

# ACE20 explosionproof variable frequency drives

Utilizes Allen-Bradley PowerFlex 700 drives

Cl. I, Div. 1 & 2, Groups B, C, D (UL)  
Cl. I, Div. 1 & 2, Groups B<sup>A</sup>, C, D (cUL)

NEMA 3, 4X<sup>B</sup>, 7BCD  
Raintight  
Wet locations

6C

## The only explosionproof VFD solution utilizing a NEMA 7 classified enclosure

ACE20 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 innovative product features the first ever NEMA 7 enclosure with active cooling, allowing the solution to be rated Class I, Divisions 1 and 2. It 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/waste water
- 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 explosionproof 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

## Certifications and compliances:

### UL classified:

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

### cUL classified:

- Class I, Divisions 1 & 2, Groups B<sup>A</sup>, C, D

### UL standard:

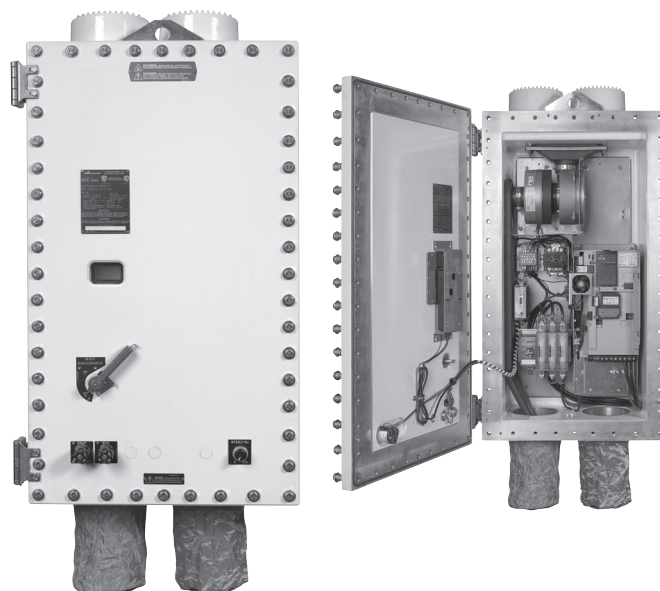
- UL1203

### Environmental ratings:

- NEMA 3, 4X<sup>B</sup>, 7BCD
- Raintight
- Wet locations

### Operating temperature range:

- 0°C to 50°C (32°F to 122°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 up to 50 HP

## VFD system specifications:

- Allen-Bradley® PowerFlex 700® low voltage, compact AC drives

<sup>A</sup> 5 HP and below listed for Group B.

<sup>B</sup> For NEMA 4X, please contact factory.

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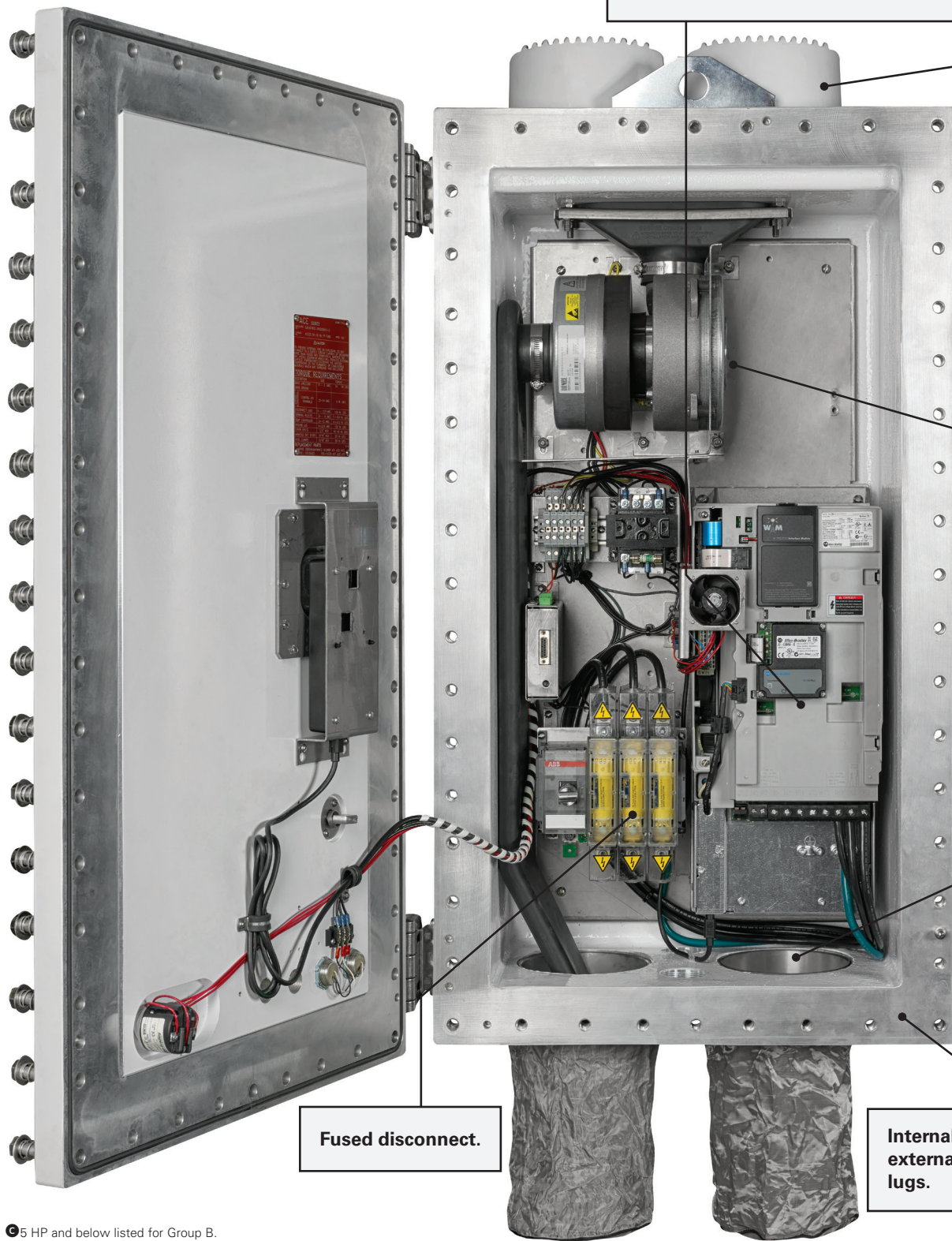
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**Variable Frequency Drive (VFD)** in explosionproof enclosure allows installation in classified area, providing significant installation savings.



**Fused disconnect.**

**Internal and  
external grounding  
lugs.**

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**Shroud<sup>Ⓔ</sup>**  
covering top  
filters  
maintains  
NEMA 4X  
rating.



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

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

**Heavy duty blower<sup>Ⓔ</sup>** creates airflow through the  
enclosure, allowing VFD to operate in ambient  
temperatures up to 50°C.

**Filters<sup>Ⓔ</sup>**  
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<sup>Ⓔ</sup>**  
eliminate clogging of the  
primary filters, ensuring  
reliable and consistent  
airflow. Pre-filter screens  
can be easily removed and  
cleaned without shutting  
down operations.



**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.



**Explosionproof pilot lights** provide run, stop and  
fault indication.

**Optional potentiometer,  
pushbuttons and selector  
switches.**

**Enclosure epoxy  
painted for superior  
corrosion resistance.**

<sup>Ⓔ</sup> 5 HP and below listed for Group B.

<sup>Ⓕ</sup> For NEMA 4X, please contact factory.

<sup>Ⓔ</sup> Heavy duty blower, shroud, filters and pre-filter screens not included with units containing 1.5 to 5 HP VFDs.

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## Ordering information:

### Horsepower rating

Base cat. #	Nominal HP (kW)	Max. disconnect rating amperage	Disconnect fuse type	Enclosure size	460V input rating amperage	Max. output rating amperage <sup>①</sup>	Power loss (watts) <sup>②</sup>	Temperature rating	VFD manufacturer cat. #
ACE20 1	1.0	30	J	1	1.6	2.1	63	T6	20BD027A0AYNANCO
ACE20 2	2.0	30	J	1	2.6	3.4	76	T6	
ACE20 3	3.0	30	J	1	3.9	5.0	93	T6	
ACE20 5	5.0	30	J	1	6.9	8.0	164	T6	
ACE20 7	7.5	30	J	2	9.5	11.0	594	T4A	20BD027A0AYNANCO
ACE20 10	10.0	30	J	2	12.5	14.0	618	T4A	
ACE20 15	15.0	60	J	2	19.9	22.0	726	T4A	
ACE20 20	20.0	60	J	2	24.8	27.0	794	T4A	
ACE20 25	25.0	60	J	2	31.2	34.0	841	T4A	20BD065A0AYNANCO
ACE20 30	30.0	60	J	2	36.7	40.0	859	T4A	
ACE20 40	40.0	100	J	2	47.7	52.0	1010	T4A	
ACE20 50	50.0	100	J	2	59.6	65.0	1117	T4A	

### Part number example ACE20 50-CE-PT-FJ70

**ACE20 50** — **CE** — **PT** — **FJ70**

#### Horsepower rating

**ACE20 50** Allen-Bradley VFD with 50 HP rating

#### Options (see below)

**CE** Ethernet communications  
**PT** Potentiometer

#### Current rating

**FJ70** Fuse (65A requirement + 5A for blower, rounded up to 70)

#### Current rating for Bussmann fuses

**FJ** ← NOTE: Add 5 amps to your requirements to account for cooling system blower and round up to the nearest increment of 5  
**Fuse type J** **Current rating**

## Options

### Communication modules

Suffix	Description
CP	Profibus
CD	Devicenet
CC	CAN open
CM	Modbus
CE	Ethernet

### Additional options

Suffix	Description
PT	Potentiometer
RR3	Hand-off-auto switch <sup>①</sup>
PB23	Pushbutton start-stop <sup>①</sup>
600	600 VAC VFD

**Note:** 600 suffix option can only be used for ACE20 units with nominal HP of 5 or less.

## Replacement part kits

Suffix	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 5	Temperature controller (one-piece)

<sup>①</sup> 5 HP and below listed for Group B.

<sup>②</sup> For NEMA 4X, please contact factory.

<sup>③</sup> De-rating may be required to account for specific environmental conditions (high ambient temperature, altitude, etc). Contact factory for de-rating information.

<sup>④</sup> When not installed in a well-ventilated environment, provisions must be made to account for heat generation to ensure proper operation of the device.

<sup>⑤</sup> RR3 and PB23 cannot be ordered together.

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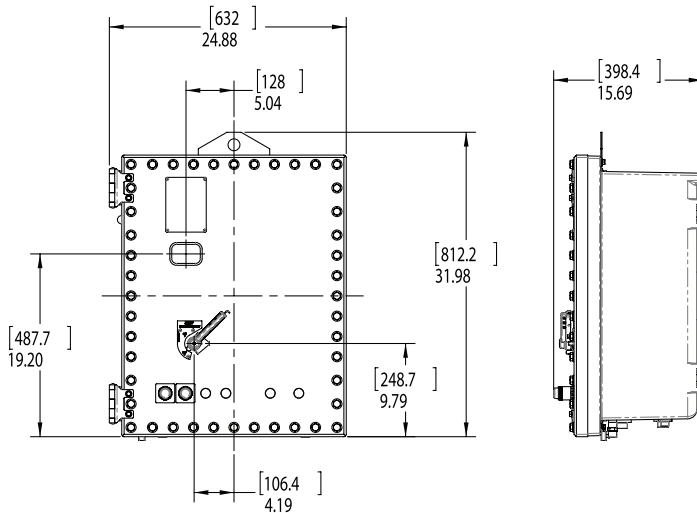
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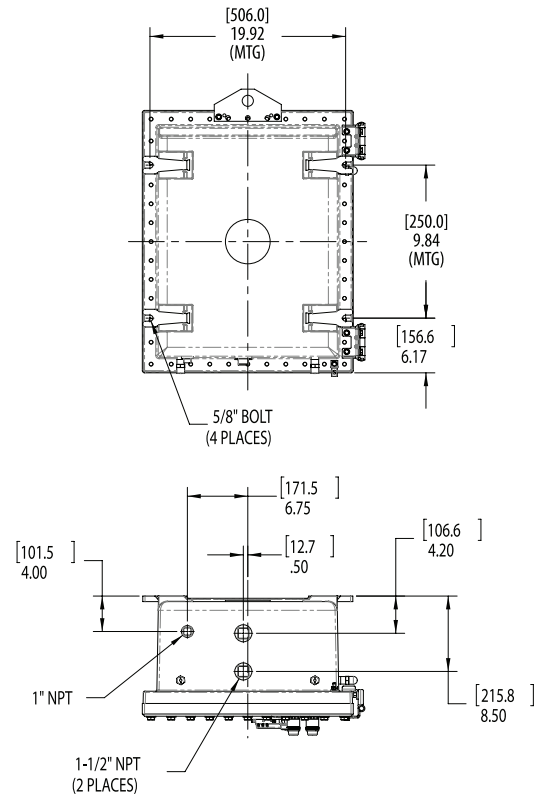
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## Dimensions:

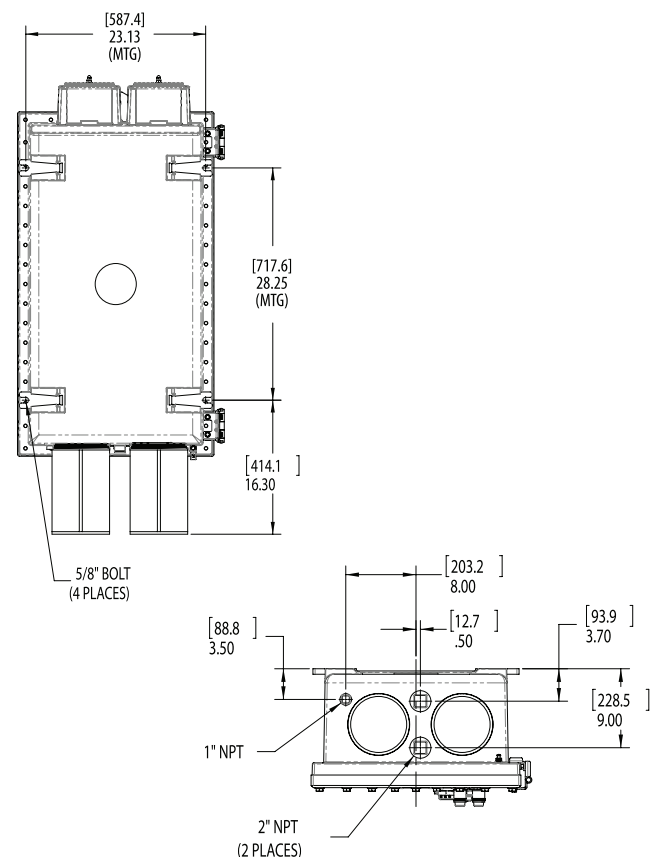
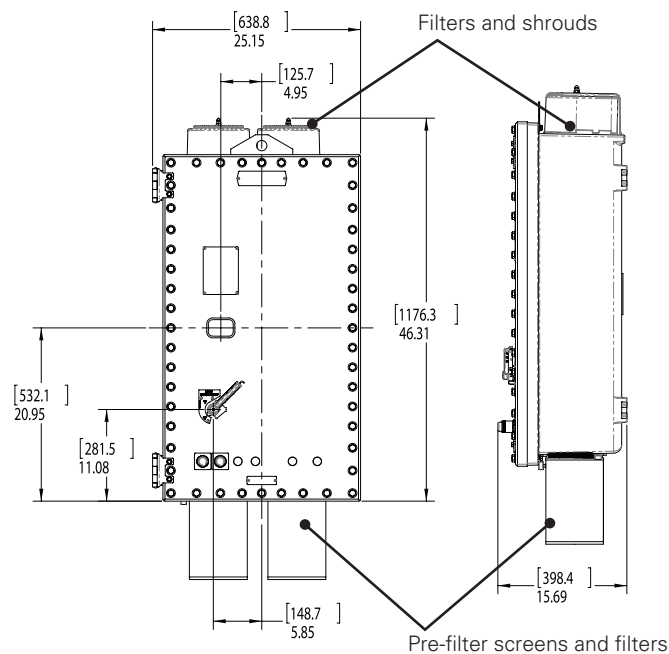
### Enclosure size 1 (1 to 5 HP)



**Note:** Units containing 1 to 5 HP VFDs do not require filters



### Enclosure size 2 (7.5 to 50 HP)



M 5 HP and below listed for Group B.  
N For NEMA 4X, please contact factory.