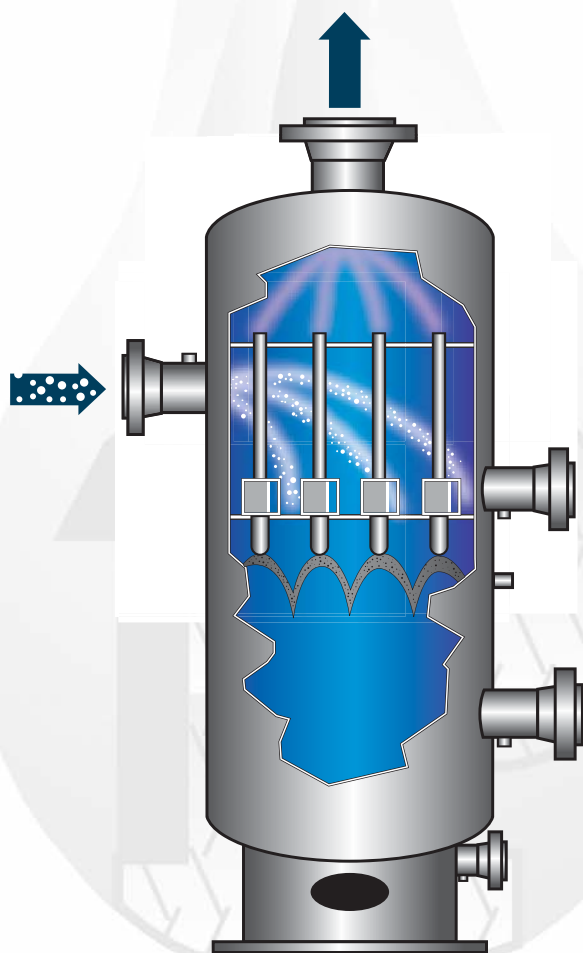


Peerless Centrifugal Separators



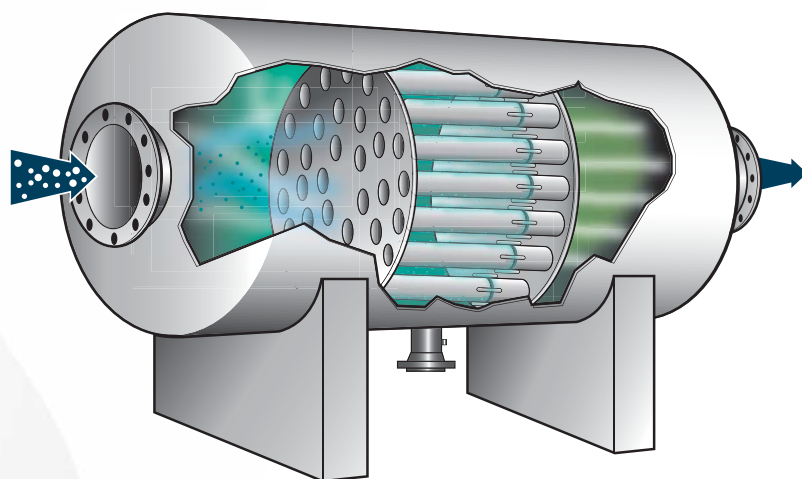
**FOR HIGH EFFICIENCY COST EFFECTIVE
SEPARATION OF LIQUID AND
SOLID CONTAMINANTS**



MULTI-CYCLONE SCRUBBER

For applications requiring efficient
particle and liquid removal

- Constant ΔP regardless of loading
- Maintenance free
- Guaranteed performance



HORIZONTAL OR VERTICAL SWIRL TUBE SEPARATOR

For liquid removal and for small installation
footprint applications

TYPICAL APPLICATIONS

- Distribution systems
- Mainline transmission stations
- Industrial process applications
- Gas gathering systems
- Petrochemical plants
- Slug catching
- Absorption processes
- Reciprocating compressor protection

making energy safe, efficient and clean

MULTI-CYCLONE SCRUBBERS

HORIZONTAL OR VERTICAL CONFIGURATIONS



Two Peerless Multi-Cyclone Scrubbers installed at a metering station in western Canada. Typical natural gas flow through these 2000mm diameter vessels is 2.5 billion standard cubic feet per day.

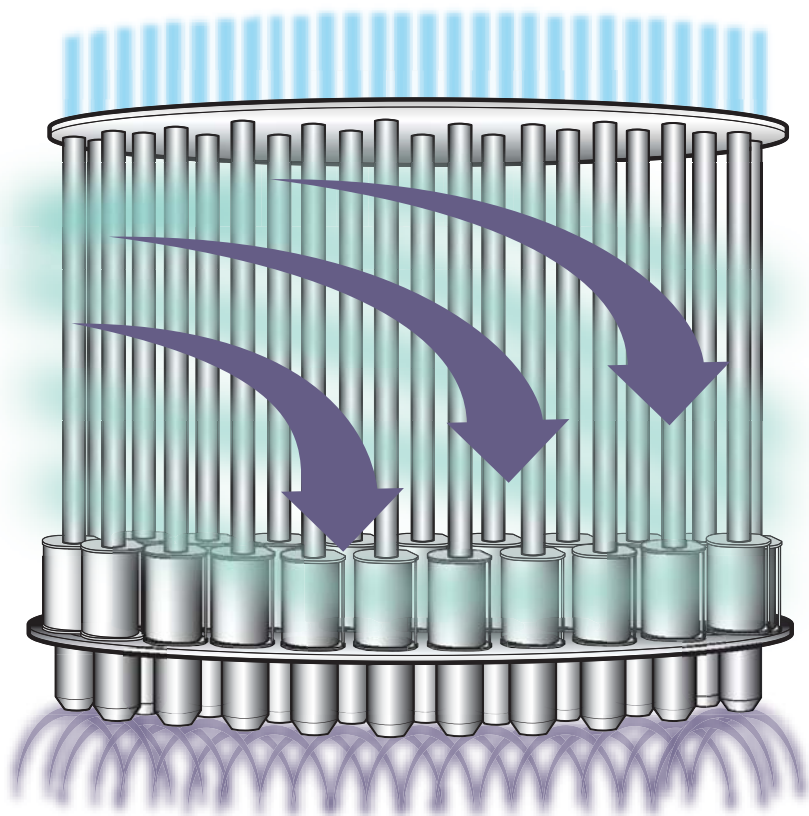
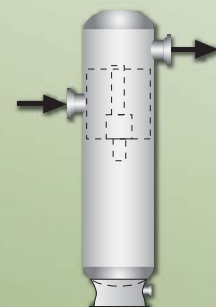
MULTI-CYCLONE BENEFITS

- High-efficiency liquid and solid removal
- A wide range of flows
- Intermittent flow spikes capacity
- Maintenance free
- Fixed or removable cyclone bundles
- 2" or 4" diameter cyclones available

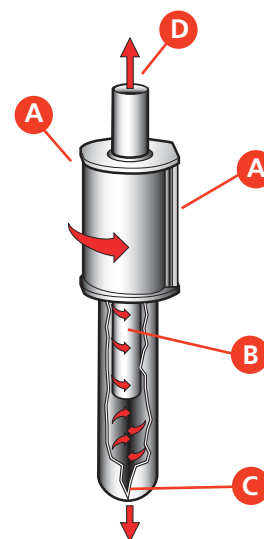
MULTI-CYCLONE PRINCIPLE OF OPERATION

Multi-Cyclone Scrubbers use centrifugal force to effectively remove solid particles and liquids from gas without moving parts.

- (A) Contaminated gas enters the Cyclone Tube tangentially at two locations.
- (B) The tube housing forces the gas into a cyclonic flow pattern. Centrifugal force throws the solids and liquids against inner cyclone tube wall.
- (C) Solid and liquid particles drain down the cyclone tube walls and collect at the bottom.
- (D) Clean gas flows down and then up through the center annulus and exits at the top.



Peerless uses multiple, small-diameter cyclones arranged in parallel to achieve separation of small and large size particles. Depending upon the application, a bank of cyclones may contain in excess of 200. Selection of 2" or 4" diameter cyclones will depend upon the system gas flow rate.



Peerless Cyclone Tube

Innovative Designs
Cost-Effective Retrofits
Guaranteed Performance

PERFORMANCE GUARANTEE – MULTI-CYCLONE

Solids removal efficiencies:

- 100% of 8-micron particles
- 99% of 6- to 8-micron particles
- 90% of 4- to 6-micron particles
- 85% of 2- to 4-micron particles

Liquid removal efficiencies:

- Outlet gas will contain less than 0.1 US gallon of entrained liquid per million standard cubic feet of gas passed through the separator (13 litres/Million SCM)
- 100% of all droplets 8-microns in diameter and larger

SWIRL TUBE SEPARATORS

TWO-STAGE PEERLESS EXTRACTION DESIGN MAXIMISING LIQUID HANDLING



A 2500mm diameter Peerless Swirl Tube Separator installed in a gas gathering system. Typical flow is 3 billion standard cubic feet of gas per day.

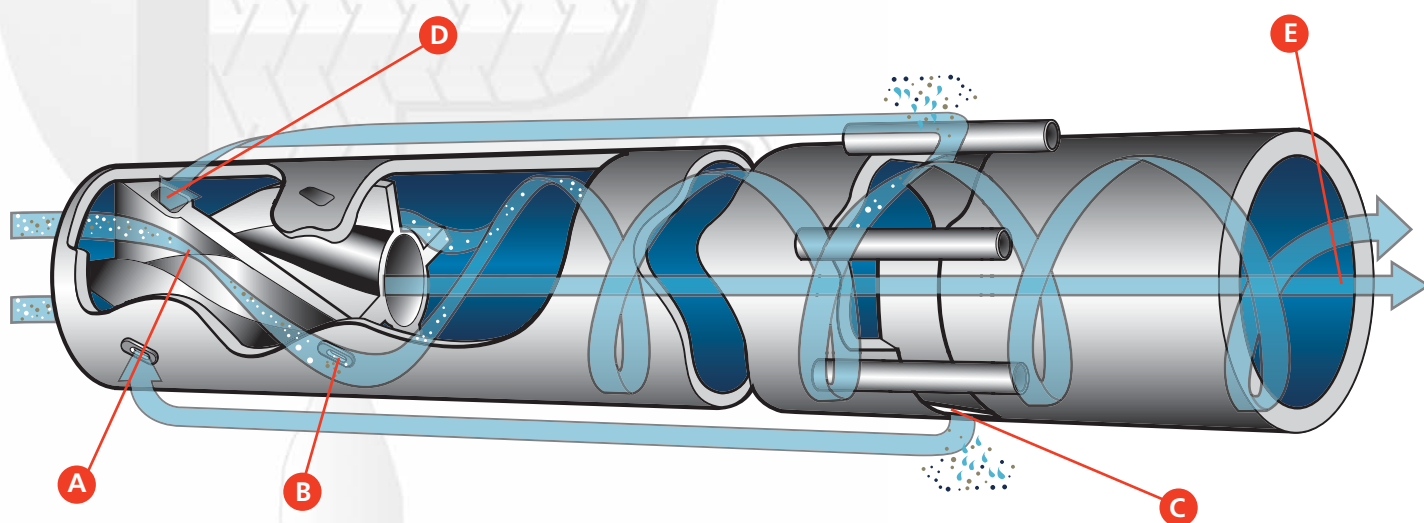
SWIRL TUBE BENEFITS

- High-efficiency removal of entrained liquid
- Maintenance free
- Increased liquid handling
- No moving parts

SWIRL TUBE PRINCIPLE OF OPERATION

Swirl tubes create inertial forces on the entrained liquid as it passes around the inlet helicoid.

- (A) Contaminated gas enters the swirl tube where centrifugal forces are imposed on the flow.
- (B) Liquids are thrown out of the gas flow and against the walls of the swirl tube
- (C) Liquids fall out of the swirl tube at the primary extraction slots
- (D) Minor amounts of gas exiting at the primary extraction slots are directed back through the swirl tube through side openings to repeat the separation process.
- (E) Clean gas exits the swirl tube.



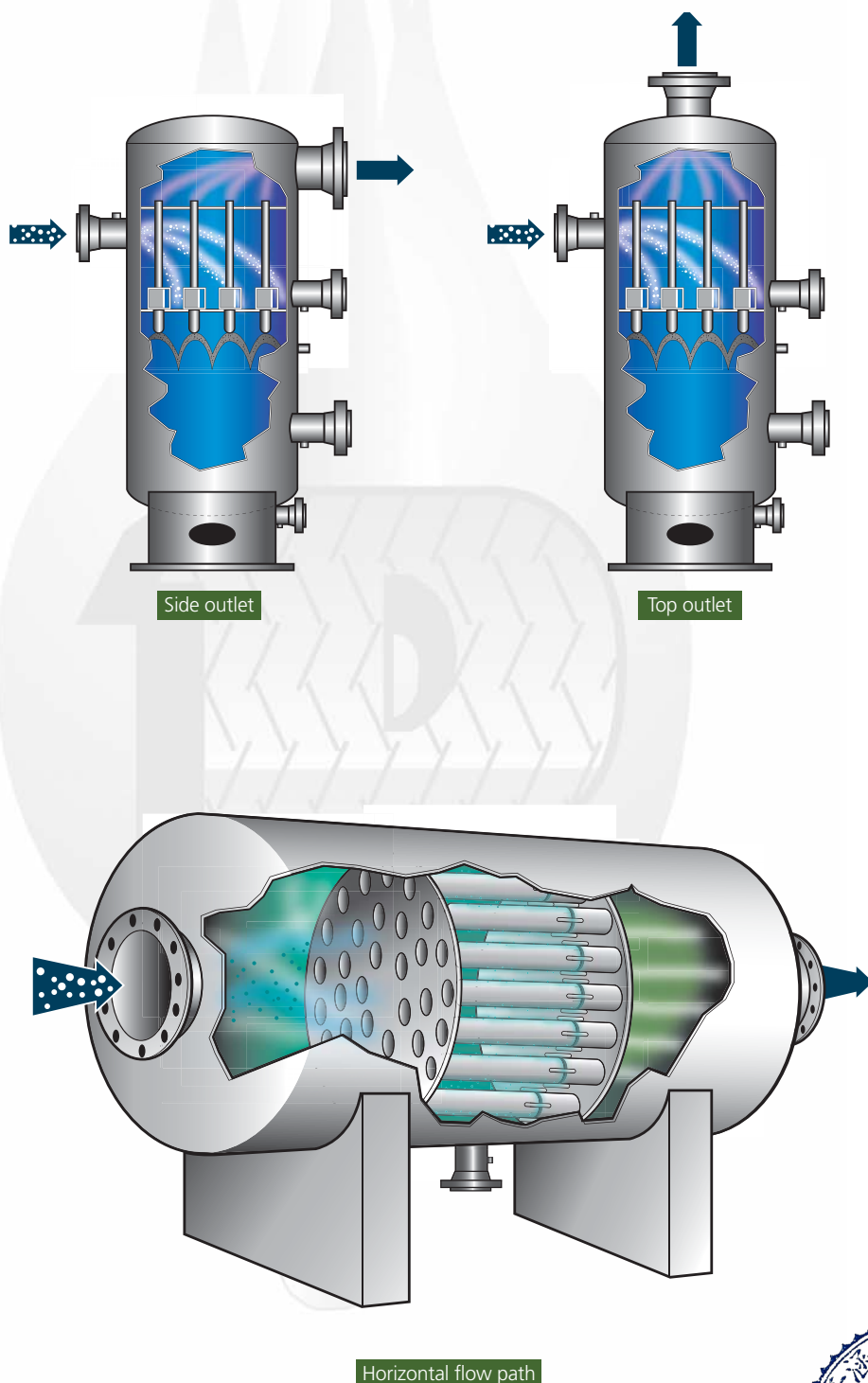
SWIRL TUBE SEPARATOR

Swirl Tubes can be installed in either vertical or horizontal configurations without affecting the performance of the system

PERFORMANCE GUARANTEE – SWIRL TUBE

Liquid removal efficiencies:

- Outlet gas will contain less than 0.1 US gallon of entrained liquid per million standard cubic feet of gas passed through the separator (13 litres/Million SCM)
- 100% of all droplets 8-microns in diameter and larger
- 99% of 4- to 6-micron droplets
- 98% of 2- to 4-micron droplets



PEERLESS MULTI-CYCLONE SCRUBBER

DESIGN FEATURES

Peerless Multi-Cyclone Scrubbers are constructed to resist many years of abrasive wear and to be rugged enough to withstand a wide variety of gas stream applications. In erosive gas applications, the critical parts of Peerless Cyclone Tubes are constructed from erosion-resistant steel alloys.

Peerless Multi-Cyclone Scrubbers require no maintenance and have a comparatively low initial cost.

PEERLESS SWIRL TUBE SEPARATOR

DESIGN FEATURES

Peerless Swirl Tube Separators provide superior performance across an array of applications including condensate removal from gas streams, entrainment removal following a distillation or absorption process, and removal of liquid from inter-stage and final discharge stages in reciprocating compressors.

An aerodynamically designed helicoid maximizes the inertial force utilised to remove entrained liquids. The two-stage liquid extraction system with a gas recycle stream is designed to maximise the liquid handling requirements of this unique system. It is the key to high-efficiency, low-cost separation.

Vertical and horizontal configurations are available.



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