FASTEST®

PORTMAX™

**High Flow Access Port System
for Rapid Evacuation of Large
HVAC-R Packages**

fastestinc.com/portmax

ENVIRONMENTALLY SUSTAINABLE · REFRIGERANT PROCESSING

FASTEST®

Global Leader in Industrial Sealing Connection Technology

HVAC-R | Vehicle Systems | Compressed Gas | Medical Life Science | Aerospace

At FasTest, our mission is to reduce our customer's manufacturing costs, improve safety and lower the environmental impact from refrigerant emissions.

As an industry leader of Sealing and Connection Technologies, FasTest offers standard products for most ports/threads/tubes, and a dedicated team of Custom Design Experts to engineer optimized solutions for demanding applications. Connect fast, seal reliably, test safely.

BROAD OFFERING	**INTELLIGENT TOOLS**	**APPLICATION EXPERTS**	**GLOBAL SUPPORT**	**SUPERIOR QUALITY**
Extensive standard and Custom Engineered Solutions.	Sensing & data generation tools that support process automation.	Optimized solutions, tailored to your unique needs.	Global distribution network provides local, responsive support.	ISO 9001 Certified; Robust tools improve the quality of your product.

HVAC-R OEM ACCESS PORT SYSTEMS

PORTMAX™
Rapid Evacuation of Large Capacity Systems

ZEROMAX™
Easy Access for Small Systems using Processing "Stub" Tubes

COREMAX®
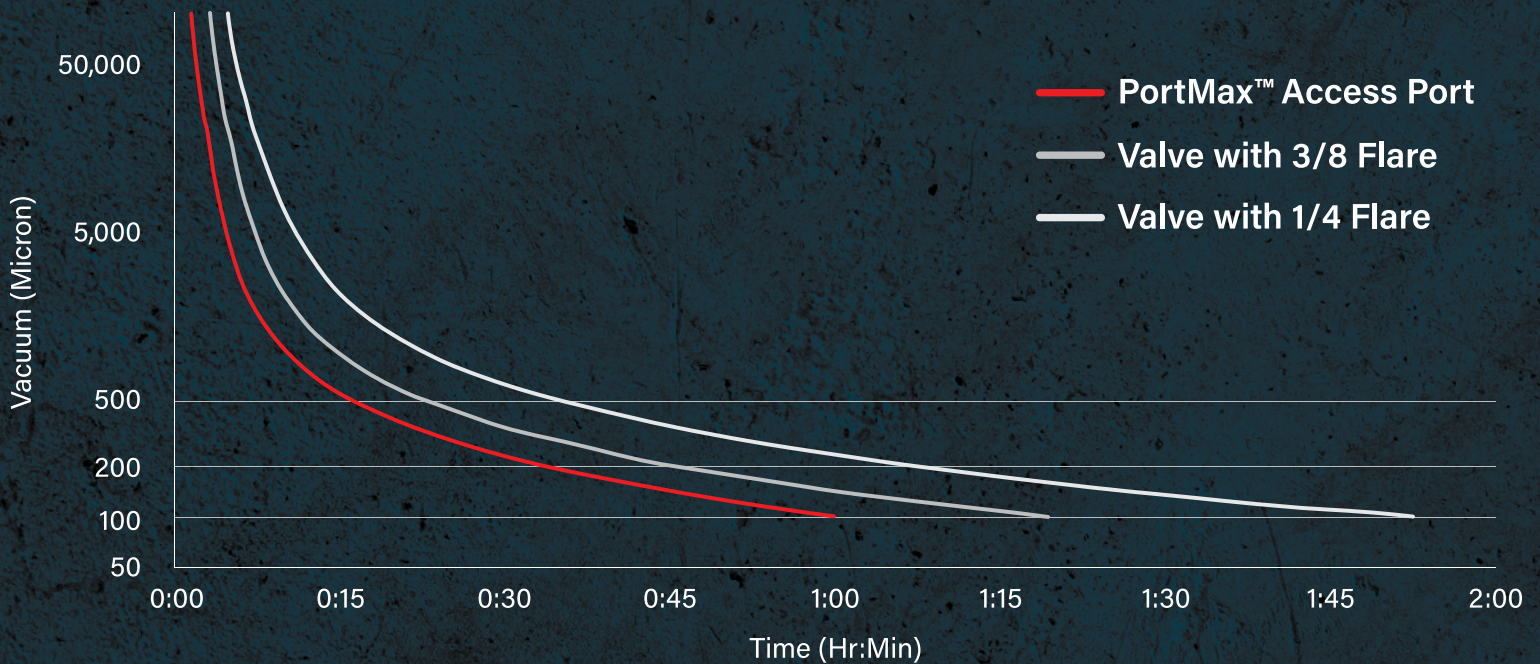Faster Processing of Systems Using Schrader Type Valves

PORTMAX™

**Patent Pending
Access Port Technology**

Up To **45%** Reduction in Evacuation Time

*compared to commonly used packed angle/ball valves.

Legend:
— PortMax™ Access Port
— Valve with 3/8 Flare
— Valve with 1/4 Flare

Graph: Vacuum (Micron) vs Time (Hr:Min)

Y-axis (Vacuum, Micron): 50,000 / 5,000 / 500 / 200 / 100 / 50

X-axis (Time, Hr:Min): 0:00 / 0:15 / 0:30 / 0:45 / 1:00 / 1:15 / 1:30 / 1:45 / 2:00

Reduce Processing Time | Lower Emissions | Next-Gen Refrigerants

RAPID EVACUATION OF LARGE CAPACITY SYSTEMS

INDUSTRIAL REFRIGERATION

Manufacturing, Chemical, Petro Chemical, Power Plants.

COMMERCIAL REFRIGERATION

Grocery/Super Markets, Strip Malls, Office Buildings, Ice Rinks, Hospitals, Schools.

AIR & WATER COOLED CHILLERS

Chillers used in Air Conditioning and many Industrial/Laboratory applications.

FASTEST

COLD CHAIN

Food Warehouses, Grocery Super Stores, Pharmaceutical Facilities.

Contact FasTest for transcritical CO_2 applications.

VRV / VRF

Office & Apartment Buildings, Hotel, College Campus, Multi-Use Facilities. Rapidly evacuate extremely long tubing runs typical in these applications.

AIR HANDLERS

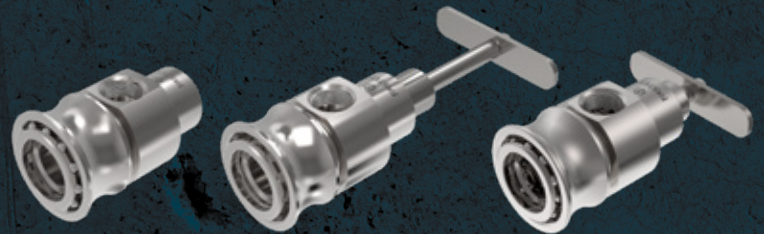Industrial Facilities, Warehouses, and Industrial Kitchens/Food Service Facilities.

PORTMAX™ SYSTEM

The NEW PortMax™ Access Port System is designed to reduce processing time, specifically the long evacuation times to degass/dehydrate large volume refrigerant systems currently processing through Packed Angle or Ball Valves.

High Flow Access Port

+

Processing Tools

- High flow – high conductance design

- Access Port seals hermetically

- Quick connect Processing Tools are easy to use, very durable and can work with reclaim systems

- Compatible with current and Next-Gen refrigerants (Contact FasTest for transcritical CO_2 applications)

- Compliant with UL207 Standard

- Reduce TOTAL cost of processing

- Improve Takt Time/throughput

- Minimize refrigerant emissions when processing

- Use with FasTest Evacuation Cart to optimize evacuation

Industry's Fastest Evacuation System

High Flow Access Port **+** **Processing Tools** **+** **Evacuation Cart**

FASTEST
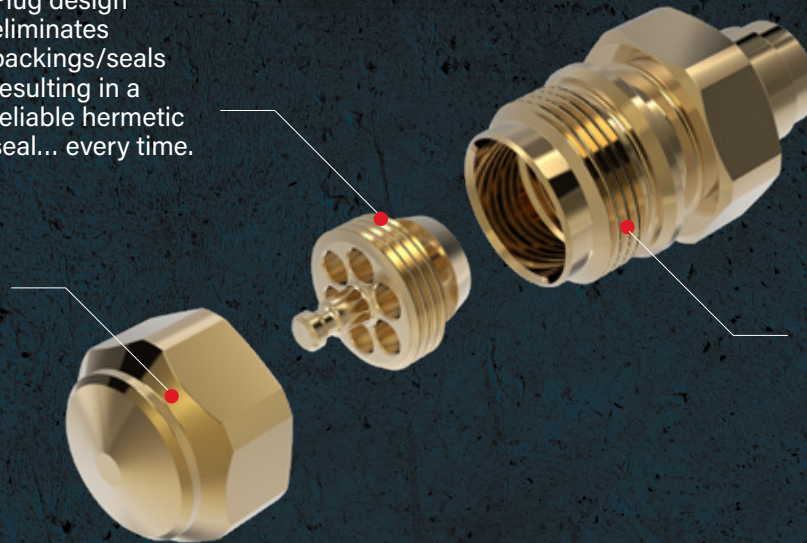
Refrigeration's Largest Access Port for Maximum Flow

Plug design eliminates packings/seals resulting in a reliable hermetic seal... every time.

Sealing Cap provides a secondary hermetic seal and prevents contamination of sealing surfaces.

High flow seat assures maximum flow. Available in Saddle Mount & threaded configurations for easy installation.

Leak/Proof Test
PN: CMFT60

Quick Filling

Pressurize & empty system quickly through large ½" flow path.

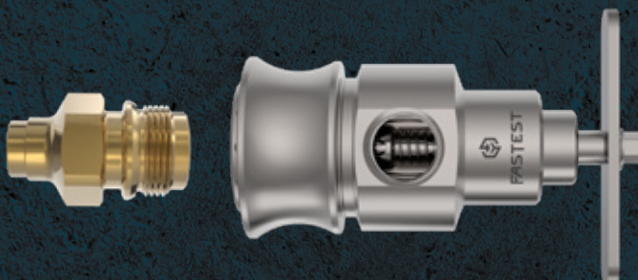## Evacuation
PN: CMFT80

Fast Evacuation

Unobstructed flow path yields maximum flow.

Charge
PN: CMFT70

Safe Charging

Charge Tool latch will not accidentally disconnect when under pressure.

EVACUATION CART
Optimized for PortMax™

Reducing evacuation time requires both a high flow access port/connector system AND a properly designed evacuation system… a TOTAL SOLUTION. FasTest's new turn-key Evacuation Cart is optimized for the PortMax™ system - the fastest evacuation possible, at the lowest cost.

Smart Features:

- Track evacuations and perform vacuum decay tests in real-time.

- Record evacuation and export to PDF or CSV file.

- Self diagnostic leak check capability to verify proper operation.

- Analyze data to facilitate ongoing process improvement.

- Take your evacuation process to the next level with a digital wireless vacuum gauge and powerful app.

Large Diameter, High Flow/Conductance Vacuum Hoses

An optimized system of matched components that will result in the fastest evacuation time possible.

Industrial grade 2-Stage vacuum pump includes gas ballast and oil mist filter.

Mobile cart maneuvers easily around large refrigeration packages with industrial grade lockable casters.

Stainless, vacuum rated ball valve for system isolation/ vacuum decay test.
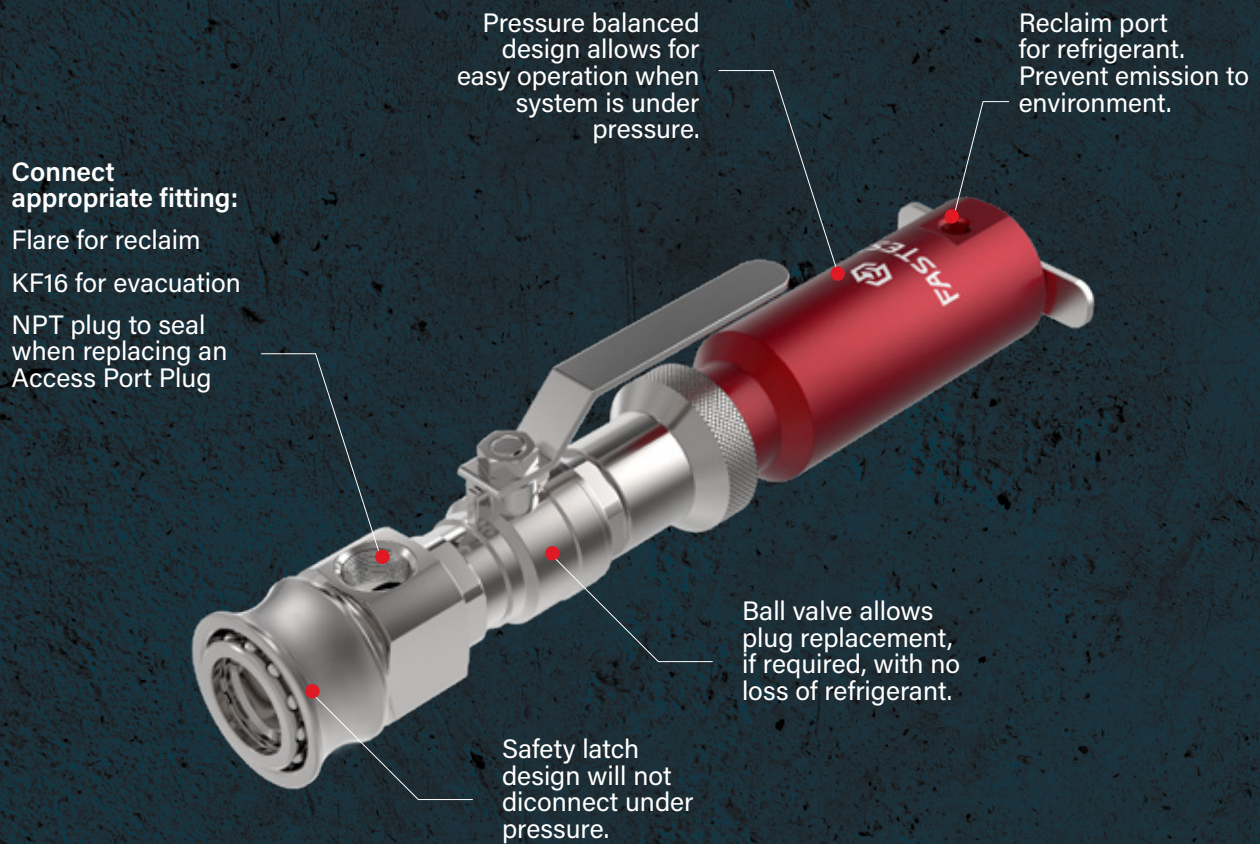
Lockable cabinets for safely storying tools, hoses and other components.

FASTEST

FIELD SERVICE TOOL

All-In-One Tool for Installation and Service Technicians

Gain access to the refrigerant system for servicing. Designed to provide installation & service technicians with a single tool that can be used to perform multiple tasks - refrigerant reclaim, leak test, evacuation, charge and replace a PortMax™ access port plug without losing refrigerant charge.

Pressure balanced design allows for easy operation when system is under pressure.

Reclaim port for refrigerant. Prevent emission to environment.

Connect appropriate fitting:

Flare for reclaim

KF16 for evacuation

NPT plug to seal when replacing an Access Port Plug

Ball valve allows plug replacement, if required, with no loss of refrigerant.

Safety latch design will not diconnect under pressure.

All-In-One Tool

- Leak Test
- Replace plug without losing refrigerant
- Evacuate
- Charge

PortMax™ High Flow Access Port

Large Access Port System for Maximum Flow & Faster Processing.

Dust Cap

Plug
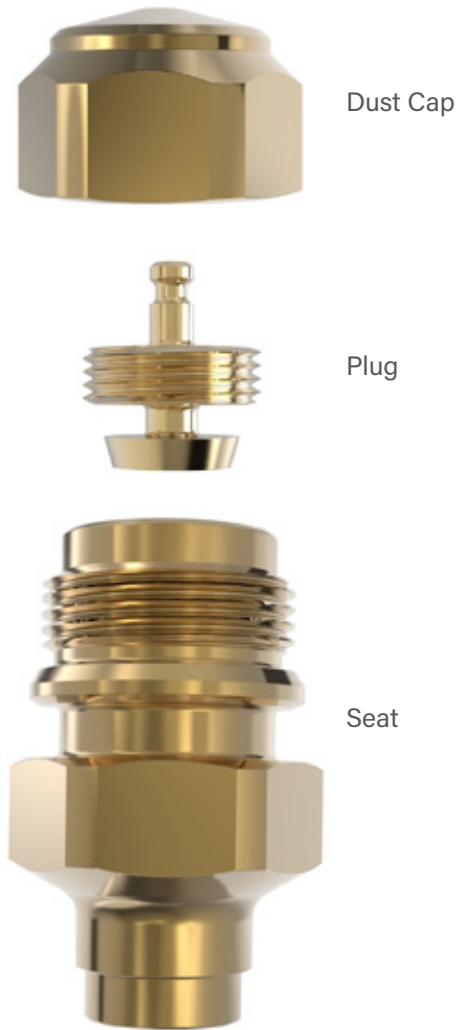
Seat

1 Designed for refrigeration applications, including Next-Gen refrigerants (Contact FasTest for transcritical CO_2 applications)

2 Metal to metal hermetic sealing - no elastomers

3 Large unobstructed flow path

4 Multiple Seat options for easy integration into system plumbing- Saddle Mount & NPT Thread

5 Patent pending Access Port Technology

SPECIFICATIONS

|	
Seat Styles	Saddle-Mount (Ø .625″ (15.9 mm) minimum bore required) & ½ NPT are standard. Other options available (Contact FasTest).
Pressure Rating	20 Micron (0.020 torr) to 870 psig (60 bar) Note: Contact FasTest for transcritical CO_2 applications
Leak Rating	Not measurable, hermetic
Flow Diameter	Ø 0.5″ (12.7mm) nominal
Flow Rate	28 scfm (45 Nm³/hr) @ 12 psi (0.83 bar) ΔP (vacuum) with CMFT80 Evacuation Tool 50+ scfm (80 Nm³/hr) @ 120 psi (8.3 bar) ΔP (charging) with CMFT70 Charge Tool
Material	Brass
Tightening Torque	**Plug:** 12-14 ft-lbs (16-19 N-m) | **Dust Cap:** 12-14 ft-lbs (16-19 N-m) Note: Do not exceed 14 ft-lb (19 N-m) when tightening Plug. Apply counter-torque to Access Port Seat hex when tightening Plug and Dust Cap to prevent imparting stress to brazed joints.

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Saddle Mount:

1 1/8" HEX

1/2 NPT:

1/2" NPT

1 1/8" HEX

Full Assembly:
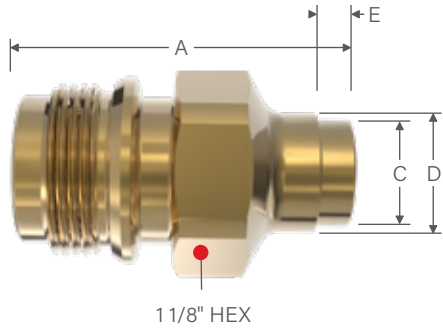
INSTALLED
LENGTH
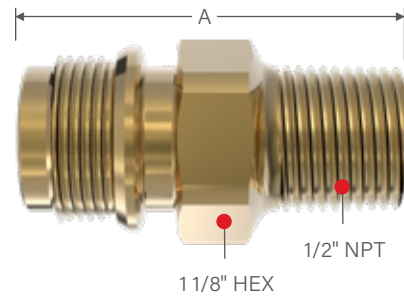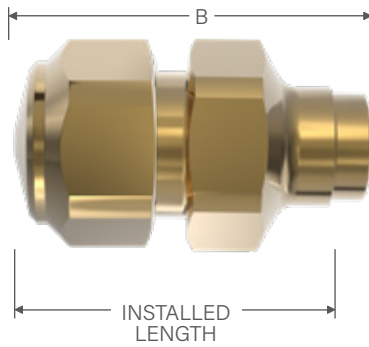
Full Assembly:
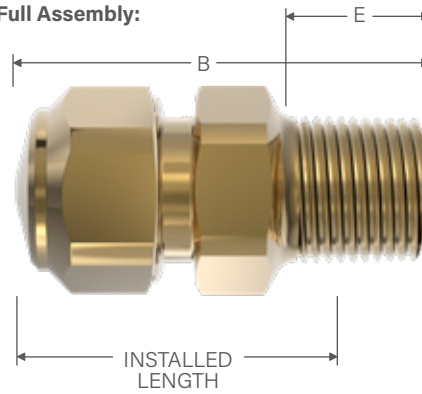
INSTALLED
LENGTH

Ordering Information			Dimensions					
Style	Size	Part Number	A	B	C	D	E	Installed Length
PortMax™ Seats | Multiple Styles for User's Application								
Saddle Mount	5/8"	CMHU16B01	1.90 (48.3)	2.15 (54.6)	0.625 (15.9) min hole Ø	0.70 (17.8)	0.20 (5.1)	1.94 (49.3)
Thread Mount	1/2 Male NPT	CMHU16E01	2.04 (51.8)	2.29 (58.1)	N/A	N/A	0.75 (19.1)	1.96 (49.8)
Stub Tube	Contact Factory		Contact Factory					
Panel Mount	Contact Factory		Contact Factory					

Dimensions: inch (mm)

PortMax™ Plug \| Mates with PORTMAX™ Seat

Part Number
CMC08
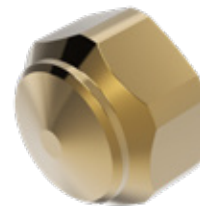
PortMax™ Dust Cap

Part Number
CMHU1601

PortMax™ Processing Tools

For Repair Kits and Main Seals contact FasTest or visit fastestinc.com

Leak Test Tool
PN: CMFT60

APPLICATION

Ball latching connector, no T-Handle mechanism (cannot use to torque Plug).

- Ball latching connector without an internal valve for high flow.
- Ergonomic ball & sleeve action. Safety Latch system will not disconnect under pressure.
- ½ NPT media port.

SPECIFICATIONS

Pressure	20 Micron (0.02 torr) to 2031 psig (140 bar)
Flow Diameter	Ø 0.5" (12.7mm) nominal
Flow Rate	50+ scfm (80 Nm³/hr) @ 120 psi (8.3 bar) ΔP (filling & venting)
Dimensions	3.00" (76mm) long x Ø 1.98" (50mm)
Material	Stainless Steel

Evacuation Tool
PN: CMFT80

APPLICATION

Ball latching connector with sliding T-Handle mechanism. Retracts out of flow path for maximum evacuation. Torques Plug to seal system.

- Ball latching connector without an internal valve for high flow.
- Ergonomic ball & sleeve action. Safety Latch system will not disconnect under pressure.
- ½ NPT media port.

SPECIFICATIONS

Pressure	20 Micron (0.02 torr) to 2031 psig (140 bar)
Flow Diameter	Ø 0.5" (12.7mm) nominal
Flow Rate	28 scfm (45 Nm³/hr)@ 12 psi (0.83 bar) ΔP (vacuum) 50+ scfm (80 Nm³/hr) @ 120 psi (8.3 bar) ΔP (charge)
Dimensions	4.14" (105mm) long (handle in)/5.87" (149mm) (handle out) x Ø 1.98" (50mm)
Material	Stainless Steel

Charge Tool
PN: CMFT70

APPLICATION

Ball latching connector with fixed T-Handle mechanism (eliminates pressure loading). Torques Plug to seal system.

- Ball latching connector without an internal valve for high flow.
- Ergonomic ball & sleeve action. Safety Latch system will not disconnect under pressure.
- ½ NPT media port.

SPECIFICATIONS

Pressure	20 Micron (0.02 torr) to 2031 psig (140 bar)
Flow Diameter	Ø 0.5" (12.7mm) nominal
Flow Rate	24 scfm (38 Nm³/hr) @ 12 psi (0.83 bar) ΔP (vacuum) 50+ scfm (80 Nm³/hr) @ 120 psi (8.3 bar) ΔP (charge)
Dimensions	4.14" (105mm) long x Ø 1.98" (50mm)
Material	Stainless Steel

Service Tool
PN: CMFT90

APPLICATION

Use to reclaim refrigerant, perform leak test, evacuate or charge refrigerant. Also use to replace Plug while system is under pressure. Torques Plug to seal system.

- Ball latching connector with an internal ball valve.
- Ergonomic ball & sleeve Action. Safety Latch system will not disconnect under pressure.
- ½ NPT media port.

SPECIFICATIONS

Pressure	20 Micron (0.02 torr) to 2031 psig (140 bar)
Flow Diameter	Ø 0.5" (12.7mm) nominal
Flow Rate	28 scfm (45 Nm³/hr) @ 12 psi (0.83 bar) ΔP (vacuum) 50+ scfm (80 Nm³/hr) @ 120 psi (8.3 bar) ΔP (charge)
Dimensions	14.28" (363mm) long (handle in)/19.57" (497mm) (handle out) x Ø1.98" (50mm)
Material	Stainless Steel, Aluminum

PortMax™ Accessories & Fittings

Torque Wrench

PN: SCFTM02

- Preset to 12 ft-lb (16 N-m)

- Use with CMFT375312DS Socket to torque Plug

- Use with CMFT37550DA Adapter & CMFT5011875DS Socket to torque Dust Cap

Note: Always apply counter-torque to Access Port Seat hex to prevent imparting stress to braze joint when torquing Plug and Dust Cap.

⅜" Drive x 5⁄16" Socket
CMFT375312DS

⅜" Female x ½" Male Drive Adapter
CMFT37550DA

½" Drive x 1 3⁄16" Socket
CMFT5011875DS

Leak Test Fitting
PN: AE012

- ⅜ Male Flare x ½ NPT

- Pressure Rating: 2031 psig (140 bar)

- Connects PortMax™ Tool to a leak test fill hose

Evacuation Fitting
PN: AE016CF

- KF16 x ½ NPT

- Pressure Rating: KF16 fittings and vacuum hoses are note suitable for Leak Test or Charging applications. Maximum pressure rating is 50 psig (3.4 bar)

- Connects PortMax™ Tool to a FasTest vacuum hose.

Charge Fitting
PN: AE012

- ⅜ Male Flare x ½ NPT

- Pressure Rating: 2031 psig (140 bar)

- Connects PortMax™ Tool to a leak test fill hose.

Note: The PortMax™ Service Tool will require each of the fittings depending on what operation is being performed.

FASTEST

Evacuation Cart Overview

Optimized for the PortMax™ Access Port System - A Total Evacuation Solution.

Hose Hanger Mast

PortMax™ Connector Docking Ports

KF16 Vacuum Manifold Ports

Cart Self Diagnostic Leak Test Port

Oil Mist Filter

Industrial Grade Vacuum Pump

Lockable Casters

Stainless, vacuum rated ball valve for system isolation/vacuum decay test

Large Diameter, High Flow/Conductance Vacuum Hoses

Storage/Work Surface

Tablet Computer

Locking Storage Cabinets

The Evacuation Cart is a turn-key, optimized solution with real-time tracking and data capabilities directly from FasTest.

Designed to integrate with the PortMax™, CoreMax®, and ZeroMax™ access port systems.

- OR -

Can be used with common refrigeration system access valves.

- Turn-key, integrated vacuum system of properly matched components.

- Set target vacuum, vacuum decay limits and monitor in real time. Store and download evacuation data records.

- Facilitates process improvement and optimization.

- Reduce evacuation time leading to improved production "Takt Time".

- Lockable storage cabinets safely store components when not in use. Full line of accessories to meet your needs.

- Mobile cart can be used in plant, at installation site and for service.

- Easy to use intuitive design and durable construction will provide years of reliable service.

Evacuation Cart Features

Packed with "Smart" features that streamline evacuation, record keeping and productivity.

The system is driven by a rugged, full-featured wireless vacuum gauge that is paired with an industry leading app. The system has unprecedented features that identify issues with moisture or leaks, and document the entire process with powerful reporting features not found in any other vacuum application.

Real time data monitoring.

62.0 Microns	**114.8** Microns	**2.0** Microns/s
Ultimate Pull Down	Final Vacuum	Avg. Decay Rate
0:02:44	0:00:24	0:03:09
Time to Ultimate P/D	Time in Decay	Total Elapsed Time

Track & Display

Track and display the evacuation and vacuum decay test in real time.

Data Capture

Store data records for internal documentation, process validation, and customer documentation.

Process Optimization

Evaluate evacuation traces/data to recognize opportunities for improvement.

Highest accuracy & resolution available.

Wireless Connectivity

Gauge pairs with pre-installed app to accurately monitor and track evacuation and vacuum decay processes.

Automatic Notifications

Automatic notifications of evacuation process with leak check feature. Export data as graphical PDF or CSV.

Evacuation Cart Features

Multi-Purpose Docking Ports

- Rugged FasTest connectors and integral "Docking Ports" keep moisture and contamination out the system when not in use.
- Easily perform a system integrity leak test before beginning an evacuation to confirm that no leaks exist.
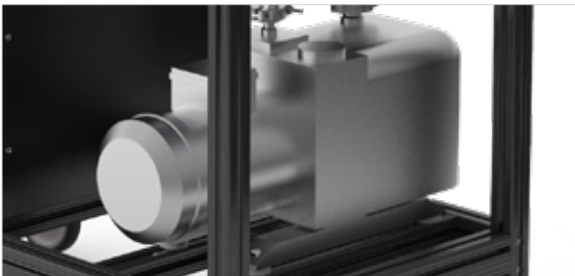
High Performance Vacuum Pump

- Industrial grade, two-stage rotary vane vacuum pump assures rapid evacuations and long service intervals.
- High quality isolation valve allows for vacuum decay test without disconnecting hoses or closing access ports/valves.
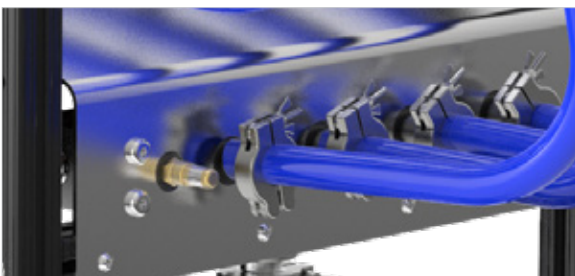
## 4-Port Manifold & System Test Port

- Connect up to four individual hoses with industry standard KF vacuum fittings assure quick leak tight connections and rapid evacuations.
- Test port allows connection of vacuum gauge for system leak check.

Long Life & Easy to Use

- Rugged construction will provide years of reliable service.
- Ergonomic tablet computer location with USB port.
- Lockable storage cabinets to keep tools safe.
- Convenient work surfaces.

Evacuation Cart Dimensions

22.0
(558.8)

33.6
(853.4)

51.3
(1,303)

39.0
(990.6)

77.9
(1,978.7)

41.9
(1,064.3)
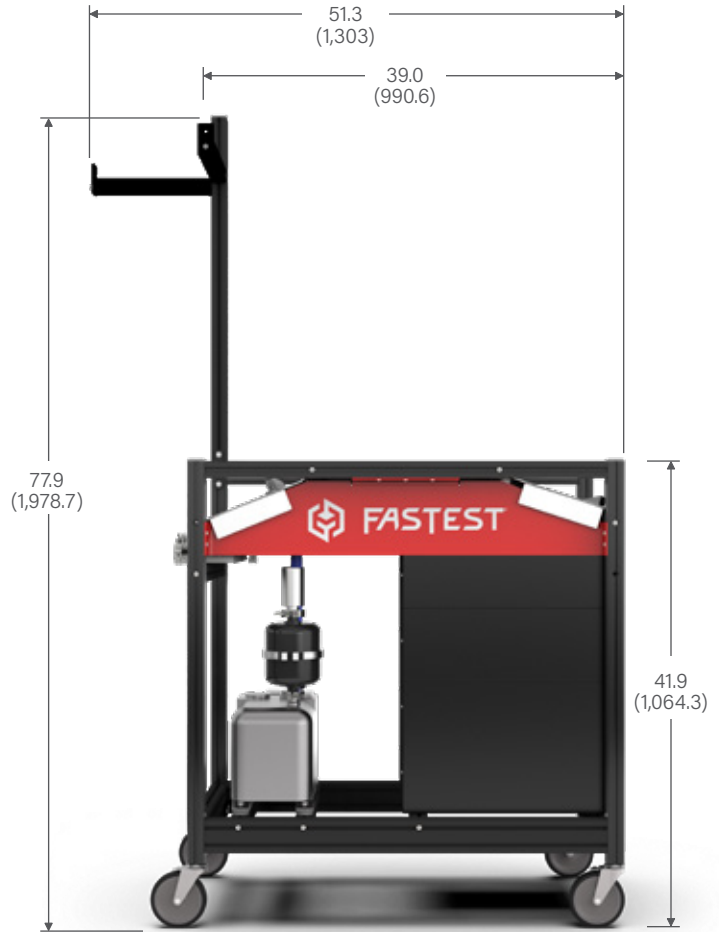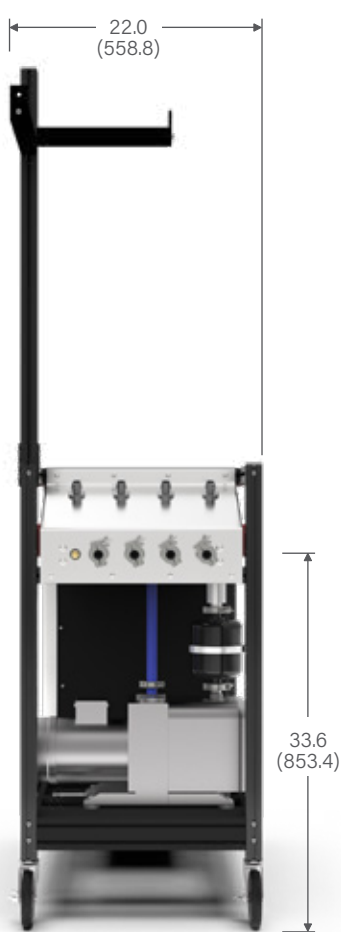
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Dimensions: inch (mm)

Weight: 280 lbs (127 kg)

Evacuation Cart Ordering Information

Contact FasTest for assistance with specifiying the exact Evacuation Cart configuration for your application at fastsales@fastestinc.com.

Step 1 - Select Evacuation Cart Model

Part Number	Description
CECBA12N	Evacuation Cart, Manual, 12 cfm model N vacuum pump, 110v/60Hz Single Phase
CECBA23N	Evacuation Cart, Manual, 23 cfm model N vacuum pump, 110v/60Hz Single Phase

INCLUDES: Mobile evacuation cart with 4 port manifold, heavy duty locking casters, 3 lockable storage drawers, isolation valve for pressure decay test, vacuum pump (110v/60Hz single phase motor) with oil mist filter. System is wired for plug-n-play operation.

DOES NOT INCLUDE: Hoses, Connectors, adapter fittings or digital vacuum gauge and tablet computer required for process monitoring & data capture which must be ordered seperately.

Step 2 - Select Evacuation Hoses

Part Number	Description
CECHOSE10	Hose, KF16, 1.0 meter (3.3') long
CECHOSE20	Hose, KF16, 2.0 meter (6.5') long
CECHOSE30	Hose, KF16, 3.0 meter (10') long
CECHOSE40	Hose, KF16, 4.0 meter (13') long
CECHOSE50	Hose, KF16, 5.0 meter (16') long
CECHOSE60	Hose, KF16, 6.0 meter (19.5') long
AE002	Connector Kit KF-16/KF-16 w/two S10752 Clamps (Use to join "daisy chain" two hoses)
S25MM18MMV75	Replacement O-Ring for Hose KF-16 fitting (Pack of 5)

Step 3 - Select Connectors & Fittings

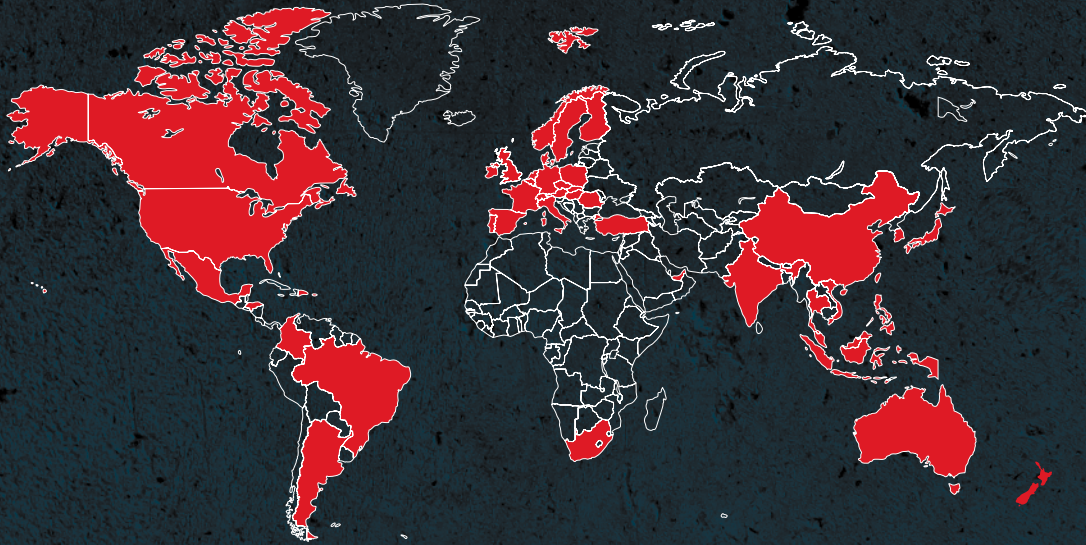| Part Number	Description
CMFT80	PortMax Evacuation Tool, 1/2 Female NPT Termination Port
AE016CF	Male Fitting, KF16 x 1/2 Male NPT (for PortMax Evac Tool to hose)
AEKF16C	Clamp, KF-16 (Aluminum, use to connect hose to Connector Tool)
RCMFT80	Repair Kit for PortMax Evacuation Tool (1 Repair)

Step 4 - Select Vacuum Gauge & Tablet Computer

Part Number	Description
CECGAB	Digital Vacuum Gauge, Wireless (Includes 1 Gauge Coupler (CECGABCP1) to connect to 1/4 flare fitting)
AE001	Tablet computer (comes loaded with App to pair with CECGAB wireless vacuum gauge for monitoring)

Step 5 - Select Spare Parts & Service Items

Part Number	Description
AE011	Vacuum pump oil (Industrial Grade) for Model N Vacuum Pump (Quart)
S25MM18MMV75	Replacement O-Ring for Hose KF-16 fitting (Pack of 5)
AE003	Protective Plastic Cap for KF-16 Hose Fittings (Pack of 4)
AE16R	KF-16 Fitting Seal with Stainless Steel Inner Ring
AE005	KF-16 TEE Fitting (Use to connect more than one hose to Cart manifold port)

Additional Evacuation Cart components and maintenance items are available. Contact FasTest.