



**Mars Valve – Leading the Industry
Partnering with you**

SERIES 77



SIL 3 Certified

**High Performance
3-Piece Ball Valve
Direct Mount of Actuators**



TA-Luft
&
ISO 15848-1



**Mars Direct Mount Ball Valves, Easy to Automate!
Full Port**

Size Range: (1/4" – 4" / DN 8 – DN 100)

Pressure Rating: 1000 PSI max.

Body, end caps: CF8M / 1.4408, WCB / 1.0619,
CF3M / 316L, Duplex, Hastelloy C

Seats: RTFE standard, various options are available:
PTFE, TFM 1600, CTFE (25% Carbon / 75%PTFE),
UHMWPE, 50/50 S/S filled PTFE, MG1241

End Connections:

Threaded, Socket Weld, Butt Weld, Flanged,
Butt Weld SCH 40, ISO 1127, SMS3008, EN12627.
Tube(ISO), Extended Butt Weld

Compliance Standard:

NPT ASME B1.20.1, BSPP ISO 228-1, BSPT ISO 7-1,
DIN2999
SOCKET WELD ASME B16.11
BUTT WELD ASME B16.25
Flanged EN1092-1, ASME B16.5
ISO 5211, ISO 5209, EN 10204-3.1

Quality Assurance: ISO 9001

Inspection and Test: API 598

**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

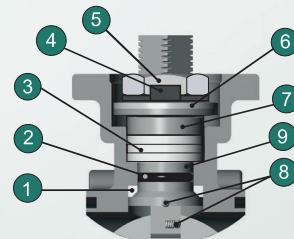
Second stage of defense against leakage. Enhances stem
seal and maintains stem alignment, provides extra longer
service life.

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

Stem-to-Ball and Stem-to-Body as standard.

9. Super Smooth Stem Finish

Reduces seal friction and operating torque, prolongs service life.

Breakaway Torque (RTFE) & Cv Value

SIZE.	DN	Inch-Lb	Nm	Cv	Kv-m ³ /h
1/4"	8	58	7	7	6
3/8"	10	58	7	8	7
1/2"	15	58	7	15	13
3/4"	20	69	8	40	34
1"	25	127	14	70	60
1.1/4"	32	173	20	110	94
1.1/2"	40	253	29	250	213
2"	50	323	36	430	366
2.1/2"	65	518	59	700	595
3"	80	806	91	1100	935
4"	100	1014	114	2000	1700

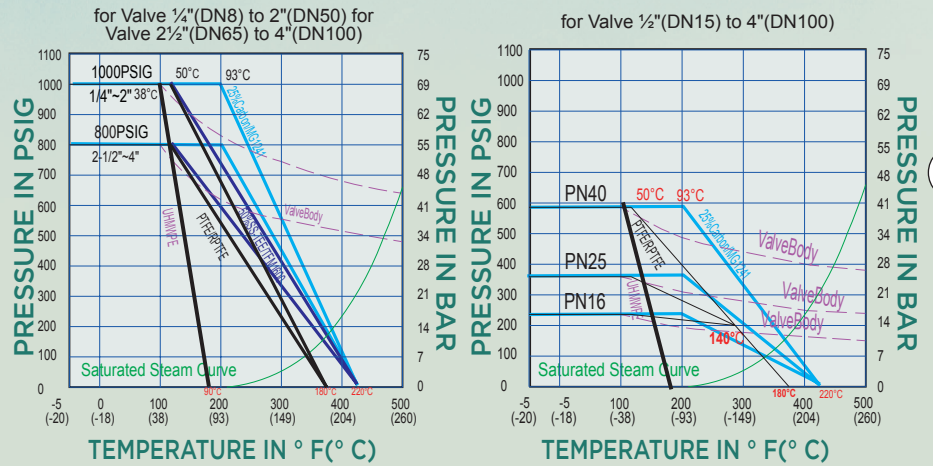
Break Away Torque

30% safety factor included.

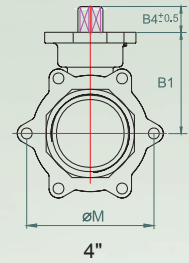
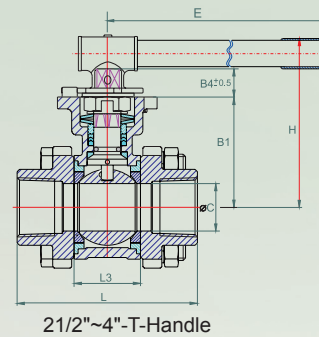
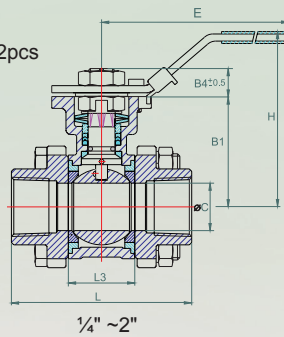
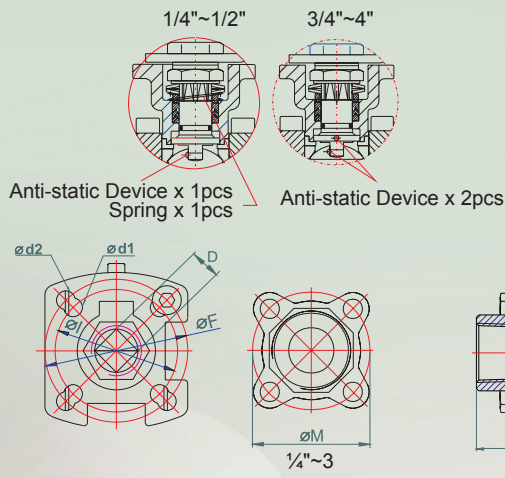
Standard Mars valves are assembled with silicon-free based in lubricant.

Torque for dry assembled valves, please consult factory.

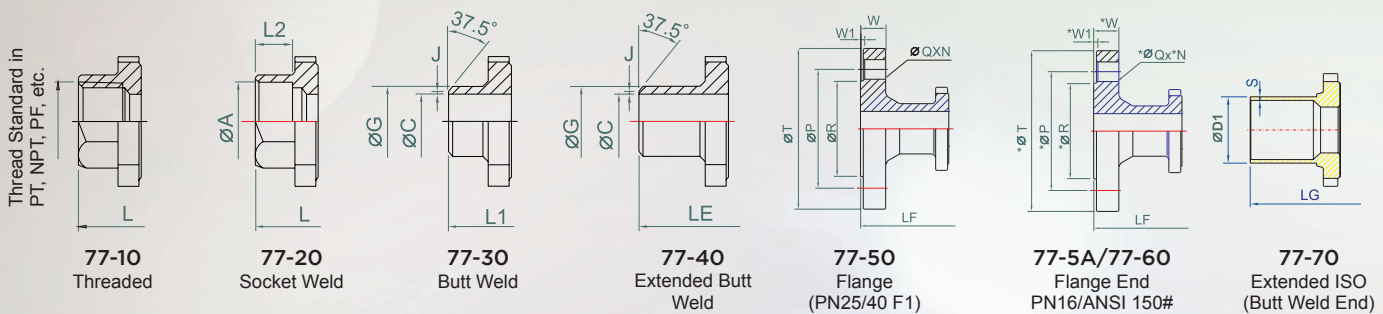
Pressure Vs. Temperature Chart



Dimensions(mm)



End Cap Options



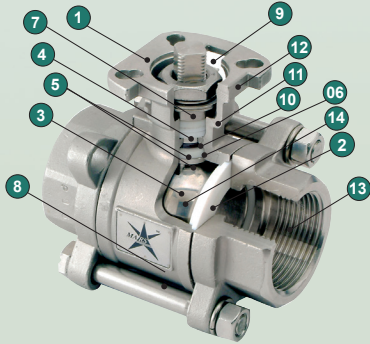
SIZE	ØA	B1	B4±0.5	ØC	D	E	@E	ØG	H	@H	@d1	@d2	ØI	ØF	J	*L	L	L1	*L1	L2	L3	LE	ØM
1/4"	14.3	42.1	6.1	11.6	9.0	139		16.2	77		6	6	36	42	1.6	60	63.7	62.7	70	10	23.6	225	46
3/8"	17.6	42.1	6.1	12.7	9.0	139		17.5	77		6	6	36	42	1.6	60	63.7	62.7	70	10	23.6	225	46
1/2"	21.9	42.1	6.1	15.0	9.0	139	185	22.7	77	74	6	6	36	42	1.6	75	65.7	65.7	75	10	23.6	225	46
3/4"	27.3	48.0	6.6	20.0	9.0	139	185	27.5	83	90	6	6	36	42	1.6	80	76.2	76.2	90	13	28	225	52
1"	33.9	56.6	10.9	25.0	11.0	165	212	34	96	101	6	7	42	50	1.6	90	86.2	86.2	100	13	33.9	245	60
1 1/4"	42.8	60.9	10.9	32.0	11.0	165	212	42.7	100	108	6	7	42	50	1.6	110	102.8	102.8	110	13	42.5	255	73.5
1 1/2"	48.9	77.5	13.9	38.0	14.0	215	262	48.6	127	127	7.5	9	50	70	1.6	120	119.4	119.4	125	13	53.2	260	85.5
2"	61.3	85.2	13.9	50.0	14.0	215	262	60.5	134	134	7.5	9	50	70	1.6	140	131.4	131.4	150	16	64.6	275	103.8
2 1/2"	ANSI 74 PN 76.9	108.7	16.8	65.0	17 19	300	300	76.3	167	167	10	12	70	102	2	185	164	164	190	16	87	334	130
3"	90.0	117.7	17.8	80.0	17 19	370	370	90.0	176	176	10	12	70	102	2	205	182.7	182.7	220	16	99	354	155.5
4"	115.5	132.55	17.8	100	17 19	370	370	116.0	192	192	10	12	70	102	3.5	240	235.6	236.2	270	20	127	365	188

* L - Dimension for DIN 3202-M3 Length

*L1 - Dimension for S13 Length

Dimension D: 17/19 Standard 17, Option 19

Design Features



1. 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.

2. Seats

Features with relief slots to relieve pressure in upstream, reducing seat wear and valve torque. Various materials available to suit all applications.

3. 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.

4. Blow-Out Proof Stem

Prevents stem from blowing out, for maximum safety.

5. Anti-Static Device

Standard applied to ball-to-stem and stem-to-body.

6. MARS SealMax® Stem Design

Provides optimum stem seal and extremely high cycle life.

7. Super Smooth Stem Surface

Reduces seal friction and operating torque, prolongs service life.

8. 3-Piece Swing-Out Design

Fast and simple inline maintenance.

9. Patented Leak-Watching Window

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

10. O-ring Stem Seal

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

11. Extended Valve Neck

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

12. Locking Device Standard

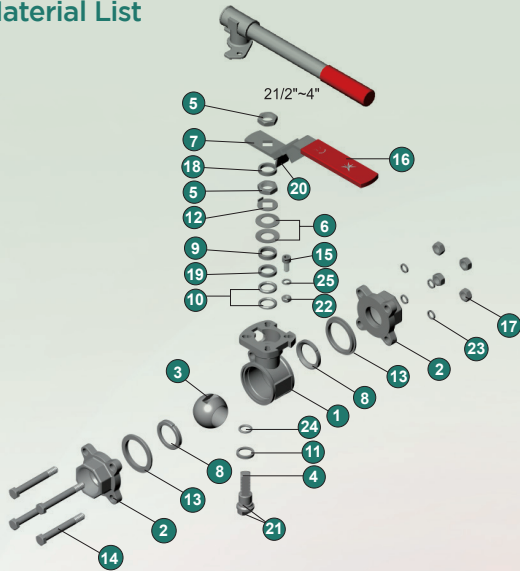
13. Stainless Steel Welded Ends in CF3M standard

Reduces inter-granular corrosion in welding.

14. Floating Ball

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

Material List



NO.	PART NAME	MATERIAL	QTY
1	Body	CF8M / WCB	1
2	End Cap	CF8M/ WCB	2
3	Ball	SUS316 / CF8M	1
4	Stem	SUS 316	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 Bolt	SUS 304	1
16	Handle Sleeve	VINYL	1
17	Bolt Nut	SUS 304	†
18	Stem Washer	SUS 304	1
19	Stem Packing	25% Glass Fiber Filled + PTFE	1
20	Locking Device	SUS 304	1
21	Antistatic - Device	SUS 316	#
22	Stop Nut	SUS 304	1
23	Bolt Washer	SUS 304	†
24	O-RING	VITON	1
25	Washer	SUS 304	1

✕ Socket weld and butt weld uses CF3M material

§ For 1/4"~2"-2pcs, 2 1/2"~4"-3pcs.

* For 1/2" to 3"- 4pcs; For 4"- 6pcs

For 2" to 3"-4pcs of bolts

(double ends, external thread)

For 4"-6pcs of bolts

(double ends, external thread)

† For 1/4" to 2"- 4pcs; For

2 1/2"~3"-8pcs, For 4"-12pcs.

1/4"~1/2"- 1pcs, 3/4"~4"-2pcs.

Series 77 Ball valve uses WCB material, For 2" - 4", bolt uses Ferritic Steels material, B7 (No.14 bolt B7 equipped with No.17 bolt nut 2H)

Series 77 High Performance V-Port Control Ball Valves

Mars V-Port ball valves are used for control the flow. It delivers a precise flow control while retaining the durability and tight shutoff characteristics of a ball valve, excellent for regulating service. It is a compact and economical solution compared to traditional systems.

Available in 30°, 60°, and 90° V-notch configurations. Mars V-Port ball valves feature an integrated V-notch machined directly into the ball, not a seat insert, this design not only improves flow characteristics but also eliminates the need for frequent seat replacement.

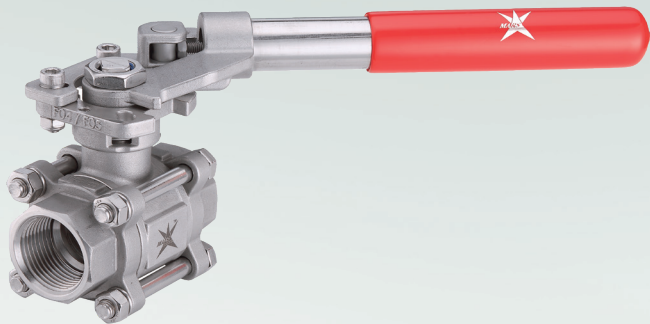


	LF	N	ØP	ØQ	ØR	ØT	W	W1	LF	*N	*ØP	*ØQ	*ØR	*ØT	*W	*W1	LF	*N	*ØP	*ØQ	*ØR	*ØT	*W	*W1	ØD1	LG	S	Wt(kg)	ISO5211
	PN25/40(77-50)								PN16(2 1/2"~4")77-5A								ANSI 150#(1/2~4")77-60											0.63	F03/F04 **F03/F04/FO5
																									17.2	120.2	1.6	0.63	F03/F04 **F03/F04/FO5
	130	4	65	14	45	95	16	2									127	4	60.5	16	35.1	88.9	11.2	1.6	21.3	140.2	1.6	0.66	F03/F04 **F03/F04/FO5
	150	4	75	14	58	105	18	2									140	4	69.9	16	42.9	98.6	11.2	1.6	26.9	140	1.6	0.82	F03/F04 **F03/F04/FO5
	160	4	85	14	68	115	18	2									154	4	79.2	16	50.8	108	11.5	1.6	33.7	152.2	1.8	1.25	F04/F05
	180	4	100	18	78	140	18	2									172	4	88.9	16	63.5	117.3	13.1	1.6	42.4	165.1	2	1.94	F04/F05
	200	4	110	18	88	150	18	3									186	4	98.6	16	73.2	127	14.6	1.6	48.3	190.4	2	3.15	F05/F07
	230	4	125	18	102	165	20	3									213.8	4	120.7	19	91.9	152.4	15.9	1.6	60.3	203	2.5	4.56	F05/F07
	290	8	145	18	122	185	22	3	290	4	145	18	122	185	18	3	245	4	139.7	19	104.6	177.8	17.6	1.6	76.1	254	3	9.01	F07/F10
	310	8	160	18	138	200	24	3	310	8	160	18	138	200	20	3	261.6	4	152.4	19	127	190.5	19.1	1.6	88.9	280.2	3	12.3	F07/F10
	350	8	190	22	162	235	24	3	350	8	180	18	158	220	20	3	348	8	190.5	19	157.2	228.6	23.9	1.6	114.3	317	3	21.54	F07/F10

** Size 1/4" to 3/4" ISO 5211 standard configuration is F03/F04, and for your convenience the F03/F04/F05 is available as option.

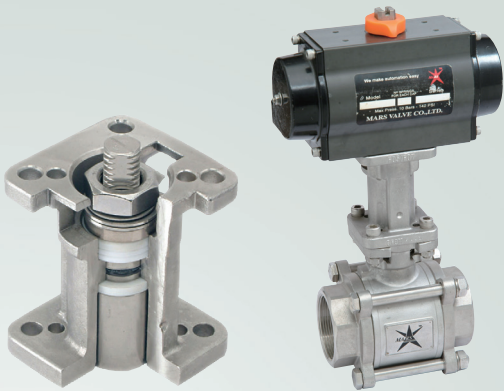
@ Dimension for PN40/PN16/ANSI 150#

Spring Return Safety Handle (SRS 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.

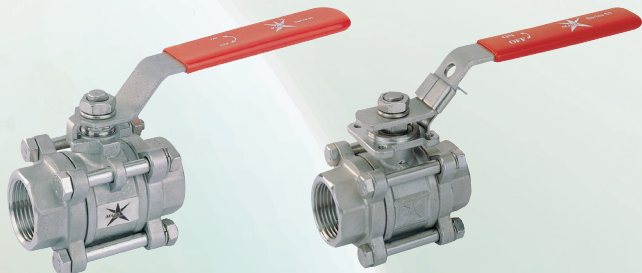
Series 77 With MARS TSM Unit



The TSM unit designed for possible Fugitive emission, provides a secondary stem seal to prolong service life.

The TSM unit can also function as stem extension for insulation.

Series 77 Interchangeability

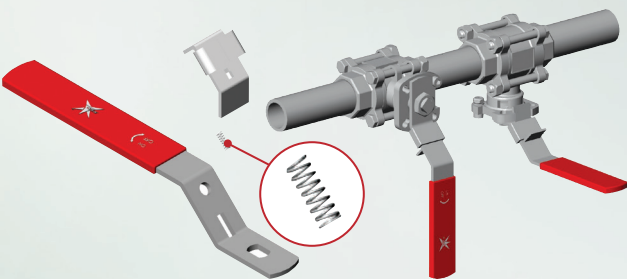


Series 50

Series 55

Valve Ball, Seats, and Seals, and End Caps of Series 77 are the same as Mars Series 50 and Series 55 valves, they are interchangeable, reduces your parts inventory.

Spring Return Sliding Lock Handle (SRSL)



Regardless of the orientation of the ball valves, the SRSL handle always secures handle in position, making valve operation safe.

HOW TO ORDER ■ 77-10 SR05B

77-10 VALVE	S BODY MATERIAL	R SEAT MATERIAL	05 SIZE	B HANDLE STYLE
■ 77-10 Threaded	■ S - CF8M	□ P - PTFE	□ 01) 1/4"	□ Std. handle
□ 77-20 Socket Weld	□ W - WCB	■ R - RTFE	□ 02) 3/8"	□ I - Investment Cast
□ 77-30 Butt Weld	□ L - CF3M	□ T - TFM1600	□ 03) 1/2"	□ O - Oval handle
□ 77-40 Extended Butt Weld	□ A5 - Duplex	□ S - 50/50 S.S.+PTFE	□ 04) 3/4"	□ L - SRSL handle
□ 77-50 PN25/40 Flange	□ T - Titanium	□ M - MG1241	■ 05) 1"	□ S - SRS handle
□ 77-5A PN16 Flange		□ C - Carbon filled PTFE	□ 06) 1 1/4"	■ B - Bare shaft
□ 77-60 ANSI#150 Flange		□ U - UHMWPE	□ 07) 1 1/2"	□ G - Gear box
□ 77-70 Tube(ISO) Butt Weld			□ 08) 2"	
			□ 09) 2 1/2"	
			□ 10) 3"	
			□ 11) 4"	



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