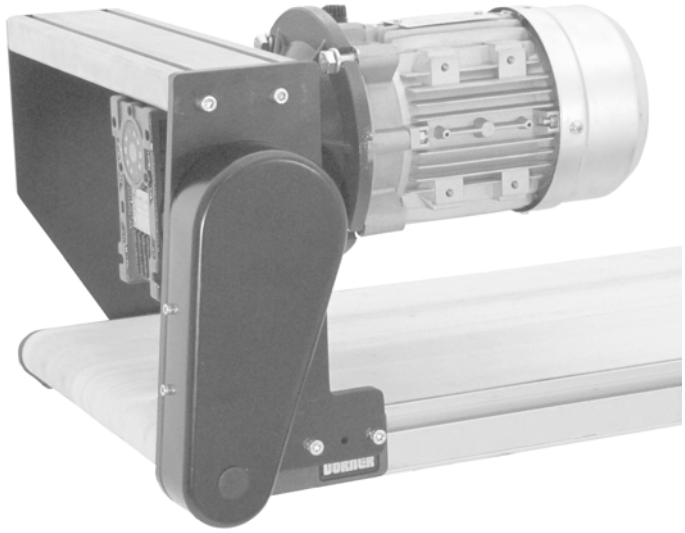
2100, 2200, 2300, 4100, 6200 and MPB Series Top Mount Drive Package for Heavy Load 90° Industrial Gearmotors

Installation, Maintenance & Parts Manual



Featuring: eDrive™ Technology

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851-280 Rev. I

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

Dorner 2200 and MPB Series conveyors are covered by patent number 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 6200 Series conveyors are covered by patent numbers: 6685009, 5174435, 6109427 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

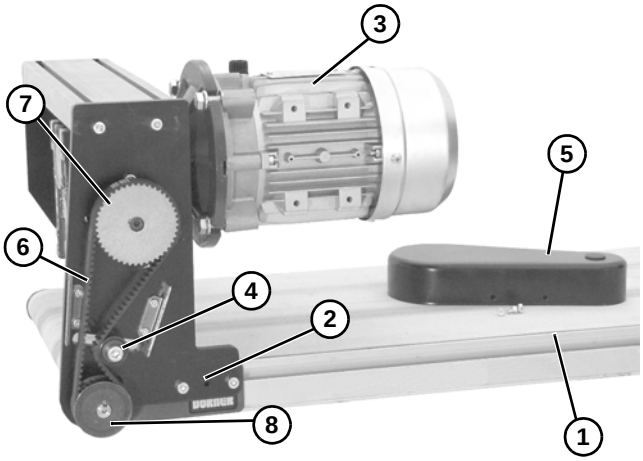
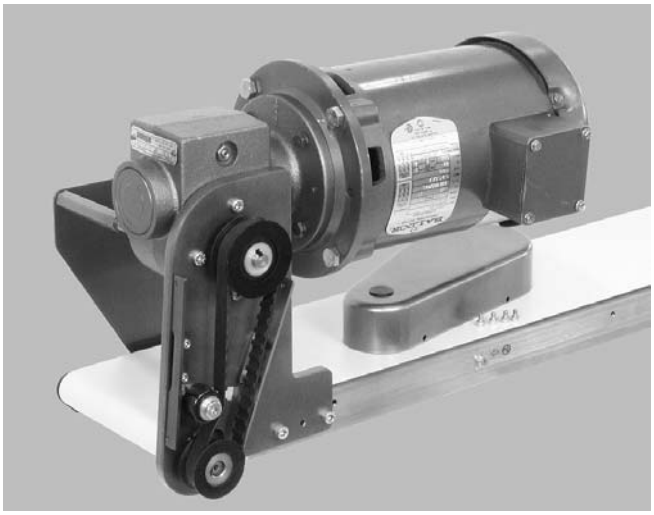


Figure 1

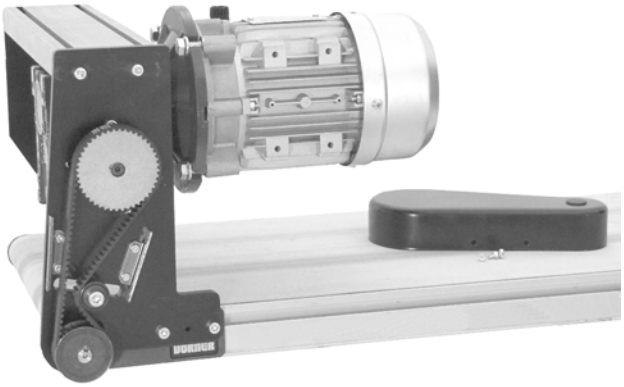
NOTE

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

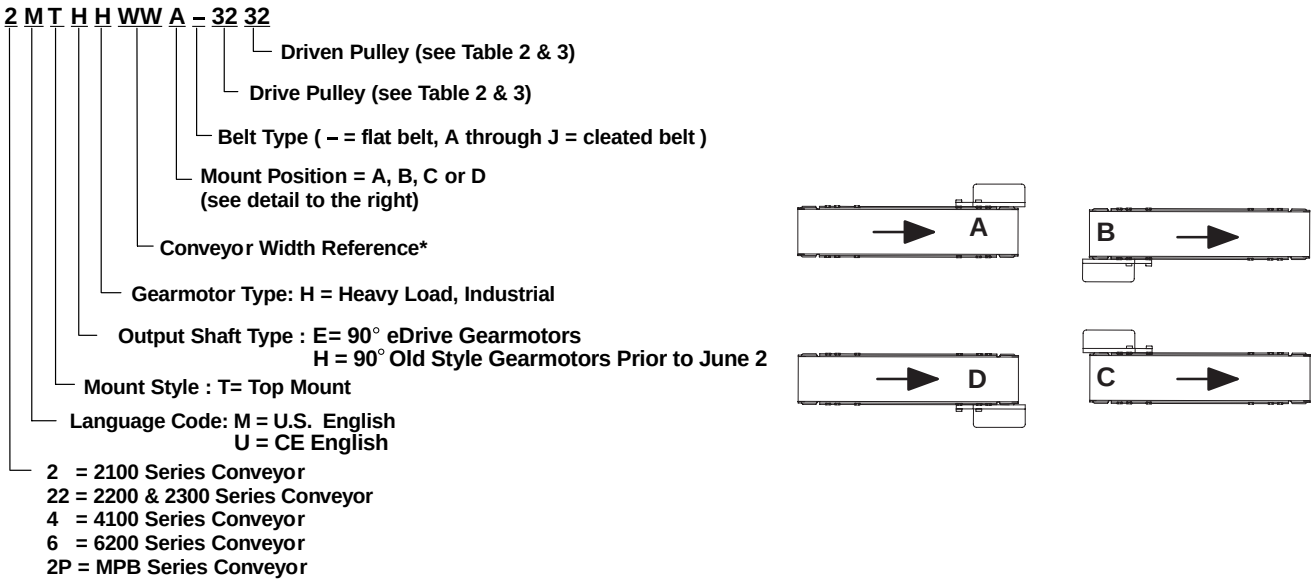


Mount Packages with e-Drive Gearmotors

Figure 3

Gearmotor Mounting Package Models:

Example:



* See Ordering and Specifications Catalog for details.

Table 1: Gearmotor Specifications

US Version

	Single Phase	Three Phase	DC Variable Speed	VFD Variable Speed
Output Power	0.50 hp (0.37 kw)			
Input Voltage	115 VAC	208– 230 / 460 VAC	90 VDC	230 VAC
Input Frequency	60 Hz		N/A	10 – 60 Hz
Input Current	7.4 Amperes	2.1 – 2/ 1 Amperes	5.0 Amperes	1.6 Amperes
Motor RPM	1725		2500	1725
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1			
Frame Size	NEMA 56C			
Motor Type	Totally enclosed, Fan-cooled			

CE Version

	Three Phase	
Output Power	0.19 kw	
Input Voltage	230 / 400 Volts A.C.	
Input Frequency	50 Hz	
Full Load Amperes	1.2 / 0.7 Amperes	
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1	5:1, 10:1, 20:1
Protection Ratings	IP55 for Gearmotor and Motor Starter	
Frame Size	63B5	71B5

Specifications

Table 2: Belt Speeds for Heavy Load Fixed Speed 90° 60 Hz Gearmotors on 2100, 2200 (Gang Drive), 4100 and 6200 Series Conveyors

US Version

Gearmotors					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060ES4(vp)F(n)	60:1	29	270	30.5	6	1.7	22	32
32M060ES4(vp)F(n)	60:1	29	270	30.5	8	2.4	32	32
32M060ES4(vp)F(n)	60:1	29	270	30.5	12	3.7	48	32
32M040ES4(vp)F(n)	40:1	43	247	27.9	12	3.7	32	32
32M040ES4(vp)F(n)	40:1	43	247	27.9	18	5.5	48	32
32M020ES4(vp)F(n)	20:1	86	90	10.2	25	7.6	32	32
32M020ES4(vp)F(n)	20:1	86	90	10.2	37	11.3	48	32
32M010ES4(vp)F(n)	10:1	173	45	5.1	49	14.9	32	32
32M010ES4(vp)F(n)	10:1	173	45	5.1	74	22.6	48	32
32M005ES4(vp)F(n)	5:1	345	25	2.8	99	30.2	32	32
32M005ES4(vp)F(n)	5:1	345	25	2.8	148	45.1	48	32
32M005ES4(vp)F(n)	5:1	345	25	2.8	169	51.5	48	28
32M005ES4(vp)F(n)	5:1	345	25	2.8	197	60.0	44	22
32M005ES4(vp)F(n)	5:1	345	25	2.8	215	65.5	48	22
32M005ES4(vp)F(n)	5:1	345	25	2.8	249	75.9	48	19

(vp) = voltage and phase:

11 = 115 V, 1-phase

23 = 230V, 3-phase

(n) = reversing capability:

N = no reversing switch

R = with reversing switch (115V, 1 phase only)

CE Version

Gearmotors			Belt Speed		Drive Pulley	Driven Pulley
Part Number	RPM	N-m	Ft/min	M/min		
62(c)050(r)E4(vp)FN	29	30.5	6	1.7	22	32
62(c)050(r)E4(vp)FN	29	30.5	8	2.4	32	32
62(c)050(r)E4(vp)FN	29	30.5	12	3.7	48	32
62(c)050(r)E4(vp)FN	43	27.9	12	3.7	32	32
62(c)015(r)E4(vp)FN	43	27.9	18	5.5	48	32
62(c)015(r)E4(vp)FN	86	10.2	25	7.6	32	32
62(c)015(r)E4(vp)FN	86	10.2	37	11.3	48	32
62(c)005(r)E4(vp)FN	173	5.1	49	14.9	32	32
62(c)005(r)E4(vp)FN	173	5.1	74	22.6	48	32
62(c)005(r)E4(vp)FN	345	2.8	99	30.2	32	32
62(c)005(r)E4(vp)FN	345	2.8	148	45.1	48	32
62(c)005(r)E4(vp)FN	345	2.8	169	51.5	48	28

(c) = electrical configuration

(vp) = voltage and phase

(r) = output shaft orientation

G = CE German

U = CE Great Britain

23 = 230V, 3-phase

43 = 400 V, 3-phase

L = Left Hand

R = Right Hand

Table 3: Belt Speeds for Heavy Load Fixed Speed 90° 60 Hz Gearmotors on 2200 Series Conveyors (Excluding Gang Drive)

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060ES4(vp)F(n)	60:1	29	270	30.5	6	1.7	19	32
32M060ES4(vp)F(n)	60:1	29	270	30.5	10	3.0	28	28
32M040ES4(vp)F(n)	40:1	43	247	27.9	15	4.6	28	28
32M060ES4(vp)F(n)	60:1	29	270	30.5	16	4.9	44	28
32M040ES4(vp)F(n)	40:1	43	247	27.9	24	7.3	44	28
32M020ES4(vp)F(n)	20:1	86	90	10.2	30	9.1	28	28
32M020ES4(vp)F(n)	20:1	86	90	10.2	48	14.6	44	28
32M010ES4(vp)F(n)	10:1	173	45	5.1	61	18.6	28	28
32M010ES4(vp)F(n)	10:1	173	45	5.1	95	29.0	44	28
32M010ES4(vp)F(n)	10:1	173	45	5.1	104	31.7	48	28
32M005ES4(vp)F(n)	5:1	345	25	2.8	121	36.9	28	28
32M005ES4(vp)F(n)	5:1	345	25	2.8	138	42.1	32	28
32M005ES4(vp)F(n)	5:1	345	25	2.8	176	53.6	32	22
32M005ES4(vp)F(n)	5:1	345	25	2.8	208	63.4	48	28
32M005ES4(vp)F(n)	5:1	345	25	2.8	242	73.8	44	22
32M005ES4(vp)F(n)	5:1	345	25	2.8	264	80.5	48	22

(vp) = voltage and phase:

11 = 115 V, 1-phase

23 = 230V, 3-phase

(n) = reversing capability:

N = no reversing switch

R = with reversing switch (115V, 1 phase only)

Table 4: Belt Speeds for Heavy Load Fixed Speed 90° 60 Hz Gearmotors on MPB Series Conveyors

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060ES4(vp)F(n)	60:1	29	270	30.5	13	4.0	22	32
32M060ES4(vp)F(n)	60:1	29	270	30.5	20	6.0	28	28
32M040ES4(vp)F(n)	40:1	43	247	27.9	29	8.9	28	28
32M040ES4(vp)F(n)	40:1	43	247	27.9	44	13.4	48	32
32M020ES4(vp)F(n)	20:1	86	90	10.2	59	17.9	28	28

(vp) = voltage and phase:

11 = 115 V, 1-phase

23 = 230V, 3-phase

(n) = reversing capability:

N = no reversing switch

R = with reversing switch (115V, 1 phase only)

Specifications

Table 5: Belt Speeds for Heavy Load Variable Speed 90° VFD Gearmotors on 2100, 4100 and 6200 Series Conveyors

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060ES423EN	60:1	29	226	35.5	0.6–5.6	0.2–1.7	22	32
32M060ES423EN	60:1	29	226	35.5	0.8–8.2	0.3–2.5	32	32
32M040ES423EN	40:1	43	247	27.9	1.2–12	0.4–3.8	28	28
32M020ES423EN	20:1	86	248	27.9	2.5–25	0.8–7.5	32	32
32M010ES423EN	10:1	173	156	17.6	4.9–49	1.5–15	32	32
32M005ES423EN	5:1	345	81	9.1	9.9–99	3–30	32	32
32M005ES423EN	5:1	345	81	9.1	14–148	4.5–45	48	32
32M005ES423EN	5:1	345	58	6.5	19–197	6–60	44	22
32M005ES423EN	5:1	345	58	6.5	24–249	7.6–76	48	19

* At 60 Hz

Table 6: Belt Speeds for Heavy Load Variable Speed 90° VFD Gearmotors on 2200 Series Conveyors (Excluding Gang Drive)

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060ES423EN	60:1	29	270	30.5	0.6–6	0.2–1.8	19	32
32M060ES423EN	60:1	29	270	30.5	1–10	0.3–3.1	28	28
32M040ES423EN	40:1	43	247	27.9	1.5–15	0.5–4.6	28	28
32M020ES423EN	20:1	86	167	18.9	3–30	0.9–9.2	28	28
32M010ES423EN	10:1	173	115	13	6–60	1.8–18	28	28
32M010ES423EN	10:1	173	115	13	10–104	3.2–32	48	28
32M005ES423EN	5:1	345	58	6.5	12–121	3.7–37	28	28
32M005ES423EN	5:1	345	58	6.5	26–264	8.1–81	48	22

* At 60 Hz

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

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM*	In-lb*	N-m*	Ft/min	M/min		
32M060ES423EN	60:1	29	270	30.5	1.3–13.4	0.4–4.1	22	32
32M060ES423EN	60:1	29	270	30.5	2–19	0.9–5.9	28	28
32M040ES423EN	40:1	43	247	27.9	2.9–29	0.9–8.9	28	28
32M020ES423EN	20:1	86	167	18.9	5.9–59	1.8–18	28	28
32M010ES423EN	10:1	173	115	13	11–117	3.6–36	28	28
32M010ES423EN	10:1	173	115	13	17–175	5.4–54	48	32
32M005ES423EN	5:1	345	58	6.5	23–234	7.1–71	28	28

* At 60 Hz

Table 8: Belt Speeds for Heavy Load Variable Speed 90° DC Gearmotors on 2100, 2200 (Gang Drive), 4100 and 6200 Series Conveyors

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060PSD3DEN	60:1	42	270	30.5	1.0-8.2	0.3-2.5	22	32
32M060PSD3DEN	60:1	42	270	30.5	1.4-12	0.4-3.6	32	32
32M040PSD3DEN	40:1	63	215	24.3	2.1-18	0.7-5.4	32	32
32M020PSD3DEN	20:1	125	90	10.2	4.3-36	1.3-11	32	32
32M010PSD3DEN	10:1	250	72	8.1	9-71	2.6-22	32	32
32M005PSD3DEN	5:1	500	25	2.8	17-143	5.2-43	32	32
32M005PSD3DEN	5:1	500	25	2.8	26-214	7.8-65	48	32
32M005PSD3DEN	5:1	500	25	2.8	29-245	9.0-75	48	28

Table 9: Belt Speeds for Heavy Load Variable Speed 90° DC Gearmotors on 2200 Series Conveyors (Excluding Gang Drive)

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060PSD3DEN	60:1	42	270	30.5	1.8-14	0.5-4.5	28	28
32M040PSD3DEN	40:1	63	215	24.3	2.6-22	0.8-6.7	28	28
32M060PSD3DEN	60:1	42	270	30.5	2.8-23	0.8-7	44	28
32M020PSD3DEN	20:1	125	90	10.2	5.3-44	1.6-13	28	28
32M010PSD3DEN	10:1	250	72	8.1	10-88	3.2-27	28	28
32M005PSD3DEN	5:1	500	25	2.8	17-138	5-42	44	28
32M005PSD3DEN	5:1	500	25	2.8	21-176	6.4-54	28	28
32M005PSD3DEN	5:1	500	25	2.8	33-276	10-84	44	28

Table 10: Belt Speeds for Heavy Load Variable Speed 90° DC Gearmotors on MPB Series Conveyors

Gearmotors*					Belt Speed		Drive Pulley	Driven Pulley
Part Number	Gear Ratio	RPM	In-lb	N-m	Ft/min	M/min		
32M060PSD3DEN	60:1	42	270	30.5	2.3-19	0.7-5.9	22	32
32M060PSD3DEN	60:1	42	270	30.5	3.4-28	1-8.6	28	28
32M040PSD3DEN	40:1	63	215	24.3	5.1-42	1.6-12.9	28	28
32M060PSD3DEN	60:1	42	270	30.5	5.3-44	1.6-13	44	28
32M020PSD3DEN	20:1	125	90	10.2	10-85	3-26	28	28
32M020PSD3DEN	20:1	125	90	10.2	15-127	4.7-39	48	32
32M010PSD3DEN	10:1	250	72	8.1	20-170	6-52	28	28
32M010PSD3DEN	10:1	250	72	8.1	31-255	9-77	48	32

* = 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:
  2 mm, 2.5 mm, 3 mm, 5 mm
- Torque wrench

Mounting

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

⚠ WARNING

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

DO NOT REVERSE MPB SERIES CONVEYORS.

Installation Component List:

1	Drive Assembly
2	M6x12 Socket Head Screws (2x)
3	Plastic Cover
4	M6x18 Socket–Head Screws & Hard Washers (4x)
5	Extrusion
6	Support Plate
7	M6x25 Socket–Head Screws & M6 Nuts (4x)
8	Cover
9	Driven Pulley
10	Timing Belt
11	Drive Pulley
12	Mounting Plate
13	M6x18 Socket Head Screws (4x)
14	Support Plate Spacer
15	Output Shaft

1. Typical components **(Figure 4)**

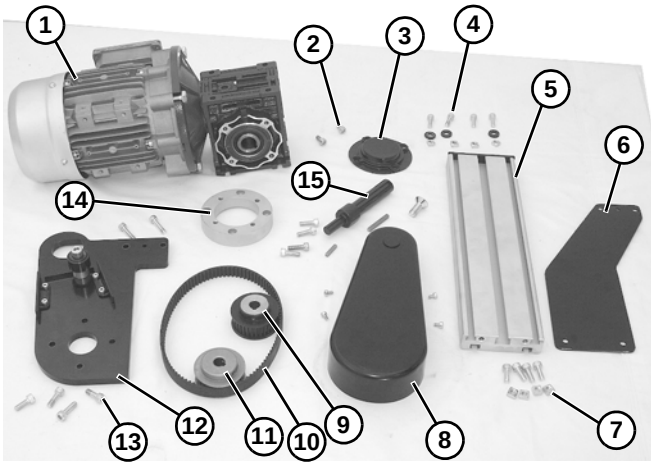


Figure 4

NOTE

Gearmotor may be operated in positions 1, 2 or 3 ***(Figure 5)****.*

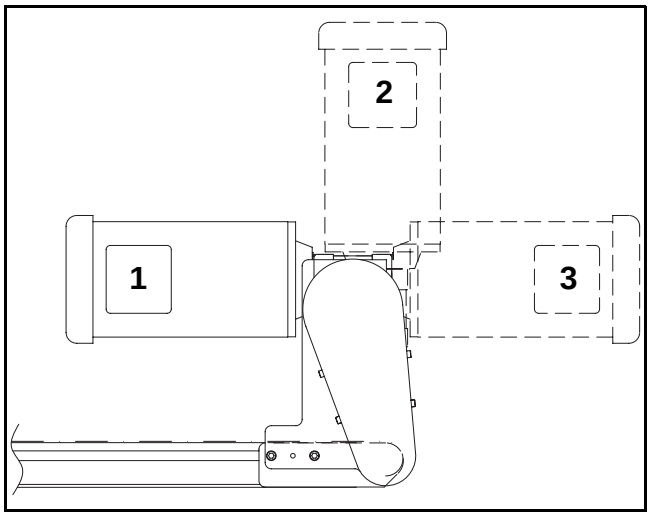


Figure 5

2. If required, change gearmotor position by removing four screws **(Figure 6, item 1)**. Rotate gearmotor to other position and replace screws. Tighten to 103 in-lb (12 Nm).

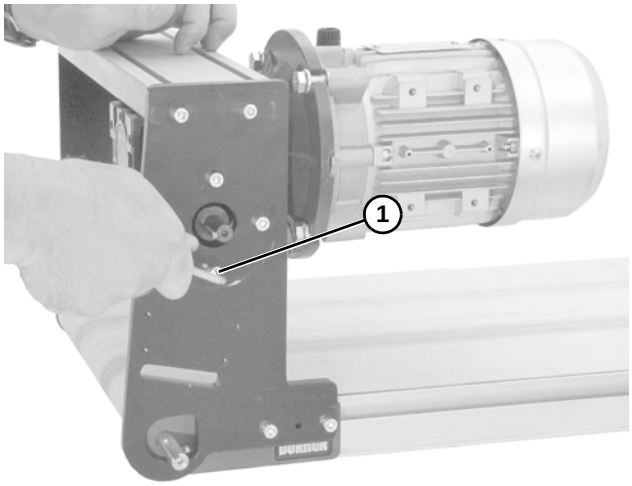
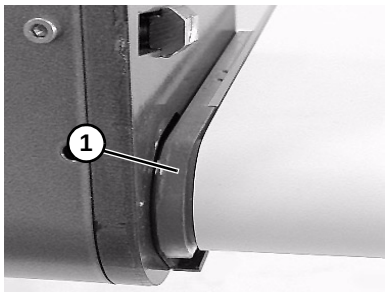


Figure 6

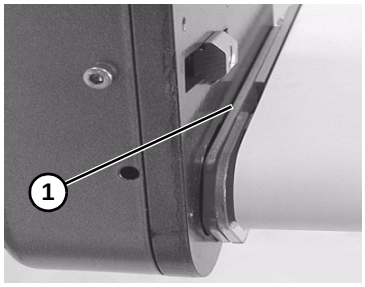
3. For your reference, the following figures show the attachment area of complete mounting packages for the various conveyor series.

- Gearmotor top mount assembly is mounted to head plate **(Figure 7, item 1)**, **(Figure 8, item 1)** and **(Figure 9, item 1)**.



2200 Series

Figure 7



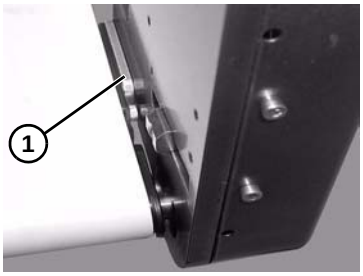
2100 Series

Figure 8

MPB Series

Figure 9

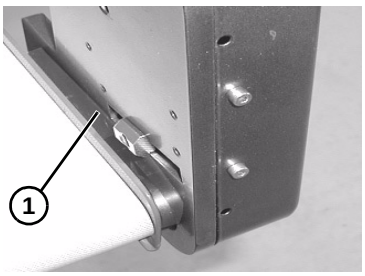
- Gearmotor top mount assembly is mounted to drive spacer **(Figure 10, item 1)**.



6200 Series

Figure 10

- Gearmotor top mount assembly is mounted to drive adapter plate **(Figure 10, item 1)**.



4100 Series

Figure 11

NOTE

6200 conveyor shown below, other Series similar.

4. Locate drive output shaft **(Figure 12, item 1)** and remove two (2) screws **(Figure 12, item 2)**.

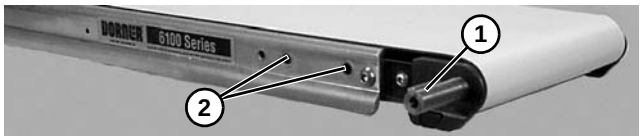


Figure 12

5. On side opposite drive output shaft, remove two screws **(Figure 13, item 1)**.

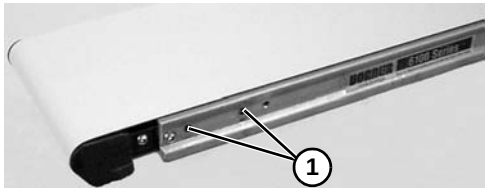


Figure 13

NOTE

*Refer to **Figure 7** through **Figure 11** while doing step 6.*

6. Install gearhead/conveyor support plate **(Figure 14, item 1)** with screws **(Figure 14, item 2)**. Tighten screws to 80 in-lb (9 Nm).

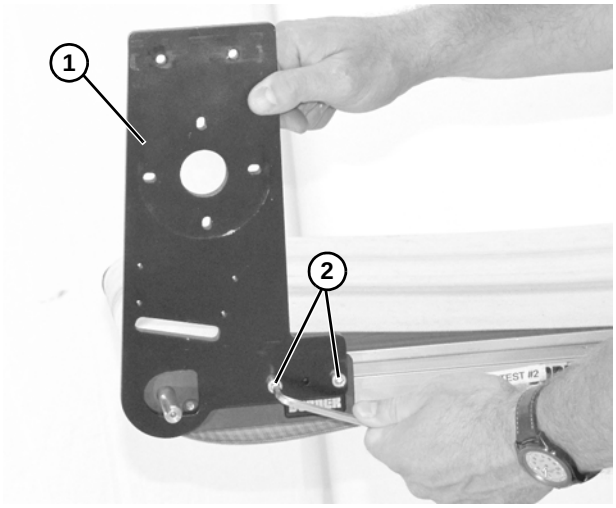


Figure 14

7. Install opposite end support plate **(Figure 15, item 1)** with screws **(Figure 15, item 2)**. Tighten screws to 80 in-lb (9 Nm).

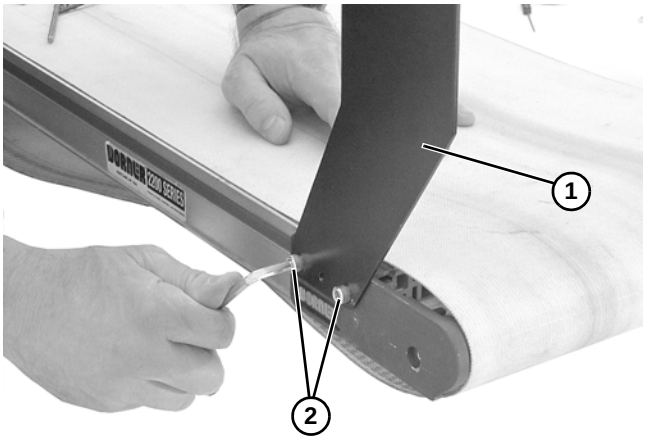


Figure 15

8. Install support extrusion **(Figure 16, item 1)** with screws **(Figure 16, item 2)**. Tighten screws to 80 in-lb (9 Nm).

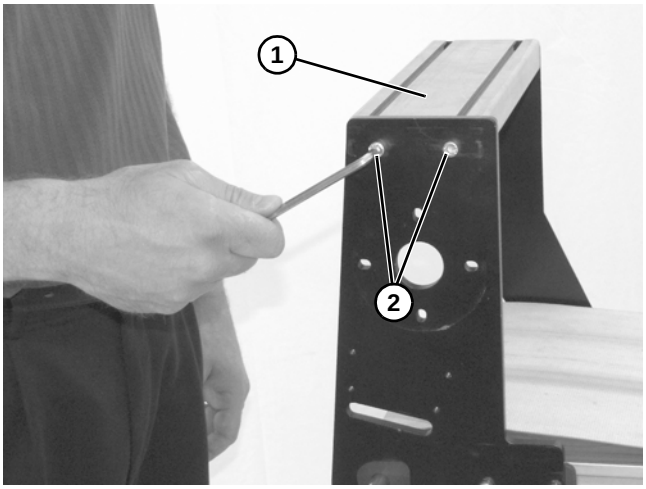


Figure 16

9. Install spacer **(Figure 17, item 1)** with screws **(Figure 17, item 2)**. Tighten screws to 80 in-lb (9 Nm).

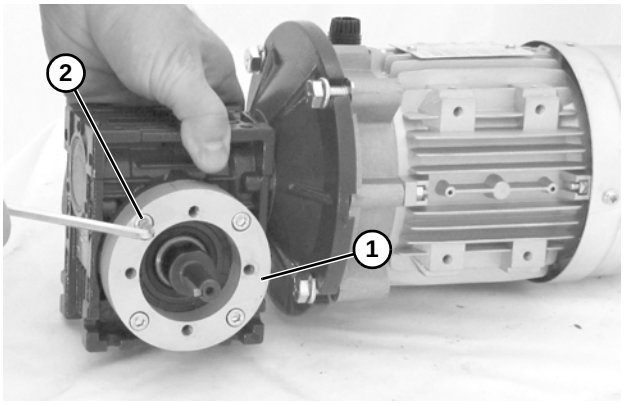


Figure 17

10. Install drive package **(Figure 18, item 1)** with screws **(Figure 18, item 2)**. Tighten screws to 80 in-lb (9 Nm).

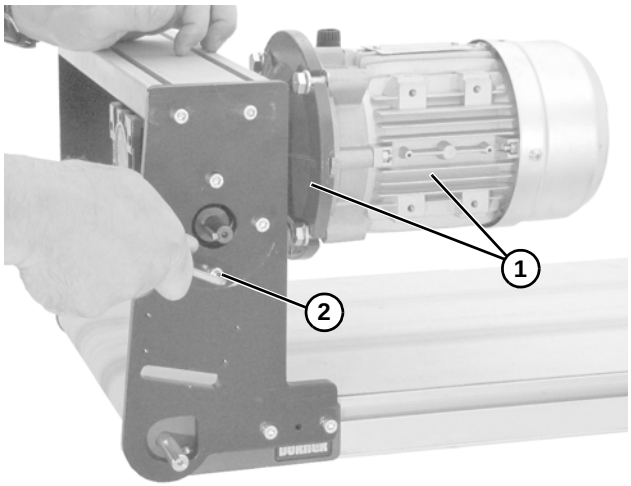


Figure 18

⚠ WARNING

Drive shaft keyway may be sharp.
HANDLE WITH CARE.

11. Place cam bearing and spacer **(Figure 19, item 1)** next to the driven pulley **(Figure 19, item 2)**. Ensure flanges of the driven pulley are aligned with the cam bearing. Tighten driven pulley set screws **(Figure 19, item 3)**. This will allow for proper belt alignment while conveyor is in use. Install cam bearing and spacer **(Figure 19, item 1)**.

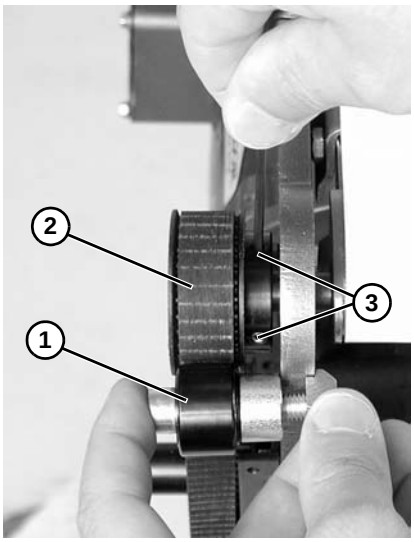


Figure 19

12. Remove cam bearing and spacer **(Figure 20, item 1)**.

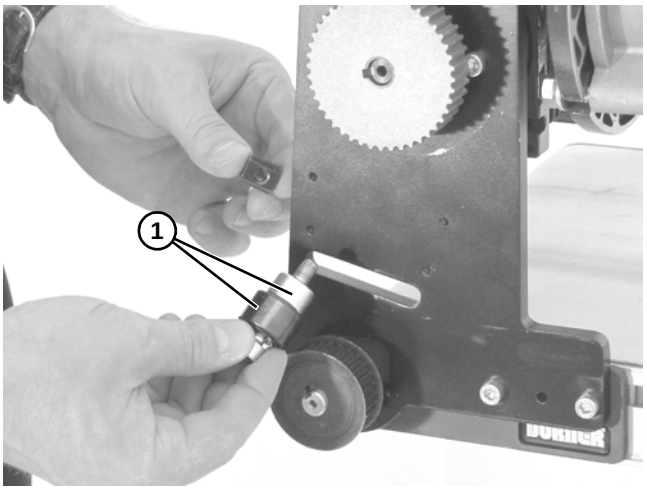


Figure 20

13. Install key onto bottom shaft **(Figure 21, item 1)**.

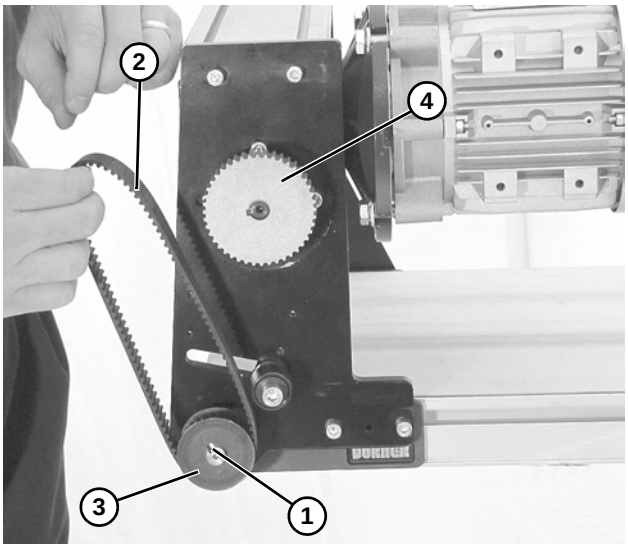


Figure 21

14. Wrap timing belt **(Figure 21, item 2)** around driven pulley **(Figure 21, item 3)** and drive pulley **(Figure 21, item 4)**. Install driven pulley **(Figure 21, item 3)** onto conveyor shaft.
15. Depending on direction of conveyor belt travel **(Figure 22, item 1 or 2)**, position belt tensioner **(Figure 22, item 3)** as shown. Tension belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at belt mid-point **(Figure 22, item 4)**. Tighten tensioner screw to 103 in-lb (12 Nm).

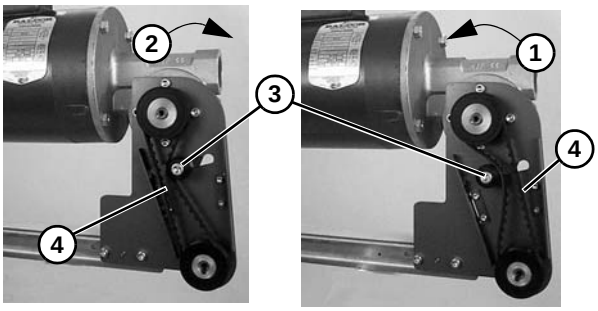


Figure 22

16. Install cover **(Figure 23, item 1)** with four screws **(Figure 23, item 2)**. Tighten to 35 in-lb (4 Nm).

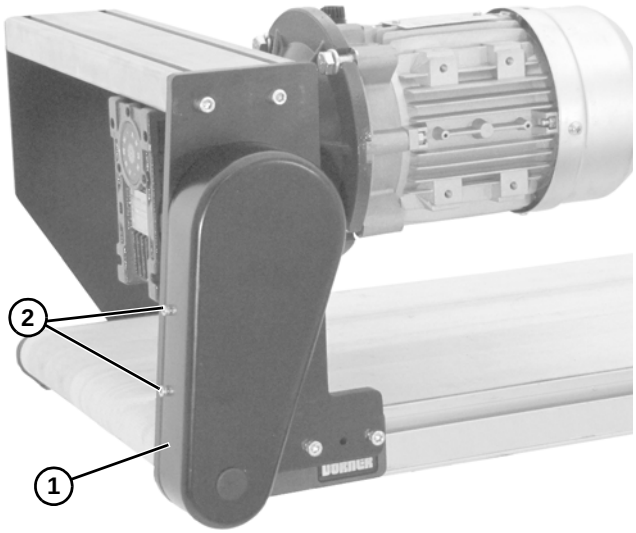


Figure 23

Required Tools

- Hex key wrenches:
  2 mm, 2.5 mm, 3 mm & 5 mm
- Adjustable wrench (for hexagon head screws)
- 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 screws **(Figure 23, item 2)** and remove cover **(Figure 23, item 1)**.
2. Loosen tensioner **(Figure 24, item 1)**.

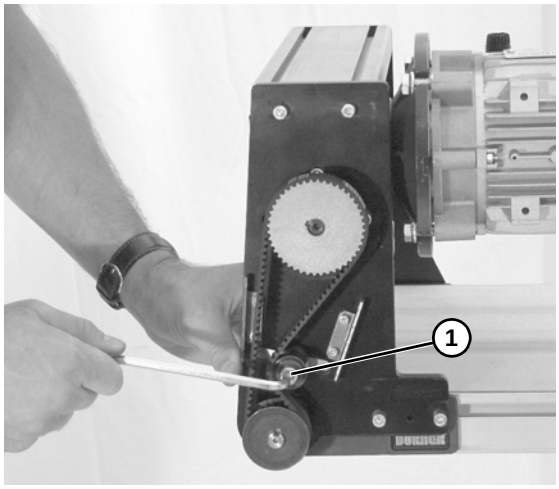


Figure 24

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

Timing Belt Replacement

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

1. Remove four screws **(Figure 23, item 2)** and remove cover **(Figure 23, item 1)**.
2. Loosen tensioner **(Figure 24, item 1)**.
3. Remove timing belt **(Figure 25, item 1)**.

NOTE

*If timing belt does not slide over pulley flange, loosen driven pulley **(Figure 25, item 2)** set screws and remove pulley with belt **(Figure 25, item 1)**. For re-installation, see step 14 and **Figure 22** on page 14.*

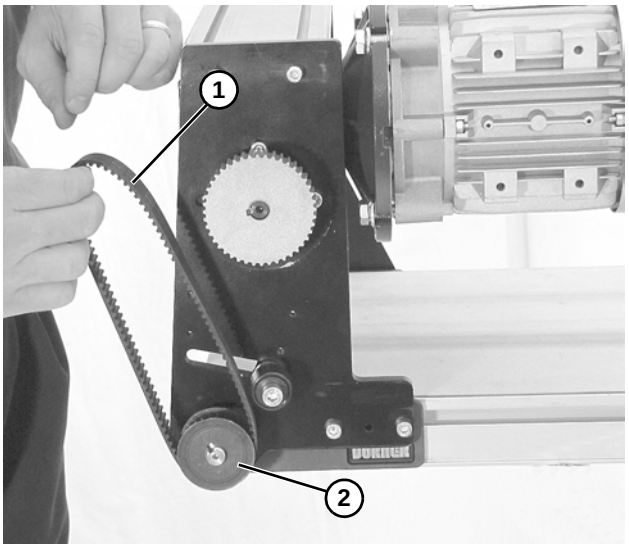


Figure 25

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

Drive or Driven Pulley Replacement

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

1. Complete steps 1 through 3 of "Timing Belt Replacement" section on page 15.
2. Loosen set screws and remove drive or driven pulley.

NOTE

*If drive pulley **(Figure 29, item 2)** is replaced, wrap timing belt around drive pulley and complete step 3.*

3. Complete steps 12 through 16 of "Installation" section on page 13.

Gear Reducer Replacement

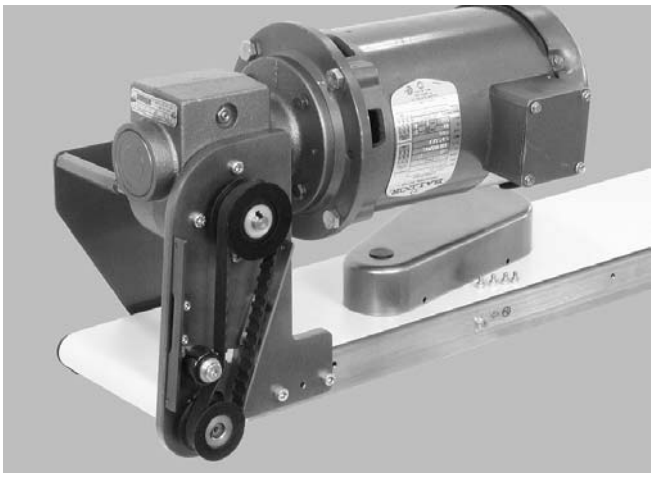
⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

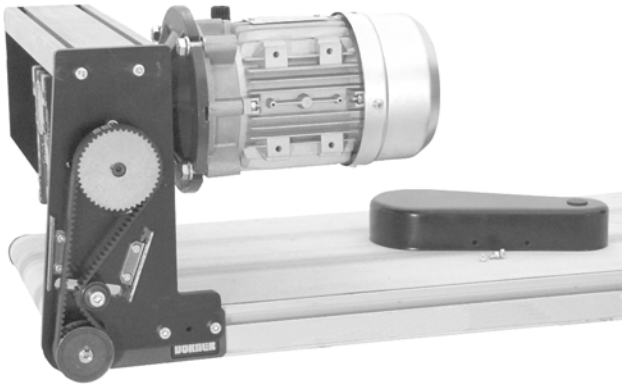
NOTE

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 26



eDrive Gearmotor

Figure 27

1. Remove four (4) screws **(Figure 28, item 2)** and remove cover **(Figure 28, item 1)**.

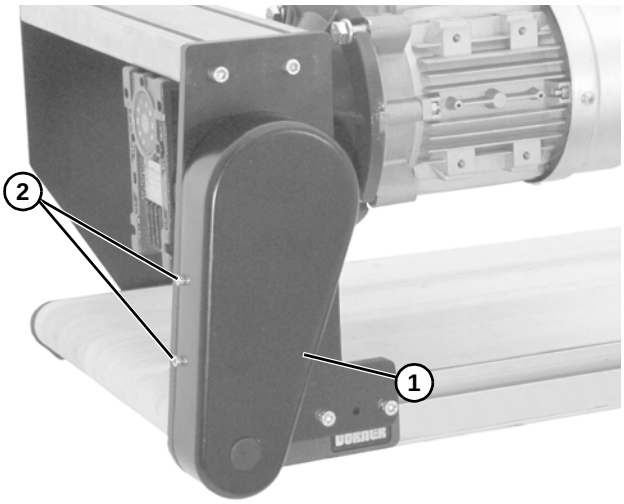


Figure 28

2. Loosen tensioner **(Figure 29, item 1)**.

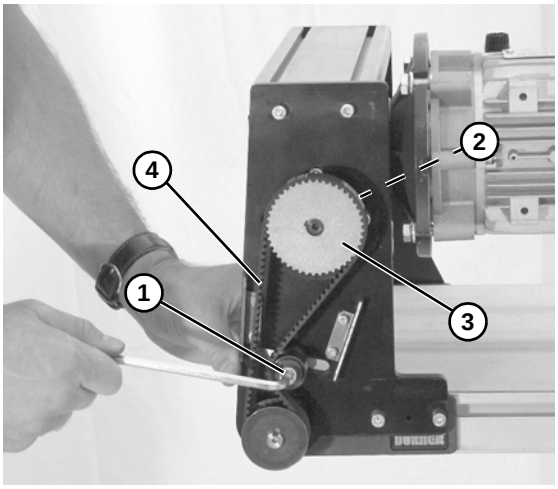


Figure 29

3. Loosen drive pulley set screws **(Figure 29, item 2)**. Remove drive pulley **(Figure 29, item 3)** and timing belt **(Figure 29, item 4)**.

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

For eDrive style gearmotor

1. Remove screws **(Figure 30, item 1)** and remove drive package **(Figure 30, item 2)**.

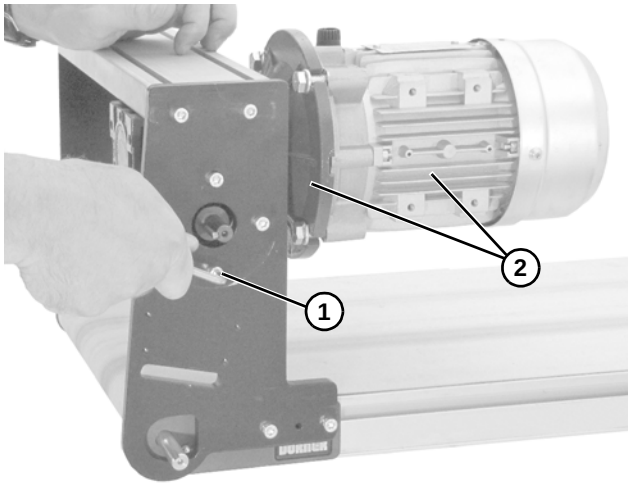


Figure 30

NOTE
*Step 2 and **(Figure 31, item 2)** is required for standard load VFD gearmotors only.*

2. Loosen four (4) socket head screws **(Figure 31, item 1)** and detach spacer **(Figure 31, item 2)** from gear reducer **(Figure 31, item 3)**.

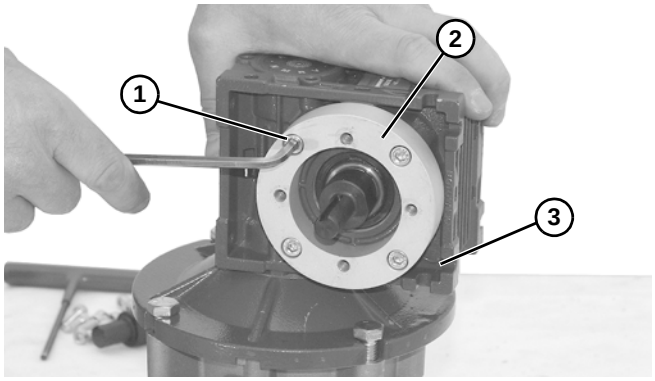


Figure 31

3. Remove four screws **(Figure 32, item 1)**. Detach motor **(Figure 32, item 2)** from gear reducer **(Figure 32, item 3)**. Retain shaft key **(Figure 32, item 4)**.

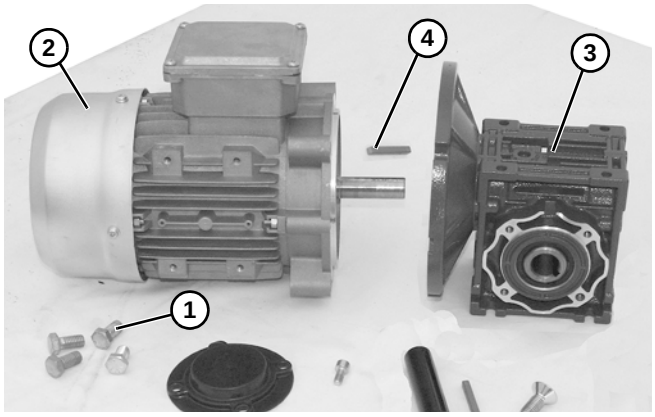


Figure 32

4. Remove two (2) screws **(Figure 33, item 1)** and detach output shaft cover **(Figure 33, item 2)**.

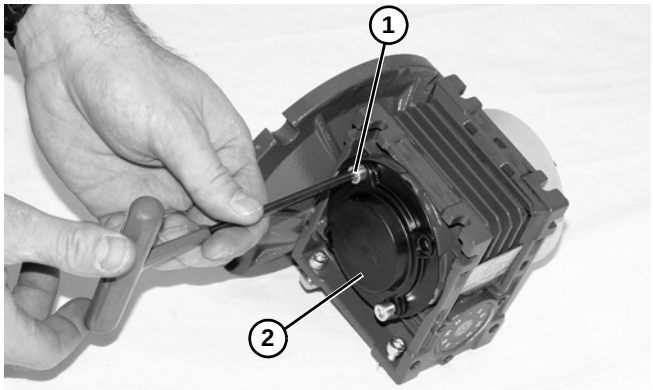


Figure 33

5. Remove gear reducer components:

6. Hold the driveshaft with a wrench **(Figure 34, item 1)** as shown to keep shaft from turning, while removing screw **(Figure 34, item 2)** with hex wrench **(Figure 34, item 3)**.

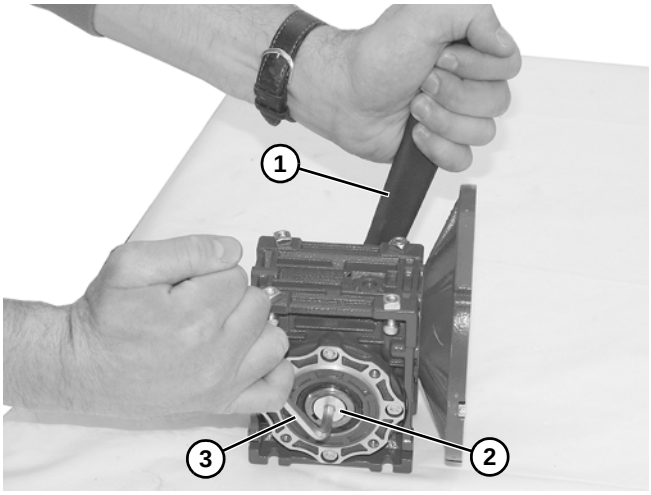


Figure 34

7. Remove driveshaft **(Figure 35, item 1)** and key **(Figure 35, item 2)**.

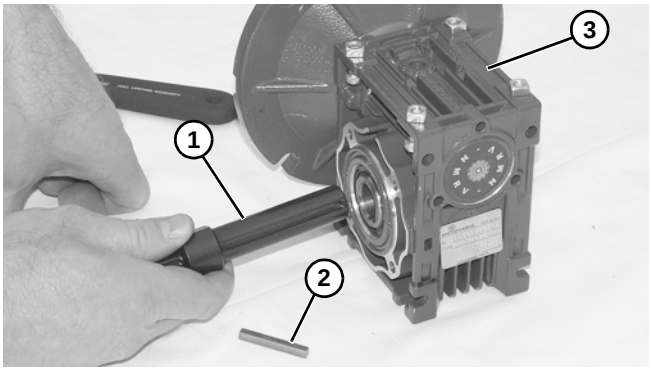


Figure 35

8. Replace gear reducer **(Figure 35, item 3)**.
9. Apply anti-seize **(Figure 36, item 1)** to shaft.

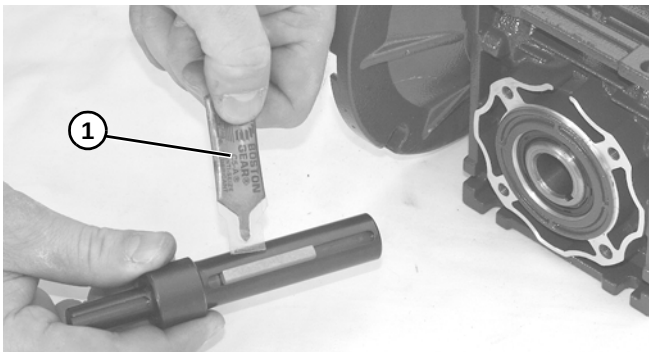


Figure 36

10. Replace the original shaft components into new gear reducer **(Figure 35)**.

IMPORTANT

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

11. Hold the driveshaft with a wrench **(Figure 34, item 1)** as shown to keep shaft from turning, while installing screw with hex wrench **(Figure 34, item 3)**. Tighten screw to 350 in-lb (39.5 Nm).
12. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 32, item 4)** in keyway, slide motor **(Figure 32, item 2)** and gear reducer **(Figure 32, item 3)** together. Install screws **(Figure 32, item 1)** and tighten.
13. Reverse steps 1 through 5 beginning on page 15.
14. Complete installation steps 12 through 16 of "Installation" section on pages 13-14.

For old style gearmotor prior to June 2011

1. Remove screws **(Figure 37, item 1 & 2)** and remove support plate **(Figure 37, item 3)** and spacer **(Figure 37, item 4)**. Remove hex posts **(Figure 37, item 5)**.

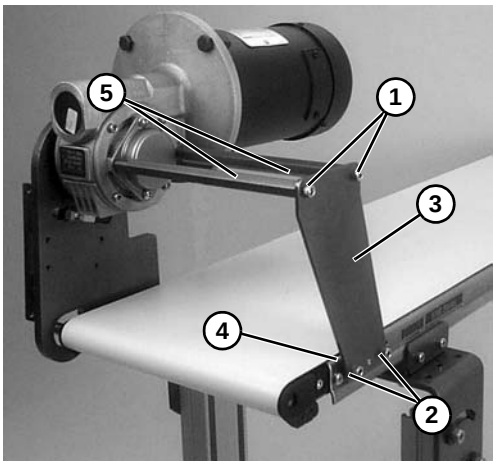


Figure 37

2. Remove four (4) gear reducer mounting screws **(Figure 38, item 1)**. Remove gearmotor.

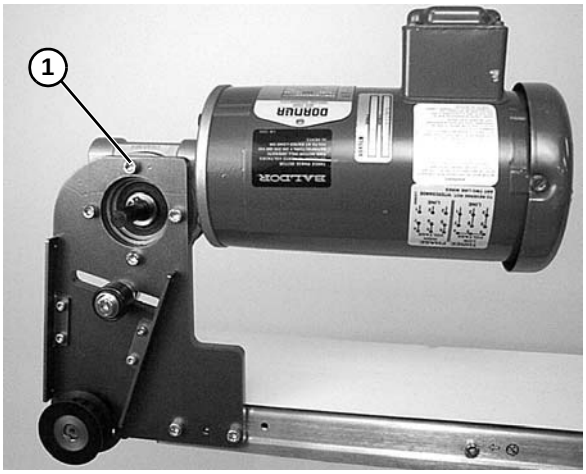


Figure 38

3. Remove four screws **(Figure 39, item 1)**. Detach motor **(Figure 39, item 2)** from gear reducer **(Figure 39, item 3)**. Retain motor output shaft key **(Figure 39, item 4)**.

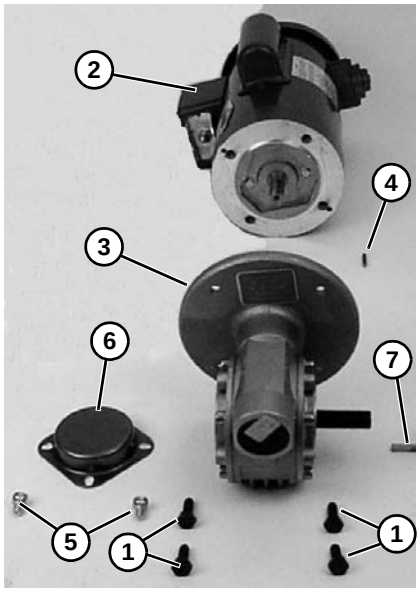


Figure 39

4. Remove two (2) screws **(Figure 39, item 5)** and detach output shaft cover **(Figure 39, item 6)**.
5. Remove gear reducer output shaft key **(Figure 39, item 7)**.
6. Loosen six (6) set screws **(Figure 40, item 1)**. Remove drive shaft **(Figure 40, item 2)** and key **(Figure 40, item 3)**.

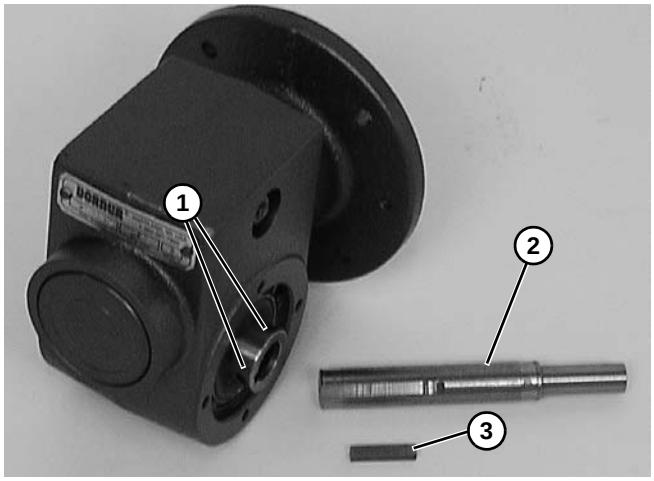


Figure 40

7. Apply anti-seize **(Figure 41, item 1)** to shaft.

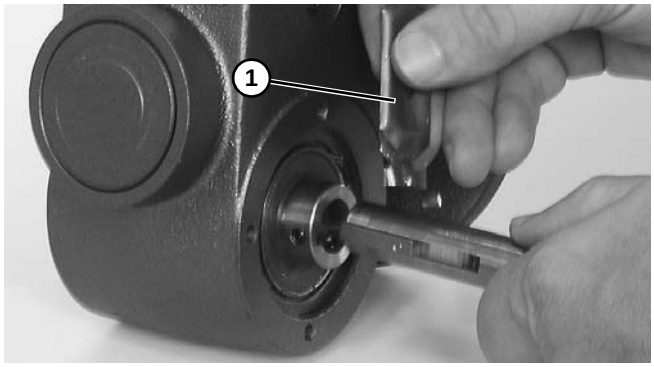


Figure 41

8. Replace the original shaft components into new gear reducer **(Figure 40)**.

IMPORTANT

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

9. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 39, item 4)** in keyway, slide motor **(Figure 39, item 2)** and gear reducer **(Figure 39, item 3)** together. Install screws **(Figure 39, item 1)** and tighten.
10. Reverse steps 1 through 5 beginning on page 15.
11. Complete installation steps 12 through 16 of "Installation" section on pages 13-14.

Preventive Maintenance and Adjustment

Motor Replacement

⚠ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

⚠ DANGER

Hazardous voltage will cause severe injury or death.

LOCKOUT POWER BEFORE before wiring.

1. For single phase motor, unplug power cord from outlet.
2. For three phase and VFD variable speed motor:

   a. Remove terminal box screws **(Figure 42, item 1)** and remove cover **(Figure 42, item 2)**.

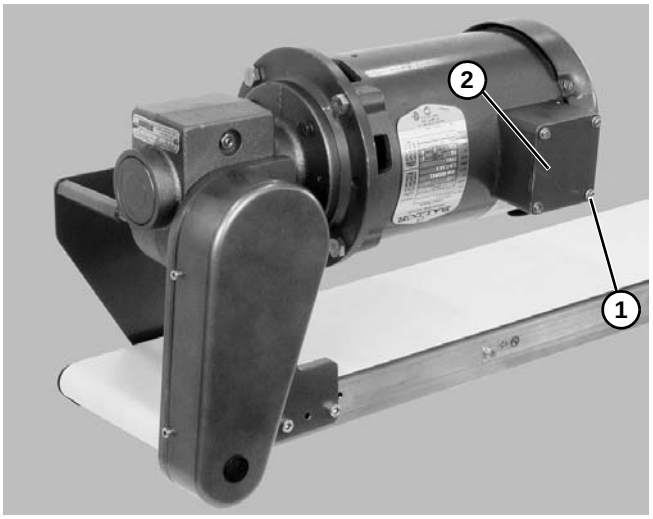


Figure 42

   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.

3. For DC variable speed motor, unplug motor cord at disconnect **(Figure 43, item 1)**.

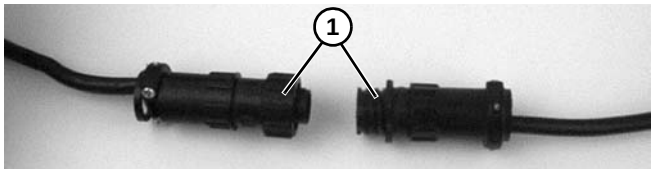


Figure 43

4. 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, item 4)**.

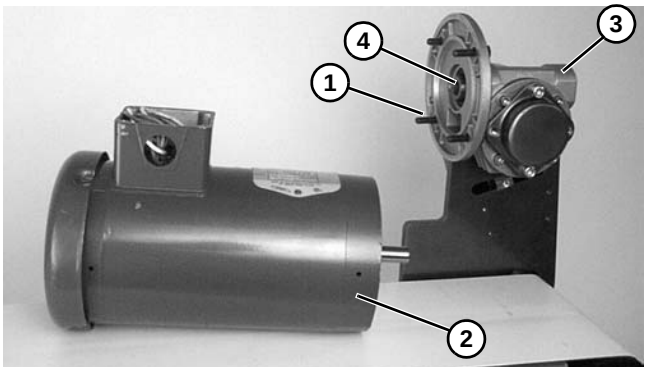


Figure 44

IMPORTANT

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

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

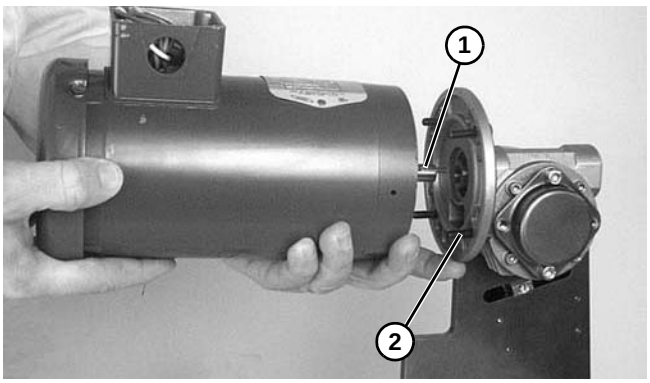


Figure 45

6. Replace wiring:

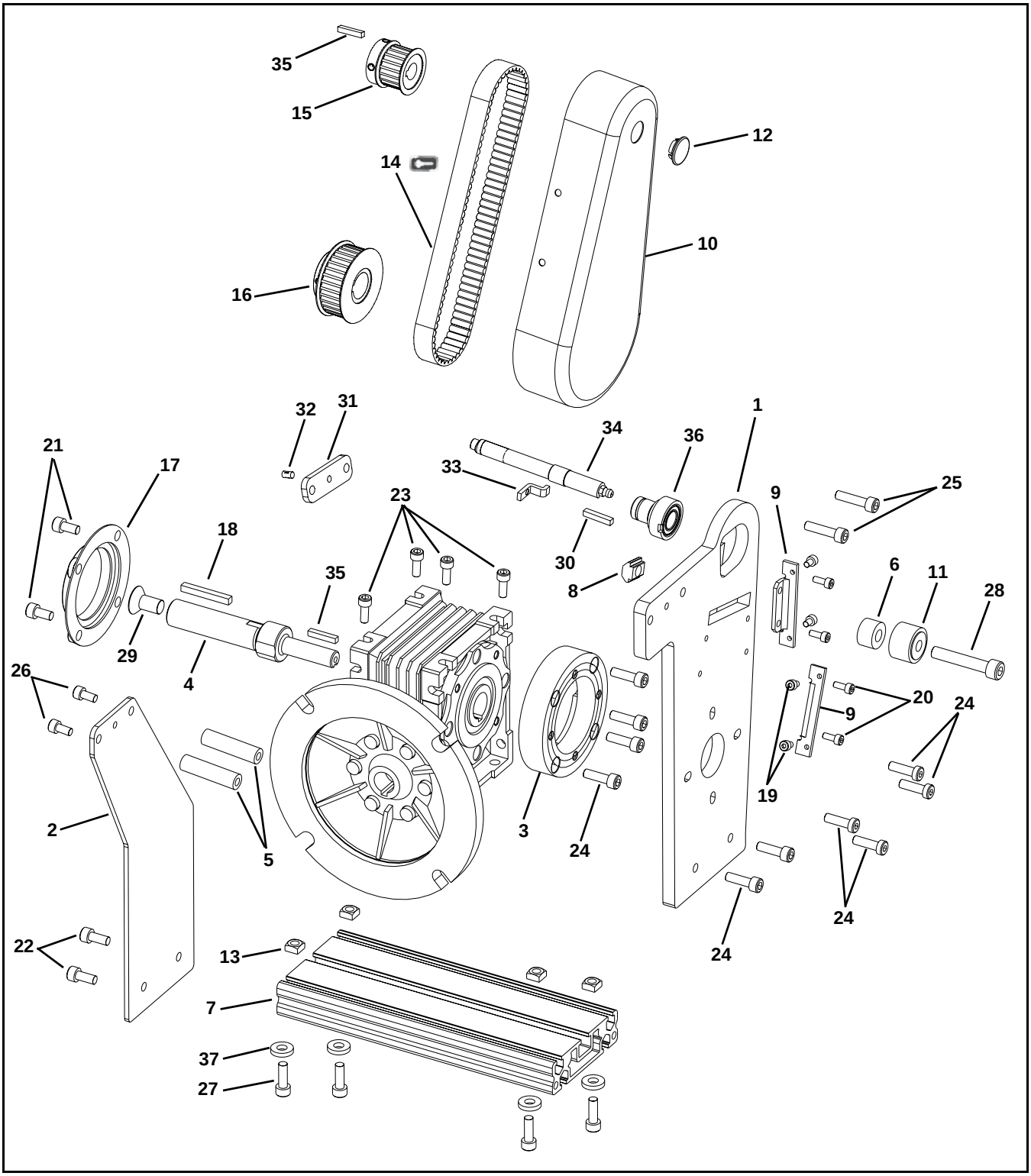
- For a single phase motor, reverse step 1 on page 20.
- For a three phase and VFD variable speed motor, reverse step 2, on page 20.
- For a DC variable speed motor, reverse step 3 on page 20.

Notes

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 Top Mount Drive Package

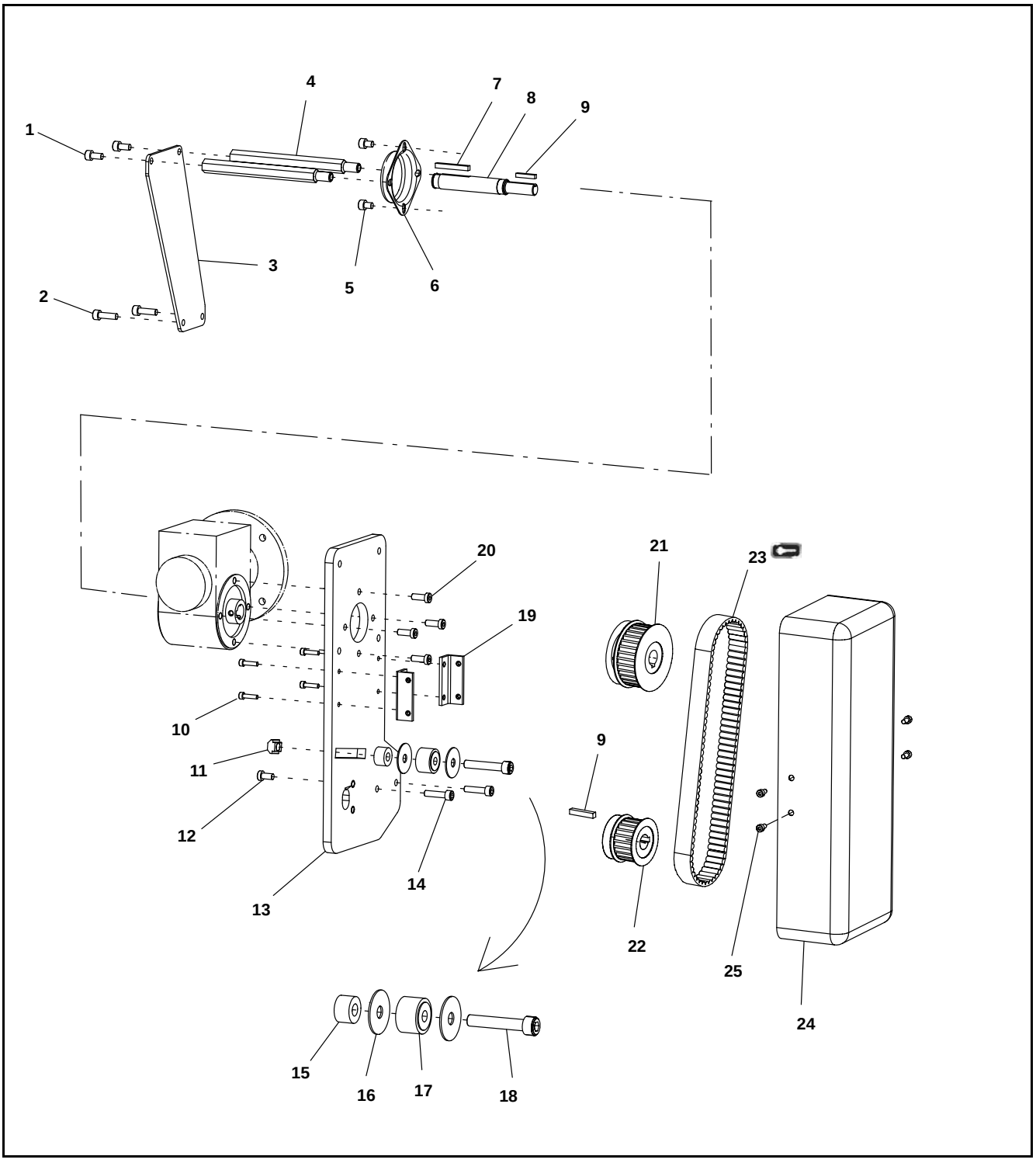


Item	Part Number	Description
1	202279	Mounting Plate
	202278	Mounting Plate (Flush Mount Only)
2	202285	Gearhead/Conveyor Support Plate
	202282	Gearhead/Conveyor Support Plate (Flush Mount Only)
	202281	Gearhead/Conveyor Support Plate (4100 Series)
3	350115	Adapter Extrusion
4	350122	Output Shaft (for E-Drive 56 C Face Gearmotors)
	350136	Output Shaft (for E-Drive IEC 63B5 and IEC 71B5 Gearmotors)
5	450155	Spacer for 2" (51 mm) Wide Conveyor
	450156	Spacer for 3" (76 mm) Wide Conveyor
	450158M	Spacer for 2" (51 mm) Wide Conveyor (6200 Series)
	450157M	Spacer for 3" (76 mm) Wide Conveyor (6200 Series)
6	450445	Spacer
7	202286-00436	Extrusion for 2" (51 mm) & 3" (76 mm) Wide Conveyors
	202286-00443	Extrusion for 4" (102 mm) Wide Conveyors
	202286-00568	Extrusion for 5" (127 mm) Wide Conveyors
	202286-00668	Extrusion for 6" (152 mm) Wide Conveyors
	202286-00868	Extrusion for 8" (203 mm) Wide Conveyors
	202286-01068	Extrusion for 10" (254 mm) Wide Conveyors
	202286-01268	Extrusion for 12" (305 mm) Wide Conveyors
	202286-01868	Extrusion for 18" (457 mm) Wide Conveyors
	202286-02168	Extrusion for 21" (533 mm) Wide Conveyors
	202286-02468	Extrusion for 24" (610 mm) Wide Conveyors
8	202390M	Nut
9	450375M	Cover Mounting Bracket
10	450376M	Drive Guard
11	802-046	Bearing
12	807-226	Snap-out Plastic Plug
13	807-920	Nut
14	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
15	450365MP	Driven Pulley, 19 Tooth
	450366MP	Driven Pulley, 22 Tooth
	450367MP	Driven Pulley, 28 Tooth
	450368MP	Driven Pulley, 32 Tooth

Item	Part Number	Description
16	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
17	807-2016	Plastic Cover
18	912-084	Square Key, 0.188" x 0.150" (for E-Drive 56 C Face Gearmotors)
	980636M	Square Key, 6 mm x 36 mm (for E-Drive IEC 63B5 and IEC 71B5 Gearmotors)
19	920406M	Socket Head Screw, M4-.70 x 6 mm
20	920410M	Socket Head Screw, M4-.70 x 10 mm
21	920612M	Socket Head Screw, M6-1.00 x 12 mm
22	920614M	Socket Head Screw, M6-1.00 x 14 mm
23	920616M	Socket Head Screw, M6-1.00 x 16 mm
24	920620M	Socket Head Screw, M6-1.00 x 20 mm
25	920625M	Socket Head Screw, M6-1.00 x 25 mm
26	920620M	Socket Head Screw, M6-1.00 x 20 mm
	920670M	Socket Head Screw, M6-1.00 x 70 mm for 2" (51 mm) Wide Conveyors
	920645M	Socket Head Screw, M6-1.00 x 45 mm for 3" (76 mm) Wide Conveyors
27	920694M	Low Head Cap Screw, M6-1.00 x 20 mm
	920618M	Socket Head Screw, M6-1.00 x 18 mm (4100 Series)
28	920845M	Socket Head Screw, M8-1.25 x 45 mm
29	931020MSS	Flat Head Screw M10-1.50 x 20 mm
30	980422M	Square Key, 4 mm x 22 mm
31	450027M	Drive Spacer (6200 Series)
32	807-952	Groove Pin (6200 Series)
33	43-38-08	Outboard Retaining Clip (4100 Series)
34	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)
35	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)
36	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)
37	605279P	Hard Washer

Service Parts

MPB Series Cleated Belt Top Mount Drive Package (Old Style Gearmotor Only)

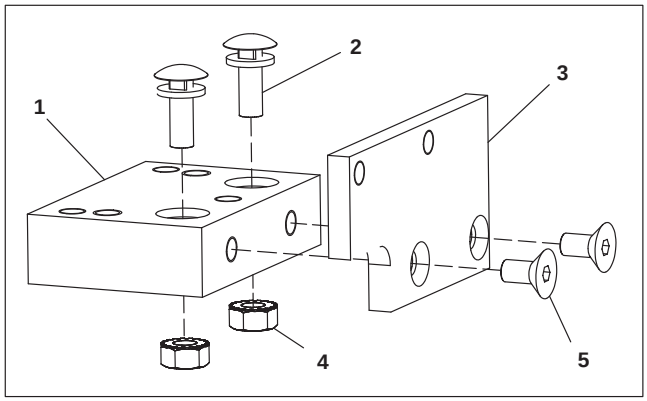


Item	Part Number	Description
1	920612M	Socket Head Screw M6 x 12mm
2	920620M	Socket Head Screw M6 x 20mm
3	243403	Gearhead/Conveyor Support Plate
4	4533WWM	Gearhead Support Hex Post
5	920608M	Socket Head Screw M6x8mm
6	300139	Drive Bearing Shaft Cover
7	912–084	Square Key, 0.188 x 1.5”
8	450444M	Grove Output Shaft 12mm
9	980422M	Square Key 4mm x 22mm
10	920416M	Socket Head Screw M4 x 16mm
11	202390M	Nut
12	920692M	Stabilization Screw M6 x 12mm Low Hd
13	243401	Mounting Plate
14	920625M	Socket Head Screw M6 x 25mm
15	450445	Spacer
16	807–1133	Washer
17	802–046	Bearing
18	920845M	Socket Head Screw M8 x 45mm
19	243402	Cover Mounting Angle
20	920693M	Socket Low Head Screw M6 x 16mm

Item	Part Number	Description
21	450365MP	Drive Pulley, 19Tooth, 12mm bore
	450366MP	Drive Pulley, 22Tooth, 12mm bore
	450367MP	Drive Pulley, 28Tooth, 12mm bore
	450368MP	Drive Pulley, 32Tooth, 12mm bore
	450369MP	Drive Pulley, 44Tooth, 12mm bore
	450370MP	Drive Pulley, 48Tooth, 12mm bore
22	450365MP	Driven Pulley, 19Tooth, 12mm bore
	450366MP	Driven Pulley, 22Tooth, 12mm bore
	450367MP	Driven Pulley, 28Tooth, 12mm bore
	450368MP	Driven Pulley, 32Tooth, 12mm bore
23	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
24	300871M	Drive Cover
25	920408M	Socket Head Screw M4 x 8mm
WW = Conveyor width ref.: 04, 06, 08, 10, 12, 18, 21, 24		

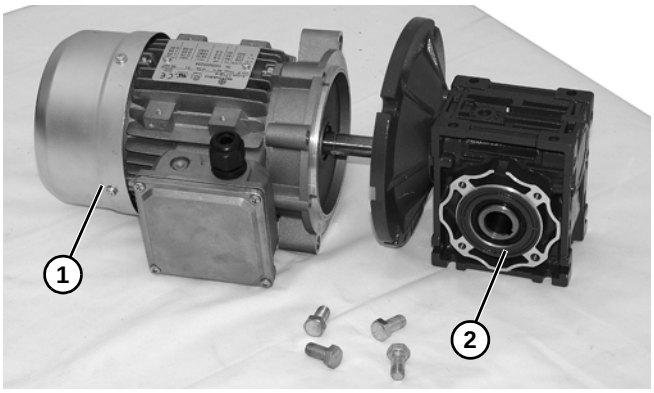
Service Parts

4100 Series Adapter Package



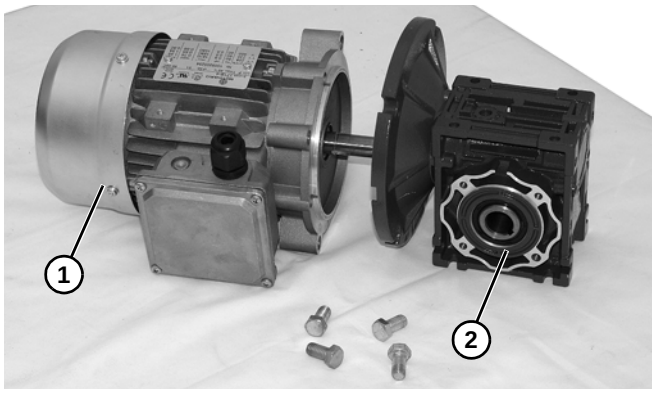
Item	Part No.	Part Description
1	609486	Mounting Block 1” (25mm)
	609487	Mounting Block 2” (51mm)
	609488	Mounting Block 3” (76mm)
	609479	Mounting Block 4” (102mm)
	609480	Mounting Block 5” (127mm)
	609481	Mounting Block 6” (152mm)
	609482	Mounting Block 7” (178mm)
	609483	Mounting Block 8” (203mm)
	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	62MEH411FN	Motor, 0.5 hp (0.37 Kw) 115/230 Volts, 60 Hz, 1-Phase, non–reversing
	62MHD9DEN	Motor, 0.5 hp (0.37 Kw) 90 Volts DC
	32MES423EN	Motor, 0.5 hp (0.37 Kw) 230V, 10– 60Hz, Inverter Duty, 3 Phase
	32MEH423FN	Motor, 0.5 hp (0.37 Kw)208–230/460 Volts, 60 Hz, 3-Phase
2	32M005ES	Gear Reducer, 5:1, 56C
	32M010ES	Gear Reducer, 10:1, 56C
	32M020ES	Gear Reducer, 20:1, 56C
	32M040ES	Gear Reducer, 40:1, 56C
	32M060ES	Gear Reducer, 60:1, 56C

CE Version Gearmotors



Item	Part No.	Part Description
1	826-342	Motor, 0.19 Kw 230/400 Volts, 50 Hz, 3-Phase
2	820-262	Gear Reducer, 5:1, 71B5 RH
	820-263	Gear Reducer, 5:1, 71B5 LH
	820-264	Gear Reducer, 15:1, 71B5 RH
	820-265	Gear Reducer, 15:1, 71B5 LH
	820-266	Gear Reducer, 50:1, 71B5 RH
	820-267	Gear Reducer, 50:1, 71B5 LH

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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