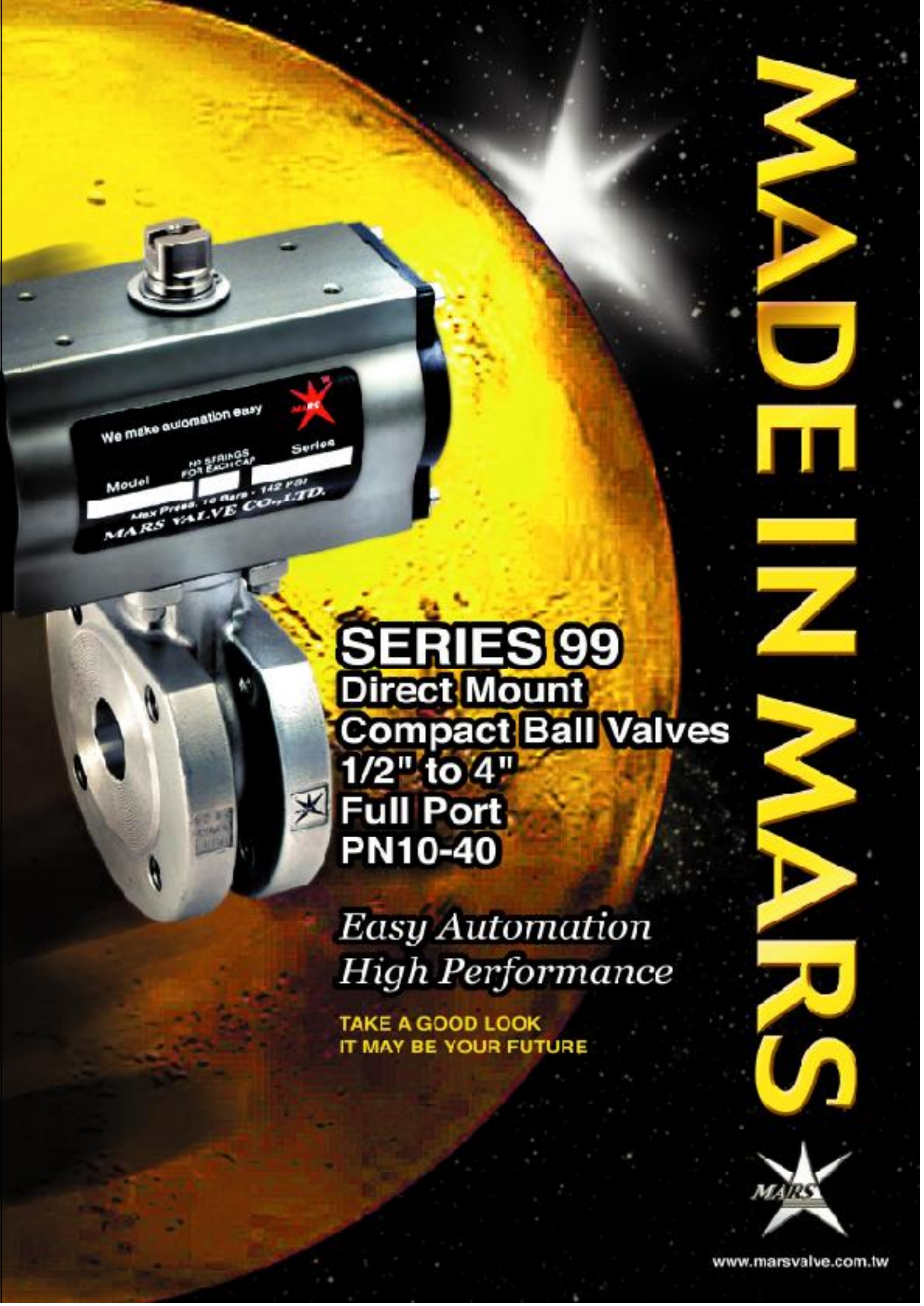
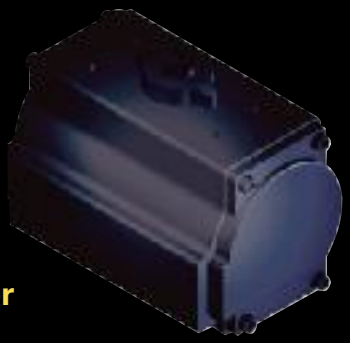

We make automation easy
Model
NO SPRINGS FOR EACH CAP
Series
MARS VALVE CO.,LTD.
SERIES 99
Direct Mount
Compact Ball Valves
1/2" to 4"
Full Port
PN10-40
Easy Automation
High Performance
TAKE A GOOD LOOK
IT MAY BE YOUR FUTURE
MADE IN MARS
MARS
www.marsvalve.com.tw

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:



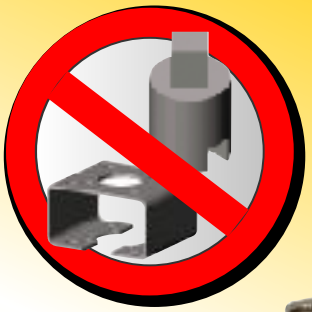
- A simple misalignment of the bracket and adapter can cause excessive wear and high torque than expected, this can result in stem leakage or valve stall.
- A warped bracket, however slightly, or the bolt drillings lose center, stem side loading can occur.
- If the adapter is too long and bracket bolts 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.

U.S. Patent 5,954,088
Germany Patent 299.02.532.2
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 COSTS.



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.

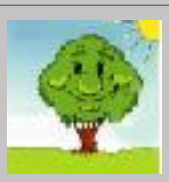
■

SERIES 99 Direct Mount High Performance Compact Ball Valves

Construction:	One-Piece Investment Cast Construction, Full Port
Size Range:	1/2" to 4" (DN 15 to DN 100)
Pressure Rating:	PN 10 - 40
Valve Material:	Standard: ASTM A351 Gr. CF8M / DIN 1.4408 Options: WCB, 316L S/S, Titanium, Duplex S/S, 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:	DIN3337, DIN 3202, DIN 2501, ISO 5211, MSS SP25, MSS SP55 BS 5351, BS6755.
Material Certificate:	EN 10204 - 3.1
Quality System:	ISO 9001
NACE MR - 0175	The rugged, high performance Series 99 ball valves meet requirement for oil and gas pipeline service and meet NACE specification MR - 0175 for sour gas.

APPROVALS:

CE 0035
PED/97/23/EC
Category III
Module H



TA-Luft

II 2 GD
ATEX 94/9/EC

MATERIALS OF CONSTRUCTION

MATERIALS LIST

NO.	PART NAME	MATERIAL	Q'TY	NO	PART NAME	MATERIAL	Q'TY
1	Body	1.4408 GS-C25	1	12	Belleville Washer	SUS 301	2
2	End Cap	1.4408 GS-C25	1	13	Stop Washer	SUS 304	1
3	Ball	SUS 316	1	14	Stem Nut	SUS 304	2
4	Seat	PTFE/RPTFE	2	15	Stem Washer	SUS 304	1
5	Joint Gasket	PTFE	1	16	Handle	SUS 304	1
6	Joint Gasket	PTFE	1	17	Locking Device	SUS 304	1
7	Stem Seal	RPTFE	1	18	Handle Sleeve	VINYL	1
8	Stem	SUS 316	1	19	Stop Pin	SUS 304	1
9	Gland Packing	PTFE	*	20	Pin Nut	SUS 304	1
10	Gland Packing	25% Glass Fiber Filled + PTFE	1	21	Antistatic - Device	SUS 304	2
11	Gland Bush	SUS 304	1	22	O-Ring	VITON	1

* For 1/2"~2"-2pcs,
For 21/2"~4"-3pcs

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

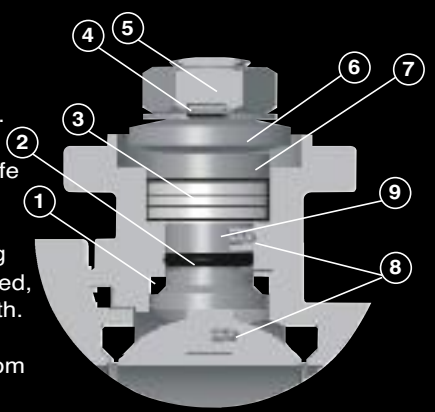
1. Pyramidal Stem with Stem Seal
First stage of defense against leakage. The 45° slope of the stem accompany the stem seal effectively blocks all leak path during rotation.

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.

MARS SERIES 99 DIRECT MOUNT COMPACT BALL VALVES OFFER ADVANTAGE WELL BEYOND FOLLOWERS

1. Dual Pattern ISO 5211 Mounting Pad With Square Shaft
No bracket and adapter are required for actuator mounting, provides easy and low cost automation with improved cycle life.

2. MARS SealMax® Stem Design
Provides optimum stem seal and extremely high cycle life

3. Patented Leak-Watching Window
Standard on Mars Direct Mount Ball Valves, for an early warning of stem leak, prevents accident and business disruption costs.

4. Blow-Out Proof Stem

5. O-Ring Stem Seal
Enhances stem wear and maintains stem alignment

6. Super smooth stem surface
Reduces seal fricition and operating torque

7. Locking Device Standard

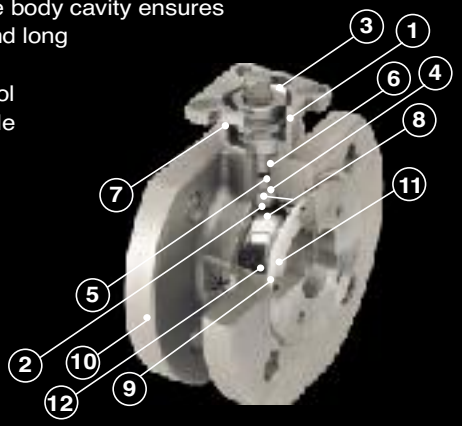
8. Anti-Static Device
Standard applied to stem-to-ball and stem-to-body

9. Fully Encapsulated Body Seals
Maintains sealing integrity from high vacuum to high pressure and temperature applications.

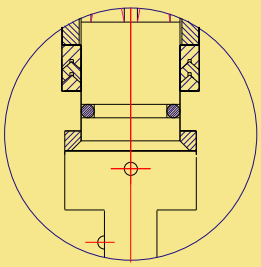
10. Compact design for space and weight savings

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

12. Ball
- Precisely machined, mirror finished ball surface 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
- **V-PORT** control valves available



DIMENSIONS(mm)



A-VIEW

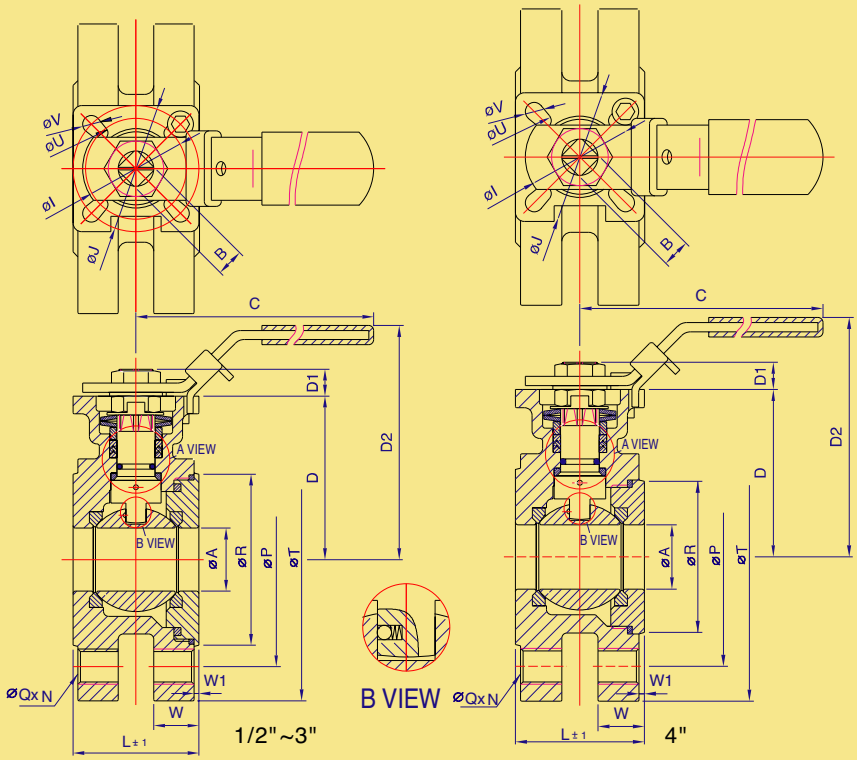


FIG.99-10 PN 10/16 & FIG. 99-20 PN 25/40 *99-20

SIZE	⌀A	B	C	D	D1	D2	⌀ I	⌀J	L	N	* N	⌀ P	Q	⌀ R	⌀ T	W	W1	⌀U	⌀V	Wt(Kg)	ISO5211
DN15	15	9	139	48.7	7	85	36	42	40.8	4	4	65	M12	45	82	16	2	6	6	1.3	F03/F04
DN20	20	9	139	53.7	8	90	36	42	44	4	4	75	M12	58	98.6	18	2	6	6	1.96	F03/F04
DN25	25	11	165	65	12	104	40	50	50	4	4	85	M12	68	115	18	2	6	7	2.8	F04/F05
DN32	32	11	165	77	11.3	116	40	50	60	4	4	100	M16	78	140	18	2	6	7	4.15	F04/F05
DN40	38	14	215	85.5	15.5	135	50	70	65	4	4	110	M16	88	150	18	3	7.5	9	5.25	F05/F07
DN50	50	14	215	93	16	142	50	70	80	4	4	125	M16	102	165	18	3	7.5	9	6.66	F05/F07
DN65	65	17	263	109.7	15.8	168	70	102	110	4	8	145	M16	122	185	22	3	10	12	11.88	F07/F10
DN80	80	17	313	119.5	16	178	70	102	120	8	8	160	M16	138	200	24	3	10	12	14.9	F07/F10

FIG.99-10 PN 10/16 & FIG. 99-20 PN 25/40 *99-20

SIZE	⌀A	B	C	D	* D	D1	D2	* D2	⌀ I	⌀J	L	N	⌀ P	*⌀P	⌀Q	*⌀Q	⌀ R	*⌀R	⌀ T	*⌀T	W	* W	W1	⌀U	⌀V	Wt(Kg)	ISO5211
DN100	100	17	344	131.7	132.7	17.8	190	191	70	102	150	8	180	190	M16	M20	158	162	220	235	20	24	3	10	12	20.38	F07/F10

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

SERIES 99
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, and 90°V are standard, others on request

SERIES 99
with HEATING JACKET

SERIES 99
with METAL SEATS

Bubble Tight Shut-Off

- Ball and Seat material: 316 S/S
- Chrome Carbide Ball and Stem: Hardness 63 to 65 Rc
- Tungsten Carbide Ball and Stem: Hardness 70 to 74 Rc

SERIES 99
Titanium BALL VALVES

Light weight, Excellent for Corrosion Resistance

Other special alloy available on request

Monel
Hastelloy C
Alloy 20
Duplex

SERIES 99
With (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.

SERIES 99
With Mars "TSM" unit

Adds Extra Safety and Long Service life

TSM Design Advantages:

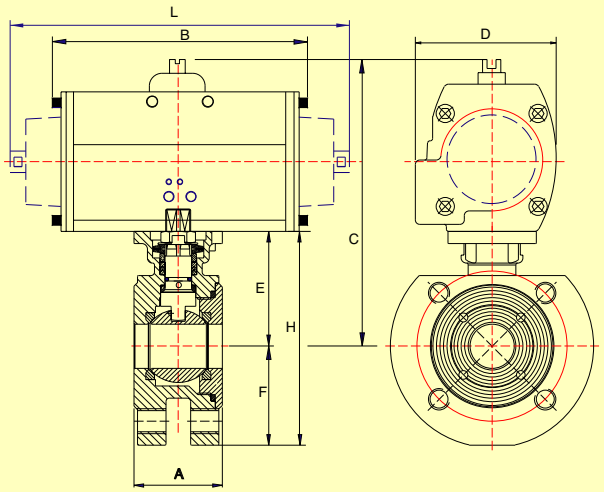
- The TSM unit designed for possible fugitive emission to meet TA-Luft requirements for a safe and clean environment, and provides a secondary stem seal for the valve stem, prolongs service life.
- Function as stem extension for insulation.
- Cast bosses for monitoring device

SPRING RETURN SLIDING LOCK(SRSL) HADLE

No matter the orientation of the ball valves, the SRSL handle always secures handle in position, making valve operation safe.

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

Series 99 Compact ball Valves with AirMars Pneumatic Actuators



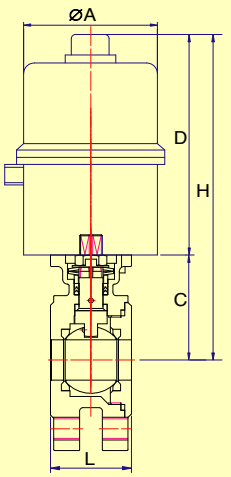
Double-Acting PN16

Valve Size	A	B	C	D	E	F	H	Actuator	Wt Lbs.	Wt Kg.
1/2"	40.8	120	132.7	62.2	48.7	40.4	89.1	A-125	4.85	2.2
3/4"	44	120	137.7	62.2	53.7	49.3	103	A-125	6.31	2.86
1"	50	144.3	164	81.4	65	56.0	121	A-250	9.27	4.20
11/4"	60	144.3	176	81.4	77	68.0	145	A-250	12.24	5.55
11/2"	65	149.2	203.5	95	85.5	73.5	159	A-450	15.58	7.06
2"	80	149.2	211	95	93	80.5	173.5	A-450	18.69	8.47
21/2"	110	183	250.7	119	109.7	90.5	200.2	A-1000	32.87	14.90
3"	120	183	260.5	119	119.5	95	214.5	A-1000	39.40	17.86
4"	150	183	272.7	119	131.7	104	235.7	A-1000	51.21	23.21

Spring-Return PN16

Valve Size	A	L	C	D	E	F	H	Actuator	Wt Lbs.	Wt Kg.
1/2"	40.8	194.6	147.7	81.4	48.7	40.4	89.1	A-250SR4	6.84	3.10
3/4"	44	194.6	152.7	81.4	53.7	49.3	103	A-250SR4	8.30	3.76
1"	50	205.6	183	95	65	56.0	121	A-450SR4	12.13	5.50
11/4"	60	205.6	195	95	77	68.0	145	A-450SR4	15.11	6.85
11/2"	65	250.0	226.5	119	85.5	73.5	159	A-1000SR4	22.20	10.06
2"	80	250.0	234	119	93	80.5	173.5	A-1000SR4	25.31	11.47
21/2"	110	355.0	270.7	140.5	109.7	90.5	200.2	A-2250SR4	46.77	21.20
3"	120	355.0	280.5	140.5	119.5	95	214.5	A-2250SR4	53.30	24.16
4"	150	355.0	292.7	140.5	131.7	104	235.7	A-2250SR4	65.11	29.51

Series 99 Compact Ball Valves with PowerMars Electric Actuators

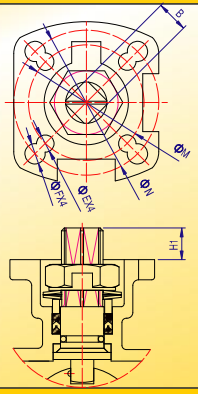


PN16

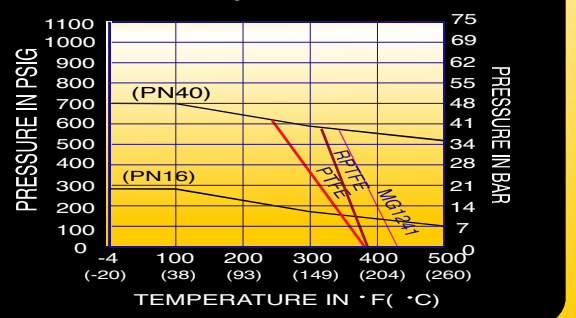
VALVE SIZE	Electric Actuator	Flange Type	◇	A	C	D	H	L	◇ STEM	ISO 5211	Lbs.	Kg
1/2"	OM-1	F03/F05	14	114	48.7	155	203.7	40.8	9	F03/F04	7.06	3.2
3/4"	OM-1	F03/F05	14	114	53.7	155	208.7	44	9	F03/F04	8.52	3.86
1"	OM-1	F03/F05	14	114	65	155	220	50	11	F04/F05	10.15	4.6
11/4"	OM-1	F03/F05	14	114	77	155	232	60	11	F04/F05	13.13	5.95
11/2"	OM-1	F03/F05	14	114	85.5	155	240.5	65	14	F05/F07	15.14	6.86
2"	OM-A	F07	17	114	93	203	296	80	14	F05/F07	20.45	9.27
21/2"	OM-2	F07	22	180	109.7	255	364.7	110	17	F07/F10	48.98	22.2
3"	OM-2	F07	22	180	119.5	255	374.5	120	17	F07/F10	55.51	25.16
4"	OM-3	F07	22	180	131.7	255	386.7	150	17	F07/F10	67.31	30.51

Series 99 Top Work Dimensions(mm)

SIZE	B	H1	ØM	ØN	ØE	ØF	ISO5211
1/2"	9	7	36	42	6	6	F03/F04
3/4"	9	8	36	42	6	6	F03/F04
1"	11	12	40	50	6.	7	F04/F05
11/4"	11	11.3	40	50	6	7	F04/F05
11/2"	14	15.5	50	70	7.5	9	F05/F07
2"	14	16	50	70	7.5	9	F05/F07
21/2"	17	15.8	70	102	10	12	F07/F10
3"	17	16	70	102	10	12	F07/F10
4"	17	17.8	70	102	10	12	F07/F10



Pressure Vs. Temperature Chart



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SMARS 99-03.2006-3.0