

## Small Flow Liquid/Liquid Coalescers

IMPROVE THE PERFORMANCE OF FLUID SAMPLING SYSTEMS

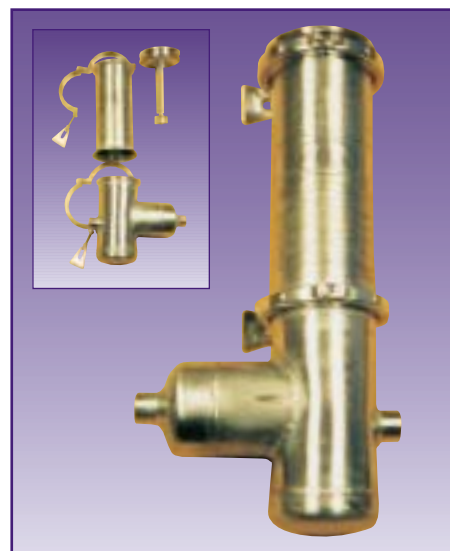
'Pall' small flow 'AquaSep' Plus & 'PhaseSep' L/L Coalescers, in conjunction with the use of a **Pall** pre-filter, have been specifically designed to improve the condition and efficiency of sampling systems and small scale pilot plants within refineries and chemical plants. Ideal for applications with flows up to 20 lpm/ 5.25 USgpm

### Sampling Systems

Most sampling systems have a number of functions, i.e. withdraw sample from the process, transport the sample, clarify the fluid, pass it to some form of analyser and dispose of the fluid. In some cases the system is a miniature of the main process stream, and so poses the same reliability and operating requirements. The sampling system should generally operate for longer periods of time without operating problems.

### Small Scale Pilot Plants

In order to test the process it is important that these pilot plants have the same protection as the full scale plant. Therefore, removal of contamination is as important here as in the full size systems



### Liquid Conditioning

This may involve the removal of oils, water and other process contaminants such as, scale, corrosion deposits and deposits due to chemical reactions found in the main process stream

| Features                                                                                                                                                                                                                                                                                                               | Advantages                                                                                                                                                                                                                                                                                  | Benefits                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Pall's specially formulated media contains no glass fibre.</li> <li>Separates fluids with IFT's as low as 0.5 dynes/cm</li> <li>Utilises standard parts and can be changed from vertical to horizontal unit</li> <li>Easy cartridge change-out with no special tools</li> </ul> | <ul style="list-style-type: none"> <li>Does not disarm in the presence of surfactants</li> <li>Single unit could be utilised for a variety of applications</li> <li>Spares are readily available</li> <li>Lowers exposure time for operators and no special training is required</li> </ul> | <ul style="list-style-type: none"> <li>Will continue to coalesce in the presence of fuel additives and give longer service life and efficiency than conventional coalescers</li> <li>Cost effective solutions not previously available</li> <li>Reduces cost of inventory</li> <li>Reduces maintenance and training costs, and the likelihood of operator error</li> </ul> |

# Small Flow Liquid/Liquid Coalescers

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## Vertical Aquasep Unit

### Stage 1: Prefiltration and Coalescence

The hydrocarbon and water mixture enters the coalescing element and flows inside to outside. It is recommended that the particulate matter is removed using a 2µm absolute pre-filter. The small droplets of dispersed phase liquid come together, or coalesce, as the mixture moves through the depth of Pall's specially formulated coalescer medium.

### Stage 2: Separation

In separating water from fuel, water free fuel and large water droplets flow toward the separator located directly below the coalescer stage. The separator medium is hydrophobic, which prevents water from entering the separator. Only water-free fuel flows through the separator. Water and fuel are removed by separate drain connections.

## Horizontal Phasesep Unit

### Stage 1: Prefiltration

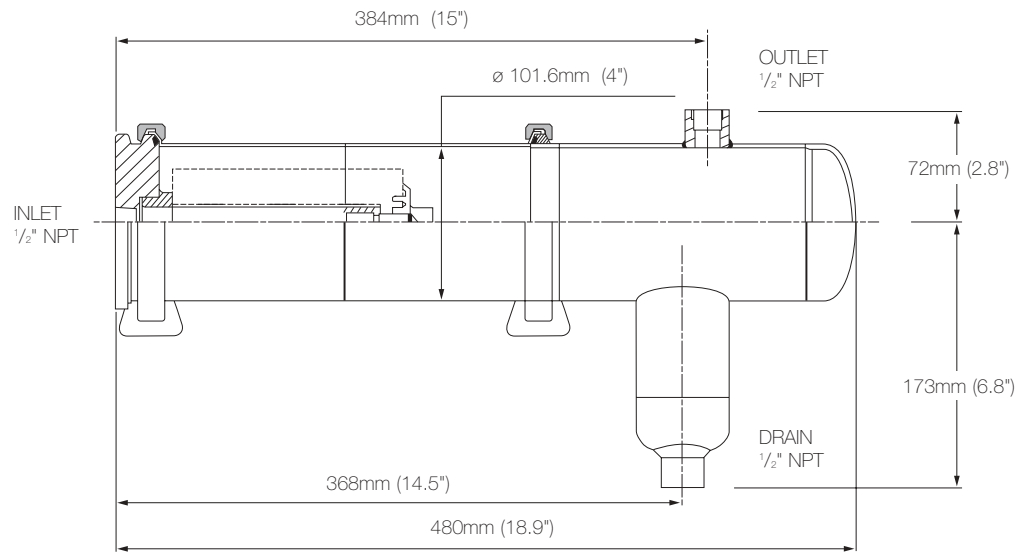
For the **PhaseSep** coalescer medium it is recommended that a prefilter with an absolute removal rating of 15 to 20 µm is installed, to properly control the particulate matter in the liquid stream.

### Stage 2: Coalescence and Separation

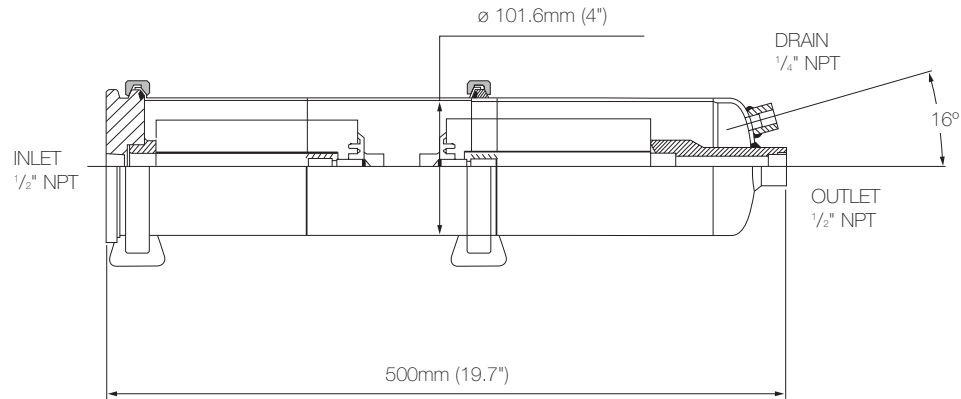
In a horizontal housing, the liquid/liquid mixture enters the coalescing element and flows inside to outside. As is the case with the Aquasep coalescer stack, small liquid dispersed phase droplets suspended in the continuous phase come together, or coalesce, as the mixture moves through the **PhaseSep** coalescer. The large coalesced droplets of the dispersed phase separate by gravity in the horizontal housing and are removed.



**Part Number:** 1PH4F1F11



**Part Number:** 1AQ4F1F11



Dimensions are in mm/ins.  
In/Out and Vent/Drain connections are standard NPT female threads.

**Table 1: Coalescer Selection Guide**

| Process Condition                                            | Recommended Product                         |
|--------------------------------------------------------------|---------------------------------------------|
| Dispersed phase fluid is aqueous IFT greater than 3 dynes/cm | <b>AquaSep</b> Plus coalescer vertical unit |
| Dispersed phase fluid is aqueous IFT less than 3 dynes/cm    | <b>PhaseSep</b> horizontal unit             |
| Both fluids are non-aqueous                                  | <b>PhaseSep</b> horizontal unit             |
| Dispersed phase fluid is oil, continuous phase is aqueous    | <b>PhaseSep</b> horizontal unit             |

## Cartridges

| Part Number | Description                   | Maximum Temperature | Initial Pressure Drop | Recommended Change-out |
|-------------|-------------------------------|---------------------|-----------------------|------------------------|
| LCS06B1AH   | <b>AquaSep</b> Plus Coalescer | 65°C                | 2 psid                | 15 psid                |
| LSS06F1H    | Separator                     | 65°C                | 2 psid                | 15 psid                |
| LCS06H1AH   | <b>PhaseSep</b> Coalescer     | 149°C               | 2 psid                | 15 psid                |

## Housings

| Part Number | Maximum Temperature | Maximum Pressure | Material |
|-------------|---------------------|------------------|----------|
| 1PH4F1F11   | 140°C               | 16 barg          | 316L SS  |
| 1AQ4F1F11   | 140°C               | 16 barg          | 316L SS  |



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