



TORQUE-ARM Shaft Mount Speed Reducers LUBRICATION OF TORQUE-ARM REDUCERS

CAUTION: Unit is shipped without oil. Add proper amount of rust and oxidation inhibited (R & O) gear oil before operating. Failure to observe these precautions could result in damage to, or destruction of, the equipment.

Lubrication is extremely important for satisfactory operation. The proper oil level as shown in Table 25, page G2-199, must be maintained at all times. Frequent inspections with the unit not running and allowing sufficient time for the oil to cool and the entrapped air to settle out of the oil should be made by removing the level plug to see that the level is being maintained. If low, add the proper type and viscosity of lubricant through one of the upper openings until it comes out of the oil level hole. Replace the oil level plug securely. Refer to Tables 23 and 24 for viscosity recommendations.

After an initial operation of about two weeks, the oil should be changed. If desired, this oil may be filtered and reused. Very often, small metal particles will show up in the oil due to the wearing process. After the initial break in period, the lubricant should be drained, magnetic drain plug cleaned, gear case flushed and refilled every 2500 hours of operation under average industrial conditions.

CAUTION: Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly.

More frequent oil changes are recommended when operating continuously or at high temperatures or under

conditions of extreme dirt or dust. Use only recommended lubricants listed on next page, or equivalent. Special attention should be given to checking of lubricants when any of the following conditions exist:

1. High operating temperatures resulting from heavy intermittent loads causes the temperature of the gear case to rise rapidly and then cool.
2. Unusual ambient conditions, which may tend to cause condensation on the inside of the gearcase thereby contaminating the oil.
3. Operating temperatures that would cause oil to approach 200°F continually.
4. Subjection of reducer to unusual vapors or moist atmosphere.
5. Subjection of reducer to extremely dusty or dirty environment.

Under these extreme operating conditions, the oil should be changed every 1 to 3 months depending on severity of conditions.

Operating Temperatures

Heating is a natural characteristic of enclosed gearing, and a maximum gear case temperature approaching 200°F is not uncommon for some units operating in normal ambient temperatures (80°F). When operating at rated capacity, no damage will result from this temperature as this was taken into consideration in the design of the gear case and in the selection of the lubricants.

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TORQUE-ARM Shaft Mount Speed Reducers

LUBRICATION OF TORQUE-ARM REDUCERS (CON'T)

TABLE 23: LUBRICATION RECOMMENDATIONS - ISO GRADES FOR AMBIENT TEMPERATURES OF 50°F THRU 125°F ◇

Output RPM	TXT, SCXT, HXT Reducers														
	1	2	3	4	5	6	7	8	9	10	12	13	14	15	
301-400	320	320	220	220	220	220	220	220	220	220	220	220	220	220	
201-300	320	320	220	220	220	220	220	220	220	220	220	220	220	220	
151-200	320	320	220	220	220	220	220	220	220	220	220	220	220	220	
126-150	320	320	320	220	220	220	220	220	220	220	220	220	220	220	
101-125	320	320	320	320	220	220	220	220	220	220	220	220	220	220	
81-100	320	320	320	320	320	220	220	220	220	220	220	220	220	220	
41-80	320	320	320	320	320	220	220	220	220	220	220	220	220	220	
11-40	320	320	320	320	320	320	320	320	320	320	220	220	220	220	
1-10	320	320	320	320	320	320	320	320	320	320	320	320	320	320	

TABLE 24: LUBRICATION RECOMMENDATIONS - ISO GRADES FOR AMBIENT TEMPERATURES OF 15°F THRU 60°F ◇

Output RPM	TXT, SCXT, HXT Reducers														
	1	2	3	4	5	6	7	8	9	10	12	13	14	15	
301-400	220	220	150	150	150	150	150	150	150	150	150	150	150	150	
201-300	220	220	150	150	150	150	150	150	150	150	150	150	150	150	
151-200	220	220	150	150	150	150	150	150	150	150	150	150	150	150	
126-150	220	220	220	150	150	150	150	150	150	150	150	150	150	150	
101-125	220	220	220	220	150	150	150	150	150	150	150	150	150	150	
81-100	220	220	220	220	220	150	150	150	150	150	150	150	150	150	
41-80	220	220	220	220	220	150	150	150	150	150	150	150	150	150	
11-40	220	220	220	220	220	220	220	220	220	220	150	150	150	150	
1-10	220	220	220	220	220	220	220	220	220	220	220	220	220	220	

LUBRICANT GRADE EQUIVALENTS

ISO	AGMA
150	4
220	5
320	6

NOTE: Mobil SHC 600 Series oil is recommended for high ambient temperatures.

◇ NOTES:

1. Assumes auxiliary cooling where recommended in the catalog.
2. Pour point of lubricant selected should be at least 10°F lower than expected minimum ambient starting temperature.
3. Extreme pressure (EP) lubricants are not recommended for average operating conditions.
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. Do not use oils containing EP additives such as graphite or molybdenum disulfide in the reducer when backstop is used. These additives will destroy sprag action.
6. For reducers operating in ambient temperatures between -22°F (-30°C) and 20°F (-6.6°C) use a synthetic hydrocarbon lubricant, 100 ISO grade or AGMA 35 grade (for example - Mobil SHC627). Above 125°F (51.6°C), consult DODGE Gear Application Engineering (864) 297-4800 for lubrication recommendation.

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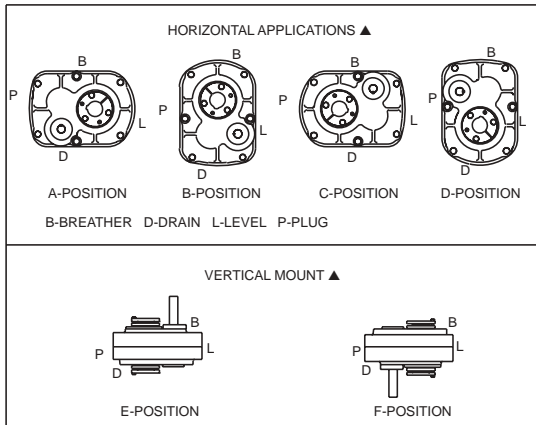


TORQUE-ARM Shaft Mount Speed Reducers LUBRICATION OF TORQUE-ARM REDUCERS (CON'TD)

Horizontal Installations-Install the magnetic drain plug in the hole closest to the bottom of the reducer. Throw away the tape that covers the filler/ventilation plug in shipment and install plug in topmost hole. Of the remaining plugs on the sides of the reducer, the lowest one is the minimum oil level plug. Vertical Installations-Install the filler/ventilation plug in the hole provided in the top face of the reducer housing. Use the hole in the bottom face for the magnetic drain plug. Of the remaining holes on the sides of the reducer, use a plug in the upper housing half for the minimum oil level plug.

The running position of the reducer in a horizontal application is not limited to the four positions shown below. However, if running position is over 20° either way from sketches, the oil level plug cannot be safely used to check the oil level, unless during the checking the torque arm is disconnected and the reducer is swung to within 20° in position B or D, or 5° in position A and C shown below. Because of the many possible positions of the reducer, it may be necessary or desirable to make special adaptations using the lubrication fitting holes furnished along with other standard pipe fittings, stand pipes and oil level gauges as required.

Mounting Positions



▲ Note: Below 15 RPM output speed, oil level must be adjusted to reach the highest oil level plug (P)

Vertical Installations - Install the filler/ventilation plug in the hole provided in the top face of the reducer housing. Use the hole in the bottom face for the magnetic drain plug. Of the remaining holes on the sides of the reducer, use a plug in the upper housing half for the minimum oil level plug.

Table 25 - Approx. Oil Capacity in Quarts ■ ◆

Reducer Size TXT SCXT HXT	Reducer Positions					
	Horizontal				Vertical	
	A	B	C	D	E	F
109,115,125	1/2	1/2	5/8	3/4	1	1-1/4
105	5/8	3/4	5/8	3/4	1-1/8	1-3/8
209,215,225	7/8	1	5/8	1	1-5/8	1-3/4
205	3/4	7/8	7/8	7/8	1-3/4	2-1/4
309,315,325	1-1/2	1-1/2	3/4	2-1/4	2-5/8	3
305	7/8	1-1/2	1-3/8	1-3/8	2-1/2	3-1/8
409,415,425	1-7/8	2-1/4	1-1/4	1-3/4	3-3/8	4-1/4
405	1-1/2	2-1/4	2-1/8	1-7/8	4	4-7/8
509,515,525	3-1/4	4	3-1/4	4	7	8-5/8
505	3-3/8	4-1/4	3-7/8	3-3/4	7-3/4	9
609, 615, 625	4-1/4	5	4-1/4	5	8-5/8	9-1/8
605	4-1/2	5-3/4	4-1/2	5	12	11
709,715,725	6-1/2	8	7-1/4	9-1/4	15-3/8	16-3/8
705	7-1/2	9	7-1/2	9-1/4	19	17-1/4
815,825	8-1/2	11	10-1/2	8-1/2	19-1/8	19-1/8
805	6	15	10	8-1/2	22	18-3/4
915,926	13	13	12-1/2	14-1/4	25-3/8	25-3/8
905	14-3/4	15	16-1/4	13-3/4	31-7/8	31-7/8
10,151,024	23	14	15-3/4	18-3/4	41	41
12,151,225	59	38	59	36-1/2	100	100
TDT1325	86	62	86	59	110	110
TDT1425	120	88	120	61	150	150
TDT1530	197	138	197	170	281	281

■ U.S. Measure: 1 qt. = 32 fluid oz.

◆ Consult DODGE for proper oil level for reducers with backstops and which are mounted in C-position or D-position.

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ENGINEERING/TECHNICAL

TORQUE-ARM Shaft Mount Speed Reducers

TORQUE-ARM SPEED REDUCER FLANGE MOUNTING AND CLEARANCE DIMENSIONS

TXT Taper Bushed and Straight Bore Reducers can be supplied with mounting pads on the back of the housing which are drilled and tapped to permit bolting the reducer to the supporting framework. Reducers are now provided from the factory with this feature. They can no longer be

field modified. There is no additional charge for the modification. Order flange mount TXT reducers per the part number below. Consult DODGE for delivery. See page G2-205, Tables 32 & 33 or consult DODGE for allowable output shaft overhung loads.

TXT Flange Mount Taper Bushed Reducers (1) (2) (3)

Part No	Reducer Size	Weight
241415	TXT105T Flange Mount Reducer	40
241417	TXT115T Flange Mount Reducer	45
241419	TXT125T Flange Mount Reducer	45
242415	TXT205T Flange Mount Reducer	52
242417	TXT215T Flange Mount Reducer	58
242419	TXT225T Flange Mount Reducer	58
243620	TXT305AT Flange Mount Reducer	86
243622	TXT315AT Flange Mount Reducer	98
243624	TXT325AT Flange Mount Reducer	98
244381	TXT405AT Flange Mount Reducer	122
244383	TXT415AT Flange Mount Reducer	139
244385	TXT425AT Flange Mount Reducer	139
245341	TXT505AT Flange Mount Reducer	182
245343	TXT515BT Flange Mount Reducer	207
245345	TXT525BT Flange Mount Reducer	207
246428	TXT605T Flange Mount Reducer	251
246430	TXT615T Flange Mount Reducer	285
246432	TXT625T Flange Mount Reducer	285
247431	TXT705T Flange Mount Reducer	410
247433	TXT715T Flange Mount Reducer	462
247435	TXT725T Flange Mount Reducer	462
248414	TXT805T Flange Mount Reducer	557
248416	TXT815T Flange Mount Reducer	633
248418	TXT825T Flange Mount Reducer	633
249414	TXT905T Flange Mount Reducer	668
249416	TXT915T Flange Mount Reducer	760
249418	TXT926T Flange Mount Reducer	760
250416	TXT1015T Flange Mount Reducer	1020
250418	TXT1024T Flange Mount Reducer	1020

(1) Flange mount reducers are Made-to-order with two week cycle time.

(2) Torque-Arm Assembly not included with flange mount reducers.

TXT Flange Mount Straight Bore Reducers (1) (2) (3)

Part No	Reducer Size	Weight
241416	TXT105S Flange Mount Reducer	40
241418	TXT115S Flange Mount Reducer	45
241420	TXT125S Flange Mount Reducer	45
242416	TXT205S Flange Mount Reducer	52
242418	TXT215S Flange Mount Reducer	58
242420	TXT225S Flange Mount Reducer	58
243621	TXT305AS Flange Mount Reducer	86
243623	TXT315AS Flange Mount Reducer	98
243625	TXT325AS Flange Mount Reducer	98
244382	TXT405AS Flange Mount Reducer	122
244384	TXT415AS Flange Mount Reducer	139
244386	TXT425AS Flange Mount Reducer	139
245342	TXT505AS Flange Mount Reducer	182
245344	TXT515BS Flange Mount Reducer	207
245346	TXT525BS Flange Mount Reducer	207
246429	TXT605S Flange Mount Reducer	251
246431	TXT615S Flange Mount Reducer	285
246433	TXT625S Flange Mount Reducer	285
247432	TXT705S Flange Mount Reducer	410
247434	TXT715S Flange Mount Reducer	462
247436	TXT725S Flange Mount Reducer	462
248415	TXT805S Flange Mount Reducer	557
248417	TXT815S Flange Mount Reducer	633
248419	TXT825S Flange Mount Reducer	633
249415	TXT905S Flange Mount Reducer	668
249417	TXT915S Flange Mount Reducer	760
249419	TXT926S Flange Mount Reducer	760
250417	TXT1015S Flange Mount Reducer	1020
250419	TXT1024S Flange Mount Reducer	1020

(3) TDT13-TDT15 reducers are supplied from stock already drilled and tapped for flange mounting. See page G2-67 thru G2-69.



TORQUE-ARM Shaft Mount Speed Reducers TORQUE-ARM SPEED REDUCER FLANGE MOUNTING PADS AND CLEARANCE DIMENSIONS

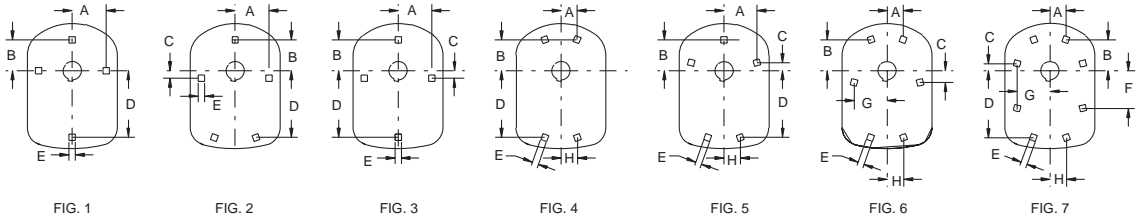
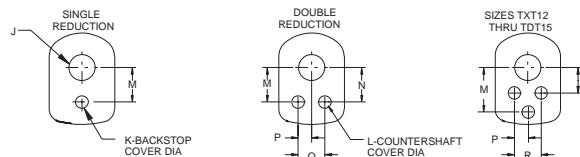


TABLE 28 - FLANGE MOUNTING DRILLING DIMENSIONS FOR TXT REDUCERS

Reducer Size	Nominal Ratio	Reference	A	B	C	D	E	F	G	H	Tap Size	Tap Drill Depth	Tap Depth
TXT1	5, 9, 15, 25	Fig. 1	2-13/16	3	.....	5-1/2	7/8	.....	.....	.....	7/16 -14	29/32	17/32
TXT2	9, 15, 25	Fig. 1	3-3/8	3-5/16	.....	5-7/8	13/16	.....	.....	.....	7/16 -14	7/8	1/2
TXT2	5	Fig. 2	3-3/8	3-5/16	.....	4-7/8	7/8	.....	.....	2-17/32	7/16 -14	7/8	1/2
TXT3	9, 15, 25	Fig. 3	3-5/8	3-5/16	7/8	6-3/16	1-1/4	.....	.....	.....	1/2-13	1	5/8
TXT3	5	Fig. 2	3-7/8	3-5/16	1	5-19/32	3/4	.....	.....	2-11/16	1/2-13	29/32	17/32
TXT4	5, 9, 15, 25	Fig. 3	3-5/8	3-7/8	2	7-5/8	1	.....	.....	.....	1/2-13	1	5/8
TXT5	9, 15, 25	Fig. 3	4-5/8	4-9/16	2-9/32	9-1/2	1-1/4	.....	.....	.....	5/8-11	7/8	7/16
TXT5	5	Fig. 3	4-5/8	4-9/16	2-9/32	9-1/4	1-1/4	.....	.....	.....	5/8-11	7/8	7/16
TXT6	5, 9, 15, 25	Fig. 3	6-3/16	5-1/8	2-3/16	11	1-7/8	.....	.....	.....	5/8-11	1-1/8	11/16
TXT7	5, 9, 15, 25	Fig. 3	5-5/8	6-1/4	2-15/16	13-1/4	2	.....	.....	.....	3/4-10	1-3/8	7/8
TXT8	5, 15, 25	Fig. 3	6-5/16	7	3	15-1/16	2	.....	.....	.....	3/4-10	1-11/32	27/32
TXT9	15, 26	Fig. 4	5-7/16	5-15/16	.....	16-7/8	2	.....	.....	3-3/8	3/4-10	1-1/32	17/32
TXT9	5	Fig. 5	8-1/16	8-1/16	5/8	13-7/8	2	.....	.....	7-15/16	3/4-10	1-1/32	15/16
TXT10	15, 24	Fig. 6	5-13/16	7-15/16	3-1/2	19	2	.....	9-13/16	3-1/8	3/4-10	1-7/32	23/32
TXT12	15, 25	Fig. 6	6-1/8	10-3/4	7-1/4	22-11/16	2-1/2	.....	12-9/16	9-1/16	3/4-10	1-25/32	1-9/32
TDT13	25	Fig. 6	7-5/16	12-3/4	6-1/2	25-3/4	2-1/2	.....	15-3/4	7-5/16	1-8	2-3/8	1-3/4
TDT14	25	Fig. 7	8-1/4	12-3/4	1-1/4	28-1/4	2-1/2	16-3/4	18-1/16	8-1/4	1-8	2-5/8	2
TDT15	30	Fig. 7	11	15-1/8	1-1/4	32-3/8	3-1/2	19-5/8	22	11	1-8	2-5/8	2

TABLE 29 - FLANGE MOUNTING CLEARANCE DIMENSIONS

Reducer Size	Nominal Ratio	J	K	L	M	N	P	Q	R	Reducer Size	Nominal Ratio	J	K	L	M	N	P	Q	R
TXT1	9, 15, 25	3-1/4	2-9/16	.....	3-3/16	3-3/16	1-29/32	2-17/32	.....	TXT7	9, 15, 25	9-1/8	5-1/16	4-11/16	8-5/16	8-5/32	5-1/8	6-3/4	.....
TXT1	5	3-1/4	2-13/16	.....	3-3/4	3-3/4	.....	.....	.....	TXT7	5	9-1/8	5-1/16	.....	8-5/16	.....	.....	.....	.....
TXT2	9, 15, 25	4-1/16	3-1/2	.....	3-3/4	3-3/4	2-1/8	3	.....	TXT8	15, 25	9-1/2	7-5/8	6	9-1/2	9-1/2	6-1/32	7-23/32	.....
TXT2	5	4-1/16	3-1/2	.....	3-7/8	.....	.....	.....	.....	TXT8	5	9-1/2	7-1/2	.....	9-41/64	.....	.....	.....	.....
TXT3	9, 15, 25	4-3/8	3-1/2	2-11/16	4-3/16	4-3/16	2-5/16	3-5/16	.....	TXT9	15, 26	10-15/16	8	8	10-13/16	10-13/16	6-19/32	8-5/8	.....
TXT3	5	4-3/8	3-1/2	.....	4-1/4	.....	.....	.....	.....	TXT9	5	10-15/16	8	.....	10-31/32	.....	.....	.....	.....
TXT4	9, 15, 25	4-13/16	3-7/8	3-1/4	4-25/32	4-25/32	2-3/4	3-11/16	.....	TXT10	15, 24	12-1/4	8	7-5/8	12-1/2	12-1/2	6-9/16	8-23/32	.....
TXT4	5	4-13/16	4-1/16	.....	4-7/8	.....	.....	.....	.....	TXT12	15, 25	14-1/4	8-5/8	9	22-29/32	13-25/32	5-9/16	.....	11-1/8
TXT5	9, 15, 25	5-5/8	4-1/4	3-1/4	5-11/16	5-21/32	3-1/16	4-9/16	.....	TDT13	25	15-5/8	8-5/8	10-1/4	24-27/64	14-15/32	6-5/16	.....	12-5/8
TXT5	5	5-5/8	4-3/4	.....	5-7/8	.....	.....	.....	.....	TDT14	25	17-5/8	10-3/4	11-3/4	26-9/32	15-5/16	7-1/8	.....	14-1/4
TXT6	9, 15, 25	8-1/8	5-1/16	4	6-3/4	6-23/32	4-3/32	5-5/8	TDT15	30	22-1/2	10-3/4	13-1/2	30-9/16	18-1/8	8	16
TXT6	5	8-1/8	5-1/16	6-7/8										



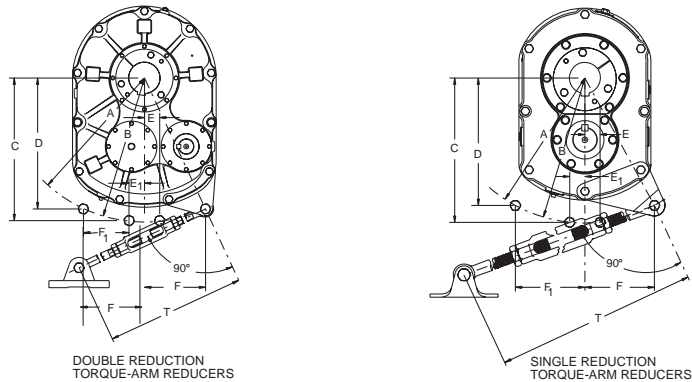
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ENGINEERING/TECHNICAL

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OPTIONAL TORQUE-ARM ROD MOUNTING POSITIONS FOR TORQUE-ARM REDUCERS



DOUBLE REDUCTION
TORQUE-ARM REDUCERS

SINGLE REDUCTION
TORQUE-ARM REDUCERS

TABLE 26 - TORQUE-ARM ROD OPTIONAL MOUNTING POSITIONS FOR TXT1 THRU TXT10 DOUBLE REDUCTION REDUCERS

REDUCER SIZE	A-RADIUS	B-RADIUS	C	D	E, E ₁	F, F ₁	T	
							MIN.	MAX.
TXT1	8.00	-	-	7.25	-	3.41	23.81	29.63
TXT2	8.75	9.00	8.94	7.50	0.81	4.50	26.94	32.94
TXT3A	10.16	10.38	10.31	8.88	0.97	4.94	26.94	32.94
TXT4A	11.47	11.84	11.78	10.06	1.09	5.50	29.19	35.19
TXT5B	13.75	14.03	13.97	12.06	1.00	6.63	29.19	35.19
TXT6	15.69	15.88	15.84	13.63	0.94	7.75	29.19	35.19
TXT7	18.19	18.84	18.81	15.88	1.25	8.94	29.44	35.44
TXT8	21.00	21.38	21.38	19.56	-	7.63	30.00	36.00
TXT9	22.72	23.63	23.63	20.63	-	9.50	30.00	36.00
TXT10	25.20	25.56	25.56	23.56	-	8.94	30.00	36.00

TABLE 27 - TORQUE-ARM ROD OPTIONAL MOUNTING POSITIONS FOR TXT105 THRU TXT905 SINGLE REDUCTION REDUCERS

REDUCER SIZE	A-RADIUS	B-RADIUS	C	D	E, E ₁	F, F ₁	T	
							MIN.	MAX.
TXT105	8.00	-	-	7.25	-	3.41	23.81	29.63
TXT205	8.75	9.00	8.94	7.50	0.81	4.50	26.94	32.94
TXT305A	10.16	10.38	10.31	8.88	0.97	4.94	26.94	32.94
TXT405A	11.47	11.84	11.78	10.06	1.09	5.50	29.19	35.19
TXT505A	14.53	14.81	14.78	12.59	0.91	7.25	29.19	35.19
TXT605	16.44	16.66	16.63	14.22	0.88	8.22	29.19	35.19
TXT705	18.19	18.84	18.81	15.88	1.25	8.94	29.44	35.44
TXT805	21.00	21.38	21.38	19.56	-	7.63	30.00	36.00
TXT905	22.70	23.63	23.63	20.63	-	9.50	30.00	36.00

It is preferred to mount the TORQUE-ARM rod in tension. However, the design allows mounting in compression as well. If mounted in compression, observe the tolerance $\pm 20^\circ$ to the 90° referenced above, to minimize bending. The housing direction will be opposite to the direction of output or driven shaft rotation.

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TORQUE-ARM Shaft Mount Speed Reducers

MACHING DIMENSIONS FOR TXT1 THRU TXT5B AND TXT105 THRU TXT505A TACONITE AUBILIARY SEAL KITS

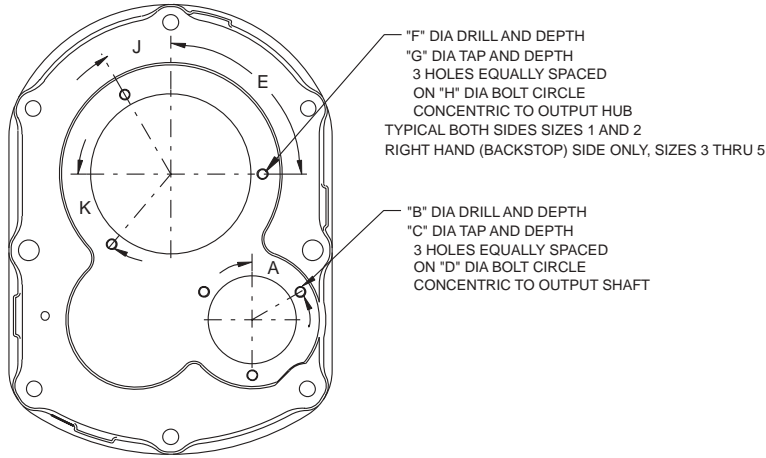


TABLE 1 - REDUCER MACHING DIMENSIONS FOR TACONITE AUXILIARY SEAL KITS

REDUCER SIZE	A (DEGREES)	B ▲ (INCHES)	C (INCHES)	D (INCHES)	E (DEGREES)	F ▲ (INCHES)	G (INCHES)	H (INCHES)	J (DEGREES)	K (DEGREES)
TXT1	60°	NO. 7 DIA .75 DEEP	1/4-20.50 DEEP	2.63	120°	NO.7 DIA .75 DEEP	1/4-20.50 DEEP	4.13	N/A	N/A
TXT2	60°	NO. 7 DIA .81 DEEP	1/4-20.56 DEEP	2.94	120°	NO.7 DIA .88 DEEP	1/4/2020 .56 DEEP	4.75	N/A	N/A
TXT3A	N/A	★	★	★	90°	NO.F DIA .75 DEEP	5/16/2018 .53 DEEP	5.25	305	505
TXT4A	N/A	★	★	★	30°	5/16 DIA .94 DEEP	3/8/2016 .56 DEEP	6.00	905	1305
TXT5B	N/A	★	★	★	90°	5/16 DIA .94 DEEP	3/8/2016 .56 DEEP	6.63	305	605
TXT105	60°	NO. 7 DIA .75 DEEP	1/4-20 .50 DEEP	2.94	120°	NO.7 DIA .75 DEEP	1/4/2020 .50 DEEP	4.13	N/A	N/A
TXT205	60°	NO. 7 DIA .81 DEEP	1/4-20. 56 DEEP	3.69	120°	NO.7 DIA .88 DEEP	1/4/2020 .63 DEEP	4.75	N/A	N/A
TXT305A	N/A	★	★	★	90°	NO.F DIA .75 DEEP	5/16/2018 .53 DEEP	5.25	305	505
TXT405A	N/A	★	★	★	30°	5/16 DIA .94 DEEP	3/8/2016 .56 DEEP	6.00	905	1305
TXT505A	N/A	★	★	★	90°	5/16 DIA .94 DEEP	3/8/2016 .56 DEEP	6.63	305	605

▲ DRILL DEPTH IS MAXIMUM AND MUST NOT BE EXCEEDED

★ PLACE AUXILIARY SEAL COVER ON INPUT SEAL CARRIER USING BOLTS PROVIDED

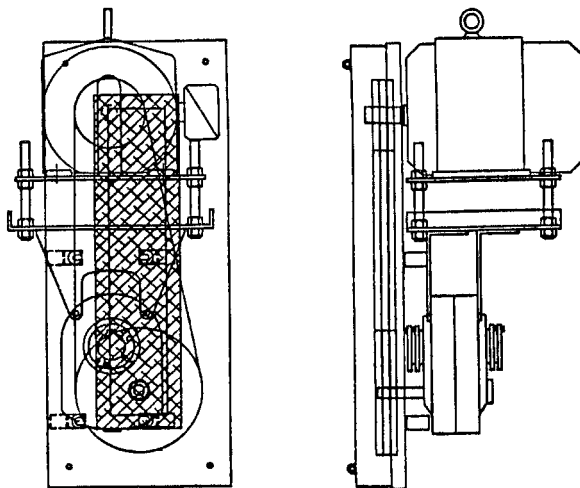
N/A = NOT APPLICABLE

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TORQUE-ARM Shaft Mount Speed Reducers

SLOTTED METAL PANEL BELT GUARD SPECIFICATION FOR TXT/SCXT REDUCERS



STYLE:	Rectangular box type Solid metal base, top and side panels. Slotted metal front and bottom panels
MATERIAL TYPE:	Hot-rolled, pickled-in-oil, #A569 Steel sheet metal.
MATERIAL THICKNESS:	Body -- 14 gauge Mounting Straps TXT1 thru TXT7 -- 7 gauge TXT8 thru TXT10 -- 1/4" gauge
FINISH:	One coat yellow paint
MOUNTING:	Mounting straps, welded to outside of back panel, fasten guard to reducer housing and motor mount front support. Threaded studs welded to inside of back panel fasten expanded metal panel into place.
FASTENERS:	Grade 5 steel



TORQUE-ARM Shaft Mount Speed Reducers

Table 31 - Maximum Input and Driven Speeds for TXT and SCXT Reducers

SINGLE REDUCTION			DOUBLE REDUCTION													
Reducer Size	Input	Driven	Reducer Size	Input RPM			Driven RPM			Reducer Size	Input RPM			Driven RPM		
				Nominal Ratio			Nominal Ratio				Nominal Ratio			Nominal Ratio		
				9	15	25	9	15	25		15	25	30	15	25	30
TXT/SCXT1	2248	400	TXT/SCXT1	1888	2149	2179	200	140	85	TXT/SCXT8	1809	1847	....	120	75	..
TXT/SCXT2	2116	400	TXT/SCXT2	1850	1974	1994	200	140	85	TXT9	1814	1925	....	120	75	..
TXT/SCXT3	2240	400	TXT/SCXT3	1782	2083	2100	200	140	85	TXT10	1819	1823	....	120	75	..
TXT/SCXT4	2260	400	TXT/SCXT4	1934	2118	2072	200	140	85	TXT12	1786	1849	....	120	75	..
TXT/SCXT5	2268	400	TXT/SCXT5	1790	1925	2044	200	125	85	TDT13	....	1855	....	....	75	..
TXT/SCXT6	2268	400	TXT/SCXT6	1840	1916	2010	200	125	85	TDT14	....	1860	....	....	75	..
TXT/SCXT7	2144	400	TXT/SCXT7	1922	1827	1844	200	120	75	TDT15	....	....	1746	....	57	..

Table 32 - Output Shaft Overhung Load Ratings for Double Reduction TXT Reducers

Reducer Size	Nominal Ratio	Shaft Size	Overhung Load (Lbs.) @ Various RPM's *										
			10	20	30	50	80	100	120	140	160	180	200
TXT1	9, 15, 25	1-1/4	1990	1520	1300	1100	930	780	760	740	720	700	680
		1-7/16	1700	1300	1110	945	790	665	650	640	630	620	610
TXT2	9, 15, 25	1-7/16	2000	1510	1270	1010	840	820	720	720	710	710	700
		1-15/16	1750	1320	1110	890	730	710	630	630	620	620	610
TXT3	9, 15, 25	1-15/16	5400	4250	3680	3050	2620	2440	2310	2210	2110	2040	1980
		2-3/16	5240	4120	3570	2960	2540	2370	2240	2140	2050	1980	1920
TXT4	9, 15, 25	2-3/16	6520	5180	4510	3800	3230	3000	2830	2710	2600	2510	2430
		2-7/16	6360	5060	4410	3710	3160	2930	2770	2640	2530	2450	2370
TXT5	9, 15, 25	2-7/16	7460	5860	5080	4280	3690	3450	3270	3110	2980	2880	2790
		2-15/16	7060	5540	4800	4040	3490	3260	3090	2940	2820	2720	2640
TXT6	9, 15, 25	2-15/16	9100	7100	6100	5000	4100	4050	3700	3550	3400	3300	3200
		3-7/16	8200	6400	5500	4500	3700	3650	3400	3300	3250	3200	3150
TXT7	9, 15, 25	3-7/16	11,400	9500	7300	5950	4750	5050	4500	4300	4250	4200	4150

Values shown are for loads applied at one output shaft diameter from reducer bushing. Interpolate for values between RPM's listed.

Table 33 - Output Shaft Overhung Load Ratings for Single Reduction TXT Reducers

Reducer Size	Nominal Ratio	Shaft Size	Overhung Load (Lbs.) @ Various RPM's *						
			100	150	200	250	300	350	400
TXT1	5	1-1/4	775	610	600	500	500	500	490
		1-7/16	660	520	520	430	430	420	420
TXT2	5	1-7/16	760	620	530	530	530	530	520
		1-15/16	665	545	470	470	470	460	460
TXT3	5	1-15/16	2370	2100	1950	1840	1760	1700	1660
		2-3/16	2300	2040	1890	1780	1710	1650	1610
TXT4	5	2-3/16	3030	2720	2490	2310	2170	2060	1970
		2-7/16	2930	2640	2400	2240	2100	1990	1900
TXT5	5	2-7/16	3080	2750	2560	2400	2260	2160	2080
		2-15/16	2920	2610	2430	2270	2140	2050	1980
TXT6	5	2-15/16	4350	3850	3500	3250	3200	3100	3050
		3-7/16	3950	3500	3200	2950	2900	2800	2750
TXT7	5	3-7/16	3800	3650	3300	3450	3500	3400	3300

* Values shown are for loads applied at one output shaft diameter from reducer bushing. Interpolate for values between RPM's listed.

Table 1 - WR² (Lb.-FT²) At High Speed Shaft for TXT Reducers *

Reducer Size	Nominal Ratio				Reducer Size	Nominal Ratio			
	5:1	9:1	15:1	25:1		5:1	9:1	15:1	25:1
TXT1	0.002	0.013	0.008	0.007	TXT9	1.66	...	1.39	0.794
TXT2	0.013	0.027	0.011	0.007	TXT10	...	...	1.63	0.927
TXT3	0.034	0.059	0.026	0.013	TXT12	....	....	7.71	3.68
TXT4	0.075	0.092	0.043	0.023	TDT13	...	...	...	6.56
TXT5	0.15	0.233	0.099	0.067	TDT14	...	...	...	9
TXT6	0.201	0.461	0.197	0.109	TDT15	...	...	...	11.42
TXT7	0.48	1.004	0.417	0.285					
TXT8	0.96	...	0.942	0.571					

* For WR² at low speed shaft, multiply WR² value listed by (actual ratio)².

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ENGINEERING/TECHNICAL

TORQUE-ARM Shaft Mount Speed Reducers THRUST CAPACITY OF SCREW CONVEYOR DRIVE REDUCERS

The screw conveyor drive reducer uses tapered roller bearings which take thrust in either direction from the

screw conveyor. This eliminates the need for external thrust bearings commonly used.

TABLE 1 - THRUST CAPACITY OF SCREW CONVEYOR DRIVE REDUCERS (POUNDS) -

Reducer Size	Screw Conveyor RPM						
	80	100	120	140	160	180	200
SCXT109	3986	3765	3588	3434	3303	3192	3092
SCXT209	5389	5025	4742	4505	4304	4138	3990
SCXT309A	5290	4920	4660	4450	4240	4100	3970
SCXT409A	6000	6000	5800	5500	5200	5000	5000
SCXT509B	6000	6000	6000	6000	5800	5700	5500
SCXT609	6000	6000	6000	6000	6000	6000	6000
SCXT709	4863	4527	4244	3959	3713	3520	3335

Reducer Size	Screw Conveyor RPM					
	25	50	75	100	125	140
SCXT115	6000	4840	4220	3820	3540	3414
SCXT215	6000	6000	5440	4920	4560	4380
SCXT315A	6000	6000	5400	4920	4600	4450
SCXT415A	6000	6000	6000	6000	5800	5600
SCXT515B	6000	6000	6000	6000	6000	....
SCXT615	6000	6000	6000	6000	6000	....
SCXT715 †	6000	6000	5220	4530	....	....

Reducer Size	Screw Conveyor RPM				
	25	50	75	80	85
SCXT125	6000	4840	4220	4130	4040
SCXT225	6000	6000	5440	5320	5000
SCXT325A	6000	6000	5400	5290	5200
SCXT425A	6000	6000	6000	6000	6000
SCXT525B	6000	6000	6000	6000	....
SCXT625	6000	6000	6000	6000	....
SCXT725	6000	6000	5220	....	....

Reducer Size	Screw Conveyor RPM						
	100	150	200	250	300	350	400
SCXT105	6000	5500	5060	4730	4520	4340	4200
SCXT205	5310	4760	4390	4160	3970	3810	3680
SCXT305A	6000	5300	4900	4600	4400	4300	4200
SCXT405A	6000	5900	5500	5000	4600	4500	4500
SCXT505B	6000	6000	6000	6000	5700	5400	5000
SCXT805	6000	6000	6000	6000	6000	6000	6000
SCXT705	5860	5500	4810	4710	4830	4980	4900

† Actual maximum output speed for SCXT715 reducer is 120 rpm

- Consult DODGE for SCXT8 thrust capacity



TORQUE-ARM Shaft Mount Speed Reducers GUIDELINES FOR LONG-TERM STORAGE OF TORQUE-ARM REDUCERS

During periods of long storage (3 months or more), or when awaiting delivery or installation of other equipment, special care should be taken to protect a gear reducer to have it in the best condition when placed into service.

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

PREPARATION

1. Drain the oil from the unit. Add a vapor phase corrosion inhibiting oil such as VCI-105 oil by Daubert Chemical Co.
2. Seal the unit air tight. Replace the vent plug with a standard pipe plug and wire the vent to the unit.
3. Cover the shaft extension with a waxy rust preventive compound that will keep oxygen away from the bare metal such as Non-Rust X-110 by Daubert Chemical Co.

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 which can keep moisture away.
5. Protect the 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 plastic containing a desiccant material. If the reducer is to be stored outdoors, cover the entire exterior with a rust preventive.
7. Once a month rotate the input shaft at least 30 revolutions to redistribute the weight of gears and shafts and to prevent brinnelling of the bearings and drying of the seal track.

TABLE 1 - VCI #105 OIL FOR TORQUE-ARM REDUCERS

CASE SIZE	QUARTS OR LITERS
TXT1	0.1
TXT2	0.1
TXT3	0.1
TXT4	0.2
TXT5	0.3
TXT6	0.4
TXT7	0.5
TXT8	0.6
TXT9	0.9
TXT10	1.3
TXT11	1.9
TXT12	2.5

VCI #105 & #10 are interchangeable, but VCI #105 is more readily available.

WHEN PLACING THE REDUCER INTO SERVICE

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

ENGINEERING/TECHNICAL



TORQUE-ARM Shaft Mount Speed Reducers TROUBLE-SHOOTING GUIDE FOR TORQUE-ARM REDUCERS

SYMPTOM	PROBABLE CAUSE	REMEDY
Excessive Noise and Vibration	Improper arm attachment.	Check instructions and correct. Tighten all fasteners properly.
	Low oil level.	Check level. Fill to proper oil capacity per instruction manual.
	Excessive premature gear wear due to improper size reducer.	Reselect reducer in catalog with proper service factor. Replace worn unit.
	Driven shaft undersized.	Replace shaft or remachine to properly fit next smaller bushing size. (Check shaft strength.)
	Driven shaft bent.	Check runout. Replace or straighten shaft.
	Worn gears and bearings.	Replace gears and bearings as necessary.
	Driven shaft not projecting through output bore or bushings.	Reposition reducer on shaft or replace shaft.
	Tapered reducer bushings improperly tightened.	Check instruction manual and tighten per recommended torque values.
	Improper connection to driver and driven equipment.	Check belt tension and V-belt sheave alignment. Check coupling alignment. Check all fasteners and setscrews; tighten properly. Inspect driven shaft key positioning.
	Worn or cracked V-belts.	Replace with new belts.
Overheating Reducers (Exceeds 195F Housing Temperature).	Driven equipment noise.	Check for source, reducer may amplify existing noise.
	Improper oil level	Check oil and fill to proper oil capacity per instruction manual. Too much oil causes heat due to churning and friction; too little starves components.
	Improper reducer size.	Reselect reducer in catalog. Decrease load or replace reducer with proper unit.
	Excessive V-belt tension.	Tension belts properly. Position sheaves as close to reducer as possible.
	Excessive reducer operating speed.	Check catalog recommendations. If necessary refer all application details to manufacturer.
	Located near high ambient heat source.	Shield reducer from heat source. Relocate reducer. Refer application details to manufacturer.
Oil Leakage	No cooling fan installed.	Check catalog recommendation. Install fan if required.
	Undetermined source of leak.	Clean reducer and dry all surfaces. Run for one hour and inspect for leak from seals, gaskets, covers and plugs.
	Plugged breather air passage.	Clean air passage. Remove air passage tape on new reducers.
	Loose drain, breather or pipe plugs.	Tighten securely. Check oil level.
	Excessive oil level.	Check level. Fill to proper oil capacity per instruction manual.
	Breather plug below oil.	Relocate breather to highest location. Check oil level.
Excessive Backlash	Premature seal wear due to hostile environment.	Replace seals. Install auxiliary seal kit.
	Worn gears.	Replace worn gears in sets.
	Loose bearings.	Check bearing wear, adjustment and replace.
	Worn shaft keys.	Replace worn keys. Check shaft keyways for wear.
	Driven equipment backlash.	Check equipment for backlash.

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TORQUE-ARM Shaft Mount Speed Reducers TROUBLE-SHOOTING GUIDE FOR TORQUE-ARM REDUCERS (CONT'D)

SYMPTOM	PROBABLE CAUSE	REMEDY
Excessive Lateral Movement	Worn and loose bearings	Replace bearings.
	Improper bearing adjustment.	Readjust bearing per instruction manual.
	Loose bearing carrier caps.	Check and tighten fasteners.
	Improper reducer mounting.	Check and tighten straight bore reducer set screws to recommended torque values. Check and tighten tapered reducer bearing fasteners to recommended torque values. See instruction manual.
Excessive Reducer Wobble	Reversing duty applications.	Refer application details to manufacturer.
	Driven shaft undersized.	Replace shaft or remachine to properly fit next smaller bushing size. (Check shaft strength.)
	Driven shaft bent.	Check runout. Replace or straighten shaft.
	Improper torque arm attachment.	Check instructions and correct. Tighten all fasteners promptly.
	Driven shaft not projecting through output bore or bushings.	Reposition reducer on shaft or replace shaft.
Reducer Shafts Will Not Rotate	Worn or loose driven shaft key.	Check for proper size and replace. Check shaft keyway size.
	Improper backstop installation.	Remove backstop and install properly. (Rotate end for end.)
	Driven equipment locked.	Check for rotation of driven equipment.
Premature Input Bearing Failure	Damaged gearing	Check gearing and replace. Inspect driven equipment and check for rotation.
	Excessive V-belt tension	Tension V-belts properly.
Premature Backstop Wear or Backstop Slips	Excessive overhung load.	Mount sheave as close to reducer as possible. Check minimum sheave requirement and replace if necessary.
	Improper oil level.	Check oil and fill to proper oil capacity per instruction manual.
	Excessive reducer operating speed.	Check catalog recommendations. If necessary, refer application details to manufacturer.
	Improper oil	Check oil. Avoid lubricants with EP additives, e.g., graphite. Check instruction manual for proper type.
Premature Backstop Wear or Backstop Slips	Backstop wear.	Check wear and replace. Inspect periodically.
	Excessive input shaft lateral movement.	Check for bearing, shaft, and housing wear. Replace components and readjust reducer per instruction manual.
	Excessive V-belt tension.	Tension V-belts properly.
	Excessive overhung load.	Mount sheave as close to reducer as possible. Check minimum sheave requirement and replace if necessary.
	Backstop key not installed	Install key or keys.
	Improper installation.	Check for proper direction of shaft rotation in backstop.
	Improper input bearing adjustment	Readjust bearings per instruction manual.
	Contaminated oil.	Flush reducer and replace oil.
	Excessive reducer operating speed.	Check catalog recommendations. Refer application details to manufacturer.

Consult DODGE for other applications.

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ENGINEERING/TECHNICAL



TORQUE-ARM Shaft Mount Speed Reducers REPLACEMENT INTERCHANGE TXT SERIES EQUIVALENTS

FOUR GENERATIONS OF DODGE TORQUE-ARM REDUCERS

AGMA CASE SIZE	RATIO										
	5:1		9:1		15:1				25:1		
-	#10	#10	-	-	-	TD015	-	-	TD025	-	-
107	#11	T11	TXT105	TXT109	#1	TD115	TDT115	TXT115	TD125	TDT125	TXT125
115	#12	T12	TXT205	TXT209	#2	TD215	TDT215	TXT215	TD225	TDT225	TXT225
203	#13	T13	TXT305	TXT309	#3	TD315	TDT315	TXT315	TD325	TDT325	TXT325
207	#14	T14	TXT405	TXT409	#4	TD415	TDT415	TXT415	TD425	TDT425	TXT425
215	#15	T15	TXT505	TXT509	#5	TD515	TDT515	TXT515	TD525	TDT525	TXT525
307	#16	T16	TXT605	TXT609	#6	TD615	TDT615	TXT615	TD625	TDT625	TXT625
315	#17	T17	TXT705	TXT709	#7	TD715	TDT715	TXT715	TD725	TDT725	TXT725
407	#18	T18	TXT805	-	#8	TD815	TDT815	TXT815	TD825	TDT825	TXT825
415	#19	T19	TXT905	-	#9	TD915	TDT915	TXT915	TD926	TDT926	TXT926
507	-	-	-	-	-	TD1015	TDT1015	TXT1015	TD1024	TDT1024	TXT1024
-	-	-	-	-	-	-	TDT1115	-	TD1125	TDT1125	-
608	-	-	-	-	-	-	TDT1215	TXT1215	TD1225	TDT1225	TXT1225
700	-	-	-	-	-	-	-	-	TD1325	TDT1325	TDT1325
800	-	-	-	-	-	-	-	-	TD1425	TDT1425	TDT1425
1000	-	-	-	-	-	-	-	-	-	TDT1530	TDT1530

Notes:

1. The "#" series and TD DODGE TORQUE-ARM reducers were manufactured with straight bore mountings only. The TDT and current TXT DODGE TORQUE-ARM reducers were/are manufactured with both straight bore and twin tapered bore bushings.
2. With the increased HP ratings of the TXT reducer, it may be possible to downsize to a smaller gearbox when replacing an old-style DODGE TORQUE-ARM reducer. Be sure to review the application.



TORQUE-ARM Shaft Mount Speed Reducers

BACKSTOP INTERCHANGE FOR ALL DODGE TORQUE-ARM REDUCERS

PART NUMBER	NEW TXT SERIES	OLD TXT SERIES	TDT SERIES	TD SERIES	NUMBER SERIES
241101			TDT 115 TDT 125	TD 115 TD 125	No.1
242101		TXT 105 TXT 109 TXT 115 TXT 125	T11 TDT 215 TDT 225	TD 215 TD 225	No. 2 No. 3 No. 11
243101			TDT 315 TDT 325	TD 315 TD 325	
243102		TXT 309 TXT 315 TXT 325			
243106	TXT 309A TXT 315A TXT 325A				
244092			TDT 415 TDT 425	TD 415 TD 425	
244101					No. 4 No. 5
244106	TXT 409A TXT 415A TXT 425A				
244148	TXT 405A	TXT 405 TXT 409 TXT 415 TXT 425			
245101			TDT 515 TDT 525	TD 515 TD 525	
245154	TXT 509B TXT 515B TXT 525B	TXT 509, TXT 509A TXT 515, TXT 515A TXT 525, TXT 525A			
246092		TXT 605 TXT 609 TXT 615 TXT 625	T16 TDT 615 TDT 625	TD 615, TD 615A TD 625, TD 625A	No. 16A

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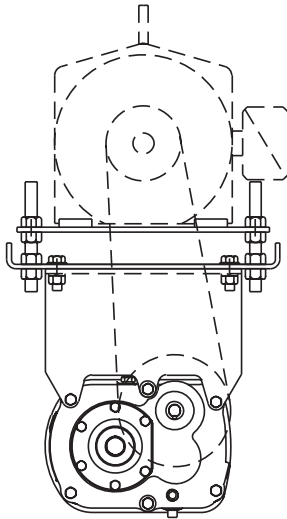
TORQUE-ARM Shaft Mount Speed Reducers

BACKSTOP INTERCHANGE FOR ALL DODGE TORQUE-ARM REDUCERS

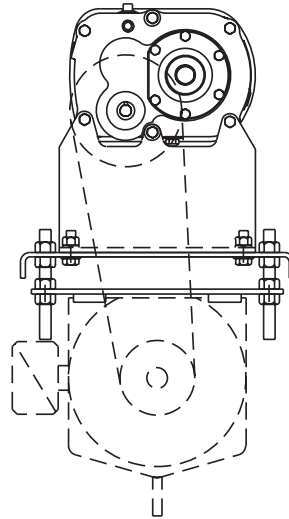
PART NUMBER	NEW TXT SERIES	OLD TXT SERIES	TDT SERIES	TD SERIES	NUMBER SERIES
246101	TXT 505A	TXT 505	T15		No. 6
247092	Use Part Number 247260				
247101					No. 7A
247260		TXT 705 TXT 709 TXT 715 TXT 725	T17 TDT 715 TDT 725	TD 715, TD 715A TD 725, TD 725A	No. 17A
248101	Use Part Number 249260				
249260		TXT 815 TXT 825 TXT 915 TXT 926	TDT 815 TDT 825 TDT 915 TDT 926 TDT 1115 TDT 1125	TD 815, TD 815A TD 825, TD 825A TD 915 TD 926 TD 1115 TD 1125	No. 8 No. 9 No. 18
250101	Use Part Number 250260				
250260		TXT 805 TXT 1015 TXT 1024 TXT 1215 TXT 1225	T18 TDT 1015 TDT 1024 TDT 1215 TDT 1225	TD 1015 TD 1024 TD 1215 TD 1225	
252101	TXT 305A	TXT 205 TXT 209 TXT 215 TXT 225 TXT 305	T12 T13		No. 13
254101			T14		No. 14
255101					No. 15
256101					No. 16
257101					No. 17
272259		TXT 905	TDT 1325, T19		
272293			TDT 1425 TDT 1530		



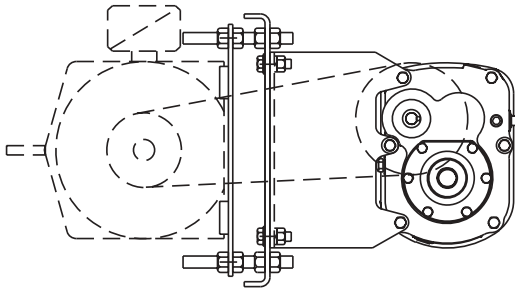
TORQUE-ARM Shaft Mount Speed Reducers SCREW CONVEYOR DRIVE MOUNTING POSITIONS BASED ON SCREW DIAMETER



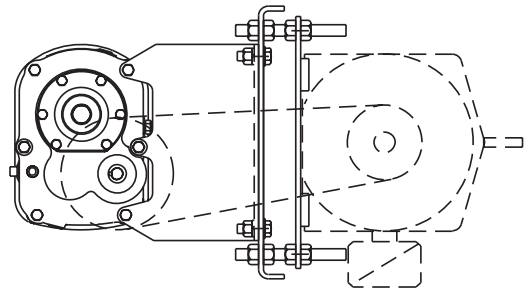
TOP POSITION



BOTTOM POSITION



LEFT SIDE POSITION



RIGHT SIDE POSITION

Reducer Size	Motor Mount No. ★	For Use on Troughs with Screw Diameters of:	
		Top, Right and Left Side Portions	Bottom Position
SCXT1	M112	6, 9, 12"	6, 9"
SCXT2	M214	6, 9, 12, 14"	6, 9, 12"
SCXT3A	M316	6, 9, 12, 14, 16"	6, 9, 12, 14"
SCXT4A, SCXT5B	"M418, M518"	9, 12, 14, 16, 18"	9, 12, 14, 16"
SCXT6, SCXT7	"M620, M720"	12, 14, 16, 18, 20"	12, 14, 16, 18"

★ Long Series Motor Mount to fit troughs with screws up thru 24, diameter are available from stock.

See pages G2-90 thru G2-119.

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