

GAS CYCLONE SEPARATOR



Processing the Future

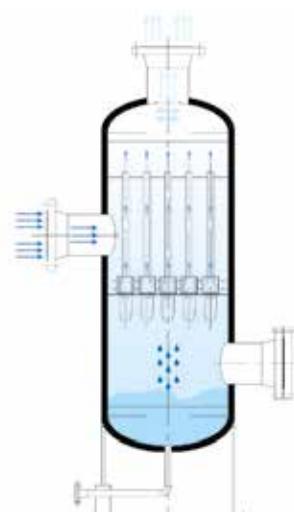
General Principle of Operation

The use of centrifugal force to separate solid and liquid particles from a gas is well known, a good example of which being the familiar sight of a low pressure, large diameter cyclone separator on the roof of industrial plants to remove scale etc..

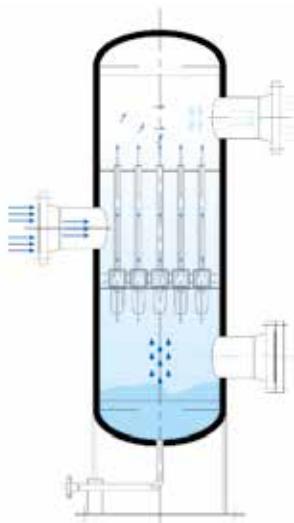
In the gas industry requirements of high pressure, wide flow ranges and high efficiency are well suited for REPCo's multiple small diameter cyclones. They achieve results on small as well as large particles, for many variations of operating conditions.

A typical REPCo cyclone tube is approximately 2" in diameter but can go up to 4" in size pending the duty.

Dirty gas enters the cyclone tube at two points, to create a swirling motion. Solid and liquid particles are thrown outwardly and drop from the tube to a large storage area. The swirling gas reverses the direction at the Vortex and rises through the exit portion of the tube. This tube design results in the most efficient particle removal process available today for high-pressure gas scrubbing using the energy of centrifugal forces.



Arrangement 1



Arrangement 2

Efficiency

The REPCo Cyclone Separator guarantees the following efficiency on gas stream dust:

- 8 micron size particles and above ---100%
- 6 to 8 micron size particles-----95%
- 4 to 6 micron size particles-----90%
- 2 to 4 micron size particles-----85%

Outlet gas will not contain more than 0.10 gallons of entrained liquid per million of SCF of gas (approximately 1.35 lt per 100.000 Sm³).

Application

REPCo's Cyclone Separator has excellent operational experience where there is a down-stream clean, dry gas is required in both the natural gas and the chemical process industries. For example, the Cyclone Separator is extensively used to remove liquids and dry impurities at the wellhead, inlet to transmission stations, throughout distribution systems and in many industrial processes.

REPCo's Cyclone Separator has the following advantages:

- ⌚ Efficient removal of dust and liquids
- ⌚ Cannot be overloaded
- ⌚ No maintenance
- ⌚ Smaller and cheaper than other scrubbing system
- ⌚ Efficiently handles wide flow range to allow for future conditions
- ⌚ Constant pressure drop regardless of contaminant loading

The REPCo mini-cyclones design takes into consideration the potential wear-out of the lower cone from particle abrasion due to the contact with solid/liquid contaminates subject to the centrifugal force – by using special materials with surfaces hardening treatments.

These treatments are also resistant to any eventual stress relieving processes required by the vessel containing the mini-cyclones.

Pressure Drop

REPCo's Cyclone Separator can be designed around a pressure drop variation for a wide range of values. Since a minimum flow must be maintained to effect good separation associated pressure drop will vary directly in relation to the operating pressure.

Instructions

These instructions are valid for all of REPCo's cyclone separators.

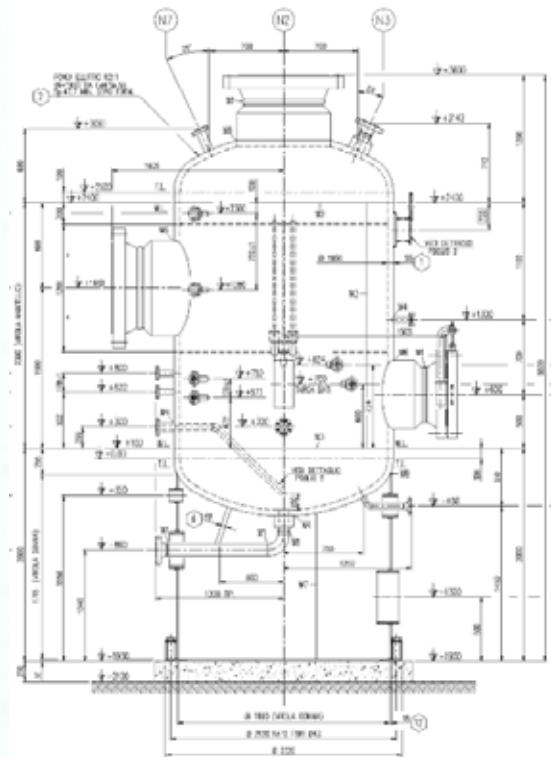
A) Installation

- Connect the separator with the relevant piping, observing proper inlet/outlet positioning, as indicated on the drawings and separator itself.
- Verify that all the pressure indicator connections, vents, drains, etc. have been assembled in the proper way and are ready for use.
- Pressurize the separator and verify the total absence of leaks.
- Put the separator into service.

B) Maintenance

One of the most advantageous aspects of this equipment is the total lack of maintenance operations required.

There are no moving parts, no valves ... and no maintenance.





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