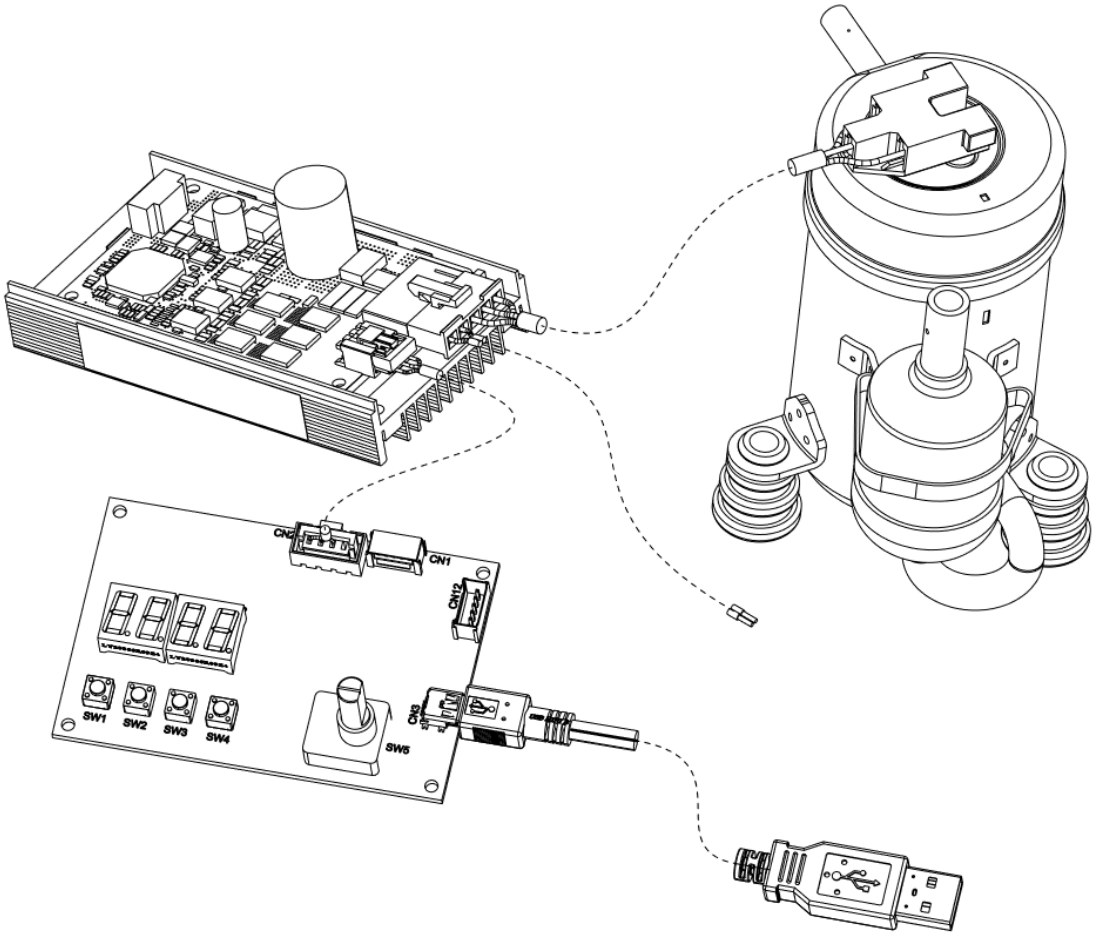
MESA (24V DC) Installation Instructions

Compressors:
MESA18-0146Y4, MESA18-0085Y3

Controllers:
025F0361, 025F0362



Compressor Installation

The compressor must be mounted vertically in the final application. Leave space between the compressor and other components to allow the compressor to move during start up, shut down, and operation. Use three screws or bolts to mount the compressor feet and rubber grommets to the application base. Do not over-compress grommets. Ensure at least .12 inch [3.2 mm] clearance between the bottom of compressor and mounting surface.

Refer to compressor drawing DCMX43 and DCMX44 for more information on the MESA compressor.

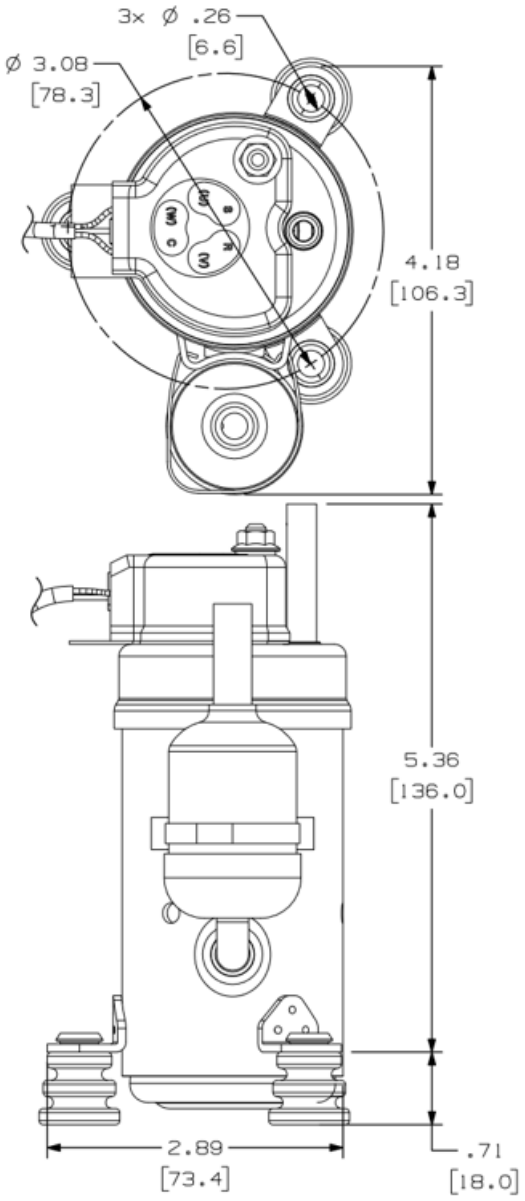


FIGURE 1: MESA twin cylinder inches [mm]

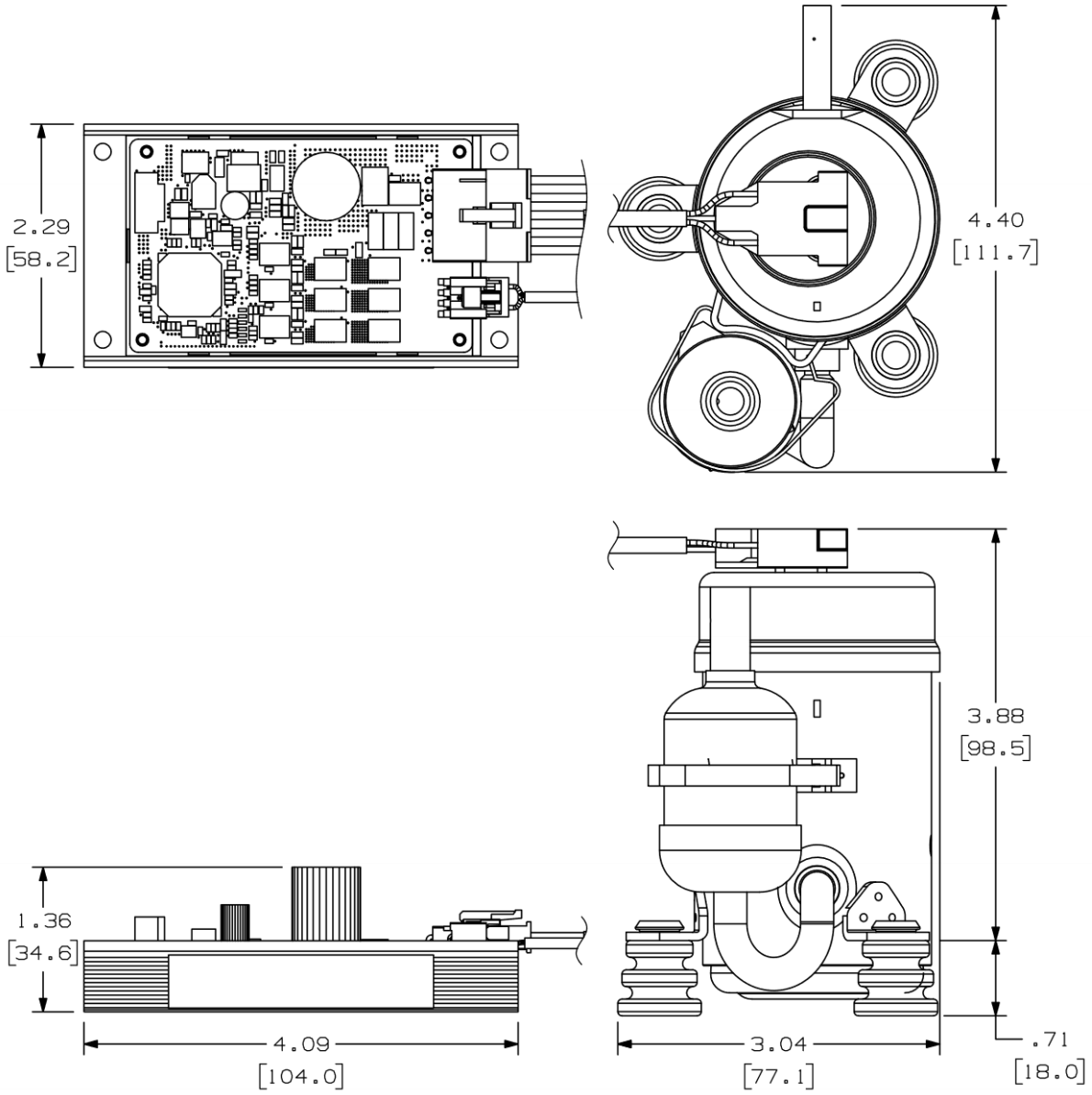


FIGURE 2: MESA single cylinder dimensions in inches [mm]

Tube Installation

The compressor has both discharge and suction tubes. The position of the tubes is illustrated in figure 2 and the specifications are described in table 1.

TABLE 1: Compressor tubing info

Drawing Number	Tube	Inner Diameter [in]	Depth [in]	Material
DCMX43	Suction	.252-.263 (6.4-6.7mm)	.196 (5.0mm)	Copper
DCMX44	Discharge	.189-.201 (4.8-5.1mm)	.196 (5.0mm)	Copper

Rotary compressors do not have internal mounting springs in contrast to most hermetic compressors. The internal design and external mounting are designed to reduce vibration. However, some vibration is transmitted to the suction and discharge tubing. We therefore recommend using flexible connections to prevent vibration being transmitted to the rest of the installation. We recommend using annealed copper tube rather than hard drawn copper tube. A suggested design of flexible connections for this compressor is shown in figures 3 and 4.

The general design of the tubing can be adjusted according to your equipment.

Great care should be taken when designing the system and correct refrigeration practices must be followed to ensure the oil return to the compressor.

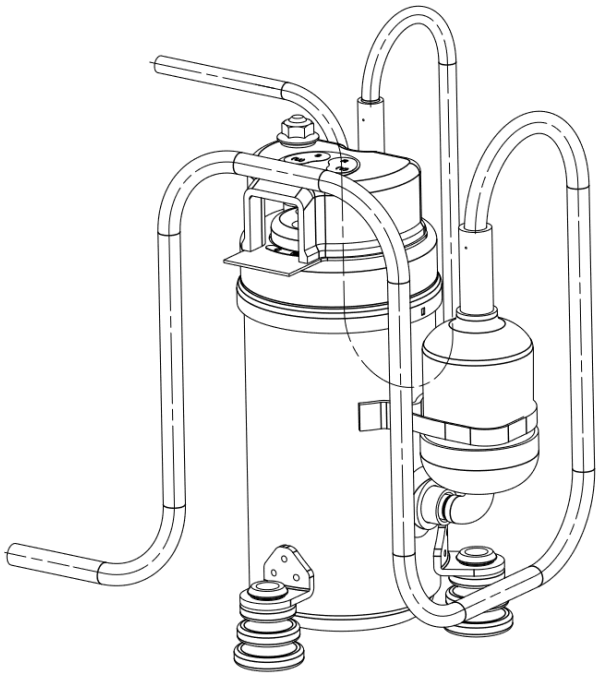


FIGURE 3: MESA twin cylinder tubing suction loop

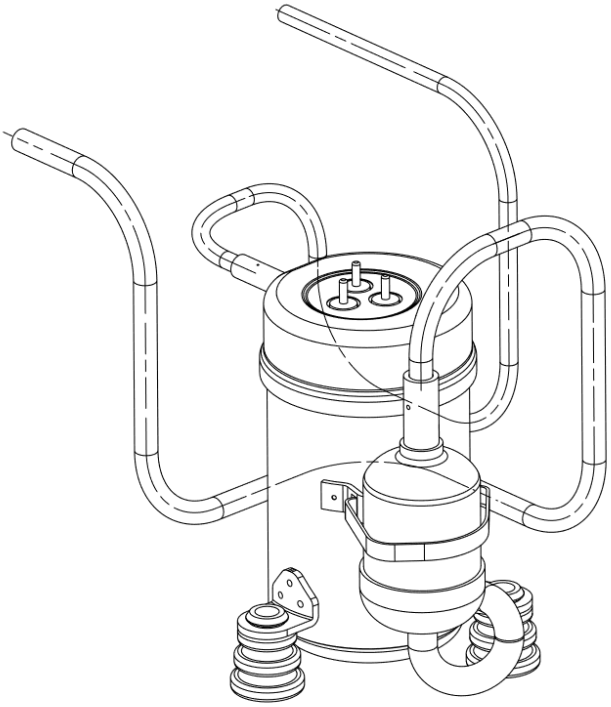


FIGURE 4: MESA single cylinder tubing suction loop

Controller Installation

Before working with the controller and wiring, the power must be disconnected for at least one minute and remain disconnected during all work.

If brazing is required close to the controller or wiring, complete brazing before installation. Controller and wiring could be damaged from high temperatures. The controller can be mounted in any orientation with two screws or bolts. If possible, mount in a way that allows for airflow over the heat sink.

Refer to technical specification 600A1679 and controller drawing DGMX0089 for more information.

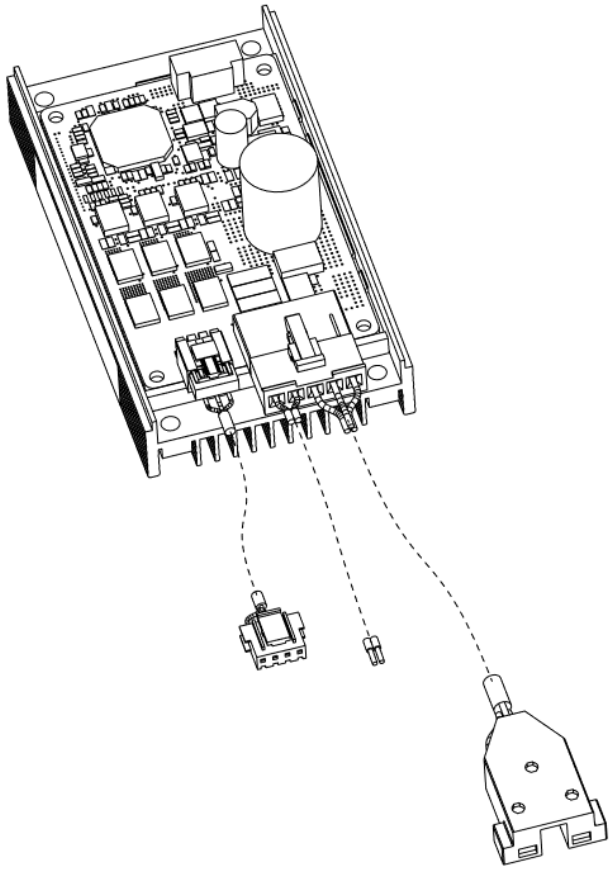


FIGURE 5: MESA controller with wires

Signal Generator Installation

The signal generator is used to control the speed of the compressor. If using the signal generator, connect a customer supplied standard USB-mini cable to CN3 on the signal generator. Connect the other end to USB (DC 5V) power supply or a USB port on a computer.

Connect the signal cable (040F0277) from CN2 on the signal generator to CN3 on the compressor controller.

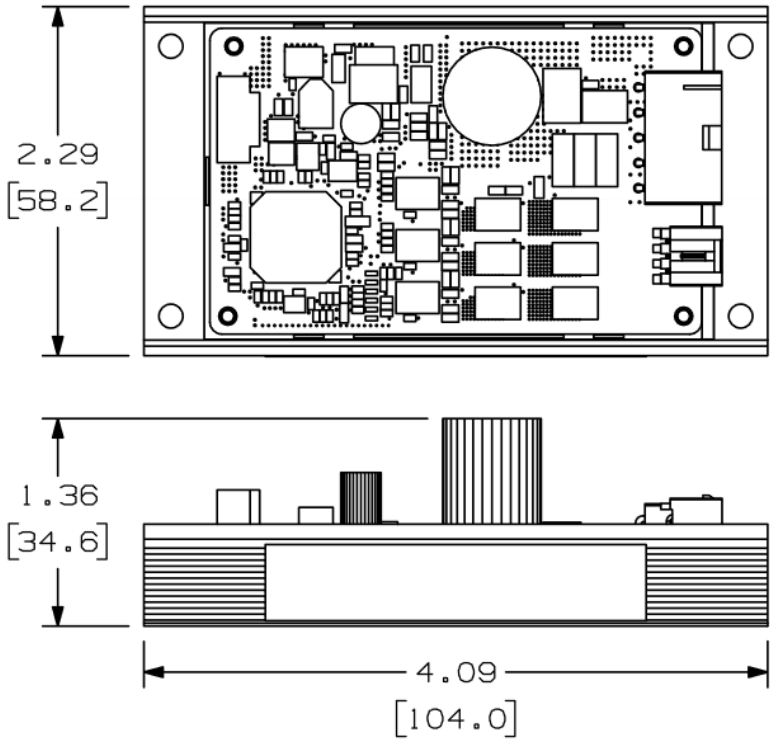


FIGURE 6: MESA controller dimensions in inches [mm]

Wiring Installation

Before working with the controller and wiring, the power must be disconnected for at least one minute and remain disconnected during all work.

The wiring diagram for the MESA controller can be found in figure 7. W, V, and U are the compressor phase connectors. Speed control is connected to CN3.

CN3 speed connectors should be attached to an external controller or frequency generator. CN2 is connected to DC power and the compressor phase terminals.

The controller to compressor harness and power wiring harness is not supplied with the MESA compressor but can be purchased separately (P/N 040F0275). To attach the phase connector to the compressor, remove the terminal cover from the compressor. Connect the wire harness to the phase connectors in the orientation shown in figures 8 and 9. The wiring harness uses a cluster block terminal to avoid phase misconnection. Place the terminal cover over the connectors and bolt. Secure the cover in place with the nut. Torque nut to 8.7-17.5 in-lbs [10-20kgf-cm]. For wire diagram see figure 7 and assembly view, see figures 8 and 9.

Refer to wiring diagram DEMX0058 for more information.

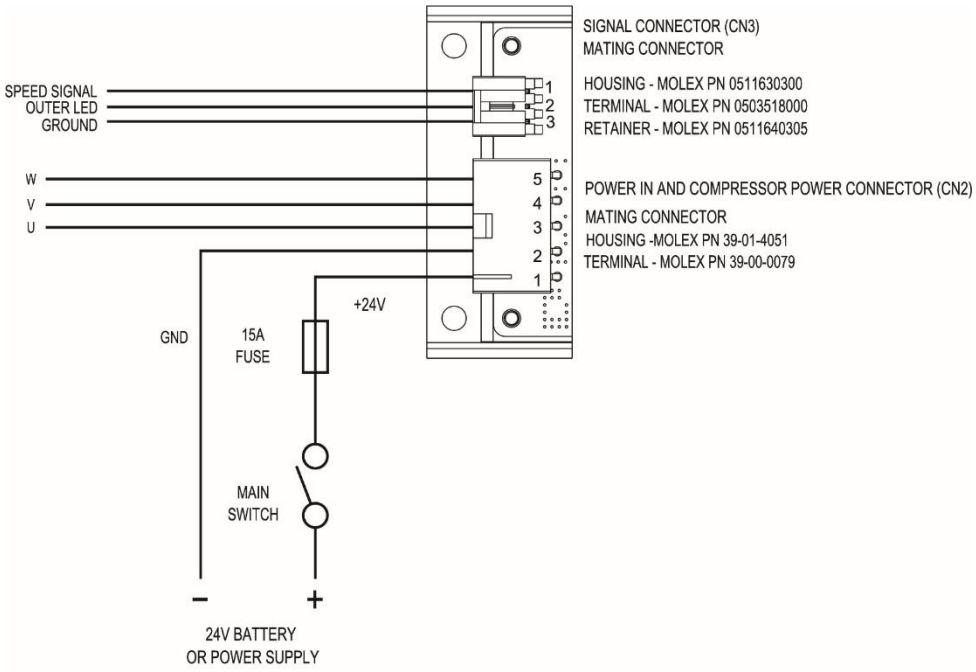


FIGURE 7: MESA wiring diagram

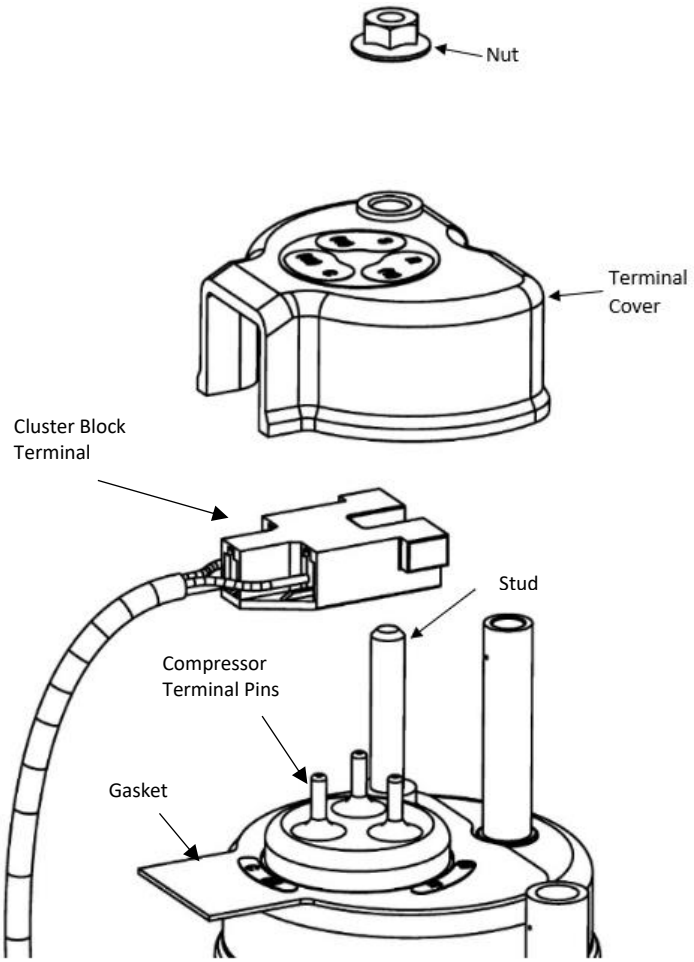


FIGURE 9: MESA dual cylinder assembly

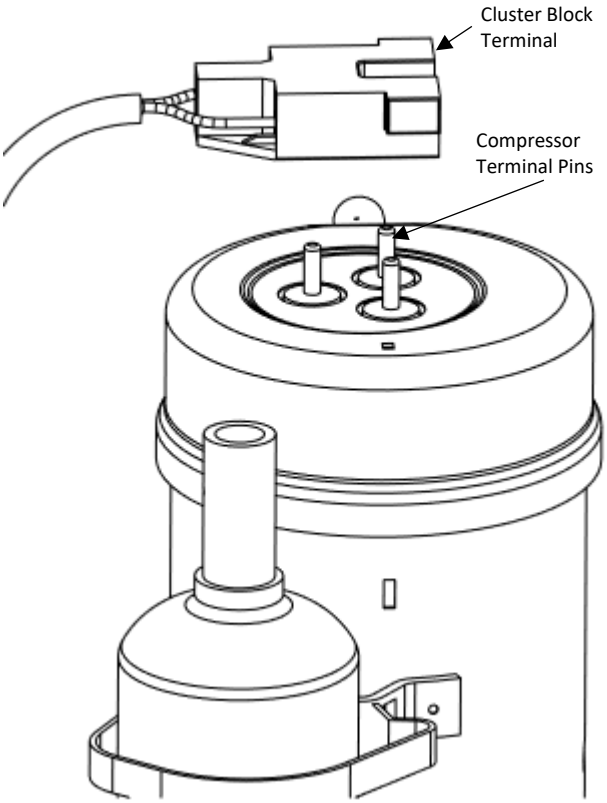


FIGURE 8: MESA single cylinder assembly

WARNING

Never service, repair, or troubleshoot unless you are qualified to perform these functions. Improper servicing can lead to serious injury or death from fire, electrical shock, or explosion.

CAUTION: Safety First

Note: ***Never energize the system unless;***

1. *The protective cover is securely fastened, and*
2. *The compressor is properly connected to ground.*