



SERIES 94D

**Direct Mount
Flanged Ball Valves
1/2" to 4" Full Port
PN 10/16
ANSI #150
JIS 10K**

**Take a
Good Look
It May Be
Your Future**

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MARS



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

SERIES 94D DIRECT MOUNT FLANGED BALL VALVES



- Construction** Split-Body Flanged Ball Valves, Full Port
- Size Range** 1/2" to 4", DN 15 to DN 100
- Pressure Rating** FIG. 94D-10 ANSI 150#
FIG. 94D-30 PN 10/16 DIN 3202 F1 - EN 558-1-1
FIG. 94D-40 PN 10/16 DIN 3202 F4/F5 - EN 558-1-27
FIG. 94D-70 JIS 10K
- Valve Material** Standard: ASTM A351 Gr. CF8M / DIN 1.4408, Carbon Steel
Options: Hastelloy C, Alloy 20, Monel, Duplex S/S....etc.
- Seat Material** Standard: R-TFE / PTFE
Options: TFM1600, PEEK, UHMWPE.....etc.
- Inspection and Test** API 598, BS6755 Part 1
- Compliance Standards** ANSI B16.34, ANSI B16.5, ANSI B16.10, API 509, API 607, BS5351, BS6755, ISO 5211, DIN 3337, DIN 3202, DIN 2501, MSS SP25, MSS SP55, JIS B2002, JIS B2212, JIS B2003
- Material Certificate** EN 10204 - 3.1
- Quality System** ISO 9001
- Options**
 - Fire-safe design compliance with API 607

DESIGN FEATURES

- Direct-mounting of actuator to valves, no brackets and adapter are required, provides easy and low cost automation.
- Investment cast body construction
- Manual and automated service
- Life-loaded & self-adjusting stem sealing design offers extra longer cycle life
- Blow-out proof stem prevents stem from blowing out, for maximum safety

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

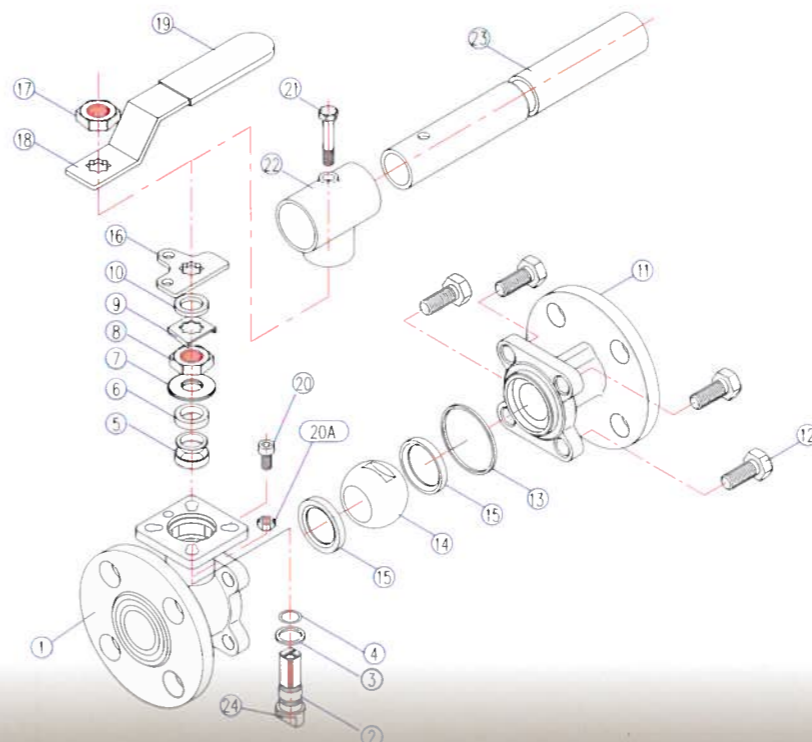


The new way of mounting actuator is the Direct Mount Configuration, it is designed to overcome the problems of conventional actuator mounting. This design allows an actuator bolted directly to the top of ball valves for greater reliability, easy installation and improved cycling life.

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.

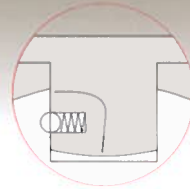
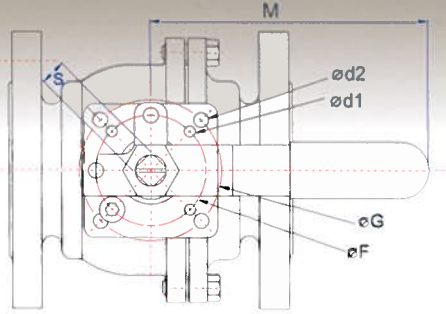
MATERIALS LIST 1/2" - 4"



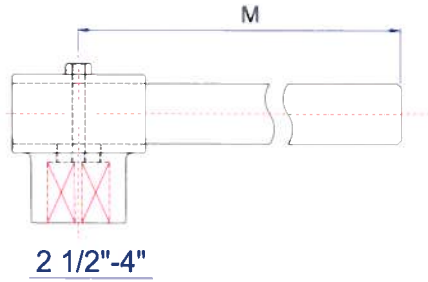
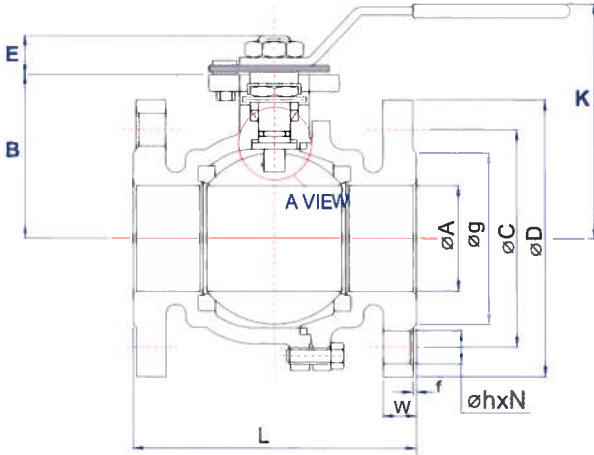
NO.	PART NAME	MATERIAL		QTY
		Stainless Steel	Carbon Steel	
1	Body	CF8M / 1.4408	WCB / 1.0619	1
2	Stem	SS 316	SS 304	1
3	Stem Seal	RPTFE	RPTFE	1
4	O-RIG	VITON	VITON	1
5	Stem Packing	GRAPHITE	GRAPHITE	2
6	Gland	SS 304	SS 304	1
7	Belleville Washer	SS 301	SS 301	2
8	Stem Nut	SS 304	SS 304	1
9	Nut Lock	SS 304	SS 304	1
10	Space Washer	SS 304	SS 304	1
11	Flange End	CF8M / 1.4408	WCB / 1.0619	1
12	Bolts	SS 304	SS 304	*
13	Gasket	PTFE	PTFE	1
14	Ball	SS 316	SS 304	1
15	Ball Seat	PTFE / RPTFE	PTFE / RPTFE	2
16	Stopper	SS 304	SS 304	1
17	Handle Nut	SS 304	SS 304	1
18	Handle	SS 304	SS 304	1
19	Handle Sleeve	VINYL	VINYL	1
20	Position Pin	SS 304	SS 304	1
20A	Pin Nut	SS 304	SS 304	1
21	Set Bolt	SS 304	SS 304	1
22	Lever Head	CF8	CF8	1
23	Lever	STEEL PIPE	STEEL PIPE	1
24	Anti-Static Device	SS 316	SS 316	1

* For 1/2"-11/2"-4pcs; 2"-21/2"-6pcs;
For 3"-8pcs; 4"-10pcs.

DIMENSIONS(mm)



A VIEW



94D-10 (ANSI CLASS 150)

SIZE	øA	B	E	L	S	K	M	øF	øG	ød1	ød2	END FLANGE (ANSI 150)							Wt(kg)	ISO5211
												øD	øC	øh	øg	N	W	f		
½"	15.0	48	11	108	9	80	130	36	42	6	6	89	60.5	16	35	4	11.5	1.6	1.73	F03/F04
¾"	20.0	53	11	117	9	80	130	36	42	6	6	98	70	16	43	4	11.5	1.6	2.13	F03/F04
1"	25.0	59	14	127	11	90	165	42	50	6	7	108	79.5	16	51	4	11.5	1.6	2.92	F04/F05
1¼"	32.0	71	14	140	11	102	165	42	50	6	7	117	89	16	64	4	12.7	1.6	4.02	F04/F05
1½"	38.0	76	18	165	14	110	205	50	70	7	9.2	127	98.5	16	73	4	14.3	1.6	5.90	F05/F07
2"	50.0	85	18	178	14	120	205	50	70	7	9.2	152	120.5	19	92	4	15.9	1.6	8.72	F05/F07
2½"	65.0	93.5	23	190	17	140	300	70	102	9.2	11.4	178	139.5	19	105	4	17.8	1.6	13.33	F07/F10
3"	80.0	103	23	203	17	150	340	70	102	9.2	11.4	190	152.5	19	127	4	19.1	1.6	17.03	F07/F10
4"	100	132	25	229	22	180	420	102	125	11.4	13.5	229	190.5	19	157	8	24.0	1.6	28.98	F10/F12

94D-30(PN16) F1/ 94D-40 (PN16) F4

SIZE	øA	B	E	L(F4)	L(F1)	S	K	M	øF	øG	ød1	ød2	END FLANGE (PN16)							Wt(kg)	ISO5211
													øD	øC	øh	øg	N	W	f		
½"	15.0	48	11	115	130	9	80	130	36	42	6	6	95	65	14	45	4	14	2	2.13	F03/F04
¾"	20.0	53	11	120	150	9	80	130	36	42	6	6	105	75	14	58	4	14	2	2.85	F03/F04
1"	25.0	59	14	125	160	11	90	165	42	50	6	7	115	85	14	68	4	16	2	3.72	F04/F05
1¼"	32.0	71	14	130	180	11	102	165	42	50	6	7	140	100	18	78	4	16	2	5.32	F04/F05
1½"	38.0	76	18	140	200	14	110	205	50	70	7	9.2	150	110	18	88	4	16	3	6.96	F05/F07
2"	50.0	85	18	150	230	14	120	205	50	70	7	9.2	165	125	18	102	4	18	3	9.68	F05/F07
2½"	65.0	93.5	23	170	290	17	140	300	70	102	9.2	11.4	185	145	18	122	4	18	3	13.49	F07/F10
3"	80.0	103	23	180	310	17	150	340	70	102	9.2	11.4	200	160	18	138	8	20	3	17.53	F07/F10
4"	100	132	25	190	350	22	180	420	102	125	11.4	13.5	220	180	18	158	8	20	3	25.62	F10/F12

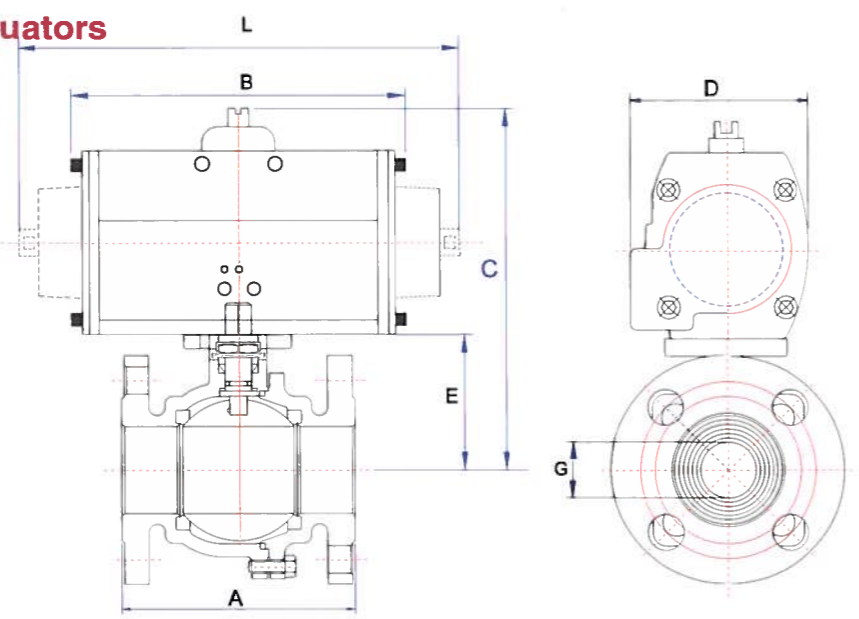
94D-JIS10K

SIZE	øA	B	E	L	S	K	M	øF	øG	ød1	ød2	END FLANGE (JIS 10K)							Wt(kg)	ISO5211
												øD	øC	øh	øg	N	W	f		
½"	15.0	48	11	110	9	80	130	36	42	6	6	95	70	15	52	4	12	1.0	1.92	F03/F04
¾"	20.0	53	11	120	9	80	130	36	42	6	6	100	75	15	58	4	14	1.0	2.46	F03/F04
1"	25.0	59	14	130	11	90	165	42	50	6	7	125	90	19	70	4	14	1.0	3.88	F04/F05
1¼"	32.0	71	14	140	11	102	165	42	50	6	7	135	100	19	80	4	16	2.0	4.74	F04/F05
1½"	38.0	76	18	165	14	110	205	50	70	7	9.2	140	105	19	85	4	16	2.0	6.30	F05/F07
2"	50.0	85	18	180	14	120	205	50	70	7	9.2	155	120	19	100	4	16	2.0	8.48	F05/F07
2½"	65.0	93.5	23	190	17	140	300	70	102	9.2	11.4	175	145	19	120	4	18	2.0	14.33	F07/F10
3"	80.0	103	23	200	17	150	340	70	102	9.2	11.4	185	150	19	130	8	18	2.0	18.92	F07/F10
4"	100	132	25	230	22	180	420	102	125	11.4	13.5	210	175	19	155	8	18	2.0	34.21	F10/F12



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

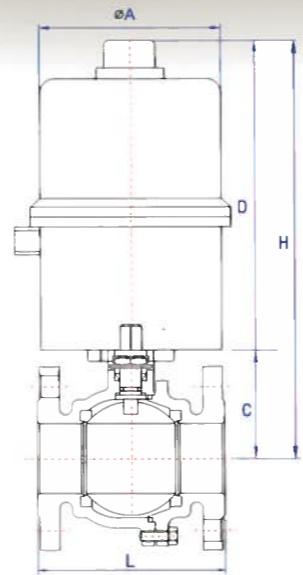
Valve Size	A	* A	B	C	D	E	G	Actuator	Kg.	Wt * Kg.
1/2"	108	115	120	132	62.2	48	DN15	A-125	2.64	2.97
3/4"	117	120	120	137	62.2	53	DN20	A-125	2.98	3.63
1"	127	125	144.3	158	81.4	59	DN25	A-250	4.25	5.25
1 1/4"	140	130	144.3	170	81.4	71	DN32	A-250	5.35	6.53
1 1/2"	140	140	149.2	194	95	76	DN40	A-450	7.70	8.75
2"	165	150	149.2	203	95	85	DN50	A-450	10.2	11.11
2 1/2"	178	170	183	234.5	119	93.5	DN65	A-1000	14.06	14.22
3"	190	180	183	244	119	103	DN80	A-1000	17.76	18.26
4"	229	190	259.6	293	140.5	132	DN100	A-2250	32.98	29.62

* DIMENSIONS for PN16

Spring-Return

Valve Size	A	* A	L	B	C	D	E	G	Actuator	Kg.	Wt * Kg.	Remark
1/2"	108	115	194.6	144.3	147	81.4	48	DN15	A-250SR4	3.54	3.87	+ □ ISO F04
3/4"	117	120	194.6	144.3	152	81.4	53	DN20	A-250SR4	3.88	4.53	+ □ ISO F04
1"	127	125	205.6	149.2	177	95	59	DN25	A-450SR4	5.55	6.55	
1 1/4"	140	130	205.6	149.2	189	95	71	DN32	A-450SR4	6.65	7.83	
1 1/2"	140	140	250	183	217	119	76	DN40	A-1000SR4	10.7	11.75	
2"	165	150	250	183	226	119	85	DN50	A-1000SR4	13.2	14.11	
2 1/2"	178	170	355	259.6	254.5	140.5	93.5	DN65	A-2250SR4	20.36	20.52	
3"	190	180	355	259.6	264	140.5	103	DN80	A-2250SR4	24.06	24.56	
4"	229	190	487	364.4	348	204.8	132	DN100	A-5000SR4	50.98	47.62	+ □

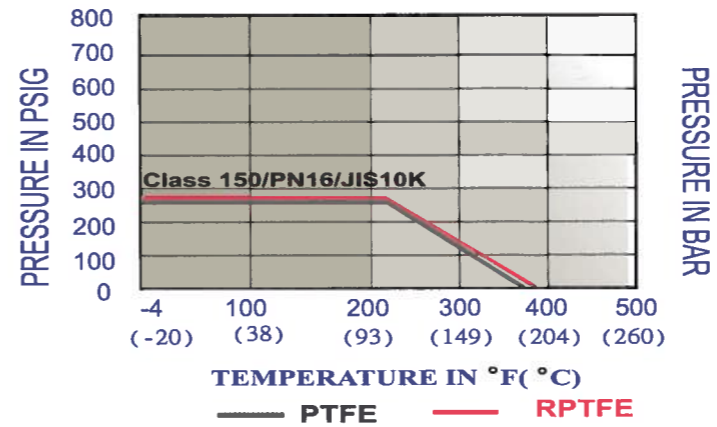
* DIMENSIONS for PN16



PowerMars Electric Actuators

VALVE SIZE	Electric Actuator	Flange Type	DN	A	C	D	H	ISO# L	PN16 L	STEM	ISO 5211	ISO# Kg	PN16 Kg
1/2"	OM-1	F03/F05	14	114	48	155	203	108	115	9	F03/F04	3.64	3.97
3/4"	OM-1	F03/F05	14	114	53	155	208	117	120	9	F03/F04	3.98	4.63
1"	OM-1	F03/F05	14	114	59	155	214	127	125	11	F04/F05	4.65	5.65
1 1/4"	OM-1	F03/F05	14	114	71	155	226	140	130	11	F04/F05	5.75	6.93
1 1/2"	OM-1	F03/F05	14	114	76	155	231	165	140	14	F05/F07	7.50	8.55
2"	OM-1	F03/F05	14	114	85	155	240	178	150	14	F05/F07	10.0	10.91
2 1/2"	OM-2	F07	22	180	93.5	255	348.5	190	170	17	F07/F10	21.36	20.52
3"	OM-2	F07	22	180	103	255	358	203	180	17	F07/F10	25.06	25.56
4"	OM-4	F10	35	217	132	317	449	229	190	22	F10/F12	47.48	44.12

Pressure Vs. Temperature Chart



Breakaway Torque & Cv VALUES

SIZE	DN	Inch-Lb	Nm	Cv U.S.GPM	Kv M3/hour
1/2"	15	62	7	7.5	6.5
3/4"	20	80	9	16	14
1"	25	89	10	40	34
1.1/4"	32	124	14	70	60
1.1/2"	40	195	22	110	95
2"	50	222	25	240	206
2.1/2"	65	558	63	400	344
3"	80	665	75	700	602
4"	100	1320	149	980	843

HOW TO ORDER 94D-10 05STX

94D-10	05	S	T	X
VALVE	SIZE	BODY MATERIAL	SEAT MATERIAL	HANDLE STYLE
<input checked="" type="checkbox"/> 94D-10 #150 <input type="checkbox"/> 94D-30 PN16 F1 <input type="checkbox"/> 94D-40 PN16 F4 <input type="checkbox"/> 94D-50 PN40 F1 <input type="checkbox"/> 94D-60 PN40 F4	<input type="checkbox"/> 01) 1/4" <input type="checkbox"/> 02) 3/8" <input type="checkbox"/> 03) 1/2" <input type="checkbox"/> 04) 3/4" <input checked="" type="checkbox"/> 05) 1" <input type="checkbox"/> 06) 1 1/4" <input type="checkbox"/> 07) 1 1/2" <input type="checkbox"/> 08) 2" <input type="checkbox"/> 09) 2 1/2" <input type="checkbox"/> 10) 3" <input type="checkbox"/> 11) 4"	<input checked="" type="checkbox"/> S - CF8M <input type="checkbox"/> W - WCB <input type="checkbox"/> L - 316L <input type="checkbox"/> D - Duplex <input type="checkbox"/> T - Titanium <input type="checkbox"/> A - Alloy 20	<input type="checkbox"/> P PTFE <input type="checkbox"/> R R-TFE <input checked="" type="checkbox"/> T TFM1600 <input type="checkbox"/> S 50/50 S.S.+PTFE <input type="checkbox"/> M MG1241 <input type="checkbox"/> C Carbon filled PTFE <input type="checkbox"/> U UHMWPE <input type="checkbox"/> K Peek <input type="checkbox"/> D Delrin <input type="checkbox"/> A Metal	<input type="checkbox"/> A - Std. handle <input type="checkbox"/> I - Investment Cast <input type="checkbox"/> O-Oval handle <input type="checkbox"/> L -SRS handle <input type="checkbox"/> S -SRS handle <input checked="" type="checkbox"/> X -Bare shaft



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