMATION & REPLACEMENT PARTS



## Replacement Parts

BuTech offers replacement parts in a variety of packages so you can purchase just the parts you need.

**Replacement Stem Kit** contains just the stem

**Replacement Packing Kit** contains all soft packing rings

**Repair Kits** contain stem, stem sleeve, stem nuts and washers, packings and packing washers (replacement seat where applicable)

Valve Series	Repair Kits		Replacement Stem	Replacement Packings	Replacement Valve Body
	All others	Replaceable Seat			
SFPV2	RK-SFPV2*	RK-SFPV26*	FPS2*	FPPK2	SFPV2+
SFPV4	RK-SFPV4*	RK-SFPV46*	FPS4*	FPPK4	SFPV4+
SFPV6	RK-SFPV6*	RK-SFPV66*	FPS6*	FPPK6	SFPV6+
SFPV8	RK-SFPV8*	RK-SFPV86*	FPS8*	FPPK8	SFPV8+
FPV12	RK-FPV12*	RK-FPV126*	FPS12*	FPPK12	FPV12+
FPV16	RK-FPV16*	RK-FPV166*	FPS16*	FPPK16	FPV16+
DHP	RK-DHP**	----	DHPS**	DHPPK**	DHP++-BO

\*Complete catalog number by adding the following:

**V, R or S** for stem type

**Suffix** for special packing materials (see page NPT-3)  
(ex. **-GR** for Grafoil packings)

**Suffix** for special materials  
(ex. **-HC** for Hastelloy)

**-LT** or **-HT** for cryogenic or high-temperature service

**-WAO** for a valve fitted with an actuator

\*\*Complete catalog number by adding the size designator from above

+Complete catalog number by adding the flow path designator:

- 1** 2-way straight
- 2** 2-way angle
- 3** 3-way, 2 connections on pressure
- 4** 3-way, 1 connection on pressure
- 5** 2-stem manifold
- 6** 2-way angle with replaceable seat

++Complete catalog number by adding the flow path designator:

- F** 2-way straight, female ports
- MF** 2-way straight male inlet, female outlet
- 2F** 2-way angle, female ports
- 2MF** 2-way angle male inlet, female outlet
- 7** Block & Bleed/Gauge, male inlet, female outlet
- 9** Extension male inlet, female outlet

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

# NEEDLE VALVE OPTIONS

## Packing and Stem Materials

- GR Grafoil packings for service to 800°F (426°C)
- TFE Virgin Teflon packing for service to 450°F (232°C)
- 316WP 316 wetted parts
- STS Stellite tipped stem
- SRS Stellite replaceable seat (Replaceable seat valves only)

## Handle Options

- PH Round plastic handle in place of aluminum (available on 1/8" through 1/2" sizes)
- SS Stainless steel handle in place of aluminum (available on 1/8" through 1/2" sizes, on 3/4" and 1" SS is standard)
- EXT\_ Handle extended above valve body, specify number of inches of extra height desired (Ex: **EXT6** is a 6" extension)

## Security Options

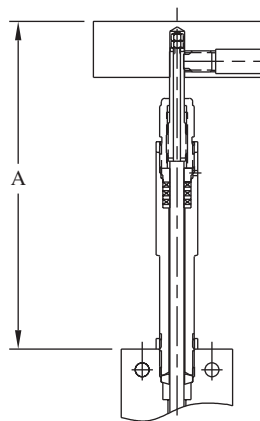
- HLD Handle locking device (prevents unauthorized opening/closing of valve)
- SLD Stem locking device (prevents stem from turning due to vibration)

## Extreme Service

- O2 Cleaned for oxygen service
- HT Extended stuffing box and special materials for high-temperature service to 1200°F (648°C)
- HTF Finned extended stuffing box and special materials for high-temperature service to 1200°F (648°C)
- LT Extended stuffing box and special materials for cryogenic service to -423°F (-251°C)
- LTF Finned extended stuffing box and special materials for cryogenic service to -423°F (-251°C)

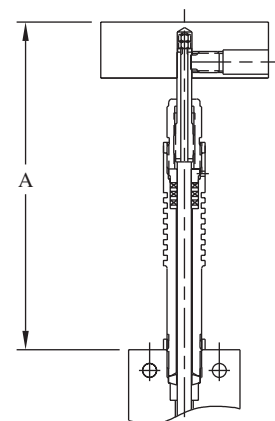
Valve Model	A
SFPV2	5.82"
SFPV4	(147.8)
SFPV6	7.22"
SFPV8	(183.4)
FPV12	10.76"
FPV16	(273.3)
DHP2	5.82"
DHP4	
DHP6	
DHP8	
DHP12	10.85"
DHP16	
	(275.6)

### -HT or -LT Options



Cylindrical Bonnet

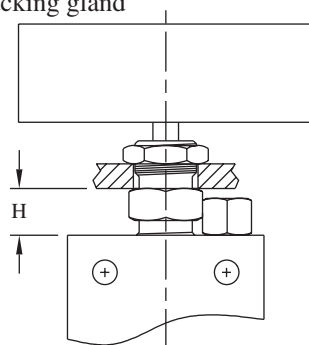
### -HTF or -LTF Options



Finned Bonnet

## Panel Mount

- PM Panel-mount packing gland



Valve Model	Panel Hole Size	Max Panel Thickness	H
SFPV2	0.66"	0.25"	0.54"
SFPV4	(16.8)	(6.4)	(13.7)
SFPV6	0.78"	0.44"	0.50"
SFPV8	(19.8)	(11.2)	(12.7)
FPV12	1.41"	0.62"	0.97"
FPV16	(35.8)	(15.7)	(24.6)
DHP2	0.64"	0.44"	0.50"
DHP4			
DHP6			
DHP8			
DHP12	1.41"	0.62"	1.03"
DHP16			
	(35.8)	(15.7)	(26.2)

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)



# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

## 1/8" PIPE

### 2-way Straight

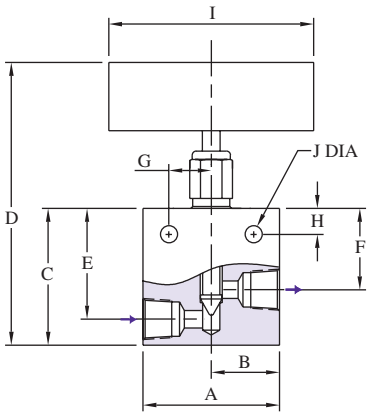


Figure 1

### 2-way Angle

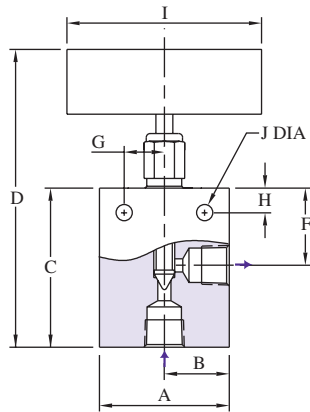


Figure 2

### 3-way Two on Pressure

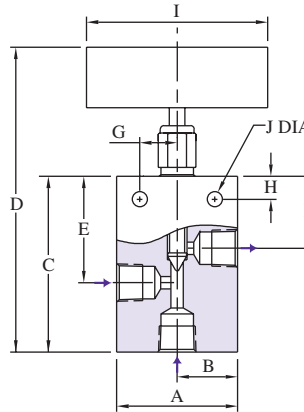


Figure 3

### 3-way One on Pressure

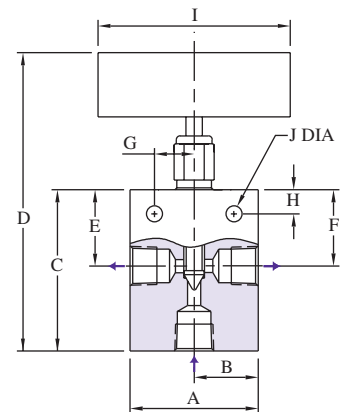


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SFPV21V SFPV21R	Vee Reg	1/8" NPT	2.00" (50.8)	1.00" (25.4)	2.00" (50.8)	4.50" (114.3)	1.62" (41.1)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	1
SFPV22V SFPV22R	Vee Reg	1/8" NPT	2.00" (50.8)	1.00" (25.4)	2.44" (62.0)	4.94" (125.5)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	2
SFPV23V SFPV23R	Vee Reg	1/8" NPT	2.00" (50.8)	1.00" (25.4)	2.62" (66.5)	5.12" (130.0)	1.62" (41.1)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	3
SFPV24V SFPV24R	Vee Reg	1/8" NPT	2.00" (50.8)	1.00" (25.4)	2.44" (62.0)	4.94" (125.5)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	4
SFPV25V SFPV25R	Vee Reg	1/8" NPT	2.00" (50.8)	1.00" (25.4)	3.38" (85.9)	8.38" (212.9)	1.68" (42.7)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	0.75" (19.1)	5
SFPV26V SFPV26R	Vee Reg	1/8" NPT	2.00" (50.8)	1.00" (25.4)	2.25" (57.2)	4.75" (120.7)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	0.75" (19.1)	0.87" (22.1)	0.75" (19.1)	6
SFPMV26V	Meter	1/8" NPT	1.37" (34.8)	0.87" (22.1)	1.56" (39.6)	4.70" (119.4)	---	0.94" (23.9)	1.19" (30.2)	0.44" (11.2)	2.37" (60.2)	0.16" (4.1)	0.62" (15.7)	0.71" (18.0)	0.75" (19.1)	7
SFPMMV26V	Micro-Meter	1/8" NPT	1.37" (34.8)	0.87" (22.1)	1.56" (39.6)	5.24" (133.1)	---	0.94" (23.9)	1.19" (30.2)	0.44" (11.2)	2.37" (60.2)	0.16" (4.1)	0.62" (15.7)	0.71" (18.0)	0.75" (19.1)	8

See page NPT-1 for orifice and Cv

### 2-stem Manifold

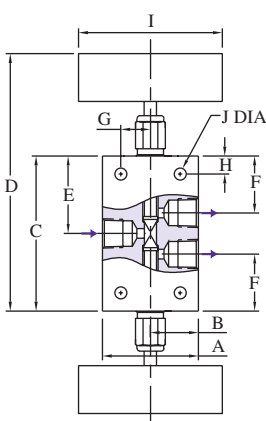


Figure 5

### Replaceable Seat

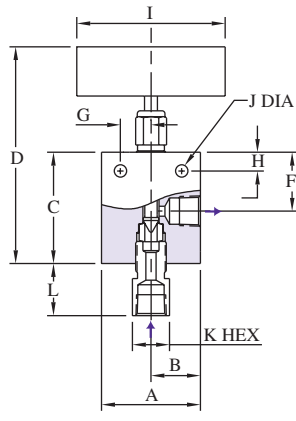


Figure 6

### Metering

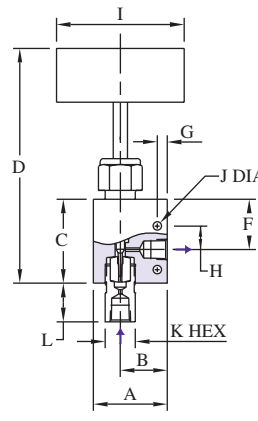


Figure 7

### Micro-Metering

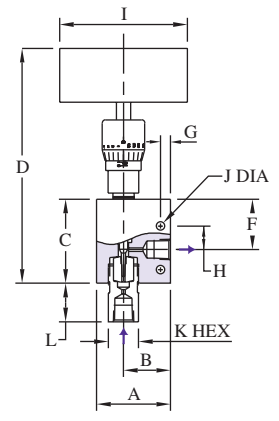


Figure 8

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

1/8" PIPE

**2-way Straight  
Female Ports**

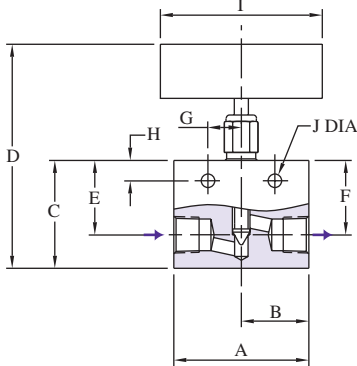


Figure 9

**2-way Straight  
Male Inlet, Female Outlet**

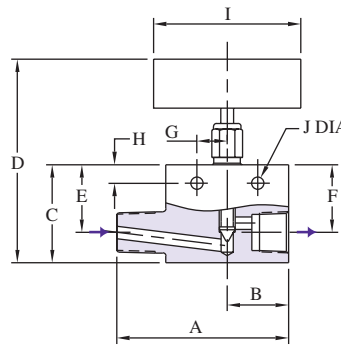


Figure 10

**2-way Angle  
Male Inlet, Female Outlet**

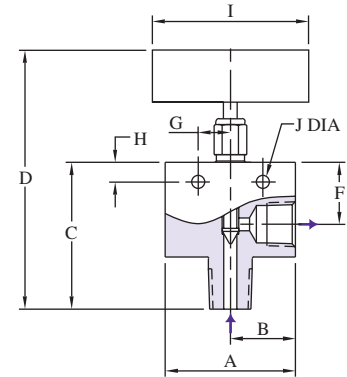


Figure 11

Catalog Number	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
DHP2F	1/8" NPT	2.50" (63.5)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	9
DHP2MF	1/8" NPT	3.06" (77.7)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	10
DHP22MF	1/8" NPT	2.00" (50.8)	1.00" (25.4)	2.43" (61.7)	4.93" (125.2)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	11
DHP27	1/8" NPT	5.38" (136.7)	1.50" (38.1)	2.00" (50.8)	4.50" (114.3)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.97" (75.4)	1/8" FNPT	1.25" (31.8)	12
DHP29	1/8" NPT	6.10" (154.9)	1.25" (31.8)	1.19" (30.2)	4.50" (114.3)	2.00" (50.8)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.87" (72.9)	---	1.00" (25.4)	13

See page NPT-1 for orifice and Cv

**Block & Bleed/Gauge  
Male Inlet, Female Outlet**

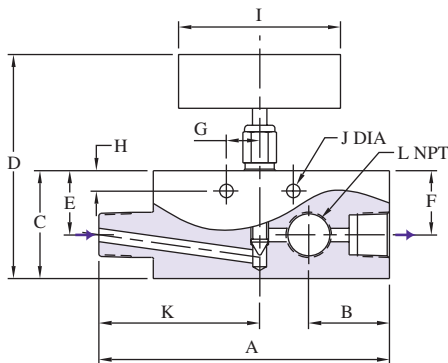


Figure 12

**Extension  
Male Inlet, Female Outlet**

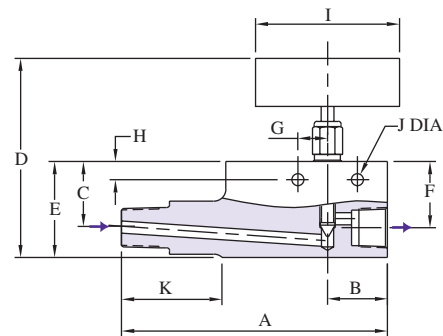


Figure 13

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)



# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

## 1/4" PIPE

2-way Straight

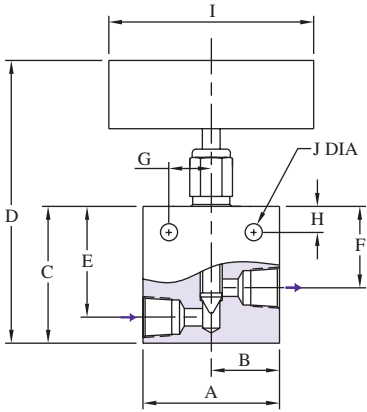


Figure 1

2-way Angle

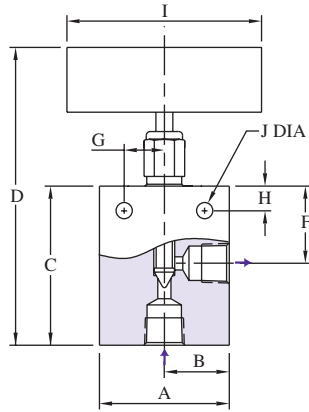


Figure 2

3-way Two on Pressure

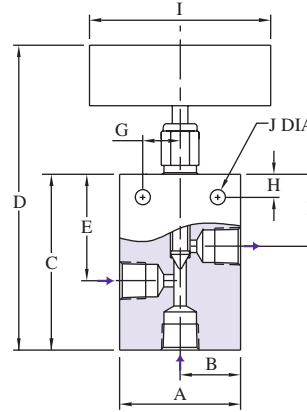


Figure 3

3-way One on Pressure

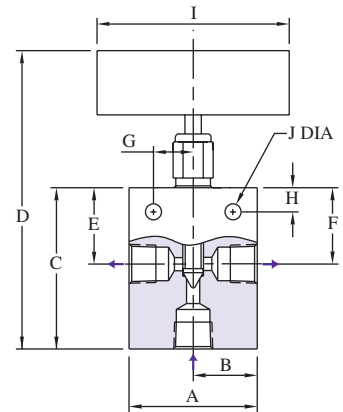


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SFPV41V	Vee	1/4" NPT	2.00"	1.00"	2.00"	4.50"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	1
SFPV41R	Reg	1/4" NPT	(50.8)	(25.4)	(50.8)	(114.3)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SFPV42V	Vee	1/4" NPT	2.00"	1.00"	2.44"	4.94"	---	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	2
SFPV42R	Reg	1/4" NPT	(50.8)	(25.4)	(62.0)	(125.5)	---	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SFPV43V	Vee	1/4" NPT	2.00"	1.00"	2.62"	5.12"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	3
SFPV43R	Reg	1/4" NPT	(50.8)	(25.4)	(66.5)	(130.0)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SFPV44V	Vee	1/4" NPT	2.00"	1.00"	2.44"	4.94"	1.19"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	4
SFPV44R	Reg	1/4" NPT	(50.8)	(25.4)	(62.0)	(125.5)	(30.2)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SFPV45V	Vee	1/4" NPT	2.00"	1.00"	3.38"	8.38"	1.69"	1.19"	0.62"	0.38"	3.00"	0.25"	---	---	0.75"	5
SFPV45R	Reg	1/4" NPT	(50.8)	(25.4)	(85.9)	(212.9)	(42.9)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	---	---	(19.1)	
SFPV46V	Vee	1/4" NPT	2.00"	1.00"	2.25"	4.75"	---	1.19"	0.62"	0.38"	3.00"	0.25"	0.75"	0.87"	0.75"	6
SFPV46R	Reg	1/4" NPT	(50.8)	(25.4)	(57.2)	(120.7)	---	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	(19.1)	(22.1)	(19.1)	
SFPMV46V	Meter	1/4" NPT	2.50"	1.25"	2.62"	5.66"	---	1.31"	0.69"	0.38"	3.00"	0.25"	0.75"	1.02"	1.00"	7
SFPMV46R	Reg	1/4" NPT	(63.5)	(31.8)	(66.5)	(143.8)	---	(33.3)	(17.5)	(9.7)	(76.2)	(6.4)	(19.1)	(25.9)	(25.4)	
SFPMV46V	Micro-Meter	1/4" NPT	2.50"	1.25"	2.62"	6.30"	---	1.31"	0.69"	0.38"	2.35"	0.25"	0.75"	1.02"	1.00"	8
SFPMV46R	Reg	1/4" NPT	(63.5)	(31.8)	(66.5)	(160.0)	---	(33.3)	(17.5)	(9.7)	(59.7)	(6.4)	(19.1)	(25.9)	(25.4)	

See page NPT-1 for orifice and Cv

2-stem Manifold

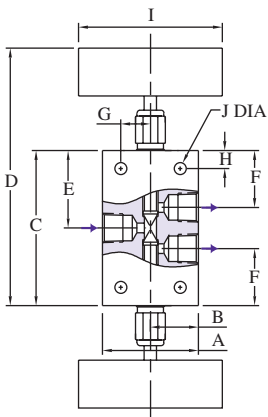


Figure 5

Replaceable Seat

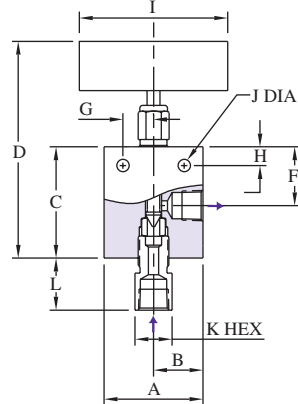


Figure 6

Metering

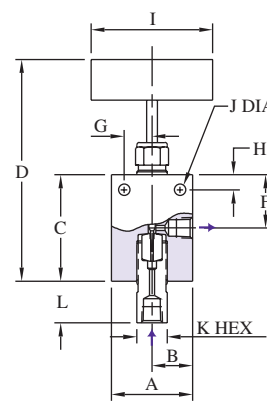


Figure 7

Micro-Metering

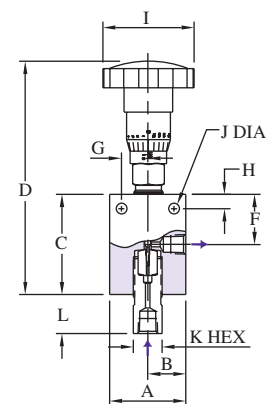


Figure 8

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

1/4" PIPE

**2-way Straight  
Female Ports**

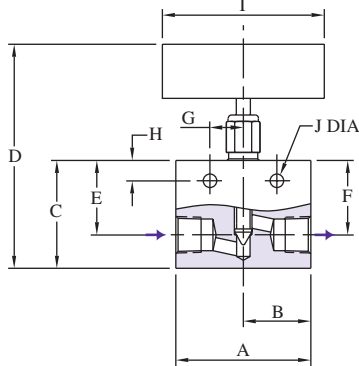


Figure 9

**2-way Straight  
Male Inlet, Female Outlet**

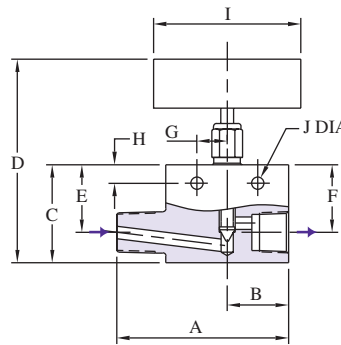


Figure 10

**2-way Angle  
Male Inlet, Female Outlet**

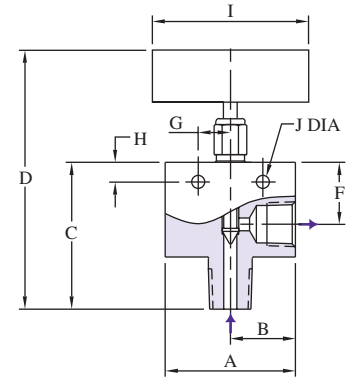


Figure 11

Catalog Number	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
DHP4F	1/4" NPT	2.50" (63.5)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	9
DHP4MF	1/4" NPT	3.50" (88.9)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	10
DHP42MF	1/4" NPT	2.00" (50.8)	1.00" (25.4)	2.43" (61.7)	4.93" (125.2)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	11
DHP47	1/4" NPT	4.50" (114.3)	1.34" (34.0)	2.00" (50.8)	4.50" (114.3)	1.37" (34.8)	1.37" (34.8)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.25" (57.2)	1/4" FNPT	1.25" (31.8)	12
DHP49	1/4" NPT	6.10" (154.9)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.87" (72.9)	---	1.00" (25.4)	13

See page NPT-1 for orifice and Cv

**Block & Bleed/Gauge  
Male Inlet, Female Outlet**

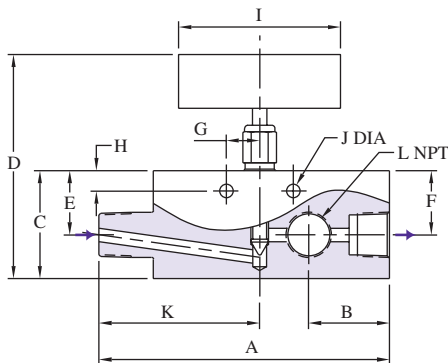


Figure 12

**Extension  
Male Inlet, Female Outlet**

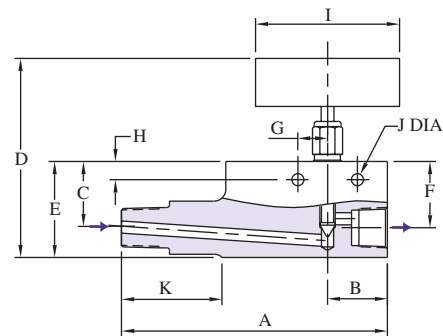


Figure 13

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)



# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

## 3/8" PIPE

**2-way Straight**

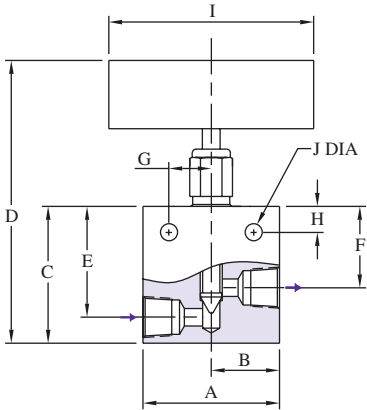


Figure 1

**2-way Angle**

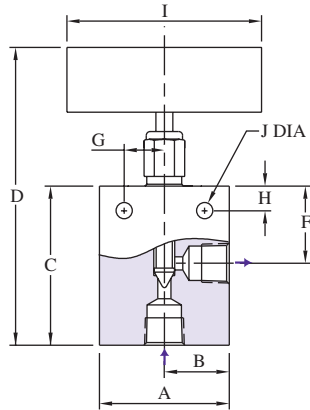


Figure 2

**3-way Two on Pressure**

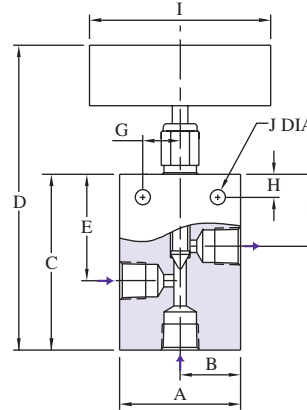


Figure 3

**3-way One on Pressure**

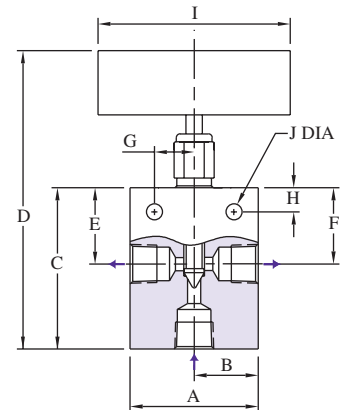


Figure 4

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SFPV61V	Vee	3/8" NPT	2.50"	1.25"	2.88"	6.32"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	1
SFPV61R	Reg	3/8" NPT	(63.5)	(31.8)	(73.2)	(160.5)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SFPV62V	Vee	3/8" NPT	2.50"	1.25"	3.38"	6.82"	---	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	2
SFPV62R	Reg	3/8" NPT	(63.5)	(31.8)	(85.9)	(173.2)	---	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SFPV63V	Vee	3/8" NPT	2.50"	1.25"	3.62"	7.06"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	3
SFPV63R	Reg	3/8" NPT	(63.5)	(31.8)	(91.9)	(179.3)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SFPV64V	Vee	3/8" NPT	2.50"	1.25"	3.38"	6.82"	1.75"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	4
SFPV64R	Reg	3/8" NPT	(63.5)	(31.8)	(85.9)	(173.2)	(44.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SFPV65V	Vee	3/8" NPT	2.50"	1.25"	5.12"	12.00"	2.56"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.00"	5
SFPV65R	Reg	3/8" NPT	(63.5)	(31.8)	(130.0)	(304.8)	(65.0)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(25.4)	
SFPV66V	Vee	3/8" NPT	2.50"	1.25"	3.25"	6.69"	---	1.75"	0.69"	0.50"	4.00"	0.34"	1.00"	1.22"	1.00"	6
SFPV66R	Reg	3/8" NPT	(63.5)	(31.8)	(82.6)	(169.9)	---	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	(25.4)	(31.0)	(25.4)	
SFPMV66V	Meter	3/8" NPT	2.50"	1.25"	2.62"	5.66"	---	1.31"	0.69"	0.38"	4.00"	0.25"	1.00"	1.12"	1.00"	7
SFPMV66R	Reg	3/8" NPT	(63.5)	(31.8)	(66.5)	(143.8)	---	(33.3)	(17.5)	(9.7)	(101.6)	(6.4)	(25.4)	(28.4)	(25.4)	
SFPMMV66V	Micro-Meter	3/8" NPT	2.50"	1.25"	2.62"	6.30"	---	1.31"	0.69"	0.38"	2.35"	0.25"	1.00"	1.12"	1.00"	8
SFPMMV66R	Reg	3/8" NPT	(63.5)	(31.8)	(66.5)	(160.0)	---	(33.3)	(17.5)	(9.7)	(59.7)	(6.4)	(25.4)	(28.4)	(25.4)	

See page NPT-1 for orifice and Cv

**2-stem Manifold**

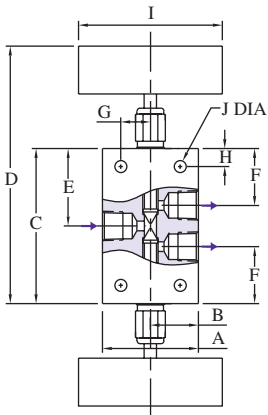


Figure 5

**Replaceable Seat**

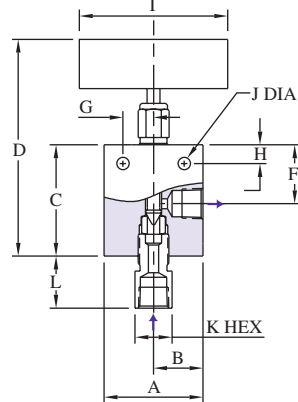


Figure 6

**Metering**

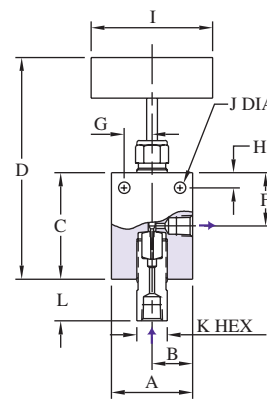


Figure 7

**Micro-Metering**

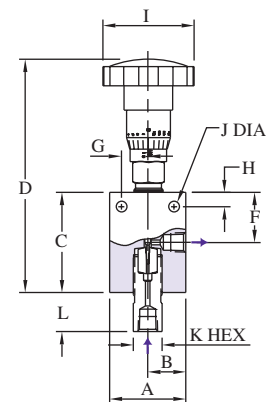


Figure 8

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)





# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

3/8" PIPE

**2-way Straight  
Female Ports**

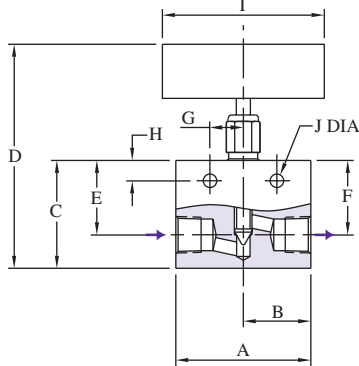


Figure 9

**2-way Straight  
Male Inlet, Female Outlet**

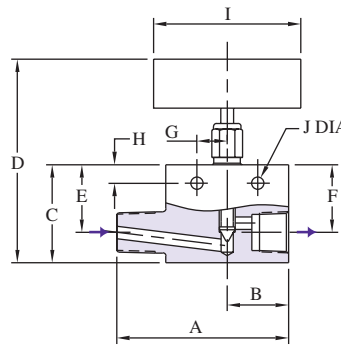


Figure 10

**2-way Angle  
Male Inlet, Female Outlet**

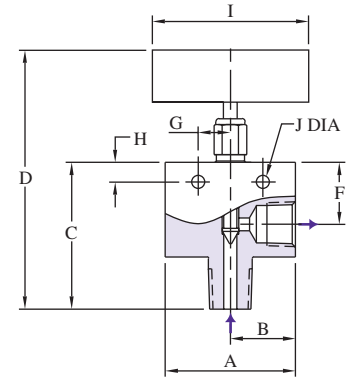


Figure 11

Catalog Number	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
DHP6F	3/8" NPT	2.50" (63.5)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	9
DHP6MF	3/8" NPT	3.50" (88.9)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	10
DHP62MF	3/8" NPT	2.50" (63.5)	1.25" (31.8)	2.43" (61.7)	4.93" (125.2)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.00" (25.4)	11
DHP67	3/8" NPT	5.38" (136.7)	1.50" (38.1)	2.00" (50.8)	4.50" (114.3)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.97" (75.4)	3/8" FNPT	1.25" (31.8)	12
DHP69	3/8" NPT	6.10" (154.9)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.87" (72.9)	---	1.00" (25.4)	13

See page NPT-1 for orifice and Cv

**Block & Bleed/Gauge  
Male Inlet, Female Outlet**

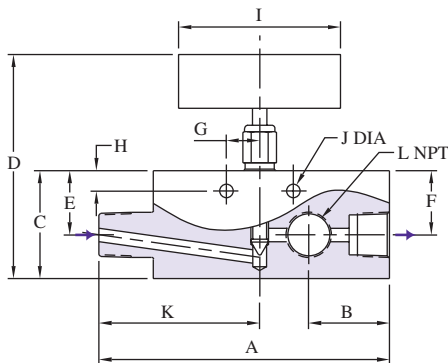


Figure 12

**Extension  
Male Inlet, Female Outlet**

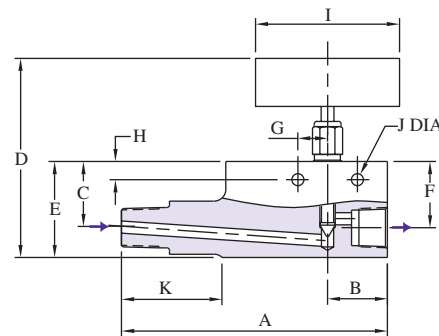


Figure 13

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)





# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

## 1/2" PIPE

### 2-way Straight

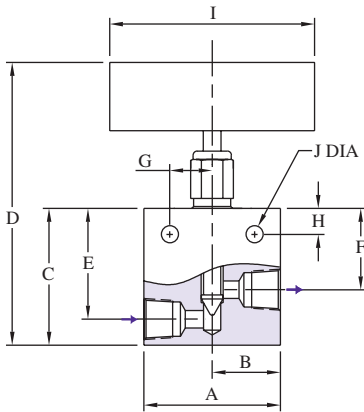


Figure 1

### 2-way Angle

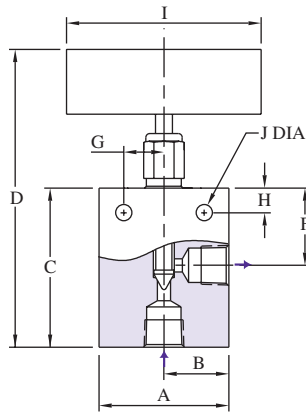


Figure 2

### 3-way Two on Pressure

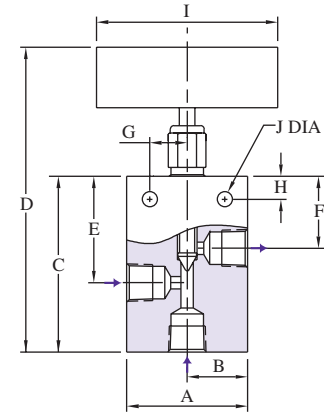


Figure 3

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
SFPV81V	Vee	1/2" NPT	2.50"	1.25"	3.00"	6.44"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.25"	1
SFPV81R	Reg	1/2" NPT	(63.5)	(31.8)	(76.2)	(163.6)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(31.8)	
SFPV82V	Vee	1/2" NPT	2.50"	1.25"	3.38"	6.82"	---	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.25"	2
SFPV82R	Reg	1/2" NPT	(63.5)	(31.8)	(85.9)	(173.2)	---	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(31.8)	
SFPV83V	Vee	1/2" NPT	2.50"	1.25"	3.62"	7.06"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.25"	3
SFPV83R	Reg	1/2" NPT	(63.5)	(31.8)	(91.9)	(179.3)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(31.8)	
SFPV84V	Vee	1/2" NPT	2.50"	1.25"	3.38"	6.44"	1.75"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.25"	4
SFPV84R	Reg	1/2" NPT	(63.5)	(31.8)	(85.9)	(163.6)	(44.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(31.8)	
SFPV85V	Vee	1/2" NPT	2.50"	1.25"	5.12"	12.00"	2.56"	1.75"	0.69"	0.50"	4.00"	0.34"	---	---	1.25"	5
SFPV85R	Reg	1/2" NPT	(63.5)	(31.8)	(130.0)	(304.8)	(65.0)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	---	---	(31.8)	
SFPV86V	Vee	1/2" NPT	2.50"	1.25"	3.25"	6.69"	---	1.75"	0.69"	0.50"	4.00"	0.34"	1.38"	1.00"	1.25"	6
SFPV86R	Reg	1/2" NPT	(63.5)	(31.8)	(82.6)	(169.9)	---	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	(35.1)	(25.4)	(31.8)	

See page NPT-1 for orifice and Cv

### 3-way One on Pressure

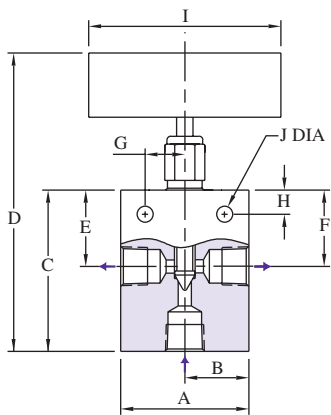


Figure 4

### 2-stem Manifold

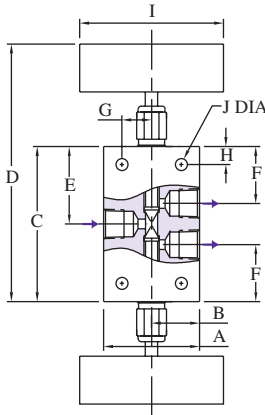


Figure 5

### Replaceable Seat

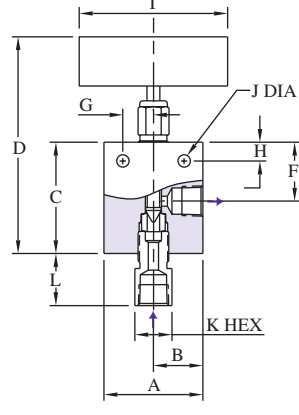


Figure 6

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

# NEEDLE VALVES FOR 15,000 PSI (1030 BAR)

1/2" PIPE

**2-way Straight  
Female Ports**

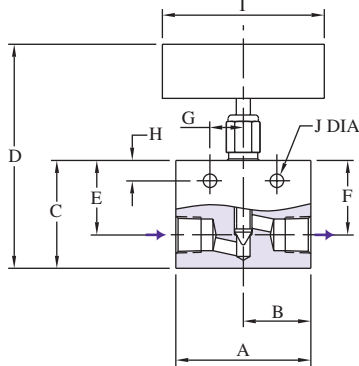


Figure 7

**2-way Straight  
Male Inlet, Female Outlet**

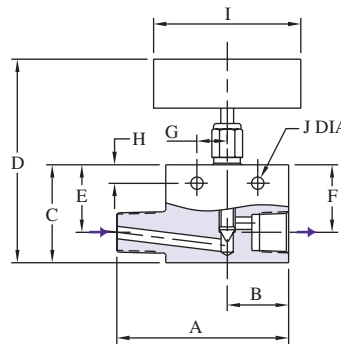


Figure 8

**2-way Angle  
Male Inlet, Female Outlet**

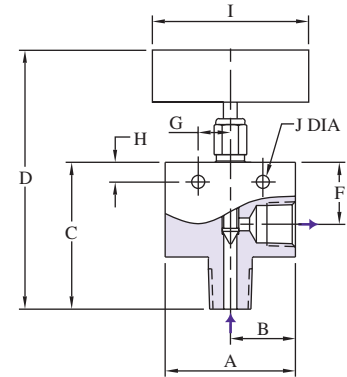


Figure 9

Catalog Number	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
DHP8F	1/2" NPT	2.50" (63.5)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.25" (31.8)	7
DHP8MF	1/2" NPT	3.50" (88.9)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.38" (35.1)	1.38" (35.1)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.25" (31.8)	8
DHP82MF	1/2" NPT	2.50" (63.5)	1.25" (31.8)	2.81" (71.4)	5.31" (134.9)	---	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	---	---	1.25" (31.8)	9
DHP87	1/2" NPT	5.38" (136.7)	1.50" (38.1)	2.00" (50.8)	4.50" (114.3)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.97" (75.4)	1/2" FNPT	1.25" (31.8)	10
DHP89	1/2" NPT	6.10" (154.9)	1.25" (31.8)	2.00" (50.8)	4.50" (114.3)	1.19" (30.2)	1.19" (30.2)	0.62" (15.7)	0.38" (9.7)	3.00" (76.2)	0.25" (6.4)	2.87" (72.9)	---	1.25" (31.8)	11

See page NPT-1 for orifice and Cv

**Block & Bleed/Gauge  
Male Inlet, Female Outlet**

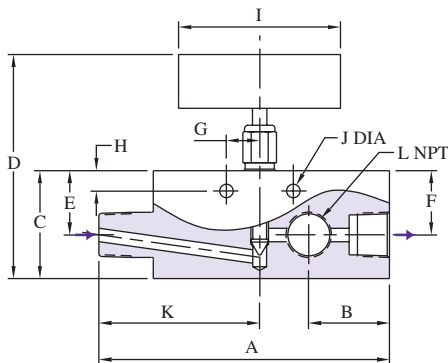


Figure 10

**Extension  
Male Inlet, Female Outlet**

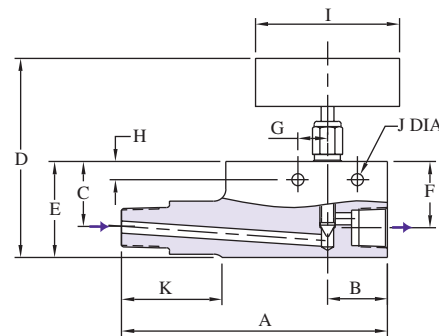


Figure 11

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)



# NEEDLE VALVES FOR 10,000 PSI (690 BAR)

## 3/4" PIPE

### 2-way Straight

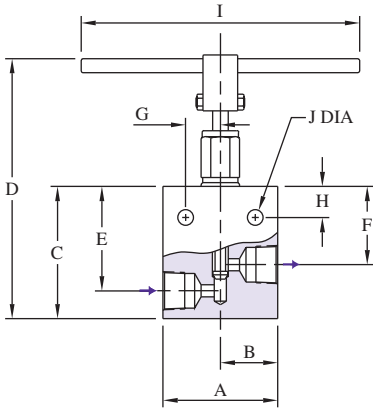


Figure 1

### 2-way Angle

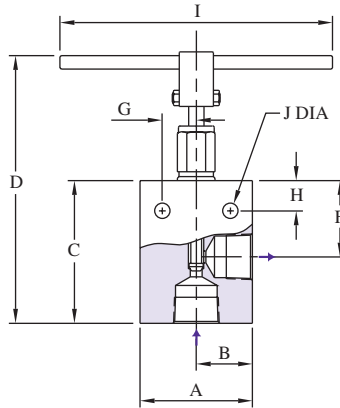


Figure 2

### 3-way Two on Pressure

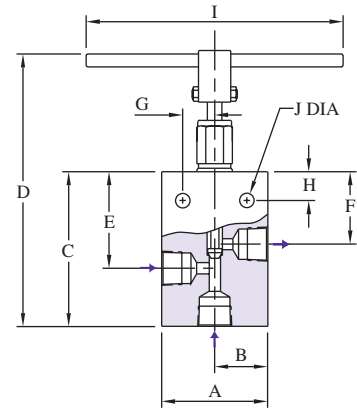


Figure 3

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
FPV121V	Vee	3/4" NPT	4.12"	2.06"	5.50"	10.94"	3.75"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	1
FPV121R	Reg	3/4" NPT	(104.6)	(52.3)	(139.7)	(277.9)	(95.3)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV122V	Vee	3/4" NPT	4.12"	2.06"	5.50"	10.94"	---	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	2
FPV122R	Reg	3/4" NPT	(104.6)	(52.3)	(139.7)	(277.9)	---	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV123V	Vee	3/4" NPT	4.12"	2.06"	5.50"	10.94"	3.75"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	3
FPV123R	Reg	3/4" NPT	(104.6)	(52.3)	(139.7)	(277.9)	(95.3)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV124V	Vee	3/4" NPT	4.12"	2.06"	5.50"	10.94"	2.81"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	4
FPV124R	Reg	3/4" NPT	(104.6)	(52.3)	(139.7)	(277.9)	(71.4)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV125V	Vee	3/4" NPT	4.12"	2.06"	8.00"	18.88"	4.00"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	5
FPV125R	Reg	3/4" NPT	(104.6)	(52.3)	(203.2)	(479.6)	(101.6)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV126V	Vee	3/4" NPT	4.12"	2.06"	4.81"	10.25"	---	2.81"	1.25"	1.12"	10.00"	0.56"	1.75"	1.75"	1.75"	6
FPV126R	Reg	3/4" NPT	(104.6)	(52.3)	(122.2)	(260.4)	---	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	(44.5)	(44.5)	(44.5)	

See page NPT-1 for orifice and Cv

### 3-way One on Pressure

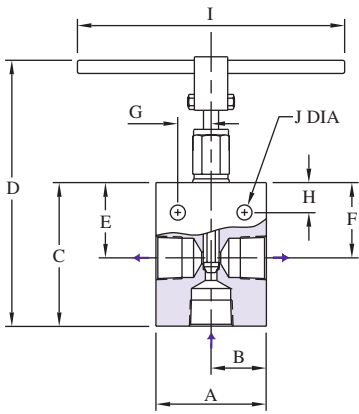


Figure 4

### 2-stem Manifold

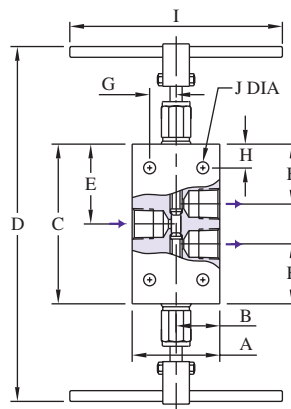


Figure 5

### Replaceable Seat

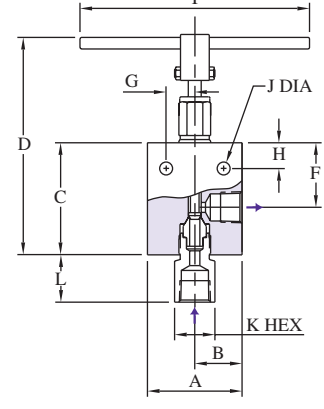


Figure 6

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

# NEEDLE VALVES FOR 10,000 PSI (690 BAR)

3/4" PIPE

**2-way Straight  
Female Ports**

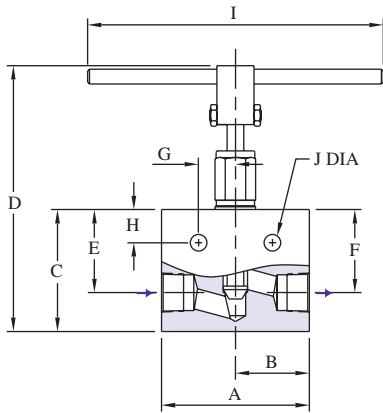


Figure 7

**2-way Straight  
Male Inlet, Female Outlet**

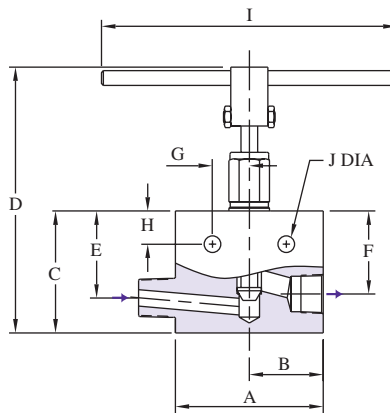


Figure 8

**2-way Angle  
Male Inlet, Female Outlet**

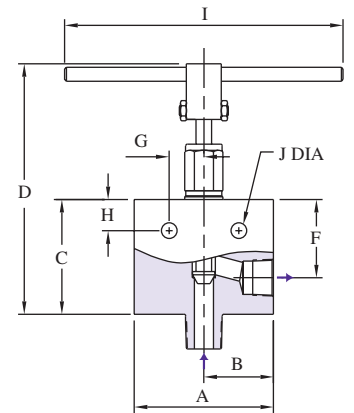


Figure 9

Catalog Number	Connection	A	B	C	D	E	F	G	H	I	J	Thk.	Fig
DHP12F	3/4" NPT	5.00" (127.0)	2.50" (63.5)	4.12" (104.6)	9.56" (242.8)	2.81" (71.4)	2.81" (71.4)	1.25" (31.8)	1.12" (28.4)	10.00" (254.0)	0.56" (14.2)	1.75" (44.5)	7
DHP12MF	3/4" NPT	6.00" (152.4)	2.50" (63.5)	4.12" (104.6)	9.56" (242.8)	2.81" (71.4)	2.81" (71.4)	1.25" (31.8)	1.12" (28.4)	10.00" (254.0)	0.56" (14.2)	1.75" (44.5)	8
DHP122MF	3/4" NPT	4.12" (104.6)	2.06" (52.3)	4.25" (108.0)	9.56" (242.8)	---	2.36" (59.9)	1.25" (31.8)	1.12" (28.4)	10.00" (254.0)	0.56" (14.2)	1.75" (44.5)	9

See page NPT-1 for orifice and Cv

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)



# NEEDLE VALVES FOR 10,000 PSI (690 BAR)

## 1" PIPE

### 2-way Straight

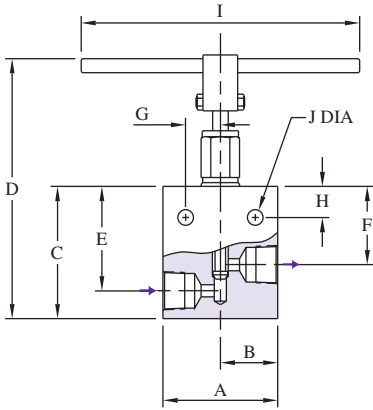


Figure 1

### 2-way Angle

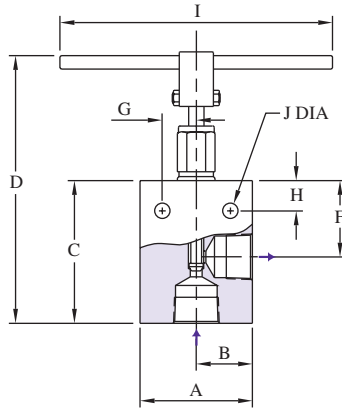


Figure 2

### 3-way Two on Pressure

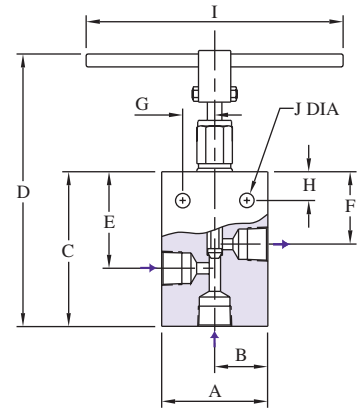


Figure 3

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig
FPV161V	Vee	1" NPT	4.12"	2.06"	5.50"	10.94"	3.75"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	1
FPV161R	Reg	1" NPT	(104.6)	(52.3)	(139.7)	(277.9)	(95.3)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV162V	Vee	1" NPT	4.12"	2.06"	5.50"	10.94"	---	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	2
FPV162R	Reg	1" NPT	(104.6)	(52.3)	(139.7)	(277.9)	---	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV163V	Vee	1" NPT	4.12"	2.06"	5.75"	11.19"	3.75"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	3
FPV163R	Reg	1" NPT	(104.6)	(52.3)	(146.1)	(284.2)	(95.3)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV164V	Vee	1" NPT	4.12"	2.06"	5.50"	10.94"	2.81"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	4
FPV164R	Reg	1" NPT	(104.6)	(52.3)	(139.7)	(277.9)	(71.4)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV165V	Vee	1" NPT	4.12"	2.06"	8.00"	18.88"	4.00"	2.81"	1.25"	1.12"	10.00"	0.56"	---	---	1.75"	5
FPV165R	Reg	1" NPT	(104.6)	(52.3)	(203.2)	(479.6)	(101.6)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	---	---	(44.5)	
FPV166V	Vee	1" NPT	4.12"	2.06"	5.50"	10.94"	---	2.81"	1.25"	1.12"	10.00"	0.56"	1.75"	2.08"	1.75"	6
FPV166R	Reg	1" NPT	(104.6)	(52.3)	(139.7)	(277.9)	---	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	(44.5)	(52.8)	(44.5)	

See page NPT-1 for orifice and Cv

### 3-way One on Pressure

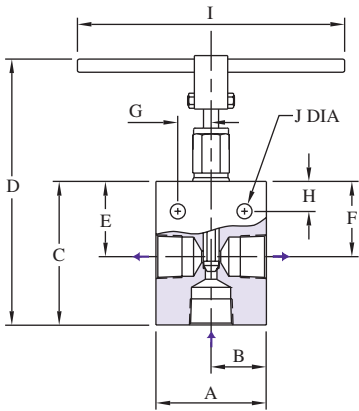


Figure 4

### 2-stem Manifold

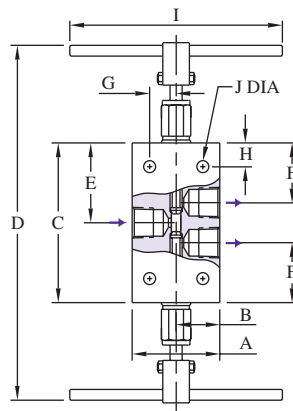


Figure 5

### Replaceable Seat

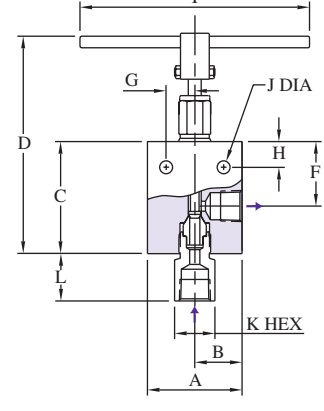


Figure 6

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

# NEEDLE VALVES FOR 10,000 PSI (690 BAR)

1" PIPE

2-way Straight  
Female Ports

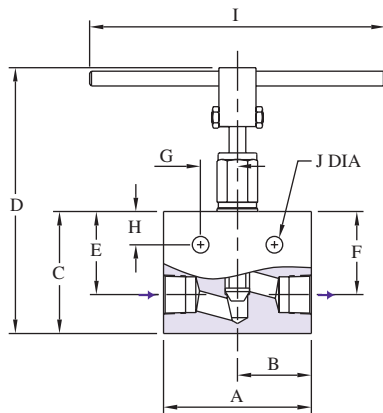


Figure8

2-way Straight  
Male Inlet, Female Outlet

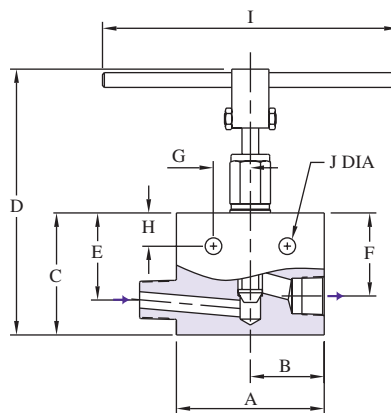


Figure 8

2-way Angle  
Male Inlet, Female Outlet

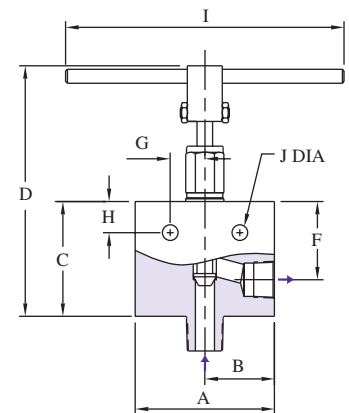


Figure9

Catalog Number	Connection	A	B	C	D	E	F	G	H	I	J	Thk.	Fig
DHP16F	1" NPT	5.00" (127.0)	2.50" (63.5)	4.12" (104.6)	9.56" (242.8)	2.81" (71.4)	2.81" (71.4)	1.25" (31.8)	1.12" (28.4)	10.00" (254.0)	0.56" (14.2)	1.75" (44.5)	7
DHP16MF	1" NPT	6.25" (158.8)	2.50" (63.5)	4.12" (104.6)	9.56" (242.8)	2.94" (74.7)	2.94" (74.7)	1.25" (31.8)	1.12" (28.4)	10.00" (254.0)	0.56" (14.2)	1.75" (44.5)	8
DHP162MF	1" NPT	4.12" (104.6)	2.06" (52.3)	4.50" (114.3)	9.94" (252.5)	---	2.36" (59.9)	1.25" (31.8)	1.12" (28.4)	10.00" (254.0)	0.56" (14.2)	1.75" (44.5)	9

See page NPT-1 for orifice and Cv

All dimensions are for reference only and are subject to change.  
Dimensions in parentheses are millimeters (mm)

