

Heat Exchangers Product Overview



Type Description

TDW	Standardised in 21 sizes and various types. Removable U-tube bundle with finned tubes made of tinned Cu and other materials. High thermal efficiency achieved by newly developed spiral oil flow baffles. Low operating costs, easy manual cleaning.
BCF/CCF	Standardised and prefabricated in 212 sizes and different types. This fixed tubesheet unit with cast iron bonnets is available for 1-, 2- or 4-tube passes. The bare tubes are available in several Cu-alloys. U-version with U-tubes. P-version with removable tube bundle Flanged versions also available.
SSCF	The standardised and pre-engineered stainless steel counterpart of the BCF line, but made of stainless steel 1.4571 (V4A) (Similar to ASTM 316 Ti).
CCFA	Non-removable tube bundle, simple 1-pass design.
SWF	Safety heat exchanger. Media separated by a double tube sheet. No intermixing of agents. Immediate automatic damage report by means of special separating liquid.
CP	High thermal efficiency, solid design, best possible means of inspection with removable bare tube bundle or finned tube bundle. Floating tubesheet sealed by means of 2 gaskets and equalising ring with „tell tale“ hole.
A-100	Removable bare tube bundle with floating tubesheet. Large range of standard sizes available. Advanced centrifugal moisture separator is easily installed and supported by the line. All units hydrostatically tested for dependability.
C-100	The packed floating head, removable bundle design allows for differential thermal expansion. Convenience of inspection and maintenance are assured as bundle can be removed without removing the floating head cover. Single tube pass arrangement available (for applications involving temperature crossing conditions), also 2, 4 or 6 tube passes.
C-200	Fixed tubesheet design with or without shell expansion joint provides maximum heat transfer surface in a given shell size. 1, 2, 4, and 6 tube passes.
C-300	U-tube, removable bundle design allows for differential thermal expansion between the shell and the tubes. Available with 2, 4, and 6 tube passes.
C-400	The internal bolted floating head design with pullthrough bundle provides a large entrance enabling the bundle to be taken from the shell without removing shell or floating head covers.
C-500	Internal clamp-ring head cover and removable bundle design, well suitable for handling flammable and/or toxic liquids. The basic design provides 2, 4, or 6 tube pass arrangements and allows for thermal expansion between the shell and the tubes. Additional design advantage is higher surface per given shell and tube size than C 400 or C 100.

Application

Especially suited for the cooling of lube oil and hydraulic oil in engines, transmissions as well as in the plastic machinery industry.
Used for cooling or heating many media either by fluids or steam. Typical uses in engine cooling, turbines, gear boxes, compressors, chemical and industrial process engineering fields as well as in hydraulic oil systems and plastic manufacturing machinery. Tightly classified sizes and precisely calculated exchanger surfaces assure a minimum of investment.
Ideally suited for the chemical, refining, pharmaceutical, and process industries where aggressive fluids are to be heated or cooled.
Ideally suited to cool air and gas. To be used as intercooler or aftercooler.
To be used where an intermixing of agents must be avoided to prevent environmental pollution or machinery damages. Suitable for liquids. Can be mounted in any position.
Used for liquid to liquid exchanger applications. Exceptional service as electrolyte coolers for liquid rheostats, for boiler blow-down or contaminated condensate, inter- or aftercoolers for compressors, brine coolers, gland seal condensers, coolers for turbine oil, seal oil, hydraulic coupling fluid, hydraulic circuit oil or fluid etc. Third party inspection available if required.
Cools and dries compressed air or other gases.
Heat exchangers particularly suited as inter- or after-coolers for handling different media, air or gases.
To cool and heat various media and for applications in different processes.
To cool and heat in different processes. As steam producer and condenser in the event of great temperature differences.
Widely used as a chemical fluid heat exchanger, hydrocarbon fluid condenser and air or gas compressor inter- or after-cooler.
Specifically designed to handle the most rugged services found in process plants. Applications include chemical fluid heat exchange, air or gas compressor inter- or after-cooling



Description

This Plate Heat Exchanger consists of a package of embossed Heat Transfer Plates. The plates are provided with gaskets, which seal the various flow gaps from atmosphere and separate the hot and cold fluids. In this range a semi-welded Plate Heat Exchanger Type FPG is available. The plates are welded on one side only, on the other side, gaskets are used in the traditional manner.

This Plate Heat Exchanger has "free" flow gaps and is suited for medium with suspended solids where fouling may be a concern. The construction is similar to the FP/FPS units, however profile of the plate is different. The free flow gaps result in reduced contact points and are arranged in one line.

The Safety Plate Heat Exchanger has a "double wall". The heat exchanger plates consist of two embossed plates that incorporate a small leakage gap. Sealing of each double plate is achieved by using gaskets in the traditional manner.

The brazed Plate Heat Exchanger Type TPL consists of flat base plates with plain surfaces, between which embossed turbo plates are placed and vacuum brazed together to form a fully sealed unit. The brazed Plate Heat Exchanger Type GPL consists of embossed plates that are brazed together.

This is a brazed Safety Plate Heat Exchanger where intermixing of fluids is prevented by use of a safety gap formed using a corrugated sheet. Turbulators are used in the flow gap to increase Heat Transfer coefficients.

This brazed Plate Exchanger has Turbo Plates like the TPL unit. The APL however is special design with nozzle locations developed for gas cooling.

The Shell and Plate Heat Exchanger consists of a brazed or welded plate package, which is installed into a shell in a similar manner as a tube bundle being fitted into the shell of a normal Shell and Tube Heat Exchanger. The plates are embossed like the FP/FPS units.

Oil/Air cooling units - standard program comprising of 12 sizes, enabling inexpensive adaption to each case of application. Cooling system brazed under vacuum, safe to fouling and incrustation. Free choice of installation. Fan drive: IEC-three phase AC motor with the choice of different motor speeds for adaptation to max. allow. noise level. Alternative fan drive with DC motor or hydraulic motor. Vibration-proof flange connections with SAE-counter flanges to be easily assembled.

Application

The applications are various, but limited by pressure and temperature. The semi-welded Plate Heat Exchanger is suited for higher pressures. Additionally this type can be used in the refrigeration industry.

This Exchanger is particularly suited to handle medium with suspended solids and pulps as well as high viscosity products.

This type of Heat Exchanger is used for oil and acid cooling and is particularly useful where leak detection is required and environmental considerations are paramount.

The TPL unit is used to cool motor oil and hydraulic oil, whereas the GPL is used in heating industry, long distance heating systems, refrigeration plants and air-conditioning industry.

This brazed Plate Exchanger can be used for heating treated water with district heating water.

This type of Heat Exchanger is used for gas and air-cooling.

The field of application for the Shell and Plate Exchanger is the oil, gas and air industry together with other process applications and for the refrigeration industry.

Cooling of hydraulic- and lubricating oil, converter oil, cutting oil, cooling oil as well as hydraulic liquids, water/glycol, mixing ratio min. 65:35, or water, containing 2 % anticorrosive agent at least.

Type

**FP/
FPS/
FPG**

FPSF

FPSS

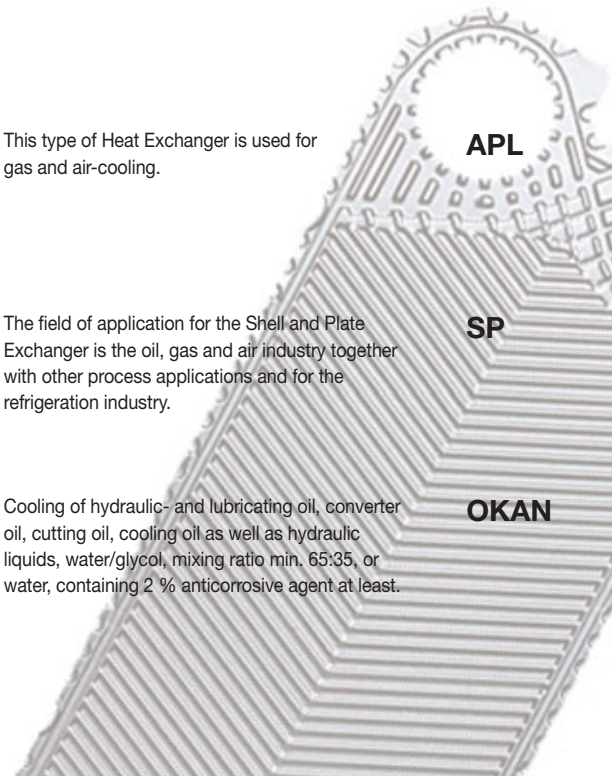
**TPL/
GPL**

SPL

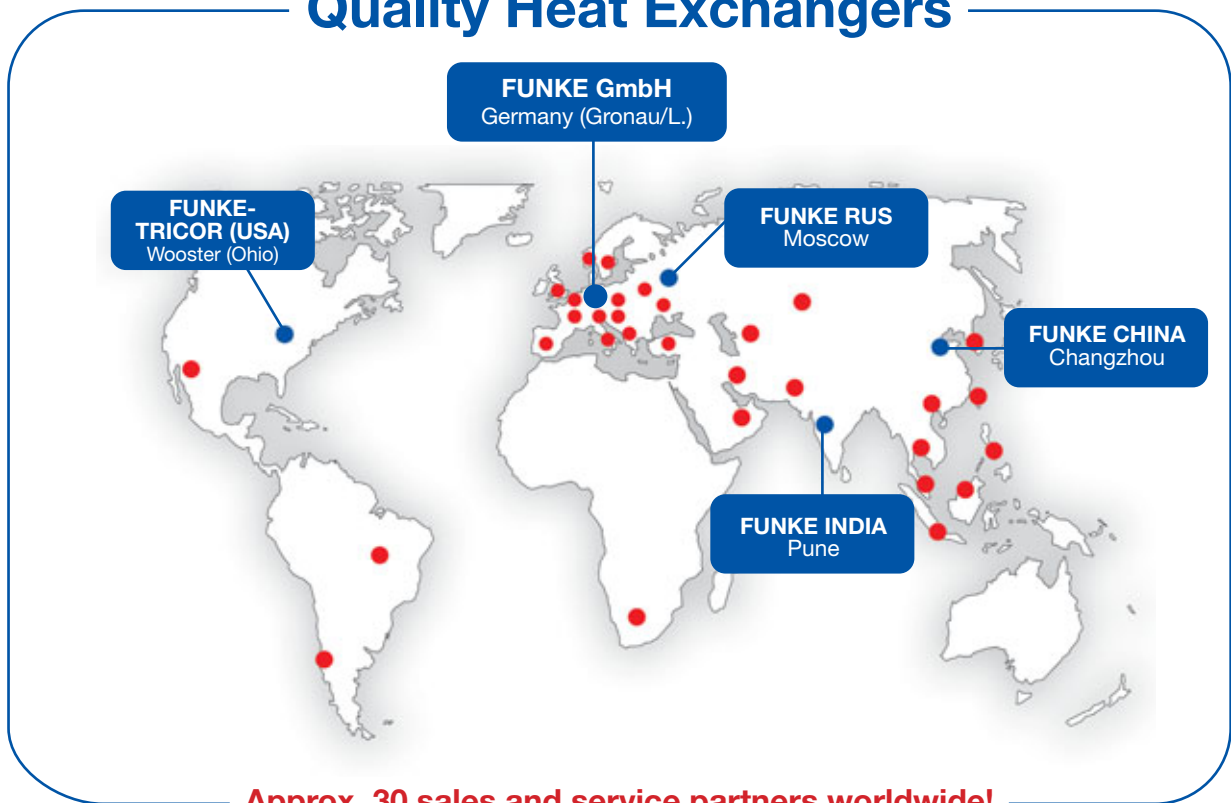
APL

SP

OKAN



Quality Heat Exchangers



Quality means safety. Each unit built by FUNKE is construction and pressure tested. Additional testing may also be available in accordance with such quality organizations as:

- American Bureau of Shipping (ABS)
- Bureau Veritas (BV)
- Det Norske Veritas (DNV)
- EU Pressure Equipment Directive 97/23/EG (DGRL)
- Germanischer Lloyd (GL)
- Lloyds Register of Shipping (LRS)
- Schweizerischer Verein für technische Inspektionen (SVTI)
- Technischer Überwachungsverein (TÜV)

as well as customers' test and inspection regulations.



FUNKE has been certified according to DIN EN ISO 9001/2000 and is an approved manufacturer according to:

- ASME U-Stamp
- China Certificate
- GOST R (incl. RTN & hygiene certificate)
- HP0 in connection with DIN EN 729-2



Shell and Tube Heat Exchangers



Oil/Air Cooling Systems



Plate Heat Exchangers



Brazen Plate Heat Exchangers



Electric Oil Preheaters



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