

EMS-FF-C500

Coolant fill cart, 500 L tank

Row and room-scale commissioning cart with dual pump and concurrent fill and drain

EMS-FF-C500 is the 500 L class, sized for row and room-scale commissioning rounds where partial-fill and top-up duty alternate inside one window. It carries the same dual-pump architecture and the same one 25 µm protection-rated element per pump on the fill-pump discharge as the smaller classes, with a PLC, 7-inch touchscreen HMI and per-point metering. The failure it exists to catch is a room-scale fill run that cannot be measured, on a loop whose whole secondary circuit may hold only a few litres at each rack.

ORDERING INFORMATION

Part number	EMS-FF-C500
Tank volume	500 L
Duty	Row and room-scale commissioning, partial-fill and top-up rounds
Pump arrangement	Dual pump, concurrent fill and drain
Discharge filter	One 25 µm element per pump
Connector formats	UQD04 and FD83
Power	90–267 V AC, 50/60 Hz single-phase
Pump head	Not published for this product; reference figure only

TANK AND HYDRAULIC DUTY

Parameter	Value	Notes
Tank volume	500 L	Largest class on the fill cart ladder
Duty	Row and room-scale commissioning, partial-fill and top-up rounds	Sized by the number of loops filled in one commissioning window
Pump arrangement	Dual pump	Dual-pump architecture allows concurrent fill and drain
Concurrent duty	Concurrent fill and drain	A partial-fill or fluid-exchange round runs without taking the loop out of service
Pump flow	Not published in the retrieved material for this class	Quoted on request; the 200 L class exceeds 60 L/min
Pump head	Not published for this product	Reference only, not our rating: a rack CDU's own internal fill pump runs at about 1.0 L/min and stops at 15 psi (1.0 bar) inlet pressure
Fill points	Row and room-scale, multiple points per round	Up to 8 racks, servers or CDUs at once on the 200 L class
Fluid-volume comparison	A 100 kW rack CDU secondary circuit holds as little as 5.7 L	The tank is an order of magnitude larger than the loop, which is why per-point metering matters
Design envelope of the loop it fills	6.9 bar (100 psig) nominal operating pressure and 60 °C (140 °F) fluid temperature	Published envelope of the technology cooling pipework

FILTRATION

Parameter	Value	Notes
Discharge filtration	One 25 µm element per pump, on the discharge of the fill pump	Cart-level filtration on the fill-pump discharge is a design requirement, not an option The 25 µm figure is a protection rating.
Micron category of the 25 µm element	Protection rating: the operating element on the cart discharge	It is not a strainer rating and it is not the commissioning staging sequence
Commissioning staging upstream of it	100 µm, then 50 µm, then 25 µm	Commissioning staging is a procedure, not the protection rating of the cart's element
Cleanliness end point	0 particles at or above 50 µm	Piping cleanliness class CCC = C(C13/D9/E-N00) The 50 µm figure is a cleanliness acceptance limit: it is not a protection rating, a commissioning staging step or an inlet strainer rating.
External filtration rule	External filtration is installed at the discharge of major equipment	Thermal fill stations must also have a serviceable inline filter in the supply line
Serviceable element	Replaceable element per pump	Wet filters attract and retain contaminants, so replacement is often preferable to cleaning on a construction site

CONTROL AND INSTRUMENTATION

Parameter	Value	Notes
Controller	Industrial PLC	Carries the fill and drain logic and the metering read-out
Operator interface	7-inch touchscreen HMI	Tilttable HMI on the cart
Pressure and flow sensing	Digital pressure and flow sensors	Readings at the cart rather than at the loop
Fluid-quality monitoring	Real-time fluid-quality monitoring at the cart	Monitors the fluid the cart delivers
Overfill protection	Fitted	Level monitoring plus a metering read-out per fill point
Metering resolution	Fluid delivered per point is recorded	On a multi-rack round the recorded volume is the commissioning record
Air management after fill	Pumps at 25–30 % for a minimum of 30 minutes, then +10 % every 15 minutes up to 75 %	Minimum allowable pump speed is 15 %

MATERIALS, POWER AND INSTALLATION

Parameter	Value	Notes
Wetted materials	SUS304 stainless steel with EPDM and PTFE seals	Wetted path of the cart and its hoses
Seal grade	Peroxide-cured EPDM recommended	Sulfur-cured EPDM can introduce sulfate into the heat-transfer fluid; the technology-cooling limit is <10 ppm
Brass rule	Brass above 15 % zinc requires dezincification verification to ISO 6509 at ≤100 µm depth	Annual zinc analysis by ICP where brass is wetted The 100 µm figure is a dezincification penetration depth under ISO 6509: it is not a protection rating, a commissioning staging step or an inlet strainer rating.
Connector formats	UQD04 and FD83	Two of the major formats in this equipment class
Power	90–267 V AC, 50/60 Hz single-phase	Universal input, so one build ships without modification

Parameter	Value	Notes
Mobility	Portable cart on castors	The 100–500 L tank class is a portable cart for commissioning and maintenance
Reference build figures	Published on the 200 L class: 0.8 kW, footprint 1 120 × 920 × 1 350 mm, 220 V / 1 PH / 50 Hz	This class is quoted on request against the reference build

APPLICATIONS

- Row and room-scale commissioning rounds served from one cart
- Partial-fill duty where only part of a loop is drained and refilled
- Fluid exchange on a live floor, using concurrent fill and drain
- Top-up rounds where delivered volume per point is the record

INCLUDED IN THE DELIVERED SET

- 500 L tank on a portable cart with castors
- Dual pump with one 25 µm protection-rated element per pump
- PLC with a 7-inch touchscreen HMI
- Digital pressure and flow sensors with overfill protection and per-point metering
- UQD04 and FD83 connector formats

COMPATIBLE WITH

- EMS-CL-PG15 to EMS-CL-PG55 inhibited propylene glycol coolants
- EMS-CL-PGC concentrate for on-site dilution
- EMS-FF-FL340 and EMS-FF-FL1300 flush skids for the flush that precedes the fill
- EMS-FF-FS60 and EMS-FF-FS150 filtration skids for the permanent stage that follows it

SCOPE

- The cart fills and drains a loop; it does not distribute coolant to a rack. No coolant distribution units and no cold plates

FILL CART LADDER BY VOLUME

Parameter	Value	Notes
EMS-FF-C120	120 L tank	Single rack or in-row unit, top-up duty; single or dual pump
EMS-FF-C200	200 L tank	Up to 8 racks, servers or CDUs at once; dual pump, over 60 L/min
EMS-FF-C500	500 L tank	Row and room-scale commissioning, partial-fill and top-up rounds; dual pump, concurrent fill and drain

NOTES

- Pump head is not published for this product. The comparable reference is a rack CDU fill pump cutting out at 1.0 bar (15 psi) inlet pressure at about 1.0 L/min, and that figure is a reference, not a rating of this cart.
- Pump flow for this class is not published in the retrieved material and is quoted on request rather than estimated.
- The 25 µm element is a protection rating: the operating element on the fill-pump discharge. The 100 → 50 → 25 µm sequence is commissioning staging and is a separate category.
- Footprint and electrical figures are published for the 200 L reference build; this class is quoted on request against that build.
- Certification names are published on the badge cards; approval documents are shown on request.
- Scope: no coolant distribution units and no cold plates.

Full specification sheet and current pricing EMS-Trade Cooling · ems-cool.com Typical lead time confirmed on order acknowledgement.	EMS-FF-C500 Rev. A 2026-09-19
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