

EMS-CF-S10

Side-stream filtration unit, 10% divert setpoint

Diverted slip-stream vessel, dedicated pump and element at the published turnover example

A side-stream unit that diverts 10% of the circulating loop volume — the published turnover example, mid-band — and returns the filtered fluid downstream of the take-off. In the published worked example a loop circulating 60 m³/h processed at 10% gives a 6.0 m³/h (1.66 L/s) side-stream flow, at the top of the compact magnetic flow-meter band. The vessel is published to 150 psi (10.3 bar) with up to 150 gpm (34 m³/h) per bag hole, and the element changes out at 35 psid (2.4 bar) against a 60 psid (4.1 bar) maximum at 20 °C.

ORDERING INFORMATION

Part number	EMS-CF-S10
Divert setpoint	10% 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)	10% 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	The published turnover example, mid-band	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. This model is the published 10% example: 10% of loop volume per hour gives a 10 h turnover, mid-band.
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
Published worked example, labelled as an example	A loop circulating 60 m³/h processed at 10% gives 6.0 m³/h (1.66 L/s)	The published worked example; 6.0 m ³ /h sits at the top of the compact magnetic flow-meter band of 0.14–1.66 L/s

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 $\mu\text{S}/\text{cm}$	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 $\mu\text{S}/\text{cm}$	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 secondary loop header upstream of the loads
- First-month debris removal after commissioning
- Backwashable coarse protection ahead of a PP pleated depth polishing stage
- Branch where the divert has to be confirmed at a published flow accuracy

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-FC compact magnetic flow meter, at the top of its published band on the 60 m³/h example
- 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-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. This model is the published 10% example: 10% of loop volume per hour gives a 10 h turnover, mid-band.
- 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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