

EMS-CF-S12

Side-stream filtration unit, 12% divert setpoint

Diverted slip-stream vessel, dedicated pump and 316L element inside the published divert band

A side-stream unit that diverts 12% of the circulating loop volume, above the mid-point of the published 5–15% divert band, returning the filtered fluid downstream of the take-off. The vessel is published to 150 psi (10.3 bar) with a 12-round multi-bag standard configuration and up to 150 gpm (34 m³/h) per bag hole, the media are calibratable 316L metal cloth at a 5–40 µm protection rating, and the element changes out at 35 psid (2.4 bar) against a 60 psid (4.1 bar) maximum at 20 °C. Turnover is published at the about-10%-per-hour processing example: a full loop volume every 6–12 h.

ORDERING INFORMATION

Part number	EMS-CF-S12
Divert setpoint	12% of circulating loop volume
Divert trim	Fixed orifice
Media stage	Calibratable 316L metal cloth; PP pleated depth fine stage available
Turnover at about 10% of loop volume per hour	Full loop volume every 6–12 h
Vessel working pressure	Up to 150 psi (10.3 bar)
Element change-out ΔP	35 psid (2.4 bar)
Process connection	Open — confirmed at order

FLOW AND SIZING

Parameter	Value	Notes
Divert setpoint (model code value)	12% of circulating loop volume	The number in the model code is the divert setpoint, in per cent of circulating loop volume. It is not a flow rate
Divert band	5–15% of circulating loop volume	Share of circulating loop volume, matching the source wording; it is not a share of the CDU's internal flow
Position in the published band	Inside the published 5–15% divert band, above the mid-point	Published model ladder position for this divert setpoint; the trim is a fixed orifice
Processing rate at the published turnover	About 10% of loop volume per hour	Published example; turnover hours = 100 ÷ share processed per hour
Turnover at the published processing rate	Full loop volume every 6–12 h	Published at the about-10%-per-hour processing example; turnover hours = 100 ÷ share processed per hour. The derived table gives 8.3% → 12 h, 10% → 10 h and 16.7% → 6 h. The 6–12 h turnover is published at about 10% of loop volume per hour, not at the band ends, so this setpoint carries no separate turnover figure.
Sizing rule	Size on the loop's circulating volume	Not on the CDU's internal flow; the side-stream flow follows from the loop volume and the divert setpoint
Side-stream flow formula	Side-stream flow = (share of loop volume processed per hour ÷ 100) × loop circulating volume	Published formula; the resulting flow is a property of the loop, so it is not a per-model figure

Parameter	Value	Notes
Flow capacity per bag hole	Up to 150 gpm (34 m³/h)	Published per-hole capacity of the vessel family; the vessel takes the bag-hole configuration ordered
Vessel configuration	Up to 12-round multi-bag standard	Larger on custom order
Vessel headroom at 12 bag holes	408 m³/h	Derived: 12 bag holes × the published 34 m³/h per hole. Marked as calculated, not a published rating
Flow verification on the branch	Magnetic flow meter, ±0.75% of rate full-bore; compact meter DN 4–DN 25	Confirms the divert setpoint; a magnetic meter needs at least 5 µS/cm, so the loop type decides whether it reads at all

VESSEL, PUMP AND ELEMENT

Parameter	Value	Notes
Vessel working pressure	Up to 150 psi (10.3 bar)	Proof-tested at 1.5× rated maximum working pressure under IEC 62368-1, about 15.5 bar (derived)
Media	Calibratable metal filter cloth; PP pleated depth for the fine stage	Metal cloth is backwashable and non-disposable; the pleated depth stage sits downstream of it
Media pore size, protection rating	5–40 µm calibratable	Protection rating of the operating element. Not a commissioning staging step and not an inlet strainer rating
Media pore size, coarse protection rating	100–200+ µm coarse plain weave	Coarse protection rating for pump, valve and heat-exchanger duty; a guard, and a separate category from the 500 µm class inlet strainer rating below
Inlet strainer rating, a separate category	500 µm class at the unit inlet	Strainer rating: a coarse guard that protects the pump, not a filtration stage
Media alloy	316L stainless steel	Sinter-bonded woven wire mesh
Media flow capacity	Up to double conventional woven filter cloth at equivalent pore size	Reverse plain Dutch weave
Element selection ratio	About 10× the required protection rating	Published selection ratio for a side-stream element; a full-flow element is sized about 2× the required rating
Pump arrangement	Dedicated pump on the diverted slip-stream	Not taken from the main loop pump
Seals and gaskets	NBR, EPDM, silicone, FKM, PTFE-encapsulated Viton, PTFE-encapsulated silicone	Specify the seal from the fluid: the published design basis is 25% v/v propylene glycol (PG25) with Hybrid-OAT inhibitors
Process connection size and type	Open — not published	Confirmed against the supplier document at order
Offline (kidney-loop) variant	Spin-on housing, up to 14 bar, aluminium body, single or double element	Published for the offline build; selected where the branch is taken off a skid rather than the header

DIFFERENTIAL PRESSURE

Parameter	Value	Notes
Clean element ΔP	0.17 bar (2 psid)	Published on a clean 2 µm element; the bottom of the operating window
Recommended change-out ΔP	35 psid (2.4 bar)	The primary element-change trigger

Parameter	Value	Notes
Maximum differential pressure	60 psid (4.1 bar)	At 20 °C (68 °F); above this the element is outside its published differential limit
Headroom, clean to change-out	About 17×	Derived from the two published figures
Headroom, clean to maximum	About 30×	Derived from the two published figures
Temperature condition on ΔP	Comparable only at a stated temperature	The published maximum is specified at 20 °C (68 °F); trend ΔP with fluid temperature on the same chart

LOOP CHEMISTRY BANDS THIS UNIT IS INSTRUMENTED AGAINST

Parameter	Value	Notes
Conductivity band, glycol-premix or facility-water loop	50–300 $\mu S/cm$	Glycol is a weak electrolyte, so a PG25 or facility-water loop sits in this band
Conductivity band, de-ionised technology cooling loop	0.2–20 $\mu S/cm$	A near-DI technology cooling loop with no glycol sits three orders of magnitude lower; the loop type decides which band applies
pH band, glycol-premix or facility-water loop	7.0–9.0 pH	Set by the metallurgy of the loop; corrosion control and inhibitor effectiveness
pH band, de-ionised technology cooling loop	8.0–9.5 pH	The technology cooling side of the ASHRAE split; the two loop types do not share one pH band
Turbidity target	Below 1 NTU	Particulate proxy; a trend reading, not a laboratory verification

APPLICATIONS

- Side-stream filtration on a large secondary loop header
- Bulk particulate duty where the divert is set above the mid-point of the band
- First-month debris removal after commissioning
- Loops where the full-flow alternative would demand excessive energy and footprint

SUPPLIED AS

- Vessel with the bag-hole or element configuration ordered
- Dedicated pump on the diverted slip-stream
- Element in the media stage ordered
- Differential-pressure connections across the element

COMPATIBLE INSTRUMENTATION

- EMS-CF-FP-FL full-bore magnetic flow meter on the main header
- EMS-CF-FP-DP liquid-service element differential-pressure monitor
- EMS-CF-WQ-CI inductive conductivity cell, preferred on glycol loops
- EMS-CF-WQ-PC particle counter to ISO 4406

NOT IN THIS SCOPE

- Coolant distribution units and cold plates; filtration inside a CDU is the CDU maker's scope
- Commissioning staging elements; the 100 → 50 → 25 μm flush sequence is a commissioning procedure

SIDE-STREAM MODEL LADDER

Parameter	Value	Notes
EMS-CF-S05	5% divert setpoint	Fixed orifice trim; at the slow end of the published 5–15% band
EMS-CF-S08	8% divert setpoint	Fixed orifice trim; inside the published 5–15% band
EMS-CF-S10	10% divert setpoint	Fixed orifice trim; the published turnover example, mid-band
EMS-CF-S12	12% divert setpoint	Fixed orifice trim; inside the published 5–15% band
EMS-CF-S15	15% divert setpoint	Fixed orifice trim; at the fast end of the published 5–15% band

NOTES

- Every micron figure on this datasheet is labelled by category. 5–40 µm calibratable is the protection rating of the operating element; 100–200+ µm coarse plain weave is a coarse protection rating for pump, valve and heat-exchanger duty; the 500 µm class at the unit inlet is a strainer rating; and the 100 → 50 → 25 µm flush sequence is commissioning staging, a procedure rather than a rating of this unit.
- The divert setpoint is the number in the model code, read as a percentage of circulating loop volume. It is not a flow rate: the side-stream flow is the published formula applied to the loop's own circulating volume.
- Published at the about-10%-per-hour processing example; turnover hours = 100 ÷ share processed per hour. The derived table gives 8.3% → 12 h, 10% → 10 h and 16.7% → 6 h. The 6–12 h turnover is published at about 10% of loop volume per hour, not at the band ends, so this setpoint carries no separate turnover figure.
- Conductivity and pH bands are published with their loop type. A glycol-premix or facility-water loop is held at 50–300 µS/cm and pH 7.0–9.0; a de-ionised technology cooling loop is held at 0.2–20 µS/cm and pH 8.0–9.5. Publishing either band alone misleads a buyer running the other loop.
- The 408 m³/h vessel headroom and the 15.5 bar hydrostatic figure are derived: 12 bag holes × the published 34 m³/h per hole, and 1.5× the published 150 psi (10.3 bar) under IEC 62368-1. Derived figures are marked as calculated wherever they appear.
- The company does not supply coolant distribution units or cold plates. This model code covers a vessel, a pump and an element that connect to the loop header.

Full specification sheet and current pricing

EMS-Trade Cooling · ems-cool.com

Typical lead time confirmed on order acknowledgement.

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