-FFX Tyre Couplings

FFX Tyre Coupling Data

Coupling Size	Bush Size	Max Bore Metric	Max Bore Inch	A	B	C	E	G	Types F & H F	Types F & H D	Type B F	Type B D	Clamping Screw	Weight# (kg)	Inertia# (kgm^2)
040B		32		104		82	11.0	29			33.0	22	M5	0.8	0.00074
040F	1008	25	1"	104		82	11.0	29	33.0	22				0.8	0.00074
040H	1008	25	1"	104		82	11.0	29	33.0	22				0.8	0.00074
050B		38		133	79	100	12.5	38			45.0	32	M5	1.2	0.00115
050F	1210	32	1.1/4"	133	79	100	12.5	38	38.0	25				1.2	0.00115
050H	1210	32	1.1/4"	133	79	100	12.5	38	38.0	25				1.2	0.00115
060B		45		165	70	125	16.5	38			55.0	38	M6	2.0	0.0052
060F	1610	42	1.5/8"	165	103	125	16.5	38	42.0	25				2.0	0.0052
060H	1610	42	1.5/8"	165	103	125	16.5	38	42.0	25				2.0	0.0052
070B		50		187	80	144	11.5				47.0	35	M10	3.1	0.009
070F	2012	50	2"	187	80	144	11.5	42	44.0	32				3.1	0.009
070H	1610	42	1.5/8"	187	80	144	11.5	38	42.0	25				3.0	0.009
080B		60		211	98	167	12.5				55.0	42	M10	4.9	0.018
080F	2517	60	2.1/2"	211	97	167	12.5	48	58.0	45				4.9	0.018
080H	2012	50	2"	211	98	167	12.5	42	45.0	32				4.6	0.017
090B		70		235	112	188	13.5				63.5	49	M12	7.1	0.032
090F	2517	60	2.1/2"	235	108	188	13.5	48	59.5	45				7.0	0.031
090H	2517	60	2.1/2"	235	108	188	13.5	48	59.5	45				7.0	0.031
100B		80		254	125	216	13.5				70.5	56	M12	9.9	0.055
100F	3020	75	3"	254	120	216	13.5	55	65.5	51				9.9	0.055
100H	2517	60	2.1/2"	254	113	216	13.5	48	59.5	45				9.4	0.054
110B		90		279	128	233	12.5				75.5	63	M12	12.5	0.081
110F	3020	75	3"	279	134	233	12.5	55	63.5	51				11.7	0.078
110H	3020	75	3"	279	134	233	12.5	55	63.5	51				11.7	0.078
120B		100		314	143	264	14.5				84.5	70	M16	16.9	0.137
120F	3525	100	4"	314	140	264	14.5	67	79.5	65				16.5	0.137
120H	3020	75	3"	314	140	264	14.5	55	65.5	51				15.9	0.13
140B		130		359	178	311	16.0				110.5	94	M20	22.2	0.254
140F	3525	100	4"	359	178	311	16.0	67	81.5	65				22.3	0.255
140H	3525	100	4"	359	178	311	16.0	67	81.5	65				22.3	0.255
160B		140		402	187	345	15.0				117.0	102	M20	35.8	0.469
160F	4030	115	4.1/2"	402	197	345	15.0	80	92.0	77				32.5	0.38
160H	4030	115	4.1/2"	402	197	345	15.0	80	92.0	77				32.5	0.38
180B		150		470	200	398	23.0				137.0	114	M20	49.1	0.871
180F	4535	125	5"	470	205	398	23.0	89	112.0	89				42.2	0.847
180H	4535	125	5"	470	205	398	23.0	89	112.0	89				42.2	0.847
200B		150		508	200	429	24.0				138.0	114	M20	58.2	1.301
200F	4535	125	5"	508	205	429	24.0	89	113.0	89				53.6	1.281
200H	4535	125	5"	508	205	429	24.0	89	113.0	89				53.6	1.281
220B		160		562	218	474	27.5				154.5	127	M20	79.6	2.142
220F	5040	125	5"	562	223	474	27.5	92	129.5	102				72.0	2.104
220H	5040	125	5"	562	223	474	27.5	92	129.5	102				72.0	2.104
250B		190		628	254	532	29.5				161.5	132	M20	104.0	3.505

Notes
G = Wrench clearance needed to allow for the tightening or loosening of the bush on the shaft as well as the tyre clamping screws.
E = Half the distance required between flanges faces
# = Weight and inertia figures are for a single flange including mid range bore, clamping ring, screws and half tyre.

-FFX Tyre Couplings

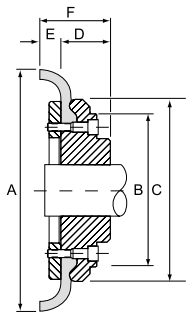
FFX Coupling Installation and Operational Data

Coupling Size	Flange Face Spacing (mm)	Gap Between Tyre Ends (mm)	Nominal Torque (Nm)	Max Speed (rev/min)	Max Par Mis (mm)	Max End Float (mm)	Clamping Screw Size	Clamping Screw Torque (Nm)
40	22	2	24	4500	1.1	1.3	M6	15
50	25	2	66	4500	1.3	1.7	M6	15
60	33	2	127	4000	1.6	2.0	M6	15
70	23	3	250	3600	1.9	2.3	M8	24
80	25	3	375	3100	2.1	2.6	M8	24
90	27	3	500	3000	2.4	3.0	M10	40
100	27	3	675	2600	2.6	3.3	M10	40
110	25	3	875	2300	2.9	3.7	M10	40
120	29	3	1330	2050	3.2	4.0	M12	50
140	32	5	2325	1800	3.7	4.6	M12	55
160	30	5	3770	1600	4.2	5.3	M16	80
180	46	6	6270	1500	4.8	6.0	M16	105
200	48	6	9325	1300	5.3	6.6	M16	120
220	55	6	11600	1100	5.8	7.3	M20	165
250	59	6	14675	1000	6.6	8.2	M20	165

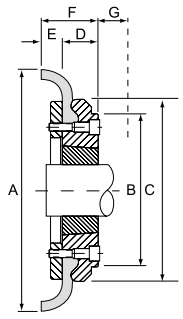
NB. All flexible tyres have an angular misalignment capacity up to 4 deg.

FFX Tyre Coupling Data

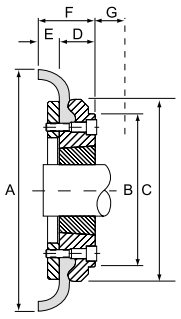
Sizes 040 to 060



Pilot Bore (B)

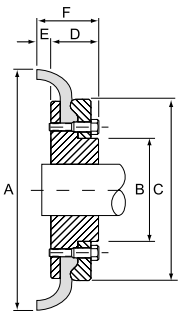


Taper Flange (F)

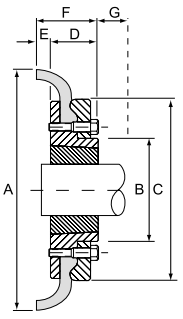


Taper Flange (H)

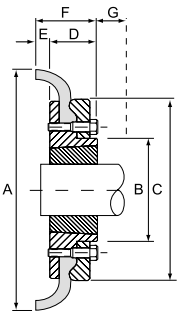
Sizes 070 to 250



Pilot Bore (B)



Taper Flange (F)



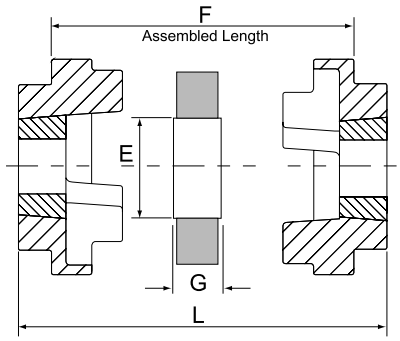
Taper Flange (H)

HRC Common Data

Coupling No	Nominal Torque Nm	Overall Diameter A	Hub Diameter B	Assembled Length F	Element Ring Dia E	Element Ring Width G	Parallel Misalignment (mm)	Weight (kg)	Assembled Length (L) FF, FH, HH	Assembled Length (L) FB,HB	Assembled Length (L) BB
70	31	69	60	25.5	31	18.5	0.3	1.00	65.5	65.5	65.5
90	80	85	70	30.5	32	22.5	0.3	1.17	69.5	76.5	82.5
110	160	112	100	45.5	45	29.5	0.3	5.00	82.5	100.5	119.5
130	315	130	105	53.5	50	36.5	0.4	5.46	89.5	110.5	131.5
150	600	150	115	60.5	62	40.5	0.4	7.11	107.5	129.5	152.5
180	950	180	125	73.5	77	49.5	0.4	16.65	142.5	165.5	189.5
230	2000	225	155	85.5	99	59.5	0.5	26.05	164.5	202.5	239.5
280	3150	275	206	105.5	119	74.5	0.5	50.05	207.5	246.5	285.5

Angular misalignmet capacity up to 1 deg
Mass is for an FF, FH or HH coupling with mid range Taper Lock Bushes
F refers to combinations of flanges: FF, FH, HH, FB, HB, BB.

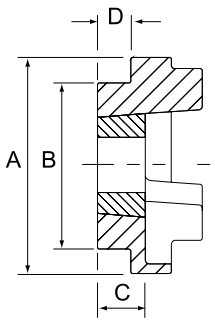
HRC Assembly



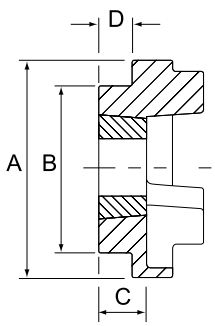
HRC Type F & H

Coupling No	Bush size	Max. Bore (mm)	Max. Bore (ins)	Shoulder Width D	Hub Width C
70	1008	25	1	20.0	23.5
90	1108	28	1.1/8	19.5	23.5
110	1610	42	1.5/8	18.5	26.5
130	1610	42	1.5/8	18.0	26.5
150	2012	50	2	23.5	33.5
180	2517	60	2.1/2	34.5	46.5
230	3020	75	3	39.5	52.5
280	3525	100	4	51.0	66.5

F Flange (Taper bored)



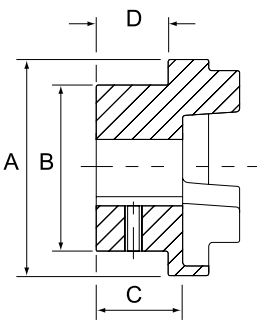
H Flange (Taper Bored)



HRC Type B

Coupling No	Max. Bore (mm)	Pilot Bore (mm)	Keyway Screw Size	Shoulder Width D	Hub Width C
70	32	8	M 6	20	23.5
90	42	10	M 6	26	30.5
110	55	10	M10	37	45.5
130	60	15	M10	39	47.5
150	70	20	M10	46	56.5
180	80	25	M10	58	70.5
230	100	25	M12	77	90.5
280	115	30	M16	90	105.5

B Flange (Pilot Bore)

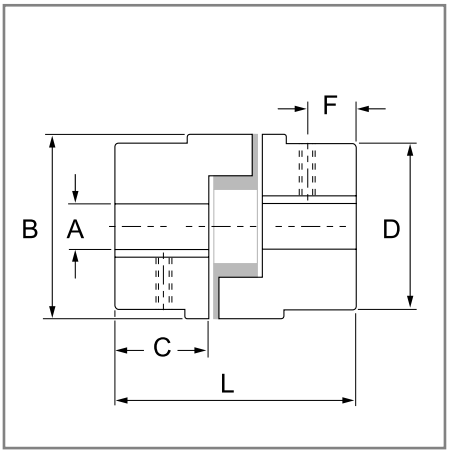


Jaw Coupling Data

Coupling No	Nominal Torque (Nm)	Pilot Bore A (mm)	Max Bore A (mm)	Overall Diameter B	Assembled Length L	Hub Width C	Hub Diameter D	Set Screw Position F	Set Screw Size	Complete Weight (kg)
035	-	3	8	16.0	20	7	16.0	3.0	M3	0.06
050	3.51	6	14	27.5	44	16	27.5	6.5	M6	0.10
070	5.77	9	19	35.0	51	19	35.0	9.5	M6	0.25
075	11.90	9	24	44.5	54	21	44.5	8.0	M6	0.45
090	19.20	9	24	54.0	54	21	54.0	8.7	M6	0.55
095	25.80	9	28	54.0	64	25	54.0	11.5	M6	0.65
100	55.40	12	35	65.0	89	35	65.0	12.5	M8	1.60
110	105.00	15	42	84.0	108	43	84.0	20.5	M10	3.00
150	150.00	15	48	96.0	115	45	96.0	22.5	M10	4.90
190	200.00	19	55	115.0	133	54	102.0	22.5	M12	7.00
225	280.00	19	60	127.0	153	64	108.0	25.5	M12	9.00

Angular misalignmet capacity up to 1 deg
Parallel misalignment capacity up to 0.38mm
Mass is for a complete coupling with a pilot bore
Nitrile insert temperature range -40 degC to 100 degC

Jaw Coupling



-Chain Couplings

Chain Coupling Data

Coupling Size	Chain Size	Bore Min (mm)	Bore Max (mm)	Casing O.D A	Casing Width B	Assemled Width C	Hub Length D	Hub Diam E	Bolt Centres F	Complete Weight (kg)
3012	35-2	12	15	70	62	65	28	25	57	0.5
4012	40-2	12	20	78	72	78	36	31	61	1.0
4014	40-2	12	25	85	75	80	36	43	72	1.4
4016	40-2	14	30	92	75	80	36	50	77	1.8
5014	50-2	14	35	101	84	100	45	53	82	2.5
5016	50-2	16	40	111	85	100	45	60	92	3.2
5018	50-2	16	45	123	85	100	45	70	106	4.0
6018	60-2	20	55	144	106	122	54	85	122	7.2
6020	60-2	20	70	160	108	123	54	98	132	9.5
6022	60-2	25	75	168	116	123	54	110	145	11.3
8018	80-2	30	75	190	128	140	67	110	160	14.7
8020	80-2	30	85	211	138	144	67	120	184	18.2
8022	80-2	35	95	226	138	155	67	140	196	23.3
10020	100-2	40	110	280	152	176	91	160	250	36.0
12018	120-2	40	120	305	180	196	119	170	280	49.0
12022	120-2	40	150	355	180	220	119	210	335	77.0

Chain Coupling Selection

In general, the torque capacity of the coupling exceeds the normal torque transmitted by the largest shaft size that the coupling can accommodate.

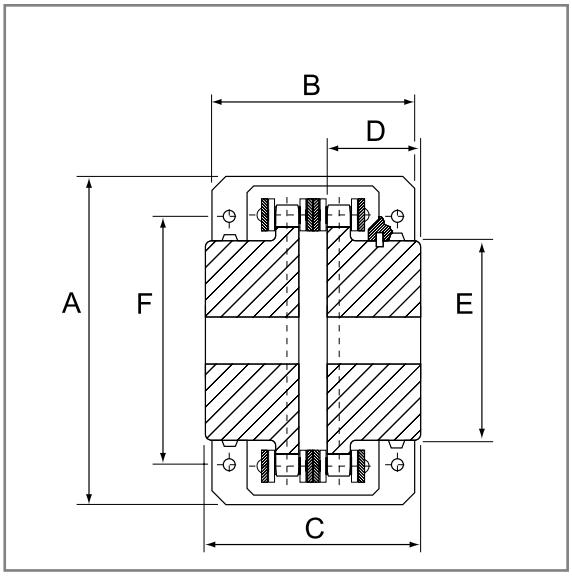
Therefore, select the smallest coupling which accommodates both shaft diameters.

Where there is reverse operation, shock loads, or any other severe operating condition, it is recommended that the next coupling size up is selected.

Operation

In order to ensure that the maximum service life of the coupling is achieved, the cover together with the supplied O rings should always be used. This is even more important when the drive is operating at high speeds or in a moist environment. The space between the cover and chain, should be filled with a soft to medium consistency grease.

Chain Coupling Dimensions



-HLB Torque Limit Range

HLB Torque Limit

Prevent Machine Damage and Eliminate Costly Down Time.

The HLB Torque limit is a mechanical protective device that limits the transmitted torque in a drive system by slipping when the torque demand exceeds a preset value. This is excessive torque is normally a result of shock loads, overloads, or machine jams. The torque Limit automatically re-engages when the overload is removed. No manual re-setting is required. HLB Torque Limits prevent machine damage, thus eliminating costly downtime.

HLB Torque Limits utilize spring loaded friction discs for their operation and slip torque is preset by adjustment of the spring force using the adjustment nut or bolts.

HLB Torque Limits can be used with platewheel sprockets, gears, sheaves, or flange plates as the center member. This center member is clamped between two friction discs.

Because the HLB Torque Limit ratings are realistic and consistent with optimum spring loads, they permit longer slip time, maintain re-engagement at preset torque and provide long lasting machine protection. This is an important advantage over the shear-pin mechanism which only serves as a one-shot remedy.

Sizes 50-1 and 50-2

Single Nut Adjustment

Lock Washer to prevent the nut from loosening

Sizes 65-1 and 65-2
Sizes 89-1 and 89-2

Single Nut Adjustment

Lock Washer to prevent the nut from loosening

Sizes 127-1 and 127-2
Sizes 178-1 and 178-2

Three Bolts Adjustment

Torque preset by the three bolts (an adjustment nut to fix a pilot plate in place)

Designation

89 - 1

- 1 — Number of spring discs
- 89 — Size

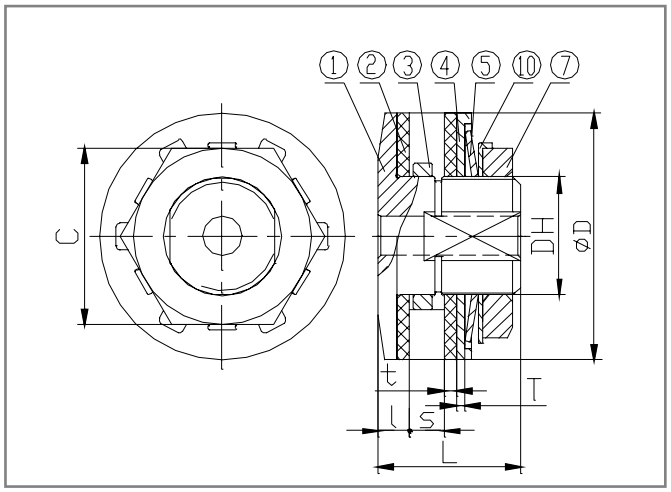
-Sizes 50 to 178

Dimensions and Capacity for Sizes 50 to 178

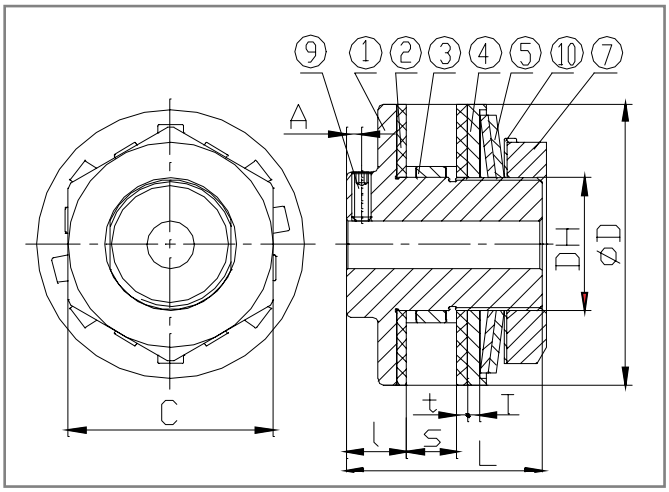
Size	Torque Range (kgf m)	Plain Bore	Max. Bore	Bush Length	O.D. of Bush		Bore for Center Member		D	DH	L	l	T	t	S (Max)	A	C	Adjust. Nut	Adjust. Bolt	Set Screw	Weight (kg)
50-1	0.3 ~ 1.0	8	14	3.8	30	-0.020	30	0.033	50	24	29	6.5	1.6	2.5	7	-	36	M24 P1.0	-	-	0.248
50-2	0.7 ~ 2.0			6.0		-0.041		0													0.256
65-1	0.7 ~ 2.8	10	22	6.0	41	-0.025	41	0.039	65	35	48	16.0	4.0	3.2	9	4.0	50	M35 P1.5	-	M5	0.721
65-2	1.4 ~ 5.5			8.0		-0.050		0													0.739
89-1	2.0 ~ 7.6	17	25	6.0 8.0 9.5 14.5	49	-0.025	49	0.039	89	42	62	19.0	4.0	3.2	16	5.0	65	M42 P1.5	-	M6	2.417
89-2	3.5 ~ 15.2					-0.050		0													2.477
127-1	4.8 ~ 21.4	20	42	6.0 8.0 9.5 14.5	74	-0.030	74	0.046	127	65	76	22.0	6.0	3.2	16	6.0	-	M65 P1.5	M8 P1.0 3pcs	M8	3.692
127-2	9.0 ~ 42.9					-0.060		0													3.858
178-1	11.8 ~ 58.1	30	64	8.0 9.5 14.5 17.0 22.0	105	-0.036	105	0.054	178	95	98	24.0	7.0	3.2	29	6.5	-	M95 P1.5	M10 P1.25 3pcs	M10	9.033
178-2	22.8 ~ 111					-0.071		0													9.436

1 kgf.m = 9.80665 Nm

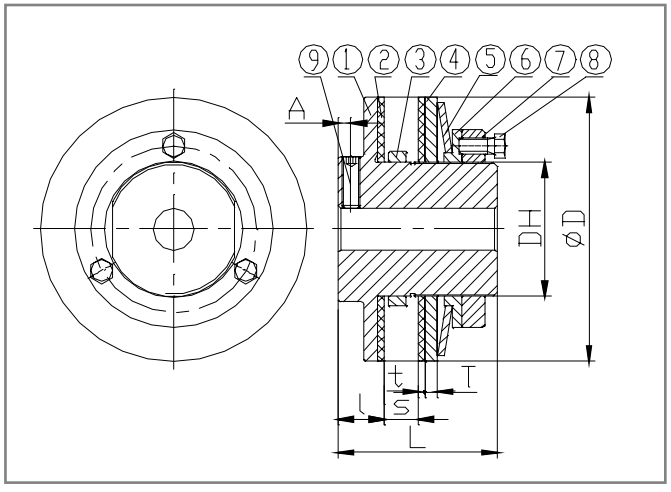
SIZE 50



SIZE 65 & 89



SIZE 127 & 178



Description of parts

① Hub
② Friction Disc
③ Bush
④ Pressure Plate
⑤ Disc Spring
⑥ Pilot Plate
⑦ Adjustment Nut
⑧ Adjustment Bolt
⑨ Set Screw
⑩ Lock Washer

SELECTION PROCEDURE

1. Determine the required slip torque required for the machine. If the slip torque is not known then set the torque limit to 1.5 ~ 2 times the torque that the motor produces on the shaft where the torque Limit is to be mounted.

2. From the Torque Range column, select a torque limit that has sufficient torque. Also ensure that the chosen size can accommodate the required bore.

3. Based on the thickness of the center member to be inserted between the friction discs, determine the required bush length. Always choose a bush, which will not exceed the width of the center member. The maximum width of the center member that can be accommodated is shown as S max. in the dimension table.

CENTER MEMBER INFORMATION

1. So as to obtain the rated torque release and re-engagement, HLB recommend that the center member should be machined on its rubbing surfaces. The recommended surface finish is Ra1.6. It should also be flat, parallel, square with the bore and free from rust, scale, and oil. If these recommendations are not adhered to, the slip torque could be erratic.

2. The recommended bore that the center member should be machined to, is shown in the table below. Also, provided is the minimum number of sprocket teeth to be used, together with the suggested bush length.

Bore Sizes, Minimum Recommended number of Sprocket Teeth and Bush Lengths

Size	Bore of Center Member (mm)	Sprocket Pitch and Number of Teeth													
		9.525	(06B)	12.7	(08B)	15.875	(10B)	19.05	(12B)	25.4	(16B)	31.75	(20B)	38.1	(24B)
		Sprocket Min Teeth	Bush Length (mm)	Sprocket Min Teeth	Bush Length (mm)	Sprocket Min Teeth	Bush Length (mm)	Sprocket Min Teeth	Bush Length (mm)	Sprocket Min Teeth	Bush Length (mm)	Sprocket Min Teeth	Bush Length (mm)	Sprocket Min Teeth	Bush Length (mm)
50	30	20	3.8	16	6										
65	41			20	6	17	8								
89	49			26	6	21	8	18	9.5	15	14.5				
127	74			35	6	29	8	25	9.5	19	14.5				
178	105					39	8	33	9.5	26	14.5	21	17	18	22

SETTING THE TORQUE

Setting the torque on the limit is achieved by tightening or loosening the adjustment nut and/or the adjustment bolts. An adjustment nut is provided for torque adjustment on the size 50 through to size89. On the sizes 127 and 178, the adjustment is accomplished by adjusting the provided bolts.

If the torque limit slips under normal loading conditions, tighten the nut (for size 50 ~ size 89) or the bolts (for size 127 ~ size 178) gradually until the torque limit stops slipping.

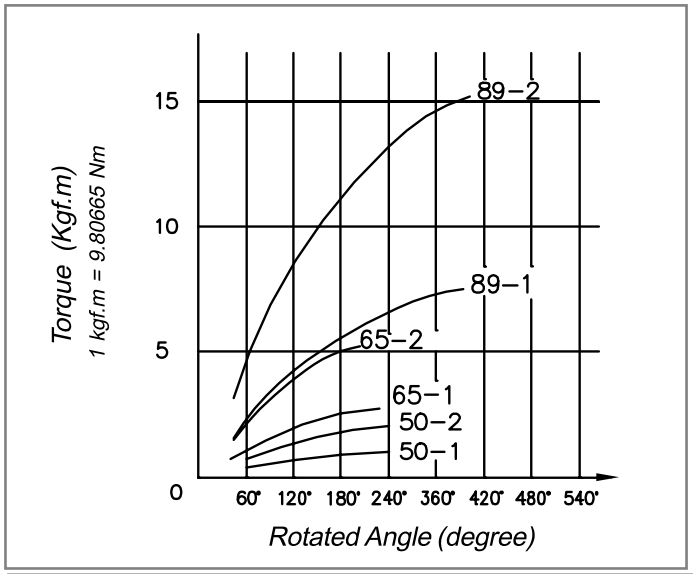
Always tighten (or loosen) the bolts or nut evenly. Try this adjustment several times, so as to find the proper torque setting for the machine.

ROTATED ANGLE AND SETTING TORQUE

The chart below shows the relation between the effective rotated angle and preset torque and can be used as guidance. As an example, size 127-2 at 30kgf.m (294Nm) needs a rotated angle of +-260 degrees of adjustment on the bolts.

To get the precise torque setting, HLB recommends the run-in of the torque limit.

SIZE 50, 65 & 89



SIZE 127 & 178