A Long Experience in Energy Equipment and one Goal:

The Customer's satisfaction.

VALVITALIA GROUP



Cartridge Filters, Fuel Gas Filters, Gas Scrubbers & Filter Separators

TGT tormene gas technology

VALVITALIA SpA, TGT-Tormene Gas Technology Division is a successful Company that for a hundred years has been dedicating its activity to the design and production of Natural Gas Treatment Equipment for industrial, civil and power generation applications, offering a wide range of products to give a high degree of customisation and an extremely high standard of quality and service. The company's attainment of prestigious certifications underlines a level of overall quality unmatched in the sector: not just extremely high standards of quality and service, but research and innovation in terms of technological and management expertise.

A complete range of filters is part of TGT production. TGT activities includes: developing, design, manufacturing and supplying of filters with vertical and horizontal configuration; design codes:

- ASME Sec.VIII Div. 1 and 2;
- BS;
- AD Mehrblatt;
- U Stamped;
- PED;
- Others upon request.







Cartridge Filters



Applications

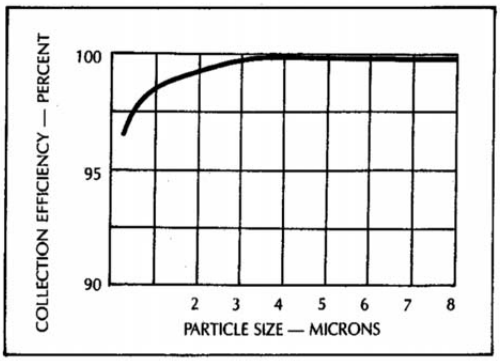
The cartridge filters are designed to remove all solid particle contaminants such as dirt, rust pipeline scale from Natural Gas in Chemical Plants, Pipeline Stations, Reduction and Metering stations, Refineries and other processing applications. Cartridge Filters protect meters, regulators, valves and other related in-line equipments, by effectively removing unwanted particles from the Gas stream.

Operating Principle

The cartridge filters are able to guarantee high efficiency standard by removing the solid contaminants at relatively pressure drop. Upon entering the larger and heavier particles settle to the bottom of the inlet chamber. And then the gas, by passing through the filter elements which trap and retain the finer particles, exits clean to the top of the vessel. It could be inserted a "quick opening" end closure for access to, cleaning or replacement of the filter elements.

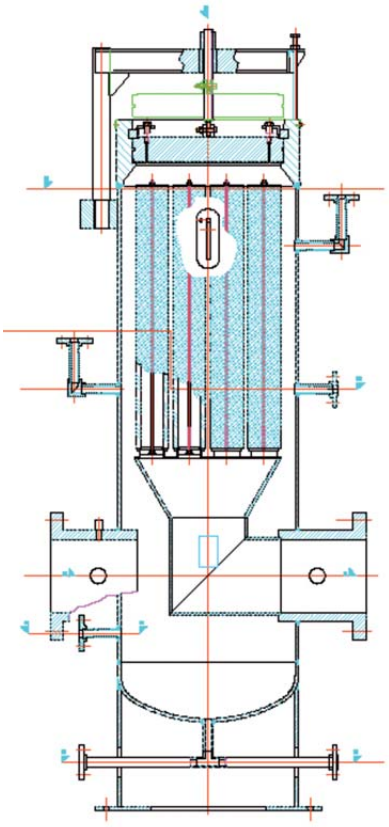
Filtering Cartridge

TGT is able to provide engineered, designed, and manufactured, range of medias, to provide the reliability and consistency in performance. This is necessary for the delivery of outstanding operating efficiency in a wide variety of filtration applications. TGT's experienced Sales and Application Engineers can assist you in selecting the correct element to solve your particular filtration problem.



Efficiency

The efficiency of this kind of filter is a typical function of particle size and distribution, particle loading, element face velocity and pressure drop. A typical performance efficiency is 100% for particles of 3 micron and larger and 99% for particles between 0.5-3 micron. On the left is shown a typical performance diagram.



Cross section Cartridges Filter

TGT reserves the right to change design, specification and materials without notice

Knock-Out Drum

Vane Mist Extractor

KO-V01
KO-C01

Models - Production Range

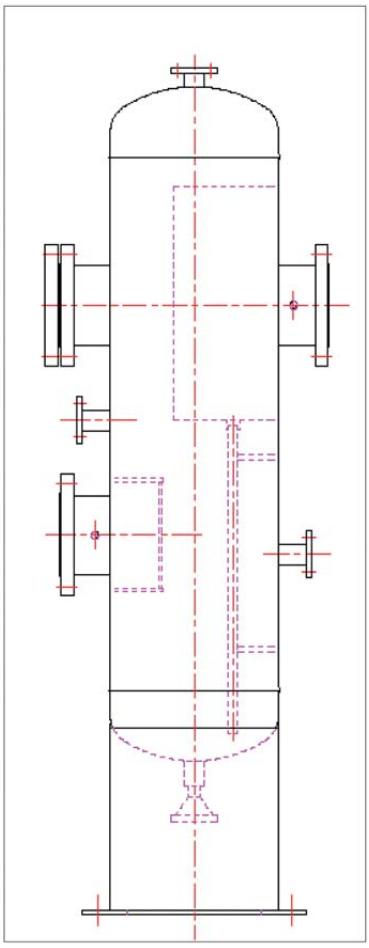
VM-V01
VM-D01





Operating Principle

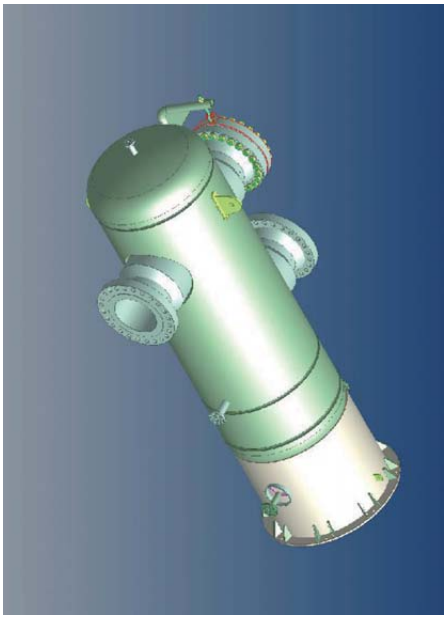
The extractor consists of a vanes pack formed by a series of parallel plates complete with an intermediate series of hooks. The gas, flowing through the vanes, is forced to change direction several times and the heavier liquid droplets are then smashed against the wetted walls. The small particles are coalesced by agitation and surface contact. The agglomerated liquid is then drained perpendicular to the gas flow into the sump.



Cross section KO-Drum

Efficiency

The efficiency of this kind of filter is a typical function of particle size and distribution, particle loading, element face velocity and pressure drop. The vane mist extractor is able to remove liquid droplets up to 8 microns and larger.

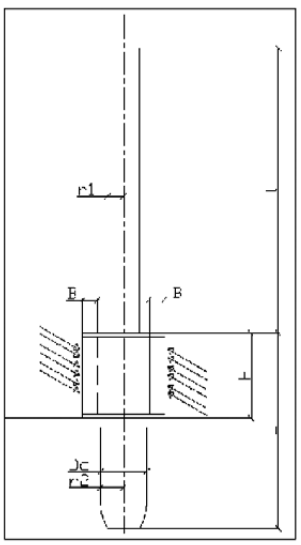


Multicyclone Filters



Efficiency

The efficiency of this kind of filter is a typical function of particle size and distribution, particle loading, element face velocity and pressure drop. A typical performance efficiency is 100% for solid particles of 5 microns and larger and in the dual stage configuration (cyclone and cartridge) is 100% for solid particles of 3 microns and larger. In addition the separator can guarantee an outlet gas with less than 10 liters of liquid per million cubic meter.



Details of Internals

Models - Production Range

Single stage - Single cycloneMod. CYC-S
Single stage - Multiple cyclones Mod. CYC-M
Dual stage - Single cycloneMod. CYC-S-D
Dual stage - Multiple cyclonesMod. CYC-M-D

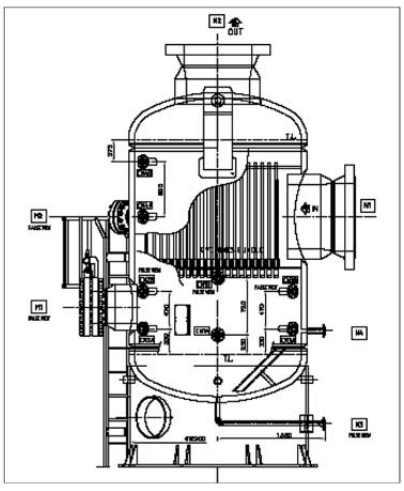
Applications

The cyclone separator is used in a wide range of applications in the natural gas and chemical process industries such as:

- Metering and reducing Stations: removing liquid hydrocarbons, water and sand
- Natural Gas field application
- Gas and Fuel transmission lines
- Meter Installations
- Gas compressors

Operating principle

The operating principle of the cyclone filter separator is based on the action of centrifugal forces that separate the solid and liquid parts. The gas, entering into the cyclone, forces the particulates against the cyclone walls moving the liquid droplets and the solid particles to the outer periphery of the tube and then dropping them into the collection chamber at the bottom of the vessel. The cleaned gas exits instead to the top of the vessel to the eventually second stage cartridge dry separator to remove the finest solid particles. The cyclone filter separator could be designed with a single cyclone action or with a multiple cyclones action in order to raise the efficiency of the process.



Cross section Multicyclones Filter

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Dual-stage Filters



Operating principle

The absolute filter separator is designed to be installed in a vertical or in a horizontal configuration, it could be inserted a "quick opening" end closure for access to the filter elements. The gas enters the vessel and encounters a labyrinth of pipes that give a centrifugal motion to the particles of 10 micron and above to the bottom of the filter. Smaller particles which exhibit significant brownian movement collide with each other coalescing to a single droplet. Anelastic collision of solids produce then aggregates which subsequently are swept by the liquid into the sump. Particles that remain suspended encounter the filter coalescer elements and then they collide with and adhere to the fibers or other droplets and coalesce. This agglomerated liquid is then forced through the media by the drag of the gas for the second stage separation. The second stage section, which is the vane mist separator, by changing the direction of the vapour to generate an increase in apparent density of the liquid phase, trap all the liquid droplets in the hooks draining the same into the sump.

Filtering Cartridge

The filtering elements are engineered, designed and manufactured, in a variety of medias, to provide the reliability and consistency in performance. This is necessary for the delivery of outstanding operating efficiency in a wide variety of filtration applications. TGT's experienced Sales and Application Engineers can assist you in selecting the correct element to solve your particular filtration problem.

Production Range

Vertical Type Mod. ABS-V
Horizontal Type Mod. ABS-H

Applications

The absolute filter separator is a multi stage separator used in a variety of applications in the natural gas and chemical process industries such as:

- Metering and reduction Stations: removing liquid hydrocarbons, water, sand and pipe scale.
- Ahead of gas storage fields to prevent the injection or withdrawal of solids and liquids.
- On the suction side of the compressor to prevent wear from solids and liquids entrained in the gas stream.
- On a gas processing plants to remove solid and free liquids in order to prevent fouling of process equipment and poisoning of catalyst beds.
- Downstream of amine, glycol, potassium, carbonate sulfinol and absorption oil contactors to recover solutions and reduce solution losses.



Efficiency

The efficiency of this kind of filter is a typical function of particle size and distribution, particle loading, element face velocity and pressure drop. A typical performance efficiency is 100% for solid particles of 3 microns and larger and 99% for particles between 0.5-3 micron and 100% for liquid particles of 3 microns and larger.

Filtering Packages





Quick opening closure

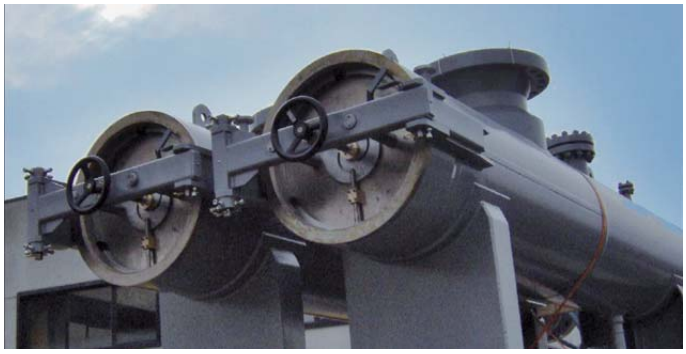
- ASME Clamp type (Single and Double Bolts)
- Fac type



Single Bolt



Double Bolts



Spare Parts

TGT Quality is completed by the after sale assistance and a complete organisation which focus its own activity on care, technical support and spare part requests of the customer. For further information please contact the SERVICE DEPARTMENT:

Tel. +39 049 9199670 Fax +39 049 9199690 - E-mail: service.tgt@valvitalia.com

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Padova Plant.

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