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QUANTIS
Bolts To Be Used On Mounting Feet

In addition to the bolts below, it is recommended that a lockwasher or other anti-loosening device be used.

QUANTIS ILH

Unit Size	SAE Grade 5 Inch	Grade 8.8 Metric
38	5/16-18 UNC	M8 x 1.25
48	1/2-13 UNC	M12 x 1.75
68	5/8-11 UNC	M16 x 2
88	5/8-11 UNC	M16 x 2
108	3/4-10 UNC	M20 x 2.5
128	7/8-9 UNC	M24 x 3
148	1-1/4-7 UNC	M30 x 3.5
168	1-1/2-6 UNC	M36 x 4

QUANTIS RHB

Unit Size	SAE Grade 5 Inch	Grade 8.8 Metric
38	3/8-16 UNC	M10 x 1.5
48	3/8-16 UNC	M10 x 1.5
68	1/2-13 UNC	M12 x 1.75
88	5/8-11 UNC	M16 x 2
108	7/8-9 UNC	M20 x 2.5
128	7/8-9 UNC	M24 x 3
148	1-1/4-7 UNC	M30 x 3.5
168	1-1/2-6 UNC	M36 x 4

QUANTIS
Bolts and Tightening Torque For B5 Output Flanges (Output Flange to Gearcase)

Product Type	Unit Size	Bolt - 8.8 Property Class	Tightening Torque (Nm)	Tightening Torque (ft-lb)
ILH	38	M8	25	18
ILH	48	M10	50	37
ILH	68	M12	90	66
ILH	88	M16	210	155
ILH	108	M16	210	155
ILH	128	M16	210	155
ILH	148	M16	210	155
ILH	168	M16	210	155
MSM/RHB	38	M8	25	18
MSM/RHB	48	M10	50	37
MSM/RHB	68	M12	90	66
MSM/RHB	88	M12	90	66
MSM/RHB	108	M16	210	155
MSM/RHB	128	M16	210	155
MSM/RHB	148	M20	500	369
MSM/RHB	168	M20	500	369

NOTE: Metric course thread is standard for QUANTIS

ASSEMBLY / DISASSEMBLY

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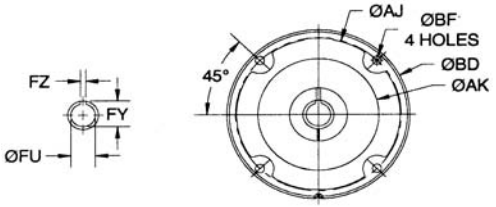
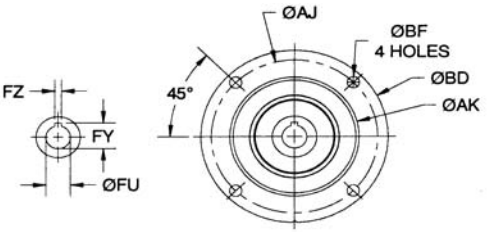
QUANTIS
NEMA C-Face Input Flange Details



Clamp Collar



Three-Piece Coupled

NEMA Clamp Collar — **Inch**

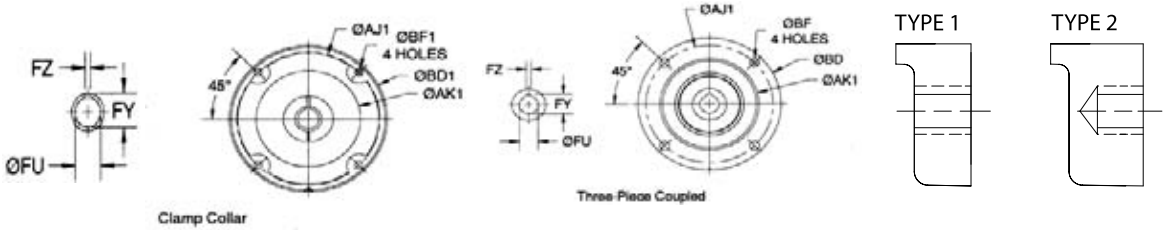
Motor Frame	ϕAK	tol	ϕAJ	ϕBD	ϕBF	ϕFU	tol	FY	FZ
56C	4.500	+0.0009 -0.0000	5.870	6.61	0.43	0.625	+0.0007 -0.0000	0.709	0.188
140TC	4.500	+0.0009 -0.0000	5.870	6.61	0.43	0.875	+0.0008 -0.0000	0.964	0.188
180TC	8.500	+0.0011 -0.0000	7.250	8.98	0.53	1.125	+0.0008 -0.0000	1.241	0.250
210TC	8.500	+0.0011 -0.0000	7.250	9.02	0.53	1.375	+0.0010 -0.0000	1.518	0.310
250TC	8.500	+0.0011 -0.0000	7.250	10.23	0.53	1.625	+0.0010 -0.0000	1.796	0.375
280TC	10.500	+0.0013 -0.0000	9.000	11.89	0.53	1.875	+0.0010 -0.0000	2.096	0.500
320TC	12.500	+0.0014 -0.0000	11.000	14.01	0.67	2.125	+0.0016 -0.0004	2.350	0.500
360TC	12.500	+0.0014 -0.0000	11.000	14.01	0.67	2.375	+0.0016 -0.0004	2.651	0.625

NEMA Three-Piece Coupled — **Inch**

Motor Frame	ϕAK	tol	ϕAJ	ϕBD	ϕBF	ϕFU	tol	FY	FZ
56C	4.500	+0.0009 -0.0000	5.870	6.61	0.43	0.625	+0.0007 -0.0000	0.709	0.188
140TC	4.500	+0.0009 -0.0000	5.870	6.61	0.43	0.875	+0.0008 -0.0000	0.964	0.188
180TC	8.500	+0.0011 -0.0000	7.250	8.98	0.53	1.125	+0.0008 -0.0000	1.241	0.250
210TC	8.500	+0.0011 -0.0000	7.250	8.98	0.53	1.375	+0.0010 -0.0000	1.518	0.310
250TC	8.500	+0.0011 -0.0000	7.250	10.12	0.53	1.625	+0.0010 -0.0000	1.796	0.375
280TC	10.500	+0.0013 -0.0000	9.020	11.26	0.53	1.875	+0.0010 -0.0000	2.096	0.500
320TC	12.500	+0.0013 -0.0000	10.980	13.98	0.67	2.125	+0.0012 -0.0000	2.350	0.500
360TC	12.500	+0.0014 -0.0000	10.980	13.98	0.67	2.375	+0.0012 -0.0000	2.651	0.625

ASSEMBLY / DISASSEMBLY

QUANTIS
IEC D Flange Input Flange Details



IEC Clamp Collar (Requires B5 Flange On Mating Motor)

Inch

Motor Frame	ϕAK1	tol	ϕAJ1	ϕBD1	ϕBF1	Usable Tap Depth	Type	ϕFU	tol	FY	FZ
71D	4.33	+0.0014 +0.0000	5.12	6.30	M8 x 17*	0.67	2	0.55	+0.0013 +0.0006	0.63	0.20
80D	5.12	+0.0016 +0.0000	6.50	7.87	M10	0.67	1	0.75	+0.0016 +0.0008	0.85	0.24
90D	5.12	+0.0016 +0.0000	6.50	7.87	M10	0.67	1	0.94	+0.0016 +0.0008	1.06	0.31
100D	7.09	+0.0016 +0.0000	8.46	9.84	M12	0.87	1	1.10	+0.0016 +0.0008	1.22	0.31
112D	7.09	+0.0016 +0.0000	8.46	9.84	M12	0.81	1	1.10	+0.0016 +0.0008	1.22	0.31
132D	9.06	+0.0018 +0.0000	10.43	11.81	M12	0.83	1	1.50	+0.0020 +0.0010	1.61	0.40
160D	9.84	+0.0018 +0.0000	11.81	13.78	M16	1.08	1	1.65	+0.0020 +0.0010	1.77	0.47
180D	9.84	+0.0018 +0.0000	11.81	13.78	M16 x 22 *	0.87	2	1.89	+0.0020 +0.0010	2.03	0.55
200D	11.81	+0.0020 +0.0000	13.78	15.75	M16	1.08	1	2.17	+0.0024 +0.0012	2.32	0.63

IEC Three-Piece Coupled (Requires B5 Flange On Mating Motor)

Inch

Motor Frame	ϕfAK1	tol	ϕAJ1	ϕBD1	ϕBF1	Usable Tap Depth	Type	ϕFU	tol	FY	FZ
80D	5.12	+0.0016 +0.0000	6.50	7.87	M10	0.67	1	0.75	+0.0008 +0.0000	0.86	0.24
90D	5.12	+0.0016 +0.0000	6.50	7.87	M10	0.67	1	0.94	+0.0008 +0.0000	1.07	0.31
100D	7.09	+0.0016 +0.0000	8.46	9.84	M12	0.75	1	1.10	+0.0008 +0.0000	1.23	0.31
112D	7.09	+0.0016 +0.0000	8.46	9.84	M12	0.75	1	1.10	+0.0008 +0.0000	1.23	0.31
132D	9.06	+0.0018 +0.0000	10.43	11.81	M12	0.75	1	1.50	+0.0010 +0.0000	1.63	0.39
160D	9.84	+0.0018 +0.0000	11.81	13.78	M16	1.18	1	1.65	+0.0010 +0.0000	1.78	0.47
180D	9.84	+0.0028 +0.0000	11.81	13.78	M16	0.98	1	1.89	+0.0010 +0.0000	2.03	0.55
200D	11.81	+0.0032 +0.0000	13.78	15.75	M16	0.98	1	2.17	+0.0012 +0.0000	2.32	0.63
225D	13.78	+0.0035 +0.0000	15.75	17.72	M16	1.06	1	2.36	+0.0012 +0.0000	2.52	0.71
250D	17.72	+0.0038 +0.0000	19.69	21.65	M16	1.06	1	2.56	+0.0012 +0.0000	2.72	0.71

*** Depth of usable thread**

NOTE: Metric course thread is standard for QUANTIS

ASSEMBLY / DISASSEMBLY

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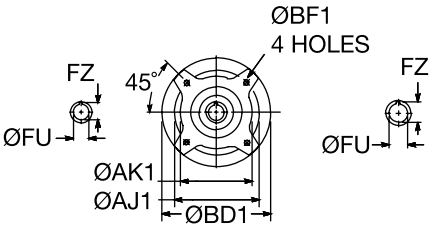
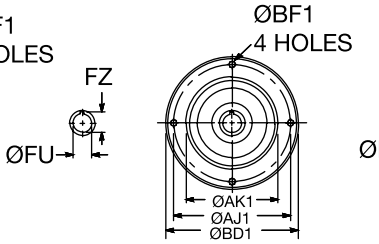
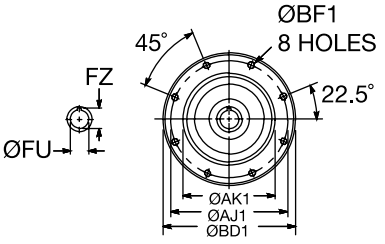
QUANTIS
Separate Flange / Shaft Details



SEPARATE GROUPS
71-112



SEPARATE GROUPS
132-180



SEPARATE GROUPS
225-250

Separate Input **Inch/mm**

	ϕBD1	ϕAK1	tol	ϕAJ 1	ϕBF1 x Depth (G)	ϕFU	tol	FZ
71	5.35	3.740	+0.0005 -0.0004	4.57	M8 x 0.55	0.625	+0.0000 -0.0005	0.71
	136	95	+0.013 -0.009	116	M8 x 14	16	+0.012 +0.001	18
80	5.51	3.740	+0.0005 -0.0004	4.57	M8 x 0.55	0.750	+0.0000 -0.0005	0.84
	140	95	+0.013 -0.009	116	M8 x 14	19	+0.015 +0.002	21.5
90	5.51	3.740	+0.0005 -0.0004	4.57	M8 x 0.55	0.875	+0.0000 -0.0005	0.96
	140	95	+0.013 -0.009	116	M8 x 14	24	+0.015 +0.002	27
100	6.85	4.724	+0.0005 -0.0004	5.71	M10 x 0.67	1.125	+0.0000 -0.0005	1.24
	174	120	+0.013 -0.009	145	M10 x 17	28	+0.015 +0.002	31
112	7.01	4.724	+0.0005 -0.0004	5.71	M10 x 0.67	1.250	+0.0000 -0.0005	1.37
	178	120	+0.013 -0.009	145	M10 x 17	28	+0.015 +0.002	31
132	8.43	6.299	+0.0006 -0.0004	7.24	M10 x 0.67	1.375	+0.0000 -0.0005	1.52
	214	160	+0.014 -0.011	184	M16 x 22	38	+0.018 +0.002	41
160	9.88	6.299	+0.0006 -0.0004	7.24	MI 6 x 0.87	1.625	+0.0000 -0.0010	1.80
	251	160	+0.014 -0.011	184	M16 x 28	42	+0.018 +0.002	45
180	11.65	7.677	+0.0006 -0.0005	9.06	M16 x 1.10	2.125	+0.0000 -0.0010	2.35
	296	195	+0.016 -0.013	230	M16 x 28	55	+0.021 +0.002	59
225	13.46	9.843	+0.0006 -0.0005	11.81	M16 x 0.87	2.125	+0.0000 -0.0010	2.35
	342	250	+0.016 -0.013	300	M16 x 22	60	+0.030 +0.011	64
250	15.59	9.843	+0.0006 -0.0005	11.81	M16 x 0.87	2.375	+0.0000 -0.0010	2.65
	396	250	+0.016 -0.013	300	M16 x 22	65	+0.030 +0.011	69

(G) See Footnote on inside back cover

NOTE: Metric course thread is standard for QUANTIS

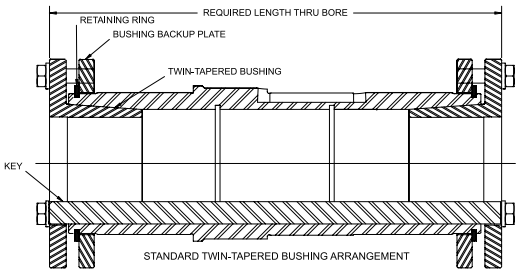
Installation Instructions for DODGE QUANTIS MSM AND RHB Reducers with Twin-Tapered Bushings

WARNING

To ensure that the drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

The DODGE QUANTIS reducer is designed to fit both standard and short length driven shafts. The Standard Taper Bushing series is designed where shaft length is not a concern. The Short Shaft Bushing series is to be used where the driven shaft does not extend through the reducer.

Figure 1



Standard Taper Bushings:

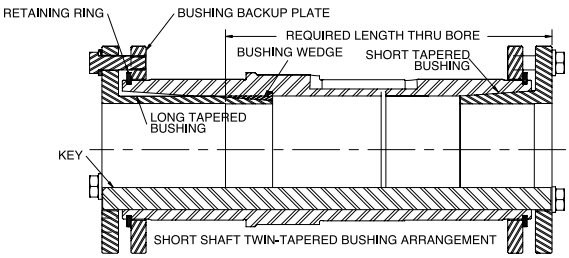
1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of two tapered bushings, bushing screws and washers, two bushing backup plates and retaining rings, and necessary shaft key or keys. The driven shaft must extend through the full length of the reducer. If the driven shaft does not extend through the reducer, do not use the standard tapered bushings; instead use the short shaft bushings as described in the Short Shaft Bushing section that follows. The minimum shaft length as measured from the end of the shaft to the outer edge of the bushing flange (See Figure 3) is given in Table 1.
2. Install one bushing backup plate on the end of the hub and secure with the supplied retaining ring. Repeat procedure for the other side.
3. Place one bushing, flange end first, onto the driven shaft and position per dimensions “A”, as shown in Table 2. This will allow the bolts to be threaded into the bushing for future bushing and reducer removal.
4. Insert the output key in the shaft and bushing. For ease of installation, rotate the driven shaft so that the shaft keyseat is at the top position.
5. Mount the reducer on the driven shaft and align the shaft key with the reducer hub keyway. Maintain the recommended minimum distance “A” from the shaft bearings.
6. Insert the screws with the washers installed, in the unthreaded holes in the bushing flange and align with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing screws. Tighten the screws lightly. If the reducer must be positioned closer than the dimensions “A”, place the screws with washers installed, in the unthreaded holes in the bushing before positioning reducer making sure to maintain at least 1/8” between the screw heads and the bearing.

CAUTION

Be sure screws do not contact seal face once torqued to the proper specification

7. Place the second tapered bushing in position on the shaft and align the bushing keyway with the shaft key. Align the unthreaded holes in the bushing with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing holes. Insert the bushing screws with washers installed in the unthreaded holes in the bushing. Tighten screws lightly.
8. Alternately and evenly tighten the screws in the bushing nearest the equipment to the recommended torque given in Table , . Repeat the procedure for the outer bushing.

Figure 2



ASSEMBLY / DISASSEMBLY

Installation Instructions for DODGE QUANTIS MSM AND RHB Reducers with Twin-Tapered Bushings

Short Shaft Bushings

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of one long tapered bushing, one short tapered bushing, one tapered bushing wedge, bushing screws and washers, two bushing backup plates, retaining rings, and necessary shaft key or keys. The driven shaft does not need to extend through the reducer for the short shaft bushing to operate properly. The minimum shaft length as measured from the end of the shaft to the outer edge of the bushing flange (See Figure 3) is given in Table 1.
2. Determine which side the long bushing will be installed from. The long bushing may be installed from either side of the reducer.
3. Install the tapered bushing wedge from the same side as the long bushing will be installed from. Install the tapered bushing wedge into the reducer hub so that the flange is installed first and the thin taper is pointing outwards. The bushing is properly installed when it snaps into place in the reducer hub.
4. Align the tapered bushing wedge keyway with the reducer hub keyway. The keyway in the wedge is slightly wider than the keyway in the reducer hub allowing for easier installation.
5. Install one bushing backup plate on the end of the hub and secure with the supplied retaining ring. Repeat procedure for other side.
6. If installing the long bushing on side A, install the short bushing; flange first, on the driven shaft and position per dimensions “A”, as shown in Table 2. This will allow the bolts to be threaded into the bushing for future bushing and reducer removal.
7. Insert the output key in the shaft and bushing. For ease of installation, rotate the driven shaft so that the shaft keyseat is at the top position.
8. Mount the reducer on the driven shaft and align the shaft key with the reducer hub keyway. Maintain the recommended minimum distance “A” from the shaft bearings.
9. Insert the screws, with washers installed, in the unthreaded holes in the bushing flange and align with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing screws. Tighten the screws lightly. If the reducer must be positioned closer than dimension “A”, place the screws, with washers installed in the unthreaded holes in the bushing before positioning the reducer making sure to maintain at least 1/8” between the screw heads and the bearing.
10. Place the long bushing in position on the shaft and align the bushing keyway with the shaft key. Use care to locate the long bushing with the tapered bushing wedge installed earlier. Align the unthreaded holes in the bushing with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing holes. Insert bushing screws, with washers installed in the unthreaded holes in the bushing. Tighten screws lightly.
11. Alternately and evenly tighten the screws in the bushing nearest the equipment to the recommended torque, given in Table 2. Repeat procedure for the outer bushing.

Bushing Removal for Standard Taper or Short Shaft Bushings:

1. Remove bushing screws.
2. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushing are free on the shaft. For ease of tightening screws, make sure screw threads and threaded holes in the bushing flanges are clean. If the reducer was positioned closer than the recommended minimum distance “A” as shown in Table 2, loosen the inboard bushing screws until they are clear of the bushing flange by 1/8”. Locate two (2) wedges at 180 degrees between the bushing flange and the bushing backup plate. Drive the wedges alternately and evenly until the bushing is free on the shaft.
3. Remove the outboard bushing, the reducer and then the inboard bushings.

Table 1:

Minimum Required Shaft Length (in.)		
Unit Size	Standard Taper Bushing	Short Shaft Bushing
38	6.75	5.1875
48	7.875	5.6875
68	9.375	7.25
88	10.50	7.5625
108	11.6875	8.875
128	14.875	11.375
148	16.75	13.1875
168	19.6875	16.00

ASSEMBLY / DISASSEMBLY

Installation Instructions for DODGE QUANTIS MSM and RHB Reducers with Straight Hollow Bore

Please follow the instructions outlined below when assembling and disassembling this unit. Failure to follow the instructions as outlined below may result in damage to the gear unit or to the machine's drive shaft. For ease of assembly, it is recommended that the machine's drive shaft be chamfered. **DO NOT HAMMER THE GEARBOX SHAFT ONTO THE MACHINE'S DRIVE SHAFT.** The machine's drive shaft should be produced in accordance with the dimensions shown on the accompanying Table 2.

ASSEMBLY:

All shaft mounted gearboxes are furnished with A) Retaining Ring B) Keeper plate C) Retaining Bolt D) Spring Washer and E) Dust Cap, as shown in the finished assembly, Figure 2. The gearbox is pulled onto the shaft by means of a threaded rod and nut assembly as shown in Figure 1 below. The threaded rod and drive spacer are not supplied. The threaded rod thread (M) is specified in Table 2. After the gearbox has been pulled completely onto the machine shaft firmly against the machine shaft backing shoulder, it must be locked in place with the retaining bolt as shown in Figure 2.

Figure 1

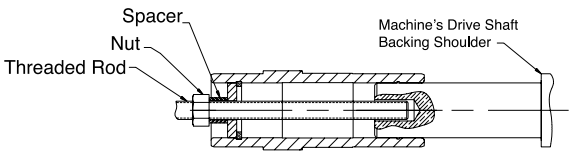
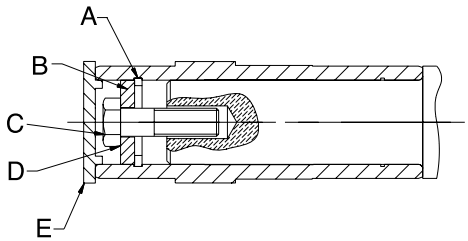


Figure 2



Recommended Tightening Torque for Retaining Bolt

Table 1: Bolt Thread Size

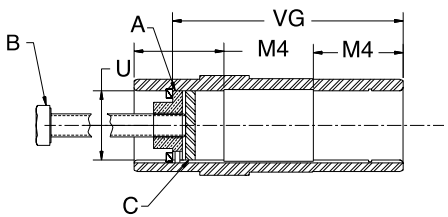
M	Torque
3/8-16	142 in-lb
5/8-11	611 in-lb
3/4-10	1221 in-lb
1-8	2098 in-lb
M10	16 Nm
M12	28 Nm
M16	69 Nm
M20	138 Nm
M24	237 Nm

Disassembly:

Prior to disassembly, the dust cap, retaining bolt, spring washer, keeper plate and retaining ring must be removed. For ease of disassembly, it is recommended that the following tool be made and used as described: The round keyed nut (A) is inserted into the free space between the retaining ring in the gear unit's hollow shaft and the end of the machine's drive shaft. The removal bolt (B) is screwed into the nut (A) which presses a disk (C) against the machine's drive shaft. The resulting force pushes the gearbox off the machine's drive shaft. Reference Figure 3 for the disassembly arrangement.

Please note: The retaining bolt supplied with the gear unit cannot be used for this purpose and must be replaced with the bolt specified in Table 2. The round keyed nut and disk should be made from 1045 steel and removal bolt should be a minimum of SAE Grade 5.

Figure 3



ASSEMBLY / DISASSEMBLY

DODGE®

Installation Instructions for DODGE QUANTIS MSM and RHB Reducers with Straight Hollow Bore - Inch Shafts

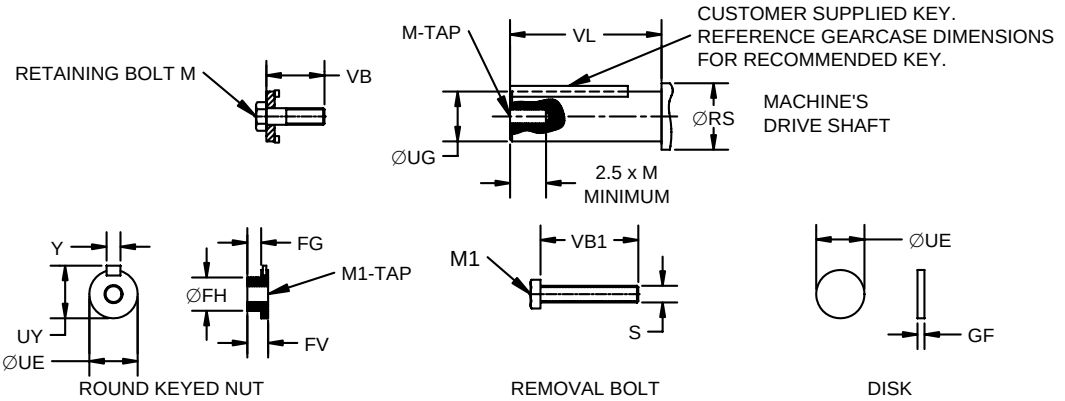


TABLE 2 - INCH SHAFTS **Dimensions - Inch**

Unit Size	FG	ØFH	FV	GF	M	M1	M4	S	Ø U *	Y Max.	ØUE	ØUG	tol.	UY Max	VL	VB	VB1	VG	Ø RS ◊
38	0.38	0.75	0.625	0.12	3/8-16	3/8-16	1.73	0.31	**1.250**	0.250	1.245	1.250	+0.0000 -0.0006	1.367	3.50	1.75	6.00	4.02	1.75
48	0.38	0.93	0.625	0.12	3/8-16	5/8-18	2.28	0.50	**1.375**	0.312	1.370	1.375	+0.0000 -0.0006	1.52	4.50	1.75	7.00	5.04	1.875
68	0.50	1.06	0.875	0.25	5/8-11	3/4 - 10	2.72	0.63	**1.500**	0.375	1.495	1.500	+0.0000 -0.0006	1.669	5.25	2.25	8.00	5.91	2.00
					3/8-16				1.4375		1.433	1.4375	+0.0000 -0.0006	1.605		1.75			1.9375
88	0.50	1.37	0.813	0.25	3/4-10	7/8-14	3.07	0.81	**2.000**	0.500	1.995	2.000	+0.0000 -0.0007	2.22	6.50	2.25	9.50	7.09	2.50
					5/8-11				1.9375		1.933	1.9375	+0.0000 -0.0006	2.16					2.4375
108	0.50	1.75	1.00	0.31	3/4-10	7/8-14	3.66	0.81	**2.375**	0.625	2.370	2.375	+0.0000 -0.0007	2.65	7.25	3.00	12.50	8.19	2.875
									2.4375		2.433	2.4375	+0.0000 -0.0007	2.714					2.9375
128	0.50	2.00	1.00	0.31	3/4-10	7/8-14	4.84	0.81	**2.750**	0.625	2.745	2.750	+0.0000 -0.0007	3.03	9.5	3.00	14.00	10.35	3.25
									2.9375	0.750	2.933	2.9375	+0.0000 -0.0007	3.269					3.4375
148	0.50	2.62	1.25	0.31	1-8	1-1/4-12	5.83	1.00	**3.625**	0.875	3.620	3.625	+0.0000 -0.0009	4.01	11.00	3.00	16.00	12.20	4.125
									3.4375		3.433	3.4375	+0.0000 -0.0009	3.82					3.9375
168	0.50	3.00	1.25	0.31	1-8	11/4-12	6.89	1.00	**4.000**	1.000	3.995	4.000	+0.0000 -0.0009	4.44	13.25	3.00	18.50	14.41	4.50
									3.9375		3.933	3.9375	+0.0000 -0.0009	4.378					4.4375

* Hollow shaft tolerances (For dimension U) are shown in the gearbox dimension pages.
Tolerance for dimension UE should be -0.01 in for inch bore shafts
Bold shaft diameters indicate standard shaft
◊ RS Dimension is the minimum recommended shaft shoulder diameter

ASSEMBLY / DISASSEMBLY

Installation Instructions for DODGE QUANTIS MSM and RHB Reducers with Straight Hollow Bore - Metric Shafts

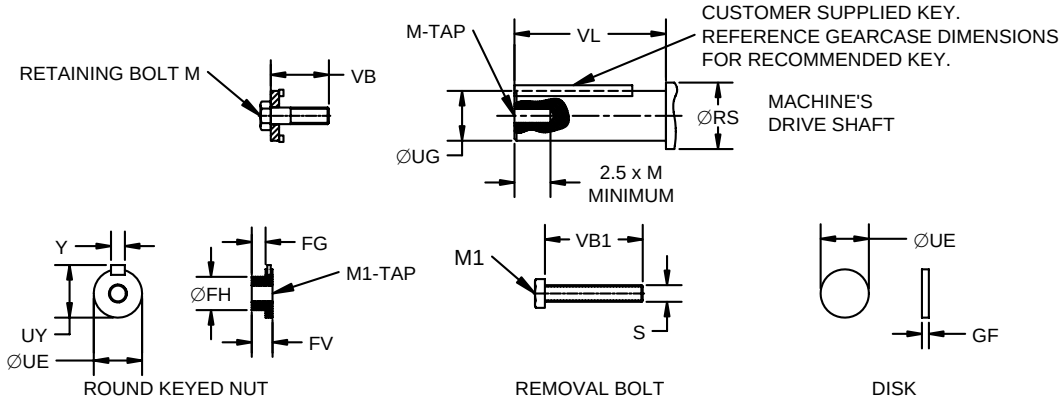


TABLE 2 - METRIC SHAFTS — **Dimensions - mm**

Unit Size	FG	ØFH	FV	GF	M	M1	M4	S	Ø U *	Y Max.	ØUE	ØUG	tol.	UY Max	VL	VB	VB1	VG	Ø RS ◊
38	10	9	15	6	M10	M10 x 1.5	44	8	30	8	29.9	30	+0.000 -0.013	33	90	40	150	102	42
48	9	22	15	6	M12	M12 x 1.5	58	10	35	10	34.9	35	+0.0000 -0.0016	38	115	50	180	128	47
					M16				40	12	39.9	40	+0.000 -0.016	43		60			52
68	13	26	20	7	M16	M16 x 1.5	69	13	40	12	39.9	40	+0.0000 -0.0016	43	135	60	210	150	52
									45	14	44.9	45	+0.000 -0.016	49					57
88	13	35	20	7	M16	M16 x 1.5	78	13	50	14	49.9	50	+0.0000 -0.0016	53	165	60	250	180	62
					M20				60	18	59.9	60	+0.000 -0.019	64		70			72
108	12	45	24	10	M20	M20 x 1.5	93	16	60	18	59.9	60	+0.0000 -0.0019	64	185	80	320	208	72
									70	20	69.9	70	+0.000 -0.019	74					82
128	12	52	24	10	M20	M20 x 1.5	123	16	70	20	69.9	70	+0.0000 -0.0019	74	240	80	360	263	82
									80	22	79.9	80	+0.000 -0.019	85		85			92
148	7	61	24	10	M20	M20 x 1.5	148	16	80	22	79.9	80	+0.0000 -0.0019	95	280	95	410	310	102
					M24				90	25	89.9	90	+0.000 -0.022						
168	8	79	30	10	M24	M24 x 1.5	175	20	100	28	99.9	100	+0.0000 -0.0022	106	330	95	470	366	112
									110		109.9	110	+0.000 -0.022	116		100			122

* Hollow shaft tolerances (For dimension U) are shown in the gearbox dimension pages.
Tolerance for dimension UE should be -0.01 in for inch bore shafts
Bold shaft diameters indicate standard shaft
◊ RS Dimension is the minimum recommended shaft shoulder diameter

ASSEMBLY / DISASSEMBLY

Installation Instructions for DODGE QUANTIS MSM and RHB Reducers with Shrink Disk Mounting

WARNING

To ensure that the drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

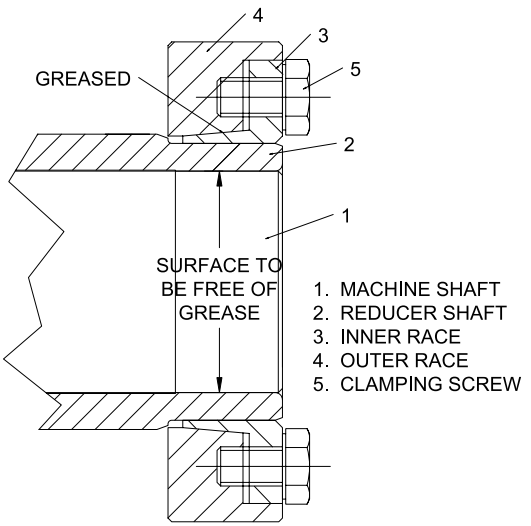
The Shrink Disk is delivered ready for installation.

WARNING

Do not disassemble the shrink disk before first clamping.

Assembly

The bore of the hollow shaft and the outside diameter of the machine shaft must be clean, dry and free of grease and oil in the area around the shrink disk seat. The performance of the unit depends on proper installation. Dirty solvents and cleaning rags are unsuitable for cleaning these surfaces. The tapered surfaces of the shrink disk may be lightly coated with grease.

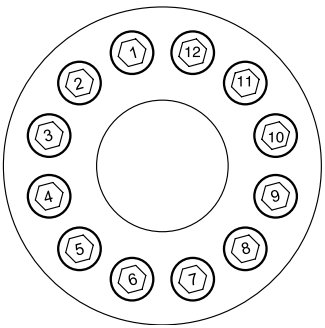


WARNING

Never tighten the clamping screws before the machine shaft is installed. If the clamping screws are tightened before the machine shaft is installed, the reducer hollow shaft will be plastically deformed and permanently damaged.

The clamping screws are to be tightened in the proper sequence until the front surfaces of the outer and inner race are flush. The correct clamping state can thus be checked visually.

Reference the following diagram for the proper tightening sequence for the clamping screws.



Installation Instructions for DODGE QUANTIS MSM and RHB Reducers with Shrink Disk Mounting

To avoid overloading the individual screws, the maximum tightening torque must not be exceeded. Again, proper installation is achieved when the faces are flush. If the front surfaces of the inner and outer races are not flush after the screws are properly tightened, the tolerance of the machine shaft outer diameter should be checked to determine if it is within specification.

Maximum Tightening Torques

Unit Size	Clamping Screw Thread	Max. Tightening Torque	
38	M8	29 Nm	22 ft-lb
48	M8	29 Nm	22 ft-lb
68	M8	29 Nm	22 ft-lb
88	M10	58 Nm	43 ft-lb
108	M10	58 Nm	43 ft-lb
128	M10	58 Nm	43 ft-lb
148	M12	100 Nm	74 ft-lb
168	M14	160 Nm	118 ft-lb

Re-install the protective cover after the clamping screws are tightened.

Disassembly:

The clamping screws are to be loosened in sequence. If the outer race does not come off the inner race by itself, some clamping screws can be used as jack screws in the jack holes provided to force the two races apart. The shrink disk can then be removed from the reducer shaft.

Cleaning and Lubrication

If the gear unit is disassembled for any reason, it is recommended that the shrink disk be lubricated prior to re-assembly. Only the tapered surfaces should be lubricated. A solid grease with a friction coefficient of $\mu = 0.04$ in accordance with the table below should be used.

Lubricant	Commercial Form	Manufacturer
Molykote 321R	Spray	DOW Corning
Molkote Spray	Spray	DOW Corning
Molkote G Rapid	Spray or Paste	DOW Corning
Aemasol MO 19 P	Spray or Paste	A. C. Matthes
Molkombin UMFT 1	Spray	Kluber
Unimoly P5	Powder	Kluber

ASSEMBLY / DISASSEMBLY

Instructions for Use of the RHB Tie Rod Kit (KR)

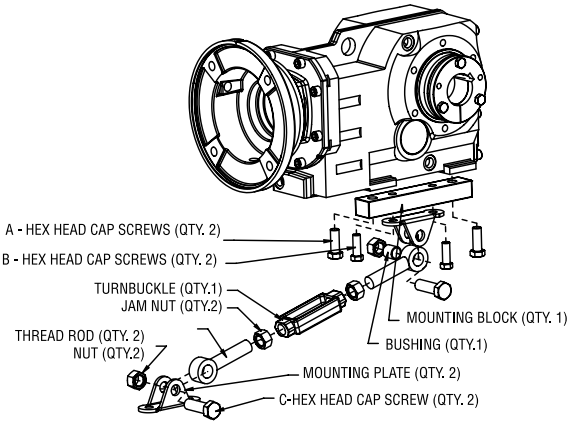


Figure A

REDUCER SIZE	SCREW SIZE & THREAD		TIGHTENING TORQUE * (foot-lb.)
BF38	A	M10 x 35	43
	B	7/16 - 14	35
	C	5/8 - 11	Hand Snug
BF48	A	M10 x 45	43
	B	7/16 - 14	35
	C	5/8 - 11	Hand Snug
BF68	A	M12 x 45	74
	B	7/16- -14	35
	C	5/8 - 11	Hand Snug
BF88	A	M16 x 55	181
	B	1/2/ - 3	55
	C	5/8 - 11	Hand Snug
BF108	A	M16 x 55	181
	B	5/8 - 11	110
	C	5/8 - 11	Hand Snug
BF128	A	M20 x 65	350
	B	3/4 - 10	200
	C	1 - 8	Hand Snug
BF148	A	M24 x 75	605
	B	3/4 - 10	200
	C	1-8	Hand Snug
BF168	A	M30 x 120	1210
	B	1 - 8	480
	C	1-1/4 - 7	Hand Snug

*Apply Threadlocker to all fasteners

Position the tie rod mounting block on the reducer hole pattern. The tie rod assembly must be located on the same side of the reducer as the driven shaft (see Figure B). Insert the supplied metric screws and tighten them to the tightening torque value labeled “A” in the above table. Position a mounting plate on the mounting block. Insert the supplied screws and tighten them to the tightening torque value labeled “B”. Connect a threaded rod to the mounting plate using a screw, bushing, and nut. Apply Threadlocker and hand tighten. Assemble a nut, turnbuckle, second threaded rod, and mounting plate (see Figure A). Attach this assembly to the threaded rod connected to the mounting plate. Orient the tie rod assembly at an angle within the range shown in Figure C, and secure the second mounting plate. Use Threadlocker and hand tighten the second mounting plate screw. Adjust the length of the tie rod assembly by rotating the turnbuckle. Tighten the jam nuts against the turnbuckle to lock the length of the tie rod assembly. Overall length can be reduced further (approximately 6 inches) by cutting the excess threaded rod from the tie rods.

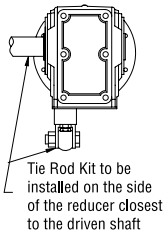


Figure B

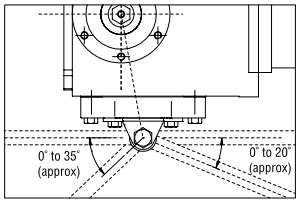


Figure C

Warning: Failure to apply Threadlocker and the correct tightening torque to fasteners may result in eqipment fialure and personal ingury.

ASSEMBLY / DISASSEMBLY

Instructions for Use of the RHB Torque Arm Bracket (K)

The torque arm bracket must be attached to the tapped holes in the RHB housing base. The two mounting capscrews must be properly tightened with a torque wrench to their recommended tightening torque (see table below). It is highly recommended that the capscrews be secured with threadlocker (Loctite 243 or equivalent) to prevent them from loosening in service.

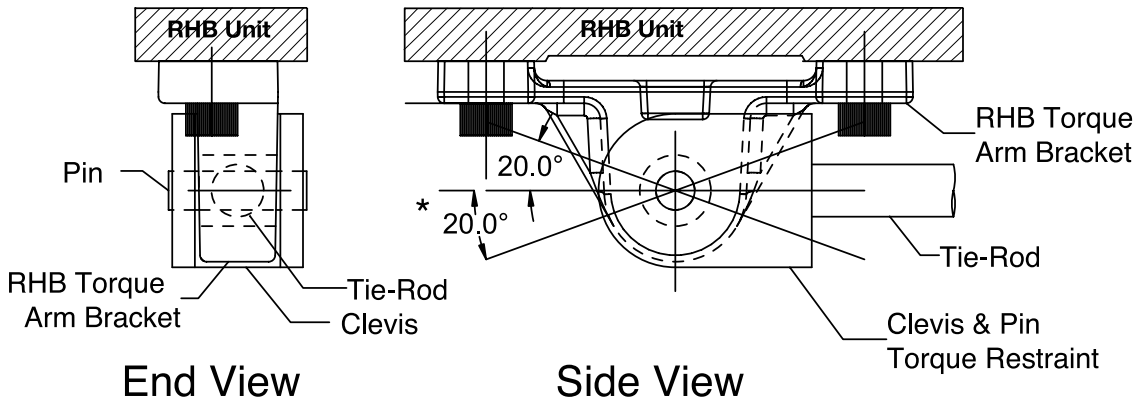
The torque arm bracket should be attached to the set of tapped holes in the base of the RHB unit that is adjacent to the nearest bearing supporting the driven shaft.

Recommended Tightening Torques

Unit	Mounting Capscrew Size	Tightening Torque	Torque Arm Bracket Pin Diameter
BF38	M10	440 lb-in (50 Nm)	.47 in. (12 mm)
BF48	M10	440 lb-in (50 Nm)	.71 in. (18 mm)
BF68	M12	800 lb-in (90 Nm)	.71 in. (18 mm)
BF88	M16	1860 lb-in (210 Nm)	.98 in. (25 mm)
BF108	M16	1860 lb-in (210 Nm)	.98 in. (25 mm)
BF128	M20	3720 lb-in (420 Nm)	.98 in. (25 mm)
BF148	M24	6420 lb-in (725 Nm)	1.57 in. (40 mm)
BF168	M30	12840 lb-in (1450 Nm)	1.57 in. (40 mm)

A torque restraining device must be pin connected to the torque arm by means of a clevis type connection. The pin diameter required is listed above or may be found on page RHB-348 (dimension “FU”). See the sketch below. It is very important that a clevis type device that straddles the torque arm bracket is used. This will ensure that no twisting moment is imposed on the torque arm bracket.

The clevis may be rigidly connected to nearby rigid framework or may be affixed to the end of a tie-rod assembly. If a tie-rod is used as a torque restraint, it should be oriented parallel to the base of the RHB unit. If this parallel orientation is not possible, it should not be oriented more than 20 degrees from parallel. Tie-rod orientation at greater angles will result in excessive loads on the RHB torque arm bracket.



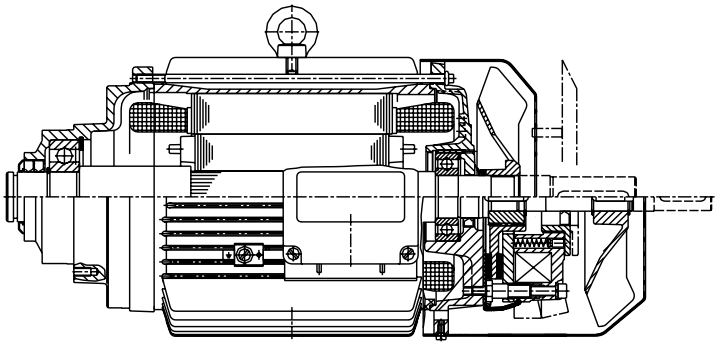
* Allowable Angular Orientation of tie-rod is no more than +/- 20 deg. from a line parallel to base of RHB unit.

FEATURES/BENEFITS

DODGE MODULAR INTEGRAL MOTOR SYSTEM

Electrical information

Modular geared motor assembly system



Three-phase squirrel cage induction motors

Designs:

- Integral Gearmotor
- Frame sizes 71C4 to 132N4
- Output ratings 0.25HP to 10HP

Regulations:

The motors comply with the appropriate IEC, or NEMA standards.

Enclosure:

TEFC, totally enclosed fan cooled.

Protection IP 55

Housings are rolled steel frame. Fans are suitable for both rotational directions.

Additional features, built-in and attached elements:

- Brakes
- Manual Release Included

Inverter Capability:

10-60 Hz constant Torque (6:1)

(**Note:** When operating an integral brakemotor with VFD, brake must have separate power supply)

ELECTRIC MOTORS - Three Phase Squirrel Cage Motor

1800 RPM - Synchronous Speed **Motor Voltages 230 / 460V, 60 Hz***

Nominal Power HP	Type	Nominal Speed RPM	Nominal Current at 230V Amps	Nominal Current at 460V Amps	Starting Current Amps	Starting Torque LB-FT	Moment of Inertia LB-FT²	Efficiency %	Power Factor	Weight LB
0.25	71C4	1725	1.30	0.65	3.45	2.57	0.024	64.0	56	21
0.33	71D4	1725	1.60	0.80	4.40	3.75	0.031	68.0	57	21
0.5	71E4	1725	2.00	1.00	6.50	5.30	0.038	74.0	63	24
0.75	80F4	1725	3.00	1.50	10.0	8.80	0.048	75.5	60	27
1	80G4	1725	3.60	1.80	14.6	15.8	0.067	75.5	64	34
1.5	90H4	1740	4.20	2.00	16.8	15.2	0.166	86.5	80	45
2	90I4	1725	5.60	2.60	19.6	18.0	0.190	86.5	82	51
3	100J4	1750	8.30	4.10	38.6	42.5	0.273	87.5	78	59
5	112L4	1750	13.6	6.50	53.7	39.0	0.400	90.2	80	101
7.5	132M4	1770	21.0	9.40	71.6	42.1	0.885	91.7	81	133
10	132N4	1770	26.8	12.5	93.8	58.1	1.280	92.4	82	165

* Other voltages or types with changeable voltages are possible.
Motors rated at 230 / 460V are operable to minimum 208 volts.
Motors will operate with +/- 10% variation in rated voltage with rated frequency. Performance within this voltage variation will not necessarily be in accordance with rated voltage.

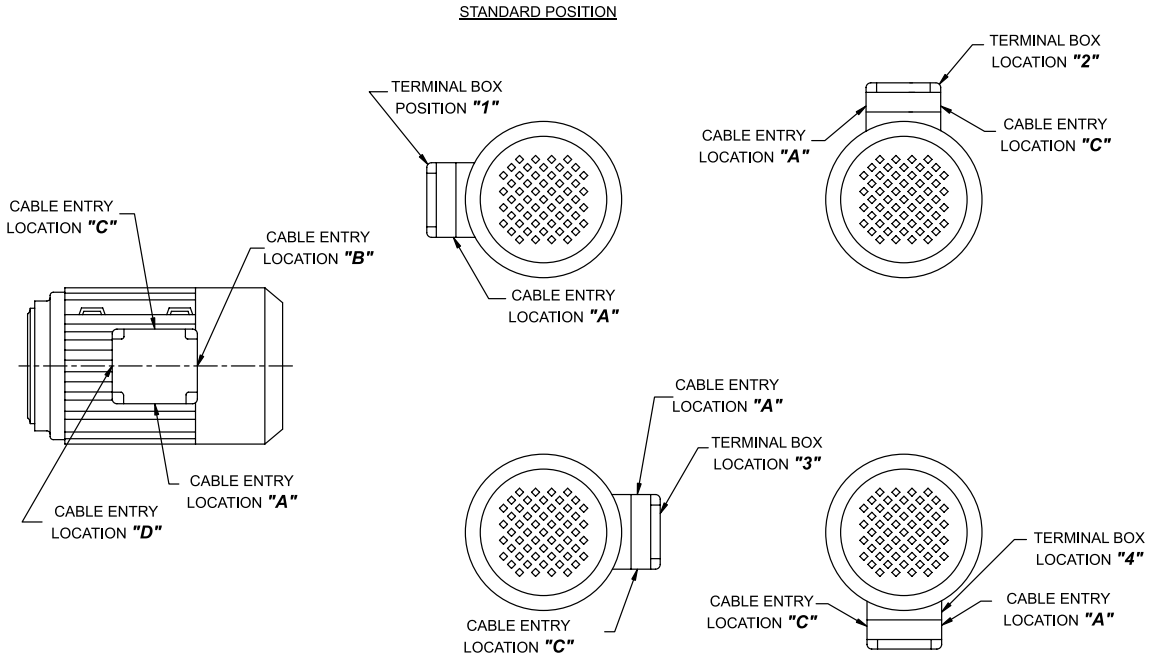
OPTIONS

BRAKE SELECTION

Motor Frame (HP)	Spring Applied Single Disk Brakes, DC Exitation	
	Brake Type	Nominal Torque T_N [Ft-Lb]
71C4 (.25) / 71D4 (.33) / 71E4 (.5)	L4	3
80F4 (.75) / 80G4 (1)	L8	6
90H4 (1.5) / 90I4 (2)	L16	12
100J4 (3)	L32	24
112L4 (5)	L60	44
132M4 (7.5) / 132N4 (10)	L80	59

For all combinations of brakes with motors listed in the selection row, the C and the LB. dimensions apply in the dimension sheets.

MOTOR TERMINAL BOX - INTEGRAL MOTORS



The terminal box can be located in **4** different positions by rotating the body of the motor. The standard position is position **1** with the cable entry located in the **A** location. The standard position, along with the optional positions, **2, 3,** & **4** are shown above. The terminal box can be rotated to provide the cable entry locations shown above, identified by four letters, **A, B, C,** & **D**. The location of the motor terminal box and cable entry can be specified at time of order.

WIRING

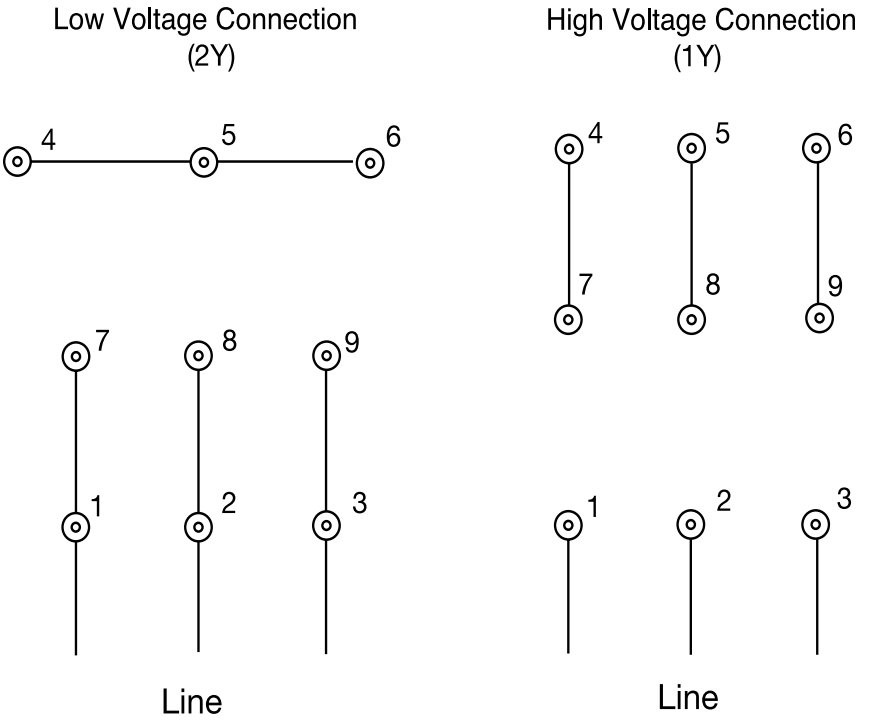
WIRING DIAGRAM FOR DUAL VOLTAGE / SINGLE SPEED INTEGRAL MOTOR

Voltage

The motors are supplied for the standard voltages 230 / 460V.

Motors for systems with different voltages and frequencies are available (extra charge).

Basic Wiring



BALDOR • DODGE • RELIANCE

Application Information Worksheet

Attn: Application Engineering - **QUANTIS**
Fax No.: (864) 281-2196
From: _____
Account No.: _____
Company: _____
Phone No.: _____ **Fax No.:** _____

Is this unit New ☐ Replacement ☐ If replacement, why? Explain: _____

Application Description _____

Ambient Operating Temperature Range (degrees F): _____ Operating Environment Description: _____

Hours Operated Per Day: _____ Starts/Stops per Hour: _____

Is this a reversing application? Yes ☐ No ☐ If Yes, How often per Hour? _____

Are there any size restrictions? Explain: _____

Moment of inertia of Driven Machine: _____

Prime Mover Information

Electric Motor? ☐ Frame Size _____ Rated HP _____ At _____ RPM

Foot Mount? ☐ C Face? ☐ Integral Gearmotor ☐ Peak Torque (in-lb) _____ Frequency of Peak Torque _____ /Hour

Duration of Peak Torque (Seconds) _____ Phase/Frequency/Voltage Required (ie. 3/60/460) _____

Reliance Motor? ☐ Reliance Model Number _____ Customer Supplied ☐ Motor Manufacturer _____

Internal Combustion Engine? ☐ Single Cylinder? ☐ Multi-Cylinder? ☐

HP _____ Or Torque (in-lb) _____ Developed At _____ RPM

Other Prime Mover? Explain: _____

Is Prime Mover Directly Coupled to the Reducer? Yes ☐ No ☐ If No, Explain _____

Special Features or Accessories Required? Yes ☐ No ☐ If Yes, Detail Features Required _____

Gear Drive Information

Type of Unit Required: ILH (In-Line-Helical) ☐ MSM (Motorized Shaft Mount) ☐ RHB (Right-Hand Helical Bevel) ☐

Desired Ratio _____ Ratio Tolerance _____ Mounting Position Required _____

Constant Speed? ☐ Variable Speed ☐ If Variable Speed, What is desired speed range? _____

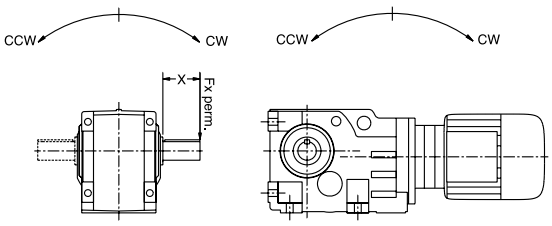
Backstop Required? Yes ☐ No ☐ If yes, which direction of rotation? CW ☐ CCW ☐ (See Below)

Overhung Load? Input Shaft ☐ Output Shaft ☐ Radial Load ☐ Thrust Load ☐

Radial Load Location on shaft of OHL from Shaft Shoulder (x) _____ (in) Angle of Applied Load _____ (Degrees)

Load (F_x Perm) _____ (lb) Thrust Load - Toward Unit? ☐ Away from unit? ☐

Special Features or Accessories Required? Yes ☐ No ☐ If Yes, detail features required



Internal Use Only

Engineering Inquiry # _____

C.O. Engineer Initials _____

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MODULAR GEARING SOLUTIONS