3200 & 5200 Series Bottom Mount 90° Drive Package for Light & Standard Load 50 Hz Gearmotors

Installation, Maintenance & Parts Manual

DORNER MFG. CORP.
P.O. Box 20 • 975 Cottonwood Ave.
Hartland, WI 53029-0020 USA

INSIDE THE USA
TEL: 1-800-397-8664
FAX: 1-800-369-2440

OUTSIDE THE USA
TEL: 262-367-7600
FAX: 262-367-5827

For other service manuals visit our website at:
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Introduction

IMPORTANT

Some illustrations may show guards removed. DO NOT operate equipment without guards.

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 3200 Series conveyors are covered by patent numbers 5156260, 5156261, 5203447, 5265714, 6871737, 6910571, 6971509, and patent applications in other countries.

Dorner LPZ Series conveyors are covered by patent numbers 5156260, 5156261, 5203447, 5265714, 5875883 and patent applications in other countries.

Dorner 5200 Series conveyors have patents pending.

Dorner's Limited Warranty applies.

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 components.

1	Conveyor
2	Cover
3	Driven Pulley
4	Timing Belt
5	Drive Pulley
6	Gearmotor
7	Timing Belt Tensioner
8	Mounting Bracket

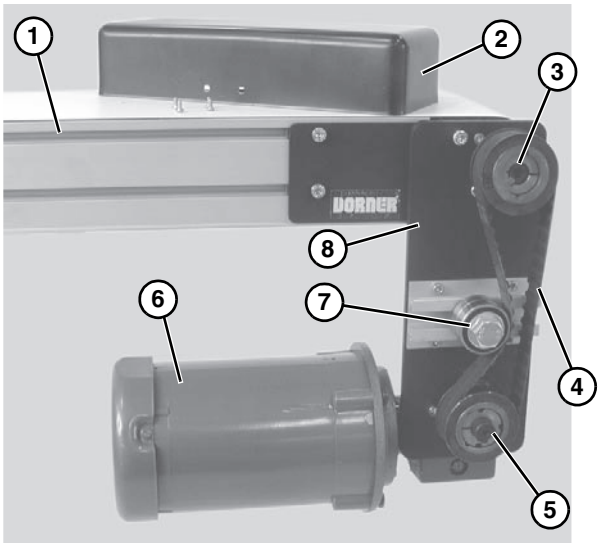
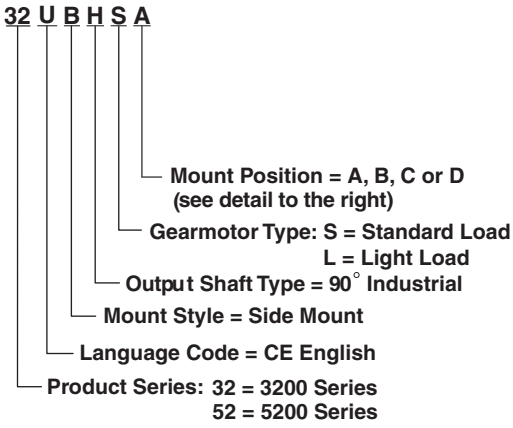


Figure 1

Specifications

Gearmotor Mounting Package Models:

Example:



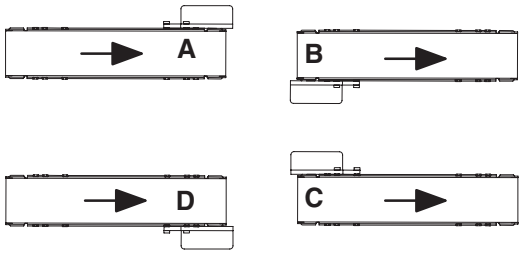


Table 1: Gearmotor Specifications

Item	Light Load Gearmotor			Standard Load Gearmotor		
	Single Phase	Three Phase	VFD Variable Speed	Single Phase	Three Phase	VFD Variable Speed
Output Power	0.18 kW			0.37 kW		
Input Voltage	230 VAC	230/400 VAC	230 VDC	230 VAC	230/400 VAC	230 VAC
Input Frequency	50 Hz		25 to 63 Hz	50 Hz		25 to 63 Hz
Input Current	1.6 Amperes	1.4/0.8 Amperes	1.4 Amperes	2.6 Amperes	2.1/1.2 Amperes	2.1 Amperes
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1			5:1, 10:1, 20:1, 40:1, 60:1		
Protection Rating	IP55			IP55		
Frame Size	IEC 63 B5			IEC 71 B5		

Table 2: Belt Speeds for Fixed Speed 90° 50 Hz Gearmotors

Light Load Gearmotors			Standard Load Gearmotors			Belt Speed M/min
Part Number	RPM	N-m	Part Number	RPM	N-m	
62Z060HS4(vp)FN	23	26.4	32Z060HS4(vp)FN	23	26.8	5.8
62Z040HS4(vp)FN	35	28.9	32Z040HS4(vp)FN	35	29.4	8.5
62Z020HS4(vp)FN	70	19.4	32Z020HS4(vp)FN	70	29.9	17.1
62Z010HS4(vp)FN	140	10.7	32Z010HS4(vp)FN	140	21.5	33.8
62Z005HS4(vp)FN	280	5.6	32Z005HS4(vp)FN	280	11.2	68.0

(vp) = voltage and phase

23 = 230 V, 3-phase

21 = 230 V, 1-phase

43 = 400 V, 3-phase

Table 3: Belt Speeds for Variable Speed 90° 50 Hz Gearmotors

Light Load Gearmotors			Standard Load Gearmotors			Belt Speed M/min
Part Number	RPM	N-m	Part Number	RPM	N-m	
62Z060HS423EN	23	26.4	32Z060HS423EN	23	26.8	2.8 - 7.1
62Z040HS423EN	35	28.9	32Z040HS423EN	35	29.4	4.2 - 11
62Z020HS423EN	70	19.4	32Z020HS423EN	70	29.9	8.5 - 21
62Z010HS423EN	140	10.7	32Z010HS423EN	140	21.5	17 - 43
62Z005HS423EN	280	5.6	32Z005HS423EN	280	11.2	34 - 86

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
- Straight edge
- Torque wrench

Mounting

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

⚠ WARNING

For Cleated Belt Conveyors, Gearmotors must be mounted as shown in Figure 2.

Failure to do so creates pinch points which can cause severe injury.

NOTE

*Gearmotor position on Flat Belt conveyor shown below left, **Figure 2**. Gearmotor position on Cleated Belt conveyor shown below right, **Figure 2**.*

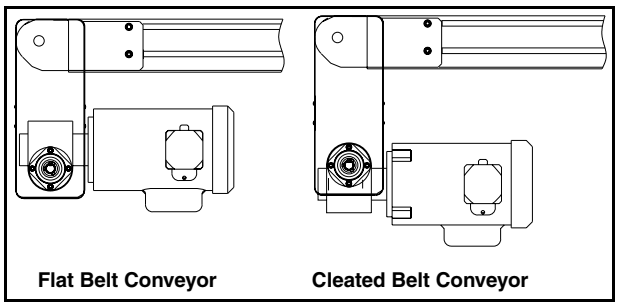


Figure 2

Installation Component List:

1	Bottom Mount Assembly
2	Drive Pulley
3	Cover
4	M4 Socket Head Screws (4x)
5	Driven Pulley
6	Key
7	M6 Socket Head Screws (4x)
8	M8 Socket Head Screws (2x)
9	Timing Belt

1. Typical components (Figure 3).

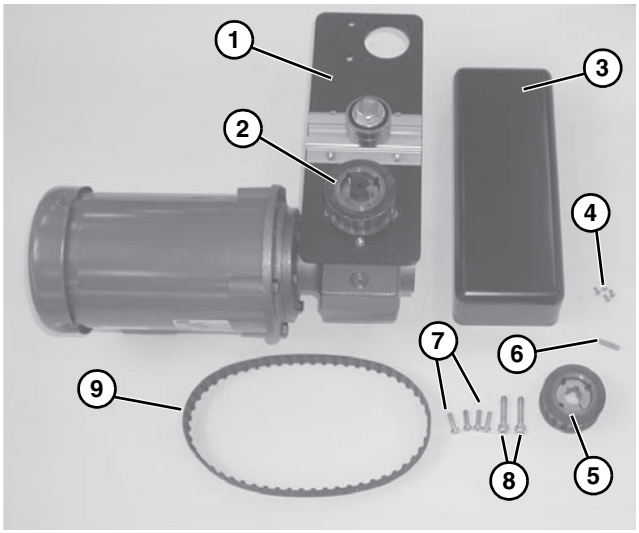


Figure 3

NOTE

Cleated belt mounting package shown, flat belt mounting package similar.

NOTE

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

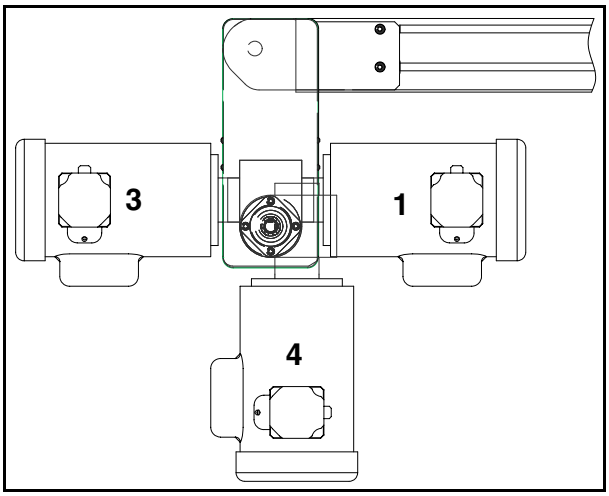


Figure 4

2. If required, change gearmotor position by removing four (4) screws **(Figure 5, item 1)**. Rotate gearmotor to other position and replace screws **(Figure 5, item 1)**. Tighten to 110 in-lb (12 Nm).

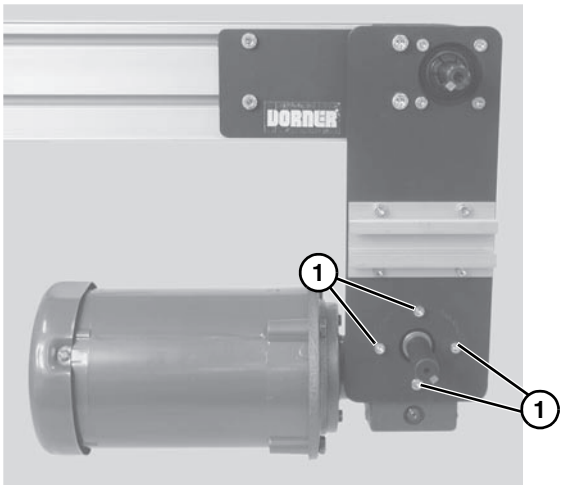


Figure 5

3. Locate drive output shaft **(Figure 6, item 1)**. Remove two (2) M8 screws **(Figure 6, item 2)** and four (4) M6 screws **(Figure 6, item 3)** and discard.

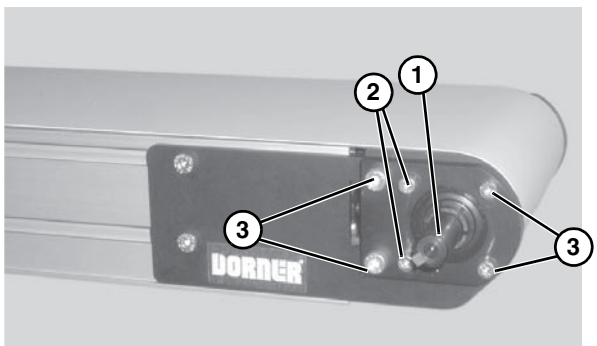


Figure 6

4. Attach mount assembly **(Figure 7, item 1)** with two (2) M8 screws **(Figure 7, item 2)** and four (4) M6 screws **(Figure 7, item 3)**. Tighten M6 screws to 146 in–lbs (16.5 N–m) and M8 screws to 288 in–lbs (32.5 N–m).

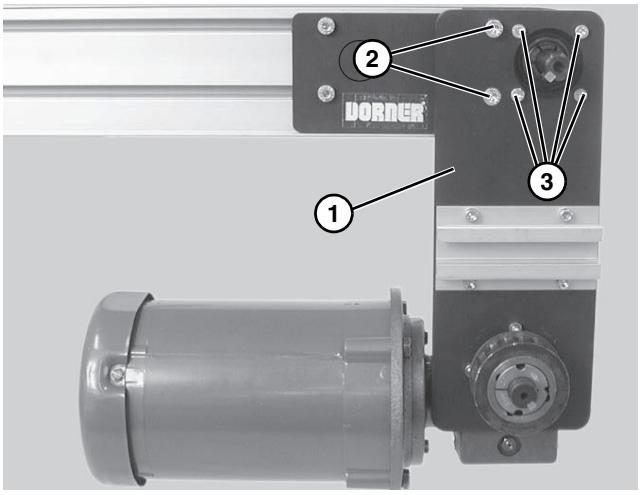


Figure 7

⚠ WARNING

Drive shaft keyway may be sharp.
HANDLE WITH CARE.

5. Install key **(Figure 8, item 1)**.

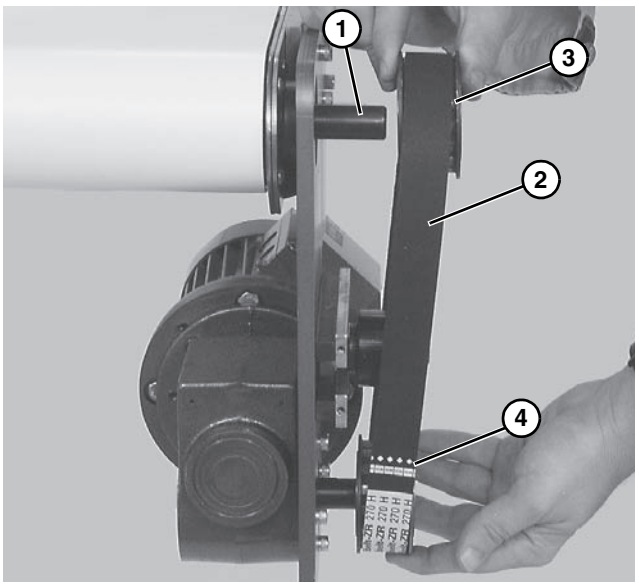


Figure 8

6. Wrap timing belt **(Figure 8, item 2)** around driven pulley **(Figure 8, item 3)** and drive pulley **(Figure 8, item 4)**. Install driven pulley onto conveyor shaft.

7. Using a straight edge **(Figure 9, item 1)**, align driven pulley **(Figure 9, item 1)** with drive pulley **(Figure 9, item 1)**.

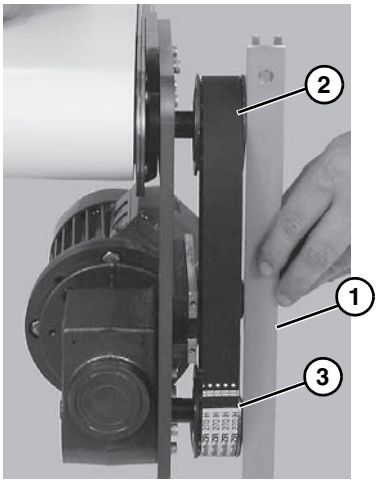


Figure 9

8. Tighten driven pulley taper-lock screws **(Figure 10, item 1)**.

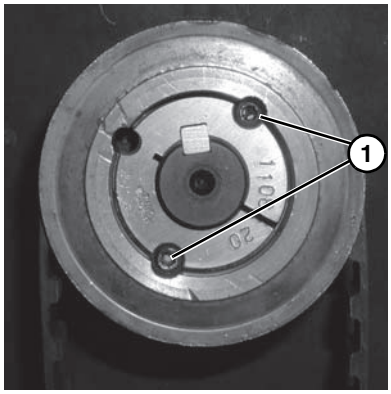


Figure 10

9. Depending on conveyor belt travel (direction A or B), locate timing belt tensioner **(Figure 11, item 1)** as shown. Tension timing belt to obtain 1/8" (3 mm) deflection for 6 lb (3 Kg) of force at timing belt mid-point **(Figure 11, item 2)**. Tighten tensioner screw to 110 in-lb (12 Nm).

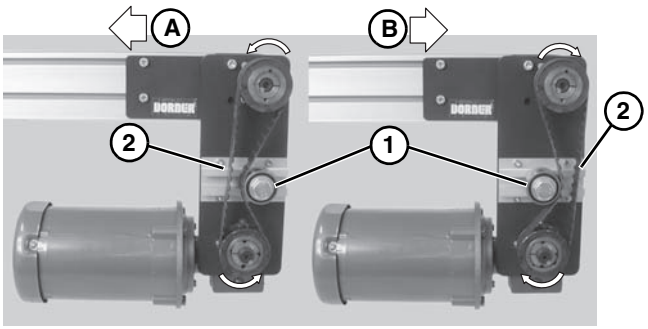


Figure 11

10. Install cover **(Figure 12, item 1)** with four (4) screws **(Figure 12, item 2)**. Tighten screws to 35 in-lb (4 Nm).

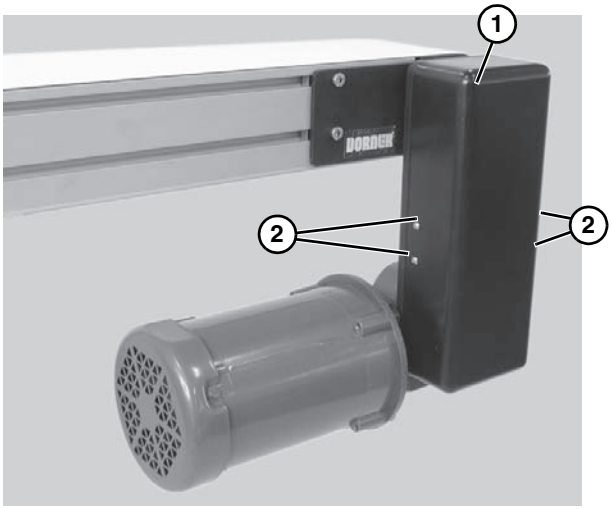


Figure 12

Required Tools

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

Timing Belt Tensioning

⚠ WARNING

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

1. Remove four (4) screws **(Figure 12, item 2)** and remove cover **(Figure 12, item 1)**.
2. Loosen tensioner **(Figure 13, item 1)**.

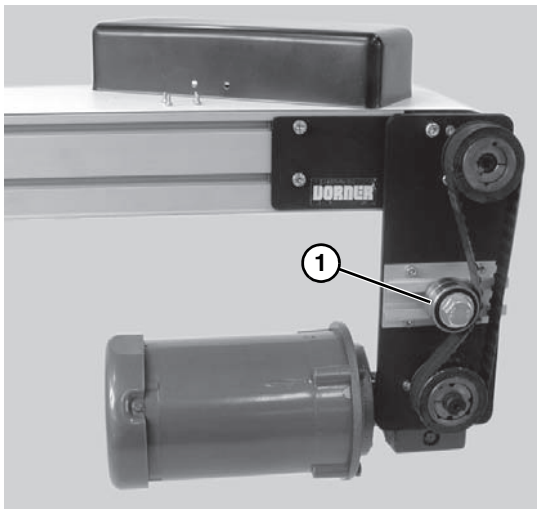


Figure 13

3. Depending on conveyor belt travel (direction A or B), locate timing belt tensioner **(Figure 11, item 1)** as shown. Tension timing belt to obtain 1/8" (3 mm) deflection for 6 lb (3 Kg) of force at timing belt mid-point **(Figure 11, item 2)**. Tighten tensioner screw to 110 in-lb (12 Nm).
4. Install cover **(Figure 12, item 1)** with four (4) screws **(Figure 12, item 2)**. Tighten screws to 35 in-lb (4 Nm).

Timing Belt Replacement

⚠ WARNING

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

1. Remove four (4) screws **(Figure 12, item 2)** and remove cover **(Figure 12, item 1)**.
2. Loosen tensioner **(Figure 13, item 1)**.
3. Remove timing belt **(Figure 14, item 1)**.

NOTE

*If timing belt does not slide over pulley flange, loosen driven pulley taper-lock screws **(Figure 14, item 2)** and remove pulley with belt **(Figure 14, item 1)**. For re-installation, see steps 6 thru 8 on beginning on page 7.*

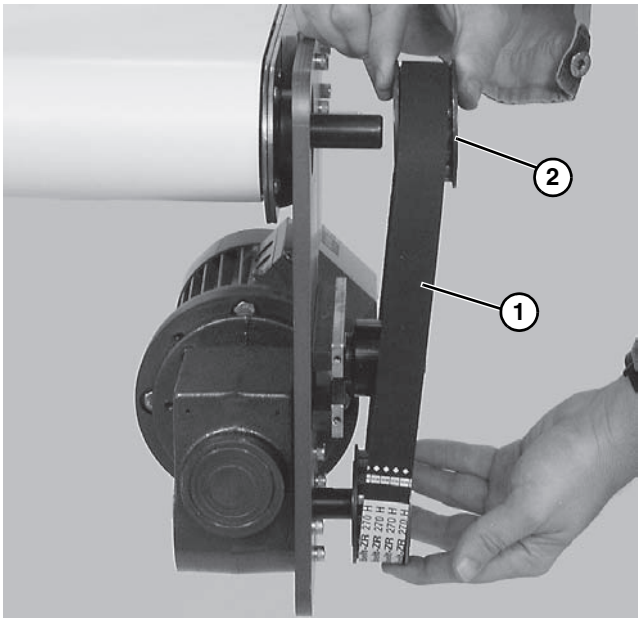


Figure 14

4. Install new timing belt.
5. Depending on conveyor belt travel (direction A or B), locate timing belt tensioner **(Figure 11, item 1)** as shown. Tension timing belt to obtain 1/8" (3 mm) deflection for 6 lb (3 Kg) of force at timing belt mid-point **(Figure 11, item 2)**. Tighten tensioner screw to 110 in-lb (12 Nm).
6. Install cover **(Figure 12, item 1)** with four (4) screws **(Figure 12, item 2)**. Tighten screws to 35 in-lb (4 Nm).

Drive or Driven Pulley Replacement

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

1. Complete steps 1 through 3 of “Timing Belt Replacement” section on page 9.
2. Remove taper-lock screws **(Figure 15, item 1)**. Insert one (1) of taper lock screws in remaining hole **(Figure 15, item 2)**. Tighten screw until pulley is loose. Remove pulley and taper hub assembly.

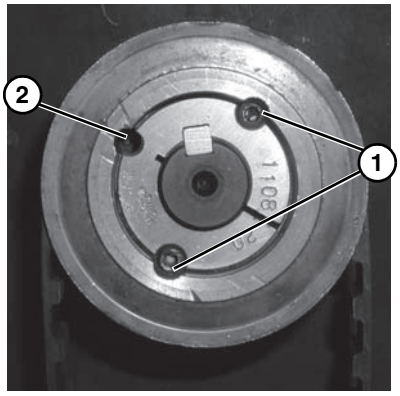


Figure 15

NOTE

*If drive pulley **(Figure 18, item 1)** is replaced, wrap timing belt around drive pulley and complete step 3.*

3. Complete steps 6 through 9 of “Installation” section beginning on page 7.

Gear Reducer Replacement

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

1. Remove four (4) screws **(Figure 12, item 2)** and remove cover **(Figure 12, item 1)**.
2. Loosen M10 shaft locking screw **(Figure 16, item 1)**.

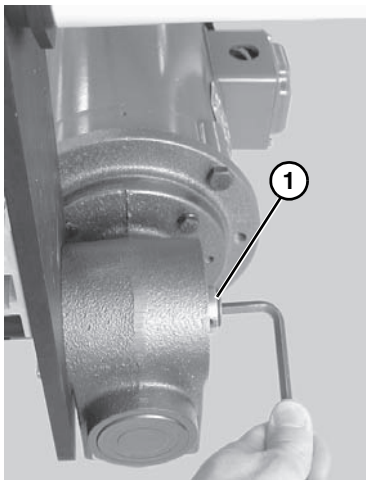


Figure 16

3. Loosen tensioner **(Figure 13, item 1)**.
4. Loosen taper-lock screws **(Figure 17, item 1)** and remove drive pulley: Insert one (1) of taper lock screws in remaining hole **(Figure 17, item 2)**. Tighten screw until pulley is loose.

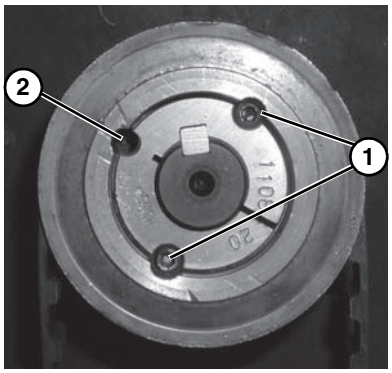


Figure 17

5. Remove pulley **(Figure 18, item 1)**, taper hub assembly **(Figure 18, item 2)**, and timing belt **(Figure 18, item 3).**

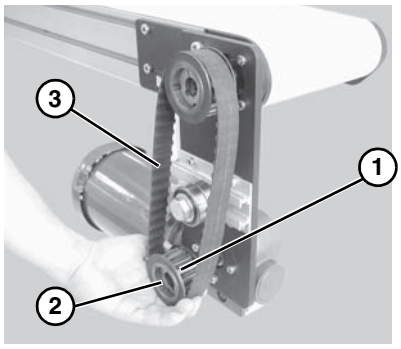


Figure 18

6. Remove four (4) gear reducer mounting screws **(Figure 19, item 1)**. Remove gearmotor.

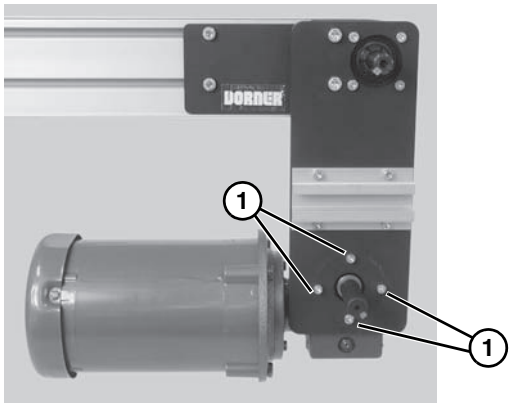


Figure 19

7. Remove four 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)**.

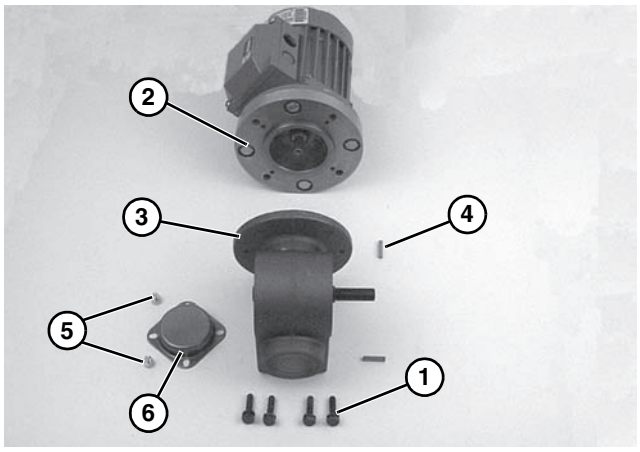


Figure 20

8. Remove two (2) screws **(Figure 20, item 5)** and detach output shaft cover **(Figure 20, item 6)**.
9. Remove M10 shaft locking screw **(Figure 21, item 1)**, remove gear reducer output shaft **(Figure 21, item 2)** and key **(Figure 21, item 3)**.

NOTE

*Output shaft **(Figure 21, item 2)** is held in Gear Reducer with a tapered press fit. Removal may require use of an arbor press.*

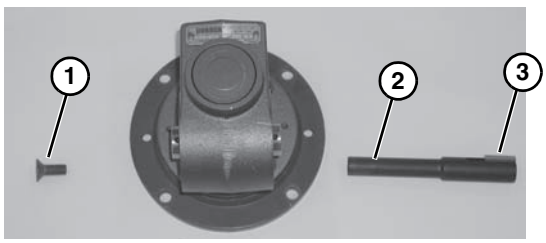


Figure 21

10. Insert the new shaft with key **(Figure 21, item 3)** into new gear reducer. Tighten M10 shaft locking screw **(Figure 21, item 1)** to 300 in–lbs (34 N–m).

IMPORTANT

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

11. With key **(Figure 20, item 4)** in keyway, slide motor **(Figure 20, item 2)** and gear reducer **(Figure 20, item 3)** together. Install screws **(Figure 20, item 1)** and tighten.

NOTE

*Gearmotor position on Flat Belt conveyor shown below left, **Figure 22**. Gearmotor position on Cleated Belt conveyor shown below right, **Figure 22**.*

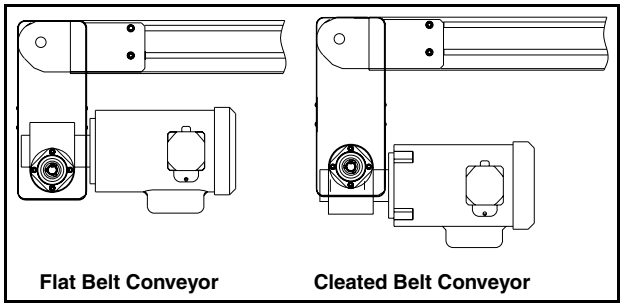


Figure 22

12. Install gearmotor to mounting bracket and tighten screws **(Figure 19, item 1)** to 110 in-lb (12 Nm).

NOTE

*If drive pulley **(Figure 18, item 1)** is removed. Wrap timing belt around drive pulley and complete step 13.*

13. Complete steps 6 through 10 of “Installation” section beginning on page 7.

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:
   a. Loosen terminal box screws **(Figure 23, item 1)** and remove cover **(Figure 23, item 2)**.

Figure 23

   b. Record wire colors on terminals 2, 6 and ground (Figure 24). Loosen terminals 2, 6 and ground and remove wires.

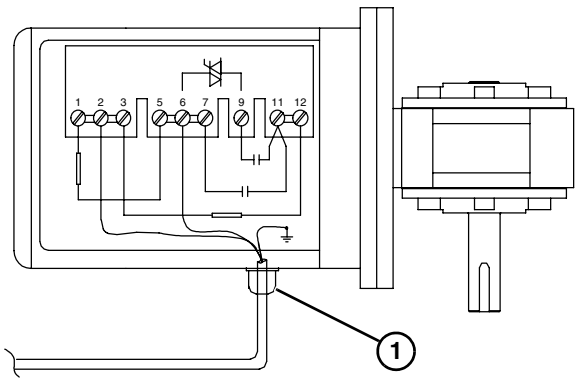


Figure 24

   c. Loosen cord grip **(Figure 24, item 1)** and remove cord.

2. For three phase and VFD variable speed motor:
   a. Loosen terminal box screws **(Figure 23, item 1)** and remove cover **(Figure 23, item 2)**.
   b. Record wire colors on terminals U1, V1, W1 and PE (Figure 25). Loosen terminals U1, V1, W1and PE and remove wires.

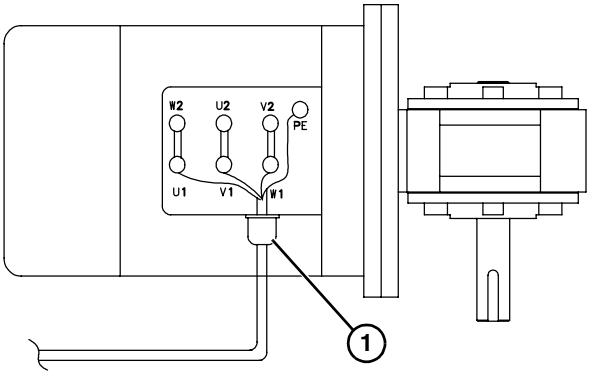


Figure 25

   c. Loosen cord grip **(Figure 25, item 1)** and remove cord.
3. Remove four (4) screws **(Figure 18, item 1)**. Detach motor **(Figure 18, item 2)** from gear reducer **(Figure 18, item 3)**. Retain motor output shaft key **(Figure 19, item 1)**.

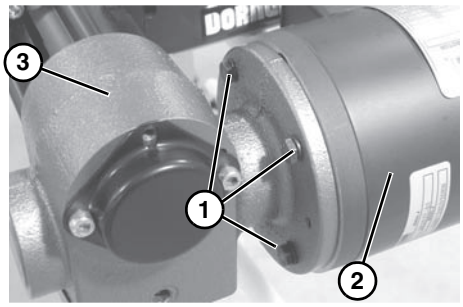


Figure 26

4. Remove four (4) screws and nuts **(Figure 27, item 1)**. Remove adapter flange **(Figure 27, item 2)**.

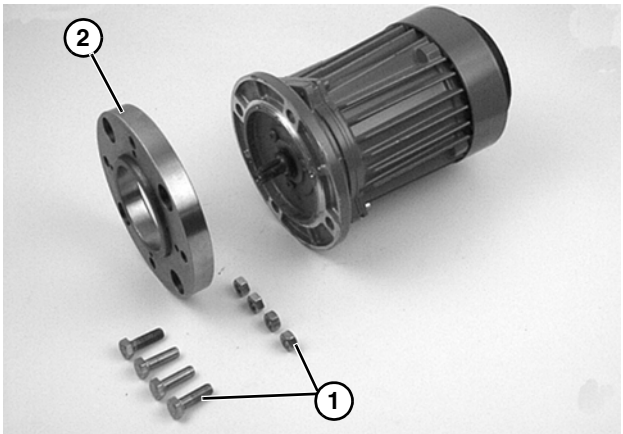


Figure 27

5. Install adapter flange **(Figure 27, item 2)** on new motor: Install screws and nuts **(Figure 27, item 1)** and tighten.

IMPORTANT

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

6. With key **(Figure 19, item 1)** in keyway, slide motor **(Figure 19, item 2)** and gear reducer **(Figure 19, item 3)** together.

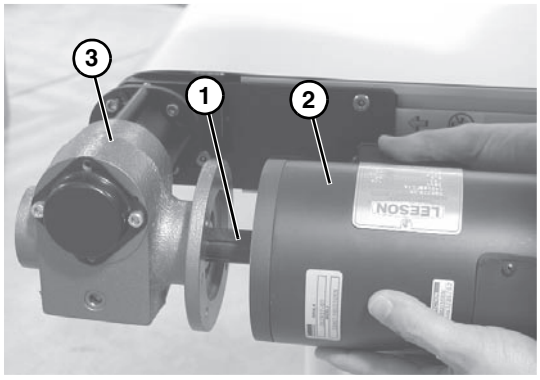


Figure 28

7. Install screws **(Figure 20, item 1)** and tighten to 65 in–lbs (7.3 N–m).

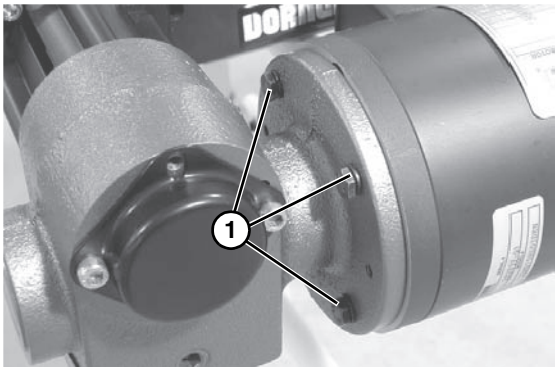


Figure 29

8. Replace wiring:

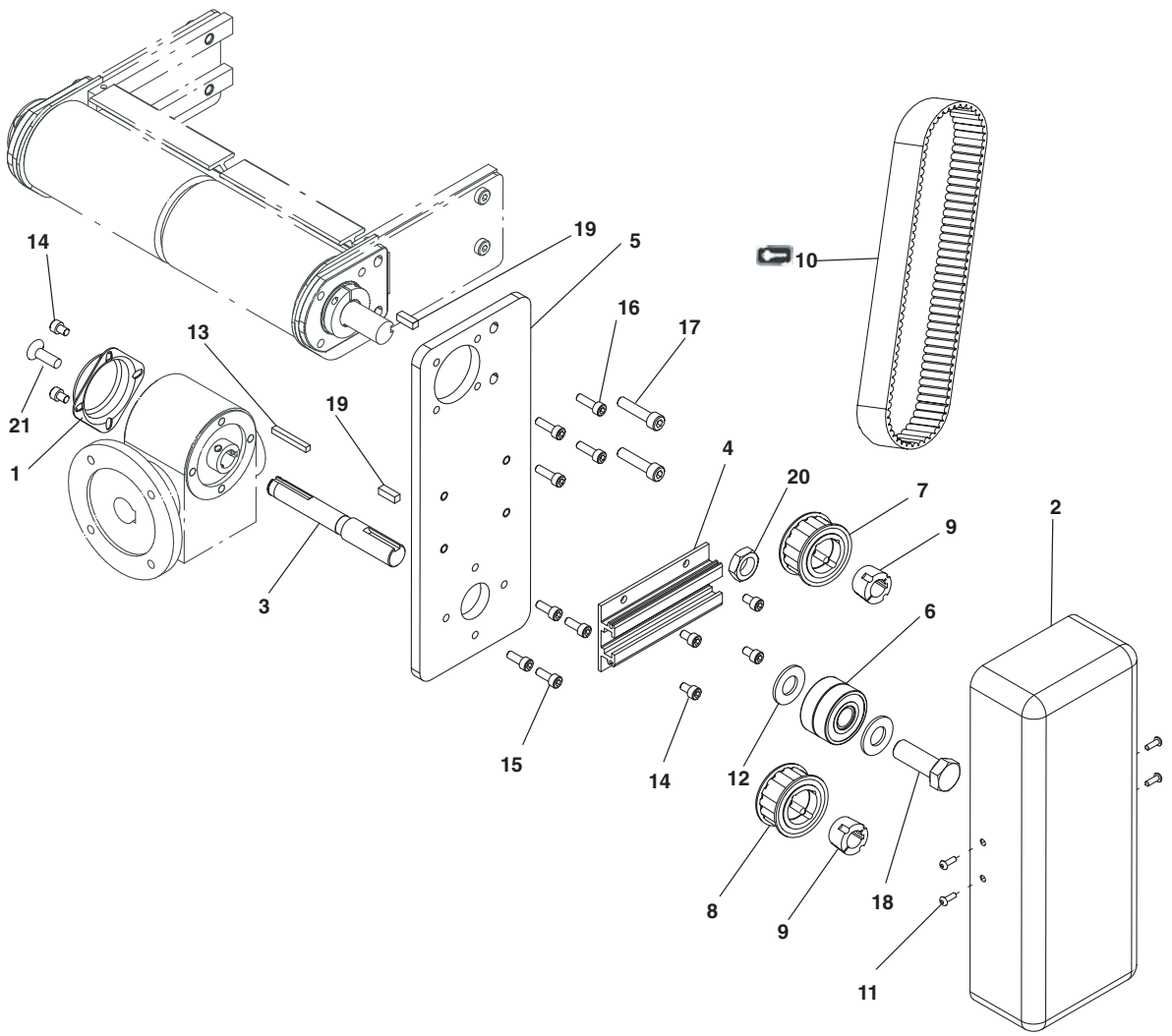
- For a single phase motor, reverse step 1 on page 10.
- For a three phase or VFD variable speed motor, reverse step 2 on page 10.

Service Parts

NOTE

For replacement parts other than those shown on this page, 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.

Bottom Mount Drive Package for 90° Industrial Gearmotors



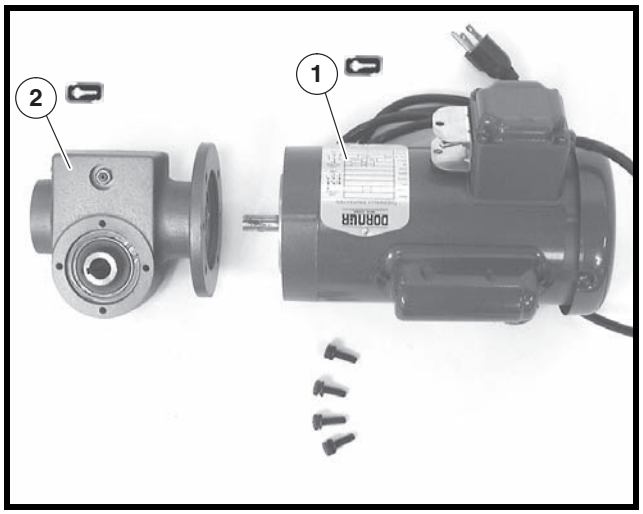
Item	Part Number	Description
1	300139	Bearing Shaft Cover
2	300871	Drive Cover
3	301146	Grove Gearhead Output Shaft
4	301076	Drive Tensioner Slide
5	301151	Mounting Plate
6	301153	Tensioner Bearing Assy
7	811–133	Driven Pulley, 14 Tooth, Taper Lock TL1108
	811–126	Driven Pulley, 16 Tooth, Taper Lock TL1108

Item	Part Number	Description
8	811–133	Drive Pulley, 14 Tooth, Taper Lock TL1108
	811–126	Drive Pulley, 16 Tooth, Taper Lock TL1108
	811–127	Drive Pulley, 18 Tooth, Taper Lock TL1210
	811–135	Drive Pulley, 20 Tooth, Taper Lock TL1210
	811–136	Drive Pulley, 22 Tooth, Taper Lock TL1610
	811–137	Drive Pulley, 24 Tooth, Taper Lock TL1610

Item	Part Number	Description
9	811–288	Taper Lock Bushing, 20 MM, TL1108
	811–289	Taper Lock Bushing, 20 MM, TL1210
	811–290	Taper Lock Bushing, 20 MM, TL1610
10	814-125	Timing Belt, 1.0” W x 25.5” L
	814–059	Timing Belt, 1.0” W x 27.0” L
	814–060	Timing Belt, 1.0” W x 28.0” L
	814-079	Timing Belt, 1.0” W x 30.0” L
11	920483M	Flanged Socket Head Screw, M4 x 16 mm
12	911–013	Flat Washer

Item	Part Number	Description
13	912–084	Square Key
14	920608M	Socket Head Screw, M6 x 8 mm
15	920618M	Socket Head Screw, M6 x 18 mm
16	920622M	Socket Head Screw, M6 x 22 mm
17	920835M	Socket Head Screw, M8 x 35 mm
18	961645M	Socket Head Screw, M16 x 45 mm
19	980630M	Square Key
20	991610M	Hex Jam Nut, M16
21	931025M	Flat Head Screw, M10 x 25 mm

90° Industrial Gearmotors



Item	Part No.	Description
1	826-281	Motor, 0.19 kW 230 Volts, 1400 RPM 50 Hz, 1-Phase
	826-282	Motor, 0.37 kW 230 Volts, 1400 RPM 50 Hz, 1-Phase
	826-284	Motor, 0.19 kW 230/400 Volts, 1400 RPM 50 Hz, 3-Phase
	826-285	Motor, 0.37 kW 230/400 Volts, 1400 RPM 50 Hz, 3-Phase
2	62Z005HS	Gear Reducer, 5:1, 63 B5
	62Z010HS	Gear Reducer, 10:1, 63 B5
	62Z020HS	Gear Reducer, 20:1, 63 B5
	62Z040HS	Gear Reducer, 40:1, 63 B5
	62Z060HS	Gear Reducer, 60:1, 63 B5
	32Z005HS	Gear Reducer, 5:1, 71 B5
	32Z010HS	Gear Reducer, 10:1, 71 B5
	32Z020HS	Gear Reducer, 20:1, 71 B5
	32Z040HS	Gear Reducer, 40:1, 71 B5
	32Z060HS	Gear Reducer, 60:1, 71 B5

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.

A representative will discuss action to be taken on the returned items and provide a Returned Goods Authorization number for reference.

There will be a return charge on all new undamaged items returned for credit where Dorner was not at fault. Dorner is not responsible for return freight on such items.

Conveyors and conveyor accessories

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

Parts

Standard stock parts	30%
MPB, 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 Technical Sales, Catalog Sales and Service Teams 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.
975 Cottonwood Ave., PO Box 20
Hartland, WI 53029-0020 USA
TEL 1-800-397-8664 (USA)
FAX 1-800-369-2440 (USA)
Internet: www.dorner.com

Outside the USA:
TEL 1-262-367-7600
FAX 1-262-367-5827

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