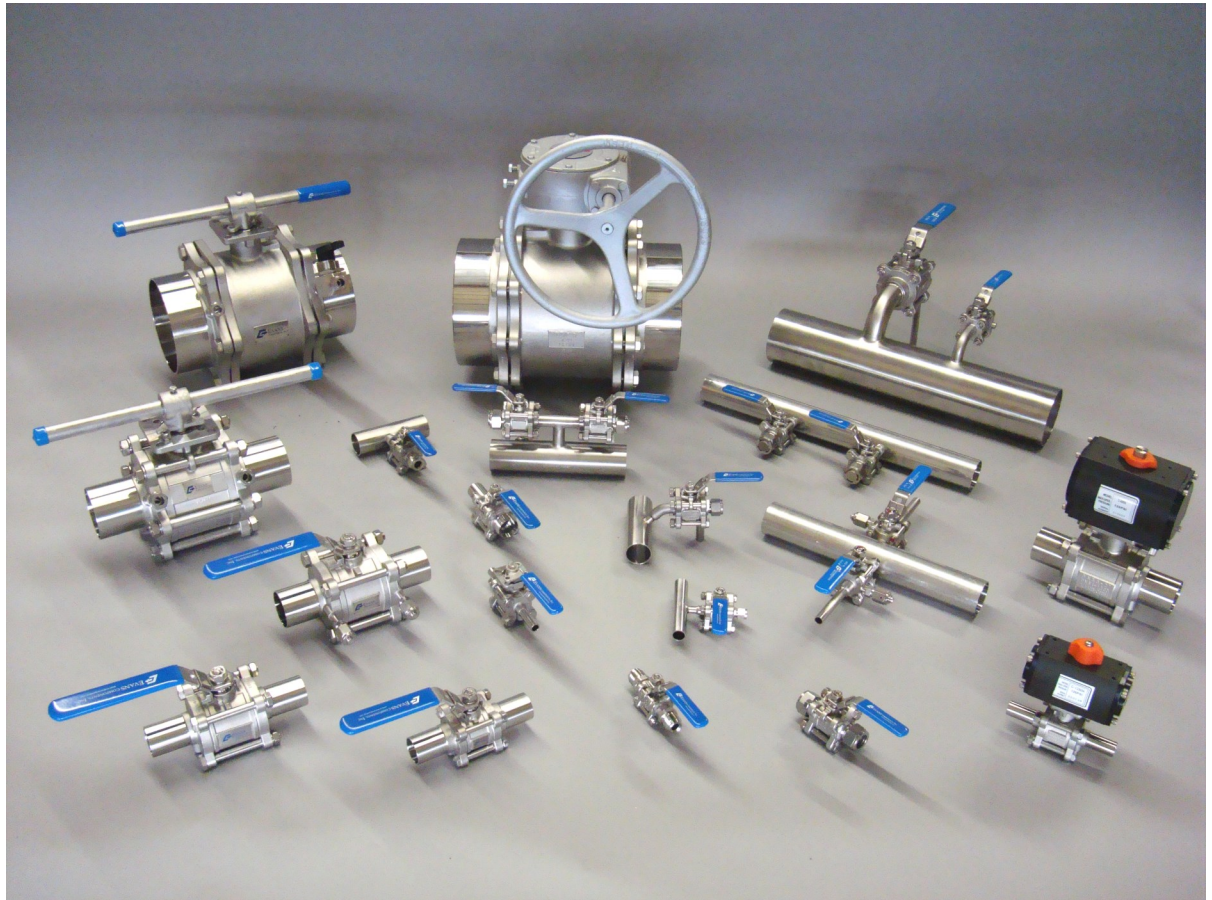


Evans Ball Valves

High Purity 316 Stainless



BA Series

- 1/4" - 20" and (15A-489A) Sizes
- CFOS Cleaned and Bagged
- Integrated Valve Assemblies
- Spool Assemblies up to 24' Lengths
- 100% Helium Leak Tested



Evans Components, Inc. was the first to introduce a High Purity Valve for use in the Semiconductor marketplace. Today we are a market leader in providing innovative fluid handling solutions, serving the Semiconductor, Bio-Pharm, Solar and Flat Panel markets. ECI currently offers the widest range materials, sizes, configurations, and integrated assemblies for high purity ball valves while leading the industry as a low cost provider of high quality products and specialty manifolds.

Evans/Dockweiler Spool Assemblies

Creating Value

- Eliminates Over 70% of Field Welds
- Helium Leak Tested, 1×10^{-7} scc/sec
- Proven I.D. Weld Technology, Minimized Deadleg
- Cleaned, Assembled, & Packaged in Cleanroom Environment
- Optional Lengths up to 24'
- Ideal Solution for Fast Track Projects
- Lowest Installed Cost
- Standard Catalog Item with Part Number Marked on Spool



Features

Lower Installed Cost

- Reduced number of welds
- Elimination of fittings in systems (tee's, crosses, etc.)
- No valve disassembly required
- Pre-fabricated, leak tested spools

Quality Production of Assembly in Controlled Environment

- Reduced tool down time
- Reduced field failure
- Fast track line certification and qualification
- Higher quality, lower installed cost

Custom Manufacturing

- Up to 24' long spool assemblies
- Special overall lengths / configurations
- Wide variety of end connections

Full Selection of Ball Valves

- Sizes from 1/4" to 20"
- Integrated valves with heat traceable 316L / 304L SS tube extensions

Locking Handles

- Standard locking lever, 1/4" - 3"
- Tee style bar handle, 3" - 6"RP
- Gearbox actuation, 6"FP - 20"

Testing of Valve Assemblies

- 1/4" - 8" valves leak tested to 1×10^{-7} scc/sec
- 10" - up valves leak tested to 1×10^{-6} scc/sec

High Purity Cleaning & Packaging

- All Evans High Purity Ball Valves are assembled & tested in a cleanroom
- Visual inspection of all wetted surfaces
- Final DI water rinse and oven dried
- Polyethylene bag packaging with Mylar lined polyethylene cap

Stainless Steel Body Specifications (BA Series Ball Valve)

Pressure Rating: Vacuum to 1000 psig (69 bar) size 1/4" - 4"
 Vacuum to 300 psig (20 bar) size 5" - 12"
 Vacuum to 275 psig (19 bar) size 14" - 20"

Brass Body Specifications (BR Series Ball Valve)

Pressure Rating Vacuum to 325 psig (22 bar)
 Temperature Rating -40°F to 350°F (176C)

General Tube/Pipe Specifications (BA Series Ball Valves)

Standard 316L tubing is mechanically polished on the ID to 25 RA. Sulfur content is controlled to .005 - .017 percent. Tube ends are square cut, faced and designed for orbital welding.

Note: SCH10 SS pipe stubs supplied either mechanically polished to 30 RA or pickled/passivated

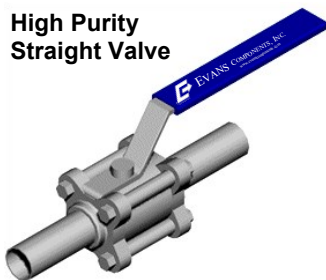
Flow Specifications (Cv)

1/4"	1.1	3"	1100	14"	31,500
3/8"	2.8	4"	2100	16"	43,500
1/2"	19	5"	3800	18"	57,500
3/4"	35	*6"RP	4550	20"	75,000
1"	50	*6"FP	5100		
1.25"	110	*8"RP	6500		
1.5"	200	*8"FP	9500		
2"	350	10"	17,500		
2.5"	650	12"	25,500		

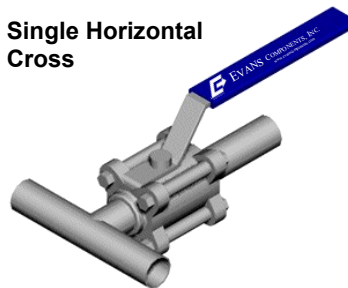
*RP: Reduced Port
 *FP: Full Port

Available Body Configurations

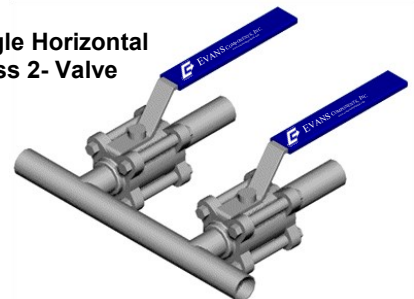
High Purity
Straight Valve



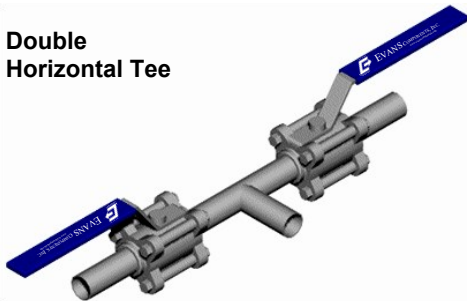
Single Horizontal
Cross



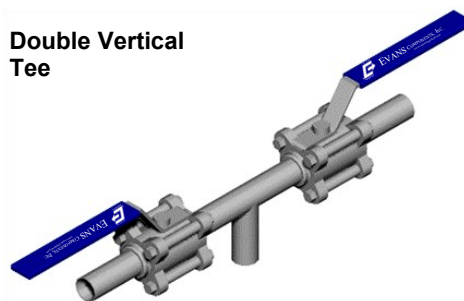
Single Horizontal
Cross 2- Valve



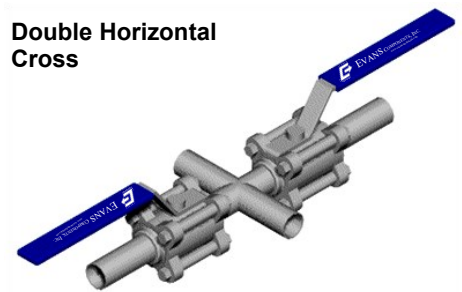
Double
Horizontal Tee



Double Vertical
Tee



Double Horizontal
Cross



Large Bore 6"FP - 20"
High Purity Straight
Valve

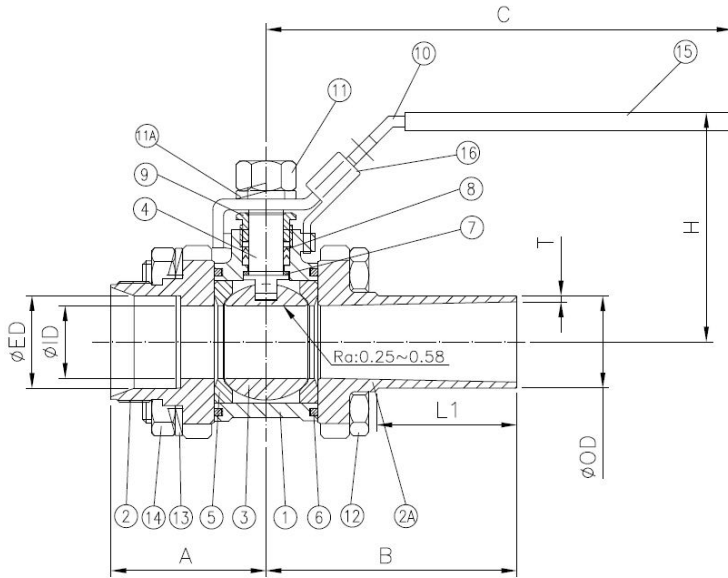


Optional Oval Handle (-OH)



EVANS BA SERIES

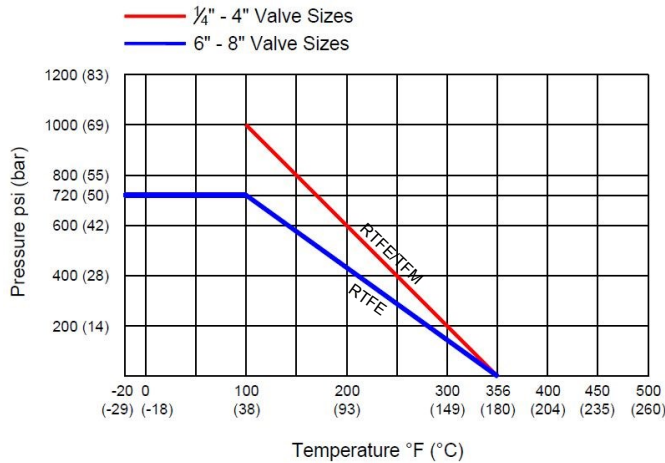
High Purity Ball Valves



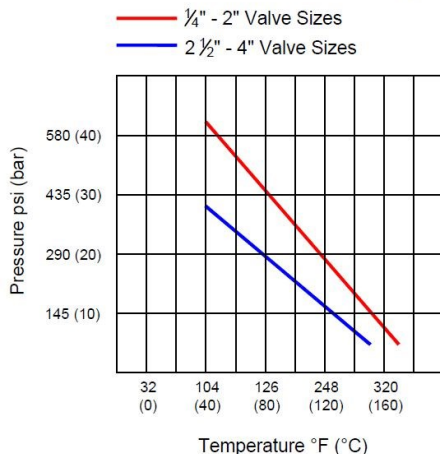
* Referenced dimensions are for tube extension and compression ended ball valves only. Consult factory for alternative end connection dimensions

Item	Description	Material (S.S. Valves)	Material (Brass Valves)	Qty
1	Body	CF8M/CF8	Forged Brass	1
2	End Caps	CF3M/CF3	Forged Brass	2
3	Ball	CF8M	Brass, chrome plated	1
4	Stem	SS316	Brass	1
5	Ball Seat	RTFE,TFM	RTFE	2
6	Body Seal	RTFE,TFM	RTFE	2
7	Thrust Washer	RTFE,TFM	RTFE	1
8	Stem Packing	RTFE,TFM	RTFE	1
9	Stem Nut	SS304	Steel, nickel plated	1
10	Handle	SS304	Steel, nickel plated	1
11	Handle Nut	SS304	Steel, nickel plated	1
11A	Handle Washer	SS304	Steel, nickel plated	1
12	Body Bolt	SS304	Steel, nickel plated	4
13	Bolt Washer	SS304	Steel, nickel plated	4
14	Bolt Nut	SS304	Steel, nickel plated	4
15	Handle Sleeve	VINYL	VINYL	1
16	Locking Device	SS304	Steel, nickel plated	1

S.S. BALL VALVES (1/4" to 8")



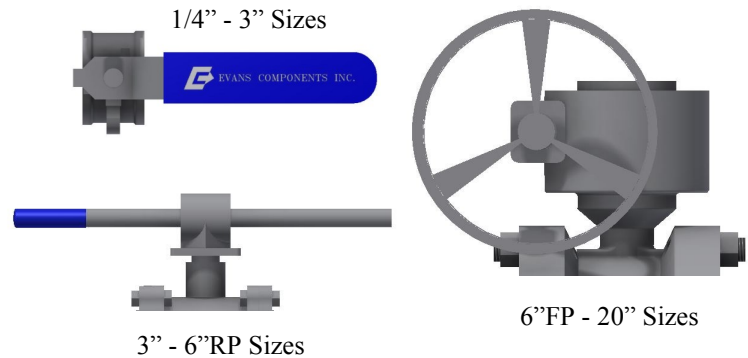
BRASS BALL VALVES (1/4" to 4")



SS Valves - Dimensions: IN (MM)

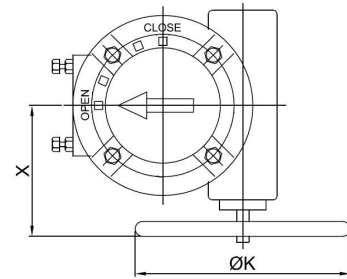
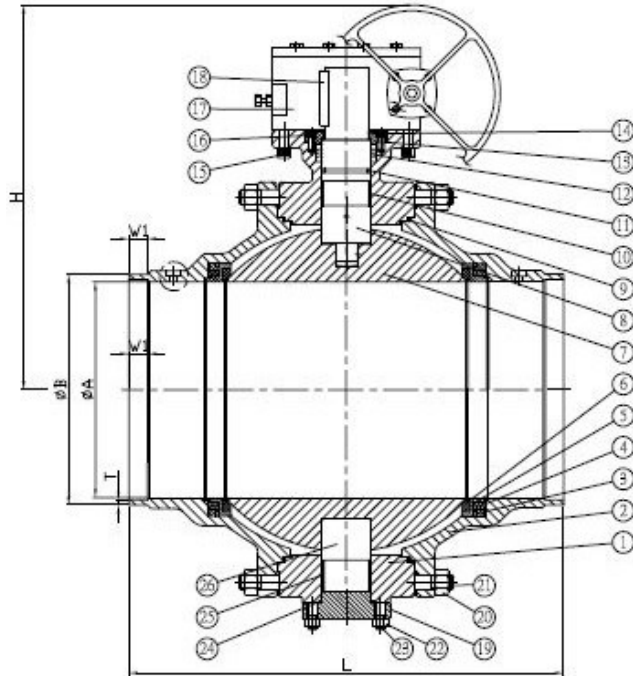
Size	ØID	ØOD	T	A	B	C	H	LI
1/4"	0.18 (4.57)	0.25 (6.35)	0.035 (0.89)	1.6 (40.13)	1.3 (33.0)	4.13 (105)	1.97 (50)	0.39 (9.90)
3/8"	0.305 (7.75)	0.375 (9.53)	0.035 (0.89)	1.6 (40.1)	1.3 (33.0)	4.13 (105)	1.97 (50)	0.39 (9.90)
1/2"	0.402 (10.21)	0.50 (12.70)	0.049 (1.24)	1.7 (45.2)	1.7 (67.8)	4.13 (105)	2.95 (75)	1.50 (38.10)
3/4"	0.62 (15.75)	0.75 (19.05)	0.065 (1.650)	1.7 (43.1)	2.7 (67.8)	4.13 (105)	2.95 (75)	1.59 (40.39)
1"	0.870 (22.10)	1.00 (25.40)	0.065 (1.650)	2.15 (54.6)	2.9 (73.1)	5.20 (132)	3.07 (78)	1.76 (44.70)
1-1/2"	1.370 (34.80)	1.50 (38.10)	0.065 (1.650)	*C/F	3.9 (99.3)	7.13 (181)	4.49 (114)	2.02 (51.31)
2"	1.870 (47.50)	2.00 (50.80)	0.065 (1.650)	*C/F	4.3 (105.9)	7.13 (181)	4.80 (122)	2.04 (51.82)
2-1/2"	2.370 (60.33)	2.50 (63.50)	0.065 (1.650)	N/A	5.7 (140.2)	11.81 (300)	5.47 (139)	1.85 (46.99)
3"	2.870 (72.90)	3.00 (76.20)	0.065 (1.650)	N/A	5.7 (140.2)	15.75 (400)	5.87 (149)	2.48 (62.99)
4"	3.834 (97.38)	4.00 (101.6)	0.083 (2.11)	N/A	6.0 (152.9)	19.69 (500)	7.01 (178)	2.43 (61.72)
6" FP	5.782 (146.86)	6.00 (152.4)	0.109 (2.77)	N/A	7.4 (188.2)	N/A	N/A	2.35 (59.69)
6" RP	5.782 (146.86)	6.00 (152.4)	0.109 (2.77)	N/A	6.2 (160.0)	N/A	N/A	2.20 (55.88)
8" FP	7.76 (197.10)	8.00 (203.2)	0.120 (3.05)	N/A	10.13 (260.5)	N/A	N/A	2.00 (50.80)
8" RP	7.76 (197.10)	8.00 (203.2)	0.120 (3.05)	N/A	7.41 (160.0)	N/A	N/A	2.00 (50.80)

- Dimensions are +/- 0.2"
- *C/F - Consult Factory
- Pipe extension valve dimensions sizes 1/2" - 4", consult factory
- Copper tube extension valve dimensions, consult factory



EVANS BA SERIES

8"FP - 20" Ball Valves

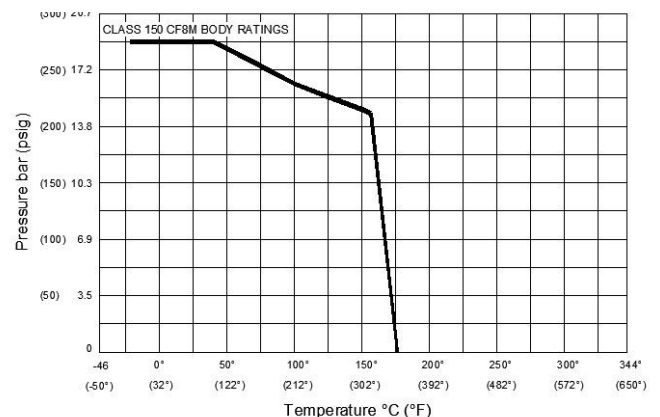


MATERIALS

NO.	PART NAME	MATERIAL
1	BODY	CF8M / CF8
2	END CAP	CF3M / CF3
3	O-RING	VITON
4	SPRINGS	SS 304
5	SEAT RING	SS 304
6	SEAT	RTFE
7	BALL	CF8
8	STEM	SS 304
9	BODY SEAL	RTFE
10	STEM BUSHING	RTFE
11	O-RING	VITON
12	PACKING	RTFE
13	GLAND	SS 304
14	GLAND WASHER	RTFE
15	GEAR BOLT	SS 304
16	GLAND BOLT	SS 304
17	WORM GEAR	CAST IRON
18	STEM PIN	SS 304
19	END PLATE	SS 304
20	NUT	ASTM A194 Gr. 8
21	STUD	ASTM A193 Gr. B8
22	NUT	ASTM A194 Gr. 8
23	STUD	ASTM A193 Gr. B8
24	GASKET	RTFE
25	BOTTOM BEARING	RTFE
26	BOTTOM STEM	SS 304

DIMENSIONS

Valve Size	A(Ball I.D.)	B	H	K	L	W1	X	T(Sch 10)	Weight (Lbs)
8" FP	7.87	8.625	18.11	12.00	20.51	0.78	8.07	.148	357
10"	9.84	10.75	22.04	15.94	22.00	1.37	10.00	.165	645
12"	11.81	12.75	24.40	15.94	25.00	1.37	10.00	.180	911
14"	13.26	14.00	/	/	30.00	1.37	/	.250	1390
16"	15.23	16.00	33.26	23.62	32.99	1.37	17.20	.250	1980
18"	17.24	18.00	/	/	35.98	1.37	/	.250	2425
20"	19.25	20.00	/	/	39.01	1.37	/	.250	3120



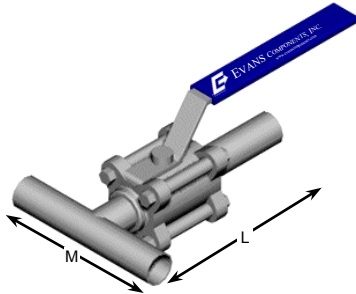
Evans Components Inc.

7606 SW Bridgeport Road · Portland, Oregon 97224 USA
 Phone 971-249-1600 · Fax 971-249-1601 www.evanscomponents.com



INTERGRATED VALVE DIMENSIONS (S.S. Valves)

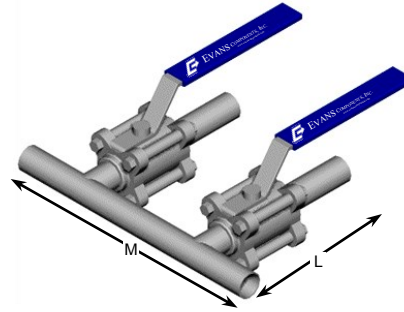
Single Horizontal Cross (SHC)



Size	M	Dimension "L"		Size	M	Dimension "L"	
		Compression	Tube Stub			Compression	Tube Stub
1/2" X 1/4"	3.75	3.06	2.83	2" X 1-1/2"	9.00	8.47	7.91
1/2" X 1/2"	3.75	3.72	4.55	2" X 2"	9.00	9.61	8.34
3/4" X 1/4"	4.00	3.31	3.08	3" X 1/2"	6.75	4.97	5.80
3/4" X 1/2"	4.00	3.85	4.68	3" X 3/4"	6.75	5.10	5.74
3/4" X 3/4"	4.00	3.98	4.62	3" X 1"	9.00	5.52	6.05
1" X 1/2"	7.00	3.97	4.80	3" X 2"	9.00	10.12	8.84
1" X 3/4"	7.00	4.10	4.74	4" X 1"	8.25	6.02	6.55
1" X 1"	7.00	4.52	5.05	4" X 1-1/2"	8.25	9.27	8.65
1-1/2" X 1/2"	7.00	4.22	5.05	4" X 2"	8.25	10.61	8.34
1-1/2" X 3/4"	7.00	4.35	4.99	4" X 3"	14.00	N/A	C/F
1-1/2" X 1"	7.00	4.77	5.30	6" X 1"	11.25	7.02	7.55
1-1/2" X 1-1/2"	7.00	8.02	7.40	6" X 1-1/2"	11.25	10.27	9.73
2" X 1/2"	5.75	4.47	5.30	6" X 2"	11.25	11.61	10.34
2" X 3/4"	5.75	4.60	5.24	6" X 3"	14.00	N/A	C/F
2" X 1"	9.00	5.02	5.55	6" X 4"	14.00	N/A	C/F

Dimensions are +/- 0.2"
*C/F - Consult Factory

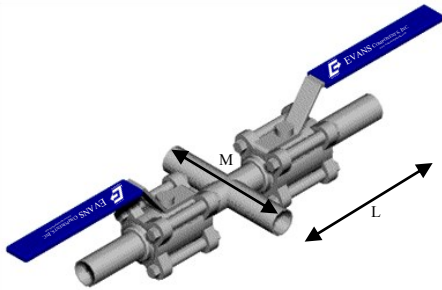
Single Horizontal Cross 2-Valve (SHC2)



Size	M	Dimension "L"		Size	M	Dimension "L"	
		Compression	Tube Stub			Compression	Tube Stub
1/2" X 1/4"	19.0	3.06	2.83	2" X 1-1/2"	C/F	8.47	7.91
1/2" X 1/2"	19.0	3.72	4.55	2" X 2"	C/F	9.61	8.34
3/4" X 1/4"	19.0	3.31	3.08	3" X 1/2"	19.0	4.97	5.80
3/4" X 1/2"	19.0	3.85	4.68	3" X 3/4"	19.0	5.10	5.74
3/4" X 3/4"	19.0	3.98	4.62	3" X 1"	19.0	5.52	6.05
1" X 1/2"	19.0	3.97	4.80	3" X 2"	C/F	10.12	8.84
1" X 3/4"	19.0	4.10	4.74	4" X 1"	19.0	6.02	6.55
1" X 1"	19.0	4.52	5.05	4" X 1-1/2"	C/F	9.27	8.65
1-1/2" X 1/2"	19.0	4.22	5.05	4" X 2"	C/F	10.61	8.34
1-1/2" X 3/4"	19.0	4.35	4.99	4" X 3"	C/F	N/A	C/F
1-1/2" X 1"	19.0	4.77	5.30	6" X 1"	19.0	7.02	7.55
1-1/2" X 1-1/2"	C/F	8.02	7.40	6" X 1-1/2"	C/F	10.27	9.73
2" X 1/2"	19.0	4.47	5.30	6" X 2"	C/F	11.61	10.34
2" X 3/4"	19.0	4.60	5.24	6" X 3"	C/F	N/A	C/F
2" X 1"	19.0	5.02	5.55	6" X 4"	C/F	N/A	C/F

Dimensions are +/- 0.2"
*C/F - Consult Factory

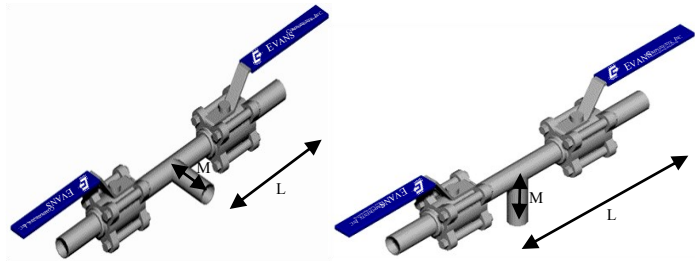
Double Horizontal Cross (DHC)



Size	M	Dimension "L"		Size	M	Dimension "L"	
		Compression	Tube Stub			Compression	Tube Stub
1/2" X 1/4"	3.75	3.06	2.83	2" X 1-1/2"	9.00	8.47	7.91
1/2" X 1/2"	3.75	3.72	4.55	2" X 2"	9.00	9.61	8.34
3/4" X 1/4"	4.00	3.31	3.08	3" X 1/2"	6.75	4.97	5.80
3/4" X 1/2"	4.00	3.85	4.68	3" X 3/4"	6.75	5.10	5.74
3/4" X 3/4"	4.00	3.98	4.62	3" X 1"	9.00	5.52	6.05
1" X 1/2"	7.00	3.97	4.80	3" X 2"	9.00	10.12	8.84
1" X 3/4"	7.00	4.10	4.74	4" X 1"	8.25	6.02	6.55
1" X 1"	7.00	4.52	5.05	4" X 1-1/2"	8.25	9.27	8.65
1-1/2" X 1/2"	7.00	4.22	5.05	4" X 2"	8.25	10.61	8.34
1-1/2" X 3/4"	7.00	4.35	4.99	4" X 3"	14.00	N/A	C/F
1-1/2" X 1"	7.00	4.77	5.30	6" X 1"	11.25	7.02	7.55
1-1/2" X 1-1/2"	7.00	8.02	7.40	6" X 1-1/2"	11.25	10.27	9.73
2" X 1/2"	5.75	4.47	5.30	6" X 2"	11.25	11.61	10.34
2" X 3/4"	5.75	4.60	5.24	6" X 3"	14.00	N/A	C/F
2" X 1"	9.00	5.02	5.55	6" X 4"	14.00	N/A	C/F

*Dimensions are for reference only, certified drawings available upon request

Double Horizontal/Vertical Tee (DHT/DVT)



Size	M	Dimension "L"		Size	M	Dimension "L"	
		Compression	Tube Stub			Compression	Tube Stub
1/2" X 1/2"	1.88	6.58	9.04	2" X 1/2"	2.88	8.08	10.54
3/4" X 1/2"	2.00	6.82	9.28	2" X 3/4"	2.88	8.42	10.76
3/4" X 3/4"	2.00	7.16	9.50	2" X 1"	2.88	8.70	10.76
1" X 1/2"	2.38	7.08	9.54	2" X 2"	2.88	C/F	15.80
1" X 3/4"	2.38	7.42	9.76	3" X 1/2"	3.38	9.08	11.54
1" X 1"	2.38	7.70	9.76	3" X 3/4"	3.38	9.42	11.76
1-1/2" X 1/2"	2.38	7.58	10.04	3" X 1"	3.38	9.70	11.76
1-1/2" X 3/4"	2.38	7.92	10.26	3" X 2"	3.38	C/F	16.80
1-1/2" X 1-1/2"	2.38	C/F	14.10	4" X 2"	4.13	C/F	17.80

Dimensions are +/- 0.2"
*C/F - Consult Factory

PART NUMBERING / ORDER INFORMATION

UPSTREAM DOWNSTREAM

SS - 08 - 24 - DHC - M C 08 - XP

1 2 3 4 5 6 7 8 9 10

Above part number describes a 1/2" stainless steel, double horizontal cross with a 1-1/2" 316L stainless steel tube main, a 1/2" stainless steel compression branch and a single, downstream compression purge port.

1. Series (Material) Designator

SS - 316 Stainless Steel (1/4" - 20") (15A - 489A)
 B - Brass (1/2"-2")

2. Valve Size

04 - 1/4"	24 - 1-1/2"	128 - 8" FP
06 - 3/8"	32 - 2"	160 - 10"
08 - 1/2"	40 - 2-1/2"	192 - 12"
10 - 5/8"	48 - 3"	224 - 14"
12 - 3/4"	64 - 4"	256 - 16"
16 - 1"	80 - 6" RP	288 - 18"
20 - 1-1/4"	96 - 6" FP or 8" RP	320 - 20"

3. Main Size Designator - IN. (JIS)

04 - 1/4"	32 - 2" (50A)	128 - 8" (200A)
06 - 3/8"	40 - 2-1/2" (65A)	160 - 10" (250A)
08 - 1/2" (15A)	48 - 3" (80A)	192 - 12" (300A)
12 - 3/4" (20A)	64 - 4" (100A)	224 - 14" (337A)
16 - 1" (25A)	80 - 5" (125A)	256 - 16" (387A)
20 - 1-1/4" (32A)	96 - 6" (150A)	288 - 18" (438A)
24 - 1-1/2" (40A)		320 - 20" (489A)

4. Valve Assembly Pattern Designator

STR - Straight 2-way
 SHC - Single Horizontal Cross
 SHC2 - Single Horizontal Cross (2-valves)
 DHC - Double Horizontal Cross
 DHT - Double Horizontal Tee
 DVT - Double Vertical Tee

Manifold Assemblies

* - *Insert number designator indicating total quantity of valves required for manifold. (Example: DHC6, Double Horizontal Cross pattern, 6 valves)*

5. Inlet Connection Designator

S - Copper Tube Extension
 C - SS Compression Fitting
 D - Plugged SS Compression Fitting
 F - Female NPT
 G - 304L Sch. 10 Pipe Extension
 G5 - 304L Sch. 5 Pipe Extension
 W - 304L SS Tube Extension
 J - 316L SS Sch. 5 JIS Pipe Extension
 I - 316L SS Sch. 10 JIS Pipe Extension
 L - 316L SS Sch. 10 Pipe Extension
 L40 - 316L SS Sch. 40 Pipe Extension
 *M - 316L SS Tube Extension
 N - NW/KF Vacuum Fitting
 K - Cap Male Face Seal
 R - Male Face Seal
 Q - Plugged Female Face Seal
 T - 316L Tube Extension with Weld Cap
 Y - Dockweiler Removable Weld Cap
 U - 150# ANSI Pipe Flange

* PED/CE Marking of valves is not standard and must be specified at time of order

6. Outlet Connection Designator

S - Copper Tube Extension
 C - SS Compression Fitting
 D - Plugged SS Compression Fitting
 E - Pipe Socket Weld
 F - Female NPT
 G - 304L Sch. 10 Pipe Extension
 G5 - 304L Sch. 5 Pipe Extension
 W - 304L SS Tube Extension
 J - 316L SS Sch. 5 JIS Pipe Extension
 I - 316L SS Sch. 10 JIS Pipe Extension
 L - 316L SS Sch. 10 Pipe Extension
 L40 - 316L SS Sch. 40 Pipe Extension
 *M - 316L SS Tube Extension
 N - NW/KF Vacuum Fitting
 K - Capped Male Face Seal
 R - Male Face Seal
 Q - Plugged Female Face Seal
 T - 316L Tube Extension with Weld Cap
 Y - Dockweiler Removable Weld Cap
 U - 150# ANSI Pipe Flange

7. Outlet Connection Size - IN (JIS)

(Skip this designator for 2-way valves)

04 - 1/4"	16 - 1" (25A)	40 - 2-1/2" (65A)
06 - 3/8"	20 - 1-1/4" (32A)	48 - 3" (80A)
08 - 1/2" (15A)	24 - 1-1/2" (40A)	64 - 4" (100A)
12 - 3/4" (20A)	32 - 2" (50A)	

8. Purge Port Designator (Upstream/Downstream)

(1/4" purge port: 1/4" - 2-1/2", 1/2" purge port: 3" and up)

X - No Purge Port
 V - Purge Valve (capped compression end connection)
 VZ - Purge Valve (capped VCR end connection)
 P - Capped Compression
 Z - Capped Male Face Seal
 Q - Plugged Female Face Seal

9. Options

E - 15 Ra Electropolished Ball & Tube Extension
 Z - Non-High Purity (high purity cleaning is standard)
 NO - Normally Open Actuator - Spring Return
 NC - Normally Closed Actuator - Spring Return
 DA - Double Acting Actuator
 OH - Oval Handle with Lockout

* Solenoid Assist for Air Actuator

24 - 24 VDC Solenoid Assist
 120 - 120 VAC Solenoid Assist
 240 - 240 VAC Solenoid Assist
 LS - Nema 4.4 X Limit Switch W/ Beacon
 EX - Explosion Proof Option

10. Optional Colored Handle Designator

(Leave Blank for Standard Blue Handle)

B - Black	W - White
G - Green	Y - Yellow
R - Red	I - Pink

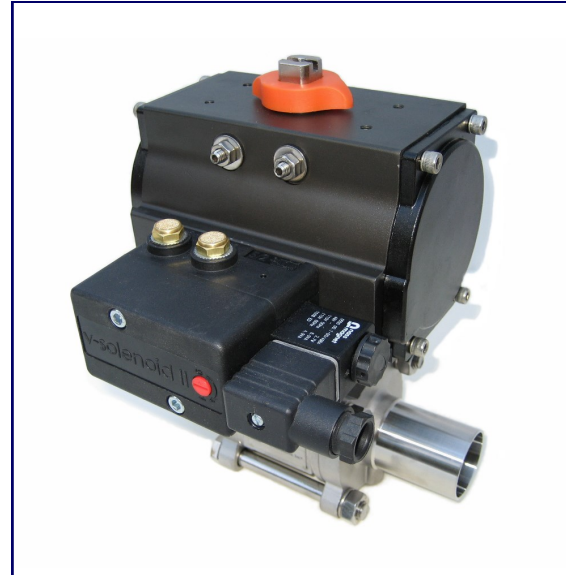
EVANS BA SERIES

High Purity Ball Valves

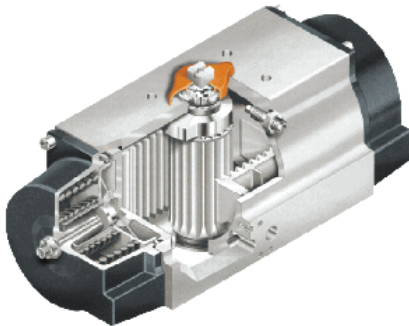
V-SOLENOID II - direct mounting Namur solenoid valves for process valve actuators

Standard features

- Robust, reliable patented 2 piston / 4 pillar poppet valve design provides bubble-tight shut-off for millions of cycles
- 5/2 function or 3/2 function selectable via 180° turn of the patented rotary sealing plate
- Direct NAMUR standard mounting
- Corrosion and impact resistant glass fiber reinforced composite material
- Low maintenance through non lubrication design
- High air flow (Cv > 1,1) and fast response
- Exhaust feedback - provides actuator with clean instrument air, preventing corrosion and galling
- Wide operating temperature range: - 40°C to 50°C (-40°F to 125°F)
- Pressure range 2.5 - 8 Bar (35 - 120 PSI)
- Coils easily changed with a wide selection of voltages available
- Coil duty cycle 100%
- Coil can be fixed at any 90° increment
- Manual override with on / off indicator
- Weatherproof IP65
- NEMA types 4 and 4X
- All series CE certified



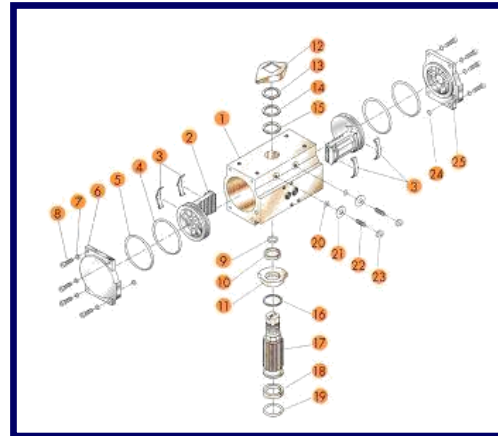
Air Operator and Solenoid Specifications



Performance

Operating Pressure Range: 40 to 120PSIG.
 Maximum Allowable Working Pressure: 150PSIG.
 Maximum Operating Pressure: 120PSIG
 Operating Temperature Standard: -40°F to +200°F

*Air Inlet/Outlet connections: 1/4 BSP



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Fax: 971-249-1601

Web Site: www.evanscomponents.com

NOTE: Product availability and specifications contained herein are subject to change without notice. Consult local distributor or factory for potential revisions.

1	BODY: Extruded aluminum alloy (Hard anodized)	13	RETAINING RING: Stainless steel
2	PISTONS: Die cast aluminum alloy	14	WASHER: Stainless steel
3	BEARING: Nylon	15	BEARING: Nylon
4	O-RING: Buna-N	16	RETAINING RING: Stainless steel
5	O-RING: Buna-N	17	PINION: Carbon steel (Electro-less nickel plated)
6	END CAP(L): Die cast aluminum alloy	18	BEARING: Nylon
7	WASHER: Stainless steel	19	O-RING: Buna-N
8	CAP SCREW: Stainless steel	20	O-RING: Buna-N
9	O-RING: Buna-N	21	WASHER: Stainless steel
10	BEARING: Nylon	22	NUT: Stainless steel
11	STOP CAM: Sinteral steel	23	NUT: Stainless steel
12	PISTON INDICATOR: Polyethylene	24	O-RING: Buna-N
		25	END CAP(R): Die cast aluminum alloy