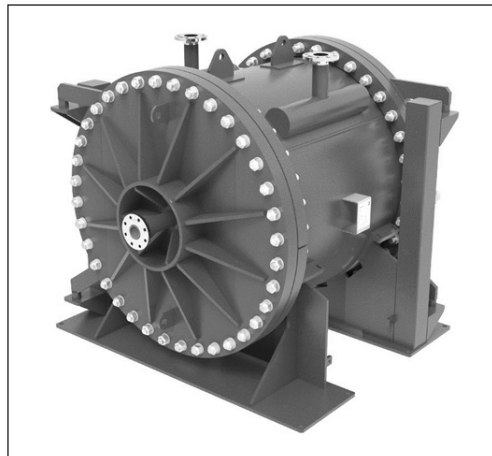


Data sheet

SONDEX® Spiral heat exchanger - SonSPV

Description



SONDEX® Spiral heat exchangers are exceptionally well-suited for sludges, slurries, waste water, liquids with high viscosity, and liquids that contain fibers and solids. SONDEX® spiral heat exchangers are the definitive solution for applications that require treatment of challenging fluids. The design allows for a countercurrent flow that makes it possible to achieve close temperature approaches.

Since we use coiled metal sheets instead of tube bundles, we can achieve very high thermal performance without sacrificing the channel gap that lets the media flow unimpeded.

The spiral coil itself also contributes to the turbulent flow, and the single-channel design helps alleviate fouling with a “self-cleaning” mechanism. Accumulated deposits create local increases in velocity, creating a scrubbing effect that is enough to loosen the build-up in fouling in most cases. This allows our SONDEX® spiral heat exchangers to have very long service intervals.

Some fluid media, are so challenging that the heat exchanger requires more frequent maintenance and cleaning. With this in mind, we have designed hinged covers that are sealed with C-clamps, creating a swing door that is very easy to open and close without any special tools required, letting you access the entire coil for inspection and cleaning.

Benefits:

- Single-channel design that generates high shear rates which contribute to a self-cleaning effect, preventing clogging of the unit.
- The channel size is selected to fit the flow and properties of the media. The many variations in diameters and widths of the spiral coil allow for many different combinations, which mean that we can create the optimal solution for every duty.
- Limited need for maintenance and cleaning ensures extended operational uptime. If the need for cleaning arises due to particularly difficult media, the hinged covers provide easy access to the entire heat transfer surface.
- Very compact solutions, our spiral heat exchangers have minimal space requirements.

Common applications:

- Biogas industry
- Wastewater industry
- Pulp and paper industry
- Heavy industry
- Petrochemical industry
- Chemical industry

Main data:

- Min. temperature $-20\text{ }^{\circ}\text{C}$ ($-4\text{ }^{\circ}\text{F}$)
- Max. temperature $200\text{ }^{\circ}\text{C}$ ($392\text{ }^{\circ}\text{F}$)
- Max. working pressure 10 bar (150 psi). Higher pressure available upon request
- Liquids, steam, gases
- Connections from DN25 to DN300 (1" to 12")

Approvals:

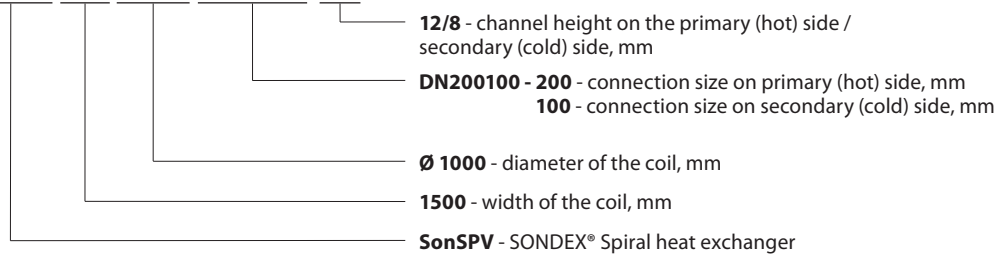
- Please contact your local Danfoss/Sondex sales representative to provide you with exact approvals availability on your region

Pressure vessel code:

- EN13445 (PED 2014/68/EU)
- ASME sec VIII, Div. 1
- Other standards available on request

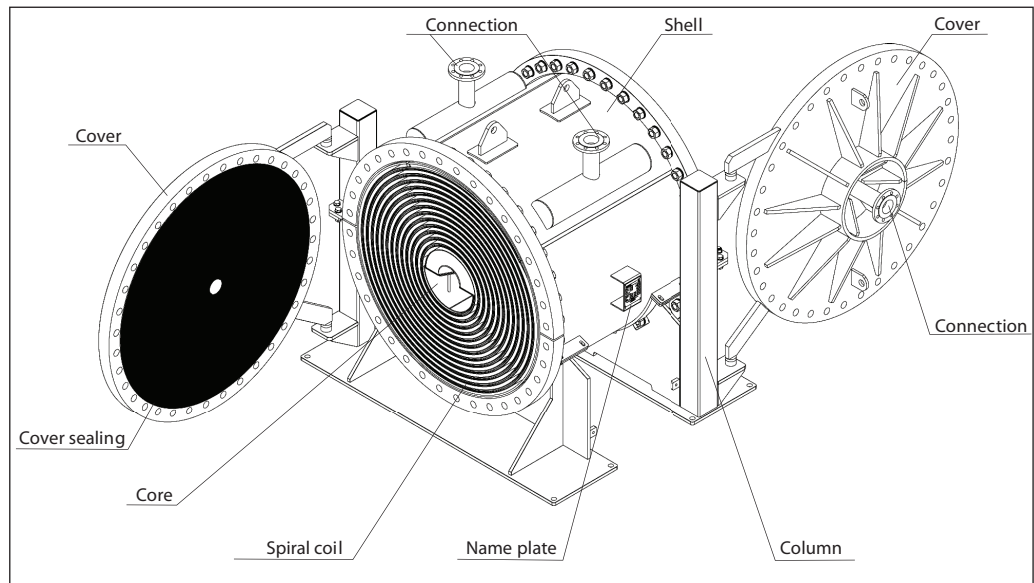
Naming of units

SonSPV 1500 Ø 1000 DN200100-12/8



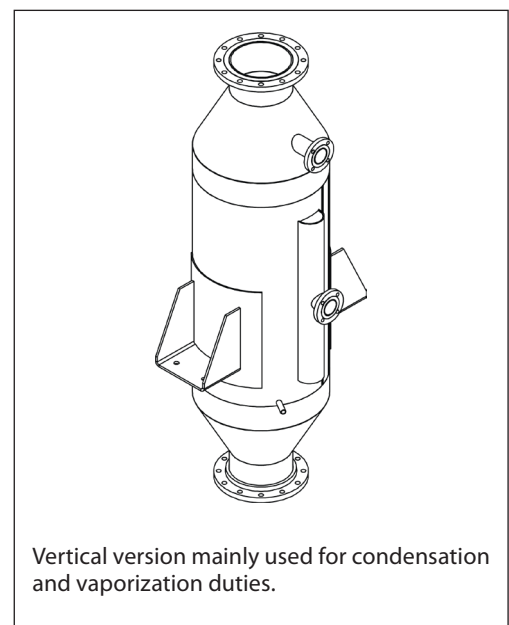
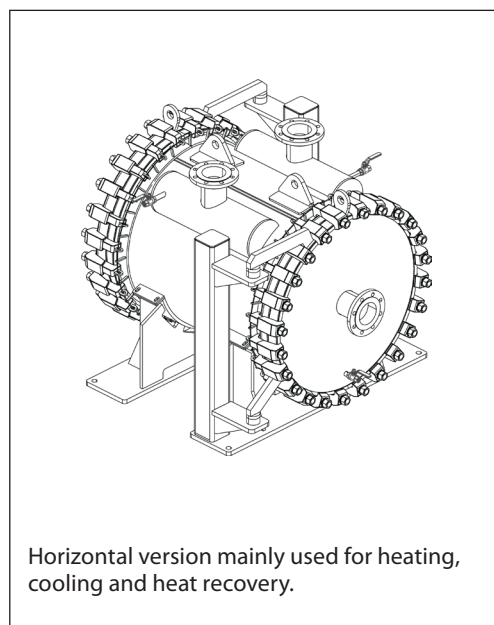
Heat exchanger design

SONDEX® Spiral heat exchanger consist of



Vertical and horizontal mounting

Based on application, process duty and space availability the SONDEX® Spiral heat exchangers can be designed in horizontal and vertical configurations.



Data sheet
SONDEX® Spiral heat exchanger
Counter and co-current design

SONDEX® Spiral heat exchangers are designed for counter current flow. For special thermal requirements, SONDEX® Spiral heat exchangers can be designed with co-current or cross-flow designs.

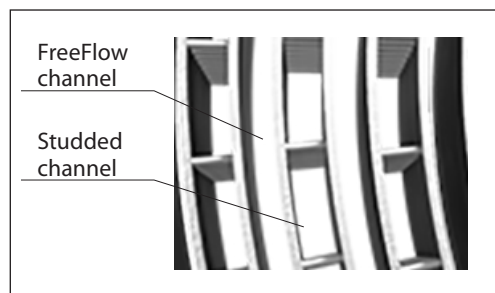
Connections

Connections can be provided according to all known standards. Positioning of the inlet and outlet connections will be specified during the construction phase based on application and duty.

Please contact your local Danfoss or Sondex sales representative to provide you with the design for SONDEX® Spiral heat exchangers.

Studded and FreeFlow channel design

The channel size in SONDEX® Spiral heat exchangers is maintained by special studs, which are welded to the coil. Studs are made from the same material as coil and arranged in a consistent pattern. For operation with challenging media that contain solids, particles, and fibers, SONDEX® Spiral heat exchangers can be made with Free Flow channels without studs. These options enable the heat exchangers to efficiently handle a wide range of duties and media and offer an optimal solution for each application.


Openable and welded channel design

SONDEX® Spiral heat exchangers can be made with two different channel closings. The openable channel with cover is normally used for duties requiring regular cleaning. The cover is fixed to the shell with either C-clamps (typical for design pressure PN ≤ 10 bar) for easy and fast installation or tie bolts (typically for design pressure PN > 10 bar). The number of C-clamps or Tie bolts is defined by strength calculation. Fully welded channel is not openable and can be used for clean medias (e.g. clean water side) which don't require mechanical cleaning. In such cases there is no cover on that side.

Technical data
SONDEX® Spiral heat exchanger

SonSPV		
Heat transfer area	m ²	from 1 to 500
Shell diameter	mm / inch	from 600 to 2140 / from 23,6" to 85,5" Other shell diameters possible on request
Coil width		250, 300, 400, 500, 750, 1000, 1250, 1500 / 10", 12", 16", 20", 30", 40", 50", 60" Other coil widths possible on request
Max. working pressure	PN bar / psi	10 bar/ 145psi - Higher pressures possible on request.
Max. operating temperature	°C / °F	200°C/ 392°F - Higher temperatures possible on request.
Min. operating temperature		-20°C / -4°F - Lower temperatures possible on request.
Connections	DN	from DN 25 to DN300 (1" - 12")
Connections types		According to all known standards
Spiral material		Carbon Steel P355GH, Stainless steel EN 1.4301 (AISI 304) Stainless steel EN 1.4404 (AISI 316L), Stainless steel EN 1.4359 (AISI 904L), Other materials available on request
Shell material		Carbon Steel P355GH, Stainless steel EN 1.4301 (AISI 304) Stainless steel EN 1.4404 (AISI 316L), Other materials available on request
Gasket material		NBR, EPDM, PTFE, Graphite Other materials available on request
Channel design		Studded, Free Flow (without studs)
Channel closure		Openable (with cover), welded (without cover)
Frame painting specification		Painting available for corrosion categories C2L, C4M, C5M

Accessories

Insulation

The insulation jacket for SONDEX® Spiral heat exchangers is used in different applications with high temperatures and cooling systems.

Support frame for cover

Includes columns and hinges for covers, which allow easy access to heat transfer area for cleaning and inspection.

Spare parts

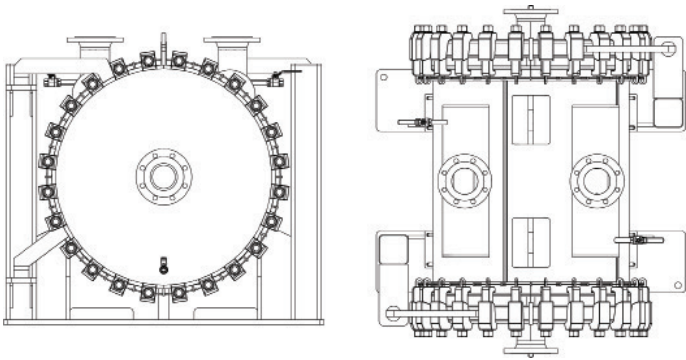
Spare parts for SONDEX® Spiral heat exchangers, such as cover sealings, covers, bolts, nuts, C-clamps can be ordered for for maintenance and repair.

Please contact your local Danfoss or Sondex sales representative for information on spare parts, available for SONDEX® Spiral heat exchangers.

Selection and ordering

Please contact your local Sondex or Danfoss sales representative for the selection and / or ordering of the heat exchangers, spare parts and accessories.

Dimensions



Model	Width, L ¹⁾		Max Diameter, D ¹⁾		Overall dimensions
	mm	inch	mm	inch	
SonSPV 250	250	10"	2140	84 1/4"	For dimensions of SONDEX® Spiral heat exchangers please contact your local Danfoss or Sondex sales representative
SonSPV 500	500	20"	2140	84 1/4"	
SonSPV 750	750	30"	2140	84 1/4"	
SonSPV 1000	1000	40"	2140	84 1/4"	
SonSPV 1250	1250	50"	2140	84 1/4"	
SonSPV 1500	1500	60"	2140	84 1/4"	

¹⁾ Other dimensions available on request.