2100, 2200, 2300, 4100, 6200, MPB Series Bottom Mount Drive Pack. for Standard Load 90° Industrial Gearmotors

Installation, Maintenance & Parts Manual

Featuring: eDrive™ Technology

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851-256 Rev. L

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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 2100 Series conveyors are covered by the following patent numbers: 5,131,529, 5,174,435, and corresponding patents and patent applications in other countries.

Dorner 4100 Series conveyors are covered by patent number 3,923,148, 5,131,529 and corresponding patents and patent applications in other countries.

Dorner 2200, 6200 & MPB Series conveyors are covered by patent number 5,174,435, 6,109,427, 6,298,981, 6,422,382, 6,685,009 and corresponding patents and patent applications in other countries.

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 .

⚠ 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.

⚠ WARNING

MPB Series Conveyors are not reversible. Reversing creates pinch points which can cause severe injury.

DO NOT REVERSE MPB SERIES CONVEYORS.

Product Description

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

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

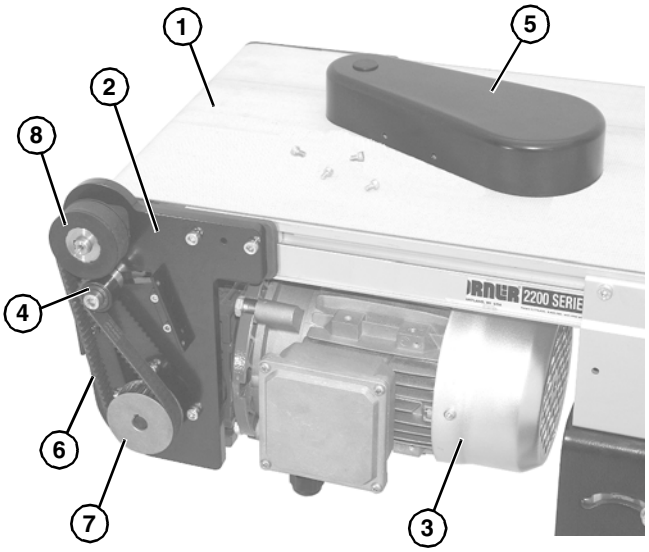
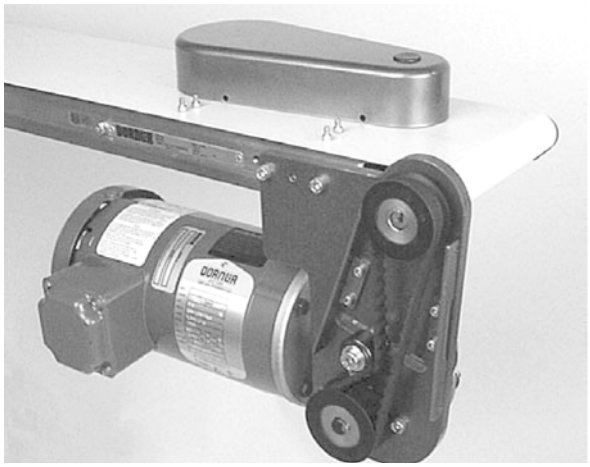


Figure 1

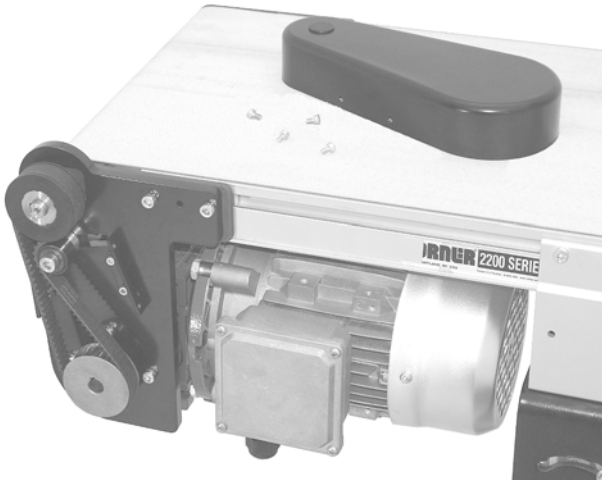
NOTE

The 90° industrial gearhead changed configuration in 2011. See below for configuration details.



Mount Packages with Old Style Gearmotors prior to June 2011

Figure 2



Mounting Packages with eDrive

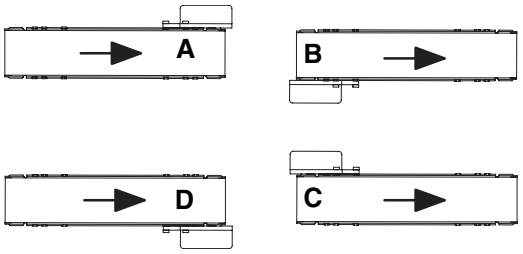
Figure 3

Gearmotor Mounting Package Models:

Example:

2 M B H S WW A – 32 32

- **Driven Pulley (see Table 2 through 7)**
- **Drive Pulley (see Table 2 through 7)**
- **Belt Type (– = flat belt, A through J = cleated belt)**
- **Mount Position = A, B, C or D (see detail to the right)**
- **Conveyor Width Reference***
- **Gearmotor Type: S = Standard Load, B = Brushless DC, K = Indexing / VFD**
- **Output Shaft Type**
  E = 90° eDrive Gearmotor
  H = 90° Old-Style Gearmotor prior to June 2011
- **Mount Style**
  B = Bottom Mount
  F = Flush Mount (2200 Series Only)
- **Language Code**
  M = U.S. Version
  U = CE Version
- **2 = 2100 Series Conveyor**
  22 = 2200 & 2300 Series Conveyors
  4 = 4100 Series Conveyor
  6 = 6200 Series Conveyor
  2P = MPB Series Conveyor



*** See "Ordering and Specifications" Catalog for details.**

* See "Ordering and Specifications" Catalog for details.

Table 1: Gearmotor Specifications

U.S. Version

	Single Phase	Three Phase	DC Variable Speed	Brushless DC
Output Power	0.25 hp (0.19 kw)			
Input Voltage	115 Volts A.C.	208 to 230/460 Volts A.C.	130 Volts D.C.	*115/230 Volts D.C.
Input Frequency	60 Hz		N/A	60 Hz
Input Current	5.0 Amperes	1.2 /0.6 Amperes	2.2 Amperes	8.8 / 3.4 Amperes
Motor RPM	1725		2500	3000
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1			
Frame Size	NEMA 42 CZ			
Motor Type	Totally Enclosed, Fan-cooled			Totally Enclosed, Non-Ventilated

* Controller Inputs

CE Version

	Single Phase	Three Phase	VFD Variable Speed
Output Power	0.18 kw		
Input Voltage	230 Volts A.C.	230/400 Volts A.C.	230 Volts A.C.
Input Frequency	50 Hz		25 to 63 Hz
Input Current	1.6 Amperes	1.4 /0.8 Amperes	1.4 Amperes
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1		
Protection Rating	IP55		
Frame Size	IEC 63 B5		

Specifications

NOTE
For belt speed other than those listed in Tables 2 - 4, contact factory for details.

Table 2: RPM/Torque for Standard Load Fixed Speed 90° Gearmotors

U.S. Version (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060EL4(vp)F(n)	29	226	25.5
32M040EL4(vp)F(n)	43	237	26.8
32M020EL4(vp)F(n)	86	142	16.0
32M010EL4(vp)F(n)	173	78	8.8
32M005EL4(vp)F(n)	345	41	4.6

(vp) = voltage and phase

11 = 115 V, 1-phase

23 = 208-230/460 V, 3-phase

(n) = Reversing Capability

N = No Reversing switch

R = With reversing switch

* = Nosebar transfers operate at maximum 77 Ft/min (23.5 M/min) belt speed

CE Version (50 Hz Gearmotors)

Gearmotors		
Part Number	**RPM**	**N-m**
62Z060ES4(vp)FN	23	26.4
62Z040ES4(vp)FN	35	28.9
62Z020ES4(vp)FN	70	19.4
62Z010ES4(vp)FN	140	10.7
62Z005ES4(vp)FN	280	5.6

(vp) = voltage and phase

21 = 230 V, 1-phase

23 = 230 V, 3-phase

43 = 400 V, 3-phase

Table 3: RPM/Torque for Standard Load Variable Speed 90° DC Gearmotors

U.S. Version (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060ELD3DEN	5-42	198	22.4
32M040ELD3DEN	8-63	163	18.4
32M020ELD3DEN	15-125	98	11.1
32M010ELD3DEN	30-250	54	6.1
32M005ELD3DEN	60-500	28	3.2

* = Nosebar transfers operate at maximum 77 Ft/min (23.5 M/min) belt speed

CE Version (50 Hz Gearmotors)

Gearmotors		
Part Number	**RPM**	**N-m**
62Z060ES423EN	9-23	26.4
62Z040ES423EN	14-35	28.9
62Z020ES423EN	28-70	19.4
62Z010ES423EN	56-140	10.7
62Z005ES423EN	111-280	5.6

Table 4: Belt Speeds for Brushless 90° Gearmotors

Heavy Load Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
62M060ESBDDEN	2-50	106	12.4
62M040ESBDDEN	3-75	123	14.3
62M020ESBDDEN	5-150	89	10.4
62M010ESBDDEN	10-300	49	5.7
62M005ESBDDEN	20-600	25	2.9

Specifications

Table 5: Pulley Ratio / Timing Belt Number

Motor (Drive) Pulley Teeth	Conveyor (Driven) Pulley Teeth	Pulley Ratio	Timing Belt			
			Flat Belt 2200/ MB/MPB	Cleated Belt 2200/MB/MPB	Flat Belt 4100/6200	Cleated Belt 4100/6200
19	32	0.59	N/A	N/A	814-119	814-104
22	32	0.69	N/A	N/A	814-106	814-105
28	22	1.27	N/A	N/A	814-107	814-104
28	28	1.00	814-103	814-105	N/A	N/A
28	32	0.88	814-103	814-105	814-100	814-065
32	19	1.68	814-119	814-104	814-119	814-104
32	22	1.45	814-119	814-104	814-103	814-105
32	28	1.14	814-103	814-105	814-100	814-065
44	19	2.32	814-100	814-065	814-096	814-101
44	22	2.00	814-096	814-101	814-096	814-101
44	28	1.57	814-096	814-101	814-104	814-101
44	32	1.38	N/A	N/A	814-105	814-064

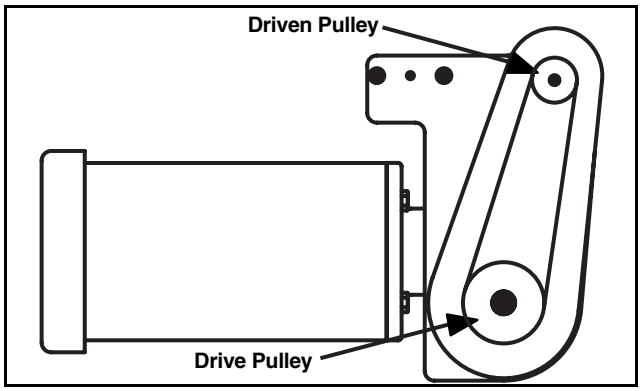


Figure 4

Table 6: Conveyor Belt Speed Factor

Series	Ft/revolution	M/revolution
2200 / 2300	0.350	0.107
2100 / 4100 / 6100 / 6200	0.278	0.085
2200 MPB	0.590	0.180
2200 Precision Move	0.394	0.120
2200 / 2300 Modular Belt	0.394	0.120

Belt Speed Calculation:

How to Calculate Belt Speed

1. Determine gearmotor RPM from tables 2-4.
2. Determine the pulley kit ratio. Count the number of teeth on the drive and driven pulleys following figure 2. Using table 5, look up pulley ratio based on pulley combinations.
3. Determine conveyor speed factor using table 6. Based on your conveyor type, select the appropriate factor.
4. Calculate belt speed:

Example: Belt Speed = Gearmotor RPM (tables 2-4) x Pulley Kit Ratio (table 5) x Conveyor Speed Factor (table 6)

2200 Series standard load variable speed 60:1 gearmotor with 22 tooth sprocket on gearmotor (Drive) and 32 tooth sprocket on the conveyor output shaft (Driven).

Gearmotor =	32M060ELD3DEN	= 5 - 42 RPM
Pulley Kit =	22 t mtr. - 32 t conv.	= 0.69
Speed Factor =	2200 Series	= 0.350 ft/min per RPM
Minimum Belt Speed =	5 x 0.69 x 0.350	= 1.2 Ft/min
Maximum Belt Speed =	42 x 0.69 x 0.350	= 10.1 Ft/min

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

MPB Series Conveyors are not reversible. Reversing creates pinch points which can cause severe injury.

DO NOT REVERSE MPB SERIES CONVEYORS.

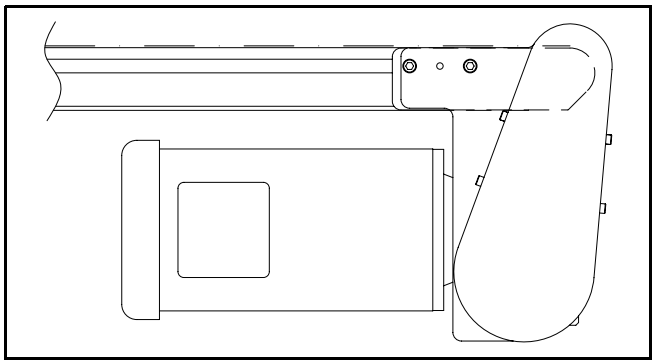
⚠ WARNING

For MPB Series and Cleated Belt Conveyors Gearmotors must be mounted as shown in Figure 6 and Figure 7.

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

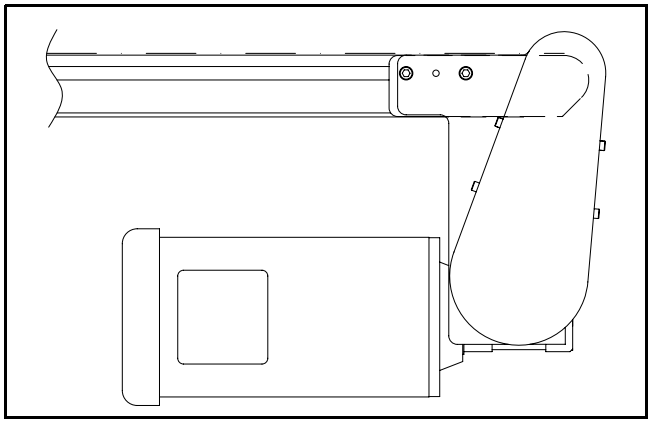
NOTE

*Gearmotor position on Flat Belt conveyors shown in **Figure 5**. Gearmotor position on Cleated Belt shown in **Figure 6** and MPB Series conveyor shown in **Figure 7**.*



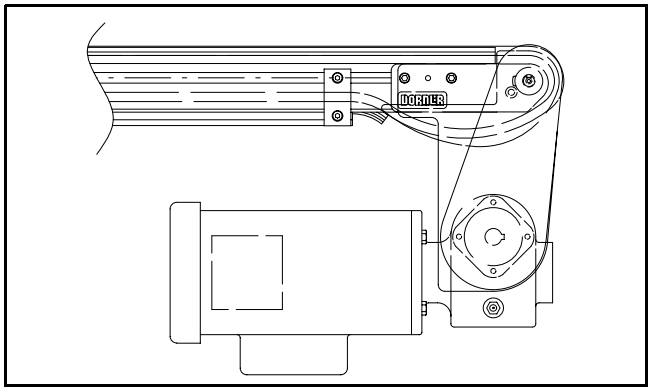
Flat Belt Conveyor

Figure 5



Cleated Belt Conveyor

Figure 6



MPB Series Conveyor

Figure 7

Installation

Installation Component List:

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

1. Typical components **(Figure 8)**

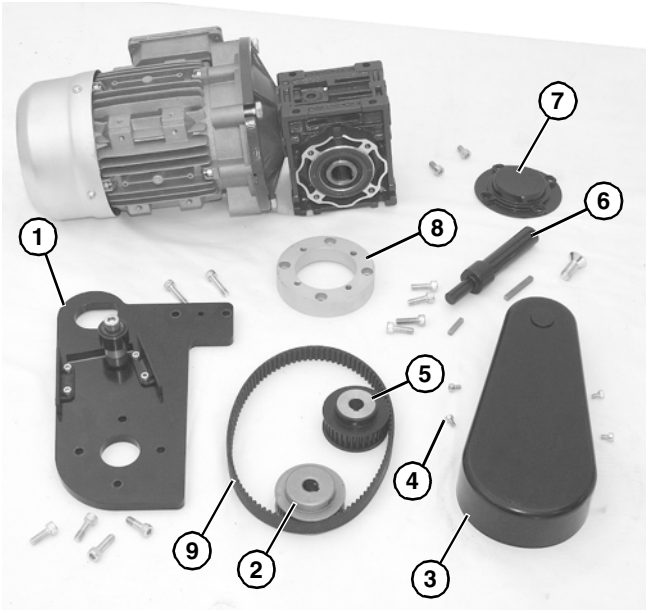


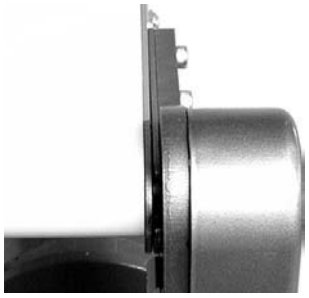
Figure 8

NOTE

*Flat belt mounting package shown above **(Figure 8)**, cleated belt mounting package similar.*

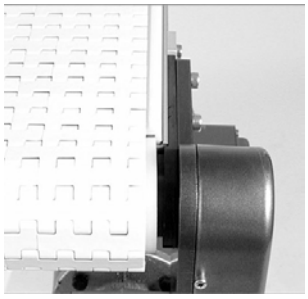
2. For your reference, the figures below show gearmotor mounting configurations for various conveyor series.

- For 2100, 2200, and MPB models, gearmotor and drive plate are mounted to head plate **(Figure 9)**, **(Figure 10)**, and **(Figure 11)**.



2100 Series

Figure 9



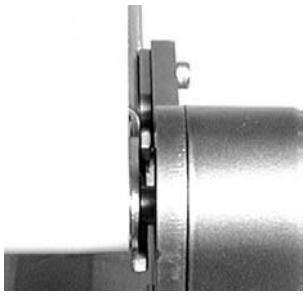
MPB Series

Figure 10

2200 Series

Figure 11

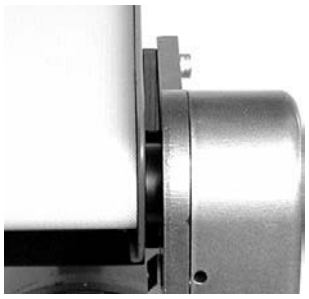
- For 6200 series models, gearmotor is mounted to drive spacer **(Figure 12)**.



6200 Series

Figure 12

- For 4100 series models, gearmotor is mounted to drive adapter plate **(Figure 13)**.



4100 Series

Figure 13

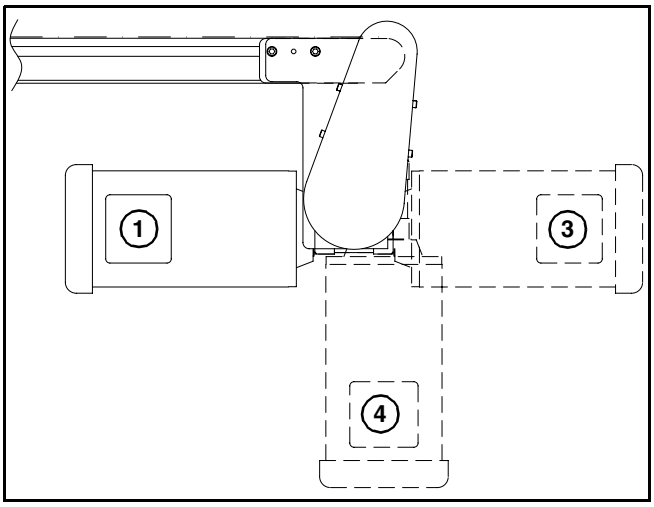


Figure 14

3. If required, change gearmotor position by removing four (4) screws **(Figure 15, item 1)**. Rotate gearmotor to other position and replace screws **(Figure 15, item 1)**. Tighten to 103 in-lb (12 N-m).

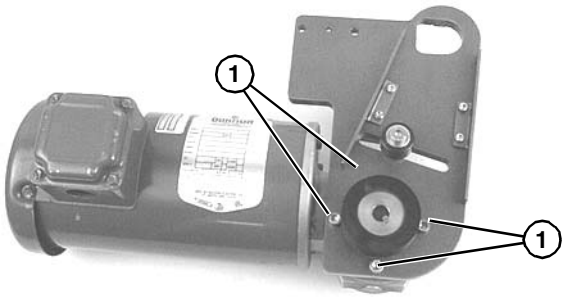


Figure 15

NOTE

6200 conveyor shown, 2100, 2200, 4100 & MPB similar.

4. Locate drive output shaft **(Figure 16, item 1)** and remove two (2) screws **(Figure 16, item 2)**.

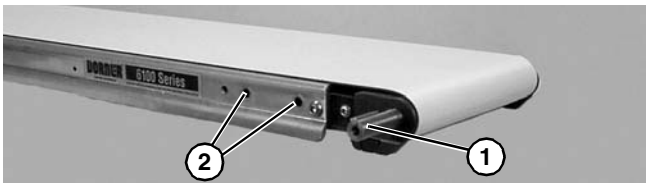


Figure 16

5. Install M6x8 socket head screw **(Figure 17, item 1)** and washer.

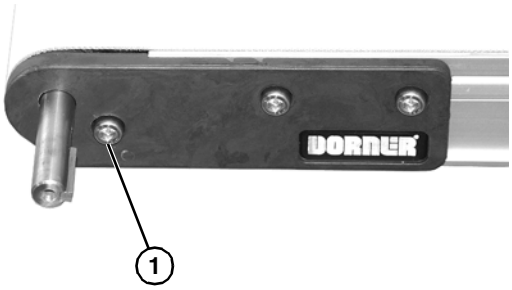


Figure 17

6. Attach mounting assembly **(Figure 18, item 1)** with screws **(Figure 18, item 2)**. Tighten to 80 in-lb (9 N-m).

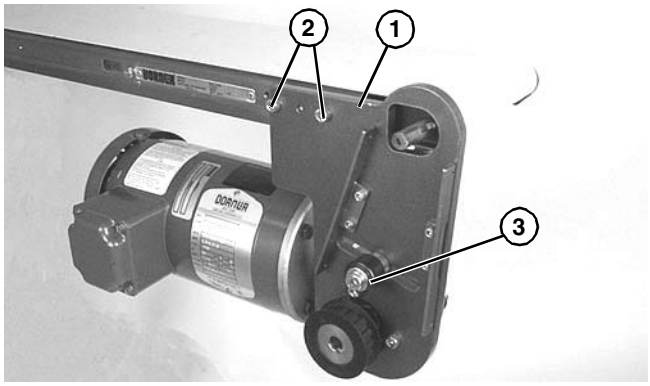


Figure 18

⚠ WARNING

Drive shaft keyway may be sharp.
HANDLE WITH CARE.

7. Install key **(Figure 19, item 1)**.

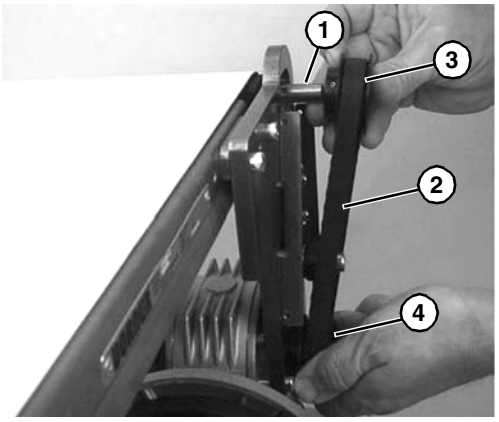


Figure 19

8. Wrap timing belt **(Figure 19, item 2)** around driven pulley **(Figure 19, item 3)** and drive pulley **(Figure 19, item 4)**. Install driven pulley **(Figure 19, item 3)** onto conveyor shaft.
9. Remove cam bearing and spacer **(Figure 18, item 3)**. Place the cam bearing and spacer **(Figure 20, item 1)** next to the driven pulley **(Figure 20, item 2)**. Ensure the flanges of the driven pulley are aligned with the cam bearing. Tighten driven pulley set screws **(Figure 20, item 3)**. This will allow for proper belt alignment while conveyor is in use. Replace cam bearing and spacer **(Figure 20, item 1)**.

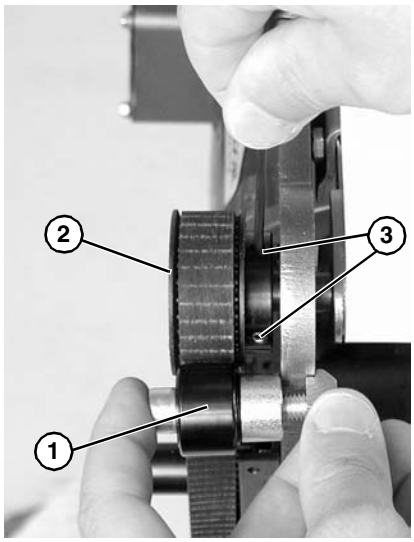


Figure 20

10. Depending on conveyor belt travel (direction 1 or 2), locate timing belt tensioner **(Figure 21, item 3)** as shown. Tension timing belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at timing belt mid-point **(Figure 21, item 4)**. Tighten tensioner screw to 103 in-lb (12 Nm).

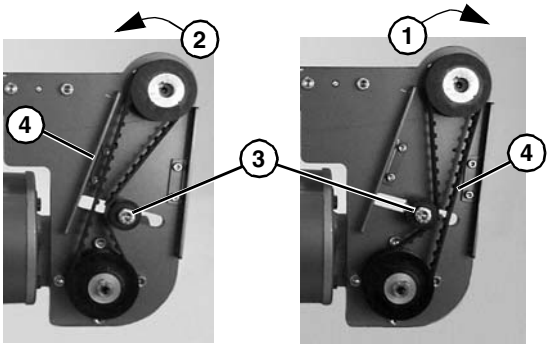


Figure 21

11. Install cover **(Figure 22, item 1)** with four (4) screws **(Figure 22, item 2)**. Tighten to 35 in-lb (4 N-m).

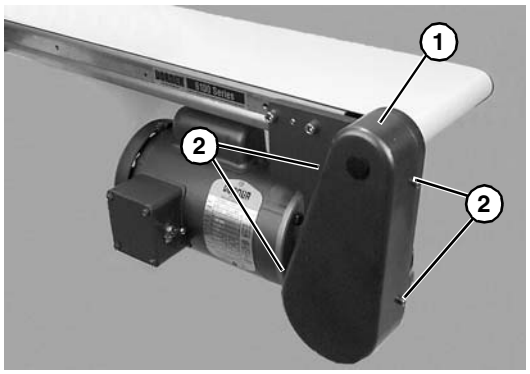


Figure 22

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 22, item 2)** and remove cover **(Figure 22, item 1)**.
2. Loosen tensioner **(Figure 23, item 1)**.

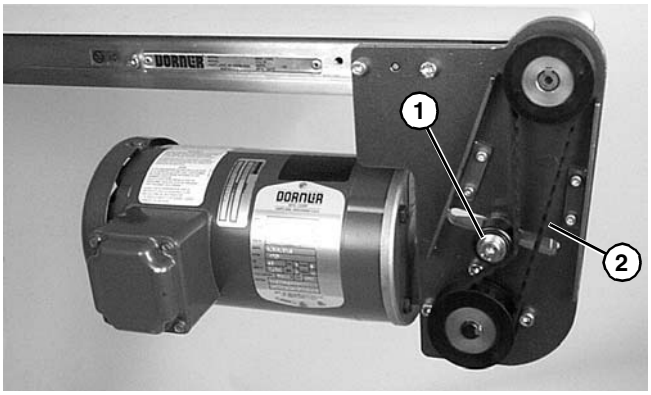


Figure 23

3. Depending on conveyor belt travel (direction 1 or 2), locate timing belt tensioner **(Figure 21, item 3)** as shown. Tension timing belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at timing belt mid-point **(Figure 23, item 2)**. Tighten tensioner screw to 103 in-lb (12 N-m).
4. Install cover **(Figure 22, item 1)** with four (4) screws **(Figure 22, item 2)**. Tighten to 35 in-lb (4 N-m).

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 22, item 2)** and remove cover **(Figure 22, item 1)**.
2. Loosen tensioner **(Figure 23, item 1)**.
3. Remove timing belt **(Figure 24, item 1)**.

NOTE

*If timing belt does not slide over pulley flange, loosen driven pulley **(Figure 24, item 2)** set screws and remove pulley with belt **(Figure 24, item 1)**. For re-installation, see steps 7 and 8 on page 12.*

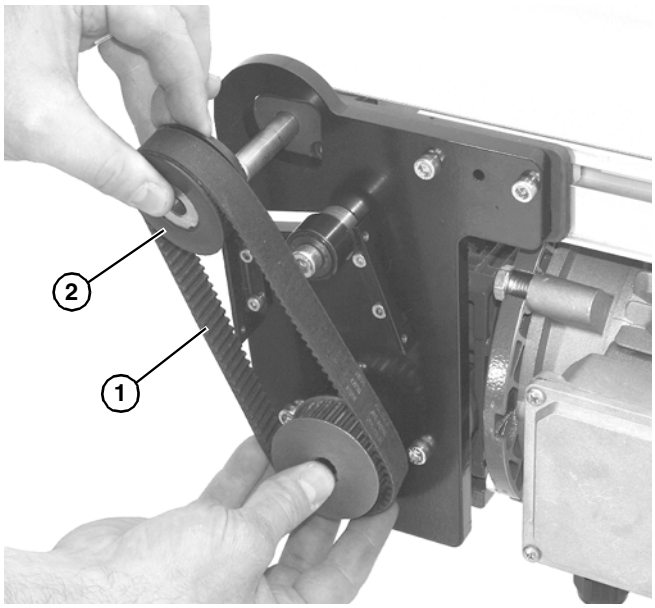


Figure 24

4. Install new timing belt.
5. Depending on conveyor belt travel (direction 1 or 2), locate timing belt tensioner **(Figure 21, item 3)** as shown. Tension timing belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at timing belt mid-point **(Figure 21, item 4)**. Tighten tensioner screw to 103 in-lb (12 N-m).
6. Install cover **(Figure 22, item 1)** with four (4) screws **(Figure 22, item 2)**. Tighten to 35 in-lb (4 N-m).

Preventive Maintenance and Adjustment

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 13.
2. Loosen set screws and remove drive or driven pulley.

NOTE

*If drive pulley **(Figure 27, item 1)** is replaced, wrap timing belt around drive pulley and complete step 3.*

3. Complete steps 7 through 10 of "Installation" section on page 12.

Gear Reducer Replacement

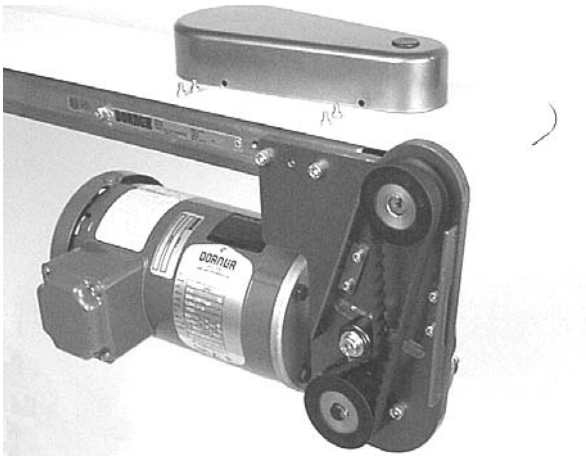
⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

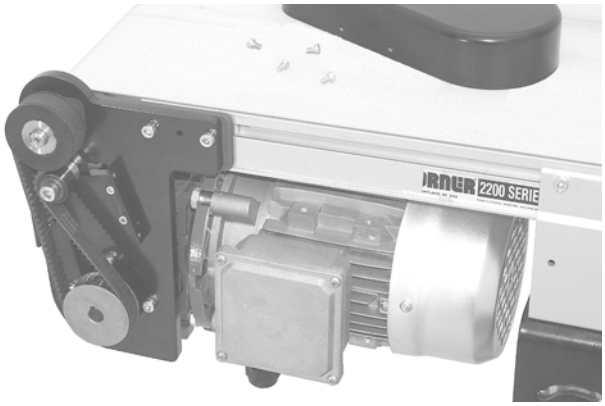
NOTE

The 90° industrial gearhead changed configuration in 2011. See below for configuration details. See Service Parts section to ensure proper replacement parts are installed.



Old Style Gearmotor prior to June 2011

Figure 25



eDrive Gearmotor
Figure 26

1. Remove four (4) screws **(Figure 22, item 2)** and remove cover **(Figure 22, item 1)**.
2. Loosen tensioner **(Figure 23, item 1)**.
3. Loosen drive pulley **(Figure 27, item 1)** set screws. Remove drive pulley and timing belt **(Figure 27, item 2)**.

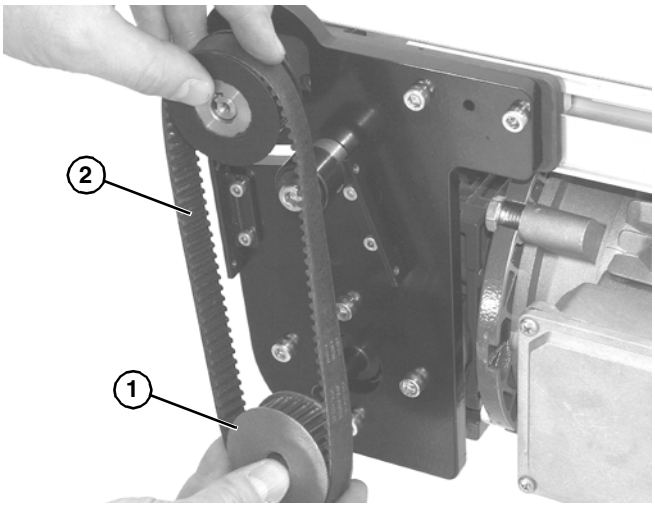


Figure 27

4. Remove four (4) gear reducer mounting screws **(Figure 28, item 1)**. Remove gearmotor and gearmotor adapter.

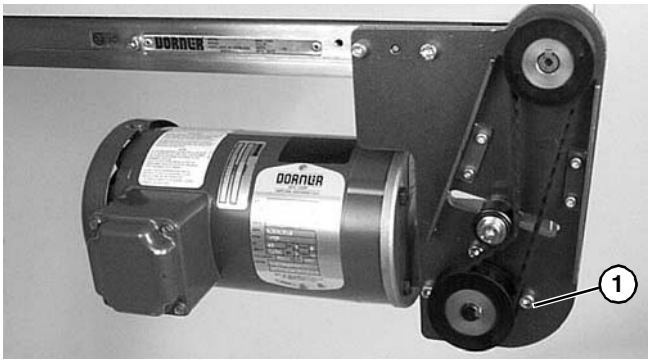


Figure 28

5. Remove four screws **(Figure 29, item 1)**. Detach motor **(Figure 29, item 2)** from gear reducer **(Figure 29, item 3)**. Retain motor output shaft key **(Figure 29, item 4)**.

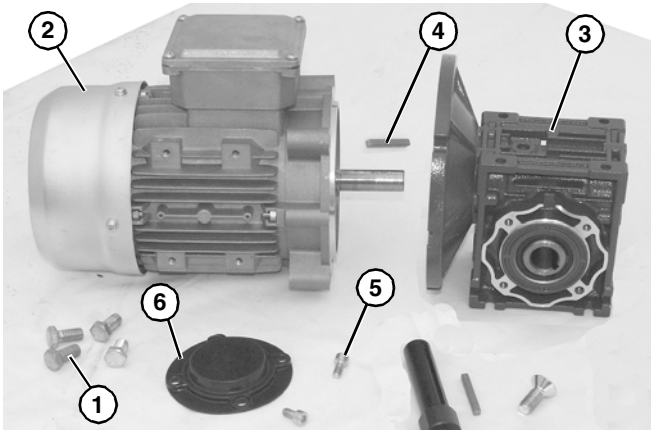


Figure 29

6. Remove two (2) screws **(Figure 29, item 5)** and detach output shaft cover **(Figure 29, item 6)**.
7. Remove driveshaft:

NOTE
Follow proper procedure below depending upon old or new style gearmotor assembly.

For eDrive style gearmotor

1. Loosen driveshaft bolt **(Figure 30, item 1)**.

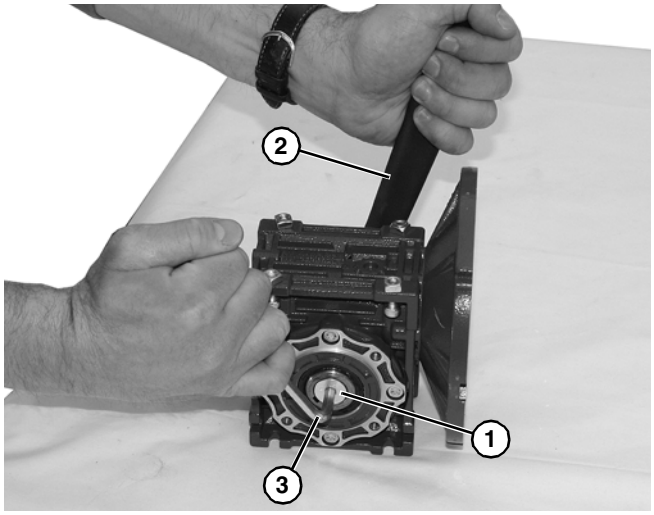


Figure 30

2. Hold the driveshaft with a wrench **(Figure 30, item 2)** as shown to keep shaft from turning, while removing screw with hex wrench **(Figure 30, item 3)**.
3. Remove driveshaft **(Figure 31, item 1)** and key **(Figure 31, item 2)**.

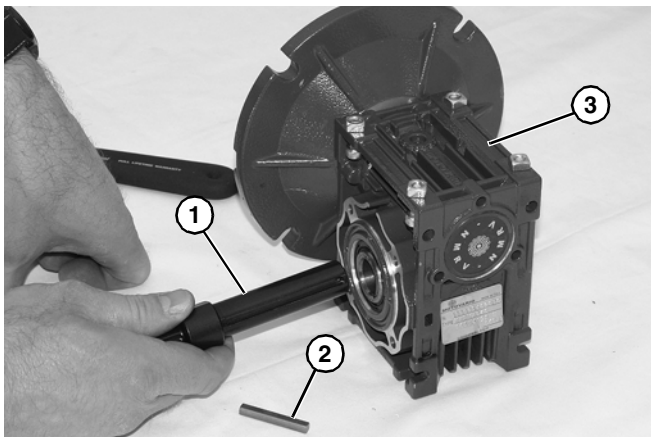


Figure 31

4. Replace gear reducer **(Figure 31, item 3)**.
5. Apply anti-seize **(Figure 32, item 1)** to shaft.

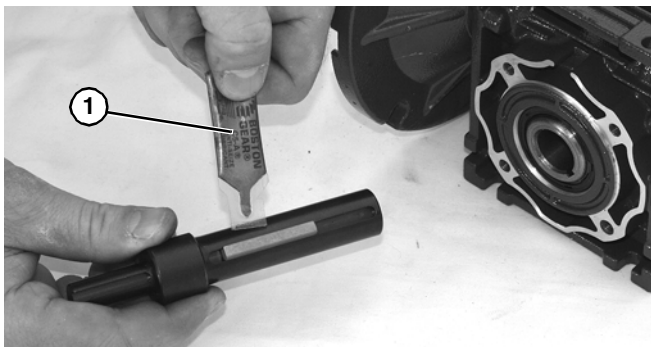


Figure 32

6. Replace the original shaft components into new gear reducer **(Figure 31)**.

IMPORTANT

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

7. Hold the driveshaft with a wrench **(Figure 30, item 2)** as shown to keep shaft from turning, while installing screw with hex wrench **(Figure 30, item 3)**. Tighten capscrew to 100 in-lb (11.5 Nm) for 42CZ or 350 in-lb (39.5 Nm) for 56C, 63B5 and 71B5.
8. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 30, item 2)** in keyway, slide motor **(Figure 30, item 2)** and gear reducer **(Figure 30, item 3)** together. Install screws **(Figure 30, item 1)** and tighten.
9. Install output shaft cover **(Figure 30, item 6)** and secure with two (2) screws **(Figure 30, item 5)**.
10. Reverse steps 1 through 4 beginning on page 16.

NOTE

*Gearmotor position on Flat Belt conveyors shown in **Figure 35**. Gearmotor position on Cleated Belt and MPB Series conveyors shown in **Figure 36** and **Figure 37**.*

11. Install gearmotor to mounting bracket and tighten screws **(Figure 28, item 1)** to 103 in-lb (12 N-m).

NOTE

*Drive pulley **(Figure 27, item 1)** is removed. Wrap timing belt around drive pulley and complete step 9.*

12. Complete steps 7 through 10 of "Installation" section on page 12.

For old style gearmotor prior to June 2011

1. Loosen six (6) set screws **(Figure 33, item 1)**. Remove drive shaft **(Figure 33, item 2)** and key **(Figure 33, item 3)**.

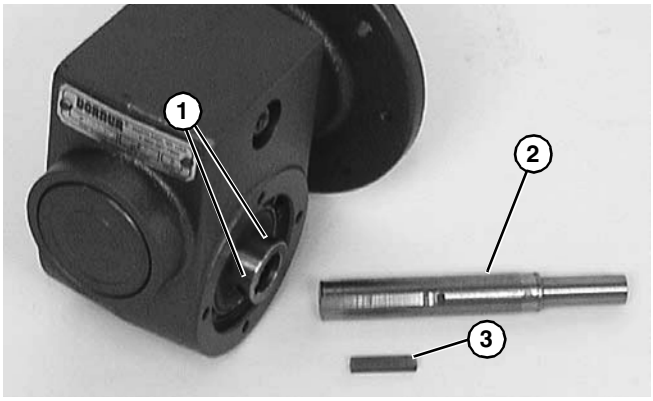


Figure 33

2. Apply anti-seize **(Figure 34, item 1)** to shaft.

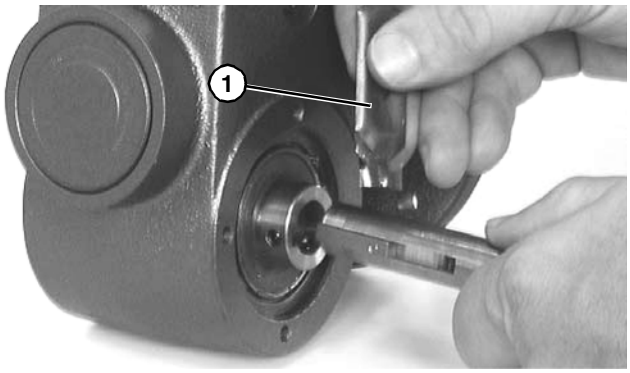


Figure 34

3. Replace the original shaft components into new gear reducer **(Figure 33)**.

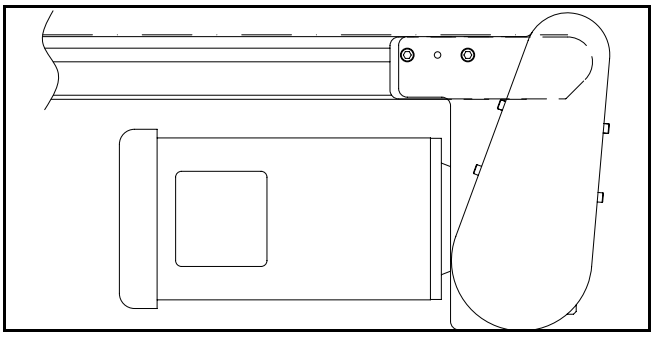
IMPORTANT

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

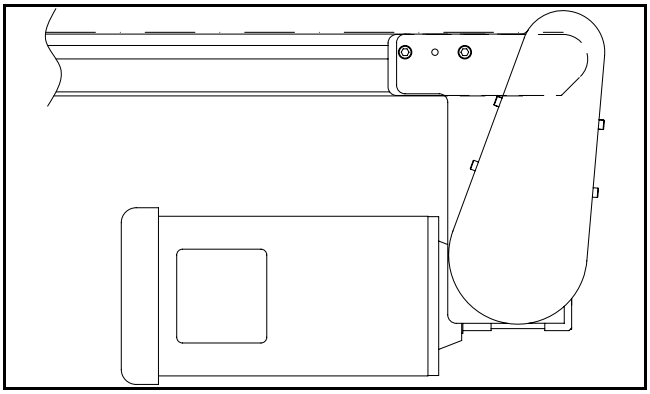
4. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 29, item 4)** in keyway, slide motor **(Figure 29, item 2)** and gear reducer **(Figure 29, item 3)** together. Install screws **(Figure 29, item 1)** and tighten.
5. Install output shaft cover **(Figure 29, item 6)** and secure with two (2) screws **(Figure 29, item 5)**.
6. Reverse steps 1 through 4 beginning on page 16.
7. Complete installation steps 7 through 10 of "Installation" section on page 14.

NOTE

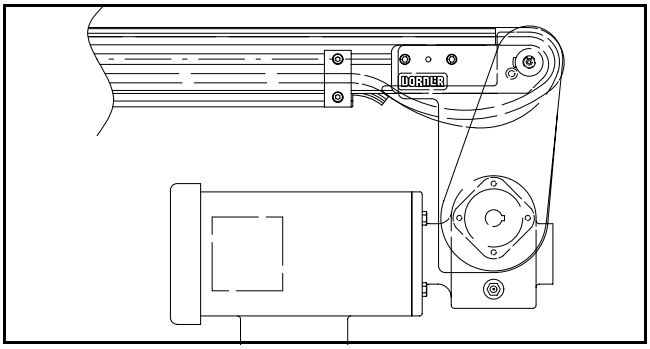
*Gearmotor position on Flat Belt conveyors shown in **Figure 35**. Gearmotor position on Cleated Belt and MPB Series conveyors shown in **Figure 36** and **Figure 37**.*



Flat Belt Conveyor
Figure 35



Cleated Belt Conveyor
Figure 36



MPB Series Conveyor
Figure 37

8. Install gearmotor to mounting bracket and tighten screws (**Figure 29, item 1**) to 103 in-lb (12 N-m).
9. Complete steps 7 through 10 of "Installation" section on page 12.

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.

LOCKOUT POWER BEFORE before wiring.

Single Phase Motor

1. For single phase motor, unplug power cord from outlet.

Three Phase Motor

1. Loosen terminal box screws (**Figure 38, item 1**) and remove cover (**Figure 38, item 2**).

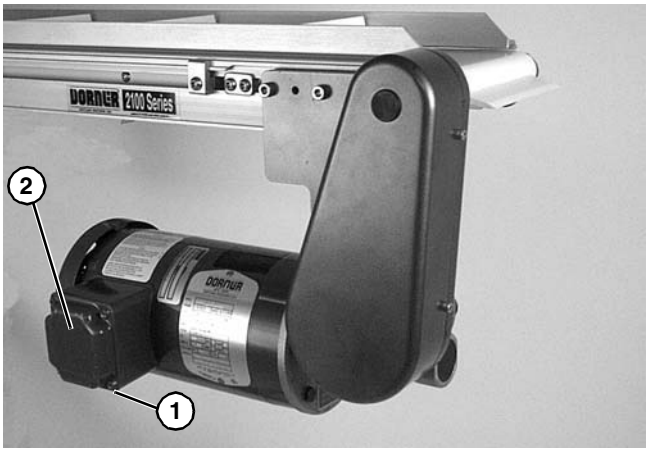


Figure 38

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

DC Variable Speed Motor

1. For DC variable speed motor, unplug motor cord at disconnect **(Figure 39, item 1)**.

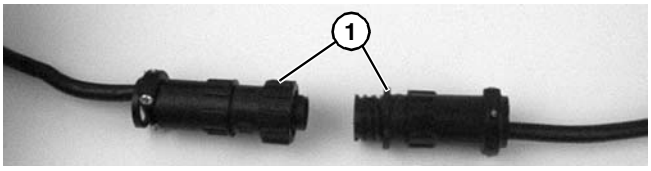


Figure 39

Brushless Motor

1. Twist covers **(Figure 40, item 1)** apart.

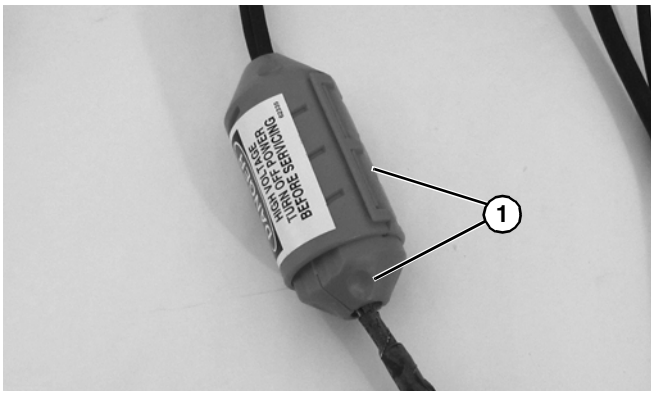


Figure 40

2. Remove outer cord cover **(Figure 41, item 1)** from inner cord cover **(Figure 41, item 2)**.

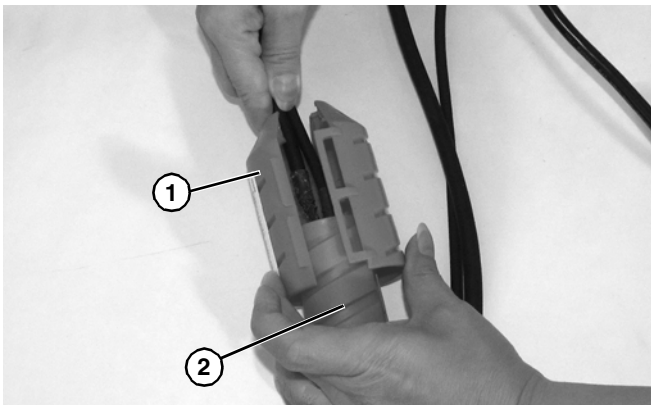


Figure 41

3. Open inner cord cover **(Figure 42, item 1)**.

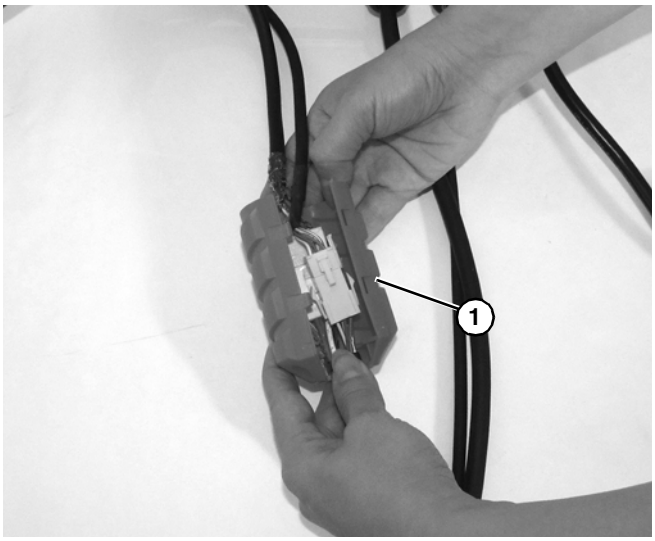


Figure 42

4. Unplug motor cord connectors **(Figure 43, item 1)** and signal cable connectors **(Figure 43, item 2)**.

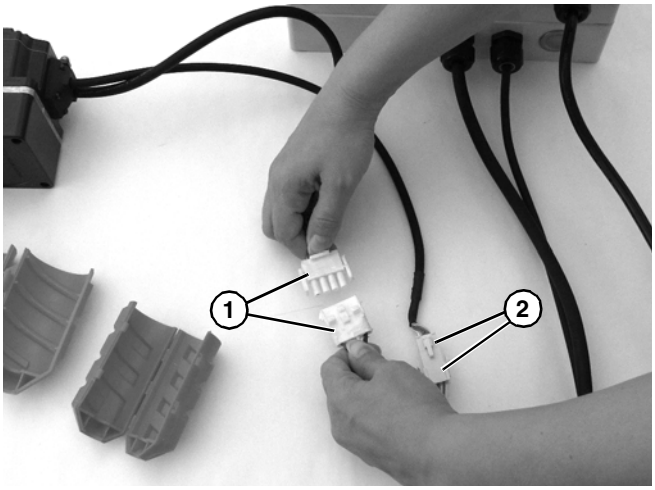


Figure 43

All Models

1. Remove four screws **(Figure 44, item 1**). Detach motor (**Figure 44, item 2**) from gear reducer **(Figure 44, item 3**). Retain motor output shaft key.

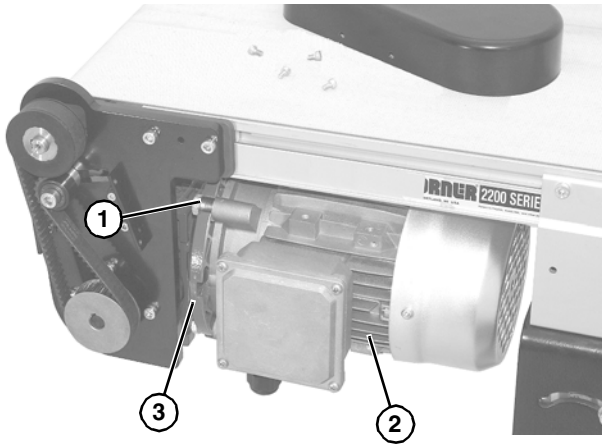


Figure 44

IMPORTANT

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

2. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 45, item 1)** in keyway, slide motor (**Figure 45, item 2)** and gear reducer together. Install screws and tighten.

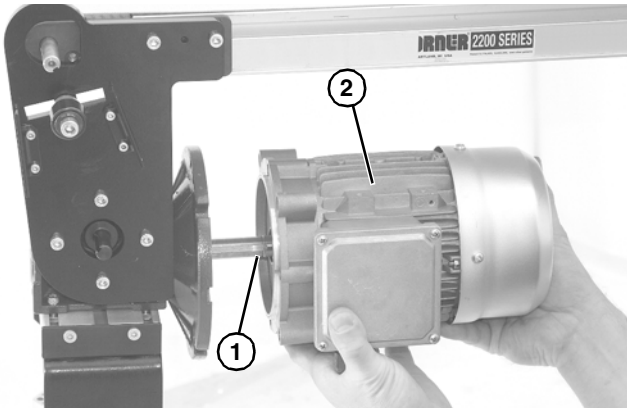


Figure 45

3. Replace wiring:

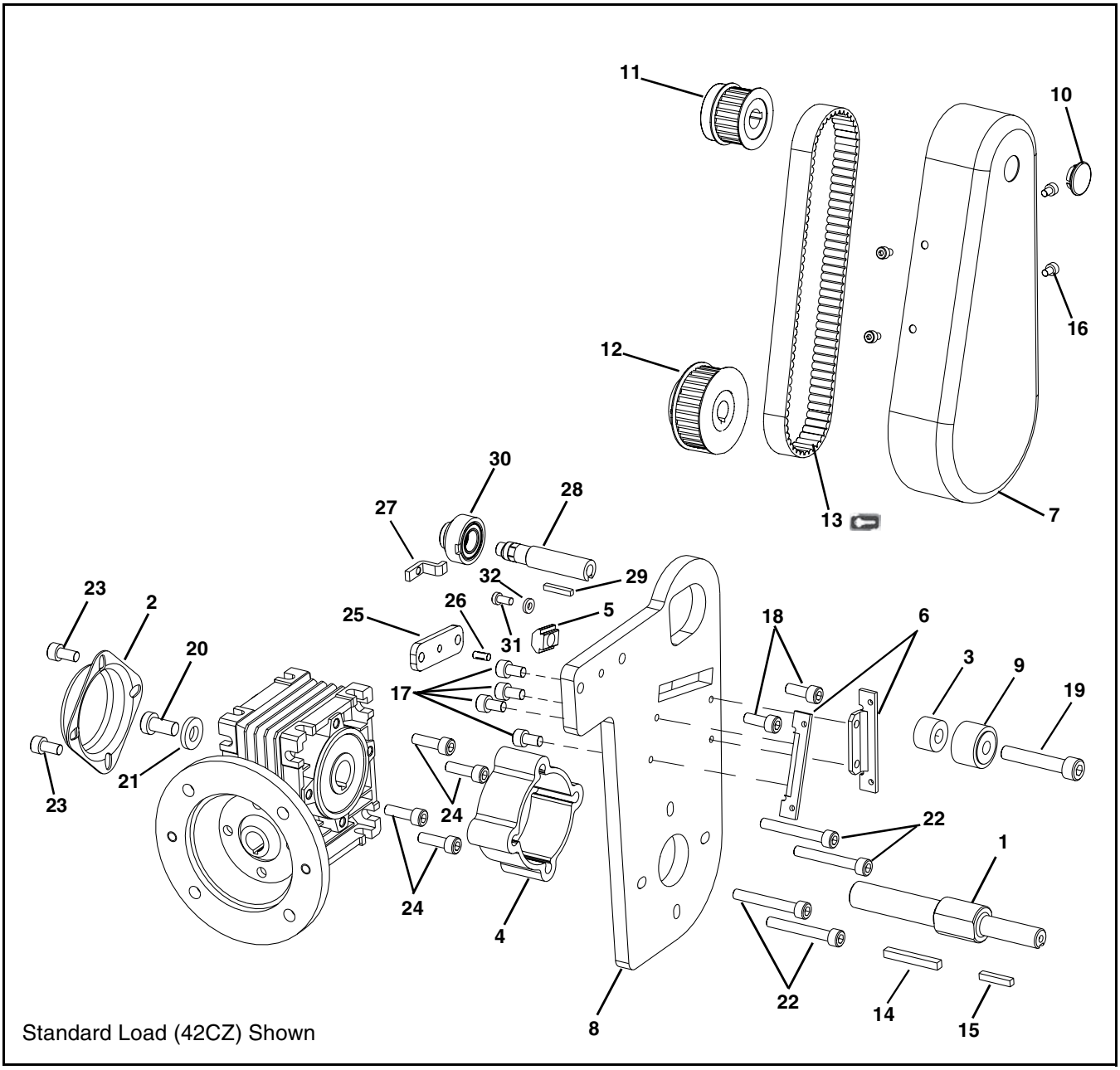
- For a single phase motor, reverse step 1 in “Single Phase Motor” on page 17.
- For a three phase motor, reverse steps 1-3, in “Three Phase Motor” on page 17.
- For a DC variable speed motor, reverse step 1 on “DC Variable Speed Motor” on page 18.
- For a brushless motor, reverse steps 1-2 on “Brushless Motor” on page 18.

Service Parts

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.

2100, 2200, 2300, 4100, 6200 Series and MPB Series Flat Belt Conveyors Bottom Mount Drive Package for Standard Load 90° Industrial Gearmotors



Standard Load (42CZ) Shown

Item	Part Number	Description
1	202272	Drive Shaft (for E-Drive 42CZ C Face Gearmotors)
	350122	Drive Shaft (for E-Drive 56 C Face Gearmotors)
	350136	Drive Shaft (for E-Drive IEC 63B5 and IEC 71B5 Gearmotors)
2	807-2059	Drive-Bearing Shaft Cover (for E-Drive 42CZ C Face Gearmotors)
	807-2016	Drive-Bearing Shaft Cover (for E-Drive 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
	300139	Drive-Bearing Shaft Cover (for Old Style Gearmotors, Prior to June 2011)
3	450445	Spacer
4	202270-00113	Adapter (for E-Drive 42CZ C Face Gearmotors)
	350115	Adapter (for E-Drive 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
5	202390M	Nut Follower
6	450375M	Cam Mounting Cover Bracket
7	450376M	Drive Guard
8	450443M	Mounting Plate
	202283	Mounting Plate (Flush Mount Only)
9	802-046	Bearing
10	807-226	Snap-out Plastic Plug
11	450365MP	Driven Pulley, 19 Tooth
	450366MP	Driven Pulley, 22 Tooth
	450367MP	Driven Pulley, 28 Tooth
	450368MP	Driven Pulley, 32 Tooth
	243325	Driven Pulley, 16 Tooth (Flush Mount Only)
12	450365MP	Drive Pulley, 19 Tooth
	450366MP	Drive Pulley, 22 Tooth
	450367MP	Drive Pulley, 28 Tooth
	450368MP	Drive Pulley, 32 Tooth
	450369MP	Drive Pulley, 44 Tooth
	450370MP	Drive Pulley, 48 Tooth
	450371MP	Drive Pulley, 60 Tooth
13	814-104	Timing Belt, 15 mm W x 450 mm L
	814-105	Timing Belt, 15 mm W x 460 mm L
	814-065	Timing Belt, 15 mm W x 475 mm L
	814-112	Timing Belt, 15 mm W x 495 mm L
	814-101	Timing Belt, 15 mm W x 500 mm L
	814-108	Timing Belt, 15 mm W x 520 mm L
	814-064	Timing Belt, 15 mm W x 535 mm L
	814-099	Timing Belt, 15 mm W x 565 mm L
14	912-084	Square Key, 0.188" x 1.50"
	980636M	Square Key, 6 mm x 36 mm (for E-Drive IEC 63B5 and IEC 71B5 Gearmotors)
15	980428M	Square Key, 4 mm x 28 mm
16	920406M	Socket Head Screw, M4-0.70 x 6 mm
17	920481M	Socket Head Screw, M4-0.70 x 8 mm
	920408M	Socket Head Screw, M4-0.70 x 8 mm (Flush Mount Only)
18	920625M	Socket Head Screw, M6-1.00 x 25 mm
	920630M	Socket Head Screw, M6-1.00 x 30 mm (6200 Series)

Item	Part Number	Description
19	920840M	Socket Head Screw, M8-1.25 x 40 mm
20	920893M	Low Head Cap Screw, M8-1.25 x 16 mm (for E-Drive 42CZ C Face Gearmotors)
	931020MSS	Flat Head Screw M10-1.50 x 20 mm (for E-Drive 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
21	605280P	Washer (for E-Drive 42CZ C Face Gearmotors only)
22	920620M	Low Head Cap Screw, M6-1.00 x 20 mm (2200 Series)
	920645M	Socket Head Screw, M6-1.00 x 45 mm (Flush Mount Only)
	920645M	Socket Head Screw, M6-1.00 x 45 mm (6200 Series)
23	920612M	Socket Head Screw, M6-1.00 x 12 mm
24	920620M	Socket Head Screw, M6-1.00 x 20 mm (for E-Drive 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
25	450027M	Drive Spacer (6200 Series)
26	807-952	Groove Pin (6200 Series)
27	43-38-08	Outboard Retaining Clip (4100 Series)
28	43-38-1-05	Outboard Drive Shaft 1" (25 mm) Wide (4100 Series)
	216202M	Outboard Drive Shaft 2" (51 mm) Wide (4100 Series)
	216203M	Outboard Drive Shaft 3" (76 mm) Wide (4100 Series)
	216204M	Outboard Drive Shaft 4" - 12" (102 mm - 305 mm) Wide (4100 Series)
29	912-053	Square Key, 0.125" x 0.75" for 1" (25 mm) Wide (4100 Series)
	980422M	Square Key, 4 mm x 22 mm for 2" - 12" (51 mm - 305 mm) Wide (4100 Series)
30	43-38-1-11	Retaining Sleeve for 1" (25 mm) Wide (4100 Series)
	43-38-2-18	Retaining Sleeve for 2" - 12" (51 mm - 305 mm) Wide (4100 Series)
31	920608M	Socket Head Screw, M6-1.00 x 8 mm
32	807-2092	Washer

Pulley Ratio / Timing Belt Combinations

Motor (Drive) Pulley Teeth	Conveyor (Driven) Pulley Teeth	Pulley Ratio	Timing Belt			
			Flat Belt 2200/MB/ MPB	Cleated Belt 2200/ MB/MPB	Flat Belt 4100/6200	Cleated Belt 4100/ 6200
19	32	0.59	N/A	N/A	814-119	814-104
22	32	0.69	N/A	N/A	814-106	814-105
28	22	1.27	N/A	N/A	814-107	814-104
28	28	1.00	814-103	814-105	N/A	N/A
28	32	0.88	814-103	814-105	814-100	814-065
32	19	1.68	814-119	814-104	814-119	814-104
32	22	1.45	814-119	814-104	814-103	814-105
32	28	1.14	814-103	814-105	814-100	814-065
44	19	2.32	814-100	814-065	814-096	814-101
44	22	2.00	814-096	814-101	814-096	814-101
44	28	1.57	814-096	814-101	814-104	814-101
44	32	1.38	N/A	N/A	814-105	814-064

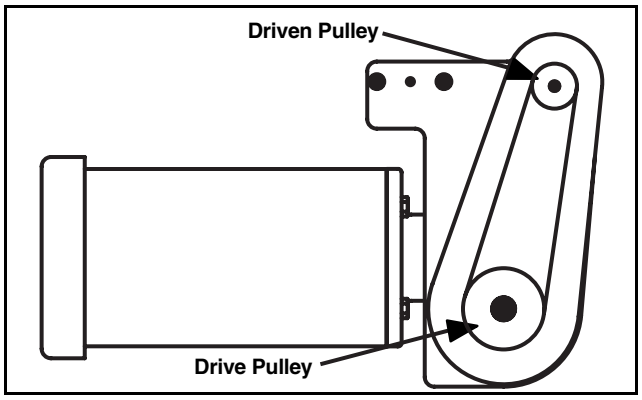
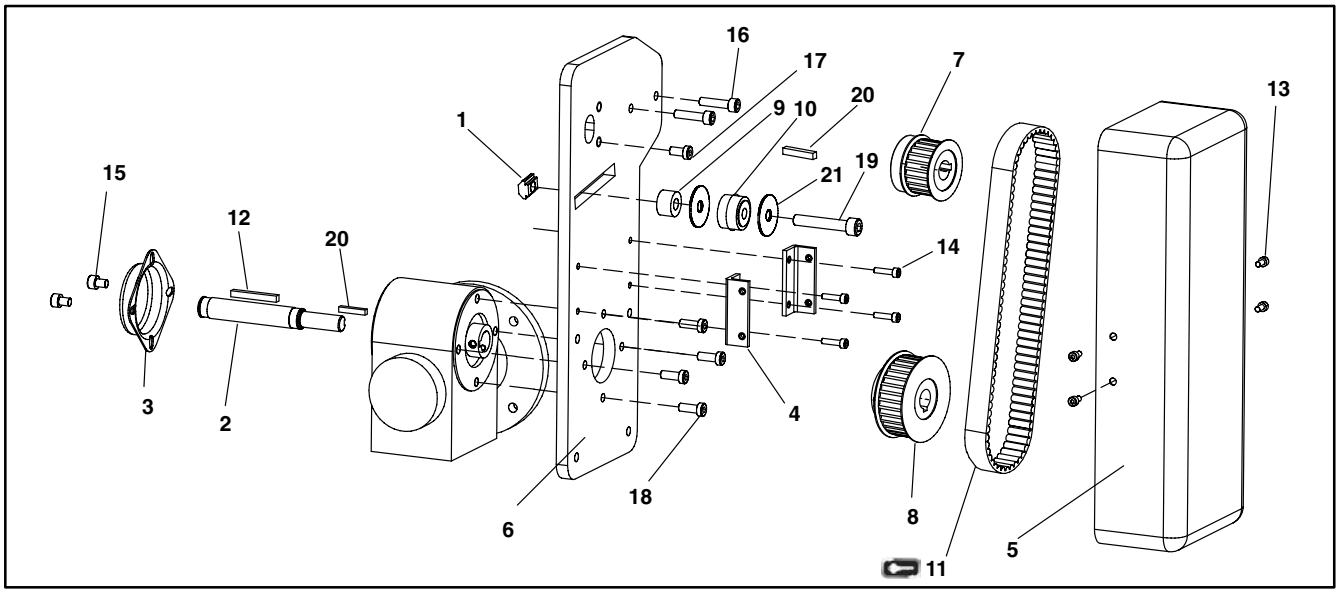


Figure 46

MPB Series Cleated Belt Conveyor Bottom Mount Drive Package for Standard Load 90° Industrial Gearmotors (Old Style Gearmotor Only)

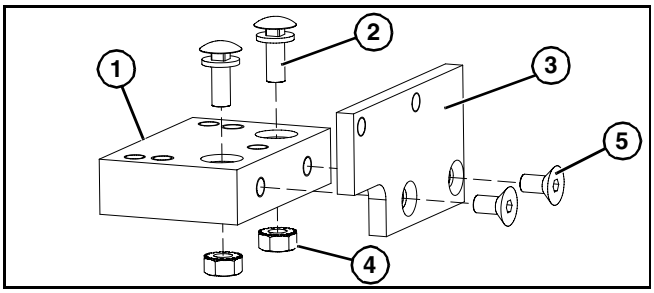


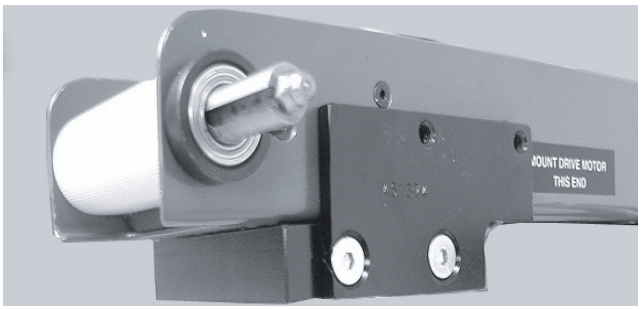
Item	Part Number	Description
1	202390M	Nut Follower Cam
2	450444M	Output Shaft, 12mm
3	300139	Drive Bearing Shaft Cover
4	243402	Mounting Cover Bracket
5	300871M	Drive Guard
6	243401	Mounting Plate
7	450366MP	Driven Pulley, 22Tooth
	450367MP	Driven Pulley, 28Tooth
	450368MP	Driven Pulley, 32Tooth
8	450365MP	Drive Pulley, 19Tooth
	450366MP	Drive Pulley, 22Tooth
	450367MP	Drive Pulley, 28Tooth
	450368MP	Drive Pulley, 32Tooth
	450369MP	Drive Pulley, 44Tooth
	450370MP	Drive Pulley, 48Tooth
	450371MP	Drive Pulley, 60Tooth
9	450445	Spacer
10	802-046	Bearing

Item	Part Number	Description
11	814-101	Timing Belt, 15mm W x 500mm L
	814-108	Timing Belt, 15mm W x 520mm L
	814-064	Timing Belt, 15mm W x 535mm L
	814-099	Timing Belt, 15mm W x 565mm L
	814-109	Timing Belt, 15mm W x 580mm L
	814-115	Timing Belt, 15mm W x 600mm L
	814-110	Timing Belt, 15mm W x 615mm L
12	912-084	Square Key, 0.188" x 1.50"
13	920408M	Socket Head Screw, M4 x 8mm
14	920416M	Socket Head Screw, M4 x 16mm
15	920608M	Socket Head Screw, M6 x 8mm
16	920625M	Socket Head Screw, M6 x 25mm
17	920692M	Stabilization Screw, M6 x 12mm Low Hd
18	920693M	Socket Head Screw, M6 x 16mm
19	920845M	Socket Head Screw, M8 x 45mm
20	980422M	Square Key, 4mm x 22mm
21	807-1133	Washer

Service Parts

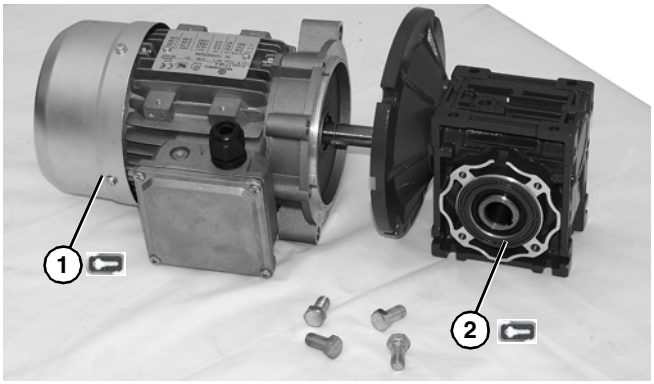
4100 Adapter Package





Item	Part No.	Part Description
1	609486	Mounting Block 1” (25mm)
	609487	Mounting Block 2” (51mm)
	609488	Mounting Block 3” (76mm)
	609479	Mounting Block 4” (102mm)
	609480	Mounting Block 5” (127mm)
	609481	Mounting Block 6” (152mm)
	609482	Mounting Block 7” (178mm)
	609483	Mounting Block 8” (203mm)
	609484	Mounting Block 10” (254mm)
	609485	Mounting Block 12” (305mm)
2	613602P	Bolt & Flat Washer Assembly
3	450374	Drive Adapter Plate
4	910-126	Hex Nut with Lock Washer
5	930612M	Flat Head Screw, M6 x 12mm

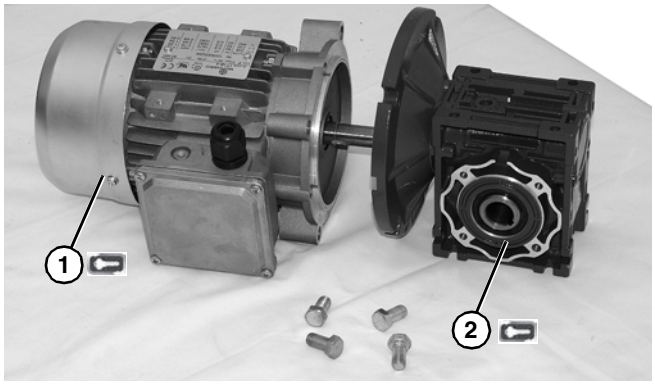
U.S. Version Gearmotors



Item	Part No.	Part Description
1	62MES411FN	Motor, 0.25 hp (0.19 Kw) 115/230 Volts, 60 Hz, 1-Phase
	62MES423FN	Motor, 0.25 hp (0.19 Kw) 208-230/ 460 Volts, 60 Hz, 3-Phase
	62MSD3DEN	Motor, 0.25 hp (0.19 Kw) 130 Volts DC
	32MS423EI*	Motor, 0.25 hp (0.19 Kw) 230/460 Volts, 60 Hz, 3-Phase Variable frequency/Indexing
	62M060ESBDDEN	Motor, 0.25HP, (0.19 Kw), 50 RPM, Brushless DC
	62M040ESBDDEN	Motor, 0.25HP, (0.19 Kw), 75 RPM, Brushless DC
	62M020ESBDDEN	Motor, 0.25HP, (0.19 Kw), 150 RPM, Brushless DC
	62M010ESBDDEN	Motor, 0.25HP, (0.19 Kw), 300 RPM, Brushless DC
	62M005ESBDDEN	Motor, 0.25HP, (0.19 Kw), 600 RPM, Brushless DC
2	32M005EL	Gear Reducer, 5:1, 42 CZ
	32M010EL	Gear Reducer, 10:1, 42 CZ
	32M020EL	Gear Reducer, 20:1, 42 CZ
	32M040EL	Gear Reducer, 40:1, 42 CZ
	32M060EL	Gear Reducer, 60:1, 42 CZ
	32M005ES	Gear Reducer, 5:1, 56C (for motors with part numbers ending with EI or EN only)
	32M010ES	Gear Reducer, 10:1, 56C (for motors with part numbers ending with EI or EN only)
	32M020ES	Gear Reducer, 20:1, 56C (for motors with part numbers ending with EI or EN only)
	32M040ES	Gear Reducer, 40:1, 56C (for motors with part numbers ending with EI or EN only)
	32M060ES	Gear Reducer, 60:1, 56C (for motors with part numbers ending with EI or EN only)

*This motor is rated at 1/2 hp when running as a fixed speed motor at 60 hz or when used as an indexing motor. When used as a variable speed motor, the HP rating is reduced to 1/4 hp.

CE Version Gearmotors



Item	Part No.	Part Description
1	826-281	Motor, 0.19 Kw 230 Volts, 1400 RPM 50 Hz, 1-Phase
	825-284	Motor, 0.19 Kw 230/400 Volts, 1400 RPM 50 Hz, 3-Phase
2	62Z005ES	Gear Reducer, 5:1, 63 B5
	62Z010ES	Gear Reducer, 10:1, 63 B5
	62Z020ES	Gear Reducer, 20:1, 63 B5
	62Z040ES	Gear Reducer, 40:1, 63 B5
	62Z060ES	Gear Reducer, 60:1, 63 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 (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.

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