3.2 Electrical Installation

3.2.1 Power Connections

**DANGER!** Hazard of electrical shock!
Circuit potentials up to 600 VAC are possible. Capacitors retain charge after power is removed. Disconnect power and wait at least three minutes before servicing the drive.

**STOP!**
- Verify mains voltage before connecting to drive.
- Do not connect mains power to the output terminals (U,V,W). Severe damage to the drive will result.
- Do not cycle mains power more than once every two minutes. Damage to the drive will result.

### Main and Motor Terminations

<table>
<thead>
<tr>
<th>Type</th>
<th>Torque</th>
<th>Strip Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5HP</td>
<td>12 lb-in (1.3 Nm)</td>
<td>0.25 in (6mm)</td>
</tr>
<tr>
<td>ESV/52x2x2T, ESV/72x2x2T, ESV/113x4x4R, ESV/153x4x4R, ESV/183x6x6, ESV/223x6x6</td>
<td>16 lb-in (1.8 Nm)</td>
<td>0.25 in (6mm)</td>
</tr>
<tr>
<td>ESV/52x2x4x4R, ESV/72x2x4x4R, ESV/92x2x6x6T, ESV/113x2x6x6, ESV/153x2x6x6T</td>
<td>12 lb-in (1.3 Nm)</td>
<td>0.25 in (6mm)</td>
</tr>
<tr>
<td>ESV/113x2x6x6, ESV/133x2x6x6, ESV/153x2x6x6, ESV/183x6x6, ESV/223x6x6</td>
<td>24 lb-in (2.7 Nm)</td>
<td>0.25 in (6mm)</td>
</tr>
</tbody>
</table>

Terminations: N40/P2B Door Screws
- 6-7 lb-in (0.67-0.79 Nm) | 0.25 in (6mm)

#### 3.2.1.1 Mains Connection to 120VAC Single-Phase Supply

![Diagram of Mains Connection to 120VAC Single-Phase Supply]

#### 3.2.1.2 Mains Connection to 240VAC Single-Phase Supply

![Diagram of Mains Connection to 240VAC Single-Phase Supply]

### 3.2.1.3 Mains Connection to Three-Phase Supply

![Diagram of Mains Connection to Three-Phase Supply]

#### 3.2.1.4 Motor Connection

![Diagram of Motor Connection]

**WARNING!**
If the cable connection between the drive and the motor has an in-line contactor or circuit breaker then the drive must be stopped prior to opening/closing the contacts. Failure to do so may result in Overcurrent trips and/or damage to the inverter.

**WARNING!**
Leakage current may exceed 3.5 mA AC. The minimum size of the protective earth (PE) conductor shall comply with local safety regulations for high leakage current equipment.

### 3.2.1.5 Installation Recommendations for EMC Compliance

For compliance with EN 61800-3 or other EMC standards, motor cables, line cables and control or communications cables must be shielded with each shield/screen clamped to the drive chassis. This clamp is typically located at the conduit mounting plate.

The EMC requirements apply to the final installation in its entirety, not to the individual components used. Because every installation is different, the recommended installation should follow these guidelines as a minimum. Additional equipment (such as ferrite core absorbers on power conductors) or alternative practices may be required to meet conformance in some installations.

Motor cable should be low capacitance (core/core <750pF/m; core/shield <150pF/m). Filtered drives can meet the class A limits of EN 55011 and EN 61800-3 Category 2 with this type of motor cable up to 10 meters.

**NOTE:** Refer to Appendix A for recommended cable lengths. Any external line filter should have its chassis connected to the drive chassis by mounting hardware or with the shortest possible wire or braid.

---

**Enclosure/Backplate**

From AC Supply

From Motor

Screened motor cable: core/core <750pF/m; core/shield <150pF/m

360° shield termination to backplate using saddle clamp

External Control Circuits

Control and signal cabling should be separated from power cables by a minimum of 300mm.