

fluid

DAS UNABHÄNGIGE TECHNIKMAGAZIN

HYDRAULIK

Hybride Sicherheits-
wärmetauscher
gegen eine Öl-
Wasser-Vermischung
32

DRUCKLUFT

Für ölfreie
Kompressoren kann
es Zuschüsse geben
36

MECHATRONIK

SPS zeigt in Nürn-
berg immer mehr
digitale Motion-
Control- und Steue-
rungstechnik
44

Titelstory

Fluidtechnik für
modernste Land-
wirtschaft 10



mj connect

Flexible Hydraulik
Hybrides Antriebs-
konzept für
Abkantpressen S. 20



With the safety heat exchanger, Universal Hydraulik offers the power of a standard heat exchanger with the size of a hybrid heat exchanger.

No oil-water mixing in the cooler

Hybrid safety heat exchanger of Universal Hydraulik

In order to prevent an oil-water mixing in the cooler, two heat exchangers with separate circuits are often used. However, there is also an easier way.

The rules of physics are merciless. No matter how highly optimized a technical device is, how mechanical and - in fluid engineering plants - the efficiency is driven upwards in volume, some of the energy used is lost. According to the first and second main set of thermodynamics, it is converted into heat. Since this usually has an unfavorable effect on the desired processes, it is often necessary to actively cool. Clear the stage for heat exchangers and coolers. Michael Uhl, Managing Director of Universal Hydraulik, sees a two-part development: "In the industrial sector, especially in the hydraulics market, heat exchangers are becoming smaller in certain areas, mainly because of the servo application, in which the heat output is partly reduced. In many other areas, however, the trend is the other way around. We are developing ever larger heat

exchangers because it simply covers other markets," emphasizes Uhl.

Hybrid safety heat exchanger

Based on the existing hybrid heat exchangers of the SCM series, Universal Hydraulik GmbH developed the new high-performance safety heat exchanger SCM/FS.

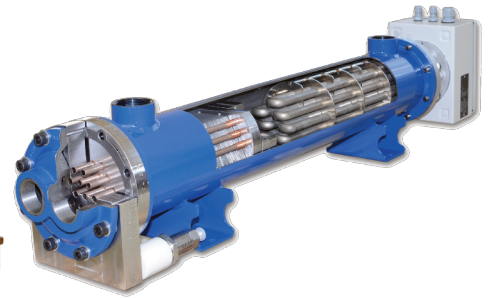
Due to the hybrid design, it is compact, i.e. reduced to one third of the size and is therefore just as small as the standard hybrid heat exchanger. The safety function therefore does not reduce efficiency. It also has the same advantages as a tube bundle heat exchanger. These are not only the smooth pipes on the water side where the dirt cannot settle easily, but also the pipe diameter can be increased or the material can be adapted to the



Picture: AdobeStock_KISSKI



Picture: Universal Hydraulik



The cooler-heater unit of Universal Hydraulik prevents a coking of the oil.

Heat exchangers with a three-way valve are a good option for where uninterrupted operation is required.

water quality. It is also very easy to clean due to the simple unscrewing of the end cap and the brushing through the pipes.

Risk of leaks minimized

However, the investment is not cost-effective. The safety heat exchanger in hybrid construction is about twice as expensive as a conventional product, but the investment is worthwhile, because in the event of a leakage, damage is largely excluded. The safety heat exchanger is built in the double pipe principle. In the case of a damaged pipe, the medium flows through the leakage channels between the double pipes into the leakage chamber, which is located between the two tubes and triggers an alarm message by means of 100% electronic monitoring. This then switches on either a locking valve or an alarm lamp, makes a loud noise, causes an emergency stop or a controlled shutdown of the system. Contamination and subsequent standstill of the system is prevented, because the second pipe wall of the heat exchanger is still undamaged and so both media remain separate and you can keep the heat exchanger in operation until the next maintenance. Universal Hydraulik meets a very high quality requirement by testing each heat exchanger four times during production. In addition, all coolers have an extremely high cleanliness. This is ensured by two separate production halls. One is used for welding and the other for clean assembly.

In order not to have any external piping effort, the installation of an internal bypass is also possible. The safety heat exchanger can also be used in

potentially explosive atmospheres, as the sensor has the IECEx certificate. The area of applications include marine, offshore or presses. The safety heat exchanger is particularly recommended in shipbuilding, as mussels, sand, and other impurities end up in the heat exchanger, since a water filter is often not used for reasons of savings. These contaminants can destroy the water pipes. With the double tube principle, your system is protected in the event of a leakage. The hybrid heat exchangers are already used on all ship sizes worldwide and can be supplied with the following certificates: Germanischer Lloyd, DNV, Bureau Veritas, ABS-American Bureau of Shipment, CCS, China, Japan and others on request.

Cooler-heater unit

One of the company's latest innovations is the "cooler-heater unit", the combination of hybrid cooler and electrical oil pre-heater in just one housing! The fluid to be heated is first passed through the oil pre-heater, whereby a coking of the oil is prevented by the forced flow and temperature limiter. After that, it continues flowing through the cooler. Depending on the oil temperature and setting, the oil is either heated or cooled - in only one housing. The "cooler-heater unit" is not only multifunctional and ultra-compact, but also optionally 100% failsafe.

**Author
Source**

Valentina Uhl, Universal Hydraulik
fluid – Das unabhängige Technikmagazin