

# Valve Actuators



**MASTERGEAR® U.S.A.**

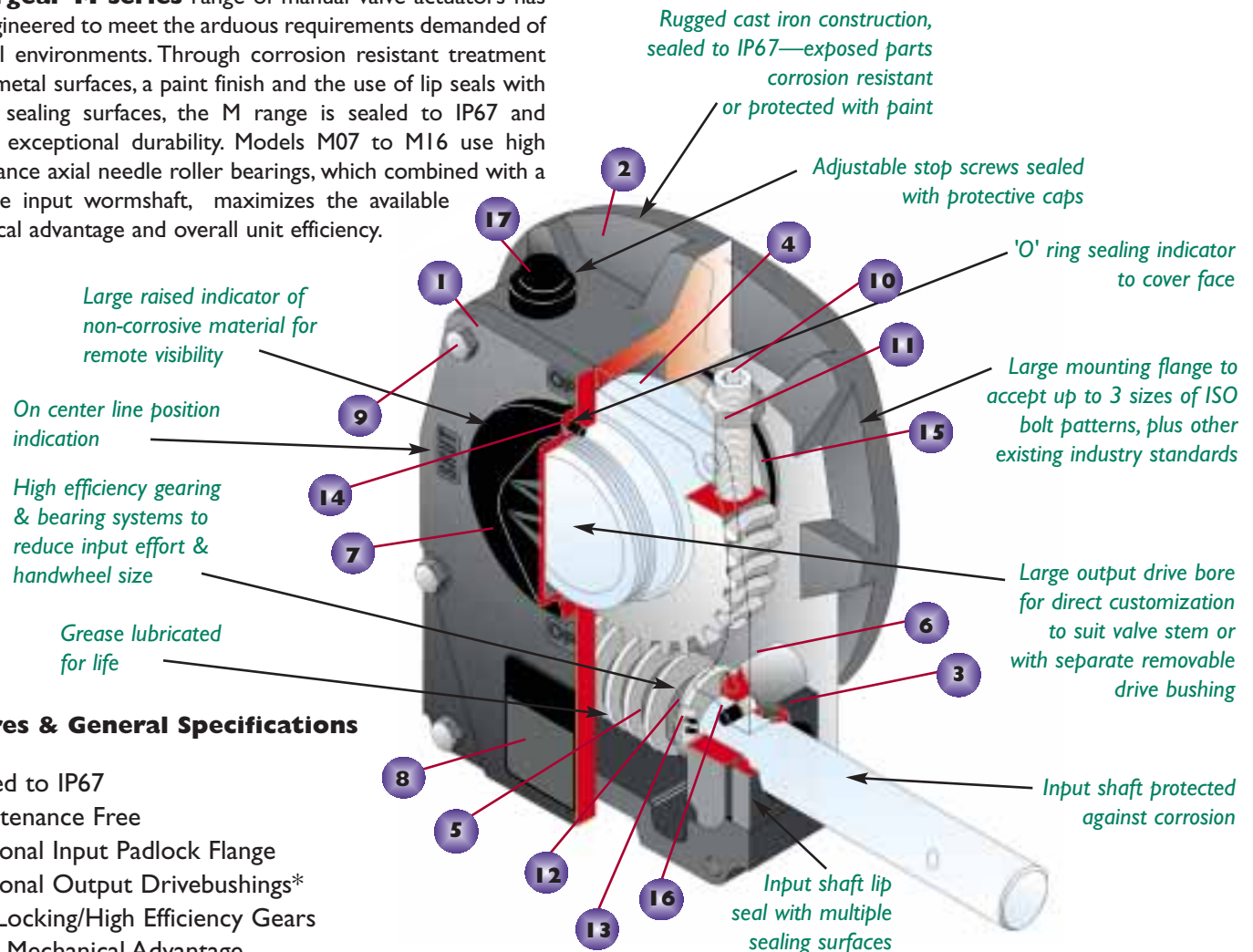
*Division of REGAL-BELOIT CORPORATION*



**M SERIES • CAST IRON**

**1/4 Turn Gearboxes for  
Manual Operation**

The cast iron construction and rugged design of the **Mastergear M series** range of manual valve actuators has been engineered to meet the arduous requirements demanded of industrial environments. Through corrosion resistant treatment of bare metal surfaces, a paint finish and the use of lip seals with multiple sealing surfaces, the M range is sealed to IP67 and achieves exceptional durability. Models M07 to M16 use high performance axial needle roller bearings, which combined with a one-piece input wormshaft, maximizes the available mechanical advantage and overall unit efficiency.

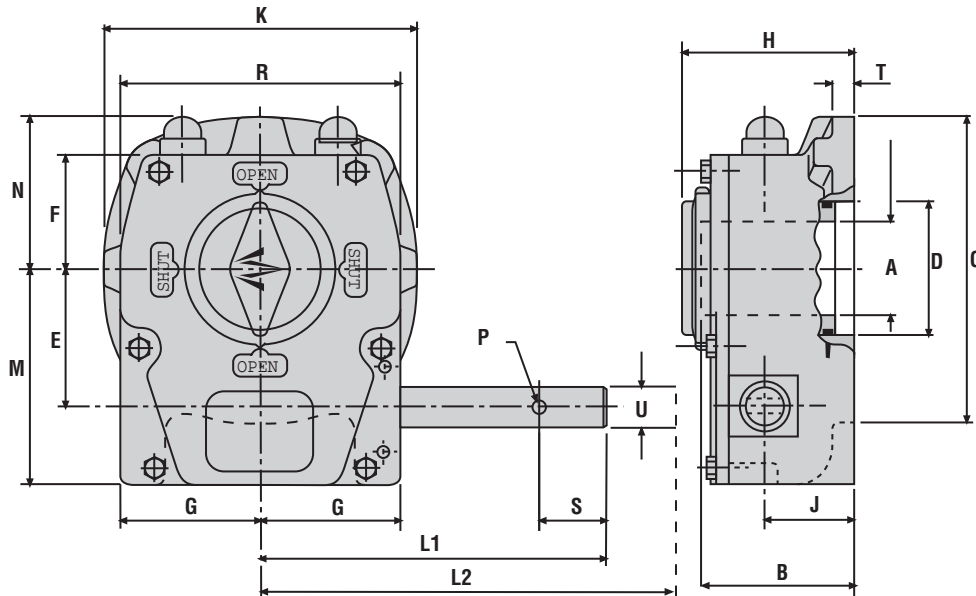


## Features & General Specifications

- ◆ Sealed to IP67
- ◆ Maintenance Free
- ◆ Optional Input Padlock Flange
- ◆ Optional Output Drivebushings\*
- ◆ Self Locking/High Efficiency Gears
- ◆ High Mechanical Advantage
- ◆ Cast Iron Enclosure
- ◆ 90° ± 5° (Adjustable) Travel
- ◆ To 47,500 in-lbs Output Torque
- ◆ 7 Frame Sizes
- ◆ 50% Grease Filled for Life
- ◆ Capability to Withstand Overload to Twice Maximum Output Torque Rating
- ◆ -40°F to +176°F Temperature Range For Continuous Operation
- ◆ Versatility for Direct Mounting to Valve

\* M05 & M07 have integral drivebushings

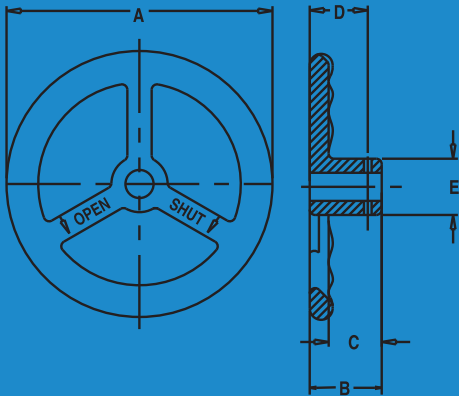
Item	Component	Material Description	Material Specification
1	Cover	Grey cast iron	BS1452 Grade 260
2	Gearcase	Grey cast iron	BS1452 Grade 260
3	Wormshaft Oilseal	Injection Moulded Plastic	Hytrel 5526
4	Quadrant	Ductile Iron	BS2789 Grade 500/7
5	Wormshaft	Nitempered Steel	BS970 606M36
6	Wormshaft Bearings	Sintered Iron Copper	FC02540
7	Indicator Cap	Injection Moulded Plastic	Acetal Kematal WR90
8	Nameplate	Self-adhesive Aluminum	Grey on Bright Background
9	Cover Screws	Hex. Head Set Screws	BS3692 Grade 8.8
10	Stopscrews	Socket Set Screws	BS4168 Part 2
11	Locknut	Hex. Locknut	BS3692
12	Bearing Thrust Washers	Needle Thrust Washer	Type AS
13	Thrust Bearings	Needle Thrust Bearing	Type AXK
14	Indicator O-ring	Medium Nitrile	60-80 Shore Hardness
15	Quadrant O-ring	Medium Nitrile	60-80 Shore Hardness
16	Dowels	Hardened & Ground Steel	BS7055 Type A
17	Locknut Protection Caps	Injection Moulded Plastic	Low Density Polyethylene



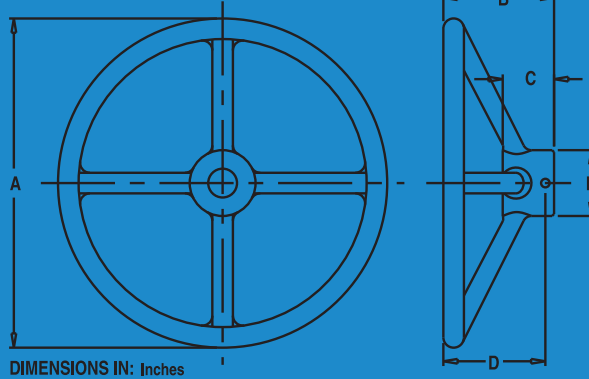
Unit Size	M05	M07	M10	M12	M14	M15/F12	M15	M16
Max Output Torque (5000 cycles)	1100 in-lbs	2200 in-lbs	4400 in-lbs	8800 in-lbs	15840 in-lbs	29920 in-lbs	29920 in-lbs	39600 in-lbs
Max Output Torque (1000 cycles)	1320 in-lbs	2640 in-lbs	5280 in-lbs	10560 in-lbs	19360 in-lbs	36080 in-lbs	36080 in-lbs	47520 in-lbs
Mechanical Advantage	9.3	11	11	11.3	16.2	20.5	20.5	26.5
Input Torque (5000 cycles)	118 in-lbs	200 in-lbs	400 in-lbs	779 in-lbs	977 in-lbs	1461 in-lbs	1461 in-lbs	1496 in-lbs
Input Torque (1000 cycles)	143 in-lbs	240 in-lbs	480 in-lbs	935 in-lbs	1195 in-lbs	1760 in-lbs	1760 in-lbs	1793 in-lbs
Ratio	40:1	40:1	40:1	42:1	60:1	68:1	68:1	88:1
Turns To Close	10	10	10	10.5	15	17	17	22
Valve Mounting Flange	F05, F07	F05, F07	F07, F10	F10, F12	F12, F14	F12, F14	F14, F16	F16, F20
ISO 5211				F14	F16	F16, F20	F20	F25
<b>A</b> Max Valve Stem Diameter	0.98	0.98	1.26	1.77	2.56	3.15	3.39	3.62
<b>B</b> Max Valve Stem Height	2.01	2.01	2.24	2.83	3.19	3.62	3.62	4.45
<b>C</b>	3.46	3.46	4.41	5.91	7.56	9.25	9.25	11.42
<b>D</b>	N/A	N/A	1.97	2.56	3.54	4.13	4.53	4.72
<b>E</b>	1.52	1.52	2.05	2.63	3.52	4.84	4.84	6.06
<b>F</b>	1.28	1.28	1.73	2.20	2.60	3.44	3.44	4.57
<b>G</b>	1.65	1.65	2.09	2.60	3.25	4.37	4.37	4.92
<b>H</b>	2.28	2.28	2.64	3.19	3.68	4.15	4.15	4.98
<b>J</b>	1.04	1.04	1.38	1.65	1.97	1.97	1.97	1.97
<b>K</b>	3.46	3.46	4.57	5.91	7.80	9.92	9.92	12.40
<b>L<sub>1</sub></b>	4.72	4.72	5.31	6.61	7.28	9.84	9.84	10.83
<b>L<sub>2</sub></b> Extended Input Shaft	N/A	N/A	8.07	9.45	10.24	12.80	12.80	13.78
<b>M</b>	2.44	2.44	3.29	4.13	5.16	7.01	7.01	8.23
<b>N</b>	1.77	1.77	2.28	2.95	3.39	4.49	4.49	4.61
<b>P</b>	0.16	0.16	0.20	0.24	0.24	0.31	0.31	0.31
<b>R</b>	3.31	3.31	4.21	5.35	7.24	9.76	9.76	12.30
<b>S</b>	0.79	0.79	0.98	1.26	1.26	1.77	1.77	1.77
<b>T</b>	N/A	N/A	0.18	0.30	0.30	0.37	0.37	0.37
<b>U</b>	0.47	0.47	0.59	0.79	0.79	1.18	1.18	1.18
Unit Weight	6 lbs	6 lbs	10 lbs	18 lbs	32 lbs	62 lbs	60 lbs	91 lbs
Recommended Handwheel	CR6	CR6	CR6, CR9,	R10, R12	R14	R18, R24	R18, R24	R18, R24
See Back Page for Dimensions			R10,	R14, R18	R18, R24	R30, R36	R30, R36	R30, R36
			R12	R24				

Type	A	B	C	D	E	Weight	Type	A	B	C	D	E	Weight
<b>CR6</b>	6	1.60	0.51	1.25	1.25	2 lbs	<b>R24</b>	24	6.50	2.25	6.19	2.50	9 lbs
<b>R10</b>	10	3.37	1.56	3.06	2	2.25 lbs	<b>R30</b>	30	8	2.38	7.69	3	11 lbs
<b>R14</b>	14	4.37	1.56	4.06	2	3 lbs	<b>R36</b>	36	9	2.38	8.69	3	12 lbs
<b>R18</b>	18	5.25	2.25	4.94	2.50	6.5 lbs							

TYPE: CR6 CAST IRON



TYPE: TUBULAR STEEL



DIMENSIONS IN: Inches

## Full Range of Mastergear 1/4 Turn Manual Valve Operators

### SE Series

- Economy series up to 8800 in-lbs
- Cast iron/Stamped steel construction
- 3 frame sizes
- Rated for up to 1000 cycles with 50% overload capability— Safety factor
- Self-locking gearing
- Adjustable stop in closed position/ Fixed stop in open position
- ISO base bolt circle
- Removable output drive bushing

### 98 Series

- General purpose series up to 7000 in-lbs
- High strength light alloy construction
- 4 frame sizes
- Rated for up to 2000 cycles with 100% overload capacity—Safety factor
- High-efficiency, self-locking gearing
- Adjustable stops in open & closed positions
- ISO bolt circle diameter on center or straddling center
- Removable output drive bushing
- Powder coating available to suit most environments
- Handwheel, limit switches & other accessory equipment options

### M Series

- High performance series up to 2,400,000 in-lbs
- Cast iron construction
- 21 frame sizes
- Rated for up to 5000 cycles with 100% overload capacity—Safety factor
- Maximum gearing efficiency combined with self-locking gearing
- Adjustable stops in open & closed positions
- ISO bolt circle diameter. Non-ISO base available within the size of the actuator base
- Removable drive bushing options
- Environmental specification options
- Handwheel & input shaft options
- Extensive range of accessory equipment, including limit switches

Specifications are subject to change without notice



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