

# Valve Actuators



**MASTERGEAR® U.S.A.**

A REGAL-BELOIT Company

**NEW**



**MF SERIES • CAST IRON**

**1/4 Turn Gearboxes**

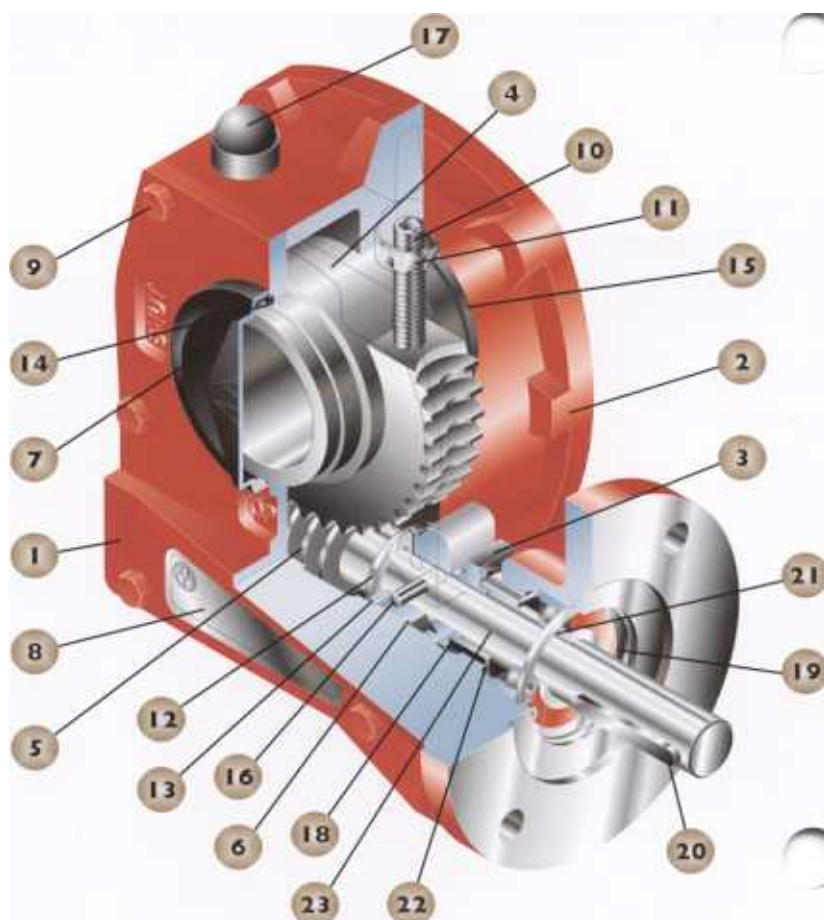
**A BETTER APPROACH TO MOTORIZATION  
& BURIED SERVICE**

## General Description

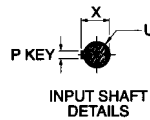
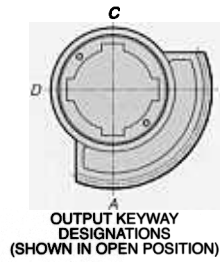
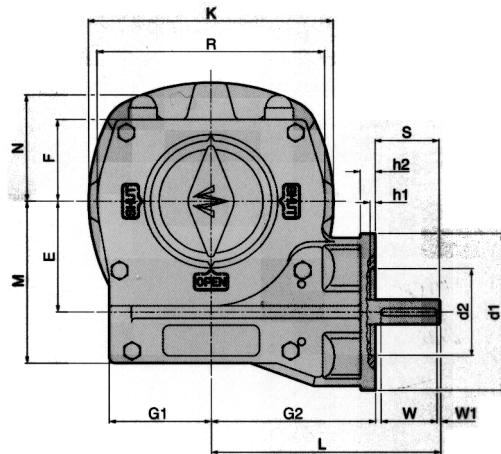
The **Mastergear MF series** of 1/4 turn actuators provide a second stage gear reduction for multi-turn actuator drives to meet torques and operating times required by the industry. Applications for buried service or remote drive can also be satisfied by utilizing the input flange feature. The cast iron construction and rugged design of the **Mastergear "MF" range** of valve actuators has been engineered to meet the arduous requirements demanded of industrial environments. Through corrosion resistant treatment of bare metal surfaces and the use of lip seals, the "MF" range is sealed to IP67. All models use high performance axial needle bearings which, combined with a one piece wormshaft, maximises the available mechanical advantage and overall unit efficiency. MF style gear operators are also available for AWWA applications. Bronze quads are available for C504 specifications for butterfly valves. Blanking caps, in place of indicator caps for buried service. Soil pipes can easily be added to the built in motor flange.

## Features & General Specifications

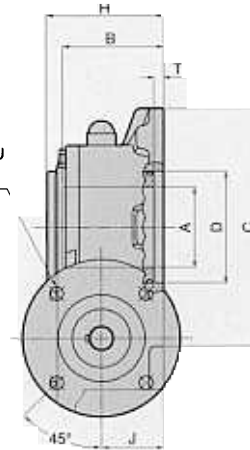
- ◆ Sealed to IP67
- ◆ Maintenance free
- ◆ Input flanges to MSS SP-102 & ISO5210 with keyed input shaft
- ◆ Available for buried service
- ◆ Optional output drive bushings
- ◆ Self locking
- ◆ High mechanical advantage
- ◆ Cast iron enclosure
- ◆ 90°±5° (adjustable) travel
- ◆ Up to 40,000 in/lbs output torque
- ◆ 5 frame sizes
- ◆ 50% grease fill for life
- ◆ Capability to withstand an overload of twice the maximum torque rating
- ◆ -40°F to +160°F temperature range for continuous operation
- ◆ Unrivalled versatility for direct mounting to valves



Item	Component	Material Description
1	Cover/input flange	Ductile iron
2	Gearcase	Grey cast iron
3	Wormshaft oilseal	Injection molded plastic
4	Quadrant	Ductile iron
5	Wormshaft	Nitempered steel
6	Wormshaft bearings	Sintered iron copper
7	Indicator cap	Injection molded plastic
8	Nameplate	Self adhesive aluminium
9	Cover screws	Hex. head set screws
10	Stop screws	Socket set screws
11	Locknuts	Hexagonal locknut
12	Bearing thrust washers	Needle thrust washer
13	Thrust bearings	Needle thrust bearing
14	Indicator O-ring	Medium nitrile
15	Quadrant O-ring	Medium nitrile
16	Dowels	Hardened & ground steel
17	Locknut protection cap	Injection molded plastic
18	Protection sleeve	Steel
19	Bearing	Deep groove ball bearing
20	Key	Key steel
21	Snap ring	Carbon steel
22	Sealing ring	Rubber
23	Protection sleeve retainer	Carbon steel



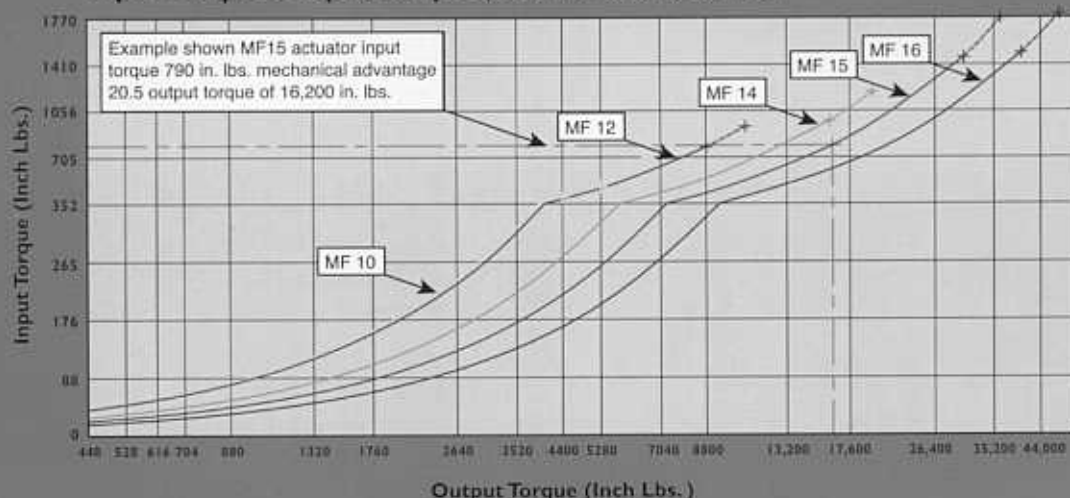
4 HOLES d4 THRU  
EQUI-SPACED AS  
SHOWN ON d3



Unit Size	MF10	MF12	MF14	MF15		MF16	
MSS SP102 Input Flange	FA07	FA10	FA10	FA10	FA14	FA10	FA14
Max Output Torque (inch lbs)	4400	8800	16000	30000		40000	
Mechanical Advantage	11.0	11.3	16.2	20.5		26.5	
Input Torque (inch lbs)	400	778	983	1469		1504	
Ratio	40:1	42:1	60:1	68:1		88:1	
Turns To Close	10	10.5	15	17		22	
MSS SP102 Valve Mounting	FA07, FA10	FA10, FA12 FA14	FA12, FA14 FA16	FA14, FA16 FA20		FA16, FA20 FA25	
A - Max Valve Stem Diameter Without Drive Bushing	1.260	1.772	2.559	3.386		3.622	
A - Max Valve Stem Diameter With Drive Bushing	0.984	1.260	1.772	2.756		2.953	
B - Max Valve Stem Height	2.244	2.835	3.189	3.622		4.449	
C	4.409	5.906	7.559	9.252		11.417	
D	1.969	2.559	3.543	4.528		4.724	
E	2.047	2.626	3.524	4.843		6.063	
F	1.732	2.205	2.598	3.445		4.567	
G1	2.087	2.598	3.248	4.370		4.921	
G2	3.937	4.547	5.217	7.776	7.087	8.760	8.071
H	2.638	3.228	3.701	4.173		5.000	
J	1.378	1.654	1.969	1.969		1.969	
K	4.567	5.906	7.795	9.921		12.402	
L	5.315	6.614	7.283	9.843		10.827	
M	3.287	4.134	5.157	7.008		8.228	
N	2.283	2.953	3.386	4.488		4.606	
P	.196x.196	.236x.236	.236x.236	.236x.236	.315x.275	.236x.236	.315x.275
R	4.213	5.354	7.244	9.754		12.303	
S	1.378	2.067	2.067	2.067	2.756	2.067	2.756
T - Without Drive Bushing	0.177	0.295	0.295	0.374		0.374	
T - With Drive Bushing	0	0	0	0		0	
U	0.629	0.787	0.787	0.787	1.180	0.787	1.180
	0.628	0.785	0.785	0.785	1.179	0.785	1.179
W	1.260	1.772	1.772	1.772	2.480	1.772	2.480
W1	0.118	0.118	0.118	0.118	0.118	0.118	0.118
X	0.709	0.886	0.886	0.886	1.299	0.886	1.299
	0.705	0.882	0.882	0.882	1.291	0.882	1.291
h1	0.157	0.157	0.157	0.157	0.197	0.157	0.197
h2	0.354	0.472	0.472	0.472	0.591	0.472	0.591
d1	3.543	5.000	5.000	5.000	6.890	5.000	6.890
d2	2.167	2.758	2.758	2.758	3.939	2.758	3.939
	2.165	2.756	2.756	2.756	3.937	2.756	3.937
d3	2.756	4.016	4.016	4.016	5.512	4.016	5.512
d4	0.354	0.433	0.433	0.433	0.709	0.433	0.709
Unit Weight (lbs)	14.0	27	38	68	74	100	107

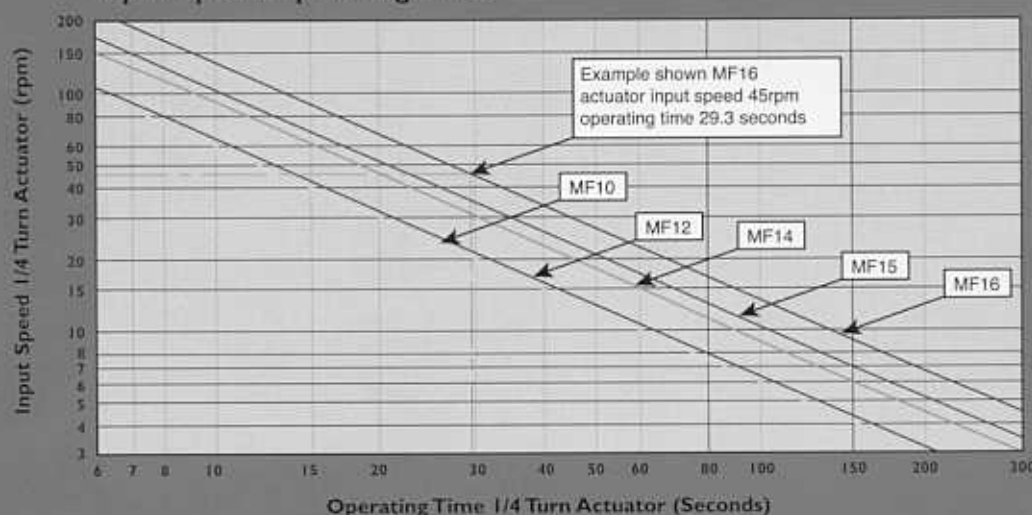
Information in this brochure is believed to be accurate. Mastergear reserves the right to alter specifications without notice. Please contact factory for certified drawings or specifications.

**Input Torque/Output Torque (Based on 5000 cycles life)**

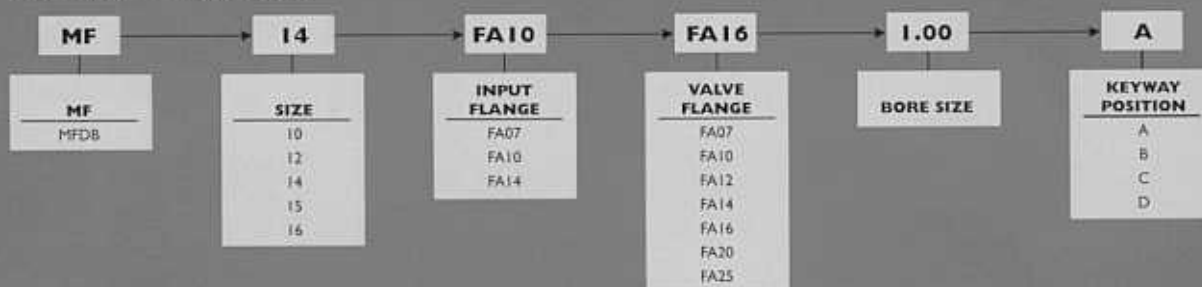


- Notes:**
- 1) For 1000 life cycles maximum allowable torques are shown.
  - 2) Input overload or stall torque must not exceed 200% of I.

**Input Speed/Operating Time**



**Actuator Designation**



Example:

- (a) MF14-FA10-FA16-1.00-AC (Size 14 actuator, FA10 input flange, FA16 valve mounting flange, 1.00 in. bore and keyways positions A and C)  
(b) MFDB10-FA07-FA10-750-B (Size 10 actuator, drive bushing, FA07 input flange, FA10 valve mounting flange, .750 in. bore and keyway position B)