2200 Series Standard Load & 2700 Series Standard and Heavy Load Top Mount Drive Package for 90° Industrial Gearmotors

Installation, Maintenance & Parts Manual

Featuring: eDrive™ Technology

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Record Conveyor Serial Number Here

851-257 Rev. N

Table of Contents

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

Dorner's Limited Warranty applies.

Dorner reserves the right to make changes at any time without notice or obligation.

Dorner has convenient, pre–configured kits of Key Service Parts for all conveyor products. These time saving kits are easy to order, designed for fast installation, and guarantee you will have what you need when you need it. Key Parts and Kits are marked in the Service Parts section of this manual with the Performance Parts Kits logo  .

⚠ WARNING

The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.

⚠ DANGER

Climbing, sitting, walking or riding on conveyor will cause severe injury. KEEP OFF CONVEYORS.

⚠ DANGER

DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.

⚠ WARNING

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

⚠ WARNING

Gearmotors may be HOT.
DO NOT TOUCH Gearmotors.

⚠ WARNING

Exposed moving parts can cause severe injury. REPLACE ALL GUARDS BEFORE RUNNING CONVEYOR.

⚠ WARNING

Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.

When conveyors are used in conjunction with other equipment or as part of a multiple conveyor system, CHECK FOR POTENTIAL PINCH POINTS and other mechanical hazards before system start-up.

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

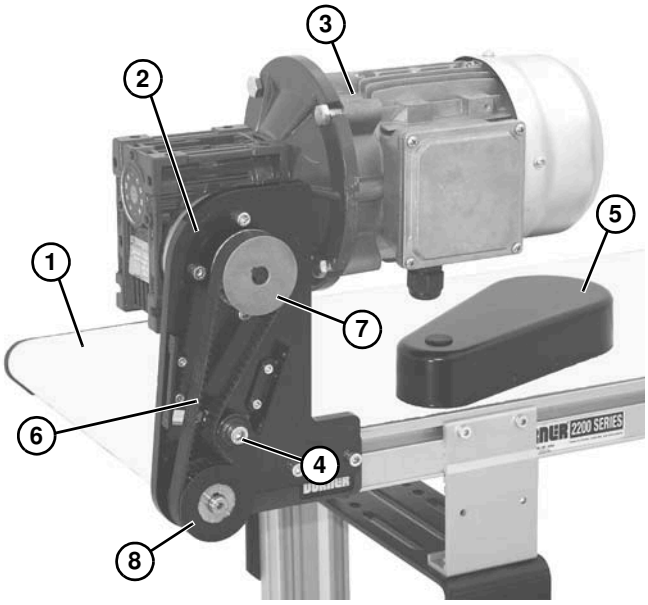
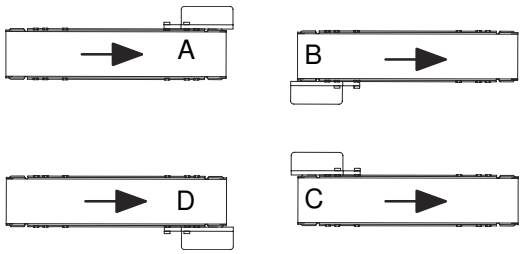


Figure 1

Gearmotor Mounting Package

22 M T H S WW A – 32 32

- 22 = 2200 Series Conveyor; 2L = 2700 Series Conveyor
- Language Code: M = U.S. English; U = CE English
- Mount Style = Top Mount
- Output Shaft Type: E = 90° e-Drive
- Gearmotor Type: S = Standard Load; B = Brushless DC; K = Indexing / VFD; H = Heavy Load
- Conveyor Width Reference*
- Mount Position = A, B, C or D (see detail to the right)
- Belt Type: – = flat belt, A through J = cleated belt
- Drive Pulley
- Driven Pulley



* See Engineering manual for details.

Table 1: Gearmotor Specifications

U.S. Version

	Single Phase	Three Phase
Output Power	0.25 hp (0.19 kw)	
Input Voltage	115 Volts A.C.	208 to 230/460 Volts A.C.
Input Frequency	60 Hz	
Input Current	5.0 Amperes	1.2 /0.6 Amperes
Motor RPM	1725	
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1	
Frame Size	NEMA 42 CZ	NEMA 56 C
Motor Type	Totally Enclosed, Fan-cooled	

CE Version

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

Specifications

Table 2: 60 Hz Gearmotor Specifications - Heavy Load

	Heavy Load Gearmotor		
	Single- Phase	**Three Phase**	**VFD Variable Speed**
Output Power	0.5 hp (0.37 kw)		
Input Voltage	115VAC	208 – 230/460 VAC	230 VAC
Input Frequency	60Hz		10 – 60Hz
Input Current (Amperes)	7.4	2.1 – 2/1	1.6
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1		
Frame Size	NEMA 56C		
Motor Type	Totally enclosed, Fan cooled		

NOTE

For belt speed other than those listed in Tables 3 – 6, contact factory for details.

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

U.S. Version (60 Hz Gearmotors)

Gearmotors					
Part Number	**RPM**	**In lb 1 Phase**	**In lb 3 Phase**	**N-m 1 Phase**	**N-m 3 Phase**
62M060ES4(vp)FN	29	134	134	15.1	15.1
62M040ES4(vp)FN	43	160	160	18.1	18.1
62M020ES4(vp)FN	86	133	151	15	17.1
62M010ES4(vp)FN	173	75	114	8.5	12.9
62M005ES4(vp)FN	345	39	60	4.4	6.8

(vp) = voltage and phase

11 = 115 V, 1-phase

23 = 208–230/460 V, 3-phase

CE Version (50 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**N-m 1 phase**	**N-m 3 phase**
62Z060ES4(vp)FN	23	36	36
62Z040ES4(vp)FN	35	26.9	35.5
62Z020ES4(vp)FN	70	16	21.2
62Z010ES4(vp)FN	140	8.7	11.4
62Z005ES4(vp)FN	280	4.5	5.9

(vp) = voltage and phase

21 = 230 V, 1-phase

23 = 230 V, 3-phase

43 = 400 V, 3-phase

Table 4: RPM/Torque for Standard Load Variable Speed 90° Gearmotors

U.S. Version 42CZ C Face (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
62M060ES423EN	5-29	134	15.1
62M040ES423EN	7-43	160	18.1
62M020ES423EN	14-86	151	17.1
62M010ES423EN	29-176	114	12.9
62M005ES423EN	58-345	60	6.8

U.S. Version 56 C Face (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060EL423EN	3-29	319	39
32M040EL423EN	4-43	238	26.9
32M020EL423EN	9-86	142	16.0
32M010EL423EN	17-173	77	8.7
32M005EL423EN	35-345	40	4.5

CE Version (50 Hz Gearmotors)

Gearmotors		
Part Number	**RPM**	**N-m**
62Z060ES423EN	12-29	36.0
62Z040ES423EN	18-44	35.5
62Z020ES423EN	35-88	21.2
62Z010ES423EN	70-176	11.4
62Z005ES423EN	140-353	5.9

Table 5: RPM/Torque for Heavy Load Fixed Speed 90° Gearmotors (for 2700 Series Only)

U.S. Version (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060ES4(vp)FN	29	319	36.0
32M040ES4(vp)FN	43	378	42.7
32M020ES4(vp)FN	86	285	32.2
32M010ES4(vp)FN	173	153	17.3
32M005ES4(vp)FN	345	80	9.0
32M005ES223FN	672	33	3.7

(vp) = voltage and phase

11 = 115 V, 1-phase

23 = 208–230/460 V, 3-phase

Specifications

Table 6: RPM/Torque for Heavy Load Variable Speed 90° Gearmotors (for 2700 Series Only)

U.S. Version 230/460 V, 3 Phase (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060ES423EN	3-29	319	36.0
32M040ES423EN	4-43	378	42.7
32M020ES423EN	9-86	285	32.2
32M010ES423EN	17-173	153	17.3
32M005ES423EN	35-345	80	9.0
32M005ES223EN	67-672	33	3.7

U.S. Version 575 V, 3 Phase (60 Hz Gearmotors)

Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060ES453EN	3-29	319	36.0
32M040ES453EN	4-43	378	42.7
32M020ES453EN	9-86	285	32.2
32M010ES453EN	17-173	153	17.3
32M005ES453EN	35-345	80	9.0

Table 7: Pulley Ratio / Timing Belt Number

Motor (Drive) Pulley Teeth	Conveyor (Driven) Pulley Teeth	Pulley Ratio	2200 Timing Belt	2700 Timing Belt
19	32	0.59	N/A	814-104
22	32	0.69	814-105	814-105
28	28	1.00	N/A	814-105
28	32	0.88	814-065	814-065
32	22	1.45	814-105	N/A
32	28	1.14	814-065	814-065
44	22	2.00	814-101	N/A
44	28	1.57	814-101	814-101
44	32	1.38	814-108	814-108
48	22	2.18	814-101	N/A
48	28	1.71	814-108	814-108
48	32	1.50	814-064	814-064
60	22	2.73	814-064	N/A
60	28	2.14	814-099	N/A
60	32	1.88	814-099	N/A

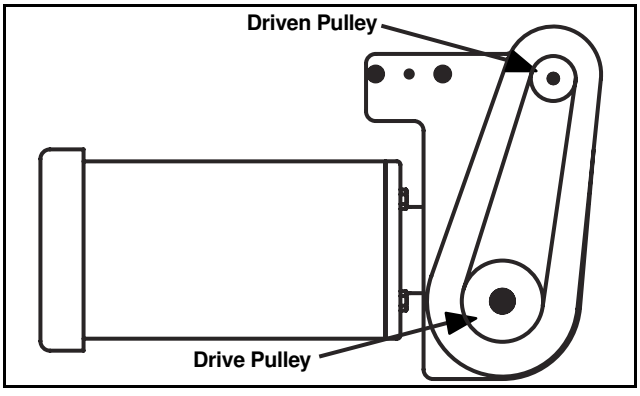


Figure 2

Table 8: Conveyor Belt Speed Factor

Series	Ft/revolution	M/revolution
2200	0.350	0.107
2200 Precision Move	0.394	0.120
2200 Modular Belt	0.394	0.120
2700	0.635	0.194

Belt Speed Calculation:

How to Calculate Belt Speed

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

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

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

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

Fastener Torque Specifications

	Flat Head		Socket Head		Button/Low Head		Set Screw	
	Size	Torque	Size	Torque	Size	Torque	Size	Torque
M4 x 0.7	2.5 mm	3.4 Nm (30 in lbs)	3 mm	5.9 Nm (52 in lbs)	2.5 mm	2.9 Nm (26 in lbs)	2 mm	2.1 Nm (19 in lbs)
M5 x 0.8	3 mm	6.9 Nm (61 in lbs)	4 mm	12.0 Nm (106 in lbs)	3 mm	5.9 Nm (52 in lbs)	2.5 mm	4.7 Nm (42 in lbs)
M6 x 1.0	4 mm	12.0 Nm (106 in lbs)	5 mm	20.3 Nm (180 in lbs)	4 mm	10.0 Nm (89 in lbs)	3 mm	7.7 Nm (68 in lbs)
M8 x 1.25	5 mm	28.0 Nm (248 in lbs)	6 mm	48.8 Nm (432 in lbs)	5 mm	24.0 Nm (212 in lbs)	4 mm	17.8 Nm (158 in lbs)
M10 x 1.5	6 mm	56.0 Nm (496 in lbs)	8 mm	97.5 Nm (863 in lbs)	6 mm	48.0 Nm (425 in lbs)	5 mm	35.0 Nm (310 in lbs)

Installation

Required Tools

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

Mounting

⚠ WARNING

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

Installation Component List:

1	Top Mount Assembly
2	Drive Pulley
3	Cover
4	Socket Head Screws (4x)
5	Driven Pulley
6	Key
7	Socket Head Screws (2x)
8	Timing Belt

1. Typical gearmotor components **(Figure 3)**

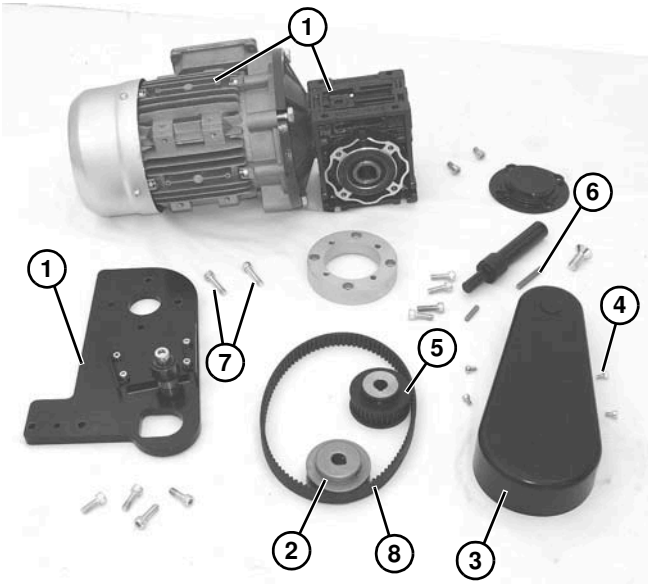


Figure 3

⚠ WARNING

Gearmotors must be mounted as shown in Figure 4.

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

NOTE

*Gearmotor may be operated in positions 1, 2 or 3 **(Figure 4)**. Dependent on conveyor belt speed and gearmotor type, position 2 may require a vibration dampening bracket. Order 7018WW for 2200 conveyors.*
(WW = conveyor width).

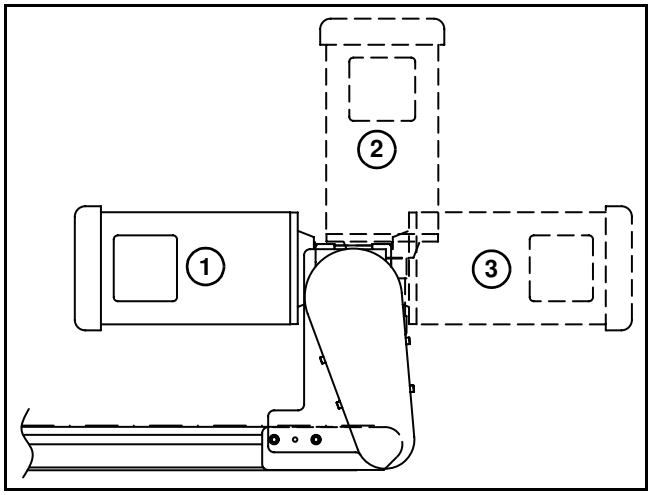


Figure 4

2. If required, change gearmotor position by removing four (4) screws **(Figure 5, item 1)**. Rotate gearmotor to other position and replace screws **(Figure 5, item 1)**. Tighten to 103 in-lb (12 N–m).

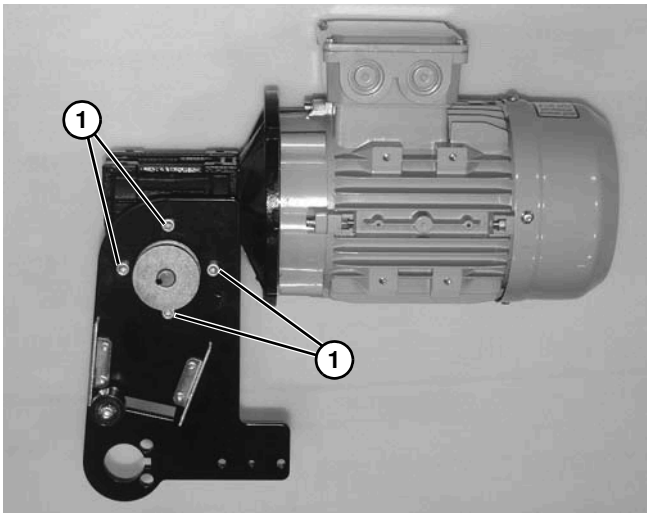


Figure 5

3. Locate drive output shaft **(Figure 6, item 1)** and remove two (2) screws **(Figure 6, item 2)**.

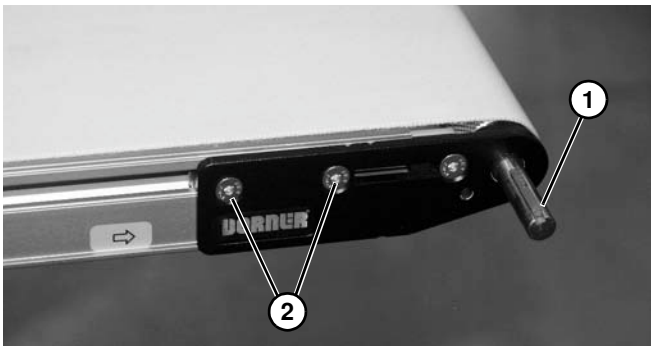


Figure 6

4. Install screw **(Figure 7, item 1)** and washer.

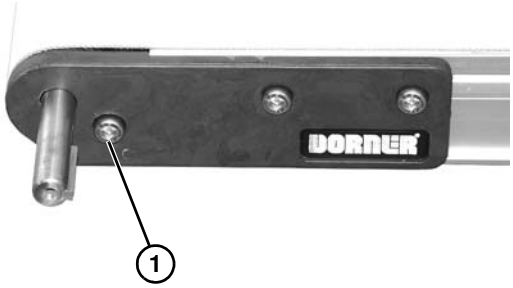


Figure 7

5. Attach mount assembly **(Figure 8, item 1)** with screws **(Figure 8, item 2)**. Tighten to 80 in-lb (9 N–m).

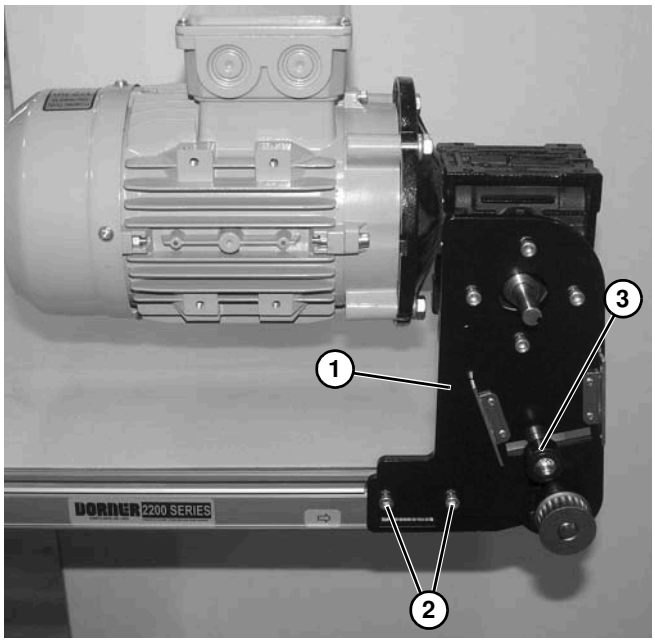


Figure 8

⚠ WARNING

Drive shaft keyway may be sharp.
HANDLE WITH CARE.

6. Install key **(Figure 9, item 1)**.

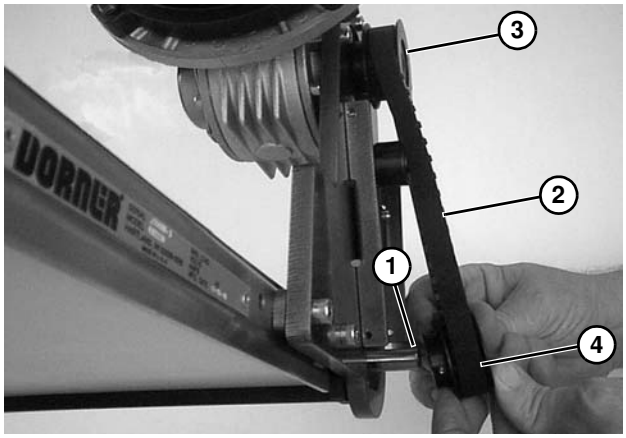


Figure 9

7. Wrap timing belt **(Figure 9, item 2)** around driven pulley **(Figure 9, item 3)** and drive pulley **(Figure 9, item 4)**. Install driven pulley **(Figure 9, item 3)** onto conveyor shaft.

8. Remove cam bearing and spacer **(Figure 8, item 3)**. Place the cam bearing and spacer **(Figure 8, item 3)** next to the driven pulley **(Figure 10, item 1)**. Ensure the flanges of the driven pulley are aligned with the cam bearing. Tighten driven pulley set screws **(Figure 10, item 2)**. This will allow for proper belt alignment while conveyor is in use. Replace cam bearing and spacer **(Figure 10, item 3)**.

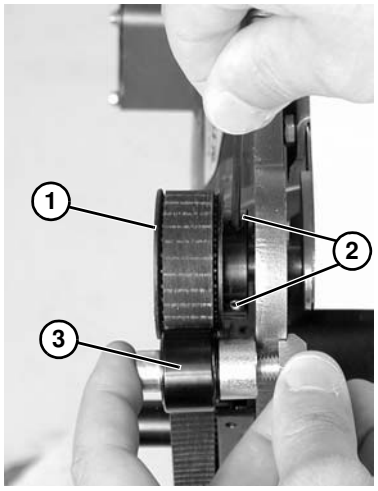


Figure 10

9. Depending on conveyor belt travel (direction 1 or 2 on **Figure 11**), locate timing belt tensioner assembly **(Figure 11, item 3)** as shown. Tension timing belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at timing belt mid-point **(Figure 11, item 4)**. Tighten tensioner screw to 103 in-lb (12 N–m).

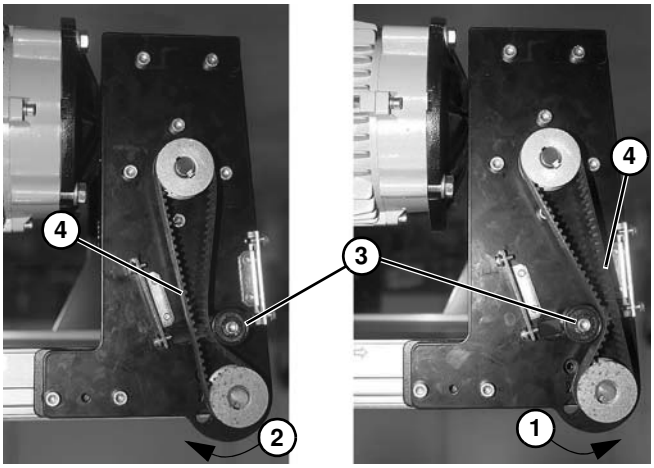


Figure 11

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

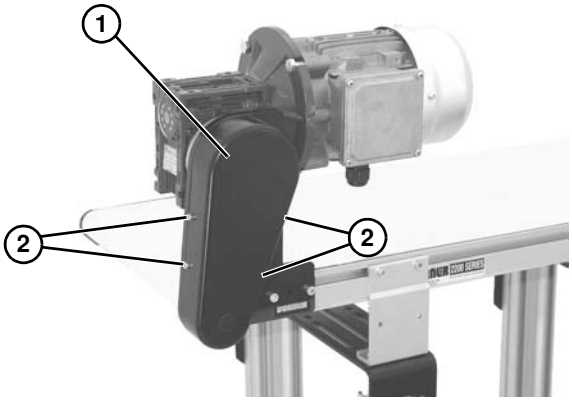


Figure 12

Required Tools

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

Timing Belt Tensioning

⚠ WARNING

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

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

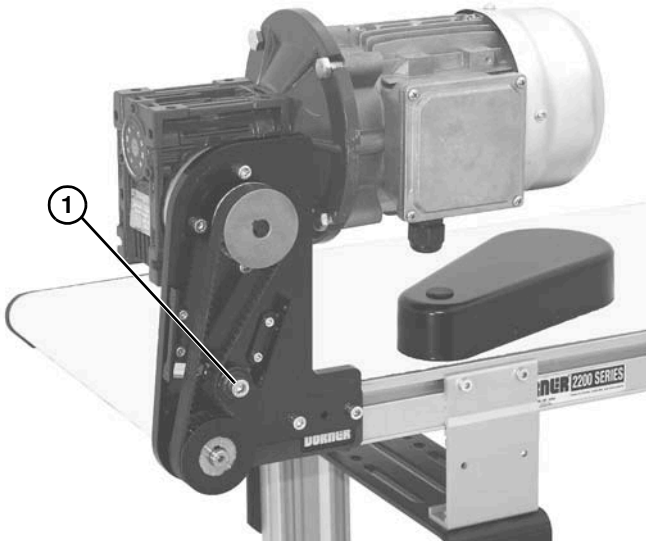


Figure 13

3. Depending on conveyor belt travel (direction 1 or 2 on **Figure 11**), locate timing belt tensioner assembly **(Figure 11, item 3)** as shown. Tension timing belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at timing belt mid-point **(Figure 11, item 4)**. Tighten tensioner screw to 103 in-lb (12 Nm).
4. Install cover **(Figure 12, item 1)** with four (4) screws **(Figure 12, 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 (4) screws **(Figure 12, item 2)** and remove cover **(Figure 12, item 1)**.
2. Loosen tensioner **(Figure 13, item 1)**.
3. Remove timing belt **(Figure 14, item 1)**.

NOTE

*If timing belt does not slide over pulley flange, loosen driven pulley **(Figure 14, item 2)** set screws and remove pulley with belt **(Figure 14, item 1)**. For re-installation, see steps 7 and 8 on page 11.*

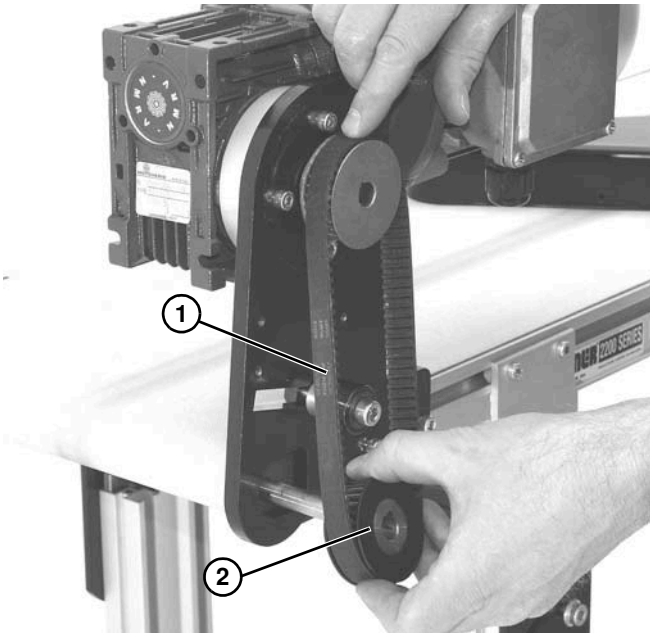


Figure 14

4. Install new timing belt.
5. Depending on conveyor belt travel (direction 1 or 2 on **Figure 11)**, locate timing belt tensioner assembly **(Figure 11, item 3)** as shown. Tension timing belt to obtain 0.125¨ (3 mm) deflection for 1.0 lb (456 grams) of force at timing belt mid-point **(Figure 11, item 4)**. Tighten tensioner screw to 103 in-lb (12 N–m).
6. Install cover **(Figure 12, item 1)** with four (4) screws **(Figure 12, item 1)**. 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 13.
2. Loosen set screws and remove drive or driven pulley.

NOTE

*If drive pulley **(Figure 17, item 1)** is replaced, wrap timing belt around driven pulley and complete step 3.*

3. Complete steps 7 through 10 of "Installation" section on page 11.

Gear Reducer Replacement

⚠ WARNING

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

1. Remove four (4) screws **(Figure 15, item 1)** and remove cover **(Figure 15, item 2)**.

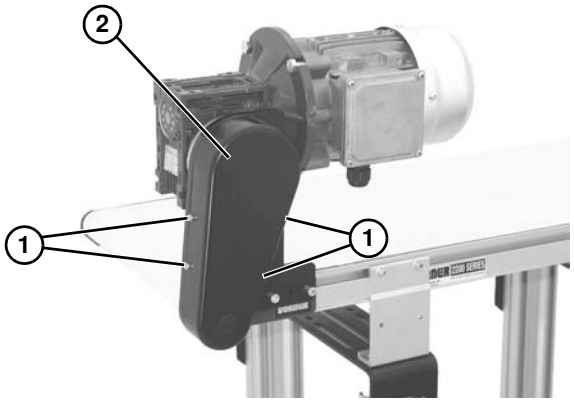


Figure 15

2. Loosen tensioner assembly **(Figure 16, item 1)**.

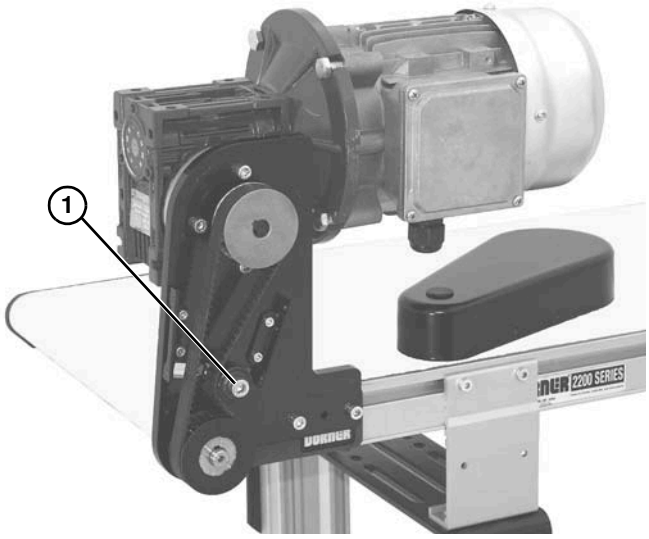


Figure 16

3. Loosen drive pulley set screws on drive pulley **(Figure 17, item 1)**. Remove drive pulley and timing belt **(Figure 17, item 2)**.

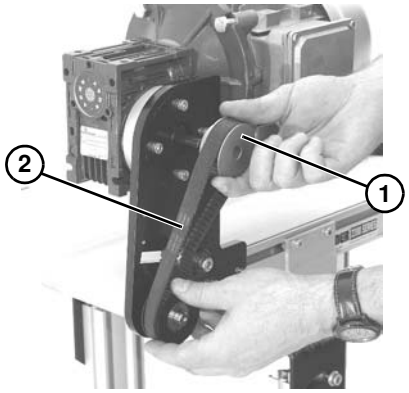


Figure 17

4. Remove four (4) gear reducer mounting screws **(Figure 18, item 1)**. Remove gearmotor.

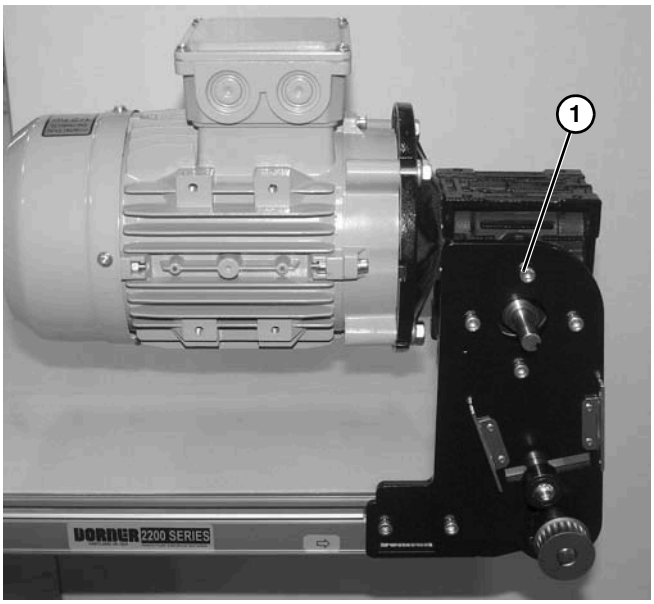


Figure 18

5. Remove four screws **(Figure 19, item 1)**. Detach motor **(Figure 19, item 2)** from gear reducer **(Figure 19, item 3)**. Retain motor output shaft key **(Figure 19, item 4)**.

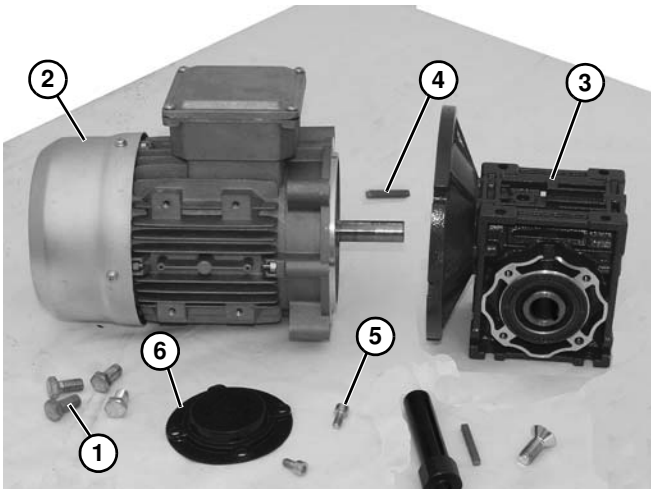


Figure 19

6. Remove two (2) screws **(Figure 19, item 5)** and detach output shaft cover **(Figure 19, item 6)**.

7. Hold the driveshaft with a wrench **(Figure 20, item 1)** as shown to keep shaft from turning, while removing screw **(Figure 20, item 2)** with hex wrench **(Figure 20, item 3)**.

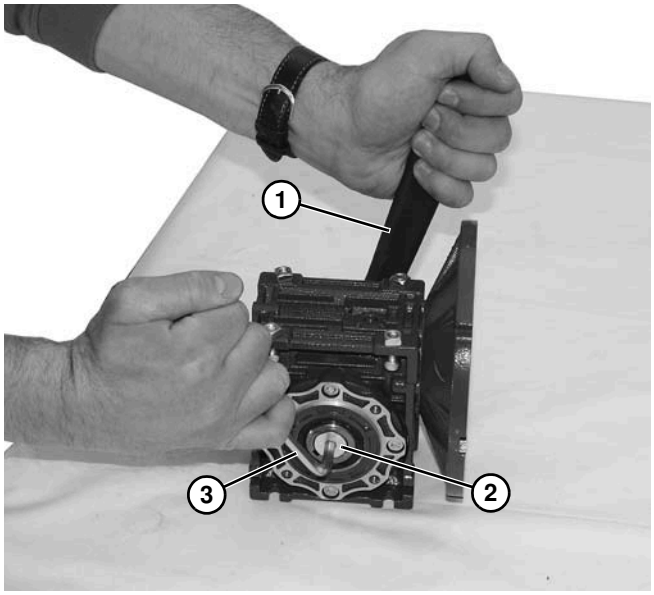


Figure 20

8. Remove driveshaft **(Figure 21, item 1)** and key **(Figure 21, item 2)**.

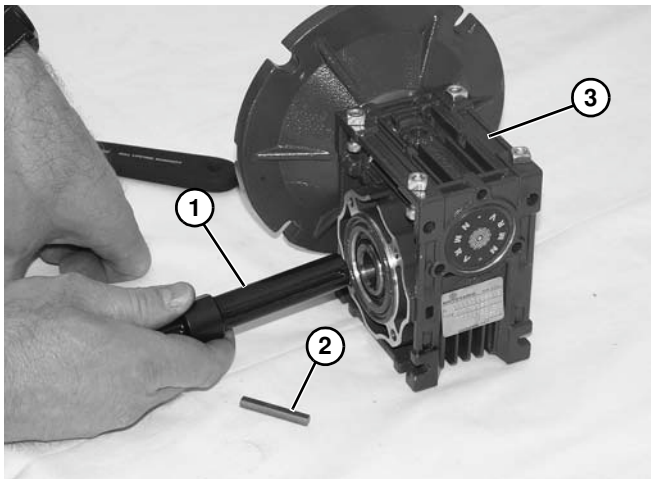


Figure 21

9. Replace gear reducer **(Figure 21, item 3)**.

10. Apply anti-seize **(Figure 22, item 1)** to shaft.

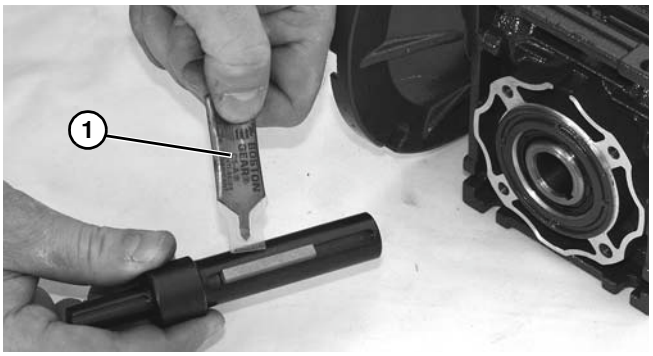


Figure 22

11. Replace the original shaft components into new gear reducer **(Figure 21)**.

IMPORTANT

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

12. Hold the driveshaft with a wrench **(Figure 20, item 1)** as shown to keep shaft from turning, while installing screw with hex wrench **(Figure 20, item 3)**. Tighten screw to 100 in-lb (11.5 Nm) for 42CZ or 350 in-lb (39.5 Nm) for 56C, 63B5 and 71B5.
13. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 19, item 4)** in keyway, slide motor **(Figure 19, item 2)** and gear reducer **(Figure 19, item 3)** together. Install screws **(Figure 19, item 1)** and tighten.
14. Install output shaft cover **(Figure 19, item 6)** and secure with two (2) screws **(Figure 19, item 5)**.
15. Install gearmotor to mounting bracket and tighten screws **(Figure 18, item 1)** to 103 in-lb (12 Nm).
16. Install components in reverse order of removal.

Motor Replacement

⚠ WARNING

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

⚠ DANGER

Hazardous voltage will cause severe injury or death. LOCKOUT POWER BEFORE before wiring.

Single Phase Motor

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

Three Phase Motor

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

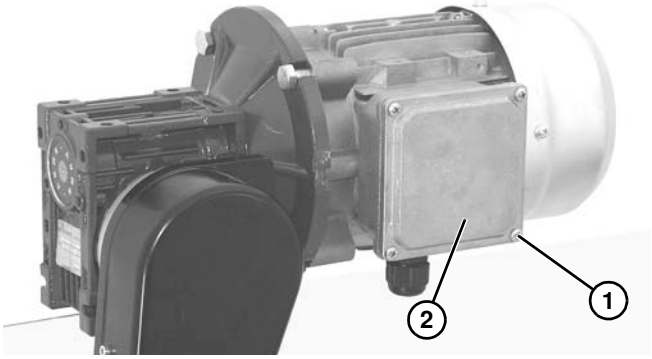


Figure 23

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

All Models

1. Remove four screws **(Figure 24, item 1)**. Detach motor **(Figure 24, item 2)** from gear reducer **(Figure 24, item 3)**. Retain motor output shaft key **(Figure 24, item 4)**.

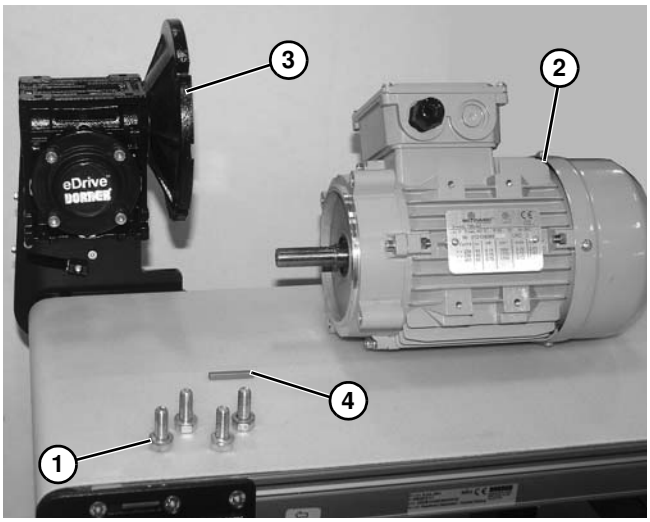


Figure 24

IMPORTANT

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

2. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 25, item 1)** in keyway, slide motor and gear reducer together. Install screws **(Figure 25, item 2)** and tighten.

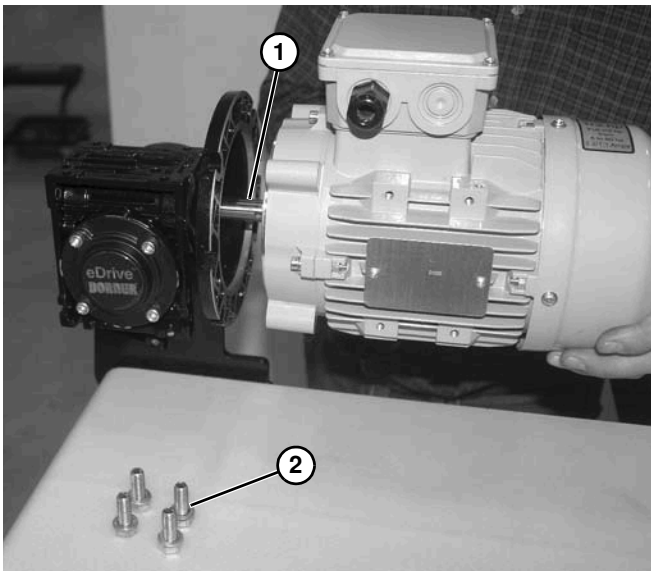


Figure 25

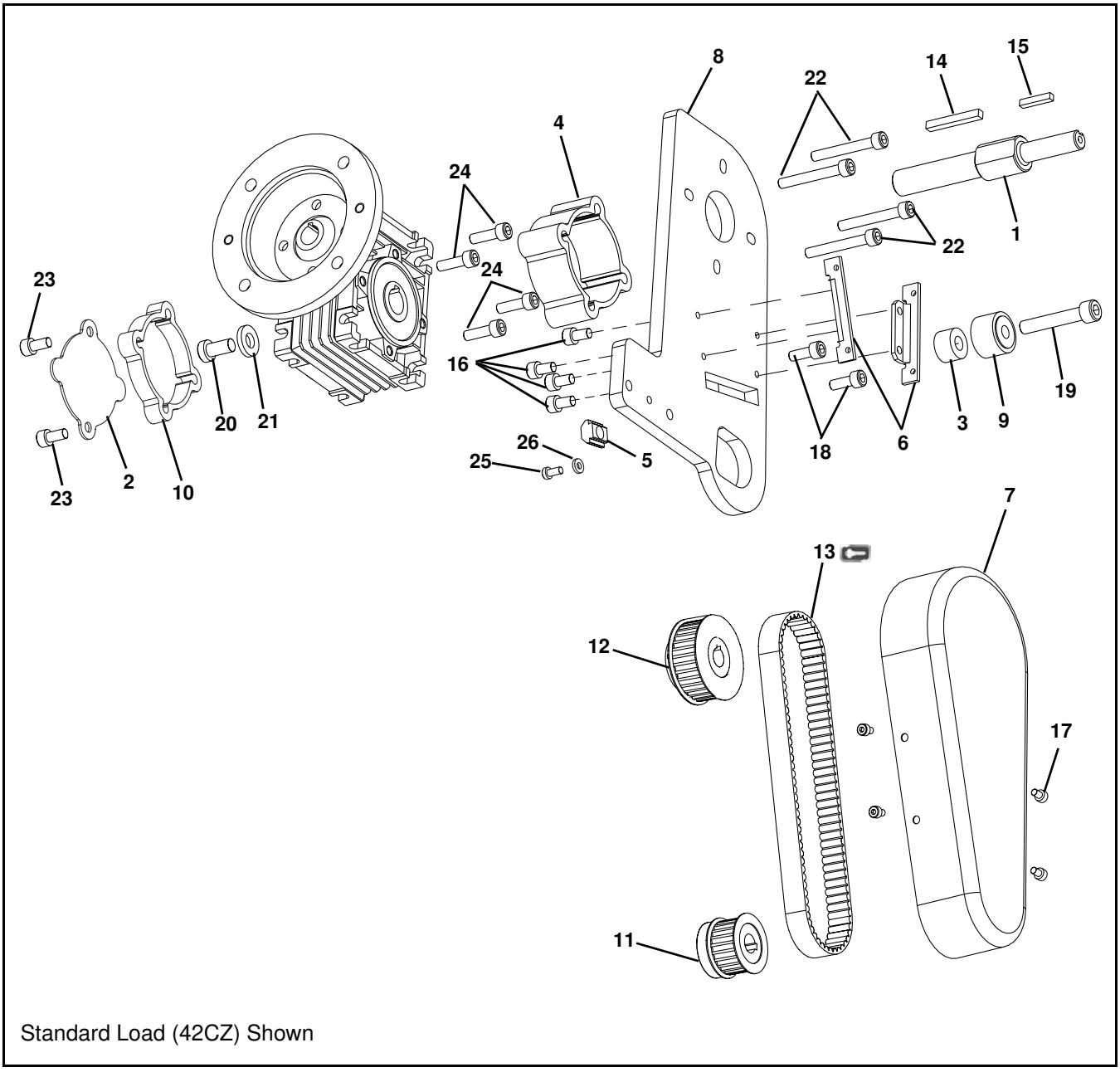
3. Replace wiring:

- For a single phase motor, reverse step 1 in “Single Phase Motor” on page 16.
- For a three phase motor, reverse steps 1-3, in “Three Phase Motor” on page 16.

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.

2200 Series Top Mount Drive Package for Standard Load 90° Industrial Gearmotors



Standard Load (42CZ) Shown

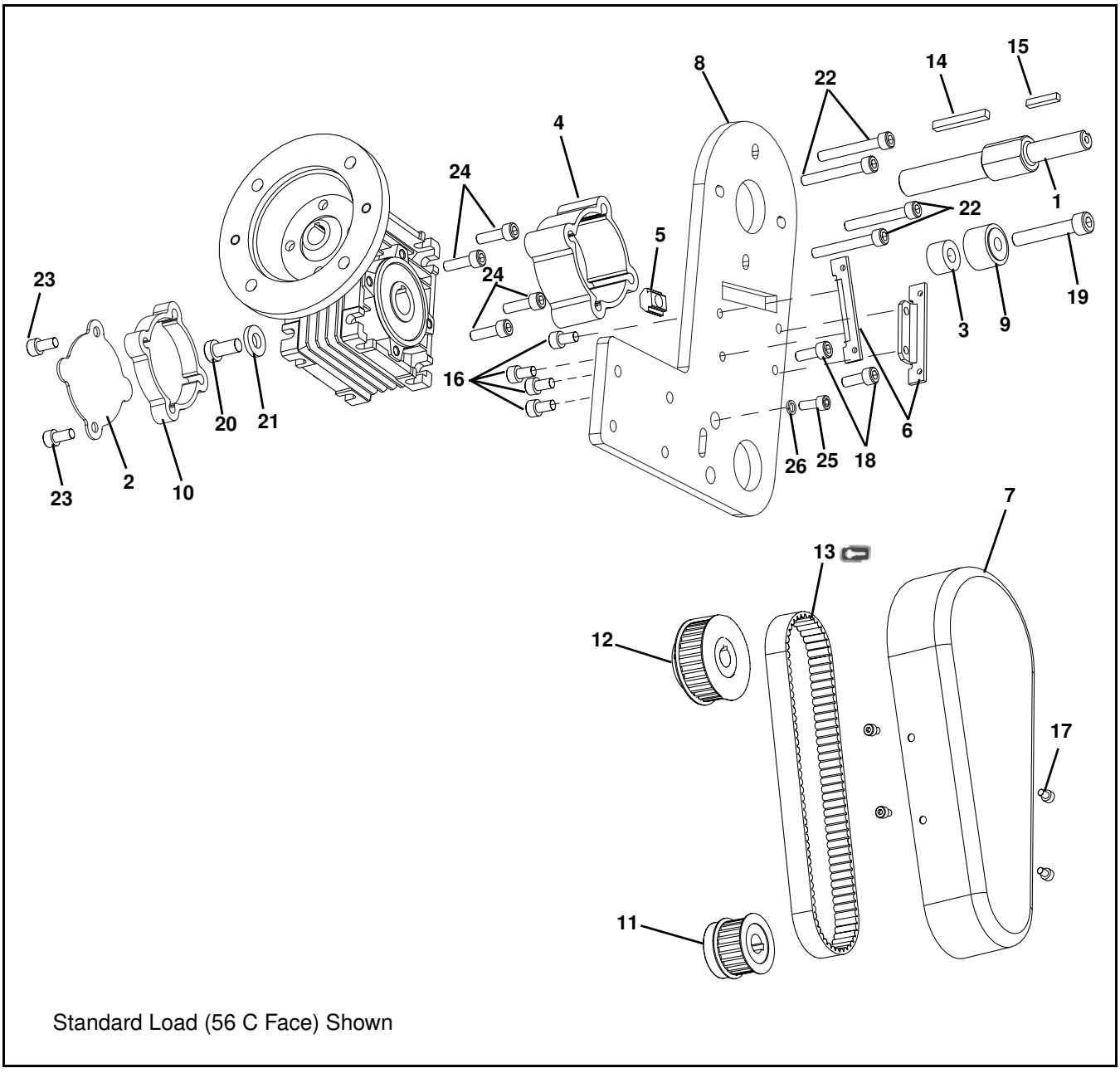
Item	Part Number	Description
1	202272	Drive Shaft (for 42CZ C Face Gearmotors)
	350122	Drive Shaft (for 56 C Face Gearmotors)
	350136	Drive Shaft (for IEC 63B5 and IEC 71B5 Gearmotors)
2	208241	Drive-Bearing Shaft Cover (for 42CZ C Face Gearmotors)
	807-2016	Drive-Bearing Shaft Cover (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
3	450445	Spacer
4	202270-00113	Adapter (for 42CZ C Face Gearmotors)
	350115	Adapter (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
5	202390M	Nut Follower
6	450375	Cam Mounting Cover Bracket
7	450376M	Drive Guard
8	450443M	Mounting Plate
9	802-046	Bearing
10	202270-00043	Adapter (for 42CZ C Face Gearmotors)
11	450365MP	Driven Pulley, 19 Tooth
	450366MP	Driven Pulley, 22 Tooth
	450367MP	Driven Pulley, 28 Tooth
	450368MP	Driven Pulley, 32 Tooth
12	450365MP	Drive Pulley, 19 Tooth
	450366MP	Drive Pulley, 22 Tooth
	450367MP	Drive Pulley, 28 Tooth
	450368MP	Drive Pulley, 32 Tooth
	450369MP	Drive Pulley, 44 Tooth
	450370MP	Drive Pulley, 48 Tooth
	450371MP	Drive Pulley, 60 Tooth

Item	Part Number	Description
13	814-104	Timing Belt, 15 mm W x 450 mm L
	814-105	Timing Belt, 15 mm W x 460 mm L
	814-065	Timing Belt, 15 mm W x 475 mm L
	814-112	Timing Belt, 15 mm W x 495 mm L
	814-101	Timing Belt, 15 mm W x 500 mm L
	814-108	Timing Belt, 15 mm W x 520 mm L
	814-064	Timing Belt, 15 mm W x 535 mm L
	814-099	Timing Belt, 15 mm W x 565 mm L
14	912-084	Square Key, 0.188" x 1.50"
	980636M	Square Key, 6 mm x 36 mm (for IEC 63B5 and IEC 71B5 Gearmotors)
15	980428M	Square Key, 4 mm x 28 mm
16	950512M	Low Head Cap Screw, M5-0.80 x 12 mm
17	920481M	Flange Socket Head Screw, M4-0.70 x 8 mm
18	920625M	Socket Head Screw, M6-1.00 x 25 mm
19	920840M	Socket Head Screw, M8-1.25 x 40 mm
20	950816M	Low Head Cap Screw, M8-1.25 x 16 mm (for 42CZ C Face Gearmotors)
	931020M	Flat Head Screw M10-1.50 x 20 mm (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
21	605280P	Washer
22	920645M	Socket Head Screw, M6-1.00 x 45 mm
23	950620M	Low Head Cap Screw, M6-1.00 x 20 mm
24	920620M	Socket Head Screw, M6-1.00 x 20 mm (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
25	920608M	Socket Head Screw, M6-1.00 x 8 mm
26	807-2092	Washer

Service parts can be obtained through your distributor or directly from Dorner Mfg. Corp. (800) 397-8664 or customerservice@dorner.com

Service Parts

2700 Series Top Mount Drive Package for Standard Load 90° Industrial Gearmotors



Standard Load (56 C Face) Shown

Item	Part Number	Description
1	202272	Drive Shaft (for 42CZ C Face Gearmotors)
	350122	Drive Shaft (for 56 C Face Gearmotors)
	350136	Drive Shaft (for IEC 63B5 and IEC 71B5 Gearmotors)
2	208241	Drive-Bearing Shaft Cover (for 42CZ C Face Gearmotors)
	807-2016	Drive-Bearing Shaft Cover (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
3	450445	Spacer
4	202270-00113	Adapter (for 42CZ C Face Gearmotors)
	350115	Adapter (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
5	202390M	Nut Follower
6	450375	Cam Mounting Cover Bracket
7	450376M	Drive Guard
8	208337	Mounting Plate
9	802-046	Bearing
10	202270-00043	Adapter (for 42CZ C Face Gearmotors)
11	208488	Driven Pulley, 28 Tooth
	208489	Driven Pulley, 32 Tooth
12	450365MP	Drive Pulley, 19 Tooth
	450366MP	Drive Pulley, 22 Tooth
	450367MP	Drive Pulley, 28 Tooth
	450368MP	Drive Pulley, 32 Tooth
	450369MP	Drive Pulley, 44 Tooth
	450370MP	Drive Pulley, 48 Tooth

Item	Part Number	Description
13	814-104	Timing Belt, 15 mm W x 450 mm L
	814-105	Timing Belt, 15 mm W x 460 mm L
	814-065	Timing Belt, 15 mm W x 475 mm L
	814-101	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
14	912-084	Square Key, 0.188" x 1.50"
	980636M	Square Key, 6 mm x 36 mm (for IEC 63B5 and IEC 71B5 Gearmotors)
15	980428M	Square Key, 4 mm x 28 mm
16	950512M	Low Head Cap Screw, M5-0.80 x 12 mm
17	920480MF	Flange Socket Head Screw, M4-0.70 x 10 mm
18	920625M	Socket Head Screw, M6-1.00 x 25 mm
19	920845M	Socket Head Screw, M8-1.25 x 45 mm
20	950816M	Low Head Cap Screw, M8-1.25 x 16 mm (for 42CZ C Face Gearmotors)
	931020M	Flat Head Screw M10-1.50 x 20 mm (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
21	605280P	Washer (for 42CZ C Face Gearmotors only)
22	920645M	Socket Head Screw, M6-1.00 x 45 mm
23	950620M	Low Head Cap Screw, M6-1.00 x 20 mm
24	920620M	Socket Head Screw, M6-1.00 x 20 mm (for 56 C Face, IEC 63B5 and IEC 71B5 Gearmotors)
25	920616M	Socket Head Screw, M6-1.00 x 16 mm
26	807-2092	Washer

Service parts can be obtained through your distributor or directly from Dorner Mfg. Corp. (800) 397-8664 or customerservice@dorner.com

Service Parts

Pulley Ratio / Timing Belt Combinations

Motor (Drive) Pulley Teeth	Conveyor (Driven) Pulley Teeth	Pulley Ratio	2200 Timing Belt	2700 Timing Belt
19	32	0.59	N/A	814-104
22	32	0.69	814-105	814-105
28	28	1.00	N/A	814-105
28	32	0.88	814-065	814-065
32	22	1.45	814-105	N/A
32	28	1.14	814-065	814-065
44	22	2.00	814-101	N/A
44	28	1.57	814-101	814-101
44	32	1.38	814-108	814-108
48	22	2.18	814-101	N/A
48	28	1.71	814-108	814-108
48	32	1.50	814-064	814-064
60	22	2.73	814-064	N/A
60	28	2.14	814-099	N/A
60	32	1.88	814-099	N/A

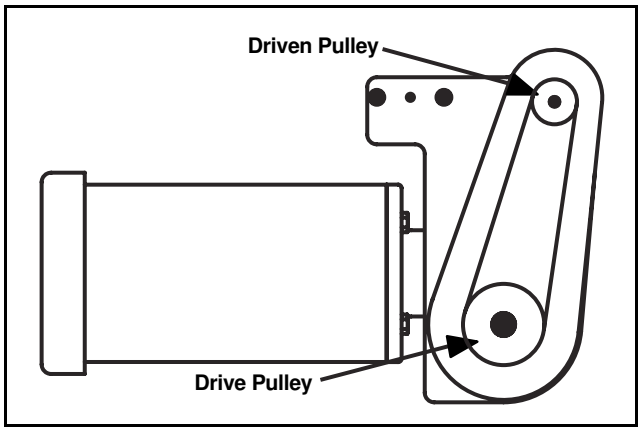
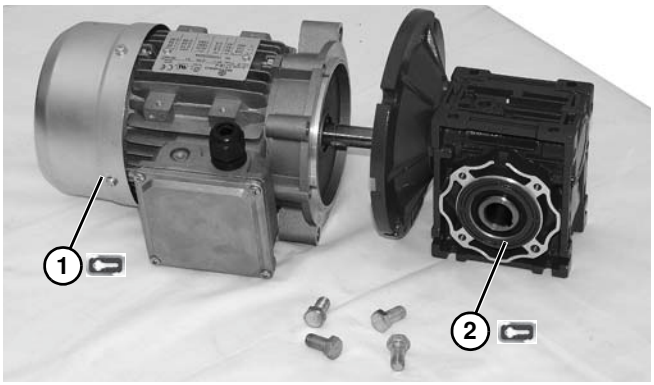


Figure 26

U.S. Version Gearmotors

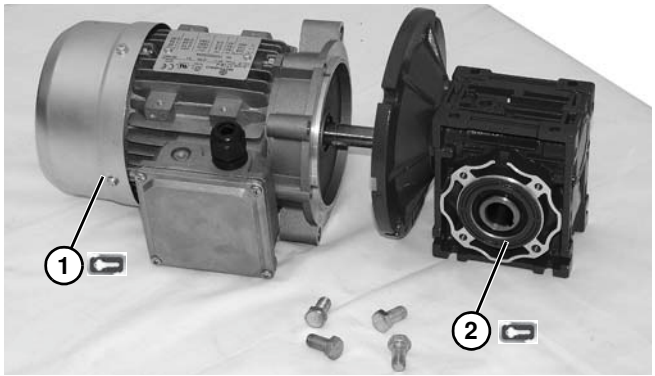


Item	Part No.	Part Description
1	62MES411FN	Motor, 0.25 hp (0.19 Kw), 115 Volts, 60 Hz, 1 Phase
	62MHS423FN	Motor, 0.38 hp (0.28 Kw), 208-230/460 Volts, 60 Hz, 3 Phase
	62MES423EN	Motor, 0.38 hp (0.28 Kw), 208-230/460 Volts, 60 Hz, 3 Phase, Variable Frequency
	32MS423EI*	Motor, 0.25 hp (0.19 Kw), 230/460 Volts, 60 Hz, 3 Phase, Variable Frequency/ Indexing
	62MEH411FN	Motor, 0.50 hp (0.37 Kw), 115 Volts, 60 Hz, 1 Phase - For 2700 Series Heavy Load Only
	32MES423FN	Motor, 0.50 hp (0.37 Kw), 208-230/460 Volts, 60 Hz, 3 Phase - For 2700 Series Heavy Load Only
	32MES423EN	Motor, 0.50 hp (0.37 Kw), 208-230/460 Volts, 60 Hz, 3 Phase, Variable Frequency - For 2700 Series Heavy Load Only
	32MES223EN	Motor, 0.75 hp (0.56 Kw), 208-230/460 Volts, 60 Hz, 3 Phase, Variable Frequency - For 2700 Series Heavy Load Only
	826-805	Motor, 0.50 hp (0.37 Kw), 332/575 Volts, 60 Hz, 3 Phase - For 2700 Series Heavy Load Only

Item	Part No.	Part Description
2	32M005EL	Gear Reducer, 5:1, 42 CZ
	32M010EL	Gear Reducer, 10:1, 42 CZ
	32M020EL	Gear Reducer, 20:1, 42 CZ
	32M040EL	Gear Reducer, 40:1, 42 CZ
	32M060EL	Gear Reducer, 60:1, 42 CZ
	32M005ES	Gear Reducer, 5:1, 56C (for motors with part numbers ending with EI or EN only)
	32M010ES	Gear Reducer, 10:1, 56C (for motors with part numbers ending with EI or EN only)
	32M020ES	Gear Reducer, 20:1, 56C (for motors with part numbers ending with EI or EN only)
	32M040ES	Gear Reducer, 40:1, 56C (for motors with part numbers ending with EI or EN only)
	32M060ES	Gear Reducer, 60:1, 56C (for motors with part numbers ending with EI or EN only)
	820-533	Gear Reducer, 5:1, 56C, (for 575 Volts Motor)
	820-538	Gear Reducer, 10:1, 56C, (for 575 Volts Motor)
	820-539	Gear Reducer, 20:1, 56C, (for 575 Volts Motor)
	820-540	Gear Reducer, 40:1, 56C, (for 575 Volts Motor)
	820-541	Gear Reducer, 60:1, 56C, (for 575 Volts Motor)

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

CE Version Gearmotors



Item	Part No.	Part Description
1	62ZHS421FN	Motor, 0.19 Kw, 230 Volts, 1400 RPM, 50 Hz, 1-Phase
	62ZHS423EN	Motor, 0.19 Kw, 230/400 Volts, 1400 RPM, 50 Hz, 3-Phase
2	62Z005ES	Gear Reducer, 5:1, 63 B5
	62Z010ES	Gear Reducer, 10:1, 63 B5
	62Z020ES	Gear Reducer, 20:1, 63 B5
	62Z040ES	Gear Reducer, 40:1, 63 B5
	62Z060ES	Gear Reducer, 60:1, 63 B5

Return Policy

Returns must have prior written factory authorization or they will not be accepted. Items that are returned to Dorner without authorization will not be credited nor returned to the original sender. When calling for authorization, please have the following information ready for the Dorner factory representative or your local distributor:

1. Name and address of customer.
2. Dorner part number(s) of item(s) being returned.
3. Reason for return.
4. Customer's original order number used when ordering the item(s).
5. Dorner or distributor invoice number. Include part serial number if available.

A representative will discuss action to be taken on the returned items and provide a Returned Materials 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.

<table>
<tr><td></td><td colspan="9">Product Type</td></tr>
<tr><td></td><td colspan="8">Standard Products</td><td>Engineered to order parts</td></tr>
<tr><td>Product Line</td><td>Conveyors</td><td>Gearmotors & Mounting Packages</td><td>Support Stands</td><td>Accessories</td><td>Spare Parts (non-belt)</td><td>Spare Belts - Standard Flat Fabric</td><td>Spare Belts - Cleated & Spec. Fabric</td><td>Spare Belts - Plastic Chain</td><td>All equipment and parts</td></tr>
<tr><td>1100 Series</td><td colspan="6" rowspan="7">30% return fee for all products except:
50% return fee for conveyors with modular belt, cleated belt or speciality belts

All Electrical items are assigned original manufacturers return policy.</td><td colspan="2" rowspan="11">non-returnable</td><td rowspan="11">case-by-case</td></tr>
<tr><td>2200 Series</td></tr>
<tr><td>3200 Series</td></tr>
<tr><td>Pallet Systems</td></tr>
<tr><td>FlexMove/SmartFlex</td></tr>
<tr><td>GAL Series</td></tr>
<tr><td>All Electrical</td></tr>
<tr><td>7100 Series</td><td colspan="6" rowspan="4">50% return fee for all products</td></tr>
<tr><td>7200/7300 Series</td></tr>
<tr><td>AquaGard 7350 Series Version 2</td></tr>
<tr><td>GES Series</td></tr>
<tr><td>AquaGard 7350/7360 Series</td><td colspan="8" rowspan="2">non-returnable</td></tr>
<tr><td>AquaPruf Series</td></tr>
</table>

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 Dorner, an authorized sales channel or visit our website: www.dorner.com.

For replacement parts, contact an authorized Dorner Service Center or the factory.

www.dorner.com

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