

Variable Speed VFD Controllers

Installation, Maintenance, and Parts Manual



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Record Conveyor Serial Number Here

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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's Limited Warranty applies.

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

Warnings – General Safety

A WARNING

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

A DANGER



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

A DANGER



DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.

A WARNING

Controller must be properly grounded. Failure to properly ground controller may cause injury to personnel.

A DANGER



Hazardous voltage will cause severe injury or death.

LOCKOUT POWER BEFORE wiring.

A WARNING



Exposed moving parts can cause severe injury.

DO NOT ATTEMPT ADJUSTMENTS WITH CONVEYOR RUNNING.

A 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

Dorner Variable Speed VFD Controllers (**Figure 1**) are AC motor speed controllers for Standard and Heavy Load VFD gearmotors.

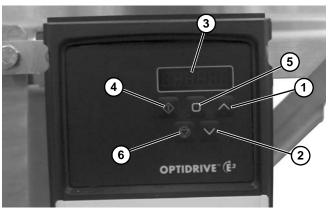


Figure 1

NOTE

For additional information, refer to the Invertek Drives Quick Start Guide shipped with your controller.

Illustration References:

- 1 Decrease Speed Button
- 2 Increase Speed Button
- 3 Display
- 4 Start Button
- 5 Stop Button
- 6 Enter Button

Specifications

Industrial Controllers

Model Number	Input Voltage (VAC) & Phase	Input Frequency (Hz)	Output Voltage (VAC) & Phase	Max. HP (kW)	Max. Output in Amps
32MVA1122(X)	115 Volts, Single Phase	60	230 Volts, Three Phase	0.5 (0.37)	2.3
32MVA2122(X)	230 Volts, Single Phase	60	230 Volts, Three Phase	0.5 (0.37)	2.3
32MVA2322(X)	230 Volts, Three Phase	60	230 Volts, Three Phase	0.5 (0.37)	2.3
32MVA4342(X)	460 Volts, Three Phase	60	460 Volts, Three Phase	0.5 (0.37)	1.2
32MVA1121(X)	115 Volts, Single Phase	60	230 Volts, Three Phase	1.0 (0.75)	5.8
32MVA2121(X)	230 Volts, Single Phase	60	230 Volts, Three Phase	1.0 (0.75)	4.3
32MVA2321(X)	230 Volts, Three Phase	60	230 Volts, Three Phase	1.0 (0.75)	4.3
32MVA4341(X)	460 Volts, Three Phase	60	460 Volts, Three Phase	1.0 (0.75)	2.2
32MVA2127(X)	230 Volts, Single Phase	60	230 Volts, Three Phase	2.0 (1.50)	7
32MVA2327(X)	230 Volts, Three Phase	60	230 Volts, Three Phase	2.0 (1.50)	7
32MVA4347(X)	460 Volts, Three Phase	60	230 Volts, Three Phase	2.0 (1.50)	5.8

(X): Blank = No Accessory Port; E = M12 Accessory Port Wired for End Stop Photo Eye Application; I = M12 Accessory Port Wired for Indexing Photo Eye Application

Sanitary Controllers

Model Number	Input Voltage (VAC) & Phase	Input Frequency (Hz)	Output Voltage (VAC) & Phase	Max. HP (kW)	Max. Output in Amps
76MVA1122S	115 Volts, Single Phase	60	230 Volts, Three Phase	0.5 (0.37)	2.3
76MVA2122S	230 Volts, Single Phase	60	230 Volts, Three Phase	0.5 (0.37)	2.3
76MVA2322S	230 Volts, Three Phase	60	230 Volts, Three Phase	0.5 (0.37)	2.3
76MVA4342S	460 Volts, Three Phase	60	460 Volts, Three Phase	0.5 (0.37)	1.2
76MVA1121S	115 Volts, Single Phase	60	230 Volts, Three Phase	1.0 (0.75)	5.8
76MVA2121S	230 Volts, Single Phase	60	230 Volts, Three Phase	1.0 (0.75)	4.3
76MVA2321S	230 Volts, Three Phase	60	230 Volts, Three Phase	1.0 (0.75)	4.3
76MVA4341S	460 Volts, Three Phase	60	460 Volts, Three Phase	1.0 (0.75)	2.2
76MVA2127S	230 Volts, Single Phase	60	230 Volts, Three Phase	2.0 (1.50)	7
76MVA2327S	230 Volts, Three Phase	60	230 Volts, Three Phase	2.0 (1.50)	7
76MVA4347S	460 Volts, Three Phase	60	230 Volts, Three Phase	2.0 (1.50)	5.8

NOTE

All Dorner OPTIDRIVE™ VFD's are supplied with an inline line filter to meet EN 61800-3 or other EMC standards. Consult the safety information section of the vendor manual.

Torque Specifications

	Fla	Flat Head		Socket Head		/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)

Required Tools

- 3 mm hex wrench
- 4 mm hex wrench
- 5 mm hex wrench
- 7 mm wrench
- 10 mm wrench
- 13 mm wrench
- 17 mm wrench

Determine Conveyor Type

Select the appropriate section based on your conveyor type:

Industrial Conveyors

- For 2200 and 3200 series conveyors, see "2200 and 3200 Conveyor Mounting" on page 6.
- For aluminum stand leg mounting, see "Aluminum Stand Leg Mounting" on page 8.

Sanitary Conveyors

- For 7200 and 7300 series conveyors, see "7200 and 7300 Series Controller Mounting" on page 9.
- For AquaGard series conveyors, see "AquaGard® Sanitary Controller Mounting" on page 10.
- For AquaPruf series conveyors, see "AquaPruf® Sanitary Controller Mounting" on page 12.

Industrial Controller Mounting

A WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

2200 and 3200 Conveyor Mounting

Installation Component List (Figure 2):

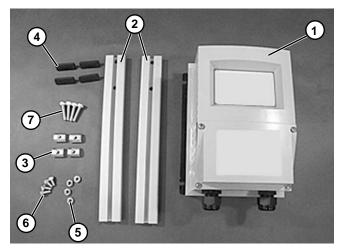


Figure 2

- 1 VFD Controller
- 2 Mounting Rails (x2)
- 3 Drop-In Tee Bars (x4)
- 4 End Caps (x4)
- 5 Hex Nuts (x4)
- 6 Socket Head Screws (x4)
- 7 Socket Head Screws (x4)

1. Insert two hex nuts (Figure 3, item 1) into slot on each mounting rail (Figure 3, item 2).

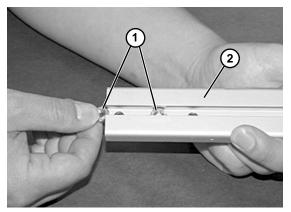


Figure 3

2. Insert end caps (Figure 4, item 1) into ends of mounting rails (Figure 4, item 2).

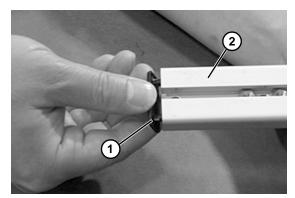


Figure 4

3. Attach mounting bars (Figure 5, item 1) to controller with screws (Figure 5, item 2).

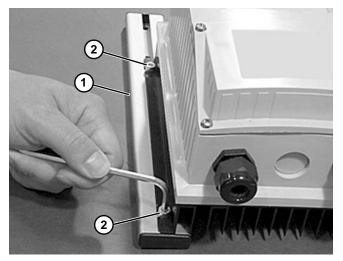


Figure 5

4. Install drop-in tee bars (**Figure 6, item 1**) in 2200 Series or 3200 Series conveyor T-slots.

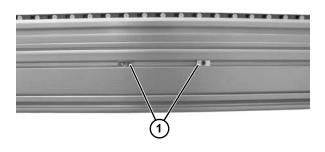


Figure 6

5. Attach controller (Figure 7, item 1) to conveyor with screws (Figure 7, item 2).

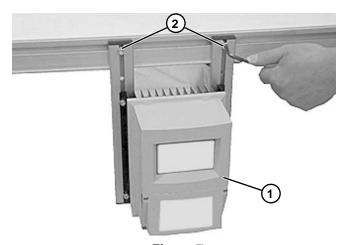


Figure 7

Aluminum Stand Leg Mounting

Install two drop-in tee bars (Figure 8, item 1) in stand leg T-slots. Attach upper mounting rail (Figure 8, item 2) to stand (Figure 8, item 3) with two screws (Figure 8, item 4).

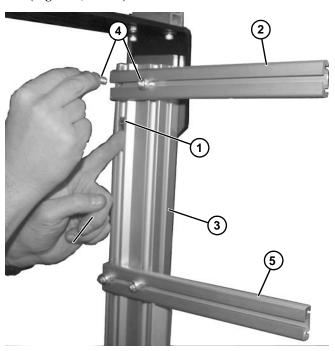


Figure 8

- 2. Repeat step to install lower mounting rail (**Figure 8**, item 5).
- 3. Tighten four screws (**Figure 9**, **item 1**) until snug. Do not fully tighten at this time.



Figure 9

4. Install two nuts (Figure 10, item 1) into slot in upper mounting rail. Secure controller (Figure 10, item 2) into stand leg T-slot with two washers (Figure 10, item 3) and screws (Figure 10, item 4).

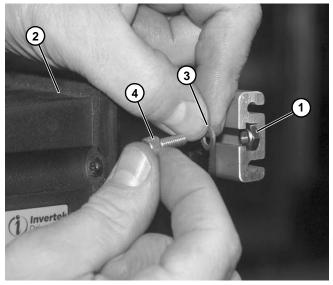


Figure 10

- 5. Repeat step to secure controller to lower mounting rail.
- 6. Tighten four screws (Figure 11, item 1).



Figure 11

7. Fully tighten the four screws securing the upper and lower mounting rails onto support stand, installed in step 3.

8. Install end cap (Figure 12, item 1) onto each end of mounting rail (Figure 12, item 2).

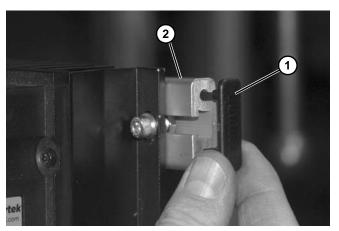


Figure 12

9. Repeat to install remaining end caps (Figure 13).



Figure 13

7200 and 7300 Series Controller Mounting

A WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

Installation Component List (Figure 14):

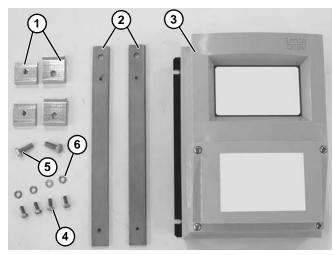


Figure 14

- Accessory Mounting Clips (2x)
 (Shipped with gearmotor mount package)
- 2 Mounting Plate (2x)
- 3 VFD Controller
- 4 Hex Head Screws (4x)
- 5 Hex Head Screws (2x)
- 6 Washers (4x)
- 1. Attach mounting plates (Figure 15, item 1) to controller (Figure 15, item 2) with washers (Figure 15, item 3) and screws (Figure 15, item 4).

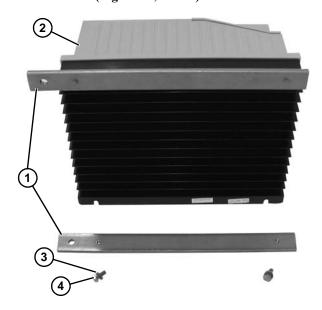


Figure 15

 Loosely attach clips (Figure 16, item 1) to mounting bar (Figure 16, item 2) with screws (Figure 16, item 3).

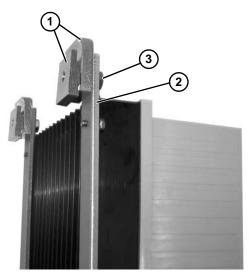


Figure 16

3. Attach controller (Figure 17, item 1) to conveyor (Figure 17, item 2) with screws (Figure 17, item 3).

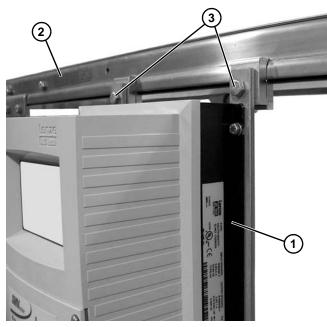


Figure 17

AquaGard® Sanitary Controller Mounting

▲ WARNING

Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

Installation Component List (Figure 18):

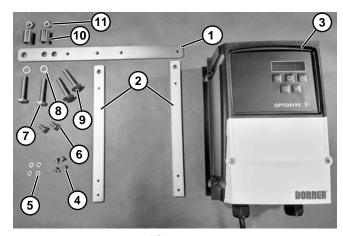


Figure 18

- 1 Controller Mount Plate
- 2 Mounting Plate (2x)
- 3 VFD Controller
- 4 Hex Head Screws (4x)
- 5 Washers (4x)
- 6 Hex Head Screws (2x)
- 7 Hex Head Screws (2x)
- 8 Washers (2x)
- 9 Carriage Bolts (2x)
- 10 Standoffs (2x)
- 11 Hex Nut (2x)

1. Attach mounting plates (Figure 19, item 1) to controller (Figure 19, item 2) with washers (Figure 19, item 3) and screws (Figure 19, item 4).

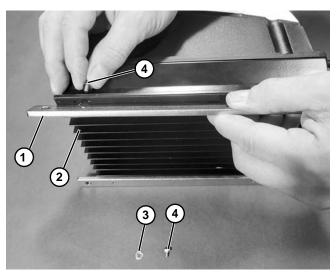


Figure 19

 Attach controller mount plate (Figure 20, item 1) to mounting plates (Figure 20, item 2) with screws (Figure 20, item 3).

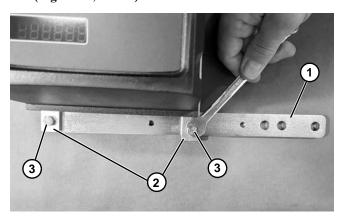


Figure 20

3. To install assembly to conveyor at stand location, remove stand carriage bolts and replace with new carriage bolts (Figure 21, item 1).

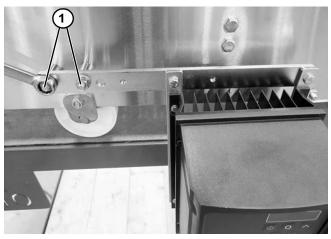


Figure 21

4. To install assembly to conveyor at frame connection, remove screws and replace with new screws (Figure 22, item 1).

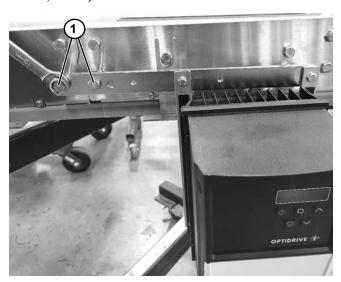


Figure 22

AquaPruf® Sanitary Controller Mounting

A WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

Installation Component List (Figure 23):

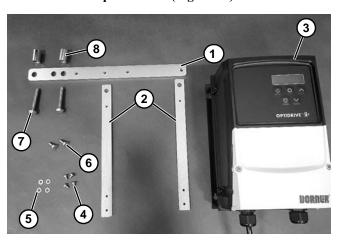


Figure 23

- 1 Controller Mount Plate
- 2 Mounting Plates (2x)
- 3 VFD Controller
- 4 Hex Head Screws (4x)
- 5 Washers (4x)
- 6 Hex Head Screws (2x)
- 7 Hex Head Screws (2x)
- 8 Standoffs (2x)
- 1. Attach mounting plates (Figure 24, item 1) to controller (Figure 24, item 2) with washers (Figure 24, item 3) and screws (Figure 24, item 4).

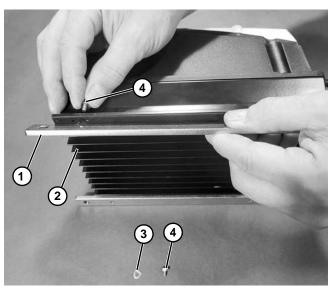


Figure 24

 Attach controller mount plate (Figure 25, item 1) to mounting plates (Figure 25, item 2) with screws (Figure 25, item 3).

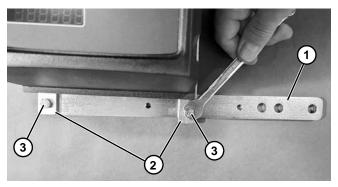


Figure 25

 Install assembly to conveyor at stand location by removing screws and replacing with new screws (Figure 26, item 1).

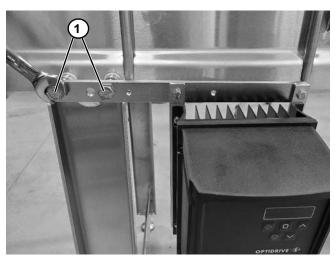


Figure 26

Wiring

A DANGER



Hazardous voltage will cause severe injury or death.

LOCKOUT POWER BEFORE wiring.

A WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

A WARNING

Controller must be properly grounded. Failure to properly ground control box may cause injury to personnel.

NOTE

A circuit breaker or a disconnect switch with fuses must be provided in accordance with the National Electrical Code (NEC) and all local codes.

Refer to Lenze Installation and Operating Manual shipped with your controller.

NOTE

For electrical wiring or troubleshooting, refer to information provided by controller manufacturer.

1. Make the input power connections through the line connection cord grip. Refer to the manufacturer's manual for terminations inside the VFD controller.

Preventive Maintenance and Adjustment

Required Tools

· Flat-blade screwdriver

Controller Setup

A DANGER



Hazardous voltage will cause severe injury or death.

LOCKOUT POWER BEFORE wiring.

A WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

NOTE

For additional information or desired settings other than listed, refer to the Invertek Drives Quick Start Guide shipped with your controller.

When purchased with a gearmotor, Dorner configures Variable Speed VFD Controllers as follows:

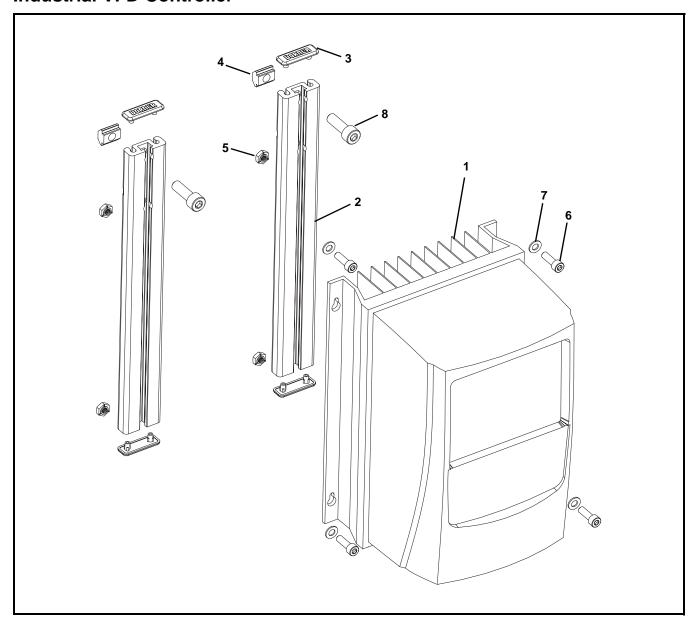
- 1 second acceleration time
- 1 second deceleration time
- Minimum frequency @ 10 Hz for Sanitary units, 6 Hz for Industrial units
- Maximum frequency @ 60 Hz
- Overloads set to motor Full Load Amperes (FLA)

Notes

NOTE

For replacement parts other than those shown in this section, contact an authorized Dorner distributor or Dorner directly. Recommended Critical Service Parts and Kits are identified by the Key Service Parts symbol . Dorner recommends keeping these parts on hand.

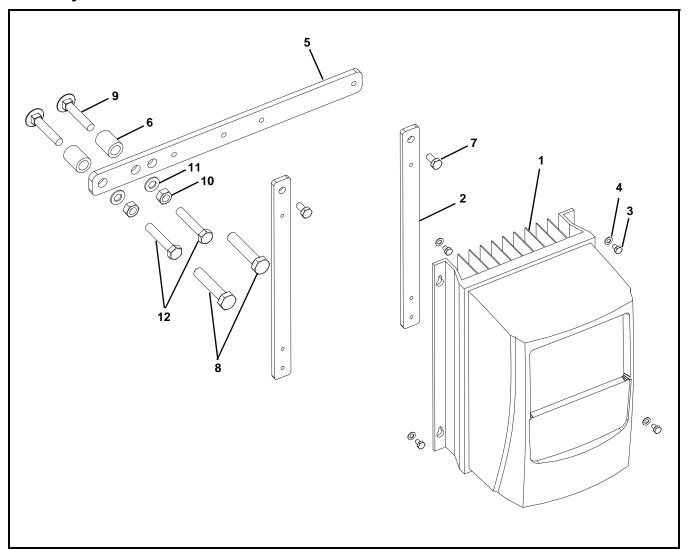
Industrial VFD Controller



Item	Part Number	Description
1	805-2485	VFD Controller, 0.5 Hp, 115 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2486	VFD Controller, 0.5 Hp, 230 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2487	VFD Controller, 0.5 Hp, 230 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2488	VFD Controller, 0.5 Hp, 460 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2489	VFD Controller, 1.0 Hp, 115 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2490	VFD Controller, 1.0 Hp, 230 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2491	VFD Controller, 1.0 Hp, 230 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2492	VFD Controller, 1.0 Hp, 460 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2493	VFD Controller, 2.0 Hp, 230 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2494	VFD Controller, 2.0 Hp, 230 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output
	805-2495	VFD Controller, 2.0 Hp, 460 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output
2	205993	Mounting Rail
3	210849	Сар
4	202390M	Drop-In Tee Bar
5	807-3003	Weld Nut
6	920512M	Socket Head Screw, M580 x 12 mm
7	911-512	Washer
8	920825M	Socket Head Screw, M8-1.25 x 25 mm

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

Sanitary VFD Controller



Item	Part Number	Description				
1	805-2485	VFD Controller, 0.5 Hp, 115 Volts				
	000 2 .00	Single Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2486	VFD Controller, 0.5 Hp, 230 Volts				
		Single Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2487	VFD Controller, 0.5 Hp, 230 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2488	VFD Controller, 0.5 Hp, 460 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2489	VFD Controller, 1.0 Hp, 115 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2490	VFD Controller, 1.0 Hp, 230 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2491	VFD Controller, 1.0 Hp, 230 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2492	VFD Controller, 1.0 Hp, 460 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2493	VFD Controller, 2.0 Hp, 230 Volts Single Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2494	VFD Controller, 2.0 Hp, 230 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output				
	805-2495	VFD Controller, 2.0 Hp, 460 Volts Three Phase Input, 60Hz, 230 Volts, Three Phase Output				
2	506344	Mounting Plate				
3	960408MSS	Hex Head Cap Screw, M4-0.70 x 8 mm				
4	911-604	Washer, M4				
5	520396	Controller Mount Plate				
6	500693	Standoff				
7	960612MSS	Hex Head Cap Screw, M6-1.00 x 12 mm				
8	961045MSS	Hex Head Cap Screw, M10-1.5 x 45 mm for AquaPruf Conveyors Only				
9	807-3600	Carriage Bolt, M8-1.25 x 45 mm for AquaGard Conveyors Only				
10	990801MSS	Hex Nut for AquaGard Conveyors Only				
11	807-1951	Washer, M8 for AquaGard Conveyors Only				
12	960845MSS	Hex Head Cap Screw, M8-1.25 x 45 mm for AquaGard Conveyors Only				
Service parts can be obtained through your distributor or directly						

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

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.
- Customer's original order number used when ordering the item(s). 4.
- 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.

	Product Type								
	Standard Products						Engineered to order parts		
Product Line	Conveyors	Gearmotors & Mounting Packages	Support Stands	Accessories	Spare Parts (non-belt)	Spare Belts - Standard Flat Fabric	Spare Belts - Cleated & Spec. Fabric	Spare Belts - Plastic Chain	All equipment and parts
1100 Series				•	•				
2200 Series	1	30% re	turn fee fo	or all products	excent:				
3200 Series		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.							
Pallet Systems									
FlexMove/SmartFlex	1								
GAL Series	All Electr							urnahle	case-by-case
All Electrical	1	non-returnable							case by case
7100 Series									
7200/7300 Series									
AquaGard 7350 Series Version 2		50% return fee for all products							
GES Series	1								
AquaGard 7350/7360 Series	non-returnable					•			
AquaPruf Series									

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.

ww.dorner.com

Dorner – Europe

Dorner - U.S.A.

975 Cottonwood Ave Hartland, WI 53029, USA

Headquarters

(800) 397-8664

(262) 367-7600 info@dorner.com Dorner - Latin America Carretera a Nogales #5297, Nave 11. Parque Industrial Nogales Zapopan, Jalisco C.P. 45222 México

Dorner - Germany Karl-Heinz-Beckurts-Straße 7 52428 Jülich, Germany

+49 (0) 2461/93767-0 info.europe@dorner.com 8 rue des Frères Caudron 78140 Velizy-Villacoublay +33 (0)1 84 73 24 27

Dorner - France

info.france@dorner.com

Dorner - Asia

128 Jalan Permatang Damar Laut, Bayan Lepas 11960 Penang, Malaysia

+52.33.30037400 | info.latinamerica@dorner.com

Dorner – North & South America

Dorner - Canada 100-5515 North Service Road

info@dorner.com

Canada (289) 208-7306

Burlington, Ontario L7L 6G6

+604-626-2948 | info.asia@dorner.com