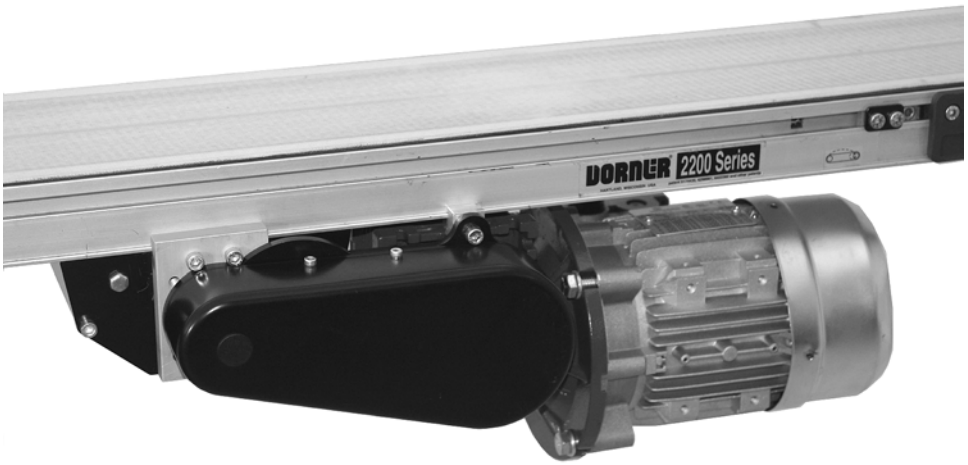
2200 and 2300 Series Mid Mount Drive Package for Standard & Heavy Load Gearmotors

Installation, Maintenance & Parts Manual



Featuring: eDrive™ Technology

DORNER MFG. CORP.
P.O. Box 20 • 975 Cottonwood Ave.
Hartland, WI 53029-0020 USA

INSIDE THE USA
TEL: 1-800-397-8664
FAX: 1-800-369-2440

OUTSIDE THE USA
TEL: 262-367-7600
FAX: 262-367-5827

For other service manuals visit our website at:
www.dorner.com/service_manuals.asp

851-734 Rev. C

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

Dorner 2200 Series conveyors are covered by patent number 5,174,435, 6422382 and corresponding patents and patent applications in other countries.

Dorner 6200 Series conveyors are covered by patent number 6,109,427, 6,298,981, 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.

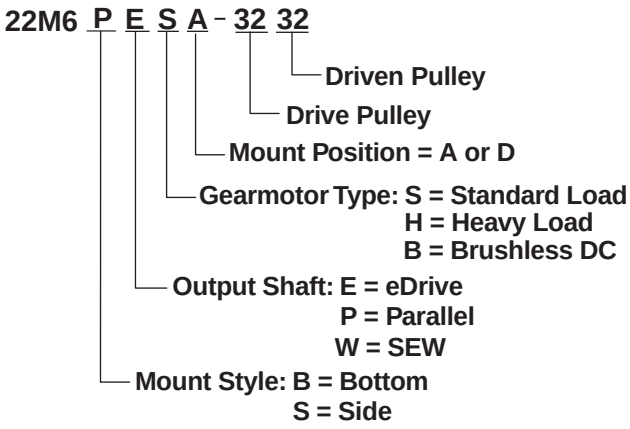
When conveyors are used in conjunction with other equipment or as part of a multiple conveyor system, CHECK FOR POTENTIAL PINCH POINTS and other mechanical hazards before system start-up.

Specifications

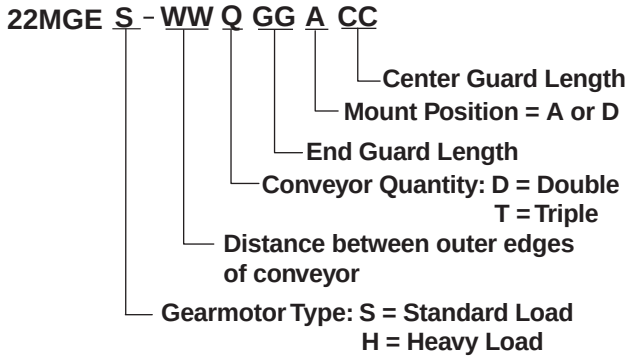
Gearmotor Mounting Package Models:

Example:

Mid Mount Drive



Gang Mid Side Mount Drive



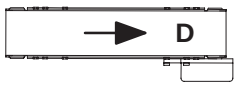


Table 1: Gearmotor Specifications

U.S. Version

	Standard Load Gearmotor				Heavy Load Gearmotor			
	Single-Phase	Three Phase	DC Variable Speed	Brushless DC	Single-Phase	Three Phase	VFD Variable Speed	DC Variable Speed
Output Power	0.25 hp (0.19 kw)				0.5 hp (0.37 kw)			
Input Voltage	115VAC	208 – 230/ 460 VAC	130VDC	115/230 Volts D.C.	115VAC	208 – 230/ 460 VAC	230 VAC	90VDC
Input Frequency	60Hz		N/A	60 Hz	60Hz		10 – 60Hz	N/A
Input Current (Amperes)	5.0	1.2/0.6	2.2	8.8 / 3.4	7.4	2.1 – 2/1	1.6	5.0
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1			10:1, 20:1, 50:1	5:1, 10:1, 20:1, 40:1, 60:1			
Frame Size	NEMA 42CZ				NEMA 56C			
Motor Type	Totally enclosed, Fan cooled			Totally enclosed, Non-ventilated	Totally enclosed, Fan cooled			

CE Version

	Single Phase	Three Phase	VFD Variable Speed
Output Power	0.18 kw		
Input Voltage	230 VAC	230/400 VAC	230 VAC
Input Frequency	50Hz		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		5:1, 10:1, 20:1
Protection Rating	IP55		
Frame Size	IEC 63 B5		IEC 71 B5

Table 2: Belt Speeds for Standard & Heavy Load Fixed Speed 90° Gearmotors

U.S. Version (60 Hz Gearmotors)

Standard Load Gearmotors				Heavy Load Gearmotors			
Part Number	RPM	In-lb	N-m	Part Number	RPM	In-lb	N-m
32M060EL4(vp)F(n)	29	226	25.5	32M060HS4(vp)F(n)	29	226	25.5
32M040EL4(vp)F(n)	43	237	26.8	32M040HS4(vp)F(n)	43	247	27.9
32M020EL4(vp)F(n)	86	142	16	32M020HS4(vp)F(n)	86	248	27.9
32M010EL4(vp)F(n)	173	78	8.8	32M010HS4(vp)F(n)	173	156	17.6
32M005EL4(vp)F(n)	345	41	4.6	32M005HS4(vp)F(n)	345	81	9.1

(vp) = voltage and phase

11 = 115 V, 1-phase

23 = 208 – 230/460 V, 3-phase

Specifications

CE Version (50 Hz Gearmotors)

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

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

Table 3: Belt Speeds for Standard & Heavy Load Variable Speed 90° DC Gearmotors

U.S. Version

Standard Load Gearmotors				Heavy Load Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**	**Part Number**	**RPM**	**In-lb**	**N-m**
32M060ELD3DEN	5 - 42	198	22.4	32M060HSD9DEN	5 - 42	198	22.4
32M040ELD3DEN	8 - 63	163	18.4	32M040HSD9DEN	8 - 63	215	24.3
32M020ELD3DEN	15 - 125	98	11.1	32M020HSD9DEN	15 - 125	196	22.1
32M010ELD3DEN	30 - 250	54	6.1	32M010HSD9DEN	30 - 250	108	12.2
32M005ELD3DEN	61 - 500	28	3.2	32M005HSD9DEN	61 - 500	56	6.3

CE Version

Gearmotors		
Part Number	**RPM**	**N-m**
62Z060ES423EN	9 - 23	26.4
62Z040ES423EN	14 - 35	28.9
62Z020ES423EN	28 - 70	19.4
62Z010ES423EN	56 - 140	10.7
62Z005ES423EN	112 - 280	5.6

Table 4: Belt Speeds for Heavy Load Variable Speed 90° VFD Gearmotors

Heavy Load Gearmotors			
Part Number	**RPM**	**In-lb**	**N-m**
32M060ES423EN	3-29	226	25.5
32M040ES423EN	5-43	247	27.9
32M020ES423EN	10-86	248	27.9
32M010ES423EN	20-173	156	17.6
32M005ES423EN	42-345	81	9.1

Table 5: Belt Speeds for Brushless DC 90° Gearmotors

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

Table 6: RPM/Torque for Standard Load Fixed Speed Parallel Shaft 60 Hz Gearmotors

Gearmotors*			1 Phase		3 Phase	
Part Number	Ratio	RPM	In-lb	N-m	In-lb	N-m
62M180PS4(vp)F(n)	180:1	10	341	38.5	341	38.5
62M060PS4(vp)F(n)	60:1	29	270	30.5	270	30.5
62M030PS4(vp)F(n)	30:1	58	135	8.26	250	28.3
62M020PS4(vp)F(n)	20:1	86	90	10.2	167	18.9
62M010PS4(vp)F(n)	10:1	173	45	5.1	115	13
62M005PS4(vp)F(n)	5:1	345	25	2.8	58	6.5

(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 7: RPM/Torque for Standard Load Variable Speed Parallel Shaft VFD Gearmotors

Gearmotors*				
Part Number	Gear Ratio	RPM*	In-lb*	N-m*
62M180PS423EN	180:1	1-10	341	38.5
62M060PS423EN	60:1	3-29	270	30.5
62M030PS423EN	30:1	6-58	250	28.3
62M020PS423EN	20:1	9-86	167	18.9
62M010PS423EN	10:1	17-173	115	13
62M005PS423EN	5:1	35-345	58	6.5

* At 60 Hz

Table 8: RPM/Torque for Standard Load Variable Speed Parallel Shaft DC Gearmotors

Gearmotors				
Part Number	Gear Ratio	RPM	In-lb	N-m
62M180PSD3DEN	180:1	2-14	341	38.5
62M060PSD3DEN	60:1	5-42	270	30.5
62M030PSD3DEN	30:1	10-83	135	15.3
62M020PSD3DEN	20:1	16-125	90	10.2
62M010PSD3DEN	10:1	31-250	72	8.1
62M005PSD3DEN	5:1	63-500	25	2.8

Table 9: RPM/Torque for Brushless DC Parallel Shaft Gearmotors

Gearmotors				
Part Number	Gear Ratio	RPM	In-lb	N-m
62M050PSBDDEN	50:1	2-60	240	28
62M020PSBDDEN	20:1	5-150	103	11.7
62M010PSBDDEN	10:1	10-300	52	5.9

Specifications

Table 10: Pulley Ratio / Timing Belt

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

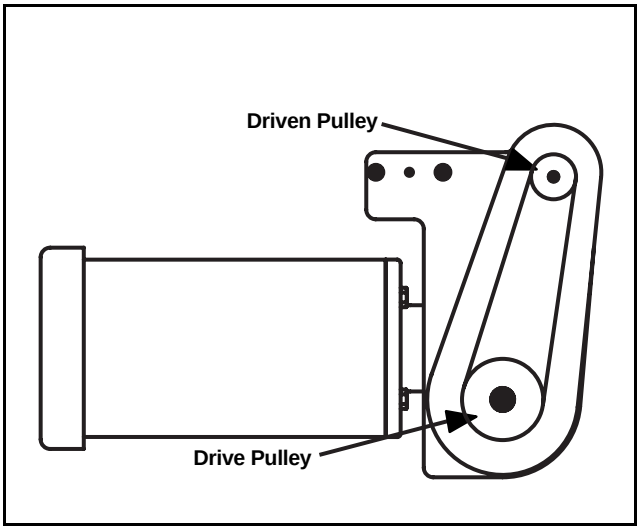


Figure 1

Table 11: Conveyor Belt Speed Factor

Conveyor Series/Type	Ft / Min	M / Min
2200 / 2300	0.35	0.107
2200 Precision Move	0.394	0.12

Belt Speed Calculation:

How to Calculate Belt Speed

1. Determine gearmotor RPM from tables 2-9.
2. Determine the pulley kit ratio. Count the number of teeth on the drive and driven pulleys following figure 1. Using table 10, look up pulley ratio based on pulley combinations.
3. Determine conveyor speed factor using table 11. Based on your conveyor type, select the appropriate factor.
4. Calculate belt speed:

Example: Belt Speed = Gearmotor RPM (tables 2-9) x Pulley Kit Ratio (table 10) x Conveyor Speed Factor (table 11)

2200 Series parallel shaft DC variable speed 20:1 gearmotor with 44 tooth sprocket on gearmotor (Drive) and 28 tooth sprocket on the conveyor output shaft (Driven).

Gearmotor =	62M020PSD3DEN	= 16 - 125 RPM
Pulley Kit =	44 t mtr. - 28 t conv.	= 1.57
Speed Factor =	2200 Series	= 0.350 ft/min per RPM
Minimum Belt Speed =	16 x 1.57 x 0.350	= 8.8 Ft/min
Maximum Belt Speed =	125 x 1.57 x 0.350	= 69 Ft/min

Required Tools

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

Mid Drive Installation

⚠ WARNING

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

NOTE

*Type 1 mounting package shown below left **(Figure 2)**. Type 2 mounting package shown below right **(Figure 2)**.*

Bottom Mount Mid Drive Assembly

Installation Component List:

1	M6x12 Screws (2x)
2	Cover
3	Drop-In Tee Bar
4	Frame Clamp Block
5	Gear Reducer
6	M6x25 Socket Head Screw
7	M4x8 Screws (4x)
8	Drive Guard
9	M6x16 Socket Head Screws (2x)
10	Mount Assembly Bracket
11	Drive Pulley
12	Driven Pulley
13	Timing Belt

1. Gather installation components **(Figure 2)**

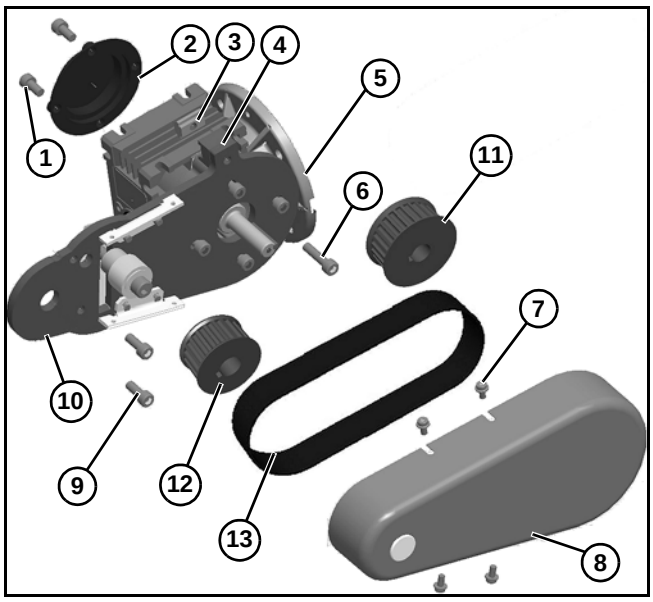


Figure 2

2. Install gearmotor and plate **(Figure 3, item 1)** onto conveyor frame channel **(Figure 3, item 2)** with retaining clip assembly **(Figure 3, item 3)** and socket head screw **(Figure 3, item 4)**.w Secure bottom with two socket head screws **(Figure 3, item 5)**. Do not tighten screws at this time.

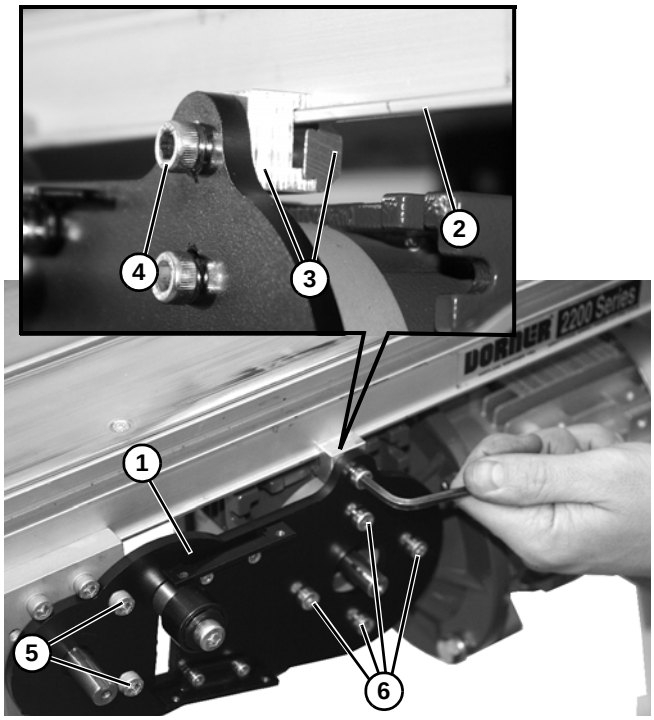


Figure 3

3. If required, change gearmotor position by removing four (4) screws **(Figure 3, item 6)**. Rotate gearmotor to other position and replace screws. Tighten to 103 in-lb (12 Nm).

4. Tighten two socket head screws **(Figure 4, item 1)** to 60 in-lb (7 Nm).

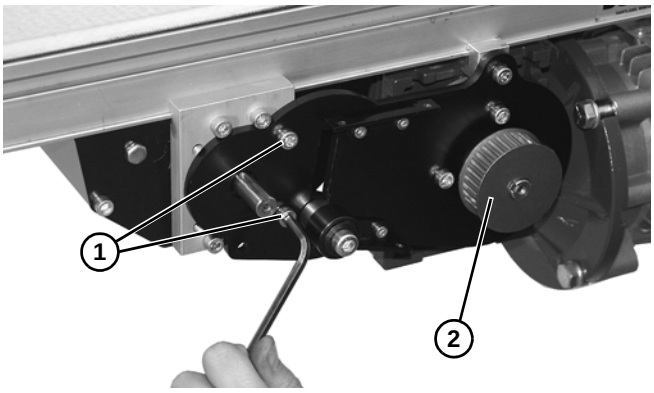


Figure 4

5. Install drive pulley **(Figure 4, item 2)** onto gearmotor shaft.
6. Install driven pulley **(Figure 5, item 1)** onto spindle shaft. Tighten two set screws **(Figure 5, item 2)** to 35 in-lb (4 Nm).

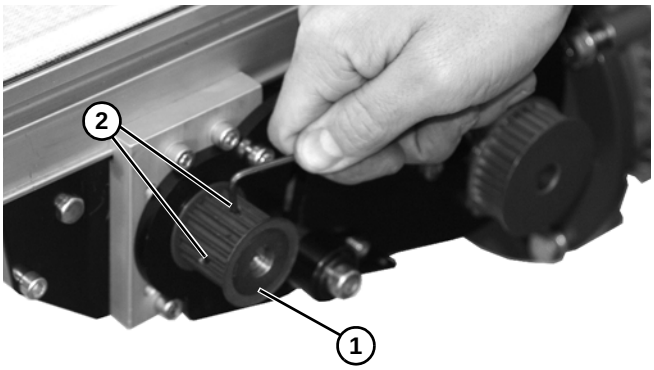


Figure 5

7. Install belt **(Figure 6, item 1)** and both pulleys **(Figure 6, item 2)**.

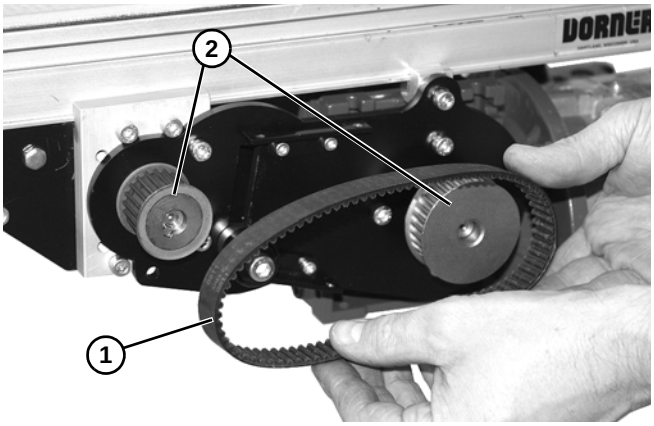


Figure 6

8. Depending on direction of conveyor belt travel **(Figure 7, item 1 or 2)**, position belt tensioner **(Figure 7, 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 7, item 4)**. Tighten tensioner screw **(Figure 7, item 5)** to 103 in-lb (12 Nm).

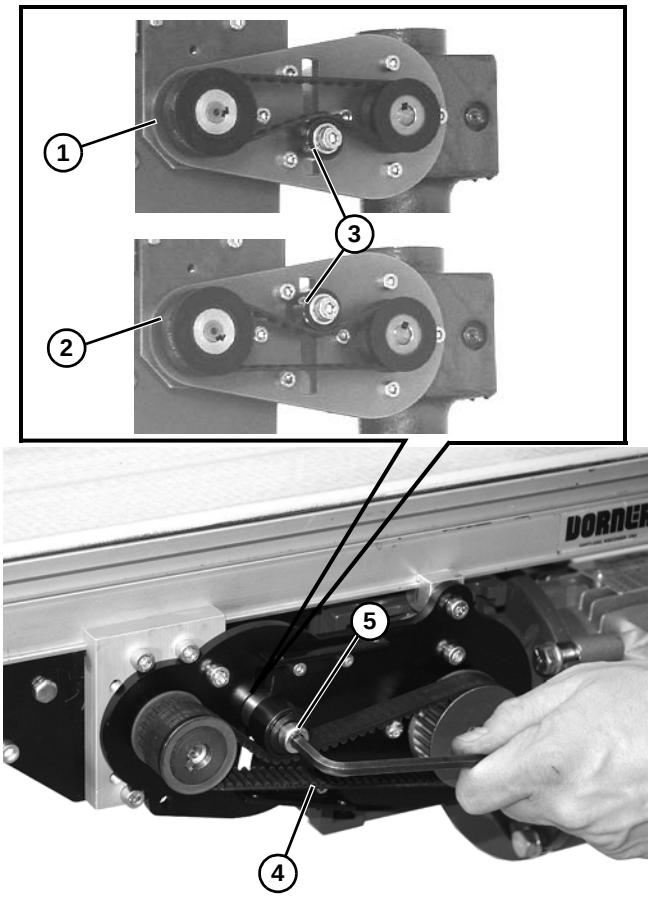


Figure 7

9. Install cover **(Figure 8, item 1)** onto drive assembly with four M4 socket head screws **(Figure 8, item 2)**. Tighten screws to 35 in-lb (4 Nm).

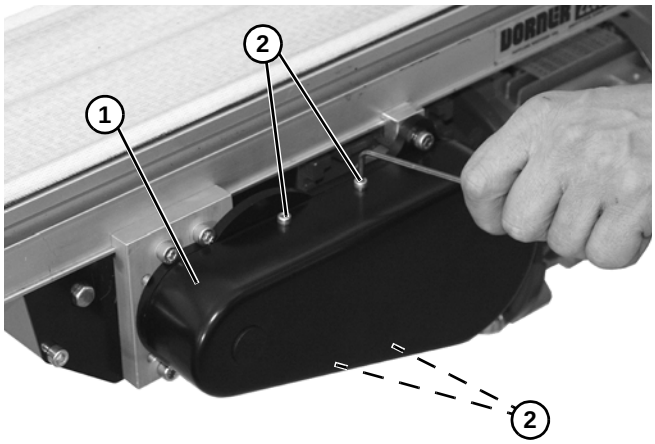


Figure 8

Side Mount Mid Drive Assembly

Installation Component List:

1	Key
2	Spacer Ring
3	Short Side Drive Guard (2x)
4	Mounting Ring
5	3-Jaw Coupler (2x)
6	3-Jaw Spider
7	Quick Release Pin
8	Long Side Drive Guard (2x)
9	Cover
10	Gear Reducer

1. Gather installation components **(Figure 9)**

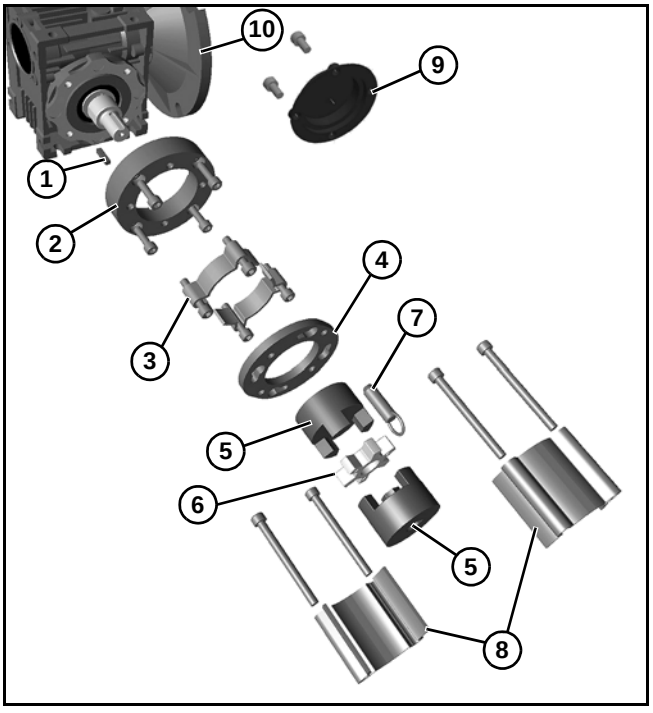


Figure 9

2. Raise gearmotor assembly **(Figure 10, item 1)** into position on mounting block **(Figure 10, item 2)**. Install two long side drive couplings **(Figure 10, item 3)** and mounting ring **(Figure 10, item 4)** with four M6x70 socket head screws **(Figure 10, item 5)**. Tighten screws to 60 in-lb (7 Nm).

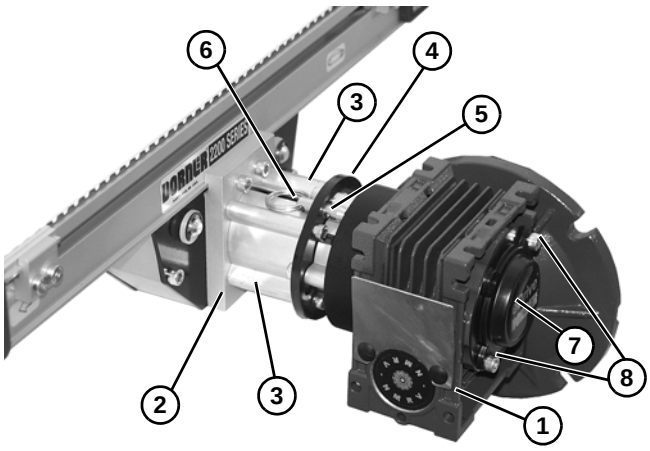


Figure 10

3. Install quick release pin **(Figure 10, item 6**) into mounting ring to secure position.
4. Install motor onto gearmotor assembly **(Figure 10, item 1)**. Tighten M6 motor mounting screws to 60 in-lb (7 Nm).
5. Install cover **(Figure 10, item 7)** with two M4 socket head screws **(Figure 10, item 8)**. Tighten screws enough to secure cover.

Gang Side Mount Mid Drive Assembly

Installation Component List:

1	Key
2	Spacer Ring
3	Short Side Drive Guard (2x)
4	Mounting Ring
5	3-Jaw Coupler (2x)
6	3-Jaw Spider
7	Quick Release Pin
8	Long Side Drive Guard (2x)
9	Cover
10	Mesh Sleeve
11	Hose Clamp (2x)
12	Shaft
13	Shaft Guard
14	Plug
15	Gear Reducer

1. Gather installation components **(Figure 11)**

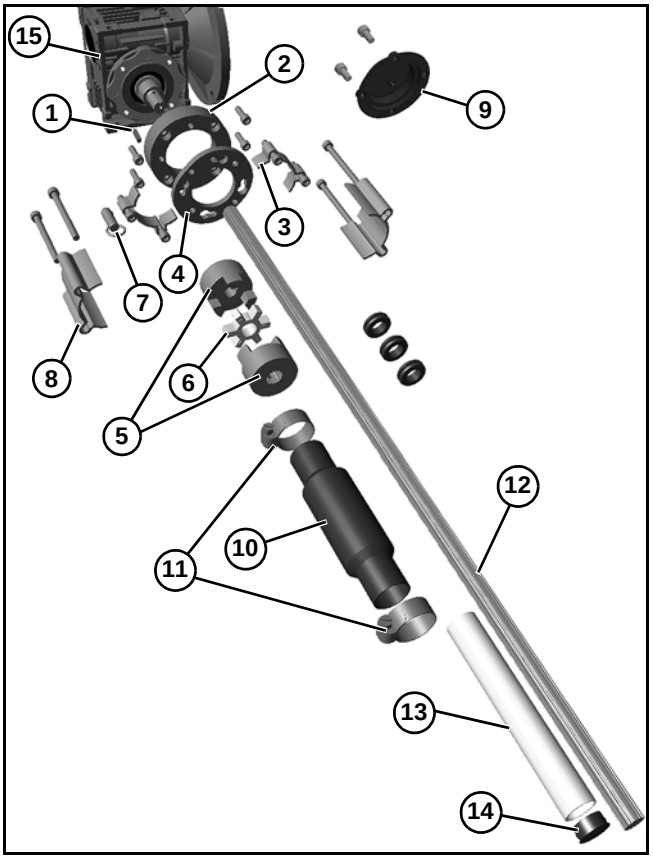


Figure 11

2. Install protective cover **(Figure 12, item 1)** and two clamps **(Figure 12, item 2)** onto shaft, and install assembly between conveyor sections **(Figure 12, item 3)**.

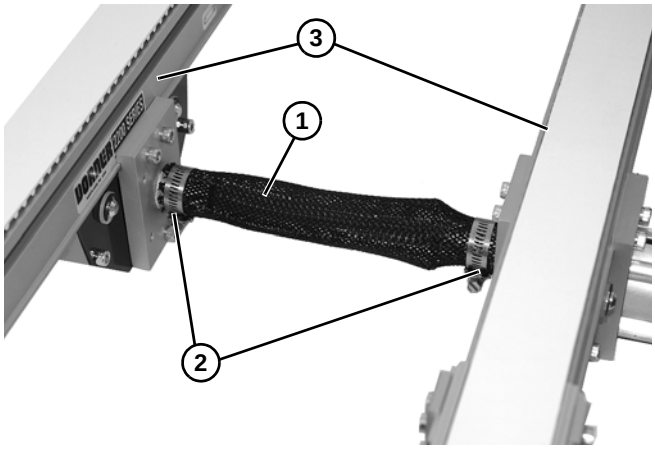


Figure 12

3. Raise gearmotor assembly **(Figure 13, item 1)** into position on shaft (just installed) and on mounting block **(Figure 13, item 2)**. Install two long side drive couplings **(Figure 13, item 3)** and mounting ring **(Figure 13, item 4)** with four M6x70 socket head screws **(Figure 13, item 5)**. Tighten screws to 60 in-lb (7 Nm).

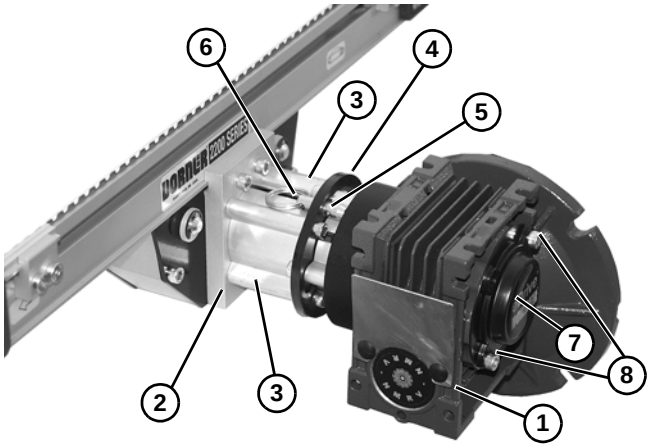


Figure 13

4. Install quick release pin **(Figure 13, item 6**) into mounting ring to secure position.
5. Install motor onto gearmotor assembly **(Figure 13, item 1)**. Tighten M6 motor mounting screws to 60 in-lb (7 Nm).
6. Install cover **(Figure 13, item 7)** with two M4 socket head screws **(Figure 13, item 8)**. Tighten screws enough to secure cover.

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 14, item 1)** and remove cover **(Figure 14, item 2)**.

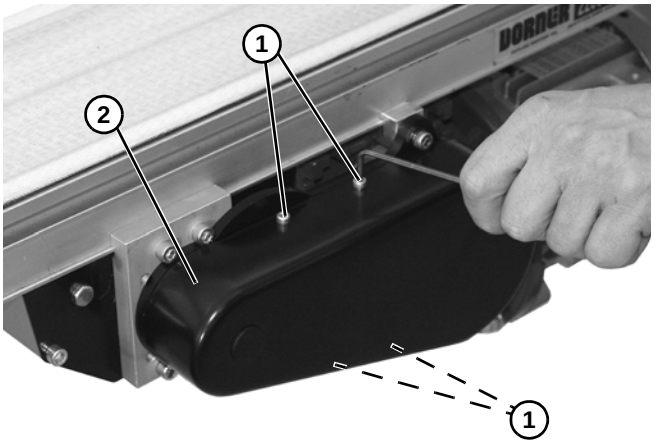


Figure 14

2. Loosen tensioner **(Figure 15, item 1)**.

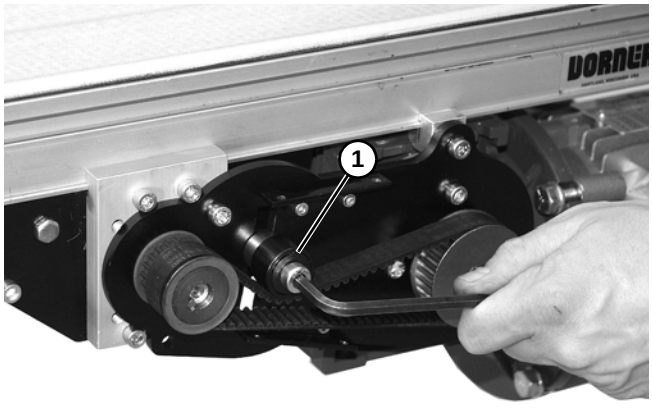


Figure 15

3. Depending direction of conveyor belt travel **(Figure 16, item 1 or 2)**, position belt tensioner **(Figure 16, 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 16, item 4)**. Tighten tensioner screw to 103 in-lb (12 Nm).

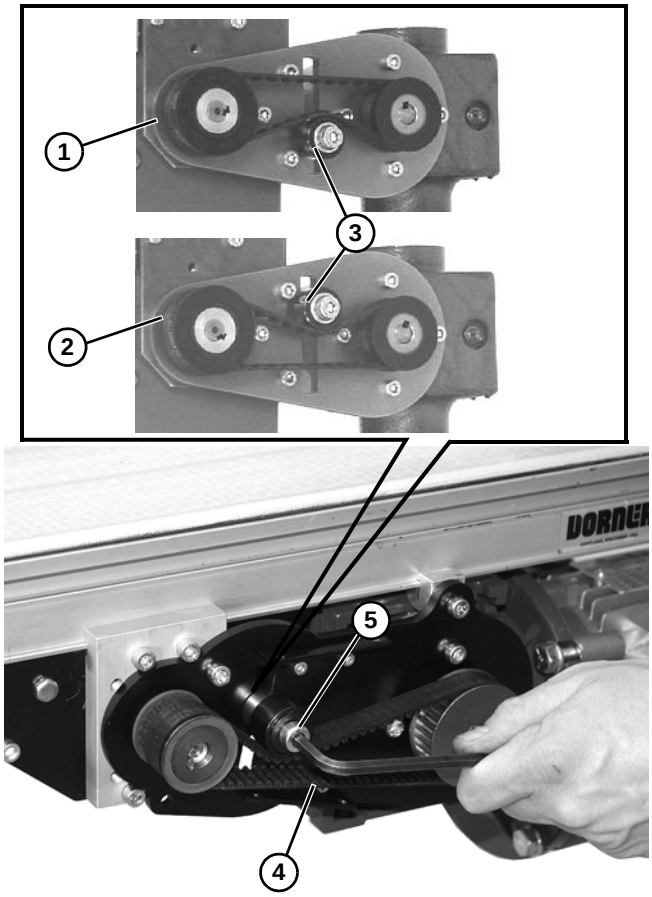


Figure 16

4. Install cover **(Figure 14, item 2)** with four (4) screws **(Figure 14, item 1)**. Tighten screws 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 14, item 1)** and remove cover **(Figure 14, item 2)**.
2. Loosen tensioner **(Figure 15, item 1)**.

3. Remove timing belt **(Figure 17, item 1)**.

NOTE

*If timing belt does not slide over driven pulley **(Figure 17, item 3)** flange, loosen driven pulley set screws and remove pulley with belt **(Figure 17, item 1)**. For re-installation, see steps 7 and 8 of "Bottom Mount Mid Drive Assembly" story on page 8.*

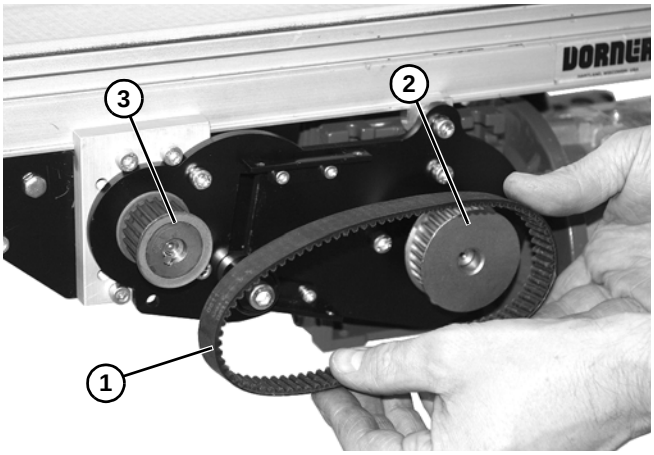


Figure 17

4. Install new timing belt around drive pulley **(Figure 17, item 2)** and driven pulley **(Figure 17, item 3)**.
5. Depending direction of conveyor belt travel **(Figure 16, item 1 or 2)**, position belt tensioner **(Figure 16, 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 16, item 4)**. Tighten tensioner screw to 103 in-lb (12 Nm).
6. Install cover **(Figure 14, item 1)** with four (4) screws **(Figure 14, item 2)**. Tighten screws 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 2)** is replaced, wrap timing belt around drive pulley and complete step 3.*

3. Complete steps 7 through 9 of "Bottom Mount Mid Drive Assembly" story on page 8.

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 14, item 2)** and remove cover **(Figure 14, item 1)**.
2. Loosen tensioner **(Figure 15, item 1)**.
3. Loosen driven pulley set screws and remove driven pulley **(Figure 18, item 1)** and timing belt **(Figure 18, item 2)**.

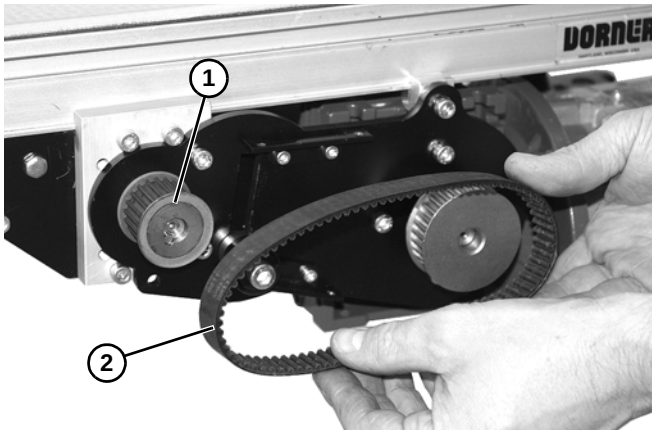


Figure 18

4. Remove four (4) gear reducer mounting screws **(Figure 19, item 1)** and retaining clip **(Figure 19, item 2)**. Remove gearmotor **(Figure 19, item 3)** from mounting plate **(Figure 19, item 4)**.

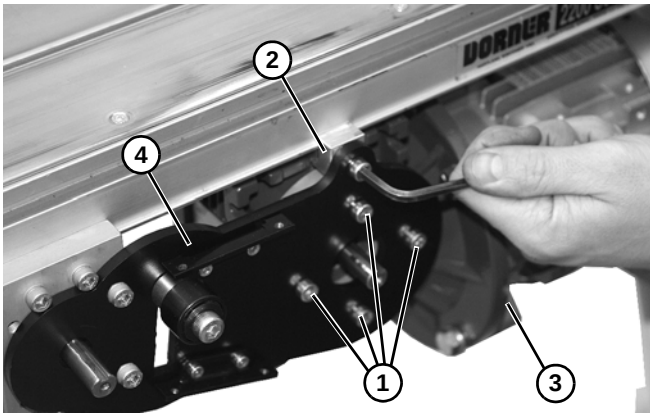


Figure 19

5. Remove four screws **(Figure 20, item 1)**. Detach motor **(Figure 20, item 2)** from gear reducer **(Figure 20, item 3)**. Retain shaft key **(Figure 20, item 4)**.

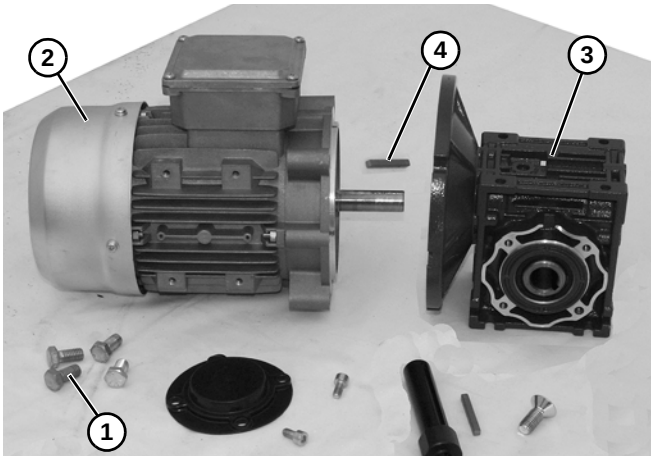


Figure 20

6. Remove two (2) screws **(Figure 21, item 1)** and detach output shaft cover **(Figure 21, item 2)**.

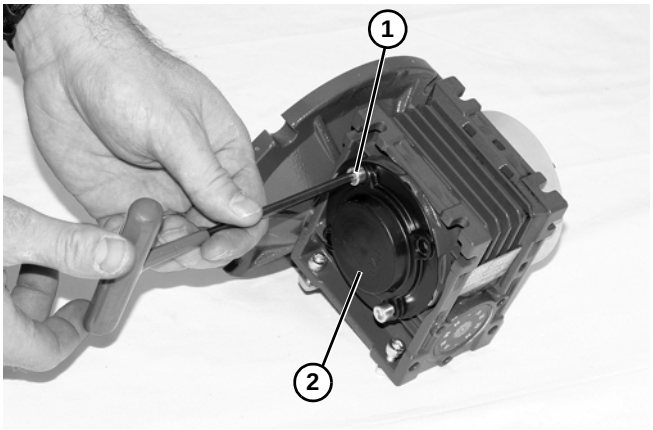


Figure 21

NOTE

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

For e-Drive style gearmotor

1. Loosen four (4) socket head screws **(Figure 22, item 1)** and detach spacer **(Figure 22, item 2)** from gear reducer **(Figure 22, item 3)**.

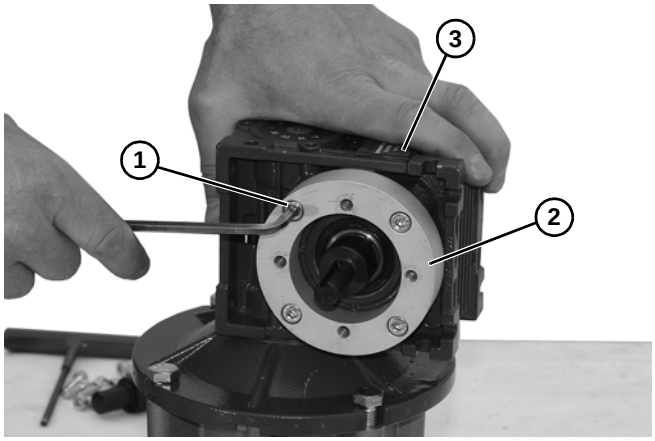


Figure 22

2. Loosen driveshaft bolt **(Figure 23, item 1)**.

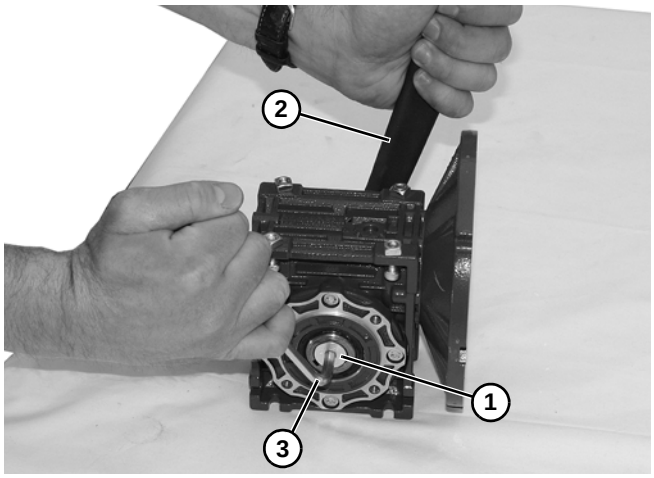


Figure 23

3. Hold the driveshaft with a wrench **(Figure 23, item 2)** as shown to keep shaft from turning, while removing screw with hex wrench **(Figure 23, item 3)**.

4. Remove driveshaft **(Figure 24, item 1)** and key **(Figure 24, item 2)**.

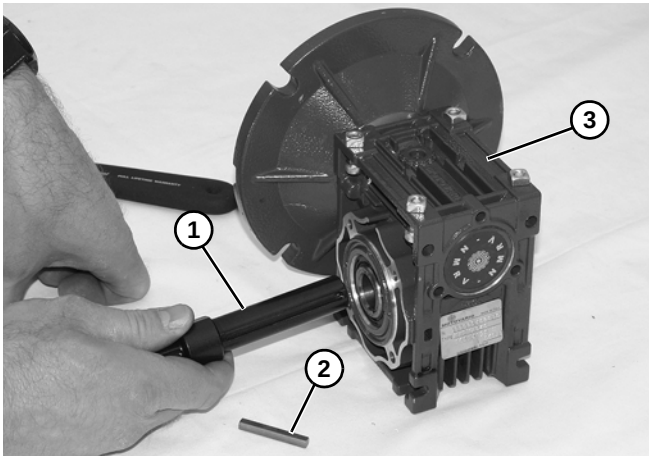


Figure 24

5. Replace gear reducer **(Figure 24, item 3)**.
6. Apply anti-seize **(Figure 25, item 1)** to shaft.

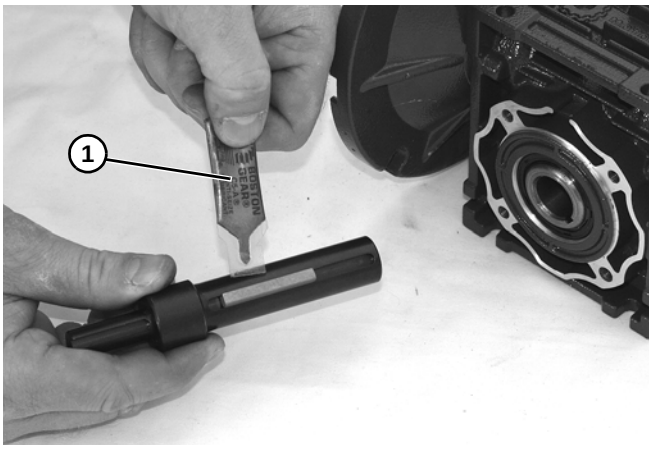


Figure 25

7. Replace the original shaft components into new gear reducer **(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.

8. Hold the driveshaft with a wrench **(Figure 23, item 2)** as shown to keep shaft from turning, while installing screw with hex wrench **(Figure 23, item 3)**. Tighten screw to 100 in-lb (11.5 Nm) for 42CZ or 350 in-lb (39.5 Nm) for 52C, 63B5 and 71B5.
9. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 20, item 4)** in keyway, slide motor **(Figure 20, item 2)** and gear reducer **(Figure 20, item 3)** together. Install screws **(Figure 20, item 1)** and tighten.
10. Install spacer **(Figure 22, item 2)** onto gear reducer **(Figure 22, item 3)** with four (4) socket head screws **(Figure 22, item 1)**.
11. Complete steps 7 through 9 of "Bottom Mount Mid Drive Assembly" story on page 8.

For old style gearmotor prior to June 2011

1. Loosen six (6) set screws **(Figure 26, item 1)**. Remove drive shaft **(Figure 26, item 2)** and key **(Figure 26, item 3)**.

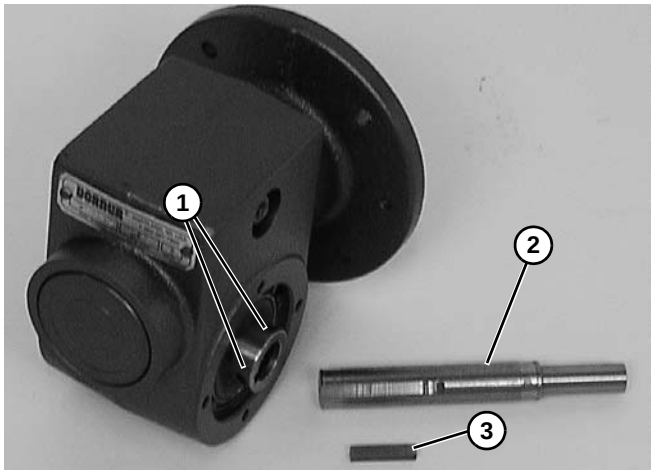


Figure 26

2. Apply anti-seize **(Figure 27, item 1)** to shaft.

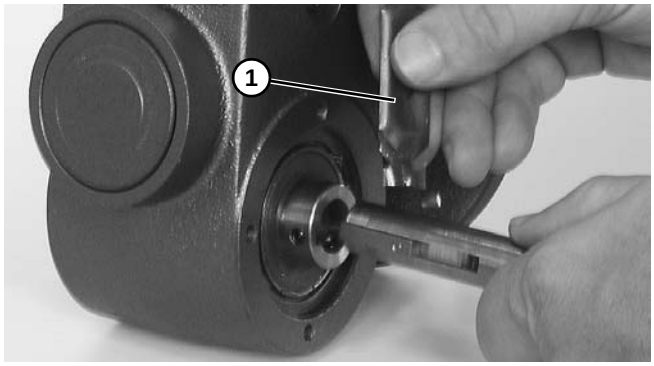


Figure 27

3. Replace the original shaft components into new gear reducer **(Figure 26)**.

IMPORTANT

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

4. Apply anti-seize to motor shaft before assembling to gearbox. With key **(Figure 34, item 4)** in keyway, slide motor **(Figure 34, item 2)** and gear reducer **(Figure 34, item 3)** together. Install screws **(Figure 34, item 1)** and tighten.
5. Complete steps 7 through 8 of "Bottom Mount Mid Drive Assembly" story on page 8.

Motor Replacement

⚠ WARNING

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

⚠ DANGER

Hazardous voltage will cause severe injury or death. LOCK OUT POWER BEFORE WIRING.

Single Phase Motor

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

Three Phase Motor

1. Loosen terminal box screws **(Figure 28, item 1)** and remove cover **(Figure 28, item 2)**.

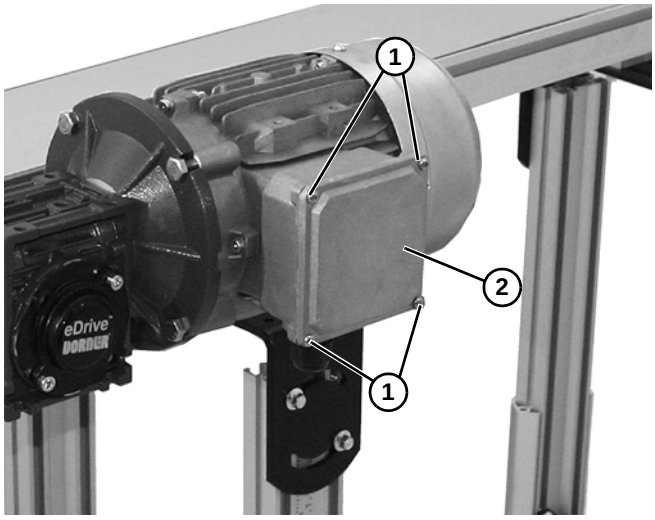


Figure 28

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

DC Variable Speed Motor

1. For DC variable speed motor, unplug motor cord at disconnect **(Figure 29, item 1)**.

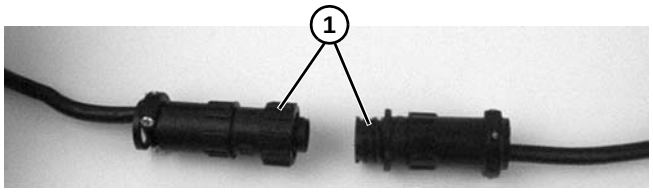


Figure 29

Brushless Motor

1. Twist covers **(Figure 30, item 1)** apart.

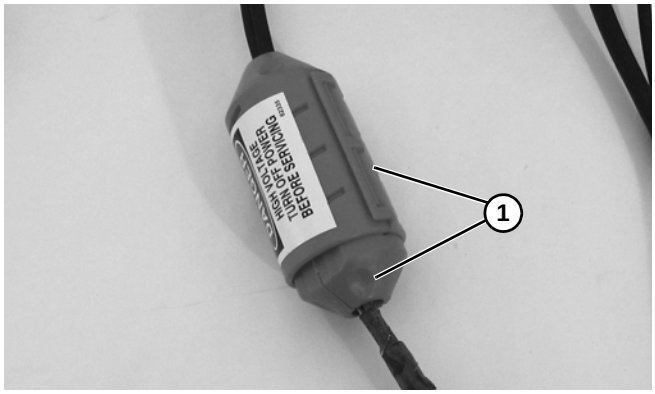


Figure 30

2. Remove outer cord cover **(Figure 31, item 1)** from inner cord cover **(Figure 31, item 2)**.

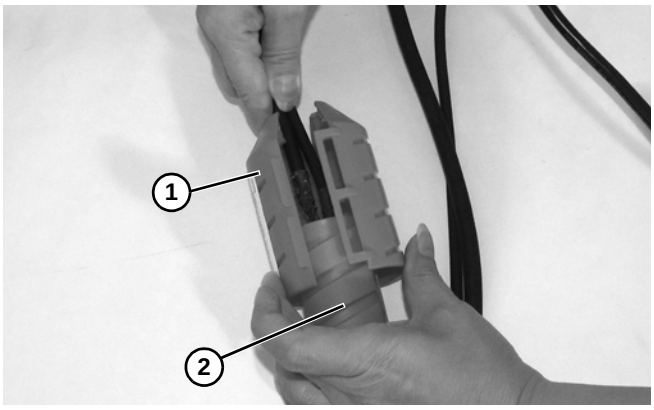


Figure 31

3. Open inner cord cover **(Figure 32, item 1)**.

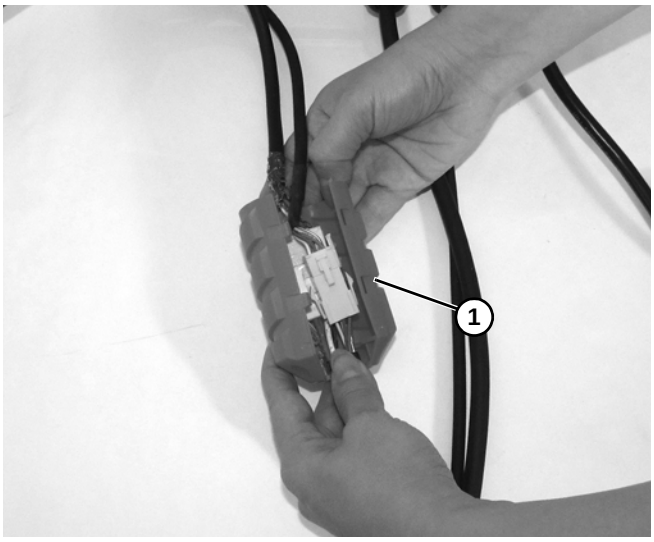


Figure 32

4. Unplug motor cord connectors **(Figure 33, item 1)** and signal cable connectors **(Figure 33, item 2)**.

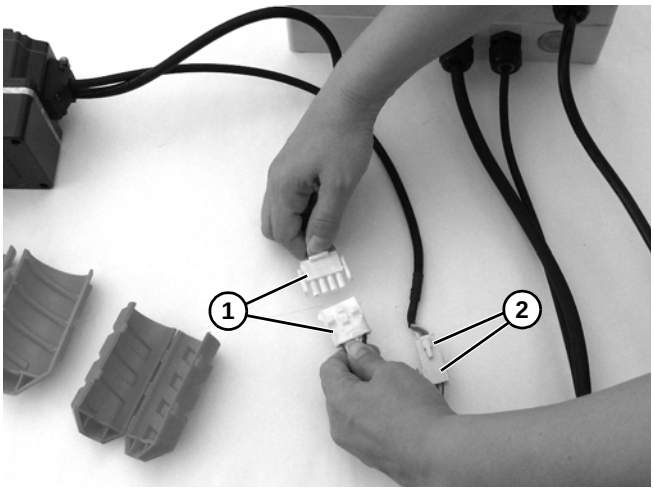


Figure 33

All Models

1. Remove four (4) screws **(Figure 34, item 1)**. Detach motor **(Figure 34, item 2)** from gear reducer **(Figure 34, item 3)**. Retain motor output shaft key **(Figure 34, item 4)**.

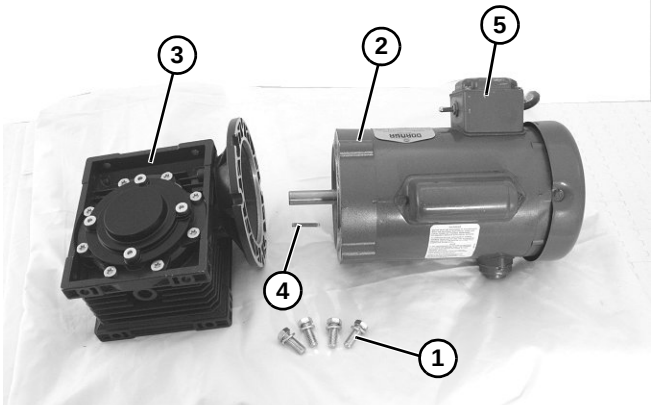


Figure 34

IMPORTANT

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

2. With key **(Figure 34, item 4)** in keyway, slide motor **(Figure 34, item 2)** and gear reducer **(Figure 34, item 3)** together, noting where position of switch **(Figure 34, item 5)** will be during installation on conveyor.
3. Install screws **(Figure 34, item 1)** and tighten to 60 in-lb (7 Nm).
4. Replace wiring:

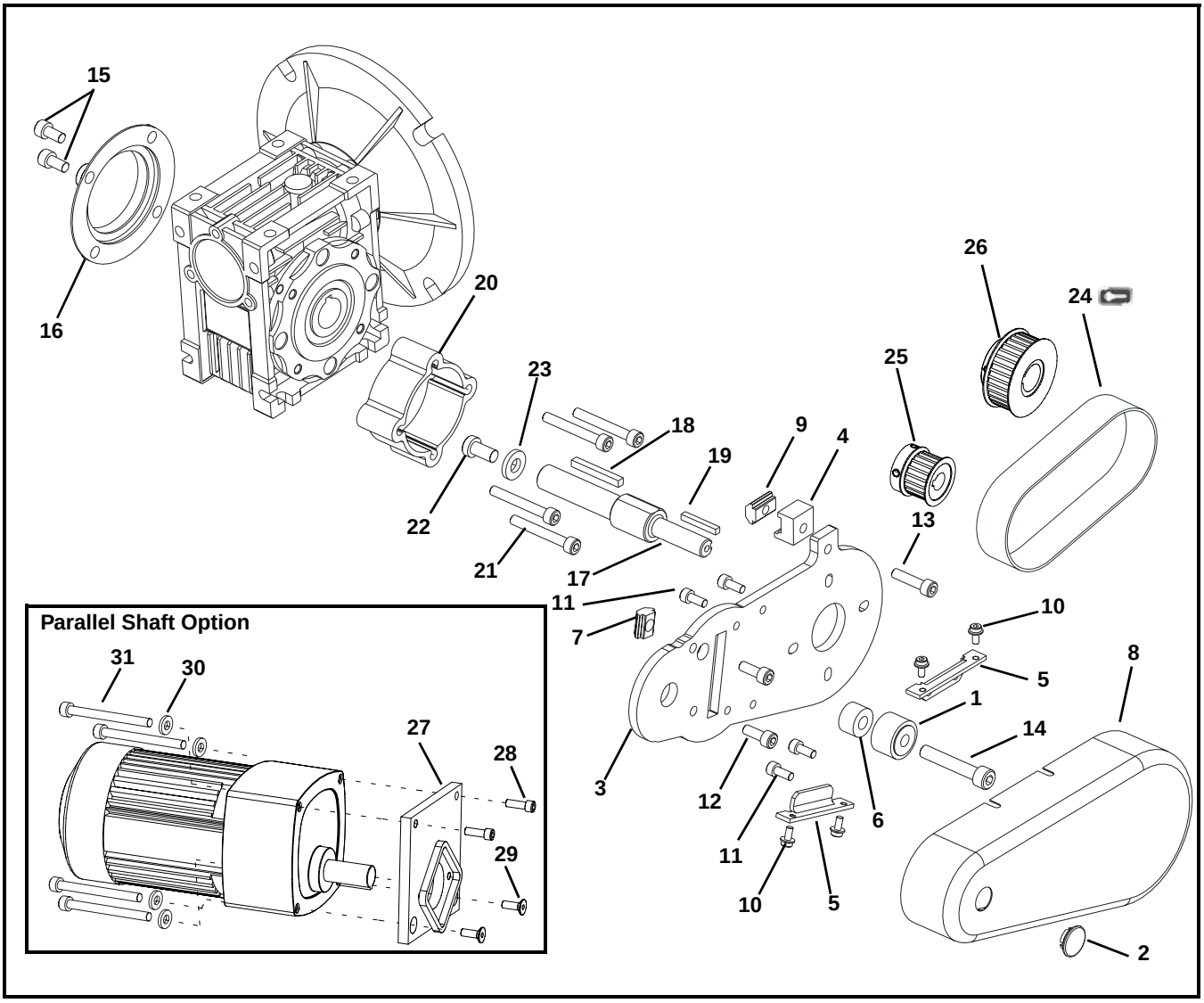
- For a single phase motor, reverse step 1 in “Single Phase Motor” on page 17.
- For a three phase motor, reverse steps 1-3, in “Three Phase Motor” on page 17.
- For a DC variable speed motor, reverse step 1 on “DC Variable Speed Motor” on page 17.
- For a brushless motor, reverse steps 1-2 on “Brushless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

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.

Bottom Mount Mid Drive Assembly

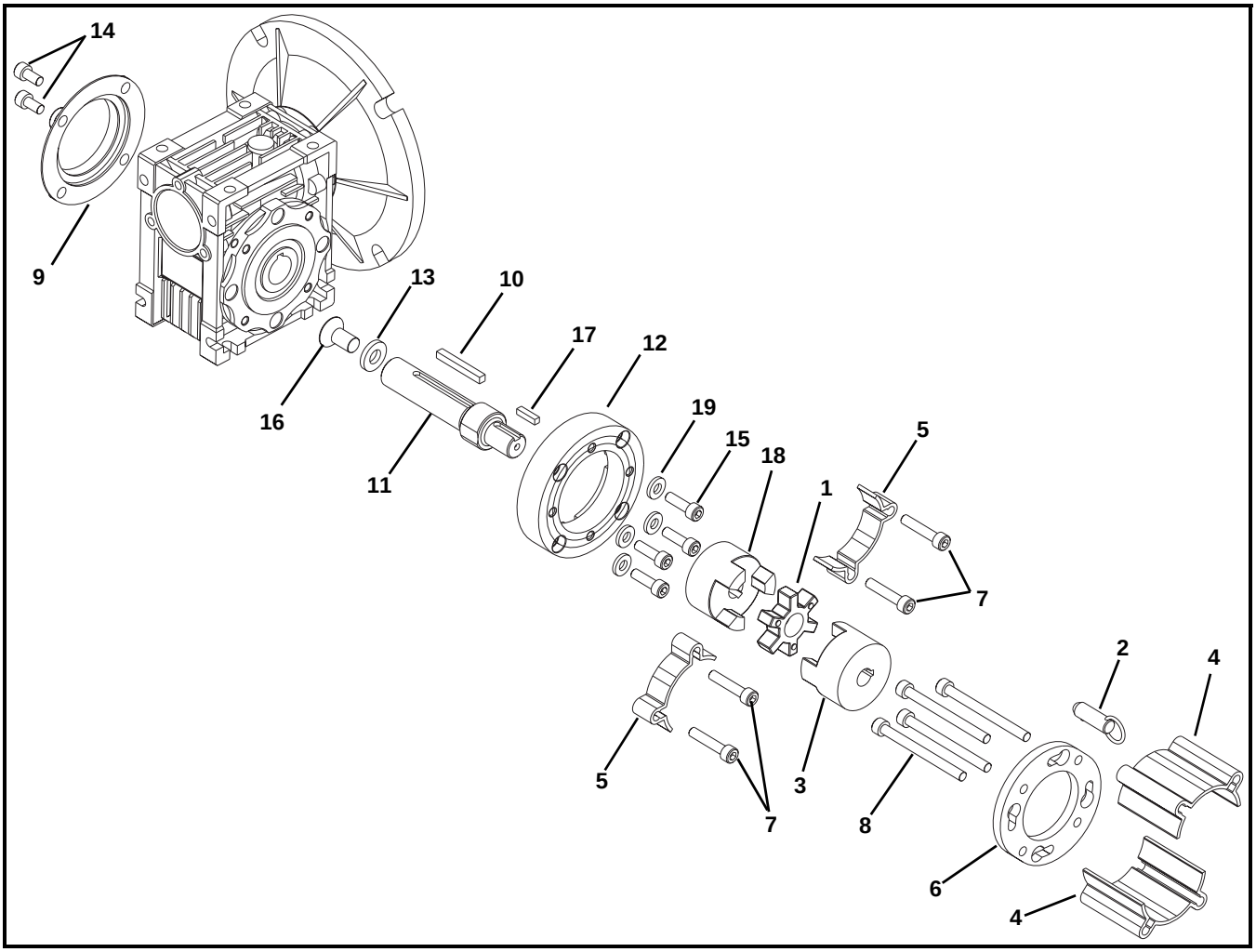


Item	Part Number	Description
1	802-046	Bearing Cam
2	807-226	Snap-out Plastic Plug
3	201894	Mounting Plate
4	202481	Frame Clamp Block
5	450375	Mounting Cover Bracket
6	450445	Spacer
7	202390M	Nut
8	450376M	Drive Guard
9	639971M	Drop-In Tee Bar
10	920481M	Socket Head Screw, M4-0.70 x 8 mm
11	920512M	Socket Head Screw, M5-0.70 x 12 mm
12	920616M	Socket Head Screw, M6-1.00 x 16 mm
13	920625M	Socket Head Screw, M6-1.00 x 25 mm
14	920845M	Socket Head Screw, M8-1.25 x 45 mm
15	920612M	Socket Head Screw, M6-1.00 x 12 mm (for 90°Gearmotors Only)
16	807-2059	Cover (for 42CZ C Face Gearmotors) (for 90°Gearmotors Only)
	807-2016	Cover (for 56 C Face Gearmotors) (for 90°Gearmotors Only)
17	202272	Output Shaft (for 42CZ C Face 90° Gearmotors Only)
	350122	Output Shaft (for 56 C Face 90° Gearmotors Only)
	201677	Output Shaft (for SEW Gearmotors Only))
18	912-084	Square Key, 0.188 x 1.50 (for 90°Gearmotors Only)
19	980422M	Square Key 4 mm x 22 mm (for 90°Gearmotors Only)
20	202270	Spacer (for 42CZ C Face Gearmotors) (for 90°Gearmotors Only)
	350115	Spacer (for 56 C Face Gearmotors) (for 90°Gearmotors Only)
21	920645M	Socket Head Screw, M6-1.00 x 12 mm (for 90°Gearmotors Only)
	920625M	Socket Head Screw, M6-1.00 x 25 mm (for SEW Gearmotors Only)
22	950816M	Low Head Cap Screw, M8-1.25 x 16 mm (for 42CZ C Face 90° Gearmotors)
	931020M	Flat Head Screw, M10-0.50 x 20 mm (for 56 C Face 90° Gearmotors)
23	605280P	Washer (for 42CZ C Face 90° Gearmotors)
24	814-104	Timing Belt, 15mm W x 450mm L
	814-065	Timing Belt, 15mm W x 475mm 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
25	450366MP	Driven Pulley, 22Tooth, 12mm bore
	450367MP	Driven Pulley, 28Tooth, 12mm bore
	450368MP	Driven Pulley, 32Tooth, 12mm bore

Item	Part Number	Description
26	450434	Drive Pulley, 22Tooth, 0.75" bore
	450435	Drive Pulley, 28Tooth, 0.75" bore
	450436	Drive Pulley, 32Tooth, 0.75" bore
	450437	Drive Pulley, 44Tooth, 0.75" bore
	450438	Drive Pulley, 48Tooth, 0.75" bore
	450439	Drive Pulley, 60Tooth, 0.75" bore
27	450029M	Adaptor Plate Assembly
28	902–157	Sock Cap Head Screw, 1/4–28 x 0.75”
29	903–161	Flat Cap Head Screw, 1/4–28 x 0.75”
30	911-120	Washer, (for 50:1 Brushless DC Motor only)
31	920890M	Socket Head Screw, M8 x 90mm (for 50:1 Brushless DC Motor only)
	920875M	Socket Head Screw, M8 x 75mm (for 10:1 Brushless DC Motor only)

Service Parts

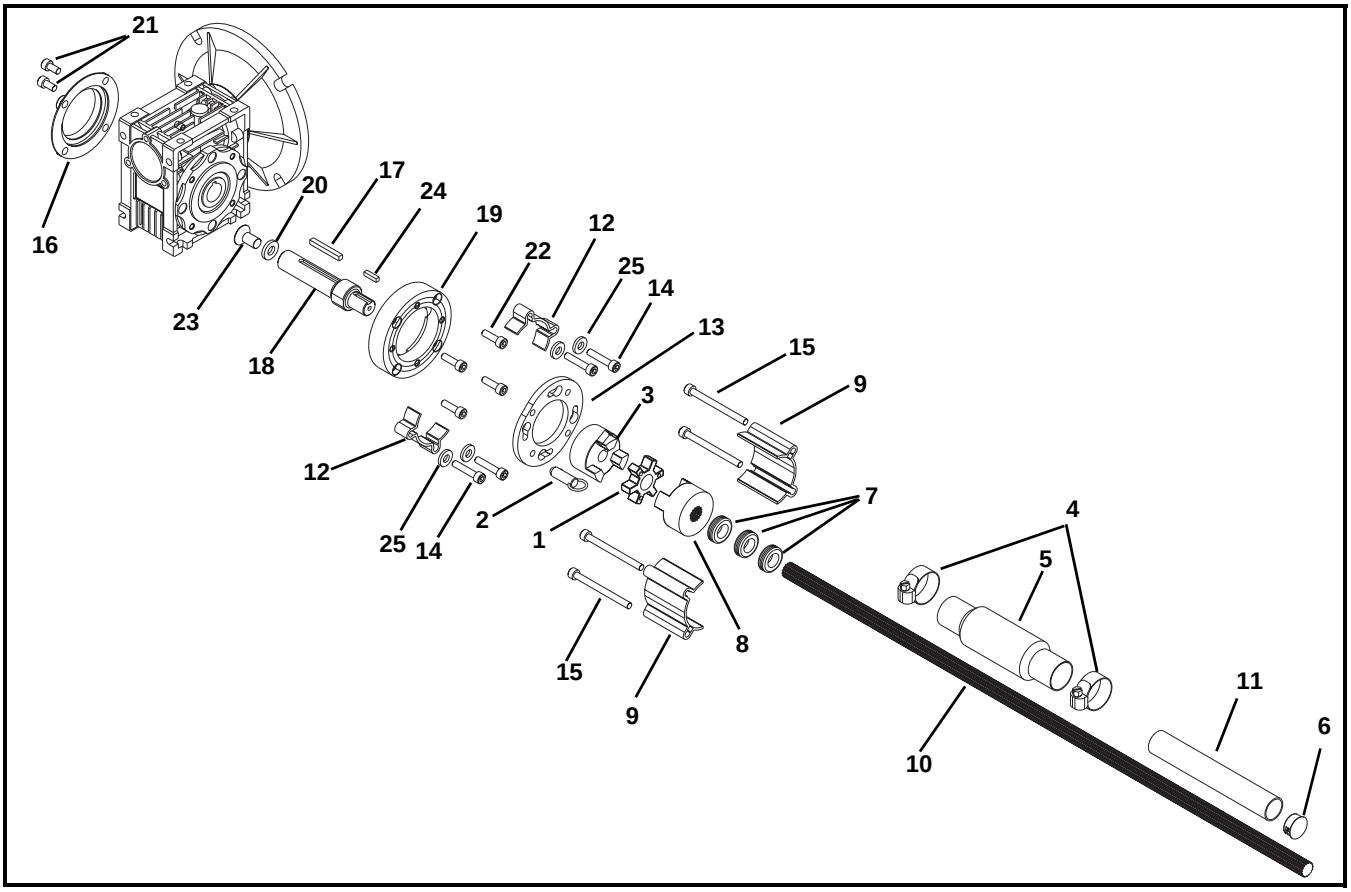
Side Mount Mid Drive Assembly



Item	Part Number	Description
1	807-1143	3-Jaw Spider
2	807-1169	Quick Release Pin
3	807-1566	3 Jaw Coupling
4	201754	Long Side Drive Guard (x2)
5	301092	Short Side Drive Guard (x2)
6	301094	Mounting Ring
	201722	Mounting Ring (for SEW Gearmotors Only)
7	920630M	Socket Head Screw, M6-1.00 x 30 mm
8	920665M	Socket Head Screw, M6-1.00 x 65 mm
9	807-2059	Cover (for 42CZ C Face Gearmotors)
	807-2016	Cover (for 56 C Face Gearmotors)
10	912-084	Square Key, 0.188 x 1.50
	912-077	Square Key, 0.188 x 0 .62 (for SEW Gearmotors Only)
11	202273	Output Shaft (for 42CZ C Face Gearmotors)
	350120	Output Shaft (for 56 C Face Gearmotors)
	201692	Output Shaft (for SEW Gearmotors Only)

Item	Part Number	Description
12	400026	Spacer Ring (for 42CZ C Face Gearmotors)
	350115	Adapter Ring (for 56 C Face Gearmotors)
	201681	Adapter Ring (for SEW Gearmotors Only)
13	605280P	Washer (for 42CZ C Face Gearmotors)
14	920612M	Socket Head Screw, M6-1.00 x 12 mm
15	920620M	Socket Head Screw, M6-1.00 x 20 mm (for 56 C Face Gearmotors)
	920616M	Flat Head Screw, M6-1.00 x 16 mm (for SEW Gearmotors Only)
16	950816M	Low Head Cap Screw, M8-1.25 x 16 mm (for 42CZ C Face Gearmotors)
	931020M	Flat Head Screw, M10-0.50 x 20 mm (for 56 C Face Gearmotors)
17	980416M	Square Key, 4 mm x 16 mm
18	807-1566	3 Jaw Coupling
	807-1141	3 Jaw Coupling (for SEW Gearmotors Only)
19	807-2092	Washer (for SEW Gearmotors Only)

Gang Side Mount Mid Drive Assembly

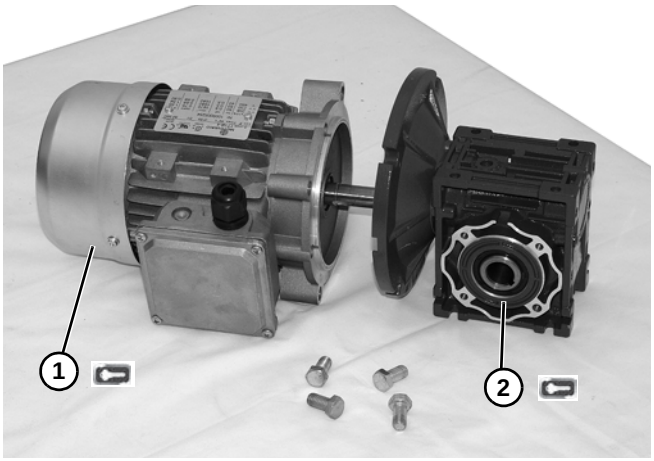


Item	Part Number	Description
1	807-1143	3-Jaw Spider
2	807-1169	Quick Release Pin
3	807-1566	3-Jaw Coupling, 12 mm
	807-1141	3-Jaw Coupling, (for SEW Gearmotors Only)
4	807-2109	Hose Clamp
5	807-2110	Mesh Sleeve
6	207-2113	Plug
7	812-079	Grommet
8	202358	3-Jaw Coupling, 0.60"
9	201754	Long Side Drive Guard (x2)
10	202432-LLLLL	Shaft
11	202462-LLLLL	Shaft Guard
12	301092	Short Side Drive Guard (x2)
13	301094	Mounting Ring
	201722	Mounting Ring (for SEW Gearmotors Only)
14	920630M	Socket Head Screw, M6-1.00 x 30 mm
15	920665M	Socket Head Screw, M6-1.00 x 65 mm
16	807-2059	Cover (for 42CZ C Face Gearmotors)
	807-2016	Cover (for 56 C Face Gearmotors)
17	912-084	Square Key, 0.188 x 1.50
	912-077	Square Key, 0.188 x 0 .62 (for SEW Gearmotors Only)

Item	Part Number	Description
18	202273	Output Shaft (for 42CZ C Face Gearmotors)
	350120	Output Shaft (for 56 C Face Gearmotors)
	201692	Output Shaft (for SEW Gearmotors Only)
19	400026	Spacer Ring (for 42CZ C Face Gearmotors)
	350115	Adapter Ring (for 56 C Face Gearmotors)
	201681	Adapter Ring (for SEW Gearmotors Only)
20	605280P	Washer (for 42CZ C Face Gearmotors)
21	920612M	Socket Head Screw, M6-1.00 x 12 mm
22	920620M	Socket Head Screw, M6-1.00 x 20 mm (for 56 C Face Gearmotors)
	920616M	Flat Head Screw, M6-1.00 x 16 mm (for SEW Gearmotors Only)
23	950816M	Low Head Cap Screw, M8-1.25 x 16 mm (for 42CZ C Face Gearmotors)
	931020M	Flat Head Screw, M10-0.50 x 20 mm (for 56 C Face Gearmotors)
24	980416M	Square Key, 4 mm x 16 mm
25	807-2092	Washer (for SEW Gearmotors Only)
LLLLL = Length in inches with 2 decimal places.		
Length Example: Length = 35.25" LLLLL = 03525		

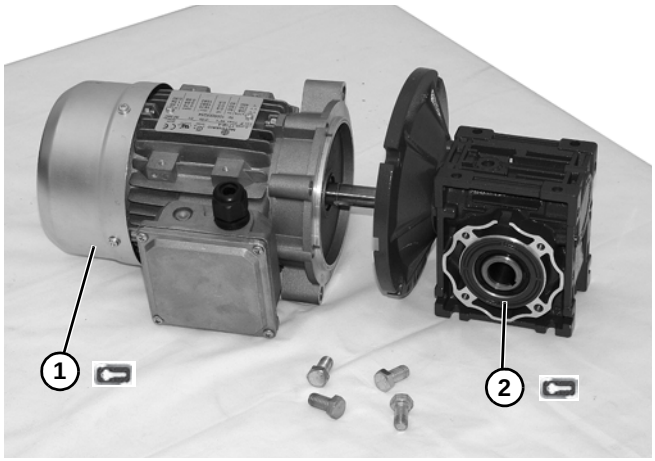
Service Parts

U.S. Version 90° Gearmotors



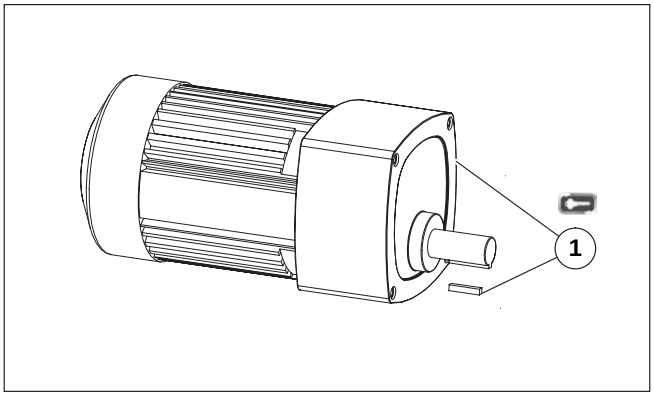
Item	Part Number	Description
1	62MES411FN	Motor, 0.25HP, (0.19 Kw), 115/230 Volts, 60 Hz, 1-Phase
	62MES423FN	Motor, 0.25HP, (0.19 Kw), 208-230/ 460 Volts, 60 Hz, 3-Phase
	62MSD3DEN	Motor, 0.25HP, (0.19 Kw), 130 VDC
	62MEH423FN	Motor, 0.50HP, (0.37 Kw), 115/230 Volts, 60 Hz, 1-Phase
	32MEH423FN	Motor, 0.50HP, (0.37 Kw), 208-230/ 460 Volts, 60 Hz, 3-Phase
	62MHD9DEN	Motor, 0.50HP, (0.37 Kw), 90 VDC
	32MES423EN	Motor, 0.50HP, (0.37 Kw), 230 Volts, 3-Phase Inverter Duty
	62M060ESBDDEN	Motor, 0.25HP, (0.19 Kw), 50 RPM, Brushless DC
	62M040ESBDDEN	Motor, 0.25HP, (0.19 Kw), 75 RPM, Brushless DC
	62M020ESBDDEN	Motor, 0.25HP, (0.19 Kw), 150 RPM, Brushless DC
	62M010ESBDDEN	Motor, 0.25HP, (0.19 Kw), 300 RPM, Brushless DC
	62M005ESBDDEN	Motor, 0.25HP, (0.19 Kw), 600 RPM, Brushless DC
2	32M005EL	Gear Reducer, 5:1, NEMA 42 CZ
	32M010EL	Gear Reducer, 10:1, NEMA 42 CZ
	32M020EL	Gear Reducer, 20:1, NEMA 42 CZ
	32M040EL	Gear Reducer, 40:1, NEMA 42 CZ
	32M060EL	Gear Reducer, 60:1, NEMA 42 CZ
	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 90° Gearmotors



Item	Part Number	Description
1	826-284	Motor, 0.19 Kw 230 Volts, 1400 RPM 50 Hz, 3-Phase
	826-285	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

Parallel Shaft Gearmotors



Item	Part No.	Part Description
1	62M180PS411FN	Motor, 0.08hp (0.06Kw), 10 RPM, 115VAC, 60Hz, 1-Phase
	62M180PS411FR	Motor, 0.08hp (0.06Kw), 10 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M060PS411FN	Motor, 0.17hp (0.13Kw), 29 RPM, 115VAC, 60Hz, 1-Phase
	62M060PS411FR	Motor, 0.17hp (0.13Kw), 29 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M060PS423FN	Motor, 0.25hp (0.19Kw), 29 RPM, 230VAC, 60Hz, 3-Phase
	62M030PS411FN	Motor, 0.17hp (0.13Kw), 58 RPM, 115VAC, 60Hz, 1-Phase
	62M030PS411FR	Motor, 0.17hp (0.13Kw), 58 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M030PS423FN	Motor, 0.25hp (0.19Kw), 58 RPM, 230VAC, 60Hz, 3-Phase
	62M020PS411FN	Motor, 0.17hp (0.13Kw), 86 RPM, 230VAC, 60Hz, 1-Phase
	62M020PS411FR	Motor, 0.17hp (0.13Kw), 86 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M010PS411FN	Motor, 0.17hp (0.13Kw), 173 RPM, 115VAC, 60Hz, 1-Phase
	62M010PS411FR	Motor, 0.17hp (0.13Kw), 173 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M010PS423FN	Motor, 0.25hp (0.19Kw), 173 RPM, 230VAC, 60Hz, 3-Phase
	62M005PS411FN	Motor, 0.17hp (0.13Kw), 345 RPM, 230VAC, 60Hz, 1-Phase
	62M005PS411FR	Motor, 0.17hp (0.13Kw), 345 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M180PSD3DEN	Motor, 0.12hp (0.09Kw), 14 RPM, 130VDC
	62M060PSD3DEN	Motor, 0.25hp (0.19Kw), 42 RPM, 130VDC
	62M030PSD3DEN	Motor, 0.25hp (0.19Kw), 83 RPM, 130VDC
	62M020PSD3DEN	Motor, 0.25hp (0.19Kw), 125 RPM, 130VDC
	62M010PSD3DEN	Motor, 0.25hp (0.19Kw), 250 RPM, 130VDC
	62M005PSD3DEN	Motor, 0.25hp (0.19Kw), 500 RPM, 130VDC
	62M050PSBDDEN	Motor, 0.25hp (0.19Kw), 60 RPM, Brushless DC
	62M020PSBDDEN	Motor, 0.25hp (0.19Kw), 150 RPM, Brushless DC
	62M010PSBDDEN	Motor, 0.25hp (0.19Kw), 300 RPM, Brushless DC

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.

<table>
<tr><th></th><th colspan="9">Product Type</th></tr>
<tr><th></th><th colspan="8">Standard Products</th><th>Engineered to order parts</th></tr>
<tr><th>Product Line</th><th>Conveyors</th><th>Gearmotors & Mounting Packages</th><th>Support Stands</th><th>Accessories</th><th>Spare Parts (non-belt)</th><th>Spare Belts - Standard Flat Fabric</th><th>Spare Belts - Cleated & Specialty Fabric</th><th>Spare Belts - Plastic Chain</th><th>All equipment and parts</th></tr>
<tr><td>1100</td><td colspan="6" rowspan="14">30% return fee for all products except:
50% return fee for conveyors with modular belt, cleated belt or specialty belts</td><td colspan="2" rowspan="15">non-returnable</td><td rowspan="15">case-by-case</td></tr>
<tr><td>2200</td></tr>
<tr><td>2200 Modular Belt</td></tr>
<tr><td>2200 Precision Move</td></tr>
<tr><td>2300</td></tr>
<tr><td>2300 Modular Belt</td></tr>
<tr><td>3200</td></tr>
<tr><td>3200 LPZ</td></tr>
<tr><td>3200 Precision Move</td></tr>
<tr><td>4100</td></tr>
<tr><td>5200</td></tr>
<tr><td>5300</td></tr>
<tr><td>6200</td></tr>
<tr><td>Controls</td></tr>
<tr><td>7200 / 7300</td><td colspan="6">50% return fee for all products</td></tr>
<tr><td>7350</td><td colspan="9" rowspan="4">non-returnable</td></tr>
<tr><td>7360</td></tr>
<tr><td>7400</td></tr>
<tr><td>7600</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 factory, distributor, service center or visit our website at www.dorner.com.

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

DORNER MFG. CORP.
975 Cottonwood Ave., PO Box 20
Hartland, WI 53029-0020 USA
TEL 1-800-397-8664 (USA)
FAX 1-800-369-2440 (USA)
Internet: www.dorner.com

Outside the USA:
TEL 1-262-367-7600
FAX 1-262-367-5827

851-734 Rev. C

Printed in U.S.A.