

# IW WORM QUADRANT GEARBOX SIZING CHART

Max Output Torque		Unit size	Nom ratio	Max input torque motor	Mech advance <sup>4</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup>	Valve flanges <sup>3</sup>	Approx weight
Motor duty Nm	Manual duty Nm								
1085	1630	IW3	40	72	15	10	45	F10,12,14,16	10.5
813	1060	IW3	70	35	23	18	45	F10,12,14,16	10.5
2440	3660	IW4	40	163	15	10	64	F12,14,16	22.0
2034	2650	IW4	70	88	23	18	64	F12,14,16	22.0
2440	3660	IW4	80	84	29	20	64	F12,14,16	30.0
2617	3930	IW4	120	61	43	30	64	F12,14,16	30.0
2190	2850	IW4	140	50	44	35	64	F12,14,16	30.0
2617	3930	IW4	160	46	57	40	64	F12,14,16	30.0
2617	3930	IW4	200	37	71	51	64	F12,14,16	35.0
2264	2950	IW4	210	34	66	53	64	F12,14,16	30.0
2712	4070	IW4	240	32	86	60	64	F12,14,16	35.0
2264	2950	IW4	280	26	88	70	64	F12,14,16	30.0
2264	2950	IW4	350	21	110	89	64	F12,14,16	35.0
2264	2950	IW4	420	17	132	105	64	F12,14,16	35.0
4067	6100	IW5	40	239	17	10	76	F14,16,25	45.0
3390	4410	IW5	70	147	23	18	76	F14,16,25	45.0
4447	6670	IW5	80	139	32	20	76	F14,16,25	53.0
4447	6670	IW5	120	93	48	30	76	F14,16,25	53.0
3701	4820	IW5	140	84	44	35	76	F14,16,25	53.0
4447	6670	IW5	160	68	65	40	76	F14,16,25	53.0
n/a	6670	IW5/MPR4	167	n/a	60	42	76	F14,16,25	51.5
4447	6670	IW5	200	55	81	51	76	F14,16,25	58.0
3701	4820	IW5	210	56	66	53	76	F14,16,25	53.0
n/a	6670	IW5/MPR6	240	n/a	87	60	76	F14,16,25	51.5
4447	6670	IW5	240	46	97	60	76	F14,16,25	58.0
3701	4820	IW5	280	42	88	70	76	F14,16,25	53.0
3701	4820	IW5	350	34	110	89	76	F14,16,25	58.0
n/a	4820	IW5/MPR6	420	n/a	118	105	76	F14,16,25	51.5
3701	4820	IW5	420	28	132	105	76	F14,16,25	58.0
4867	7300	IW52	40	286	17	10	76	F14,16,25	45.0
5334	8000	IW52	80	167	32	20	76	F14,16,25	53.0
5334	8000	IW52	120	111	48	30	76	F14,16,25	53.0
5334	8000	IW52	160	82	65	40	76	F14,16,25	53.0
n/a	8000	IW52/MPR4	167	n/a	60	42	76	F14,16,25	51.5
5334	8000	IW52	200	66	81	51	76	F14,16,25	58.0
n/a	8000	IW52/MPR6	240	n/a	87	60	76	F14,16,25	51.5
5334	8000	IW52	240	55	97	60	76	F14,16,25	58.0
8135	10580	IW6	70	354	23	18	102	F16,25,30	68.0
9274	12060	IW6	140	211	44	35	102	F16,25,30	79.0
9274	12060	IW6	210	141	66	53	102	F16,25,30	79.0
9924	13000	IW6	280	113	88	70	102	F16,25,30	79.0
9924	13000	IW6	350	90	110	89	102	F16,25,30	84.0
n/a	13000	IW6/MPR6	420	n/a	118	105	102	F16,25,30	74.5
9924	13000	IW6	420	75	132	105	102	F16,25,30	84.0

1. ie for 90° at output

2. Max hub bore diameters assume keyway to BS4235. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART

Max Output Torque Motor duty Nm	Torque Manual duty Nm	Unit size	Nom ratio	Max input torque motor Nm	Mech advan- tage <sup>4</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> mm	Valve flanges <sup>3</sup>	Approx weight kg
n/a	12540	IW62	70	n/a	23	18	102	F16,25,30	68.0
n/a	14300	IW62	140	n/a	44	35	102	F16,25,30	79.0
n/a	14300	IW62	210	n/a	66	53	102	F16,25,30	79.0
n/a	15300	IW62	280	n/a	88	70	102	F16,25,30	79.0
n/a	15300	IW62	350	n/a	110	89	102	F16,25,30	84.0
n/a	15300	IW62/MPR6	420	n/a	118	105	102	F16,25,30	74.5
n/a	15300	IW62	420	n/a	132	105	102	F16,25,30	84.0
9650	n/a	IW63	70	420	23	18	102	F16,25,30	68.0
11000	n/a	IW63	140	250	44	35	102	F16,25,30	79.0
11000	n/a	IW63	210	167	66	53	102	F16,25,30	79.0
11000	n/a	IW63	280	125	88	70	102	F16,25,30	79.0
11000	n/a	IW63	350	100	110	89	102	F16,25,30	84.0
11000	n/a	IW63	420	83	132	105	102	F16,25,30	84.0
13558	17630	IW7	60	542	25	15	136	F25,30,35	120
13558	17630	IW7	120	282	48	30	136	F25,30,35	152
13558	17630	IW7	180	191	71	45	136	F25,30,35	152
15253	20000	IW7	240	161	95	61	136	F25,30,35	152
n/a	17500	IW7/MPR6	360	n/a	127	90	136	F25,30,35	127
15253	20000	IW7	360	107	142	90	136	F25,30,35	152
15253	20000	IW7	480	81	189	118	136	F25,30,35	162
15253	20000	IW7	540	71	214	134	136	F25,30,35	162
n/a	20000	IW7/MPR10	608	n/a	215	152	136	F25,30,35	138
15253	20000	IW7	720	54	285	180	136	F25,30,35	162
20000	26000	IW72	60	800	25	15	136	F25,30,35	120
20000	26000	IW72	120	417	48	30	136	F25,30,35	152
20000	26000	IW72	180	282	71	45	136	F25,30,35	152
20000	26000	IW72	240	211	95	61	136	F25,30,35	152
20000	26000	IW72	360	141	142	90	136	F25,30,35	152
20000	26000	IW72	480	106	189	118	136	F25,30,35	162
20000	26000	IW72	540	93	214	134	136	F25,30,35	162
n/a	26000	IW72/MPR10	608	n/a	215	152	136	F25,30,35	138
20000	26000	IW72	720	70	285	180	136	F25,30,35	162
24404	31730	IW8	60	976	25	15	157	F25,30,35,40,48	180
26031	34000	IW8	120	542	48	30	157	F25,30,35,40,48	212
26031	34000	IW8	180	367	71	45	157	F25,30,35,40,48	212
26031	34000	IW8	240	274	95	61	157	F25,30,35,40,48	212
26031	34000	IW8	360	183	142	90	157	F25,30,35,40,48	212
26031	34000	IW8	480	138	189	118	157	F25,30,35,40,48	222
26031	34000	IW8	540	122	214	134	157	F25,30,35,40,48	222
n/a	29500	IW8/MPR10	608	n/a	215	152	157	F25,30,35,40,48	198
26031	34000	IW8	720	91	285	180	157	F25,30,35,40,48	222
34600	45000	IW82	60	1385	25	15	157	F25,30,35,40,48	180
37000	48100	IW82	120	771	48	30	157	F25,30,35,40,48	212
37000	48100	IW82	180	521	71	45	157	F25,30,35,40,48	212
37000	48100	IW82	240	389	95	61	157	F25,30,35,40,48	212
37000	48100	IW82	360	261	142	90	157	F25,30,35,40,48	212
37000	48100	IW82	480	196	189	118	157	F25,30,35,40,48	222
37000	48100	IW82	540	173	214	134	157	F25,30,35,40,48	222
37000	48100	IW82	720	130	285	180	157	F25,30,35,40,48	222

1. ie for 90° at output

2. Max hub bore diameters assume keyway to BS4235. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

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Max Output Torque Motor duty Nm	Unit size	Nom ratio	Max input torque motor Nm	Mech advan- tage <sup>4</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> mm	Valve flanges <sup>3</sup>	Approx weight kg
Manual duty Nm								
48809	IW9	60	1952	25	15	178	F30,35,40,48	220
48809	IW9	180	687	71	45	178	F30,35,40,48	262
48809	IW9	240	514	95	60	178	F30,35,40,48	262
48809	IW9	360	344	142	91	178	F30,35,40,48	262
48809	IW9	480	258	189	118	178	F30,35,40,48	262
48809	IW9	540	228	214	134	178	F30,35,40,48	262
48809	IW9	720	171	285	180	178	F30,35,40,48	262
52171	IW9	960	137	380	251	178	F30,35,40,48	290
52171	IW9	1080	122	428	270	178	F30,35,40,48	290
52171	IW9	1440	92	570	368	178	F30,35,40,48	290
52171	IW9	2160	61	855	540	178	F30,35,40,48	290
52171	IW9	2520	52	998	630	178	F30,35,40,48	290
52171	IW9	3000	44	1188	750	178	F30,35,40,48	290
65078	IW10	60	2603	25	15	203	F35,40,48,60	330
65078	IW10	180	917	71	45	203	F35,40,48,60	408
65078	IW10	240	685	95	61	203	F35,40,48,60	408
65078	IW10	360	458	142	90	203	F35,40,48,60	408
65078	IW10	540	304	214	135	203	F35,40,48,60	408
65078	IW10	720	228	285	184	203	F35,40,48,60	408
67790	IW10	960	178	380	251	203	F35,40,48,60	408
67790	IW10	1080	158	428	270	203	F35,40,48,60	408
67790	IW10	1440	119	570	368	203	F35,40,48,60	408
67790	IW10	2160	79	855	540	203	F35,40,48,60	408
67790	IW10	2520	68	998	630	203	F35,40,48,60	408
67790	IW10	3000	57	1188	750	203	F35,40,48,60	408
108464	IW11	60	4339	25	15	203	F35,40,48,60	520
108464	IW11	180	1528	71	45	203	F35,40,48,60	570
108464	IW11	240	1142	95	61	203	F35,40,48,60	570
108464	IW11	360	764	142	90	203	F35,40,48,60	570
108464	IW11	540	507	214	135	203	F35,40,48,60	570
108464	IW11	720	381	285	184	203	F35,40,48,60	570
108464	IW11	960	285	380	251	203	F35,40,48,60	570
108464	IW11	1080	253	428	270	203	F35,40,48,60	570
108464	IW11	1440	190	570	368	203	F35,40,48,60	570
108464	IW11	2160	127	855	540	203	F35,40,48,60	570
108464	IW11	2520	109	998	630	203	F35,40,48,60	570
108464	IW11	3000	91	1188	750	203	F35,40,48,60	570
108464	IW11BB	60	4339	25	15	270	F40,48,60	520
108464	IW11BB	180	1528	71	45	270	F40,48,60	570
108464	IW11BB	240	1142	95	61	270	F40,48,60	570
108464	IW11BB	360	764	142	90	270	F40,48,60	570
108464	IW11BB	540	507	214	135	270	F40,48,60	570
108464	IW11BB	720	381	285	184	270	F40,48,60	570
108464	IW11BB	960	285	380	251	270	F40,48,60	570
108464	IW11BB	1080	253	428	270	270	F40,48,60	570
108464	IW11BB	1440	190	570	368	270	F40,48,60	570
108464	IW11BB	2160	127	855	540	270	F40,48,60	570
108464	IW11BB	2520	109	998	630	270	F40,48,60	570
108464	IW11BB	3000	91	1188	750	270	F40,48,60	570

1. ie for 90° at output

2. Max hub bore diameters assume keyway to BS4235. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART

Max Output Torque		Unit size	Nom ratio	Max input torque motor Nm	Mech advantage <sup>5</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> mm	Valve flanges <sup>3</sup>	Approx weight kg
Motor duty Nm	Manual duty Nm								
130000	170000	IW115	60	5200	25	15	203	F35,40,48,60	490
130000	170000	IW115/IR35	360	963	135	90	203	F35,40,48,60	540
130000	170000	IW115/IR35	490	710	183	122	203	F35,40,48,60	540
130000	170000	IW115/IR35	560	619	210	140	203	F35,40,48,60	540
130000	170000	IW115/IR35	650	489	242	161	203	F35,40,48,60	540
130000	170000	IW115/IR35	760	459	283	189	203	F35,40,48,60	540
130000	170000	IW115/IR35	900	386	337	225	203	F35,40,48,60	540
130000	170000	IW115/IR35/AS5	1190	327	398	296	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	1370	283	460	342	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	1600	242	538	400	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	1910	203	640	476	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	2290	168	773	573	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	2650	146	893	662	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	3100	124	1045	774	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	3680	105	1243	921	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	4530	85	1529	1133	203	F35,40,48,60	570
130000	170000	IW115/IR35/AS5	5390	71	1820	1348	203	F35,40,48,60	570
130000	170000	IW115BB	60	5200	25	15	270	F40,48,60	525
130000	170000	IW115BB/IR35	360	963	135	90	270	F40,48,60	575
130000	170000	IW115BB/IR35	490	710	183	122	270	F40,48,60	575
130000	170000	IW115BB/IR35	560	619	210	140	270	F40,48,60	575
130000	170000	IW115BB/IR35	650	489	242	161	270	F40,48,60	575
130000	170000	IW115BB/IR35	760	459	283	189	270	F40,48,60	575
130000	170000	IW115BB/IR35	900	386	337	225	270	F40,48,60	575
130000	170000	IW115BB/IR35/AS5	1190	327	398	296	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	1370	283	460	342	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	1600	242	538	400	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	1910	203	640	476	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	2290	168	773	573	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	2650	146	893	662	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	3100	124	1045	774	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	3680	105	1243	921	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	4530	85	1529	1133	270	F40,48,60	605
130000	170000	IW115BB/IR35/AS5	5390	71	1820	1348	270	F40,48,60	605
137000	180000	IW12	60	5480	25	15	305 <sup>4</sup>	F40,48,60	880
137000	180000	IW12/IR4	240	1522	90	60	305 <sup>4</sup>	F40,48,60	1150
137000	180000	IW12/IR4	360	1015	135	90	305 <sup>4</sup>	F40,48,60	1150
137000	180000	IW12/IR4	480	757	181	120	305 <sup>4</sup>	F40,48,60	1150
137000	180000	IW12/IR4	610	601	228	152	305 <sup>4</sup>	F40,48,60	1150
137000	180000	IW12/IR4	720	506	271	180	305 <sup>4</sup>	F40,48,60	1150
137000	180000	IW12/IR4	960	380	361	240	305 <sup>4</sup>	F40,48,60	1150
137000	180000	IW12/IR4/AS5	1290	316	434	322	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	1530	267	514	382	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	1820	222	616	455	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	2040	200	686	509	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	2490	163	842	622	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	2880	141	975	720	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	3640	111	1233	911	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	3940	103	1332	984	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	4320	94	1462	1080	305 <sup>4</sup>	F40,48,60	1170
137000	180000	IW12/IR4/AS5	5760	70	1949	1440	305 <sup>4</sup>	F40,48,60	1170

1. ie for 90° at output

2. Max hub bore diameters assume keyway to BS4235. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. IW12: max bore with F40 base is 272 mm.

5. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART

Max Output Torque		Unit size	Nom ratio	Max input torque motor Nm	Mech advance <sup>5</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> mm	Valve flanges <sup>3</sup>	Approx weight kg
Motor duty Nm	Manual duty Nm								
203000	264000	IW13	60	8120	25	15	305 <sup>4</sup>	F40,48,60	880
203000	264000	IW13/IR4	240	2256	90	60	305 <sup>4</sup>	F40,48,60	1150
203000	264000	IW13/IR4	360	1504	135	90	305 <sup>4</sup>	F40,48,60	1150
203000	264000	IW13/IR4	480	1122	181	120	305 <sup>4</sup>	F40,48,60	1150
203000	264000	IW13/IR4	610	890	228	152	305 <sup>4</sup>	F40,48,60	1150
203000	264000	IW13/IR4	720	749	271	180	305 <sup>4</sup>	F40,48,60	1150
203000	264000	IW13/IR4	960	562	361	240	305 <sup>4</sup>	F40,48,60	1150
203000	264000	IW13/IR4/AS6	1210	494	411	304	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	1440	417	487	360	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	1820	330	616	455	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	1920	312	650	480	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	2430	247	822	607	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	2880	208	975	720	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	3640	165	1233	911	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	3840	156	1300	960	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	4860	123	1644	1214	305 <sup>4</sup>	F40,48,60	1180
203000	264000	IW13/IR4/AS6	5760	104	1949	1440	305 <sup>4</sup>	F40,48,60	1180

1. ie for 90° at output
2. Max hub bore diameters assume keyway to BS4235. For other keyway sizes please consult Rotork Gears.
3. Other valve flange sizes are available on request.
4. IW13: max bore with F40 base is 272 mm.
5. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART (USA UNITS)

Max Output Torque		Unit size	Nom ratio	Max input torque motor	Mech advantage <sup>4</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup>	Valve flanges <sup>3</sup>	Approx weight
Motor duty	Manual duty								
lbsft	lbsft			lbsft			ins		lbs
800	1202	IW3	40	53	15	10	1 <sup>3</sup> / <sub>4</sub>	FA10,12,14,16	23.1
600	782	IW3	70	26	23	18	1 <sup>3</sup> / <sub>4</sub>	FA10,12,14,16	23.1
1800	2700	IW4	40	120	15	10	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	48.5
1500	1955	IW4	70	65	23	18	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	48.5
1800	2700	IW4	80	62	29	20	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	66.1
1930	2899	IW4	120	45	43	30	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	66.1
1615	2102	IW4	140	37	44	35	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	66.1
1930	2899	IW4	160	34	57	40	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	66.1
1930	2899	IW4	200	27	71	51	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	77.1
1670	2176	IW4	210	25	66	53	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	66.1
2000	3002	IW4	240	23	86	60	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	77.1
1670	2176	IW4	280	19	88	70	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	66.1
1670	2176	IW4	350	15	110	89	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	77.1
1670	2176	IW4	420	13	132	105	2 <sup>1</sup> / <sub>2</sub>	FA12,14,16	77.1
3000	4499	IW5	40	176	17	10	3	FA14,16,25	99.1
2500	3253	IW5	70	109	23	18	3	FA14,16,25	99.1
3280	4920	IW5	80	103	32	20	3	FA14,16,25	117
3280	4920	IW5	120	68	48	30	3	FA14,16,25	117
2730	3555	IW5	140	62	44	35	3	FA14,16,25	117
3280	4920	IW5	160	50	65	40	3	FA14,16,25	117
n/a	4920	IW5/MPR4	167	n/a	60	42	3	FA14,16,25	113
3280	4920	IW5	200	40	81	51	3	FA14,16,25	128
2730	3555	IW5	210	41	66	53	3	FA14,16,25	117
n/a	4920	IW5/MPR6	240	n/a	87	60	3	FA14,16,25	113
3280	4920	IW5	240	34	97	60	3	FA14,16,25	128
2730	3555	IW5	280	31	88	70	3	FA14,16,25	117
2730	3555	IW5	350	25	110	89	3	FA14,16,25	128
n/a	3555	IW5/MPR6	420	n/a	118	105	3	FA14,16,25	113
2730	3555	IW5	420	21	132	105	3	FA14,16,25	128
3590	5384	IW52	40	211	17	10	3	FA14,16,25	99.1
3934	5901	IW52	80	123	32	20	3	FA14,16,25	117
3934	5901	IW52	120	82	48	30	3	FA14,16,25	117
3934	5901	IW52	160	61	65	40	3	FA14,16,25	117
n/a	5901	IW52/MPR4	167	n/a	60	42	3	FA14,16,25	113
3934	5901	IW52	200	49	81	51	3	FA14,16,25	128
n/a	5901	IW52/MPR6	240	n/a	87	60	3	FA14,16,25	113
3934	5901	IW52	240	41	97	60	3	FA14,16,25	128
6000	7804	IW6	70	261	23	18	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	150
6840	8895	IW6	140	155	44	35	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
6840	8895	IW6	210	104	66	53	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
7320	9588	IW6	280	83	88	70	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
7320	9588	IW6	350	67	110	89	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	185
n/a	9588	IW6/MPR6	420	n/a	118	105	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	165
7320	9588	IW6	420	55	132	105	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	185

1. ie for 90° at output

2. Max hub bore diameters assume rectangular keyway to ANSI B17.1. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART (USA UNITS)

Max Output Torque		Unit size	Nom ratio	Max input torque motor lbsft	Mech advance <sup>4</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> ins	Valve flanges <sup>3</sup>	Approx weight lbs
Motor duty lbsft	Manual duty lbsft								
n/a	9249	IW62	70	n/a	23	18	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	150
n/a	10547	IW62	140	n/a	44	35	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
n/a	10547	IW62	210	n/a	66	53	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
n/a	11285	IW62	280	n/a	88	70	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
n/a	11285	IW62	350	n/a	110	89	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	185
n/a	11285	IW62/MPR6	420	n/a	118	105	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	165
n/a	11285	IW62	420	n/a	132	105	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	185
7118	n/a	IW63	70	309	23	18	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	150
8113	n/a	IW63	140	184	44	35	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
8113	n/a	IW63	210	123	66	53	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
8113	n/a	IW63	280	92	88	70	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	174
8113	n/a	IW63	350	74	110	89	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	185
8113	n/a	IW63	420	61	132	105	3 <sup>7</sup> / <sub>8</sub>	FA16,25,30	185
10000	13003	IW7	60	400	25	15	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	264
10000	13003	IW7	120	208	48	30	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
10000	13003	IW7	180	141	71	45	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
11250	14751	IW7	240	118	95	61	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
n/a	12908	IW7/MPR6	360	n/a	127	90	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	279
11250	14751	IW7	360	79	142	90	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
11250	14751	IW7	480	60	189	118	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	357
11250	14751	IW7	540	53	214	134	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	357
n/a	14751	IW7/MPR10	608	n/a	215	152	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	304
11250	14751	IW7	720	39	285	180	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	357
14751	19177	IW72	60	590	25	15	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	264
14751	19177	IW72	120	307	48	30	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
14751	19177	IW72	180	208	71	45	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
14751	19177	IW72	240	155	95	61	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
14751	19177	IW72	360	104	142	90	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	335
14751	19177	IW72	480	78	189	118	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	357
14751	19177	IW72	540	69	214	134	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	357
n/a	19177	IW72/MPR10	608	n/a	215	152	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	304
14751	19177	IW72	720	52	285	180	5 <sup>1</sup> / <sub>4</sub>	FA25,30,35	357
18000	23403	IW8	60	720	25	15	6	FA25,30,35,40,48	396
19200	25077	IW8	120	400	48	30	6	FA25,30,35,40,48	467
19200	25077	IW8	180	270	71	45	6	FA25,30,35,40,48	467
19200	25077	IW8	240	202	95	61	6	FA25,30,35,40,48	467
19200	25077	IW8	360	135	142	90	6	FA25,30,35,40,48	467
19200	25077	IW8	480	102	189	118	6	FA25,30,35,40,48	489
19200	25077	IW8	540	90	214	134	6	FA25,30,35,40,48	489
n/a	21758	IW8/MPR10	608	n/a	215	152	6	FA25,30,35,40,48	436
19200	25077	IW8	720	67	285	180	6	FA25,30,35,40,48	489
25520	33191	IW82	60	1021	25	15	6	FA25,30,35,40,48	396
27290	35477	IW82	120	569	48	30	6	FA25,30,35,40,48	467
27290	35477	IW82	180	384	71	45	6	FA25,30,35,40,48	467
27290	35477	IW82	240	287	95	61	6	FA25,30,35,40,48	467
27290	35477	IW82	360	192	142	90	6	FA25,30,35,40,48	467
27290	35477	IW82	480	144	189	118	6	FA25,30,35,40,48	489
27290	35477	IW82	540	128	214	134	6	FA25,30,35,40,48	489
27290	35477	IW82	720	96	285	180	6	FA25,30,35,40,48	489

1. ie for 90° at output

2. Max hub bore diameters assume rectangular keyway to ANSI B17.1. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART (USA UNITS)

Max Output Torque		Unit size	Nom ratio	Max input torque	Mech advantage <sup>4</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup>	Valve flanges <sup>3</sup>	Approx weight
Motor duty	Manual duty			motor			ins		lbs
lbsft	lbsft			lbsft					
36000	46836	IW9	60	1440	25	15	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	485
36000	46836	IW9	180	507	71	45	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	577
36000	46836	IW9	240	379	95	60	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	577
36000	46836	IW9	360	254	142	91	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	577
36000	46836	IW9	480	190	189	118	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	577
36000	46836	IW9	540	168	214	134	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	577
36000	46836	IW9	720	126	285	180	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	577
38480	50081	IW9	960	101	380	251	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	639
38480	50081	IW9	1080	90	428	270	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	639
38480	50081	IW9	1440	68	570	368	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	639
38480	50081	IW9	2160	45	855	540	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	639
38480	50081	IW9	2520	39	998	630	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	639
38480	50081	IW9	3000	32	1188	750	6 <sup>1</sup> / <sub>2</sub>	FA30,35,40,48	639
48000	62399	IW10	60	1920	25	15	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	727
48000	62399	IW10	180	676	71	45	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
48000	62399	IW10	240	505	95	61	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
48000	62399	IW10	360	338	142	90	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
48000	62399	IW10	540	224	214	135	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
48000	62399	IW10	720	168	285	184	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
50000	65002	IW10	960	132	380	251	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
50000	65002	IW10	1080	117	428	270	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
50000	65002	IW10	1440	88	570	368	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
50000	65002	IW10	2160	58	855	540	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
50000	65002	IW10	2520	50	998	630	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
50000	65002	IW10	3000	42	1188	750	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	899
80000	103998	IW11	60	3200	25	15	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1145
80000	103998	IW11	180	1127	71	45	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	240	842	95	61	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	360	563	142	90	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	540	374	214	135	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	720	281	285	184	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	960	211	380	251	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	1080	187	428	270	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	1440	140	570	368	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	2160	94	855	540	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	2520	80	998	630	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11	3000	67	1188	750	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1256
80000	103998	IW11BB	60	3200	25	15	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1145
80000	103998	IW11BB	180	1127	71	45	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	240	842	95	61	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	360	563	142	90	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	540	374	214	135	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	720	281	285	184	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	960	211	380	251	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	1080	187	428	270	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	1440	140	570	368	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	2160	94	855	540	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	2520	80	998	630	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256
80000	103998	IW11BB	3000	67	1188	750	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1256

1. ie for 90° at output

2. Max hub bore diameters assume rectangular keyway to ANSI B17.1. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.



# IW WORM QUADRANT GEARBOX SIZING CHART (USA UNITS)

Max Output Torque		Unit size	Nom ratio	Max input torque motor lbsft	Mech advantage <sup>5</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> ins	Valve flanges <sup>3</sup>	Approx weight lbs
Motor duty lbsft	Manual duty lbsft								
96000	125000	IW115	60	3835	25	15	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1080
96000	125000	IW115/IR35	360	710	135	90	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1190
96000	125000	IW115/IR35	490	524	183	122	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1190
96000	125000	IW115/IR35	560	457	210	140	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1190
96000	125000	IW115/IR35	650	361	242	161	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1190
96000	125000	IW115/IR35	760	339	283	189	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1190
96000	125000	IW115/IR35	900	285	337	225	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1190
96000	125000	IW115/IR35/AS5	1190	241	398	296	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	1370	208	460	342	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	1600	178	538	400	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	1910	150	640	476	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	2290	124	773	573	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	2650	107	893	662	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	3100	92	1045	774	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	3680	77	1243	921	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	4530	63	1529	1133	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115/IR35/AS5	5390	53	1820	1348	7 <sup>5</sup> / <sub>8</sub>	FA35,40,48,60	1260
96000	125000	IW115BB	60	3835	25	15	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1160
96000	125000	IW115BB/IR35	360	710	135	90	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1270
96000	125000	IW115BB/IR35	490	524	183	122	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1270
96000	125000	IW115BB/IR35	560	457	210	140	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1270
96000	125000	IW115BB/IR35	650	361	242	161	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1270
96000	125000	IW115BB/IR35	760	339	283	189	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1270
96000	125000	IW115BB/IR35	900	285	337	225	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1270
96000	125000	IW115BB/IR35/AS5	1190	241	398	296	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	1370	208	460	342	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	1600	178	538	400	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	1910	150	640	476	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	2290	124	773	573	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	2650	107	893	662	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	3100	92	1045	774	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	3680	77	1243	921	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	4530	63	1529	1133	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
96000	125000	IW115BB/IR35/AS5	5390	53	1820	1348	10 <sup>1</sup> / <sub>8</sub>	FA40,48,60	1330
101000	133000	IW12	60	4042	25	15	12 <sup>4</sup>	FA40,48,60	1940
101000	133000	IW12/IR4	240	1123	90	60	12 <sup>4</sup>	FA40,48,60	2530
101000	133000	IW12/IR4	360	748	135	90	12 <sup>4</sup>	FA40,48,60	2530
101000	133000	IW12/IR4	480	558	181	120	12 <sup>4</sup>	FA40,48,60	2530
101000	133000	IW12/IR4	610	443	228	152	12 <sup>4</sup>	FA40,48,60	2530
101000	133000	IW12/IR4	720	373	271	180	12 <sup>4</sup>	FA40,48,60	2530
101000	133000	IW12/IR4	960	280	361	240	12 <sup>4</sup>	FA40,48,60	2530
101000	133000	IW12/IR4/AS5	1290	233	434	322	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	1530	197	514	382	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	1820	164	616	455	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	2040	147	686	509	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	2490	120	842	622	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	2880	104	975	720	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	3640	82	1233	911	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	3940	76	1332	984	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	4320	69	1462	1080	12 <sup>4</sup>	FA40,48,60	2580
101000	133000	IW12/IR4/AS5	5760	52	1949	1440	12 <sup>4</sup>	FA40,48,60	2580

1. ie for 90° at output

2. Max hub bore diameters assume rectangular keyway to ANSI B17.1. For other keyway sizes please consult Rotork Gears.

3. Other valve flange sizes are available on request.

4. IW12: max bore with FA40 base is 10.25 in.

5. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

# IW WORM QUADRANT GEARBOX SIZING CHART (USA UNITS)

Max Output Torque		Unit size	Nom ratio	Max input torque motor lbsft	Mech advantage <sup>5</sup>	Input turns to close <sup>1</sup>	Max hub bore <sup>2</sup> ins	Valve flanges <sup>3</sup>	Approx weight lbs
Motor duty lbsft	Manual duty lbsft								
150000	195000	IW13	60	5989	25	15	12 <sup>4</sup>	FA40,48,60	1940
150000	195000	IW13/IR4	240	1664	90	60	12 <sup>4</sup>	FA40,48,60	2530
150000	195000	IW13/IR4	360	1109	135	90	12 <sup>4</sup>	FA40,48,60	2530
150000	195000	IW13/IR4	480	827	181	120	12 <sup>4</sup>	FA40,48,60	2530
150000	195000	IW13/IR4	610	657	228	152	12 <sup>4</sup>	FA40,48,60	2530
150000	195000	IW13/IR4	720	552	271	180	12 <sup>4</sup>	FA40,48,60	2530
150000	195000	IW13/IR4	960	415	361	240	12 <sup>4</sup>	FA40,48,60	2530
150000	195000	IW13/IR4/AS6	1210	364	411	304	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	1440	307	487	360	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	1820	243	616	455	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	1920	230	650	480	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	2430	182	822	607	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	2880	154	975	720	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	3640	121	1233	911	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	3840	115	1300	960	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	4860	91	1644	1214	12 <sup>4</sup>	FA40,48,60	2600
150000	195000	IW13/IR4/AS6	5760	77	1949	1440	12 <sup>4</sup>	FA40,48,60	2600

1. ie for 90° at output
2. Max hub bore diameters assume rectangular keyway to ANSI B17.1. For other keyway sizes please consult Rotork Gears.
3. Other valve flange sizes are available on request.
4. IW13: max bore with FA40 base is 10.25 in.
5. Typical MA for a run-in gearbox. It varies with a number of factors - a normal tolerance of +/-10% can be assumed.

**Issue 20**

IW7 & IW72 max bore increased from 127 to 136  
IW8 & IW82 max bore increased from 153 to 157  
Note added re MA tolerance

**Issue 21**

IR35 and IR35/AS6 introduced for IW115  
IR4 and IR4/AS5 introduced for IW12  
IR4 and IR4/AS6 introduced for IW13  
*S Watkins 24/1/10*

**Issue22 provisional**

IW/MPR Combinations introduced for IW4 to IW6  
*P Line 27/09/2012*

**Issue 22**

IW/MPR combinations introduced for IW5 to IW8  
MPR efficiency standardised at 85%  
IW11BB and IW115BB added  
*S Watkins 6/8/2013*