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PowerXL DH1 Series Drives**Product Description**

The DH1 HVAC/R drives are part of Eaton's next generation PowerXL Series of adjustable frequency drives specifically engineered for today's demanding HVAC/R market. The power unit makes use of the most sophisticated semiconductor technology and a highly modular construction that can be flexibly adapted to meet the customer's needs.

The control module was designed to include today's standard HVAC/R communication protocols and I/O while still having the modularity to add additional option cards.

Eaton's patented Active Energy Control is also a standard feature on DH1 drives, offering customers increased efficiency, safety and reliability.

These drives continue the tradition of robust performance and raise the bar on features and functionality, ensuring the best solution at the right price.

Product Range

230 V to 125 hp, 312 A, 90 kW

480 V to 250 hp, 310 A, 160 kW

575 V to 250 hp, 250 A, 187 kW

Features and Benefits**Hardware**

- Integrated common mode reduction 5% DC link choke with input surge protection
- Variable torque rated for HVAC/R demands
- 110% variable torque (IIL)
- Type 1/IP21 and Type 12/IP54 enclosures available
- Real-time clock—supports calendaring and PLC functionality
- Graphic LCD display and keypad—supports simple menu navigation as well as on-screen diagnostics and troubleshooting
- AUTO operation from keypad and two configurable soft keys
- Conformal coated control and power boards standard

- Control logic can be powered from an external auxiliary control panel—internal drive functions and fieldbus if necessary
- Standard I/O:
 - 8DI, 1DO
 - 2AI, 2AO
 - 2FC, 1FA relays
- Standard communications:
 - BACnet/IP, Modbus TCP, Modbus RTU, BACnet MS/TP
- Two expansion slots—intended to support additional I/O or communication protocols as necessary
- Quick disconnect terminals for I/O connections—supports fast, easy installation

Software

- Active Energy Control—minimizes energy losses in the motor, resulting in industry-leading energy efficiency for your application
- Energy savings calculator
- Quick Start Wizard upon initial power-up supports fast, easy installation
- Standard applications:
 - Standard
 - Multi-PID
 - Advanced
- Copy/paste functionality on drive keypad—allows for fast setup of multiple drives
- Pre-programmed I/O—supports fast, easy installation for most applications
- Dynamic motor regenerative energy management
- Advanced PC Tool with diagnostic capabilities
- Two keypad software keys for easy menu navigation and shortcuts

Standards and Certifications**Product**

- IEC/EN 61800-5-1
- IEC/EN 61800-5-2
- UL 508C
- IEC 61508
- EN 62061
- EN ISO 13849-1

EMC

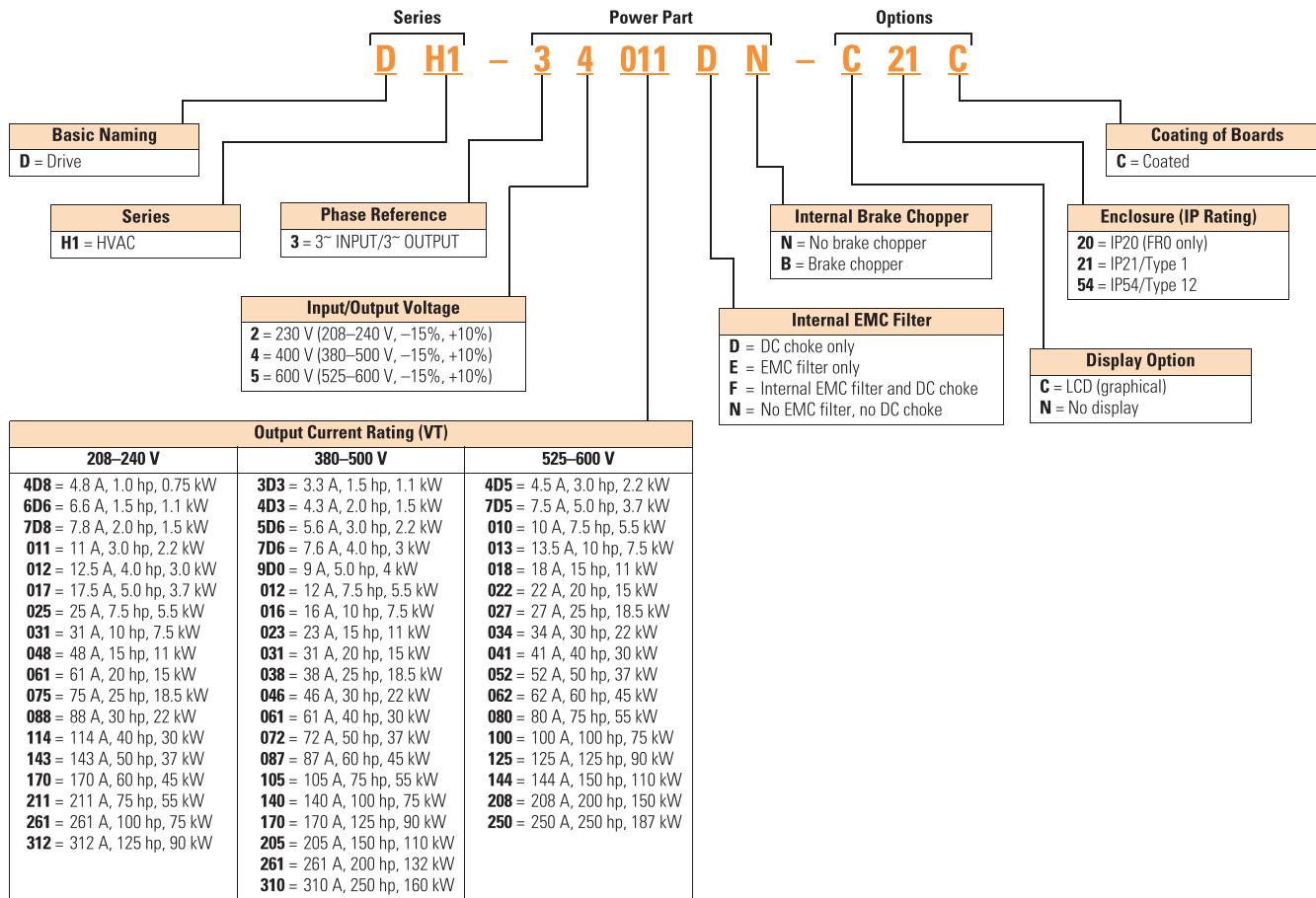
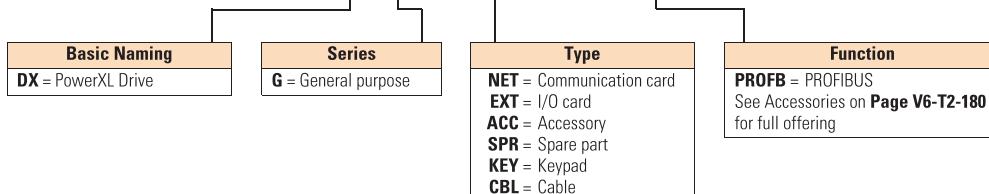
- Immunity: IEC/EN 61800-3
- Category C2

Certification

- UL
- cUL
- CE
- C-Tick
- RoHS
- Plenum rated

**Catalog Number Selection**

Catalog Number Selection is for illustrative purposes only and not to be used to create new catalog numbers.

PowerXL Series—DH1 HVAC/R Drive**PowerXL Series—DH1 HVAC/R Drive Option Boards****DX G – NET – PROFIBUS**

Product Selection**DH1 Series Drives—208–240 Volt****PowerXL Series—DH1 Type 1/IP21**

Frame Size	Variable Torque (VT) / Low Overload (I_L)			Catalog Number
	230 V, 50 Hz kW Rating	230 V, 60 Hz hp	Current A	
FR0	0.75	1	4.8	DH1-324D8EB-C20C ①
	1.1	1.5	6.6	DH1-326D6EB-C20C ①
	1.5	2	7.8	DH1-327D8EB-C20C ①
FR1	0.75	1	4.8	DH1-324D8DN-C21C
	1.1	1.5	6.6	DH1-326D6DN-C21C
	1.5	2	7.8	DH1-327D8DN-C21C
	2.2	3	11	DH1-32011DN-C21C
	3	—	12.5	DH1-32012DN-C21C
FR2	3.7	5	17.5	DH1-32017DN-C21C
	5.5	7.5	25	DH1-32025DN-C21C
	7.5	10	31	DH1-32031DN-C21C
FR3	11	15	48	DH1-32048DN-C21C
	15	20	61	DH1-32061DN-C21C
FR4	18.5	25	75	DH1-32075DN-C21C
	22	30	88	DH1-32088DN-C21C
	30	40	114	DH1-32114DN-C21C
FR5	37	50	143	DH1-32143DN-C21C
	45	60	170	DH1-32170DN-C21C
	55	75	211	DH1-32211DN-C21C
FR6	75	100	261	DH1-32261FN-C21C
	90	125	312	DH1-32312FN-C21C

PowerXL Series—DH1 Type 12/IP54

Frame Size	Variable Torque (VT) / Low Overload (I_L)			Catalog Number
	230 V, 50 Hz kW Rating	230 V, 60 Hz hp	Current A	
FR1	0.75	1	4.8	DH1-324D8DN-C54C
	1.1	1.5	6.6	DH1-326D6DN-C54C
	1.5	2	7.8	DH1-327D8DN-C54C
	2.2	3	11	DH1-32011DN-C54C
	3	—	12.5	DH1-32012DN-C54C
FR2	3.7	5	17.5	DH1-32017DN-C54C
	5.5	7.5	25	DH1-32025DN-C54C
	7.5	10	31	DH1-32031DN-C54C
FR3	11	15	48	DH1-32048DN-C54C
	15	20	61	DH1-32061DN-C54C
FR4	18.5	25	75	DH1-32075DN-C54C
	22	30	88	DH1-32088DN-C54C
	30	40	114	DH1-32114DN-C54C
FR5	37	50	143	DH1-32143DN-C54C
	45	60	170	DH1-32170DN-C54C
	55	75	211	DH1-32211DN-C54C
FR6	75	100	261	DH1-32261FN-C54C
	90	125	312	DH1-32312FN-C54C

Note

① IP20 FR0 will be available in June 2018.

DH1 Series Drives—380–500 Volt

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PowerXL Series—DH1**Type 1/IP21**

Frame Size	Variable Torque (VT) / Low Overload (I_L)			Catalog Number
	400 V, 50 Hz kW Rating	460 V, 60 Hz hp	Current A	
FR0	1.1	1.5	3.3	DH1-343D3EB-C20C ①
	1.5	2	4.6	DH1-344D3EB-C20C ①
	2.2	3	5.6	DH1-345D6EB-C20C ①
	3	5	7.6	DH1-347D6EB-C20C ①
FR1	1.1	1.5	3.3	DH1-343D3DN-C21C
	1.5	2	4.3	DH1-344D3DN-C21C
	2.2	3	5.6	DH1-345D6DN-C21C
	3	5	7.6	DH1-347D6DN-C21C
	4	—	9	DH1-349D0DN-C21C
	5.5	7.5	12	DH1-34012DN-C21C
FR2	7.5	10	16	DH1-34016DN-C21C
	11	15	23	DH1-34023DN-C21C
	15	20	31	DH1-34031DN-C21C
FR3	18.5	25	38	DH1-34038DN-C21C
	22	30	46	DH1-34046DN-C21C
	30	40	61	DH1-34061DN-C21C
FR4	37	50	72	DH1-34072DN-C21C
	45	60	87	DH1-34087DN-C21C
	55	75	105	DH1-34105DN-C21C
FR5	75	100	140	DH1-34140DN-C21C
	90	125	170	DH1-34170DN-C21C
	110	150	205	DH1-34205DN-C21C
FR6	132	200	261	DH1-34261FN-C21C
	160	250	310	DH1-34310FN-C21C

PowerXL Series—DH1**Type 12/IP54**

Frame Size	Variable Torque (VT) / Low Overload (I_L)			Catalog Number
	400 V, 50 Hz kW Rating	460 V, 60 Hz hp	Current A	
FR1	1.1	1.5	3.3	DH1-343D3DN-C54C
	1.5	2	4.3	DH1-344D3DN-C54C
	2.2	3	5.6	DH1-345D6DN-C54C
	3	5	7.6	DH1-347D6DN-C54C
	4	—	9	DH1-349D0DN-C54C
	5.5	7.5	12	DH1-34012DN-C54C
FR2	7.5	10	16	DH1-34016DN-C54C
	11	15	23	DH1-34023DN-C54C
	15	20	31	DH1-34031DN-C54C
FR3	18.5	25	38	DH1-34038DN-C54C
	22	30	46	DH1-34046DN-C54C
	30	40	61	DH1-34061DN-C54C
FR4	37	50	72	DH1-34072DN-C54C
	45	60	87	DH1-34087DN-C54C
	55	75	105	DH1-34105DN-C54C
FR5	75	100	140	DH1-34140DN-C54C
	90	125	170	DH1-34170DN-C54C
	110	150	205	DH1-34205DN-C54C
FR6	132	200	261	DH1-34261FN-C54C
	160	250	310	DH1-34310FN-C54C

Note

① IP20 FR0 will be available in June 2018.

DH1 Series Drives—575 Volt**PowerXL Series—DH1 Type 1/IP21**

Frame Size	Variable Torque (VT) / Low Overload (I_L)			Catalog Number
	575 V, 60 Hz kW Rating	575 V, 60 Hz hp	Current A	
FR1	2.2	3	4.5	DH1-354D5FB-C21C
	3.7	5	7.5	DH1-357D5FB-C21C
	5.5	7.5	10	DH1-35010FB-C21C
FR2	7.5	10	13.5	DH1-35013FB-C21C
	11	15	18	DH1-35018FB-C21C
	15	20	22	DH1-35022FB-C21C
FR3	18.5	25	27	DH1-35027FB-C21C
	22	30	34	DH1-35034FB-C21C
	30	40	41	DH1-35041FB-C21C
FR4	37	50	52	DH1-35052FN-C21C
	45	60	62	DH1-35062FN-C21C
	55	75	80	DH1-35080FN-C21C
FR5	75	100	100	DH1-35100FN-C21C
	90	125	125	DH1-35125FN-C21C
	110	150	144	DH1-35144FN-C21C
FR6	150	200	208	DH1-35208FN-C21C
	187	250	250	DH1-35250FN-C21C

PowerXL Series—DH1 Type 12/IP54

Frame Size	Variable Torque (VT) / Low Overload (I_L)			Catalog Number
	575 V, 60 Hz kW Rating	575 V, 60 Hz hp	Current A	
FR1	2.2	3	4.5	DH1-354D5FB-C54C
	3.7	5	7.5	DH1-357D5FB-C54C
	5.5	7.5	10	DH1-35010FB-C54C
FR2	7.5	10	13.5	DH1-35013FB-C54C
	11	15	18	DH1-35018FB-C54C
	15	20	22	DH1-35022FB-C54C
FR3	18.5	25	27	DH1-35027FB-C54C
	22	30	34	DH1-35034FB-C54C
	30	40	41	DH1-35041FB-C54C
FR4	37	50	52	DH1-35052FN-C54C
	45	60	62	DH1-35062FN-C54C
	55	75	80	DH1-35080FN-C54C
FR5	75	100	100	DH1-35100FN-C54C
	90	125	125	DH1-35125FN-C54C
	110	150	144	DH1-35144FN-C54C
FR6	150	200	208	DH1-35208FN-C54C
	187	250	250	DH1-35250FN-C54C

Accessories

The PowerXL Series—DH1 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—DH1 drives come with a factory-installed standard board configuration including the following:

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

PowerXL Series—DH1 I/O Card Kits

Description	Catalog Number
3 x DI, 3 x DO, 1 x thermistor, 24 Vdc/EXT option card	DXG-EXT-3DI3D01T
1 x AI, 2 x AO (isolated to control board) option card	DXG-EXT-1AI2AO
3 x relay dry contact (2NO + 1NO/NC) option card	DXG-EXT-3RO
3 x PT100 RTD thermistor input option card	DXG-EXT-THER1
6 x DI 240 Vac input option card	DXG-EXT-6DI

PowerXL Series—DH1 Communication Card Kits

Description	Catalog Number
PROFIBUS-DP communication card	DXG-NET-PROFB
PROFIBUS DB9 to 5-pin adapter card	DXG-NET-PROAD

PowerXL Series—DH1 Keypad Kits

Description	Catalog Number
Standard keypad	DXH-KEY-LCD
Remote keypad kit (IP 54 rated keypad holder and 3 m cable)	DXG-KEY-RMTKIT
1 m remote keypad cable	DXG-CBL-1M0
3 m remote keypad cable	DXG-CBL-3M0
Remote keypad mounting holder only	DXG-KEY-HOLDER
Type 12/IP54 keypad hole plug (maintain rating without keypad)	DXG-KEY-N12PLUG

PowerXL Series—DH1 Conversion and Flange Kits

The Type 12/IP54 option kit is used to convert a Type 1/IP21 to a Type 12/IP54 drive. The kit includes cover, fan and grommets.

Type 12/IP54 Conversion Kits ^①

Description	Catalog Number
Frame 1 230 V Type 12/IP54 kit	DXH-ACC-2FR1N12KIT
Frame 1 480 V Type 12/IP54 kit	DXH-ACC-4FR1N12KIT
Frame 2 Type 12/IP54 kit	DXH-ACC-FR2N12KIT

The flange kit is used when the power section heat sink is mounted through the back panel of an enclosure. The kit includes hardware, top flange plate, bottom flange plate and two side flange plates.

Flange Kits

Description	Catalog Number
Frame 1 flange kit Type 12/IP54	DXG-ACC-FR1N12FK
Frame 2 flange kit Type 12/IP54	DXG-ACC-FR2N12FK
Frame 3 flange kit Type 12/IP54	DXG-ACC-FR3N12FK
Frame 4 flange kit Type 12/IP54	DXG-ACC-FR4N12FK
Frame 5 flange kit Type 12/IP54	DXG-ACC-FR5N12FK
Frame 6 flange kit Type 12/IP54	DXG-ACC-FR6N12FK

PowerXL Series—DH1 Demo Unit**Demo Unit**

Description	Catalog Number
DH1 control module demo stand	DH1-DEMO1

Note

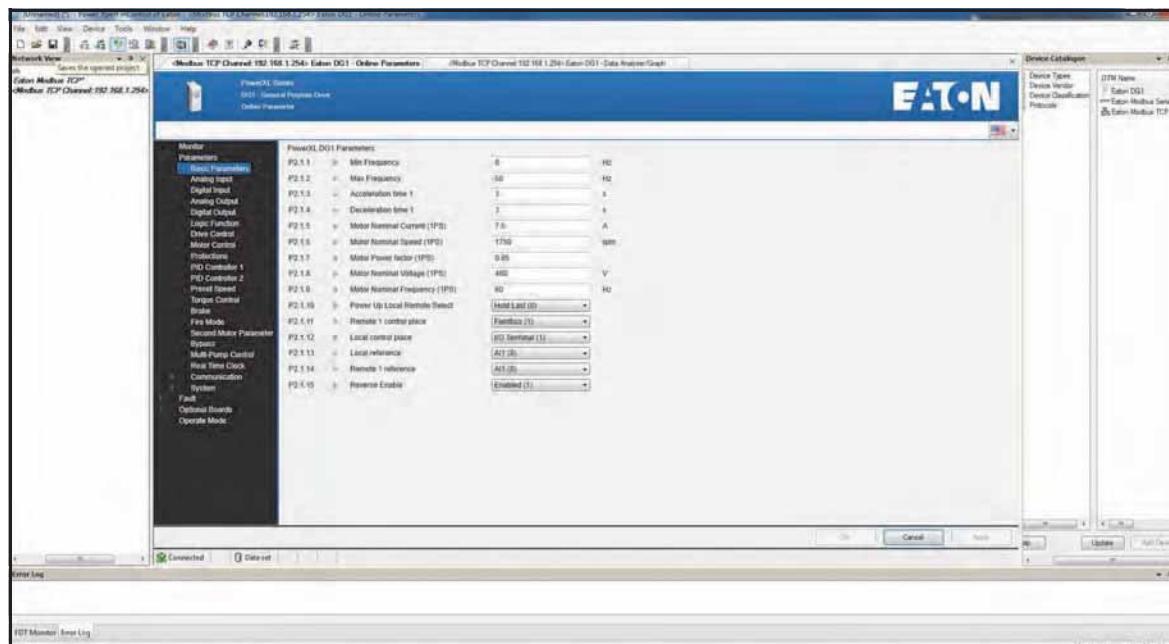
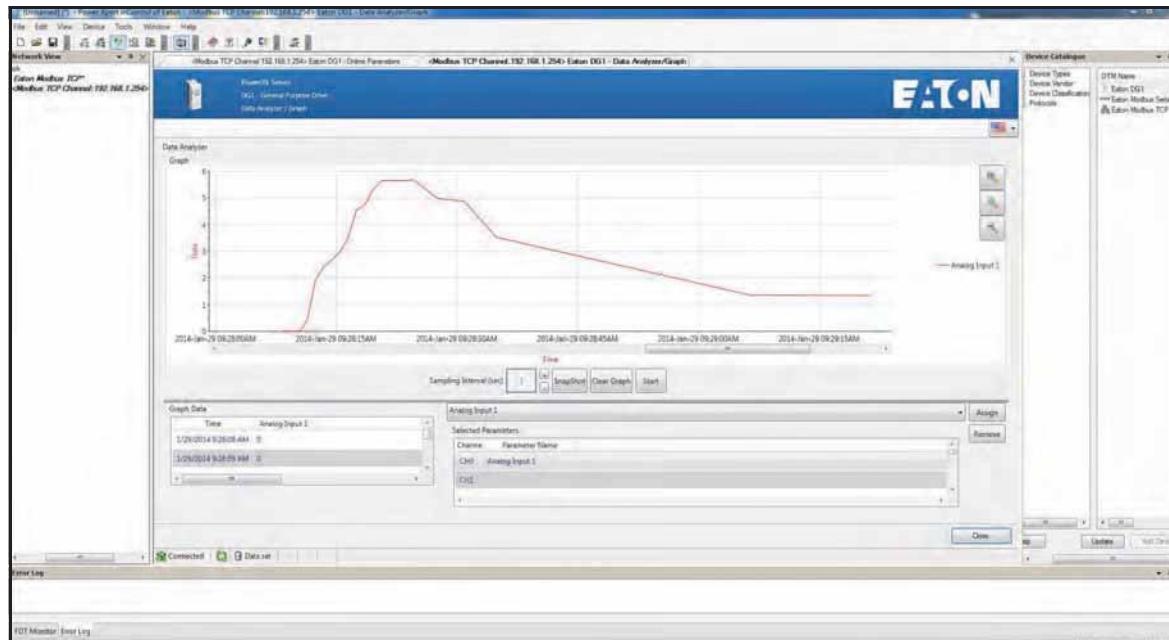
^① NEMA 12 DH1 drives from W34 are available within 3 business days.

Power Xpert *inControl* Software

The PowerXL Series PC Tool is designed for programming, controlling and monitoring of the DH1 drives. Features include loading parameters that can be saved to a file or printed, setting references, starting and stopping the motor, monitoring signals in graphical or text form, and real-time display.

PowerXpert *inControl* Software

Description	Catalog Number
Software cable (USB to keypad [RJ45])	DXG-CBL-PCCABLE
Real-time clock battery (approximately 10,000 hours life)	DXG-ACC-RTBATT



Brake Chopper Options

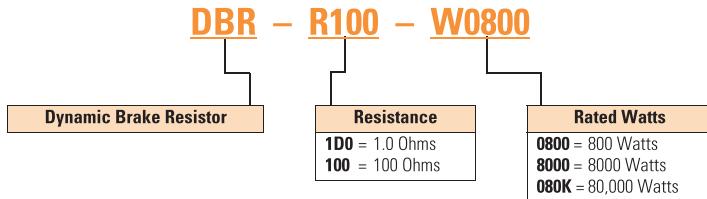
The brake chopper circuit option is used for applications that require dynamic braking. Dynamic braking resistors are not included with drive purchase. Consult the factory for additional dynamic braking resistor selections that are supplied separately. A list of common resistors are listed below and are complete indoor assemblies, include a pre-wired terminal block and a thermal switch, and are not UL Listed.

Duty Cycle

The duty cycle rating is based on a 60-second period. For example, the 20% duty cycle resistor can carry 100% current for 12 seconds out of every 60 seconds, while the 50% duty cycle resistor can carry 150% current for 30 seconds out of every 60 seconds.

Torque

If the braking torque required is less than 15%, dynamic braking is not required because the regenerated energy will be dissipated in the drive and motor losses.

Dynamic Brake Resistor—Catalog Number Selection**230 V Brake Resistors**

Drive hp (CT/LH)	Minimum Ohms
0.75	15.0
1	15.0
1.5	15.0
2	15.0
3	15.0
4	9.0
5	9.0
7.5	9.0
10	7.0
15	7.0
20	2.0
25	2.0
30	2.0
40	2.0
50	2.0
60	2.0
75	2.0
100	2.0

20% Duty Cycle, 100% Torque	
Catalog Number	Dimensions
DBR-R100-W0400	12W x 5D x 5H
DBR-R100-W0400	12W x 5D x 5H
DBR-R100-W0400	12W x 5D x 5H
DBR-R100-W0400	12W x 5D x 5H
DBR-R036-W0800	12W x 7D x 5H
DBR-R036-W0800	12W x 7D x 5H
DBR-R036-W0800	12W x 7D x 5H
DBR-R020-W1200	12W x 10D x 5H
DBR-R015-W1600	12W x 13D x 5H
DBR-R012-W2400	19W x 10D x 5H
DBR-R9D3-W3200	19W x 10D x 5H
DBR-R5D5-W4000	26.5W x 10D x 5H
DBR-R4D8-W4800	26.5W x 10D x 5H
DBR-R004-W6000	26.5W x 13D x 5H
DBR-R3D1-W7500	26.5W x 16D x 5H
DBR-R2D8-W9000	26.5W x 16D x 5H
DBR-R2D6-W012K	28W x 10D x 10H
DBR-R002-W015K	28W x 16D x 10H

50% Duty Cycle, 150% Torque	
Catalog Number	Dimensions
DBR-R100-W0800	12W x 7D x 5H
DBR-R100-W0800	12W x 7D x 5H
DBR-R036-W1200	12W x 10D x 5H
DBR-R036-W1200	12W x 10D x 5H
DBR-R036-W2000	12W x 16D x 5H
DBR-R012-W2400	19W x 10D x 5H
DBR-R020-W2800	19W x 13D x 5H
DBR-R012-W4800	26.5W x 10D x 5H
DBR-R112-W6000	26.5W x 13D x 5H
DBR-R7D8-W9000	28W x 10D x 10H
DBR-R3D4-W012K	28W x 10D x 10H
DBR-R5D1-W015K	28W x 16D x 10H
DBR-R4D1-W020K	28W x 16D x 10H
DBR-R3D4-W025K	30W x 18D x 16H
DBR-R2D1-W030K	30W x 18D x 24H
DBR-R002-W036K	30W x 18D x 24H
DBR-R002-W045K	30W x 18D x 32H
DBR-R002-W060K	30W x 18D x 48H

Line and Load Reactors

A line and load reactor is a three-phase inductance filter that can be placed on the line and load side of the AFD to help improve the harmonic performance of the system. Consult the factory for additional filtering options and further technical details.

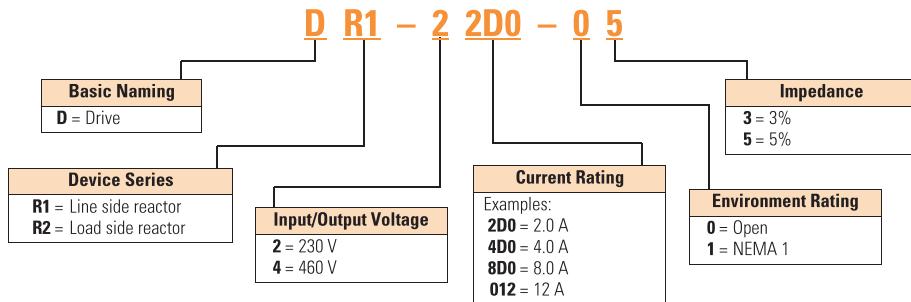
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DR1 Line Reactor

A line reactor helps to provide a moderate reduction in current harmonics similar to a DC choke. It also provides increased input protection for AFD and its semiconductors from line transients helping to extend the life of the AFD.

DR2 Output Reactor

An output filter is used to reduce the transient voltage (dV/dt) at the motor terminals. The output filter is recommended for cable lengths exceeding 100 ft (30 m) with a drive of 3 hp and above and for cable lengths of 33 ft (10 m) with a drive of 2 hp and below.

Line and Load Reactors—Catalog Number Selection**Line and Load Reactors—230 V**

hp (CT)	Open		NEMA 1	
	Line Reactor	Load Reactor	Line Reactor	Load Reactor
	3%	5%	3%	5%
0.75	DR1-23D2-03	DR1-23D2-05	DR1-23D2-13	DR1-23D2-15
1	DR1-24D2-03	DR1-24D2-05	DR1-24D2-13	DR1-24D2-15
1.5	DR1-26D0-03	DR1-26D0-05	DR1-26D0-13	DR1-26D0-15
2	DR1-26D8-03	DR1-26D8-05	DR1-26D8-13	DR1-26D8-15
3	DR1-29D6-03	DR1-29D6-05	DR1-29D6-13	DR1-29D6-15
5	DR1-2015-03	DR1-2015-05	DR1-2015-13	DR1-2015-15
7.5	DR1-2022-03	DR1-2022-05	DR1-2022-13	DR1-2022-15
10	DR1-2028-03	DR1-2028-05	DR1-2028-13	DR1-2028-15
15	DR1-2042-03	DR1-2042-05	DR1-2042-13	DR1-2042-15
20	DR1-2054-03	DR1-2054-05	DR1-2054-13	DR1-2054-15
25	DR1-2068-03	DR1-2068-05	DR1-2068-13	DR1-2068-15
30	DR1-2080-03	DR1-2080-05	DR1-2080-13	DR1-2080-15
40	DR1-2104-03	DR1-2104-05	DR1-2104-13	DR1-2104-15
50	DR1-2130-03	DR1-2130-05	DR1-2130-13	DR1-2130-15
60	DR1-2154-03	DR1-2154-05	DR1-2154-13	DR1-2154-15
75	DR1-2192-03	DR1-2192-05	DR1-2192-13	DR1-2192-15
100	DR1-2248-03	DR1-2248-05	DR1-2248-13	DR1-2248-15
	DR2-2225-13	DR2-2225-15	DR2-2225-13	DR2-2225-15

Replacement Parts**Frame 1**

Description	230 V Catalog Number	480 V Catalog Number	600 V Catalog Number
Standard keypad	DXH-KEY-LCD	DXH-KEY-LCD	DXH-KEY-LCD
Control module kit with keypad	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT
Control module kit without keypad	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD
Software kit (software, cable, manual)	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE
Type 1/IP21 standard cover	DXH-SPR-FR1CVR	DXH-SPR-FR1CVR	DXH-SPR-FR1CVR
EMI board	DXH-SPR-2FR1EB	DXH-SPR-4FR1EB	DXG-SPR-5FR1EB
Type 12/IP54 kit	DXH-ACC-2FR1N12KIT	DXH-ACC-4FR1N12KIT	DXH-ACC-4FR1N12KIT
Main power board	DXH-SPR-2FR1MPB	DXH-SPR-4FR1MPB	DXG-SPR-5FR1MPB

Frame 2

Description	230 V Catalog Number	480 V Catalog Number	600 V Catalog Number
Standard keypad	DXH-KEY-LCD	DXH-KEY-LCD	DXH-KEY-LCD
Control module kit with keypad	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT
Control module kit without keypad	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD
Software kit (software, cable, manual)	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE
Type 1/IP21 standard cover	DXH-SPR-FR2CVR	DXH-SPR-FR2CVR	DXH-SPR-FR2CVR
EMI board	DXH-SPR-2FR2EB	DXH-SPR-4FR2EB	DXG-SPR-5FR2EB
Type 12/IP54 kit	DXH-ACC-FR2N12KIT	DXH-ACC-FR2N12KIT	DXH-ACC-FR2N12KIT
Main power board	DXH-SPR-2FR2MPB	DXH-SPR-4FR2MPB	DXG-SPR-5FR2MPB

Frame 3

Description	230 V Catalog Number	480 V Catalog Number	600 V Catalog Number
Standard keypad	DXH-KEY-LCD	DXH-KEY-LCD	DXH-KEY-LCD
Control module kit with keypad	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT
Control module kit without keypad	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD
Software kit (software, cable, manual)	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE
Type 1/IP21 standard cover	DXH-SPR-FR3CVR	DXH-SPR-FR3CVR	DXH-SPR-FR3CVR
EMI board	DXH-SPR-2FR3EB	DXH-SPR-4FR3EB	DXG-SPR-5FR3EB
Drive board	DXH-SPR-2FR3DB	DXH-SPR-4FR3DB	DXG-SPR-5FR3DB
Main power board	DXG-SPR-2FR3MPB	DXG-SPR-4FR3MPB	DXG-SPR-5FR3MPB

Note

① Factory recommended spare parts.

Frame 4

Description	230 V Catalog Number	480 V Catalog Number	600 V Catalog Number
Standard keypad	DXH-KEY-LCD	DXH-KEY-LCD	DXH-KEY-LCD
Control module kit with keypad	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT
Control module kit without keypad	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD
Software kit (software, cable, manual)	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE
Type 1/IP21 standard cover	DXH-SPR-FR4CVR	DXH-SPR-FR4CVR	DXH-SPR-FR4CVR
EMI board	DXG-SPR-2FR4EB	DXG-SPR-4FR4EB	DXG-SPR-5FR4EB
Softstart board	DXH-SPR-2FR4SB	DXH-SPR-4FR4SB	DXG-SPR-5FR4SB
Main power board	DXH-SPR-2FR4MPB	DXH-SPR-4FR4MPB	DXG-SPR-5FR4MPB

2

Frame 5

Description	230 V Catalog Number	480 V Catalog Number	600 V Catalog Number
Standard keypad	DXH-KEY-LCD	DXH-KEY-LCD	DXH-KEY-LCD
Control module kit with keypad	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT
Control module kit without keypad	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD
Software kit (software, cable, manual)	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE
Type 1/IP21 standard cover	DXH-SPR-FR5CVR	DXH-SPR-FR5CVR	DXH-SPR-FR5CVR
EMI-1 board	DXH-SPR-2FR5E1B	DXG-SPR-4FR5E1B	DXG-SPR-5FR5E1B
EMI-2 board	—	—	DXG-SPR-5FR5E2B
Main power board	DXH-SPR-2FR5MPB	DXH-SPR-4FR5MPB	DXG-SPR-5FR5MPB

Frame 6

Description	230 V Catalog Number	480 V Catalog Number	600 V Catalog Number
Standard keypad	DXH-KEY-LCD	DXH-KEY-LCD	DXH-KEY-LCD
Control module kit with keypad	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT	DXH-SPR-CTRLKIT
Control module kit without keypad	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD	DXH-SPR-CTRLBOARD
Software kit (software, cable, manual)	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE	DXH-ACC-SOFTWARE
Type 1/IP21 standard cover	DXH-SPR-FR6CVR	DXH-SPR-FR6CVR	DXH-SPR-FR6CVR
EMI board	DXG-SPR-FR6EB	DXG-SPR-FR6EB	DXG-SPR-FR6EB
Main power board	DXG-SPR-2FR6MPB	DXG-SPR-4FR6MPB	DXG-SPR-5FR6MPB
Softstart board	DXG-SPR-2FR6SB	DXG-SPR-4FR6SB	DXG-SPR-5FR6SB

Note

① Factory recommended spare parts.

Technical Data and Specifications

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PowerXL Series—DH1 Technical Data and Specifications

Attribute	Description	Specification
Input ratings	Input voltage U_{in}	208 V to 240 V, 380 V to 500 V, 525 V to 600 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); 5 kAIC (without fuses or breakers)
Output ratings	Output voltage	0 to U_{in}
	Continuous output current	I_L : ambient temperature maximum 40 °C, up to 60 °C with derating, overload $1.1 \times I_L$ (1 min./10 min.)
	Overload current	110% for variable torque
	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 operating temperature	-10 °C (no frost) to +50 °C, up to +60 °C with derating (CT) -10 °C (no frost) to +40 °C, up to +60 °C with derating (VT)
	Storage temperature	-40 °C to +70 °C
	Relative humidity	0–95% RH, noncondensing, non-corrosive
	Air quality:	Tested according to IEC 60068-2-60 Test Key: Flowing mixed gas corrosion test, Method 1 (H ₂ S [hydrogen sulfide] and SO ₂ [sulfur dioxide])
	• Chemical vapors	Designed according to: IEC 60721-3-3, unit in operation, class 3C2
	• Mechanical particles	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—DH1 Technical Data and Specifications, continued

Attribute	Description	Specification
Ambient conditions, continued	Vibration: • EN 61800-5-1 • EN 60068-2-6	5–150 Hz Displacement amplitude: 1 mm (peak) at 5 Hz to 15.8 Hz (FR1–FR6) Maximum acceleration amplitude: 1g at 15.8 Hz to 150 Hz (FR1–FR6)
	Shock: • ISTA 1 A • EN 60068-2-27	Storage and shipping: maximum 15 g, 11 ms (in package)
	Oversupply	Oversupply Category III
	Pollution degree	Pollution Degree 2
	Enclosure class	IP21/Type 1 standard in entire kW/hp range IP54/Type 12 option Note: Keypad or keypad hole plug required to be mounted in drive for IP54/Type 12 rating
	Immunity	Fulfils EN 61800-3 (2004), first and second environment
	MTBF	FR1: 165,457 hours FR2: 134,833 hours FR3: 102,515 hours FR4: 121,567 hours FR5: 108,189 hours FR6: 100,000 hours
	Noise	FR1: 51.2 dB FR2: 58.6 dB FR3: 61.0 dB FR4: 68.0 dB FR5: 69.1 dB FR6: 73.2 dB
Standards	Safety	UL 508C, CSA C22.2 No. 274-13 and EN 61800-5-1
	EMC	+EMC2: EN 61800-3 (2004), Category C2 The drive can be modified for IT networks and corner grounding TN system
	Electrostatic discharge	Second environment, IEC 61000-4-2, 4 kV CD or 8 kV AD, Criterion B
	Fast transient burst	Second environment, IEC 61000-4-4, 2 kV/5 kHz, Criterion B
	Dielectrical strength	Primary to secondary: 3600 Vac/5100 Vdc Primary to earth: 2000 Vac/2828 Vdc
	Approvals	EAC, RCM (C-Tick), RoHS, CE, UL and cUL (see nameplate for more detailed approvals)
Fieldbus connections		Onboard: BACnet/IP, BACnet MS/TP, Modbus TCP, Modbus RTU

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Adjustable Frequency Drives

PowerXL DH1 Series Drives

PowerXL Series—DH1 Technical Data and Specifications, continued

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Attribute	Description	Specification
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)

PowerXL Series—DH1 Technical Data and Specifications—Efficiency**230 V**

Frame Size	Load Torque	Efficiency	
		VT	Input THDi
FR1	25%	92.10%	42.8%
	50%	95.20%	35.2%
	100%	96.70%	29.9%
FR2	25%	90.80%	70.0%
	50%	96.64%	46.6%
	100%	97.30%	33.3%
FR3	25%	97.23%	53.1%
	50%	97.37%	43.6%
	100%	97.00%	30.8%
FR4	25%	94.60%	39.4%
	50%	97.20%	32.4%
	100%	97.60%	25.6%
FR5	25%	94.5	30.50%
	50%	97.80%	30.8%
	100%	97.70%	25.0%

575 V

Frame Size	Load Torque	Efficiency	
		VT	Input THDi
FR1	25%	97.48%	62.6%
	50%	97.79%	45.6%
	100%	98.10%	36.8%
FR2	25%	98.06%	60.6%
	50%	98.19%	47.2%
	100%	98.20%	36.7%
FR3	25%	97.98%	78.9%
	50%	98.32%	55.5%
	100%	98.10%	36.3%
FR4	25%	98.27%	66.1%
	50%	98.57%	41.6%
	100%	98.30%	31.2%
FR5	25%	98.60%	52.80%
	50%	98.81%	35.9%
	100%	98.60%	28.4%

480 V

Frame Size	Load Torque	Efficiency	
		VT	Input THDi
FR1	25%	93.30%	54.0%
	50%	97.10%	46.8%
	100%	97.61%	35.3%
FR2	25%	95.90%	59.8%
	50%	97.81%	42.7%
	100%	98.11%	33.8%
FR3	25%	96.40%	69.2%
	50%	97.87%	45.2%
	100%	97.79%	32.6%
FR4	25%	98.00%	56.5%
	50%	97.97%	39.8%
	100%	97.96%	31.5%
FR5	25%	97.8	50.3%
	50%	98.39%	37.0%
	100%	98.14%	29.5%

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Adjustable Frequency Drives

PowerXL DH1 Series Drives

Wiring Diagram

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PowerXL Series—DH1 Control Wiring Diagram

External Wiring	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)
L -	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	—	—
	10	DIN8	Digital Input 8	Force Remote (Tl+)	Input takes VFD from Local to Remote
r -	11	CMB	DI5 to DI8 Common	Grounded	Allows source input
H -	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	D01	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
L -	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		

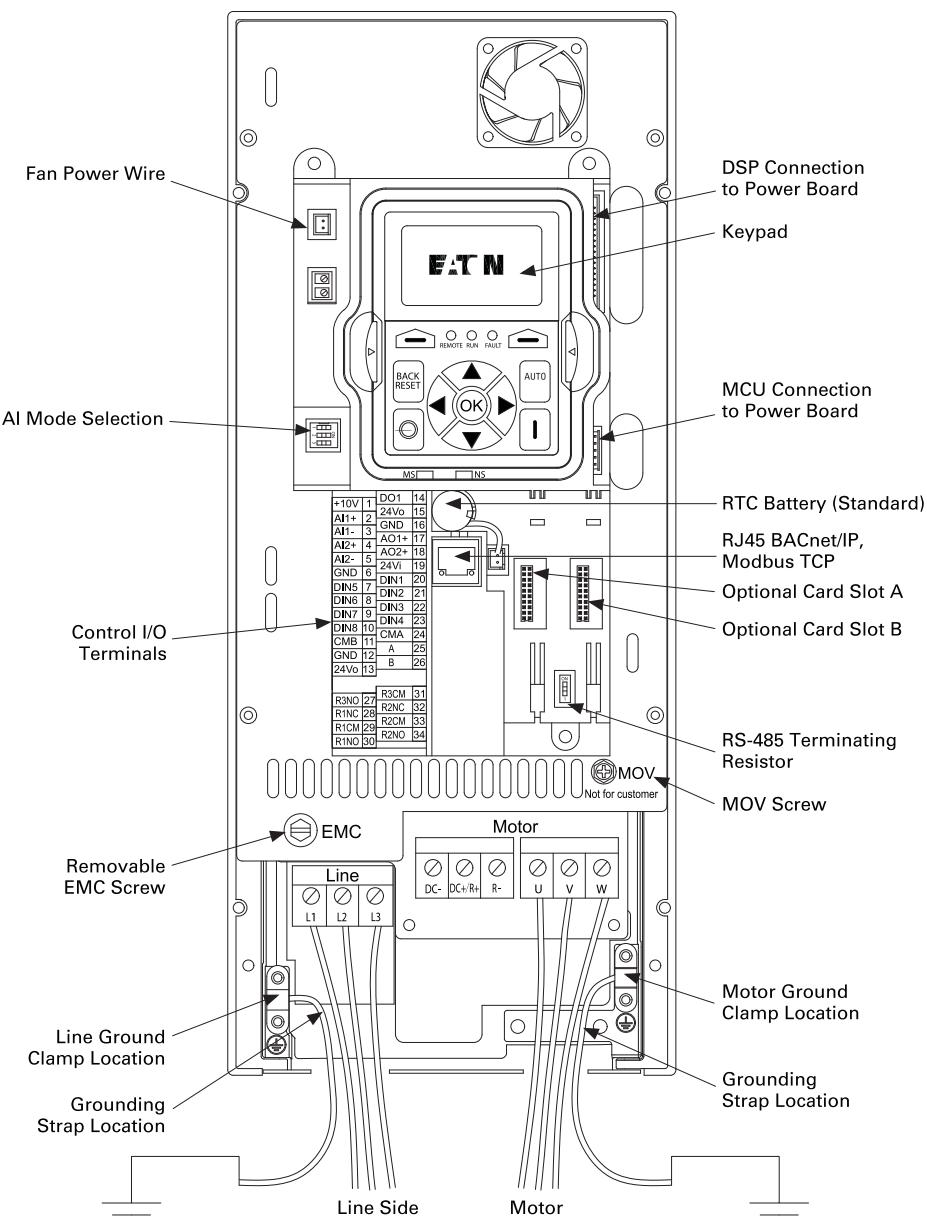
Notes

The above wiring demonstrates a SINK configuration. It is important that CMA and CMB are wired to ground (as shown by dashed line).

If a SOURCE configuration is desired, wire 24 V to CMA and CMB and close the inputs to ground.

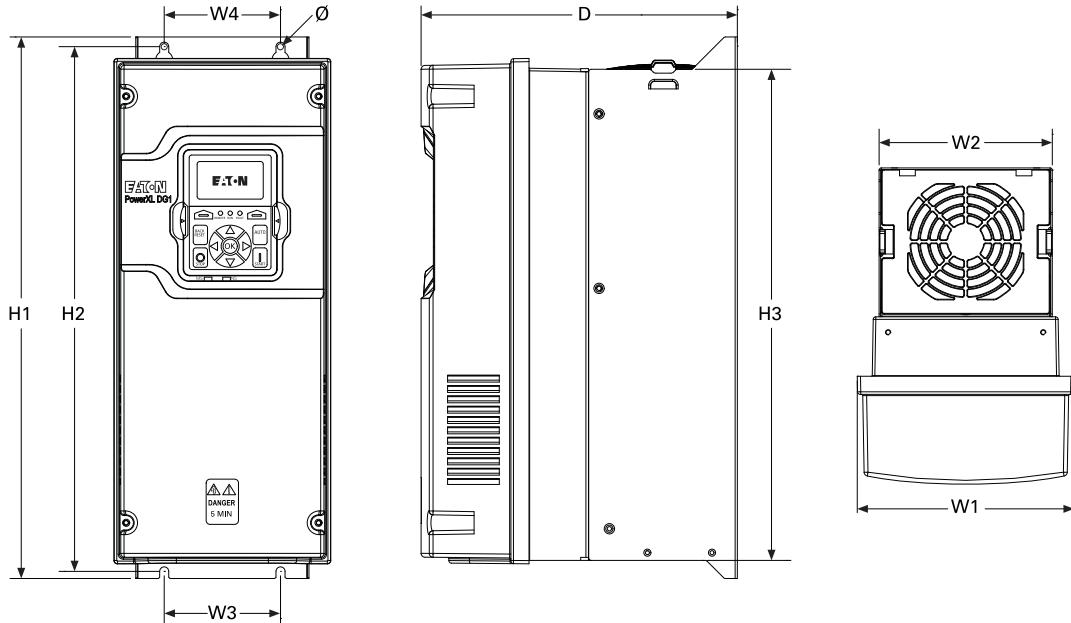
When using the +10 V for AI1, it is important to wire AI1– to ground (as shown by dashed line).

If using +10 V for AI1 or AI2, terminals 3, 5 and 6 need to be jumpered together.

Control Board Layout**PowerXL Series—DH1 Control Board Layout**

Dimensions

Approximate Dimensions in Inches (mm)

2**PowerXL Series—DH1 Dimensions**

Frame Size	Voltage	hp (CT/I _H)	kW	Amperes (CT/I _H)	Approximate Dimensions in Inches (mm)								Weight Lb (kg)	
					D	H1	H2	H3	W1	W2	W3	W4	Ø	
FR0	230 Vac	1–2	0.75–1.5	4.8–7.8	6.83 (173.5)	10.58 (268.7)	10.16 (258.0)	9.54 (242.3)	5.00 (127.0)	4.97 (126.3)	4.26 (108.3)	4.26 (108.3)	0.28 (7.0)	4.41 (2.0)
	480 Vac	1.5–5	1.1–3	3.3–7.6										
FR1	230 Vac	1–4	0.75–3	4.8–12.5	7.91 (200.9)	12.87 (326.9)	12.28 (311.9)	11.50 (292.1)	6.02 (153.0)	4.80 (121.9)	3.94 (100.1)	3.94 (100.1)	0.28 (7.0)	14.33 (6.5)
	480 Vac	1.5–7.5	1.1–5.5	3.3–12										
	575 Vac	3–7.5	2.2–5.5	4.5–10										
FR2	230 Vac	5–10	3.7–7.5	17.5–31	9.63 (244.7)	16.50 (419.1)	15.98 (405.9)	14.96 (380.0)	6.61 (167.8)	5.28 (134.1)	3.54 (90.0)	3.54 (90.0)	0.28 (7.0)	23.37 (10.6)
	480 Vac	10–20	7.5–15	16–31										
	575 Vac	10–20	7.5–15	13.5–22										
FR3	230 Vac	15–20	11–15	48–61	10.44 (265.1)	21.97 (558.0)	21.46 (545.0)	20.41 (518.5)	8.06 (204.6)	7.24 (183.9)	4.92 (125.0)	4.92 (125.0)	0.35 (9.0)	49.82 (22.6)
	480 Vac	25–40	18.5–30	38–61										
	575 Vac	25–40	18.5–30	27–41										
FR4	230 Vac	25–40	18.5–30	75–114	11.57 (294.0)	24.80 (629.9)	24.31 (617.5)	23.27 (591.1)	9.36 (237.7)	9.13 (231.9)	8.07 (205.0)	8.07 (205.0)	0.35 (9.0)	77.60 (35.2)
	480 Vac	50–75	37–55	72–105										
	575 Vac	50–75	37–55	52–80										
FR5	230 Vac	50–75	37–55	143–211	13.41 (340.7)	34.98 (888.5)	29.65 (753.1)	27.83 (706.9)	11.34 (288.0)	11.10 (281.9)	8.66 (220.0)	8.66 (220.0)	0.35 (9.0)	154.32 (70.0)
	480 Vac	100–150	75–110	140–205										
	575 Vac	100–150	75–110	100–144										
FR6	230 Vac	100–125	75–90	261–312	14.61 (371.0)	34.04 (864.5)	33.27 (845.0)	40.75 (1035.0)	19.13 (486.0)	18.90 (480.0)	15.75 (400.0)	15.75 (400.0)	0.35 (9.0)	281.3 (127.6)
	480 Vac	200–250	132–160	261–310										
	575 Vac	200–250	150–187	208–250										

PowerXL DH1 Series HVAC/R Enclosed Drive**Contents****Description**

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Dimensions	V6-T2-207

2

PowerXL DH1 Series Enclosed Drives**Product Description**

The DH1 enclosed drive family incorporates the latest Eaton drive technology into pre-engineered enclosed solutions covering the HVAC/R industry's most common applications. Using the benefits of the PowerXL DH1, the enclosed family provides enhanced user safety with short circuit current ratings up to 100 kAIC as well as industry-leading energy efficiency from the patented Active Energy Control® algorithm.

Features and Benefits

- VT rated to meet HVAC/R industry standards
- Available circuit breaker, motor circuit protector, fused disconnect and isolation fusing options to provide input power protection up to 100 kAIC
- Standard 2 and 3 contactor bypass configurations
- Multi-color LED pilot device allows for one light to represent multiple drive states
- Compact disconnect enclosure allows for simple 100 kAIC disconnect platform for simple HVAC/R applications
- Standard NEMA 12 and 3R designs allow for optimized product footprint
- Onboard HVAC/R communications allow for easy connection to most building management systems
- Plenum rated
- DC link choke provides reduction in input harmonics equal to or better than 5% AC line reactor

Standards and Certifications

- UL 508C



Listed

Enclosure Ratings

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

Mounting

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

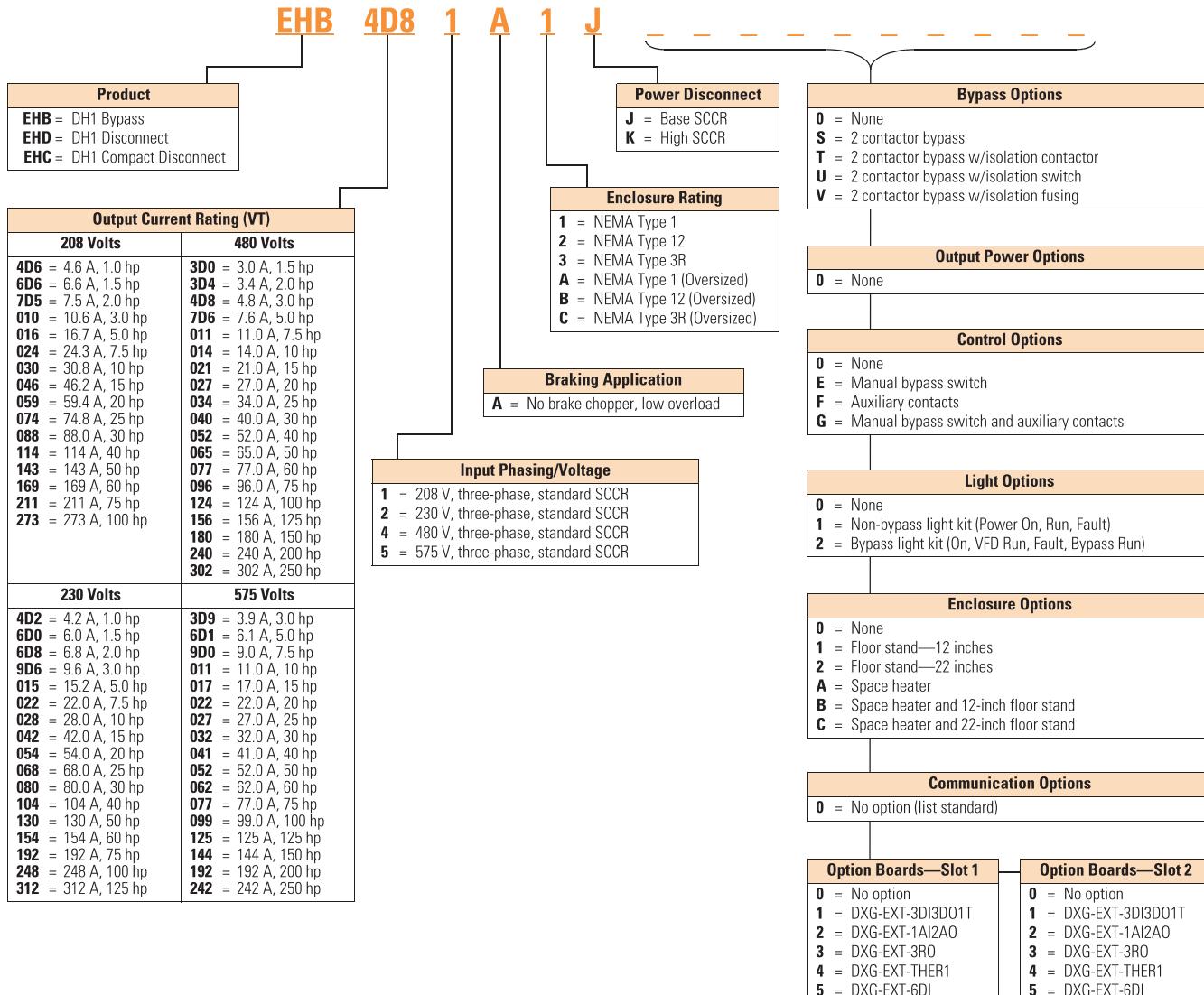
Product Range

- 208 V: 1–100 hp
- 230 V: 1–125 hp
- 480 V: 1.5–250 hp

Catalog Number Selection

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

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PowerXL DH1 Series Enclosed Drives

Product Selection**EHC—DH1 Compact Disconnect****EHC****208 V**

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1D		
1	4.6	EHC4D61A1K00000000
1.5	6.6	EHC6D61A1K00000000
2	7.5	EHC7D51A1K00000000
3	10.6	EHC0101A1K00000000
Frame Size H2D		
5	16.7	EHC0161A1K00000000
7.5	24.3	EHC0241A1K00000000
10	30.8	EHC0301A1K00000000
Frame Size H3D		
15	46.2	EHC0461A1K00000000
20	59.4	EHC0591A1K00000000
Frame Size H4D		
25	74.8	EHC0741A1K00000000
30	88	EHC0881A1K00000000
40	114	EHC1141A1K00000000

480 V

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1D		
1.5	3	EHC3D04A1K00000000
2	3.4	EHC3D44A1K00000000
3	4.8	EHC4D84A1K00000000
5	7.6	EHC7D64A1K00000000
7.5	11	EHC0114A1K00000000
Frame Size H2D		
10	14	EHC0144A1K00000000
15	21	EHC0214A1K00000000
20	27	EHC0274A1K00000000
Frame Size H3D		
25	34	EHC0344A1K00000000
30	40	EHC0404A1K00000000
40	52	EHC0524A1K00000000
Frame Size H4D		
50	65	EHC0654A1K00000000
60	77	EHC0774A1K00000000
75	96	EHC0964A1K00000000

230 V

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1D		
1	4.2	EHC4D22A1K00000000
1.5	6	EHC6D02A1K00000000
2	6.8	EHC6D82A1K00000000
3	9.6	EHC9D62A1K00000000
Frame Size H2D		
5	15.2	EHC0152A1K00000000
7.5	22	EHC0222A1K00000000
10	28	EHC0282A1K00000000
Frame Size H3D		
15	42	EHC0422A1K00000000
20	54	EHC0542A1K00000000
Frame Size H4D		
25	68	EHC0682A1K00000000
30	80	EHC0802A1K00000000
40	104	EHC1042A1K00000000

575 V

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1D		
3	3.9	EHC3D95A1K00000000
5	6.1	EHC6D15A1K00000000
7.5	9	EHC9D05A1K00000000
Frame Size H2D		
10	11	EHC0115A1K00000000
15	17	EHC0175A1K00000000
20	22	EHC0225A1K00000000
Frame Size H3D		
25	27	EHC0275A1K00000000
30	32	EHC0325A1K00000000
40	41	EHC0415A1K00000000
Frame Size H4D		
50	52	EHC0525A1K00000000
60	62	EHC0625A1K00000000
75	77	EHC0775A1K00000000

EHD—DH1 Disconnect**2**

208 V—NEMA Type 1		
Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1S		
1	4.6	EHD4D61A1J00000000
1.5	6.6	EHD6D61A1J00000000
2	7.5	EHD7D51A1J00000000
3	10.6	EHD0101A1J00000000
Frame Size H2S		
5	16.7	EHD0161A1J00000000
7.5	24.3	EHD0241A1J00000000
10	30.8	EHD0301A1J00000000
Frame Size H3		
15	46.2	EHD0461A1J00000000
20	59.4	EHD0591A1J00000000
Frame Size H4		
25	74.8	EHD0741A1K00000000
30	88	EHD0881A1K00000000
40	114	EHD1141A1K00000000
Frame Size CX		
50	143	EHD1431A1K00000000
60	169	EHD1691A1K00000000
75	211	EHD2111A1K00000000
Frame Size DX		
100	273	EHD2731A1K00000000

**208 V—NEMA Type 12**

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1	4.6	EHD4D61A2J00000000
1.5	6.6	EHD6D61A2J00000000
2	7.5	EHD7D51A2J00000000
3	10.6	EHD0101A2J00000000
5	16.7	EHD0161A2J00000000
7.5	24.3	EHD0241A2J00000000
10	30.8	EHD0301A2J00000000
15	46.2	EHD0461A2J00000000
20	59.4	EHD0591A2J00000000
Frame Size BX		
25	74.8	EHD0741A2K00000000
30	88	EHD0881A2K00000000
40	114	EHD1141A2K00000000
Frame Size CX		
50	143	EHD1431A2K00000000
60	169	EHD1691A2K00000000
75	211	EHD2111A2K00000000
Frame Size DX		
100	273	EHD2731A2K00000000

208 V—NEMA Type 3R

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1	4.6	EHD4D61A3J00000000
1.5	6.6	EHD6D61A3J00000000
2	7.5	EHD7D51A3J00000000
3	10.6	EHD0101A3J00000000
5	16.7	EHD0161A3J00000000
7.5	24.3	EHD0241A3J00000000
10	30.8	EHD0301A3J00000000
15	46.2	EHD0461A3J00000000
20	59.4	EHD0591A3J00000000
Frame Size BX		
25	74.8	EHD0741A3K00000000
30	88	EHD0881A3K00000000
40	114	EHD1141A3K00000000
Frame Size CX		
50	143	EHD1431A3K00000000
60	169	EHD1691A3K00000000
75	211	EHD2111A3K00000000
Frame Size DX		
100	273	EHD2731A3K00000000

EHD**230 V—NEMA Type 1**

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1S		
1	4.2	EHD4D22A1J00000000
1.5	6	EHD6D02A1J00000000
2	6.8	EHD6D82A1J00000000
3	9.6	EHD9D62A1J00000000
Frame Size H2S		
5	15.2	EHD0152A1J00000000
7.5	22	EHD0222A1J00000000
10	28	EHD0282A1J00000000
Frame Size H3		
15	42	EHD0422A1J00000000
20	54	EHD0542A1J00000000
Frame Size H4		
25	68	EHD0682A1K00000000
30	80	EHD0802A1K00000000
40	104	EHD1042A1K00000000
Frame Size CX		
50	130	EHD1302A1K00000000
60	154	EHD1542A1K00000000
75	192	EHD1922A1K00000000
Frame Size DX		
100	248	EHD2482A1K00000000
125	312	EHD3122A1K00000000

230 V—NEMA Type 12

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1	4.2	EHD4D22A2J00000000
1.5	6	EHD6D02A2J00000000
2	6.8	EHD6D82A2J00000000
3	9.6	EHD9D62A2J00000000
5	15.2	EHD0152A2J00000000
7.5	22	EHD0222A2J00000000
10	28	EHD0282A2J00000000
15	42	EHD0422A2J00000000
20	54	EHD0542A2J00000000
Frame Size BX		
25	68	EHD0682A2K00000000
30	80	EHD0802A2K00000000
40	104	EHD1042A2K00000000
Frame Size CX		
50	130	EHD1302A2K00000000
60	154	EHD1542A2K00000000
75	192	EHD1922A2K00000000
Frame Size DX		
100	248	EHD2482A2K00000000
125	312	EHD3122A2K00000000

230 V—NEMA Type 3R

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1	4.2	EHD4D22A3J00000000
1.5	6	EHD6D02A3J00000000
2	6.8	EHD6D82A3J00000000
3	9.6	EHD9D62A3J00000000
5	15.2	EHD0152A3J00000000
7.5	22	EHD0222A3J00000000
10	28	EHD0282A3J00000000
15	42	EHD0422A3J00000000
20	54	EHD0542A3J00000000
Frame Size BX		
25	68	EHD0682A3K00000000
30	80	EHD0802A3K00000000
40	104	EHD1042A3K00000000
Frame Size CX		
50	130	EHD1302A3K00000000
60	154	EHD1542A3K00000000
75	192	EHD1922A3K00000000
Frame Size DX		
100	248	EHD2482A3K00000000
125	312	EHD3122A3K00000000

EHD_



480 V—NEMA Type 1

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1S		
1.5	3	EHD3D04A1J00000000
2	3.4	EHD3D44A1J00000000
3	4.8	EHD4D84A1J00000000
5	7.6	EHD7D64A1J00000000
7.5	11	EHD0114A1J00000000
Frame Size H2		
10	14	EHD0144A1J00000000
15	21	EHD0214A1J00000000
20	27	EHD0274A1J00000000
Frame Size H3		
25	34	EHD0344A1J00000000
30	40	EHD0404A1J00000000
40	52	EHD0524A1J00000000
Frame Size H4		
50	65	EHD0654A1K00000000
60	77	EHD0774A1K00000000
75	96	EHD0964A1K00000000
Frame Size CX		
100	124	EHD1244A1K00000000
125	156	EHD1564A1K00000000
150	180	EHD1804A1K00000000
Frame Size DX		
200	240	EHD2404A1K00000000
250	302	EHD3024A1K00000000

480 V—NEMA Type 3R

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1.5	3	EHD3D04A3J00000000
2	3.4	EHD3D44A3J00000000
3	4.8	EHD4D84A3J00000000
5	7.6	EHD7D64A3J00000000
7.5	11	EHD0114A3J00000000
10	14	EHD0144A3J00000000
15	21	EHD0214A3J00000000
20	27	EHD0274A3J00000000
25	34	EHD0344A3J00000000
30	40	EHD0404A3J00000000
40	52	EHD0524A3J00000000
Frame Size BX		
50	65	EHD0654A3K00000000
60	77	EHD0774A3K00000000
75	96	EHD0964A3K00000000
Frame Size CX		
100	124	EHD1244A3K00000000
125	156	EHD1564A3K00000000
150	180	EHD1804A3K00000000
Frame Size DX		
200	240	EHD2404A3K00000000
250	302	EHD3024A3K00000000

480 V—NEMA Type 12

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1.5	3	EHD3D04A2J00000000
2	3.4	EHD3D44A2J00000000
3	4.8	EHD4D84A2J00000000
5	7.6	EHD7D64A2J00000000
7.5	11	EHD0114A2J00000000
10	14	EHD0144A2J00000000
15	21	EHD0214A2J00000000
20	27	EHD0274A2J00000000
25	34	EHD0344A2J00000000
30	40	EHD0404A2J00000000
40	52	EHD0524A2J00000000
Frame Size BX		
50	65	EHD0654A2K00000000
60	77	EHD0774A2K00000000
75	96	EHD0964A2K00000000
Frame Size CX		
100	124	EHD1244A2K00000000
125	156	EHD1564A2K00000000
150	180	EHD1804A2K00000000
Frame Size DX		
200	240	EHD2404A2K00000000
250	302	EHD3024A2K00000000

575 V—NEMA Type 1



Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H1		
3	3.9	EHD3D95A1K00000000
5	6.1	EHD6D15A1K00000000
7.5	9	EHD9D05A1K00000000
Frame Size H2		
10	11	EHD0115A1K00000000
15	17	EHD0175A1K00000000
20	22	EHD0225A1K00000000
Frame Size H3		
25	27	EHD0275A1K00000000
30	32	EHD0325A1K00000000
40	41	EHD0415A1K00000000
Frame Size H4		
50	52	EHD0525A1K00000000
60	62	EHD0625A1K00000000
75	77	EHD0775A1K00000000
Frame Size CX		
100	99	EHD0995A1K00000000
125	125	EHD1255A1K00000000
150	144	EHD1445A1K00000000
Frame Size DX		
200	192	EHD1925A1K00000000
250	242	EHD2425A1K00000000

575 V—NEMA Type 12

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
3	3.9	EHD3D95A2K00000000
5	6.1	EHD6D15A2K00000000
7.5	9	EHD9D05A2K00000000
10	11	EHD0115A2K00000000
15	17	EHD0175A2K00000000
20	22	EHD0225A2K00000000
25	27	EHD0275A2K00000000
30	32	EHD0325A2K00000000
40	41	EHD0415A2K00000000
Frame Size BX		
50	52	EHD0525A2K00000000
60	62	EHD0625A2K00000000
75	77	EHD0775A2K00000000
Frame Size CX		
100	99	EHD0995A2K00000000
125	125	EHD1255A2K00000000
150	144	EHD1445A2K00000000
Frame Size DX		
200	192	EHD1925A2K00000000
250	242	EHD2425A2K00000000

575 V—NEMA Type 3R

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
3	3.9	EHD3D95A3K00000000
5	6.1	EHD6D15A3K00000000
7.5	9	EHD9D05A3K00000000
10	11	EHD0115A3K00000000
15	17	EHD0175A3K00000000
20	22	EHD0225A3K00000000
25	27	EHD0275A3K00000000
30	32	EHD0325A3K00000000
40	41	EHD0415A3K00000000
Frame Size BX		
50	52	EHD0525A3K00000000
60	62	EHD0625A3K00000000
75	77	EHD0775A3K00000000
Frame Size CX		
100	99	EHD0995A3K00000000
125	125	EHD1255A3K00000000
150	144	EHD1445A3K00000000
Frame Size DX		
200	192	EHD1925A3K00000000
250	242	EHD2425A3K00000000

EHB—DH1 Bypass**EHB_****208 V—NEMA Type 1**

Horsepower	Drive Rated NEC Amps	Catalog Number ^①
Frame Size H1S		
1	4.6	EHB4D61A1JS0000000
1.5	6.6	EHB6D61A1JS0000000
2	7.5	EHB7D51A1JS0000000
3	10.6	EHB0101A1JS0000000
Frame Size H2S		
5	16.7	EHB0161A1JS0000000
7.5	24.3	EHB0241A1JS0000000
10	30.8	EHB0301A1JS0000000
Frame Size H3		
15	46.2	EHB0461A1JS0000000
20	59.4	EHB0591A1JS0000000
Frame Size H4		
25	74.8	EHB0741A1KS0000000
30	88	EHB0881A1KS0000000
40	114	EHB1141A1KS0000000
Frame Size DX		
50	143	EHB1431A1KS0000000
60	169	EHB1691A1KS0000000
75	211	EHB2111A1KS0000000
100	273	EHB2731A1KS0000000

208 V—NEMA Type 12

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1	4.6	EHB4D61A2JS0000000
1.5	6.6	EHB6D61A2JS0000000
2	7.5	EHB7D51A2JS0000000
3	10.6	EHB0101A2JS0000000
5	16.7	EHB0161A2JS0000000
7.5	24.3	EHB0241A2JS0000000
10	30.8	EHB0301A2JS0000000
15	46.2	EHB0461A2JS0000000
20	59.4	EHB0591A2JS0000000
Frame Size CX		
25	74.8	EHB0741A2KS0000000
30	88	EHB0881A2KS0000000
40	114	EHB1141A2KS0000000
Frame Size DX		
50	143	EHB1431A2KS0000000
60	169	EHB1691A2KS0000000
75	211	EHB2111A2KS0000000
100	273	EHB2731A2KS0000000

208 V— NEMA Type 3R

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
1	4.6	EHB4D61A3JS0000000
1.5	6.6	EHB6D61A3JS0000000
2	7.5	EHB7D51A3JS0000000
3	10.6	EHB0101A3JS0000000
5	16.7	EHB0161A3JS0000000
7.5	24.3	EHB0241A3JS0000000
10	30.8	EHB0301A3JS0000000
15	46.2	EHB0461A3JS0000000
20	59.4	EHB0591A3JS0000000
Frame Size CX		
25	74.8	EHB0741A3KS0000000
30	88	EHB0881A3KS0000000
40	114	EHB1141A3KS0000000
Frame Size DX		
50	143	EHB1431A3KS0000000
60	169	EHB1691A3KS0000000
75	211	EHB2111A3KS0000000
100	273	EHB2731A3KS0000000

Note^① Two contactors.

EHB

**230 V—NEMA Type 1**

Drive Rated Horsepower	NEC Amps	Catalog Number
Frame Size H1S		
1	4.2	EHB4D22A1JS0000000
1.5	6	EHB6D02A1JS0000000
2	6.8	EHB6D82A1JS0000000
3	9.6	EHB9D62A1JS0000000
Frame Size H2S		
5	15.2	EHB0152A1JS0000000
7.5	22	EHB0222A1JS0000000
10	28	EHB0282A1JS0000000
Frame Size H3		
15	42	EHB0422A1JS0000000
20	54	EHB0542A1JS0000000
Frame Size H4		
25	68	EHB0682A1KS0000000
30	80	EHB0802A1KS0000000
40	104	EHB1042A1KS0000000
Frame Size DX		
50	130	EHB1302A1KS0000000
60	154	EHB1542A1KS0000000
75	192	EHB1922A1KS0000000
100	248	EHB2482A1KS0000000
125	312	EHB3122A1KS0000000

230 V—NEMA Type 12

Drive Rated Horsepower	NEC Amps	Catalog Number
Frame Size H3X		
1	4.2	EHB4D22A2JS0000000
1.5	6	EHB6D02A2JS0000000
2	6.8	EHB6D82A2JS0000000
3	9.6	EHB9D62A2JS0000000
5	15.2	EHB0152A2JS0000000
7.5	22	EHB0222A2JS0000000
10	28	EHB0282A2JS0000000
15	42	EHB0422A2JS0000000
20	54	EHB0542A2JS0000000
Frame Size CX		
25	68	EHB0682A2KS0000000
30	80	EHB0802A2KS0000000
40	104	EHB1042A2KS0000000
Frame Size DX		
50	130	EHB1302A2KS0000000
60	154	EHB1542A2KS0000000
75	192	EHB1922A2KS0000000
100	248	EHB2482A2KS0000000
125	312	EHB3122A2KS0000000

230 V—NEMA Type 3R

Drive Rated Horsepower	NEC Amps	Catalog Number
Frame Size H3X		
1	4.2	EHB4D22A3JS0000000
1.5	6	EHB6D02A3JS0000000
2	6.8	EHB6D82A3JS0000000
3	9.6	EHB9D62A3JS0000000
5	15.2	EHB0152A3JS0000000
7.5	22	EHB0222A3JS0000000
10	28	EHB0282A3JS0000000
15	42	EHB0422A3JS0000000
20	54	EHB0542A3JS0000000
Frame Size CX		
25	68	EHB0682A3KS0000000
30	80	EHB0802A3KS0000000
40	104	EHB1042A3KS0000000
Frame Size DX		
50	130	EHB1302A3KS0000000
60	154	EHB1542A3KS0000000
75	192	EHB1922A3KS0000000
100	248	EHB2482A3KS0000000
125	312	EHB3122A3KS0000000

Note

① Two contactors.

EHB_



575 V—NEMA Type 1

Horsepower	Drive Rated NEC Amps	Catalog Number ^①
Frame Size H1		
3	3.9	EHB3D95A1KS0000000
5	6.1	EHB6D15A1KS0000000
7.5	9	EHB9D05A1KS0000000
Frame Size H2		
10	11	EHB0115A1KS0000000
15	17	EHB0175A1KS0000000
20	22	EHB0225A1KS0000000
Frame Size H3		
25	27	EHB0275A1KS0000000
30	32	EHB0325A1KS0000000
40	41	EHB0415A1KS0000000
Frame Size H4		
50	52	EHB0525A1KS0000000
60	62	EHB0625A1KS0000000
75	77	EHB0775A1KS0000000
Frame Size DX		
100	99	EHB0995A1KS0000000
125	125	EHB1255A1KS0000000
150	144	EHB1445A1KS0000000
200	192	EHB1925A1KS0000000
250	242	EHB2425A1KS0000000

575 V—NEMA Type 12

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
3	3.9	EHB3D95A2KS0000000
5	6.1	EHB6D15A2KS0000000
7.5	9	EHB9D05A2KS0000000
10	11	EHB0115A2KS0000000
15	17	EHB0175A2KS0000000
20	22	EHB0225A2KS0000000
25	27	EHB0275A2KS0000000
30	32	EHB0325A2KS0000000
40	41	EHB0415A2KS0000000
Frame Size CX		
50	52	EHB0525A2KS0000000
60	62	EHB0625A2KS0000000
75	77	EHB0775A2KS0000000
Frame Size DX		
100	99	EHB0995A2KS0000000
125	125	EHB1255A2KS0000000
150	144	EHB1445A2KS0000000
200	192	EHB1925A2KS0000000
250	242	EHB2425A2KS0000000

575 V—NEMA Type 3R

Horsepower	Drive Rated NEC Amps	Catalog Number
Frame Size H3X		
3	3.9	EHB2425A3KS0000000
5	6.1	EHB3D95A3KS0000000
7.5	9	EHB6D15A3KS0000000
10	11	EHB9D05A3KS0000000
15	17	EHB0115A3KS0000000
20	22	EHB0175A3KS0000000
25	27	EHB0225A3KS0000000
30	32	EHB0275A3KS0000000
40	41	EHB0325A3KS0000000
Frame Size CX		
50	52	EHB0415A3KS0000000
60	62	EHB0525A3KS0000000
75	77	EHB0625A3KS0000000
Frame Size DX		
100	99	EHB0775A3KS0000000
125	125	EHB0995A3KS0000000
150	144	EHB1255A3KS0000000
200	192	EHB1445A3KS0000000
250	242	EHB1925A3KS0000000

Note^① Two contactors.

Options

DH1 Series Drives Options

Option Boards Slots 1 and 2

Description	Suffix Number	Catalog Number
None	0	—
3 x DI, 3 x DO, 1 x thermistor, 24 Vdc/EXT option card	1	DXG-EXT-3DI3DO1T
1 x AI, 2 x AO (isolated to control board) option card	2	DXG-EXT-1AI2AO
3 x relay dry contact (2NO + 1NO/NC) option card	3	DXG-EXT-3RO
3 x PT100 RTD thermistor input option card	4	DXG-EXT-THER1
6 x DI 240 Vac input option card	5	DXG-EXT-6DI

Light Options

Description	Suffix Number
None	0
Non-bypass light kit (Power On, Run, Fault)	1
Bypass light kit (On, VFD Run, Fault, Bypass Run)	2

Enclosure Options

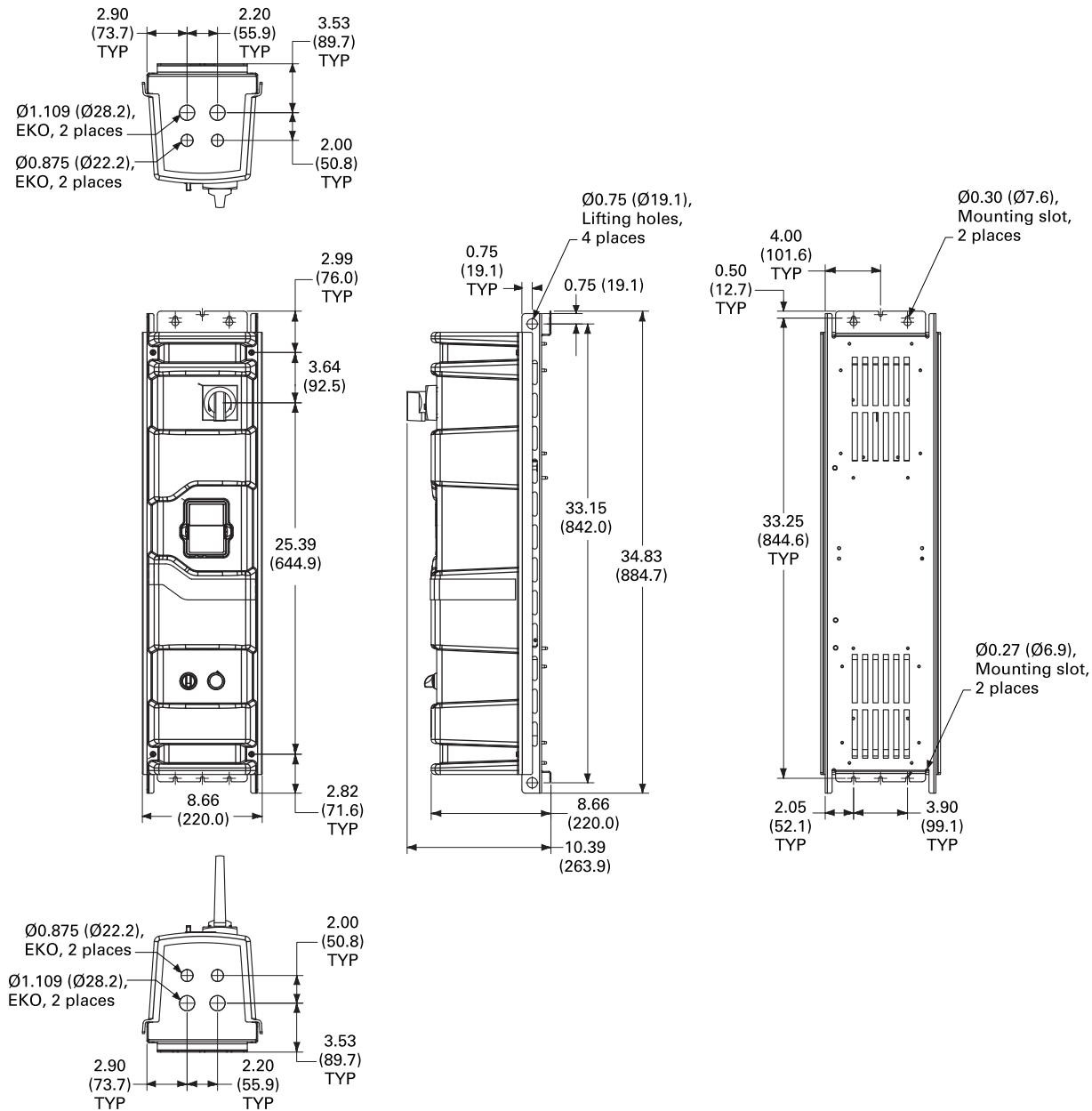
Description	Suffix Number
None	0
Floor stand—12 inches	1
Floor stand—22 inches	2
Space heater	A
Space heater and 12-inch floor stands	B
Space heater and 22-inch floor stands	C

Note: Floor stands are only an option for BX and CX enclosures.

Note: No communication options.

Dimensions

Approximate Dimensions in Inches (mm)

H1S

2.8

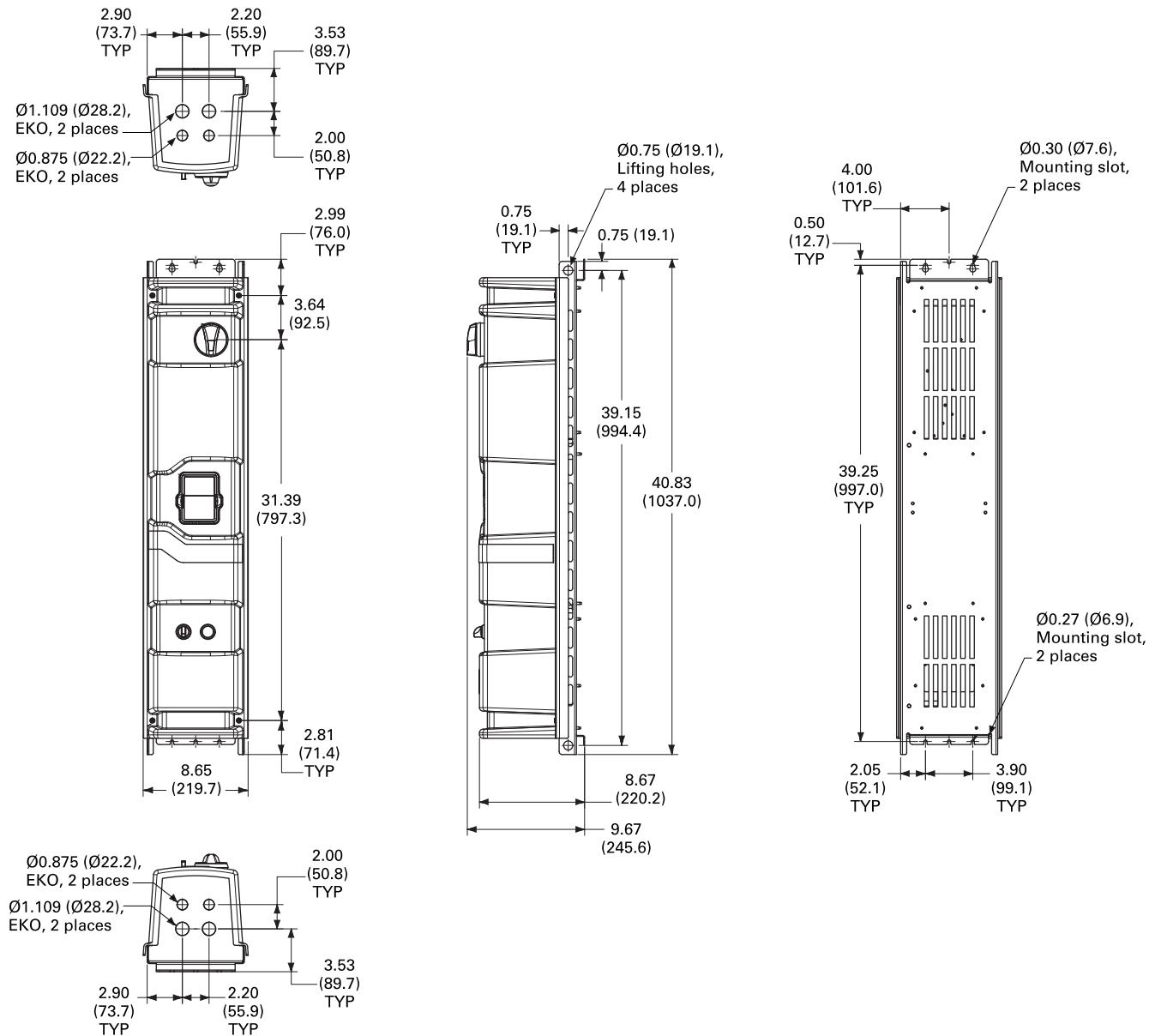
Adjustable Frequency Drives

PowerXL DHI Series Drives

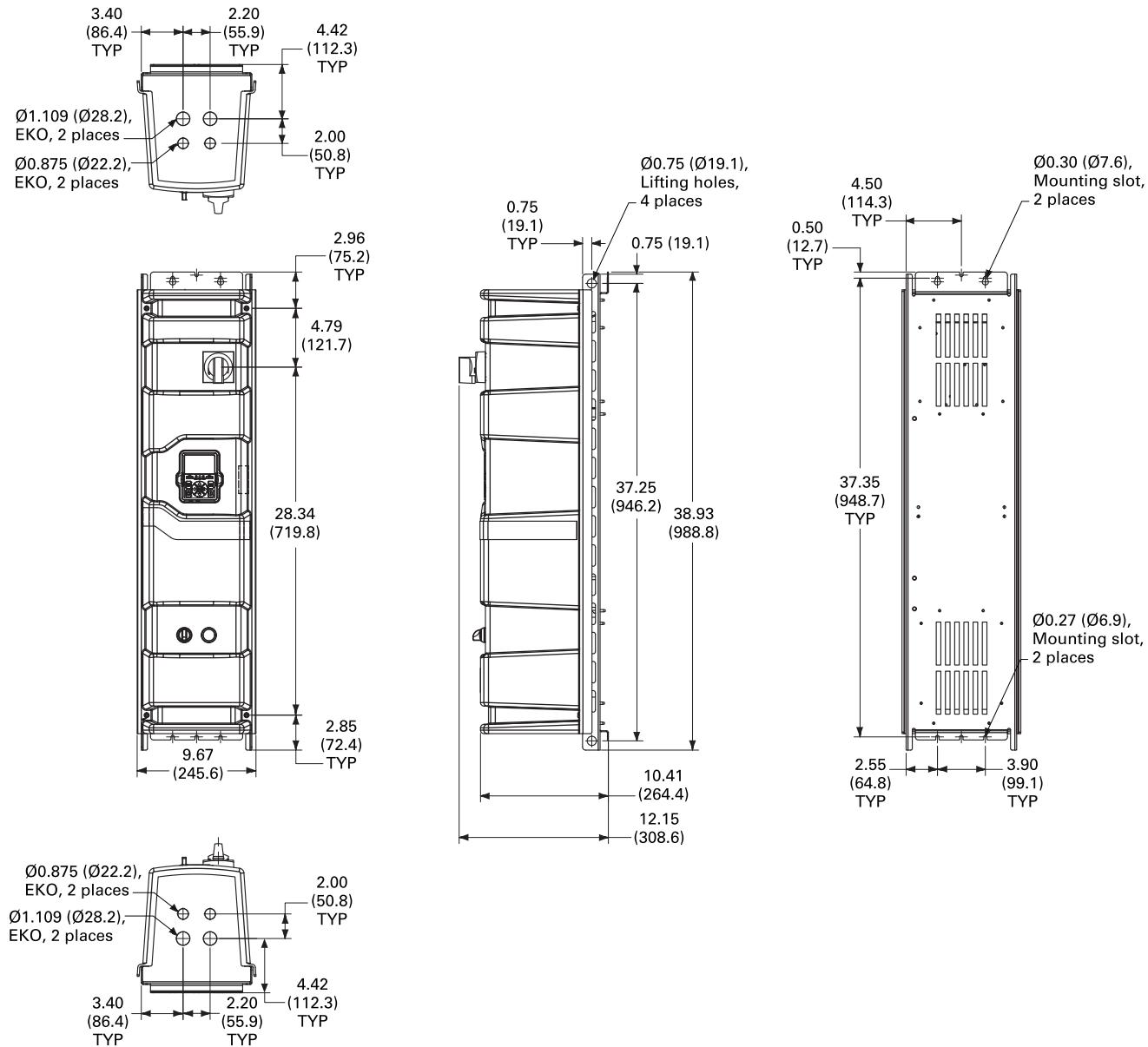
Approximate Dimensions in Inches (mm)

H1

2



Approximate Dimensions in Inches (mm)

H2S

2.8

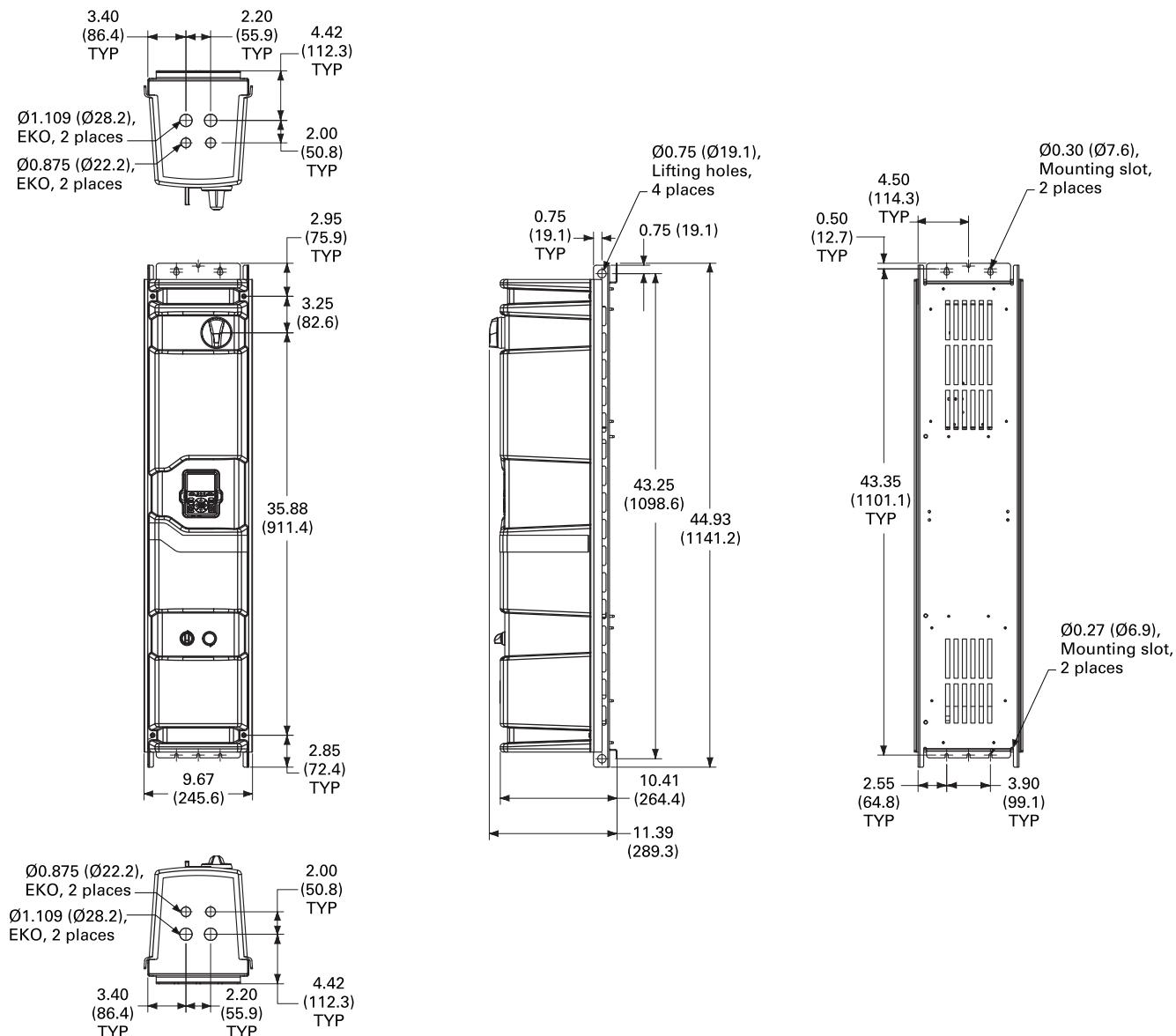
Adjustable Frequency Drives

PowerXL DHI Series Drives

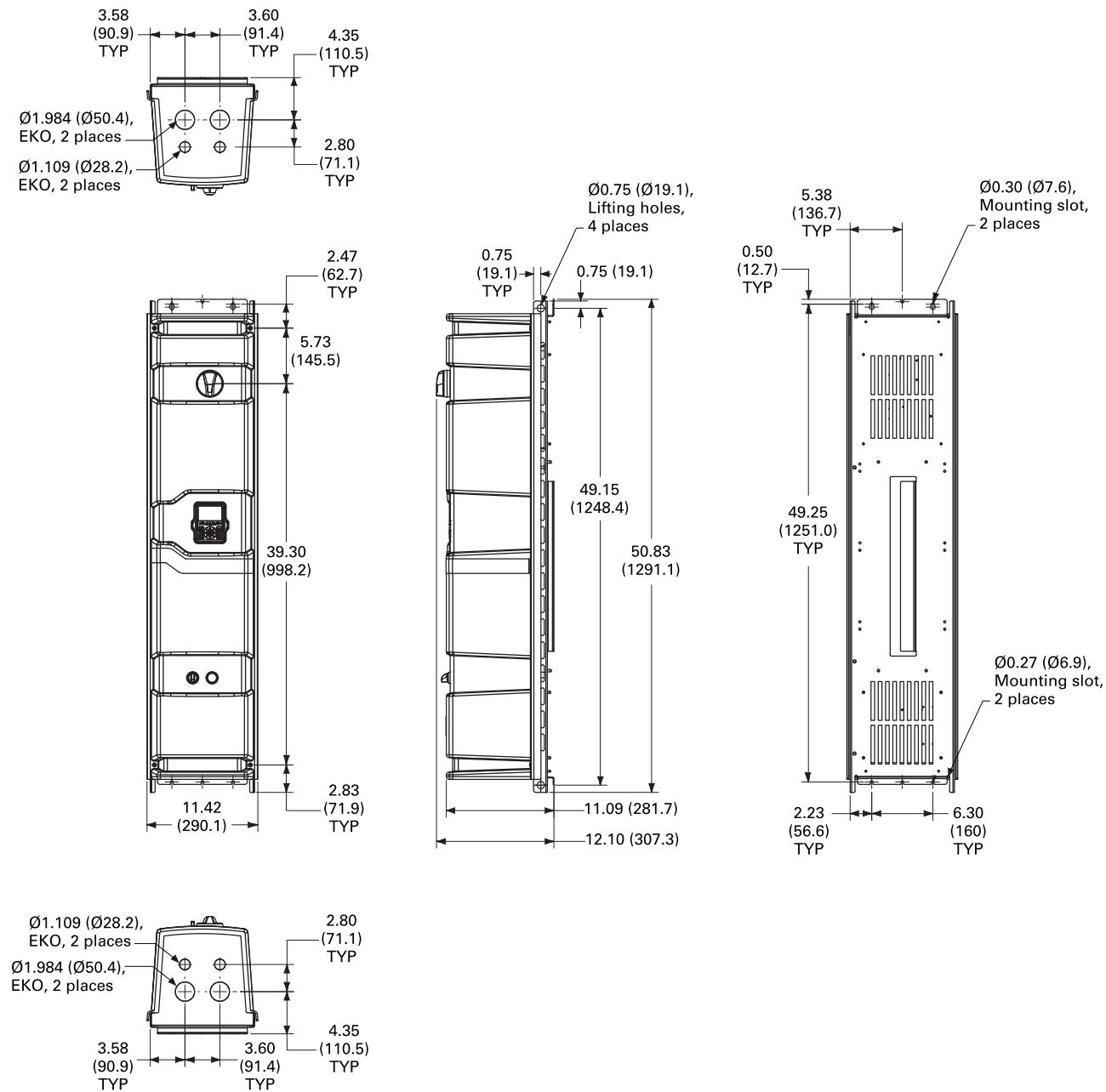
Approximate Dimensions in Inches (mm)

H2

2



Approximate Dimensions in Inches (mm)

H3

2.8

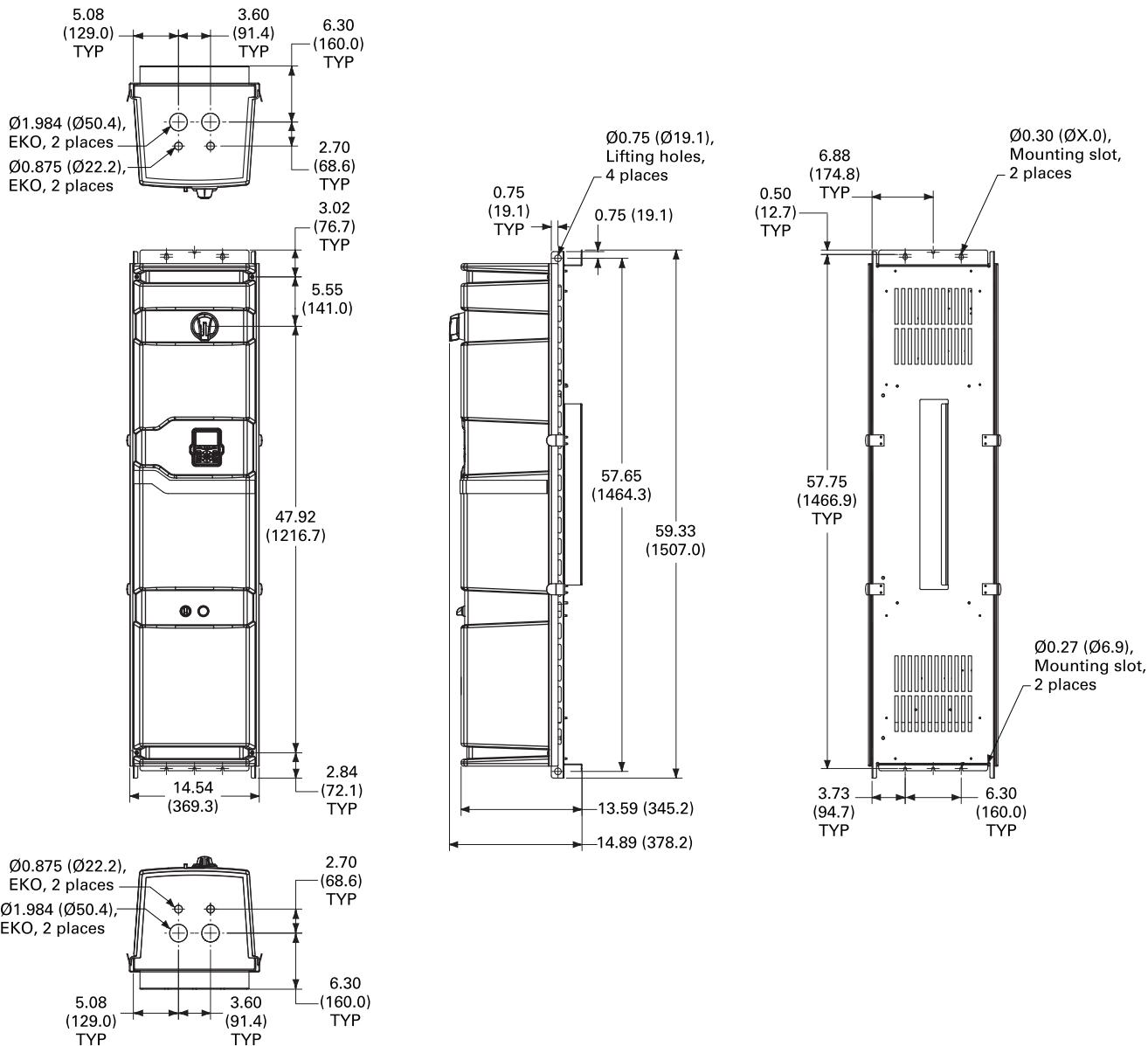
Adjustable Frequency Drives

PowerXL DH1 Series Drives

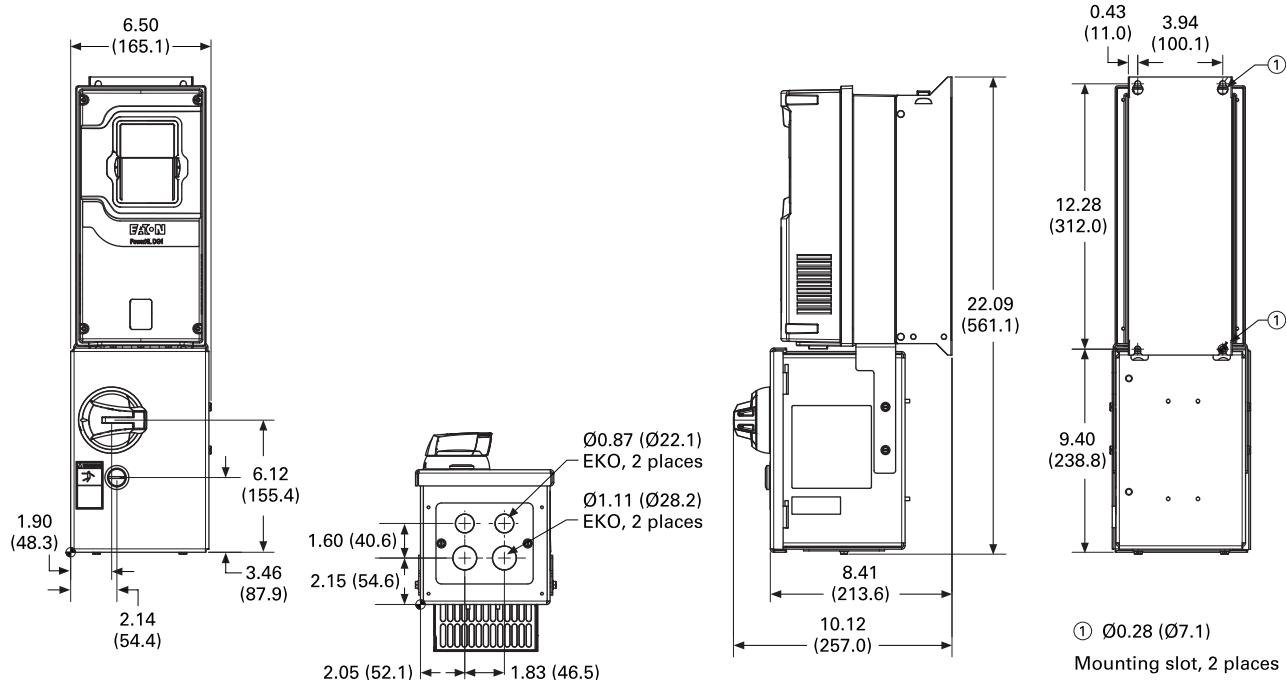
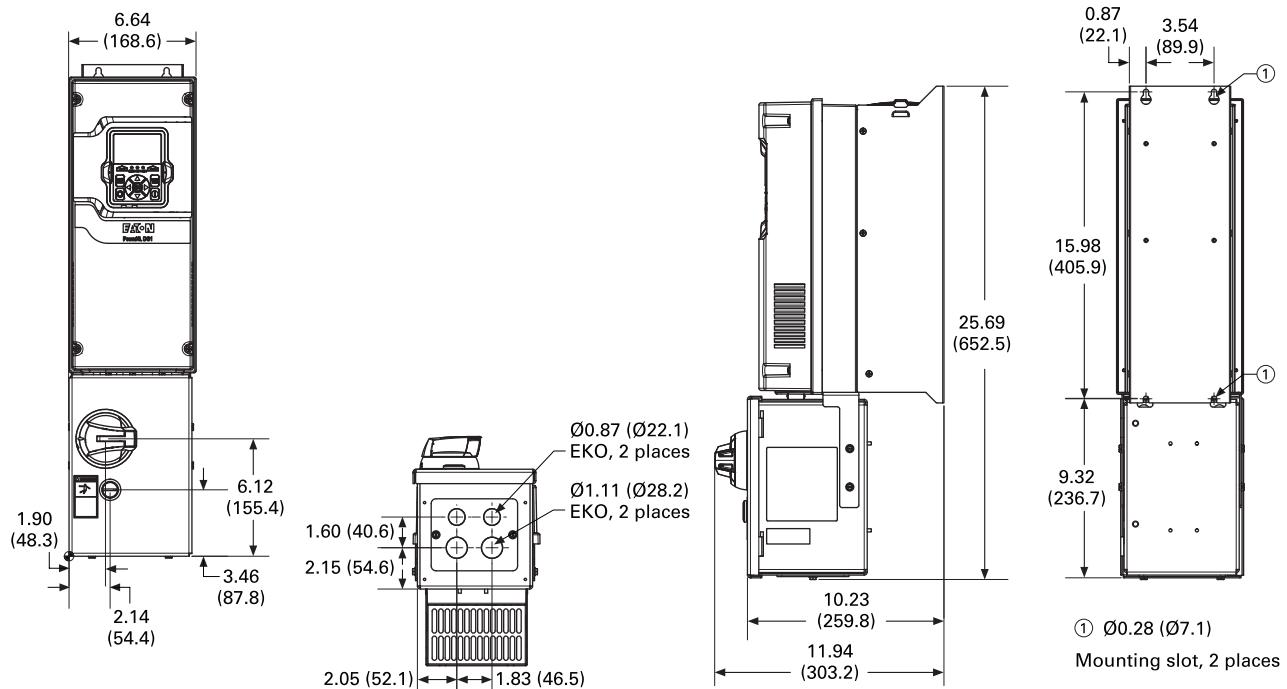
Approximate Dimensions in Inches (mm)

H4

2



Approximate Dimensions in Inches (mm)

H1D**H2D**

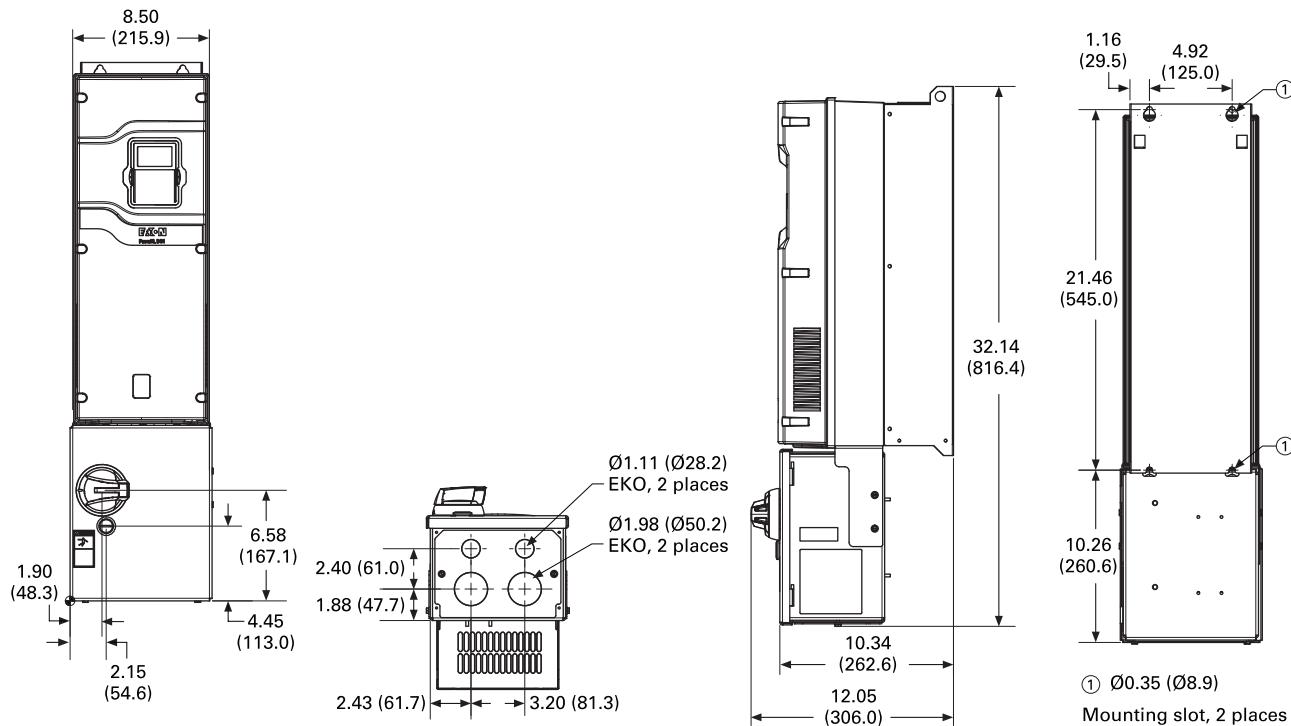
2.8

Adjustable Frequency Drives

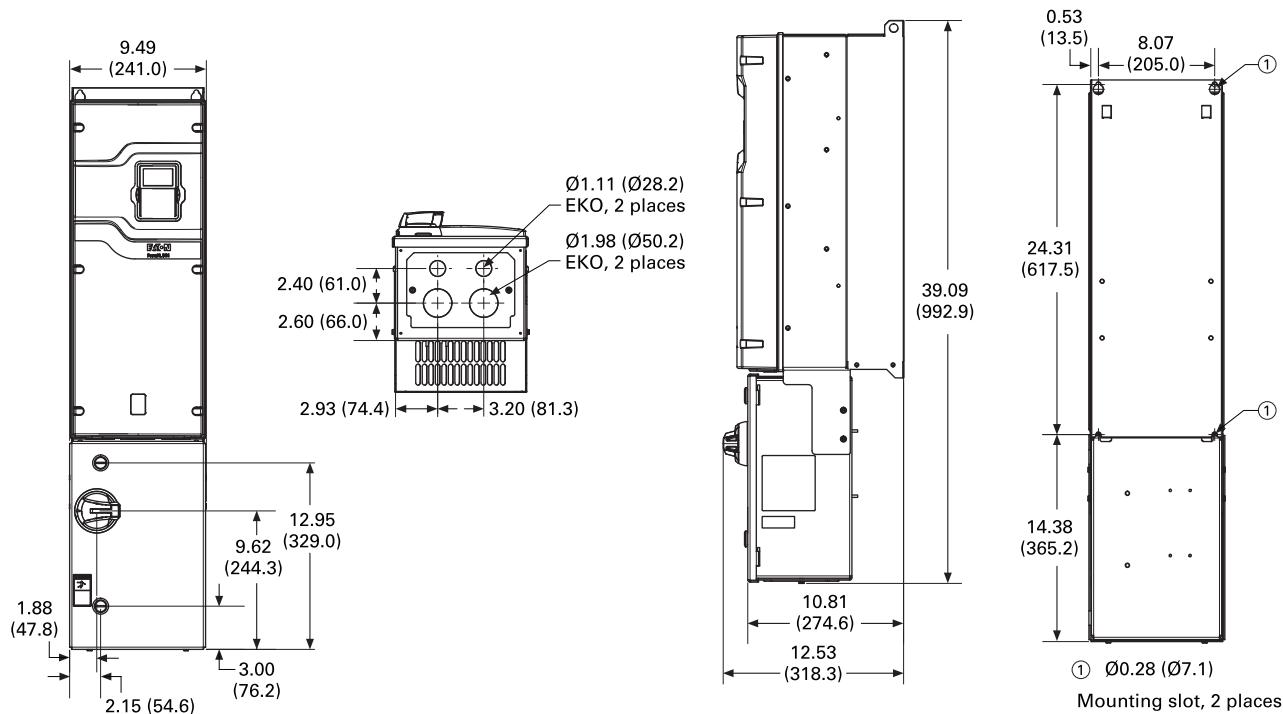
PowerXL DHI Series Drives

Approximate Dimensions in Inches (mm)

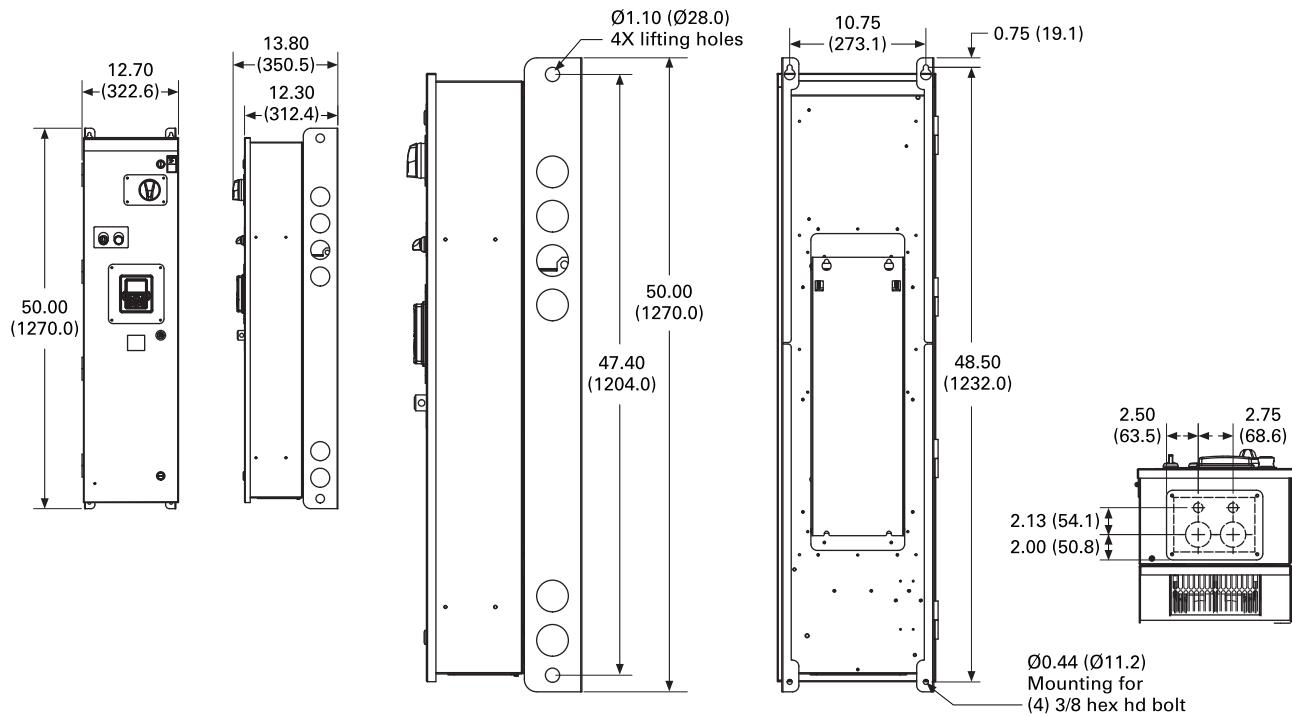
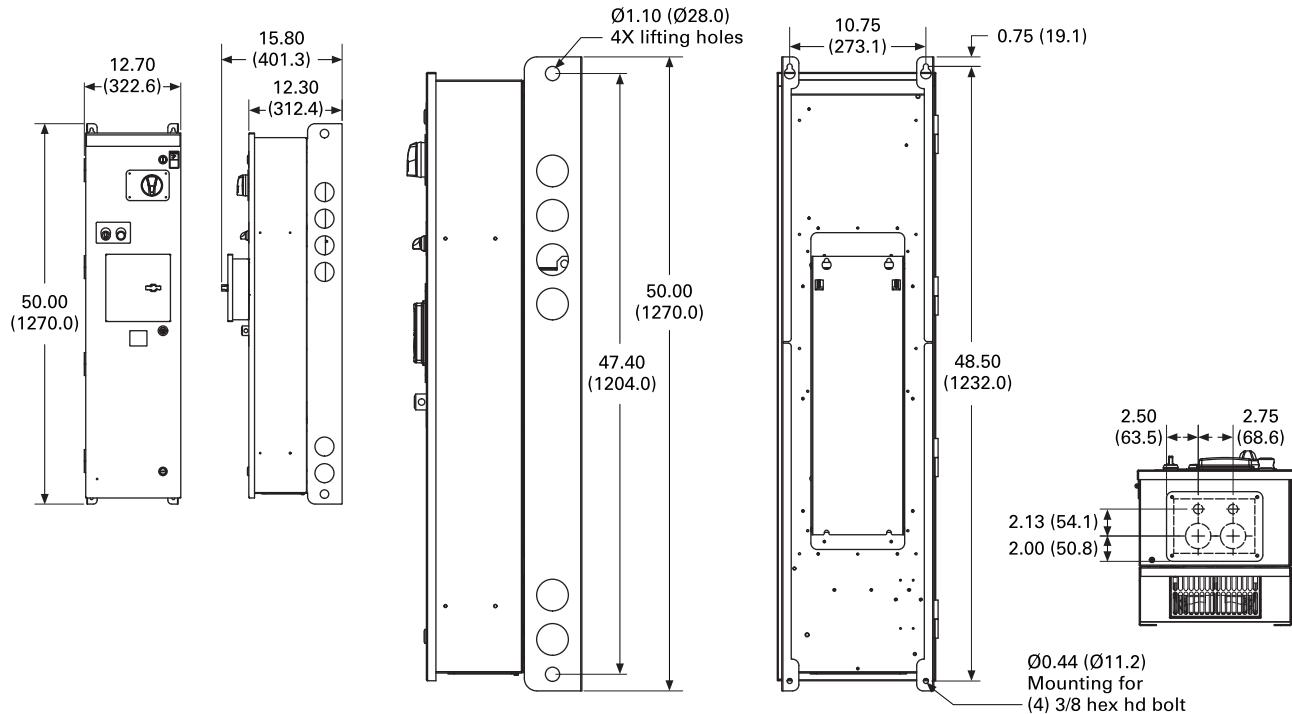
H3D



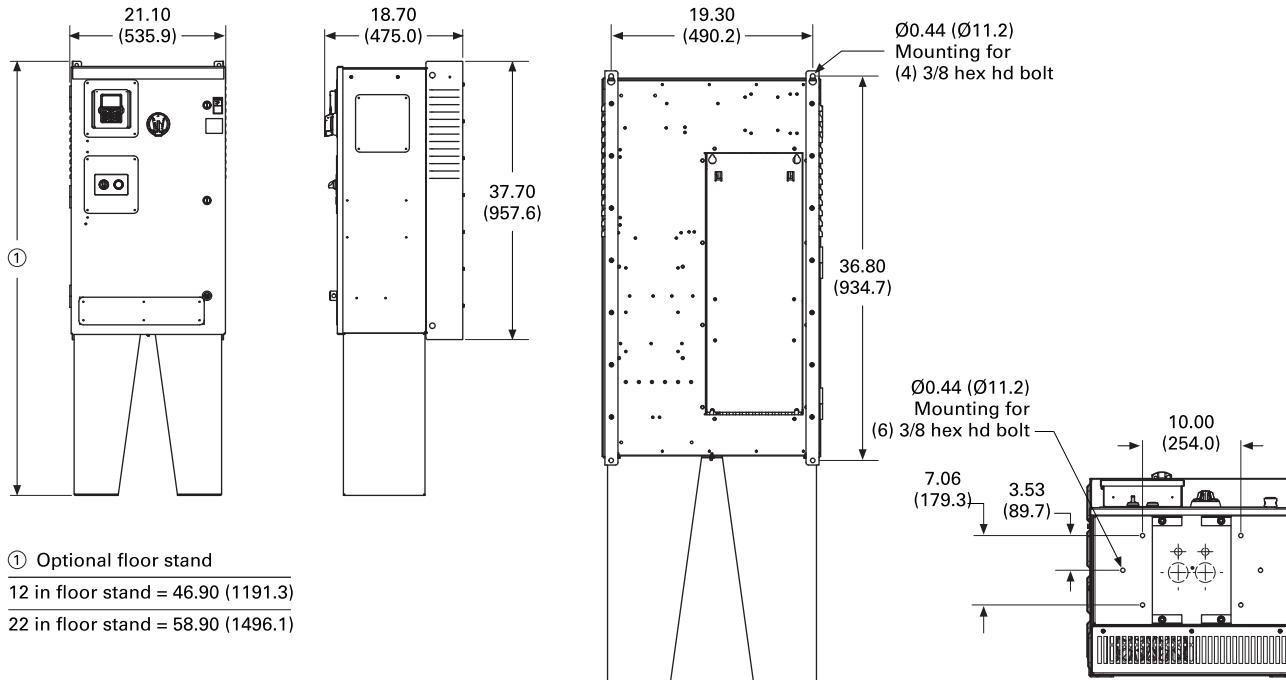
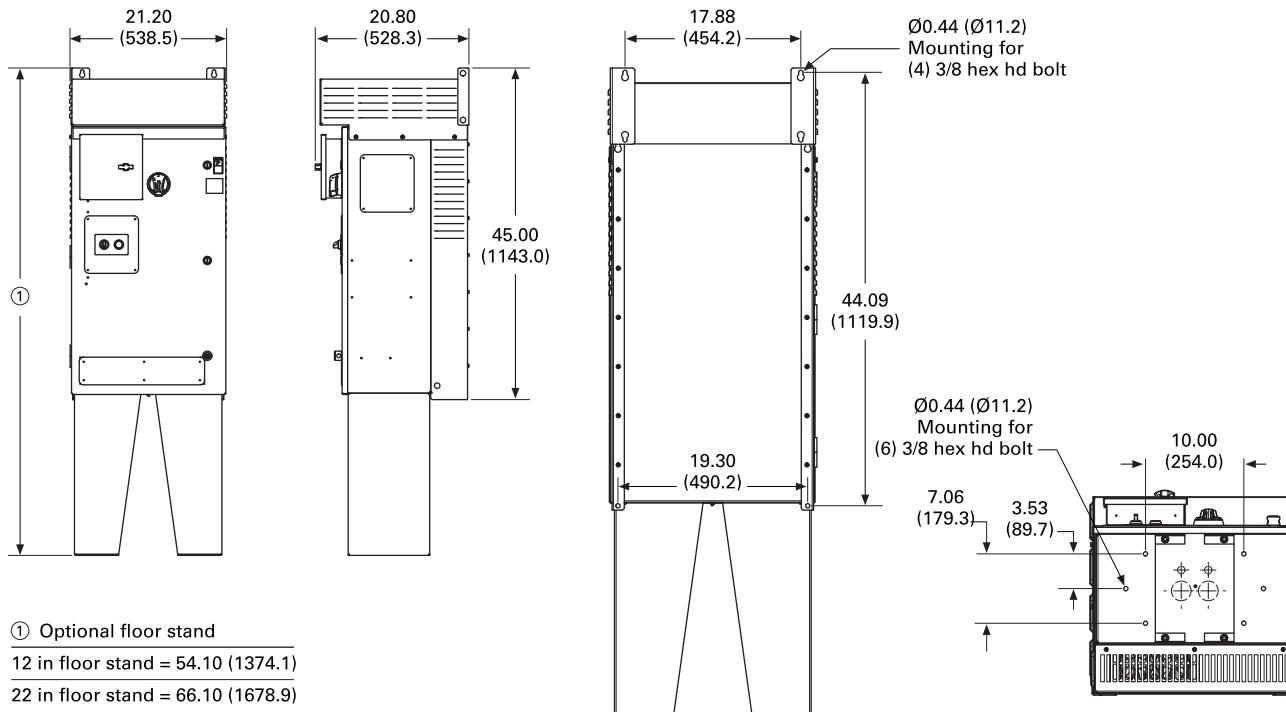
H4D



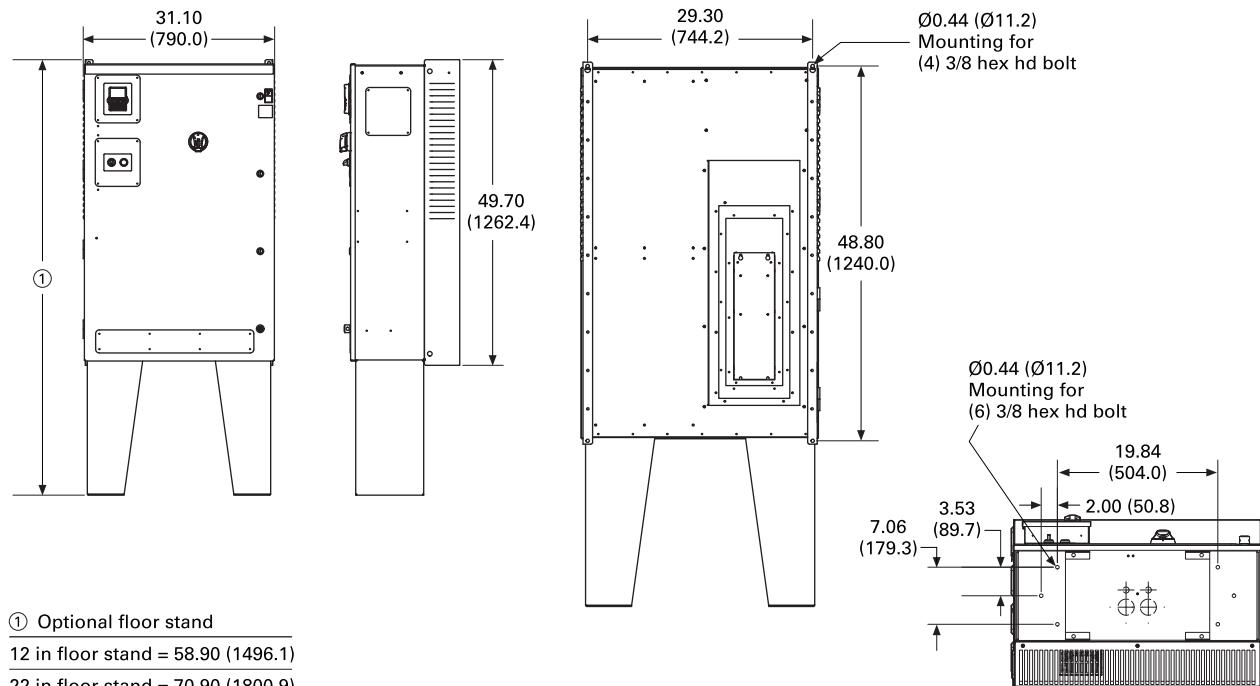
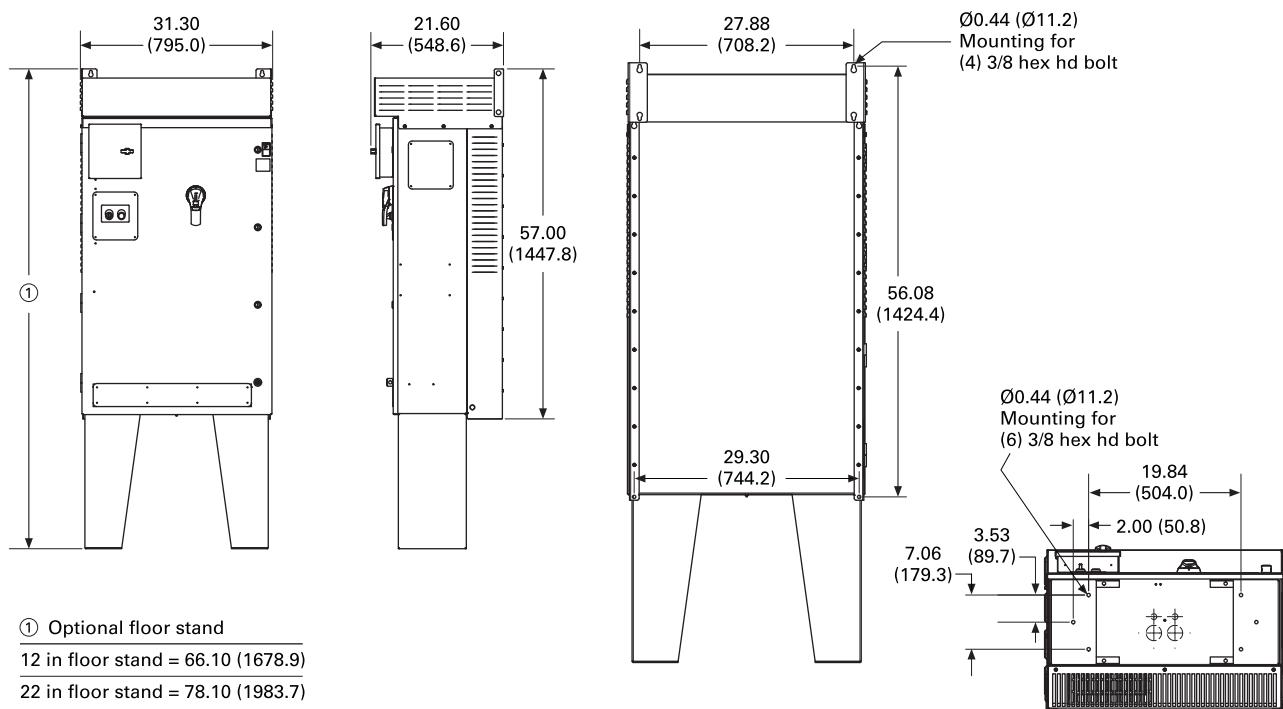
Approximate Dimensions in Inches (mm)

H3X—Type 12**H3X—Type 3R**

Approximate Dimensions in Inches (mm)

BX—Type 12**2****BX—Type 3R**

Approximate Dimensions in Inches (mm)

CX—Type 1 and Type 12**CX—Type 3R**

2.8

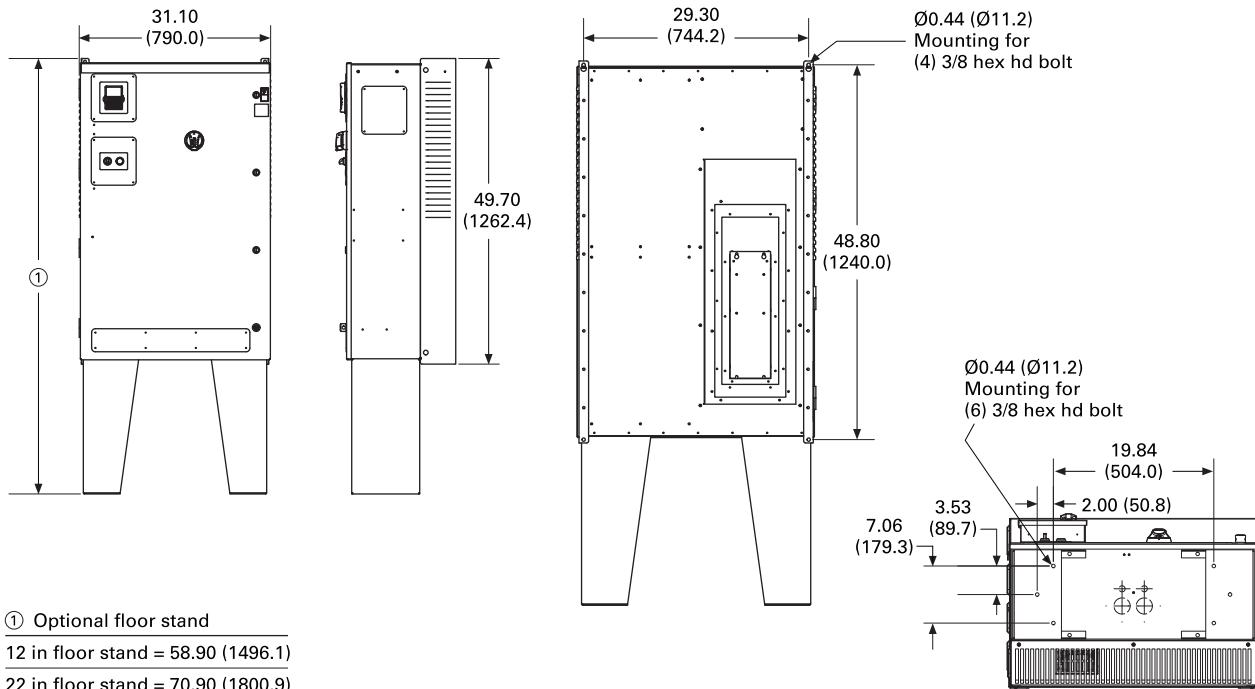
Adjustable Frequency Drives

PowerXL DH1 Series Drives

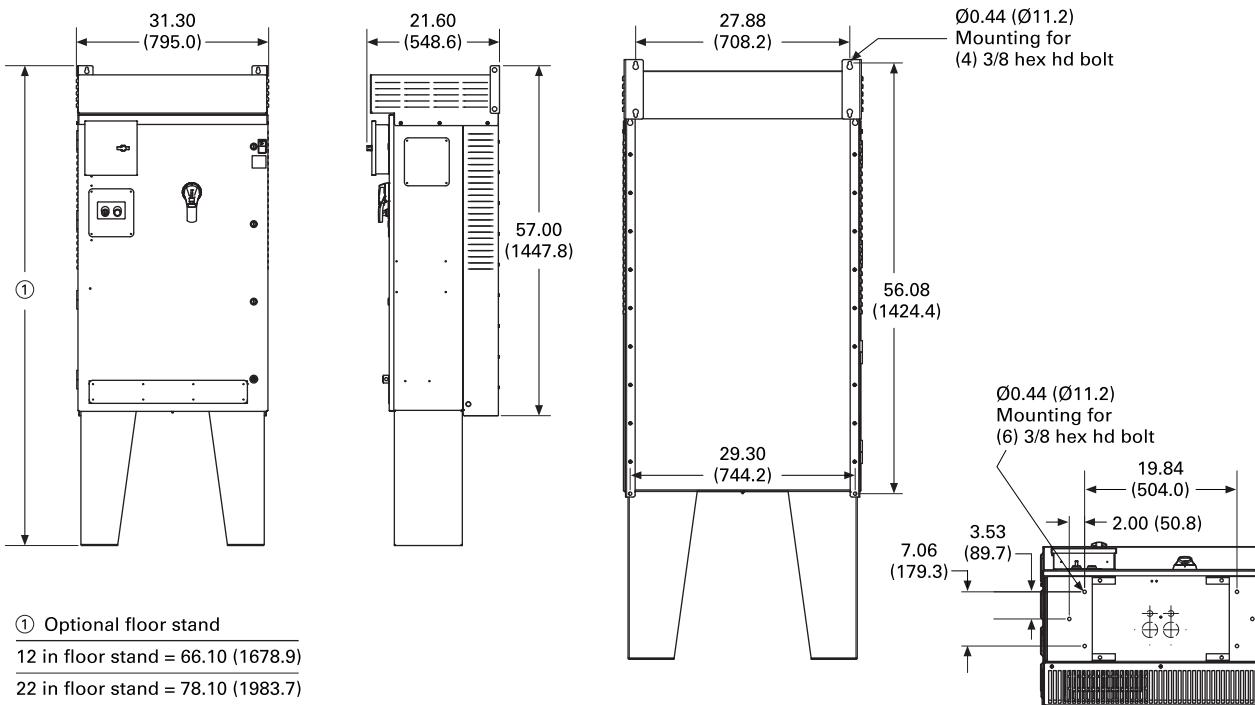
Approximate Dimensions in Inches (mm)

CX-XL—Type 1 and Type 12

2

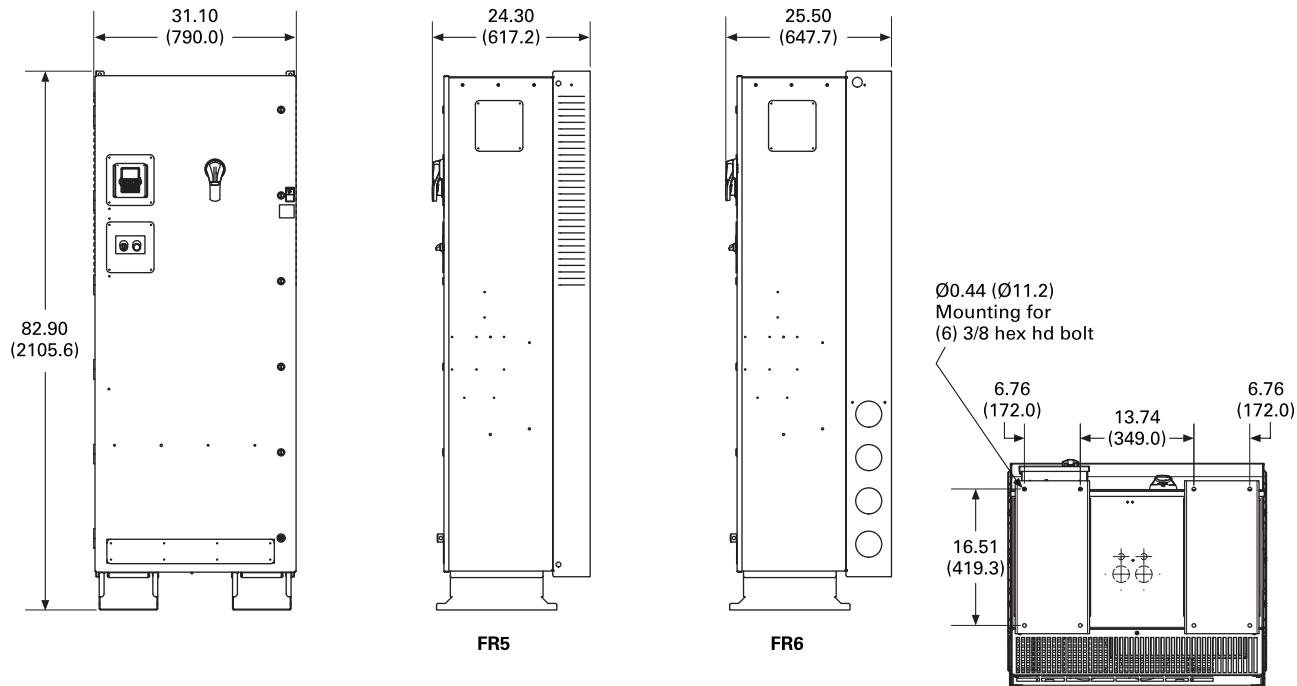


CX-XL—Type 3R

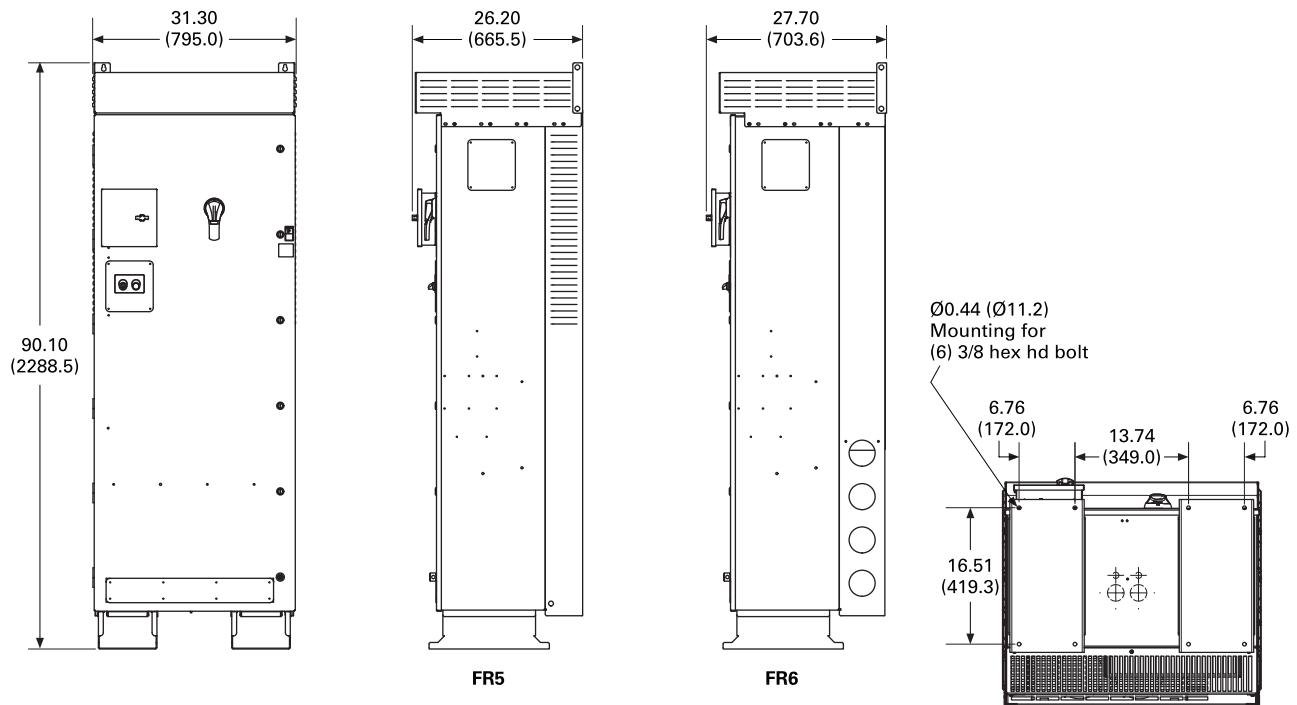


Approximate Dimensions in Inches (mm)

DX—Type 1 and Type 12 (FR5 and FR6)



DX—Type 3R (FR5 and FR6)



2.8

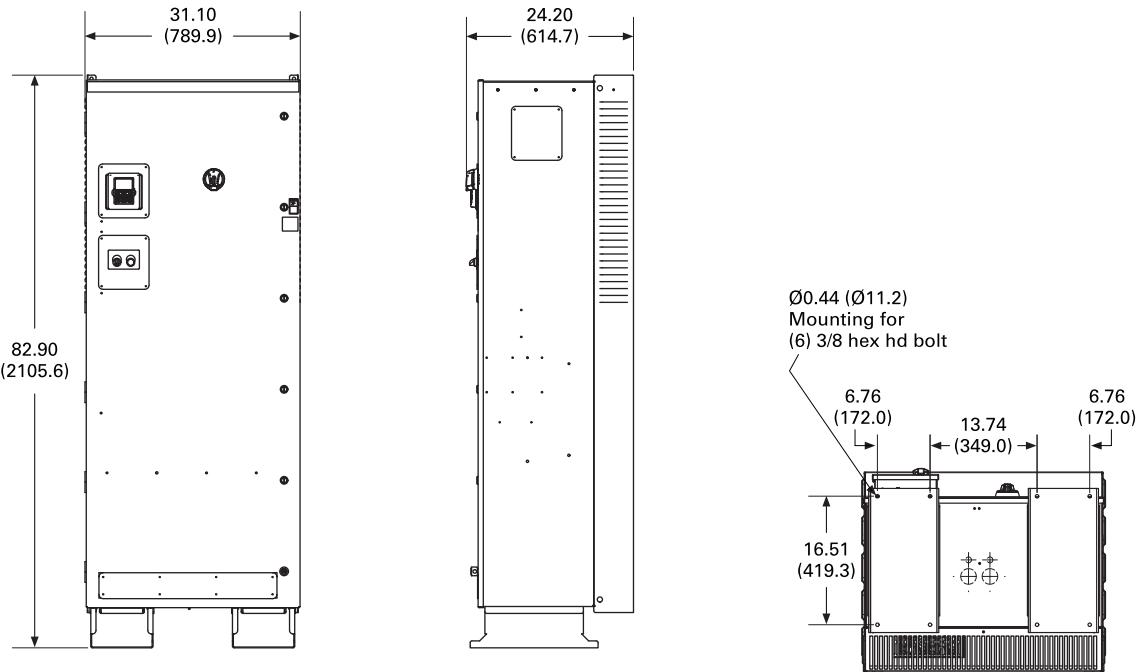
Adjustable Frequency Drives

PowerXL DHI Series Drives

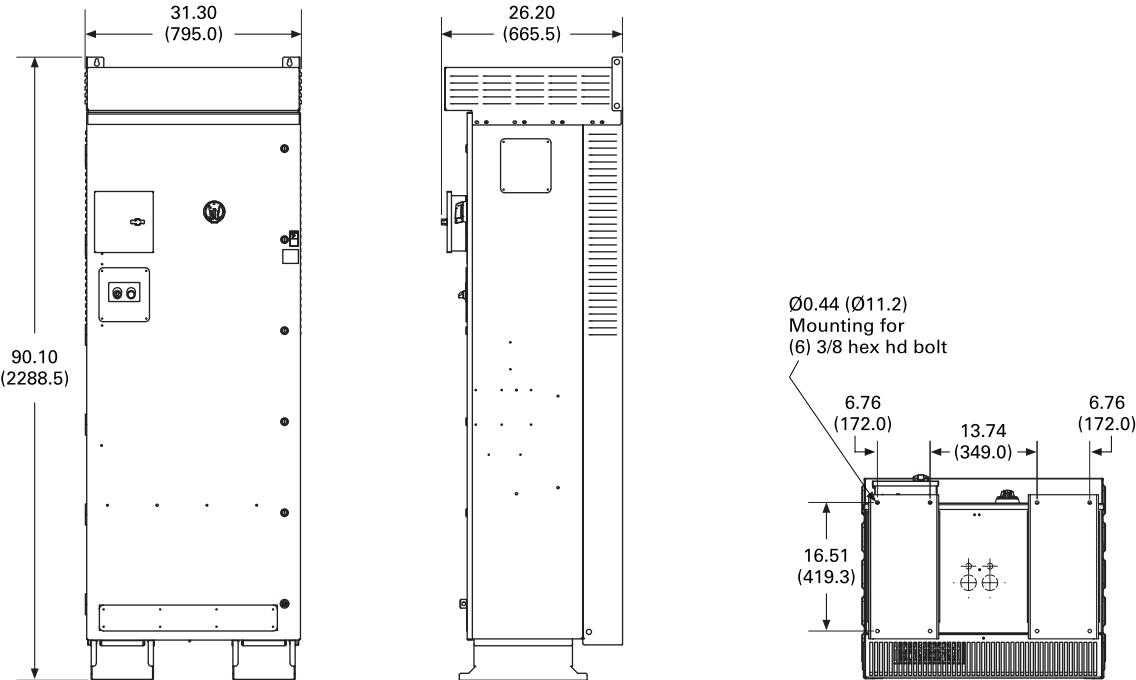
Approximate Dimensions in Inches (mm)

DX-XL—Type 1 and Type 12

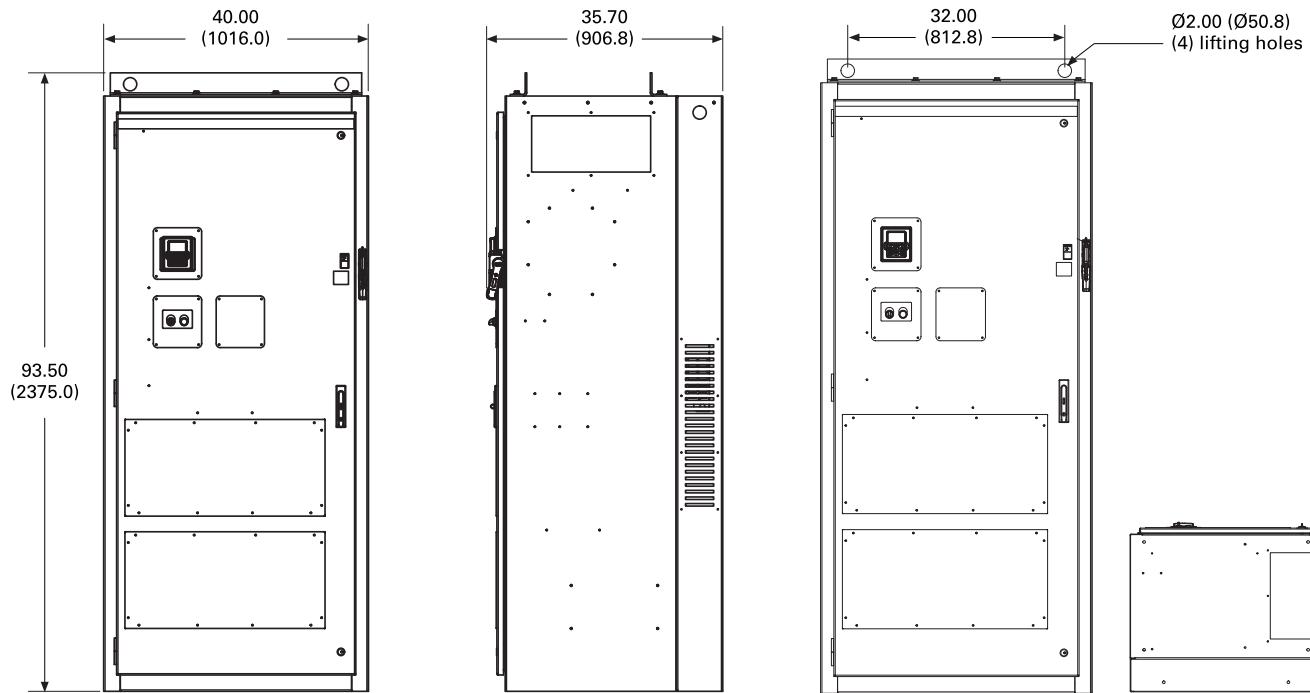
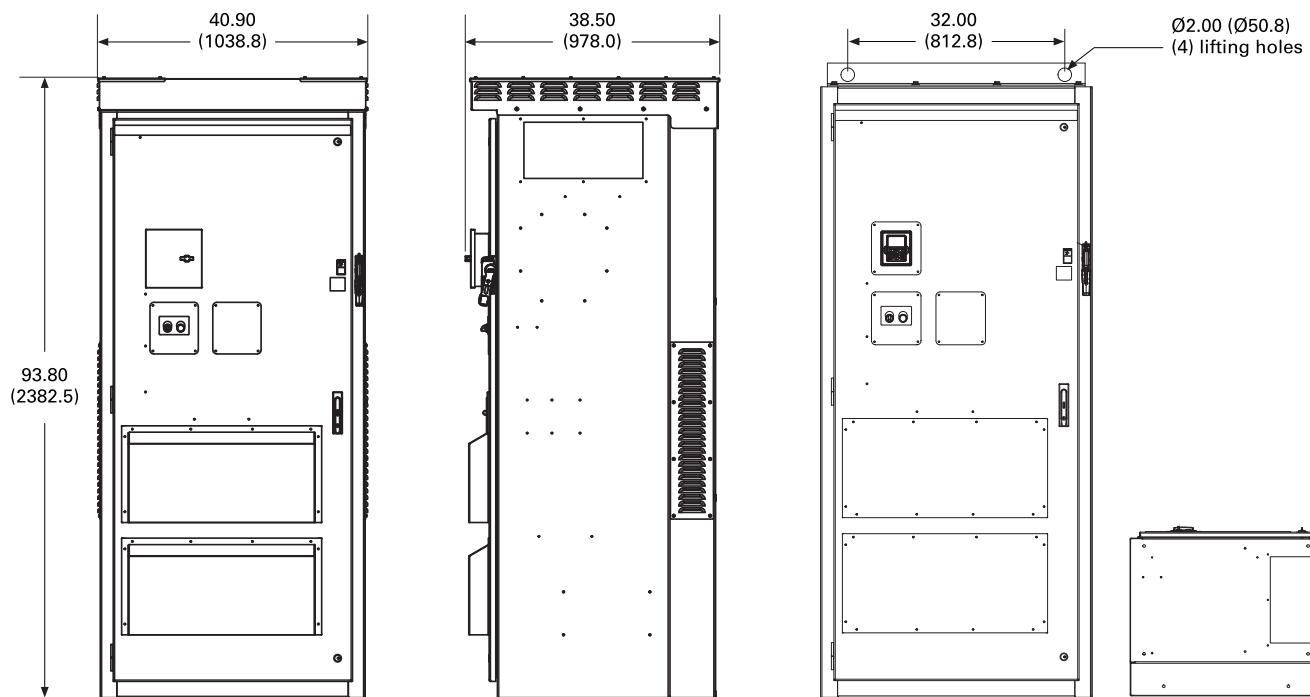
2



DX-XL—Type 3R



Approximate Dimensions in Inches (mm)

EX-XL—Type 1 and Type 12**EX-XL—Type 3R**

2.8

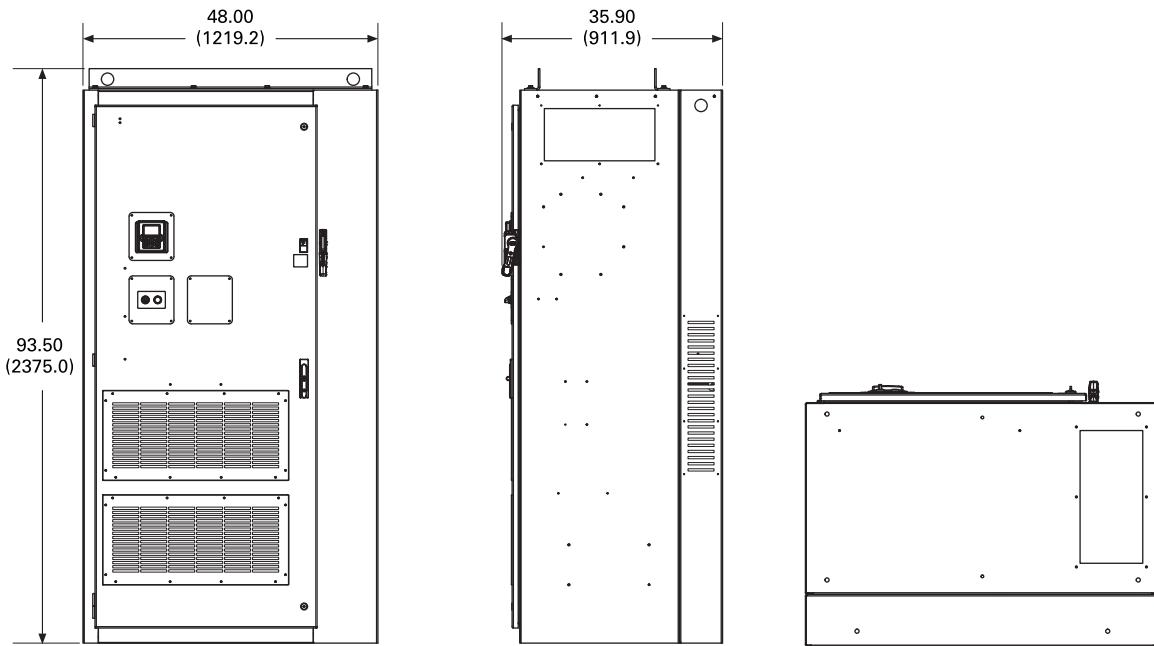
Adjustable Frequency Drives

PowerXL DH1 Series Drives

Approximate Dimensions in Inches (mm)

FX-XL—Type 1 and Type 12

2



FX-XL—Type 3R

