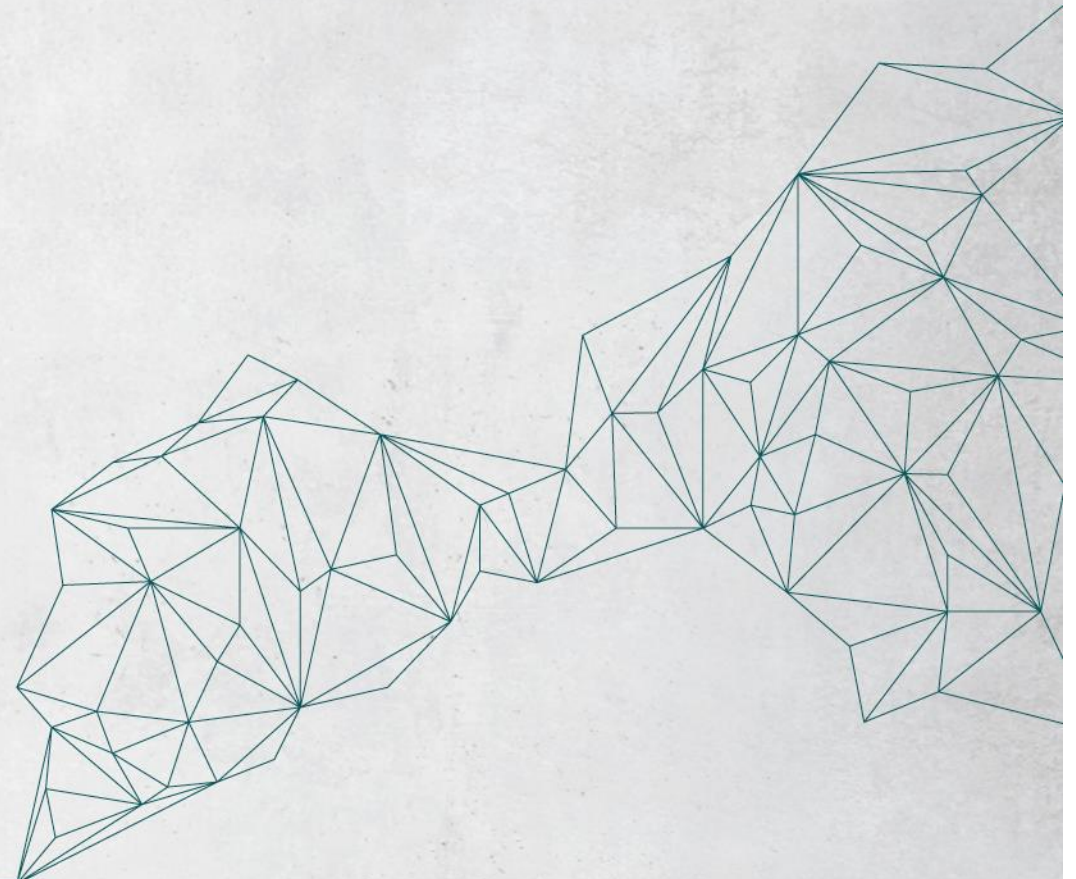


HALL 7A, BOOTH - 616

Chillventa Specialist Forums 2022
Chillventa Fachforen 2022

**CONNECTING
EXPERTS.**





MASTERFLUX
By *Tecumseh*

SOLUTIONS FOR ELECTRIC MOBILE / TRANSPORT REFRIGERATION APPLICATIONS

OCTOBER 12, 2022

Robert Terry

Masterflux – General Manager

MASTERFLUX – MARKETS & APPLICATIONS



- ✓ Last-KM Transport Refrigeration; 3-Wheeler, Truck, Van, Trailer, Autonomous Vehicles for Food & Pharma
- ✓ Portable / Transport Refrigerated Box: Food & Pharma
- ✓ Specialized DC eRefrigeration Systems: Food, Pharma, Solar, Off-grid, Medical, Industrial, Process



Generic Application Examples

MASTERFLUX PORTFOLIO



COMPRESSORS

MESA



Low Temp:
BTU: 95-474
Watts: 28-139

High Temp:
BTU: 397-1897
Watts: 116-556

CASCADE



Low Temp:
BTU: 100-621
Watts: 29-182

High Temp:
BTU: 980-2570
Watts: 287-753

ATLAS



Low Temp:
BTU: 500-970
Watts: 147-284

High Temp:
BTU: 1800-6000
Watts: 527-1758

HG

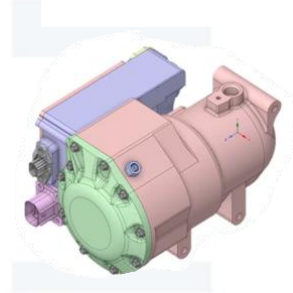


BTU: Up to 10k
Watts: Up to 2931

SIERRA



BTU: 400-30000
tandem configuration
Watts: 117-8792



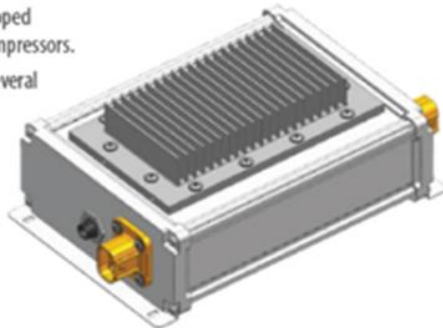
LARGER
CAPACITY
MODEL IN
DEVELOPMENT

CONTROLLERS

Masterflux controllers are designed and developed in-house, optimized for specific Masterflux compressors.

For each model of compressor, there may be several versions of the controller to choose from.

Ask us about custom controller development for your specific application.



SYSTEMS

eBTMS



Stand alone air-cooled and liquid-chiller systems for EV thermal management.

eHVAC



Highly energy-efficient Idle-mitigation solution optimized for commercial vehicles.

eMRU



Electric refrigeration units for mobile containers and Last-Mile deliveries.

SPECIALIZED



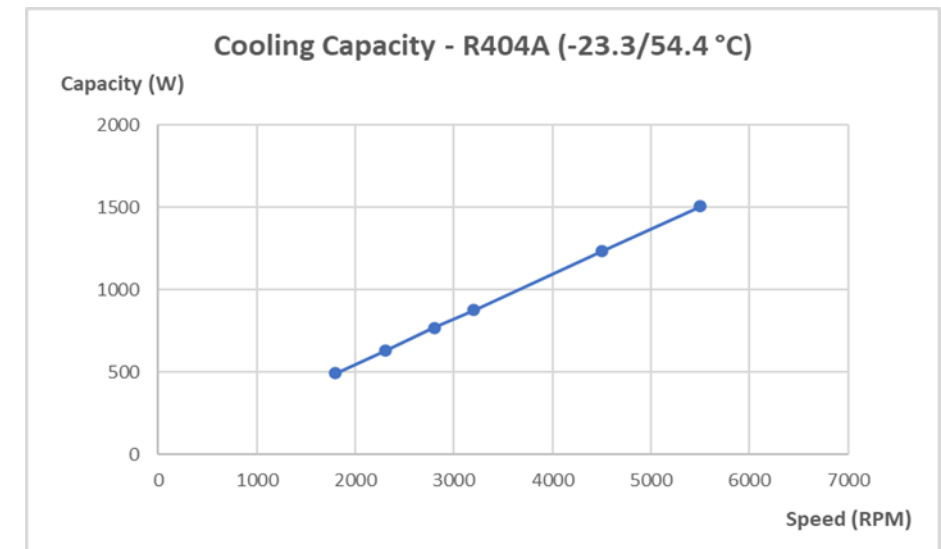
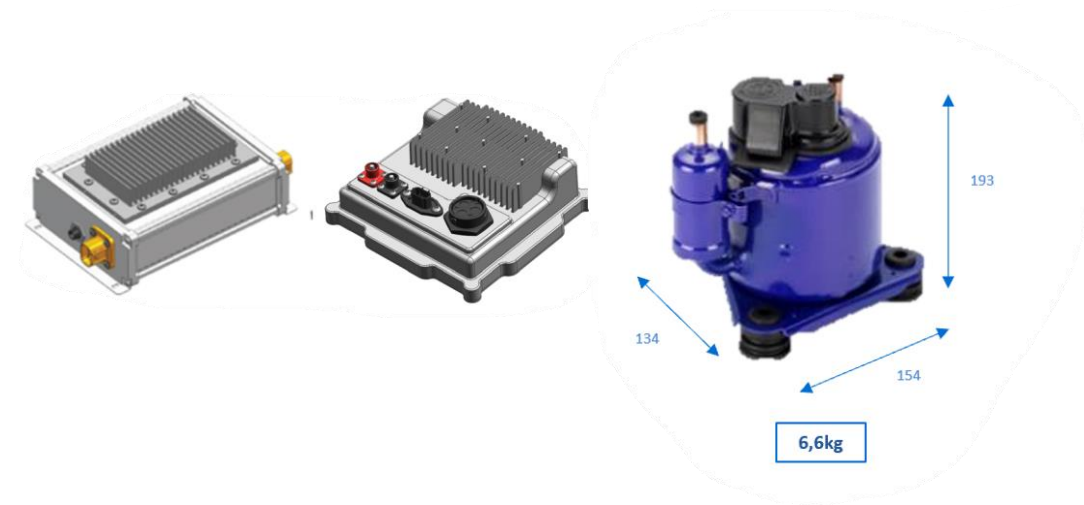
Custom development for unique application needs such as electronics and medical chillers.

SIERRA PLATFORM



- ✓ Designed For Mobile / Transport Applications
- ✓ High Efficiency Rotary Compressor – Vertical Platform
- ✓ 3 Displacements: 7, 11, and 16 cc
- ✓ Variable Speed – Variable Capacity
- ✓ BLDC Motor & Controller – Direct DC
- ✓ Refrigerants: R404A, R452A; R290 & R1270: Future
- ✓ DC Voltage: 12/24, 24/48, 400, 650 VDC

- ✓ High Efficiency Controller
- ✓ IP67 Enclosure
- ✓ CanBus, PWM, Analog Speed Control
- ✓ Protection and Diagnostics

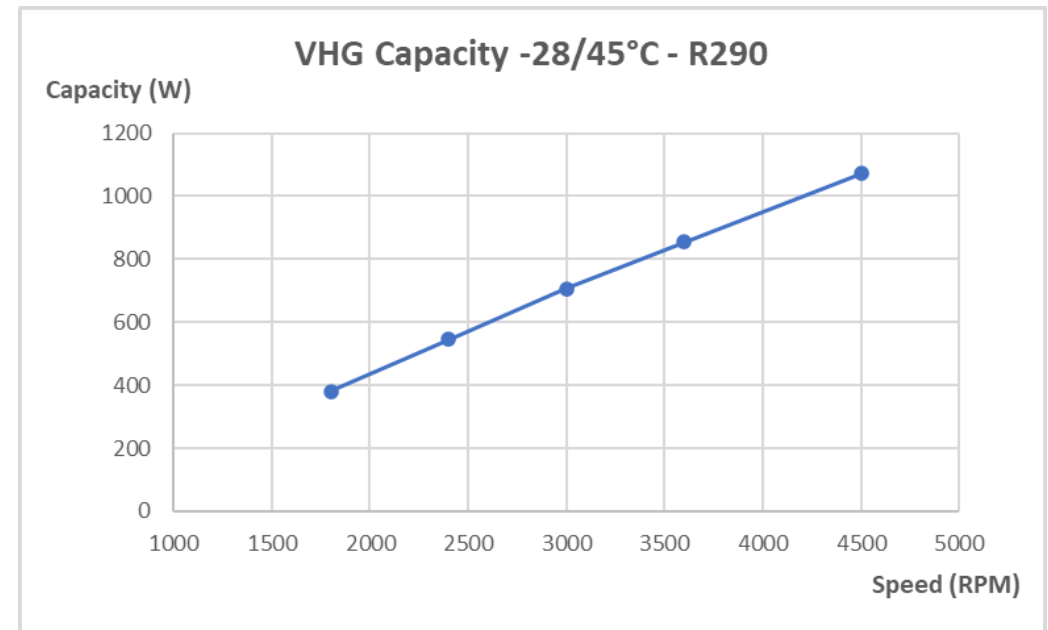
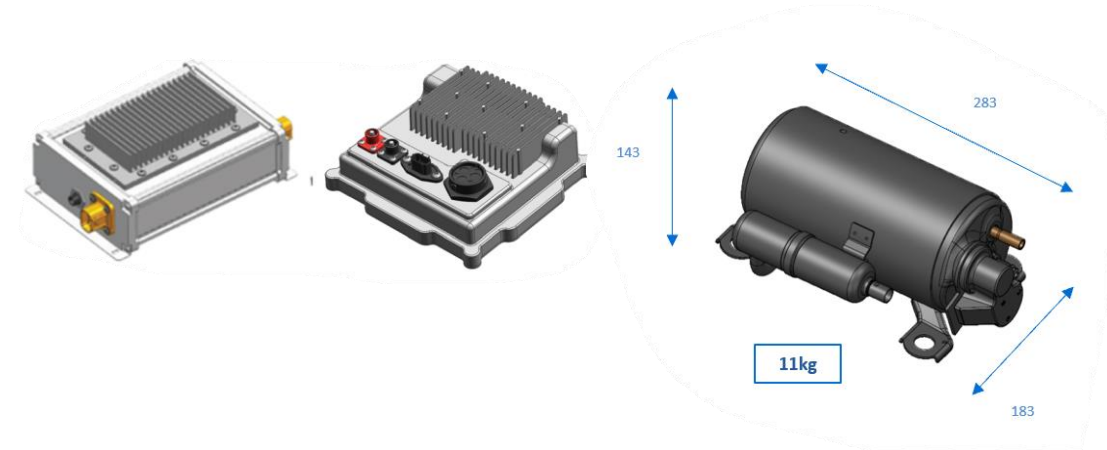


* Preliminary / Estimative Data.

VHG PLATFORM



- ✓ Designed For Mobile / Transport Applications
- ✓ High Efficiency Rotary Compressor – Horizontal Platform
- ✓ 16 cc Displacement
- ✓ Variable Speed – Variable Capacity
- ✓ BLDC Motor & Controller – Direct DC
- ✓ Refrigerants: R404A, R452A; R290 & R1270: Future
- ✓ DC Voltage: 12/24, 24/48, 400, 650 VDC
- ✓ Hot Gas Defrost
- ✓ High Efficiency Controller
- ✓ IP67 Enclosure
- ✓ CanBus, PWM, Analog Speed Control
- ✓ Protection and Diagnostics

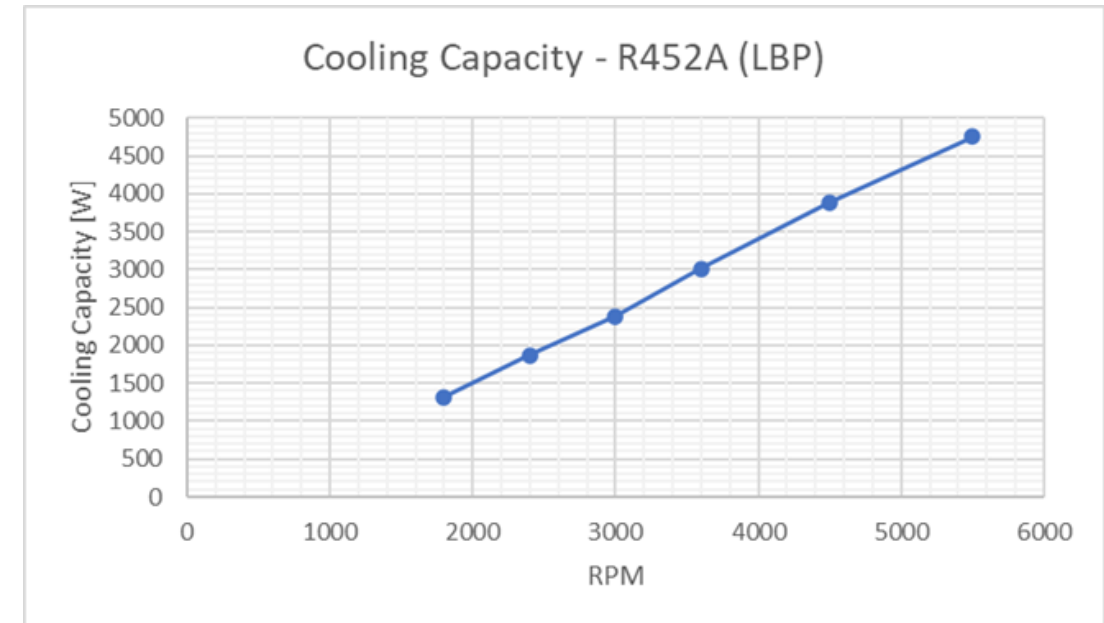
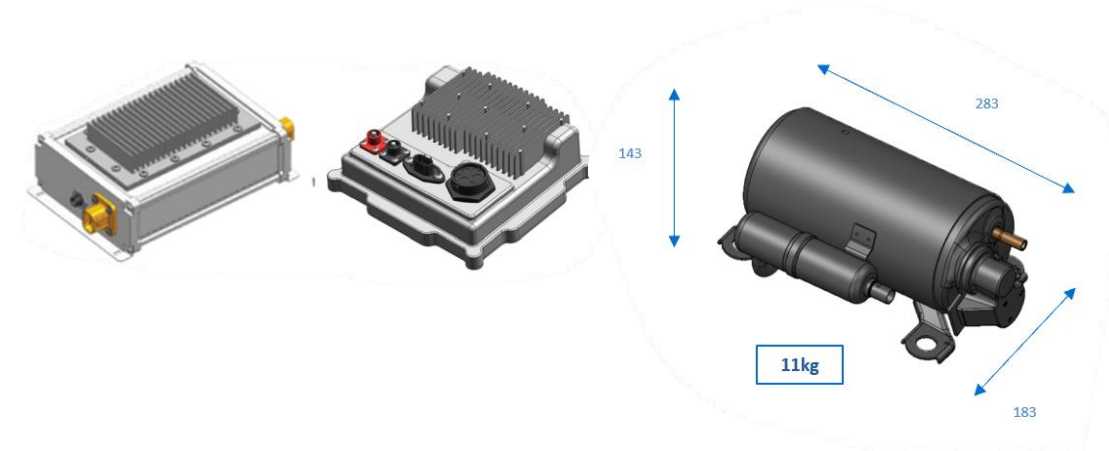


* Preliminary / Estimative Data.

ALPINE PLATFORM



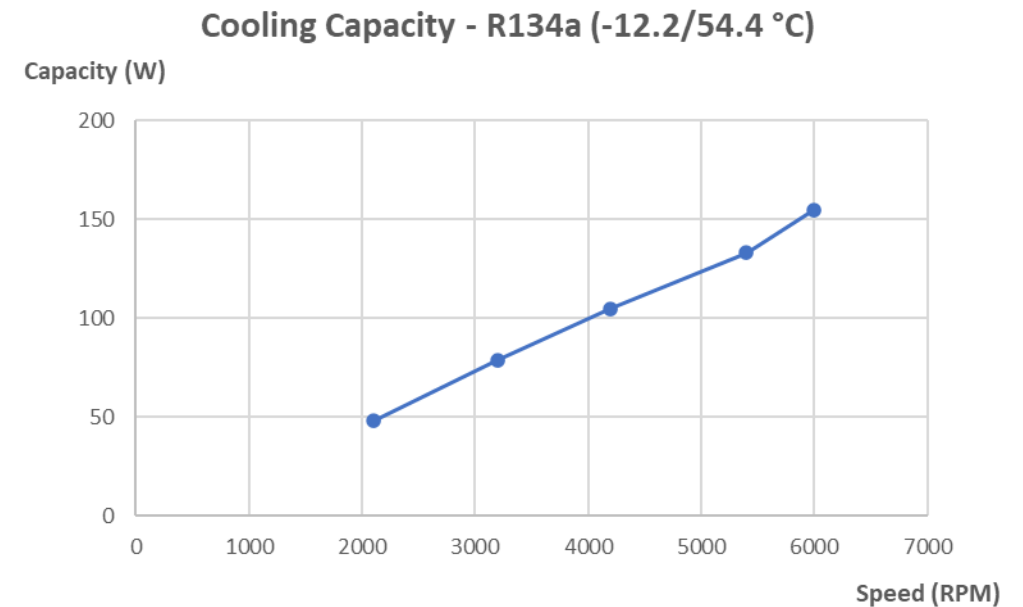
- ✓ Designed For Mobile / Transport Applications
- ✓ High Efficiency Rotary Compressor – Horizontal Platform
- ✓ 36cc Displacement
- ✓ Variable Speed – Variable Capacity
- ✓ BLDC Motor & Controller – Direct DC
- ✓ Refrigerants: R404A, R452A; R290 & R1270: Future
- ✓ DC Voltage: 48, 400, VDC
- ✓ Hot Gas Defrost
- ✓ High Efficiency Controller
- ✓ IP67 Enclosure
- ✓ CanBus Speed Control
- ✓ Protection and Diagnostics



* Preliminary / Estimative Data.

MESA PLATFORM

- ✓ Small size with high performance
- ✓ 135 – 450 W @HBP (+7.2C)
- ✓ 50 – 155W @MBP (-12.2C)
- ✓ M/HBP applications
- ✓ 2 displacements: 1.4 and 2.0cc
- ✓ R134a, R1234yf and R290 (Q4/2022)
- ✓ PWM or Voltage speed control
- ✓ 12, 24 and 48Vdc



* Preliminary / Estimative Data.

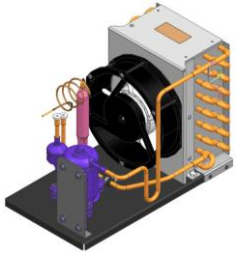
EMRU / MOBILE REFRIGERATION CONDENSING UNITS

Mini-series

SFS



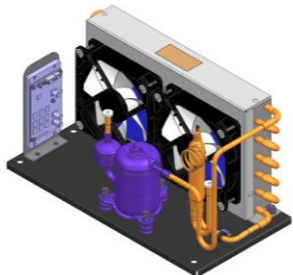
SFM



SFL

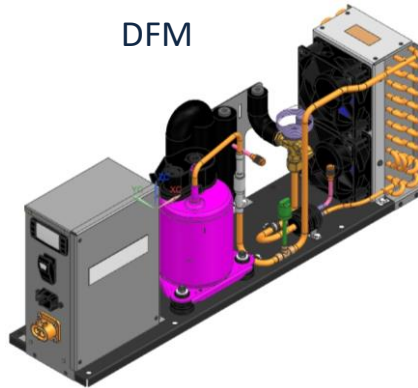


DFS

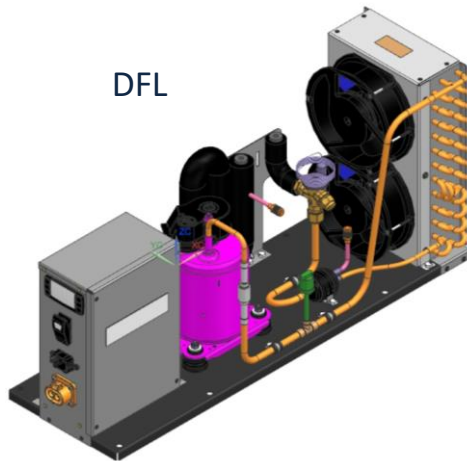


Slim-series

DFM

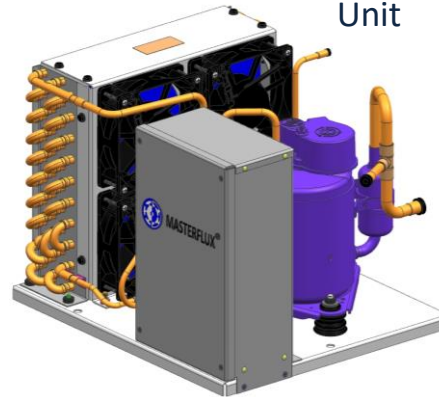


DFL



Standard series

Condensing
Unit



Low profile

MX-250T



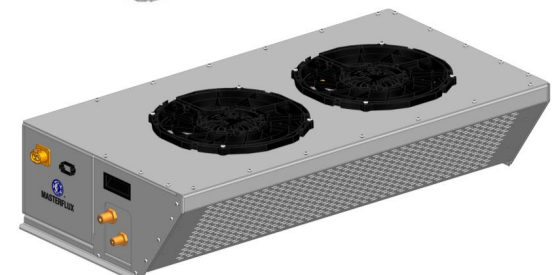
MX-250M



MX-600T



MX-600M

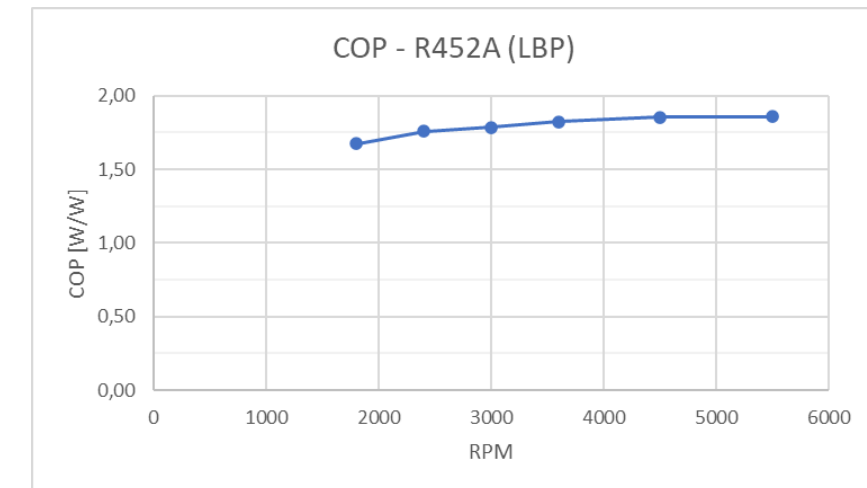
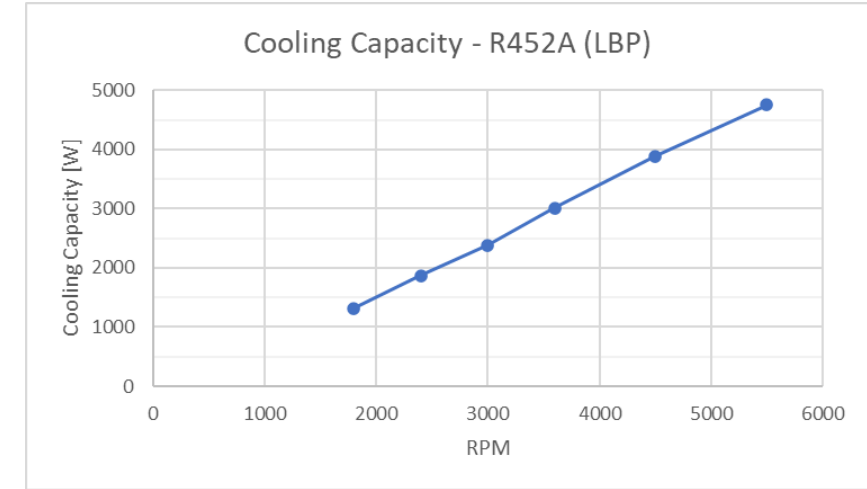


MX-600M



Specifications

- All Electric , DC Variable speed Intelligent mobile cooling unit.
- Low profile – Height 9.4” (237mm) excluding the fan ring.
- All Aluminum body, light weight, robust construction.
- Cooling Capacity - 6 KW in Fresh, 3.5 KW in Frozen
- Application - Mobile Cooling / Transport Ref.
- CAN control, IP67 Electrical Enclosure
- 48 Vdc, 350, 650 and 850Vdc
- Refrigerants: R1234yF/R134a/R513A ; R404A/R452A
- Future:: R455A, R454A, R454C and R290



-23.3/54.4C, ASHRAE LBP conditions

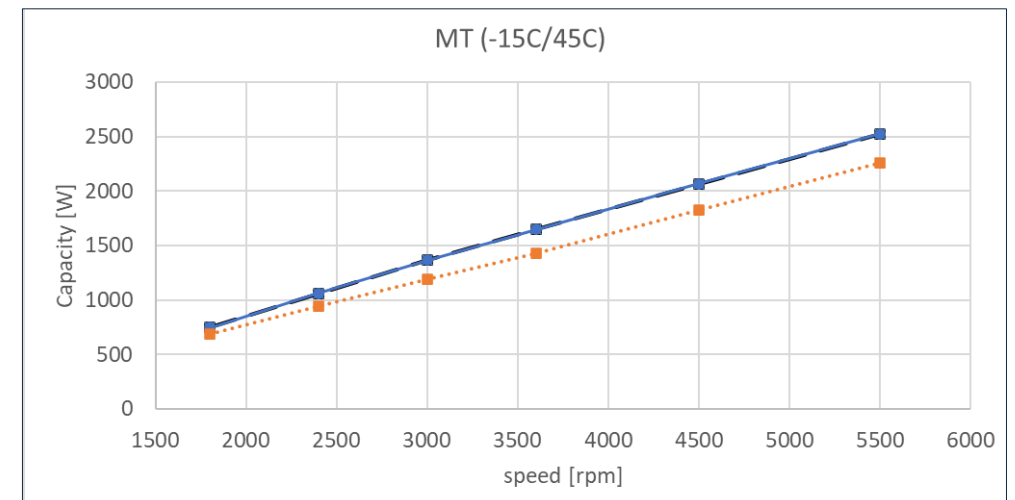
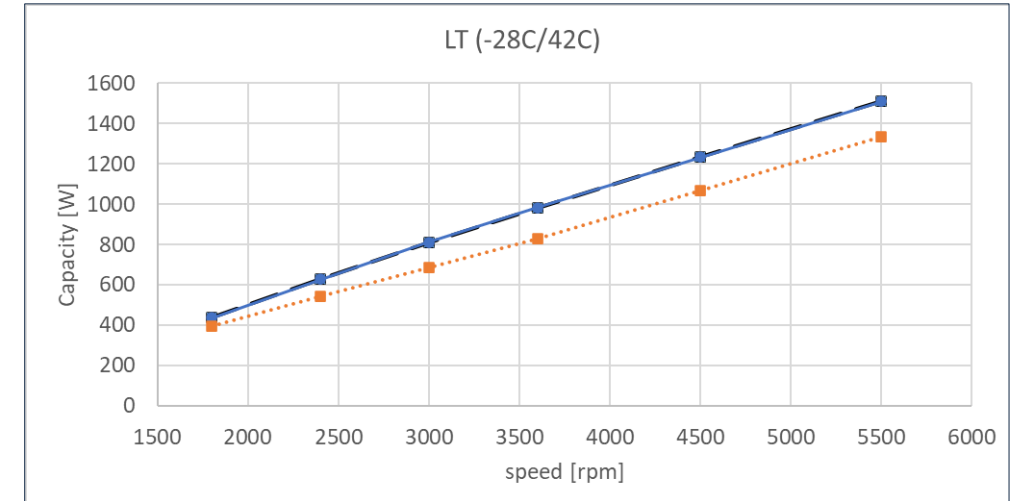
* Preliminary / Estimative Data.

MX-250M



Specifications

- All Electric , DC Variable speed Intelligent mobile cooling unit.
- Low profile – Height 9.4” (237mm) excluding the fan ring.
- All Aluminum body, light weight, robust construction.
- Cooling Capacity - 2.5 KW in Fresh, 1.4 KW in Frozen
- 2 models: HBP (R134a, 1234yF, R513A) and LBP (R 404A, R452A)
- Application - Mobile Cooling / Transport Ref.
- Future is A2Ls: R455A, R454A, R454C and R290
- CAN control, IP67 Electrical Enclosure
- Speed range: 1800 to 5500 RPM (target)
- 12, 24, 48, 350, 650V – same overall range as SIERRA



* Preliminary / Estimative Data.

EMRU VS TRADITIONAL DIRECT DRIVE UNIT

Significantly smaller cooling unit than most existing similar designs.

Electronic controls and variable speed compressor for energy management & defrost control.

High performing micro channel coil for light weight and improved efficiency

Better component layout and improved volume efficiency.



Robust hermetic sealed variable speed DC compressor

Fast pull down and best-in-class energy performance to meet zero emission requirements

Service friendly design with easy access to critical components.

Light yet solid design that makes handling and maintenance easy.

Hall 5 Booth 332

Come see an example of Masterflux Technology applied in Last-KM Delivery Application.....



MASTERFLUX.COM

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