ACE explosionproof variable frequency drives

Utilizes Eaton's PowerXL DG1 drives

Cl. I, Div. 1 & 2, Groups B, C, D (UL)
Cl. I, Div. 1 & 2, Groups B[A], C, D (cUL)

NEMA 3, 4X[B], 7BCD
Raintight
Wet Locations

Explosionproof VFDs are highly flexible AC drives designed specifically for hazardous area locations. These drives can be mounted next to the motor in the classified area, providing significant installation cost savings – along with the traditional VFD benefits of energy savings, speed and torque control, and system diagnostics.

This revolutionary product features a NEMA 7 enclosure with patent pending active cooling technology, allowing a traditional VFD to be housed inside the classified enclosure without the risk of overheating. The ACE explosionproof VFD is rated Class I, Divisions 1 & 2 for use in the most extreme environments, and is designed to match the high requirements of pumps, compressors, fans, separators and mixers in the following process industries:

- Oil and gas/refineries
- OEM skid builders
- Petrochemical
- Water/wastewater
- Pharmaceutical
- Food and beverage manufacturing

Applications:

- For speed control of pumps, compressors, fans, conveyors, separators, mixers and other process equipment
- Designed to meet the high reliability and safety requirements of process industries such as oil and gas, chemical and mining

Features:

- ACE VFDs are installed 'on-machine' inside the hazardous areas, eliminating expensive, complicated installations
- There is no need to run long lines of conduit and motor cable, dig up roadways and sidewalks, navigate around obstacles and hazards or build off-site control rooms in non-hazardous areas to house VFD clusters
- Reflected Wave Syndrome is eliminated due to short motor cable runs

ACE DG1 features:

- Drives available up to 100 HP
- Improved temperature rating:
  -30°C to +50°C (up to 75 HP)
  -30°C to +40°C (100 HP)
- Standard features include:
  - EtherNet/IP
  - Modbus TCP
  - RS-485: Modbus RTU
  - BACnet MS/TP



Compatible with CHG harsh and hazardous area gateway assemblies

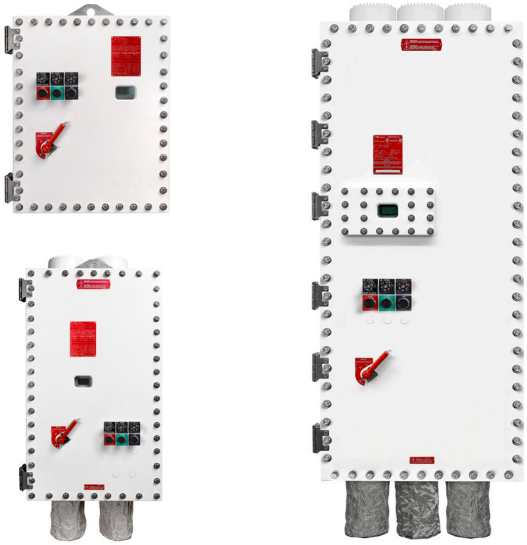
Provides a wireless connection to Eaton's Brightlayer Industrial Remote Monitoring platform, see Eaton.com/Brightlayer

Safety – helps minimize the time employees spend in harsh and hazardous areas to monitor and troubleshoot equipment.

Operational efficiency – real-time alerts to identify and alleviate variables that impact performance before they cause downtime.

Intelligent resource deployment – maintenance immediately alerted to specific issues, significantly reducing the length of maintenance events.

To learn more, visit Eaton.com/CHG



Certifications and compliances:

UL classified:

- Class I, Divisions 1 & 2, Groups B, C, D

cUL classified:

- Class I, Divisions 1 & 2, Groups B[A], C, D

UL standard:

- UL1203

Environmental ratings:

- NEMA 3, 4X[B], 7BCD
- Raintight
- Wet locations

Operating temperature range:

- 1 to 75 HP: -30°C to +50°C (-22°F to 122°F)
- 100 HP: -30°C to +40°C (-22°F to 104°F)

Standard materials and finishes:

- Body and cover – copper-free aluminum, epoxy powder coated
- Operating handle – copper-free aluminum, epoxy painted
- Window – tempered soda lime glass
- Blower – aluminum, natural
- Filters – stainless steel, natural
- Pre-filters – stainless steel, natural
- Disconnect – stainless steel, natural
- Shroud – copper-free aluminum, epoxy painted
- Cover hinges, bolts, washers and springs – stainless steel, natural
- Internal brackets – stainless steel, natural
- Manifold and intake – EPDM rubber, natural

Horsepower ratings:

- Available from 1 to 100 HP

VFD system specifications:

- Eaton PowerXL DG1 general purpose drives

[A] 5 HP and below listed for Group B.
[B] Please consult factory.

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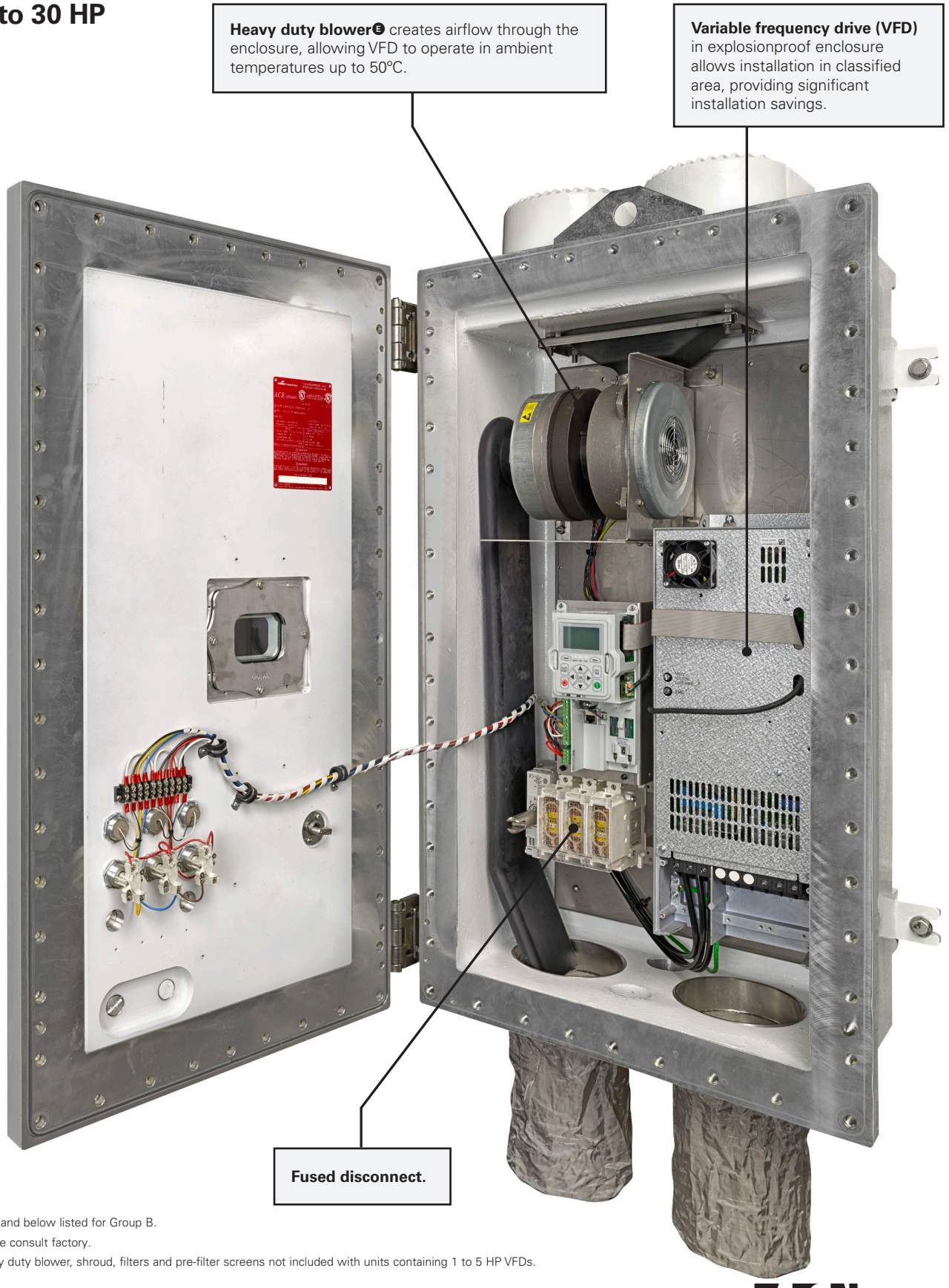
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Cl. I, Div. 1 & 2, Groups B[C], C, D (cUL)

NEMA 3, 4X[D], 7BCD
Raintight
Wet Locations

7.5 to 30 HP



[C] 5 HP and below listed for Group B.
[D] Please consult factory.
[E] Heavy duty blower, shroud, filters and pre-filter screens not included with units containing 1 to 5 HP VFDs.

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ACE explosionproof variable frequency drives

Utilizes Eaton's PowerXL DG1 drives

Cl. I, Div. 1 & 2, Groups B, C, D (UL)
Cl. I, Div. 1 & 2, Groups B[F], C, D (cUL)

NEMA 3, 4X[G], 7BCD
Raintight
Wet Locations

Shroud covering top filters allows water to dissipate off enclosure.



Stainless steel, captive, triple lead quick release spring loaded bolts install faster and provide clear indication that the cover bolts are fully retracted from the body.

Stainless steel hinges provide convenient and easy access to enclosure interior.

Enclosure epoxy painted for superior corrosion resistance.

Explosionproof window allows for viewing of the VFD interface module LCD screen.

Internal and external grounding lugs.

Explosionproof pilot lights provide run, stop and alarm indication.

Filters[H] in top and bottom of enclosure allow airflow into and out of the enclosure, cooling the VFD and eliminating risk of overheating.



Pre-filter screens[H] (not shown) eliminate clogging of the primary filters, ensuring reliable and consistent airflow. Pre-filter screens can be easily removed and cleaned without shutting down operations.



[F] 5 HP and below listed for Group B.
[G] Please consult factory.
[H] Heavy duty blower, shroud, filters and pre-filter screens not included with units containing 1 to 5 HP VFDs.

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ACE explosionproof variable frequency drives

Utilizes Eaton's PowerXL DG1 drives

Cl. I, Div. 1 & 2, Groups B, C, D (UL)
Cl. I, Div. 1 & 2, Groups B❶, C, D (cUL)

NEMA 3, 4X❶, 7BCD
Raintight
Wet Locations

40 to 100 HP



Shroud covering top filters allows water to dissipate off enclosure.



Heavy duty blower creates airflow through the enclosure, allowing VFD to operate in ambient temperatures up to 50°C.

Variable frequency drive (VFD) in explosionproof enclosure allows installation in classified area, providing significant installation savings.

Internal and external grounding lugs.

Fused disconnect.

Filters in top and bottom of enclosure allow airflow into and out of the enclosure, cooling the VFD and eliminating risk of overheating.



Pre-filter screens eliminate clogging of the primary filters, ensuring reliable and consistent airflow. Pre-filter screens can be easily removed and cleaned without shutting down operations.

❶5 HP and below listed for Group B.
❶Please consult factory.

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ACE explosionproof variable frequency drives

Utilizes Eaton's PowerXL DG1 drives

Cl. I, Div. 1 & 2, Groups B, C, D (UL)
Cl. I, Div. 1 & 2, Groups B[K], C, D (cUL)

NEMA 3, 4X[L], 7BCD
Raintight
Wet Locations

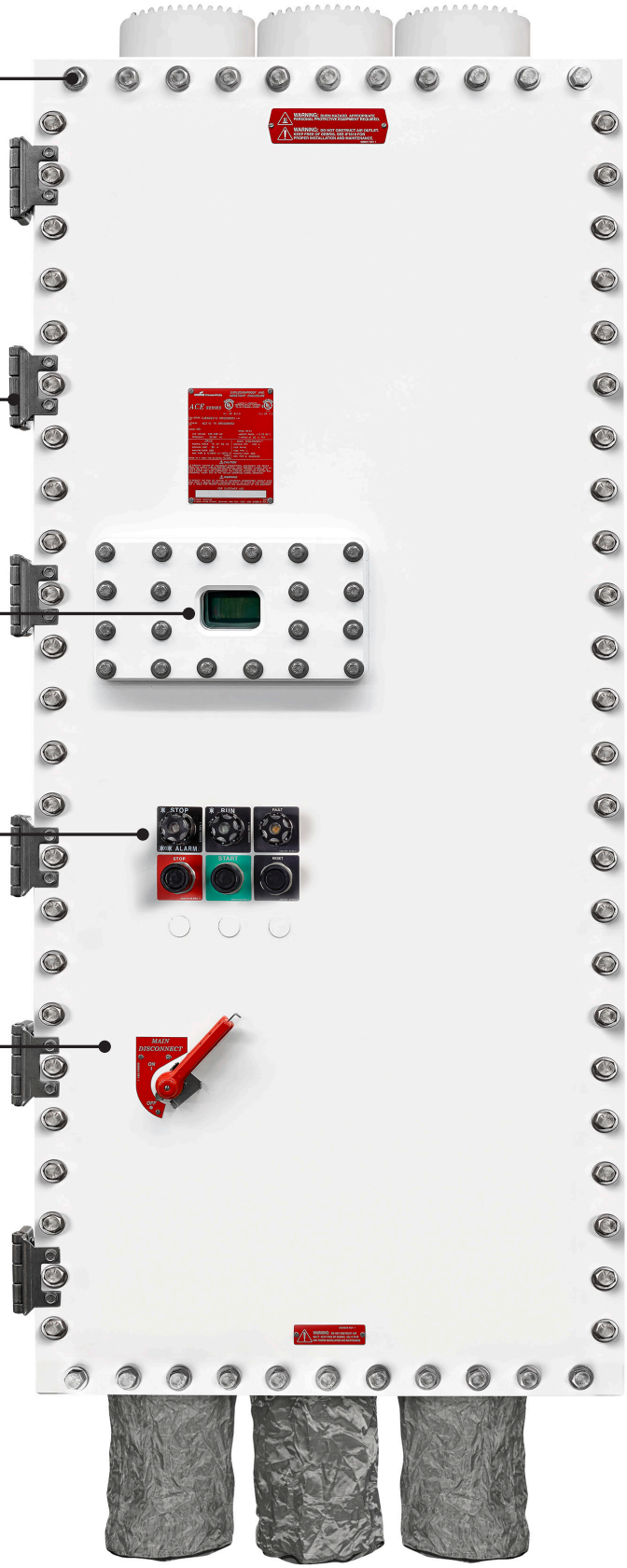
Stainless steel, captive, triple lead quick release spring loaded bolts install faster and provide clear indication that the cover bolts are fully retracted from the body.

Stainless steel hinges provide convenient and easy access to enclosure interior.

Explosionproof window allows for viewing of the VFD interface module LCD screen.

Explosionproof pilot lights provide run, stop and alarm indication.

Enclosure epoxy painted for superior corrosion resistance.



[K] 5 HP and below listed for Group B.
[L] Please consult factory.

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ACE explosionproof variable frequency drives

Utilizes Eaton's PowerXL DG1 drives

Cl. I, Div. 1 & 2, Groups B, C, D (UL)
Cl. I, Div. 1 & 2, Groups B[M], C, D (cUL)

NEMA 3, 4X[N], 7BCD
Raintight
Wet Locations

Ordering information:

Horsepower rating

Base cat. #	Nominal HP (kW)	Max. disconnect rating amperage	Disconnect fuse rating	Enclosure size	460V input rating amperage	Max. output rating amperage	Power loss (watts)	Temperature rating
ACE-DG1-1	1.0 (.75)	30	10	1	2.0	2.2	48	T6
ACE-DG1-2	2.0 (1.5)	30	10	1	3.2	4.3	71	T6
ACE-DG1-3	3.0 (2.2)	30	10	1	4.5	5.6	82	T6
ACE-DG1-5	5.0 (3.0)	30	15	1	7.1	7.6	99	T6
ACE-DG1-7	7.5 (5.5)	30	20	2	10.2	12.0	483	T4A
ACE-DG1-10	10.0 (7.5)	30	30	2	13.0	16.0	539	T4A
ACE-DG1-15	15.0 (11.0)	60	35	2	19.5	23.0	598	T4A
ACE-DG1-20	20.0 (15.0)	60	50	2	25.1	31.0	719	T4A
ACE-DG1-25	25.0 (18.5)	60	60	2	31.6	38.0	764	T4A
ACE-DG1-30	30.0 (22.0)	100	80	2	37.2	46.0	821	T4A
ACE-DG1-40	40.0 (30.0)	100	100	3	48.3	61.0	909	T4A
ACE-DG1-50	50.0 (37.0)	200	110	3	60.4	72.0	1076	T4A
ACE-DG1-60	60.0 (45.0)	200	125	3	71.6	87.0	1222	T4A
ACE-DG1-75	75.0 (55.0)	200	175	3	89.2	105.0	1271	T4A
ACE-DG1-100	100.0 (75.0)	200	175	3	115.3	140.0	1482	T4A

Part number example
ACE-DG1-60-CC-PT

ACE-DG1-60 – **CC** – **PT**

Horsepower rating

ACE-DG1-60	Eaton PowerXL VFD with 60 HP rating

Options (see below)

CC	CAN open
PT	Potentiometer
Modbus and Ethernet standard on all DG1 models	

Options

Communication modules

Suffix	Description
CP	Profibus
CD	Devicenet
CC	CAN open
CS	SmartWire
CL	Lon works
RO	Relay output
DI[O]	6 x DI 240 VAC input option card
DIO	3 x DI, 3 x DO, 24 VDC

Potentiometer

Suffix	Description
PT	AB 800H-UP29

Local / remote

Suffix	Description
LR	Two-position switch

600 VAC option

Suffix	Description
600	600 VAC

Note: 600 suffix option can only be used for ACE-DG1 units with nominal HP of 5 or less.

Replacement part kits

Cat. #	Description
ACE KIT 1	Pre-filter and hardware (one-piece)
ACE KIT 2	Filter assembly (one-piece)
ACE KIT 3	Blower, manifold and hardware (one-piece)
ACE KIT 7	3/8" glass window
ACE KIT 8	5/8" glass window
ACE KIT 9	Shroud replacement kit

Drive fan replacement kits

Cat. #	For use with
ACE KIT 11-1	ACE-DG1 1-5 HP
ACE KIT 11-2	ACE-DG1 7-15 HP
ACE KIT 11-3	ACE-DG1 20-30 HP
ACE KIT 11-4	ACE-DG1 40-60 HP
ACE KIT 11-5	ACE-DG1 75-100 HP

Note: This fan is not the main blower found inside the enclosure. ACE KIT 3 is the replacement parts kit for the main blower. ACE KIT 11 kits are replacement fans specifically for the VFD drive.

[M] 5 HP and below listed for Group B.

[N] Please consult factory.

[O] DI option does not denote a 240 VAC supply voltage capability of the VFD. Please contact factory if a 240 VAC VFD is required.

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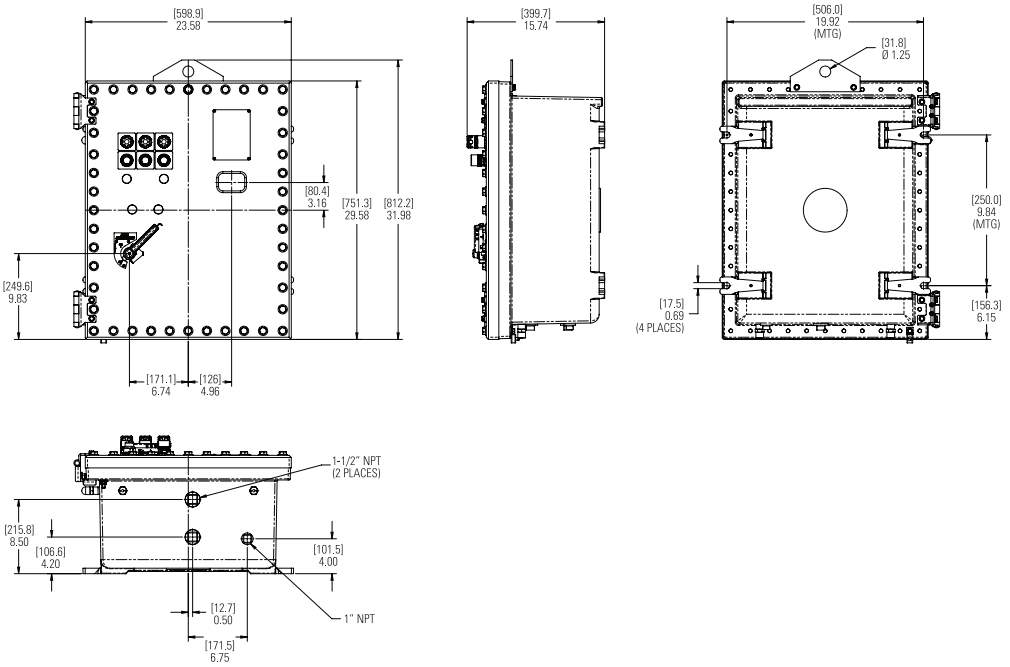
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Cl. I, Div. 1 & 2, Groups B[P], C, D (cUL)

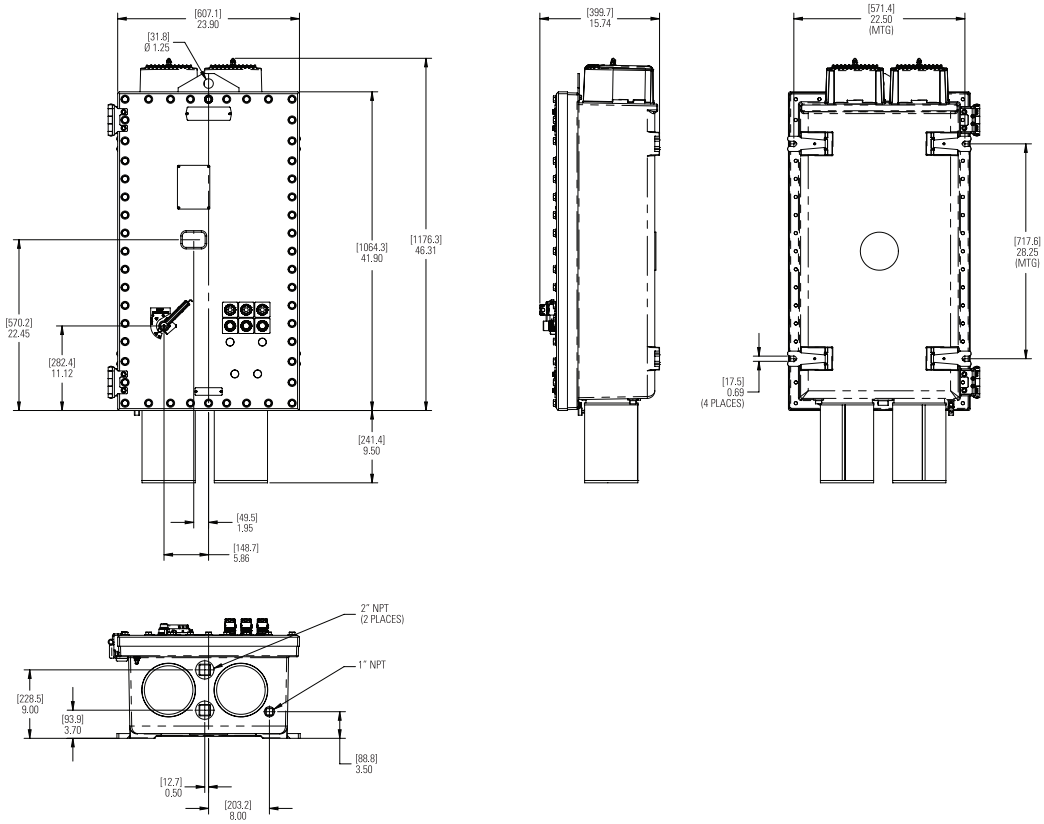
NEMA 3, 4X[O], 7BCD
Raintight
Wet Locations

Dimensions:

Enclosure size 1 (1 to 5 HP)



Enclosure size 2 (7.5 to 30 HP)



[P] 5 HP and below listed for Group B.

[Q] Please consult factory.

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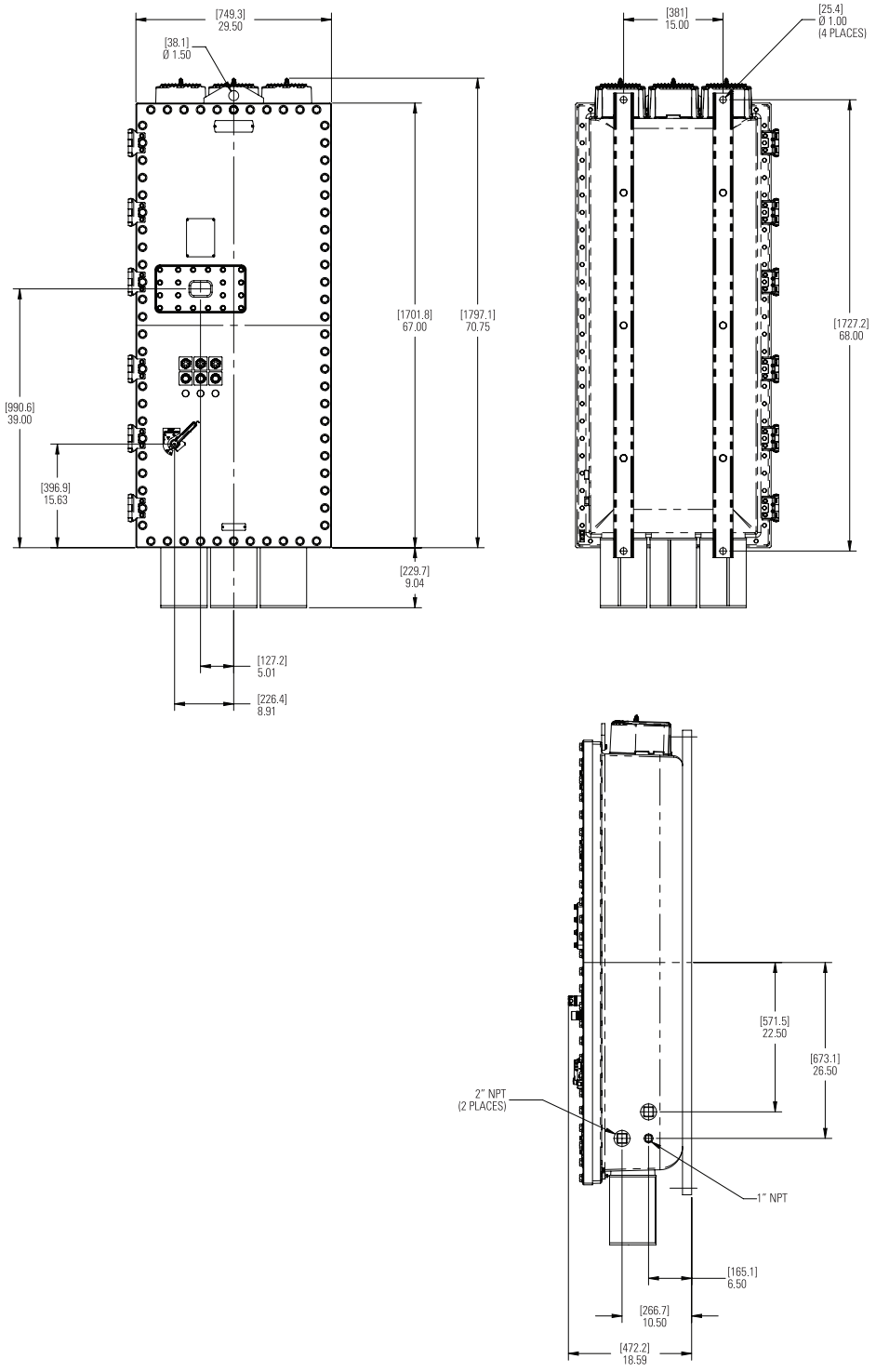
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Cl. I, Div. 1 & 2, Groups BⓇ, C, D (cUL)

NEMA 3, 4XⓈ, 7BCD
Raintight
Wet Locations

Dimensions (continued):

Enclosure size 3 (40 to 100 HP)



ⓇHP and below listed for Group B.

ⓈPlease consult factory.

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