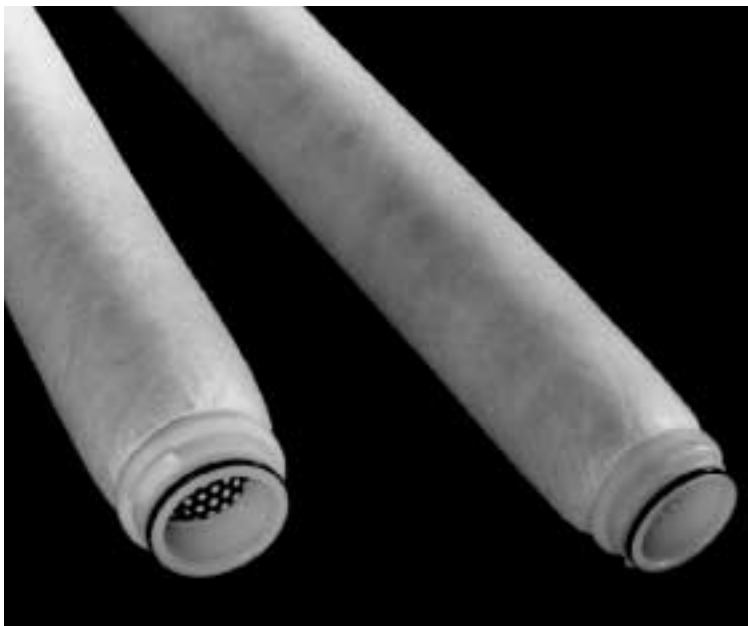




SepraSol™ Liquid/Gas Coalescer Provides Liquid Free and Solid Free Gas



The Answer to Gas Filtration Applications

Clean, aerosol free gas is critical to equipment reliability and the economic efficiency of gas processing, petroleum refining and chemical processing. Pall's SepraSol™ Liquid/Gas Coalescer product line contains a patented hydrophobic/oleophobic treatment which provides maximum liquid and solid removal efficiency at a low saturated pressure drop to reduce the maintenance and operating costs associated with the use of contaminated gas.

Pall's high efficiency SepraSol™ coalescer is recommended for a wide range of gas filtration applications, such as:

- Protecting compressors and turbines.
- Removing lubrication oil, water, compressor wear products, corrosion products and other dirt from effluent gas streams.
- Minimizing foaming tendencies upstream of sweetening and dehydration units.
- Minimizing amine and glycol losses downstream of gas sweetening and dehydration units.
- Protecting combustion equipment by cleaning fuel gas.
- Cleaning dirty fuel gas and instrument gas.
- Controlling injection well plugging during gas flooding.
- Protecting catalysts, desiccants and absorbants.
- Removing lube oil from ammonia gas.

Coalescer Technical Information

Oleophobic/Hydrophobic Treatment – All of Pall's liquid/gas coalescers receive Pall's patented oleophobic/hydrophobic treatment. Chemically treating the coalescer lowers the surface energy of the medium and promotes rapid drainage of the coalesced liquids. This significantly increases the amount of liquid per unit area of medium the coalescer can handle. Added benefits to the chemical treatment include lower saturated pressure drop, which saves operating costs and rapid recovery from liquid slugs.

Cylinder Shaped Coalescer – The optimal coalescer shape is a cylinder. The pleat spacing in a cylinder allows for equal flow distribution throughout the length of the cartridge.

Features, Advantages and Benefits of the Pall SepraSol™ Liquid/Gas Coalescer

Pall's SepraSol™ liquid/gas coalescers eliminate virtually all solids and liquids in a gas stream. Downstream liquid levels are

as low as 0.003 ppmw* and solids removal rating is 0.3 μm (99.99% efficiency.**)

Features	Advantages	Benefits
High Capacity Large Diameter Element	Fewer elements needed for a given gas flow rate. Minimized vessel diameter.	Reduced capital and installation costs. Smaller space required for installation.
Patented Oleophobic/Hydrophobic Media Treatment	Quicker liquid drainage. Lower saturated pressure drop. Quicker recovery from liquid slugs. Minimized vessel diameter due to less restrictions on annular velocity.	Reduced capital and operating cost. Improved product quality and consistency.
High Effective Filtration Area	Fewer element changeouts needed. High solids removal efficiency.	Lower operating and maintenance costs.
High Efficiency Media and Draining Materials	Consistently high liquid removal efficiency. Reduced liquid losses. Optimum protection of downstream equipment.	Lower maintenance costs and improved availability.

*Test conditions used to measure efficiency area as follows:

- Flow rate: 900 SCF/minute per 30" element at 100°F and 100 psig
- Liquid inlet: 50 ppmw oil

**Per sodium chloride test

Features of the Pall SepraSol™ Liquid/Gas Coalescing Filter

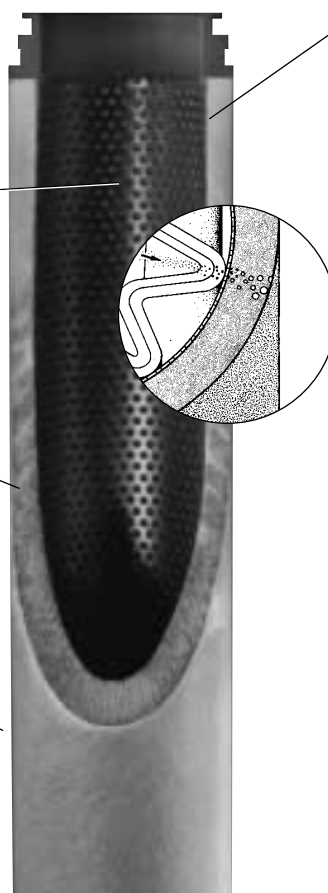
Pall coalescing filter cartridges operate economically with high separation efficiency, and long life.

Positive Seal: Single O-ring prevents contamination bypass. Seal materials compatible with petroleum-based and synthetic compressor oils and oil field chemicals and gases are available.

Metal Support Core: Axial strength and protection against slugs are provided by a perforated stainless steel inner support core.

Coalescer's Pleated Medium: The coalescer is a high area, resin bonded, pleated proprietary medium surrounded by non-woven polymeric support and drainage layers. This provides unsurpassed separation efficiency over a wide range of flow conditions with minimum pressure drop.

Outer Drainage Layer: Drainage of coalesced liquid and protection from re-entrainment is provided by a polymeric outer wrap. This guarantees consistent, high-efficiency performance independent of flow rate and aerosol concentration fluctuations.



Outer Cage: Supports media during use.

Patented Oleophobic/Hydrophobic Treatment: A patented, proprietary oleophobic/hydrophobic treatment lowers the surface energy of the media, thereby providing superior drainage and preventing liquid re-entrainment even at high flow rates. The effect of this treatment also allows Pall to size smaller coalescer units.

Fluid Compatibility: Some of the fluids the high flow coalescer is compatible with in oil and gas applications include:

- Natural gas - Amine
- Hydrogen - Ammonia
- Carbon Dioxide
- Hydrogen Sulfide
- Lube Oils
- Triethylene Glycol
- Ethylene Glycol
- Water
- Gasoline

Polypropylene End Caps: The entire filter is melt welded into polypropylene end caps using a Pall patented process. This prevents contaminant bypass and contributes to cartridge strength.

Technical Information

Nominal Cartridge Dimensions

Part Number	Outer Diameter	Length	Surface Area
CC3LGA7H13*	2.75" (70 mm)	30" (762 mm)	9.5 ft. ² (0.88 m ²)
CC3LGB7H13**	2.75" (70 mm)	30" (762 mm)	9.5 ft. ² (0.88 m ²)

*CC3LGA can replace CC3LG7 in existing Pall coalescing housings.

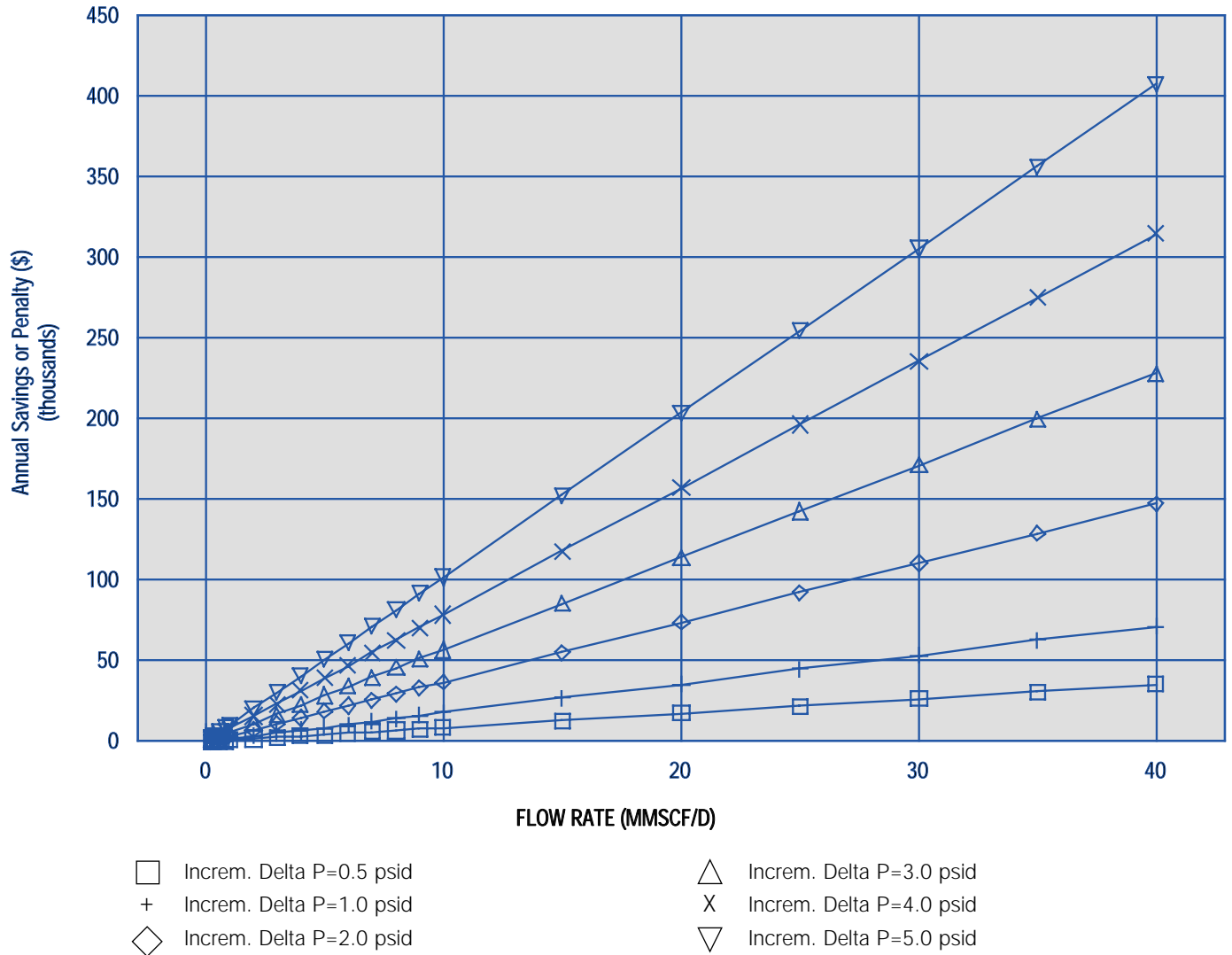
**Completely compatible with amines and ammonia.

Performance Specification

Solid Removal Rating	0.3 µm (99.99%)
Temperature Rating	180°F (82°C) 150°F (65°C) with Water
Clean & Saturated Pressure Drop	sized to your specification

Effect of Pressure Drop on Compressor Operating Costs*

Figure 1



* Conditions: Delta P on inlet pressure
Inlet Pressure = 20 psia
Outlet Pressure = 200 psia
Gas compressed is methane
Costs based on \$0.07 / kwhr

Pall's patented oleophobic/hydrophobic chemical treatment of all of its SepraSol liquid/gas coalescers allows the coalescers to operate at a lower saturated pressure drop. As shown on Figure 1,

a small difference in saturated pressure drop can result in significant savings in operating costs.

About Coalescer Efficiency Ratings

The measurement of the efficiency and the pressure drop of a coalescer should reflect operating conditions. Many manufacturers of coalescers measure efficiency using the dioctyl phthalate (DOP) test. The DOP test was not originally designed to measure the performance of a coalescer under operating conditions seen in the oil and gas industry. Rather, the DOP test is performed under the following conditions:

- Measures only capture efficiency and does not indicate how much liquid is at the filter outlet. It is the outlet concentration, which will indicate whether downstream equipment and processes are vulnerable to damage.
- Measures only the percent removal of DOP aerosols that are 0.3 μm compared to a range of sizes normally seen in oil and gas applications.

- Measures the removal of DOP, a liquid not typically found in oil and gas applications.
- Performed under a vacuum, not typical of operating conditions.
- Performed on a dry coalescing element; the effectiveness of a coalescer should be measured when a coalescer is completely saturated.

Pall has developed a test called the Liquid Aerosol Separation Efficiency (LASE) Test to specially measure the performance of a coalescer under operating conditions. Table 1 compares the LASE and DOP test. For further details on the LASE test, see Pall literature GAS-4300b, "Recent Developments in Performance Ratings of Gas/Liquid Coalescers."

Pall LASE Test vs. Conventional DOP

TABLE 1

	Pall LASE Test	DOP Test	LASE Advantage
Efficiency Rating	Measures ppmw of total downstream aerosol concentration	Measures only the capture efficiency of 0.3 μm DOP aerosols	Specifies performance based on total liquid removal
Test Contaminant	Polydispersed 20 wt. compressor lube oil (size range 0.1-1.0 μm)	Monodispersed dioctyl phthalate (size range at 0.3 μm only)	Closely simulates actual process contamination
Downstream Contaminant Measurement	Full flow membrane sampling of all size contaminants	Indirect light scattering of 0.3 μm contaminants	Directly measures the amount of all liquid downstream
Pressure Conditions	Performed under positive pressure	Performed under vacuum	More closely reflects actual process pressure conditions
Cartridge Condition	Performed on a saturated cartridge	Performed on dry cartridge	Reflects actual process cartridge service conditions
Pressure Drop Measurement	Measures operating saturated cartridge pressure drop	Measures dry cartridge pressure drop	Provides a more realistic service pressure drop



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