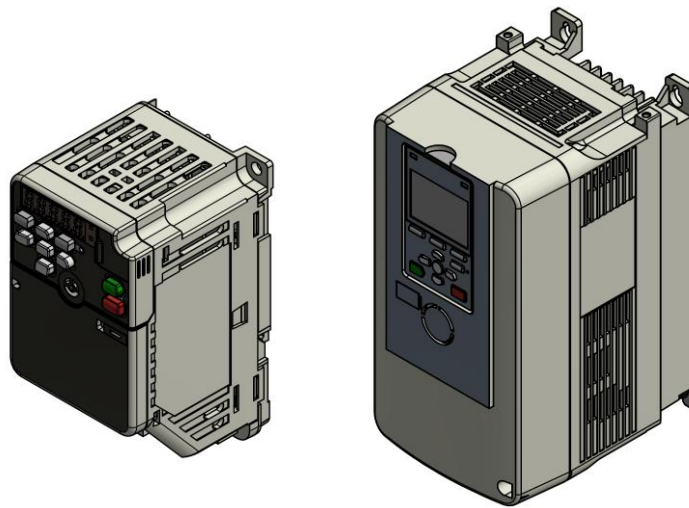


DR Series

DR... Variable Frequency Drives (VFDs)



Description

DR... series VFDs precisely control the speed of an AC induction motor. They come pre-programmed for each application to simplify installation.

Features

- 1/6 to 200HP VFDs available
- High resolution multi-language display
- Open loop or volts/hertz control
- USB port for PC or mobile device connection to monitor drive performance and adjust parameters
- Parameter backup capability
- 240V and 480V VFDs available

Application

DR... series variable frequency drives control the motor speed of blowers and pumps.

Product Part Numbers

The part number structure for DR... drives is shown below. Not all part number variations are available. See Product Part Number Tables for available options.

DR - 480 040 - 3 B

Model

Voltage

240 = 240 VAC

480 = 480 VAC

Horsepower

F16 = 1/6 HP

F14 = 1/4 HP

F12 = 1/2 HP

F34 = 3/4 HP

001 = 1 HP

002 = 2 HP

003 = 3 HP

004 = 4 HP

005 = 5 HP

007 = 7.5 HP

010 = 10 HP

015 = 15 HP

020 = 20 HP

025 = 25 HP

030 = 30 HP

040 = 40 HP

050 = 50 HP

060 = 60 HP

075 = 75 HP

100 = 100 HP

125 = 125 HP

150 = 150 HP

200 = 200 HP

Input Phase

1 = Single Phase (240 VAC)

3 = Three Phase (240 VAC, 480 VAC)

Drive Model

B = GA50

C = GA80

Product Part Numbers (continued)

DR... series part numbers and ratings are tabulated below.

Table 1: 240V Single Phase Drives (10% Braking Resistor)

Drive Part Number	HP	Amps	Model	Braking Resistor Part Number ⁽¹⁾	Resistance	Watts	Resistor Enclosure ⁽²⁾	Line/Load Reactor Part Number ⁽³⁾	NEMA 1 Kits ⁽⁴⁾
DR-240F16-1B	1/6	1.2	GA50	DRBK-2024-1-F16-1	750	600	GCE2	DRLR-2024-1-F16-1	DRN1-B1-1
DR-240F14-1B	1/4	1.9		DRBK-2024-1-F14-1	400	500	GCE1	DRLR-2024-1-F14-1	
DR-240F34-1B	3/4	3.5		DRBK-2024-1-F34-1	200	250		DRLR-2024-1-F34-1	DRN1-B1-2
DR-240001-1B	1	6.0		DRBK-2024-1-1-1	150	500		DRLR-2024-1-1-1	DRN1-B2-1
DR-240002-1B	2	9.6		DRBK-2024-1-2-1	70	250		DRLR-2024-1-2-1	DRN1-B2-2
DR-240003-1B	3	12.2		DRBK-2024-1-3-1				DRLR-2024-1-3-1	DRN1-B3-1
DR-240005-1B	5	17.5		DRBK-2024-1-5-1	40	846		GCE2	DRLR-2024-1-5-1

¹ Optional part – must be ordered separately. Typically required with fast ramp times (60 seconds or less) and/or large, heavy blower wheels.

² See Braking Resistors in Dimensions.

³ Optional part – must be ordered separately. See pages 8-10 for more information regarding the use of line/load reactors.

⁴ Optional part – must be ordered separately. Required for NEMA 1 protection.

Product Part Number Tables (continued)

Table 2: 240V Three Phase Drives (10% Braking Resistor) ^{(2) (6)}

Drive Part Number	HP	Amps	Model	Braking Resistor Part Number ⁽¹⁾	Resistance	Watts	Resist. Encl. ⁽³⁾	Line/Load Reactor Part Number ⁽⁴⁾	NEMA 1 Kits ⁽⁵⁾	
DR-240F16-3B	1/6	1.2	GA50	DRBK-2024-3-F16-1	750	600	GCE2	DRLR-2024-3-F16-1	DRN1-B1-1	
DR-240F14-3B	1/4	1.9		DRBK-2024-3-F14-1	400	500	GCE1	DRLR-2024-3-F14-1		
DR-240F34-3B	3/4	3.5		DRBK-2024-3-F34-1	200	250		DRLR-2024-3-F34-1		
DR-240001-3B	1	6.0		DRBK-2024-3-1-1	150	500	DRLR-2024-3-1-1	DRN1-B2-3		
DR-240002-3B	2	9.6		DRBK-2024-3-2-1	70	250	DRLR-2024-3-2-1			
DR-240003-3B	3	12.2		DRBK-2024-3-3-1			DRLR-2024-3-3-1	DRN1-B2-1		
DR-240005-3B	5	21.0		DRBK-2024-3-5-1	40	846	GCE2	DRLR-2024-3-5-1	DRN1-B3-2	
DR-240007-3B	7.5	30.0		DRBK-2024-3-7.5-1	18	1300	GCE3	DRLR-2024-3-7.5-1	DRN1-B5-1	
DR-240010-3B	10	42.0		DRBK-2024-3-10-1	13.6	1645	GCE4	DRLR-2024-3-10-1		
DR-240020-3B	20	56.0		DRBK-2024-3-20-1	10.5	3402	GCE9	DRLR-2024-3-20-1	DRN1-B6-1	
DR-240025-3B	25	70.0		DRBK-2024-3-25-1				DRLR-2024-3-25-1	DRN1-B7-1	
DR-240030-3B	30	82.0		DRBK-2024-3-30-1				DRLR-2024-3-30-1		
DR-240040-3C	40	110		GA80	DRBK-2024-3-40-1	4.6	2984	GCE6	DRLR-2024-3-40-1	DRN1-C1-5
DR-240050-3C	50	138			DRBK-2024-3-50-1	4.2	3730	GCE9	DRLR-2024-3-50-1	DRN1-C1-6
DR-240060-3C	60	169	DRBK-2024-3-60-1 ⁽²⁾		2.1	5250	DRLR-2024-3-60-1		DRN1-C1-7	
DR-240075-3C	75	211	DRBK-2024-3-75-1 ⁽²⁾				DRLR-2024-3-75-1	DRN1-C1-8		
DR-240100-3C	100	257	DRBK-2024-3-100-1 ⁽²⁾		1.6	6553	GCE12	DRLR-2024-3-100-1	DRN1-C1-9	

¹ Optional part – must be ordered separately. Typically required with fast ramp times (60 seconds or less) and/or large, heavy blower wheels.

² GA80 drives with 60HP or more require a braking unit (DRUN-2024-3-60-1 for 60HP, DRUN-2024-3-75-1 for 75HP, and DRUN-2024-3-100-1 for 100HP) if ordering a braking resistor.

³ See Braking Resistors in Dimensions.

⁴ Optional part – must be ordered separately. See pages 8-10 for more information regarding the use of line/load reactors.

⁵ Optional part – must be ordered separately. Required for NEMA 1 protection.

⁶ GA80 drives with up to 50HP have built-in braking units. GA50 drives do not require a braking unit.

Product Part Numbers (continued)

Table 3: 480V Three Phase Drives (10% Braking Resistors) ^{(2) (6) (7)}

Drive Part Number	HP	Amps	Model	Resistor Part Number ⁽¹⁾	Resistance	Watts	Resist. Encl. ⁽³⁾	Line/Load Reactor Part Number ⁽⁴⁾	NEMA 1 Kits ⁽⁵⁾	
DR-480F12-3B	1/2	1.2	GA50	DRBK-3848-3-F12-1	750	600	GCE2	DRLR-3848-3-F12-1	DRN1-B2-4	
DR-480001-3B	1	2.1		DRBK-3848-3-1-1				DRLR-3848-3-1-1		
DR-480002-3B	2	4.1		DRBK-3848-3-2-1				DRLR-3848-3-2-1	DRN1-B2-5	
DR-480003-3B	3	5.4		DRBK-3848-3-3-1	250	500	GCE1	DRLR-3848-3-3-1	DRN1-B2-2	
DR-480004-3B	4	7.1		DRBK-3848-3-4-1				DRLR-3848-3-4-1		
DR-480005-3B	5	8.9		DRBK-3848-3-5-1	150			DRLR-3848-3-5-1		
DR-480007-3B	7.5	11.9		DRBK-3848-3-7.5-1	100	975	GCE2	DRLR-3848-3-7.5-1	DRN1-B3-2	
DR-480010-3B	10	17.5		DRBK-3848-3-10-1	50	1600	GCE4	DRLR-3848-3-10-1	DRN1-B5-1	
DR-480015-3B	15	23.4		DRBK-3848-3-15-1				DRLR-3848-3-15-1		
DR-480020-3B	20	31.0		DRBK-3848-3-20-1	40	2050	GCE6	DRLR-3848-3-20-1	DRN1-B6-1	
DR-480025-3B	25	38.0		DRBK-3848-3-25-1	27.2	2720	GCE8	DRLR-3848-3-25-1	DRN1-B6-1	
DR-480030-3B	30	44.0		DRBK-3848-3-30-1				DRLR-3848-3-30-1		
DR-480040-3B	40	60.0		DRBK-3848-3-40-1	20	4775	GCE9	DRLR-3848-3-40-1	DRN1-B8-1	
DR-480050-3C	50	74.9		GA80	DRBK-3848-3-50-1	13.9	3730	GCE6	DRLR-3848-3-50-1	DRN1-C1-5
DR-480060-3C	60	89.2			DRBK-3848-3-60-1	11.1	4476	GCE9	DRLR-3848-3-60-1	DRN1-C1-6
DR-480075-3C	75	103	DRBK-3848-3-75-1		9.2	5595	GCE12	DRLR-3848-3-75-1		
DR-480100-3C	100	140	DRBK-3848-3-100-1		7.4	7460	GCE15	DRLR-3848-3-100-1	DRN1-C1-7	
DR-480125-3C	125	168	DRBK-3848-3-125-1		5.6	9325	GCE18	DRLR-3848-3-125-1		
DR-480150-3C	150	208	DRBK-3848-3-150-1 ⁽²⁾		4.2	10500		DRLR-3848-3-150-1	DRN1-C1-9	
DR-480200-3C	200	250	DRBK-3848-3-200-1 ⁽²⁾		3.2	13107	GCE24	DRLR-3848-3-200-1		

¹ Optional part – must be ordered separately. Typically required with fast ramp times (60 seconds or less) and/or large, heavy blower wheels.

² GA80 drives with 150 to 200HP require a braking unit (DRUN-3848-3-150-1 for 150HP, and DRUN-3848-3-200-1 for 200HP) if ordering a braking resistor.

³ See Braking Resistors in Dimensions.

⁴ Optional part – must be ordered separately. See pages 8-10 for more information regarding the use of line/load reactors.

⁵ Optional part – must be ordered separately. Required for NEMA 1 protection.

⁶ GA80 drives with up to 125HP have built-in braking units. GA50 drives do not require a braking unit.

⁷ GA80 drives greater than 200HP are available if required. Contact SCC Inc. for more information.

Specifications

Operating characteristics

Overload: Drive Duty Mode [Normal Duty]	110% of rated output current for duration of 60 seconds. Can occur once every 10 minutes.
HP Ratings	1/6 to 200HP
Amperage Ratings	1.2 to 257A
Carrier Frequency	
Drive GA50	2 kHz without derating drive capacity
Drive GA80 [240V, 480V: 1-75HP]	Derating drive capacity to 15kHz maximum
Drive GA80 [480V: 100-200HP]	2 kHz without derating drive capacity Derating drive capacity to 10kHz maximum
Input: Power Supply	
Permitted Voltage Fluctuation	-15% to +10%
Permitted Frequency Fluctuation	+/- 5%
Protection Design	IP20 (inside use) In area without oil, mist, corrosive or flammable gas, dust, water, salt, and direct sunlight
Safety Functions	
Thermal Overload Overload	Selective Output current of 110%+ for 60 seconds
Voltage Protection Limits	Single Phase 240V: 160-410V Three Phase 240V: 190V-410V Three Phase 480V: 380V-820V
Installation Orientation	Vertical (for sufficient airflow to cool the drive)
Ambient Temperature	14 °F to 122 °F [-10 °C to 50 °C]
Storage Temperature	-4 °F to 158 °F [-20 °C to 70 °C]

Functions of Braking Resistors, Line Reactors, and Load Reactors

Braking Resistors

Three-phase AC induction motors can also function as three-phase AC generators if they become driven by what they typically drive. In the case of a blower, the motor drives the blower wheel when the speed of the wheel is increased (accelerated). Conversely, the blower wheel can drive the motor when the speed of the blower wheel is decreased (decelerated) with a closed air damper. When the motor is driven by the blower wheel, it will act as a generator and "push" electrical energy back to the VFD. This energy will be seen as a voltage increase on the VFD's DC bus.

The DC bus can absorb a small amount of energy in the DC bus capacitors. However, if the motor generates more than what these capacitors can absorb, the DC bus voltage will rise to critical levels and one of two actions will be taken by the VFD. Depending on the parameter setting of the VFD, the VFD will either stop decelerating (stall prevention) or the VFD will alarm and shut down. Either one of the actions is not a desirable result on a combustion air application.

To avoid DC bus overvoltage issues, a braking resistor can be added to the VFD so that the excess electrical energy generated by decelerating the blower wheel can be turned to heat. This process happens seamlessly so that the VFD can decelerate the blower smoothly.

Due to a number of variables, it is difficult to determine if a braking resistor will be needed on a particular application unless that application has been tested. The only disadvantage of having a braking resistor and not needing it is cost and possibly the space for the resistor. Burners having the following characteristics will typically need a braking resistor:

1. A heavy blower wheel - Kinetic energy is stored in a spinning wheel. The heavier the blower wheel, the greater the stored energy. When this wheel is slowed down, the kinetic energy must go somewhere, and it is usually "pushed" back to the VFD as electrical energy.
2. Fast ramp times - The faster the ramp times, the faster the blower wheel must be accelerated and decelerated. Just like a car, more energy is required to accelerate quickly (bigger engine) and more energy is required to be dissipated when decelerating quickly (bigger brakes). Decelerating a given blower wheel more quickly will push more electrical energy back to the VFD.
3. Mostly closed air damper - A motor spinning at 3600 RPM draws fewer amps with a closed or nearly closed air damper as compared to a wide open air damper. Thus, the horsepower used by the motor and the drag (braking) on the blower wheel will be much less with a closed or

Functions of Braking Resistors, Line Reactors, and Load Reactors (continued)

nearly closed air damper. Decelerating a given blower wheel with reduced drag will also push more electrical energy back to the VFD.

As one might expect, the above points compound one another. Decelerating a heavy blower wheel with a fast ramp time and a mostly closed air damper will push a large amount of electrical energy back at the VFD and will likely cause DC bus overvoltage issues if a braking resistor is not installed.

In contrast, a light blower wheel (sheet metal instead of cast iron), a slower ramp time (90 seconds instead of 30 seconds), and slowing the blower down on a more open air damper are characteristics that will greatly reduce the amount of electrical energy pushed back to the VFD and should allow the braking resistor to be omitted in most cases.

Line Reactors

Line reactors, or "chokes", are typically used when the impedance on the input side of the drive is low. Impedance on the input side of the drive is typically low when a relatively small VFD is being fed by a relatively large transformer. In this situation, the supply side of the drive is "stiff", meaning that an instantaneous current draw by the drive will be met very quickly by the large transformer (think square wave form), causing voltage and current distortions in the power distribution system feeding the drive. In this situation, adding a line reactor will add reactance which opposes instantaneous current draw and "softens" the input side of the drive.

Conversely, if the transformer feeding the drive is not large relative to the drive, the impedance on the input side of the drive is higher and the system is "softer". In this situation, an instantaneous current draw by the drive will not be met as quickly, and the resulting voltage and current distortions in the power distribution system feeding the drive will be smaller. An additional line reactor in this situation is not needed.

Functions of Braking Resistors, Line Reactors, and Load Reactors (continued)

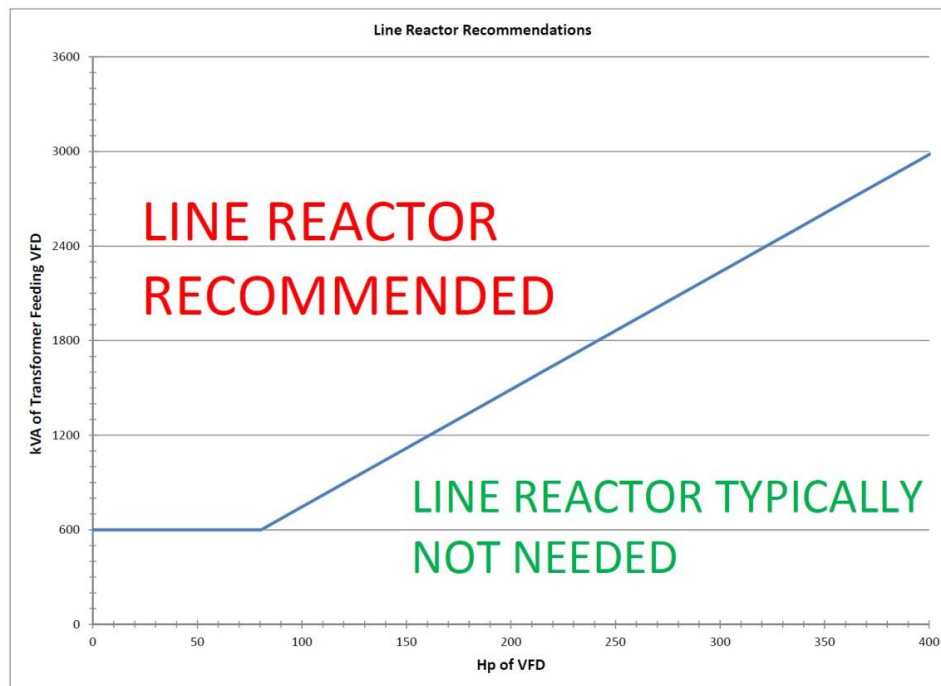


Figure 1: Line Reactor Recommendation – VFD (HP) vs Transformer (kVA)

In general, a line reactor is recommended if the supply capacity (kVA) of the transformer feeding the drive is greater than or equal to 10 times the capacity (kVA) of the drive for transformers 600 kVA and larger.

Load Reactors and Output Wiring

When the VFD / motor are running, high levels of electrical noise are produced on the wiring between the VFD and the motor. This is due to the fact that modified sine waves produced by the drive IGBTs are basically high frequency / high voltage DC pulses. These output wires must be enclosed in some type of shielding (metallic conduit or metal-shielded cable) to mitigate radiated electrical noise.

Wire length between the VFD and the motor should be kept to less than 150 feet if possible due to the reflected wave / standing wave phenomenon and voltage overshoot phenomenon. Both of these phenomena are rather complex, and are a function of the wire length from the VFD to the motor. The reflected wave / standing wave phenomenon and voltage overshoot phenomenon can damage non-inverter duty motor windings over time due to the high peak voltages that these phenomena can produce.

Functions of Braking Resistors, Line Reactors, and Load Reactors (continued)

NOTE: The DC bus runs at voltages substantially higher than the incoming voltage to the drive (about 35% higher) and typically employs large capacitors. These capacitors remain charged for a period of time after the incoming power to the drive is de-energized, and are a shock hazard until they discharge.

If wire length cannot be kept to less than 150 feet on the drive output, correction options are available.

Table 4: Correction Options for Long Wire Length between VSD and Motor

Wire Length – up to (ft)	Correction Option
150	None Required
300	Load Reactor at VFD Output
650	Load Reactor at Motor Input
2000	dV/dT Filter on VFD Output
Consult Motor OEM	Inverter Duty Motor

Dimensions

Dimensions in inches [mm]

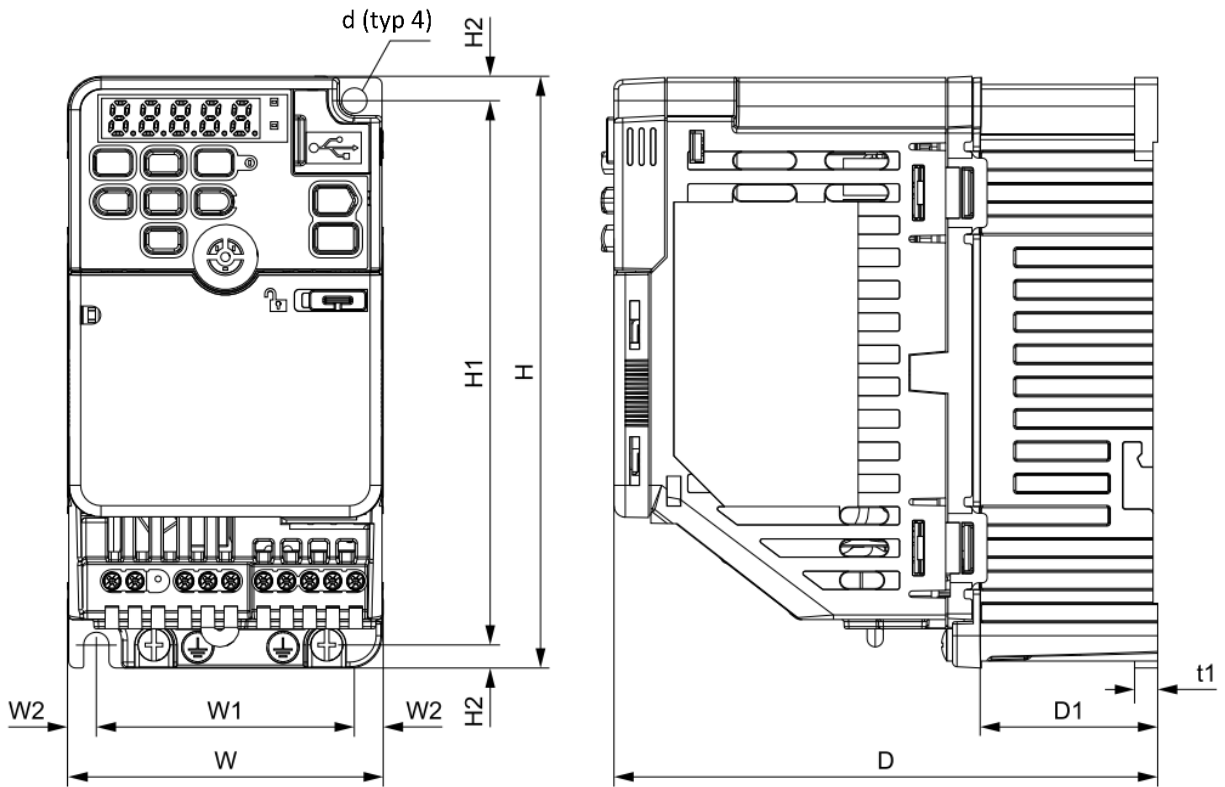


Table 5: GA50 Diagram 1

Model	W	H	H*	D	W1	W2	H1	H2	D1	t1	d	Est. Weight lb [kg]
DR-240F16-1B	2.68 [68]	5.04 [128]	6.22 [158]	2.99 [76]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	0.26 [6.5]	0.12 [3]	M5	1.1 [0.5]
DR-240F14-1B	2.68 [68]	5.04 [128]	6.22 [158]	2.99 [76]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	0.26 [6.5]	0.12 [3]	M5	1.1 [0.5]
DR-240F34-1B	2.68 [68]	5.04 [128]	6.22 [158]	4.65 [118]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	1.52 [38.5]	0.20 [5]	M5	1.8 [0.8]
DR-240F16-3B	2.68 [68]	5.04 [128]	6.22 [158]	2.99 [76]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	0.26 [6.5]	0.12 [3]	M5	1.1 [0.5]
DR-240F14-3B	2.68 [68]	5.04 [128]	6.22 [158]	2.99 [76]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	0.26 [6.5]	0.12 [3]	M5	1.1 [0.5]
DR-240F34-3B	2.68 [68]	5.04 [128]	6.22 [158]	4.25 [108]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	1.52 [38.5]	0.20 [5]	M5	1.8 [0.8]
DR-240001-3B	2.68 [68]	5.04 [128]	6.22 [158]	5.04 [128]	2.20 [56]	0.24 [6]	4.65 [118]	0.20 [5]	2.30 [58.5]	0.20 [5]	M5	2.0 [0.9]

* Total height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

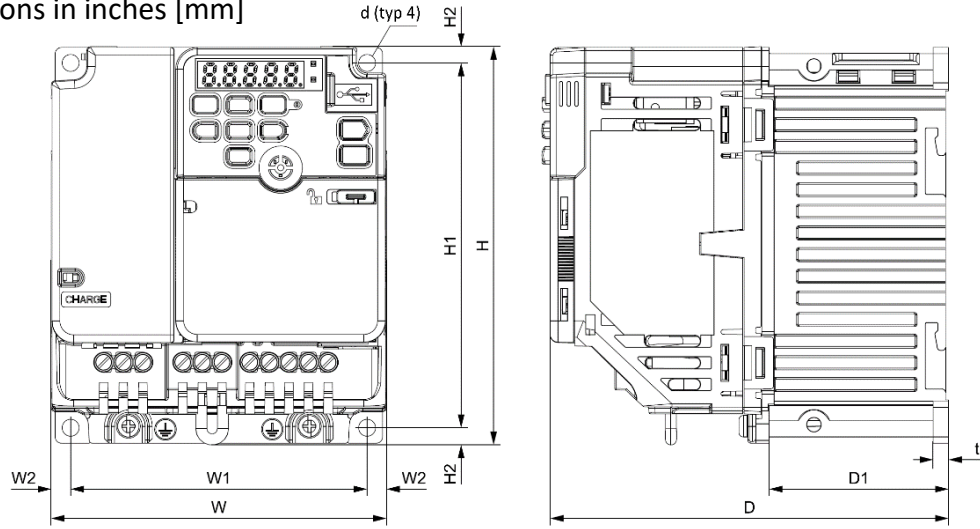


Table 6: GA50 Diagram 2

Model	W	H	H*	D	W1	W2	H1	H2	D1	t1	d	Est. Weight lb [kg]
DR-240001-1B	4.25 [108]	5.04 [128]	7.40 [188]	5.41 [138]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-240002-1B	4.25 [108]	5.04 [128]	7.40 [188]	6.06 [154]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-240003-1B	5.51 [140]	5.04 [128]	7.40 [188]	6.42 [164]	5.04 [128]	0.24 [6]	4.65 [118]	0.20 [5]	2.56 [65]	0.20 [5]	M5	4.6 [2.1]
DR-240005-1B	6.69 [170]	5.04 [128]	7.22 [184]	7.09 [180]	6.22 [158]	0.24 [6]	4.65 [118]	0.20 [5]	2.56 [65]	0.20 [5]	M5	6.4 [2.9]
DR-240002-3B	4.25 [108]	5.04 [128]	7.40 [188]	5.08 [129]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-240003-3B	4.25 [108]	5.04 [128]	7.40 [188]	5.41 [138]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-240005-3B	5.51 [140]	5.04 [128]	7.40 [188]	5.63 [143]	5.04 [128]	0.24 [6]	4.65 [118]	0.20 [5]	2.56 [65]	0.20 [5]	M5	4.4 [2.0]
DR-480F12-3B	4.25 [108]	5.04 [128]	6.26 [159]	3.19 [81]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	0.33 [8.5]	0.20 [5]	M5	1.8 [0.8]
DR-480001-3B	4.25 [108]	5.04 [128]	6.26 [159]	3.90 [99]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	1.04 [26.5]	0.20 [5]	M5	2.0 [0.9]
DR-480002-3B	4.25 [108]	5.04 [128]	6.26 [159]	5.41 [138]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-480003-3B	4.25 [108]	5.04 [128]	7.40 [188]	6.06 [154]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-480004-3B	4.25 [108]	5.04 [128]	7.40 [188]	6.06 [154]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-480005-3B	4.25 [108]	5.04 [128]	7.40 [188]	6.06 [154]	3.78 [96]	0.24 [6]	4.65 [118]	0.20 [5]	2.22 [56.5]	0.20 [5]	M5	3.3 [1.5]
DR-480007-3B	5.51 [140]	5.04 [128]	7.40 [188]	5.63 [143]	5.04 [128]	0.24 [6]	4.65 [118]	0.20 [5]	2.56 [65]	0.20 [5]	M5	4.4 [2.0]

* Total height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

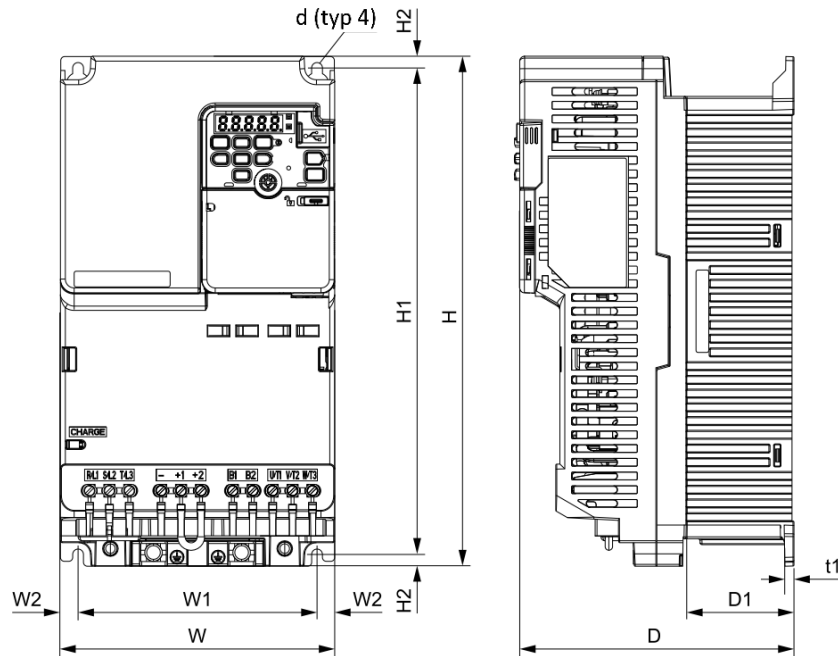


Table 7: GA50 Diagram 3

Model	W	H	H*	D	W1	W2	H1	H2	D1	t1	d	Est. Weight lb [kg]
DR-240007-3B	5.51 [140]	10.24 [260]	11.79 [299.5]	5.51 [140]	4.80 [122]	0.35 [9]	9.75 [248]	0.24 [6]	2.17 [55]	0.20 [5]	M5	7.5 [3.4]
DR-240010-3B	5.51 [140]	10.24 [260]	11.79 [299.5]	5.51 [140]	4.80 [122]	0.35 [9]	9.75 [248]	0.24 [6]	2.17 [55]	0.20 [5]	M5	7.9 [3.6]
DR-240020-3B	7.09 [180]	11.81 [300]	13.44 [341.5]	5.63 [143]	6.30 [160]	0.39 [10]	11.18 [284]	0.31 [8]	2.17 [55]	0.20 [5]	M5	12.1 [5.5]
DR-240025-3B	8.66 [220]	13.78 [350]	15.93 [404.5]	7.36 [187]	7.56 [192]	0.55 [14]	13.23 [336]	0.28 [7]	3.07 [78]	0.20 [5]	M6	16.5 [7.5]
DR-240030-3B	8.66 [220]	13.78 [350]	15.93 [404.5]	7.36 [187]	7.56 [192]	0.55 [14]	13.23 [336]	0.28 [7]	3.07 [78]	0.20 [5]	M6	17.6 [8.0]
DR-480010-3B	5.51 [140]	10.24 [260]	11.79 [299.5]	5.51 [140]	4.80 [122]	0.35 [9]	9.76 [248]	0.24 [6]	2.17 [55]	0.20 [5]	M5	6.6 [3.0]
DR-480015-3B	5.51 [140]	10.24 [260]	11.79 [299.5]	5.51 [140]	4.80 [122]	0.35 [9]	9.76 [248]	0.24 [6]	2.17 [55]	0.20 [5]	M5	7.1 [3.2]
DR-480020-3B	180 [7.09]	11.81 [300]	13.44 [341.5]	5.63 [143]	6.30 [160]	0.39 [10]	11.18 [284]	0.31 [8]	2.17 [55]	0.20 [5]	M5	10.2 [4.6]
DR-480025-3B	180 [7.09]	11.81 [300]	13.44 [341.5]	5.63 [143]	6.30 [160]	0.39 [10]	11.18 [284]	0.31 [8]	2.17 [55]	0.20 [5]	M5	10.6 [4.8]
DR-480030-3B	7.48 [190]	13.78 [350]	15.93 [404.5]	8.03 [204]	6.30 [160]	0.59 [15]	13.23 [336]	0.28 [7]	3.70 [94]	0.20 [5]	M6	14.3 [6.5]
DR-480040-3B	7.48 [190]	13.78 [350]	15.93 [404.5]	8.03 [204]	6.30 [160]	0.59 [15]	13.23 [336]	0.28 [7]	3.70 [94]	0.20 [5]	M6	14.3 [6.5]

* Total height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

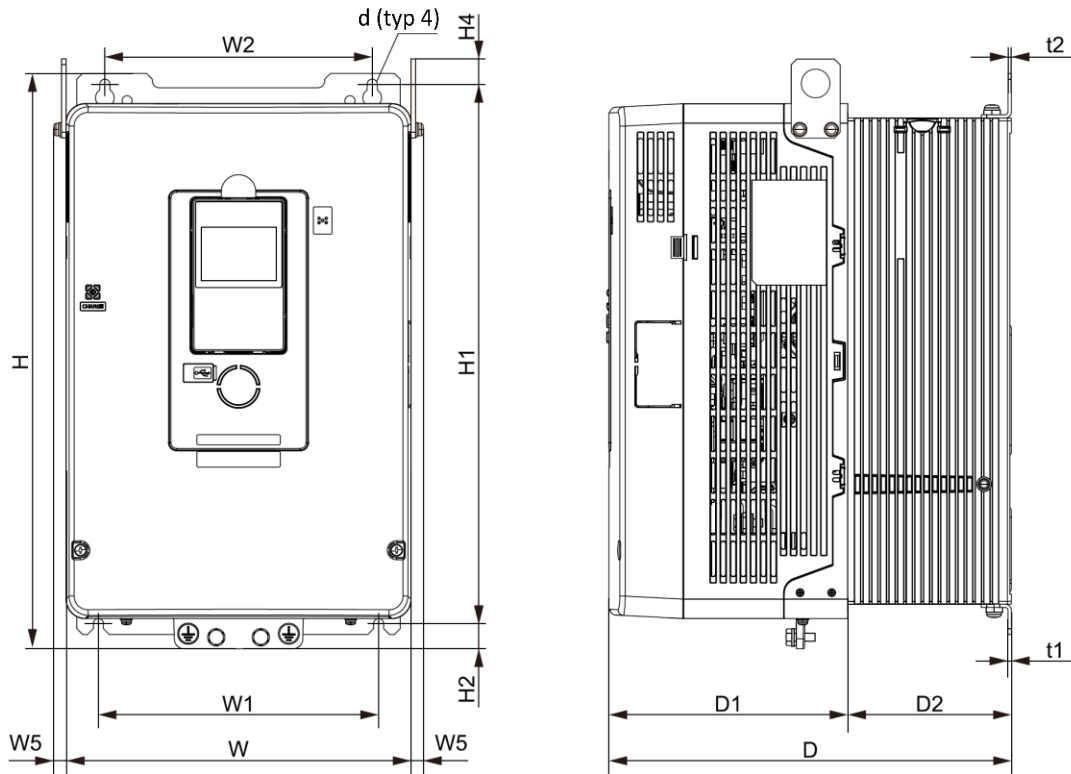


Table 8: GA80 Diagram 1

Model	W	H	D	D1	D2	W1	W2	W5 [max]	H1	H2	H4	t1	t2	d	Est. Weight lb [kg]
DR-240040-3C	9.45 [240]	15.75 [400]	11.02 [280]	6.54 [166]	4.49 [114]	7.68 [195]	7.32 [186]	0.47 [12]	14.76 [375]	0.69 [17.5]	0.69 [17.5]	0.09 [2.3]	0.09 [2.3]	M6	48.50 [22]
DR-480050-3C	9.45 [240]	15.75 [400]	11.02 [280]	6.54 [166]	4.49 [114]	7.68 [195]	7.32 [186]	0.47 [12]	14.76 [375]	0.69 [17.5]	0.69 [17.5]	0.09 [2.3]	0.09 [2.3]	M6	37.48 [17]

Table 9: GA80 Diagram 1

Model	W*	H*
DR-240040-3C	9.61 [244]	19.69 [500]
DR-480050-3C	9.61 [244]	19.69 [500]

* Total width and height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

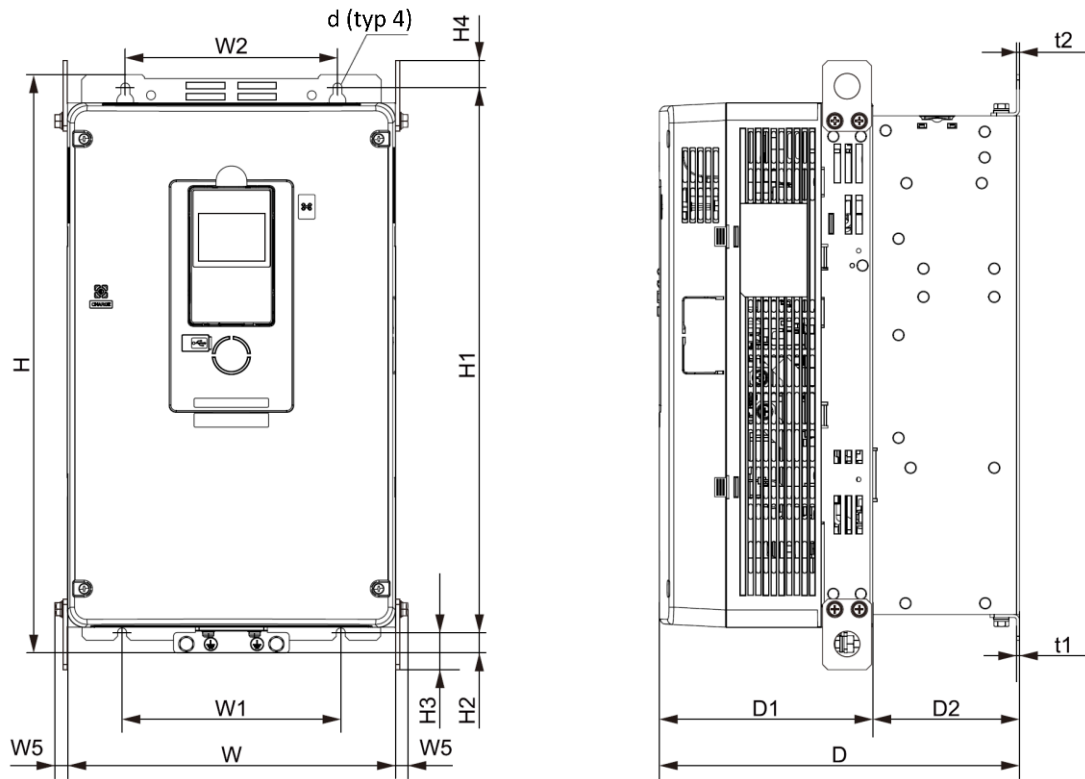


Table 10: GA80 Diagram 2

Model	W	H	D	D1	D2	W1	W2	W5 [max]	H1	H2	H3	H4	t1	t2	d	Est. Weight lb [kg]
DR-240050-3C	10.04 [255]	17.72 [450]	11.02 [280]	6.54 [166]	4.49 [114]	6.69 [170]	6.50 [165]	0.47 [12]	16.69 [424]	0.63 [16]	1.14 [29]	0.83 [21]	0.09 [2.3]	0.09 [2.3]	M6	52.91 [24]
DR-480060-3C	10.04 [255]	17.72 [450]	11.02 [280]	6.54 [166]	4.49 [114]	6.69 [170]	6.50 [165]	0.47 [12]	16.69 [424]	0.63 [16]	1.14 [29]	0.83 [21]	0.09 [2.3]	0.09 [2.3]	M6	48.50 [22]
DR-480075-3C	10.04 [255]	17.72 [450]	11.02 [280]	6.54 [166]	4.49 [114]	6.69 [170]	6.50 [165]	0.47 [12]	16.69 [424]	0.63 [16]	1.14 [29]	0.83 [21]	0.09 [2.3]	0.09 [2.3]	M6	55.11 [25]

Table 11: GA80 Diagram 2

Model	W*	H*
DR-240050-3C	10.20 [259]	22.83 [580]
DR-480060-3C	10.20 [259]	22.83 [580]
DR-480075-3C	10.20 [259]	22.83 [580]

* Total width and height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

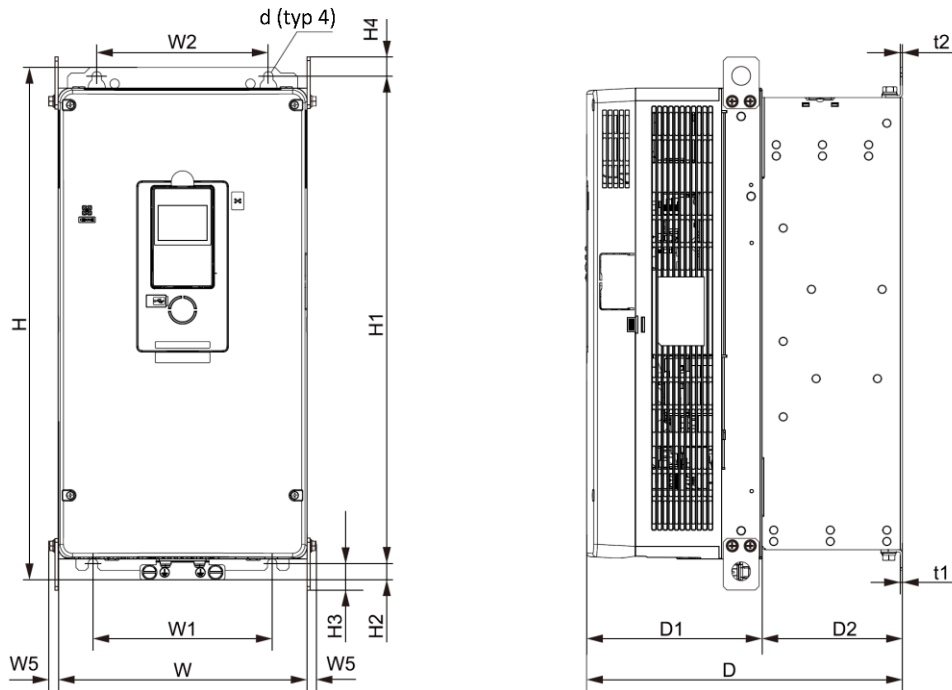


Table 12: GA80 Diagram 3

Model	W	H	D	D1	D2	W1	W2	W5 [max]	H1	H2	H3	H4	t1	t2	d	Est. Weight lb [kg]
DR-240060 -3C	10.39 [264]	21.38 [543]	13.19 [335]	7.32 [186]	5.87 [149]	7.48 [190]	7.17 [182]	0.47 [12]	20.31 [516]	0.69 [18]	1.12 [29]	0.81 [21]	0.09 [2.3]	0.09 [2.3]	M8	85.98 [39]
DR-240075 -3C	10.39 [264]	21.38 [543]	13.19 [335]	7.32 [186]	5.87 [149]	7.48 [190]	7.17 [182]	0.47 [12]	20.31 [516]	0.69 [18]	1.12 [29]	0.81 [21]	0.09 [2.3]	0.09 [2.3]	M8	88.18 [40]
DR-480100 -3C	10.39 [264]	21.38 [543]	13.19 [335]	7.32 [186]	5.87 [149]	7.48 [190]	7.17 [182]	0.47 [12]	20.31 [516]	0.69 [18]	1.12 [29]	0.81 [21]	0.09 [2.3]	0.09 [2.3]	M8	83.77 [38]
DR-480125 -3C	10.39 [264]	21.38 [543]	13.19 [335]	7.32 [186]	5.87 [149]	7.48 [190]	7.17 [182]	0.47 [12]	20.31 [516]	0.69 [18]	1.12 [29]	0.81 [21]	0.09 [2.3]	0.09 [2.3]	M8	85.98 [39]

Table 13: GA80 Diagram 3

Model	W*	H*
DR-240060-3C	10.55 [268]	27.56 [700]
DR-240075-3C	10.55 [268]	30.31 [770]
DR-480100-3C	10.55 [268]	27.56 [700]
DR-480125-3C	10.55 [268]	27.56 [700]

* Total width and height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

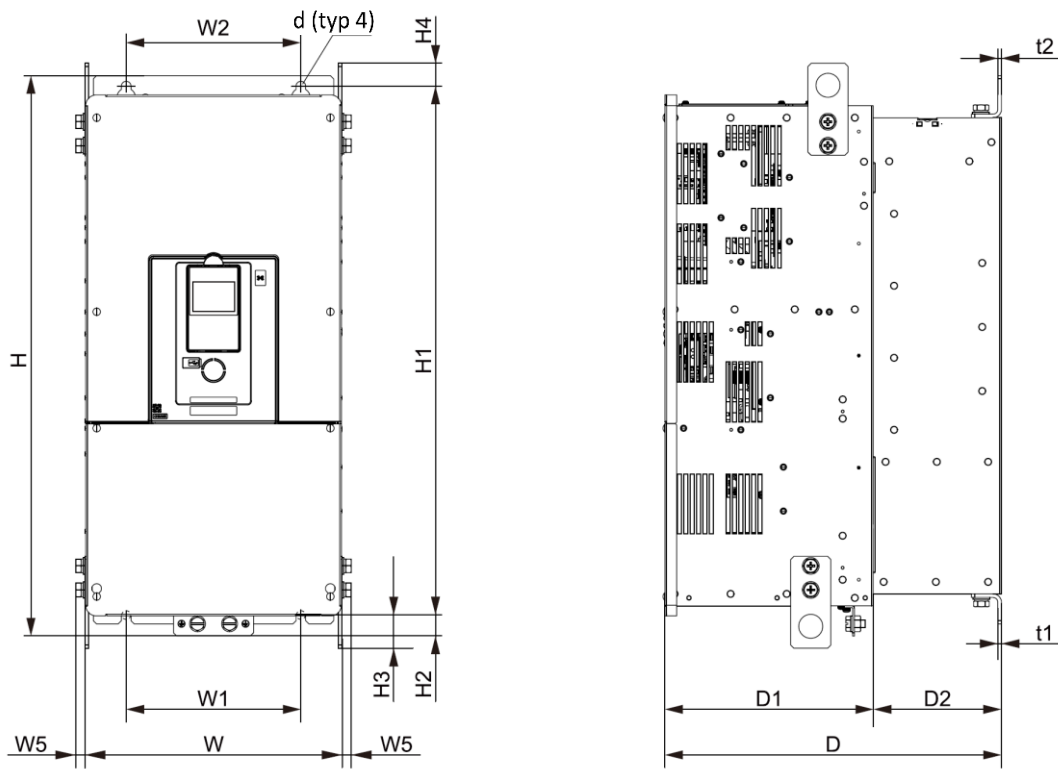


Table 14: GA80 Diagram 4

Model	W	H	D	D1	D2	W1	W2	W5 [max]	H1	H2	H3	H4	t1	t2	d	Est. Weight lb [kg]
DR-240100-3C	12.28 [312]	27.56 [700]	16.54 [420]	10.24 [260]	6.30 [160]	8.58 [218]	8.58 [218]	0.71 [18]	25.94 [659]	1.10 [28]	1.71 [43.5]	1.12 [28.5]	0.18 [4.5]	0.18 [4.5]	M10	147.7 [67]
DR-480150-3C	12.28 [312]	27.56 [700]	16.54 [420]	10.24 [260]	6.30 [160]	8.58 [218]	8.58 [218]	0.71 [18]	25.94 [659]	1.10 [28]	1.71 [43.5]	1.12 [28.5]	0.18 [4.5]	0.18 [4.5]	M10	156.5 [71]
DR-480200-3C	12.28 [312]	27.56 [700]	16.54 [420]	10.24 [260]	6.30 [160]	8.58 [218]	8.58 [218]	0.71 [18]	25.94 [659]	1.10 [28]	1.71 [43.5]	1.12 [28.5]	0.18 [4.5]	0.18 [4.5]	M10	156.5 [71]

Table 15: GA80 Diagram 4

Model	W*	H*
DR-240100-3C	12.44 [316]	36.02 [915]
DR-480150-3C	12.44 [316]	36.02 [915]
DR-480200-3C	12.44 [316]	36.02 [915]

* Total width and height of the VFD if installing the NEMA 1 kit

Dimensions (continued)

Dimensions in inches [mm]

Braking Resistors

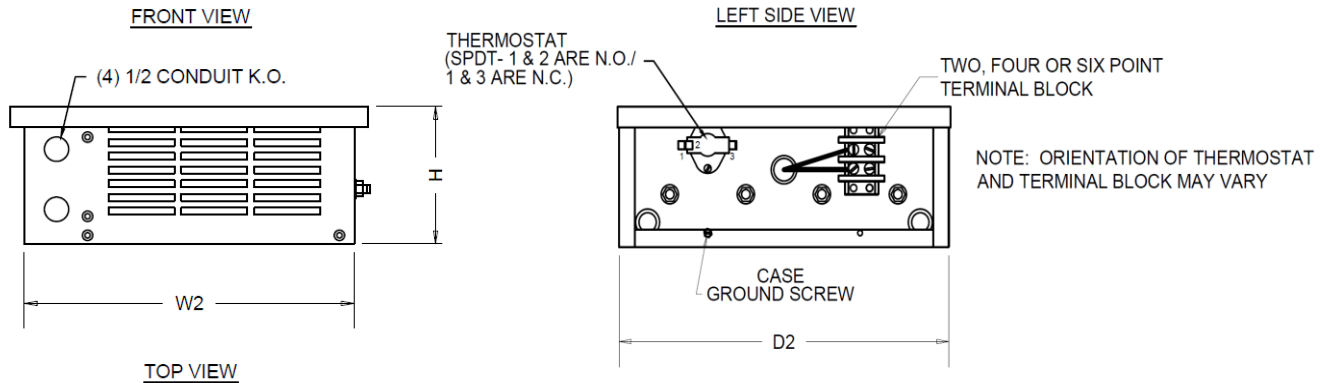
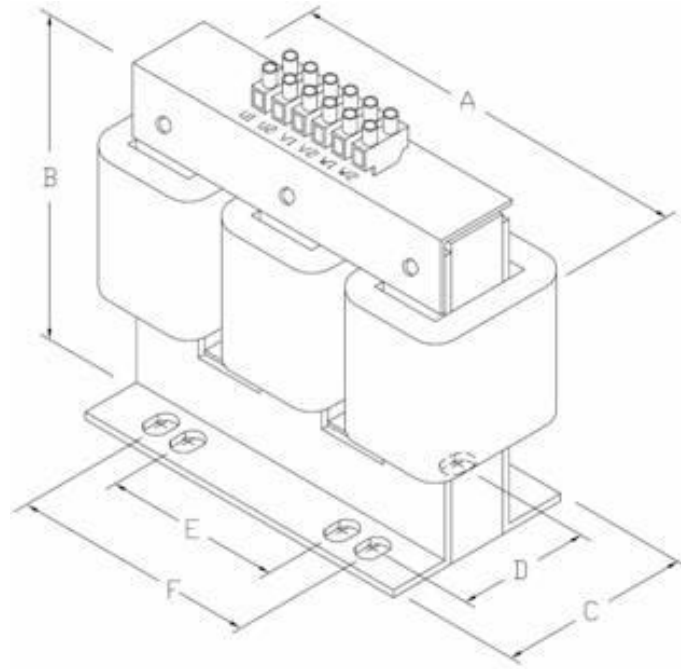


Table 16: Braking Resistors

Enclosure	W1	W2	W3	D1	D2	D3	H
GCE1				5.125 [130.2]	5 [127]	-	5 [127]
GCE2	12.5 [317.5]	12 [304.8]	10.5 [266.7]	7.125 [181.0]	7 [177.8]	4.5 [114.3]	
GCE3				10.125 [257.2]	10 [254]	7.5 [190.5]	
GCE4				13.125 [333.4]	13 [330.2]	10.5 [266.7]	
GCE6	19.5 [495.3]	19 [482.6]	17.5 [444.5]	10.125 [257.2]	10 [254]	7.5 [190.5]	
GCE8				13.125 [333.4]	13 [330.2]	10.5 [266.7]	
GCE9				10.125 [257.2]	10 [254]	7.5 [190.5]	
GCE12	27 [685.8]	26.5 [673.1]	25 [635]	13.125 [333.4]	13 [330.2]	10.5 [266.7]	
GCE15				10.125 [257.2]	16 [406.4]	13.5 [342.9]	
GCE18					10 [254]	7.5 [190.5]	
GCE24	28.5 [723.9]	28 [711.2]	26.5 [673.1]	13.125 [333.4]	13 [330.2]	10.5 [266.7]	10 [254]

Dimensions (continued)

Dimensions in inches [mm]

Line/Load Reactors**Table 17: 240V Single Phase GA50 Drive Reactors**

Line/Load Reactor Part Number	Amps	Induct. (mH)	Watts Loss	A	B	C	D	E	F	Slot Width ∅	Est. Weight lb [kg]
DRLR-2024-F16-1	2	6	10.7	4.2 [107]	4 [102]	2.6 [66]	1.7 [44]	1.4 [37]	2.6 [65]	0.281 [7.14]	3 [1.4]
DRLR-2024-F14-1	2	6	10.7	4.2 [107]	4 [102]	2.6 [66]	1.7 [44]	1.4 [37]	2.6 [65]		3 [1.4]
DRLR-2024-F34-1	4	3	14.5	4.2 [107]	4 [102]	2.6 [66]	2 [50]	1.4 [37]	2.6 [65]		4 [1.8]
DRLR-2024-1-1	8	1.5	19.5	5.9 [150]	4.6 [117]	2.9 [74]	2.1 [53]	2 [51]	3 [76]		7 [3.2]
DRLR-2024-2-1	12	1.25	26	5.9 [150]	5 [127]	3.2 [81]	2.1 [53]	2 [51]	3 [76]		9 [4.1]
DRLR-2024-3-1	12	1.25	26	5.9 [150]	5 [127]	3.2 [81]	2.1 [53]	2 [51]	3 [76]		9 [4.1]
DRLR-2024-5-1	18	0.8	36	5.9 [150]	5.1 [130]	3.2 [81]	2.1 [54]	2 [51]	3 [76]		9 [4.1]

Dimensions (continued)

Dimensions in inches [mm]

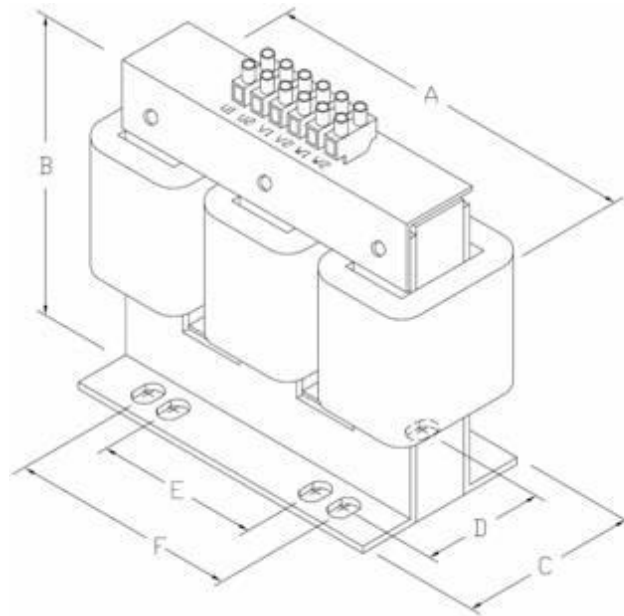
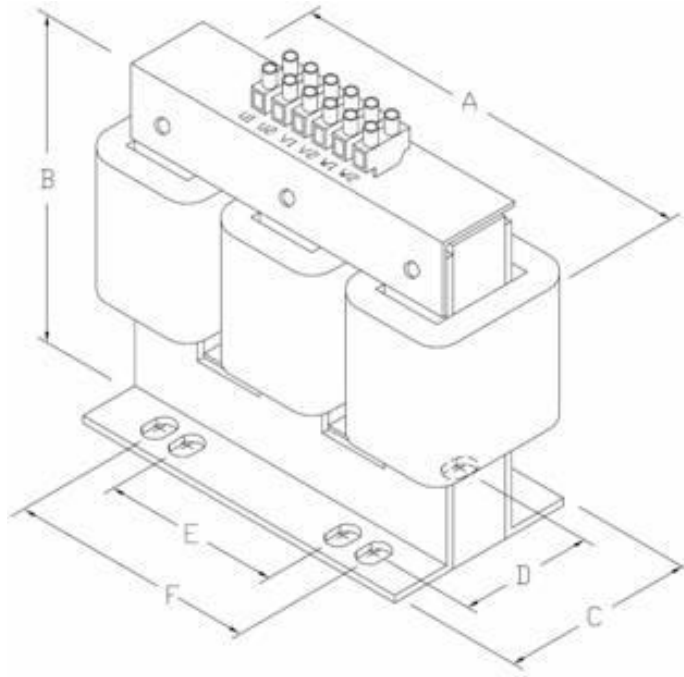


Table 18: 240V Three Phase GA50 Drive Reactors

Line/Load Reactor Part Number	Amps	Induct. (mH)	Watts Loss	A	B	C	D	E	F	Slot Width ∅	Est. Weight lb [kg]
DRLR-2024-F16-1	2	6	10.7	4.2 [107]	4 [102]	2.6 [66]	1.7 [44]	1.4 [37]	2.6 [65]	0.281 [7.14]	3 [1.4]
DRLR-2024-F14-1	2	6	10.7	4.2 [107]	4 [102]	2.6 [66]	1.7 [44]	1.4 [37]	2.6 [65]		3 [1.4]
DRLR-2024-F34-1	4	3	14.5	4.2 [107]	4 [102]	2.6 [66]	2 [50]	1.4 [37]	2.6 [65]		4 [1.8]
DRLR-2024-1-1	8	1.5	19.5	5.9 [150]	4.6 [117]	2.9 [74]	2.1 [53]	2 [51]	3 [76]		7 [3.2]
DRLR-2024-2-1	8	1.5	19.5	5.9 [150]	4.6 [117]	2.9 [74]	2.1 [53]	2 [51]	3 [76]		7 [3.2]
DRLR-2024-3-1	12	1.25	26	5.9 [150]	5.1 [130]	3.2 [81]	2.1 [54]	2 [51]	3 [76]		9 [4.1]
DRLR-2024-5-1	18	0.8	36	5.9 [150]	5.1 [130]	3.2 [81]	2.1 [54]	2 [51]	3 [76]		9 [4.1]
DRLR-2024-7.5-1	25	0.5	48	7.1 [180]	5.7 [145]	3.4 [87]	2.4 [60]	3 [76]	3 [76]	0.375 [9.53]	11 [5]
DRLR-2024-10-1	35	0.4	49	7.1 [180]	5.7 [145]	3.7 [94]	2.6 [66]	3 [76]	3 [76]		14 [6.4]
DRLR-2024-20-1	45	0.3	54	8.9 [226]	7.1 [180]	4.6 [117]	3.2 [80]	3 [76]	4.3 [108]		22 [10]
DRLR-2024-25-1	55	0.25	64	9 [229]	6.9 [175]	5.3 [135]	3.2 [80]	3 [76]	4.3 [108]		24 [10.9]
DRLR-2024-30-1	100	0.15	94	8.9 [226]	7 [178]	6 [152]	3.5 [88]	3.63 [92]	4.3 [108]		29 [13.2]

Dimensions (continued)

Dimensions in inches [mm]

**Table 19: 240V Three Phase GA80 Drive Reactors**

Line/Load Reactor Part Number	Amps	Induct. (mH)	Watts Loss	A	B	C	D	E	F	Slot Width \emptyset	Est. Weight lb [kg]
DRLR-2024-40-1	80	0.2	82	8.9 [226]	6.9 [175]	5.7 [145]	3.5 [88]	3.63 [92]	4.3 [108]	0.375 [9.53]	25 [11.3]
DRLR-2024-50-1	100	0.15	94	8.9 [226]	7 [178]	6 [152]	3.5 [88]	3.63 [92]	4.3 [108]		29 [13.2]
DRLR-2024-60-1	130	0.1	108	9.6 [244]	7.3 [185]	5.9 [150]	3.2 [80]	3 [76]	4.3 [108]		29 [13.2]
DRLR-2024-75-1	160	0.075	116	9.6 [244]	7.2 [183]	6 [152]	3.2 [80]	3.63 [92]	4.3 [108]		41 [18.6]
DRLR-2024-100-1	200	0.055	124	9.6 [244]	7.2 [183]	7.1 [180]	4.2 [106]	3.63 [92]	4.3 [108]		38 [17.2]

Dimensions (continued)

Dimensions in inches [mm]

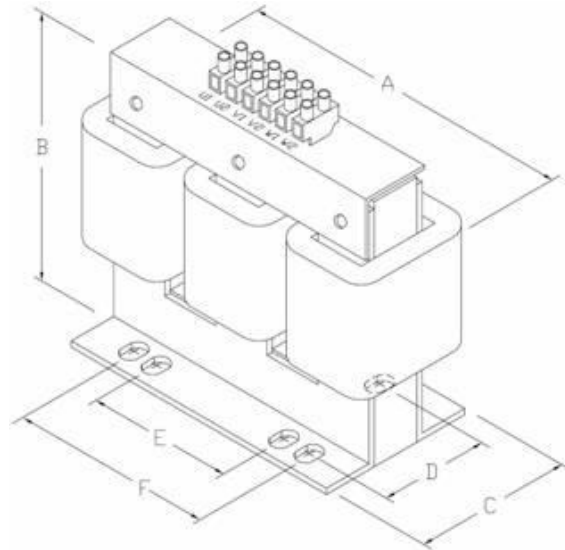
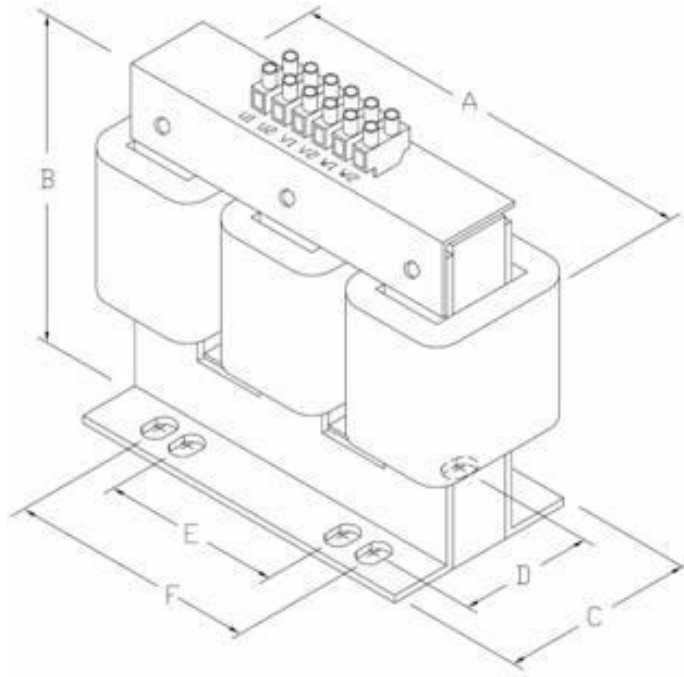


Table 20: 480V Three Phase GA50 Drive Reactors

Line/Load Reactor Part Number	Amps	Induct. (mH)	Watts Loss	A	B	C	D	E	F	Slot Width \emptyset	Est. Weight lb [kg]
DRLR-3848-F12-1	1	18	8.0	4.4 [112]	4.1 [104]	2.8 [7]	2 [50]	1.4 [37]	2.6 [65]	0.281 [7.14]	4 [1.8]
DRLR-3848-1-1	2	12	7.5	4.2 [107]	4 [102]	2.6 [66]	2 [50]	1.4 [37]	2.6 [65]		4 [1.8]
DRLR-3848-2-1	4	6.5	20	4.2 [107]	4 [102]	2.6 [66]	2 [50]	1.4 [37]	2.6 [65]		4 [1.8]
DRLR-3848-3-1	8	5	25.3	5.9 [150]	4.7 [119]	3.3 [84]	2.6 [67]	2 [51]	3 [76]		11 [5]
DRLR-3848-4-1	8	3	29	5.9 [150]	4.6 [117]	2.9 [74]	2.1 [53]	2 [51]	3 [76]		8 [3.6]
DRLR-3848-5-1	8	3	29	5.9 [150]	4.6 [117]	2.9 [74]	2.1 [53]	2 [51]	3 [76]		8 [3.6]
DRLR-3848-7.5-1	8	3	29	5.9 [150]	4.6 [117]	2.9 [74]	2.1 [53]	2 [51]	3 [76]		8 [3.6]
DRLR-3848-10-1	18	1.5	43	5.9 [150]	5.1 [130]	3.5 [89]	2.5 [63]	2 [51]	3 [76]		12 [5.4]
DRLR-3848-15-1	25	1.2	52	7.1 [180]	5.8 [147]	3.4 [87]	2.4 [60]	3 [76]	3 [76]	0.375 [9.53]	20 [9.1]
DRLR-3848-20-1	25	1.2	52	7.1 [180]	5.8 [147]	3.4 [87]	2.4 [60]	3 [76]	3 [76]		20 [9.1]
DRLR-3848-25-1	35	0.8	54	7.1 [180]	5.8 [147]	3.7 [94]	2.8 [70]	3 [76]	3 [76]		16 [7.3]
DRLR-3848-30-1	35	0.8	54	7.1 [180]	5.8 [147]	3.7 [94]	2.8 [70]	3 [76]	3 [76]		16 [7.3]
DRLR-3848-40-1	55	0.5	67	9 [229]	6.9 [175]	5.3 [135]	3.2 [80]	3 [76]	4.3 [108]		26 [11.8]

Dimensions (continued)

Dimensions in inches [mm]

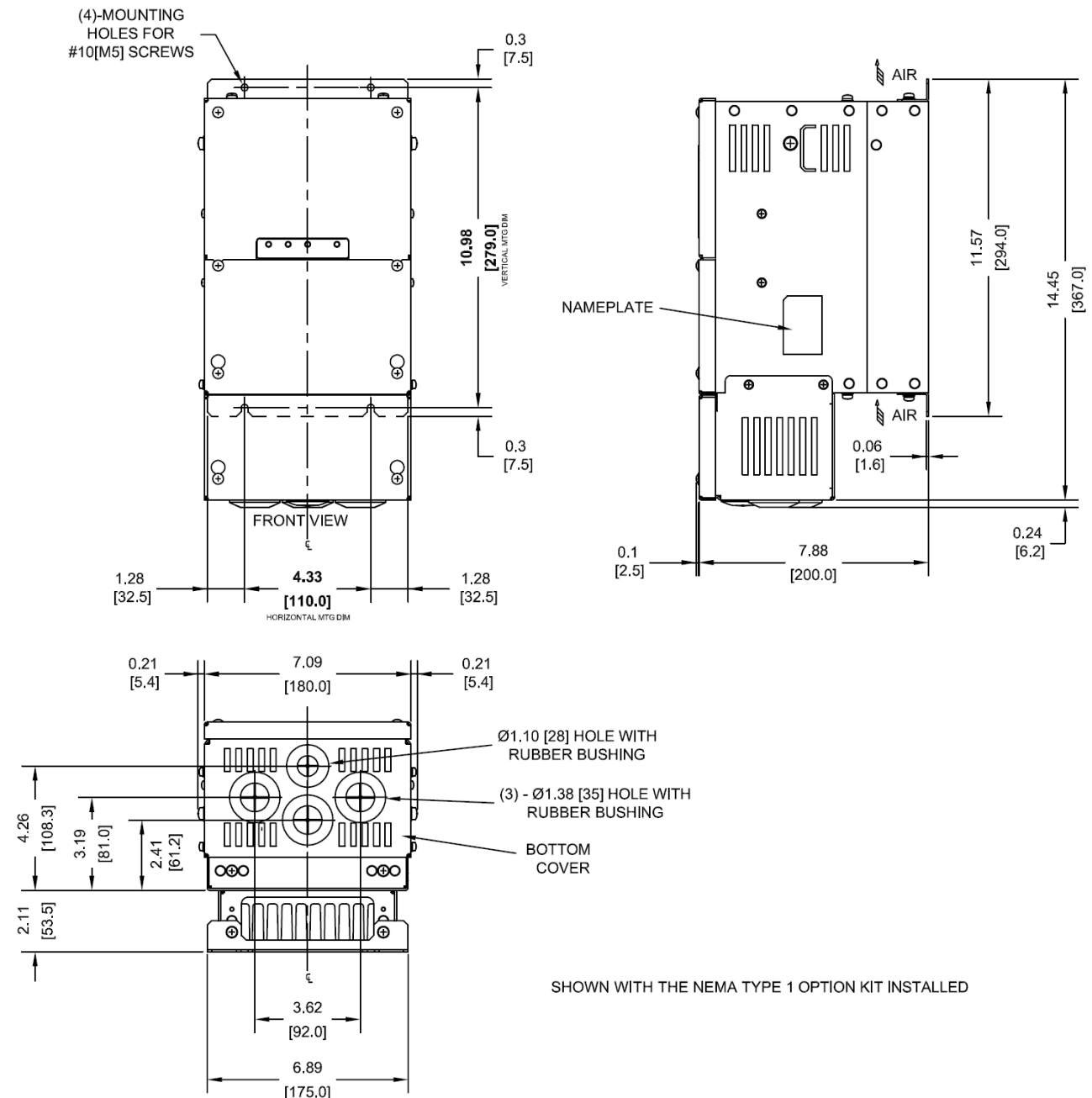
**Table 21: 480V Three Phase GA80 Drive Reactors**

Line/Load Reactor Part Number	Amps	Induct. (mH)	Watts Loss	A	B	C	D	E	F	Slot Width Ø	Est. Weight lb [kg]
DRLR-3848-50-1	55	0.5	67	9 [229]	6.9 [175]	5.3 [135]	3.2 [80]	3 [76]	4.3 [108]	0.375 [9.53]	26 [11.8]
DRLR-3848-60-1	80	0.4	86	8.9 [226]	7.1 [180]	5.7 [145]	3.5 [88]	3.63 [92]	4.3 [108]		33 [15]
DRLR-3848-75-1	80	0.4	86	8.9 [226]	7.1 [180]	5.7 [145]	3.5 [88]	3.63 [92]	4.3 [108]		33 [15]
DRLR-3848-100-1	100	0.3	84	8.9 [226]	7 [178]	6.6 [168]	3.7 [93]	3.63 [92]	4.3 [108]		37 [16.8]
DRLR-3848-125-1	130	0.2	180	9.6 [244]	7.2 [183]	6 [152]	3.7 [93]	3.63 [92]	4.3 [108]		43 [19.5]
DRLR-3848-150-1	160	0.15	149	10.8 [274]	8.4 [213]	6.7 [170]	3.5 [88]	3.63 [92]	5.6 [142]		54 [24.5]
DRLR-3848-200-1	250	0.09	231	10.8 [274]	8.5 [216]	7.6 [193]	5.2 [131]	4.6 [117]	5.6 [142]		80 [36.3]

Dimensions (continued)

Dimensions in inches [mm]

Braking Units



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