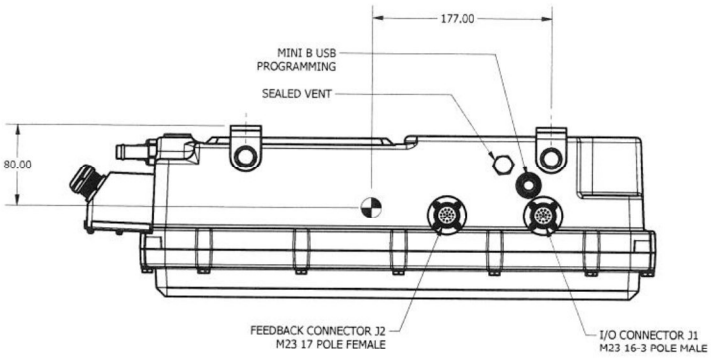
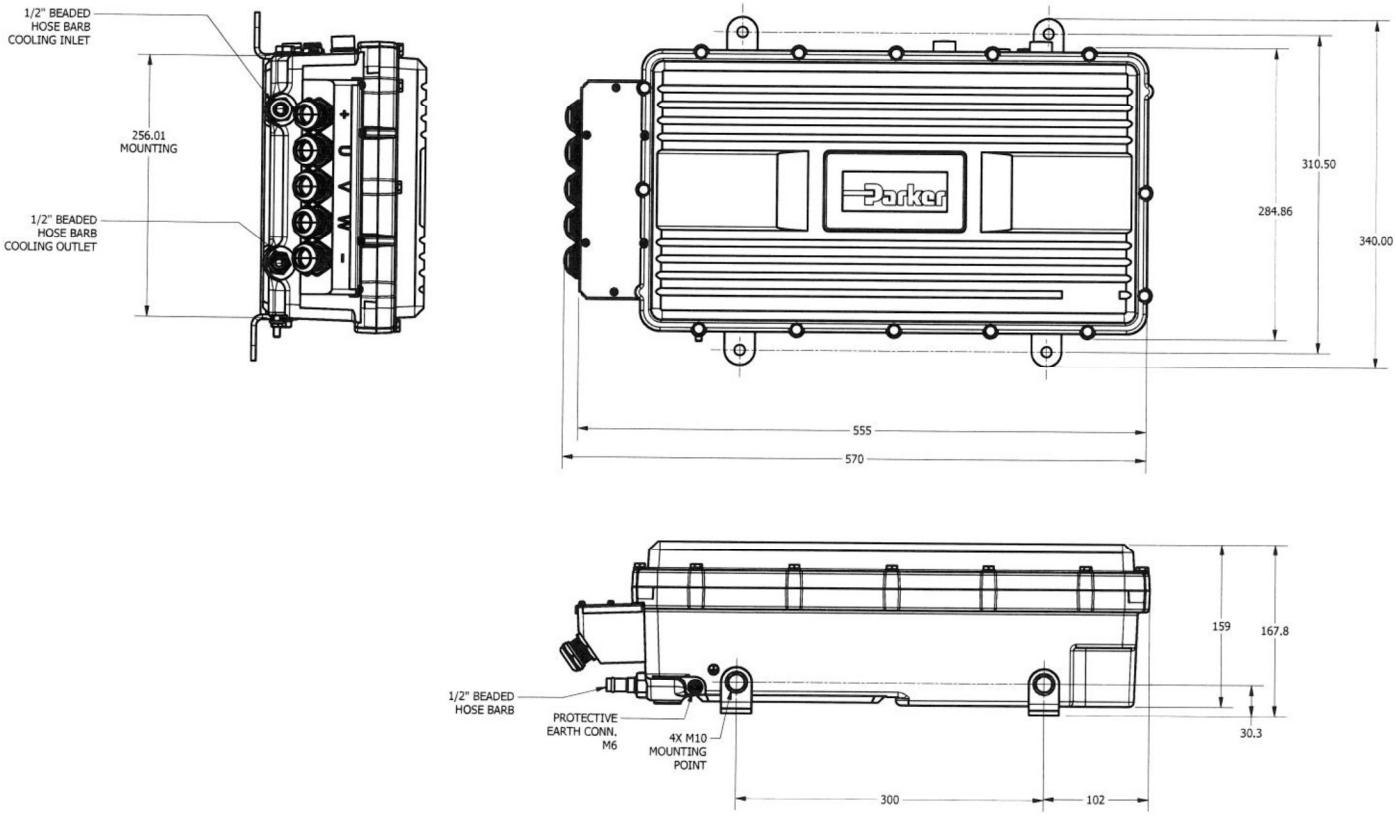
4 Product Installation

4.1 Mechanical Installation in a Mobile Environment

4.1.1 Dimensions





4.1.2 Mounting

While mounting the inverter, take care to place the inverter in a location and orientation that allows for access to both cooling port connections and electrical connections. as protected by the gasket plate. MA3 inverters are typically mounted with legs and/or spacers at the four (4) **M10** mounting points on 250 mm (9.84″) x 300 mm (11.81″) centers.

4.1.3 Installation Orientation

The MA3 inverter can be installed in any orientation. It has no preferred orientation for mounting. The installer must exercise care so that debris will not build up between the inverter housing and mounting surfaces. Debris buildup degrades cooling of the device, and may have a possible impact of freezing to the device casing. Assume the standard axis configuration whenever this document refers to it.

4.2 Cooling Requirements

The MA3 inverter is enclosed in an IP65-rated aluminum casting that has an embedded cooling system capable of using ethylene glycol- or hydraulic oil-based coolants.

Details of the inverter cooling system requirements using pre-diluted ethylene glycol (EG) (50% EG, 50% water) and temperature ratings are presented in the following table.

4.2.1 Specification

Minimum flow	3.8 lpm (1.0 gpm)
Maximum flow	7.6 lpm (2.0 gpm)
Maximum inlet temperature	55°C (131°F)
ΔT @ continuous current and minimum flow	5°C (41°F)
ΔP @ 25°C (77°F) and 7.6 lpm (1.67 gpm)	13.79 kPa (2 psi)

Recommended: Use aluminum and brass anticorrosion protection additives such as Dow® Dowtherm™ SR-1 heat transfer fluid or Prestone® Dex-Cool® coolant.

The inverter coolant ports are located below the power and motor terminal box. Either port can be used as the input or output of the inverters cooling system.

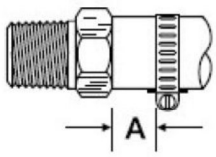
Frame 3 Cooling Loop Ports

4.2.2 Hose Clamping Instructions

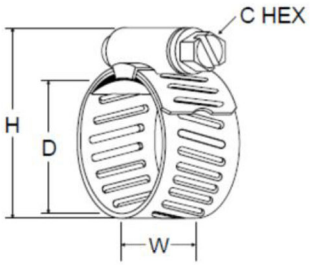
Assembly Instructions

1. Cut hose cleanly and squarely to length.
2. Slide clamp on hose.
3. Lubricate hose. Push hose on fitting until hose bottoms against stop ring or hex.
4. Position hose clamp as shown below and secure with a screwdriver or wrench. Maintain "A" dimension noted below for proper clamp positioning.

Hose Size	Hose Clamp	A
3/16"	97 HC-3	1/4"
1/4"	97 HC-3	1/4"
5/16"	97 HC-6	1/4"
3/8"	97 HC-6	1/8"
1/2"	97 HC-8	1/8"
5/8"	97 HC-12	1/8"
3/4"	97 HC-12	1/8"



Proper Clamp Position

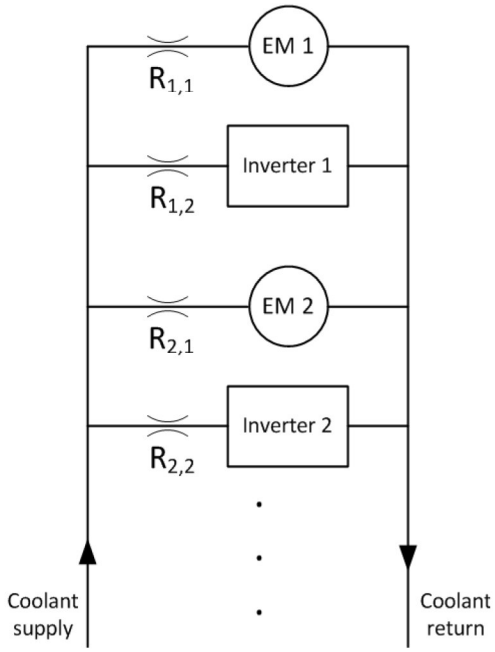


Hose Clamp Part Number	D Max	D Min	C Hex	C Max	W
97HC-3	.62	.25	.25	1.00	.31
97HC-6	.87	.38	.31	1.40	.50
97HC-8	1.00	.44	.31	1.53	.50
97HC-12	1.25	.50	.31	1.80	.50

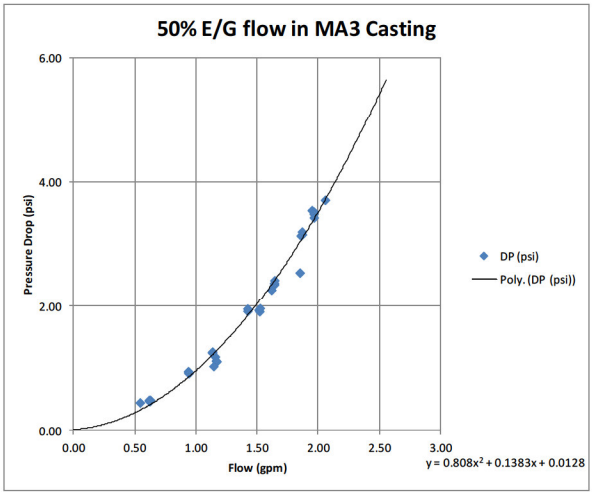
Stainless Steel Worm Drive Clamp (97HC Series)

4.2.3 Parallel Configuration

The only acceptable cooling loop configuration is **parallel**, as shown in the following figure. Orifice sizing depends on provided total cooling flow.



Example Inverter and Motor Parallel Cooling Loop Schematic



The pressure drop across the inverter cooling loop