



Keeping the World Flowing
for Future Generations

MOW Mk2 gearboxes include low lead angle gearing designed to be inherently self-locking, and offer an increased torque output per size compared with the previous MOW range.

The gearboxes feature a removable output sleeve to facilitate bore and keyway machining, and an indexable baseplate to allow on-centre or off-centre mounting to the valve flange without special machining.

The standard operating temperature range is -40 to +120 °C (-40 to +250 °F), other temperature ranges are available on request. Gearbox input and output flanges are designed in accordance with ISO 5211. MSS SP-101 flanges are available as an alternative.

Application

Modulating worm gear operators are designed to suit control valves or dampers requiring constant movement.

They are rated for modulating duty up to 300 starts per hour based on the requirements of ISO 22153 and the rated seating torque of the gearbox. Positional accuracy of the gearboxes offers $\pm 1/2^\circ$.

Due to material treatments, it is preferred that bore and key details are provided at the time of order. Subsequent machining is possible, but will be more difficult.

Features

- Totally enclosed bronze gearing
- Grease filled for life and fully sealed to IP67 as standard
- Comprehensive gear ratios combined with a selection of auxiliary input spur gear reducers
- Angular contact bearings supporting worm shaft
- Removable and repositionable output sleeve
- Repositionable baseplate
- Adjustable mechanical stops (at 0° and 90° $\pm 5^\circ$)
- Inherently self-locking gear componentry



MOW Mk2

Modulating Worm Gearbox

Environmental Specification

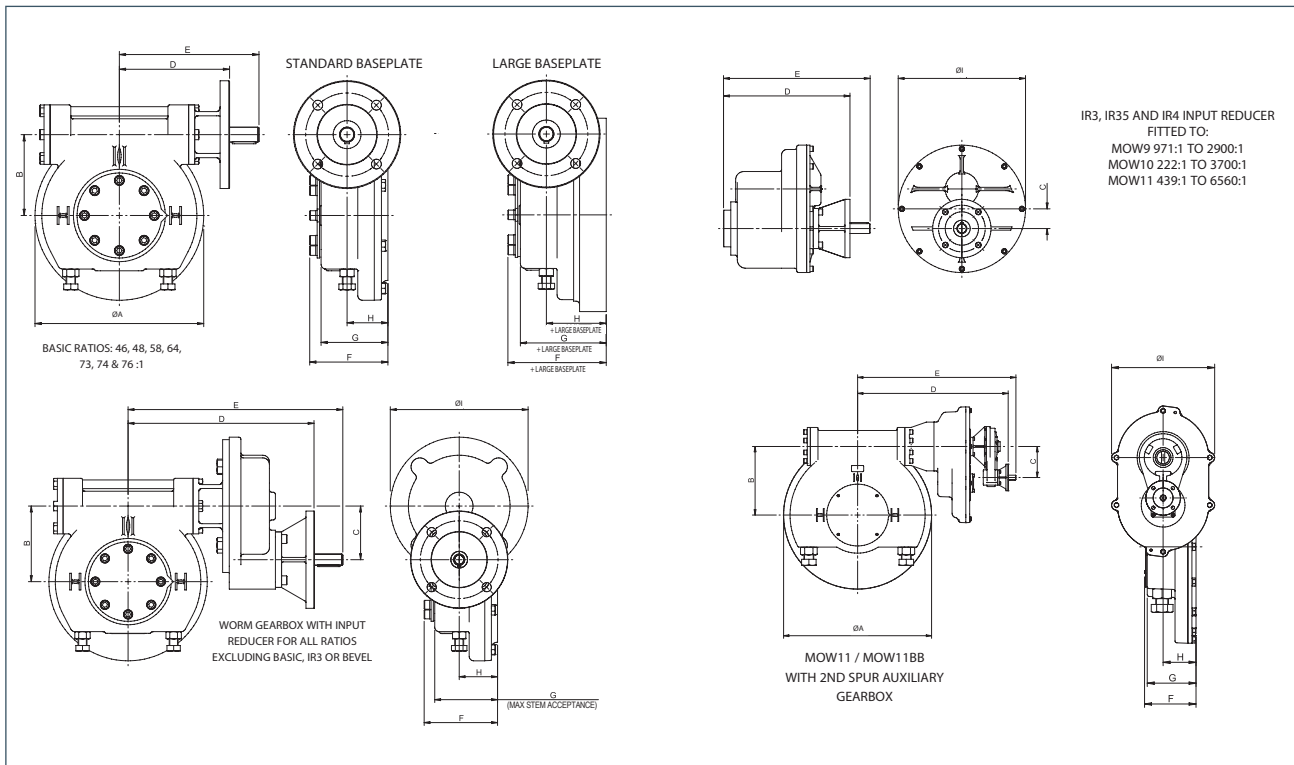
- IP67 as standard:
Suitable for submerged duty to a depth of 1 metre (3 feet) for 30 minutes
- Temperature as standard:
-40 to +120 °C (-40 to +250 °F)

Options

- IP68: 15 metres (49 feet) for 72 hours
- Flexible input extensions
- ATEX
- Buried, marinised, continuous submersible environments
- Low temperature option:
-60 to +120 °C (-76 to +250 °F)
- High temperature option:
-20 to +200 °C (-4 to +392 °F)

MOW Mk2 Modulating Worm Gearbox

Dimensional Drawings



Dimension Table

Gearbox	Ratio : 1	ØA	B	C	D	E	F	G	H	ØI	Large Baseplate Additional Thickness	Weight kg (lbs)
MOW3	48	172	76		118	158	91	74	49		22	11 (25)
MOW4	46	218	102		142	182	106	85	50		25	20 (45)
	92 - 184	218	102	64	269	320	106	85	50	190		32 (71)
	233 - 276	218	102	96	291	342	106	85	50	248		44 (98)
MOW5	48	285	136		186	236	132	114	69		6	42 (93)
	96, 144, 192	285	136	64	313	364	132	114	69	190		51 (113)
	243, 288	285	136	96	335	386	132	114	69	248		67 (148)
MOW6	76	375	178		186 (196 for F/FA10)	236	139	113	70		0	63 (139)
	152 - 304	375	178	64	313	364	139	113	70	190		75 (166)
	385 - 456	375	178	96	342	393	139	113	70	248		86 (190)
MOW7	64	450	210		270	329	171	140	86		31	109 (241)
	130 - 384	450	210	119	460	521	171	140	86	290		138 (305)
	505 - 768	450	210	179	469	530	171	140	86	408		170 (375)
MOW8	64	520	246		306	365	192	160	99		38	168 (371)
	130 - 384	520	246	119	496	557	192	160	99	290		191 (422)
	505 - 768	520	246	179	505	566	192	160	99	408		226 (499)
MOW9	58	596	279		371	481	200	168	99		27	254 (561)
	175 - 696	596	279	179	568	631	200	168	99	408		308 (680)
	971 - 2,900	596	279	59	605	666	200	168	99	382		315 (695)
MOW10	74	735	343		397	507	216	180	110		32	372 (821)
	222 - 3,700	735	343	59	631	692	216	180	110	382		426 (940)
MOW11 / MOW11BB	73	795	381		414	524	247	200	120		0	444 (980)
	439 - 1,093	795	381	59	648	709	247	200	120	382		518 (1,143)
MOW11 / MOW11BB with 2nd spur auxiliary	1,440 - 6,560	795	381	204	786	838	247	200	120	382	0	575 (1,268)

All dimensions in mm.

MOW Mk2 Modulating Worm Gearbox

Material Specification

Component	Material	UK Standard	USA Standard	DIN Standard	ISO Standard
Gearcase	SG Iron	BS1563 EN-GJS-450-10 BS1563 EN-GJS-400-15	ASTM A536 65-45-12	GGG40	ISO 1083 JS 450-10 ISO 1083 JS 400-15
Baseplate	SG Iron	BS1563 EN-GJS-450-10 BS1563 EN-GJS-400-15	ASTM A536 65-45-12	GGG40	ISO 1083 JS 450-10 ISO 1083 JS 400-15
	Cast Iron	BS1561 EN-GJL-250	ASTM A48 35B/40B	GG25	ISO 185 JL/250
Worm Shaft	Protected Steel	BS970 708M40	AISI/SAE 4140	42 CrMo 4	ISO 683 42 CrMo 4
Input Shaft	Steel	BS970 605M36T	AISI/SAE 5140	41 Cr 4	ISO 683 41 Cr 4
End Cap	Steel	BS970 070M20 BS970 080M46	AISI/SAE 1023 AISI/SAE 1045	C22 C45	ISO 683 C 20 ISO 683 C 45 E4
	Cast Iron	BS1561 EN-GJL-250	ASTM A48 35B/40B	GG25	ISO 185 JL/250
	SG Iron	BS 1563 EN-GJS-400-15 BS 1563 EN-GJS-450-10	ASTM A536 65-45-12	GGG40	ISO 1083 JS 400-15 ISO 1083 JS 450-10
Quadrant	SG Iron High-Tensile Brass	BS1563 EN-GJS-500-7 BS1400 Grade HTB3	ASTM A536 80-55-06 ASTM B584 C86300	GGG50 DIN CuZn25Al6Fe3Mn3	ISO 1083 JS 500-7 EN CC7625
Position Indicator	Steel	BS970 070M20	AISI/SAE 1023	C 22	ISO 683 C 20
Output Sleeve	Steel (With self-lubricating surface treatment)	BS970 070M20 BS970 080M40 BS970 070M55	AISI/SAE 1023 AISI/SAE 1040 AISI/SAE 1055	C 22 C 40 C 55	ISO 683 C 20 ISO 683 C 40 E4 ISO 683 C 55 E4
Fasteners	Protected Steel	BS3692			
Input Flange	SG Iron	BS1563 EN-GJS-450-10 BS1563 EN-GJS-400-15	ASTM A536 65-45-12	GGG40	ISO 1083 JS 450-10 ISO 1083 JS 400-15
Reducer Gearing	Steel	BS970 817M40T	AISI/SAE 4340	34 CrNiMo 6	ISO 683 36 CrNiMo 6
Reducer Gearcase	SG Iron	BS1563 EN-GJS-450-10 BS1563 EN-GJS-400-15	ASTM A536 65-45-12	GGG40	ISO 1083 JS 450-10 ISO 1083 JS 400-15
Bearings	Angular Contact Ball Bearings				
Seals	Nitrile Rubber				
Grease	Renolit CLX2				

Note: Because of the company's policy of continuous improvement, Rotork reserves the right to change specification details without prior notice.

Standard Input and Output Options

Gearbox	Ratio:1	Input Mounting Details Shaft Diameter (mm)					Output Mounting Details			
		F10 FA10	F14 FA14	F16 FA16	F25 FA25	F30 FA30	Max Bore Rectangle Key BS4235	Max Square Bore A/F	ISO Flange Standard Baseplate	ISO Flange Large Baseplate
MOW3	48	17*	-	-	-	-	45	36	F/FA 10 - 12	F/FA 14 - 16
MOW4	46	20	20	-	-	-	64	51	F/FA 10 - 14	F/FA 16
	92 to 276	20	20	-	-	-				
MOW5	48	20	25	-	-	-	76	62	F/FA 14 - 16	F/FA 25
	96 to 288	20	20	-	-	-				
MOW6	76	20	30	30	-	-	102	83.3	F/FA 16 - 25	F/FA 30
	152 to 456	20	20	-	-	-				
MOW7	64	20	30	30	30	-	136	108.8	F/FA 25 - 30	F/FA 35
	130 to 768	20	30	30	-	-				
MOW8	64	-	-	40	40	-	157	122.9	F/FA 25 - 40	F/FA 48
	130 to 768	20	30	40	50	-				
MOW9	58	-	-	40	50	-	178	132.1	F/FA 30 - 40	
	175 to 696	20	30	40	50	-				
	971 to 2900	20	30	40	50	-				
MOW10	74	-	-	-	50	50	203	152.6	F/FA 35 - 48	F/FA 60
	222 to 3700	20	30	40	50	-				
MOW11	73	-	-	-	50	50	270	190	F/FA 40 - 48	
	439 to 1093	20	30	40	50	-				
	1440 to 6560	20	30	40	50	-				

Big Bore Input and Output Options

Gearbox	Ratio:1	Input Mounting Details Shaft Diameter (mm)					Output Mounting Details			
		F10 FA10	F14 FA14	F16 FA16	F25 FA25	F30 FA30	Max Bore Rectangle Key BS4235	Max Square Bore A/F	ISO Flange Standard Baseplate	ISO Flange Large Baseplate
MOW11BB	73	-	-	-	50	50	270	190	F/FA 40-48	F/FA 60
	439 to 6560	20	30	40	50	-				

* 20 mm shaft adaptor available on request. Shaft tolerance -0.05 (-0.002")

Gearbox Sizing Chart

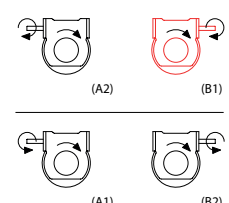
Gearbox	Ratio :1										Average Static MA* ±10%										Modulating Output Torque (Nm)	Modulating Output Torque (lbs.ft)		
MOW3	48											18										563	415	
MOW4	46											19										1,090	804	
	92	138	184	233	276							36	55	73	92	109								
MOW5	48											19										3,000	2,212	
	96	144	192	243	288							36	55	73	92	109								
MOW6	76											31										4,500	3,319	
	152	228	304	385	456							58	87	116	147	174								
MOW7	64											25										9,000	6,637	
	130	192	262	384	505	572	768					49	72	98	144	190	215	288						
MOW8	64											25										16,700	12,316	
	130	192	262	384	505	572	768					47	70	95	140	184	208	280						
MOW9	58											25										23,900	17,625	
	175	230	350	458	519	696						73	95	145	189	215	288							
MOW10	74											31										37,500	27,655	
	222	303	444	666	908	1,238	1,332	1,816	2,664	3,108	3,700	84	115	169	253	345	470	506	690	1,011	1,180			1,405
MOW11	73											31											47,700	35,177
	439	595	680	785	919	1,093						169	230	263	303	355	422							
	1,440	1,663	1,946	2,315	2,788	3,220	3,767	4,483	5,513	6,560		528	610	714	849	1,023	1,181	1,382	1,644	2,022	2,406			

*The published M.A. is achieved after a few cycles. Seating torque is the same as equivalent IW Mk2 gearbox. Refer to PUB028-079.

Customer Drive and Orientation Options

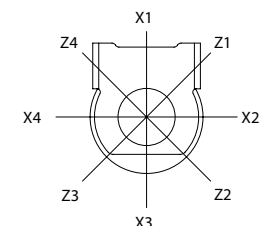
MOW3 TO MOW11 46:1 TO 76:1

INPUT SHAFT PROJECTION WITHOUT INPUT REDUCER




DRIVE OPTIONS


KEYWAY POSITIONS WITH GEARBOX IN CLOSED POSITION




SQUARE BORE




PARALLEL (FLATS ON CENTRE)




DIAGONAL (FLATS OFF CENTRE)




SLOTTED BORE



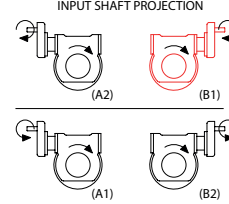
FLATS ACROSS FLOW LINE



FLATS ON FLOW LINE

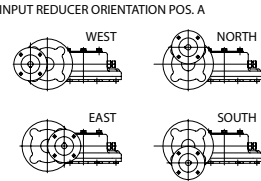


INPUT SHAFT PROJECTION

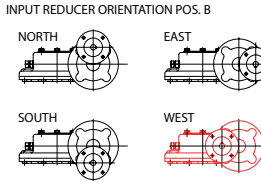


MOW4 TO MOW9 UP TO 696:1

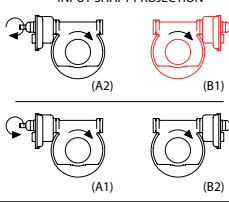
INPUT REDUCER ORIENTATION POS. A



INPUT REDUCER ORIENTATION POS. B

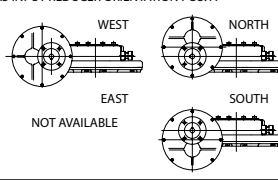


INPUT SHAFT PROJECTION

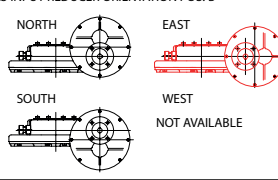


MOW9 971:1 TO 2900:1 MOW10 222:1 TO 3700:1 MOW11 439:1 TO 1093:1

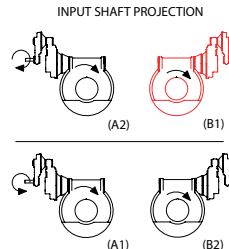
IR3 INPUT REDUCER ORIENTATION POS. A



IR3 INPUT REDUCER ORIENTATION POS. B

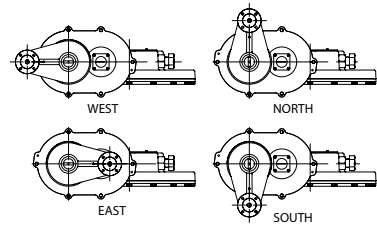


INPUT SHAFT PROJECTION

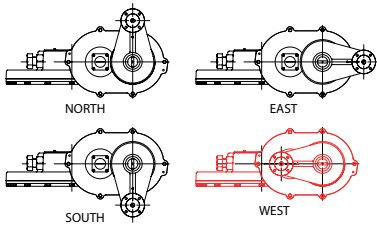


MOW11 1140:1 TO 6560:1

2ND AUXILIARY GEARBOX ORIENTATION POS.A WITH 1ST AUXILIARY SHOWN IN EAST DEFAULT ORIENTATION EAST/EAST



2ND AUXILIARY GEARBOX ORIENTATION POS.B WITH 1ST AUXILIARY SHOWN IN WEST DEFAULT ORIENTATION WEST/WEST



A1 = Anticlockwise in, clockwise out.

A2 = Clockwise in, clockwise out.

B1 = Clockwise in, clockwise out.

B2 = Anticlockwise in, clockwise out.

A full listing of the Rotork sales and service network is available on our website.

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