THE EJECTOR COMPANY

Leaflet

Swirl droplet separators (DTA)

HOW THEY WORK

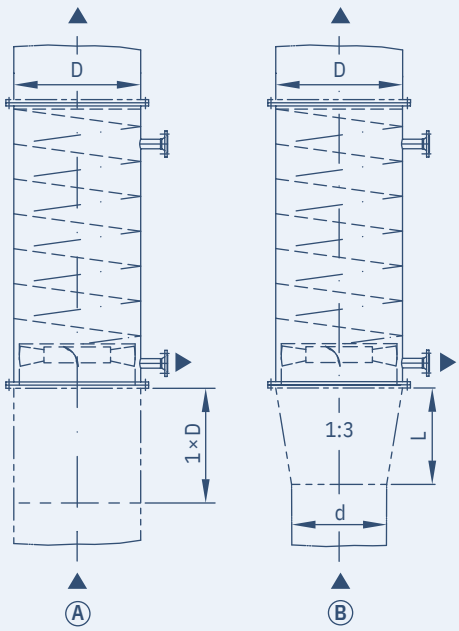
A swirl droplet separator separates very small droplets from gas, air or steam flows. The gas-droplet mixture enters the swirl droplet separator as an axial flow. A swirl generator accelerates it towards the walls. A stable helical flow forms in the adjacent pipe section. Centrifugal forces thrust the droplets against the separator wall. A helical coil, running in the opposite direction of the gas flow, guides the liquid downward within the pipe, where it's collected and ultimately discharged via a fluid outlet.

This special design of the DTA enables effective rinsing of the entire inner surface of the helical tube. Extra fluid for rinsing (usually water) can be added to the tube via a tangential nozzle. This fluid is injected and held as a film on the coiled tube wall by the rotating gas flow and is discharged together with the separated droplets between the coils and via a collection channel. This design means the separator stays clean and requires no maintenance. Optional rinsing of the channel and swirl generator can also be provided.

When calculating the pressure loss in the downstream pipe, make sure to also account for the remaining swirl at the outlet of the apparatus. If required, a de-swirler can be added to the swirl droplet separator's outlet.

INSTRUCTIONS FOR INSTALLATION

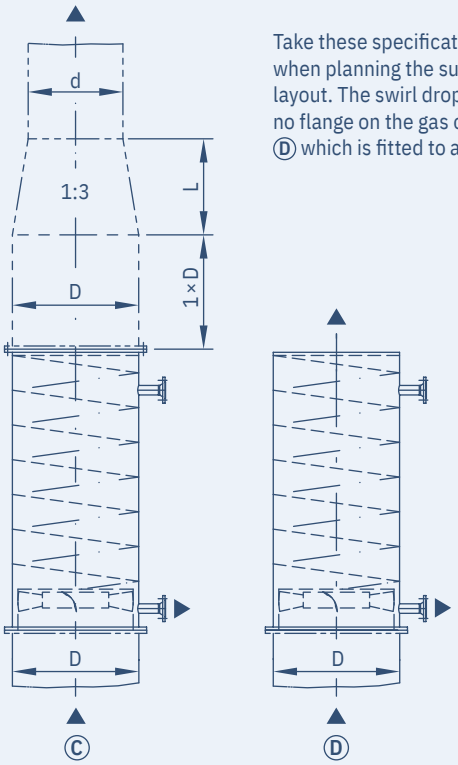
To achieve the specified separation performance and minimise system pressure loss, the swirl droplet separator must be fitted as follows. The following specifications apply to fitting the swirl droplet separator:



INFLOW

Ⓐ axial, min. 1 × D straight pipe
Ⓑ with a tapered extension (1:3) **L ≥ 3 × (D – d)**

Take these specifications into account when planning the subsequent pipe layout. The swirl droplet separator has no flange on the gas outlet in variant Ⓓ which is fitted to a stack outlet.



OUTFLOW

Ⓒ axial, min. 1 × D straight pipe, then tapered if required (1:3) **L ≥ 3 × (D – d)**
Ⓓ free outflow (at a stack outlet)

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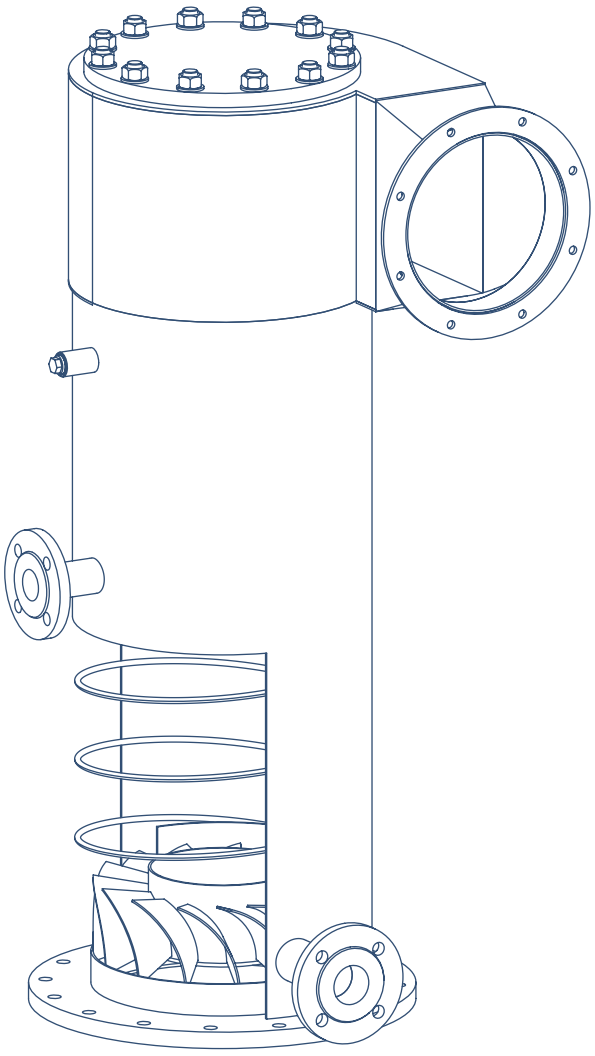
TANGENTIAL OUTLET

If the flow needs diverting at the swirl droplet separator's outlet, a tangential gas outlet can be applied, which combines several advantages in one compact component:

- Low-loss 90° diversion of the flow
- Swirl decreased too
- A lower nominal outlet diameter

The total height is much lower compared with the option above without a tangential outlet. The equipment's pressure loss is slightly higher, but can usually be compensated for by reducing the flow turbulence and the resulting lower losses in the subsequent pipes.

An optional inspection hatch facilitates access to the swirl droplet separator and helps enable routine inspection and maintenance work.



For a practical questionnaire to answer an enquiry for a quote quickly and further info.

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