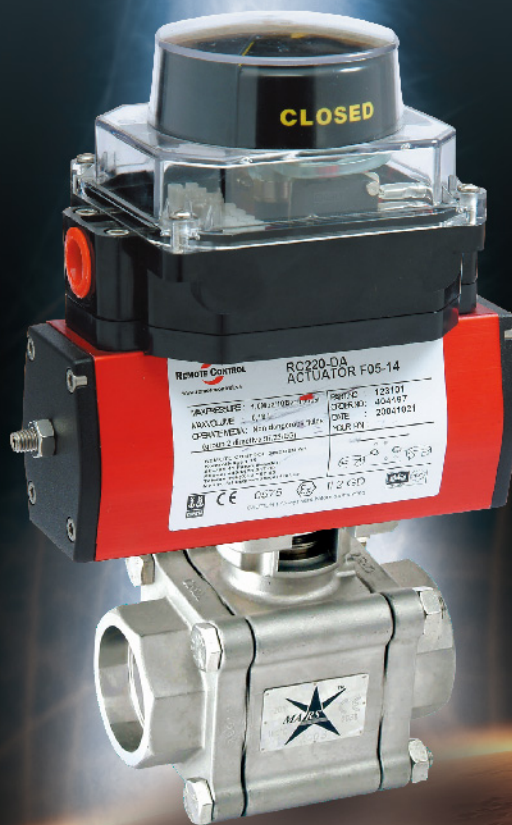




Take
a Good Look
It May Be Your Future



MARS

SERIES 88

Direct Mount Heavy-Duty
3 Piece Ball Valves

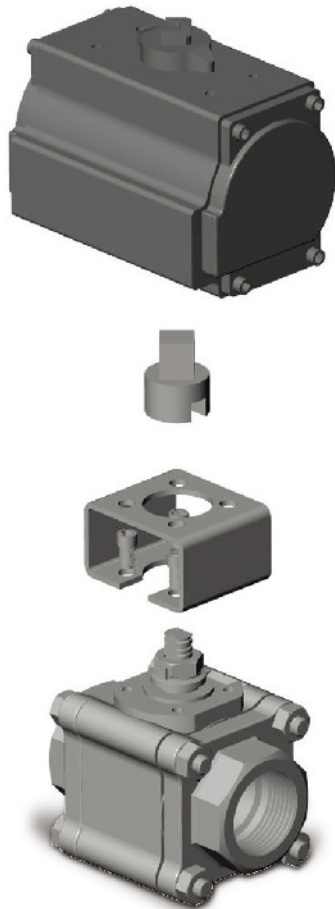
1/4" to 4" Full Port and Reduced Port

www.marsvalve.com.tw



DO YOU STILL USE CONVENTIONAL ACTUATOR MOUNTING?

Conventional mounting method is to use a bracket and adapter between ball valve and actuator, however, the bracket and adapter can often be the source of failure for valve / actuator packages:



- A simple misalignment of the bracket and adapter can cause excessive wear and high torque than expected, this can result in stem leakage or valve stall.
- A warped bracket, however slightly, or the bolt drillings lose center, stem side loading can occur.
- If the adapter is too long and bracket bolts are drawn down tightly, the adapter can jam the valve stem into valve ball resulting in higher torque than the actuator provided.
- The bracket and adapter leave exposed moving parts, when the adapter turns it can become a pinch point and injury may occur.
- The connections between the adapter and the valve stem and the adapter and the actuator drive can create a slope, known as hysteresis, the looseness of the connecting surface can cause the valve to not fully open or fully close.

Patented Direct Mount Design

The U.S., Germany, and China Patent and Trademark Offices Have awarded Mars Valve Patent Protection for the Direct Mount Design.



- 1) U.S. Patent 5,954,888
- 2) Germany Patent 299.02.532.2
- 3) China Patent ZL 98 2 09161.3

Mars Direct Mount Ball Valve Sets A New Standard For Ball Valve / Actuator Mounting, Enhances Functional Performance With Easy Installation And Lower Maintenance Cost.



The new way of mounting actuator is the Direct Mount Configuration, it is designed to overcome the problems of conventional actuator mounting. This design allows an actuator bolted directly to the top of ball valves for greater reliability, easy installation and improved cycling life.

No bracket and adapter are required, the valve stem is an integral part of the actuator drive. The direct valve stem coupling to actuator shaft ensures correct alignment of the valve to the actuator, minimizes stem side loading and backlash during operation, increased service life and performance.

Modular design and simplicity

No confusion as to how to select brackets and adapters.

Low cost and easy automation

Direct mount eliminates the need for additional brackets and adapters, time and labor saving too.

In the event maintenance is needed, Mars Direct Mount ball valves facilitate fast, easy breakdown and assembly of ball valve and actuator package, the result is reduced maintenance time and the lowest overall cost of ownership.

Compact and Space-Saving

The close coupling of the actuator to the valve makes the total package as compact as possible.

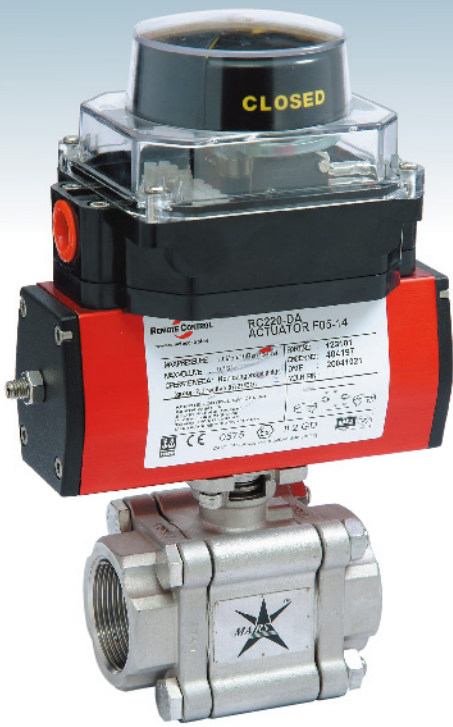
Safety

There are no External Moving Parts, No Pinch Points.

Direct Valve Stem / Actuator Drive Connection

Less chance for Hysteresis.





SERIES 88 Direct Mount Three-Piece Ball Valves

Construction 3-Piece In-Line Swing Out Design, Full Port or Reduced Port

Size Range Full Port: 1/4" to 4" (DN 8 to DN 100)

Reduced Port: 1/2" to 4" (DN 15 to DN 100)

Pressure Rating Full Bore 1/4" ~ 1" : 2000psi, 1-1/4" ~ 2" : 1500psi, 2-1/2" ~ 4" : 1000psi

Valve Material Standard: ASTM A351 Gr. CF8M / EN 10213 1.4408

Options: WCB/1.0619, CF3M/1.4409, Titanium, Duplex, Hastelloy C...etc.

Seat Material Standard: R-TFE

Options: TFM 1600, PEEK, Carbon filled PTFE, Delrin, UHMWPE, 50/50 S/S filled PTFE, Metal Seats... and others

Inspection and Test API 598, BS6755 Part 1

Compliance Standards ASME B16.34, NPT ASME B1.20.1, BSPP ISO 228-1, BSPT ISO 7-1, DIN 2999, ASME B16.11, ASME B16.25, EN 1092-1, ASME B16.5 Class 150, API 598, ISO 5211, API 607, ISO 5209

* For valves full compliance with ASME B16.34, please consult factory

Material Certificate EN 10204 - 3.1

Quality System ISO 9001

Options NACE MR-0175

Standard valve is non-fire safe design, fire safe valve is optional

APPROVALS



SIL 3



Fire safe tested
API 607 Rev 6



0035
PED 2014/68/EU
Category II
Module H



TA-Luft



ATEX 2014/34/EU

**Mars Patented Direct Mount Ball Valves
Making Automation Easy**

Mars Unique SealMax® Triple-Sealing Stem Packing System - Live Loaded - Maintenance Free - Extra Long Cycle Life - TA-Luft Approved

1. Pyramidal Stem with Stem Seal

First stage of defense against leakage.

The 45° slope of the stem accompany the stem seal effectively blocks all leak path during rotation.

2. O-Ring Stem Packing

Second stage of defense against leakage.

Enhances stem seal and maintains stem alignment, provides extra longer service life

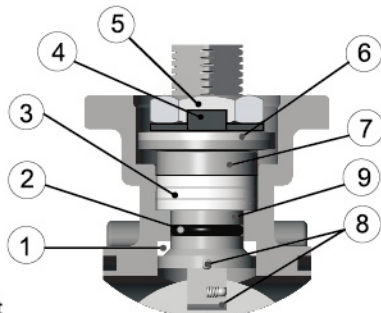
3. V-Ring Stem Packing

Third stage of defense against leakage.

Multiple layers of V-Ring Chevron Packing expands side way as it is being compressed, blocking all air pockets to prevent leak path.

4. Lock Saddle

Stabilizes the entire stem nut to keep it from loosening during operation



5. Stem Nut

Compress the entire stem system to enable blocking of leakage.

6. Belleville Washers

Automatically compress the seals to adjust for wear, pressure, and temperature fluctuations.

7. Gland

Made of stainless steel, equally distributes the compressive force on the packing and seal.

8. Anti-Static Device

Spring loaded Stem-to-Ball and Stem-to-Body as standard

9. Super Smooth Stem Finish

Reduces seal friction and operating torque, prolongs service life.

AVAILABLE END CONNECTIONS



FIG. 88-10
Threaded



FIG. 88-20
Socket Weld



FIG. 88-30
Butt Weld



FIG. 88-50 Flange PN25/40
FIG. 88-5A Flange PN16
FIG. 88-60 ANSI 150 LBS



FIG. 88-40
Butt Weld SCH 40

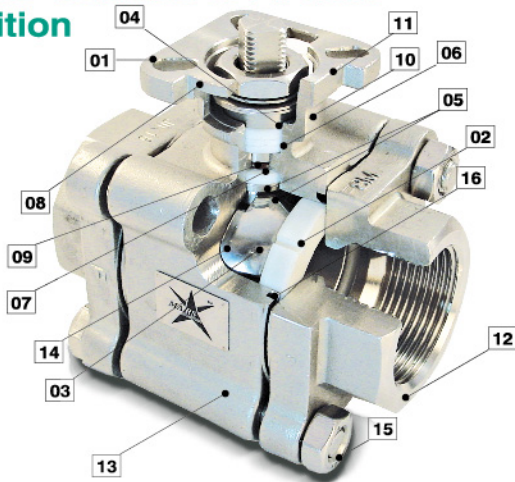


Sampling Ends

FIG. 88-70
Tube(ISO), Extended Butt Weld

MARS SERIES 88 DIRECT MOUNT BALL VALVES OFFER ADVANTAGE WELL BEYOND FOLLOWERS

Fire-Safe Certified to API 607
6th Edition



01. DUAL PATTERN ISO 5211 Mounting Pad With Square Shaft

No bracket and adapter are required for actuator mounting, provides easy and low cost actuation with improved cycle life.

02. Seats

- *Features with relief slots to relieve pressure in upstream, reducing seat wear and valve torque
- *Wide range of materials available to suit various applications

03. Ball

- *Precisely machined, mirror polished solid ball for bubble tight shutoff with less operating torque
- *A relief hole in stem slot to balance the pressure in the body cavity ensures tight shutoff and long service life

04. Blow-Out Proof Stem

Prevents stem from blowing out, for maximum safety

05. Anti-Static Device

Spring loaded stem to ball and stem to body, anti-static device as standard

06. Super Smooth Stem Surface

Reduces seal friction and operating torque, prolongs service life.

07. MARS SealMax® Stem Design

Provides optimum stem seal and extremely high cycle life

08. Patented Leak-Watching Window

Standard on Mars Direct Mount Ball Valves, for an early warning of stem leak, prevents accident and business disruption costs.

09. O-Ring Stem Seal

Enhances stem wear and maintains stem alignment, provides extra longer service life

10. Extended Valve Neck

Gives sufficient room between mounting pad and valve body, allows easy access for mounting actuator without interference with pipeline

11. Locking Device Standard

12. Stainless Steel Welded Ends in 316L Standard

Reduces inter-granular corrosion in welding.

13. 3-Piece Swing-Out Design

Fast and simple inline maintenance

14. Floating Ball

Provides pressure assisted sealing plus temperature and wear compensation, for positive shutoff

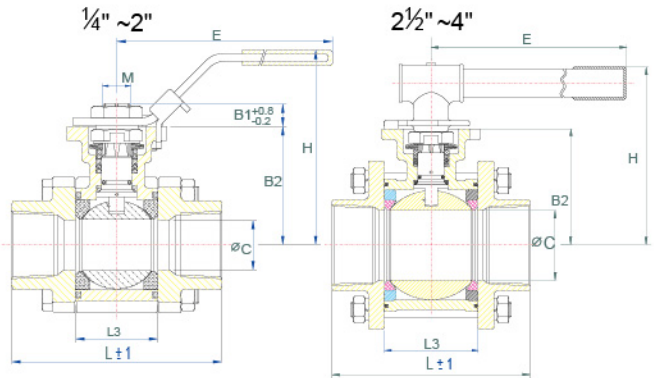
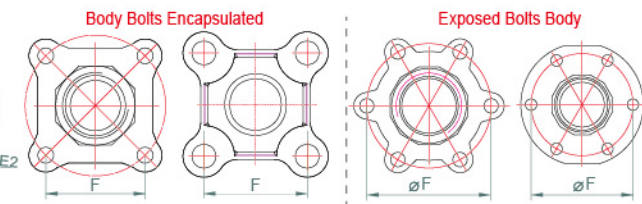
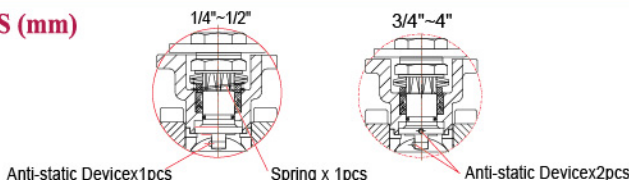
15. Encapsulated Body Bolts (up to 2")

Enhance environment protection essential for API 607 Fire-Safe qualification

16. Fully Contained Body Seals

Allows in line welding without disassembly, maintains sealing integrity from high vacuum to high pressure and temperature application.

DIMENSIONS (mm)



Dual Pattern ISO 5211 Mounting Pad
 1/4"-1 1/2" Full Port / 3/4" Reduced Port
 1/2", 1", ~2" Reduced Port
 2"-4" Full Port / 2 1/2"-4" Reduced Port

DIMENSIONS (mm)

Dimension S: 17/19
Standard 17, Option 19

SIZE	øA		B1		B2		øC		ø d1		# ø G		E		øE		S		øG		H		øH		J		L		L1		*L *L1		L2		L3		øI		øJ		øE1		øE2										
	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R											
1/4"	14.3		7.6		42.6		11.5 #9.24		9.24		13.7		139		9		21.7		77		2.35 #1.6		75		75		60	70	10		24.5		36		42		6		6														
3/8"	17.6		7.6		42.6		12.6 #12.53		12.53		17.5		139		9		21.7		77		2.3 #1.6		75		75		60	70	10		24.5		36		42		6		6														
1/2"	21.9	21.9	7.6	7.6	42.6	42.6	15	12.6	15.76	15.76	21.7	21.7	139	139	185	9	9	21.7	21.7	77	77	83	1.6	72.5	75	75	75	75	75	10	10	24.5	24.5	36	36	42	42	6	6	6	6												
3/4"	27.3	27.3	8.6	7.6	46.85	42.6	20	15	20.96	20.96	27.2	27.2	139	139	185	9	9	27.2	27.2	82	77	88	1.6	85.4	72.5	90	74.8	80	90	13	13	31.4	24.5	36	36	42	42	6	6	6	6												
1"	33.9	33.9	10.4	8.6	59.3	46.85	25	20	26.64	26.64	34	34	165	139	212	11	9	34.0	34.0	98.5	82	106	1.6	105.3	85.4	110	89.8	90	100	13	13	41.3	31.4	42	36	50	42	6	6	7	6												
1 1/4"	42.8	42.8	10.4	10.4	62.6	59.3	32	25	35.08	35.08	42.7	42.7	165	165	212	11	11	42.7	42.7	102	98.5	109	1.6	111	105.3	115	109.4	110	110	13	13	48.4	41.3	42	42	50	50	6	6	7	7												
1 1/2"	48.9	48.9	13.4	10.4	79	62.6	38	32	40.94	40.94	48.6	48.6	215	165	262	14	11	48.6	48.6	128	102	128	1.6	127.3	111	130	114.4	120	125	13	13	56.3	48.4	50	42	70	50	7.5	6	9	7												
2"	61.3	61.3	13.4	13.4	87.7	79	50	38	52.51	52.51	60.5	60.5	215	215	262	14	14	60.5	60.5	137	128	137	1.6	142.8 **146	127.3 **146	142.8 **146	130	140	150	16	16	71.4	56.3	50	50	70	70	7.5	7.5	9	9												
2 1/2"	90.0	90.0	17.8	16.8	117.7	108.7	80	65	80	80	89	89	370	300	370	17/19	17/19	90.0	90.0	176	167	176	2.0	2.0	205	185	205	185	205	220	16	16	99	86.6	70	70	102	102	10	10	12	12											
4"	115.5	115.5	16.8	17.8	133.7	117.7	100	80	102	102	114	114	370	370	370	17/19	17/19	116.0	116.0	192	176	192	3.5 #2.0	2.0	240	205	240	205	240	270	20	20	127	99	70	70	102	102	10	10	12	12											

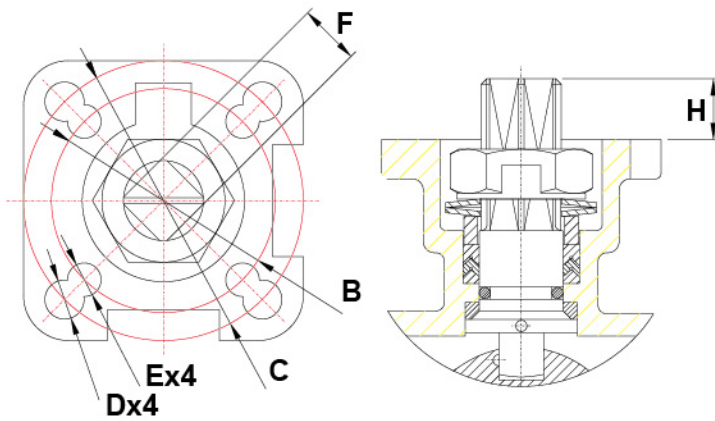
* L - Dimension for DIN 3202-M3 Length
 *L1 - Dimension for S13 Length

** Dimension For Round End Cap

@ Dimension for-PN40/PN16
 # Dimension For SCH.40

MARS TOP WORKS MAKE AUTOMATION AS EASY AS IT GETS

Dimension F: 17/19
Standard 17, Option 19



88 SERIES Standard

SIZE	ISO5211 DIN 3337	B Inner Holes PCD	C Outer Holes PCD	D Outer Holes DIA (Clearance)	E Inner Holes DIA (Clearance)	F Stem Square Across Flats	H Square H/T Above plate
1/4" - 1/2"	* F03/F04 * F03/F04/F05 * F04/F05	36	42	6	6	9	7.6
3/4"	* F03/F04 * F03/F04/F05 * F05/F07	36	42	6	6	9	8.6
1"	* F04/F05 * F05/F07	42	50	7	6	11	10.4
1-1/4"	F04/F05 * F05/F07	42	50	7	6	11	10.4
1-1/2"	F05/F07	50	70	9	7.5	14	13.4
2"	F05/F07	50	70	9	7.5	14	13.4
2-1/2"	F07/F10	70	102	12	10	17 19	16.8
3"	F07/F10	70	102	12	10	17 19	17.8
4"	F07/F10	70	102	12	10	17 19	16.8

- * Size 1/4" to 1/2" ISO 5211 standard configuration is F03/F04, F03/F04/F05 & F04/F05 as option.
- * Size 3/4" ISO 5211 standard configuration is F03/F04, F03/F04/F05 & F05/F07 as option.
- * Size 1" to 1 1/4" ISO 5211 standard configuration is F04/F05, F05/F07 as option.

MARS OPTIONAL VALVE ACCESSORIES INCREASE PRODUCTIVITY AND GIVE YOU MORE CONTROL OVER YOUR INDUSTRIAL PROCESS

SERIES 88

V-Control Ball Valves

Mars V-Control Ball valves match the control performance of globe valve, excellent for modulating service, but Mars V-Control ball valves are more compact, lighter weight, and much less expensive than globe valves.



30° V 60° V 90° V

30° V, 60° V, and 90° V are standard, others on request

Heating Jacket



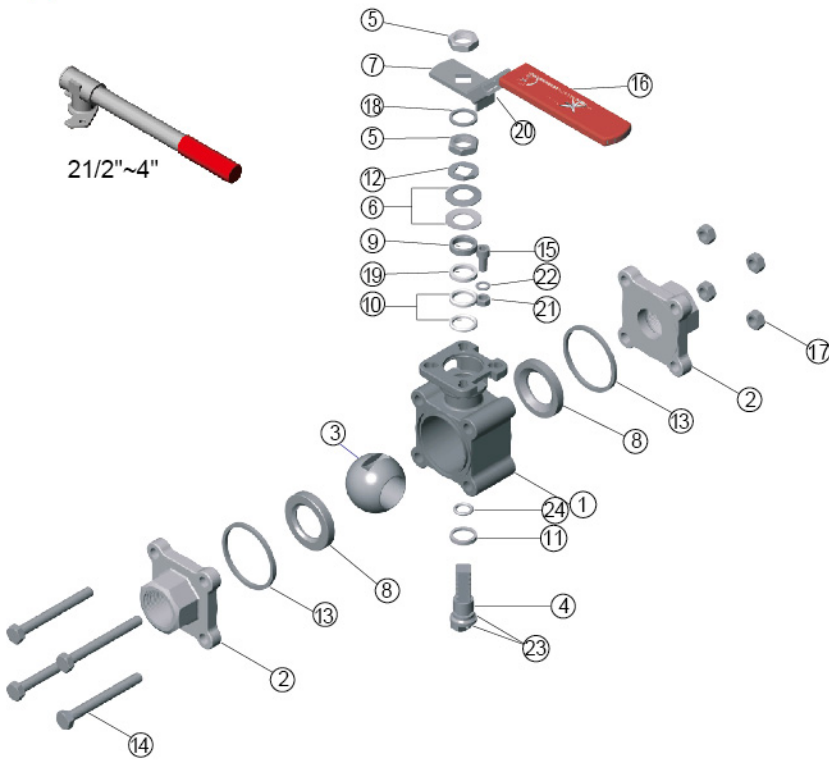
Jacket ball valve prevents solidification and blockage in use of hot water, steam, or other appropriate heating or cooling medium.

Diverter Ball Valves



For Diversion, Mixing, and Blending applications
Side Entry: T-Port, L-Port
Bottom Entry: T-Port, L-Port, LL-Port

MATERIALS LIST



NO.	PART NAME	MATERIAL	Q'TY
1	Body	CF8M / WCB	1
2	End Cap	CF8M ^W / WCB	2
3	Ball	SUS316 / CF8M	1
4	Stem	SUS316	1
5	Stem Nut	SUS 304	2
6	Belleville Washer	SUS 301	2
7	Handle	SUS 304	1
8	Seat	RPTFE	2
9	Gland	SUS 304	1
10	Stem Packing	PTFE	◆
11	Stem Seal	RPTFE	1
12	Lock Saddle	SUS 304	1
13	Joint Gasket	PTFE	2
14	Bolt	SUS 304	•
15	Stop Pin	SUS 304	1
16	Handle Sleeve	VINYL	1
17	Bolt Nut	SUS 304	f
18	Stem Washer	SUS 304	1
19	Stem Packing	25% Glass Fiber Filled + PTFE	1
20	Locking Device	SUS 304	1
21	Pin Nut	SUS 304	1
22	Washer	SUS 304	1
23	Antistatic - Device	SUS 316	@
24	O-RING	VITON	1

▣ Socket weld and Butt weld uses CF3M material
 • For 1/4"~2" -2pcs, 2 1/2"~4" -3pcs.
 * For 1/4" to 1" - 4pcs ; For 2"~4" - 6pcs
 f For 1/4" to 1" - 4pcs ; For 2"-6pcs, For 2"~4" - 12pcs
 @ 1/4"~1/2"-1pcs, 3/4"~4"-2pcs.
 Series 88 / 88A, Ball valve uses WCB material,
 For 4", bolt uses Ferritic Steels material, B7M
 (No.14 bolt B7M equipped with No.17 nut 2HM)

HOW TO ORDER 88-10 ST05B

88-10	F	05	S	T	B
VALVE	PORT TYPE	SIZE	BODY MATERIAL	SEAT MATERIAL	HANDLE STYLE
<input checked="" type="checkbox"/> 88-10	<input checked="" type="checkbox"/> F	<input type="checkbox"/> 01 1/4"	<input checked="" type="checkbox"/> S - CF8M	<input type="checkbox"/> P PTFE	<input type="checkbox"/> Std. handle
<input type="checkbox"/> 88-20	<input type="checkbox"/> R	<input type="checkbox"/> 02 3/8"	<input type="checkbox"/> W - WCB	<input type="checkbox"/> R R-TFE	<input type="checkbox"/> I - Investment Cast
<input type="checkbox"/> 88-30		<input type="checkbox"/> 03 1/2"	<input type="checkbox"/> L - CF3M	<input checked="" type="checkbox"/> T TFM1600	<input type="checkbox"/> O - Oval handle
<input type="checkbox"/> 88-50		<input type="checkbox"/> 04 3/4"	<input type="checkbox"/> D - Duplex	<input type="checkbox"/> S 50/50 S.S.+PTFE	<input type="checkbox"/> L - SRSL handle
<input type="checkbox"/> 88-70		<input checked="" type="checkbox"/> 05 1"	<input type="checkbox"/> T - Titanium	<input type="checkbox"/> M MG1241	<input type="checkbox"/> S - SRS handle
		<input type="checkbox"/> 06 1 1/4"	<input type="checkbox"/> A - Alloy 20	<input type="checkbox"/> C Carbon filled PTFE	<input checked="" type="checkbox"/> B - Bare shaft
		<input type="checkbox"/> 07 1 1/2"		<input type="checkbox"/> U UHMWPE	<input type="checkbox"/> G - Gear box
		<input type="checkbox"/> 08 2"		<input type="checkbox"/> K Peek	
		<input type="checkbox"/> 09 2 1/2"		<input type="checkbox"/> D Delrin	
		<input type="checkbox"/> 10 3"		<input type="checkbox"/> A Metal	
		<input type="checkbox"/> 11 4"			

Titanium BALL VALVES
Light weight, Excellent for Corrosion Resistance



Other special alloy available on request
Monel
Hastelloy C
Alloy 20
Duplex

(SRS) Spring Return Safety Handle



The SRS Handle is a spring energized handle, the ball valve will return to pre-determined closed (or open) position when an operator disengages from handle, provides safe and positive fail close or open operation, creating a reliable sampling, filling, dispensing, and pressure relief valve. Full S.S. construction provides excellent corrosion resistance for extended service life.

Mars "TSM" Unit
Adds Extra Safety and Long Service Life



- The TSM unit designed for possible fugitive emission to meet TA-Luft requirements for a safe and clean environment, provides a secondary stem seal for the valve stem, prolongs service life.
- The TSM unit can also function as stem extension for insulation.

MARS VALVE OFFERS SINGLE-RELIABLE-SOURCE FOR A COMPLETE LINE OF BALL VALVES, ACTUATORS, AND ACCESSORIES TO MEET YOUR VALVE AUTOMATION REQUIREMENTS.

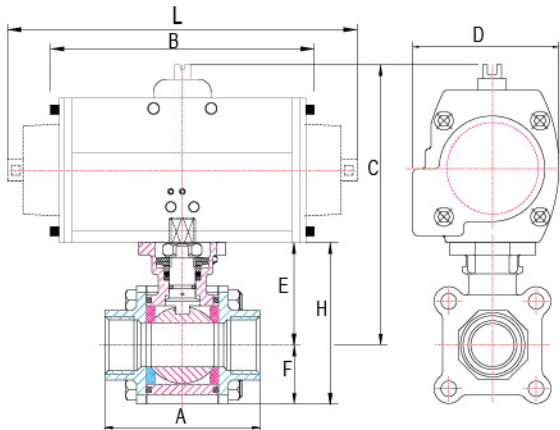
AirMars Pneumatic Actuators



Double-Acting (80 PSI)

Valve Size	A	B	C	D	E	F	H	Actuator	Wt		Remark
									Lbs.	Kg.	
1/4"	75	120	126.6	62.2	42.6	25.6	68.2	A-125	3.95	1.79	
3/8"	75	120	126.6	62.2	42.6	25.6	68.2	A-125	3.95	1.79	
1/2"	72.5	120	126.6	62.2	42.6	25.6	68.2	A-125	3.95	1.79	
3/4"	85.4	120	130.9	62.2	46.9	30.7	77.6	A-125	4.98	2.26	
1"	105.3	144.3	158.3	81.4	59.3	33.8	93.1	A-250	7.85	3.56	
1 1/4"	111	144.3	161.6	81.4	62.6	38.6	101.2	A-250	9.28	4.21	
1 1/2"	127.3	149.2	197	95	79	43.3	122.3	A-450	13.51	6.13	
2"	145	149.2	205.7	95	87.7	61.4 +64.5	149.1 +152.2	A-450	16.70 +18.93	7.57 +8.59	
2 1/2"	185	183	249.7	119	108.7	73.2 +78.5	181.9 +187.2	A-1000	30.80 +33.58	13.97 +15.23	
3"	205	183	258.7	119	117.7	84.3 +91	202 +208.7	A-1000	39.22 +41.60	17.79 +18.87	
4"	240	259.6	294.7	140.5	133.7	99 +107	232.7 +240.7	A-2250	66.78 +71.90	30.27 +32.59	+ □

*Round end cap



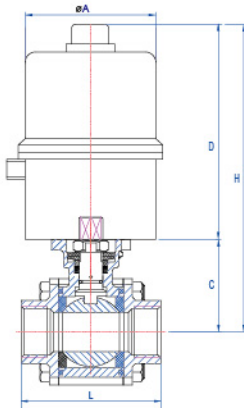
Spring-Return (80 PSI)

Valve Size	A	L	C	D	E	F	H	Actuator	Wt		Remark
									Lbs.	Kg.	
1/4"	75	194.6	141.6	81.4	42.6	25.6	68.2	A-250SR4	5.93	2.69	+ □ ISO F04
3/8"	75	194.6	141.6	81.4	42.6	25.6	68.2	A-250SR4	5.93	2.69	+ □ ISO F04
1/2"	72.5	194.6	141.6	81.4	42.6	25.6	68.2	A-250SR4	5.93	2.69	+ □ ISO F04
3/4"	85.4	194.6	145.9	81.4	46.9	30.7	77.6	A-250SR5	6.97	3.16	+ □ ISO F04
1"	105.3	205.6	177.3	95	59.3	33.8	93.1	A-450SR4	10.71	4.86	+ □
1 1/4"	111	250.0	203.6	119	62.6	38.6	101.2	A-1000SR4	17.21	7.81	+ □
1 1/2"	127.3	250.0	220	119	79	43.3	122.3	A-1000SR4	20.13	9.13	+ □
2"	145	250.0	248.7	119	87.7	61.4 +64.5	149.1 +152.2	A-1000SR4	25.50 +27.75	11.57 +12.59	+ □
2 1/2"	185	355.0	269.7	140.5	108.7	73.2 +78.5	181.9 +187.2	A-2250SR4	44.69 +47.47	20.27 +21.53	+ □
3"	205	422	313.7	185.2	117.7	84.3 +91	202 +208.7	A-3650SR4	70.73 +73.11	32.09 +33.17	+ □
4"	240	422	329.7	185.2	133.7	99 +107	232.7 +240.7	A-3650SR4	89.95 +95.07	40.77 +43.09	+ □

*Round end cap

& Air Supply 100 PSI

PowerMars Electric Actuators



Electric Actuator

VALVE SIZE	Electric Actuator	Flange Type	◆	øA	C	D	H	L	STEM	ISO 5211	Wt		Remark
											Lbs.	Kg	
1/4"	OM-1	F03/F05	14	106	42.6	150	192.6	75	9	F03/F04	6.16	2.79	+ □
3/8"	OM-1	F03/F05	14	106	42.6	150	192.6	75	9	F03/F04	6.16	2.79	+ □
1/2"	OM-1	F03/F05	14	106	42.6	150	192.6	72.5	9	F03/F04	6.16	2.79	+ □
3/4"	OM-1	F03/F05	14	106	46.9	150	196.9	85.4	9	F03/F04	7.19	3.26	+ □
1"	OM-1	F03/F05	14	106	59.3	150	209.3	105.3	11	F04/F05	8.74	3.96	+ □
1 1/4"	OM-1	F03/F05	14	106	62.6	150	212.6	111	11	F04/F05	10.17	4.61	+ □
1 1/2"	OM-A	F05/F07	17	106	79	196	275	127.3	14	F05/F07	15.29	6.93	+ □
2"	OM-A	F05/F07	17	106	87.7	196	283.7	145	14	F05/F07	16.24 +18.50	7.37 +8.39	+ □
2 1/2"	OM-2	F07	22	181	108.7	255	363.7	185	17	F07/F10	46.93 +49.71	21.27 +22.53	+ □
3"	OM-3	F07	22	181	117.7	255	372.7	205	17	F07/F10	50.70 +57.74	25.70 +26.17	+ □
4"	OM-3	F07	22	181	133.7	255	388.7	240	17	F07/F10	74.51 +79.63	33.77 +36.09	+ □

*Round end cap

Automation Accessories

MARS SOLENOID VALVES



LIMIT SWITCHES



MARS OEM PRODUCTS

DOUBLE BLOCK AND BLEEDING BALL VALVES



MARS VALVE CO., LTD.
 TRANSWORLD STEEL ENT.CO., LTD.
 NO.83, SEC.1, CHUNG-DE 8th ROAD,
 TAICHUNG. 406, TAIWAN R.O.C.
 TEL: +886-4-2246 3808
 FAX: +886-4-2247 0912
 E-mail: mars@marsvalve.com.tw
 http://www.marsvalve.com.tw

Distributed by: