DORNER®

Installation Maintenance & Parts Manual

2100, 2200, 4100, 6100, MPB Series Bottom Mount Drive Package for Standard Load 90° Industrial 50 Hz Gearmotors

Table of Contents

CE

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

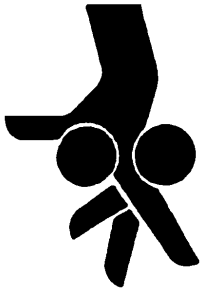
Gearmotors may be HOT.

DO NOT TOUCH Gearmotors.

WARNING

Exposed moving parts can cause severe injury.

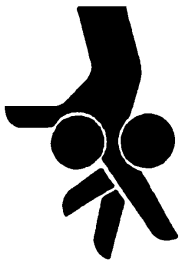
REPLACE ALL GUARDS BEFORE RUNNING CONVEYOR.



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.



WARNING

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

DO NOT REVERSE MPB SERIES CONVEYORS.

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 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	Timing Belt Tensioner
E	Cover
F	Timing Belt
G	Drive Pulley
H	Driven Pulley

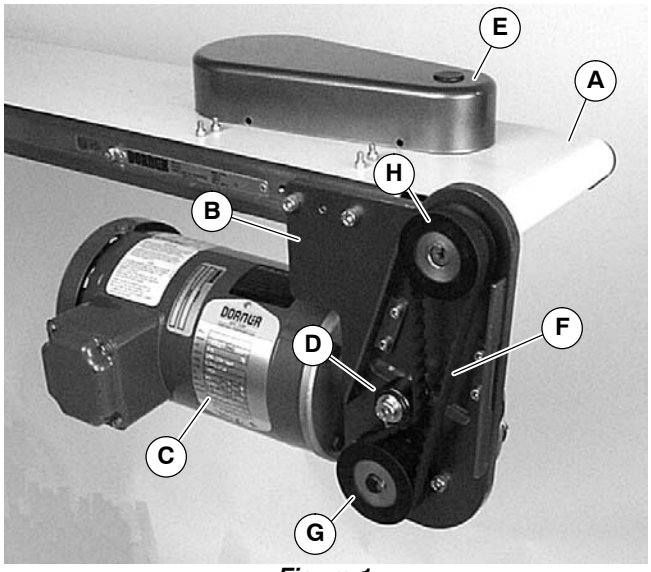


Figure 1

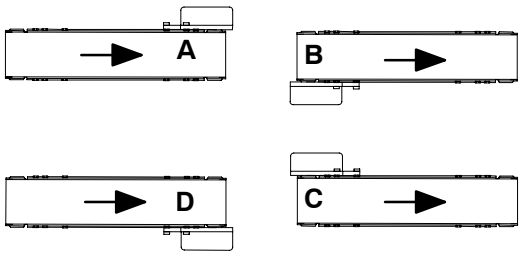
Specifications

Gearmotor Mounting Package Models:

Example:

2 U B H S WW A – 32 32

- **Driven Pulley (see Table 2 & 3)**
- **Drive Pulley (see Table 2 & 3)**
- **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 = Standard Load**
- **Output Shaft Type = 90°**
- **Mount Style = Bottom Mount**
- **Language Code = CE 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	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

Table 1:Belt Speeds for Standard Load Fixed Speed 90° 50 Hz Gearmotors on 2200 Series Conveyors

Gearmotors			Belt Speed M/min	Drive Pulley	Driven Pulley
Part Number	RPM	N-m			
62Z060HS4(vp)FN	23	26.4	1.5	19	32
62Z060HS4(vp)FN	23	26.4	2.4	28	28
62Z040HS4(vp)FN	35	28.9	3.7	28	28
62Z040HS4(vp)FN	35	28.9	5.8	44	28
62Z020HS4(vp)FN	70	19.4	7.6	28	28
62Z020HS4(vp)FN	70	19.4	11.9	44	28
62Z010HS4(vp)FN	140	10.7	14.9	28	28
62Z010HS4(vp)FN	140	10.7	23.5	44	28
62Z005HS4(vp)FN	280	5.6	29.3	28	28
62Z005HS4(vp)FN	280	5.6	34.1	32	28
62Z005HS4(vp)FN	280	5.6	43.6	32	22
62Z005HS4(vp)FN	280	5.6	51.5	48	28
62Z005HS4(vp)FN	280	5.6	60.0	44	22
62Z005HS4(vp)FN	280	5.6	65.2	48	22
62Z005HS4(vp)FN	280	5.6	81.7	60	22

(vp) = voltage and phase
21 = 230 V, 1-phase
23 = 230 V, 3-phase
43 = 400 V, 3-phase

Table 2: Belts Speeds for Standard Load Variable Speed 90° 50 Hz Gearmotors on 2200 Series Conveyors

Gearmotors			Belt Speed M/min	Drive Pulley	Driven Pulley
Part Number	RPM	N-m			
62Z060HS423EN	23	26.4	.7 – 1.9	19	32
62Z060HS423EN	23	26.4	1.2 – 3.1	28	28
62Z040HS423EN	35	28.9	1.9 – 4.7	28	28
62Z020HS423EN	70	19.4	3.7 – 9.4	28	28
62Z020HS423EN	140	10.7	7.5 – 19	28	28
62Z010HS423EN	140	10.7	12 – 30	44	28
62Z005HS423EN	280	5.6	15 – 38	28	28
62Z005HS423EN	280	5.6	23 – 59	44	28
62Z005HS423EN	280	5.6	33 – 82	48	22

Table 3: Belt Speeds for Standard Load Fixed Speed 90° 50 Hz Gearmotors on 2100, 4100 & 6100 Series Conveyors

Gearmotors			Belt Speed M/min	Drive Pulley	Driven Pulley
Part Number	RPM	N-m			
62Z060HS4(vp)FN	23	26.4	1.2	19	32
62Z060HS4(vp)FN	23	26.4	2.1	28	28
62Z040HS4(vp)FN	35	28.9	3.0	28	28
62Z040HS4(vp)FN	35	28.9	4.6	48	32
62Z020HS4(vp)FN	70	19.4	6.1	28	28
62Z020HS4(vp)FN	70	19.4	9.1	48	32
62Z010HS4(vp)FN	140	10.7	12.2	28	28
62Z010HS4(vp)FN	140	10.7	18.3	48	32
62Z005HS4(vp)FN	280	5.6	24.4	28	28
62Z005HS4(vp)FN	280	5.6	36.6	48	32
62Z005HS4(vp)FN	280	5.6	45.7	60	32
62Z005HS4(vp)FN	280	5.6	61.6	48	19
62Z005HS4(vp)FN	280	5.6	76.8	60	19

(vp) = voltage and phase
21 = 230 V, 1-phase
23 = 230 V, 3-phase
43 = 400 V, 3-phase

Table 4: Belts Speeds for Standard Load Variable Speed 90° 50 Hz Gearmotors on 2100, 4100 & 6100 Series Conveyors

Gearmotors			Belt Speed M/min	Drive Pulley	Driven Pulley
Part Number	RPM	N-m			
62Z060HS423EN	23	26.4	0.6–1.5	19	32
62Z060HS423EN	23	26.4	1.0–2.6	28	28
62Z040HS423EN	35	28.9	1.5–3.8	28	28
62Z020HS423EN	70	19.4	3.0–7.7	28	28
62Z010HS423EN	140	10.7	6.1–15	28	28
62Z005HS423EN	280	5.6	12.2–30	28	28
62Z005HS423EN	280	5.6	23–57	60	32
62Z005HS423EN	280	5.6	31–78	48	19

Specifications

Table 5:Belt Speeds for Standard Load Fixed Speed 90° 50 Hz Gearmotors on MPB Series Conveyors

Gearmotors			Belt Speed M/min	Drive Pulley	Driven Pulley
Part Number	RPM	N-m			
62Z060HS4(vp)FN	23	26.4	3.3	22	32
62Z060HS4(vp)FN	23	26.4	4.8	28	28
62Z040HS4(vp)FN	35	28.9	7.4	28	28
62Z020HS4(vp)FN	70	19.4	14.5	28	28

(vp) = voltage and phase
21 = 230 V, 1-phase
23 = 230 V, 3-phase
43 = 400 V, 3-phase

Table 6: Belts Speeds for Standard Load Variable Speed 90° 50 Hz Gearmotors on MPB Series Conveyors

Gearmotors			Belt Speed M/min	Drive Pulley	Driven Pulley
Part Number	RPM	N-m			
62Z060HS423EN	23	26.4	1.7–4.2	22	32
62Z060HS423EN	23	26.4	2.4–6.1	28	28
62Z040HS423EN	35	28.9	3.6–9.1	28	28
62Z020HS423EN	70	19.4	7.2–18	28	28
62Z020HS423EN	70	19.4	11–27	48	28
62Z020HS423EN	140	10.7	14–36	28	28
62Z010HS423EN	140	10.7	22–55*	48	28
62Z005HS423EN	280	5.6	29–73*	28	28

* = Cleated and Sidewall Cleated belts opperate at a maximum of 45.7 M/min

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

Required Tools

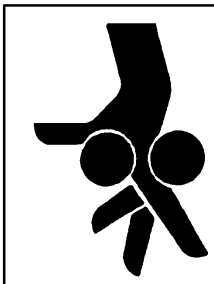
- Hex key wrenches:
  2 mm, 2.5 mm, 3 mm, 5 mm
- Straight edge
- Torque wrench

Mounting

WARNING

Exposed moving parts can cause severe injury.

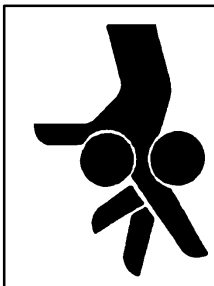
LOCK OUT POWER before removing guards or performing maintenance.



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 2.

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

NOTE: Gearmotor position on Flat Belt conveyor shown left on Figure 2. Gearmotor position on Cleated Belt conveyor shown right on Figure 2.

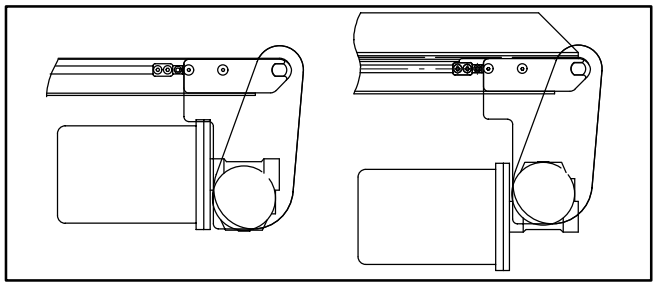


Figure 2

Installation Component List	
I	Bottom Mount Assembly
J	Drive Pulley
K	Cover
L	M4 Socket Head Screws (4x)
M	Driven Pulley
N	Key
O	M6 Socket Head Screws (2x)
P	Timing Belt

1. Typical components (Figure 3)

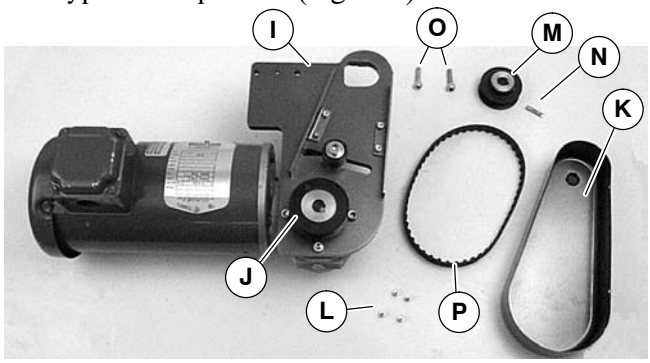


Figure 3

NOTE: Flat belt mounting package shown, cleated belt mounting package similar.

2. For your reference, the figures below show the attachment area of mounting packages for the various conveyor series.

Figure 4 – 2200 Series
Gearmotor is mounted to Head Plate

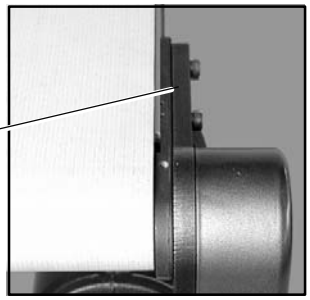


Figure 5 – 6100 Series
Gearmotor is mounted to Drive Spacer

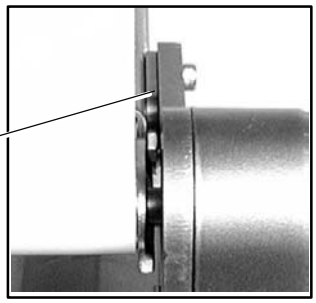


Figure 6 – 4100 Series
Gearmotor is mounted to Drive Adapter Plate

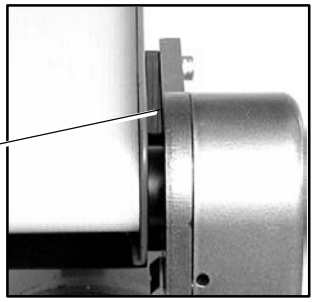


Figure 7 – 2100 Series
Gearmotor is mounted to Head Plate

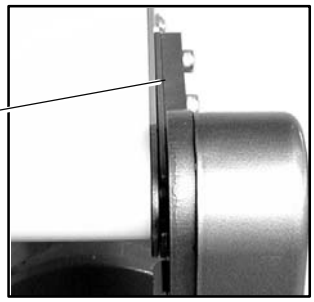
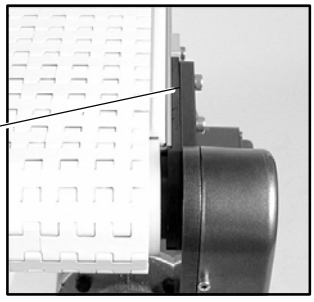


Figure 8 – MPB Series
Gearmotor is mounted to Head Plate



NOTE: Gearmotor may be operated in positions 1, 3 or 4 (Figure 9). Dependent on conveyor belt speed and gearmotor type, position 4 may require a vibration dampening bracket. Order 7018WW for 2200 & MPB conveyors or 7019WW for 2100 & 6100 convyors. (WW = conveyor width). 4100 conveyors do not require brackets.

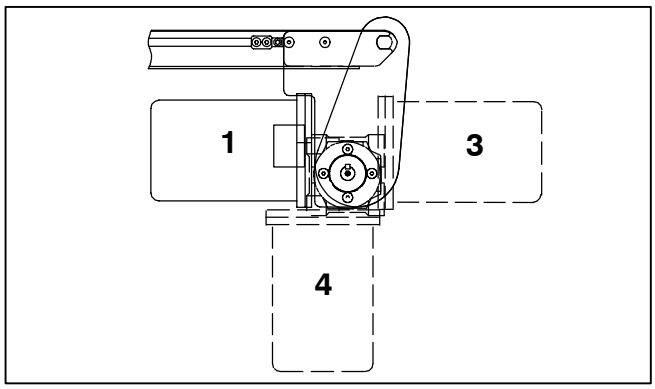


Figure 9

3. If required, change gearmotor position by removing four (4) screws (Q of Figure 10). Rotate gearmotor to other position and replace screws (Q). Tighten to 12 Nm.

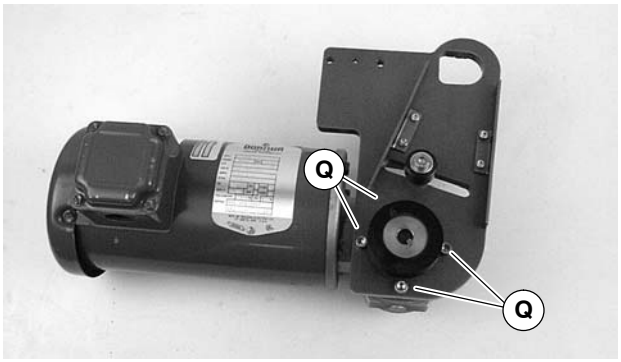


Figure 10

NOTE: 6100 conveyor shown, 2100, 2200, 4100 and MPB are similar.

4. Locate drive output shaft (R of Figure 11) and remove two (2) screws (S).

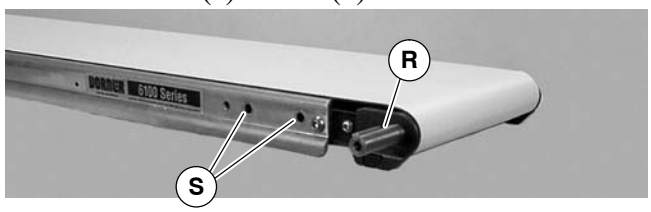


Figure 11

5. Attach mount assembly (I of Figure 12) with screws (O). Tighten screws to 9 Nm.

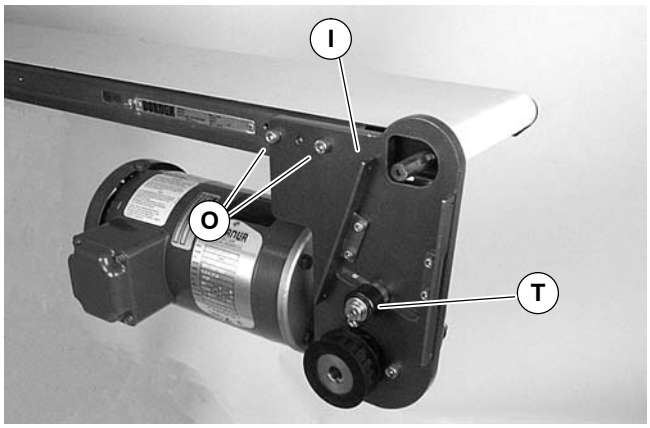


Figure 12

6. Install key (N of Figure 13).

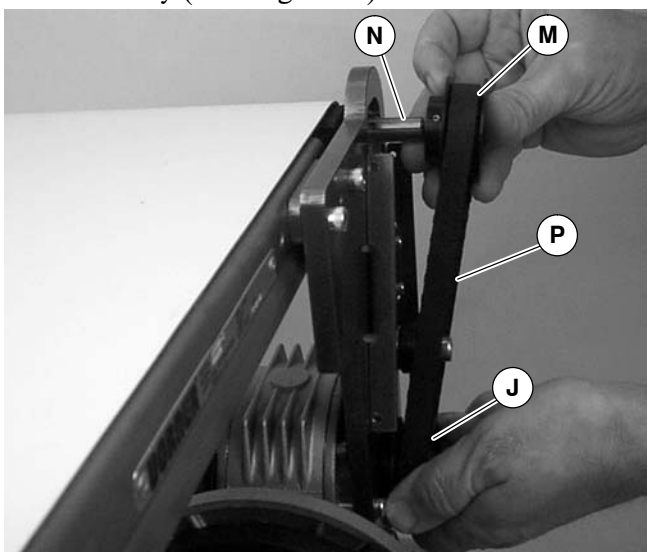


Figure 13

7. Wrap timing belt (P) around driven pulley (M) and drive pulley (J). Install driven pulley (M) onto conveyor shaft.

8. Remove cam bearing and spacer (T of Figure 12). Place the cam bearing and spacer (T of Figure 14) next to the driven pulley (M). Ensure the flanges of the driven pulley are aligned with the cam bearing. Tighten driven pulley set screws (U). This will allow for proper belt alignment while conveyor is in use. Replace cam bearing and spacer (T).

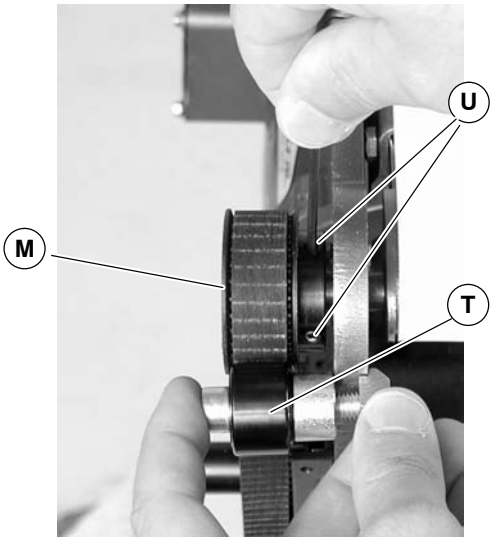


Figure 14

9. Depending on conveyor belt travel (direction 1 or 2), locate timing belt tensioner (V of Figure 15) as shown. Tension timing belt to obtain 3 mm deflection for 456 grams of force at timing belt mid-point (W). Tighten tensioner screw to 12 Nm.

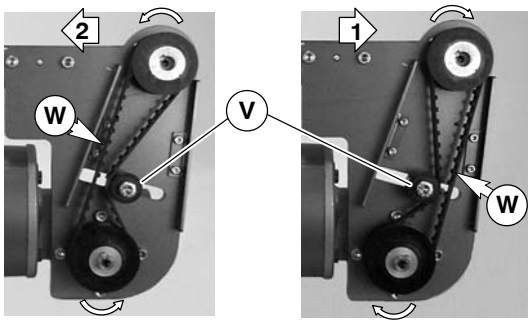


Figure 15

10. Install cover (K of Figure 16) with four (4) screws (L). Tighten screws to 4 Nm.

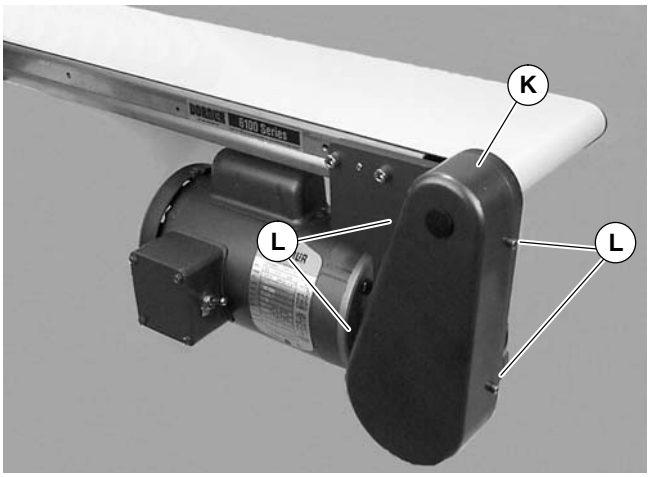


Figure 16

Required Tools

- Hex key wrenches:
  2 mm, 2.5 mm, 3 mm, 5 mm
- Adjustable wrench (for hexagon head screws)
- Straight edge
- External snap ring pliers
- 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 (L of Figure 16) and remove cover (K).
2. Loosen tensioner (V of Figure 17).

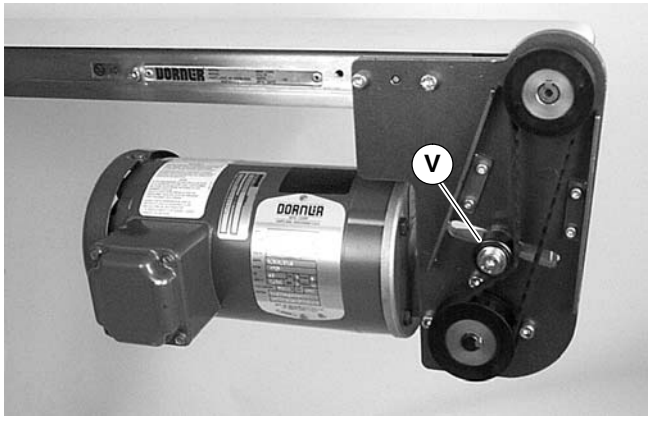


Figure 17

3. Depending on conveyor belt travel (direction 1 or 2), locate timing belt tensioner (V of Figure 15) as shown. Tension timing belt to obtain 3 mm deflection for 456 grams of force at timing belt mid-point (W). Tighten tensioner screw to 12 Nm.
4. Install cover (K of Figure 16) with four (4) screws (L). Tighten screws to 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 (L of Figure 16) and remove cover (K).
2. Loosen tensioner (V of Figure 17).
3. Remove timing belt (P of Figure 18).

NOTE: If timing belt does not slide over pulley flange, loosen driven pulley set screws (U of Figure 18) and remove pulley with belt (P). For re-installation, see steps 7 and 8 on page 9.

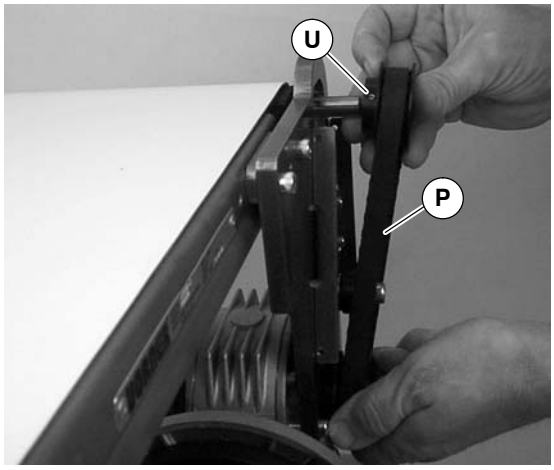
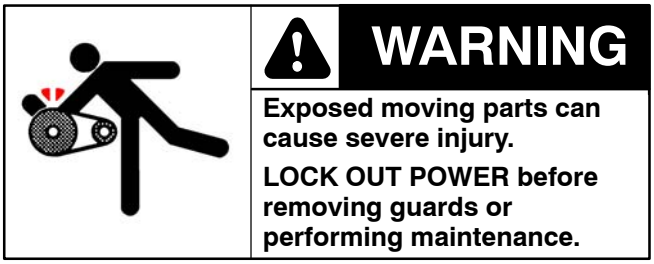


Figure 18

4. Install new timing belt.
5. Depending on conveyor belt travel (direction 1 or 2), locate timing belt tensioner (V of Figure 15) as shown. Tension timing belt to obtain 3 mm deflection for 456 grams of force at timing belt mid-point (W). Tighten tensioner screw to 12 Nm.
6. Install cover (K of Figure 16) with four (4) screws (L). Tighten screws to 4 Nm.

Drive or Driven Pulley Replacement

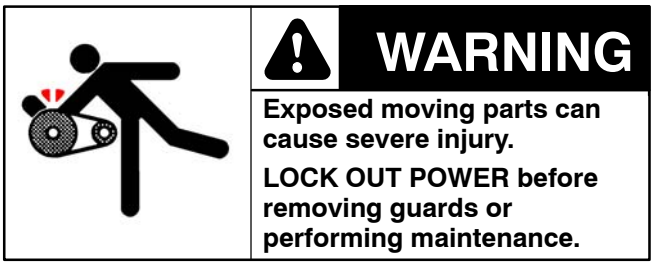


1. Complete steps 1 through 3 of "Timing Belt Replacement" section on this page.
2. Loosen set screws and remove drive or driven pulley.

NOTE: If drive pulley (J of Figure 19) is replaced, wrap timing belt around drive pulley and complete step 3.

3. Complete steps 7 through 10 of "Installation" section on page 9.

Gear Reducer Replacement



1. Remove four (4) screws (L of Figure 16) and remove cover (K).
2. Loosen tensioner (V of Figure 17).
3. Loosen drive pulley set screws (X of Figure 19). Remove drive pulley (J) and timing belt (P).

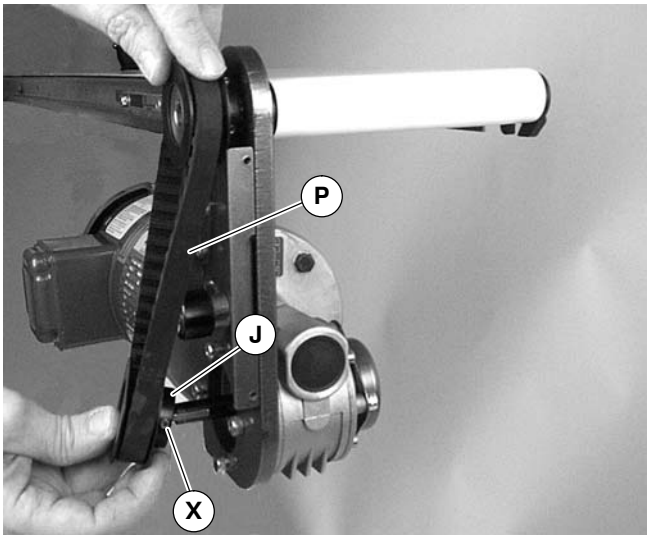


Figure 19

4. Remove four (4) gear reducer mounting screws (Q of Figure 20). Remove gearmotor.

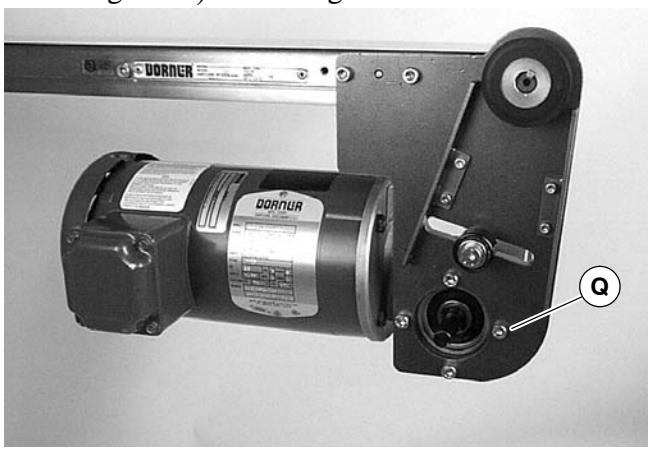


Figure 20

5. Remove four screws (Y of Figure 21). Detach motor with adapter flange (Z) from gear reducer (AA). Retain motor output shaft key (AB).

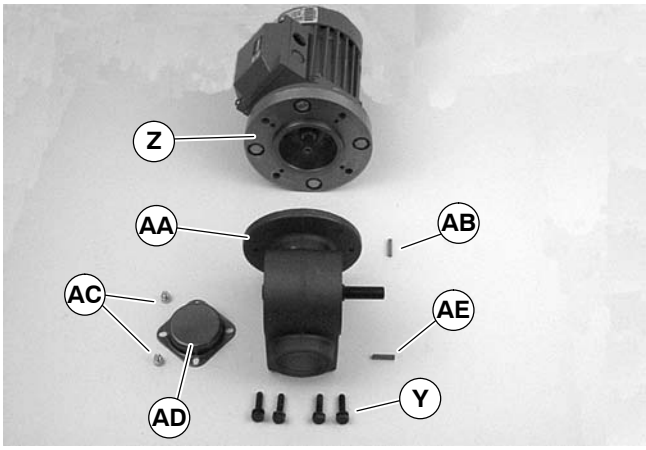


Figure 21

6. Remove two (2) screws (AC) and detach output shaft cover (AD).
7. Remove gear reducer output shaft key (AE).

8. Loosen six (6) set screws (AF of Figure 22). Remove drive shaft (AG) and key (AH).

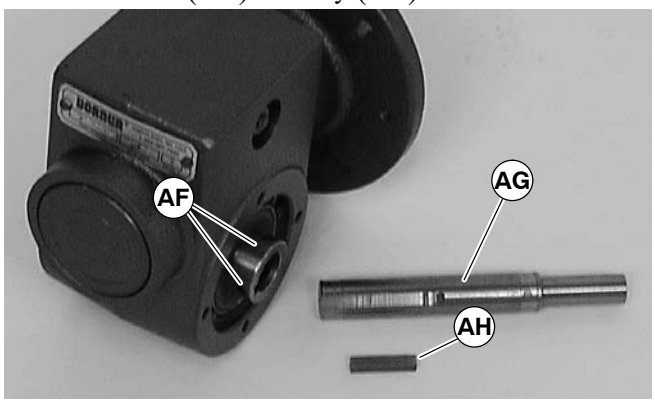


Figure 22

9. Apply grease (AI of Figure 23) to shaft.

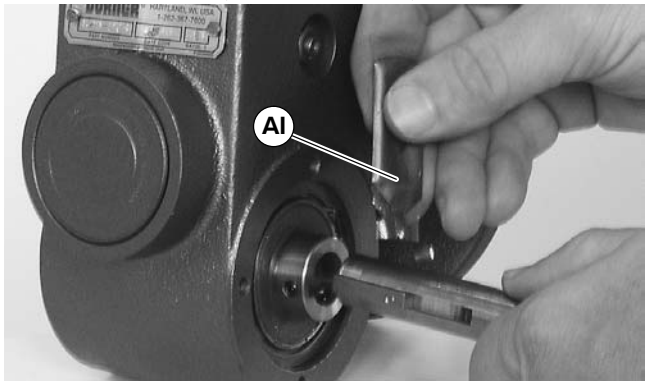


Figure 23

10. Replace the original shaft (AG of Figure 22) and key (AH) into new gear reducer. Tighten set screws (AF) to 3 Nm.

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 (AB of Figure 21) in keyway, slide motor with adapter flange (Z) and gear reducer (AA) together. Install screws (Y) and tighten.

NOTE: Gearmotor position on Flat Belt conveyor shown, left on Figure 24. Gearmotor position on Cleated Belt conveyor shown, right on Figure 24.

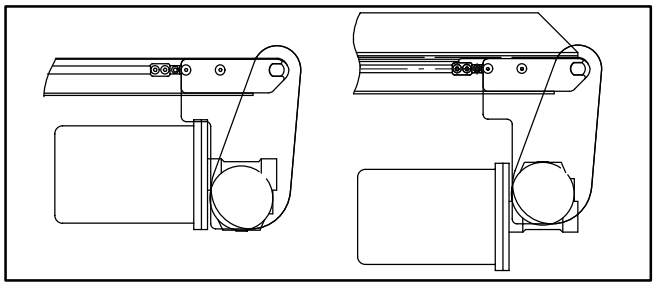


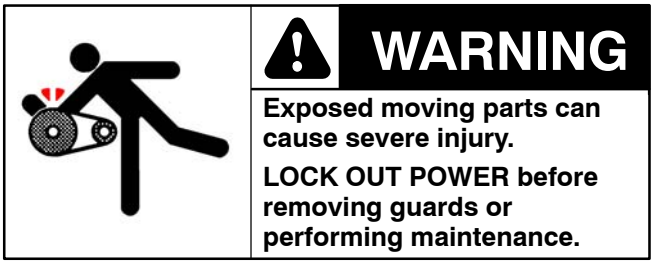
Figure 24

12. Install gearmotor to mounting bracket and tighten screws (Q of Figure 20) to 12 Nm.

NOTE: Drive pulley (J of Figure 19) is removed. Wrap timing belt around drive pulley and complete step 13.

13. Complete steps 7 through 10 of "Installation" section on page 9.

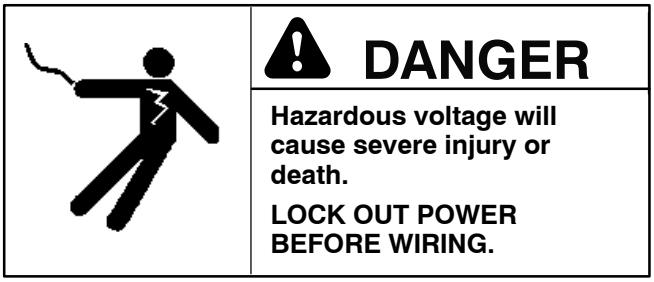
Motor Replacement



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 (AJ of Figure 25) and remove cover (AK).

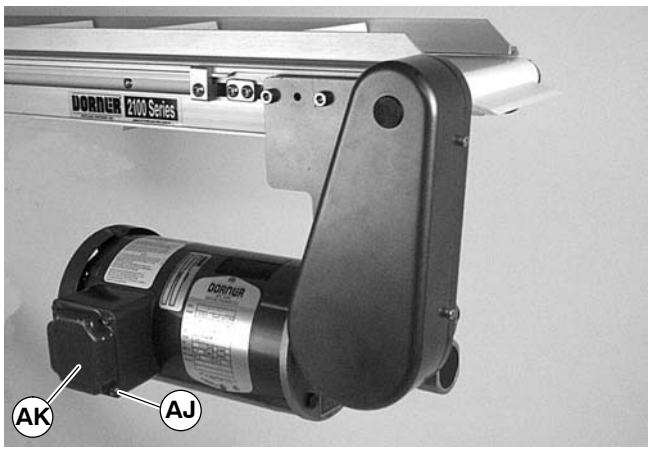


Figure 25

   b. Record wire colors on terminals 2, 6 and ground (⏚) (Figure 26). Loosen terminals 2, 6 and ground and remove wires.

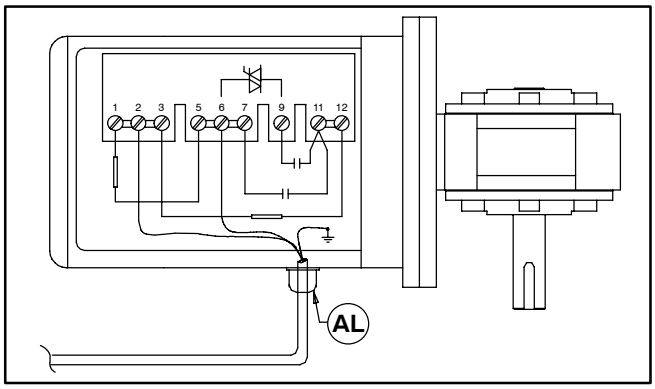


Figure 26

   c. Loosen cord grip (AL of Figure 26) and remove cord.

2. For three phase and VFD variable speed motor:
   a. Loosen terminal box screws (AJ of Figure 25) and remove cover (AK).
   b. Record wire colors on terminals U1, V1, W1 & PE (Figure 27). Loosen terminals U1, V1, W1 & PE and remove wires.

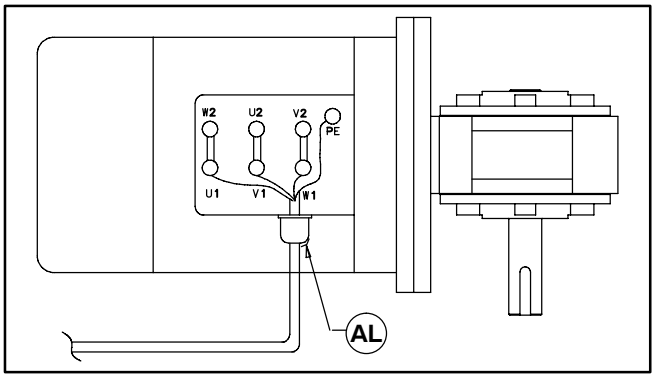


Figure 27

   c. Loosen cord grip (AL of Figure 27) and remove cord.

3. Remove four (4) screws (Y of Figure 28). Detach motor with adapter flange (Z) from gear reducer (AA). Retain motor output shaft key (AB).

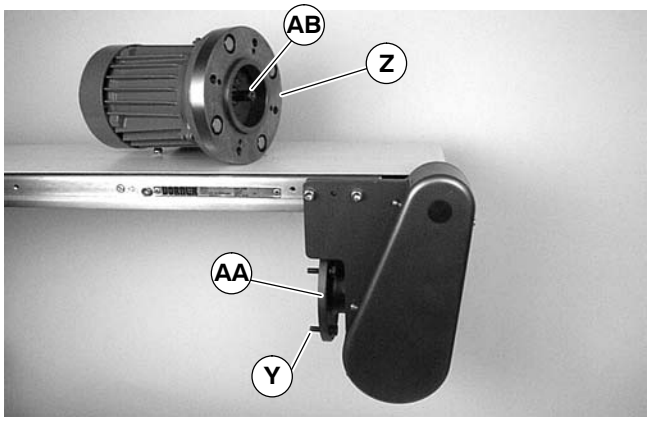


Figure 28

4. Remove four (4) screws and nuts (AM of Figure 29). Remove adapter flange (AN).

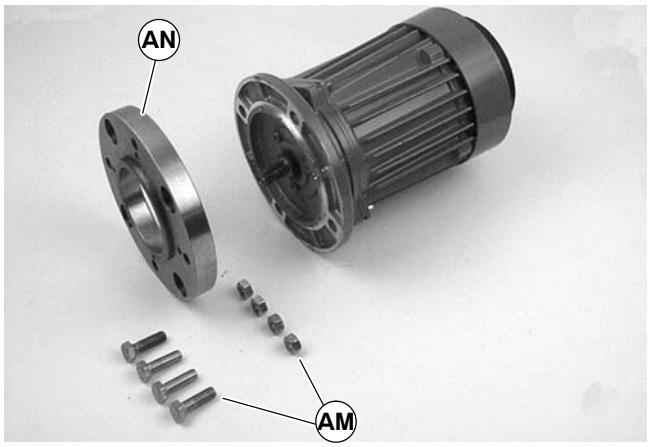


Figure 29

5. Install adapter flange (AN) on new motor. Install screws and nuts (AM) 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 (AB of Figure 30) in keyway, slide motor with adapter flange (Z) and gear reducer together. Install screws (Y) and tighten.

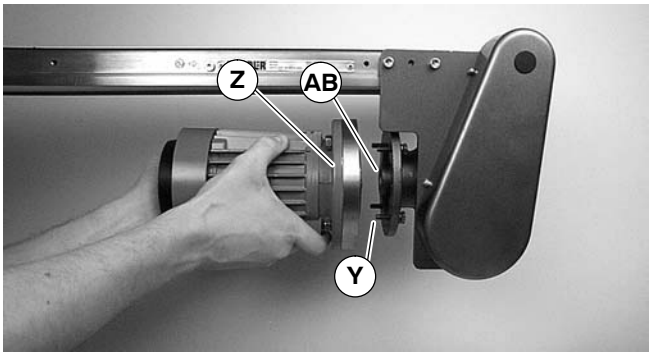


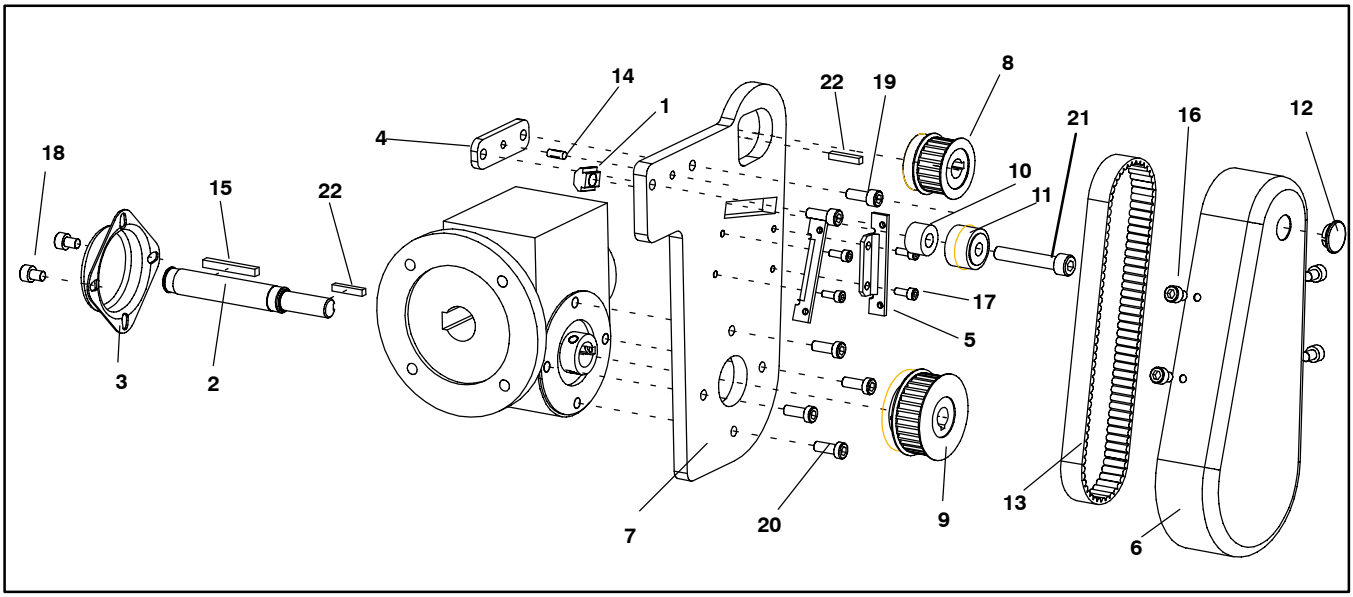
Figure 30

7. Replace wiring:

- For a single phase motor, reverse step 1 on page 13.
- For a three phase or VFD variable speed motor, reverse step 2 on page 13.

NOTE: For replacement parts other than those shown in this section, contact an authorized Dorner Service Center or Dorner Manufacturing.

Bottom Mount Drive Package for Standard Load 90° Industrial Gearmotors

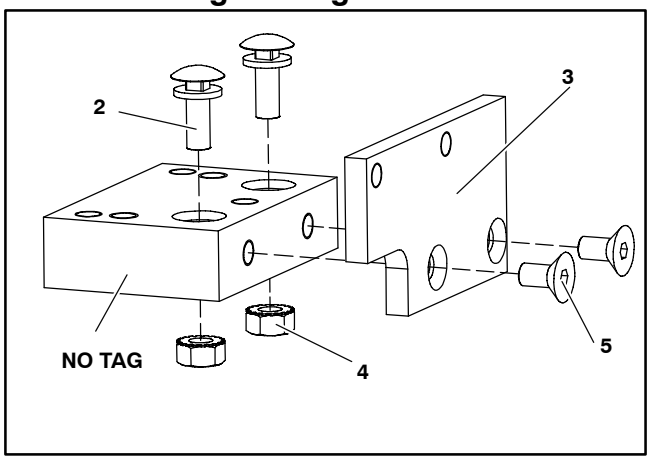


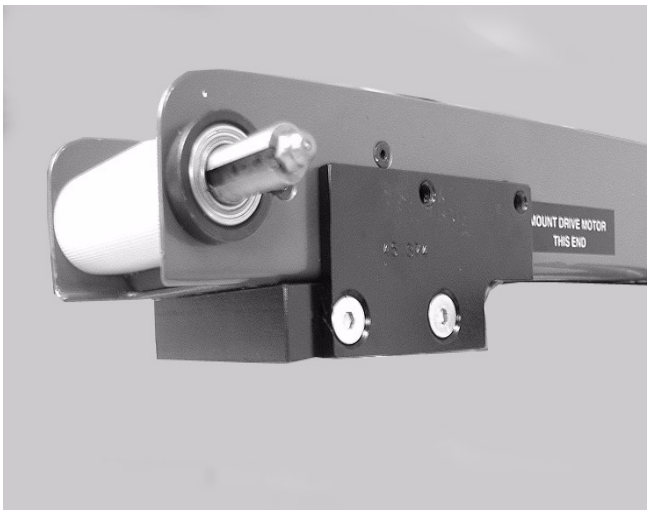
Item	Part Number	Description
1	202390M	Nut Follower Cam
2	450444M	Output Shaft 12mm
3	300139M	Drive Bearing Shaft Cover
4	450027M	Drive Spacer (for 6100 Conveyor)
5	450375M	Mounting Cover Bracket
6	450376M	Drive Guard
7	450443M	Mounting Plate
	242532	Mounting Plate (Flush Drive Only)
8	243325	Driven Pulley, 16Tooth (Flush Drive Only)
	450365MP	Driven Pulley, 19Tooth
	450366MP	Driven Pulley, 22Tooth
	450367MP	Driven Pulley, 28Tooth
	450368MP	Driven Pulley, 32Tooth
9	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

10	450445	Spacer
11	802–046	Bearing
12	807–226	Snap–out Plastic Plug
13	814-104	Timing Belt, 15mm W x 450mm L
	814-105	Timing Belt, 15mm W x 460mm L
	814-065	Timing Belt, 15mm W x 475mm L
	814-112	Timing Belt, 15mm W x 495mm L
	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
14	807–952	Groove Pin (for 6100 Conveyor)
15	912–084	Square Key .188” x 1.50”
16	920406M	Socket Head Screw M4 x 6mm
17	920410M	Socket Head Screw M4 x 10mm
18	920608M	Socket Head Screw M6 x 8mm
19	920622M	Socket Head Screw M6 x 22mm
20	920693M	Socket Head Screw M6 x 16mm
	920694M	Socket Head Screw M6 x 20mm (6100 Conveyors)
21	920845M	Socket Head Screw M8 x 45mm
22	980422M	Square Key 4mm x 22mm

Service Parts

4100 Mounting Package

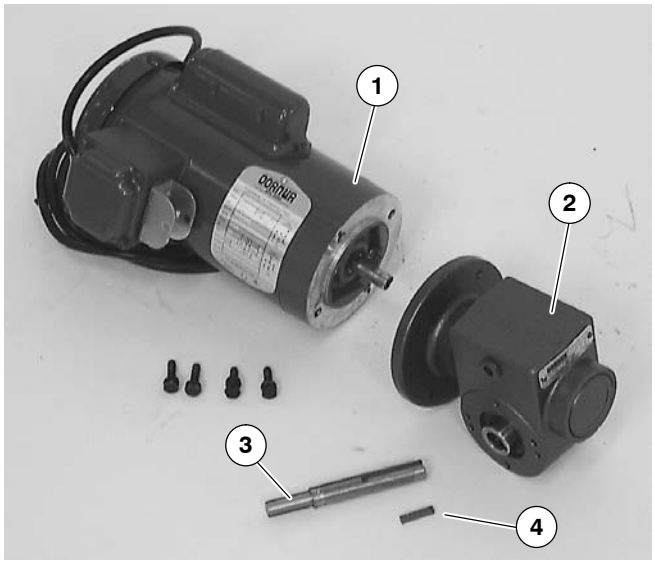




Adapter package attached to a 4100 series conveyor.

Item	Part Number	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

Gearmotors



Item	Part No.	Part Description
1	826-281	Motor, 0.19 Kw 230 Volts, 1400 RPM 50 Hz, 1-Phase
	826-284	Motor, 0.19 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
3	450444M	Gear Reducer Shaft
4	912–084	Key, Square, 0.188” x 1.5” L

Notes

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.

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