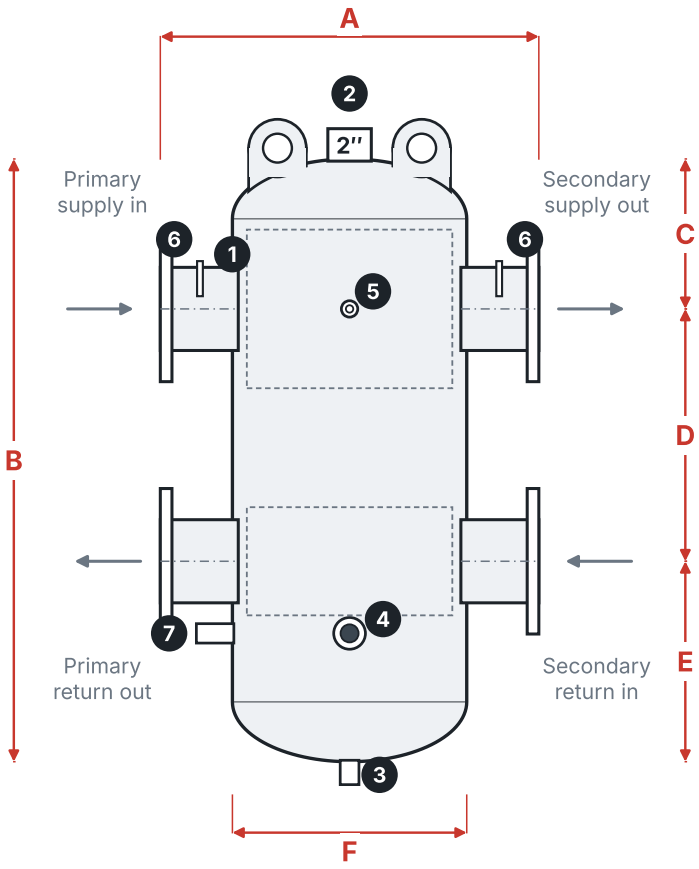
PRODUCT CUT SHEET

LLH400P

Hydraulic separator with dirt magnet

4-in-1: hydraulic separation, air, dirt and magnetite removal in one 304 stainless steel vessel.

185 gpm	4″	150 psi	210 °F
Flow at 4 ft/s	Connection size	Max. pressure	Max. temperature



FUNCTIONS



Hydraulic separation

Low-velocity zone between the primary and secondary connections decouples the two pumps.

Air removal

The Pall ring media merges micro-bubbles; air rises to the automatic vent.

Dirt removal

Slow water lets dirt settle to the bottom, where it is flushed out through the drain.

Magnetite removal

A 12,000 gauss neodymium rod in a dry well holds ferrous particles; pull the rod to release them.

CONSTRUCTION

Vessel	Ø 325 × 3 mm, 304 stainless steel
Coalescing element	Two stainless steel wire cages filled with Ø25 mm 304 stainless steel Pall rings (6.8 kg)
Connections	4″ ASME B16.5 Class 150 flange
Dirt magnet	Ø25 mm neodymium rod, M50 grade, 12,000 gauss, in a dry well

CONNECTIONS

#	Port	Size and type
1	Primary and secondary connections (4)	4″ ASME B16.5 Class 150 flange
2	Air vent port	2″ GM
3	Drain	¾″ FNPT
4	Dirt magnet port	dry well with removable rod
5	Gauge port	¼″ FNPT
6	Temperature sensor wells (2)	Ø8 × 40 mm, one in the primary supply and one in the secondary supply connection
7	Fill / makeup water port, on the side (expansion tank or system fill)	¾″ FNPT

DIMENSIONS, MM / IN

	A	B	C	D	E	F
mm	525	836	208	350	278	325
in	20.7	32.9	8.2	13.8	10.9	12.8

A Width across the connection faces · **B** Overall height of the vessel · **C** Top of vessel to upper connections · **D** Between upper and lower connections · **E** Lower connections to bottom of vessel · **F** Vessel outside diameter. Heights exclude the air vent, drain valve and fittings.

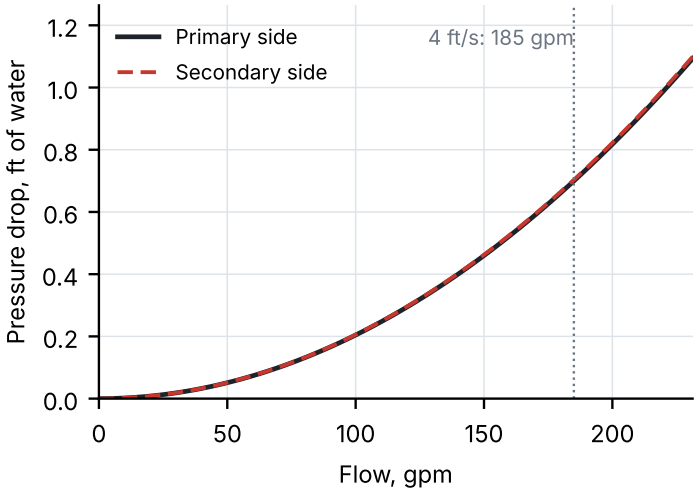
INCLUDED

Separator with four flanges, automatic air vent, drain valve, fill port plug, dirt magnet rod in its dry well.

LLH400P

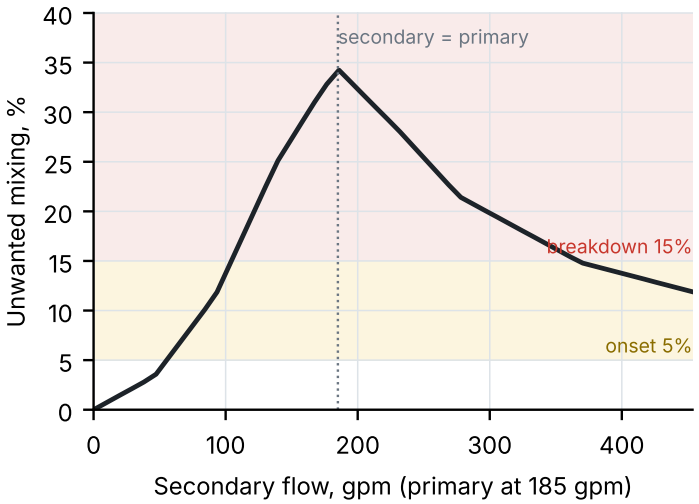
Hydraulic separator with dirt magnet

PRESSURE DROP



Primary side: supply to return connection. Secondary side: return to supply connection. Computed with 3D CFD of the vessel and its internals; pressure drop rises with the square of the flow. At 185 gpm: **0.70 ft (0.30 psi)** primary, **0.70 ft** secondary.

SEPARATION PERFORMANCE



Unwanted mixing: share of the heat that should reach the system but returns to the boiler instead. 3D CFD with buoyancy, 20 °F design ΔT, primary at 185 gpm.

Primary flow	Mixing at balanced flow	Secondary flow with mixing ≥ 5 % (onset)	Secondary flow with mixing ≥ 15 % (breakdown)
185 gpm	34.4 %	55 gpm and above	105–366 gpm

Mixing is highest when primary and secondary flows are equal and falls again when the secondary draws well more than the primary supplies.

TECHNICAL SPECIFICATIONS

Flow at 4 ft/s	185 gpm (41.9 m³/h) in the 110 mm connection bore
Pressure drop at 4 ft/s	0.70 ft primary / 0.70 ft secondary
Max. operating pressure	150 psi (10 bar)
Operating temperature	32–210 °F (0–99 °C)
Fluids	Water, or water with up to 50 % glycol
Body and internals	304 stainless steel
Coalescing element	Two stainless steel wire cages filled with Ø25 mm 304 stainless steel Pall rings (6.8 kg)
Dirt magnet	Removable neodymium rod magnet, M50 grade, 12,000 gauss, in a dry well (magnet rated to 194 °F / 90 °C)
Weight	114 lb (51.7 kg)
Water volume	approx. 16.1 US gal
Warranty	2 years

SIZING AND INSTALLATION

Select the separator for the larger of the primary and secondary flows. The listed flow is the flow at 4 ft/s in the connections, a reference point and not a limit; higher flows are possible with higher pressure drop. Install vertically with the vent at the top, primary circuit on one side and secondary on the other; supply connections at the upper pair, returns at the lower pair. Keep straight pipe of at least 5 pipe diameters before each inlet. Provide isolation valves so the magnet and drain can be serviced.

MAINTENANCE

Open the drain periodically to blow down settled dirt. To release the collected magnetite, pull the rod out of its dry well: the magnetite drops to the bottom and is flushed out at the next blowdown. The automatic air vent needs no routine service.