



2200 and 2300 Series Side Mount 90° Drive Package for Heavy Load Gearmotors

Installation, Maintenance & Parts Manual



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Introduction

IMPORTANT
<i>Some illustrations may show guards removed. DO NOT operate equipment without guards.</i>


Upon receipt of shipment:

- Compare shipment with packing slip. Contact factory regarding discrepancies.
- Inspect packages for shipping damage. Contact carrier regarding damage.
- Accessories may be shipped loose. See accessory instructions for installation.

Dorner's Limited Warranty applies.

Dorner 2200 & 2300 series conveyors are covered by Patent Numbers 5,174,435, 6,298,981, 6,422,382 and corresponding patents and patent applications in other countries.

Dorner reserves the right to make changes at any time without notice or obligation.

Dorner has convenient, pre-configured kits of Key Service Parts for all conveyor products. These time saving kits are easy to order, designed for fast installation, and guarantee you will have what you need when you need it. Key Parts and Kits are marked in the Service Parts section of this manual with the Performance Parts Kits  logo.

Warnings - General Safety

WARNING

The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.

DANGER



Climbing, sitting, walking or riding on conveyor will cause severe injury.
KEEP OFF CONVEYORS.

DANGER



DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.

WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

WARNING



Gearmotors may be **HOT**.
DO NOT TOUCH Gearmotors.

WARNING



Exposed moving parts can cause severe injury.
REPLACE ALL GUARDS BEFORE RUNNING CONVEYOR.

WARNING



Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.
When conveyors are used in conjunction with other equipment or as part of a multiple conveyor system, **CHECK FOR POTENTIAL PINCH POINTS** and other mechanical hazards before system start-up.

Product Description

Refer to **Figure 1** for typical conveyor components.

- | | |
|----|--|
| 1 | Conveyor |
| 2 | Gearmotor Mounting Package |
| 3 | Gearmotor Assembly |
| 4 | Spider Web Bushing |
| 5 | Shaft Coupling Half, Three Jaw |
| 6 | Coupling Half, Three Jaw |
| 7 | Key, Coupling |
| 8 | Drive Plate and Short Drive Guard Assembly |
| 9 | Drive Plate Screws |
| 10 | Cover |
| 11 | Screws, Cover |
| 12 | Pin, Quick Release |

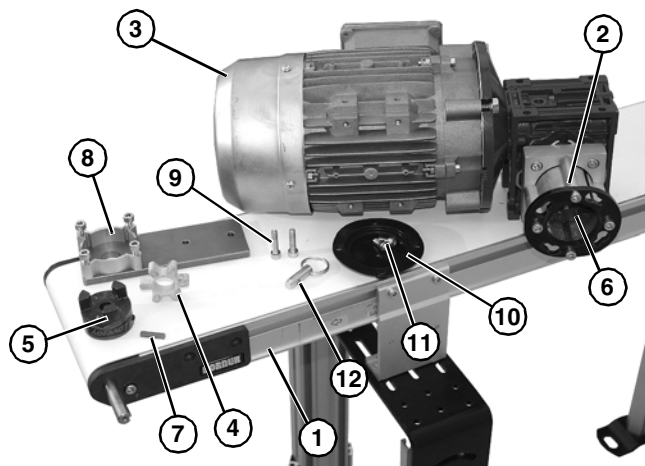


Figure 1

Specifications

Gearmotor Mounting Package Models:

Example:

22 M S E H A

- Mount Position = A or D
(see detail to the right)
- Gearmotor Type: H = Heavy Load
- Output Shaft Type = 90° Industrial
- Mount Style = Side Mount
- Language Code: M = U.S. English
U = CE English



Table 1: 60 Hz Gearmotor Specifications

	Heavy Load Gearmotor			
	Single- Phase	Three Phase	VFD Variable Speed	DC Variable Speed
Output Power	0.5 hp (0.37 kw)			
Input Voltage	115VAC	208 – 230/460 VAC	230 VAC	90VDC
Input Frequency	60Hz		10 – 60Hz	N/A
Input Current (Amperes)	7.4	2.1 – 2/1	1.6	5.0
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1			
Frame Size	NEMA 56C			
Motor Type	Totally enclosed, Fan cooled			

Table 2: Belt Speeds for Fixed Speed 90° 60 Hz Gearmotors

Part Number	Heavy Load Gearmotors			Belt Speed	
	RPM	In-lb	N-m	Ft/min	M/min
32M060HS4(vp)F(n)	29	226	25.5	10	3.0
32M040HS4(vp)F(n)	43	247	27.9	15	4.6
32M020HS4(vp)F(n)	86	248	27.9	30	9.1
32M010HS4(vp)F(n)	173	156	17.6	61	18.6
32M005HS4(vp)F(n)	345	81	9.1	121	36.9

(vp) = voltage and phase

(n) = Reversing Capability

11 = 115 V, 1-phase

23 = 208 – 230/460 V, 3-phase

Table 3: Belt Speeds for Variable Speed 90° 60 Hz Gearmotors

Part Number	Heavy Load Gearmotors			Belt Speed	
	RPM	In-lb	N-m	Ft/min	M/min
32M060HSD9DEN	42	198	22.4	1.8 - 15.0	0.5 - 4.5
32M040HSD9DEN	63	215	24.3	2.6 - 22.0	0.8 - 6.7
32M020HSD9DEN	125	196	22.1	5.3 - 44.0	1.6 - 13.0
32M010HSD9DEN	250	108	12.2	10.0 - 88.0	3.2 - 27.0
32M005HSD9DEN	500	56	6.3	20.0 - 172	6.4 - 54.0

Table 4: Belt Speeds for Fixed Speed 90° 60 Hz VFD Gearmotors

Part Number	Heavy Load Gearmotors			Belt Speed	
	RPM	In-lb	N-m	Ft/min	M/min
32M060ES423EN	29	226	25.5	1.2 - 10.0	0.4 - 3.1
32M040ES423EN	43	247	27.9	1.8 - 15.0	0.6 - 4.6
32M020ES423EN	86	248	27.9	3.6 - 30.0	1.1 - 9.2
32M010ES423EN	173	156	17.6	7.0 - 61.0	2.2 - 18.0
32M005ES423EN	345	81	9.1	14.0 - 121.0	4.4 - 37.0

NOTE

For belt speed other than those listed, contact factory for details.

Installation

Required Tools

- Hex key wrenches:
2 mm, 2.5 mm, 3 mm, 5 mm
- Torque wrench

Mounting

⚠ WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

Installation Component List:

- | | |
|----|--------------------------------|
| 1 | Conveyor |
| 2 | Gearmotor Mounting Package |
| 3 | Gearmotor Assembly |
| 4 | Spider Web Bushing |
| 5 | Shaft Coupling Half, Three Jaw |
| 6 | Coupling Half, Three Jaw |
| 7 | Key, Coupling |
| 8 | Mounting Plate, Coupling |
| 9 | Mounting Plate Screws |
| 10 | Cover |
| 11 | Screws, Cover |
| 12 | Pin, Quick Release |

1. Typical components (Figure 2).

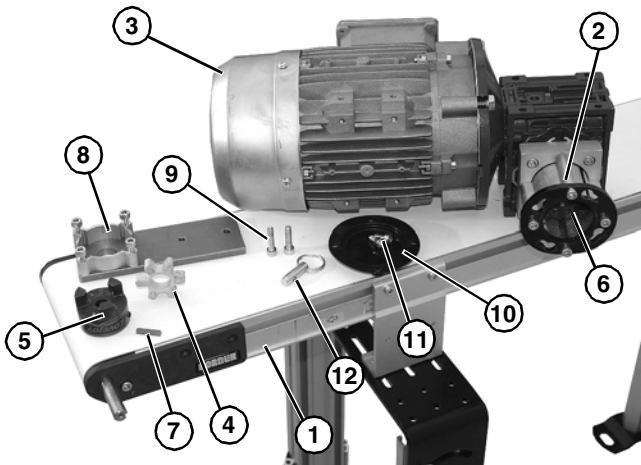


Figure 2

2. Remove two M6x25 socket head screws (Figure 3, item 1).

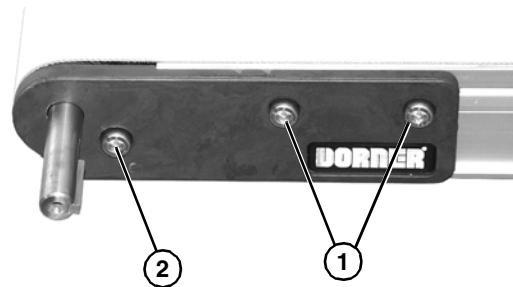


Figure 3

3. Install M6x8 socket head screw (Figure 3, item 2) and washer.
4. Install coupling mounting plate (Figure 4, item 1) with two M6x25 socket head screws (Figure 4, item 2). Tighten screws to 60 in-lb (7 Nm).

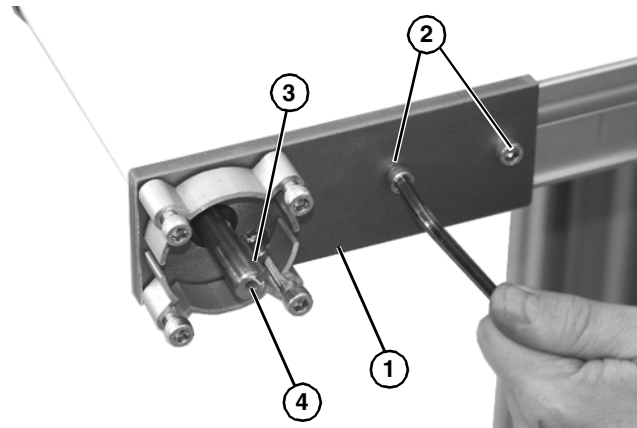


Figure 4

5. Making sure key (Figure 4, item 3) is installed in slot in gear reducer output shaft assembly (Figure 4, item 4).
6. Install three jaw coupling (Figure 5, item 1) onto shaft (Figure 5, item 2).

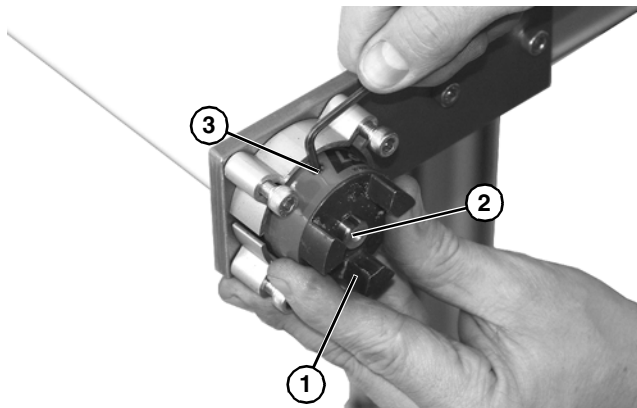


Figure 5

7. Be certain three jaw coupling is fully on shaft and secure position with set screw (Figure 5, item 3).

NOTE

Gearmotor may be operated in positions 1, 3 or 4 (Figure 6).

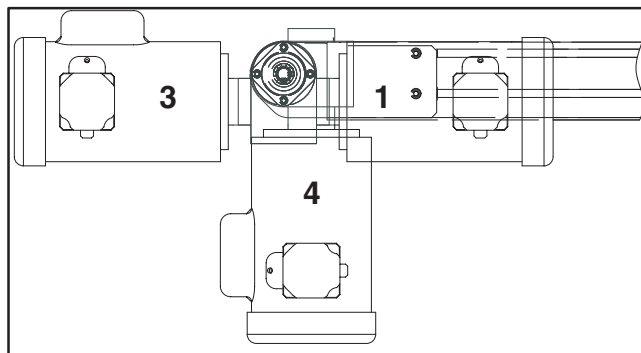


Figure 6

8. Install spider bushing (**Figure 7, item 1**) in mating female portion of three jaw coupling on gearmotor assembly (**Figure 7, item 2**).

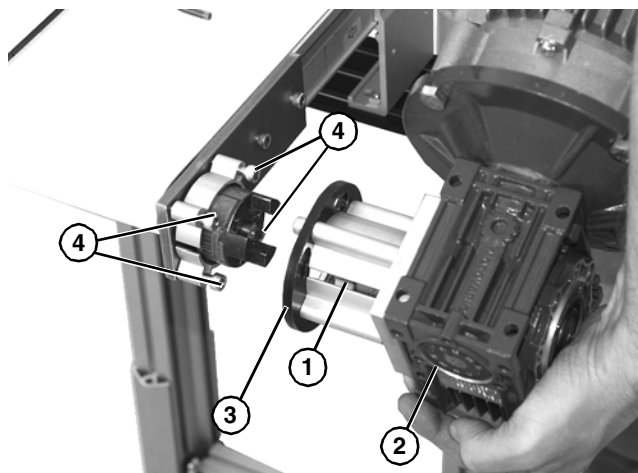


Figure 7

9. Slide and pivot gearmotor and gearmotor mounting ring (**Figure 7, item 3**) onto four M6x30 mounting screws (**Figure 7, item 4**) (through slots in gearmotor bracket).
10. Tighten four M6x30 mounting screws (**Figure 8, item 1**) to 60 in-lb (7 Nm).

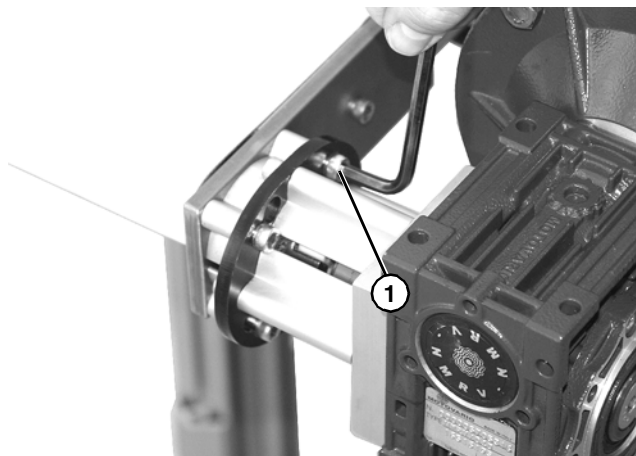


Figure 8

11. Install quick release pin (**Figure 9, item 1**).

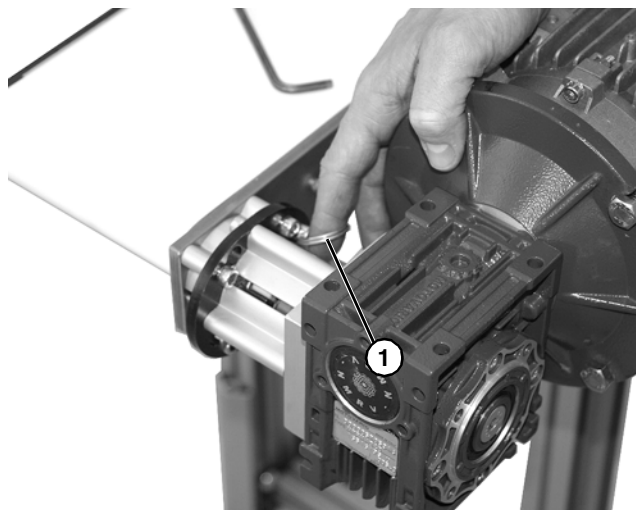


Figure 9

12. Install cover (**Figure 10, item 1**) and two M6x12 socket head screws (**Figure 10, item 2**). Tighten screws to 60 in-lb (7 Nm).

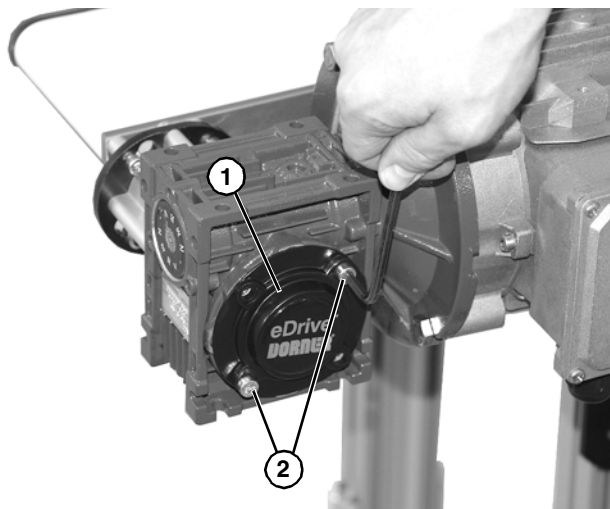


Figure 10

Preventive Maintenance and Adjustment

Required Tools

- Hex-key wrenches:
2 mm, 2.5 mm, 3 mm, 5 mm
- Adjustable wrench (for hexagon head screws)
- Straight edge
- Torque wrench

Gear Reducer Replacement

⚠ WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

⚠ WARNING

Gearmotor can rotate and fall off, causing injury.
Support the gearmotor prior to removal.

1. Remove quick release pin (Figure 11, item 1).

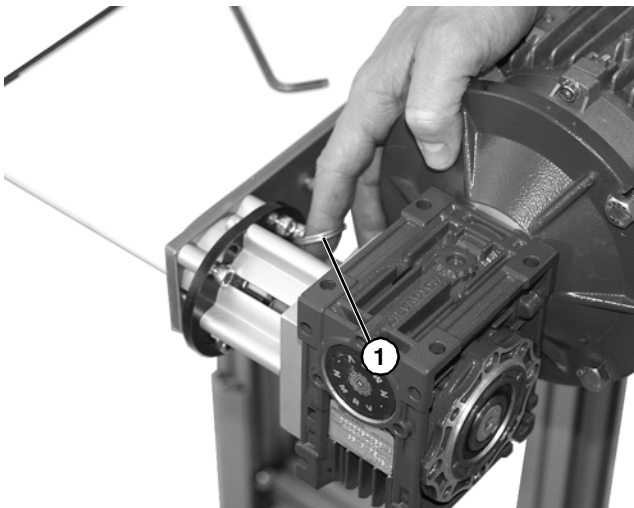


Figure 11

2. Loosen four M6x30 mounting screws (Figure 12, item 1).

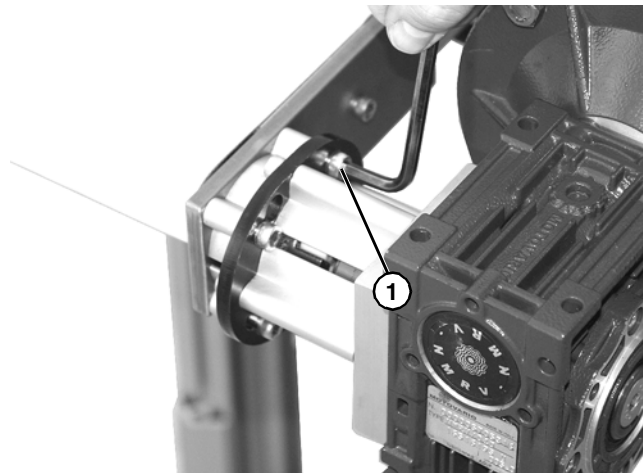


Figure 12

3. Rotate and remove gearmotor and gearmotor mounting ring (Figure 13, item 1) from four M6x30 mounting screws (Figure 13, item 2) (through slots in gearmotor bracket) and remove entire gearmotor assembly from conveyor.

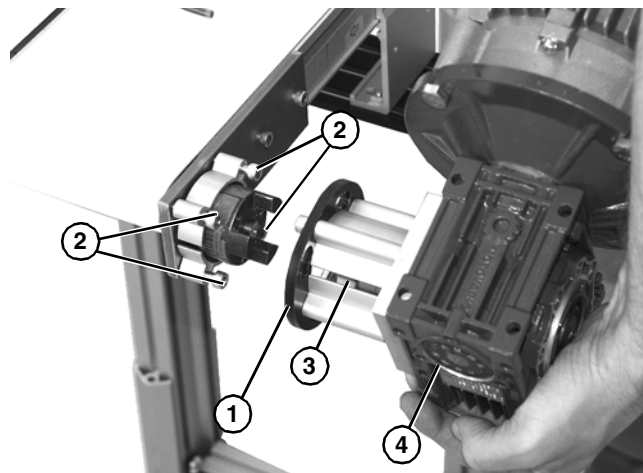


Figure 13

4. Remove spider bushing (Figure 13, item 3) from mating female portion of three jaw coupling on gearmotor assembly (Figure 13, item 4).

Preventive Maintenance and Adjustment

5. Remove four M6x20 socket head screws (**Figure 14, item 1**) and remove spacer plate (**Figure 14, item 2**) assembly from gearmotor (**Figure 14, item 3**).

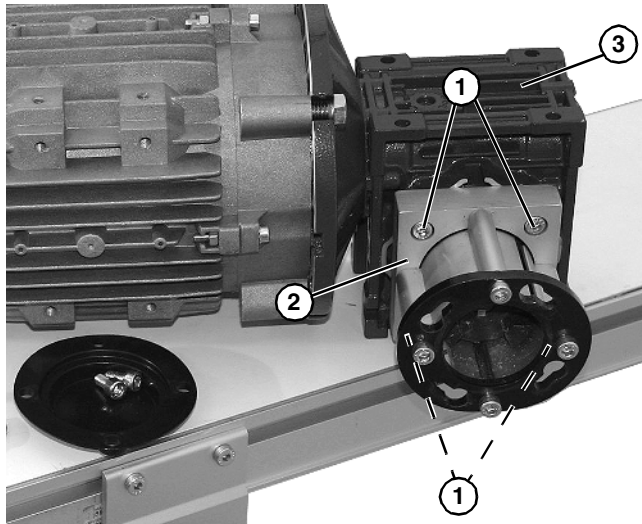


Figure 14

6. Remove four screws (**Figure 15, item 1**). Detach motor (**Figure 15, item 2**) from gear reducer (**Figure 15, item 3**), making note of position of switch (**Figure 15, item 4**) for reassembly. Retain motor output shaft key (**Figure 15, item 5**).

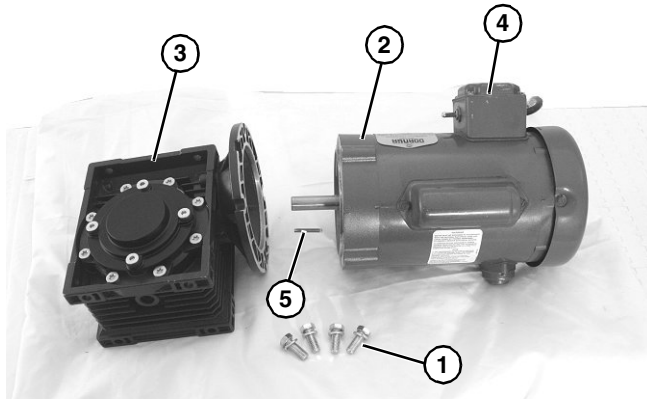


Figure 15

7. Inspect gear reducer output shaft assembly for wear or damage. If necessary, loosen set screw (**Figure 16, item 1**) and remove 3 jaw coupling (**Figure 16, item 2**) from gear reducer output shaft (**Figure 16, item 3**).

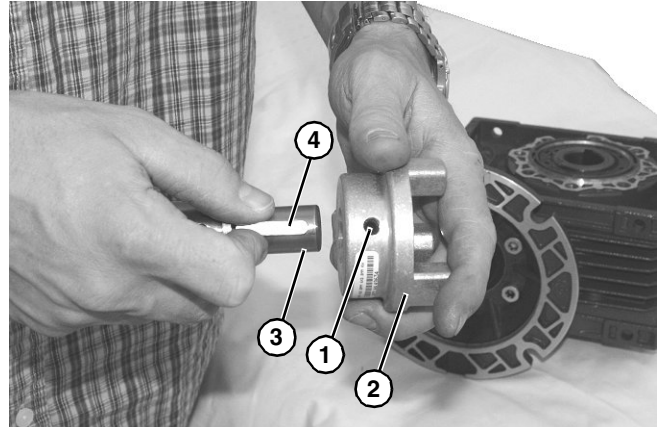


Figure 16

8. Loosen set screw (**Figure 17, item 1**), and remove three jaw coupling (**Figure 17, item 2**) from shaft (**Figure 17, item 3**).

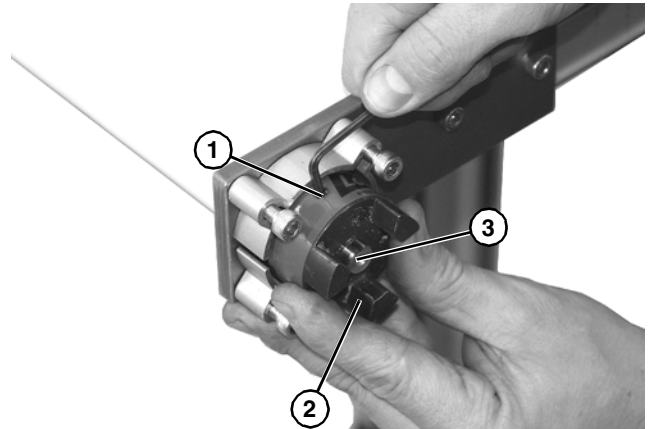


Figure 17

9. Remove key from in slot in gear reducer output shaft assembly (**Figure 16, item 4**). Install new components for shaft reverse of removal. Tighten set screw (**Figure 16, item 1**) to 35 in-lb (4 Nm).

IMPORTANT

Be extremely careful when coupling motor to gear reducer. Avoid misalignment and forcing the connection causing possible permanent gear reducer seal damage.

10. With key (**Figure 15, item 5**) in keyway, slide motor (**Figure 15, item 2**) and gear reducer (**Figure 15, item 3**) together, noting where position of switch (**Figure 15, item 4**) will be during installation on conveyor.
11. Install screws (**Figure 15, item 1**) and tighten to 60 in-lb (7 Nm).
12. Complete steps 7 through 12 of “Mounting” on page 6.

Preventive Maintenance and Adjustment

Motor Replacement

⚠ WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

⚠ DANGER



Hazardous voltage will cause severe injury or death.

LOCK OUT POWER BEFORE WIRING.

1. For single phase motor, unplug power cord from outlet.
2. For three phase and VFD variable speed motor:
 - a. Loosen terminal box screws (**Figure 18, item 1**) and remove cover (**Figure 18, item 2**).

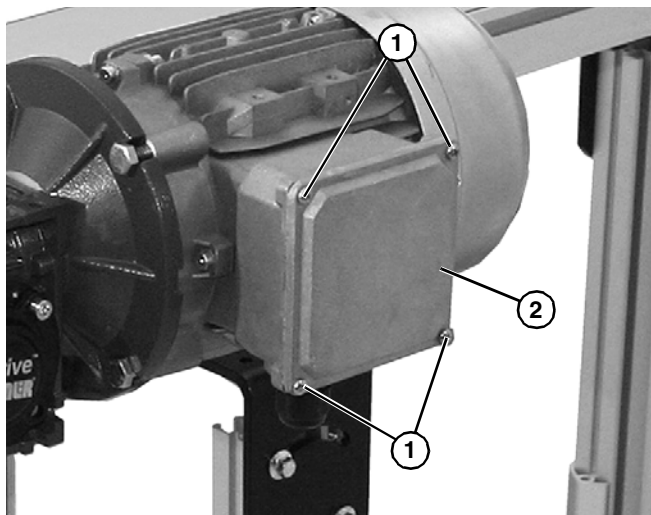


Figure 18

- b. Record wire colors on terminals 1, 2 and 3. Loosen wire nuts and remove wires 1, 2 and 3.
 - c. Loosen cord grip and remove cord.

3. For DC variable speed motor, unplug motor cord at disconnect (**Figure 19, item 1**).

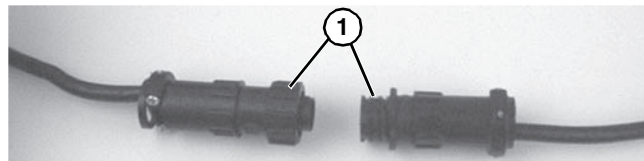


Figure 19

4. Remove four (4) screws (**Figure 20, item 1**). Detach motor (**Figure 20, item 2**) from gear reducer (**Figure 20, item 3**). Retain motor output shaft key (**Figure 20, item 4**).

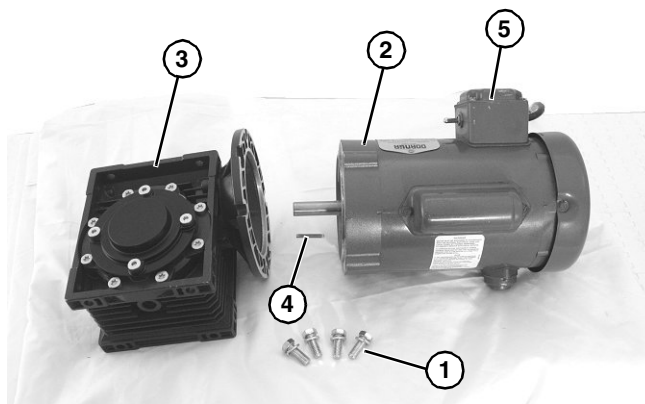


Figure 20


IMPORTANT

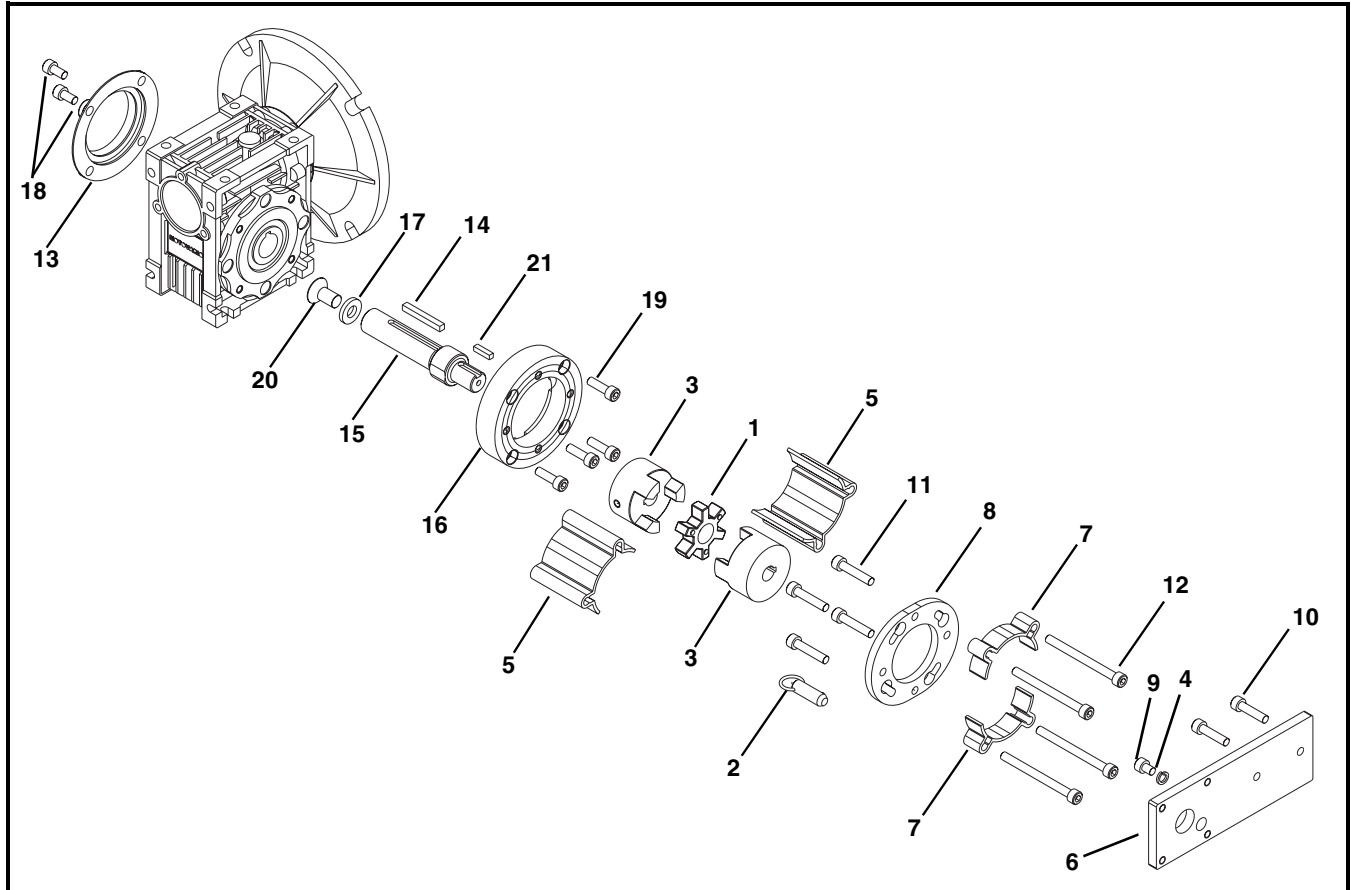
Be extremely careful when coupling motor to gear reducer. Avoid misalignment and forcing the connection causing possible permanent gear reducer seal damage.

5. With key (**Figure 20, item 4**) in keyway, slide motor (**Figure 20, item 2**) and gear reducer (**Figure 20, item 3**) together, noting where position of switch (**Figure 20, item 5**) will be during installation on conveyor.
6. Install screws (**Figure 20, item 1**) and tighten to 60 in-lb (7 Nm).
7. Replace wiring:
 - For a single phase motor, reverse step 1.
 - For a three phase or VFD variable speed motor, reverse step 2.
 - For a DC variable speed motor, reverse step 3.

Side Mount Drive Package for Heavy Load 90° Gearmotors

NOTE

For replacement parts other than those shown in this section, contact an authorized Dorner Service Center or the factory. Key Service Parts and Kits are identified by the Performance Parts Kits logo . Dorner recommends keeping these parts on hand.

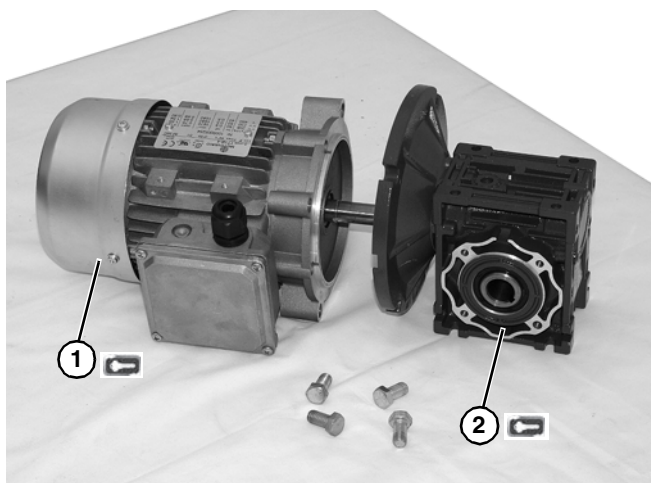


Item	Part Number	Description
1	807-1143	3-Jaw Spider
2	807-1169	Quick Release Pin
3	807-1566	3 Jaw Coupling (x2)
4	807-2092	Lock Washer
5	202359	Long Side Drive Guard (x2)
6	202454	Drive Plate
7	301092	Short Side Drive Guard (x2)
8	301094	Mounting Ring
9	920608M	Socket Head Screw, M6-1.00 x 8 mm
10	920625M	Socket Head Screw, M6-1.00 x 25 mm
11	920630M	Socket Head Screw, M6-1.00 x 30 mm
12	920670M	Socket Head Screw, M6-1.00 x 70 mm
13	807-2059	Cover (for 42CZ C Face Gearmotors)
	807-2016	Cover (for 56 C Face Gearmotors)
14	912-084	Square Key, 0.188 x 1.50
15	202273	Output Shaft (for 42CZ C Face Gearmotors)
	350120	Output Shaft (for 56 C Face Gearmotors)

Item	Part Number	Description
16	400026	Spacer Ring (for 42CZ C Face Gearmotors)
	350115	Adapter Ring (for 56 C Face Gearmotors)
17	605280P	Washer (for 42CZ C Face Gearmotors)
18	920612M	Socket Head Screw, M6-1.00 x 12 mm
19	920620M	Socket Head Screw, M6-1.00 x 20 mm (for 56 C Face Gearmotors)
20	920893M	Low Head Cap Screw, M8-1.25 x 16 mm (for 42CZ C Face Gearmotors)
	931020M	Flat Head Screw, M10-0.50 x 20 mm (for 56 C Face Gearmotors)
21	980416M	Square Key, 4 mm x 16 mm

Service Parts

Heavy Load 90° Gearmotors



Item	Part Number	Description
1	62MES411FN	Motor, 0.25HP, (0.19 Kw), 115/230 Volts, 60 Hz, 1-Phase
	62MES423FN	Motor, 0.25HP, (0.19 Kw), 208-230/460 Volts, 60 Hz, 3-Phase
	62MSD3DEN	Motor, 0.25HP, (0.19 Kw), 130 VDC
	62MEH423FN	Motor, 0.50HP, (0.37 Kw), 115/230 Volts, 60 Hz, 1-Phase
	32MEH423FN	Motor, 0.50HP, (0.37 Kw), 208-230/460 Volts, 60 Hz, 3-Phase
	62MHD9DEN	Motor, 0.50HP, (0.37 Kw), 90 VDC
	32MES423EN	Motor, 0.50HP, (0.37 Kw), 230 Volts, 3-Phase Inverter Duty
2	32M005EL	Gear Reducer, 5:1, NEMA 42 CZ
	32M010EL	Gear Reducer, 10:1, NEMA 42 CZ
	32M020EL	Gear Reducer, 20:1, NEMA 42 CZ
	32M040EL	Gear Reducer, 40:1, NEMA 42 CZ
	32M060EL	Gear Reducer, 60:1, NEMA 42 CZ
	32M005ES	Gear Reducer, 5:1, 56C
	32M010ES	Gear Reducer, 10:1, 56C
	32M020ES	Gear Reducer, 20:1, 56C
	32M040ES	Gear Reducer, 40:1, 56C
	32M060ES	Gear Reducer, 60:1, 56C

Return Policy

Returns must have prior written factory authorization or they will not be accepted. Items that are returned to Dorner without authorization will not be credited nor returned to the original sender. When calling for authorization, please have the following information ready for the Dorner factory representative or your local distributor:

1. Name and address of customer.
2. Dorner part number(s) of item(s) being returned.
3. Reason for return.
4. Customer's original order number used when ordering the item(s).
5. Dorner or distributor invoice number (if available, part serial number).

A representative will discuss action to be taken on the returned items and provide a Returned Goods Authorization (RMA) number for reference. RMA will automatically close 30 days after being issued. To get credit, items must be new and undamaged. There will be a return charge on all items returned for credit, where Dorner was not at fault. It is the customer's responsibility to prevent damage during return shipping. Damaged or modified items will not be accepted. The customer is responsible for return freight.

Conveyors and conveyor accessories

Standard catalog conveyors	30%
MPB, 7200, 7300 Series, cleated and specialty belt	50%
AquaGard & AquaPruf Series conveyors	non-returnable items
Engineered to order products	case by case
Drives and accessories	30%
Sanitary stand supports	non-returnable items

Parts

Standard stock parts	30%
Plastic chain, cleated and specialty belts	non-returnable items

Returns will not be accepted after 60 days from original invoice date. The return charge covers inspection, cleaning, disassembly, disposal and reissuing of components to inventory. If a replacement is needed prior to evaluation of returned item, a purchase order must be issued. Credit (if any) is issued only after return and evaluation is complete.

Dorner has representatives throughout the world. Contact Dorner for the name of your local representative. Our Customer Service Team will gladly help with your questions on Dorner products.

For a copy of Dorner's Warranty, contact factory, distributor, service center or visit our website at www.dorner.com.

For replacement parts, contact an authorized Dorner Service Center or the factory.



Dorner Mfg. Corp. reserves the right to change or discontinue products without notice. All products and services are covered in accordance with our standard warranty. All rights reserved. © Dorner Mfg. Corp. 2012

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