KLS HELICAL COIL SEPARATOR

KLS-1B | KLS-1C | KLS-2
KLS-FS | KLS-SC
WHEN EQUIPMENT PERFORMANCE IS CRUCIAL, ALWAYS CHOOSE MUELLER!

Mueller Environmental Designs, Inc. has developed the next generation gas separation technology with its patented KLS Helical Coil Separator. This innovative technology is applicable in the upstream, midstream, and downstream segments of the natural gas industry. The KLS Helical Coil Separator utilizes impingement, coalescence and inertia to provide maximum contaminant removal efficiencies; outperforming all current traditionally-accepted separation practices, equipment and technology. The compact design minimizes initial capital cost and footprint; it has no moving or replaceable parts, reducing maintenance and operational costs. It has been used successfully to remove pipeline iron sulfides, iron oxides, lube oils, glycol, liquid hydrocarbons, condensate and salts.

DON’T GET CAUGHT IN THE REPLACEMENT PART TRAP!

Don’t waste resources disposing of contaminated and damaged filter/coalescing elements. The Mueller KLS Helical Coil Separator delivers ultra-high levels of contaminant removal without the use of disposable parts. The KLS has no moving parts, allowing it to remain in service with no outage for servicing during normal operation.

THE MUELLER ADVANTAGE

- Reduce operating and maintenance costs
- Greatly reduce hazardous waste disposal costs
- Improve worker health and safety issues
- Reduce “lost and unaccounted for gas”
- Improve fuel efficiency (no incremental increase in compressor suction DP)
- Minimize gas meter measurement error
- Operates efficiently over wide and varying flow conditions
- Handles heavy liquid loads while maintaining high separation efficiency
- Increase glycol/amine lifecycle and eliminate fire and explosion in the reboiler

Innovative Technology

The Mueller Helical Coil Separator is an innovative new technology that eliminates the need to replace costly filter elements from filter separators and reverse flow coalescers.

Process Protection

The Mueller KLS Helical Coil Separator uses advanced inertial separation technology to protect your equipment from harmful solid and liquid particulates.

Unlock Potential Profit

The Mueller KLS Helical Coil Separator does not use filtering elements like coalescers or filter separators, eliminating the operating and maintenance cost incurred when changing dirty filter elements adding to your bottom line.
The KLS Helical Separator is engineered to meet the demanding requirements of all pipeline and processing separation applications. Unlike traditional forms of separation that require different products for different applications, the KLS Helical Separator is a single product designed for multiple applications. The KLS Helical Element imparts a high degree of swirl flow that is unaffected by either solids or liquids. It is highly efficient in removing pipeline contaminants in slug, stratified, annular or spray flow regimes. The KLS is currently in use in all segments of the gas industry from the well head to local distribution and in the most challenging separation applications from inlet slug catchers to gas measurement protection. The KLS is designed to provide maximum protection for gas machinery and processing equipment no matter the application. At Mueller, we pride ourselves on delivering quality products that improve the operations and profitability of our customers.

**Engineered for Your Application**

**KLS Advanced Technology Applications**

- Compressor Suction
- Compressor Discharge
- Slug Catchers
- Upstream of Metering
- Gas Storage Injection and Withdrawal
- Upstream and Downstream of Glycol Contactor Tower
- Upstream and Downstream of Amine Contactor Tower
- Pipeline Interconnect
- Fuel Gas
- Well Head
- Portable Pipeline Pigging
- Upstream of Desiccant Bed

**High Efficiency Separation**

99.9% of solids 0.3 micron and 99.9% of liquids 0.3 micron and larger

**The Mueller Advantage**

The helical coil design forces contaminates to impinge on the housing wall creating a film that falls downward through the annulus region between the gas outlet and the housing tube and into a contaminate sump. The position of the gas outlet tube directs the gas inward toward the center axis, both increasing the high G swirl and directing the gas flow away from the contaminates. Both of which reduces re-entrainment and promotes increased efficiency.

**3rd Party Performance Evaluation**

The aerodynamic and separation characteristics of the KLS Helical Coil Separator were simulated by ANSYS and the data analyzed by Stress Engineering Services. This information was used to optimize the separation capabilities and to identify the flow characteristics that promote high-efficiency separation.
KLS-1C VERTICAL VESSEL DESIGN

The KLS-1C is a vertical design for pipeline quality gas. This vessel is the most compact design and is ideal for metering skids and removal of carryover from amine and glycol contactor towers. There is no bulk removal section in this vessel which eliminates the need for a second dump valve and controls.

PRIMARY APPLICATIONS
- Upstream of Metering
- Downstream of Contactor Tower
- Downstream of Compression
- Pipeline Interconnects
- Well Head

THE MUELLER ADVANTAGE
- No more compromised filtering elements
- No more stopping operations
- Operate under upset conditions
- Increases the collection efficiency of sub-micron black powder aerosols

KLS-1B VERTICAL VESSEL DESIGN

The KLS-1B is a vertical vessel that is designed to handle small to medium gas volumes with heavy liquid loading or slugs. This design utilizes a knockout section for bulk contaminant removal. Entrained aerosols and particulate contaminates follow the gas path upwards into the KLS helical coils for high-efficiency separation. This vessel uses two separate sumps and dump systems to collect and dispose of contaminants.

PRIMARY APPLICATIONS
- Compressor Suction
- Compressor Discharge
- Gas Storage Injection
- Gas Storage Withdrawal
- Well Head
- Downstream of Contactor Tower
- Upstream of Desiccant Bed
- Upstream of Metering
- Pipeline Interconnects
- Upstream of Contactor Tower

THE MUELLER ADVANTAGE
- No more compromised filtering elements
- No more stopping operations
- Operate under upset conditions
- Increases the collection efficiency of sub-micron black powder aerosols
Mueller Environmental has developed various ways to remove large liquid volumes from pipelines without the need for additional downstream separation while also accommodating footprint restrictions. All Mueller KLS separators utilize the Helical Coil Technology giving every design the same level of high-efficiency separation and protection for downstream equipment. KLS slug catchers can be used in tandem with the MED Mist Elimination Waste Tank vessels to allow for faster dumping.

**KLS-2 HORIZONTAL VESSEL DESIGN**

The KLS-2 is a horizontal style design and is commonly used when the application has large gas and/or contaminate volume flows. The KLS-2 utilizes a first stage buffer volume where large contaminate volume separates from the gas stream due to gravity. The gas, free of bulk contaminate, flows into the helical coils for high-efficiency contaminate removal. Two internally isolated collection sumps are emptied using separate dump lines.

**PRIMARY APPLICATIONS**

- Compressor Suction
- Gas Storage Injection
- Gas Storage Withdrawal
- Portable Trailer Mounting
- Pipeline Interconnects

**THE MUELLER ADVANTAGE**

- No need for additional filtration downstream
- Large liquid removal combined with high separation efficiency
- Operate under upset conditions
- Maximum protection for compressors

**SLUG CATCHER – INLET SEPARATOR**

Mueller Environmental has developed various ways to remove large liquid volumes from pipelines without the need for additional downstream separation while also accommodating footprint restrictions. All Mueller KLS separators utilize the Helical Coil Technology giving every design the same level of high-efficiency separation and protection for downstream equipment. KLS slug catchers can be used in tandem with the MED Mist Elimination Waste Tank vessels to allow for faster dumping.
HIGH EFFICIENCY SEPARATION
WHEN AND WHERE YOU NEED IT!
Mueller Environmental has developed a way to allow our customers to utilize high-efficiency separation at remote locations. This design has been used for pipeline pigging, gas storage well overhauls. This product can be used to vent to the atmosphere or directly back into the pipeline. When venting to atmosphere, it safely removes contaminants without damaging nearby green space. The portable KLS can be packaged with noise control and deodorization products to prevent alarming nearby residents.

PRIMARY APPLICATIONS
• Pipeline Pigging
• Pipeline Blow Down
• Storage Well Rehabilitation

CALL AND GET THE MUELLER ADVANTAGE
1-800-662-0285

INNOVATIVE TECHNOLOGY
PROCESS PROTECTION
INCREASE PROFIT

ELIMINATE YOUR BLACK POWDER PROBLEM
Black powder particulates ranging in size from 0.2 to 0.4 microns in wet and dry forms are the most challenging of pipeline contaminants to collect. The KLS Helical Coil Separator not only removes these damaging contaminants without increasing fuel costs or compromising efficiency, it can also remove these solids without having to stop operations. Mueller Environmental Designs has a patented high-pressure liquid injection system that will flow liquid directly into the gas stream at the inlet nozzle creating a black powder slurry that is removed from the gas using the KLS Helical Coil Separator. The liquid slurry is then deposited in the contaminant collection sump allowing normal liquid dump valves to be utilized. When the dump valves activate, the mixture is hydraulically transferred to the MED Dump Tank / Mist Elimination Waste Tank where the black powder is removed by a continuous side stream duplex filter system. When the side stream filters require changing, an operator switches to the accompanying filter, removes and replaces the side stream filters without having to stop operations.