



# QVF® SUPRA COIL TYPE HEAT EXCHANGERS

- Corrosion resistant-
- Versatile -
- Transparent -
- Gasket-free -

**De Dietrich**  
PROCESS SYSTEMS





# The universal gasket-free solution for heat transfer - condensation, evaporation and tempering of highly corrosive or pure substances between -80 and +200°C

## HIGHLIGHTS

- Resistant to corrosive media
- Made from inert and pharma-approved borosilicate glass 3.3
- No seals, suitable for ultra-pure products
- Transparent for optimised process monitoring
- Smooth surfaces preventing contamination of the tubes
- Designed for easy cleaning of both service and medium side

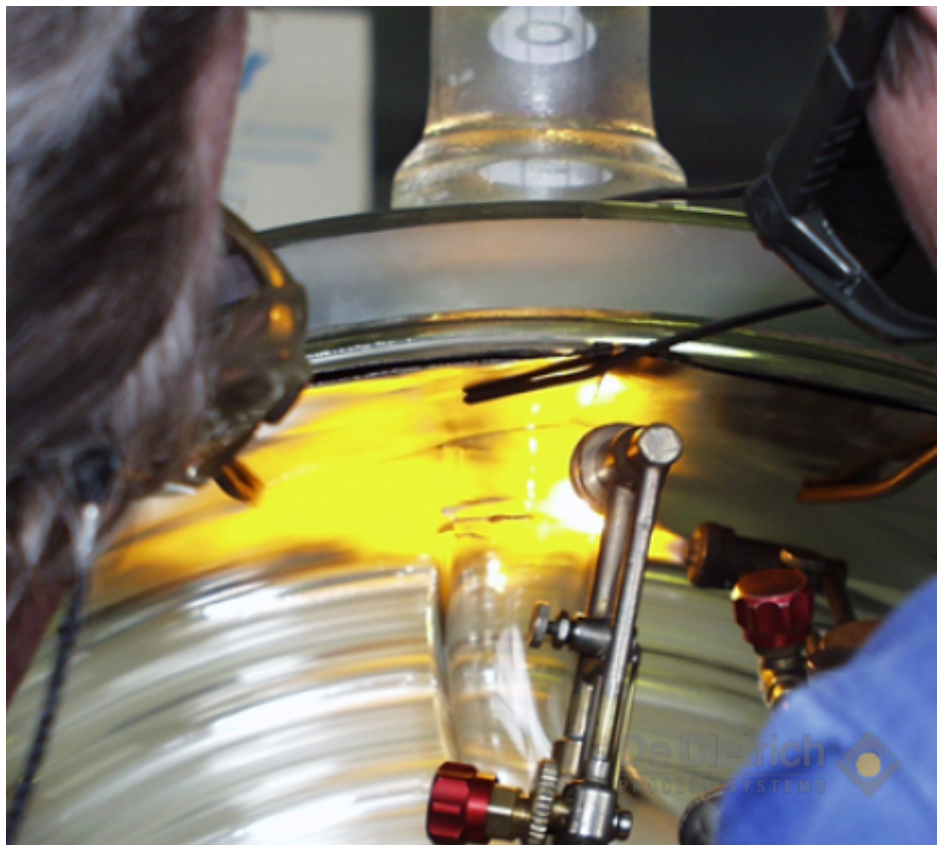
The QVF® SUPRA coil type heat exchangers are available with

- nominal diameters of DN40 to DN600
- heat exchange surfaces of 0.03m<sup>2</sup> to 15m<sup>2</sup>

The standard models of the QVF® SUPRA coil type heat exchangers (QVF® SUPRA-Line catalogue, chapter 5, page 4 ff) are designed for the condensation, evaporation and tempering of highly corrosive substances between

- -80 and +200°C at
- -1 to +4 bar g

For other process parameters, we offer custom-engineered solutions. Please contact us for details.



## CONCEPT

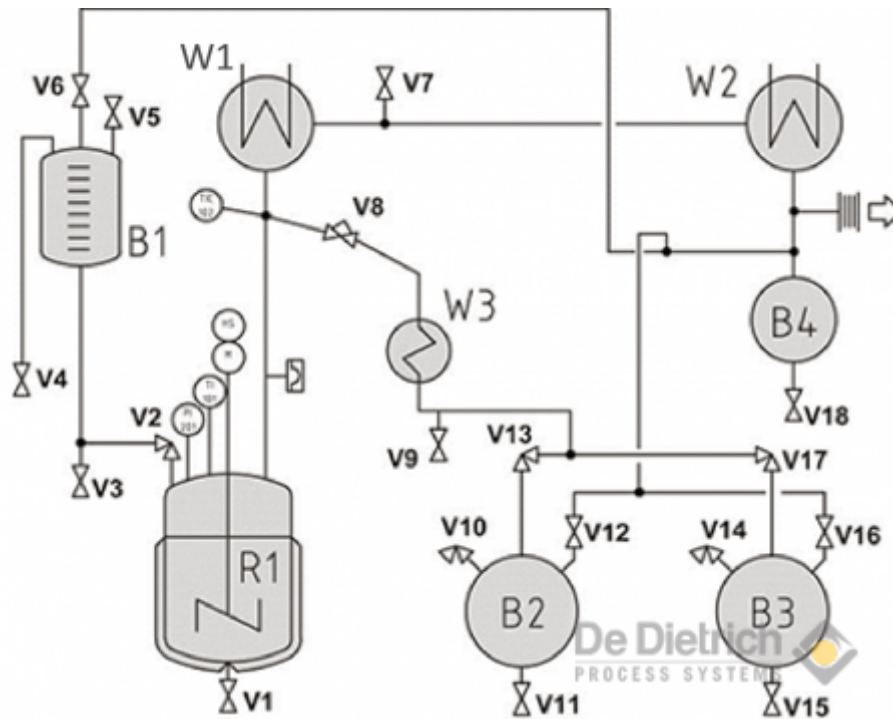
### Single-piece glass components without seals

QVF® SUPRA coil type heat exchangers made in borosilicate 3.3 glass are single-piece units where the tube coil is fused to the shell, so that no seals are required. This eliminates any risk of cross-contamination between the service medium and the product. These heat exchangers made entirely from glass are thus ideal for integration into other glass apparatus. As is the case with all glass equipment, they are easy to operate and clean. The maximum permissible pressure of the service medium is 3 bar g. The maximum permissible pressure in the glass shell depends on its diameter and is in line with that of other glass components of the same diameter. The maximum permissible temperature difference between the service medium and the product must not exceed 180°C (at max. temperature 200°C). The perfectly smooth glass surfaces prevent deposits, so that the heat transfer rate remains constant for long periods of time. The QVF® coil type heat exchangers are available in a number of sizes from 0.03 to 15m<sup>2</sup>, catering for a wide range of processes such as tempering, condensation and evaporation. Where larger heat exchange areas are required or the pressure/pressure drop of the service medium in the coil tube is greater than 3bar g, we recommend using a QVF® SUPRA shell and tube heat exchanger.

QVF® SUPRA coil type heat exchangers are versatile.



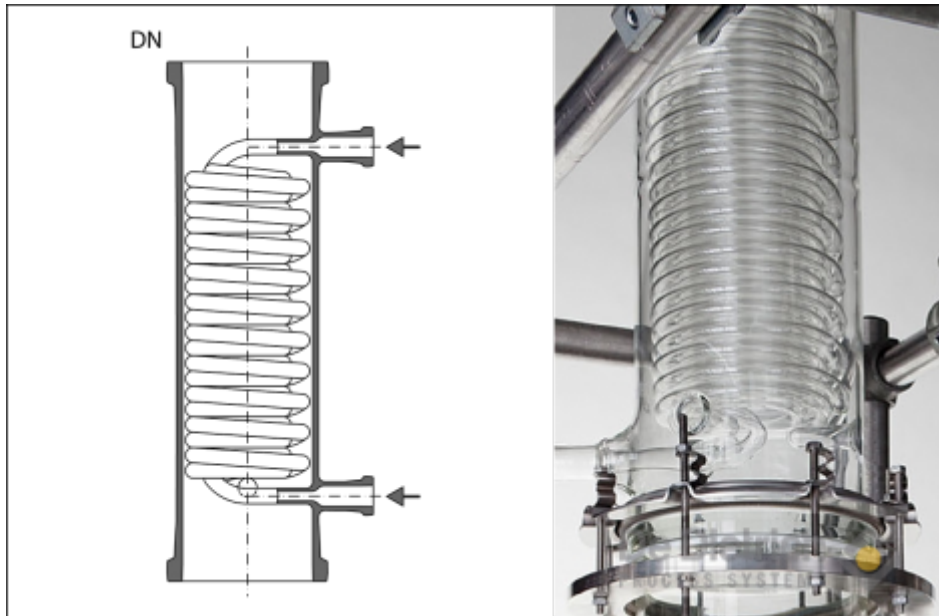
QVF® SUPRA coil type heat exchangers are versatile.



## UNIVERSAL COIL TYPE HEAT EXCHANGER - TYPE HC

The universal heat exchanger suitable for most standard applications

The QVF type HC coil type heat exchanger is available in sizes DN40 to DN600, offering heat exchange areas of 0.2 to 15m<sup>2</sup>, and is thus suitable for most applications. It is generally installed in a vertical position. In order to increase the heat transfer area, multiple heat exchangers can be arranged in series, one on top of the other. Up to DN150, the type HC heat exchanger can also be installed horizontally. This option is ideal for integration into distilling units for both upflow and downflow condensation as well as for use in dephlegmators. It can also be operated as a heater or cooler for the tempering of liquids.



## **HORIZONTAL CONDENSER - TYPE CD**

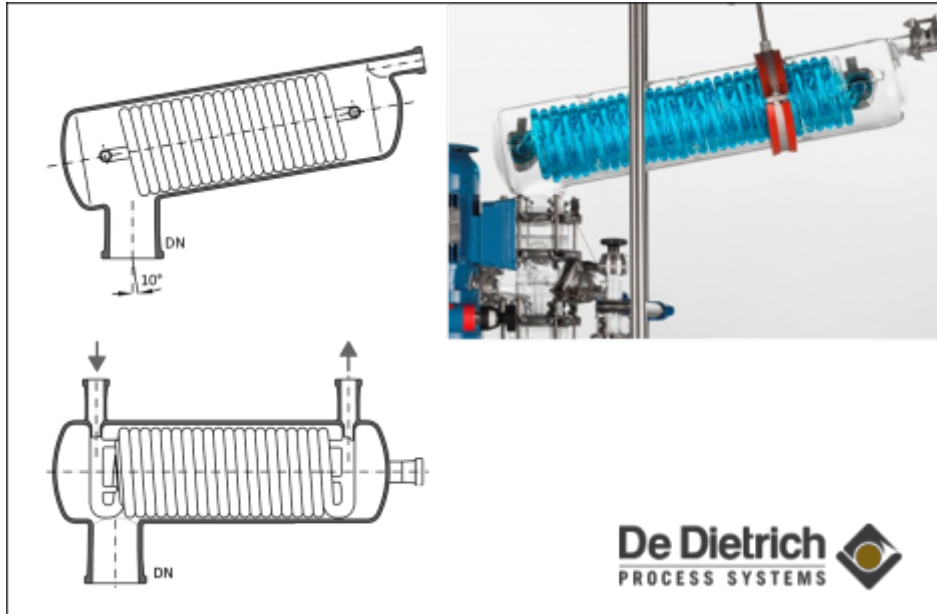
### Compact alternative to upright universal coil type heat exchanger

The type CD condenser is optimised for horizontal installation and offers a heat transfer area of maximum 1m<sup>2</sup>. As the headers as well as the steam inlet, return and bleeder connections are integrated into the heat exchanger, this model is extremely compact. It is available in two versions for operation at 0° and 10° respectively.

In the 0° version, the steam enters the condenser from the side, while the condensate flows through the bottom connector of the opposite header. This model is also suitable for downflow condensation, as the condensate is cooled to below the condensation temperature directly in the condenser.

The 10° version is used for upflow condensation, and the condensate flows at boiling temperature back through the steam connector. It is therefore ideal for combination with an integrated reflux separator.

Both versions are cavity-free so that full condensate discharge is achieved.

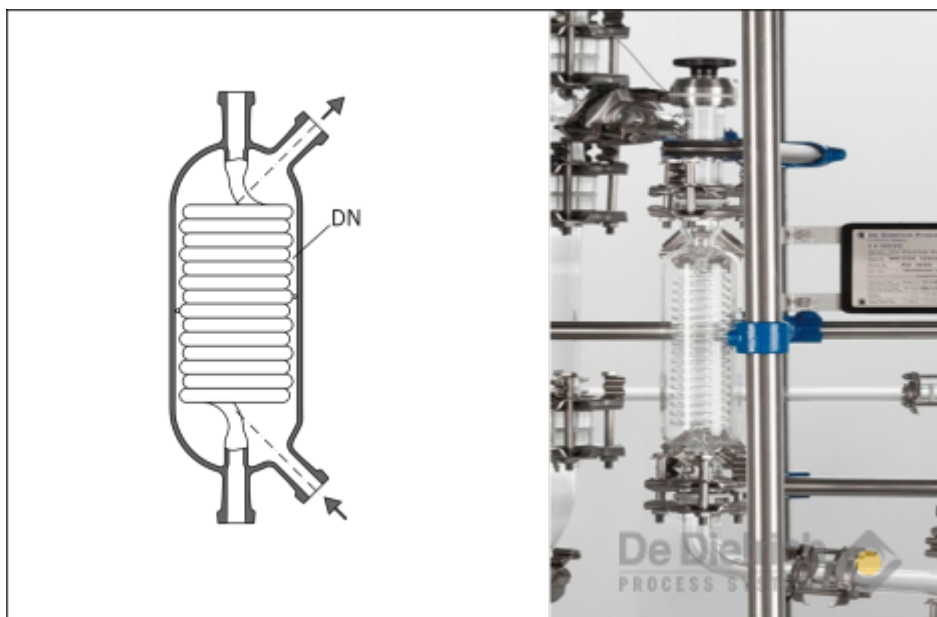


## DISTILLATE COOLER - TYPE CL

### Cooling medium in shell

The type CL cooler is used for the cooling of liquid flows, in particular distillates. In contrast to the heat exchanger types described above, the service medium flows through the shell and not through the coil. This results in significantly reduced hold-ups and prevents re-mixing of the liquid flow. The coil length and the maximum possible pressure drop are limited, as, in glass apparatus, distillate normally only flows by gravity. The heat transfer areas measure between 0.03 and 1.0 m<sup>2</sup>, which means that, in contrast to type HC, this model is only suitable for the tempering of small liquid flows.

Diagram of type CI distillate cooler

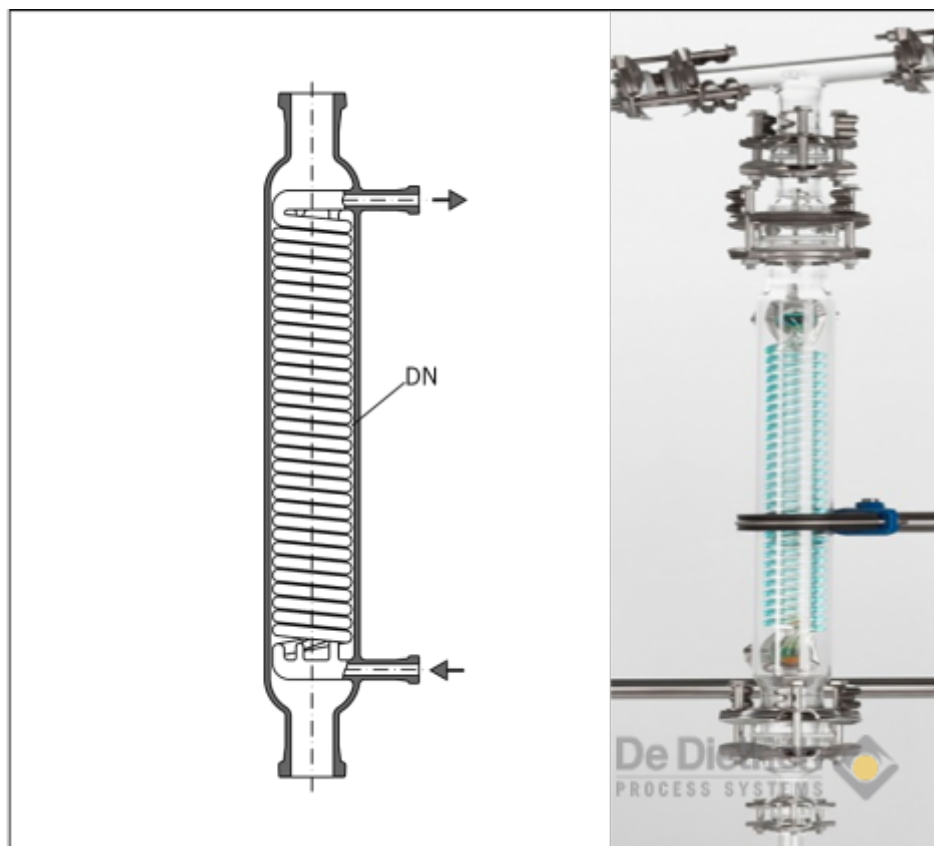


## SECONDARY CONDENSER - TYPE CV

### Compact heat exchanger for gas stream purification

The type CV condenser is optimised for use as a secondary condenser to remove vapour components still contained in the gas flow. It is available with a nominal diameter of DN100 and two different lengths or heat transfer areas respectively and can be equipped accordingly with various gas inlet and gas outlet nozzles.

Diagram of type CV

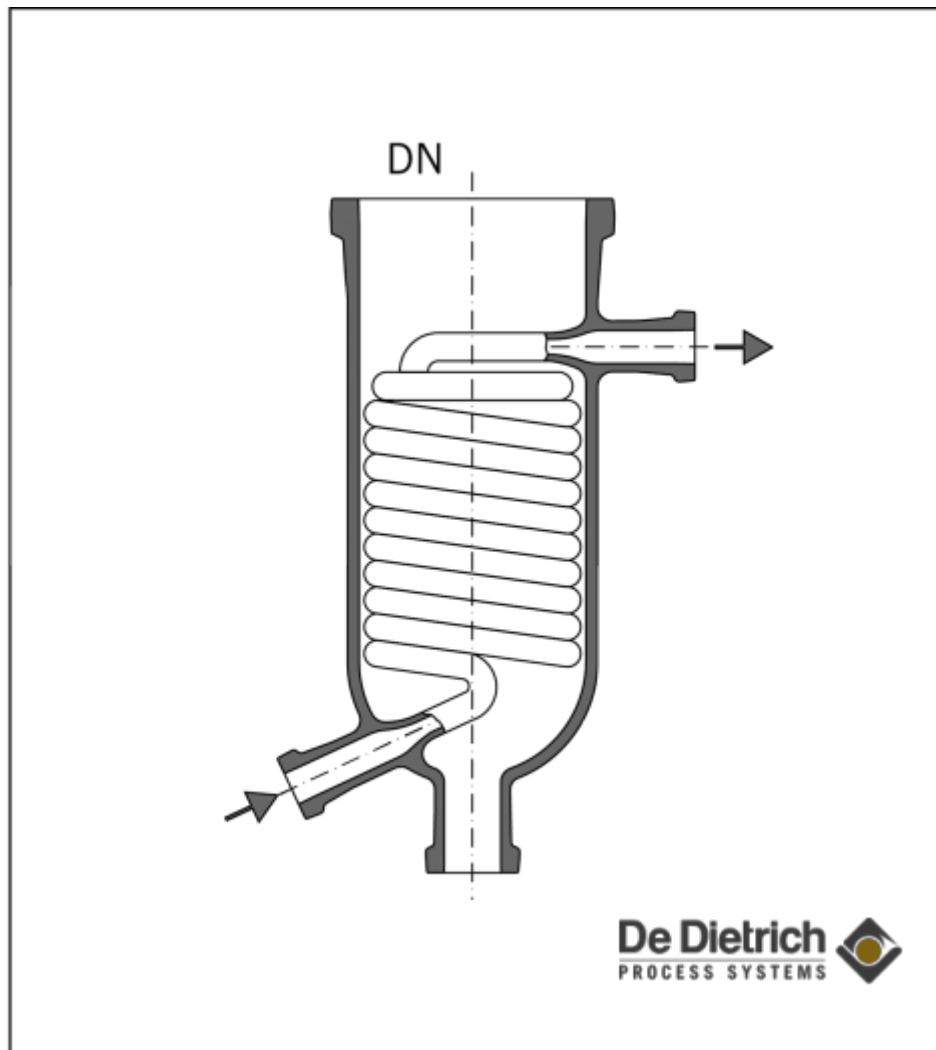


## COIL HEATER - TYPE BC

### Compact heater made in borosilicate 3.3 glass for circulatory evaporators

This coil type heat exchanger is primarily used in circulatory evaporators. The heating medium can be fed through the coils at pressures up to 4 bar. The largest BC model has a heat exchange area of 1.5m<sup>2</sup>, which means that around 37 kg of water can be evaporated with heating steam.

Diagram of type BC

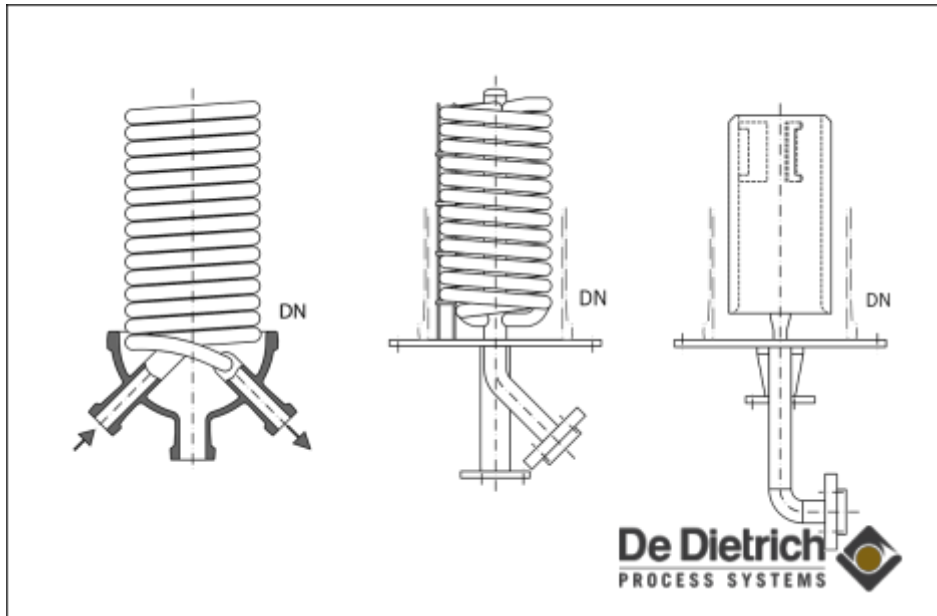


## IMMERSION TYPE HEAT EXCHANGER - TYPE HI

Compact solution for tempering and evaporation in spherical vessels

The type HI heat exchanger made in borosilicate 3.3 glass with a heat transfer area of up to 1m<sup>2</sup> is installed through the bottom into glass vessels (primarily vessels of spherical shape) with suitable base outlets. It is used for the heating/tempering and evaporating of liquids. The 1m<sup>2</sup> glass coil is able to evaporate around 30 kg of water per hour, using steam at 3 bar g. Significantly higher evaporation rates can be achieved, if the glass coil is replaced with a metal coil. To further increase the evaporation rate, we recommend using a ring type heater and a turbine stirrer centred inside the ring. Such systems should be made from metals such as stainless steel Hastelloy or Tantal, as they allow for much higher heating steam pressures and thus higher evaporation rates.

Diagram of type HI immersion type heat exchanger



## Questions? We are here to help.

If you'd like to talk with a sales representative about purchasing De Dietrich Process Systems's products and services, you can reach us here.



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