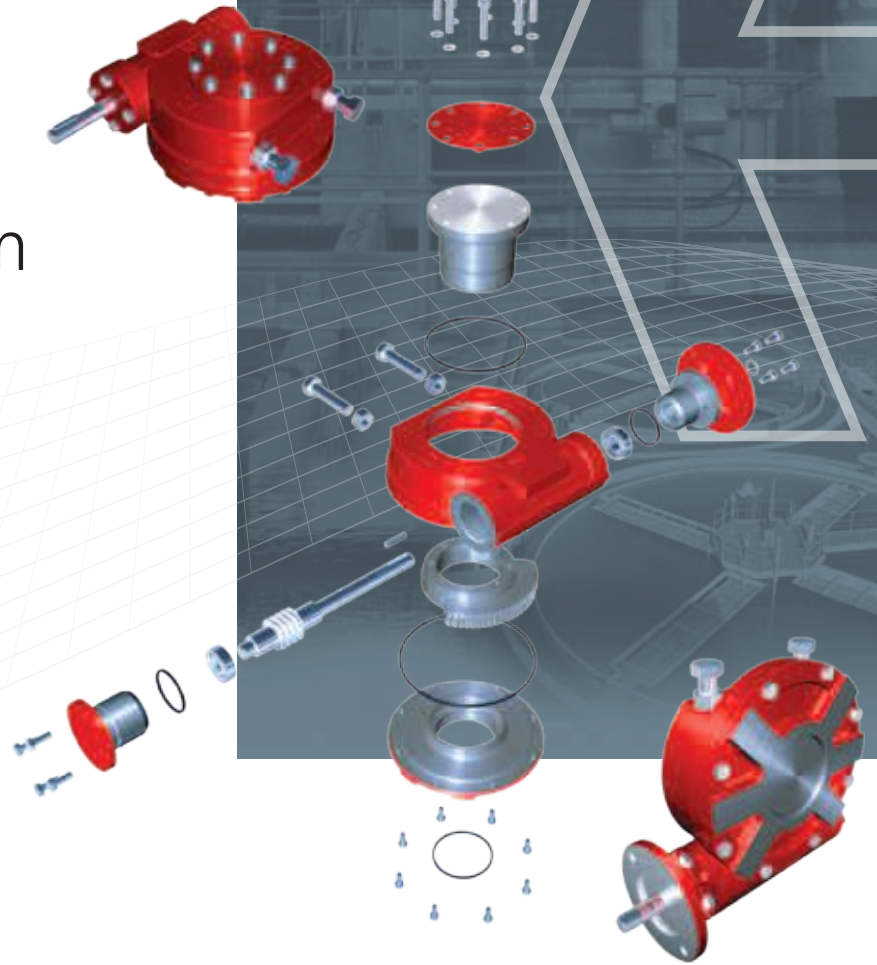


rotork®

Gears

IW Quarter-turn

Cast Iron Housing Gearboxes



IW Quarter-turn Gear Series

The IW series of quadrant worm operators has been designed with customer stocking in mind, and features a removable steel output sleeve to facilitate bore and keyway machining. This separate output sleeve can be positioned through 90° steps on the IW3 & through 45° steps on the IW4 to IW11. The baseplate can be positioned through 45° steps on the IW3 to IW5 and through 22.5° steps on the IW6 to IW12. This facility allows for on or off centre mounting on the valve stool without special machining.

Operating temperature normally ranges from -40 to +120 °C, although other temperature ranges are available on request. Standard input (for actuation purposes) and output flanges are to ISO 5211 standard. However, equivalent standards such as MSS & DIN can be supplied.

Application

Rotork Gears IW series operators are quarter-turn devices intended for the operation of ball, plug and butterfly valves as well as power and process dampers. The gearboxes are suitable for manual and motorised applications.

Features

- Totally enclosed gearing
- Grease filled for life & fully sealed
- Comprehensive gear ratios combined with a selection of auxiliary input spur gear reducers
- Angular contact bearings supporting worm shaft
- Removable output sleeve
- Repositionable baseplate facility
- Adjustable mechanical stops (at 0° and 90° ±5°)

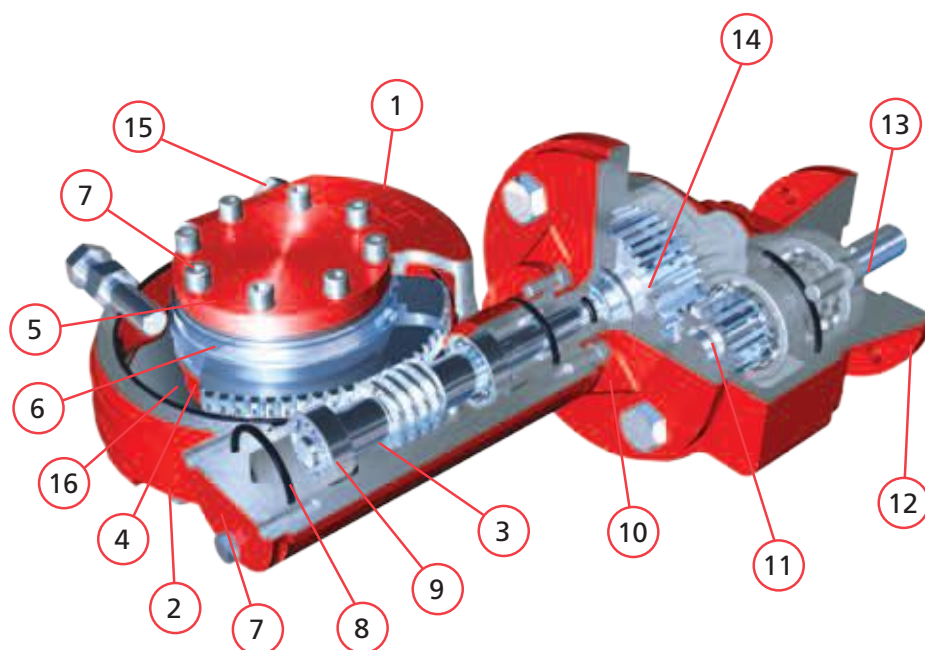
Environmental Specification

- Enclosure: IP67 standard
- Temperature: -40 to +120 °C (-40 to +250 °F)

Options

- Ductile Iron
- IP68
- AWWA
- ATEX
- Nuclear
- All types of environment
- High & low temperatures
- Padlockable handwheels
- Limit switches
- Lever arms
- Travelling nut for applications requiring less than 90° travel and more than 90°
- Modulating & multi-turn
- Input flanges for motorisation
- Flexible Extensions

Established Leaders in Actuation Technology

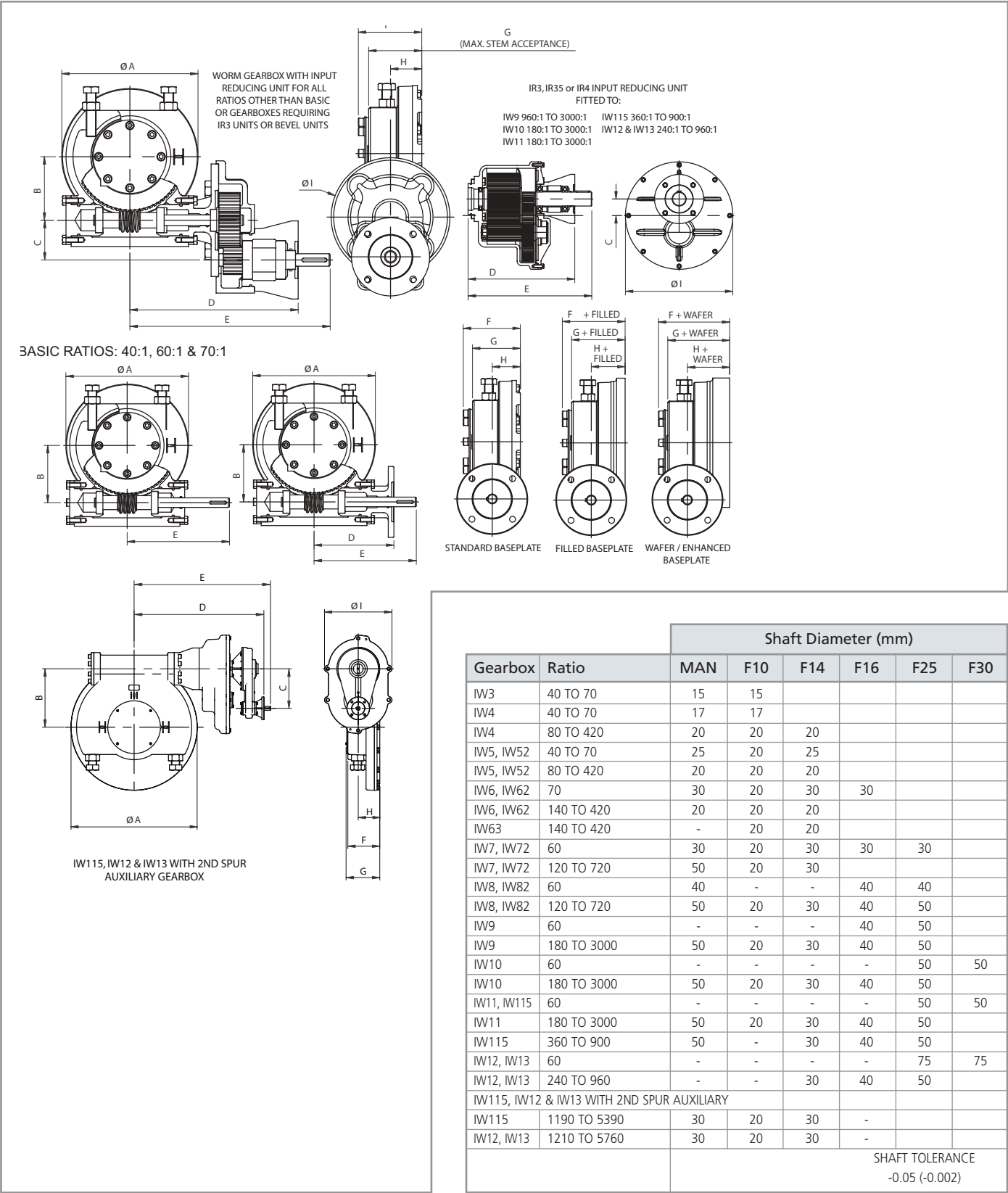


Material specification for Rotork Gear IW series of Quarter-turn Valve Operators

No.	Description	Material	UK Standard	USA Standard	DIN Standard
1	Gearcase (IW3 & IW4)	Cast Iron	BS1561 EN-GJL-250	ASTM A48 35B/40B	GG25
	Gearcase (IW5 to IW12)	SG Iron	BS1563 EN-GJS-450-10 BS1563 EN-GJS-400-15	ASTM A536 65-45-12	GGG40
2	Baseplate	Cast Iron	BS1561 EN-GJL-250	ASTM A48 35B/40B	GG25
3	Worm Shaft	Steel	BS970 045M10 or 605M36T	AISI/SAE 1010 or 4340	C 10 or 42 MnMo 7
4	Quadrant	SG Iron	BS1563 EN-GJS-700-2	ASTM A536 100-70-03	GGG70
5	Position Indicator	Steel	BS970 070M20	AISI/SAE 1023	C 22
6	Output Sleeve	Steel	BS970 070M20 or BS970 080M40 or BS970 070M55 or	AISI/SAE 1023 or AISI/SAE 1040 or AISI/SAE 1055 or	C 22 C 40 C 55
7	Drive Screws	Carbon Steel	BS4168		
8	Seal	Nitrile Rubber			
9	Bearing	Angular Contact Ball Bearings			
10	Adaptor	Cast Iron	BS1561 EN-GJL-250	ASTM A48 35B/40B	GG25
11	Reducer Gearcase	Cast Iron	BS1561 EN-GJL-250	ASTM A48 35B/40B	GG25
12	Input Flange	Cast Iron	BS1563 EN-GJS-400-15	ASTM A48 35B/40B	GGG40
13	Input Shaft	Steel	BS970 605M36T	AISI/SAE 4340	42 MnMo 7
14	Spur Gear	Steel	BS970 817M40T	AISI/SAE 4340	40 NiCrMo 8 - 4
15	Fasteners	Steel	BS3692		
16	Grease	Renolit CLX2			

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

Gearbox IW Series



IW Quarter-turn

Cast Iron Housing Gearboxes

Dimensions and Weights

Gearbox	Ratio	ØA	B	C	D	E	F	G	H	ØI	Weight (kg)
IW3	40, 70	170	76		118	158	81	70	45		11
IW4	40, 70	218	102		142	182	102	85	50		22
IW4	80, 120, 140, 160, 210, 280	218	102	64	269	320	104	85	50	190	30
IW4	200, 240, 350, 420	218	102	96	291	342	104	85	50	248	35
IW5 / IW52	40, 70 / 40	285	136		186	236	128	110	65		45
IW5	80, 120, 140, 160, 210, 280	285	136	64	313	364	128	110	65	190	53
IW5	200, 240, 350, 420	285	136	96	335	386	128	110	65	248	58
IW52	80, 120, 160	285	136	64	313	364	128	110	65	190	53
IW52	200, 240	285	136	96	335	386	128	110	65	248	58
IW6, IW62, IW63	70	375	178		186	236	132	113	70		68
					196 for F10, FA10						
IW6, IW62, IW63	140 - 280	375	178	64	313	364	139	113	70	190	79
IW6, IW62, IW63	350 - 420	375	178	96	342	393	139	113	70	248	84
IW7, IW72	60	450	210		270	329	172	140	87		120
IW7, IW72	120 - 360	450	210	119	460	521	172	140	87	290	152
IW7, IW72	480 - 720	450	210	179	469	530	172	140	87	408	162
IW8, IW82	60	520	246		306	365	193	160	99		180
IW8, IW82	120 - 360	520	246	119	496	557	193	160	99	290	212
IW8, IW82	480 - 720	520	246	179	505	566	193	160	99	408	222
IW9	60	596	279		371	481	201	168	100		220
IW9	180 - 720	596	279	179	568	631	201	168	100	408	262
IW9	960 - 3000	596	279	59	605	666	201	168	100	382	290
IW10	60	735	343		397	507	215	180	110		330
IW10	180 - 3000	735	343	59	631	692	215	180	110	382	408
IW11	60	795	381		414	524	247	200	120		520
IW11	180 - 3000	795	381	59	648	709	247	200	120	382	570
IW115	60	795	381		414	524	247	200	120		520
IW115	360 - 900	795	381	59	648	709	247	200	120	382	540
IW115 WITH 2ND SPUR AUXILIARY	1190 - 5390	795	381	240	787	837	247	200	120	382	570
IW12, IW13	60	972	450		460	610	260	251	166		1000
IW12, IW13	240 - 960	972	450	240	851	910	260	251	166	520	1150
IW12 WITH 2ND SPUR AUXILIARY	1290 - 5760	972	450	204	989	1039	260	251	166	520	1170
IW13 WITH 2ND SPUR AUXILIARY	1210 - 5760	972	450	305	1001	1051	260	251	166	520	1180

All dimensions in millimetres.

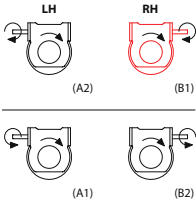
Mounting Options

Gearbox	Max Bore Rectangle Key BS4235	Max Square Bore AF	ISO Flange Standard Baseplate	ISO Flange Filled Baseplate	ISO Flange Wafer Baseplate	Filled Baseplate Thickness	Wafer Baseplate Thickness
IW3	45.0	36.0	F10 - F12	F14	F16	12	26
IW4	64.0	51.0	F12- F14	-	F16	-	25
IW5, IW52	76.0	62.0	F14 - F16	F25	F25	10	36
IW6, IW62, IW63	102.0	83.3	F16 - F25	F30	F30	0	23
IW7, IW72	136.0	108.8	F25 - F30	F25 - F30	F35	10	31
IW8, IW82	157.0	122.9	F25 - F40	-	F48	-	38
IW9	178.0	132.1	F30 - F35 - F40	F30 - F35 - F40	F48	0	27
IW10	203.0	152.6	F35 - F40	F35 - F40 - F48	F60	0	32
IW11, IW115	270.0	190.0	F35 - F40 - F48	F60	-	0	-
IW12, IW13	272.0	180.0	F40	-	-	-	-
IW12, IW13	305.0	229.0	F48 - F60	-	-	-	-

Customer Drive and Orientation Options

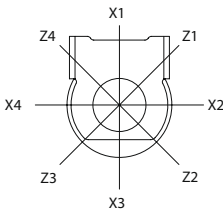
IW3 TO IW13 40:1 TO 70:1

INPUT SHAFT PROJECTION
WITHOUT INPUT REDUCER

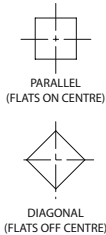


DRIVE OPTIONS

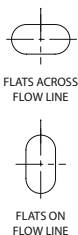
KEYWAY POSITIONS WITH GEARBOX IN CLOSED POSITION



SQUARE BORE

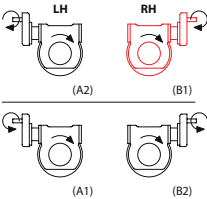


SLOTTED BORE

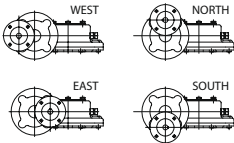


IW4 TO IW9 UP TO 720:1
IW115 RATIOS 360:1 TO 900:1, IW12 & IW13 RATIOS 240:1 TO 960:1

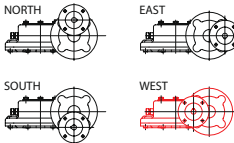
INPUT SHAFT PROJECTION



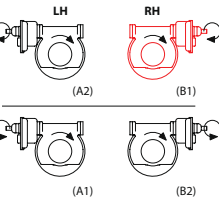
INPUT REDUCER ORIENTATION POS. A



INPUT REDUCER ORIENTATION POS. B

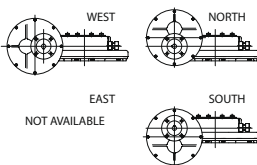


INPUT SHAFT PROJECTION

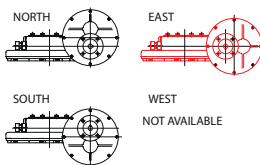


IW9 TO IW11 960:1 TO 3000:1

IR3 INPUT REDUCER ORIENTATION POS. A

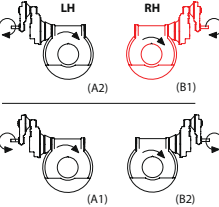


IR3 INPUT REDUCER ORIENTATION POS. B

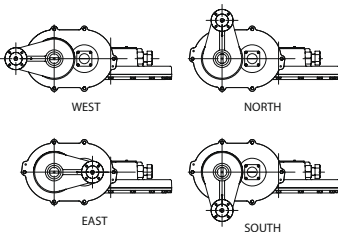


IW115, IW12 & IW13 WITH 2ND SPUR AUXILIARY GEARBOX

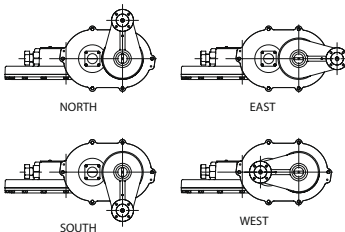
INPUT SHAFT PROJECTION



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

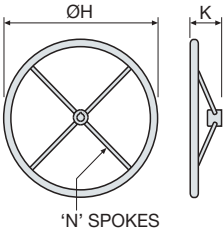


2ND AUXILIARY GEARBOX ORIENTATION POS.B
WITH 1ST AUXILIARY SHOWN IN WEST



LH = Left Hand Input Shaft.
RH = Right Hand Input Shaft.

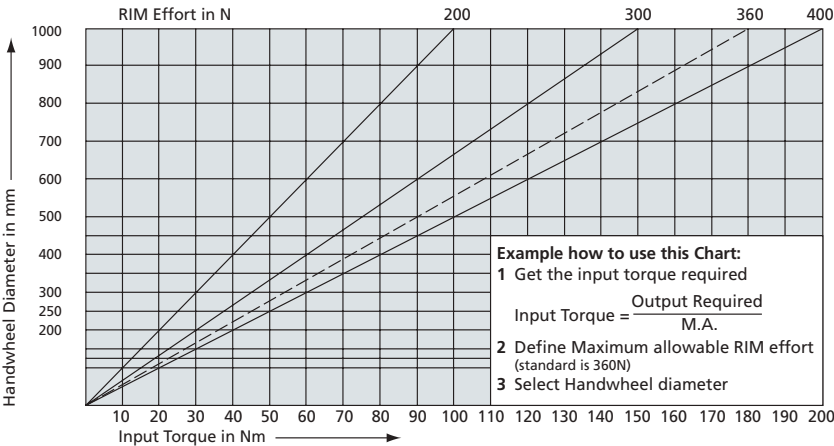
A1 = LH input shaft - Anticlockwise in, clockwise out. A2 = LH input shaft - Clockwise in, clockwise out.
B1 = RH input shaft - Clockwise in, clockwise out. B2 = RH input shaft - Anticlockwise in, clockwise out.



'F' Type handwheel

Dimensions

Type	ØH	K	N
F200	200	75.5	3
F300	300	100.5	3
F400	400	100.5	4
F500	500	100.5	4
F600	600	100.5	4
F700	700	100.5	6
F800	800	100.5	6
F900	900	100.5	6
F1000	1000	100.5	6
F1100	1100	100.5	6
F1200	1200	100.5	8



Gearbox Selection Chart

Gearbox	Ratio							Manual Output Torque (Nm)	Motorised Output Torque (Nm)	Maximum Motorised Input Torque (Nm)							Mechanical Advantage ±10%									
IW3	70							1060	813	35								23								
IW3	40							1630	1085	72								15								
IW4	70							2650	2034	88								23								
IW4	140							2850	2190	50								44								
IW4	210	280	350	420				2950	2264	34	26	21	17					66	88	110	132					
IW4	40	80						3660	2440	163	84							15	29							
IW4	120	160	200					3930	2617	61	46	37						43	57	71						
IW4	240							4070	2712	32								86								
IW5	70							4410	3390	147								23								
IW5	140	210	280	350	420			4820	3701	84	56	42	34	28				44	66	88	110	132				
IW5	40							6100	4067	239								17								
IW5	80	120	160	200	240			6670	4447	139	93	68	55	46				32	48	65	81	97				
IW52	40							7300	4867	286								17								
IW52	80	120	160	200	240			8000	5334	167	111	82	66	55				32	48	65	81	97				
IW6	70							10580	8135	354								23								
IW6	140	210						12060	9274	211	141							44	66							
IW6	280	350	420					13000	9924	113	90	75						88	110	132						
IW62	70							12540	NA	NA								23								
IW62	140	210						14300	NA	NA								44	66							
IW62	280	350	420					15300	NA	NA								88	110	132						
IW63	70							NA	9650	420								23								
IW63	140	210	280	350	420			NA	11000	250	167	125	100	83				44	66	88	110	132				
IW7	60	120	180					17630	13558	542	282	191						25	48	71						
IW7	240	360	480	540	720			20000	15253	161	107	81	71	54				95	142	189	214	285				
IW72	60	120	180	240	360	480	540	720	26000	20000	800	417	282	211	141	106	93	70	25	48	71	95	142	189	214	285
IW8	60								31730	24404	976							25								
IW8	120	180	240	360	480	540	720		34000	26031	542	367	274	183	138	122	91	48	71	95	142	189	214	285		
IW82	60								45000	34600	1385							25								
IW82	120	180	240	360	480	540	720		48100	37000	771	521	389	261	196	173	130	48	71	95	142	189	214	285		
IW9	60	180	240	360	480	540	720		63500	48809	1952	687	514	344	258	228	171	25	71	95	142	189	214	285		
IW9	960	1080	1440	2160	2520	3000			67900	52171	137	122	92	61	52	44		380	428	570	855	998	1188			
IW10	60	180	240	360	540	720			84600	65078	2603	917	685	458	304	228		25	71	95	142	214	285			
IW10	960	1080	1440	2160	2520	3000			88130	67790	178	158	119	79	68	57		380	428	570	855	998	1188			
IW11	60	180	240	360	540	720		141000	108464	4339	1528	1142	764	507	381		25	71	95	142	214	285				
	960	1080	1440	2160	2520	3000					285	253	190	127	109	91		380	428	570	855	998	1188			
IW115	60	360	490	560	650	760		170000	130000	5200	963	710	619	489	459		25	135	183	210	242	283				
	900	1190	1370	1600	1910	2290					386	327	283	242	203	168		337	398	460	538	640	773			
	2650	3100	3680	4530	5390						146	124	105	85	71			893	1045	1243	1529	1820				
IW12	60	240	360	480	610	720		180000	137000	5480	1522	1015	757	601	506		25	90	135	181	228	271				
	960	1290	1530	1820	2040	2490					380	316	267	222	200	163		361	434	514	616	686	842			
	2880	3640	3940	4320	5760						141	111	103	94	70			975	1233	1332	1462	1949				
IW13	60	240	360	480	610	720		264000	203000	8120	2256	1504	1122	890	749		25	90	135	181	228	271				
	960	1210	1440	1820	1920	2430					562	494	417	330	312	247		361	411	487	616	650	822			
	2880	3640	3840	4860	5760						208	165	156	123	104			975	1233	1300	1644	1949				

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