

2100, 2200, 4100, 6100, MPB Series Side Mount Drive Package for Standard Load 90° Industrial 60 Hz Gearmotors





Table of Contents



Warnings – General Safety	2	Preventative Maintenance & Adjustment	9
Introduction	2	Required Tools	9
Product Description	3	Gear Reducer Replacement	9
Specifications	3	Motor Replacement	10
Gearmotors	3	Service Parts	12
2200 Belt Speeds	4	Side Mount Drive Package for 90° 60 Hz Motors	12
2100, 4100 & 6100 Belt Speeds	4	4100 Adapter Components	13
MPB Belt Speeds	5	Gearmotors	13
Installation	6	Return Policy	14
Required Tools	6		
Mounting	6		
For 4100 and 2100 Flat Belt Conveyors	7		
For 6100, 2200, MPB and 2100 Cleated Belt Conveyors	8		

Warnings – General Safety

	WARNING	
<p>The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.</p>		

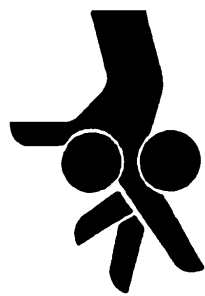

	 DANGER
<p>Climbing, sitting, walking or riding on conveyor will cause severe injury. KEEP OFF CONVEYORS.</p>	

	 DANGER
<p>Do NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.</p>	

	 WARNING
<p>Exposed moving parts can cause severe injury. LOCK OUT POWER before removing guards or performing maintenance.</p>	

	 WARNING
<p>Gearmotors may be HOT. DO NOT TOUCH Gearmotors.</p>	

	 WARNING
<p>Exposed moving parts can cause severe injury. REPLACE ALL GUARDS BEFORE RUNNING CONVEYOR.</p>	

	 WARNING
<p>Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.</p> <p>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.</p>	

	 WARNING
<p>MPB Series Conveyors are not reversible. Reversing creates pinch points which can cause severe injury. DO NOT REVERSE MPB SERIES CONVEYORS.</p>	

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: 5131529, 5174435, and corresponding patents and patent applications in other countries.

Dorner 4100 Series conveyors are covered by patent number 3923148 and corresponding patents and patent applications in other countries.

Dorner 2200, 6100 & MPB Series conveyors are covered by patent number 5174435 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.

Product Description

Refer to Figure 1 for typical components.

Typical Components	
A	Conveyor
B	Mounting Bracket
C	Gearmotor
D	Coupling
E	Inspection Plug

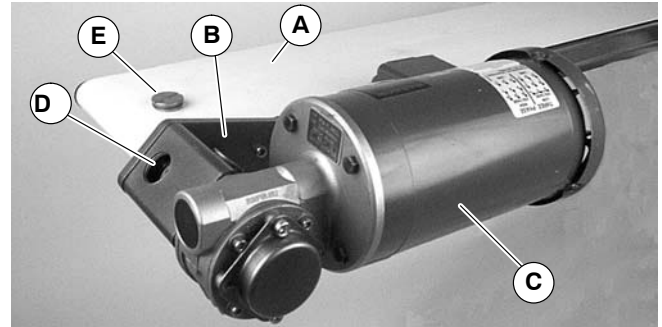


Figure 1

Specifications

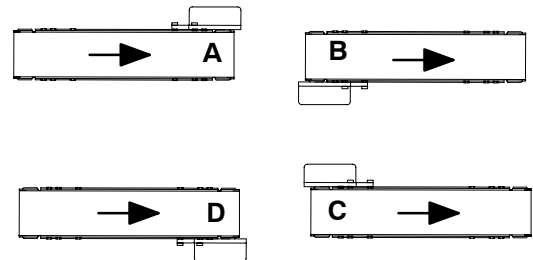
Gearmotor Mounting Package Models:

Example:

6 M S H S WW A

- Mount Position = A, B, C or D (see detail to the right)
- Conveyor Width Reference*
- Gearmotor Type = Standard Load, Industrial
- Output Shaft Type = 90° Industrial
- Mount Style = Side Mount
- Language Code = U.S. English

2 = 2100 Series Conveyor
 22 = 2200 Series Series Conveyors
 4 = 4100 Series Conveyor
 6 = 6100 Series Conveyor
 2P = MPB Series Conveyor



* See "Ordering and Specifications" Catalog for details.

Table 1: Gearmotor Specifications

	Single Phase	Three Phase	DC Variable Speed
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.
Input Frequency	60 Hz		N/A
Input Current	5.0 Amperes	1.2 /0.6 Amperes	2.2 Amperes
Motor RPM	1725		2500
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1		
Frame Size	NEMA 42 CZ		
Motor Type	Totally Enclosed, Fan-cooled		

Specifications

Table 2: Belt Speeds for Standard Load Fixed Speed 90° 60 Hz Gearmotors on 2200 Series Conveyors

Gearmotors				Belt Speed	
Part Number	RPM	In-lb	N-m	Ft/min	M/min
32M060HL4(vp)F(n)	29	226	25.5	10.0	3.0
32M040HL4(vp)F(n)	43	237	26.8	15.0	4.6
32M020HL4(vp)F(n)	86	142	16	30.0	9.1
32M010HL4(vp)F(n)	173	78	8.8	61.0	18.6
32M005HL4(vp)F(n)	345	41	4.6	121.0*	36.9*

(vp) = voltage and phase
 11 = 115 V, 1-phase
 23 = 208 – 230/460 V, 3-phase
 * = Nosebar transfers operate at maximum 77Ft/min (23.5M/min) belt speed

(n) = Reversing Capability
 N = No Reversing Capability
 R = With Reversing Capability

Table 3: Belt Speeds for Standard Load Variable Speed 90° DC Gearmotors on 2200 Series Conveyors

Gearmotors				Belt Speed	
Part Number	Max RPM	In-lb	N-m	Ft/min	M/min
32M060HLD3DEN	42	198	22.4	1.8 – 14.0	0.5 – 4.5
32M040HLD3DEN	63	163	18.4	2.6 – 22.0	0.8 – 6.7
32M020HLD3DEN	125	98	11.1	5.3 – 44.0	1.6 – 13.0
32M010HLD3DEN	250	54	6.1	10.0 – 88.0*	3.2 – 27.0*
32M005HLD3DEN	500	28	3.2	21.0 – 176.0*	6.4 – 54.0*

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

Table 4: Belt Speeds for Standard Load Fixed Speed 90° 60 Hz Gearmotors on 2100, 4100 & 6100 Series Conveyors

Gearmotors				Belt Speed	
Part Number	RPM	In-lb	N-m	Ft/min	M/min
32M060HL4(vp)F(n)	29	226	25.5	8.0	2.4
32M040HL4(vp)F(n)	43	237	26.8	12.0	3.7
32M020HL4(vp)F(n)	86	142	16	25.0	7.6
32M010HL4(vp)F(n)	173	78	8.8	49.0	14.9
32M005HL4(vp)F(n)	345	41	4.6	99.0	30.2

(vp) = voltage and phase
 11 = 115 V, 1-phase
 23 = 208 – 230/460 V, 3-phase

(n) = Reversing Capability
 N = No Reversing Capability
 R = With Reversing Capability

Table 5: Belt Speeds for Standard Load Variable Speed 90° DC Gearmotors on 2100, 4100 & 6100 Series Conveyors

Gearmotors				Belt Speed	
Part Number	Max RPM	In-lb	N-m	Ft/min	M/min
32M060HLD3DEN	42	198	22.4	1.4 – 12	0.4 – 3.6
32M040HLD3DEN	63	163	18.4	2.1 – 18	0.7 – 5.4
32M020HLD3DEN	125	98	11.1	4.3 – 36	1.3 – 11
32M010HLD3DEN	250	54	6.1	9.0 – 71	2.6 – 22
32M005HLD3DEN	500	28	3.2	17 – 143	5.2 – 43

Table 6: Belt Speeds for Standard Load Fixed Speed 90° 60 Hz Gearmotors on MPB Series Conveyors

Gearmotors				Belt Speed	
Part Number	RPM	In-lb	N-m	Ft/min	M/min
32M060HL4(vp)F(n)	29	226	25.5	20	6.0
32M040HL4(vp)F(n)	43	237	26.8	29	8.9
32M020HL4(vp)F(n)	86	142	16	59	17.9

(vp) = voltage and phase

11 = 115 V, 1-phase

23 = 208 – 230/460 V, 3-phase

(n) = Reversing Capability

N = No Reversing Capability

R = With Reversing Capability

Table 7: Belt Speeds for Standard Load Variable Speed 90° DC Gearmotors on MPB Series Conveyors

Gearmotors				Belt Speed	
Part Number	Max RPM	In-lb	N-m	Ft/min	M/min
32M060HLD3DEN	42	198	22.4	3.4–28	1.0–8.6
32M040HLD3DEN	63	163	18.4	5.1–42	1.6–12.9
32M020HLD3DEN	125	98	11.1	10–85	3–26
32M010HLD3DEN	250	54	6.1	20–170*	6–52*

* = Cleated and Sidewall Cleated belts operate at a maximum of 150 ft/min (45.7 m/min)



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

Installation

Required Tools

- Hex key wrenches:
3 mm, 5 mm
- Large flat-blade screwdriver
- Torque wrench

Mounting

	 WARNING
	<p>Exposed moving parts can cause severe injury.</p> <p>LOCK OUT POWER before removing guards or performing maintenance.</p>

	 WARNING
	<p>MPB Series Conveyors are not reversible. Reversing creates pinch points which can cause severe injury.</p> <p>DO NOT REVERSE MPB SERIES CONVEYORS.</p>

Installation Component List	
F	Drive Assembly
G	M6 Socket Head Screws (2x)
H	Hex Shaft (2100 & 4100 Flat Belt Conveyor Only)

1. Typical components (Figure 2)

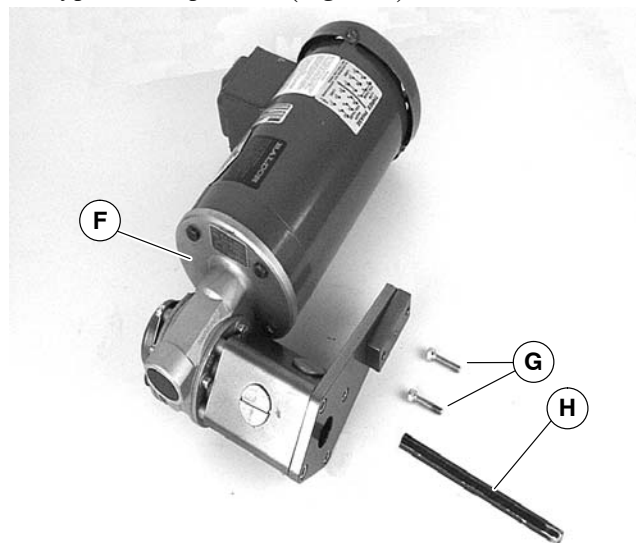


Figure 2

NOTE: Flat belt mounting package shown above (Figure 2), cleated belt mounting package similar.

NOTE: Gearmotor may be operated in positions 1, 2, 3 or 4 (Figure 3).

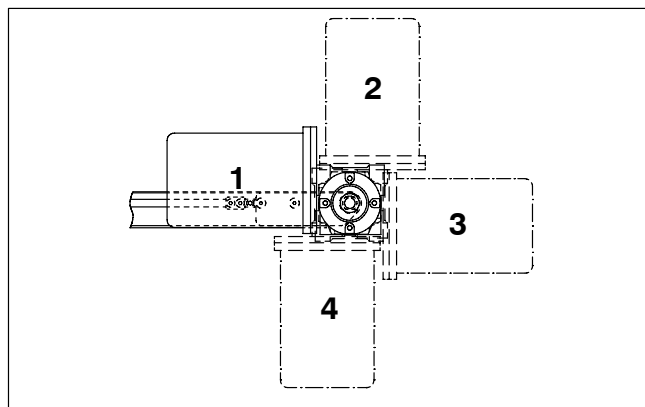


Figure 3

2. If required, change gearmotor position by removing four (4) screws (I of Figure 4). Rotate gearmotor to other position (Figure 3) and replace screws (I). Tighten to 100 in-lb (12 N-m).

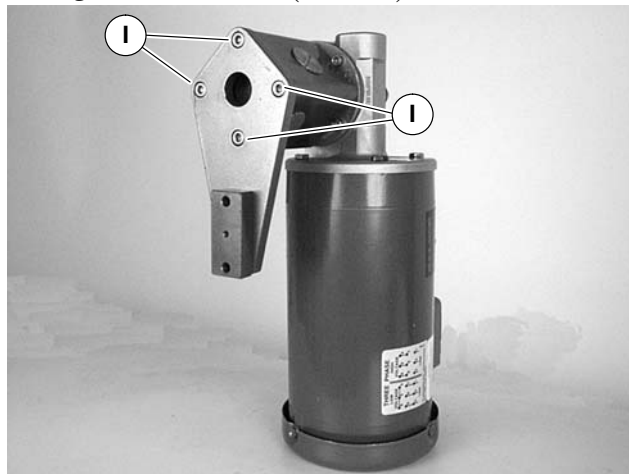


Figure 4

For 4100 and 2100 Flat Belt Conveyors

IMPORTANT: On 4 inch (95 mm) and wider conveyors, the hex broach is offset from center towards the drive side for hex shaft engagement.

3a The figures below show gearmotor mounting for 4100 and 2100 series conveyors.

Figure 5 – 4100 Series

Gearmotor and Drive Plate are mounted to Spacer Plate

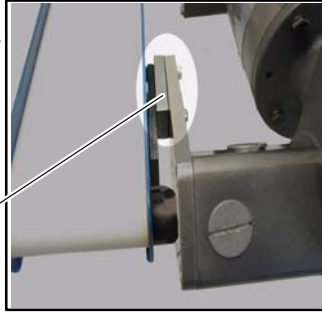
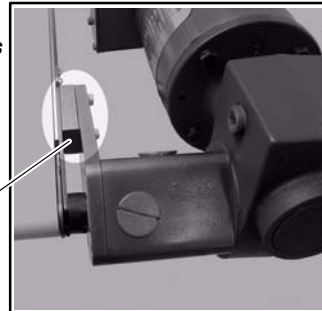


Figure 6 – 2100 Series

Gearmotor and Drive Plate are mounted to Spacer Plate



4a. Locate drive mounting position and remove two (2) screws (J of Figure 7).

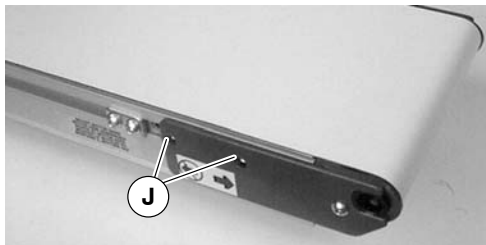


Figure 7

5a. Remove inspection plugs (K of Figure 8).

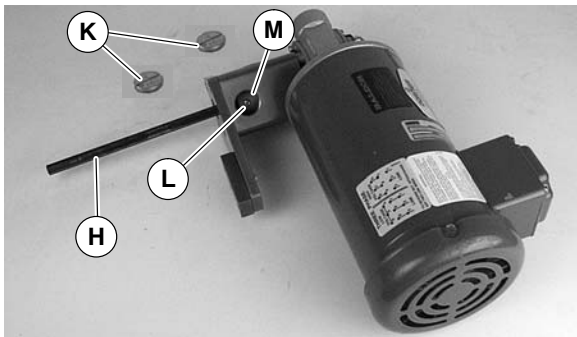


Figure 8

6a. Insert hex shaft (H of Figure 10) into coupling.

	! WARNING
	<p>Exposed moving parts can cause severe injury.</p> <p>KEEP HANDS CLEAR OF DRIVE WHILE JOGGING MOTOR.</p>

NOTE: Coupling has two (2) set screws (L of Figure 9).

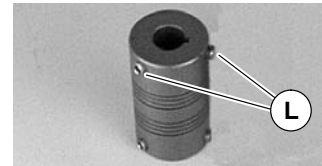


Figure 9

7a. Jog motor and rotate coupling to align set screw (L of Figure 8) with access hole (M). Tighten to 32 in-lb (3.7 N-m). Repeat for second set screw.

	! WARNING
	<p>Exposed moving parts can cause severe injury.</p> <p>LOCK OUT POWER AFTER JOGGING MOTOR.</p>

8a. Replace inspection plugs (K of Figure 10). Insert hex shaft (H) into drive pulley hex bushing and slide drive against conveyor. Install two (2) screws (G). Tighten to 80 in-lb (9 N-m).

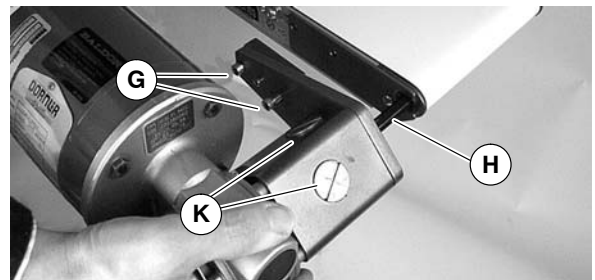


Figure 10

Installation

For 6100, 2200, MPB and 2100 Cleated Belt Conveyors

	 WARNING
	<p>Drive shaft keyway may be sharp. HANDLE WITH CARE.</p>

3b The figures below show gearmotor mounting for 6100, 2200 and MPB series conveyors.

Figure 11 – 6100 Series

Gearmotor and Drive Plate are mounted to Spacer Plate

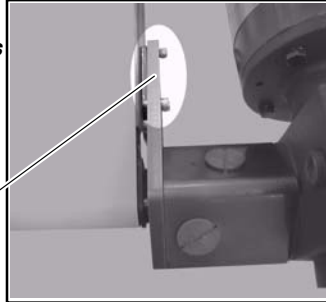


Figure 12 – 2200 Series

Gearmotor and Drive Plate are mounted to Head Plate

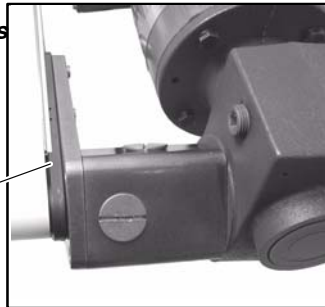
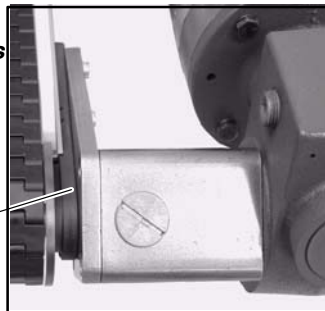


Figure 13 – MPB Series

Gearmotor and Drive Plate are mounted to Head Plate



NOTE: 6100 conveyor shown, 2200 and MPB cleated belt conveyors similar.

4b. Locate drive output shaft. Remove two screws (J of Figure 14). Install key (N).

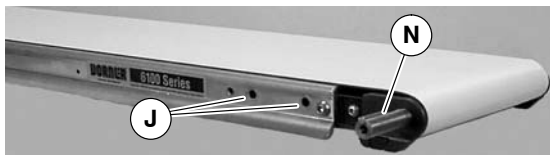


Figure 14

5b. Remove inspection plugs (K of Figure 15).

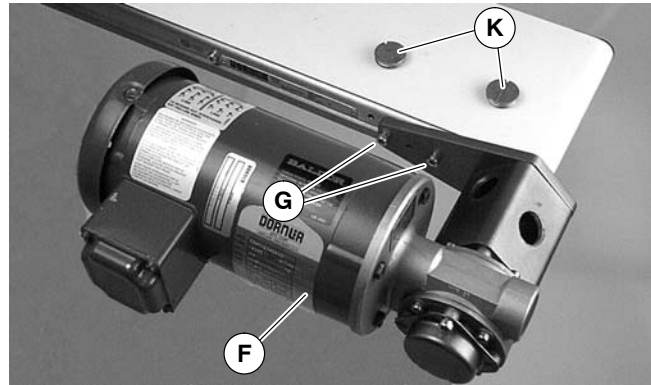




Figure 15

6b. Slide coupling over drive output shaft and install drive assembly (F of Figure 15) with screws (G). Tighten to 80 in-lb (9 N-m).

	 WARNING
	<p>Exposed moving parts can cause severe injury. KEEP HANDS CLEAR OF DRIVE WHILE JOGGING MOTOR.</p>

NOTE: Coupling has two (2) set screws (L of Figure 9).

7b. Jog motor and rotate coupling to align set screw (L of Figure 16) with access hole (M). Tighten to 32 in-lb (3.7 N-m). Repeat for second set screw.

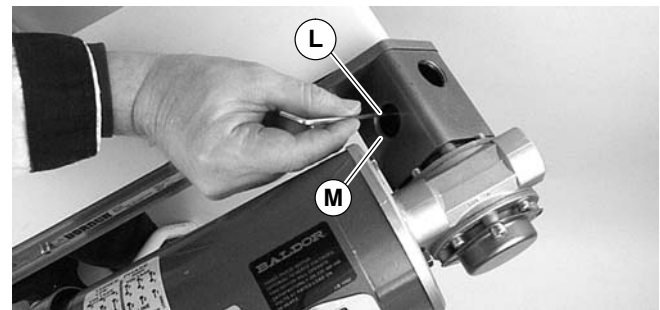




Figure 16

	 WARNING
	<p>Exposed moving parts can cause severe injury. LOCK OUT POWER AFTER JOGGING MOTOR.</p>

8b. Replace inspection plugs. (K of Figure 15).

Preventive Maintenance and Adjustment

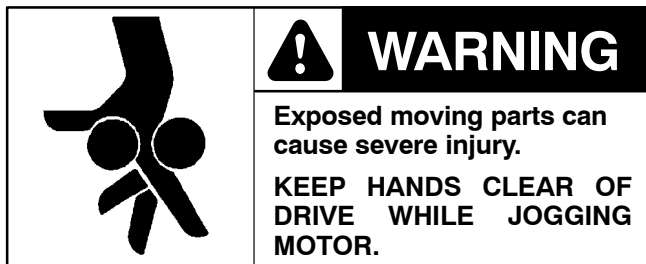
Required Tools

- Hex key wrenches:
2.5 mm, 3 mm, 5 mm
- Large flat-blade screwdriver
- Adjustable wrench (for hexagon head screws)
- External snap ring pliers
- Torque wrench

Gear Reducer Replacement



1. Remove inspection plugs (K of Figure 15).



NOTE: Coupling has two (2) set screws (L of Figure 9).

2. Jog motor and rotate coupling to align set screw (L of Figure 16) with access hole (M). Loosen set screw. Repeat for second set screw.
3. Remove two (2) screws (G of Figure 15). Remove drive assembly (F).
4. Remove four (4) screws (I of Figure 17) and remove mounting bracket & tube (O).

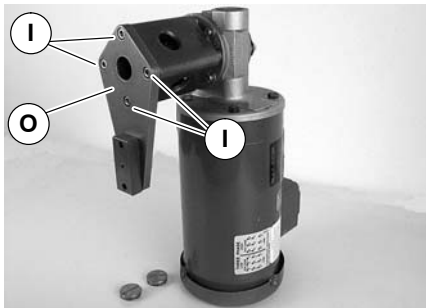


Figure 17

5. Loosen two (2) set screws (L of Figure 18) and detach coupling (P) from gear reducer.

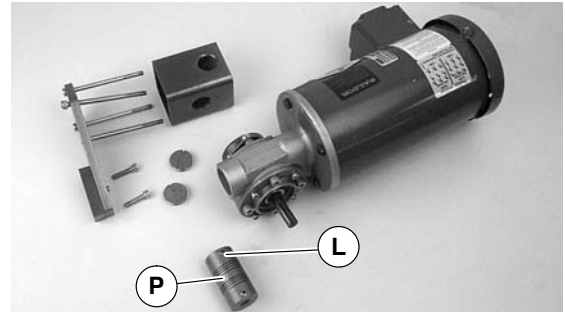


Figure 18

6. Remove four screws (Q of Figure 19). Detach motor (R) from gear reducer (S). Retain shaft key (T).

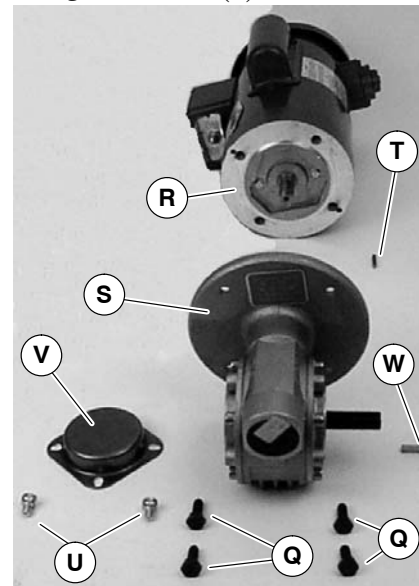


Figure 19

7. Remove two (2) screws (U) and detach output shaft cover (V).
8. Remove gear reducer output shaft key (W).

Preventive Maintenance and Adjustment

9. Loosen six (6) set screws (X of Figure 20). Remove drive shaft (Y) and key (Z).

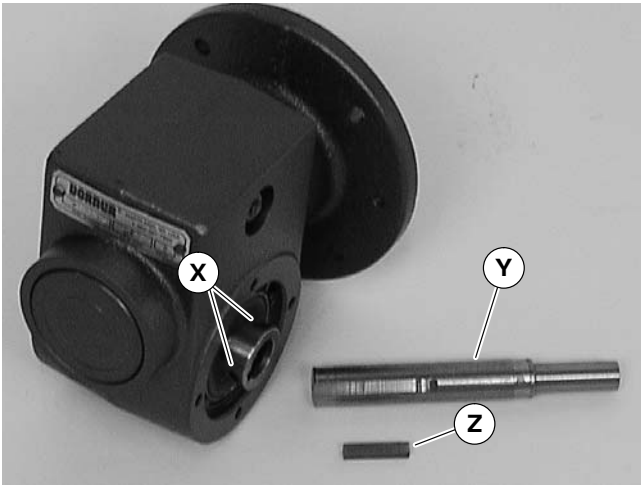


Figure 20

10. Apply grease (AA of Figure 21) to shaft.

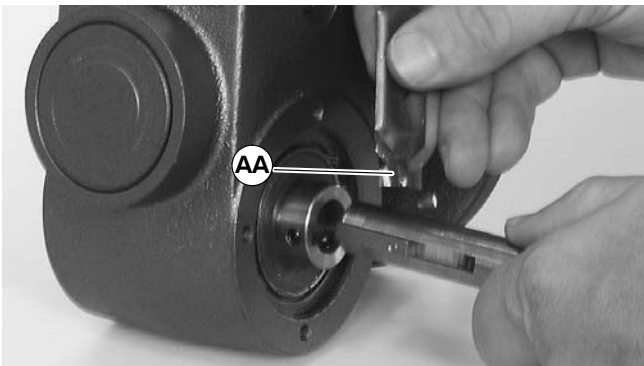


Figure 21

11. Replace the original shaft components into new gear reducer (see 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.

12. With key (T of Figure 19) in keyway, slide motor (R) and gear reducer (S) together. Install screws (Q) and tighten.
13. Attach coupling (P of Figure 18) to gear reducer shaft. Tighten two set screws (L) to 32 in-lb (4.7 N-m).

14. Attach mounting bracket & tube (O of Figure 17) to gearmotor. Tighten screws (I) to 103 in-lb (12 N-m).

15. Complete installation steps:

- See “4100 and 2100 Flat Belt Conveyors” section on page 7.
- See “6100 2200, MPB and 2100 Cleated Belt Conveyors” section on page 8.

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.
--	---

1. For single phase motor, unplug power cord from outlet.
2. For three phase motor:
 - a. Loosen terminal box screws (AB of Figure 22) and remove cover (AC).

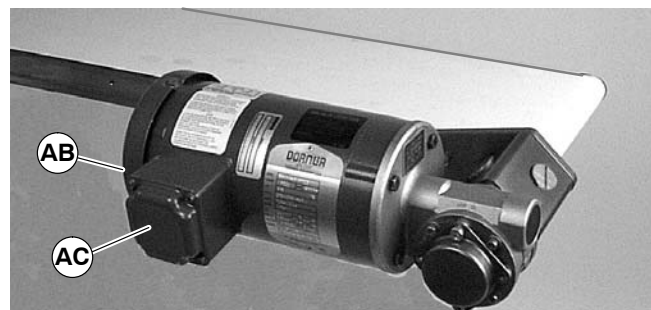


Figure 22

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

Preventive Maintenance and Adjustment

3. For DC variable speed motor, unplug motor cord at disconnect (AD of Figure 23).

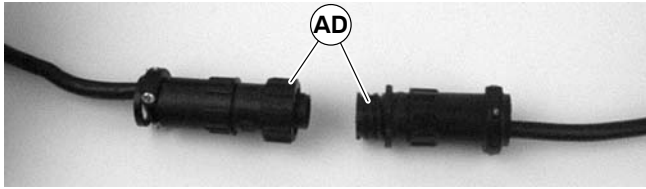


Figure 23

4. Remove four screws (Q of Figure 24). Detach motor (R) from gear reducer (S). Retain motor output shaft key (T).

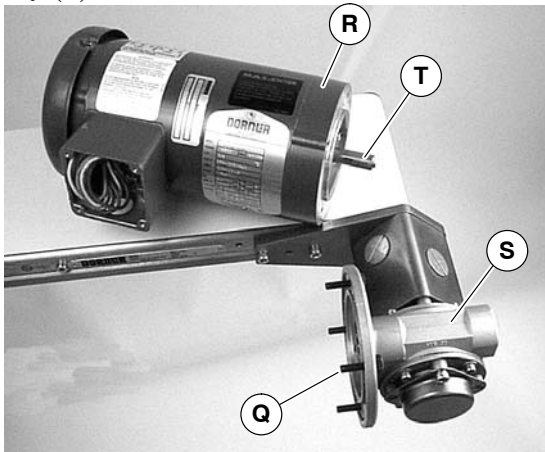


Figure 24

5. With key (T of Figure 25) in keyway, slide motor and gear reducer together. Install screws (Q) and tighten.

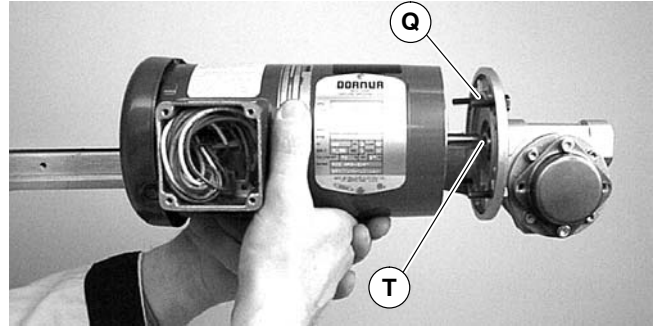


Figure 25

6. Replace wiring:

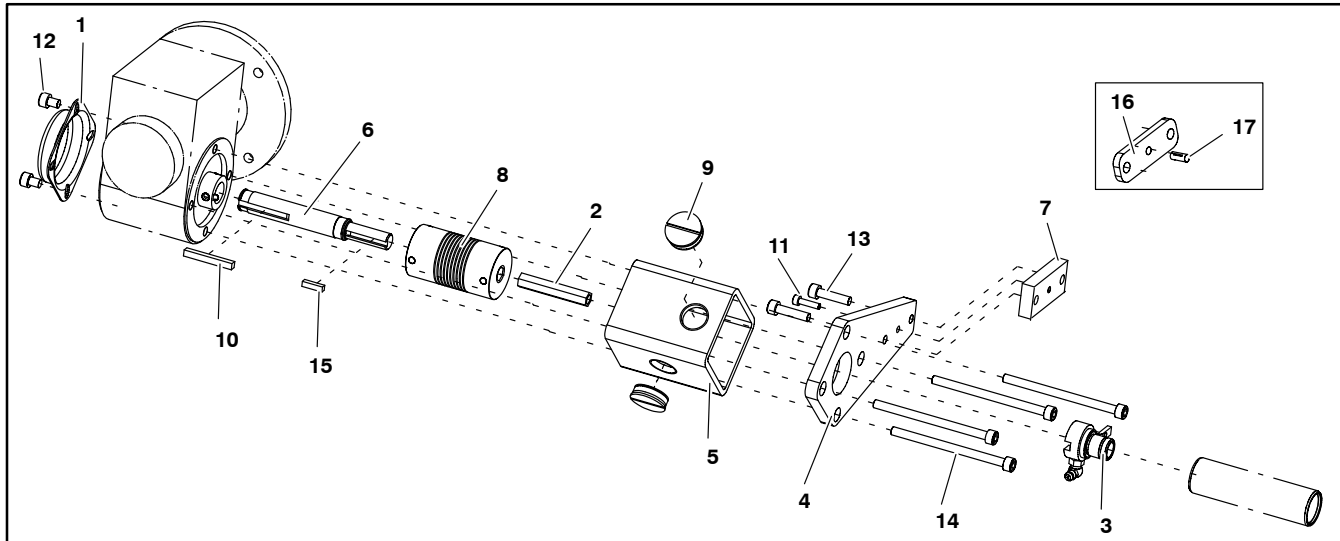
- For a single phase motor, reverse step 1 on page 10.
- For a three phase motor, reverse step 2, on page 10.
- For a DC variable speed motor, reverse step 3 on this page.

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

Service Parts

NOTE: For replacement parts other than those shown on this page, contact an authorized Dorner Service Center or the factory.

Side Mount Drive Package for 90° 60Hz Gearmotors



Item	Part Number	Description
1	300139	Drive-Bearing Shaft Cover
2	616301	Outboard Drive Shaft 1" (25mm) Wide
	616302	Outboard Drive Shaft 2" (51mm) Wide
	616303	Outboard Drive Shaft 3" (76mm) Wide
	616304	Outboard Drive Shaft 4" (102mm) Wide
	616305	Outboard Drive Shaft 5" (127mm) Wide
	616306	Outboard Drive Shaft 6" (152mm) Wide
	616308	Outboard Drive Shaft 8" (203mm) Wide
	616310	Outboard Drive Shaft 10" (254mm) Wide
	616312	Outboard Drive Shaft 12" (305mm) Wide
	203968	Outboard Drive Shaft 18" (457mm) Wide (2100 Conveyors)
	203971	Outboard Drive Shaft 21" (533mm) Wide (2100 Conveyors)
	203974	Outboard Drive Shaft 24" (610mm) Wide (2100 Conveyors)
3	618898	Retaining Sleeve 3" - 12" (76mm - 305mm) (4100 Conveyors)
	200399M	Retaining Sleeve (2100 Conveyors)
	200223M	Retaining Sleeve (2100 Cleated Conveyors)
4	450266M	Side Drive Plate (2100, 4100, 6100 & MPB Conveyors)
	242525M	Side Drive Plate (2200 Conveyors)

5	450267M	Side Drive Spacer Tube
6	450444M	Output Shaft
7	697863M	Spacer Plate (4100)
	203975M	Spacer Plate (2100)
8	807-996	Flex Coupling
	807-995	Flex Coupling (6100 & 2100 Cleated)
9	824-322	Plug
10	912-084	Square Key .188 x 1.50
11	920416M	Socket Head Screw M4 x 16mm
12	920608M	Socket Head Screw M6 x 8mm
13	920614M	Socket Head Screw for 1-2" (25-51mm) wide 4100 Conveyors M6 x 14mm
	920625M	Socket Head Screw for 3-12" (76-305mm) wide 4100 Conveyors & 2100 Cleated Conveyors M6 x 25mm
	920630M	Socket Head Screw for 6100 Conveyors M6 x 30mm
	920635M	Socket Head Screw for 2100 Conveyors M6 x 35mm
14	920690M	Socket Head Screw M6 x 90mm
15	980416M	Square Key 4mm x 16mm
16	450027M	Spacer Plate (6100)
17	807-952	Groove Pin (6100)

4100 Adapter Components

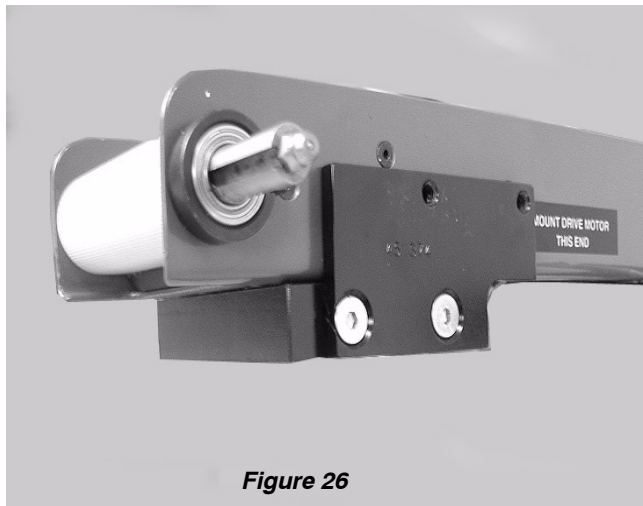
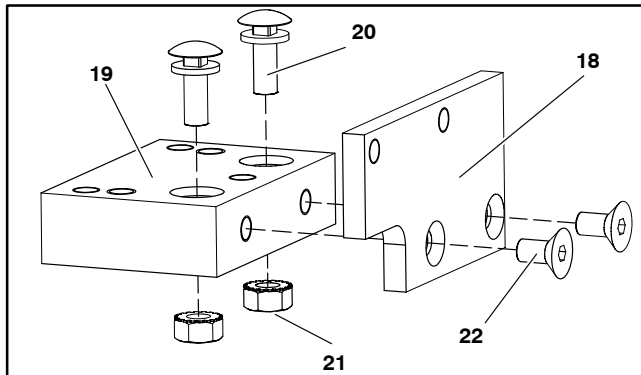


Figure 26

Adapter package attached to a 4100 series conveyor.

18	450374	Drive Adaptor Plate
19	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)
20	613602P	Bolt/Flat Washer Assembly
21	910-126	Hex Nut with Lock Washer
22	930612M	Flat Head Screw M6 x 12mm

Gearmotors



Item	Part No.	Part Description
23	826-328	Motor, 0.25 Hp (0.19 Kw) 115/230 Volts, 60 Hz, 1-Phase
	826-337	Motor, 0.25 Hp (0.19 Kw) 115/230 Volts, 60 Hz, 1-Phase with Reversing
	826-330	Motor, 0.25 Hp (0.19 Kw) 208-230/460 Volts, 60 Hz, 3-Phase
	826-332	Motor, 0.25 Hp (0.19 Kw) 130 Volts DC
24	32M005HS	Gear Reducer, 5:1, 42CZ
	32M010HS	Gear Reducer, 10:1, 42CZ
	32M020HS	Gear Reducer, 20:1, 42CZ
	32M040HS	Gear Reducer, 40:1, 42CZ
	32M060HS	Gear Reducer, 60:1, 42CZ
25	807-996	Coupling for 2100, 2200, 4100 and MPB Flat Belt Conveyor
	807-995	Coupling for 2100 Cleated Belt Conveyor
	807-995	Coupling for 6100 Conveyor
26	450444M	Gear Reducer Shaft
27	912-084	Key, Square, 0.188" x 1.5" L
28	980416M	Key, Square, 4mm x 16mm L

Return Policy

No returns will be accepted without prior written factory authorization. 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. 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 to reference.

There will be a 15% restocking charge on all new items returned for credit where Dorner was not at fault. These will not be accepted after 60 days from original invoice date. The restocking charge covers inspection, cleaning, disassembly, and reissuing 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. Feel free to contact Dorner for the name of your local representative. Our technical sales and service staff will gladly help with your questions on Dorner products.

For a copy of Dorner's Limited 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[®]

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. 1999

DORNER MFG. CORP.

975 Cottonwood Drive, PO Box 20
Hartland, WI 53029-0020 USA

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