

#### DG1 General Purpose Enclosed Drive



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### PowerXL DG1 Series Enclosed Drives

#### Product Description

The DG1 Enclosed Drive family incorporates the latest Eaton drive technology into pre-engineered enclosed solutions covering the industry's most common applications. Using the benefits of the PowerXL DG1, the enclosed family provides enhanced user safety with the Safe Torque feature as well as industry-leading energy efficiency from the patented Active Energy Control algorithm. Eaton further raises the bar by providing customers with industry best lead times with the Rapid Response System. This system allows customers to select from 9 million standard configurations that have been pre-engineered with each configuration having a set lead time. The Rapid Response System delivers an improved quotation process and a faster delivery.

#### Features and Benefits

- Dual rated for both constant torque (CT) / high overload (I<sub>H</sub>) and variable torque (VT) / low overload applications
- Optional Brake Chopper for external braking applications
- Available circuit breaker, motor circuit protector, fused disconnect, isolation fusing and surge protection device options to provide input power protection
- Optional 3% input and output reactors provide a reduction in voltage and current harmonics on both line and load side
- Bypass options include a standard three-contactor design and a reduced voltage soft starter design
- Output contactor option provides a means for positive disconnection of the drive output from the motor terminals
- MotoRX and dV/dt filter options are used to reduce transients voltages at the motor terminals
- Customizable cover control options
- Padlockable disconnect

#### Standards and Certifications

- UL 508C



- The PowerXL DG1 comes standard with the following communication protocols:

- EtherNet/IP
- Modbus/TCP
- Modbus RTU
- BACnet MS/TP

#### Communication Options

- PROFIBUS-DP
- LonWorks
- CANopen
- DeviceNet

#### Enclosure Ratings

- NEMA Type 1
- NEMA Type 12
- NEMA Type 3R

#### Mounting

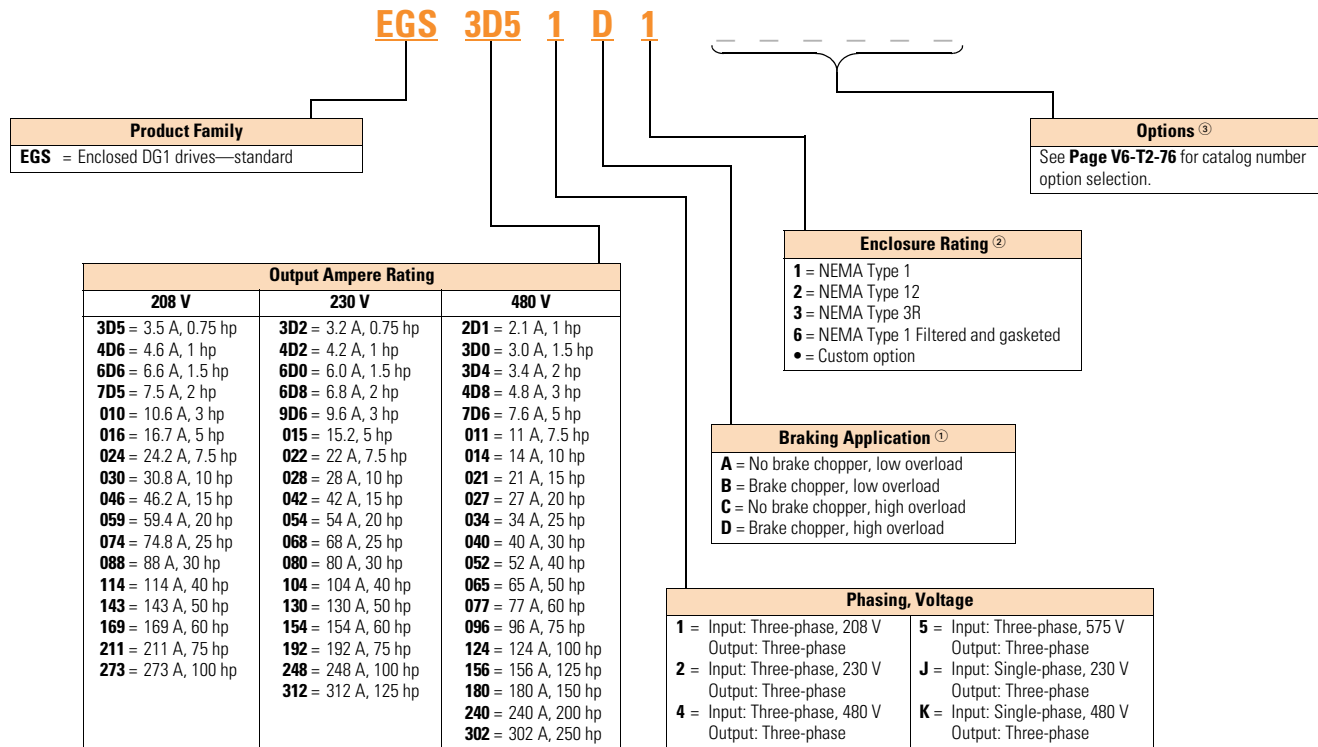
- Wall mount
- Floor mount: 12-inch legs
- Floor mount: 22-inch legs

#### Product Range

- 208 V: 0.75–100 hp
- 230 V: 0.75–125 hp
- 480 V: 1–250 hp
- 230 V single-phase: 1–30 hp
- 480 V single-phase: 1.5–60 hp

**Catalog Number Selection**

Catalog Number Selection is for reference only. Not all option combinations may be available.

**DG1 Enclosed—Base Catalog Number****Notes**

- ① Brake chopper is a factory-installed option only. Braking resistors sold separately. See DG1 drives starting on Page V6-T2-59 for selection.
- ② Additional enclosure options including NEMA 4, 4X, 7 and 9 are available. Please contact the factory for configuration and pricing.
- ③ Part number configuration continued on the following page.

# 2.6

## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

Catalog Number Selection is for reference only. Not all option combinations may be available.

#### DG1 Enclosed—Catalog Number Options

2

**EGS 3D5 1 D 1**

**2 0 0 B 1 0 0 0 0**

**Base Catalog Number Example**  
See **Page V6-T2-75** for base catalog number selection.

**Power Disconnect Options**

- 0 = None
- 1 = MCP disconnect ①
- 2 = Circuit breaker
- 3 = Circuit breaker/isolation fusing
- 4 = Circuit breaker/isolation fusing/3% input reactor
- 5 = Circuit breaker/isolation fusing/SPD
- 6 = Circuit breaker/isolation fusing/SPD/3% input reactor
- 7 = Circuit breaker/3% input reactor
- 8 = Circuit breaker/SPD
- 9 = Circuit breaker/SPD/3% input reactor
- A = Fused disconnect
- B = Fused disconnect/SPD
- C = Fused disconnect/SPD/3% input reactor
- D = Fused disconnect/3% input reactor
- E = Isolation fuses
- F = Isolation fuses/3% input reactor
- G = Isolation fuses/SPD
- H = Isolation fuses/SPD/3% input reactor
- = Custom option ②

**Bypass Options ③**

- 0 = None
- 1 = Manual HOA bypass
- 2 = Manual HOA bypass/isolation fusing
- 3 = Manual HOA bypass/isolation fusing/3% input reactor
- 4 = Manual HOA bypass/isolation fusing/SPD
- 5 = Manual HOA bypass/isolation fusing/SPD/3% input reactor
- 6 = Manual HOA bypass/3% input reactor
- 7 = Manual HOA bypass/SPD
- 8 = Manual HOA bypass/SPD/3% input reactor
- H = Manual HOA RVSS bypass
- J = Manual HOA RVSS bypass/isolation fusing
- K = Manual HOA RVSS bypass/isolation fusing/3% input reactor
- L = Manual HOA RVSS bypass/isolation fusing/SPD
- M = Manual HOA RVSS bypass/isolation fusing/SPD/3% input reactor
- N = Manual HOA RVSS bypass/3% input reactor
- P = Manual HOA RVSS bypass/SPD
- R = Manual HOA RVSS bypass/SPD/3% input reactor
- = Custom option ②

**Output Power Options ④**

- 0 = None
- A = Output contactor
- B = 3% Output reactor
- D = dV/dt filter
- E = 3% Output Reactor/output contactor
- G = dV/dt/output contactor
- = Custom option ②

**Control Options ⑤**

- 0 = None
- 1 = Speed pot
- 2 = Start-stop pushbutton
- 3 = Start-stop pushbutton with speed pot
- A = HOA switch
- B = Start-stop pushbutton with speed pot & HOA switch
- C = Start-stop pushbutton with HOA switch
- D = HOA switch with speed pot
- = Custom option ②

**Option Boards 2**  
Same options and codes as Option Boards 1

**Option Boards 1**

- 0 = No option
- 1 = 3 x DI, 3 x DO, 1 Thermistor, 24 Vdc/EXT
- 2 = 1 x AI, 2 x AO (isolated to control board)
- 3 = 3 x relay dry contact (2NO + 1NO/NC)
- 4 = 3 x PT100 RTD thermistor input
- 5 = 6 DI 240 Vac input
- = Custom option ②

**Communication Options**

- 0 = No option
- 1 = PROFIBUS-DP
- 3 = CANopen (slave)
- 4 = DeviceNet
- 5 = PROFIBUS-DP (D9 connector)
- D = SmartWire-DT
- = Custom option ②

**Enclosure Options**

- 0 = None
- 1 = Floor stand—12 inches
- 2 = Floor stand—22 inches
- A = Space heater
- B = Space heater & 12-inch floor stands
- C = Space heater & 22-inch floor stands
- = Custom option ②

**Light Options ⑤**

- 0 = None
- 1 = Non-bypass light kit—Power On, Run, Fault
- 2 = Bypass light kit—On, VFD Run, Fault, Bypass Run
- = Custom option ②

**Notes**

- ① HMCP disconnect option required and only available when bypass is selected.
- ② More options are available as Engineered to Order through the Bid Manager tool.
- ③ All bypass options include third contactor for drive isolation when in bypass mode.
- ④ Output contactor not available with bypass. Bypass comes standard with output contactor.
- ⑤ Pilot devices are 22 mm standard. 30 mm options are available as engineered to order through the Bid Manager tool.

## Production Selection

## DG1 Enclosed Drive



## 208 V Drives—Constant Torque (CT)/High Overload (H) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type 1	NEMA Type 12	NEMA Type 3R
			Base Catalog Number <sup>①</sup>	Base Catalog Number <sup>①</sup>	Base Catalog Number <sup>①</sup>
0.75	3.5	1	EGS3D51D1	EGS3D51D2	EGS3D51D3
1	4.6	1	EGS4D61D1	EGS4D61D2	EGS4D61D3
1.5	6.6	1	EGS6D61D1	EGS6D61D2	EGS6D61D3
2	7.5	1	EGS7D51D1	EGS7D51D2	EGS7D51D3
3	10.6	1	EGS0101D1	EGS0101D2	EGS0101D3
5	16.7	2	EGS0161D1	EGS0161D2	EGS0161D3
7.5	24.2	2	EGS0241D1	EGS0241D2	EGS0241D3
10	30.8	3	EGS0301D1	EGS0301D2	EGS0301D3
15	46.2	3	EGS0461D1	EGS0461D2	EGS0461D3
20	59.4	4	EGS0591C1	EGS0591C2	EGS0591C3
25	74.8	4	EGS0741C1	EGS0741C2	EGS0741C3
30	88	4	EGS0881C1	EGS0881C2	EGS0881C3
40	114	5	EGS1141C1	EGS1141C2	EGS1141C3
50	143	5	EGS1431C1	EGS1431C2	EGS1431C3
60	169	5	EGS1691C1	EGS1691C2	EGS1691C3
75 <sup>②</sup>	211	6	EGS2111C1 <sup>②</sup>	EGS2111C2 <sup>②</sup>	EGS2111C3 <sup>②</sup>
100 <sup>②③</sup>	261 <sup>③</sup>	6	EGS2611C1 <sup>②</sup>	EGS2611C2 <sup>②</sup>	EGS2611C3 <sup>②</sup>

## DG1 Enclosed Drive



## 208 V Drives—Variable Torque (VT)/Low Overload (L) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type 1	NEMA Type 12	NEMA Type 3R
			Base Catalog Number <sup>①</sup>	Base Catalog Number <sup>①</sup>	Base Catalog Number <sup>①</sup>
1	4.6	1	EGS4D61B1	EGS4D61B2	EGS4D61B3
1.5	6.6	1	EGS6D61B1	EGS6D61B2	EGS6D61B3
2	7.5	1	EGS7D51B1	EGS7D51B2	EGS7D51B3
3	10.6	1	EGS0101B1	EGS0101B2	EGS0101B3
5	16.7	2	EGS0161B1	EGS0161B2	EGS0161B3
7.5	24.2	2	EGS0241B1	EGS0241B2	EGS0241B3
10	30.8	2	EGS0301B1	EGS0301B2	EGS0301B3
15	46.2	3	EGS0461B1	EGS0461B2	EGS0461B3
20	59.4	3	EGS0591B1	EGS0591B2	EGS0591B3
25	74.8	4	EGS0741A1	EGS0741A2	EGS0741A3
30	88	4	EGS0881A1	EGS0881A2	EGS0881A3
40	114	4	EGS1141A1	EGS1141A2	EGS1141A3
50	143	5	EGS1431A1	EGS1431A2	EGS1431A3
60	169	5	EGS1691A1	EGS1691A2	EGS1691A3
75	211	5	EGS2111A1	EGS2111A2	EGS2111A3
100 <sup>②</sup>	273	6	EGS2731A1 <sup>②</sup>	EGS2731A2 <sup>②</sup>	EGS2731A3 <sup>②</sup>

**Notes**

<sup>①</sup> Table is for base catalog number reference only. For complete catalog number selection, see **Page V6-T2-76**.

<sup>②</sup> Available in 2017.

<sup>③</sup> These units are current rated. They do not meet NEC ampere rating at this horsepower.

## DG1 Enclosed Drive



## 230 V Drives—Constant Torque (CT)/High Overload (H) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type		
			1 Base Catalog Number ①	12 Base Catalog Number ①	3R Base Catalog Number ①
0.75	3.2	1	EGS3D22D1	EGS3D22D2	EGS3D22D3
1	4.2	1	EGS4D22D1	EGS4D22D2	EGS4D22D3
1.5	6	1	EGS6D02D1	EGS6D02D2	EGS6D02D3
2	6.8	1	EGS6D82D1	EGS6D82D2	EGS6D82D3
3	9.6	1	EGS9D62D1	EGS9D62D2	EGS9D62D3
5	15.2	2	EGS0152D1	EGS0152D2	EGS0152D3
7.5	22	2	EGS0222D1	EGS0222D2	EGS0222D3
10	28	3	EGS0282D1	EGS0282D2	EGS0282D3
15	42	3	EGS0422D1	EGS0422D2	EGS0422D3
20	54	4	EGS0542C1	EGS0542C2	EGS0542C3
25	68	4	EGS0682C1	EGS0682C2	EGS0682C3
30	80	4	EGS0802C1	EGS0802C2	EGS0802C3
40	104	5	EGS1042C1	EGS1042C2	EGS1042C3
50	130	5	EGS1302C1	EGS1302C2	EGS1302C3
60	154	5	EGS1542C1	EGS1542C2	EGS1542C3
75 ②	192	6	EGS1922C1 ②	EGS1922C2 ②	EGS1922C3 ②
100 ②	248	6	EGS2482C1 ②	EGS2482C2 ②	EGS2482C3 ②

## DG1 Enclosed Drive



## 230 V Drives—Variable Torque (VT)/Low Overload (L) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type		
			1 Base Catalog Number ①	12 Base Catalog Number ①	3R Base Catalog Number ①
1	4.2	1	EGS4D22B1	EGS4D22B2	EGS4D22B3
1.5	6	1	EGS6D02B1	EGS6D02B2	EGS6D02B3
2	6.8	1	EGS6D82B1	EGS6D82B2	EGS6D82B3
3	9.6	1	EGS9D62B1	EGS9D62B2	EGS9D62B3
5	15.2	2	EGS0152B1	EGS0152B2	EGS0152B3
7.5	22	2	EGS0222B1	EGS0222B2	EGS0222B3
10	28	2	EGS0282B1	EGS0282B2	EGS0282B3
15	42	3	EGS0422B1	EGS0422B2	EGS0422B3
20	54	3	EGS0542B1	EGS0542B2	EGS0542B3
25	68	4	EGS0682A1	EGS0682A2	EGS0682A3
30	80	4	EGS0802A1	EGS0802A2	EGS0802A3
40	104	4	EGS1042A1	EGS1042A2	EGS1042A3
50	130	5	EGS1302A1	EGS1302A2	EGS1302A3
60	154	5	EGS1542A1	EGS1542A2	EGS1542A3
75	192	5	EGS1922A1	EGS1922A2	EGS1922A3
100 ②	248	6	EGS2482A1 ②	EGS2482A2 ②	EGS2482A3 ②
125 ②	312	6	EGS3122A1 ②	EGS3122A2 ②	EGS3122A3 ②

**Notes**① Table is for base catalog number reference only. For complete catalog number selection, see [Page V6-T2-76](#).

② Available in 2017.

## DG1 Enclosed Drive



## 480 V Drives—Constant Torque (CT)/High Overload (IH) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type 1 Base Catalog Number ①	NEMA Type 12 Base Catalog Number ①	NEMA Type 3R Base Catalog Number ①
1	2.1	1	EGS2D14D1	EGS2D14D2	EGS2D14D3
1.5	3	1	EGS3D04D1	EGS3D04D2	EGS3D04D3
2	3.4	1	EGS3D44D1	EGS3D44D2	EGS3D44D3
3	4.8	1	EGS4D84D1	EGS4D84D2	EGS4D84D3
5	7.6	1	EGS7D64D1	EGS7D64D2	EGS7D64D3
7.5	11	2	EGS0114D1	EGS0114D2	EGS0114D3
10	14	2	EGS0144D1	EGS0144D2	EGS0144D3
15	21	2	EGS0214D1	EGS0214D2	EGS0214D3
20	27	3	EGS0274D1	EGS0274D2	EGS0274D3
25	34	3	EGS0344D1	EGS0344D2	EGS0344D3
30	40	3	EGS0404D1	EGS0404D2	EGS0404D3
40	52	4	EGS0524C1	EGS0524C2	EGS0524C3
50	65	4	EGS0654C1	EGS0654C2	EGS0654C3
60	77	4	EGS0774C1	EGS0774C2	EGS0774C3
75	96	5	EGS0964C1	EGS0964C2	EGS0964C3
100	124	5	EGS1244C1	EGS1244C2	EGS1244C3
125	156	5	EGS1564C1	EGS1564C2	EGS1564C3
150 ②	180	6	EGS1804C1 ②	EGS1804C2 ②	EGS1804C3 ②
200 ②	240	6	EGS2404C1 ②	EGS2404C2 ②	EGS2404C3 ②

## DG1 Enclosed Drive



## 480 V Drives—Variable Torque (VT)/Low Overload (L) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type 1 Base Catalog Number ①	NEMA Type 12 Base Catalog Number ①	NEMA Type 3R Base Catalog Number ①
1.5	3	1	EGS3D04B1	EGS3D04B2	EGS3D04B3
2	3.4	1	EGS3D44B1	EGS3D44B2	EGS3D44B3
3	4.8	1	EGS4D84B1	EGS4D84B2	EGS4D84B3
5	7.6	1	EGS7D64B1	EGS7D64B2	EGS7D64B3
7.5	11	1	EGS0114B1	EGS0114B2	EGS0114B3
10	14	2	EGS0144B1	EGS0144B2	EGS0144B3
15	21	2	EGS0214B1	EGS0214B2	EGS0214B3
20	27	2	EGS0274B1	EGS0274B2	EGS0274B3
25	34	3	EGS0344B1	EGS0344B2	EGS0344B3
30	40	3	EGS0404B1	EGS0404B2	EGS0404B3
40	52	3	EGS0524B1	EGS0524B2	EGS0524B3
50	65	4	EGS0654A1	EGS0654A2	EGS0654A3
60	77	4	EGS0774A1	EGS0774A2	EGS0774A3
75	96	4	EGS0964A1	EGS0964A2	EGS0964A3
100	124	5	EGS1244A1	EGS1244A2	EGS1244A3
125	156	5	EGS1564A1	EGS1564A2	EGS1564A3
150	180	5	EGS1804A1	EGS1804A2	EGS1804A3
200 ②	240	6	EGS2404A1 ②	EGS2404A2 ②	EGS2404A3 ②
250 ②	302	6	EGS3024A1 ②	EGS3024A2 ②	EGS3024A3 ②

**Notes**

① Table is for base catalog number reference only. For complete catalog number selection, see **Page V6-T2-76**.

② Available in 2017.

## DG1 Enclosed Drive



## 230 V Single-Phase Drives—Variable Torque (VT)/Low Overload (L) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type 1 Base Catalog Number <sup>①</sup>	NEMA Type 12 Base Catalog Number <sup>①</sup>	NEMA Type 3R Base Catalog Number <sup>①</sup>
<b>Low Overload (VT) Enclosed Drives</b>					
0.75	3.2	1	EGS3D2JB1	EGS3D2JB2	EGS3D2JB3
1	4.2	1	EGS4D2JB1	EGS4D2JB2	EGS4D2JB3
1.5	6	2	EGS6D0JB1	EGS6D0JB2	EGS6D0JB3
2	6.8	2	EGS6D8JB1	EGS6D8JB2	EGS6D8JB3
3	9.6	2	EGS9D6JB1	EGS9D6JB2	EGS9D6JB3
5	15.2	2	EGS015JB1	EGS015JB2	EGS015JB3
7.5	22	3	EGS022JB1	EGS022JB2	EGS022JB3
10	28	3	EGS028JB1	EGS028JB2	EGS028JB3
15	42	4	EGS042JB1	EGS042JB2	EGS042JB3
20	54	4	EGS054JB1	EGS054JB2	EGS054JB3
25	68	5	EGS068JA1	EGS068JA2	EGS068JA3
30	80	5	EGS080JA1	EGS080JA2	EGS080JA3
40	104	5	EGS104JA1	EGS104JA2	EGS104JA3

## DG1 Enclosed Drive



## 480 V Single-Phase Drives—Variable Torque (VT)/Low Overload (L) Enclosed Drives

hp	Current (A)	Drive Frame Size	NEMA Type 1 Base Catalog Number <sup>①</sup>	NEMA Type 12 Base Catalog Number <sup>①</sup>	NEMA Type 3R Base Catalog Number <sup>①</sup>
<b>Low Overload (VT) Enclosed Drives</b>					
1	2.1	1	EGS2D1KB1	EGS2D1KB2	EGS2D1KB3
1.5	3	1	EGS3D0KB1	EGS3D0KB2	EGS3D0KB3
2	3.4	1	EGS3D4KB1	EGS3D4KB2	EGS3D4KB3
3	4.8	1	EGS4D8KB1	EGS4D8KB2	EGS4D8KB3
5	7.6	2	EGS7D6KB1	EGS7D6KB2	EGS7D6KB3
7.5	11	2	EGS011KB1	EGS011KB2	EGS011KB3
10	14	2	EGS014KB1	EGS014KB2	EGS014KB3
15	21	3	EGS021KB1	EGS021KB2	EGS021KB3
20	27	4	EGS027KB1	EGS027KB2	EGS027KB3
25	34	4	EGS034KB1	EGS034KB2	EGS034KB3
30	40	4	EGS040KB1	EGS040KB2	EGS040KB3
40	52	5	EGS052KB1	EGS052KB2	EGS052KB3
50	65	5	EGS065KA1	EGS065KA2	EGS065KA3
60	77	5	EGS077KA1	EGS077KA2	EGS077KA3

**Note**

<sup>①</sup> Table is for base catalog number reference only. For complete catalog number selection, see [Page V6-T2-76](#).

## Enclosure Selection

### EGS

Enclosure selection charts are based on physical space limitations only and only to be used as a reference. For actual enclosure sizing, refer to Bid Manager.

**Note:** Standard enclosure sizing includes dedicated space for a circuit breaker or fusible disconnect, CPT, SPD, heater/thermostat, control relay and terminal blocks.

### Standard Enclosure X-Space

Enclosure Size	Frame 1	Frame 2	Frame 3	Frame 4	Frame 5
AX	2	2	2	—	—
BX	4	4	4	4	—
CX	7	7	7	7	7
DX	18	18	18	18	18

### Standard Power Options X-Space

Power Options	Frame 1	Frame 2	Frame 3	Frame 4	Frame 5
Isolation fuses	1	1	1	1	1
3% Input reactor	2	2	3	5	6
3% Output reactor	1	1	3	5	6
dV/dt filter	3	3	3	5	6
Output contactor	1	1	1	1	1

**Note:** Bypass enclosure sizing includes dedicated space for a MCP, CPT, input contactor, output bypass contactors, overload relay, SPD, heater/thermostat, control relay and terminal blocks.

### Bypass Enclosure X-Space

Enclosure Size	Frame 1	Frame 2	Frame 3	Frame 4	Frame 5
AX	0	0	0	—	—
BX	2	2	2	0	—
CX	5	5	5	3	2
DX	16	16	16	14	13

### Bypass Power Options X-Space

Power Options	Frame 1	Frame 2	Frame 3	Frame 4	Frame 5
Isolation fuses	1	1	1	1	1
3% Input reactor	2	2	3	5	6
RVSS bypass	2	2	2	3	4
3% output reactor	1	1	3	5	6
dV/dt filter	3	3	3	5	6

**Note:** Single-phase enclosure sizing includes dedicated space for a capacitor kit, circuit breaker or fusible disconnect, CPT, SPD, heater/thermostat, control relay and terminal blocks.

### Single-Phase Enclosure X-Space

Enclosure Size	Frame 1	Frame 2	Frame 3	Frame 4	Frame 5
AX	0	0	—	—	—
BX	2	2	1	1	—
CX	5	5	4	4	4
DX	16	16	15	15	15

### Single-Phase Power Options X-Space

Power Options	Frame 1	Frame 2	Frame 3	Frame 4	Frame 5
Isolation fuses	1	1	1	1	1
3% Input reactor	2	2	3	5	6
3% Output reactor	1	1	3	5	6
dV/dt filter	3	3	3	5	6
Output contactor	1	1	1	1	1



### Accessories

The PowerXL Series—DG1 drives can accommodate a wide selection of expander and adapter option boards to customize the drive for your application needs. The drive's control unit is designed to accept a total of two additional option boards.

The PowerXL Series—DG1 drives come with a factory-installed standard board configuration including the following:

- Standard I/O:
  - 8DI, 1DO
  - 2AI, 2AO
  - 2FC, 1FA relays
- Standard communications:
  - EtherNet/IP, Modbus TCP
  - RS-485: Modbus RTU, BACnet MS/TP

### PowerXL Series—DG1 I/O Card Kits

Description	Catalog Number
3 x DI, 3 x DO, 1 x thermistor, 24 Vdc/EXT option card	<b>DXG-EXT-3DI3DO1T</b>
1 x AI, 2 x AO (isolated to control board) option card	<b>DXG-EXT-1AI2AO</b>
3 x relay dry contact (2NO + 1NO/NC) option card	<b>DXG-EXT-3R0</b>
3 x PT100 RTD thermistor input option card	<b>DXG-EXT-THER1</b>
6 x DI 240 Vac input option card	<b>DXG-EXT-6DI</b>

### PowerXL Series—DG1 Communication Card Kits

Description	Catalog Number
PROFIBUS-DP communication card	<b>DXG-NET-PROFB</b>
CANopen communication card	<b>DXG-NET-CANOPEN</b>
DeviceNet communication card	<b>DXG-NET-DEVICENET</b>
PROFIBUS DB9 to 5-pin adapter card	<b>DXG-NET-PROAD</b>
SmartWire communication card and module	<b>DXG-NET-SWD</b> <sup>①</sup>

#### Note

<sup>①</sup> Available in January 2017.

## Options

### Input Power Options

Option	Description
HMCP Disconnect	The HMCP motor protection circuit breaker uses an electronic trip unit to provide typical motor overload relay functionality and short-circuit protection against potential phase-to-phase or phase-to-ground faults.
Circuit Breaker	Utilizes a circuit breaker to provide a means of short-circuit protection for the power cables between it and the drive, and protection from high-level ground faults on the power cable. Allows a convenient means of disconnecting the drive from the line, and the operating mechanism can be padlocked in the OFF position. This is factory mounted in the enclosure.
Isolation Fusing	Provides high-level fault protection of the drive input power circuit from the load side of the fuses to the input side of the power transistors. This option consists of three 200 kA fuses that are factory mounted in the enclosure.
3% Input Reactor	The input reactor is a three-phase series inductance on the line side of an AFD. It is used to provide a reduction in voltage and current harmonics. It also provides increased input protection for AFD and its semiconductors from line transients.
SPD	Provides a UL 1449 surge protection device (SPD) rated for 40 kA/ph that is connected to the line side terminals.
Fused Disconnect	Utilizes fusing to provide a means of short-circuit protection for the power cables between it and the drive, and protection from high-level ground faults on the power cable. Allows a convenient means of disconnecting the drive from the line, and the operating mechanism can be padlocked in the OFF position. This is factory mounted in the enclosure.

### Bypass Options

Option	Description
Manual HOA Bypass	Provides a three-position selector switch that allows the user to select either a HAND or AUTO mode of operation. HAND mode is defaulted keypad operation, and AUTO mode is defaulted to control from an external terminal source. These modes of operation can be configured via programming to allow for alternate combinations of start and speed sources. Start and speed sources include keypad, I/O and fieldbus.
Manual HOA RVSS Bypass	This option adds a reduced voltage soft starter to bypass assembly for soft starting in bypass mode.

### Output Power Options

Option	Description
Output Contactor	Provides a means for positive disconnection of the drive output from the motor terminals. The contactor coil is controlled by the drive's run or permissive logic. NC and NO auxiliary contacts rated at 10 A, 600 Vac are provided for customer use. This option includes a low VA 115 Vac fused control power transformer and is factory mounted in the enclosure.
3% Output Reactor	The output reactor is a three-phase series inductance on the load side of a VFD. It is used to reduce transient voltage (dv/dt) and peak voltages at the motor terminals. A 3% output filter is recommended for motor cable lengths up to 300 ft (10 m).
dV/dt Filter	Used to reduce the transient voltage (dV/dt) at the motor terminals. Recommended for motor cable lengths over 300 ft (10 m) and up to 1000 ft (304.8 m). This option is mounted in the enclosure.

### Control Options

Option	Description
Speed Pot	Provides the ability to adjust the frequency reference using a door-mounted potentiometer. This option uses the 10 Vdc reference to generate a 0–10 V signal at the analog voltage input signal terminal. When the HOA bypass option is added, the speed is controlled when the HOA switch is in the HAND position. Without the HOA bypass option, a two-position switch (labeled local/remote) is provided on the keypad to select speed reference from the speed potentiometer or a remote speed signal.
HOA Switch	Provides a three-position selector switch that allows the user to select either a HAND or AUTO mode of operation. HAND mode is defaulted to keypad operation, and AUTO mode is defaulted to control from an external terminal source. These modes of operation can be configured via drive programming to allow for alternate combinations of start and speed sources. Start and speed sources include Keypad, I/O and fieldbus.
Start-Stop Pushbutton	Provides door-mounted START and STOP pushbuttons for either bypass or non-bypass configurations.

### Light Options

Option	Description
Non-Bypass Light Kit—Power On, Run, Fault	Provides a white POWER ON light that indicates power to the enclosed cabinet, a green RUN light that indicates the drive is running and a red FAULT light that indicates a drive fault has occurred.
Bypass Light Kit—On, VFD Run, Fault, Bypass Run	Provides a white POWER ON light that indicates power to the enclosed cabinet, a green RUN light that indicates the drive is running, a red FAULT light that indicates a drive fault has occurred and an amber light that indicates when the motor is running in Bypass mode.

### Enclosure Options

Option	Description
Floor Stand 12 in	Converts a normally wall-mounted enclosure to a floor-standing enclosure with a height of 12 in (304.8 mm).
Floor Stand 22 in	Converts a normally wall-mounted enclosure to a floor-standing enclosure with a height of 22 in (558.8 mm).

## Technical Data and Specifications

### PowerXL Series—DG1 Technical Data and Specifications

2

Attribute	Description	Specification	
Input ratings	Input voltage $U_{in}$	208 V, 230 V, 480 V, 575 V, –15 to 10%	
	Input frequency	50 Hz to 60 Hz (variation up to 45 Hz to 66 Hz)	
	Connection to power	Once per minute or less	
	Starting delay	3 s (FR1 to FR2), 4 s (FR3), 5 s (FR4), 6 s (FR5 and FR6)	
	Short-circuit withstand rating	100 kAIC (fuses and circuit breakers)	
Output ratings	Output voltage	0 to $U_{in}$	
	Output current	$I_L$ : ambient temperature maximum 40 °C, up to 60 °C with derating, overload 1.1 x $I_L$ (1 min./10 min.) $I_H$ : ambient temperature maximum 50 °C, up to 60 °C with derating, overload 1.5 x $I_H$ (1 min./10 min.)	
	Initial output current	200% (2 s / 20 s)	
	Output frequency	0–400 Hz (standard)	
	Frequency resolution	0.01 Hz	
Control characteristics	Control methods	Frequency control Speed control Open-loop speed control Open-loop torque control	
	Switching frequency	230 V / 480 V range: FR1–3: 1 kHz to 12 kHz FR4–6: 1 kHz to 10 kHz  230 V / 480 V defaults: FR1–3: 4 kHz FR4–5: 3.6 kHz FR6: 2 kHz  575 V range: FR1–6: 1 kHz to 6 kHz  575 V defaults: FR1–4: 3 kHz FR5–6: 2 kHz  Automatic switching frequency derating in case of overload.	
	Frequency reference	Analog input: resolution 0.1% (10-bit), accuracy +1% Analog output: resolution 0.1% (10-bit), accuracy +1% Panel reference: resolution 0.01 Hz	
	Field weakening point	20 Hz to 400 Hz	
	Acceleration time	0.1 s to 3000 s	
	Deceleration time	0.1 s to 3000 s	
	Braking torque	DC brake: 30% x Motor Rated Torque ( $T_n$ ) (without brake chopper) Dynamic braking (with optional brake chopper using an external brake resistor): 100% continuous maximum rating	
	Ambient conditions	Ambient operating temperature	–10 °C (no frost) to +40 °C
		Storage temperature	–40 °C to +70 °C
		Relative humidity	0–95% RH, noncondensing, non-corrosive
Air quality: • Chemical vapors • Mechanical particles		Tested according to IEC 60068-2-60 Test Key: Flowing mixed gas corrosion test, Method 1 (H2S [hydrogen sulfide] and SO2 [sulfur dioxide]) Designed according to: IEC 60721-3-3, unit in operation, class 3C2 IEC 60721-3-3, unit in operation, class 3S2	
Altitude		100% load capacity (no derating) up to 3280 ft (1000 m); 1% derating for each 328 ft (100 m) above 3280 ft (1000 m); max. 9842 ft (3000 m) (2000 m for corner grounded earth main systems) For 575 V product, maximum altitude is 6561 ft (2000 m) regardless of main system	

## PowerXL Series—DG1 Technical Data and Specifications, continued

Attribute	Description	Specification
Ambient conditions, continued	Overvoltage	Overvoltage Category III
	Pollution degree	Pollution Degree 2
	Enclosure class	NEMA Type 1, 12, 3R
	Immunity	Fulfills EN 61800-3 (2004), first and second environment
Standards	Safety	UL 508C, EN 61800-5-1
	Approvals	UL and cUL
Fieldbus connections		Onboard: EtherNet/IP, Modbus <sup>®</sup> TCP, Modbus RTU, BACnet
Safety/protections	Overvoltage protection	Yes
	Overvoltage trip limit	230 V drives: 456 V 480 V drives: 911 V 575 V drives: 1100 V
	Undervoltage protection	Yes
	Undervoltage trip limit	230 V drives: 211 V 480 V drives: 370 V 575 V drives: 550 V
	Earth fault protection	Yes Default: 15% motor FLA Minimum: 0% motor FLA Maximum: 30% motor FLA
	Input phase supervision	Yes
	Motor phase supervision	Yes
	Overcurrent protection	Yes
	Unit overtemperature protection	Yes
	Motor overload protection	Yes
	Motor stall protection	Yes
	Motor underload protection	Yes
	DC bus overvoltage control	Yes
	Short-circuit protection of 24 V reference voltages	Yes
	Surge protection	Yes (differential mode 2 kV; common mode 4 kV 230 V drives: 275 Vac, 10,000 A 480 V drives: 320 Vac, 8000 A 575 V drives: 385 Vac, 10,000 A
Common coated boards	Yes (prevents corrosion)	
Efficiency	Drive efficiency ratings <sup>Ⓢ</sup>	480 V: FR1 = 97.7% FR2 = 97.9% FR3 = 97.7% FR4 = 98.0% FR5 = 98.2%
		230 V: FR1 = 96.7% FR2 = 97.4% FR3 = 97.2% FR4 = 97.4% FR5 = 97.7%

**Note**

<sup>Ⓢ</sup> Based on DG1 efficiency ratings in an enclosure with no options.

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## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

#### Wiring Diagram

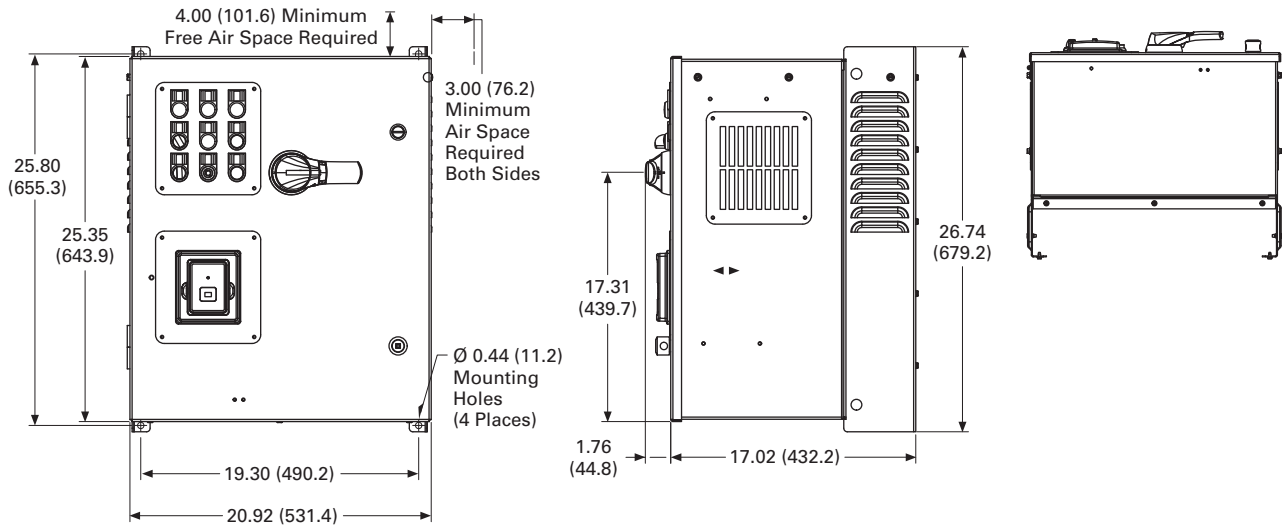
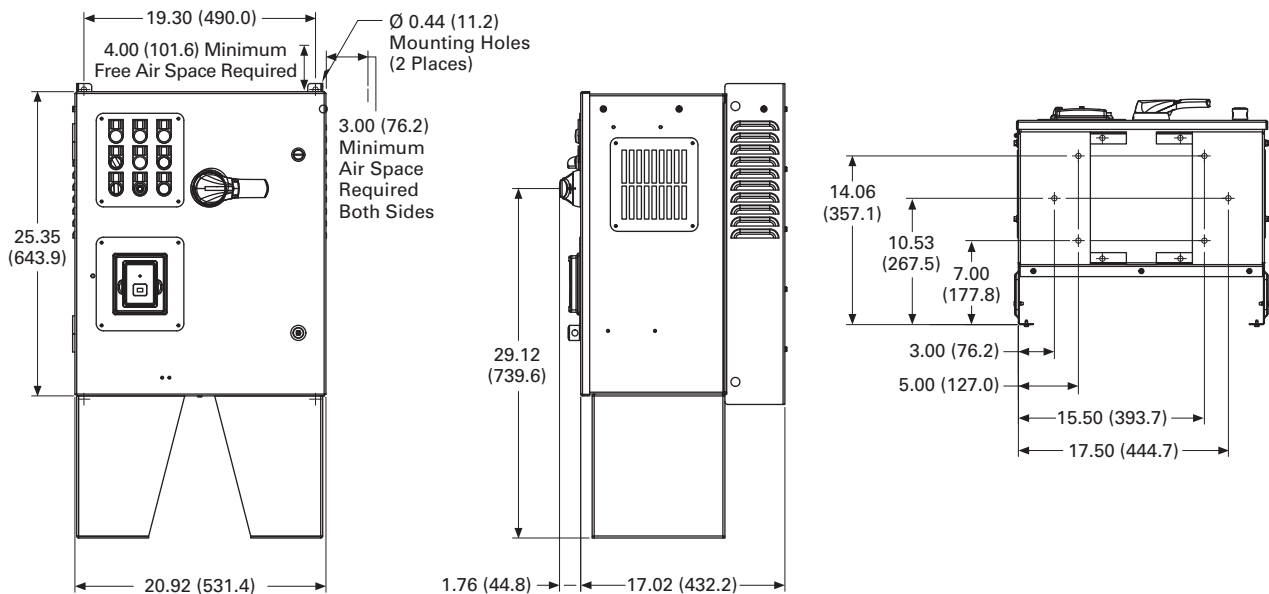
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PowerXL Series—DG1 Control Wiring Diagram

Pin	Signal Name	Signal	Default Setting	Description
1	+10 V	Ref. Output Voltage	—	10 Vdc Supply Source
2	AI1+	Analog Input 1	0–10 V	Voltage Speed Reference (Programmable to 4 mA to 20 mA)
3	AI1–	Analog Input 1 Ground	—	Analog Input 1 Common (Ground)
4	AI2+	Analog Input 2	4 mA to 20 mA	Current Speed Reference (Programmable to 0–10 V)
5	AI2–	Analog Input 2 Ground	—	Analog Input 2 Common (Ground)
6	GND	I/O Signal Ground	—	I/O Ground for Reference and Control
7	DIN5	Digital Input 5	Preset Speed B0	Sets frequency output to Preset Speed 1
8	DIN6	Digital Input 6	Preset Speed B1	Sets frequency output to Preset Speed 2
9	DIN7	Digital Input 7	Emergency Stop (TI–)	Input forces VFD output to shut off
10	DIN8	Digital Input 8	Force Remote (TI+)	Input takes VFD from Local to Remote
11	CMB	DI5 to DI8 Common	Grounded	Allows source input
12	GND	I/O Signal Ground	—	I/O Ground for Reference and Control
13	24 V	+24 Vdc Output	—	Control voltage output (100 mA max.)
14	DO1	Digital Output 1	Ready	Shows the drive is ready to run
15	24 Vo	+24 Vdc Output	—	Control voltage output (100 mA max.)
16	GND	I/O Signal Ground	—	I/O Ground for Reference and Control
17	A01+	Analog Output 1	Output Frequency	Shows Output frequency to motor 0–60 Hz (4 mA to 20 mA)
18	A02+	Analog Output 2	Motor Current	Shows Motor current of motor 0–FLA (4 mA to 20 mA)
19	24 Vi	+24 Vdc Input	—	External control voltage input
20	DIN1	Digital Input 1	Run Forward	Input starts drive in forward direction (start enable)
21	DIN2	Digital Input 2	Run Reverse	Input starts drive in reverse direction (start enable)
22	DIN3	Digital Input 3	External Fault	Input causes drive to fault
23	DIN4	Digital Input 4	Fault Reset	Input resets active faults
24	CMA	DI1 to DI4 Common	Grounded	Allows source input
25	A	RS-485 Signal A	—	Fieldbus Communication (Modbus, BACnet)
26	B	RS-485 Signal B	—	Fieldbus Communication (Modbus, BACnet)
27	R3NO	Relay 3 Normally Open	At Speed	Relay output 3 shows VFD is at Ref. Frequency
28	R1NC	Relay 1 Normally Closed	Run	Relay output 1 shows VFD is in a run state
29	R1CM	Relay 1 Common		
30	R1NO	Relay 1 Normally Open		
31	R3CM	Relay 3 Common	At Speed	Relay output 3 shows VFD is at Ref. Frequency
32	R2NC	Relay 2 Normally Closed	Fault	Relay output 2 shows VFD is in a fault state
33	R2CM	Relay 2 Common		
34	R2NO	Relay 2 Normally Open		

**Dimensions**

Approximate Dimensions in Inches (mm)

**AX Box Type 1****AX Box Type 1—12 Inch Floor Stands**

# 2.6

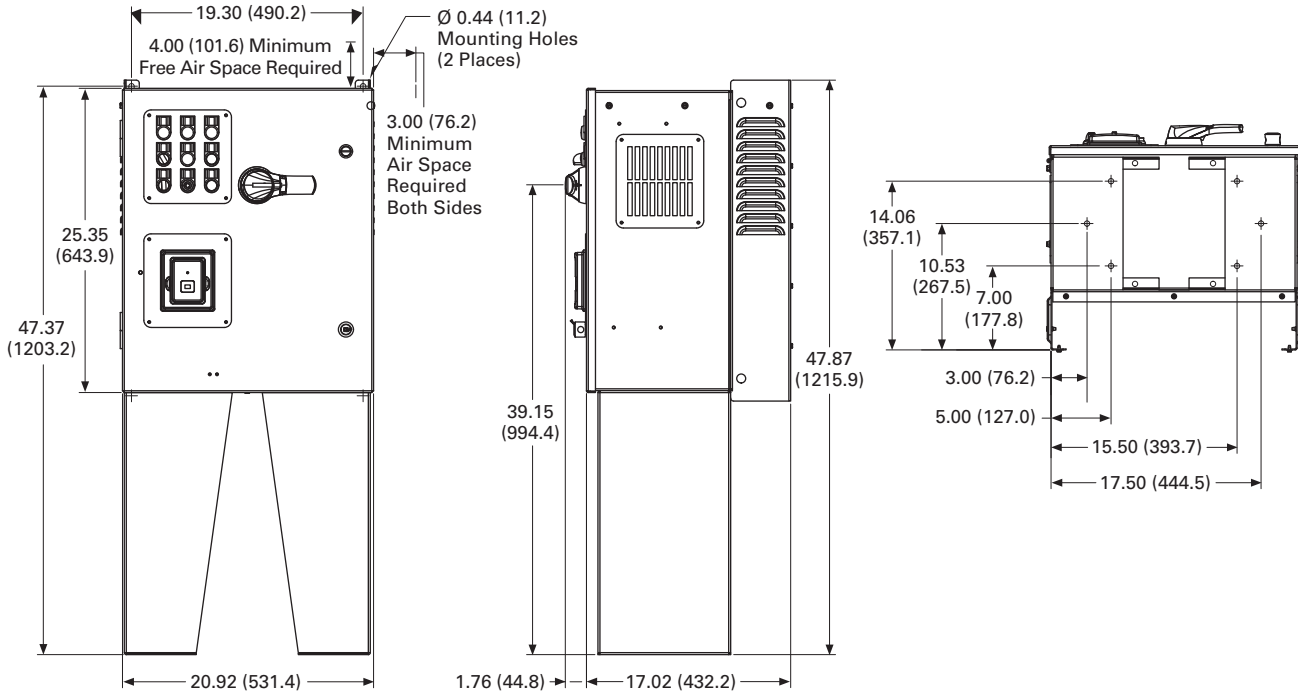
## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

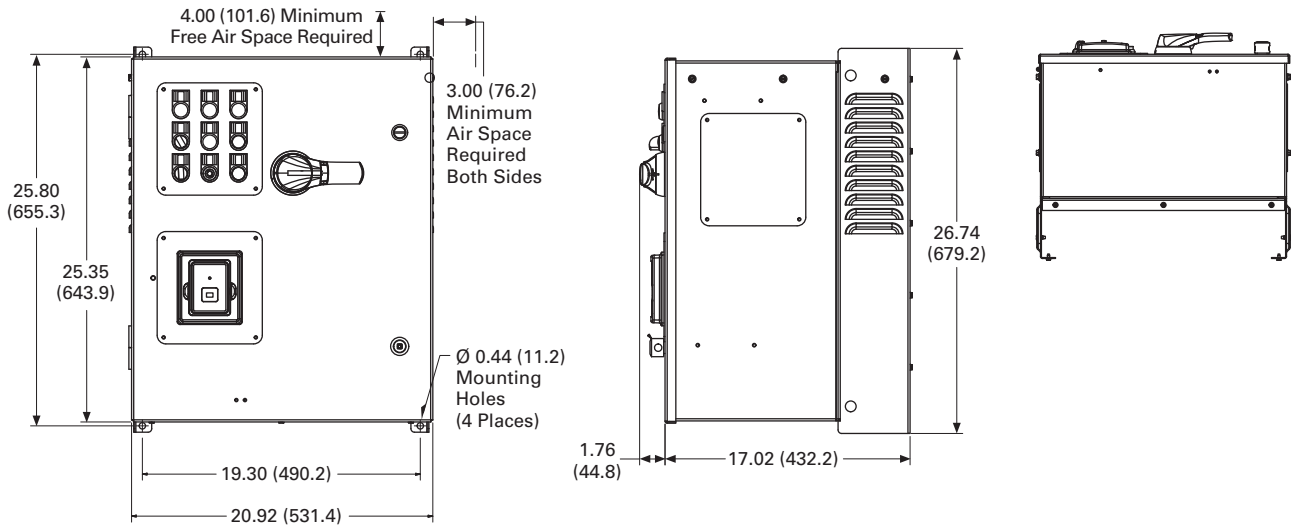
Approximate Dimensions in Inches (mm)

#### AX Box Type 1—22 Inch Floor Stands

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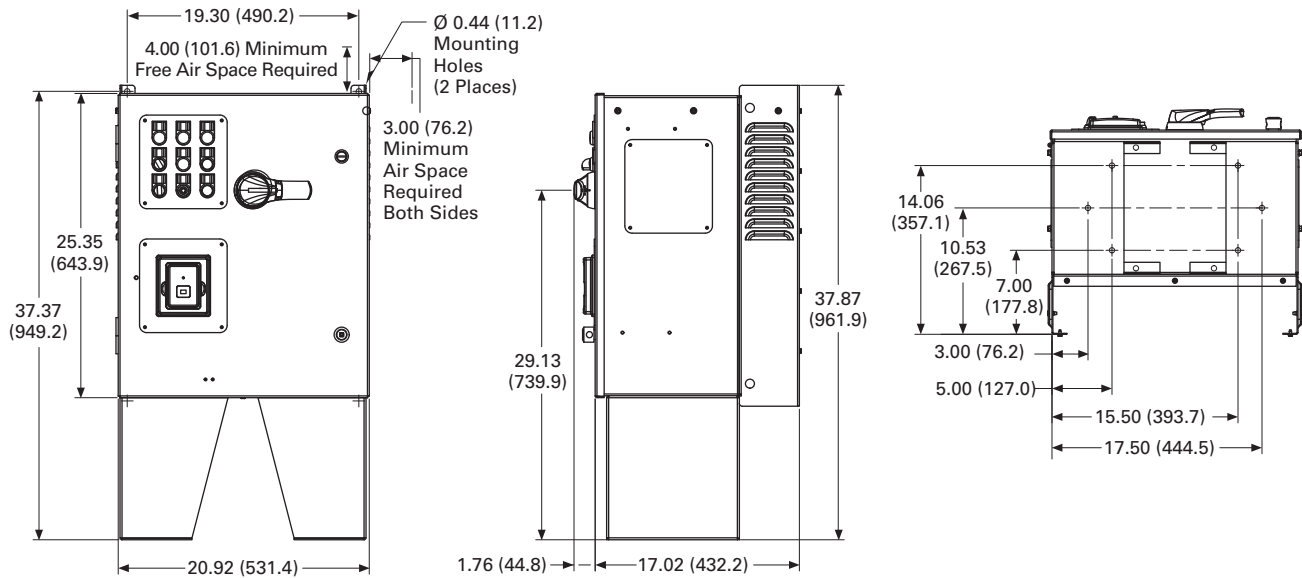


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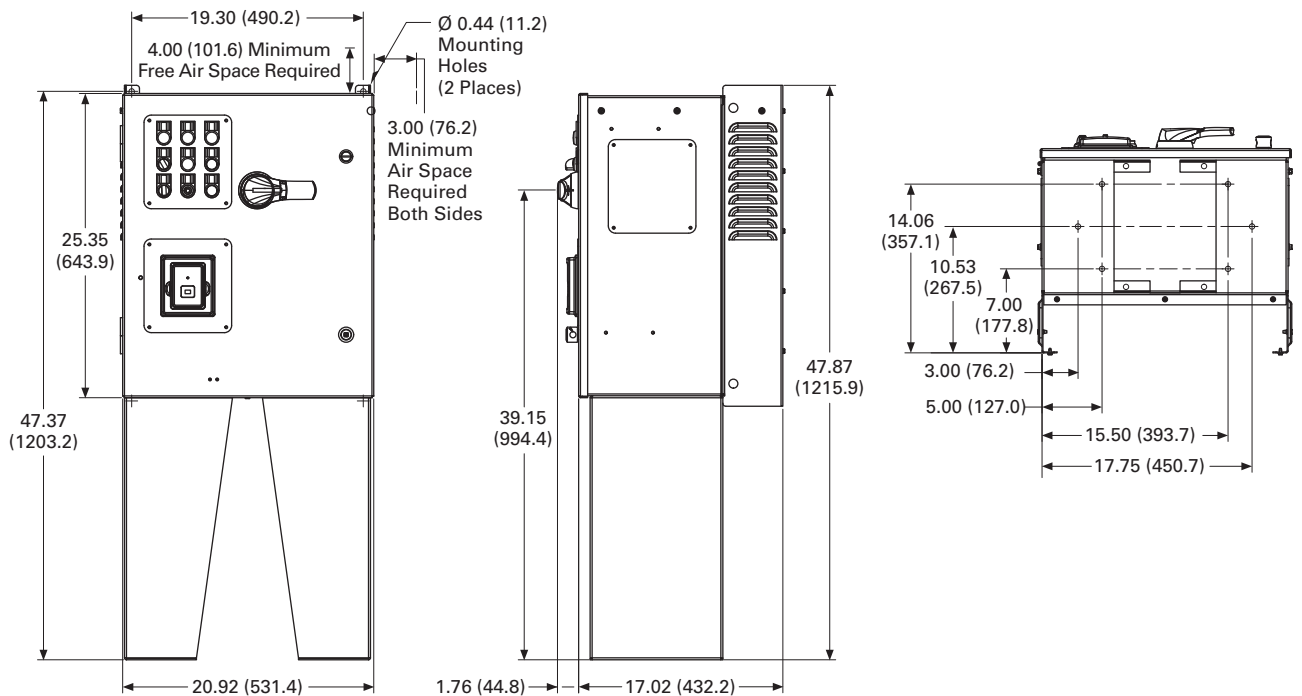


Approximate Dimensions in Inches (mm)

### AX Box Type 12—12 Inch Floor Stands



### AX Box Type 12—22 Inch Floor Stands





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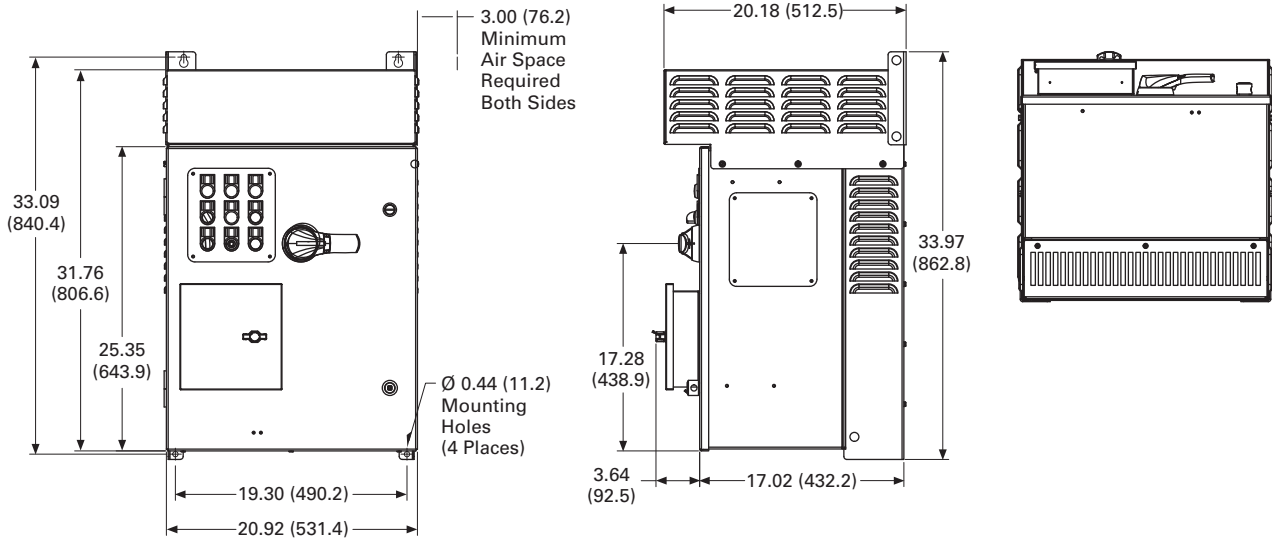
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### PowerXL DG1 Series Drives

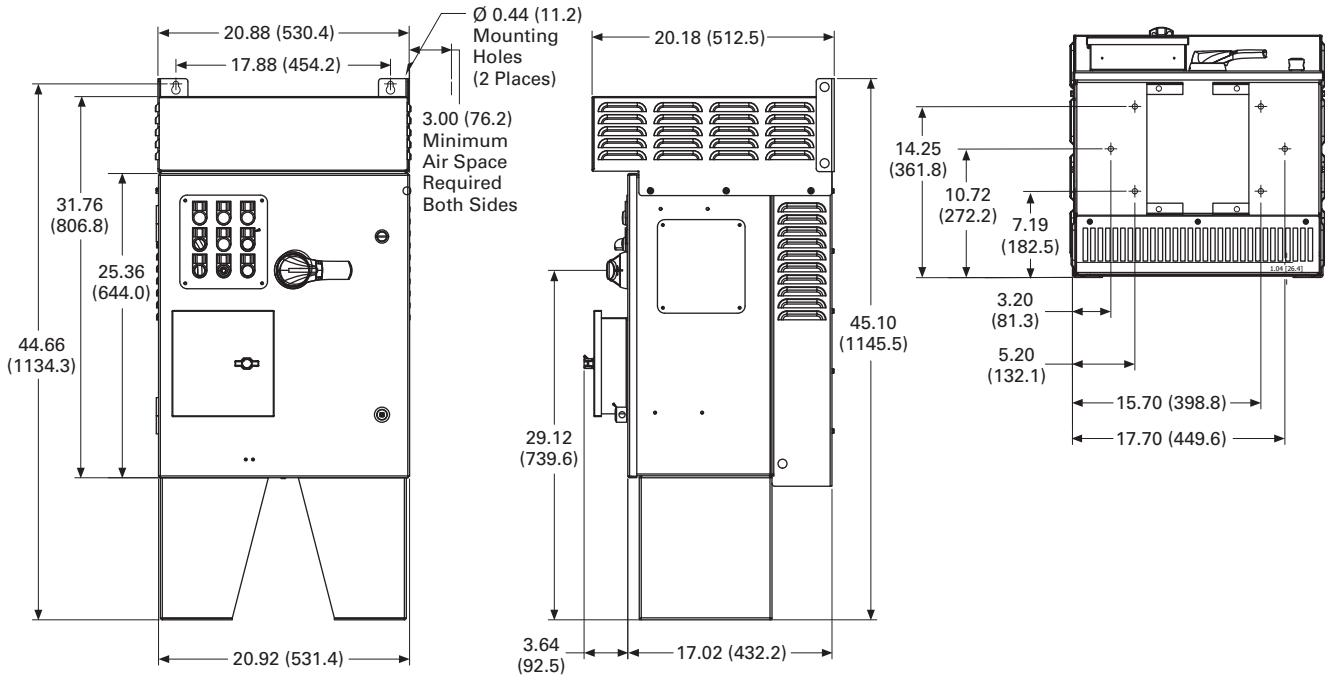
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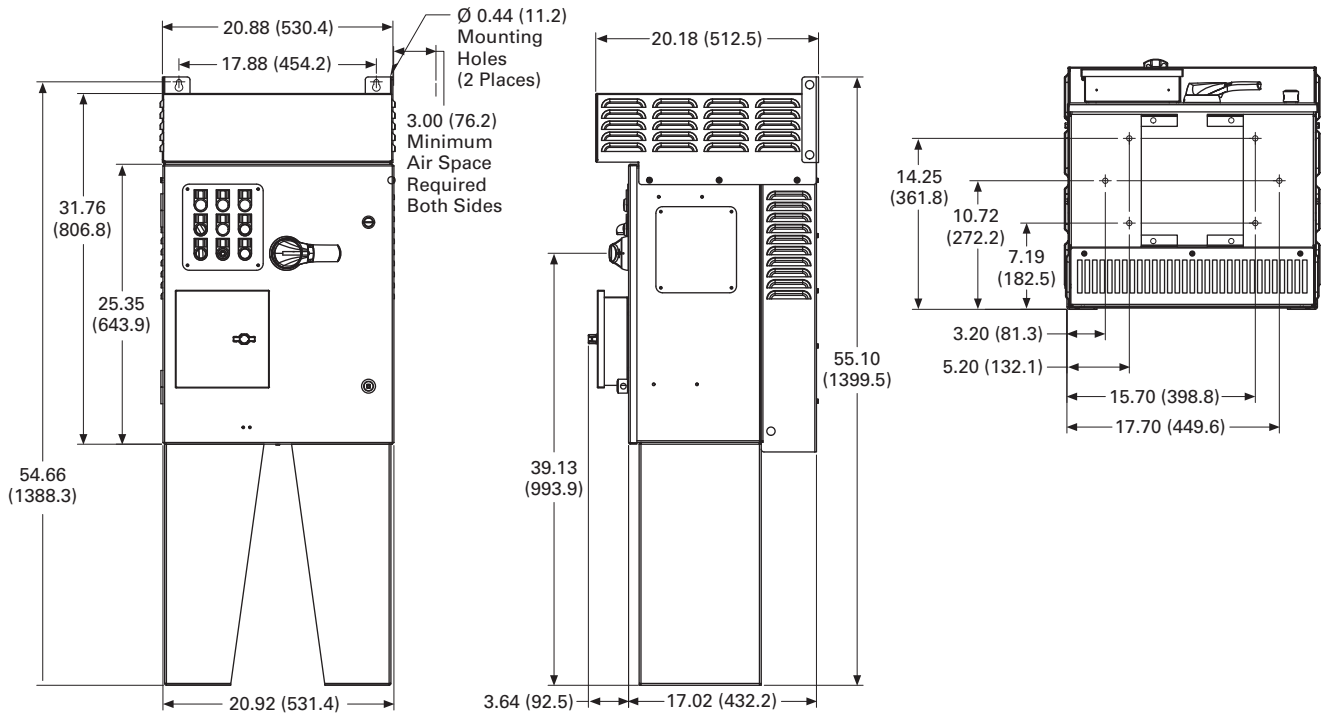


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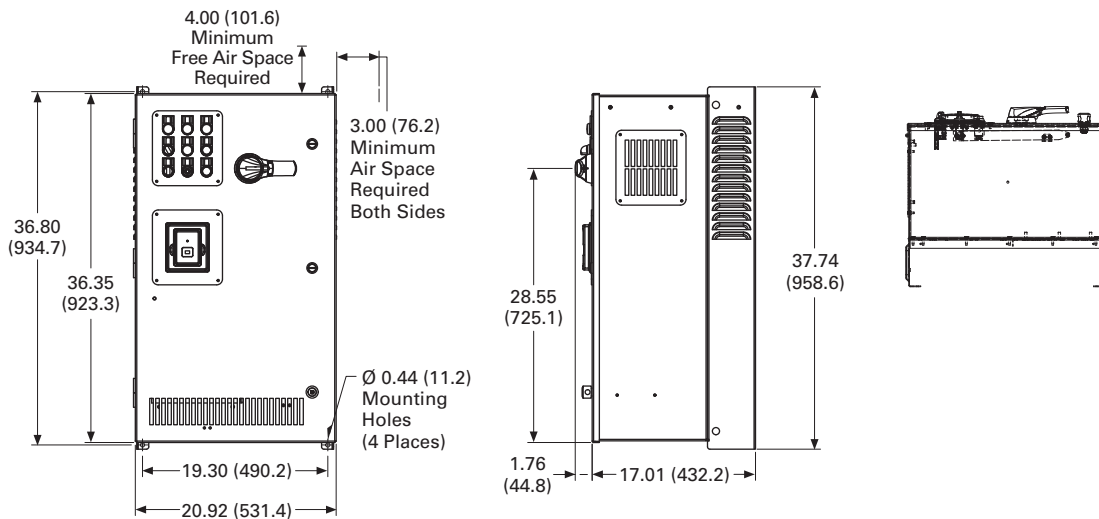


Approximate Dimensions in Inches (mm)

### AX Box Type 3R—22 Inch Floor Stands



### BX Box Type 1



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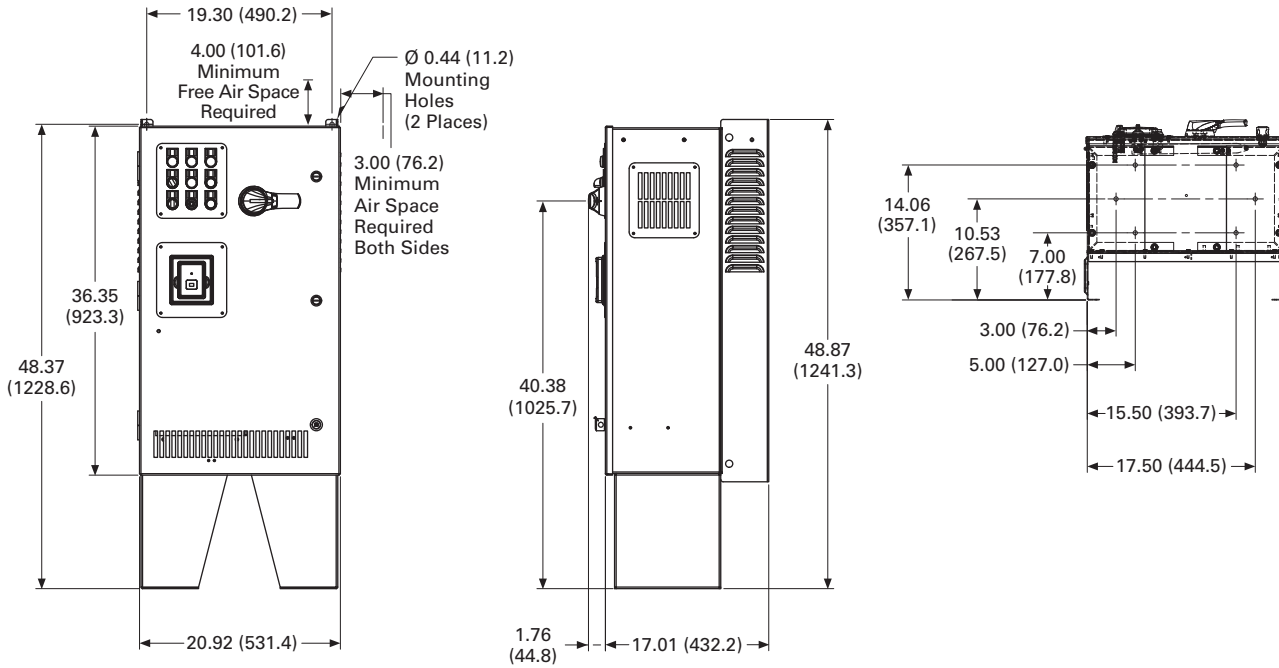
## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

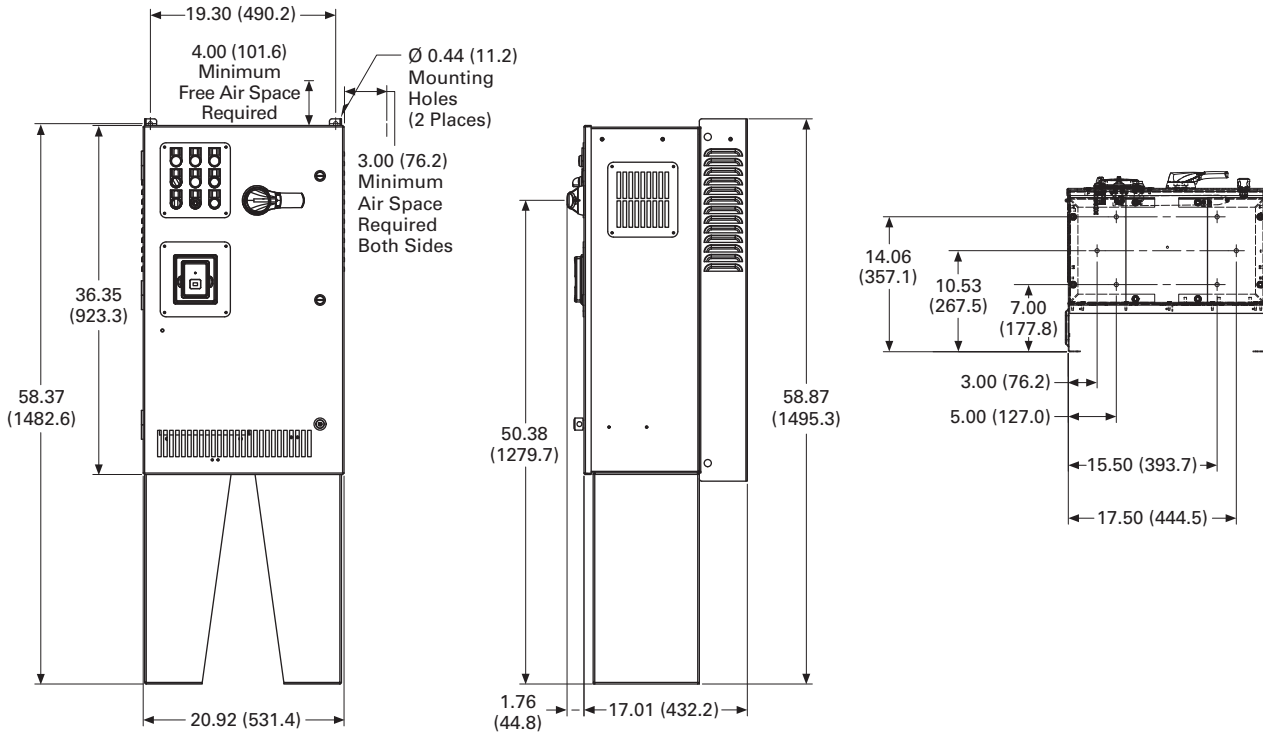
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#### BX Box Type 1—12 Inch Floor Stands

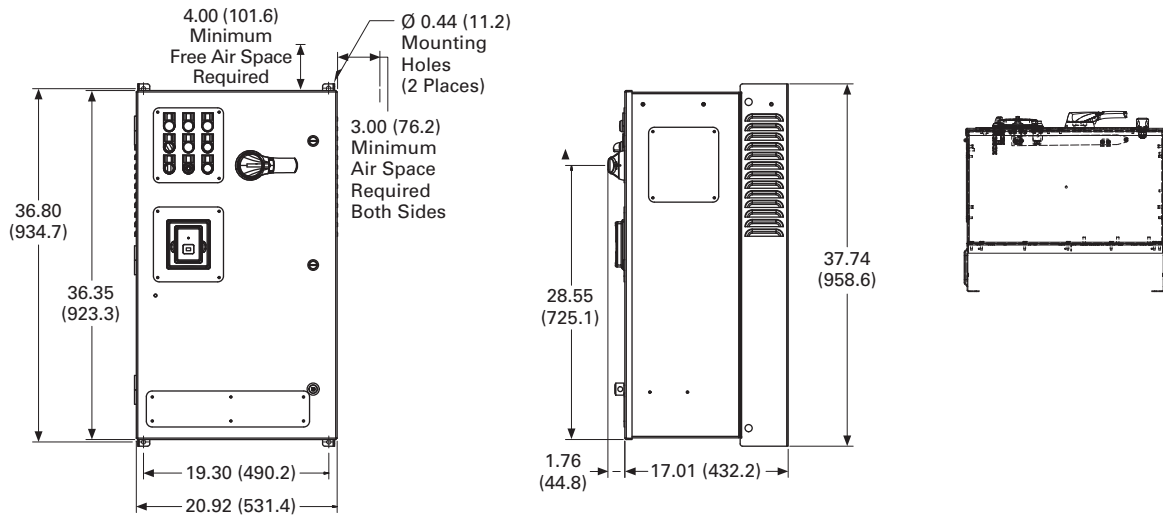


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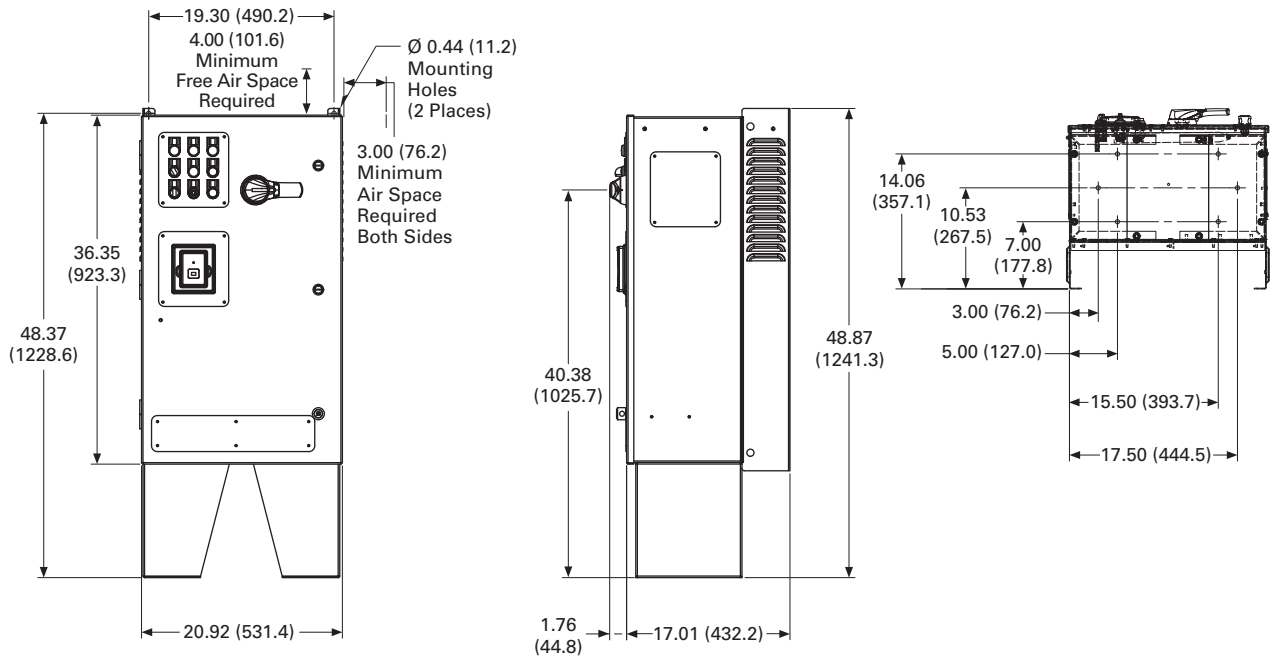


Approximate Dimensions in Inches (mm)

### BX Box Type 12



### BX Box Type 12—12 Inch Floor Stands



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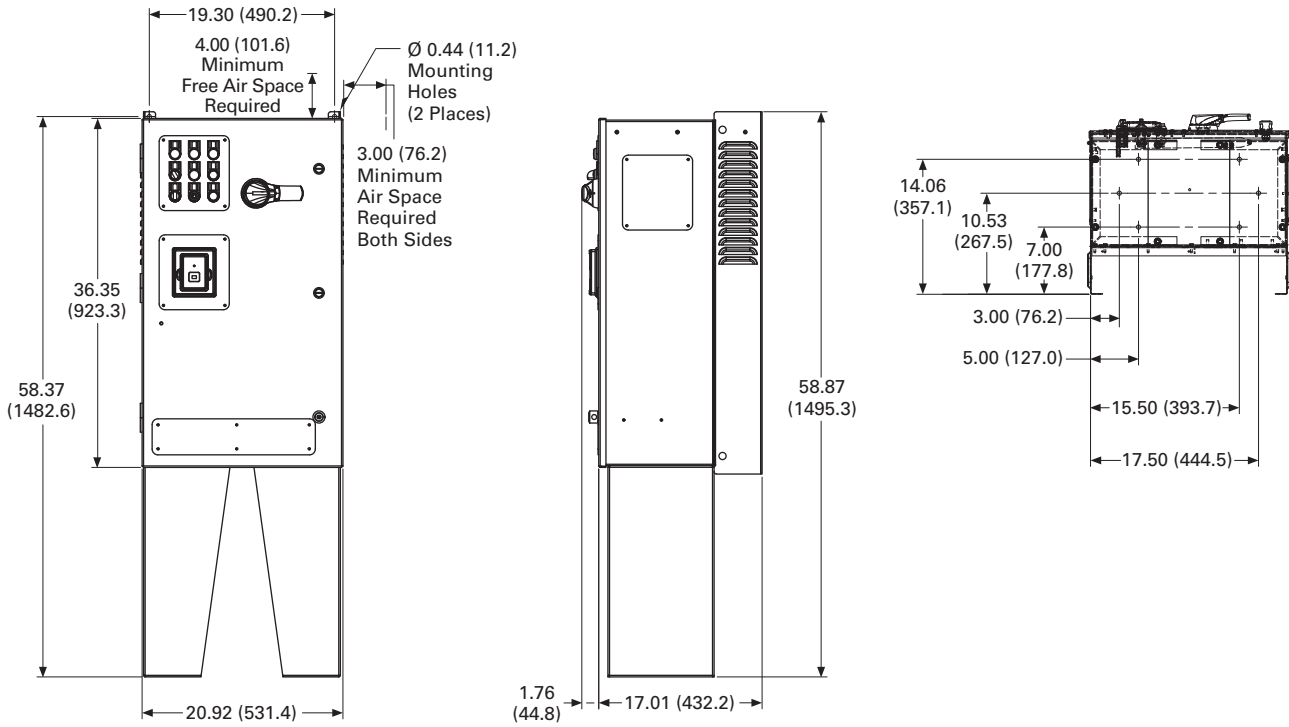
## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

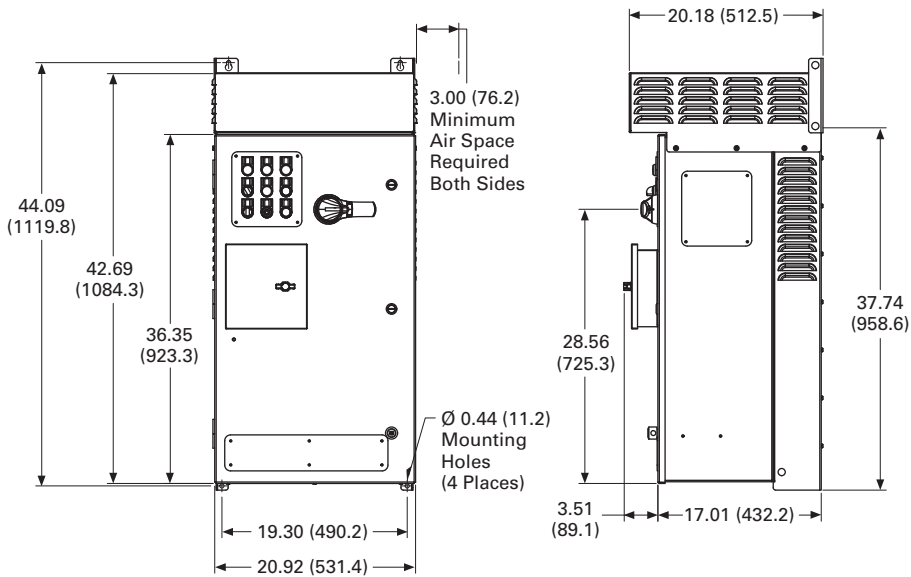
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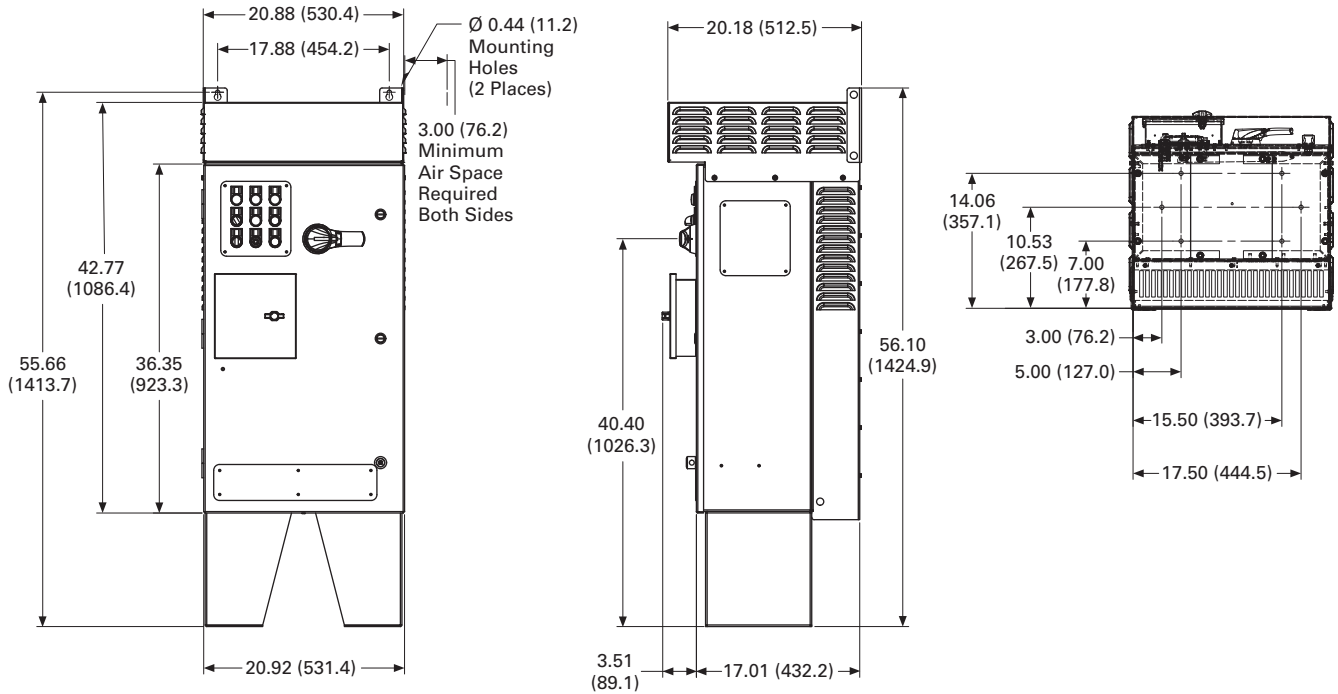


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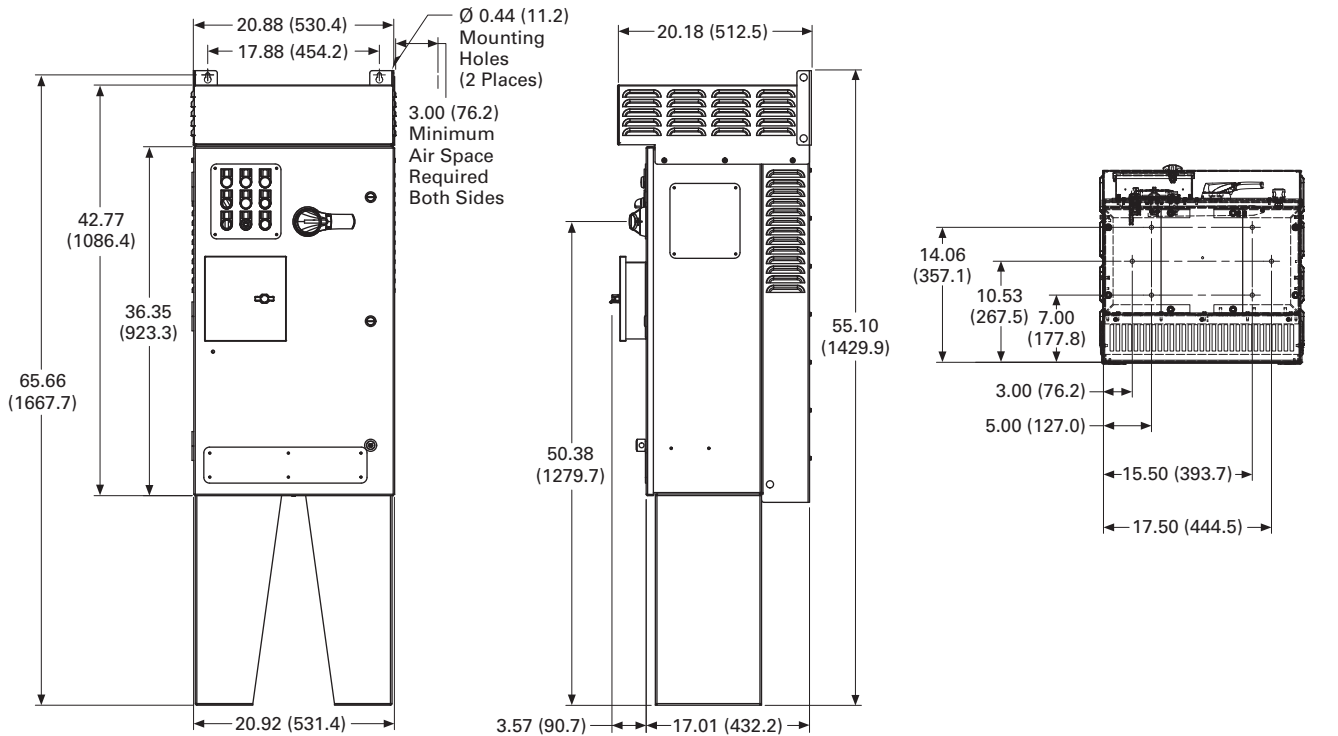


Approximate Dimensions in Inches (mm)

### BX Box Type 3R—12 Inch Floor Stands



### BX Box Type 3R—22 Inch Floor Stands



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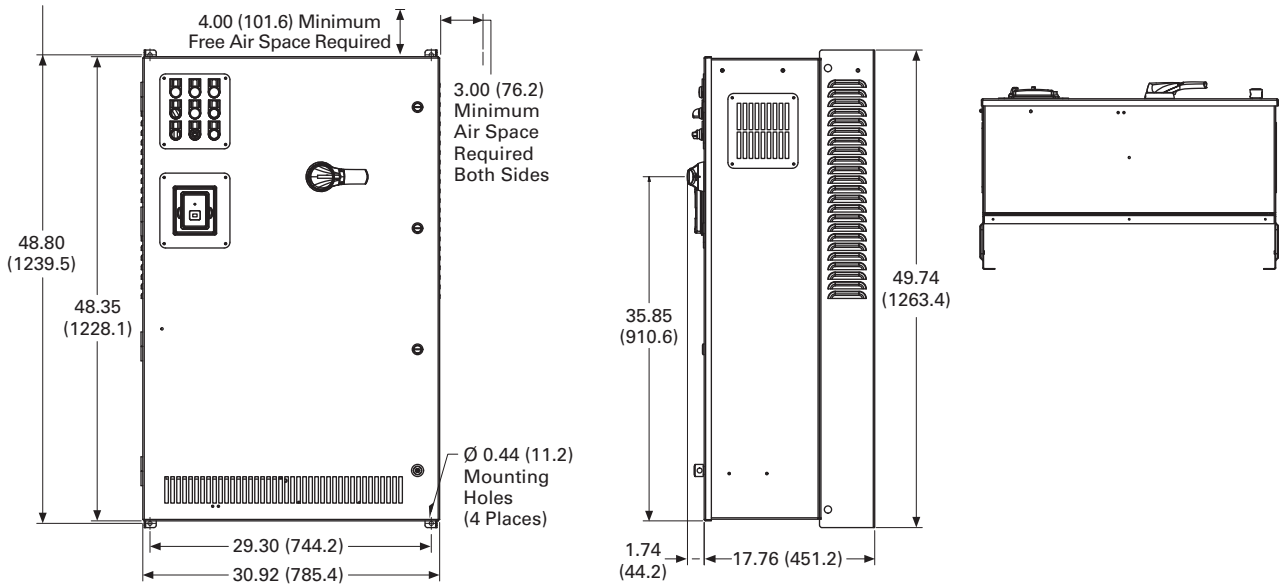
## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

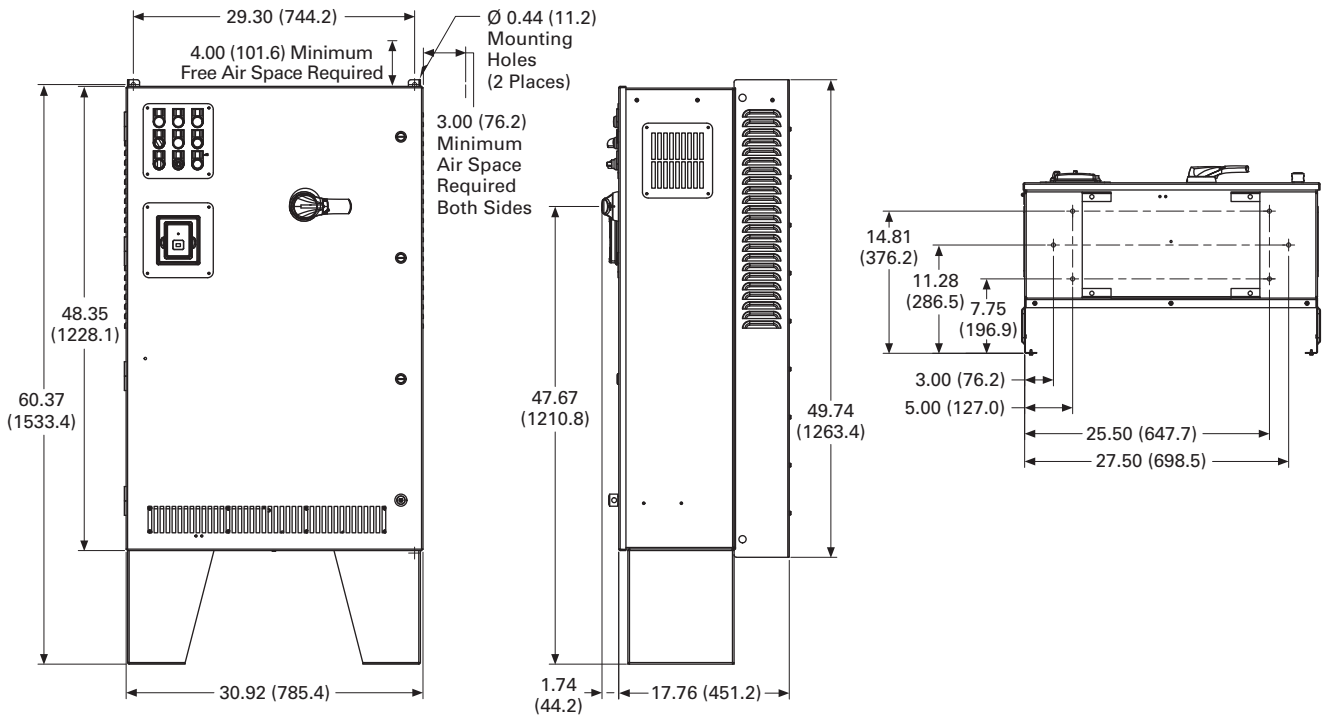
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#### CX Box Type 1

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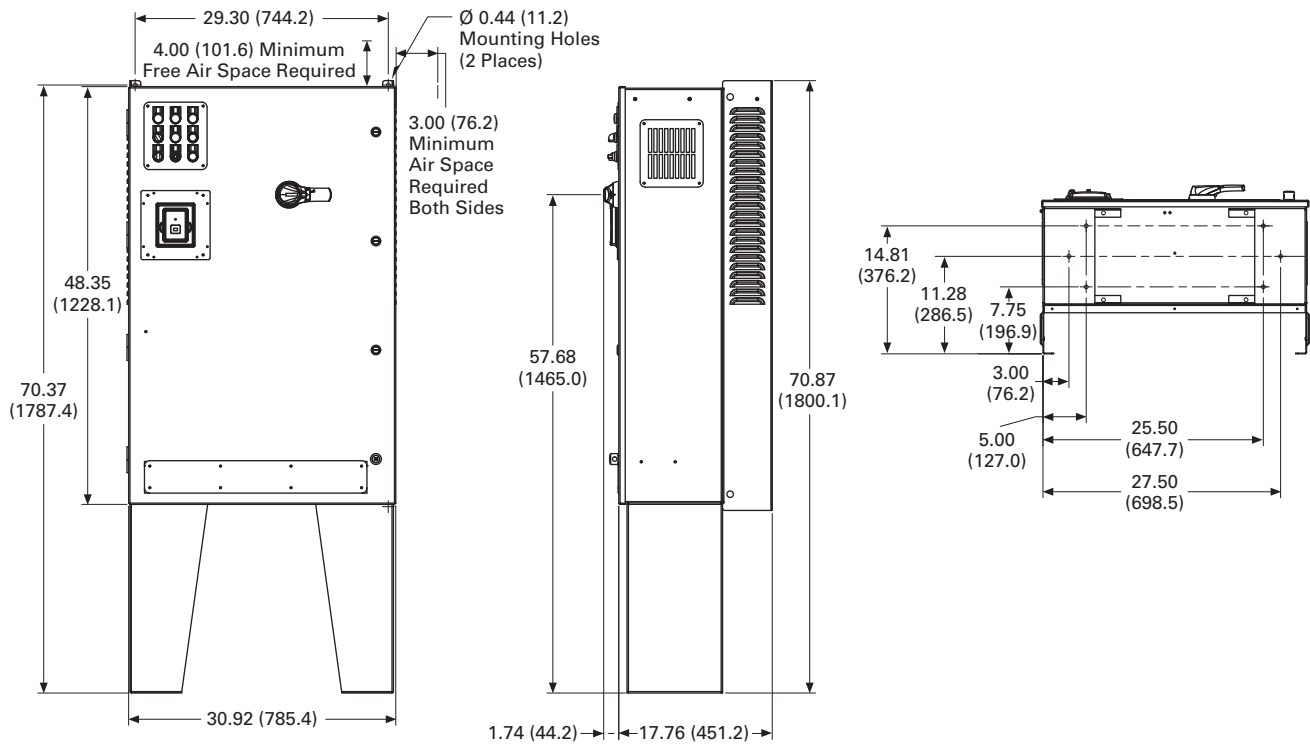


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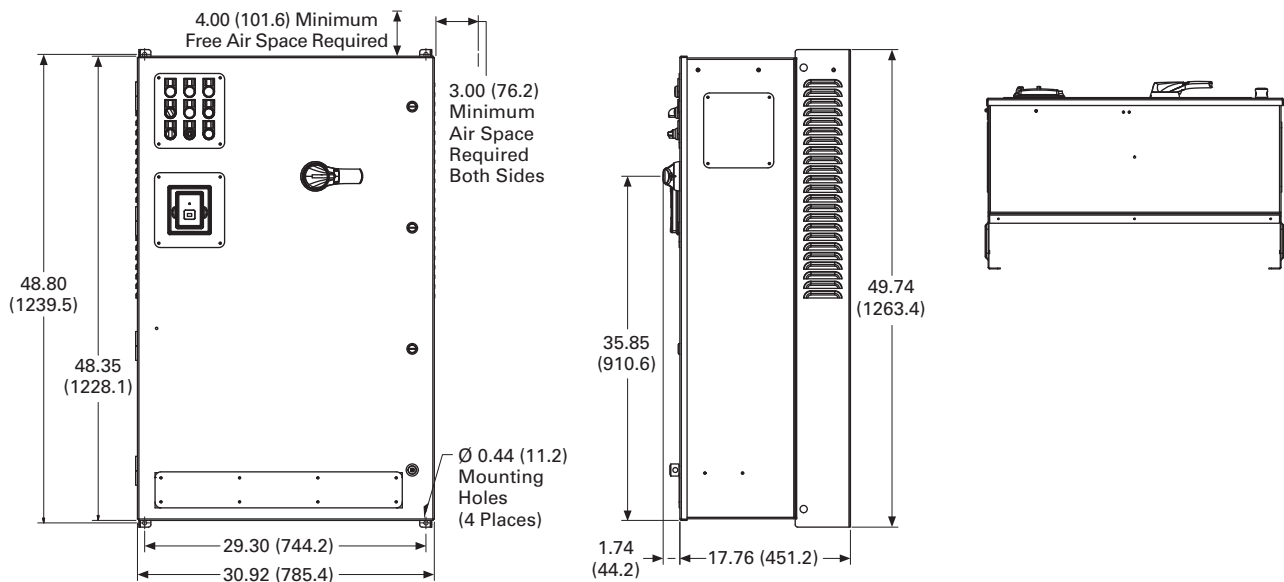


Approximate Dimensions in Inches (mm)

### CX Box Type 1—22 Inch Floor Stands



### CX Box Type 12





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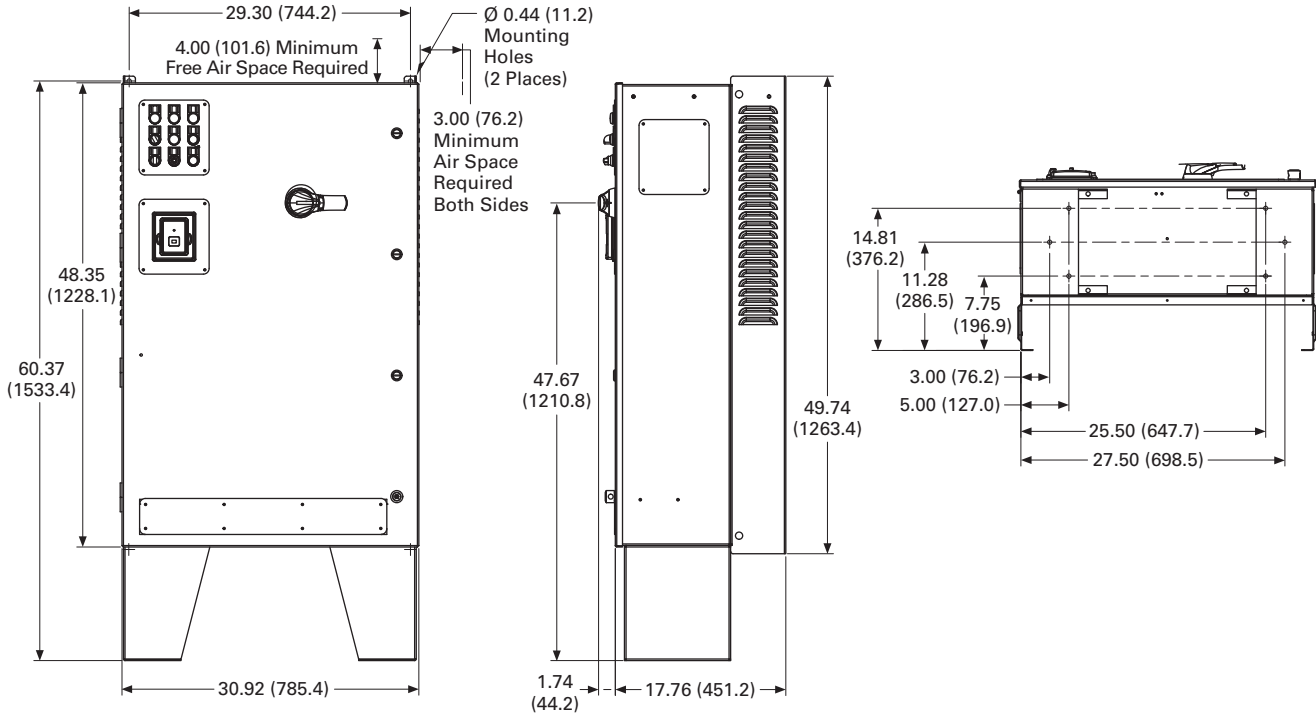
## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

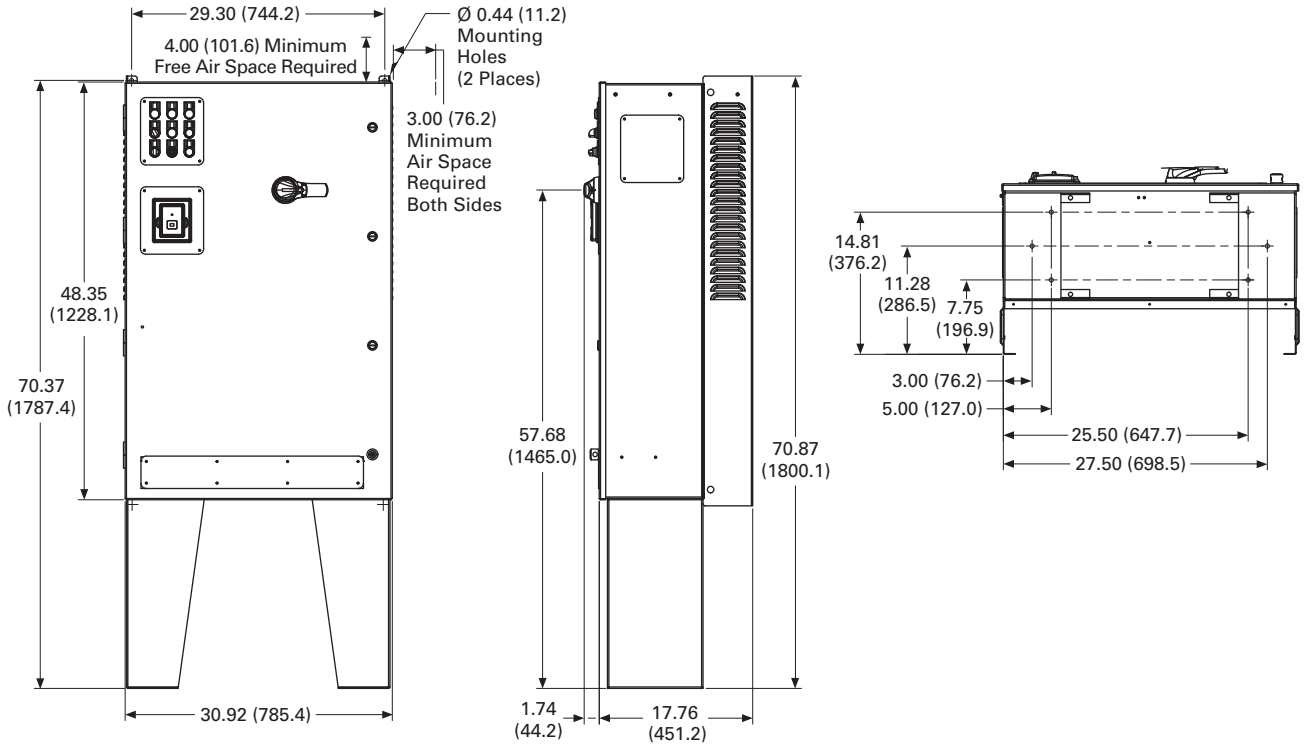
Approximate Dimensions in Inches (mm)

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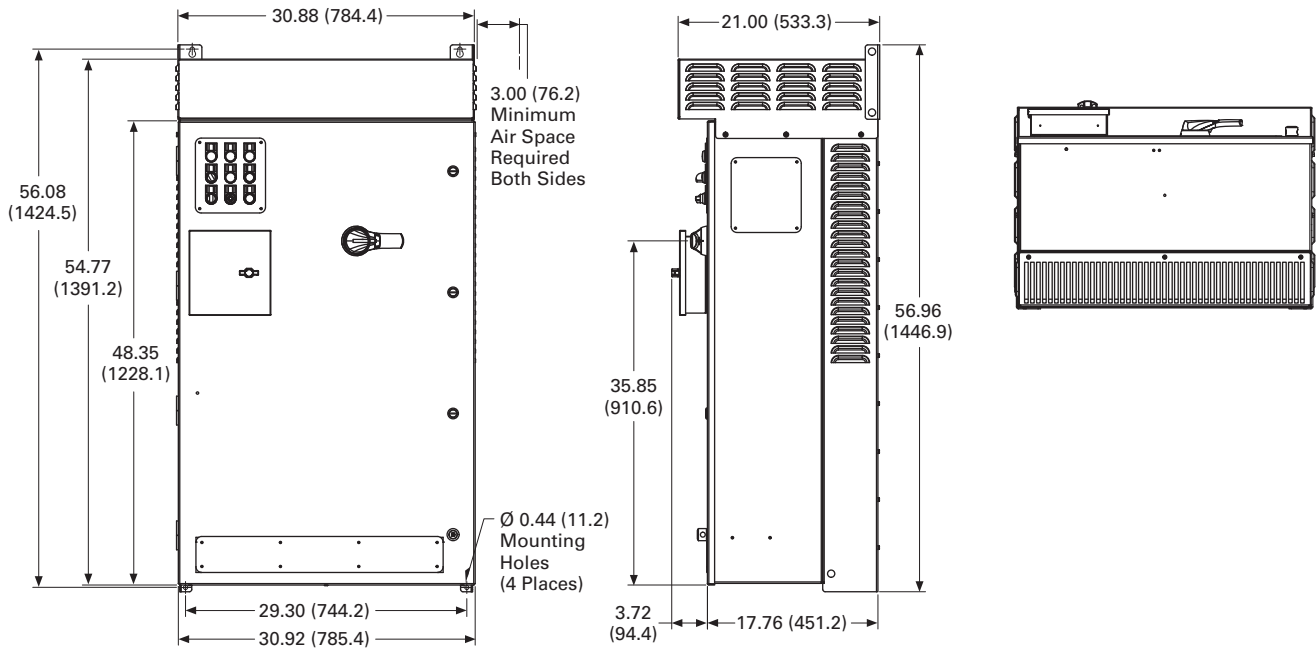
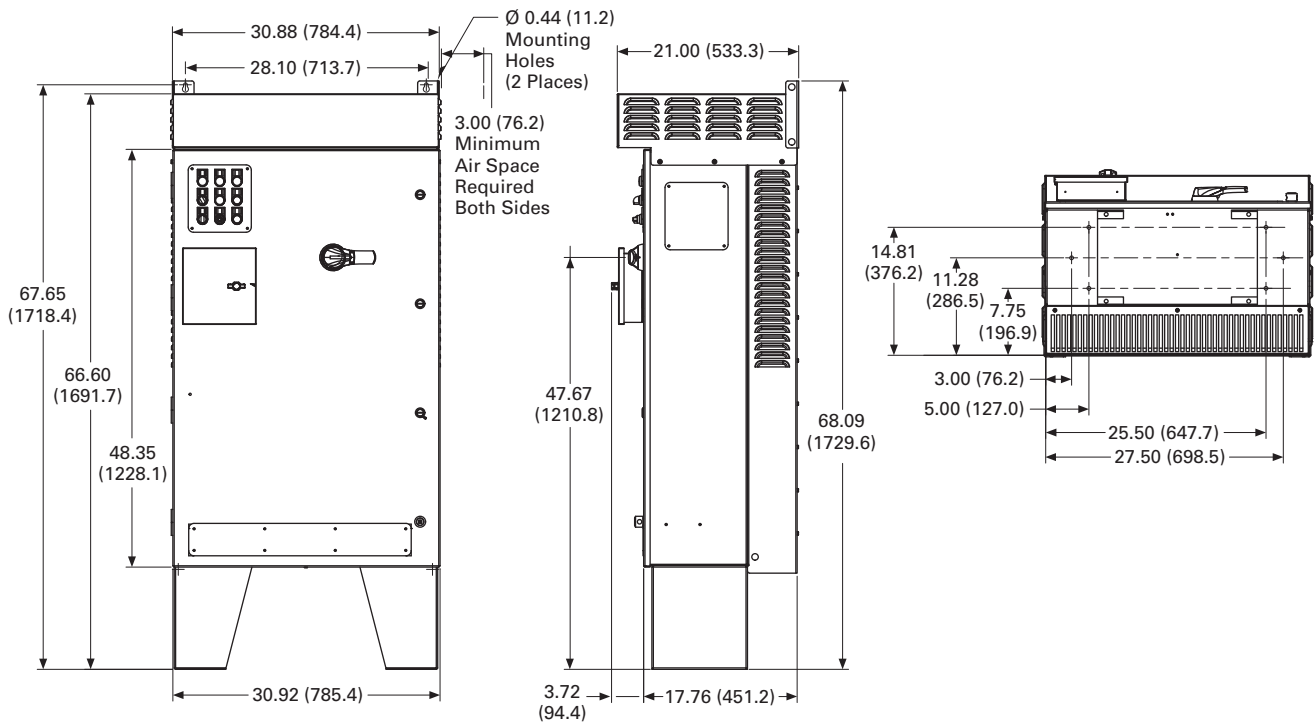
#### CX Box Type 12—12 Inch Floor Stands



#### CX Box Type 12—22 Inch Floor Stands



Approximate Dimensions in Inches (mm)

**CX Box Type 3R****CX Box Type 3R—12 Inch Floor Stands**

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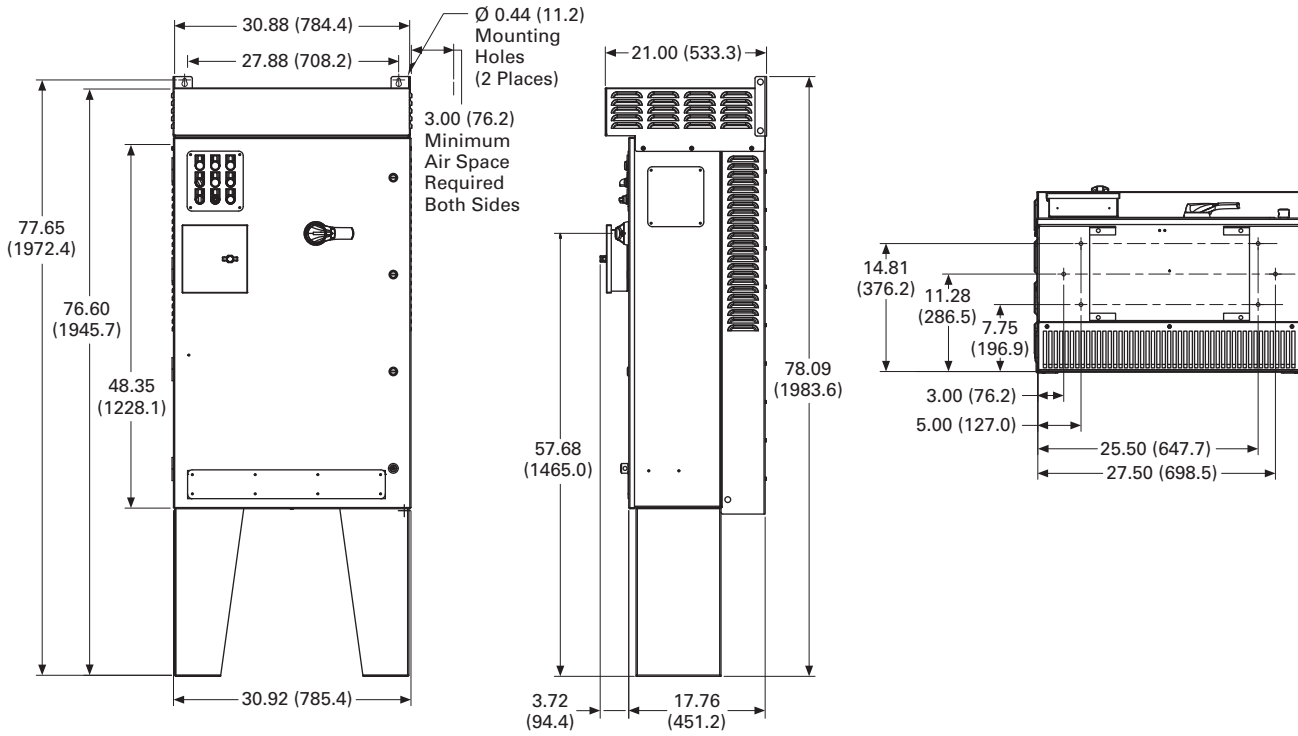
## Adjustable Frequency Drives

### PowerXL DG1 Series Drives

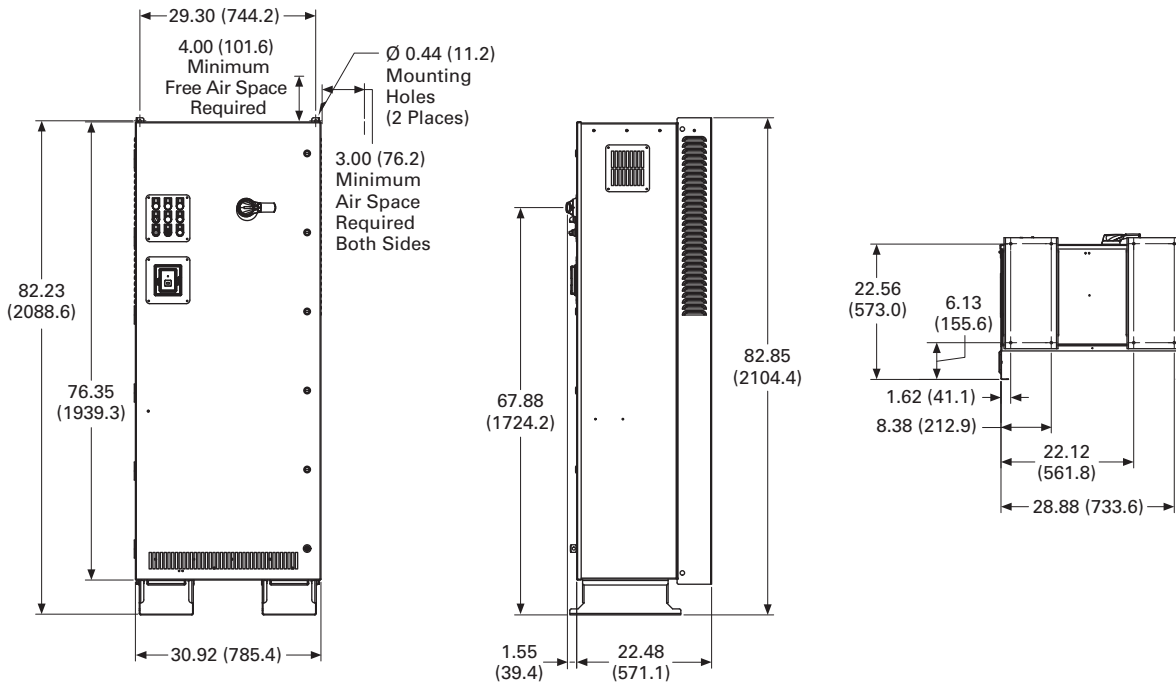
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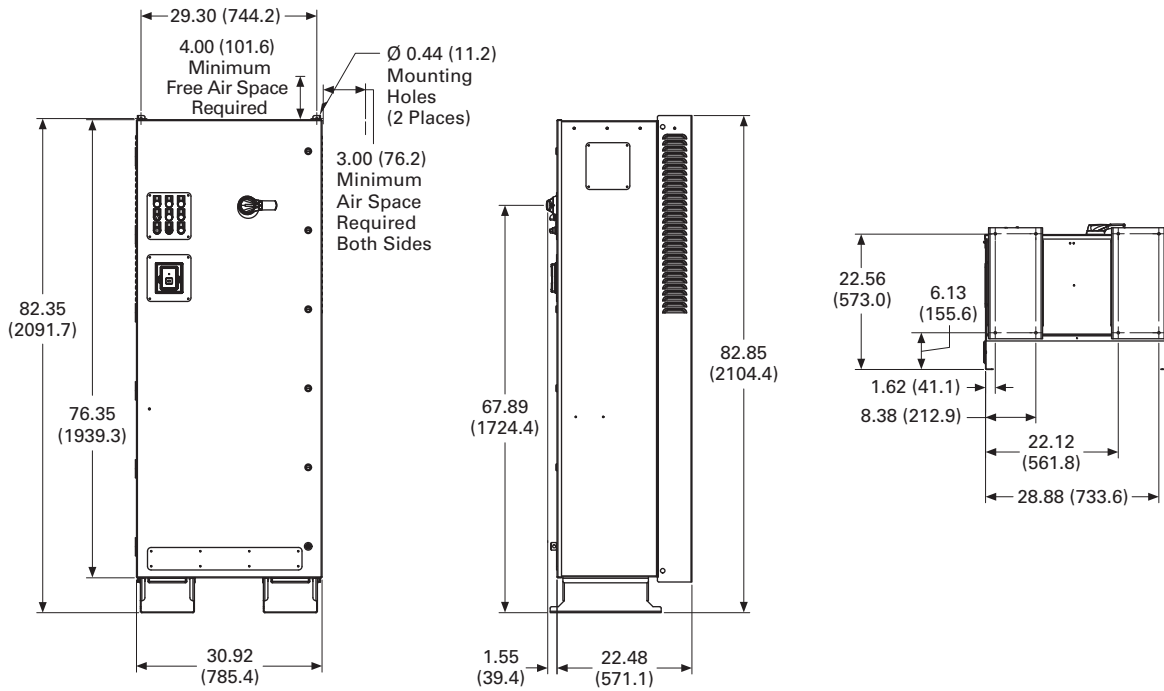


#### DX Box Type 1



Approximate Dimensions in Inches (mm)

### DX Box Type 12



### DX Box Type 3R

