INTRODUCTION

The following instructions apply to assembling baseplates to Venus, Atlas, Luna, Earth, Polaris, Delta, Neptune, Neptune Plus Saturn Plus, Titan Plus, and Jupiter Plus Planetgear™ speed reducers. Instructions for Orion Plus, Saturn Plus, Titan Plus, and Jupiter Plus are also valid for Orion, Saturn, Titan, and Jupiter, respectively. These baseplates are not drilled for standard T-frame motors. The baseplates need to be modified during assembly to accept standard T-frame motors. Table 1 (Page 6) lists the reducer sizes, the baseplate part numbers and the standard T-frame motors that the baseplates are designed to accommodate.

Note: Consult Planetgear for any reducer/motor combinations that require non standard T-frame motors, fluid couplings or other devises that require a coupling gap larger than 1/4" (6 mm).

Note: If ordering directly from Planetgear, baseplates are designed and drilled for the motor that is specified.

ASSEMBLY OF REDUCER TO BASEPLATE

From Table 1, determine if reducer mounting bars are required.

NO REDUCER MOUNTING BARS REQUIRED

1. Align the reducer mounting holes to the mounting holes in the baseplate so that the output shaft extends over the baseplate. Reference Figure 1A.

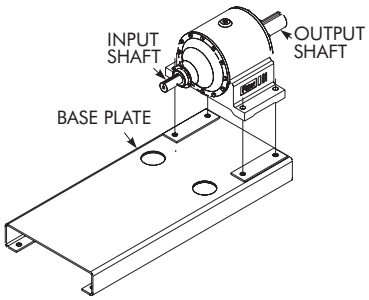

Figure 1A — Aligning Reducer Mounting Holes to Baseplate

2. Use the appropriate fasteners to attach the reducer to the baseplate. Reference Figure 1B for bolt kit configuration. Reference Table 1 for correct bolt kit. Reference Table 2 (Page 8) for the proper bolt torque values.

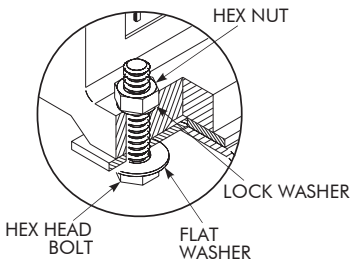

Figure 1B — Bolt Kit Configuration

REDUCER MOUNTING BARS REQUIRED

1. Align the reducer mounting bar holes to mounting holes in the baseplate. Reference Figure 2A.

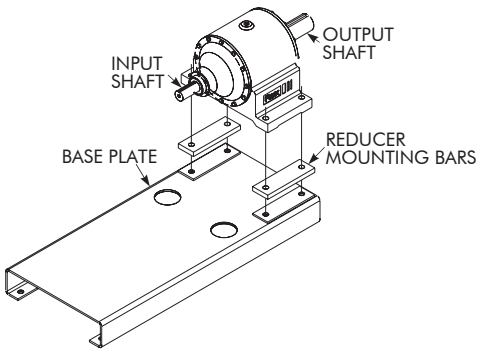

Figure 2A — Aligning Reducer Mounting Bars to Baseplate Holes

2. Use the appropriate fasteners to attach the reducer to the baseplate. Reference Figure 2B for bolt kit configuration. Reference Table 1 for correct bolt kit. Reference Table 2 for the proper bolt torque values.

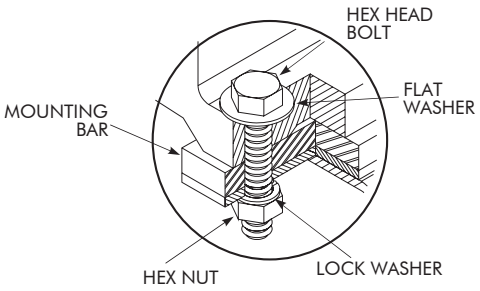

Figure 2B — Bolt Kit Configuration

ASSEMBLY OF MOTOR TO BASEPLATE

From Table 1, determine if motor mounting bars, motor mounting pedestal, and/or pedestal mounting bars are required.

Note: Reducer should be mounted to the baseplate by this time.

NO motor mounting bars, motor mounting pedestal, or pedestal mounting bars required

1. From Table 4 (Page 9) determine the motor frame mounting hole layout.
2. Determine the centerline of the baseplate:

- Clamp a piece of key stock to the keyway in the input shaft of the reducer and extend it the length of the baseplate. Reference Figure 3A (next page).

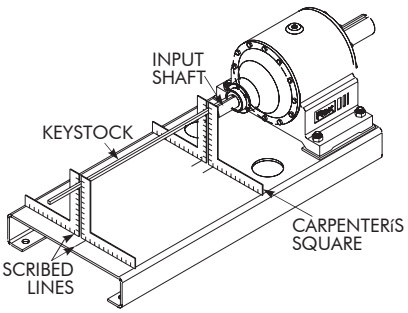

Figure 3A — Layout of Motor Mount Holes

- Rotate the input shaft so that it is exactly in the 12 o'clock or 6 o'clock position.
- With a carpenter's square and a scribe, measure a distance perpendicular to the key stock from both sides of the key stock and mark the baseplate. Reference Figure 3A. Make two sets of measurements; one as close to and the other as far away from the reducer input shaft as possible.
- Measure the distance between the marks of each set. Split the distance between the marks in half. Mark the baseplate where this midpoint lies. Reference Figure 3B.

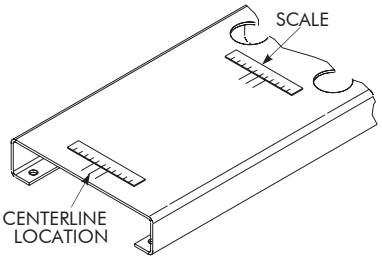

Figure 3A — Layout of Motor Mount Holes

- With a straight edge and a scribe, scribe a line that attaches the two midpoints. Reference Figure 3C. This is the centerline of the baseplate.

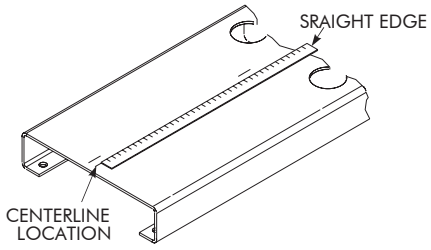

Figure 3A — Layout of Motor Mount Holes

3. Determine the position of the front motor mounting holes.

- From Table 4 calculate the distance between the end of the motor shaft to the center of the front motor mounting holes. (Add the BA & N-W dimensions.)
- Determine the gap needed between the motor shaft and the reducer input shaft. A 1/4" (6 mm) gap is recommended. Consult Rexnord for any special gap needs.
- Add the gap distance to the calculated distance between end of motor shaft and the center of the from motor feet. This is the distance between the reducer input shaft and the center of the front motor mounting holes (BA + N-W + GAP).
- With a carpenter's square positioned as shown in Figure 4A, measure off the distance that was calculated where the center of the front motor mounting holes are with respect the end of the reducer input shaft. Mark the distance on the center line.

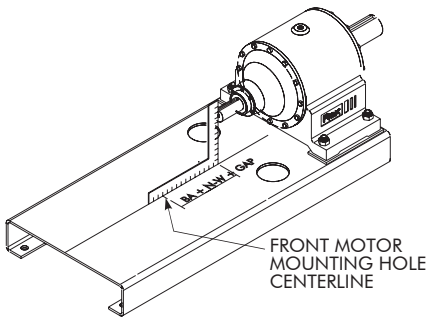

Figure 4A — Layout of Motor Mount Holes

- From Table 4 determine the distance between the center line of the motor and the center of the front motor mounting holes. (The E dimension.)
- With a carpenter's square, measure and mark the determined distance perpendicular to the center line to get the front motor mounting hole positions. Repeat this step for other side of center line. Reference Figure 4B.

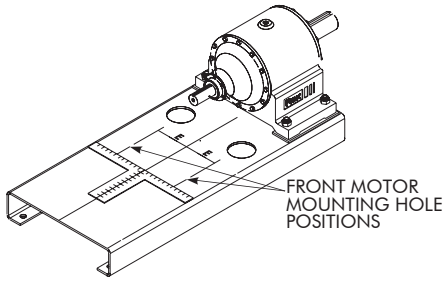

Figure 4B — Layout of Motor Mount Holes

4. Determine the position of the back motor mounting holes.

- From Table 4 calculate the distance between the centers of the front and back motor mounting holes. (It is 2 times the F dimension.)
- Measure this calculated distance from the first mark on the center line away from the reducer. Reference Figure 4C.

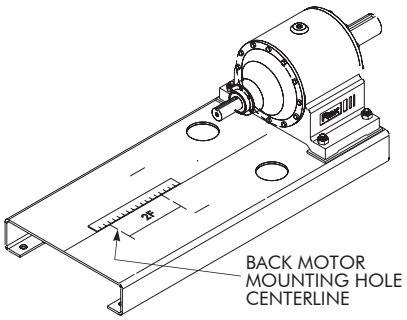

Figure 4C — Layout of Motor Mount Holes

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- With a carpenter's square, measure and mark the determined distance perpendicular to the center line to get the back motor mounting hole positions. Repeat step for other side of center line. Reference Figure 4D.

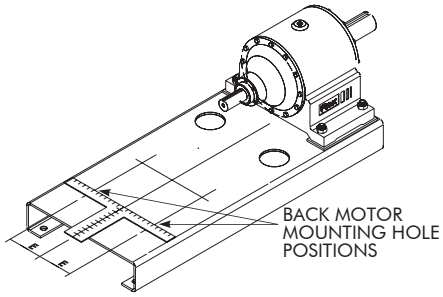

Figure 4D — Layout of Motor Mount Holes

Note: At this time recheck all measurements.

5. With a center punch, center punch at the 4 motor mounting hole center positions.
- 6. Drill an 1/8" to 1/4" (3 mm to 6 mm) pilot hole at each center punched positions.
7. From Table 4 determine the size of the motor mounting holes. (The H dimension.)
8. At the pilot hole locations, drill thru holes that are the same size as the determined motor mounting holes.
9. Loosely attach coupling hubs to the motor shaft and reducer input shaft respectively.
10. Use the appropriate fasteners to attach the motor to the baseplate. Reference Table 3 (Page 8) for installation of coupling and for procedure to achieve proper motor/reducer alignment. Reference Table 2 for the proper bolt torque values.

MOTOR MOUNTING BARS REQUIRED, NO MOTOR MOUNTING PEDESTAL OR PEDESTAL MOUNTING BARS REQUIRED

1. Use same procedures as stated in the preceding section to layout and drill the motor mounting hole position. Steps 1 thru 8.)
2. Align the motor mounting bar holes to mounting holes in the baseplate. Reference Figure 5.

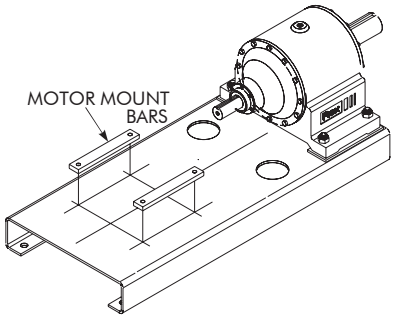

Figure 5 — Aligning Motor Mount Bar Holes to Baseplate Holes

3. Loosely attach coupling hubs to the motor shaft and reducer input shaft respectively.
4. Use the appropriate fasteners to attach the motor to the baseplate. Reference (Page 8) for installation of coupling and for procedure to achieve proper motor/reducer alignment. Reference Table 2 for the proper bolt torque values.

MOTOR MOUNTING PEDESTAL REQUIRED, NO PEDESTAL MOUNTING BARS OR MOTOR MOUNTING BARS REQUIRED

1. From Table 4 determine the motor frame mounting hole layout.
2. Determine the centerline of the baseplate:
- Reference step 2 in first section of Assembly of Motor to Baseplate for procedures.

3. Determine the centerline of the pedestal:

- Measure the width of the pedestal. Reference dimension 'X' in Figure 6.

- Divide the width measurement in half to get the center of the pedestal. Use a carpenter's square and a scribe to measure and mark the center positions on the front and back of the pedestal.

- With a scribe and a straight edge, scribe a line between the center position marks.

4. Determine the center of the pedestal:

- Measure the length of the pedestal along the center line. Reference dimension 'Y' in Figure 6.

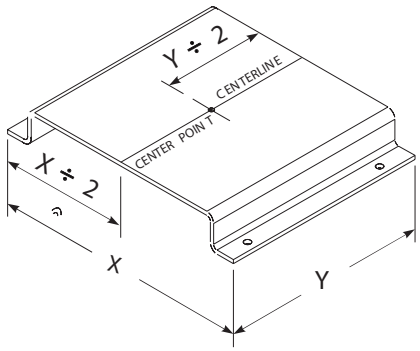

Figure 6 — Layout of Motor Mount Holes on Pedestal

- Divide the length measurement in half to get the center. With this measurement, measure and mark along the centerline the center of the pedestal.
5. Determine the position of the pedestal on the baseplate:
- From Table 4 calculate the distance between the end of the motor shaft to the center of the front motor mounting holes. (Add the BA & N-W dimensions.)

- Determine the gap needed between the motor shaft and the reducer input shaft. A 1/4" gap is recommended. Consult Rexnord for any special gap needs.
- Add the gap distance to the calculated distance between end of motor shaft and the center of the from motor feet (BA + N-W + GAP). To this sum add the distance from the center of the front motor mounting feet to the center of the motor. (F dimension in Table 4) This calculated distance is the distance between the reducer input shaft and the center of the motor (BA + N-W + GAP + F).
- Line up the centerline of the pedestal to the centerline of the baseplate.
- With a carpenters' square positioned as shown in Figure 7, measure off the distance that was calculated where the center of the pedestal is with respect to the end of the reducer input shaft.

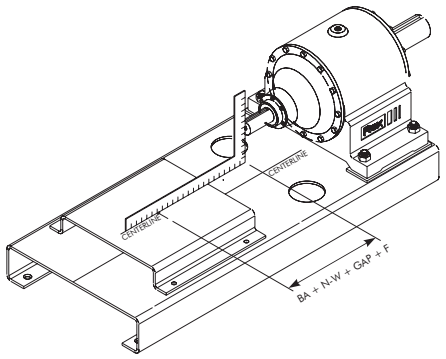

Figure 7 — Layout of Motor Mount Holes on Pedestal

- Position the pedestal in place. Make sure that the centerline of the pedestal is in line with the centerline of the baseplate and that the center of the pedestal is positioned at the measured distance.
- Clamp the pedestal to the baseplate.
- With a scribe, trace the pedestal mounting hole pattern onto the baseplate.
- Determine the center of each traced hole and center punch a mark.
- Drill an 1/8" to 1/4" (3 mm to 6 mm) pilot hole at each center punched position.
- At the pilot hole locations, drill thru holes that are the same size as the pedestal mounting holes.
- Use the appropriate fasteners to attach the pedestal to the baseplate. Reference Table 2 for the proper bolt torque values.

6. Determine the position of the motor on the pedestal:

- From Table 4 calculate the distance between the end of the motor shaft to the center of the front motor mounting holes. (Add the BA & N-W dimensions.)
- Determine the gap needed between the motor shaft and the reducer input shaft. A 1/4" (6 mm) gap is recommended. Consult Rexnord for any special gap needs.
- Add the gap distance to the calculated distance between end of motor shaft and the center of the front motor feet. This is the distance between the reducer input shaft and the center of the front motor mounting holes (BA + N-W + GAP.)
- With a carpenter's square positioned as shown in Figure 8A (next column), measure off the distance that was calculated where the center of the front motor mounting holes are with respect the end of the reducer input shaft. Mark the distance on the center line of the pedestal.

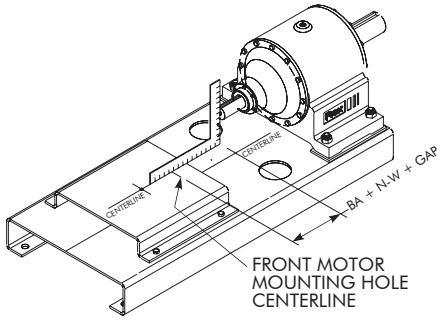

Figure 8A — Layout of Motor Mount Holes on Pedestal

- From Table 4 determine the distance between the center line of the motor and the center of the front motor mounting holes. (The E dimension.)
- With a carpenter's square, measure and mark the determined distance perpendicular to the center line to get the front motor mounting hole positions. Repeat step for other side of center line. Reference Figure 8B.

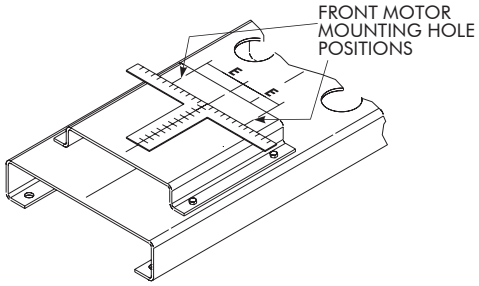

Figure 8B — Layout of Motor Mount Holes on Pedestal

- From Table 4 calculate the distance between the centers of the front and back motor mounting holes. It is 2 times the F dimension.)
- Measure this calculated distance from the first mark on the center line away from the reducer. Reference Figure 8C.

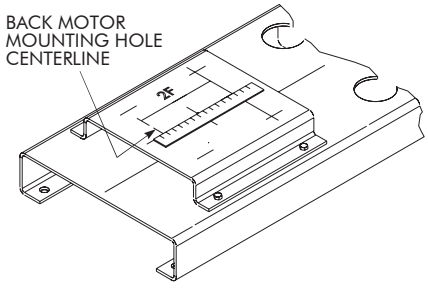

Figure 8C — Layout of Motor Mount Holes on Pedestal

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- With a carpenter's square, measure and mark the determined distance perpendicular to the center line to get the back motor mounting hole positions. Repeat step for other side of center line. Reference Figure 8D.

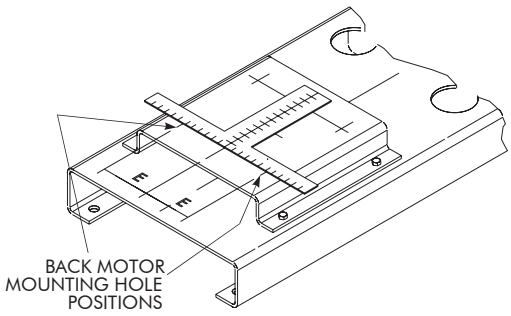

Figure 8D — Layout of Motor Mount Holes on Pedestal

Note: At this time recheck all measurements.

- With a center punch, center punch at the 4 motor mounting hole center positions.
- Drill an 1/8" to 1/4" (3 mm to 6 mm) pilot hole at each center punched position.
- From Table 4 determine the size of the motor mounting holes. (The H dimension)
- At the pilot hole locations, drill thru holes that are the same size as the determined motor mounting holes.
- Loosely attach coupling hubs to the motor shaft and reducer input shaft respectively.
- Use the appropriate fasteners to attach the motor to the baseplate. Reference Table 3 (Page 8) for installation of coupling and for procedure to achieve proper motor/reducer alignment. Reference Table 2 for the proper bolt torque values.

PEDESTAL & PEDESTAL MOUNTING BARS REQUIRED, NO MOTOR MOUNTING BARS REQUIRED

1. Use same procedures as stated in the preceding sections to layout and drill the pedestal mounting hole positions on the baseplate and the motor mounting hole positions on the pedestal. Before completion of step 5 align the pedestal mounting bar holes to mounting holes in the baseplate. Reference Figure 9.

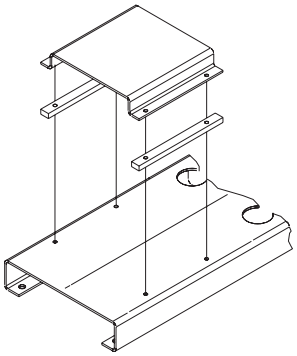

Figure 9 — Aligning Pedestal and Pedestal Mounting Bars to Baseplate

ATTACHING COUPLING GUARD

- When the coupling is in place, position the coupling guard over the coupling so that the coupling is centered inside the guard and the opening of the guard centers on the shafts.
- Mark the position where the mounting holes lie on the scoop mounting plate.
- Drill the proper size holes in the mounting plate. Tap threads in mounting plate if preferred.
- Attach coupling guard to baseplate using the correct fasteners. Refer to Table 2 for recommended bolt torques.

WARNING: *All rotating equipment must be properly guarded in accordance with OSHA standards. Failure to do so may result in personal injury or property damage.*

TABLE 1 — Baseplate Information

REDUCER SIZE	Baseplate P/N	Reducer Mounting Bolt Kits	Motor Frame Size	Motor Mounting Bars P/N (Qty)	Pedestal Mounting Bars P/N (Qty)	Reducer Mounting Bars P/N (Qty)	Pedestal P/N	Coupling Guard Pin (Max Coupling Size)
VENUS ATLAS LUNA	5886000780	V005	213T / 215T	. . .	. . .	. . .	1884001301	5884001405 (E30)
			254T / 256T	. . .	. . .	. . .	1884000501	
			284T / 286T	1886000410 (2)	. . .	. . .	. . .	
			324T / 326T	. . .	. . .	. . .	. . .	
			364T / 365T	. . .	. . .	1886000401 (2)	. . .	5884001407 (E40)
			404T / 405T	. . .	. . .	1886000401 (4)	. . .	5884001408 (E40)
EARTH	5886000880	E005	213T / 215T	. . .	1886000402(2)	. . .	1884001301	5884001407 (E40)
			254T / 256T	. . .	. . .	. . .	1884001301	
			284T / 286T	1886000410 (4)	. . .	. . .	. . .	
			324T / 326T	1886000411 (2)	. . .	. . .	. . .	
			364T / 365T	. . .	. . .	. . .	. . .	
			404T / 405T	. . .	. . .	1886000402(2)	. . .	5884001408 (E40) 5884001413 (E60)
			444T / 445T	. . .	. . .	1886000402 (4)	. . .	5884001409 (E50) 5884001414 (E60)
POLARIS DELTA	5886008880	E005	213T / 215T	. . .	1886000404 (2)	. . .	1884006201	5884001409 (E40)
			254T / 256T	. . .	. . .	. . .	1884006201	
			284T / 286T	. . .	1886000403 (2)	. . .	1884006301	
			324T / 326T	. . .	. . .	. . .	1884006301	
			364T / 365T	1886000417 (2)	. . .	. . .	. . .	
			404T / 405T	1886000418 (2)	. . .	. . .	. . .	5884001409 (E40) ✱ 5884001414 (E50) ✱ 5884001415 (E60) ✱
			444T / 445T	. . .	. . .	1886000405 (2)	. . .	5884001409 (E40) ✱ 5884001415 (E50) ✱ 5884001416 (E60) ✱
NEPTUNE NEPTUNE PLUS	5886000980	N004	213T / 215T	. . .	1886000403 (2)	. . .	5884002380	5884001409 (E50)
			254T / 256T	. . .	. . .	. . .	5884002380	
			284T / 286T	. . .	1886000403 (2)	. . .	5884002280	
			324T / 326T	. . .	. . .	. . .	5884002280	
			364T / 365T	1886000412 (2)	. . .	. . .	. . .	
			404T / 405T	1886000413 (2)	. . .	. . .	. . .	5884001409 (E50)
			444T / 445T	1886000414 (2)	. . .	. . .	. . .	5884001415 (E60)

✱ Polaris and Delta units with Fan and Shroud require Taper-Lock® coupling hub on reducer shaft.

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TABLE 1 — Baseplate Information (continued)

REDUCER SIZE	Baseplate P/N	Reducer Mounting Bolt Kits	Motor Frame Size	Motor Mounting Bars P/N (Qty)	Pedestal Mounting Bars P/N (Qty)	Reducer Mounting Bars P/N (Qty)	Pedestal P/N	Coupling Guard Pin (Max Coupling Size)
ORION PLUS	5886011580	N004	213T / 215T	. . .	1886000403 (2)	. . .	5884002380	5884001409 (E50)
			254T / 256T	. . .	. . .	. . .	5884002380	
			284T / 286T	. . .	1886000403 (2)	. . .	5884002280	
			324T / 326T	. . .	. . .	. . .	5884002280	
			364T / 365T	1886000412 (2)	. . .	. . .	. . .	
			404T / 405T	1886000413 (2)	. . .	. . .	. . .	5884001409 (E50) 5884001415 (E60)
			444T / 445T	1886000414 (2)	. . .	. . .	. . .	
SATURN PLUS	5886001080	S004	213T / 215T	. . .	1886000403 (2)	. . .	5884002480	5884001410 (E50)
			254T / 256T	. . .	. . .	. . .	5884002480	
			284T / 286T	. . .	1886000403 (2)	. . .	5884002380	
			324T / 326T	. . .	. . .	. . .	5884002380	
			364T / 365T	. . .	1886000416 (2)	. . .	5884000780	
			404T / 405T	. . .	. . .	. . .	5884000780	5884001410 (E50) 5884001416 (E60)
			444T / 445T	1886000420 (2)	. . .	. . .	. . .	
TITAN PLUS	5886005680	S004	SAME AS SATURN	SAME AS SATURN	SAME AS SATURN	SAME AS SATURN	SAME AS SATURN	SAME AS SATURN
JUPITER PLUS	5886003080	J003	CONSULT REXNORD	CONSULT REXNORD	CONSULT REXNORD	CONSULT REXNORD	CONSULT REXNORD	CONSULT REXNORD

TABLE 2 — Torque Requirements ★

For Dry Fasteners (Inch)															
SAE	**Diameter**	**1/4**	**5/16**	**3/8**	**7/16**	**1/2**	**1/16**	**5/8**	**3/4**	**7/8**	**1**	**1-1/8**	**1-1/4**	**1-3/8**	**1-1/2**
General Purpose Grade 2	**Torque (ft lb)**	6	12	21	34	52	75	104	178	184	265	380	530	700	930
High Strength Grade 5	**Torque (ft lb)**	9	18	33	53	80	116	160	285	460	690	850	1200	1570	2080
Allow Steel Grade 8	**Torque (ft lb)**	13	26	47	74	114	164	225	400	650	970	1370	1940	2540	3370

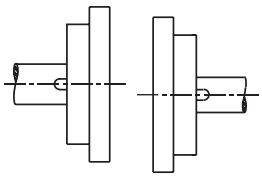
For Dry Fasteners (Metric)															
Grade	**Nominal Diameter Standard Pitch**	**M5**	**M6**	**M7**	**M8**	**M10**	**M12**	**M14**	**M16**	**M18**	**M20**	**M22**	**M24**	**M27**	**M30**
808	**Torque (Nm)**	6.15	10.5	17.5	26	51	89	141	215	295	420	570	725	1070	1450
10.9	**Torque (Nm)**	8.65	15	25	36	72	125	198	305	420	590	800	1020	1510	2050
12.9	**Torque (Nm)**	10.4	18	29	43	87	150	240	365	500	710	960	1220	1810	2450

★ The torques shown produce a clamp load of 80% of proof load. They assume clean, dry threads with a torque coefficient of 0.2, and a coefficient of friction of 0.14.
Plated threads need only 3/4 torque shown.
Well lubricated threads need only 1/2 torque shown.
Source: Rexnord Engineering Specification: GES8-19, 04/10/79.

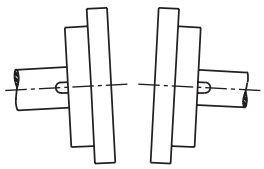
TABLE 3

ATTACHING COUPLING

Mount the reducer coupling hub on the input shaft and the motor coupling hub on the motor shaft as instructed in the manual shipped with the coupling prior to motor installation. If the coupling is not a Rexnord Omega™, refer to the manufacturer's literature for installation instructions. If Rexnord does not mount the motor, the couplings are mounted for shipment only. Coupling bolts and coupling instructions are packed inside the coupling element. **Note:** Prior to the installation of the element, check both coupling hubs for the required parallel and angular alignment.



PARALLEL MISALIGNMENT



ANGULAR MISALIGNMENT

MOUNTING OF TRANSMISSION ACCESSORIES

WARNING: When the Planetgear 7000 speed reducer is connected to a motor or driven equipment through the use of couplings, sprockets, gears, or belt drives, all rotating parts must be properly guarded with guarding that conforms to OSHA requirements to prevent personal injury or property damage.

When direct coupling motors to the Planetgear 7000 reducer, follow the four step process shown at right to achieve proper motor to reducer alignment. Refer to coupling manufacture specifications to determine required alignment accuracy. **Note:** Steps 1 to 4 may have to be repeated several times to achieve manufacturer's required accuracies.

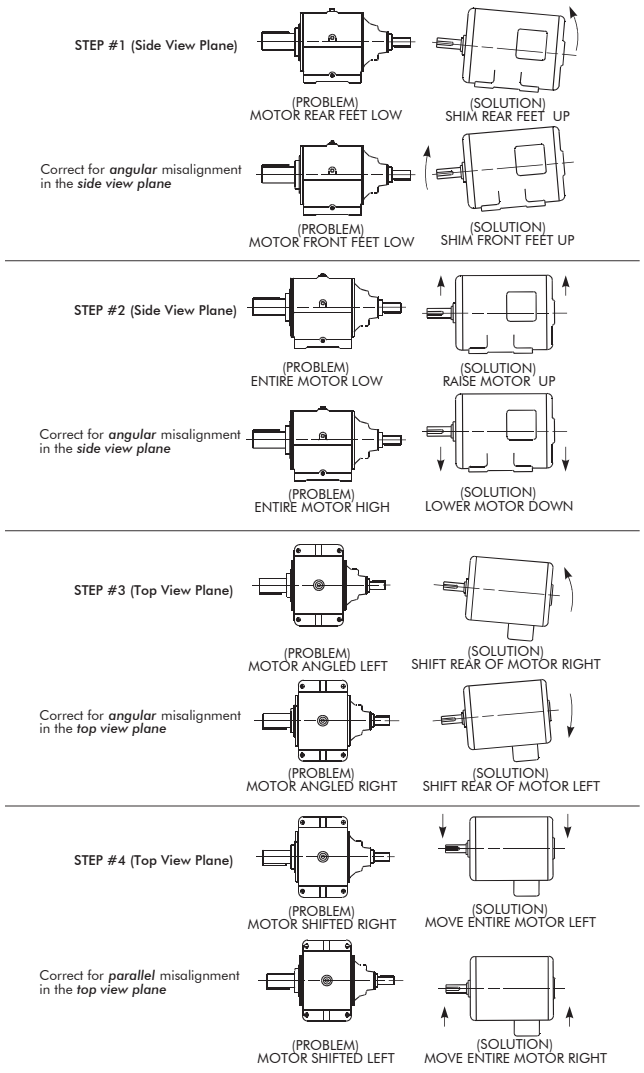


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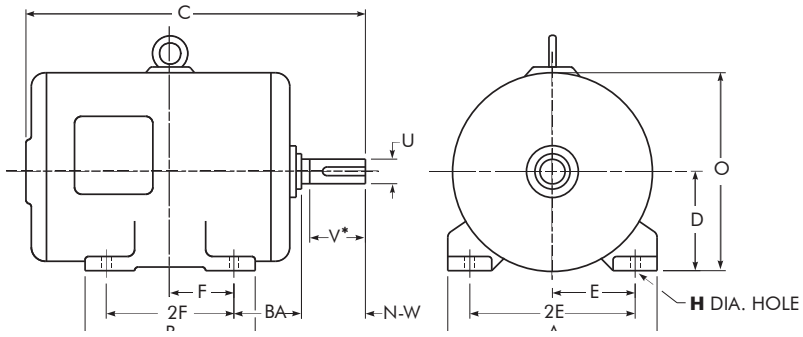
TABLE 4 — NEMA Electric Motor Dimensions



T-Frame & TS Frame NEMA Assignments and Dimensions

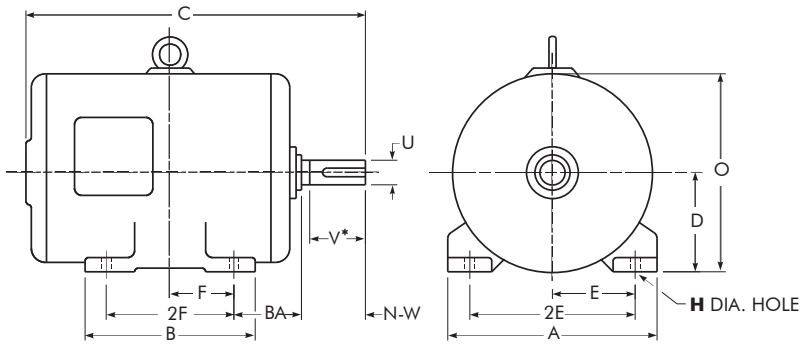
Horsepower Ratings				T-Frame No.	U	Shaft Keyseat		Key Length	N-W *	A Max	B Max	C ‡	D	E	F	H	BA	O ‡
TEFC	Open	Open & TEFC				Width	Depth											
1800	1800	1200	900															
1	1	3/4	1/2	**143T**	0.875	0.19	0.09	1.38	2.25	7.00	6.00	12.63	3.50	2.75	2.00	0.34	2.25	7.00
1 1/2 & 2	1 1/2 & 2	1	3/4	**145T**	0.875	0.19	0.09	1.38	2.25	7.00	6.00	12.63	3.50	2.75	2.50	0.34	2.25	7.00
3	3	1 1/2	1	**182T**	1.125	0.25	0.13	1.75	2.75	9.00	6.50	12.75	4.50	3.75	2.25	0.41	2.75	9.00
5	5	2	1 1/2	**184T**	1.125	0.25	0.13	1.75	2.75	9.00	7.50	13.75	4.50	3.75	2.75	0.41	2.75	9.00
7 1/2	7 1/2	3	2	**213T**	1.375	0.31	0.16	2.38	3.38	10.50	7.50	15.81	5.25	4.25	2.75	0.41	3.50	10.50
10	10	5	3	**215T**	1.375	0.31	0.16	2.38	3.38	10.50	9.00	17.31	5.25	4.25	3.50	0.41	3.50	10.50
15	15	7 1/2	5	**254T**	1.625	0.38	0.19	2.88	4.00	12.50	10.75	20.50	6.25	5.00	4.13	0.53	4.25	12.50
20	20	10	7 1/2	**256T**	1.625	0.38	0.19	2.88	4.00	12.50	12.50	22.25	6.25	5.00	5.00	0.53	4.25	12.50
25	25	15	10	**284T**	1.875	0.50	0.25	3.25	4.63	14.00	12.50	23.31	7.00	5.50	4.75	0.53	4.75	14.00
25	25	15	10	**284TS**	1.625	0.38	0.19	1.88	3.25	14.00	12.50	22.00	7.00	5.50	4.75	0.53	4.75	14.00
30	30	20	15	**286T**	1.875	0.50	0.25	3.25	4.63	14.00	14.00	24.88	7.00	5.50	5.50	0.53	4.75	14.00
30	30	20	15	**286TS**	1.625	0.38	0.19	1.88	3.25	14.00	14.00	23.50	7.00	5.50	5.50	0.53	4.75	14.00
40	40	25	20	**324T**	2.125	0.50	0.25	3.88	5.25	16.00	14.00	26.50	8.00	6.25	5.25	0.66	5.25	16.00
40	40	25	20	**324TS**	1.875	0.50	0.25	2.00	3.75	16.00	14.00	24.63	8.00	6.25	5.25	0.66	5.25	16.00
50	50	30	25	**326T**	2.125	0.50	0.25	3.88	5.25	16.00	15.50	27.75	8.00	6.25	6.00	0.66	5.25	16.00
50	50	30	25	**326TS**	1.875	0.50	0.25	2.00	3.75	16.00	15.50	26.13	8.00	6.25	6.00	0.66	5.25	16.00
60	60	40	30	**364T**	2.375	0.63	0.31	4.25	5.88	18.00	15.25	28.75	9.00	7.00	5.63	0.66	5.88	18.00
60	60	40	30	**364TS**	1.875	0.50	0.25	2.00	3.75	18.00	15.25	26.56	9.00	7.00	5.63	0.66	5.88	18.00
75	75	50	40	**365T**	2.375	0.63	0.31	4.25	5.88	18.00	16.25	29.75	9.00	7.00	6.13	0.66	5.88	18.00
75	75	50	40	**365TS**	1.875	0.50	0.25	2.00	3.75	18.00	16.25	27.56	9.00	7.00	6.13	0.66	5.88	18.00
...	100	60	50	**404T**	2.875	0.75	0.38	5.63	7.25	20.00	16.25	32.63	10.00	8.00	6.13	0.81	6.63	20.00
...	100	60	50	**404TS**	2.125	0.50	0.25	2.75	4.25	20.00	16.25	29.63	10.00	8.00	6.13	0.81	6.63	20.00
100	125	75	60	**405T**	2.875	0.75	0.38	5.63	7.25	20.00	17.75	34.13	10.00	8.00	6.88	0.81	6.63	20.00
100	125	75	60	**405TS**	2.125	0.50	0.25	2.75	4.25	20.00	17.75	31.13	10.00	8.00	6.88	0.81	6.63	20.00
125	150	100	75	**444T**	3.375	0.88	0.44	6.88	8.50	22.00	18.50	37.88	11.00	9.00	7.25	0.81	7.50	22.00
125	150	100	75	**444TS**	2.375	0.63	0.31	3.00	4.75	22.00	18.50	34.13	11.00	9.00	7.25	0.81	7.50	22.00
150	200	125	100	**445T**	3.375	0.88	0.44	6.88	8.50	22.00	20.50	39.88	11.00	9.00	8.25	0.81	7.50	22.00
150	200	125	100	**445TS**	2.375	0.63	0.31	3.00	4.75	22.00	20.50	36.13	11.00	9.00	8.25	0.81	7.50	22.00
...	...	...	...	**447T**	3.375	0.88	0.44	6.88	8.50	22.00	23.00	43.25	11.00	9.00	10.00	0.81	7.50	22.00
...	...	...	...	**447TS**	2.375	0.63	0.31	3.00	4.75	22.00	23.00	39.50	11.00	9.00	10.00	0.81	7.50	22.00
...	...	...	...	**449T**	3.375	0.88	0.44	6.88	8.50	22.00	28.00	48.25	11.00	9.00	12.50	0.81	7.50	22.00
...	...	...	...	**449TS**	2.375	0.63	0.31	3.00	4.75	22.00	28.00	44.50	11.00	9.00	12.50	0.81	7.50	22.00

NOTE: Suffix "S" indicates shore shaft for direct coupled service only. Motors of 25 hp and up listed as T-Frame may also be available in TS-Frames.

‡ These dimensions are not NEMA standard, but they are average and common to a number of manufacturers for Open (Drip Proof) motors. TEFC motors will be up to 5 inches longer, and may be slightly taller (less than an inch difference).

✱ Usable length of shaft "V" is 1/4 inch shorter than "N-W".

TABLE 4 — (Continued) IEC Electric Motor Dimensions



IEC STANDARDS Many countries have adopted IEC Standards, IEC stands for "The International Electrotechnical Commission". The object of the commission is to facilitate the coordination and unification of National Electrotechnical Standards.
IEC motors are in service throughout Western Europe, Australia, and various other locations. The standards have been incorporated into individual national standards. Outputs are in KW and dimensions are in millimeters. Table below shows the common IEC frame sizes of one motor manufacturer.
Mechanically, the major mounting dimensions of NEMA vs IEC are similar. Each standard has adopted units of dimensions predominant with the country in which used. Dimensions not listed below vary based on the manufacturer of the motor.

IEC Three-Phase Motors with Squirrel Cage Rotor

kW Rating				IEC Frame No. ★			N-W (mm)	E (mm)	F (mm)	BA (mm)
RPM				D (mm)	C	U (mm)				
3000	1500	1000	750							
0.75	...	25, 37	...	80	...	19	40	63	50	50
1.5	1.1	0.75	...	90	S	24	50	70	50	56
2.2	1.5	1.1	...	90	L	24	50	70	62	56
3	22, 3	1.5	0.75, 1.1	100	L	28	60	80	70	63
4	4	2.2	1.5	112	M	28	60	95	70	70
5.5, 7.5	5.5	3	2.2	132	S	38	80	108	70	89
...	7.5	4, 5.5	3	132	M	38	80	108	89	89
11, 15	11	7.5	4, 5.5	160	M	42	110	127	105	108
18.5	15	11	7.5	150	L	42	110	127	127	108
22	18.5	...	...	180	M	48	110	140	120	121
...	22	15	11	180	L	48	110	140	140	121
30, 37	30	18.5, 22	15	200	L	55	110	159	152	133
...	37	...	18.5	225	S	60	140	178	143	149
45	...	...	...	225	M	55	110	178	156	149
...	45	30	22	225	M	60	140	178	156	149
55	...	...	...	250	M	60	140	203	174	168
...	55	37	30	250	M	65	140	203	174	168
75	...	...	...	280	S	65	140	229	184	190
...	75	45	37	280	S	75	140	229	184	190
90	...	...	...	280	M	65	140	229	210	190
...	90	55	45	280	M	75	140	229	210	190
110	...	...	...	315	S	65	140	254	203	216
...	110	75	55	315	S	80	170	254	203	216
132	...	...	...	315	M	65	140	254	228	216
...	132	90	75	315	M	80	170	254	228	216

★ IEC frame sizes are made up of shaft height, (mm), length (letter) and shaft diameter (mm), for example 90S-24. Three frame lengths may be offered, S = Short, M = Medium, L = Long.

Key Sizes

Shaft Size Dia U † (mm)	Shaft Length (N-W) † (mm)	Key Size (Square: W, H) (mm)
7	16	2
9	20	3
11	23	4
14	30	5
16	40	5
18	40	6
19	40	6
22	50	6
24	50	8
28	60	8
32	80	10
38	80	10
42	110	12
48	110	14
55	110	16
60	140	18
65	140	18
70	140	20
75	140	20
80	170	22
85	170	22
90	170	25
95	170	25
100	210	28
110	210	28

† From motor sketch.

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