# ACE-DG1 Variable Frequency Drive System

## Installation & Maintenance Information

**SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE**

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**Graphical Diagram:**

- Data Nameplate, including Torque Information
- Blower Cooling Intake
- Manifold
- Blower
- Disconnect Switch
- External Ground
- Internal Ground
- Explosionsproof Filter (pre-filters removed for clarity)
- Warning Plate
- Pre-filters
- Shroud
- Product Nameplate with Critical Markings
- Control Pad Viewing Window
- Disconnect Operating Handle
- Start/Stop/Reset
- Warning Nameplate
- Potentiometer and Local/Remote Switch (not shown)
1. SAFETY INSTRUCTIONS
The ACE Explosionproof VFD should be installed, inspected and maintained by qualified and competent personnel.

1.1 APPLICATION
The ACE Explosionproof VFD is rated Class I, Divisions 1 and 2 for use in hazardous environments, and is designed to match the strict requirements of pumps, compressors, fans, separators and mixers in such process industries as:

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

1.2 ELECTRICAL SAFETY

WARNING: HIGH VOLTAGE
Electrical power must be OFF before and during inspection or service. Ensure electrical supply to the enclosure is disconnected, locked out and tagged out. Personnel injury or damage to equipment can occur if all power upstream from the enclosure is not fully disconnected prior to opening.

Before commissioning the drive and putting it into service, make sure that the motor and all driven equipment are suitable for operation throughout the speed range provided by the drive. The drive can be adjusted to operate the motor at speeds above and below the speed provided by connecting the motor directly to the line power.

CAUTION
To ensure safety and VFD performance, grounding provisions for the enclosure, blower and VFD must be made before operating.

1.3 BLOWER SAFETY

WARNING
To avoid cooling system malfunction, cooling system failure and personnel injury, close and seal the enclosure before energizing.

WARNING: HIGH SPEED
To avoid personnel injury, DO NOT handle the blower or service the enclosure while energized.

1.4 HOT SURFACES

WARNING
To avoid personnel injury, remove all loose debris and deposits before energizing.

1.5 ENCLOSURE SAFETY

WARNING
To avoid personnel injury and property damage, clean dirt and debris from flat ground joint surfaces before the cover is closed. NEVER energize this equipment if the flat ground joint has been scratched or damaged.

All pipe threaded connections into the enclosure require a minimum of five (5) full threads of engagement. All straight threaded connections into the enclosure require a minimum of eight (8) full threads of engagement. Personnel injury or equipment damage can result from threaded joints containing less than the minimum thread engagement required.

All unused conduit openings must be plugged. UL Listed plug must engage a minimum of five (5) full threads and be a minimum of 1/8” thick.

Conduit sealing fittings MUST be installed in each attached conduit run (within eighteen (18) inches of the enclosure) to comply with the latest edition of the National Electrical Code® (NEC) plus any other applicable code.

The cover must be properly fastened to the body with all cover bolts torqued to 40-45 ft.-lbs. (19.2-21.5 N-m). Personnel injury or equipment damage can result if the flat joint flame path is not properly fastened.

WARNING
These blowers comply with EN 61800-5-1 safety standards.

The blower is non-serviceable. Refer to ACE KIT 3, Section 8.3, for replacement instructions.

WARNING
To avoid personnel injury, use appropriate personnel protective equipment before handling and operating the device.

WARNING
To avoid cooling system malfunction, cooling system failure and personnel injury, remove all loose debris and deposits before energizing.
2. MECHANICAL INSTALLATION

2.1 AIRFLOW PROVISIONS - INSTALLATION DRAWING

It is imperative that the enclosure be well ventilated to ensure reliable performance. Adequate space around the intake and exhaust of the enclosure MUST be accommodated. Eaton’s Crouse-Hinds Division recommends ‘x’ be a minimum of 12 inches (0.3 meters).

2.2 WEIGHTS

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Weight (Approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1 (1-5 HP)</td>
<td>350</td>
</tr>
<tr>
<td>Size 2 (7-30 HP)</td>
<td>550</td>
</tr>
<tr>
<td>Size 3 (40-100 HP)</td>
<td>1200</td>
</tr>
</tbody>
</table>

2.3 LIFTING

1. Remove top and sides from shipping crate.
2. Remove lag bolts from enclosure mounting feet

CAUTION
Do not attach shrouds or pre-filters until after enclosure is mounted.

WARNING
To avoid personnel injury and property damage, DO NOT remove or modify the control pad viewing window.

CAUTION: UNBALANCED LOAD
To avoid personnel injury, utilize the dedicated lifting eye and handle appropriately to ensure safe installation.

3. Use the dedicated lifting eye to mount enclosure on suitable mounting surface. Select a mounting location that will provide suitable strength and rigidity for supporting the enclosure and all components.
2.4 DIMENSIONAL DRAWINGS

ACE Size 1

ACE Size 2

ACE Size 3
2.5 MOUNTING

1. Select a mounting location that will provide suitable strength, rigidity and space (per Section 2.1) for supporting the ACE Series system and all contained wiring.

2. Refer to Section 2.2 for approximate weights and Section 2.4 for dimensions.
3. For enclosure sizes 1 & 2, install two (2) 5/8” on the left side. For enclosure size 3, install four (4) 7/8” bolts through mounting rails, then proceed to Step 8.
4. Tap each of the four (4) mounting feet with a mallet to ensure tight assembly.
5. Align enclosure with the two (2) left side mounting feet engaged with the mounting bolts on selected mounting surface.
6. Tighten two (2) bolts on left side.
7. Install two (2) 7/8” bolts on right side and tighten.
8. After enclosure is positioned and secured in its permanent location, pull wires into the ACE Series system, making sure that they are long enough to make the required connections.

2.6 SHROUD INSTALLATION

1. Remove rubber caps from explosionproof filters.
2. Insert threaded rods into the explosionproof filters. Leave 3-5/8 of threaded rod exposed.
3. Place shroud over explosionproof filters and threaded rod, with shroud opening facing back of enclosure. See Figure 2.
4. Insert washer and nuts onto end of threaded rod and tighten securely until shroud is firmly contacting the top wall of the enclosure. See Figure 3.
5. Be sure to stretch pre-filter elastic band completely around the explosionproof filter and seat the elastic band on the filter’s threads. This will ensure all air flow to the bottom filters passes through the pre-filters.

2.7 PRE-FILTER INSTALLATION

1. Remove rubber caps from explosionproof filters.
2. Install wire guard using the bracket, screw and lock washer provided to the bottom filter(s).
3. Align guard with notches within the bracket as shown.

3. ELECTRICAL INSTALLATION

3.1 ENCLOSURE GROUNDING - INTERNAL/EXTERNAL

Grounding and bonding of the conduit and equipment is required by the National Electrical Code®. A grounding conductor must be connected to the grounding lugs furnished. Determine the type of distribution systems to be used that will comply with NEC requirements and ensure grounding continuity. All conductive equipment that enclose the electrical conductors or attached equipment or forming part of such equipment must be grounded. A permanent connection must be made between all such equipment and the earth. Refer to Section 5.3 for the torque requirements of all terminations within this device.
3.2 LINE FEED

This equipment is designed for line connection directly to the integral disconnect switch. Factory wiring transmits power to the variable frequency drive.

1. Size line wiring according to drive manufacturer’s specifications.
2. Attach line conductors with phase A on the left, B center and C to the right (see torque table in Section 5.3).

3.3 LOAD FEED AND SHIELD GROUNDING TO DRIVE

This equipment is designed for load connection directly from the variable frequency drive, although, in the case of an oversized VFD for the given motor, use the VFD and motor manufacturer’s recommendations for proper motor overload protection. In certain cases, it is required to include additional motor overload protection between the VFD and the motor for proper motor overload protection. Always be sure to shield load wiring from line and control wiring to reduce noise. Refer to the drive manufacturer’s manual for further details.

1. Attach load conductors with phase A to U, B to V, and C to W (see torque table in Section 5.3).
2. Attach motor cable shielding to VFD ground (see recommendations by drive manufacturer).
3. Refer to the drive manufacturer’s manual for further information regarding drive installation.

3.4 CONTROL WIRE ROUTING

To avoid the transmission of noise to/from the blower, control system and/or the variable frequency drive load conductors, be sure to bundle all field control wiring and shield as necessary.

⚠️ CAUTION

Failure to add additional motor overload protection between the VFD and motor when required can cause motor failure and equipment damage.
3.5 FACTORY WIRING SCHEMATIC

3.6 COMMUNICATION AND I/O MODULES
All communication and I/O modules are shipped uninstalled in the drive. It is the installer's responsibility to install and configure the module and associated field wiring (refer to drive manufacturer's installation manual).

<table>
<thead>
<tr>
<th>Catalog Number Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>CANOpen</td>
</tr>
<tr>
<td>CD</td>
<td>DeviceNet</td>
</tr>
<tr>
<td>CL</td>
<td>LonWorks</td>
</tr>
<tr>
<td>CP</td>
<td>Profinet</td>
</tr>
<tr>
<td>CS</td>
<td>SmartWire</td>
</tr>
<tr>
<td>DI</td>
<td>240 VAC Input</td>
</tr>
<tr>
<td>DIO</td>
<td>3x DI, 3x DO, 24 VDC</td>
</tr>
<tr>
<td>RO</td>
<td>Relay Output</td>
</tr>
</tbody>
</table>

4. GENERAL OPERATION

4.1 CONTROL PAD VIEWING WINDOW
The control pad viewing window shows the control pad display containing such information as drive status and operating data. Refer to the drive manufacturer's manual for information regarding the control pad display.
4.2 DISCONNECT AND LOCKOUT/TAGOUT

The disconnect handle is furnished with three (3) holes for lockout/tagout purposes.

1. Turn handle to the ‘off’ position.
2. Depress lockout tab at the end of the handle.
3. Install OSHA approved lock or tag.
4. Release lockout tab.

**WARNING**

To avoid ignition of explosive atmospheres, all circuits must be de-energized before opening cover.

**CAUTION**

To avoid damage to the integral disconnect operating mechanism, be sure the disconnect coupling is in the off position before closing cover.

4.4 PT (POTENTIOMETER) AND LR (LOCAL/REMOTE)

- Suffix options PT and/or LR, when ordered, are wired to the drives I/O for additional user control.
- For suffix PT, a 10K-ohm potentiometer is connected to AI1, and is configured to be the local (primary) speed reference source.
- For suffix LR, a 2-position selector switch is connected to DI7 & 8, and is configured to switch between local and remote operation.
- Parameters for these options, shown in section 7.1, are set up at the factory. Refer to drive manufacturers manual for further information.

5. MAINTENANCE

5.1 DRIVE MAINTENANCE

Periodic cleaning of the drive fan and heat sink is recommended.

**CAUTION**

To avoid cooling system malfunction and cooling system failure, be sure to vacuum debris from the enclosure before energizing. NEVER use forced air for the removal of debris from this enclosure.

Removal of the drive from the enclosure is recommended to ensure debris does not obstruct the cooling system. Refer to the drive manufacturer’s manual for additional maintenance recommendations and specific instructions.

5.2 COOLING SYSTEM MAINTENANCE

1. Clean pre-filter periodically. Remove pre-filter and rinse with water as needed.
2. Clean sintered filter as needed. Use of abrasives on the explosionproof filters may compromise the integrity of the cooling system.
3. Clean/inspect blower intake.
4. Perform visual, electrical and mechanical checks on all components on a regular maintenance schedule. NFPA 70B recommends maintenance intervals not exceeding 2 months.
5. Visually check for any damage to the filter assemblies, flat joints, threaded joints, journal joints and window.
6. Visually check for evidence of excessive heating within the enclosure.
7. Mechanically check that all parts are properly assembled and operating mechanisms are in proper working condition.
8. Verify airflow provisions are maintained per Section 2.1.

4.3 DRIVE CONTROLS AND STATUS INDICATION

Three (3) momentary pushbutton operators control the START, STOP and [fault] RESET of the drive. They are wired to the drives digital inputs and are configured to be the “local control place.”

Three (3) LED pilot lights indicate the drives status – Red = Stopped, Green = Running, Amber = Drive Fault. These are wired to the drive’s relay outputs.

**Note:** As standard, speed control must either be programmed from the drive’s keypad, by remote analog signal (customer supplied) or by using the on board or option card communications capabilities.
5.3 TORQUE VERIFICATION

<table>
<thead>
<tr>
<th>BASIC CATALOG NO.</th>
<th>WIRE SIZE</th>
<th>TORQUE</th>
<th>WIRE SIZE</th>
<th>TORQUE</th>
<th>I/O TERMINALS</th>
<th>DISCONNECT TERMS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-DG1-1 … ACE-DG1-5</td>
<td>26-10 AWG</td>
<td>5.3 IN-LBS</td>
<td>18-10 AWG</td>
<td>10 IN-LBS</td>
<td>24-12 AWG</td>
<td>4.5 IN-LBS</td>
</tr>
<tr>
<td>ACE-DG1-7 … ACE-DG1-15</td>
<td>20-6 AWG</td>
<td>15.6 IN-LBS</td>
<td>12-6 AWG</td>
<td>10 IN-LBS</td>
<td>14-4 AWG</td>
<td>10 IN-LBS</td>
</tr>
<tr>
<td>ACE-DG1-20 … ACE-DG1-25</td>
<td>6-2 AWG</td>
<td>40 IN-LBS</td>
<td>14-4 AWG</td>
<td>10 IN-LBS</td>
<td>12-1 AWG</td>
<td>35.4 IN-LBS</td>
</tr>
<tr>
<td>ACE-DG1-30</td>
<td>6-2 AWG</td>
<td>40 IN-LBS</td>
<td>14-4 AWG</td>
<td>10 IN-LBS</td>
<td>12-1 AWG</td>
<td>35.4 IN-LBS</td>
</tr>
<tr>
<td>ACE-DG1-40</td>
<td>6-1/0 AWG</td>
<td>95 IN-LBS</td>
<td>10-1/0 AWG</td>
<td>14 IN-LBS</td>
<td>6-300 KCM</td>
<td>200 IN-LBS</td>
</tr>
<tr>
<td>ACE-DG1-50 … ACE-DG1-60</td>
<td>1/0-350 KCM</td>
<td>354 IN-LBS</td>
<td>8-250 KCM</td>
<td>35 IN-LBS</td>
<td>6-300 KCM</td>
<td>200 IN-LBS</td>
</tr>
</tbody>
</table>

5.4 EXPLOSIVE EVENT REQUIRED MAINTENANCE

In the event of an explosion within the enclosure, the filter assemblies and pre-filters must be replaced. Personnel injury or equipment damage may result from failure to replace the filters with new filters after an explosion occurs within the enclosure. Inspect all other components and verify that they are in proper operating condition. Consult Eaton’s Crouse-Hinds Division for replacement parts as needed.

**WARNING: BURN HAZARD**

To avoid personnel injury, allow sufficient time for the enclosure to cool prior to servicing.

6. TECHNICAL DATA

6.1 TECHNICAL DATA CHART

<table>
<thead>
<tr>
<th>Horsepower Rating</th>
<th>Base part number</th>
<th>Nominal HP (KW)</th>
<th>Max. disconnect rating (Amps)</th>
<th>Max. output rating (Amps)</th>
<th>Power loss (Watts)</th>
<th>Temperature rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-DG1-1</td>
<td>1.0 (.75)</td>
<td>30</td>
<td>10</td>
<td>1</td>
<td>2.0</td>
<td>48</td>
</tr>
<tr>
<td>ACE-DG1-2</td>
<td>2.0 (1.5)</td>
<td>30</td>
<td>10</td>
<td>1</td>
<td>3.2</td>
<td>71</td>
</tr>
<tr>
<td>ACE-DG1-3</td>
<td>3.0 (2.2)</td>
<td>30</td>
<td>10</td>
<td>1</td>
<td>4.5</td>
<td>82</td>
</tr>
<tr>
<td>ACE-DG1-5</td>
<td>5.0 (3.0)</td>
<td>30</td>
<td>15</td>
<td>1</td>
<td>7.1</td>
<td>99</td>
</tr>
<tr>
<td>ACE-DG1-7</td>
<td>7.5 (5.5)</td>
<td>30</td>
<td>20</td>
<td>2</td>
<td>10.2</td>
<td>483</td>
</tr>
<tr>
<td>ACE-DG1-10</td>
<td>10.0 (7.5)</td>
<td>30</td>
<td>30</td>
<td>2</td>
<td>13.0</td>
<td>539</td>
</tr>
<tr>
<td>ACE-DG1-15</td>
<td>15.0 (11.0)</td>
<td>60</td>
<td>35</td>
<td>2</td>
<td>19.5</td>
<td>598</td>
</tr>
<tr>
<td>ACE-DG1-20</td>
<td>20.0 (15.0)</td>
<td>60</td>
<td>50</td>
<td>2</td>
<td>25.1</td>
<td>719</td>
</tr>
<tr>
<td>ACE-DG1-25</td>
<td>25.0 (18.5)</td>
<td>60</td>
<td>60</td>
<td>2</td>
<td>31.6</td>
<td>764</td>
</tr>
<tr>
<td>ACE-DG1-30</td>
<td>30.0 (22.0)</td>
<td>100</td>
<td>80</td>
<td>2</td>
<td>37.2</td>
<td>821</td>
</tr>
<tr>
<td>ACE-DG1-40</td>
<td>40.0 (30.0)</td>
<td>100</td>
<td>100</td>
<td>3</td>
<td>48.3</td>
<td>899</td>
</tr>
<tr>
<td>ACE-DG1-50</td>
<td>50.0 (37.0)</td>
<td>200</td>
<td>110</td>
<td>3</td>
<td>60.4</td>
<td>1076</td>
</tr>
<tr>
<td>ACE-DG1-60</td>
<td>60.0 (45.0)</td>
<td>200</td>
<td>125</td>
<td>3</td>
<td>71.6</td>
<td>1222</td>
</tr>
<tr>
<td>ACE-DG1-75</td>
<td>75.0 (55.0)</td>
<td>200</td>
<td>175</td>
<td>3</td>
<td>89.2</td>
<td>105.0</td>
</tr>
<tr>
<td>ACE-DG1-100</td>
<td>100.0 (75.0)</td>
<td>200</td>
<td>175</td>
<td>3</td>
<td>115.3</td>
<td>1482</td>
</tr>
</tbody>
</table>

Data shown is for standard catalog, 460VAC drives in CT/IH (Constant Torque with High Overload). Refer to drive manufacturers manual for all other voltage and performance specifications.
6.2 POWER LOSS (HEAT DISSIPATION)

When the ACE Series enclosure is not installed in a well ventilated area, provisions must be made to account for heat generation and ensure proper operation of the device.

6.3 DE-RATING FACTORS

The final drive output rating is a multiplication of all applicable de-rating factors. Factors are given as a percentage of rated output current.

6.3.1 AMBIENT TEMPERATURE DE-RATING

As standard, each drive is rated for its full output current in CT/IH (Constant Torque with High Overload) at 50°C ambient temperature*.

For ambient temperatures above 50°C and not exceeding 60°C, the de-rating is 5% per °C. *100HP is rated for full output current at 40°C.

7.1 CROUSE-HINDS DRIVE PARAMETERS

<table>
<thead>
<tr>
<th>PARAMETER NUMBER</th>
<th>PARAMETER DESCRIPTION</th>
<th>VALUE</th>
<th>VALUE DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td><strong>BASIC PARAMETERS – P1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1.10</td>
<td>LOCAL/REMOTE SELECT</td>
<td>1</td>
<td>LOCAL CONTROL</td>
</tr>
<tr>
<td>P1.11</td>
<td>REMOTE 1 CONTROL PLACE</td>
<td>0</td>
<td>I/O TERMINAL</td>
</tr>
<tr>
<td>P1.12</td>
<td>LOCAL CONTROL PLACE</td>
<td>1</td>
<td>I/O TERMINAL</td>
</tr>
<tr>
<td>P1.13</td>
<td>LOCAL REFERENCE</td>
<td>6</td>
<td>KEYPAD</td>
</tr>
<tr>
<td><strong>DIGITAL INPUT – P3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3.1</td>
<td>START/STOP LOGIC</td>
<td>3</td>
<td>START PULSE-STOP PULSE</td>
</tr>
<tr>
<td>P3.2</td>
<td>START SIGNAL 1</td>
<td>2</td>
<td>DigIN:1</td>
</tr>
<tr>
<td>P3.3</td>
<td>START SIGNAL 2</td>
<td>3</td>
<td>DigIN:2</td>
</tr>
<tr>
<td>P3.8</td>
<td>FAULT RESET</td>
<td>5</td>
<td>DigIN:4</td>
</tr>
<tr>
<td><strong>DIGITAL OUTPUT – P5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P5.2</td>
<td>RO1 FUNCTION</td>
<td>2</td>
<td>RUN</td>
</tr>
<tr>
<td>P5.3</td>
<td>RO2 FUNCTION</td>
<td>3</td>
<td>FAULT</td>
</tr>
<tr>
<td>P5.4</td>
<td>RO3 FUNCTION</td>
<td>41</td>
<td>TEMP LIMIT SUPERV</td>
</tr>
<tr>
<td>P5.15</td>
<td>TEMP LIMIT SUPERV</td>
<td>2</td>
<td>HIGH LIMIT</td>
</tr>
<tr>
<td>P5.16</td>
<td>TEMP LIMIT SUPERV VAL</td>
<td>40.0</td>
<td>DEG C</td>
</tr>
<tr>
<td>P5.35</td>
<td>RO3 OFF DELAY</td>
<td>30</td>
<td>SEC</td>
</tr>
<tr>
<td><strong>MOTOR CONTROL – P8</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P8.10</td>
<td>SWITCHING FREQUENCY</td>
<td>4.0 (3.6 on 100HP model)</td>
<td>kHz</td>
</tr>
<tr>
<td><strong>PROTECTIONS – P9</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P9.39</td>
<td>COLD WEATHER MODE</td>
<td>1</td>
<td>YES</td>
</tr>
</tbody>
</table>

**POTENTIOMETER OPTION (SUFFIX PT) ONLY**

| | | | |
| P1.13 | LOCAL REFERENCE | 0 | AI1 |
| P2.1 | AI1 MODE | 1 | 0-10V |
| P2.2 | AI1 SIGNAL RANGE | 0 | 0-100% |

**LOCAL/REMOTE SWITCH OPTION (SUFFIX LR) ONLY**

| | | | |
| P3.21 | REMOTE CONTROL | 9 | DigIN:8 |
| P3.22 | LOCAL CONTROL | 8 | DigIN:7 |
| P3.42 | EMERGENCY STOP | 6 | DigIN:5 |

Parameters are set at the factory and must be maintained to ensure proper operation of cooling system and controls. Refer to drive manufacturer’s manual for additional parameter information.

6.3.2 ALTITUDE DE-RATING

At altitudes from 1,000m to 3,000m (3280ft to 9840ft) above sea level, the de-rating is 1% per 100m (328ft).

**NOTE:** If the installation site is higher than 2,000m (6,560ft) above sea level, connection of the drive to an ungrounded (IT) or corner-grounded delta network is not allowed.

6.3.2 SWITCHING FREQUENCY DE-RATING

To reduce motor noise, a higher switching frequency may be desired. Note that this will increase heat output from the drive.

For switching frequencies above the factory default, the de-rating is 6% per 1kHz.
8. REPLACEMENT PARTS

ACE Series systems are designed to provide years of reliable service. However, should the need for replacement parts arise, they are available through your Eaton’s Crouse-Hinds Division Distributor. Assistance may also be obtained through your Sales Representative or the Eaton’s Crouse-Hinds Division Customer Service Department.

8.1 PRE-FILTER KIT

ACE KIT1: Pre-Filter and Hardware (1 pc.)

8.1.1 PRE-FILTER INSTALLATION INSTRUCTIONS

1. Remove rubber caps from explosionproof filters.
2. Install wire guard using the bracket, screw and lock washer provided to the bottom filter(s).
3. Align guard with notches within the bracket as shown.
4. Tighten screw.
5. Slip pre-filter mesh over guard.
6. Be sure to stretch pre-filter elastic band completely around the explosionproof filter and seat the elastic band on the filter’s threads. This will ensure all air flow to the bottom filters passes through the pre-filters.

8.2 SINTERED FILTER KIT

ACE KIT2: Filter Assembly (1 pc.)

8.2.1 SINTERED FILTER INSTALLATION INSTRUCTIONS

1. Remove shroud and pre-filters and place all parts in a secure area.
2. Using a 1” socket wrench, remove all filters from the enclosure (top and bottom).
3. Remove rubber caps from explosionproof filters.
4. Apply thread grease to threads of explosionproof filters.
5. Install new filters (top and bottom) and torque each to 133 ft.-lbs. (180 N-m).
6. Install pre-filters and shrouds; refer to Sections 2.6 and 2.7.

8.3 BLOWER KIT

ACE KIT3: Blower, Manifold and Hardware (1 pc.)

8.3.1 BLOWER INSTALLATION INSTRUCTIONS

1. Disconnect blower power, ground and control leads from fuse blocks (refer to wiring diagrams in Section 3.5).
2. Loosen five (5) nuts holding blower bracket and baffle to mounting plate. DO NOT remove.
3. Loosen and remove manifold clamp bracket nuts and lock washers. DO NOT remove jam nuts positioned behind the manifold clamp bracket.
4. Remove blower and brackets.
5. Remove manifold and manifold clamp bracket.
6. Remove blower cooling intake and hose clamp from old blower assembly and hold for re-assembly.
7. Loosen and remove three (3) screws and washers holding the baffle to the blower bracket. Remove baffle and hold for re-assembly.
8. Attach baffle to new blower bracket using the same three (3) screws and washers.
9. Align new manifold to enclosure wall.
10. Align new manifold clamp bracket to threaded studs. Be sure the manifold clamp bracket flanges point toward the interior of the enclosure.
11. Install four (4) lock washers and nuts on threaded studs hand tight before applying required torque. Tighten to 20 in.-lbs. DO NOT overtighten.
12. Slide new blower/bracket assembly into place until fully seated, aligning to the threaded studs and the manifold.

**CAUTION**
To avoid system malfunction and electrical shock, be sure that all wires are aligned in the baffle’s wire pass through.

13. Tighten nuts wrench tight.
14. Tighten manifold hose clamp, while compressing the manifold to the blower, to 20 in.-lbs.
15. Re-attach blower cooling intake and tighten hose clamp to 20 in.-lbs. Be sure to align bottom of blower cooling intake to the explosionproof filter at the bottom of the enclosure.

16. Terminate the blower power wires to the appropriate fuse block connections (refer to wiring diagrams in Section 3.5).
17. Perform a continuity check between each blower power terminal and each phase of the integral disconnect switch.
18. Terminate the blower control wires to the appropriate terminal block connections (refer to wiring diagrams in Section 3.5).
19. Perform a continuity check between each blower control terminal and the RO3 relay terminals on the drive (refer to wiring diagrams in Section 3.5).
20. Terminate the blower ground wire to the appropriate nearest ¼-20 stud and secure connection (refer to wiring diagrams in Section 3.5).
21. Perform a continuity check between the ground terminal and the ground lug adjacent to the integral disconnect switch.

8.4 WINDOW KIT

- ACE KIT7 (ENCLOSURE SIZES 1 AND 2): 3/8” Window, Bracket, Hardware, and IF1706 (1 pc.)
- ACE KIT8 (ENCLOSURE SIZE 3): 5/8” Window, Bracket, Hardware, and IF1706 (1 pc.)

8.4.1 WINDOW KIT INSTALLATION

INSTRUCTIONS

1. Wipe down glass window with cleaner.
2. Place glass over milled pocket of cover as shown in image 1 and exploded view drawing below.
3. Place bracket over glass and attach with 4 x #10-24 screws and 4 x #10 lock washers as shown in image 2 and exploded view drawing below.
4. Hand tighten screws first in pattern shown on image 3 below, then torque screws to 23 in. lbs. in approximately 5 in. lbs. increments following the same sequence.
5. Shim Gage window with .0015 Shim Stock to check that it is sealed.

8.5 CAST FILTER SHROUD REPLACEMENT KIT

ACE KIT 9: Cast shroud and hardware (1 pc.)

8.5.1 FILTER SHROUD INSTALLATION

INSTRUCTIONS

1. Remove rubber caps from explosionproof filters.
2. Insert threaded rods into the explosionproof filters. Leave 3/8 of threaded rod exposed.
3. Place shroud over explosionproof filters and threaded rod, with shroud opening facing back of enclosure. See Figure 2.
4. Insert washer and nuts onto end of threaded rod and tighten securely until shroud is firmly contacting the top wall of the enclosure. See Figure 3.

CAUTION
To avoid system malfunction and electrical shock, be sure that all wires are aligned in the baffle’s wire pass through.

All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Eaton’s Crouse-Hinds Division’s “Terms and Conditions of Sale,” and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his intended use and assumes all risk and liability whatsoever in connection therewith.