TURBO HELIX

CORRUGATED TUBES

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MPG Corrugated Tubes for Improved Heat Exchange

Corrugated and cross-corrugated tubes

Properties

MPG corrugated tubes are made from thin-walled smooth tubes — themselves made of various materials. Thanks to a special process, the outer and the inner surfaces are given spiral-shaped rotating impressions. Result: heat transfer properties are enhanced especially in the turbulent flow area on the tube interior. Selectively changing the parameters – of the spiral run, total number, angle, radius and depth, for example – leads to a corrugated tube with excellent thermal properties for the particular use at hand.

Also, between the impressions, along the tube inside surface, secondary flows emerge mostly in the form of eddies in strong interaction with the core flow. In other words, the impulse exchange between the fluid layers close to the wall and the main flow is increased. Compared to smooth tubes, a significant boost in the thermal efficiency of the turbulent flow area is thus achieved. Not only that: MPG corrugated or cross-corrugated tubes also provide for a more efficient condensate flow-off and/or the systematic formation of liquid films on the exterior of the tubes.

Applications

Areas of application are many and varied, including …

- exhaust heat exchangers in automobiles
- medical technology
- the food processing and pharmaceuticals industries
- district heat stations
- refrigeration systems
- oil and air cooling systems
- chemical process engineering
- evaporation and irrigation works
- vaporisers
- absorber systems
- seawater desalination plants and
- heat recovery plants

In consultation with our customers, we conduct comparisons on existing systems and ultimately draw up the optimal solution for the deployment at hand.

Dimensions

In terms of geometric shape, MPG corrugated tubes are virtually unlimited in design. Tube diameter can range from 8.0 to 63.0 mm and wall thickness from 0.50 to 3.0 mm (though we recommend that a diameter/wall-thickness ratio of 20 be not exceeded). The geometry of a corrugated tube – consisting of helical angle, corrugation depth, spiral direction of the rotating groove and the groove radius can also be customised to the deployment at hand. The maximum length currently workable is 12,500 mm.

Materials

MPG corrugated tubes are usually produced from these materials ...

- high-grade steels
- titanium
- carbon steels
- copper and copper alloys
- nickel-based alloys
- chromium and nickel-chromium alloys and
- aluminium.

Depending on applications and requirements, however, other materials can also be used.