

Torque-Arm II Metric Speed Reducers

Instruction Manual

Ratios 5, 9, 15, 25, and 40: 1

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see dodgeindustrial.com for updated instruction manuals.

WARNING: To ensure 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.

WARNING: Torque-Arm II products exceeding 13.5kg (30 lbs) should be lifted using lift-assist equipment rated for the weight of the product. Weight values for all Torque-Arm II products are listed in the Gearing Engineering Catalog. Lifting brackets provided on the Torque-Arm II should be used when connecting to lift-assist equipment.

WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for these products.

WARNING: Depending on operating conditions, sound levels for Torque-Arm II products may exceed 70 dB. Protective measures such as hearing protection may be needed when in close proximity to a Torque-Arm II.

INSTALLATION

NOTE: This reducer is compatible with the Dodge® sensor that can be installed in the adapter plug labeled “smart sensor.” The plug and sensor can be moved to different locations as required by mounting position.

1. Use lifting bracket to lift reducer.
2. Determine the running positions of the reducer (see Figure 1). Note that the reducer is supplied with six plugs; four around the sides for horizontal installations and one on each face for vertical installations. These plugs must be arranged relative to the running positions as follows:

Horizontal Installations—Install the magnetic drain plug in the hole closest to the bottom of the reducer. Throw away the tape that covers the filter/ventilation plug in shipment and install plug in topmost hole. Of the two remaining plugs on the sides of the reducer, the lowest one is the minimum oil level plug.

Vertical Installations—Install the filter/ventilation plug in the hole provided in the upper face of the reducer housing as installed. If space is restricted on the upper face, install the vent in the highest hole on the side of the reducer per Figure 1. Install a plug in the hole in the bottom face of the reducer. Do not use this hole for the magnetic drain plug. Of the remaining holes on the sides of the reducer, use the plug in the upper housing half for the minimum oil level plug.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Dodge nor are the responsibility of Dodge. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

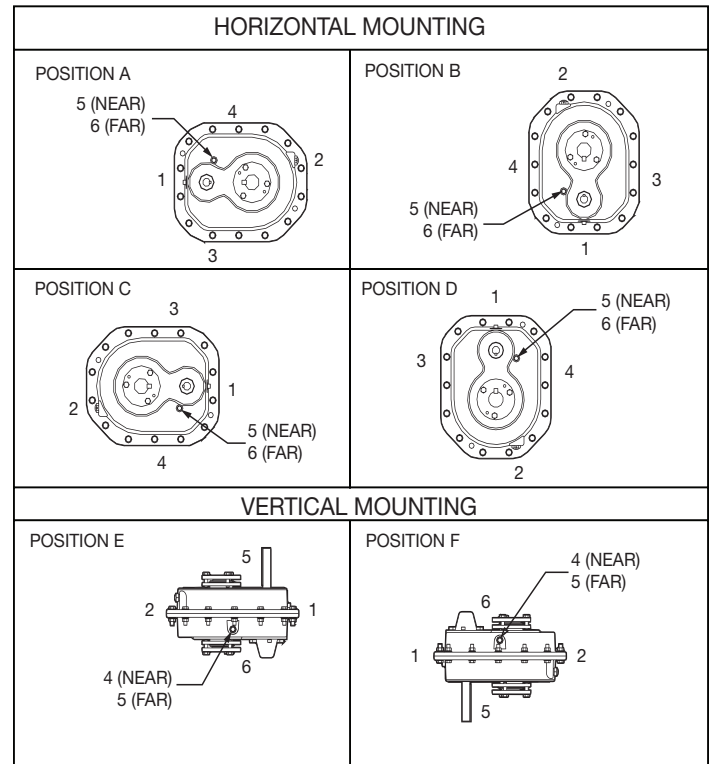


Figure 1 - Mounting Positions

Output Speeds Above 15 RPM						
Mounting Position	Vent and Plug Locations					
	1	2	3	4	5	6
Position A	Level	Plug	Drain	Vent	Plug	Plug
Position B	Drain	Vent	Level	Plug	Plug	Plug
Position C	Plug	Level	Vent	Drain	Plug	Plug
Position D	Vent	Drain	Level	Plug	Plug	Plug
Position E	Level	Plug	Plug	Drain	Vent	Plug
Position F	Plug	Drain	Level	Plug	Plug	Vent

Output Speeds 15 RPM and Below*						
Mounting Position	Vent and Plug Locations					
	1	2	3	4	5	6
Position A	Plug	Level	Drain	Vent	Plug	Plug
Position B	Drain	Vent	Plug	Level	Plug	Plug
Position C	Level	Plug	Vent	Drain	Plug	Plug
Position D	Vent	Drain	Level	Plug	Plug	Plug
Position E	Level	Plug	Plug	Drain	Vent	Plug
Position F	Plug	Drain	Level	Plug	Plug	Vent

*Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug. If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult your Dodge sales representative. The running position of the reducer in a horizontal application is not limited to the four positions shown in Figure 1. However, if the running position is over 20° in position B and D or over 5° in position A and C—either way from sketches—the oil level plug cannot be used safely to check the oil level, unless during the checking the torque-arm is disconnected and the reducer is swung to within 20° for position A and C or to within 5° for position B and D of the positions shown in Figure 1. Because of the many possible positions of the reducer vent seepage might occur and it may be necessary or desirable to make special adaptations using the lubrication filling holes furnished along with other standard pipe fittings, stand pipes, and oil level gauges as required.

- Mount reducer on driven shaft as follows:
For Tapered-Bushed Reducer: Mount reducer on driven shaft per instruction in Torque-Arm II Bushing Installation section of this manual.
 - Install sheave on input shaft as close to reducer as practical (see Figure 2).
 - If not using a Torque-Arm II motor mount, install motor and v-belt drive so belt will approximately be at right angles to the centerline between driven and input shaft (see Figure 3). This will permit tightening the v-belt with the torque-arm.
 - Install torque-arm and adapter plates reusing the reducer bolts. The adapter plates will fit in any position around the input end reducer.
 - Install torque-arm fulcrum on a flat and rigid support so that the torque-arm will be approximately at right angles to the centerline through the driven shaft and the torque-arm anchor screw. (See Figure 4). Make sure that there is sufficient take-up in the turnbuckle for belt tension adjustment when using v-belt drive.
- CAUTION: Unit is shipped without oil. Add proper amount of recommended lubricant before operating. Failure to observe this precaution could result in damage to or destruction of the equipment.**
- Fill gear reducer with recommended lubricant. See Table 2.

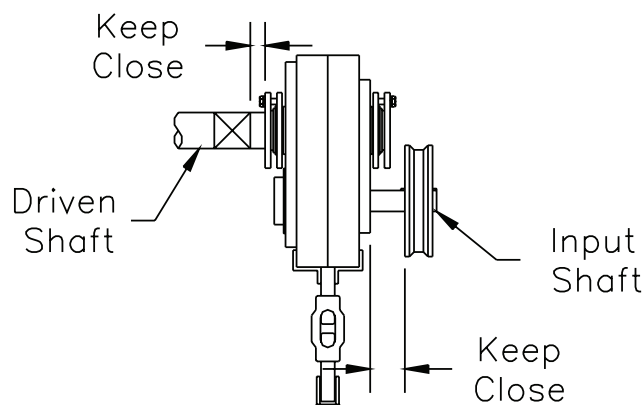


Figure 2 - Reducer and Sheave Installation

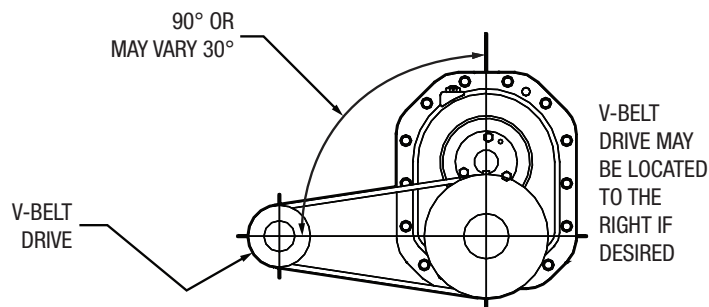


Figure 3 - Angle of V-Drive

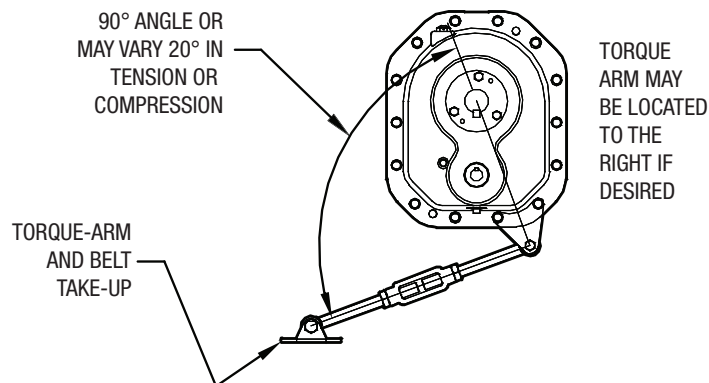


Figure 4 - Angle of Torque-Arm

TORQUE-ARM II BUSHING INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

CAUTION: DO NOT USE LUBRICANTS OR ANTI-SEIZE WHEN INSTALLING TWIN TAPERED BUSHINGS. The use of lubricants or anti-seize could result in over tightening of the bushing assembly. This may result in bushing assembly damage or future bushing removal issues.

The Torque-Arm II reducer is designed to fit both standard and short length driven shafts. The Standard Tapered Bushings 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.

Standard Tapered Bushings

- 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 Bushings 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 5), is given in Table 1.
- Install one bushing backup plate on the end of the hub and secure with the supplied retaining ring. Repeat procedure for other side.
- Place one bushing, flange end first, onto the driven shaft and position per dimension A, as shown in Table 1. 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 easy 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 bearing.
6. 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 reducer making sure to maintain at least 3.0mm between the screw heads and the bearing.
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 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 1. Repeat procedure on outer bushing.

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 and 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 5), is given in Table 1.

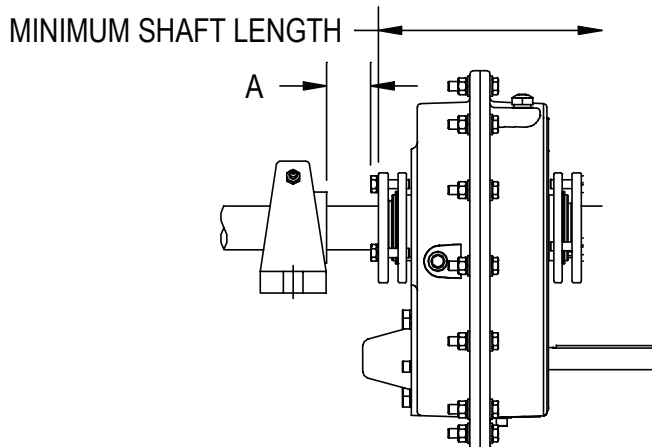


Figure 5 - Minimum Recommended Dimensions

Table 1–Minimum Mounting Dimensions & Bolt Torques

Minimum Required Shaft Length				
Reducer Size	Tapered-Bore		Straight-Bore	
	Standard Length Shaft	Short Length Shaft	Two Collars	One Collar
TA0107LM	173	110	150	131
TA1107HM	177	113	148	129
TA2115HM	198	122	165	146

Table 1–Minimum Mounting Dimensions & Bolt Torques

Minimum Required Shaft Length				
Reducer Size	Tapered-Bore		Straight-Bore	
	Standard Length Shaft	Short Length Shaft	Two Collars	One Collar
TA3203HM	219	139	193	167
TA4207HM	227	144	204	172
TA5215HM	263	162	228	196
TA6307HM	275	171	239	207
TA7315HM	301	194	270	232
TA8407HM	326	206	294	256
TA9415HM	325	217	311	270
TA10507HM	393	246	355	299
TA12608HM	465	295	425	346

Bushing Screw Information & Minimum Clearance for Removal			
Reducer Size	Fastener Size	Torque in N.m	A
TA0107LM	M8 1.25	20-24	30
TA1107HM	M8 1.25	20-24	30
TA2115HM	M10 1.5	43-48	36
TA3203HM	M10 1.5	43-48	36
TA4207HM	M10 1.5	43-48	36
TA5215HM	M12 1.75	80-85	48
TA6307HM	M12 1.75	80-85	48
TA7315HM	M12 1.75	80-85	53
TA8407HM	M12 1.75	80-85	53
TA9415HM	M16 2	110-125	60
TA10507HM	M16 2	110-125	60
TA12608HM	M16 2	110-125	60

2. The long bushing is designed to be installed from the side of the reducer opposite the driven equipment as shown in Figure 6. The long bushing when properly installed is designed to capture the end of the customer shaft that does not extend through the reducer. Normally the reducer would be mounted such that the input shaft extends from the side of the reducer opposite the driven equipment however the reducer design allows installation of the reducer to be mounted in the opposite direction.
3. Install the tapered bushing wedge into the hollow bore of the reducer from the same side as the long bushing will be installed. When installing the tapered bushing wedge into the reducer hub, install the flange end first so that the thin taper is pointing outwards towards the long bushing as shown in Figure 6. The wedge is properly installed when it snaps into place in the reducer hub.

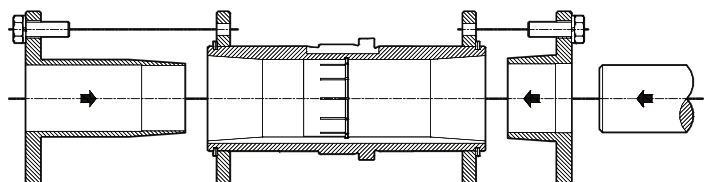


Figure 6 - Short Shaft Bushing and Output Hub Assembly

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. Install the short bushing; flange first, on the driven shaft and position per dimension "A", as shown in Table 1. 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 easy 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 bearing.
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 reducer making sure to maintain at least 3.0mm 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 1. Repeat procedure on outer bushing.

Straight-Bore Reducer Installation

1. Install reducer on the driven shaft as close to the equipment as practical.
2. It is not necessary for the shaft to extend through the full length of the bore. Minimum shaft lengths are provided in Table 1. It is preferred that both retaining collars are used; however, if shaft length will not permit the use of both retaining collars, one collar is sufficient for locking the reducer onto the shaft.
3. Tighten the set screws provided in each retaining collar. If the outer retaining collar is not being used, remove from the reducer to avoid retaining collar from dislodging and jamming the reducer during operation.

Bushing Removal - Standard Tapered 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 bushings 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 1, loosen the inboard bushing screws until they are clear of the bushing flange by 3.0mm. 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 outside bushing, the reducer, and then the

inboard bushing.

Straight-Bore Reducer Removal

1. Loosen screws in retaining collars as applicable.
2. If both retaining collars are installed, remove the outer retaining collar. This will expose three puller holes in the output hub.
3. Install a three-jaw puller and remove reducer from shaft. Use caution not to damage the output hub during reducer removal.

LUBRICATION

NOTE: Because reducer is shipped without oil, it is necessary to add the proper amount of oil before operating reducer. Use a high-grade petroleum base rust and oxidation inhibited (R&O) gear oil – see tables. Follow instructions on reducer warning tags and in the installation manual.

Under average industrial operating conditions, the lubricant should be changed every 2500 hours of operation or every six months, whichever occurs first. Drain reducer and flush with kerosene, clean magnetic drain plug and refill to proper level with new lubricant.

CAUTION: Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly. Failure to observe this precaution could result in bodily injury.

Under extreme operating conditions, such as rapid rise and fall of temperature, dust, dirt, chemical particles, chemical fumes, or oil sump temperatures above 90°C, the oil should be changed every one to three months, depending on severity of conditions.

See Table 2–Oil Volumes for more information.

Table 2–Oil Volumes by Mounting Position

Case Size	Ratios	Oil Volume in Liters					
		Horizontal				Vertical	
		A (9:00)	B (6:00)	C (3:00)	D (12:00)	E (Up)	F (Down)
TA0107L	Single	0,6	0,5	0,6	1,3	1,2	1,4
	Doubles	0,6	0,5	0,6	1,3	1,2	1,3
TA1107H	Single	1,3	0,7	0,6	1,6	1,4	1,8
	Doubles	1,3	0,7	0,6	1,6	1,4	1,8
TA2115H	Single	2,0	1,2	1,0	2,5	2,2	2,9
	Doubles	2,0	1,1	1,0	2,5	2,3	2,8
TA3203H	Single	2,7	1,6	1,7	3,9	3,1	4,2
	Doubles	2,7	1,4	1,6	3,8	3,3	4,0
TA4207H	Single	4,2	2,5	2,8	7,0	6,0	7,3
	Doubles	4,2	2,4	2,6	6,9	6,0	7,1
TA5215H	Single	7,0	4,7	5,5	12,5	11,0	12,4
	Doubles	7,0	4,4	5,2	12,2	10,8	11,9
TA6307H	Single	8,3	5,5	6,2	15,3	12,5	15,3
	Doubles	8,4	5,2	5,9	15,0	13,1	14,5
TA7315H	Single	8,0	11,1	13,2	21,3	20,9	23,7
	Doubles	7,9	10,3	12,5	20,9	21,2	21,8
TA8407H	Doubles	7,3	11,1	12,9	23,8	22,7	24,4
TA9415H	Doubles	16,1	15,9	17,1	31,4	31,4	36,5
TA10507H	Doubles	36,0	26,1	24,4	50,6	50,9	53,0
TA12608H	Doubles	50,2	39,3	35,1	66,9	68,3	76,1

Notes:

1. Oil quantity is approximate. Service with lubricant until oil runs out of oil level hole.

2. Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug. If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult product support.

3. Refer to Figure 1 for mounting positions.

Table 3—Oil Recommendations

ISO Grades For Ambient Temperatures of 10°C to 51°C												
Output RPM	Torque-Arm II Reducer Size											
	TA0107LM	TA1107HM	TA2115HM	TA3203HM	TA4207HM	TA5215HM	TA6307HM	TA7315HM	TA8407HM	TA9415HM	TA10507HM	TA12608HM
301–400	320	320	320	220	220	220	220	220	220	220	220	220
201–300	320	320	320	220	220	220	220	220	220	220	220	220
151–200	320	320	320	220	220	220	220	220	220	220	220	220
126–150	320	320	320	220	220	220	220	220	220	220	220	220
101–125	320	320	320	320	220	220	220	220	220	220	220	220
81–100	320	320	320	320	320	220	220	220	220	220	220	220
41–80	320	320	320	320	320	220	220	220	220	220	220	220
11–40	320	320	320	320	320	320	320	320	320	320	220	220
1–10	320	320	320	320	320	320	320	320	320	320	320	320

ISO Grades For Ambient Temperatures of -9°C to 16°C												
Output RPM	Torque-Arm II Reducer Size											
	TA0107LM	TA1107HM	TA2115HM	TA3203HM	TA4207HM	TA5215HM	TA6307HM	TA7315HM	TA8407HM	TA9415HM	TA10507HM	TA12608HM
301–400	220	220	220	150	150	150	150	150	150	150	150	150
201–300	220	220	220	150	150	150	150	150	150	150	150	150
151–200	220	220	220	150	150	150	150	150	150	150	150	150
126–150	220	220	220	150	150	150	150	150	150	150	150	150
101–125	220	220	220	220	150	150	150	150	150	150	150	150
81–100	220	220	220	220	220	150	150	150	150	150	150	150
41–80	220	220	220	220	220	150	150	150	150	150	150	150
11–40	220	220	220	220	220	220	220	220	220	220	150	150
1–10	220	220	220	220	220	220	220	220	220	220	220	220

Notes:

1. Assumes auxiliary cooling where recommended in the catalog.
2. Pour point of lubricant selected should be at least 6°C lower than expected minimum ambient starting temperature.
3. Extreme pressure (EP) lubricants are not necessary for average operating conditions. When properly selected for specific applications, Torque-Arm II backstops are suitable for use with EP lubricants.
4. Special lubricants may be required for food and drug industry applications where contact with the product being manufactured may occur. Consult a lubrication manufacturer's representative for his recommendations.
5. For reducers operating in ambient temperatures between -30°C and -6.6°C use a synthetic hydrocarbon lubricant, 100 ISO grade or AGMA 3 grade (for example, Mobil SHC627). Above 51°C, consult application engineering at +1 864 288 9050 for lubrication recommendation.
6. Mobil SHC630 Series oil is recommended for high ambient temperatures.

GUIDELINES FOR TORQUE-ARM II REDUCER LONG-TERM STORAGE

During periods of long storage or when waiting for delivery or installation of other equipment, special care should be taken to protect a gear reducer in order for it to be in the best condition when placed into service.

By taking special precautions, problems such as seal leakage and reducer failure due to lack of lubrication, improper lubrication quantity, or contamination can be avoided. Follow the following precautions to protect gear reducers during periods of extended storage.

Preparation

1. Drain oil from the unit. Add a vapor phase corrosion inhibiting oil (VCI-105 oil by Daubert Chemical Co.) in accordance with Table 4.
2. Seal the unit airtight. Replace the vent plug with a standard pipe plug and wire the vent to the unit.
3. Cover all unpainted exterior parts with a waxy rust preventative compound that will keep oxygen away from the bare metal (Non-Rust X-110 by Daubert Chemical Co. or equivalent).
4. The instruction manuals and lubrication tags are paper and must be kept dry. Either remove these documents and store them inside or cover the unit with a durable waterproof cover to keep moisture away.
5. Protect reducer from dust, moisture, and other contaminants by storing the unit in a dry area.
6. In damp environments, the reducer should be packed inside a moisture-proof container or an envelope of polyethylene

containing a desiccant material. If the reducer is to be stored outdoors, cover the entire exterior with a rust preventative.

Placing the Reducer into Service

1. Fill the unit to the proper oil level using a recommended lubricant. The VCI oil will not affect the new lubricant.
2. Clean the shaft extensions with petroleum solvents.
3. Assemble the vent plug into the proper hole.

See Table 4 for VCI #105 oil quantities by reducer size.

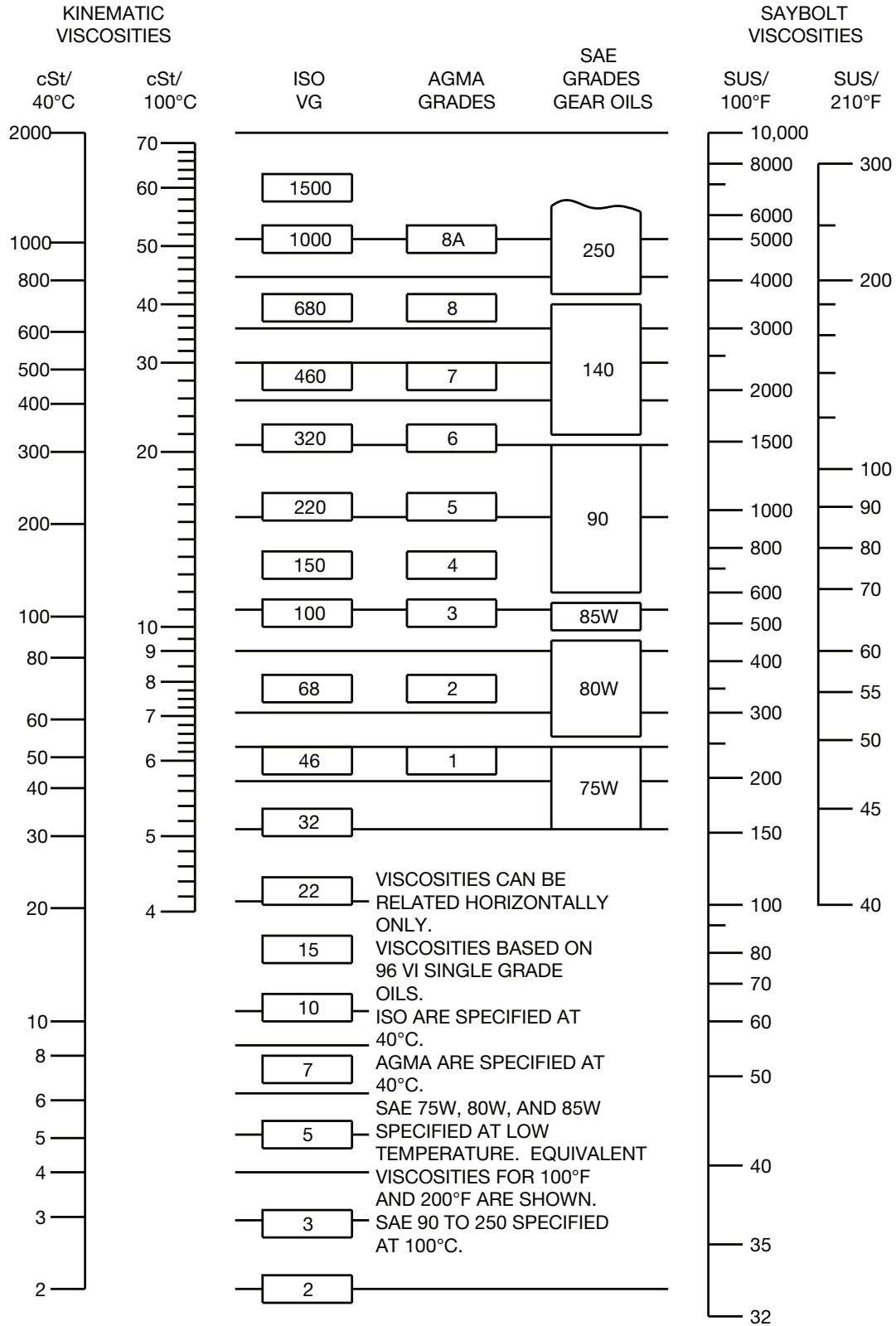
Table 4—Quantities of VCI #105 Oil

Reducer Size	Quantity (ounce/milliliter)
TA0107LM	1/30
TA1107HM	1/30
TA2115HM	1/30
TA3203HM	1/30
TA4207HM	1/30
TA5215HM	2/59
TA6307HM	2/59
TA7315HM	3/89
TA8407HM	3/89
TA9415HM	4/118
TA10507HM	6/177
TA12608HM	8/237

Notes:

VCI #105 and #10 are interchangeable.
VCI #105 is more readily available.

OIL VISCOSITY EQUIVALENCY CHART



BACKSTOPS

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

1. Remove backstop shaft cover and gasket, shown in Figure 9. These parts will not be reused. This cover is directly opposite the extended end of the input shaft.
2. Clean the face of the gearbox to remove any gasket material or contamination from the cover mounting surface. It is important that contamination not get into the gearbox or the backstop during the backstop installation/servicing process.
3. Face reducer looking at the side from which the cover was removed. Determine carefully the desired direction of free rotation. It is important that the direction be correctly determined because to reverse the direction after the backstop is installed, it is necessary to remove the backstop, turn it end-for-end and then reinstall it.
4. Match the arrow on the backstop inner race to the direction of free rotation for the desired shaft. Note that reversing the backstop end-for-end changes the direction of the arrow. The shaft will rotate in the same direction as the arrow on the backstop.
5. If the backstop kit has a spacer ring included, install it onto the shaft first, adjacent to the bearing inner ring.
6. Install the backstop inner race and sprag cage assembly onto the shaft. DO NOT remove the cage from the inner race or the shipping strap from the sprag set at this time. Insert the key into the inner race and mating shaft keyway. These parts should slip onto the shaft easily; a light coating of oil may assist in assembly. Do not use a hammer to force the installation, damage can occur to the shaft and/or the backstop. Slide the race against the spacer or the shaft shoulder and install the retaining ring into the groove in the shaft. Only use the supplied key, as it is specifically designed for each backstop.

7. Apply a thin coating of RTV silicone onto the gearbox mating surface for the outer race (same as the cover area). It is important to apply the sealant around the fastener holes to prevent leakage. Do not allow excessive amounts of silicone to enter the gearbox or to be applied to other parts.
8. Install the outer race by gently rotating it opposite the shaft rotation while pressing lightly inwards. Do not force the outer race into position as backstop damage may occur. Once the outer race is well piloted onto the sprag set, remove the shipping strap from the sprag set by cutting it, being careful not to let the outer race back off the sprags. The outer race should slide easily into position with a slight turning motion. A light coating of oil on the race inner diameter may ease installation.
9. Align the fastener holes in the outer race with the mating holes in the gearbox. Use the supplied grade 5 fasteners and lock washers only. Torque the fasteners in an alternating pattern per Table 5.

Table 5—Backstop Fastener Torque Values

Reducer Size	Fastener Size	Torque (Nm)
TA0107LM	1/4-20×2-1/4"	9-12
TA1107HM	1/4-20×2-1/4"	9-12
TA2115HM	1/4-20×2-1/4"	9-12
TA3203HM	1/4-20×2-1/4"	9-12
TA4207HM	1/4-20×2-1/4"	9-12
TA5215HM	5/16-18×2-1/2"	20-23
TA6307HM	5/16-18×2-3/4"	20-23
TA7315HM	3/8-16×3-1/2"	36-41
TA8407HM	5/16-18×2-3/4"	20-23
TA9415HM	3/8-16×3-1/2"	36-41
TA10507HM	3/8-16×3-1/2"	36-41
TA12608HM	3/8-16×4"	36-41

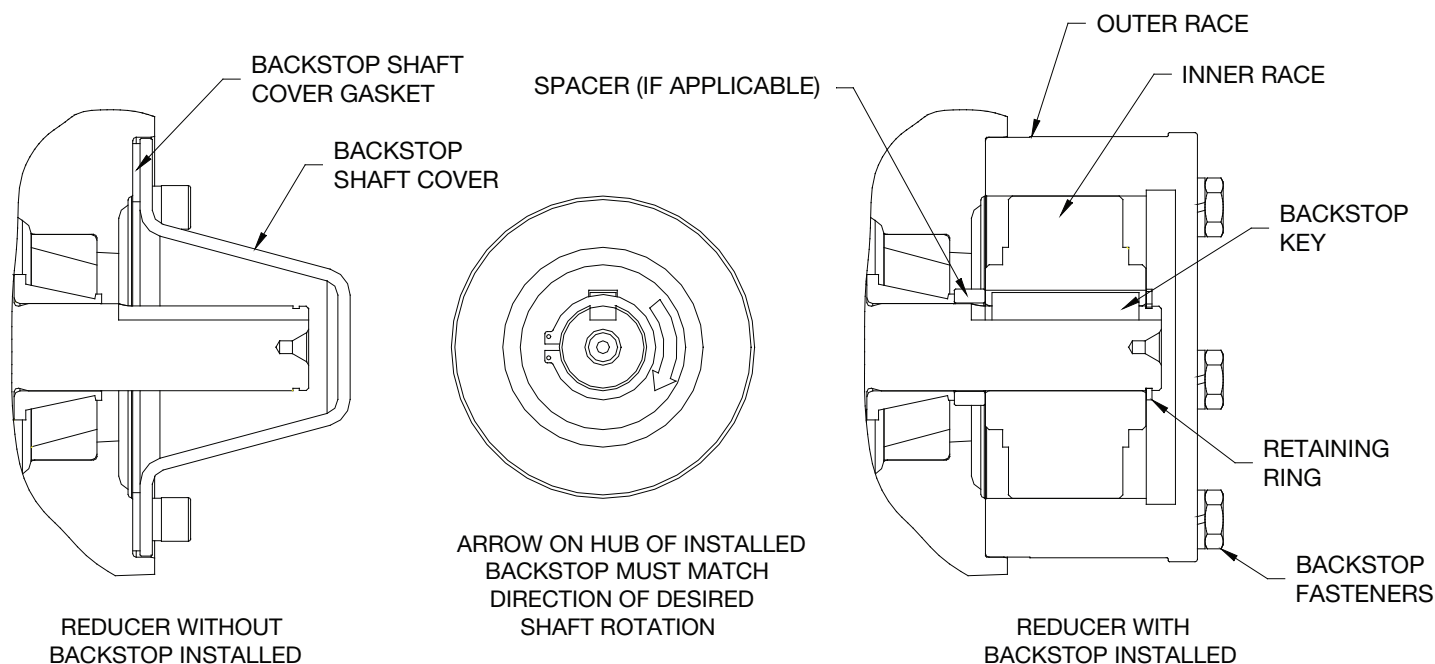


Figure 7 - Backstop Assembly

COOLING FAN INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Unpack all components and inspect for shipping damage. Do not use any component that has been damaged or modified. Make sure all components are clean and free of any foreign material prior to assembly. Cooling fan assembly is designed to fit onto the input shaft before placement of sheaves or belt guard assembly.

Installation for TA4207CFM and TA5215CFM

1. Referring to Figure 8, install tapered bushing (9) into bore of fan blade assembly (2) and loosely install the three set screws provided with fan. Snug set screws but do not tighten at this time.
2. Slide fan assembly onto input shaft and install input shaft key. Note: Key is supplied with the TAll reducer. Locate fan blade edge distance "A" (Figure 8) from end of shaft per Table 6. Make sure fan assembly rotates without interference when input shaft is rotated.
3. Alternately tighten the set screws until fan assembly is securely installed on the input shaft.
4. Recheck fan assembly for proper location and clearance. Loosen set screws and repeat steps 2 and 3 above if not properly located.

Installation for TA6307CFM through TA12608CFM

1. Referring to Figure 8, install fan guard back plate assembly (1) using the four bolts (4) provided. Note that the screen is mounted towards the reducer. Tighten to recommended torque in Table 5.

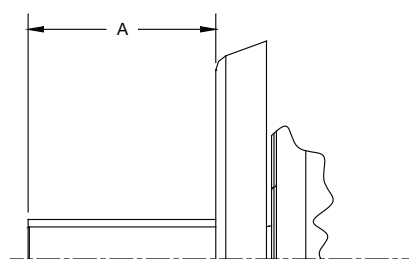
CAUTION: Fan guard screen has sharp edges. Use caution when installing to avoid lacerations.

2. Slide fan blade assembly (2) onto input shaft and install key and set screws (5). Note: Key is supplied with the TAll reducer. Position fan blade edge distance "A" (Figure 8) from end of shaft per Table 6. Make sure fan assembly rotates without interference when input shaft is rotated. Tighten the two fan blade set screws (5) securely.

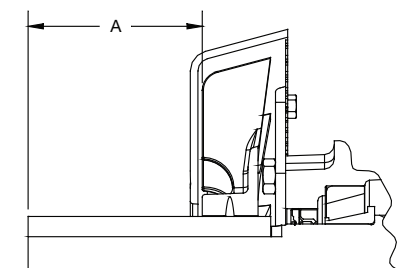
3. Install fan guard cover (3) with four bolts (6), lockwashers (7), and hex nuts (8). Tighten securely.
4. Verify fan blade rotates freely and does not interfere with fan guard back plate (1) or fan guard cover (3). Adjust fan blade if necessary.

Table 6—Dimensions and Bolt Torque

Reducer Size	Dim. "A" mm	Torque (Nm)
TA4207HM	95	
TA5215HM	117	
TA6307HM	108	40–45
TA7315HM	111	40–45
TA8407HM	129	40–45
TA9415HM	159	40–45
TA10507HM	159	40–45
TA12608HM	163	40–45



TYPICAL FOR REDUCER SIZES 4 AND 5



TYPICAL FOR REDUCER SIZES 6 THRU 12

Figure 8 - Fan Blade Placement

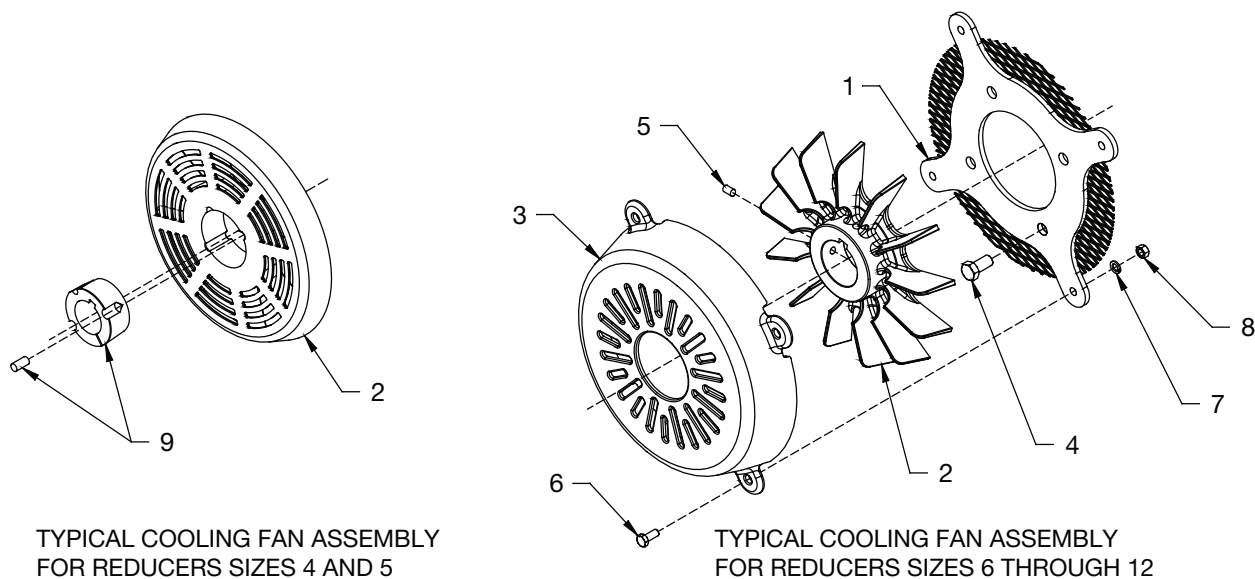


Figure 9 - Parts Identification

Table 7—Cooling Fan Part Numbers

Description	Ref.	Qty.	TA4207HM	TA5215HM	TA6307HM	TA7315HM	TA8407HM	TA9415HM	TA10507HM	TA12608HM
Cooling Fan Assembly ①	—	1	904107	905107	906107	907107	907107	909107	910107	912107
Fan Guard Plate Assembly ②	1	1	—	—	906519	906519	906519	909519	909519	912519
Fan Blade ②	2	1	904517	905517	906528	907528	907528	909528	910528	910528
Fan Guard Cover ②	3	1	—	—	906521	906521	906521	909521	909521	909521
Mounting Bolt ②	4	4	—	—	411294	411294	411294	411294	411294	411294
Fan Set Screw ②	5	2	—	—	299812	299812	299812	299812	299812	299812
Cover Bolt ②	6	4	—	—	304519	304519	304519	304519	304519	304519
Lockwasher ②	7	4	—	—	304602	304602	304602	304602	304602	304602
Hex Nut ②	8	4	—	—	901247	901247	901247	901247	901247	901247
Tapered Bushing Assembly ② ③	9	1	119604	119615	—	—	—	—	—	—

Notes :

① Assembly includes parts listed below

② Makes up assembly under which it is listed

③ Set screws are included with tapered bushing assembly

MOTOR MOUNTS

Motor Mount Assembly

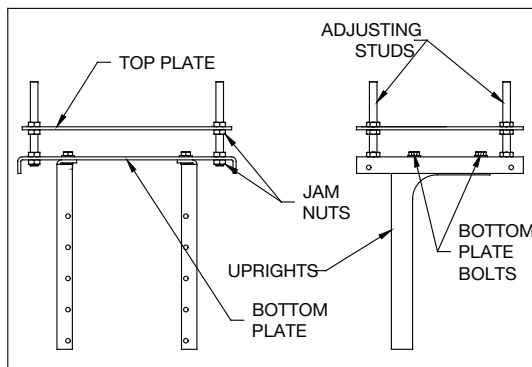


Figure 10 - Motor Mount Components

Using the hardware provided, assemble uprights (the angled parts to which the reducer is fastened) to the u-shaped, rectangular bottom plate. Notice that there are eight slots cut into the plate. If the reducer is to be mounted in Positions A or C, as illustrated in Figure 10, assemble the uprights in the outermost slots. If the reducer is to be mounted in Positions B or D, assemble the uprights in the innermost slots. The bottom plate may be mounted with the vertical flanges up or down (as shown in Figure 10). Snug bolts only; do not torque bolts at this time.

Fasten long-threaded studs to the four corners of bottom plate using jam nuts—one on each side of the plate. Securely tighten these nuts, as they will not require any further adjustment. Add one additional jam nut to each stud and thread approximately to the middle of the stud. Assemble top motor plate (the flat

rectangular plate with many holes) on top of the jam nuts.

Assemble the remaining jam nuts on studs to secure top motor plate. Do not fully tighten these nuts yet.

The motor mount may be installed in any of the four positions (A, B, C or D) and in any of the mounting levels (M1, M2, M3 or M4) shown in Figure 11. Note that the motor mount uprights attach to the input side of the reducer when mounted in either the B or D positions.

Motor Mount Installation

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Remove four or six (as required) housing bolts from the reducer. Place the motor mount in position and reinstall the bolts through the motor mount uprights and reducer housing. Where reducer is shaft mounted in positions A or C, the torque-arm adapter plate must be mounted between the reducer housing and the motor mount upright. Tighten bolts to the torque specified in Table 11. Mount the motor onto the top plate and bolt securely. Install the motor sheave and reducer sheave as close to the motor and reducer housings as practical. Loosen the bottom plate bolts and slide the motor and mounting plate to accurately align the motor and reducer sheave. Securely tighten the bottom plate bolts. Install the required number of v-belts and tension belts by alternately adjusting the jam nuts on the four adjusting studs provided on the motor mount. Check all bolts to see that they are securely tightened. Verify that the v-belt drive is properly aligned before operating the reducer.

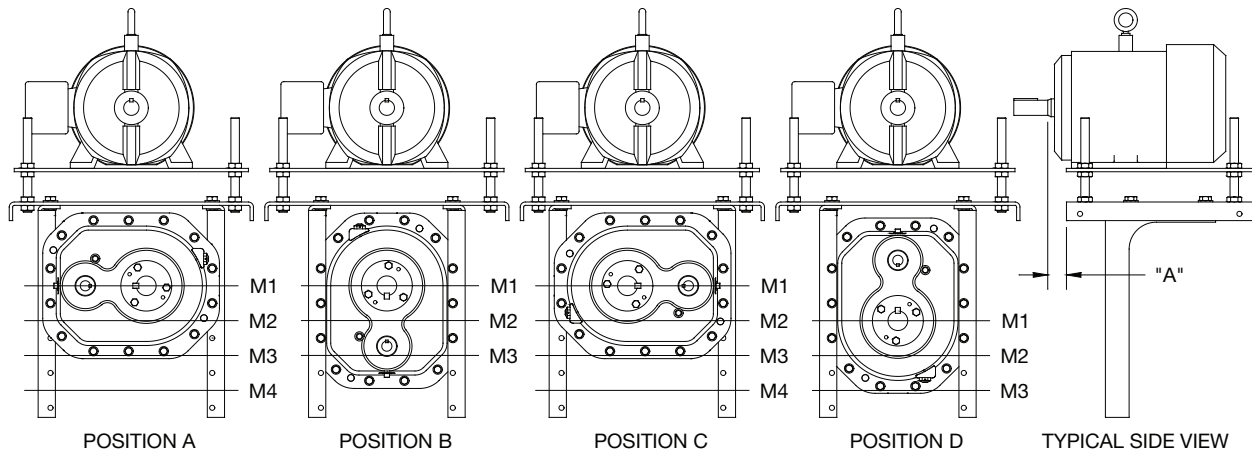


Figure 11 - Motor Mount Positions

Table 8–V-Drive Center Distances

TA0107LM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			63 / A = 30		71 / A = 32		80 / A = 24		90 / A = 30		100 / A = 24		112 / A = 35		132 / A = 40	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	341	436	349	444	358	453	367	463	377	473	389	485	409	505
		M2	400	496	408	504	417	513	427	523	437	533	449	545	468	564
		M3	460	556	468	564	477	573	486	583	496	592	508	604	528	624
		M4	519	616	527	623	536	632	546	642	556	652	568	664	588	684
B		M1	412	508	420	516	429	525	439	535	449	545	461	557	481	577
		M2	472	568	480	576	489	585	499	595	509	605	521	617	541	637
		M3	532	629	540	637	549	646	559	656	569	666	581	678	601	698
C		M1	295	390	303	398	312	407	322	417	331	427	343	438	363	458
		M2	354	450	362	457	371	466	381	476	391	486	402	498	422	518
		M3	414	509	421	517	430	526	440	536	450	546	462	558	482	578
		M4	473	569	481	577	490	586	500	596	510	606	522	618	542	638
D		M1	273	370	281	378	290	387	300	397	310	407	322	419	342	439
		M2	333	430	341	438	350	447	360	457	370	467	382	479	402	499
		M3	393	490	401	498	410	507	420	517	430	527	442	539	462	559

TA1107HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”															
			63 / A = 30		71 / A = 32		80 / A = 24		90 / A = 30		100 / A = 24		112 / A = 35		132 / A = 40		160/A = 40	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
	A	M1	274	379	281	387	290	396	300	405	309	415	321	427	340	446	367	474
		M2	337	443	344	451	353	460	363	470	373	480	384	491	404	511	431	539
		M3	401	508	408	516	417	525	427	535	437	544	448	556	468	576	496	604
		M4	465	573	473	581	482	590	491	600	501	610	513	621	533	641	561	669
	B	M1	373	483	381	491	390	500	400	510	410	520	422	532	442	552	470	580
		M2	439	549	447	557	456	566	466	576	476	586	488	598	508	618	536	646
M3		505	614	513	622	522	631	532	641	542	651	554	663	574	683	602	711	
C	M1	274	379	281	387	290	396	300	405	309	415	321	427	340	446	367	474	
	M2	337	443	344	451	353	460	363	470	373	480	384	491	404	511	431	539	
	M3	401	508	408	516	417	525	427	535	437	544	448	556	468	576	496	604	
	M4	465	573	473	581	482	590	491	600	501	610	513	621	533	641	561	669	
D	M1	211	321	219	329	228	338	238	348	248	358	260	370	280	390	308	418	
	M2	277	387	285	395	294	404	304	414	314	424	326	436	346	456	374	484	
	M3	343	452	351	460	360	469	370	479	380	489	392	501	412	521	440	549	

TA2115HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			80 / A = 24		90 / A = 30		100 / A = 24		112 / A = 35		132 / A = 40		160 / A = 40		180 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	338	427	347	437	357	447	368	458	387	478	414	505	N/A	N/A
		M2	412	503	422	513	431	523	443	534	462	554	490	581	N/A	N/A
		M3	487	579	497	589	507	599	519	611	538	630	566	658	N/A	N/A
		M4	563	656	573	666	583	675	595	687	615	707	642	735	N/A	N/A
B		M1	461	555	471	565	481	575	493	587	513	607	541	635	N/A	N/A
		M2	539	633	549	643	559	653	571	665	591	685	619	713	N/A	N/A
		M3	616	710	626	720	636	730	648	742	668	762	696	790	N/A	N/A
C		M1	338	427	347	437	357	447	368	458	387	478	414	505	N/A	N/A
		M2	412	503	422	513	431	523	443	534	462	554	490	581	N/A	N/A
		M3	487	579	497	589	507	599	519	611	538	630	566	658	N/A	N/A
		M4	563	656	573	666	583	675	595	687	615	707	642	735	N/A	N/A
D		M1	256	350	266	360	276	370	288	382	308	402	336	430	N/A	N/A
		M2	334	428	344	438	354	448	366	460	386	480	414	508	N/A	N/A
		M3	412	506	422	516	432	526	444	538	464	558	492	586	N/A	N/A

Table 8–V-Drive Center Distances (Continued)

TA3203HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			80 / A = 24		90 / A = 30		100 / A = 24		112 / A = 35		132 / A = 40		160 / A = 40		180 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	362	460	372	469	381	479	392	491	411	510	438	537	457	557
		M2	446	545	455	555	465	565	477	576	496	596	523	623	543	643
		M3	531	631	541	641	550	651	562	663	582	682	609	710	629	730
		M4	617	718	626	727	636	737	648	749	668	769	695	797	715	816
B		M1	494	597	504	607	514	617	526	629	546	649	574	677	594	697
		M2	582	685	592	695	602	705	614	717	634	737	662	765	682	785
		M3	670	773	680	783	690	793	702	805	722	825	750	853	770	873
C		M1	337	434	346	443	356	453	367	465	386	484	412	511	432	531
		M2	420	519	430	529	439	538	451	550	470	570	497	597	516	617
		M3	505	605	514	615	524	624	536	636	555	656	583	683	602	703
		M4	590	691	600	701	610	711	622	723	641	742	669	770	688	790
D		M1	250	352	260	362	270	372	281	384	301	404	329	432	349	452
		M2	337	440	347	450	357	460	369	472	389	492	417	520	437	540
		M3	425	528	435	538	445	548	457	560	477	580	505	608	525	628

TA4207HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”															
			80 / A = 24		90 / A = 30		100 / A = 24		112 / A = 35		132 / A = 40		160 / A = 40		180 / A = N/A		200 / A = 9	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
	A	M1	431	528	441	538	450	548	461	559	481	579	507	606	526	625	546	645
		M2	531	630	541	640	550	649	562	661	581	681	608	708	628	728	647	747
		M3	632	732	642	742	652	752	664	764	683	783	710	811	730	831	750	850
		M4	735	835	744	845	754	855	766	867	786	886	813	914	833	934	853	954
	B	M1	566	668	576	678	586	688	598	700	618	720	646	748	666	768	686	788
		M2	671	773	681	783	691	793	703	805	723	825	751	853	771	873	791	893
M3		775	878	785	888	795	898	807	910	827	930	855	958	875	978	895	998	
C	M1	383	478	392	488	401	497	412	509	431	528	458	555	477	575	496	594	
	M2	481	579	491	589	500	598	512	610	531	630	558	657	577	676	597	696	
	M3	582	681	591	691	601	701	613	712	632	732	659	759	679	779	699	799	
	M4	684	784	693	794	703	803	715	815	734	835	762	863	782	882	801	902	
D	M1	302	404	312	414	322	424	334	436	354	456	381	484	401	504	421	524	
	M2	406	508	416	518	426	528	438	540	458	560	486	588	506	608	526	628	
	M3	511	613	520	623	530	633	542	645	562	665	590	693	610	713	630	733	

TA5215HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			100 / A = 24		112 / A = 35		132 / A = 40		160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
	A	M1	481	581	492	593	511	612	538	639	557	658	576	678	600	702
M2		602	704	614	716	633	735	660	763	680	782	699	802	723	826	
M3		725	828	737	840	756	860	784	887	803	907	823	927	847	951	
M4		850	953	861	965	881	985	909	1013	928	1032	948	1052	972	1077	
B	M1	651	756	663	768	683	788	711	816	731	836	751	856	775	881	
	M2	778	883	790	895	810	915	837	943	857	963	877	983	902	1008	
	M3	904	1010	916	1022	936	1042	964	1070	984	1090	1004	1110	1029	1135	
C	M1	403	501	414	512	433	531	459	558	477	577	496	597	520	621	
	M2	522	623	533	634	552	654	579	681	598	700	618	720	642	744	
	M3	644	746	655	758	675	778	702	805	722	825	741	844	765	869	
	M4	767	871	779	883	799	902	826	930	846	950	865	969	890	994	
D	M1	435	540	447	552	467	572	495	600	515	620	535	640	559	665	
	M2	562	667	574	679	594	699	621	727	641	747	661	767	686	792	
	M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 8–V-Drive Center Distances (Continued)

TA6307HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			112 / A = 35		132 / A = 40		160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25		250 / A = 19	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	537	634	555	653	582	680	601	699	620	719	644	743	668	767
		M2	663	761	682	781	709	808	728	828	748	847	772	872	796	896
		M3	791	891	810	910	838	938	857	957	877	977	901	1001	926	1026
		M4	920	1020	940	1040	967	1068	987	1088	1006	1107	1031	1132	1056	1157
B		M1	696	798	716	818	744	846	764	866	784	886	809	911	834	936
		M2	828	930	848	950	876	978	896	998	916	1018	941	1043	966	1068
		M3	960	1062	980	1082	1008	1110	1028	1130	1048	1150	1073	1175	1098	1200
C		M1	452	547	471	566	497	593	515	612	534	631	558	655	582	679
		M2	576	674	595	693	622	720	641	740	660	759	684	783	708	808
		M3	703	802	722	821	749	849	769	868	788	888	813	912	837	937
		M4	831	931	851	951	878	979	898	998	917	1018	942	1042	967	1067
D		M1	364	465	384	485	411	513	431	533	451	553	476	578	501	603
		M2	495	597	515	617	543	645	563	665	583	685	607	710	633	735
		M3	627	729	647	749	674	777	694	797	714	817	739	841	764	867

TA7315HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			132 / A = 40		160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25		250 / A = 19		280 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	695	795	722	823	742	843	762	862	786	887	811	912	N/A	N/A
		M2	845	946	873	974	892	993	912	1013	937	1038	962	1063	N/A	N/A
		M3	996	1097	1023	1125	1043	1145	1063	1164	1088	1189	1113	1214	N/A	N/A
		M4	1147	1248	1175	1276	1194	1296	1214	1316	1239	1341	1264	1366	N/A	N/A
B		M1	762	863	789	890	809	910	829	930	853	954	878	979	N/A	N/A
		M2	912	1013	940	1041	960	1061	980	1081	1004	1106	1029	1131	N/A	N/A
		M3	1063	1165	1091	1193	1111	1212	1131	1232	1155	1257	1180	1282	N/A	N/A
C		M1	441	539	468	566	487	585	506	605	530	629	554	654	N/A	N/A
		M2	588	687	615	715	635	735	654	754	678	779	703	803	N/A	N/A
		M3	737	837	764	865	784	885	804	905	828	929	853	954	N/A	N/A
		M4	887	988	915	1016	934	1036	954	1056	979	1080	1004	1105	N/A	N/A
D		M1	520	619	547	647	567	666	586	686	610	710	635	735	N/A	N/A
		M2	668	769	696	796	716	816	735	836	760	861	784	885	N/A	N/A
		M3	818	919	846	947	866	967	886	987	910	1011	935	1036	N/A	N/A

TA8407HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			132 / A = 40		160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25		250 / A = 19		280 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	693	794	721	821	741	841	760	861	785	885	809	910	N/A	N/A
		M2	843	944	871	972	891	992	910	1011	935	1036	960	1061	N/A	N/A
		M3	994	1095	1021	1123	1041	1143	1061	1162	1086	1187	1111	1212	N/A	N/A
		M4	1145	1246	1173	1274	1192	1294	1212	1314	1237	1339	1262	1364	N/A	N/A
B		M1	766	867	794	895	814	915	834	935	858	959	883	984	N/A	N/A
		M2	917	1018	945	1046	965	1066	984	1086	1009	1111	1034	1136	N/A	N/A
		M3	1068	1170	1096	1198	1116	1217	1136	1237	1160	1262	1185	1287	N/A	N/A
C		M1	445	543	472	570	491	589	510	609	534	633	558	657	N/A	N/A
		M2	592	691	619	718	638	738	658	758	682	782	707	807	N/A	N/A
		M3	740	841	768	868	788	888	807	908	832	933	856	957	N/A	N/A
		M4	890	991	918	1019	938	1039	958	1059	982	1083	1007	1108	N/A	N/A
D		M1	514	614	541	641	561	661	580	680	605	705	629	729	N/A	N/A
		M2	663	763	690	791	710	811	730	830	754	855	779	880	N/A	N/A
		M3	813	914	840	942	860	961	880	981	905	1006	929	1031	N/A	N/A

Table 8–V-Drive Center Distances (Continued)

TA9415HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25		250 / A = 19		280 / A = 41		315 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B		M1	903	998	923	1018	943	1038	967	1063	992	1088	1022	1117	N/A	N/A
		M2	1029	1124	1049	1144	1069	1164	1093	1189	1118	1214	1148	1244	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C		M1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D		M1	542	636	562	655	581	675	605	699	630	724	659	754	N/A	N/A
		M2	666	761	686	781	706	800	730	825	755	850	785	880	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TA10507HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25		250 / A = 19		280 / A = 41		315 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B		M1	1188	1284	1208	1304	1228	1324	1253	1349	1278	1374	1308	1404	N/A	N/A
		M2	1324	1420	1344	1440	1364	1460	1389	1485	1414	1510	1444	1540	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C		M1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D		M1	450	546	470	566	490	586	515	611	540	636	570	666	N/A	N/A
		M2	586	682	606	702	626	722	651	747	676	772	706	802	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TA12608HM Reducer	Position	Mtg.	IEC Motor Frame/Motor Shaft Offset Dimension “A”													
			160 / A = 40		180 / A = 30		200 / A = 9		225 / A = 25		250 / A = 19		280 / A = 41		315 / A = N/A	
			Centers		Centers		Centers		Centers		Centers		Centers		Centers	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A		M1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B		M1	1244	1340	1264	1360	1284	1380	1309	1405	1334	1430	1364	1460	N/A	N/A
		M2	1386	1483	1406	1503	1426	1523	1451	1548	1476	1573	1506	1603	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C		M1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D		M1	560	657	580	677	600	697	625	722	650	747	680	777	N/A	N/A
		M2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		M3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TORQUE-ARM II BELT GUARD INSTALLATION

Two different belt guards are available for the Torque-Arm II speed reducer. One belt guard assembly is designed for mounting in position B and the other belt guard assembly is designed for mounting in position C as shown in Figure 12. It is important that the mounting position of the Torque-Arm II motor mount be determined prior to purchase of the belt guard as these two guards do not interchange and will be attached to the motor mount uprights.

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

WARNING: Ensure that all guards are properly installed before proceeding. Exercise extreme care to avoid contacting rotating parts. Failure to observe these precautions could result in bodily injury.

Vertical Installation (Position B)

1. Remove belt guard and hardware from box and verify all parts are available. The belt guard assembly consists of one back cover, one front cover, two brackets, and necessary hardware.
2. Using the hardware provided, assemble the two brackets to the back cover as shown in Figure 13. Note that the brackets are mounted so that the angles of the brackets are mounted to the inside. Do not fully tighten these bolts.
3. Position back cover over the motor shaft and reducer input shaft. The long slot in the back cover fits over the motor shaft.
4. Align the back cover assembly to the Torque-Arm II motor mount and attach using four cap screws, washers, and nuts. Securely tighten the brackets to the motor mount and back cover.
5. Install motor and reducer sheaves. Install belts and adjust accordingly.
6. Align hinges on front cover to pins on back cover and assemble.
7. Close cover and secure with two cap screws and washers.
8. Check machine for proper operation.

Horizontal Installation (Position C)

1. Remove belt guard and hardware from box and verify all parts are available. The belt guard assembly consists of one back cover, one front cover, two brackets, and necessary hardware.
2. Using the hardware provided, assemble the two brackets to the back cover as shown in Figure 14. Note that the brackets are mounted so that the angles of the brackets are mounted in the same direction. Do not fully tighten these bolts.
3. Position back cover over the motor shaft and reducer input shaft. The long slot in the back cover fits over the motor shaft.
4. Align the back cover assembly to the Torque-Arm II motor mount and attach using four cap screws, washers, and nuts. Securely tighten the brackets to the motor mount and back cover.
5. Install motor and reducer sheaves. Install belts and adjust accordingly.
6. Align hinges on front cover to pins on back cover and assemble.
7. Close cover and secure with two cap screws and washers.
8. Check machine for proper operation.

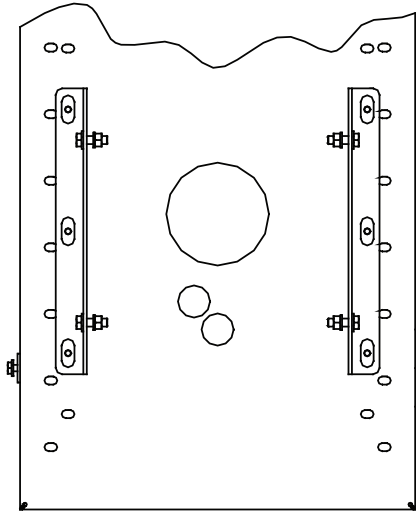


Figure 12 - Belt Guard Mounting Positions

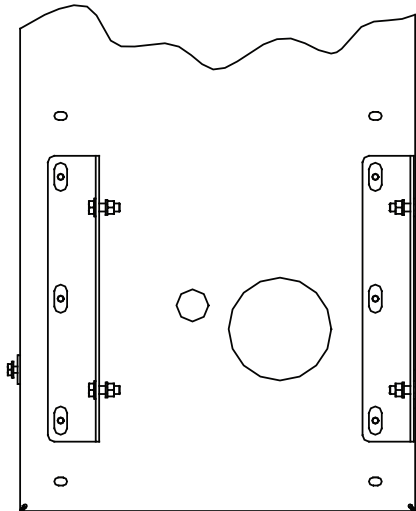


Figure 13 - Mounting Brackets in Position B

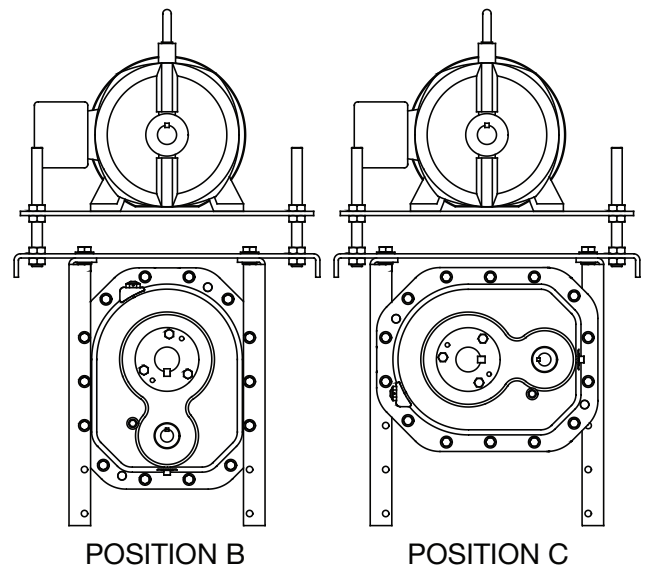


Figure 14 - Mounting Brackets in Position C

SCREW CONVEYOR ADAPTER ASSEMBLY

1. Install seals (408) into adapter housing as shown in Figure 15. If the optional packing adapter is to be used, install only one seal in the small end of the adapter. Use extreme care when installing seals to avoid damage to the seals. Press or tap seals into place by applying pressure only on the outer edge of the seal. Make sure seals are install evenly and are not tilted.
2. If using the optional packing adapter, install the two studs (413), retaining ring (412), and two nuts (414). Thread the nuts onto the studs about 4–5 threads. Install the three braided type seals (415) in a circular direction into the adapter cavity. Shoulder the braided seals against the adjustable retaining ring (412). To aid in installation of the driveshaft in step 7, the braided seals can be flattened out slightly with a soft hammer prior to installation. When installing the braided seals offset the joints from each other.
3. Lightly tap the large washer (407) into the counterbore on the large end of the adapter to seal the braided material installed in step 2 or the seal installed in step 1.
4. Place reducer on blocks so that it lays flat with the input shaft down.
5. Position screw conveyor adapter (400) on the reducer output hub so that the small end (end with four drilled holes) rests on reducer. The approximate 3.0mm piloting projection should locate in the output seal bore next to the auxiliary seal. Adapter projection should not touch the face of the gear case casting.
6. Place four adapter screws (409) and lock washers (410) through the adapter and thread into the reducer. Tighten the four cap screws (409) to the torque specified in Table 11.
7. Turn reducer onto its side. Use caution not to damage either type seals and install driveshaft through the adapter housing into the reducer. Line up the keyway in the driveshaft with the keyway in the reducer hub bore. Slide or gently tap key into reducer through the input shaft side of the output hub.
8. Install the retaining ring (411) into the screw conveyor wedge (402). Making sure the driveshaft is fully seated into the reducer, slide the wedge onto driveshaft.
9. Install keeper plate (401), support washer (416) (sizes TA6307 and TA7315 only, driveshaft cap screw (404), and lockwasher (405). Torque to specifications in Table 11.

DRIVESHAFT REMOVAL

To remove the driveshaft from the reducer, the following steps are required.

1. Remove the driveshaft retaining bolt (404) and lock washer (405), the keeper plate (401), and the retaining ring (411).
2. Referring to Table 9, install the correct size hex head set screw into the end of the driveshaft until flush. Note TA6307HM and TA7315HM does not require a set screw.
3. Position the keeper plate (401) flush against the end of the driveshaft and with the small end facing out. Next install the retaining ring (411). When properly installed, the retaining ring holds the keeper plate (401) in place.
4. Screw removal bolt(s) into the keeper plate (401) and tighten until the driveshaft wedge (402) is dislodged. Once the driveshaft wedge (402) is dislodged, pull the assembly free from the reducer. If installed, remove the hex head set screw from the end of the driveshaft. The driveshaft can now be easily removed from the reducer by pulling the driveshaft straight out of the reducer.

NOTE: The removal bolt is not the same bolt as the retaining bolt. Refer to Table 9 for the correct bolt to be used for removal.

Table 9–Removal Hardware

Reducer Size	Removal Bolt	Hex Head Set Screw
TA0107LM	3/4–10 × 2	5/8–11 × 3/4
TA1107HM	3/4–10 × 2	5/8–11 × 3/4
TA2115HM	3/4–10 × 2	5/8–11 × 3/4
TA3203HM	7/8–9 × 2	3/4–10 × 3/4
TA4207HM	7/8–9 × 2	3/4–10 × 3/4
TA5215HM	7/8–9 × 2	3/4–10 × 3/4
TA6307HM	3/8–16 × 2 (4 required)	N/A
TA7315HM	1/2–13 × 2 (4 required)	N/A

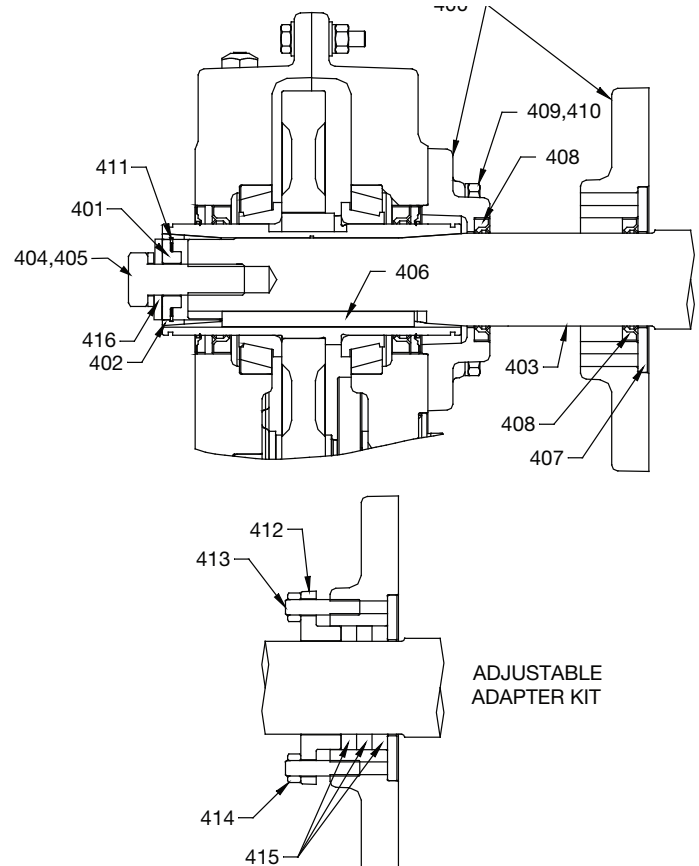


Figure 15 - Screw Conveyor Adapter Assembly

REPLACEMENT OF PARTS

NOTE: Using tools normally found in a maintenance department, a Torque-Arm II speed reducer can be disassembled and reassembled by careful attention to the instructions following.

Cleanliness is very important to prevent the introduction of dirt into the bearings and other parts of the reducer. A tank of clean solvent, an arbor press, and equipment for heating bearings and gears (for shrinking these parts on shafts) should be available.

The oil seals are contact lip seals. Considerable care should be used during disassembly and reassembly to avoid damage to the surface on which the seals rub.

The keyseat in the input shaft, as well as any sharp edges on the output hub should be covered with tape or paper before disassembly or reassembly. Also, be careful to remove any burrs or nicks on surfaces of the input shaft or output hub before disassembly or reassembly.

Ordering Parts

When ordering parts for reducer, specify reducer size number, reducer model number, part name, part number, and quantity. It is strongly recommended that the mating pinion or gear is replaced at the same time a pinion or gear is replaced.

If the large gear on the output hub must be replaced, it is recommended that an output hub assembly consisting of a gear assembled on a hub be ordered to ensure undamaged surfaces on the output hub where the output seals rub. However, if it is desired to use the old output hub, press the gear and bearing off and examine the rubbing surface under the oil seal carefully for possible scratching or other damage resulting from the pressing operation. To prevent oil leakage at the shaft oil seals, the smooth surface of the output hub must not be damaged.

If any parts must be pressed from a shaft or from the output hub, this should be done before ordering parts to make sure that none of the bearings or other parts are damaged in removal. Do not press against rollers or cage of any bearing. Because old shaft oil seals may be damaged in disassembly, it is advisable to order replacements for these parts.

Removing Reducer from Shaft

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Tapered-Bushed

1. Disconnect and remove belt guard, v-drive, and motor mount as required. Disconnect torque-arm rod from reducer adapter.
2. Remove bushing screws.
3. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushings are free on the shaft. For ease of tightening screws, make sure screw threads and threaded holes in bushing flanges are clean. A tap can be used to clean out the threads. Use caution to use the proper size tap to prevent damage to the threads.
4. Remove the outside bushing, the reducer, and then the inboard bushing.

Disassembly

1. Drain all oil from the reducer.
2. Position the reducer on its side and remove all housing bolts. Drive dowel pins from housing. Using the three pry slots around the periphery of the flange, gently separate the housing halves. Open housing evenly to prevent damage to the parts inside.
3. Lift input shaft, all gear assemblies, and bearing assemblies from housing.
4. Remove seals from housing.
5. Remove bearings from shafts and hubs. Be careful not to scratch or damage any assembly or seal area during bearing removal. The hub assembly can be disassembled for gear replacement but if scratching or grooving occurs on the hub, seal leakage will occur and the hub will need to be replaced.

Reassembly

1. **Output Hub Assembly:** Heat gear to 162°C to 176°C to shrink onto hub. Heat bearings to 132°C to 143°C to shrink onto hub. Any injury to the hub surfaces where the oil seals rub will cause leakage, making it necessary to use a new hub.
2. **Countershaft Assembly:** Shaft and pinion are integral. Press gear and bearings on shaft. Press against inner race (not cage or rollers) of bearings.
3. **Input Shaft Assembly:** Shaft and pinion are integral. Press bearings on shaft. Press against inner race (not cage or rollers) of bearings.
4. Drive the two dowel pins into place in the right-hand housing half.
5. Place R.H. housing half on blocks to allow for protruding end of output hub.
6. Install bearing cups in right-hand housing half, making sure they are properly seated. The output hub assembly has one bearing pressed against the gear and the other bearing pressed against a shoulder on the hub. For double reduction reducers, install the output hub assembly so that the end where the bearing is pressed against the gear is up. For single reduction reducers, install the output hub assembly so that the end where the bearing is pressed against the gear is down.
7. Mesh output hub gear and small countershaft gear together and set in place in housing. Set input shaft assembly in place in the housing. Make sure bearing rollers (cones) are properly seated in their cups. Set bearing cups for left-hand housing half in place on their rollers.
8. Making sure both housing halves are clean, set lefthand housing half into position and tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used to draw housing halves together. Make sure reducer shafts do not bind while tightening housing bolts.
9. Rotate the input shaft and seat all bearings with a soft hammer. Using a magnetic base and indicator, measure and record the endplay of the input shaft, countershaft, and output hub. Remove left housing half and shim behind the bearing cup as required to achieve the correct bearing endplay or preload per Table 10. Repeat this process and check endplay until proper endplay is obtained. Note that the output shaft is preloaded. After endplay is determined, add the correct shim thickness to the endplay reading to obtain the correct preload.
10. Remove left housing half and clean housing flange surfaces on both halves, making sure not to nick or scratch flange face. Place a 3.0mm bead of Dow RTV732 sealant or equivalent on flange face (make sure RTV is placed around bolt holes and inside of flange face). Place left housing half into position and tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used to draw housing halves together. Torque housing bolts per torque values listed in Table 11.
11. Install input seal, output seals, and auxiliary seals. Extreme care should be used when installing seals to avoid damage due to contact with sharp edges on the input shaft or output hub. The possibility of damage and consequent oil leakage can be decreased by covering all sharp edges with tape prior to seal installation. Lightly coat the seal lips with Mobilith AW2 All-Purpose grease or equivalent. Seals should be pressed or tapped with a soft hammer evenly into place in the reducer housing, applying pressure only on the outer edge of the seals. A slight oil leakage at the seals may be evident during initial running, but should disappear unless seals have been damaged.
12. Install bushing backup plates and snap rings on tapered-bushed reducers or hub collars on straight-bore reducers.

Table 10–Bearing Adjustment Tolerances

Reducer Size	Bearing Endplay Values		
	Input	Countershaft	Output
TA0107LM	.05–.10 Loose	.01–.08 Loose	.05–.10 Preload
TA1107HM	.05–.10 Loose	.01–.08 Loose	.05–.10 Preload
TA2115HM	.05–.10 Loose	.01–.08 Loose	.05–.10 Preload
TA3203HM	.05–.10 Loose	.01–.08 Loose	.05–.10 Preload
TA4207HM	.05–.10 Loose	.01–.08 Loose	.05–.10 Preload
TA5215HM	.05–.10 Loose	.01–.08 Loose	.08–.13 Preload
TA6307HM	.05–.10 Loose	.01–.08 Loose	.15–.20 Preload
TA7315HM	.05–.10 Loose	.01–.08 Loose	.15–.20 Preload
TA8407HM	.05–.10 Loose	.01–.08 Loose	.10–.15 Preload
TA9415HM	.05–.10 Loose	.01–.08 Loose	.10–.15 Preload
TA10507HM	.05–.10 Loose	.01–.08 Loose	.15–.20 Preload
TA12608HM	.05–.10 Loose	.01–.08 Loose	.15–.20 Preload

Table 11–Recommended Bolt Torque Values

Housing Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (Nm)
TA0107LM	M8×1.25×40	20–24
TA1107HM	M8×1.25×40	20–24
TA2115HM	M10×1.5×45	40–45
TA3203HM	M10×1.5×45	40–45
TA4207HM	M12×1.75×60	100–112
TA5215HM	M12×1.75×60	100–112
TA6307HM	M12×1.75×60	100–112
TA7315HM	M16×2×70	110–125
TA8407HM	M16×2×70	110–125
TA9415HM	M16×2×70	110–125
TA10507HM	M20×2.5×70	180–200
TA12608HM	M20×2.5×70	180–200
Backstop Cover Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (Nm)
TA0107LM	1/4–20×2–1/4	9–12
TA1107HM	1/4–20×2–1/4	9–12
TA2115HM	1/4–20×2–1/4	9–12
TA3203HM	1/4–20×2–1/4	9–12
TA4207HM	1/4–20×2–1/4	9–12
TA5215HM	5/16–18×2–1/2	20–23
TA6307HM	5/16–18×2–3/4	20–23
TA7315HM	3/8–16×3–1/2	36–41
TA8407HM	5/16–18×2–3/4	20–23
TA9415HM	3/8–16×3–1/2	36–41
TA10507HM	3/8–16×3–1/2	36–41
TA12608HM	3/8–16×4	36–41
Screw Conveyor Adapter Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (Nm)
TA0107LM	3/8–16×1–1/2	36–41
TA1107HM	3/8–16×1–1/2	36–41
TA2115HM	7/16–14×1–1/2	60–68
TA3203HM	1/2–13×1–1/2	95–102
TA4207HM	1/2–13×1–1/2	95–102
TA5215HM	5/8–11×1–3/4	112–122
TA6307HM	3/4–10×1–3/4	187–200
TA7315HM	3/4–10×1–3/4	187–200
Screw Conveyor Drive Shaft Retainer Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (Nm)
TA0107LM	5/8–11×2	112–122
TA1107HM	5/8–11×2	112–122
TA2115HM	5/8–11×2	112–122
TA3203HM	3/4–10×2	187–200
TA4207HM	3/4–10×2	187–200
TA5215HM	3/4–10×2	187–200
TA6307HM	1–8×3	203–216
TA7315HM	1–8×3	203–216

**Table 12–Dodge Part Numbers for Replacement Bearings,
Single- and Double-Reduction Reducers**

Reducer Size		Output Hub Bearing – LH and RH Sides
TA0107LM		900250/900251
TA1107HM		901250/901251
TA2115HM		403003/402003
TA3203HM		903252/402268
TA4207HM		403016/402193
TA5215HM		403140/402050
TA6307HM		906250/906251
TA7315HM		403105/402147
TA8407HM		403105/402147
TA9415HM		403110/402160
TA10507HM		910250/910251
TA12608HM		912250/912251
Reducer Size		Countershaft Bearing – LH Side
TA0107LM		304833/304740
TA1107HM		403165/402265
TA2115HM		304836/411626–05–B
TA3203HM		403101/402271
TA4207HM		304809/304710
TA5215HM		403005/402001
TA6307HM		403026/906257
TA7315HM		403159/907260
TA8407HM		411626–06–BE/411626–05–BM
TA9415HM		403036/304701
TA10507HM		403087/402023
TA12608HM		402233/912253
Reducer Size		Countershaft Bearing – Backstop (RH) Side
TA0107LM		304833/304740
TA1107HM		403165/402265
TA2115HM		304836/411626–05–B
TA3203HM		403101/402271
TA4207HM		304809/304710
TA5215HM		403005/402001
TA6307HM		403026/906257
TA7315HM		403159/907260
TA8407HM		411626–06–BE/908253
TA9415HM		403036/304701
TA10507HM		403087/402023
TA12608HM		402233/912253
Reducer Size		Input Shaft Bearing – LH Side
TA0107LM	5:1	403165/402265
	9:1	
	15:1	
	25:1	
	40:1	
TA1107HM	5:1	403063/411626–05–AY
	9:1	
	15:1	
TA2115HM	25:1	403063/402108
	40:1	
TA2115HM	5:1	403094/304753
	9:1	
	15:1	
	25:1	
TA2115HM	40:1	403094/304707
TA3203HM	5:1	304809/411626–05–K
	9:1	
	15:1	
	25:1	
TA3203HM	40:1	403101/402271
TA4207HM	5:1	304809/411626–05–K
	9:1	
	15:1	
	25:1	
TA4207HM	40:1	
TA5215HM	5:1	403005/402001
	9:1	
	15:1	
TA5215HM	25:1	403005/304717
	40:1	

**Table 12–Dodge Part Numbers for Replacement Bearings,
Single- and Double-Reduction Reducers**

TA6307HM	5:1	403026/906260
	9:1	
	15:1	
	25:1	
TA7315HM	40:1	304802/402041
TA8407HM	5:1	908259/908260
	9:1	
	15:1	
	25:1	
TA8407HM	40:1	403036/304701
TA9415HM	15:1	402231/402232
	25:1	
	40:1	
TA10507HM	15:1	402231/402232
	25:1	
	40:1	
TA12608HM	15:1	402231/402232
	25:1	
	40:1	
Reducer Size		Input Shaft Bearing – RH Side
TA0107LM	5:1	403165/402265
	9:1	
	15:1	
	25:1	
TA0107LM	40:1	403063/402108
TA1107HM	5:1	403094/304707
	9:1	
	15:1	
	25:1	
TA1107HM	40:1	403101/402271
TA2115HM	5:1	403101/402271
	9:1	
	15:1	
	25:1	
TA2115HM	40:1	403101/402271
TA3203HM	5:1	904256/904257
	9:1	
	15:1	
	25:1	
TA3203HM	40:1	904256/904258
TA4207HM	5:1	403005/402001
	9:1	
	15:1	
	25:1	
TA4207HM	40:1	403005/411626–05–V
TA5215HM	5:1	403026/906260
	9:1	
	15:1	
	25:1	
TA5215HM	40:1	403026/906257
TA6307HM	5:1	403159/907260
	9:1	
	15:1	
	25:1	
TA6307HM	40:1	403159/402054
TA7315HM	15:1	908256/908257
	25:1	
	40:1	
TA8407HM	15:1	304804/908258
	25:1	
	40:1	
TA8407HM	15:1	411626–06–BE/ 411626–05–BM
	25:1	
	40:1	
TA9415HM	15:1	411626–06–BE/ 411626–05–BM
	25:1	
	40:1	
TA10507HM	15:1	403036/304701
	25:1	
	40:1	
TA12608HM	15:1	403036/912258
	25:1	
	40:1	

Note: LH is input side of reducer and RH is backstop or output side of reducer. Bearing part numbers refer to cup/cone combinations, respectively, and apply to all ratios unless otherwise specified. For actual reducer ratios, refer to Table 14.

Table 13–Replacement Part Kit Numbers

Reducer Size	Ratio	Seal Kit	Tapered-Bore Output Hub Assembly	Countershaft Assembly	Bearing Kit
TA0107LM	5:1	900126	900120	–	900128
	9:1			900122	900129
	15:1			900123	
	25:1			900124	
	40:1			900125	
TA1107HM	5:1	901126	901120	–	901128
	9:1			901122	901129
	15:1			901123	
	25:1			901124	901130
	40:1			901125	
TA2115HM	5:1	902126	902120	–	902128
	9:1			902122	902129
	15:1			902123	
	25:1			902124	
	40:1	902127		902125	902130
TA3203HM	5:1	903126	903120	–	903128
	9:1			903122	903129
	15:1			903123	
	25:1			903124	
	40:1	903127		903125	903130
TA4207HM	5:1	904126	904120	–	904128
	9:1			904122	904129
	15:1			904123	
	25:1			904124	
	40:1			904125	904130
TA5215HM	5:1	905126	905120	–	905128
	9:1			905122	905129
	15:1			905123	
	25:1			905124	905130
	40:1			905125	905131
TA6307HM	5:1	906126	906120	–	906128
	9:1			906122	906129
	15:1			906123	
	25:1			906124	906130
	40:1			906125	
TA7315HM	5:1	907126	907120	–	907128
	9:1			907122	907129
	15:1			907123	
	25:1			907124	
	40:1			907125	907130
TA8407HM	15:1	908126	908120	908123	908129
	25:1			908124	
	40:1			908125	908130
TA9415HM	15:1	909126	909120	909123	909129
	25:1			909124	
	40:1			909125	909130
TA10507HM	15:1	910126	910120	910123	910129
	25:1			910124	
	40:1			910125	910130
TA12608H	15:1	912126	912120	912123	912129
	25:1			912124	
	40:1			912125	912130

Notes:

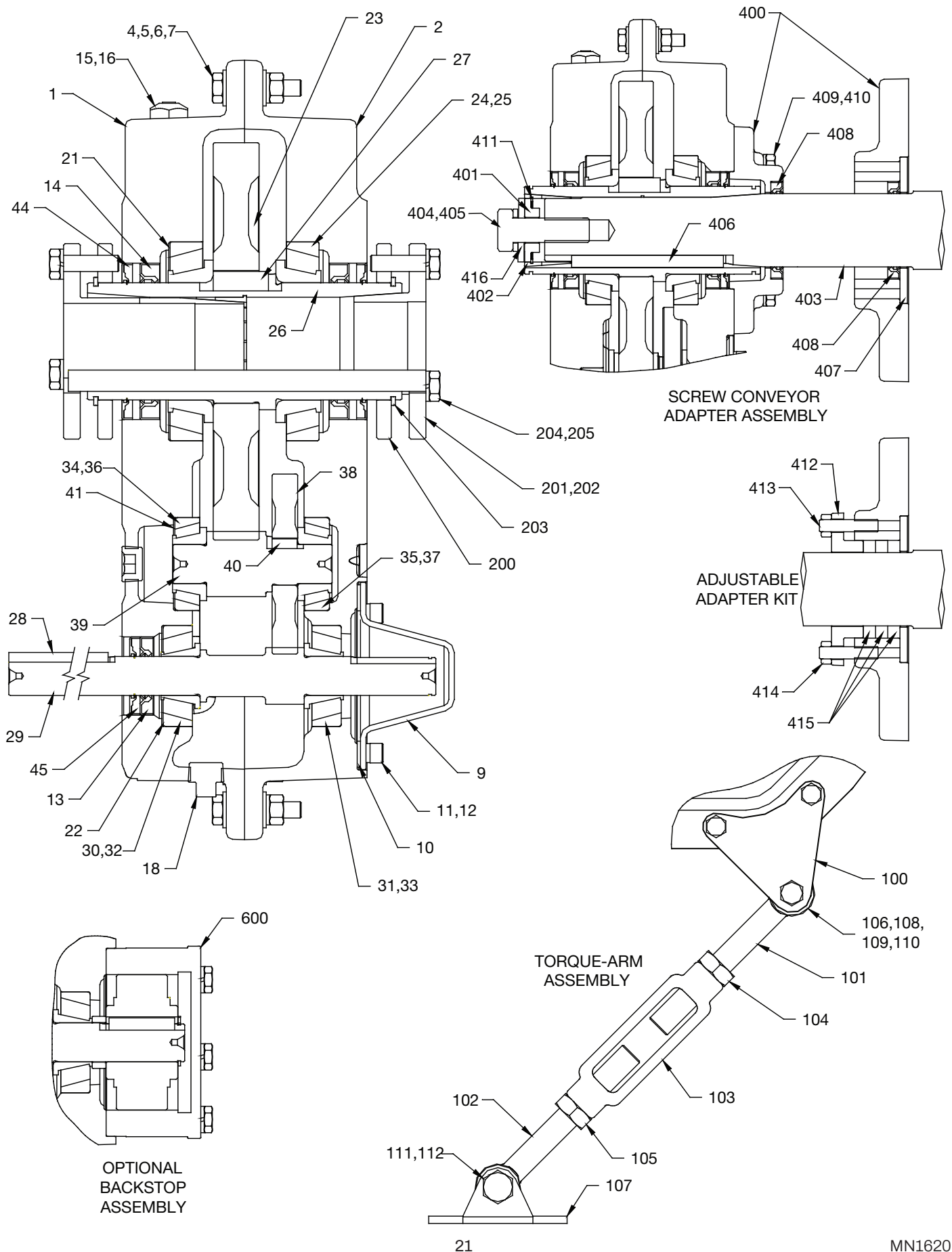
1. Seal Kit consists of Input Seal, Output Seals, Backstop Cover Gasket and RTV Sealant

2. Output Hub Assembly consists of Output Hub, Output Gear and Gear Key.

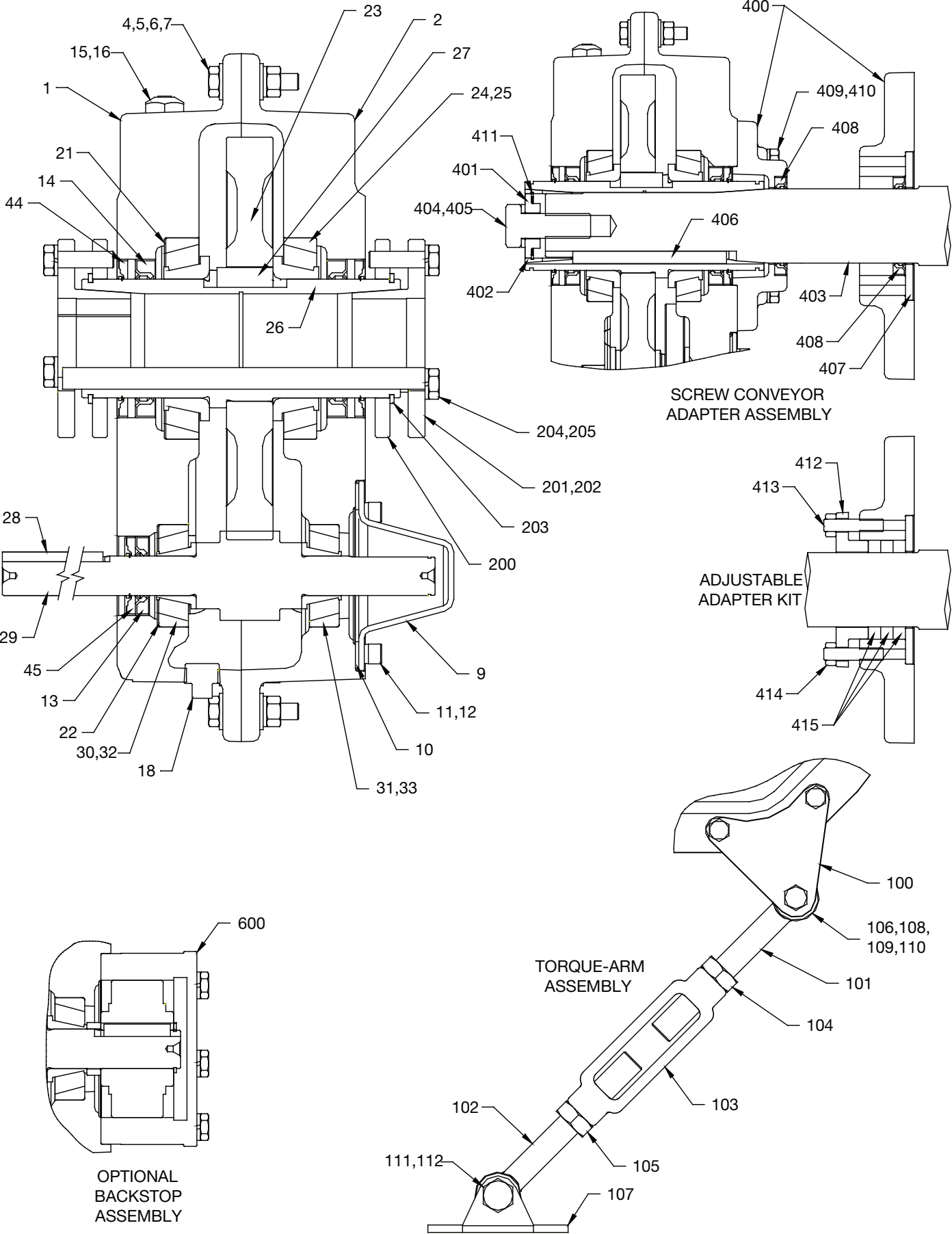
3. Countershaft Assembly consists of Countershaft Pinion, Countershaft Gear and Gear Key.

4. Bearing Kit consists of LH and RH Output Bearing Cup/Cone, LH and RH Countershaft Bearing Cup/Cone (double reduction only) and LH and RH Input Bearing Cup/Cone.

Parts for TA0107L through TA12608H Tapered-Bushed Double-Reduction Reducers



Parts for TA0107L through TA7315H Tapered-Bushed Single-Reduction Reducers



Parts for TA0107L-M through TA5215H-M Tapered- and Straight-Bore Double- and Single-Reduction Reducers

Ref.	Description	Qty.	TA0107LM	TA1107HM	TA2115HM	TA3203HM	TA4207HM	TA5215HM
1	Housing-LH	1	900202	901202	902202	903202	904202	905202
2	Housing-RH	1	900203	901203	902203	903203	904203	905203
①	RTV Sealant, Tube	1	465044	465044	465044	465044	465044	465044
4	Housing Bolt	14	901244	901244	304532	304532	304545	304545
5	Flat Washer	28	900241	900241	902241	902241	904241	904241
6	Nut	14	901247	901247	304587	304587	304588	304588
7	Lock-Washer	14	304602	304602	304603	304603	304604	304604
8 ①	Dowel Pin	2	901248	901248	304624	901248	304624	304624
9	Backstop Shaft Cover	1	901279	901279	901279	903279	904279	905279
10	Backstop Cover Gasket	1	901280	901280	901280	903280	904280	905280
11	Backstop Cover Screw	6 ④	417038	417038	417038	417038	417038	417074
12	Lock-Washer	6 ④	419045	419045	419045	419045	419045	419046
13	Input Oil Seal							
	5:1, 9:1, 15:1 ⑤	1	901235	901235	902235	304924	244524	304932
	25:1 Ratio ⑤	1	901235	901235	902235	304924	244524	304932
	40:1 Ratio ⑤	1	901235	901235	902233	903235	244524	304932
14	Output Oil Seal	2	900234	352122	243578	244673	245545	246310
15	Air Vent	1	241237	241237	241237	241237	245237	245237
16	Bushing	1	N/A	N/A	N/A	N/A	430079	430079
17 ①	Oil Plug	3	430031	430031	430031	430031	430035	430035
17	Smart Sensor Adapter	1	966905	966905	966905	966905	966907	966907
18	Magnetic Oil Plug	1	430060	430060	430060	430060	430064	430064
21	Output Bearing Shim-As Required							
	.015" Shim (.38mm)		900263	901263	902263	903263	904263	905263
	.007" Shim (.18mm)		900265	901265	902265	903265	904265	905265
	.005" Shim (.13mm)		900264	901264	902264	903264	904264	905264
22	Input Bearing Shim-As Required							
	.015" Shim (.38mm)		901267	901271	902271	903267	903267	905271
	.007" Shim (.18mm)		901269	901273	902273	903269	903269	905273
	.005" Shim (.13mm)		901268	901272	902272	903268	903268	905272
41	Counter-Shaft Bearing Shim-As Required							
	.015" Shim (.38mm)		900267	901267	901271	903267	903267	905271
	.007" Shim (.18mm)		900269	901269	901273	903269	903269	905273
	.005" Shim (.13mm)		900268	901268	901272	903268	903268	905272
23	Output Gear	1	900208	901208	902208	903208	904208	905208
26	Output Hub Tapered-Bore	1	900230	901230	902230	903230	904230	905230
	Output Hub Straight-Bore	1	900231	901231	902231	903231	904231	905231
27	Output Gear Key	1	900275	901275	901275	903275	904275	905275
28	Input Pinion Key							
	5:1, 9:1, 15:1, 25:1 Ratio ⑤	1	901278	901278	902278	903278	903278	905278
	40:1 Ratio ⑤	1	901278	901278	902278	903299	903278	905278
	15:1, 25:1, 40:1 Ratio ⑤	1	906278	907278	908278	909278	909278	909278
29	Input Pinion							
	5:1 Ratio ⑤	1	900227	901227	902227	903227	904227	905227
	9:1 Ratio ⑤	1	900226	901226	902226	903226	904226	905226
	15:1 Ratio ⑤	1	900225	901225	902225	903225	904225	905225
	25:1 Ratio ⑤	1	900224	901224	902224	903224	904224	905224
	40:1 Ratio ⑤	1	900223	901223	902223	903223	904223	905223
38	First Stage Gear							
	9:1 Ratio ⑤	1	900217	901217	902217	903217	904217	905217
	15:1 Ratio ⑤	1	900215	901215	902215	903215	904215	905215
	25:1 Ratio ⑤	1	900213	901213	902213	903213	904213	905213
	40:1 Ratio ⑤	1	900211	901211	902211	903211	904211	905211
39	Counter-Shaft Pinion	1	900209	901209	902209	903209	904209	905209
40	First Stage Gear Key	1	900276	901276	902276	903276	904276	905276
600	Backstop Assembly							
	5:1, 9:1, 15:1, 25:1 Ratio ⑤	1	901102	901102	902102	903102	904102	905102
	40:1 Ratio ⑤	1	901102	901102	902102	903102	904103	905103
100	Torque-Arm Adapter Bracket	2	900500	901500	902500	903500	904500	905500
	Torque-Arm Rod Kit ②	1	241244	241244	242244	242244	244245	244245
101	③ Torque-Arm Rod End	1	241245	241245	243245	243245	245245	245245
102	③ Torque-Arm Extension	1	241247	241247	243247	243247	245247	245247
103	③ Torque-Arm Turnbuckle	1	241246	241246	243246	243246	245246	245246
104	③ RH Nut	1	407093	407093	407095	407095	407097	407097
105	③ LH Nut	1	407242	407242	407244	407244	407246	407246
106	Torque-Arm Bushing	1	242243	242243	243243	243243	245243	245243
107	Torque-Arm Fulcrum	1	241249	241249	243249	243249	246249	246249
108	Torque-Arm Bolt	1	411412	411412	411437	411437	411460	411460
109	Torque-Arm Lock-Washer	1	419011	419011	419012	419012	419013	419013
110	Torque-Arm Nut	1	407087	407087	407089	407089	407091	407091
111	Torque-Arm Bolt	1	411456	411456	411484	411484	411484	411484
112	Torque-Arm Nut	1	407091	407091	407093	407093	407093	407093
113	Lock-Washer	1	N/A	N/A	N/A	N/A	N/A	N/A

Parts for TA0107L-M through TA5215H-M Tapered- and Straight-Bore Double- and Single-Reduction Reducers

Ref.	Description	Qty.	TA0107LM	TA1107HM	TA2115HM	TA3203HM	TA4207HM	TA5215HM
200	Bushing Back-Up Plate Tapered-Bore	2	900302	901302	902302	903302	904302	905302
	Retaining Collar Straight-Bore	2	900292	901292	902292	903292	904292	905292
203	Retaining Ring	2	421111	901304	421109	903304	421107	421055
204	Bushing Cap Screw	6	304519	304519	304529	304529	304529	304541
	Retaining Collar Set Screws	4	304572	304572	304572	903293	904293	904293
205	Bushing Lock-Washer	6	304602	304602	304603	304603	304603	304604
24	Output Bearing Cup	2	900250	901250	403003	903252	403016	403140
25	Output Bearing Cone	2	900251	901251	402003	402268	402193	402050
30	Input Bearing Cup-LH							
	5:1 Ratio ⑤	1	403165	403063	403094	304809	304809	403005
	9:1 Ratio ⑤	1	403165	403063	403094	304809	304809	403005
	15:1 Ratio ⑤	1	403165	403063	403094	304809	304809	403005
	25:1 Ratio ⑤	1	403165	403063	403094	304809	304809	403005
	40:1 Ratio ⑤	1	403165	403063	403094	403101	304809	403005
31	Input Bearing Cup-RH							
	5:1 Ratio ⑤	1	403165	403063	403094	403101	904256	403005
	9:1 Ratio ⑤	1	403165	403063	403094	403101	904256	403005
	15:1 Ratio ⑤	1	403165	403063	403094	403101	904256	403005
	25:1 Ratio ⑤	1	403165	403063	403094	403101	904256	403005
	40:1 Ratio ⑤	1	403165	403063	403094	403101	904256	403005
32	Input Bearing Cone-LH							
	5:1 Ratio ⑤	1	402265	411626-05-AY	304753	411626-05-K	411626-05-K	402001
	9:1 Ratio ⑤	1	402265	411626-05-AY	304753	411626-05-K	411626-05-K	402001
	15:1 Ratio ⑤	1	402265	411626-05-AY	304753	411626-05-K	411626-05-K	402001
	25:1 Ratio ⑤	1	402265	402108	304753	411626-05-K	411626-05-K	304717
	40:1 Ratio ⑤	1	402265	402108	304707	402271	411626-05-K	304717
33	Input Bearing Cone-RH							
	5:1 Ratio ⑤	1	402265	402108	304707	402271	904257	402001
	9:1 Ratio ⑤	1	402265	402108	304707	402271	904257	402001
	15:1 Ratio ⑤	1	402265	402108	304707	402271	904257	402001
	25:1 Ratio ⑤	1	402265	402108	304707	402271	904257	402001
	40:1 Ratio ⑤	1	402265	402108	304707	402271	904258	411626-05-V
34	Counter-Shaft Bearing Cup-LH	1	304833	403165	304836	403101	304809	403005
35	Counter-Shaft Bearing Cup-RH	1	304833	403165	304836	403101	304809	403005
36	Counter-Shaft Bearing Cone-LH	1	304740	402265	411626-05-B	402271	304710	402001
37	Counter-Shaft Bearing Cone-RH	1	304740	402265	411626-05-B	402271	304710	402001
44	Auxiliary Output Seal	2	900236	901236	902236	903236	904236	905236
45	Auxiliary Input Seal							
	5:1, 9:1, 15:1, 25:1 Ratio ⑤	1	901238	901238	902238	903238	904238	905238
	40:1 Ratio ⑤	1	901238	901238	N/A	N/A	904238	905238
400	Screw Conveyor Adapter	1	900401	901401	902401	903401	904401	905401
401	Screw Conveyor Keeper Plate	1	900402	901402	902402	903402	904402	905402
402	Screw Conveyor Wedge	1	900403	901403	902403	903403	904403	905403
403	Screw Conveyor Drive Shaft							
	1-1/2" Shaft	1	900421	901421	902421	903421	N/A	N/A
	1-1/2" Shaft, Stainless Steel	1	900429	901429	902429	903429	N/A	N/A
	2" Shaft	1	900422	901422	902422	903422	904422	905422
	2" Shaft, Stainless Steel	1	900430	901430	902430	903430	904430	905430
	2-7/16" Shaft	1	900423	901423	902423	903423	904423	905423
	2-7/16" Shaft, Stainless Steel	1	900431	901431	902431	903431	904431	905431
	3" Shaft	1	900424	901424	902424	903424	904424	905424
	3" Shaft, Stainless Steel	1	900432	901432	902432	903432	904432	905432
	3-7/16" Shaft	1	N/A	N/A	N/A	N/A	904425	905425
	3-7/16" Shaft, Stainless Steel	1	N/A	N/A	N/A	N/A	904433	905433
404	Retaining Bolt	1	411549	411549	411549	411551	411551	411551
405	Lock-Washer	1	419014	419014	419014	419016	419016	419016
406	Drive Shaft Key	1	900405	901405	902405	903405	904405	905405
407	Drive Shaft Washer	1	900404	901404	902404	903404	904404	905404
408	Seal	2	901411	901411	902411	353085	904411	905411
409	Bolt	4	411410	411410	411435	411456	411456	411483
410	Lock-Washer	4	419011	419011	419012	419013	419013	419014
411	Retaining Ring	1	900406	901406	902406	903406	904406	905406
412	Adjustable Packing Retainer	1	900413	901413	902413	903413	904413	905413
413	Adjustable Packing Gland Stud	2	400404	400404	400404	400404	400404	400404
414	Adjustable Packing Gland Nut	2	407202	407202	407202	407202	407202	407202
415	Sealing Rings	3	900416	901416	902416	903416	904416	905416
416	Screw Conveyor Support Washer	1	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

- ① Not shown on drawing.
- ② Includes parts listed immediately below.
- ③ Makes up assembly under which it is listed.
- ④ 8 required on TA5215HM, TA6307HM, TA7315HM, TA8407HM, and TA9415HM, 12 required on TA10507HM and TA12608HM.
- ⑤ See Table 14 for actual ratio.

Parts for TA6307H-M through TA12608H-M Tapered- and Straight-Bore Double- and Single-Reduction Reducers

Ref.	Description	Qty.	TA6307HM	TA7315HM	TA8407HM	TA9415HM	TA10507HM	TA12608HM
1	Housing-LH	1	906202	907202	908202	909202	910202	912202
2	Housing-RH	1	906203	907203	908203	909203	910203	912203
①	RTV Sealant, Tube	1	465044	465044	465044	465044	465044	465044
4	Housing Bolt	14 ⑥	304545	304554	304554	304554	304563	304563
5	Flat Washer	28 ⑦	904241	907241	907241	907241	910241	910241
6	Nut	14 ⑥	304588	304589	304589	304589	304590	304590
7	Lock-Washer	14 ⑥	304604	304605	304605	304605	304606	304606
8 ①	Dowel Pin	2	304624	304624	304624	304624	304624	304624
9	Backstop Shaft Cover	1	906279	907279	908279	907279	910279	912279
10	Backstop Cover Gasket	1	906280	907280	908280	907280	910280	912280
11	Backstop Cover Screw	6 ④	417074	907281	417074	907281	907281	907281
12	Lock-Washer	6 ④	419046	419047	419046	419047	419047	419047
13	Input Oil Seal							
	5:1, 9:1 ⑤	1	352122	242210	N/A	N/A	N/A	N/A
	15:1 ⑤	1	352122	242210	242210	242210	243578	243578
	25:1 Ratio ⑤	1	352122	242210	242210	242210	243578	243578
	40:1 Ratio ⑤	1	352122	242210	242210	242210	243578	243578
14	Output Oil Seal	2	906234	258019	258019	909234	910234	912234
15	Air Vent	1	245237	245237	245237	245237	245237	245237
16	Bushing	1	430079	430079	430079	430079	430079	430079
17 ①	Oil Plug	3	430035	430035	430035	430035	430035	430035
17	Smart Sensor Adapter	1	966907	966907	966907	966907	966907	966907
18	Magnetic Oil Plug	1	430064	430064	430064	430064	430064	430064
21	Output Bearing Shim-As Req'd							
	.015" Shim (.38mm)		906263	907263	907263	909263	910263	912263
	.007" Shim (.18mm)		906265	907265	907265	909265	910265	912265
	.005" Shim (.13mm)		906264	907264	907264	909264	910264	912264
22	Input Bearing Shim-As Req'd							
	.015" Shim (.38mm)		906271	906271	903263	909267	910267	910267
	.007" Shim (.18mm)		906273	907273	903265	909269	910269	910269
	.005" Shim (.13mm)		906272	907272	903264	909268	910268	910268
41	Counter-Shaft Bearing Shim-As Req'd							
	.015" Shim (.38mm)		906271	907271	908267	909267	904263	912267
	.007" Shim (.18mm)		906273	906273	908269	909269	909265	912269
	.005" Shim (.13mm)		906272	906272	908268	909268	904264	912268
23	Output Gear	1	906208	907208	908208	909208	910208	912208
26	Output Hub Tapered-Bore	1	906230	907230	908230	909230	910230	912230
	Output Hub Straight-Bore	1	906231	907231	908231	909231	910231	912231
27	Output Gear Key	1 ⑧	906275	907275	908275	909275	910275	912275
28	Input Pinion Key							
	5:1, 9:1 ⑤	1	906278	907278	N/A	N/A	N/A	N/A
	15:1, 25:1, 40:1 Ratio ⑤	1	906278	907278	908278	909278	909278	909278
29	Input Pinion							
	5:1 Ratio ⑤	1	906227	907227	N/A	N/A	N/A	N/A
	9:1 Ratio ⑤	1	906226	907226	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	906225	907225	908225	909225	910225	912225
	25:1 Ratio ⑤	1	906224	907224	908224	909224	910224	912224
	40:1 Ratio ⑤	1	906223	907223	908223	909223	910223	912223
38	First Stage Gear							
	9:1 Ratio ⑤	1	906217	907217	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	906215	907215	908215	909215	910215	912215
	25:1 Ratio ⑤	1	906213	907213	908213	909213	910213	912213
	40:1 Ratio ⑤	1	906211	907211	908211	909211	910211	912211
39	Counter-Shaft Pinion	1	906209	907209	908209	909209	910209	912209
40	First Stage Gear Key	1	906276	907276	908276	909276	910276	912276
600	Backstop Assembly							
	5:1, 9:1 ⑤	1	906102	907102	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	906102	907102	908102	909102	910102	912102
	25:1 Ratio ⑤	1	906103	907102	908102	909102	910102	912102
	40:1 Ratio ⑤	1	906103	907103	908103	907103	910103	912103
100	Torque-Arm Adapter Bracket	2	906500	907500	907500	909500	910500	912500
	Torque-Arm Rod Kit ②	1	247238	248240	248240	272416	272416	N/A
101	③ Torque-Arm Rod End	1	247239	271050	271050	272050	272050	272151
102	③ Torque-Arm Extension	1	247240	271052	271052	272052	272052	272153
103	③ Torque-Arm Turnbuckle	1	247246	271051	271051	272051	272051	272152
104	③ RH Nut	1	407099	407104	407104	407108	407108	407110
105	③ LH Nut	1	407248	407250	407250	407251	407251	407111
106	Torque-Arm Bushing	1	247244	271046	271046	272046	272046	272187
107	Torque-Arm Fulcrum	1	247248	271054	271054	272054	272054	272154
108	Torque-Arm Bolt	1	411489	411510	411510	411520	411520	411527
109	Torque-Arm Lock-Washer	1	419014	419020	419020	419024	419024	419025
110	Torque-Arm Nut	1	407093	407099	407099	407104	407104	407108
111	Torque-Arm Bolt	1	411489	411516	411516	419524	411524	411528

Parts for TA6307H-M through TA12608H-M Tapered- and Straight-Bore Double- and Single-Reduction Reducers

Ref.	Description	Qty.	TA6307HM	TA7315HM	TA8407HM	TA9415HM	TA10507HM	TA12608HM
112	Torque-Arm Nut	1	407093	407099	407099	407104	407104	407108
113	Lock-washer	1	419014	419020	419020	419024	419024	419025
200	Bushing Back-Up Plate Tapered-Bore	2	906302	907302	908302	909302	910302	912302
	Retaining Collar Straight-Bore	2	906292	907292	907292	909292	910292	912292
203	Retaining Ring	2	906304	421098	908304	909304	910304	912304
204	Bushing Cap Screw	6 ②	304541	304542	304542	304552	304552	304552
	Retaining Collar Set Screw	4	904293	400712	400712	400712	400712	400712
205	Bushing Lock-Washer	6 ②	304604	304604	304604	304605	304605	304605
24	Output Bearing Cup	2	906250	403105	403105	403110	910250	912250
25	Output Bearing Cone	2	906251	402147	402147	402160	910251	912251
30	Input Bearing Cup-LH							
	5:1 Ratio ⑤	1	403026	304802	N/A	N/A	N/A	N/A
	9:1 Ratio ⑤	1	403026	304802	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	403026	304802	908259	403036	402231	402231
	25:1 Ratio ⑤	1	403026	304802	908259	403036	402231	402231
	40:1 Ratio ⑤	1	403026	304802	908259	403036	402231	402231
31	Input Bearing Cup-RH							
	5:1 Ratio ⑤	1	403026	403159	N/A	N/A	N/A	N/A
	9:1 Ratio ⑤	1	403026	403159	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	403026	403159	908256	411626-06-BE	411626-06-BE	403036
	25:1 Ratio ⑤	1	403026	403159	908256	411626-06-BE	411626-06-BE	403036
	40:1 Ratio ⑤	1	403026	403159	304804	304804	304804	403036
32	Input Bearing Cone-LH							
	5:1 Ratio ⑤	1	906260	402041	N/A	N/A	N/A	N/A
	9:1 Ratio ⑤	1	906260	402041	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	906260	402041	908260	304701	402232	402232
	25:1 Ratio ⑤	1	906260	402041	908260	304701	402232	402232
	40:1 Ratio ⑤	1	906260	402041	908260	304701	402232	402232
33	Input Bearing Cone-RH							
	5:1 Ratio ⑤	1	906260	907260	N/A	N/A	N/A	N/A
	9:1 Ratio ⑤	1	906260	907260	N/A	N/A	N/A	N/A
	15:1 Ratio ⑤	1	906260	907260	908257	411626-05-BM	411626-05-BM	304701
	25:1 Ratio ⑤	1	906257	907260	908257	411626-05-BM	411626-05-BM	304701
	40:1 Ratio ⑤	1	906257	402054	908258	908258	908258	912258
34	Counter-Shaft Bearing Cup-LH	1	403026	403159	411626-06-BE	403036	403087	402233
35	Counter-Shaft Bearing Cup-RH	1	403026	403159	411626-06-BE	403036	403087	402233
36	Counter-Shaft Bearing Cone-LH	1	906257	907260	411626-05-BM	304701	402023	912253
37	Counter-Shaft Bearing Cone-RH	1	906257	907260	908253	304701	402023	912253
44	Auxiliary Output Seal	2	906236	907236	907236	909236	910236	912236
45	Auxiliary Input Seal							
	5:1, 9:1 Ratio ⑤	1	901236	907238	N/A	N/A	N/A	N/A
	15:1, 25:1 Ratio ⑤	1	901236	907238	907238	907238	902236	902236
	40:1 Ratio ⑤	1	901236	907238	907238	907238	902236	902236
400	Screw Conveyor Adapter	1	906401	907401	N/A	N/A	N/A	N/A
401	Screw Conveyor Keeper Plate	1	906402	907402	N/A	N/A	N/A	N/A
402	Screw Conveyor Wedge	1	906403	907403	N/A	N/A	N/A	N/A
403	Screw Conveyor Drive Shaft							
	2-7/16" Shaft	1	906423	907423	N/A	N/A	N/A	N/A
	2-7/16" Shaft, Stainless Steel	1	906431	907431	N/A	N/A	N/A	N/A
	3" Shaft	1	906424	907424	N/A	N/A	N/A	N/A
	3" Shaft, Stainless Steel	1	906432	907432	N/A	N/A	N/A	N/A
	3-7/16" Shaft	1	906425	907425	N/A	N/A	N/A	N/A
	3-7/16" Shaft, Stainless Steel	1	906433	907433	N/A	N/A	N/A	N/A
404	Retaining Bolt	1	411552	411552	N/A	N/A	N/A	N/A
405	Lock-Washer	1	419020	419020	N/A	N/A	N/A	N/A
406	Drive Shaft Key	1	906405	907405	N/A	N/A	N/A	N/A
407	Drive Shaft Washer	1	906404	907404	N/A	N/A	N/A	N/A
408	Seal	2	906411	907411	N/A	N/A	N/A	N/A
409	Bolt	4	411983	411493	N/A	N/A	N/A	N/A
410	Lock-Washer	4	419016	419016	N/A	N/A	N/A	N/A
411	Retaining Ring	1	906406	907406	N/A	N/A	N/A	N/A
412	Adjustable Packing Retainer	1	906413	907413	N/A	N/A	N/A	N/A
413	Adjustable Packing Gland Stud	2	400404	400404	N/A	N/A	N/A	N/A
414	Adjustable Packing Gland Nut	2	407202	407202	N/A	N/A	N/A	N/A
415	Sealing Rings	3	906416	907416	N/A	N/A	N/A	N/A

Notes:

- ① Not shown on drawing.
- ② Includes parts listed immediately below
- ③ Makes up assembly under which it is listed
- ④ 8 required on TA5215HM, TA6307HM, TA7315HM, TA8407HM, and TA9415HM, 12 required on TA10507HM and TA12608HM.
- ⑤ See Table 14 for actual ratio.
- ⑥ 18 required on TA9415HM, 20 required on TA10507HM, 22 required on TA12608HM.
- ⑦ 36 required on TA9415HM, 40 required on TA10507HM, 44 required on TA12608HM.
- ⑧ 2 required on TA7315HM, TA8407HM, TA9415HM, and TA10507HM
- ⑨ 8 required on TA12608HM

ACTUAL RATIOS

Table 14–Actual Ratios

Reducer Size	Nominal Ratios				
	5:1	9:1	15:1	25:1	40:1
TA0107LM	5.200	9.000	14.928	25.091	30.942
TA1107HM	5.000	8.990	14.912	25.064	30.909
TA2115HM	5.200	9.103	15.619	25.067	33.333
TA3203HM	4.913	9.234	15.067	24.954	32.451
TA4207HM	5.000	9.231	15.000	25.125	39.107
TA5215HM	5.105	9.183	14.923	24.996	38.907
TA6307HM	4.944	9.215	15.451	24.868	38.319
TA7315HM	5.188	9.716	14.914	24.837	39.656
TA8407HM	N/A	N/A	15.120	24.965	39.667
TA9415HM	N/A	N/A	15.103	25.435	39.406
TA10507HM	N/A	N/A	15.092	25.184	39.676
TA12608HM	N/A	N/A	14.788	25.025	38.188

Supplemental Instructions for the Installation, Operation and Maintenance of ATEX Certified Torque-Arm II Shaft Mount Reducers (Zone 1) Sizes TA0107 - TA12608

Preface

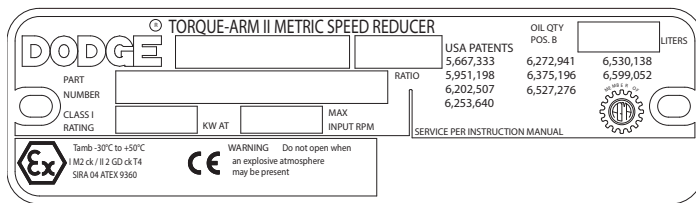
The products described in this manual are manufactured by Dodge Industrial, a member of RBC Bearings Incorporated, Simpsonville, SC 29681 USA.

This manual is intended to provide basic information on the safe operation and maintenance of ATEX approved Torque-Arm II shaft mount reducers. These instructions do not cover all details or variations in equipment not provide every possible contingency or hazard to be met in connection with installation, operation and maintenance. Should further information be desired or should particular problems arise which are not covered in the manual, the matter should be referred to your local Dodge Industrial representative.

The reducer was manufactured under the guidelines of the ATEX directive 2014/34/EU.

Torque-Arm II reducers are suitable for ATEX Category M2 for Group I and Category 2 for Group II, both gas and dust atmospheres where the ignition temperature exceeds +135°C (T4) or +275°F.

Typical reducer marking is contained on a certificate plate similar to the following:



Attention - Hazardous Area Use

For Hazardous Area Use, the following potential ignition hazards have been identified:

- Impact to outer enclosure
- Heat generation
- Contact of rotating parts with stationery parts

The installation should be in accordance with the conditions in the following sections.

NOTE: The reducer is designed to operate with a surface temperature at or below 200°F. Failure to operate the reducer properly can cause this maximum surface temperature to be exceeded. If applied in a Division I or Zone I environment this excessive temperature may cause ignition of hazardous materials.

The use of supplemental cooling devices such as a shaft-mounted cooling fan or heat exchanger may be required to ensure operating temperature below 200°F if indicated by catalog selection tables or if the reducer is operated at ambient temperatures above 80°F. Proper use of supplemental cooling, if provided, and avoidance of undesirable operating conditions is required.

Abnormal Conditions

Operating the reducer under any of the following conditions can cause higher than normal operating temperatures:

1. Reducer load exceeding nameplate ratings
2. Ambient temperatures above nameplate rating
3. Inadequate cooling
4. Operation above maximum nameplate speed
5. Insufficient amount or improper type of lubricant

Additional Instructions for Safe Installation and Use

Do not open reducer when an explosive atmosphere may be present.

- All rotating parts should be guarded to prevent contact with foreign objects which could result in sparks and ignition.
- The reducer should be periodically inspected for proper oil level, signs of oil leakage, and dust or dirt buildup that would impede heat dissipation.
- Follow lubrication instructions and service schedule in this manual. Use gear lubricant with flash point temperature 300°F or higher.
- Increasing levels of vibration and noise could indicate the need for repair or replacement of the reducer, including replacement of bearings.
- Electrical sparks are a source of ignition. To reduce this risk, proper electrical bonding and grounding are recommended. Under standard operating conditions, the reducer is electrically bonded to the driven equipment through the output shaft connection.

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