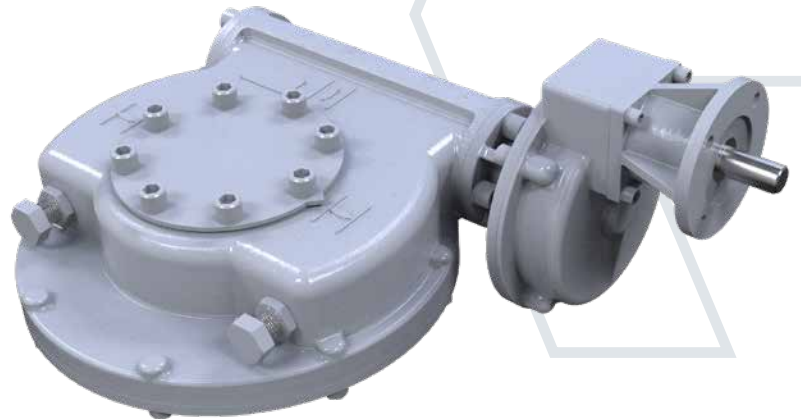




Keeping the World Flowing
for Future Generations



IW Mk2 quarter-turn worm gear operators have been designed to suit isolating duty motorised applications.

The gearboxes include low lead angle gearing designed to be inherently self-locking, and offer an increased torque output per size compared with the previous IW range. IW 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 +250 °F, other temperature ranges are available on request. Gearbox input and output flanges are designed in accordance with MSS SP-101.

Application

Rotork IW Mk2 worm gear operators are quarter-turn devices intended for motorised operation of ball, plug and butterfly valves.

Features

- Totally enclosed 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° ±5°)
- Inherently self-locking gear componentry

IW Mk2

Quarter-Turn Worm Gearboxes

Environmental Specification

- IP67 as standard:
Suitable for submerged duty to a depth of 3 feet for 30 minutes
- Temperature as standard:
-40 to +250 °F

Options

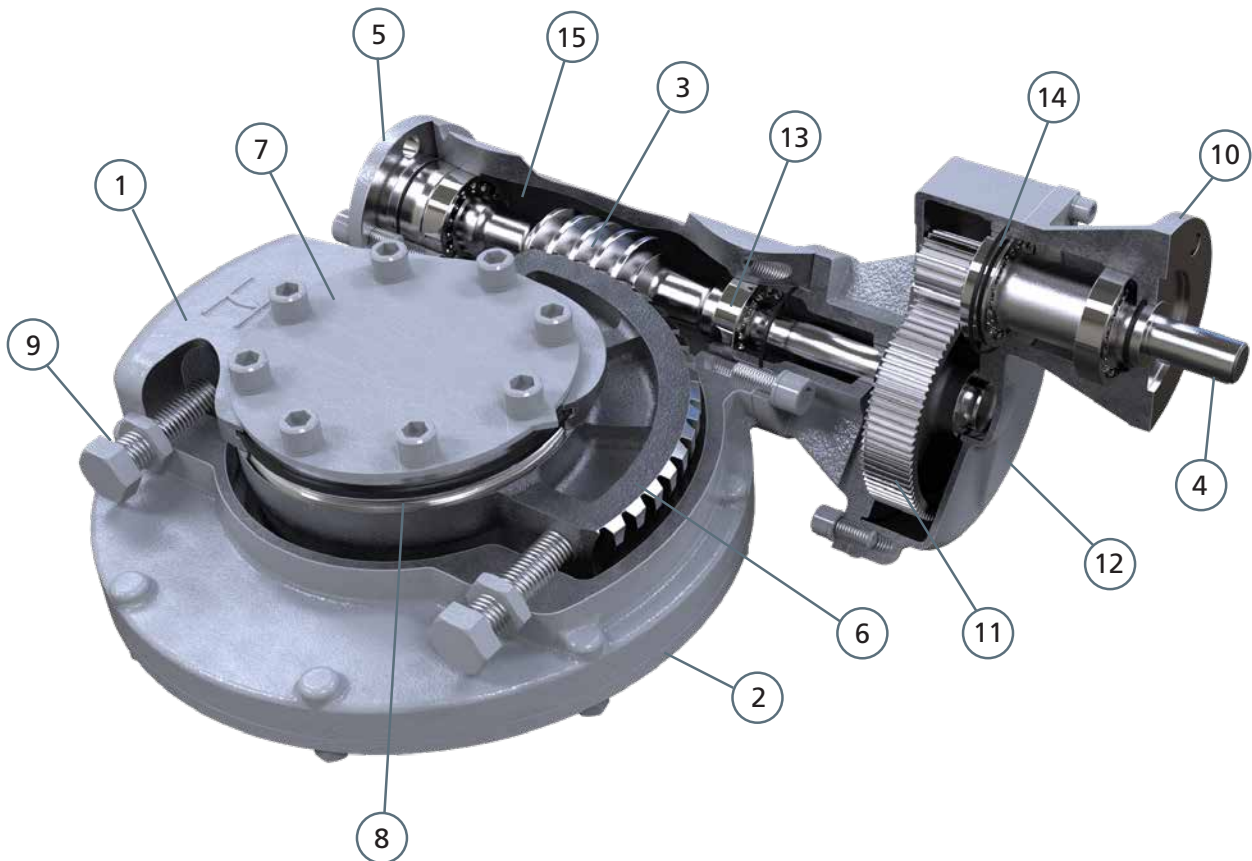
- Flexible input extensions
- IP68: 49 feet for 72 hours
- ATEX
- Buried, marinised, continuous submersible environments
- Stainless steel fasteners
- Low temperature option:
-76 to +250 °F
- High temperature option:
-4 to +392 °F

IW Mk2 Quarter-Turn Worm Gearboxes

Material Specification

No.	Component	Material	USA Standard
1	Gearcase	SG Iron	ASTM A536 65-45-12
2	Baseplate	SG Iron	ASTM A536 65-45-12
		Cast Iron	ASTM A48 35B/40B
3	Worm Shaft	Protected Steel	AISI/SAE 4140
4	Input Shaft	Steel	AISI/SAE 5140
5	End Cap	Steel	AISI/SAE 1023 AISI/SAE 1045
		Cast Iron	ASTM A48 35B/40B
		SG Iron	ASTM A536 65-45-12
6	Quadrant	SG Iron	ASTM A536 100-70-03
7	Position Indicator	Steel	AISI/SAE 1023
8	Output Sleeve	Steel	AISI/SAE 1023 AISI/SAE 1040 AISI/SAE 1055
9	Fasteners	Protected Steel	
10	Input Flange	SG Iron	ASTM A536 65-45-12
11	Reducer Gearing	Steel	AISI/SAE 4340
12	Reducer Gearcase	SG Iron	ASTM A536 65-45-12
13	Bearings	Angular Contact Ball Bearings	
14	Seals	Nitrile Rubber	
15	Grease	Renolit CLX2	

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



IW Mk2 Quarter-Turn Worm Gearboxes

Standard Input and Output Options

Gearbox	Ratio:1	Input Mounting Details Shaft Diameter (inch)					Output Mounting Details				
		FA10	FA14	FA16	FA25	FA30	Max Bore ANSI B17.1 Key		Max Square Bore A/F	MSS Flange Standard Baseplate	MSS Flange Large Baseplate
							Square	Rectangular			
IW3 / IW36	48	0.669*	-	-	-	-	1.75	1.75	1.42	FA 10 - 12	FA 14 - 16
IW4 / IW46	46	0.787	0.787	-	-	-	2.25	2.5	2	FA 10 - 14	FA 16
	92 to 276	0.787	0.787	-	-	-					
IW5 / IW52 / IW56	48	0.787	0.984	-	-	-	2.75	3	2.44	FA 14 - 16	FA 25
	96 to 288	0.787	0.787	-	-	-					
IW6 / IW66	76	0.787	1.181	1.181	-	-	3.75	3.875	3.25	FA 16 - 25	FA 30
	152 to 456	0.787	0.787	-	-	-					
IW7 / IW72 / IW76	64	0.787	1.181	1.181	1.181	-	4.875	5.25	4.25	FA 25 - 30	FA 35
	130 to 768	0.787	1.181	1.181	-	-					
IW8 / IW82 / IW86	64	-	-	1.575	1.575	-	5.625	6	4.84	FA 25 - 40	FA 48
	130 to 768	0.787	1.181	1.575	1.969	-					
IW9 / IW96	58	-	-	1.575	1.969	-	6.5	6.5	5.20	FA 30 - 40	
	175 to 696	0.787	1.181	1.575	1.969	-					
	971 to 2900	0.787	1.181	1.575	1.969	-					
IW10 / IW106	74	-	-	-	1.969	1.969	7.375	7.625	6	FA 35 - 48	
	222 to 3700	0.787	1.181	1.575	1.969	-					
IW11	73	-	-	-	1.969	1.969	7.375	7.625	6	FA 40 - 48	
	219 to 3650	0.787	1.181	1.575	1.969	-					
IW116	73	-	-	-	1.969	1.969	9.5	10.25	7	FA 40 - 60	
	439 to 1093	0.787	1.181	1.575	1.969	-					
	1440 to 6560	0.787	1.181	1.181	-	-					
IW126	70	-	-	-	2.953	2.953	9.5	10.25	7	FA 40 - 60	
	280 to 1120	-	1.181	1.575	1.969	-					
	1779 to 6720	0.787	1.181	1.181	-	-					
IW13	70	-	-	-	2.953	2.953	9.5	10.25	7	FA 40 - 60	
	280 to 1120	-	1.181	1.575	1.969	-					
	1416 to 6720	0.787	1.181	1.181	-	-					

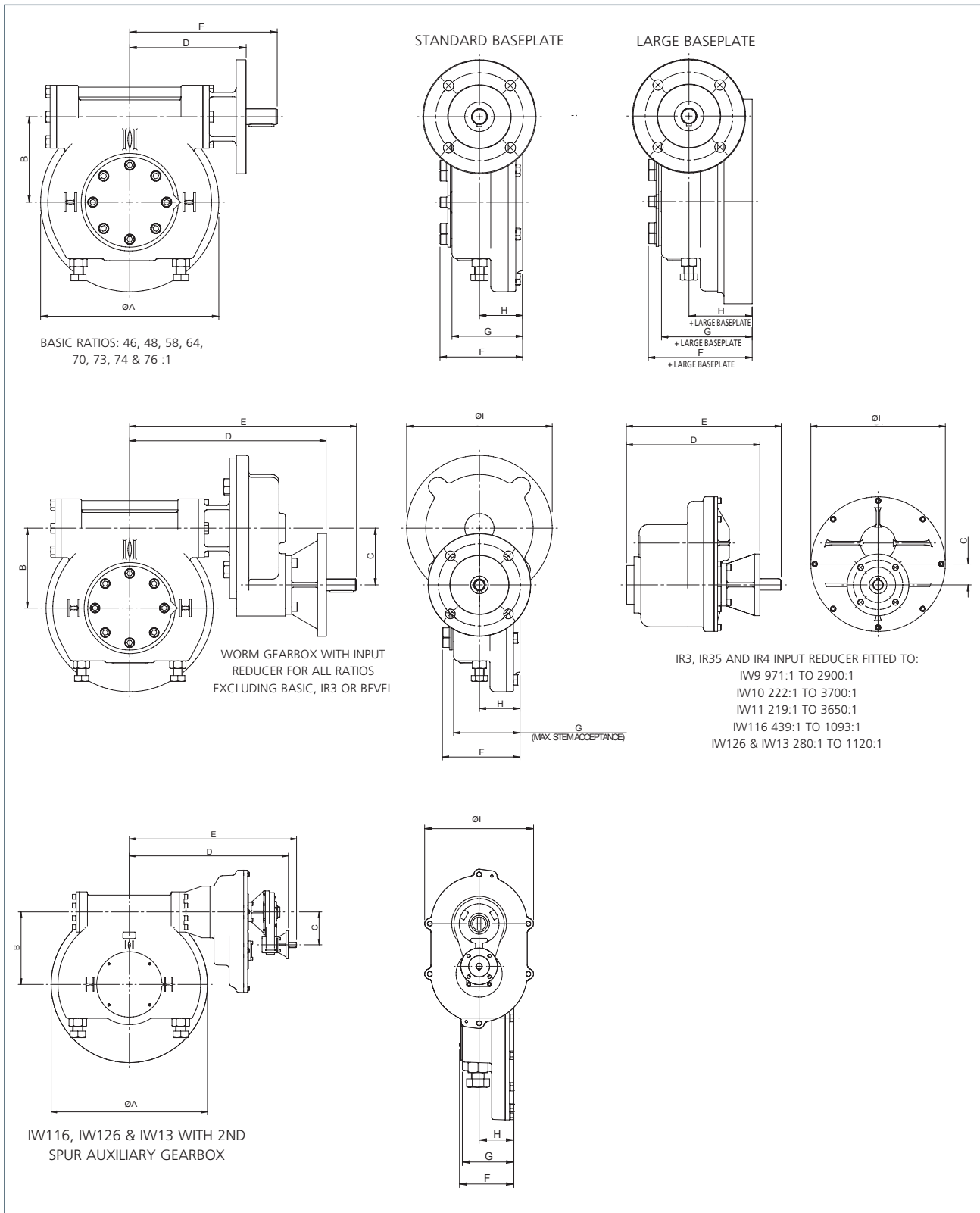
Big Bore Input and Output Options

Gearbox	Ratio:1	Input Mounting Details Shaft Diameter (inch)					Output Mounting Details				
		FA10	FA14	FA16	FA25	FA30	Max Bore ANSI B17.1 Key		Max Square Bore A/F	MSS Flange Standard Baseplate	MSS Flange Large Baseplate
							Square	Rectangular			
IW11BB	73	-	-	-	1.969	1.969	9.875	10.125	7.5	FA 40 - 48	FA 60
	219 to 3650	0.787	1.181	1.575	1.969	-					
IW116BB	73	-	-	-	1.969	1.969	9.875	10.125	7.5	FA 40 - 48	
	439 to 1093	0.787	1.181	1.575	1.969	-					
IW126	1440 to 6560	0.787	1.181	1.181	-	-	11.75	12	9	FA 48-60	
	70	-	-	-	2.953	2.953					
	280 to 1120	-	1.181	1.575	1.969	-					
IW13	1779 to 6720	0.787	1.181	1.181	-	-	11.75	12	9	FA 48-60	
	70	-	-	-	2.953	2.953					
	280 to 1120	-	1.181	1.575	1.969	-					
IW13	1416 to 6720	0.787	1.181	1.181	-	-	11.75	12	9	FA 48-60	
	70	-	-	-	2.953	2.953					

* 0.787 inch shaft adaptor available on request. Shaft tolerance -0.002"

IW Mk2 Quarter-Turn Worm Gearboxes

Dimensional Drawings



IW Mk2 Quarter-Turn Worm Gearboxes

Dimension Table

Gearbox	Ratio : 1	ØA	B	C	D	E	F	G	H	ØI	Large Baseplate Additional Thickness	Weight lbs
IW3 / IW36	48	6.77	2.99		4.65	6.22	3.58	2.91	1.93		0.86	24
IW4 / IW46	46	8.58	4.02		5.59	7.17	4.17	3.35	1.97		0.98	46
	92 - 184	8.58	4.02	2.52	10.59	12.60	4.17	3.35	1.97	7.48		73
	233 - 276	8.58	4.02	3.78	11.46	13.46	4.17	3.35	1.97	9.76		99
IW5 / IW52 / IW56	48	11.22	5.35		7.32	9.29	5.20	4.49	2.72		0.24	97
	96, 144, 192	11.22	5.35	2.52	12.32	14.33	5.20	4.49	2.72	7.48		121
	243, 288	11.22	5.35	3.78	13.19	15.20	5.20	4.49	2.72	9.76		150
IW6 / IW66	76	14.76	7.01		7.32 (7.72 for FA10)	9.29	5.47	4.45	2.76		-	150
	152 - 304	14.76	7.01	2.52	12.32	14.33	5.47	4.45	2.76	7.48		174
	385 - 456	14.76	7.01	3.78	13.46	15.47	5.47	4.45	2.76	9.76		198
IW7 / IW72 / IW76	64	17.72	8.27		10.63	12.95	6.73	5.51	3.39		1.22	284
	130 - 384	17.72	8.27	4.69	18.11	20.51	6.73	5.51	3.39	11.42		328
	505 - 768	17.72	8.27	7.05	18.46	20.87	6.73	5.51	3.39	16.06		399
IW8 / IW82 / IW86	64	20.47	9.69		12.05	14.37	7.56	6.30	3.90		1.49	410
	130 - 384	20.47	9.69	4.69	19.53	21.93	7.56	6.30	3.90	11.42		487
	505 - 768	20.47	9.69	7.05	19.88	22.28	7.56	6.30	3.90	16.06		545
IW9 / IW96	58	23.46	10.98		14.61	18.94	7.87	6.61	3.90		1.06	613
	175 - 696	23.46	10.98	7.05	22.36	24.84	7.87	6.61	3.90	16.06		739
	971 - 2,900	23.46	10.98	2.32	23.82	26.22	7.87	6.61	3.90	15.04		754
IW10 / IW106	74	28.94	13.50		15.63	19.96	8.50	7.09	4.33		1.26	864
	222 - 3,700	28.94	13.50	2.32	24.84	27.24	8.50	7.09	4.33	15.04		996
IW11 / IW11BB	73	31.30	15.00		16.30	20.63	9.72	7.87	4.72		-	1,069
	219 - 3,650	31.30	15.00	2.32	25.51	27.91	9.72	7.87	4.72	15.04		1,202
IW116 / IW116BB	73	31.30	15.00		16.30	20.63	9.72	7.87	4.72		-	1,069
	439 - 1,093	31.30	15.00	2.32	25.51	27.91	9.72	7.87	4.72	15.04		1,210
IW116 with 2nd spur auxiliary	1,440 - 6,560	31.30	15.00	8.03	30.94	32.99	9.72	7.87	4.72	15.04	-	1,287
IW126 / IW13	70	38.27	17.72		18.11	24.02	10.24	9.88	6.54		-	1,980
	280 - 1,120	38.27	17.72	9.45	33.50	35.83	10.24	9.88	6.54	20.47		2,575
IW126 with 2nd spur auxiliary	1,779 - 6,720	38.27	17.72	8.03	38.94	40.91	10.24	9.88	6.54	20.47	-	2,652
IW13 with 2nd spur auxiliary	1,416 - 6,720	38.27	17.72	12.01	39.41	41.38	10.24	9.88	6.54	20.47	-	2,685

All dimensions in inches.

IW Mk2 Quarter-Turn Worm Gearboxes

Customer Drive and Orientation Options

IW3 TO IW13 46:1 TO 76:1

INPUT SHAFT PROJECTION WITHOUT INPUT REDUCER

(A2) (B1)

(A1) (B2)

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

IW4 TO IW9 UP TO 696:1

INPUT SHAFT PROJECTION

(A2) (B1)

(A1) (B2)

IW126 & IW13 RATIOS 280:1 TO 1120:1

INPUT REDUCER ORIENTATION POS. A

WEST NORTH

EAST SOUTH

INPUT REDUCER ORIENTATION POS. B

NORTH EAST

SOUTH WEST

IW9 971:1 TO 2900:1

IW10 & IW11 219:1 TO 3700:1

INPUT SHAFT PROJECTION

(A2) (B1)

(A1) (B2)

IW116 439:1 TO 1093:1

IR3 INPUT REDUCER ORIENTATION POS. A

WEST NORTH

EAST SOUTH

NOT AVAILABLE

IR3 INPUT REDUCER ORIENTATION POS. B

NORTH EAST

SOUTH WEST

NOT AVAILABLE

IW116*, IW126 & IW13 WITH 2ND SPUR AUXILIARY GEARBOX

INPUT SHAFT PROJECTION

(A2) (B1)

(A1) (B2)

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

WEST NORTH

EAST SOUTH

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

NORTH EAST

SOUTH WEST

*IW116 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.

IW Mk2 Quarter-Turn Worm Gearboxes

Sizing Chart

Gearbox	Ratio :1										Rated Output Torque ft-lb	Maximum Input Torque ft-lb										Average Static MA* ±10%											
	48	56	63	71	80	90	100	112	126	144		54	63	72	81	91	102	113	125	138	153	15	18	21	25	30							
IW3	48										800	54										15											
IW36	48										1,106	74										15											
IW4	46										1,800	113										16											
	92	138	184	233	276							60	40	30	24	20						30	45	61	77	91							
IW46	46										2,139	134										16											
	92	138	184	233	276							71	47	35	28	24						30	45	61	77	91							
IW5	48										3,280	205										16											
	96	144	192	243	288							108	72	54	43	36						30	46	61	77	91							
IW52	48										4,920	308										16											
	96	144	192	243	288							162	108	81	64	54						30	46	61	77	91							
IW56	48										5,900	369										16											
	96	144	192	243	288							194	129	97	77	65						30	46	61	77	91							
IW6	76										7,320	288										25											
	152	228	304	385	456							151	101	76	60	50						48	72	97	122	145							
IW66	76										8,851	348										25											
	152	228	304	385	456							183	122	91	72	61						48	72	97	122	145							
IW7	64										11,250	534										21											
	130	192	262	384	505	572	768					277	187	137	94	72	63	47				41	60	82	120	158	179	240					
IW72	64										14,751	701										21											
	130	192	262	384	505	572	768					364	246	180	123	94	83	61				41	60	82	120	158	179	240					
IW76	64										19,177	910										21											
	130	192	262	384	505	572	768					473	319	235	160	122	107	80				41	60	82	120	158	179	240					
IW8	64										23,602	1,155										20											
	130	192	262	384	505	572	768					600	405	297	203	154	136	101				39	58	79	117	153	174	233					
IW82	64										27,290	1,335										20											
	130	192	262	384	505	572	768					693	468	344	235	178	157	117				39	58	79	117	153	174	233					
IW86	64										32,821	1,606										20											
	130	192	262	384	505	572	768					834	563	413	282	214	189	141				39	58	79	117	153	174	233					
IW9	58										38,479	1,823										21											
	175	230	350	458	519	696						637	485	319	243	215	160					60	79	121	158	179	240						
IW96	971	1,044	1,424	2,088	2,436	2,900					46,835	1,211	113	83	56	48	41					318	342	466	684	798	950						
	58											2,219										21											
IW10	175	230	350	458	519	696					51,629	774	590	388	296	262	195					60	79	121	158	179	240						
	971	1,044	1,424	2,088	2,436	2,900						148	137	100	69	59	49					318	342	466	684	798	950						
IW106	74										73,756	1,985										26											
	222	303	444	666	908	1,238	1,332	1,816	2,664	3,108		3,700	735	539	367	245	180	132	122	90	61	52	44	70	96	140	211	287	392	421	575	843	983
IW11	74										79,999	2,836											26										
	222	303	444	666	908	1,238	1,332	1,816	2,664	3,108		3,700	1,050	770	525	350	257	188	175	128	88	75	63	70	96	140	211	287	392	421	575	843	983
IW116	73										103,996	3,065											26										
	219	299	438	657	896	1,222	1,314	1,792	2,628	3,066		3,650	1,135	833	568	378	277	204	190	139	94	81	68	70	96	141	211	288	393	423	577	846	987
IW126	73										132,761	3,985											26										
	439	595	880	1,215	1,693								736	544	475	412	352	296					141	191	219	253	296	352					
IW13	1,440	1,663	1,946	2,315	2,788	3,220	3,767	4,483	5,513	6,560	149,725	236	204	175	147	122	105	90	76	62	52	440	508	595	708	852	984	1,152	1,370	1,685	2,005		
	70											4,839											27										
IW13	280	420	560	708	840	1,120					149,725	1,344	896	672	531	448	336					99	148	198	250	296	395						
	1,779	2,372	3,360	4,592	5,040	6,720						223	167	118	86	79	59					596	795	1,126	1,539	1,689	2,252						
IW13	70										149,725	5,457										27											
	280	420	560	708	840	1,120						1,516	1,010	758	600	505	379					99	148	198	250	296	395						
IW13	1,416	1,680	2,240	2,833	3,360	4,480	5,666	6,720			149,725	316	266	199	158	133	100	79	66			475	563	751	949	1,126	1,501	1,899	2,252				

*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.

www.rotork.com

Headquarters

Rotork Gears UK
tel +44 (0)113 2567922
email sales@rotorkgears.com

Corporate Headquarters

Rotork plc
tel +44 (0)1225 733200
fax +44 (0)1225 333467
email mail@rotork.com

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