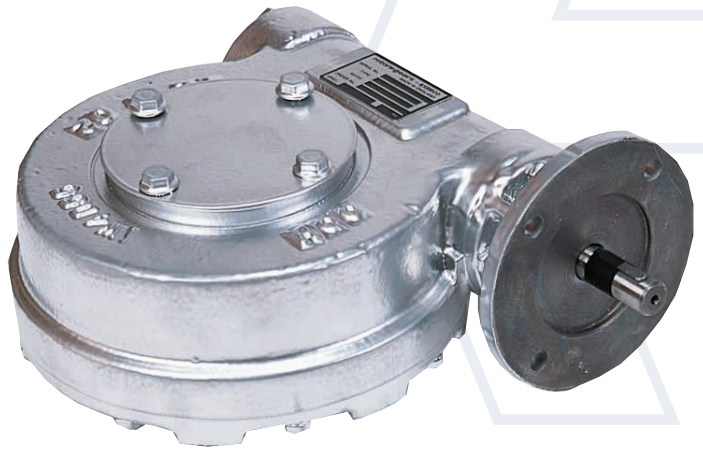




Keeping the World Flowing
for Future Generations



MTW Mk2 multi-turn worm gear operators have been designed to suit isolating duty valves, dampers and gates that require irreversibility.

The gearboxes include low lead angle gearing designed to be inherently self-locking. MTW Mk2 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 5210. MSS SP-102 flanges are available as an alternative.

Application

Rotork MTW Mk2 worm gear operators are multi-turn devices intended for motorised operation of dampers and river gates.

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
- Inherently self-locking gear componentry

MTW Mk2

Multi-Turn
Worm Gearboxes

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

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

MTW Mk2 Multi-Turn Worm Gearboxes

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
Wormwheel	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 CC762S
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.

MTW Mk2 Multi-Turn Worm Gearboxes

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
MTW3	48	17*	-	-	-	-	45	36	F/FA 10 - 12	F/FA 14 - 16
MTW4	46	20	20	-	-	-	64	51	F/FA 10 - 14	F/FA 16
	92 to 276	20	20	-	-	-				
MTW5	48	20	25	-	-	-	76	62	F/FA 14 - 16	F/FA 25
	96 to 288	20	20	-	-	-				
MTW6	76	20	30	30	-	-	102	83.3	F/FA 16 - 25	F/FA 30
	152 to 456	20	20	-	-	-				
MTW7	64	20	30	30	30	-	136	108.8	F/FA 25 - 30	F/FA 35
	130 to 768	20	30	-	-	-				
MTW8	64	-	-	40	40	-	157	122.9	F/FA 25 - 40	F/FA 48
	130 to 768	20	30	40	50	-				
MTW9	58	-	-	40	50	-	178	132.1	F/FA 30 - 40	
	175 to 696	20	30	40	50	-				
	971 to 2900	20	30	40	50	-				
MTW10	74	-	-	-	50	50	203	152.6	F/FA 35 - 48	F/FA 60
	222 to 3700	20	30	40	50	-				
MTW11	73	-	-	-	50	50	272	180	F/FA 40 - 48	
	439 to 1093	20	30	40	50	-				
	1440 to 6560	20	30	30	-	-				
MTW12	70	-	-	-	75	75	272	180	F/FA 40 - 60	
	280 to 1120	-	30	40	50	-				
	1779 to 6720	20	30	30	-	-				
MTW13	70	-	-	-	75	75	272	180	F/FA 40 - 60	
	280 to 1120	-	30	40	50	-				
	1416 to 6720	20	30	30	-	-				

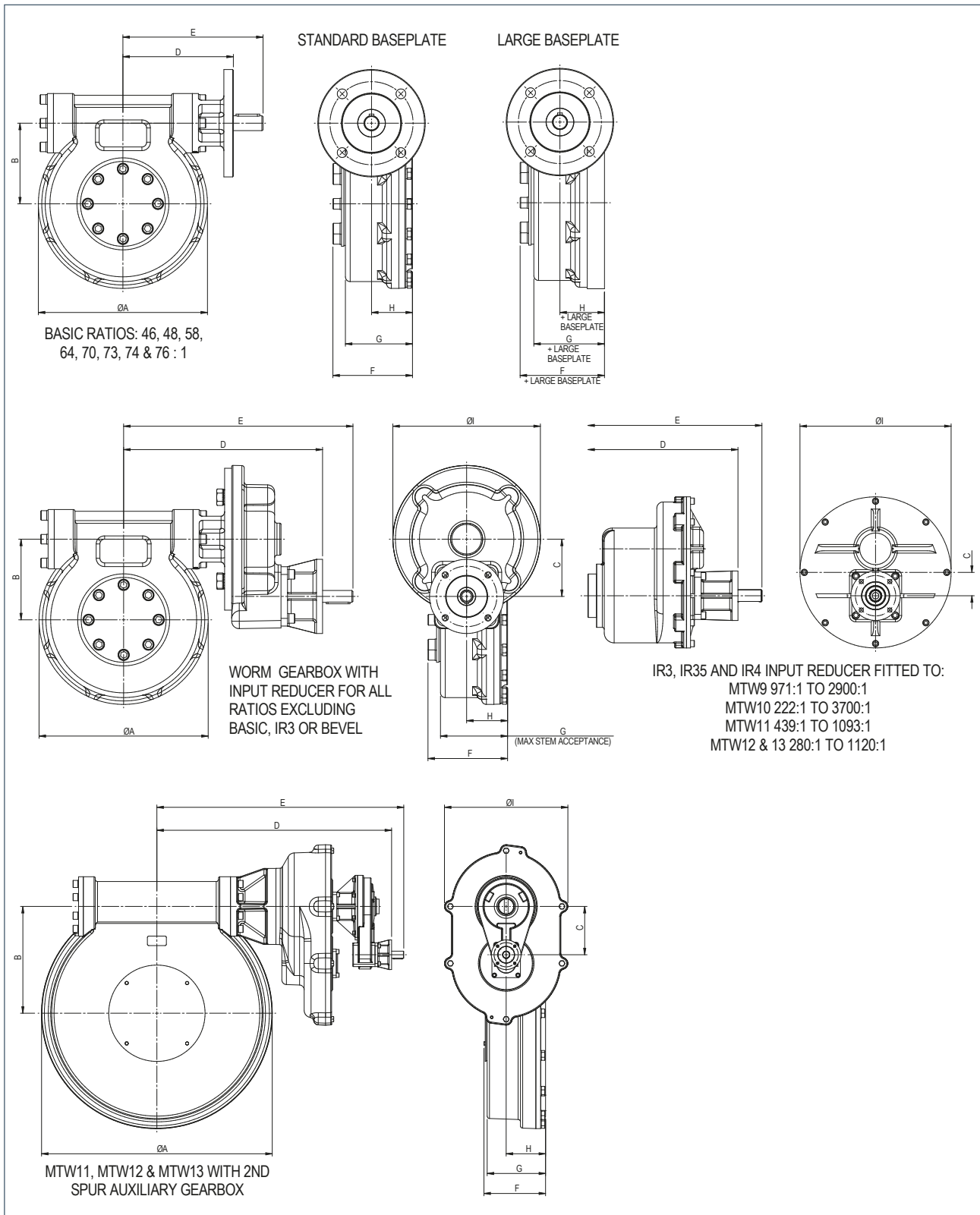
Big Bore Input and Output Options

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
MTW12	70	-	-	-	75	75	305	229	F/FA 48-60	F/FA 60
	280 to 1120	-	30	40	50	-				
	1779 to 6720	20	30	30	-	-				
MTW13	70	-	-	-	75	75	305	229	F/FA 48-60	F/FA 60
	280 to 1120	-	30	40	50	-				
	1416 to 6720	20	30	30	-	-				

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

MTW Mk2 Multi-Turn Worm Gearboxes

Dimensional Drawings



MTW Mk2 Multi-Turn Worm Gearboxes

Dimension Table

Gearbox	Ratio : 1	ØA	B	C	D	E	F	G	H	ØI	Large Baseplate Additional Thickness	Weight kg (lbs)
MTW3	48	172	76		118	158	91	74	49		22	11 (24)
MTW4	46	218	102		142	182	106	85	50		25	21 (46)
	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 (97)
MTW5	48	285	136		186	236	132	114	69		6	43 (95)
	96, 144, 192	285	136	64	313	364	132	114	69	190		55 (121)
	243, 288	285	136	96	335	386	132	114	69	248		67 (148)
MTW6	76	375	178		186 (196 for F/FA10)	236	139	113	70		-	64 (141)
	152 - 304	375	178	64	313	364	139	113	70	190		73 (161)
	385 - 456	375	178	96	342	393	139	113	70	248		87 (192)
MTW7	64	450	210		270	329	171	140	86		31	113 (249)
	130 - 384	450	210	119	460	521	171	140	86	290		142 (313)
	505 - 768	450	210	179	469	530	171	140	86	408		176 (388)
MTW8	64	520	246		306	365	192	160	99		38	181 (399)
	130 - 384	520	246	119	496	557	192	160	99	290		206 (454)
	505 - 768	520	246	179	505	566	192	160	99	408		240 (529)
MTW9	58	596	279		371	481	200	168	99		27	265 (584)
	175 - 696	596	279	179	568	631	200	168	99	408		320 (706)
	971 - 2,900	596	279	59	605	666	200	168	99	382		330 (728)
MTW10	74	735	343		397	507	216	180	110		32	401 (884)
	222 - 3,700	735	343	59	631	692	216	180	110	382		460 (1,014)
MTW11	73	795	381		414	524	247	200	120		-	503 (1,109)
	439 - 1,093	795	381	59	648	709	247	200	120	382		565 (1,246)
MTW11 with 2nd spur auxiliary	1,440 - 6,560	795	381	204	786	838	247	200	120	382	-	597 (1,316)
MTW12 / MTW13	70	972	450		460	610	260	251	166		-	1,042 (2,298)
	280 - 1,120	972	450	240	851	910	260	251	166	520		1,315 (2,900)
MTW12 with 2nd spur auxiliary	1,779 - 6,720	972	450	204	989	1,039	260	251	166	520	-	1,347 (2,970)
MTW13 with 2nd spur auxiliary	1,416 - 6,720	972	450	305	1,001	1,051	260	251	166	520	-	1,362 (3,003)

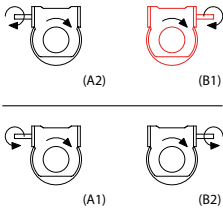
All dimensions in mm.

MTW Mk2 Multi-Turn Worm Gearboxes

Customer Drive and Orientation Options

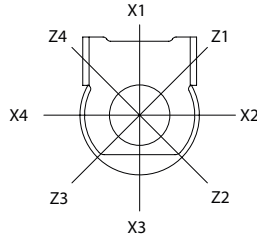
MTW3 TO MTW13 46:1 TO 76:1

INPUT SHAFT PROJECTION
WITHOUT INPUT REDUCER

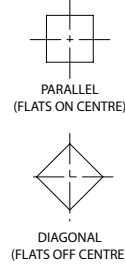


DRIVE OPTIONS

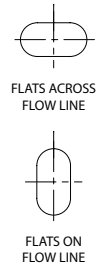
KEYWAY POSITIONS WITH GEARBOX IN CLOSED POSITION



SQUARE BORE



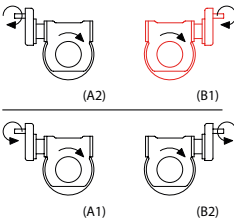
SLOTTED BORE



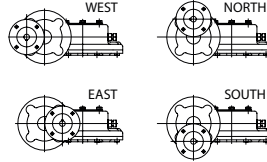
MTW4 TO MTW9 UP TO 696:1

MTW12 & MTW13 RATIOS 280:1 TO 1120:1

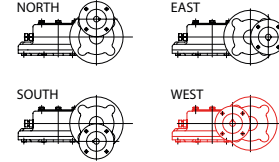
INPUT SHAFT PROJECTION



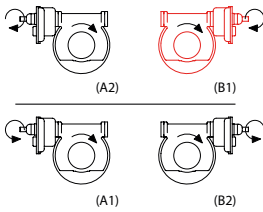
INPUT REDUCER ORIENTATION POS. A



INPUT REDUCER ORIENTATION POS. B



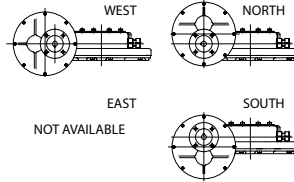
INPUT SHAFT PROJECTION



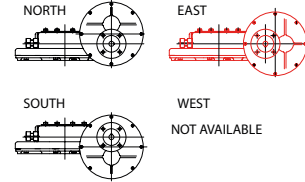
MTW9 971:1 TO 2900:1 MTW10 219:1 TO 3700:1

MTW11 439:1 TO 1093:1

IR3 INPUT REDUCER ORIENTATION POS. A

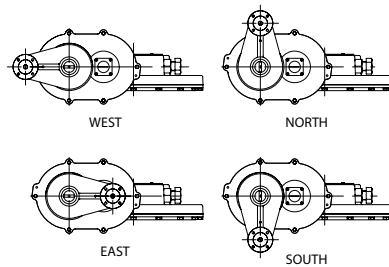


IR3 INPUT REDUCER ORIENTATION POS. B

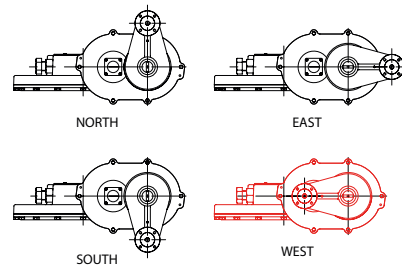


MTW11*, MTW12 & MTW13 WITH 2ND SPUR AUXILIARY GEARBOX

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



*MTW11 1ST AUXILIARY SPUR CANNOT BE MOUNTED EAST FOR POSITION A OR MOUNTED WEST FOR POSITION B, DEFAULT ORIENTATION POS. B EAST/WEST.

A1 = Anticlockwise in, clockwise out.

A2 = Clockwise in, clockwise out.

B1 = Clockwise in, clockwise out.

B2 = Anticlockwise in, clockwise out.

MTW Mk2 Multi-Turn Worm Gearboxes

Sizing Chart

Gearbox	Ratio :1													Average Static MA* ±10%							Rated Output Torque (Nm)	Rated Output Torque (lbs.ft)							
MTW3	48													18											712	525			
MTW4	46													19												1,966	1,450		
	92	138	184	233	276									36	55	73	92	109											
MTW5	48													19												3,118	2,299		
	96	144	192	243	288									36	55	73	92	109											
MTW6	76													31												8,720	6,431		
	152	228	304	385	456									58	87	116	147	174											
MTW7	64													25												12,202	8,999		
	130	192	262	384	505	572	768							49	72	98	144	190	215	288									
MTW8	64													25												21,693	15,998		
	130	192	262	384	505	572	768							47	70	95	140	184	208	280									
MTW9	58													25												46,800	34,513		
	175	230	350	458	519	696								73	95	145	189	215	288										
	971	1,044	1,424	2,088	2,436	2,900								382	410	560	821	958	1,140										
MTW10	74													31												54,232	39,994		
	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					
MTW11	73													31												93,550	68,990		
	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						
MTW12	70													33												110,000	81,121		
	280	420	560	708	840	1,120								119	178	237	300	356	474										
	1,779	2,372	3,360	4,592	5,040	6,720								715	954	1,351	1,847	2,027	2,702										
MTW13	70													33												162,000	119,469		
	280	420	560	708	840	1,120								119	178	237	300	356	474										
	1,416	1,680	2,240	2,833	3,360	4,480	5,666	6,720						570	676	901	1,139	1,351	1,802	2,278	2,702								

*The published M.A. is achieved after a few cycles.

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

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