

# M SERIES VALVE ACTUATORS

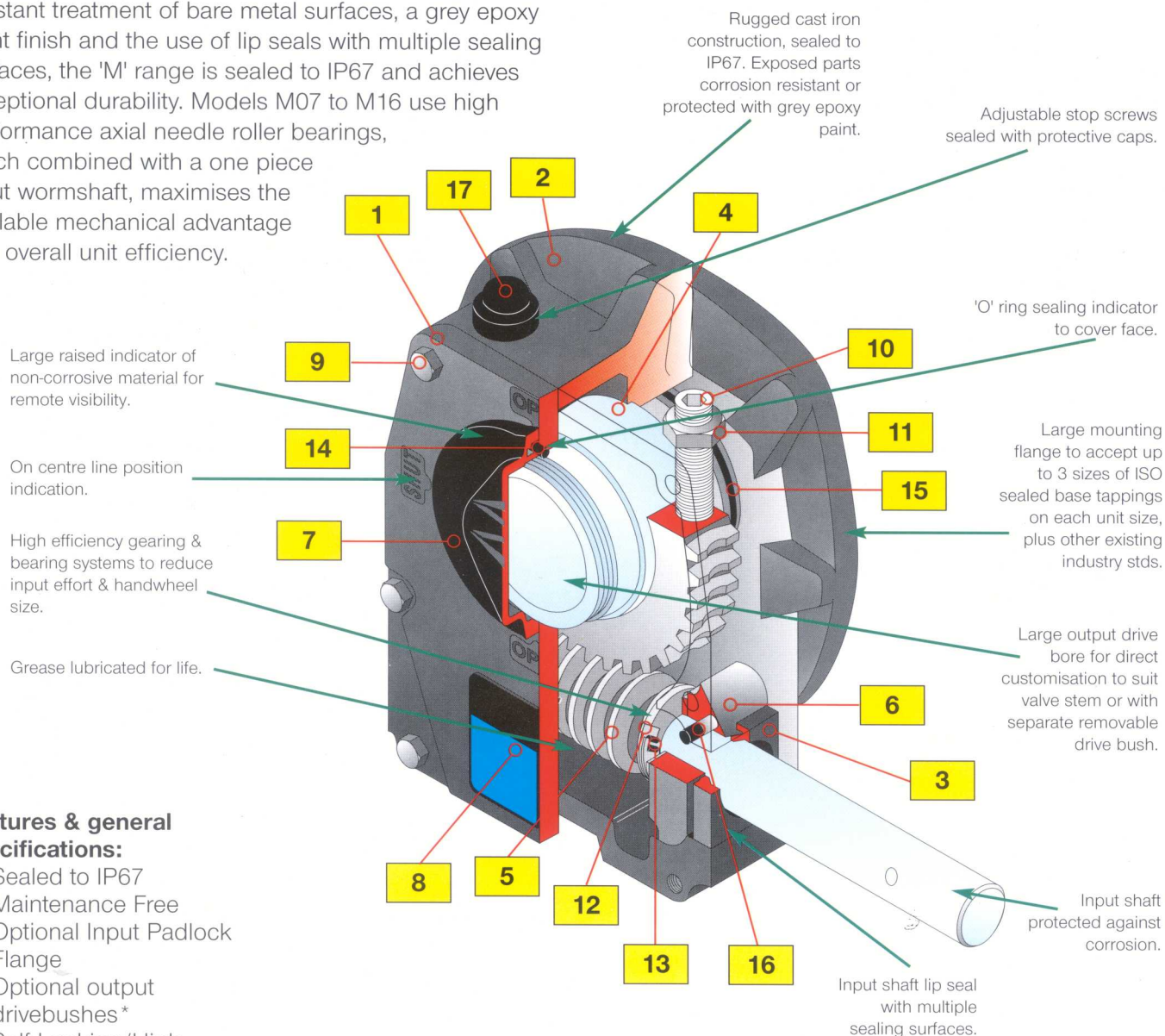


**OPPERMAN MASTERGEAR Ltd**

# M SERIES MANUAL VALVE ACTUATORS

## General description

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 grey epoxy 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, maximises the available mechanical advantage and overall unit efficiency.



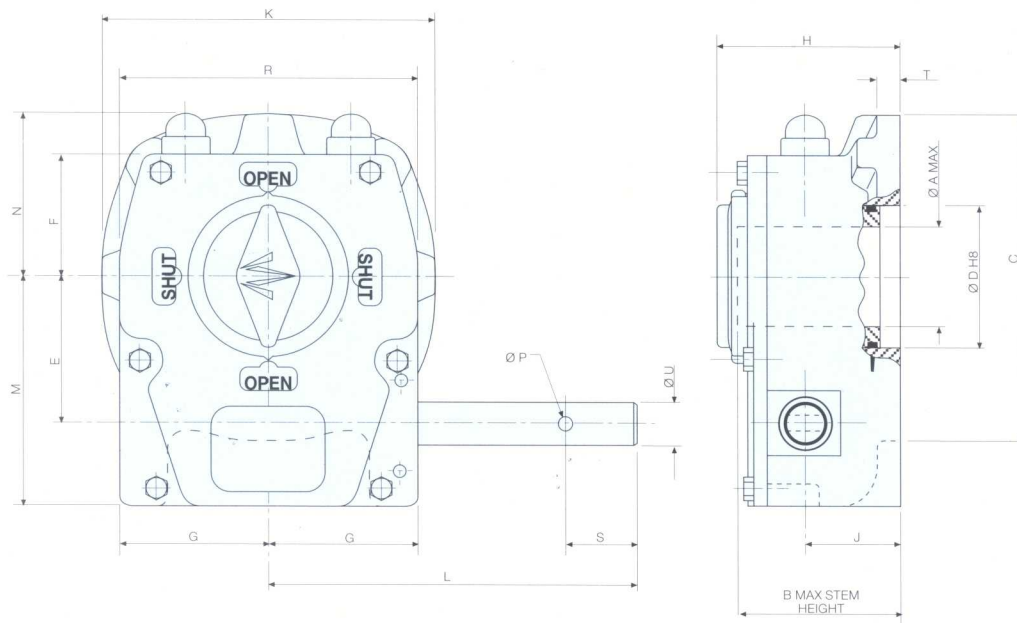
## Features & general specifications:

- Sealed to IP67
- Maintenance Free
- Optional Input Padlock Flange
- Optional output drivebushes\*
- Self Locking/High Efficiency
- High Mechanical Advantage
- Cast Iron Enclosure
- 90° ± 5° (adjustable) travel
- To 4500 Nm output torque
- 7 frame sizes
- 50% grease filled for life
- Capability to withstand overload to twice maximum output torque rating
- -20°C to +80°C temperature range for continuous operation
- Unrivalled versatility for direct fixing to valve

\* M05 and M07 have integral drivebush.

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	S.G. cast iron	BS2789 grade 500/7
5	Wormshaft	Nitempered steel	BS970 606M36
6	Wormshaft bearings	Sintered iron copper	FC025 40
7	Indicator cap	Injection moulded plastic	Acetal Kematal WR90
8	Nameplate	Self adhesive aluminium	Blue 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

## Performance specification and dimensions



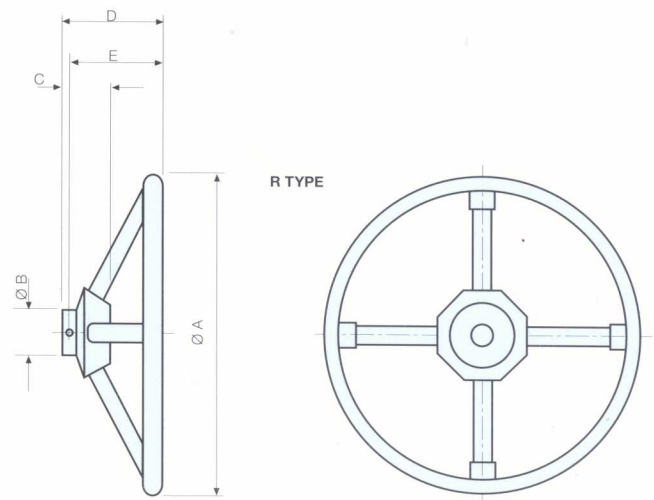
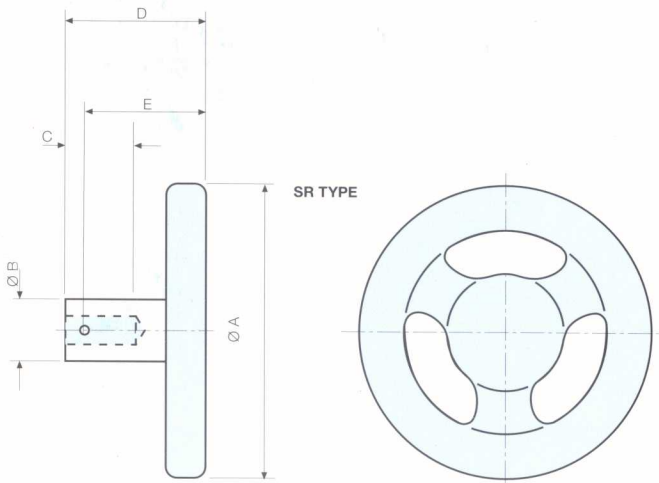
UNIT SIZE	M05	M07	M10	M12	M14	M15/F12	M15	M16
MAX OUTPUT TORQUE (Nm) 1*	125	250	500	1000	1800	3400	3400	4500
MAX OUTPUT TORQUE (Nm) 2*	150	300	600	1200	2200	4100	4100	5400
MECHANICAL ADVANTAGE	9.3	11.0	11.0	11.3	16.2	20.5	20.5	26.5
INPUT TORQUE (Nm) 1*	13.4	22.7	45.5	88.5	111.0	166	166	170
INPUT TORQUE (Nm) 2*	16.2	27.3	54.5	106.2	135.8	200.0	200.0	203.8
RATIO	40:1	40:1	40:1	42:1	60:1	68:1	68:1	88:1
URNS 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
A MAX VALVE SHAFT DIAMETER	25	25	32	45	65	80	86	92
B MAX VALVE SHAFT HEIGHT	51	51	57	72	81	92	92	113
C	88	88	112	150	192	235	235	290
D	N/A	N/A	50	65	90	105	115	120
E	38.5	38.5	52	66.7	89.5	123	123	154
F	32.5	32.5	44	56	66	87.5	87.5	116
G	42	42	53	66	82.5	111	111	125
H	58	58	67	81	93.5	105.5	105.5	126.5
J	26.5	26.5	35	42	50	50	50	50
K	88	88	116	150	198	252	252	315
L <sub>1</sub>	120	120	135	168	185	250	250	275
L <sub>2</sub> EXTENDED INPUT SHAFT	N/A	N/A	205	240	260	325	325	350
M	62	62	83.5	105	131	178	178	209
N	45	45	58	75	86	114	114	117
P	4	4	5	6	6	8	8	8
R	84	84	107	136	184	248	248	312.5
S	20	20	25	32	32	45	45	45
T	N/A	N/A	4.5	7.5	7.5	9.5	9.5	9.5
U	11.98	11.98	14.98	19.98	19.98	29.98	29.98	29.98
	11.94	11.94	14.94	19.94	19.94	29.94	29.94	29.94
UNIT WEIGHT (Kg)	2.6	2.6	4.2	8.2	14.5	28.0	27.2	41.2
RECOMMENDED HANDWHEEL	SR5	SR5	SR5, SR8 SR10, SR12	SR10, SR12 SR14, R18 R24	SR14 R18, R24	R18, R24 R30, R36	R18, R24 R30, R36	R18, R24 R30, R36

\*MAX OUTPUT/INPUT TORQUE 1 BASED ON 5000 LIFE CYCLES AND 100% OVERLOAD CAPABILITY

\*MAX OUTPUT/INPUT TORQUE 2 BASED ON 1000 LIFE CYCLES AND 100% OVERLOAD CAPABILITY

FOR HANDWHEEL SELECTION PLEASE REFER TO CHART OVERLEAF.

## Handwheel selection data



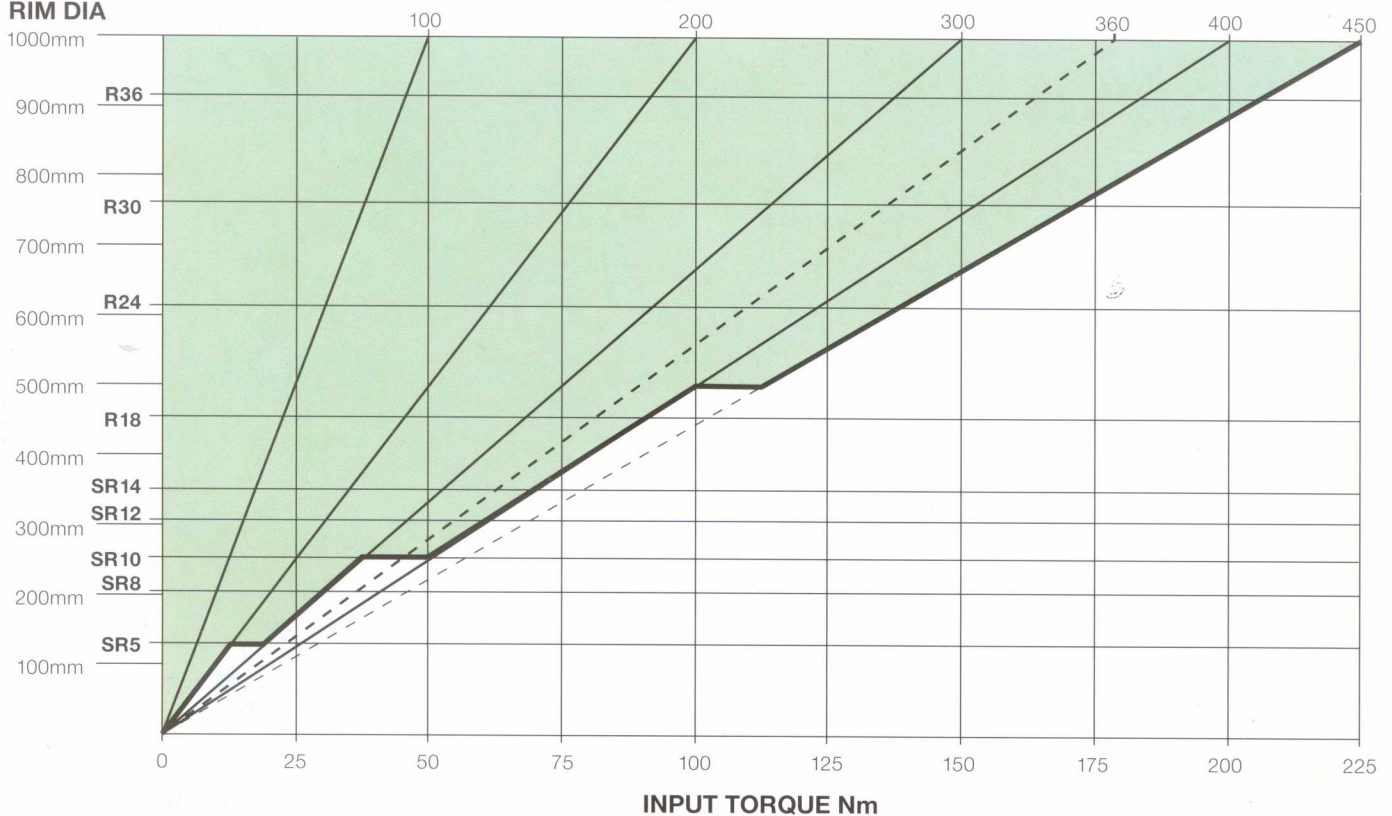
HANDWHEEL TYPE	ØA	B	ØC	D	E	WEIGHT (kg)
SR5	125	22	30	60	52	0.5
SR8	200	30	36	67	59	0.5
SR10	250	40	43	82	74	1.0
SR12	300	40	43	95	87	1.5
SR14	350	40	43	104	94	2.0
R18	457	64	48	134	126	3.5
R24	610	64	48	169	161	4.0
R30	762	64	48	205	197	6.4
R36	914	76	60	250	237	18.0

## Handwheel selection procedure

1. For optimum performance handwheels should be selected from the green shaded area.
2. Determine the required input torque from 3 below.
3. Input torque =  $\frac{\text{required output torque}}{\text{mechanical advantage}^*}$ .
4. Determine the maximum allowable handwheel rim effort for your application.
5. Select handwheel rim diameter.

## HANDWHEEL RIM DIA

## RIM EFFORT N



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