MaestroGuard™ Duo250

Coalescence and Membrane Filter System – Summary

System Overview:

- Application: Separation of oil-in-water mixture (15 L/h oil, 235 L/h water)
- Total flow rate: 250 L/h
- Two-stage system: Coalescer + membrane filter

Housing Configuration:

- Inlet (bottom, axial): 2/3" NPT-F – oil-water mixture entry
- Water outlet (bottom side): 2/3" NPT-F
- Oil outlet (top): 1/2" NPT-F

Coalescence Stage:

- Internal volume of housing: 25 liters (designed for 6-minute retention at 250 L/h)
- Coalescing element: 10" length, inside-to-outside flow
- Oleophobic outer layer retains oil, water flows through
- Coalesced oil collects on the outside and rises to the top of the housing

Membrane Filter Stage (Oil Outlet):

- Purpose: Ensure clean oil flow, block residual water
- Membrane area required for 15 L/h oil flow:
  - Optimized (300 L/m^2·h): 0.05 m^2 sufficient
- Membrane material: MaestroGuard - oleophilic / hydrophobic treatment
- Low pressure drop for oil; water blocked by surface tension

Housing Dimensions:

- Cylindrical vessel Ø 250 mm internal, total height approx. 765 mm
- Coalescer in center, membrane module integrated at top
- Optional sensors: phase interface detector, DP indicator, sampling ports

Approximate total weight: 70.5 kg

Advantages:

- No moving parts, low maintenance
- High separation efficiency without chemicals
- deal for sample conditioning or oil recovery

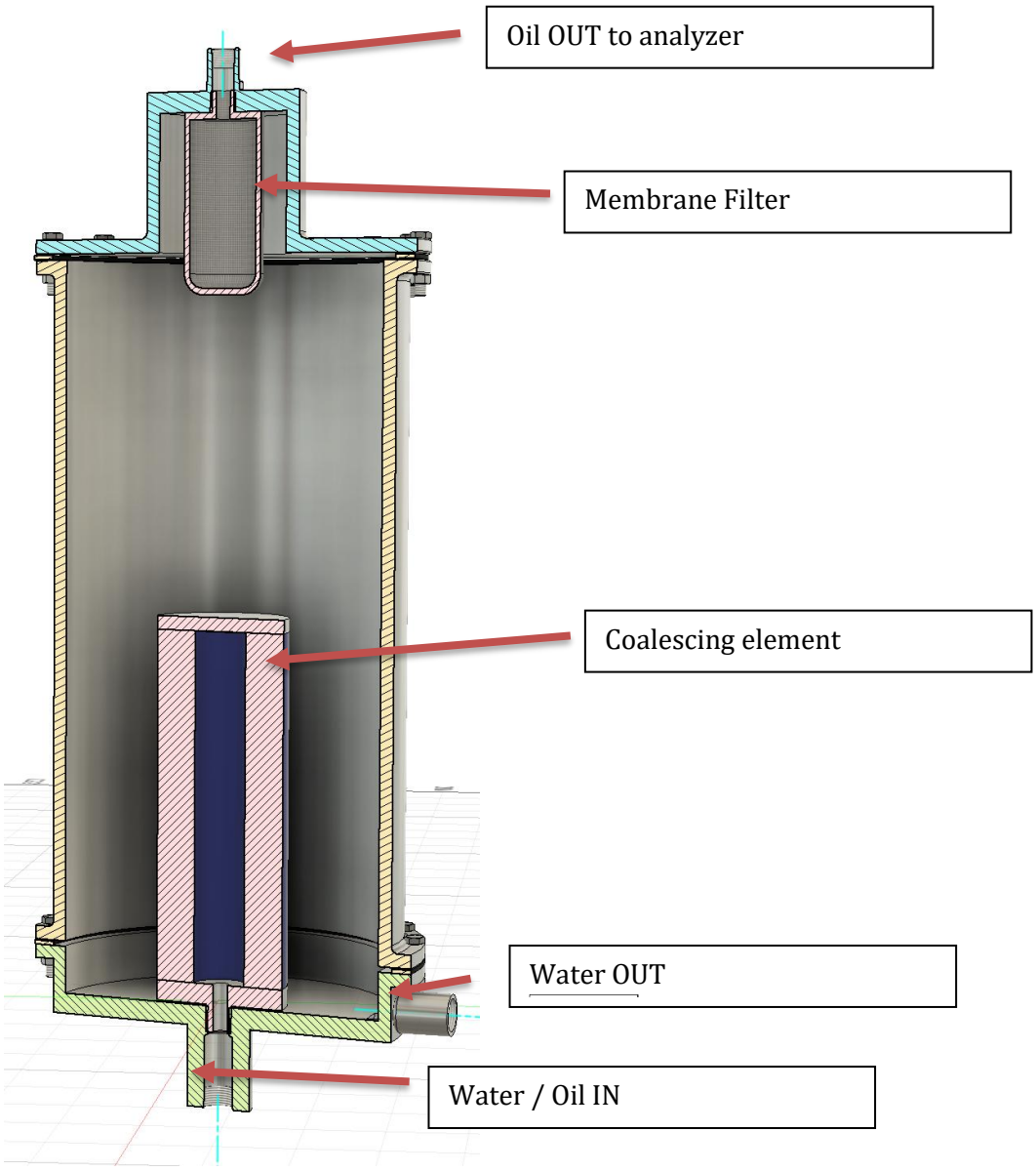
Analytical Filter Engineering KFT
www.analytical-filters.com info@analytical-filters.com
+36 190 106 20

Retention Time Adjustment

If the retention time is reduced from 6 minutes to 3 minutes while keeping the flow rate at 250 L/h, the required internal volume of the coalescing section is recalculated as follows:

- Flow rate: 250 L/h = 4.17 L/min
- Retention time: 3 minutes
- Required volume = Flow rate × Retention time = 4.17 L/min × 3 min = 12.5 liters

➢ With a 3-minute retention time, the internal volume of the coalescence zone can be reduced to approximately 12.5 liters. However, shorter retention times may reduce separation efficiency for fine droplets. A compromise between volume and performance should be considered.



Short Intellectual Property Notice

All technical content, designs, and system concepts are the intellectual property of **Analytical Filters Engineering KFT** and may not be copied, disclosed, or used without written permission.