NATCO Vertical Upflow (VUF) Separator
VUF separators for cost-effective gas/liquid separation

The simple design of Cameron’s NATCO® VUF separator makes it one of the most commonly used gas scrubbers in the marketplace. It is an economical design for low pressures and/or low flow rates. This vertically oriented vessel features a side inlet and a gas outlet normally located on the top of the separator. Alternate gas outlet designs are available to reduce overall vessel height.

How It Works
VUF separators normally provide four main functions – inlet momentum control, vapor demisting, liquid retention and liquid outlet control.

Inlet momentum typically is controlled with a bi-directional inlet diverter that also provides bulk gas/liquid separation.

Vapor demisting normally is achieved with wire mesh. If heavy or waxy crudes are present, wire mesh can be eliminated or replaced with serpentine vanes.

Liquid retention is provided in the bottom section of the separator. For three-phase designs, oil and water separate in this section. Sizing of this section often is based on liquid retention time.

Liquid outlet control also is provided in the bottom section of the separator. Vortex breakers and baffles prevent the re-entrainment of distinct phases.

Applications
Simple VUF separators have been utilized successfully as:
- Fuel gas scrubbers
- Slug catchers
- Surge vessels
- Gas vent vessels
- Small-capacity production separators
- Test separators

Alternate designs should be considered for vessels more than 42” in diameter at low pressures and more than 30” in diameter at high pressures.
Performance

Since the primary function of most VUF separators is to remove small amounts of liquids and solids from the vapor stream, performance is based on the overall percentage of droplet removal.

For designs using wire mesh as a demisting device, removal of 99% of 5 µ droplets and larger can be expected.

For alternate designs using serpentine vanes, removal of 98% of 10 µ droplets and larger can be expected.