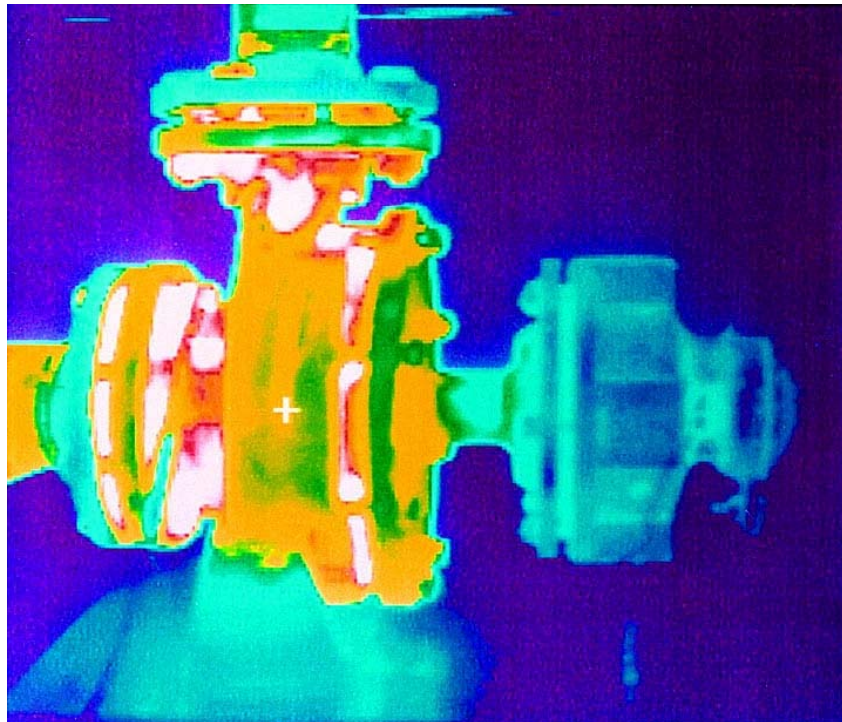


Process Pumps for Heat Transfer Systems

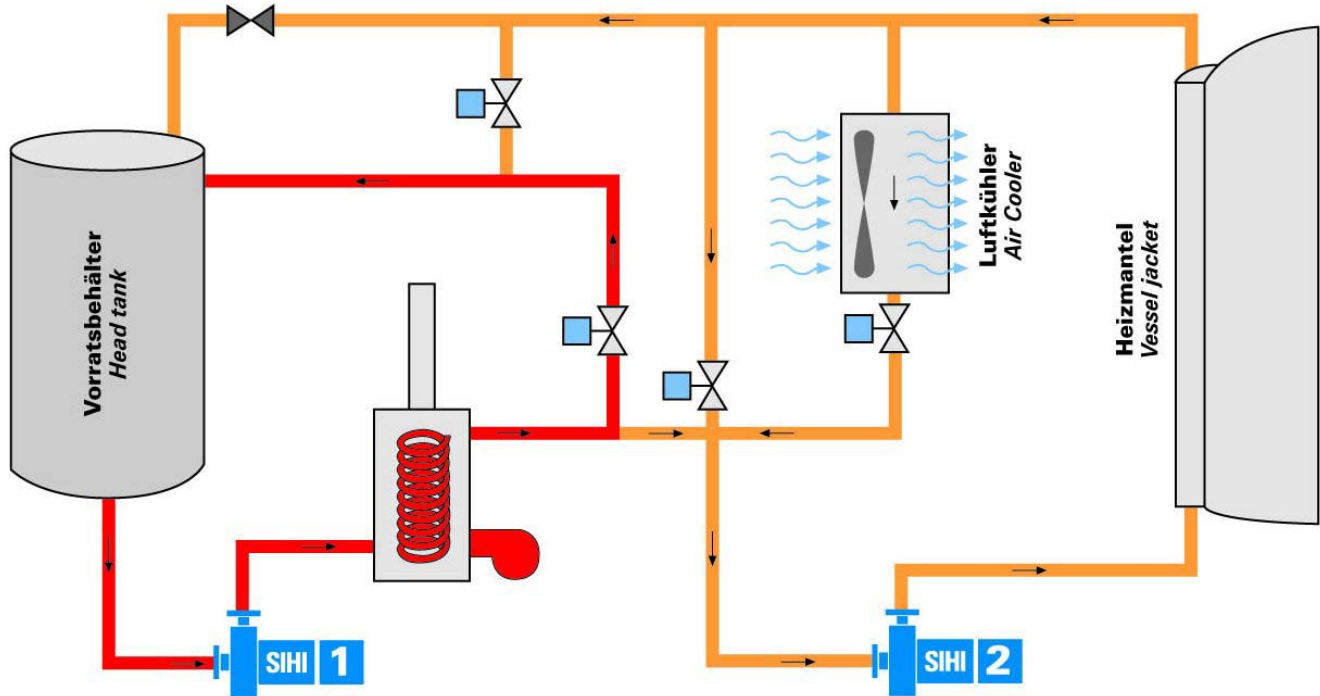


Most of the processes in industrial engineering take place where energy is absorbed or released simultaneously. Only a defined temperature level enables the required reactions or working processes to occur. It is an advantage to use heat carrier liquids so that control can be easily managed and maintained in any of these processes. In this case a heat transfer medium is circulated between the heat source and the consumer of the heat. The working temperature in these heat carrier circuits is generally between 100 °C and 400 °C and different heat carrier liquids are used for the transfer of the energy.

In the temperature range up to approx. 200 °C, water is the preferred medium as it is non-polluting and has a high specific thermal capacity. In the temperature range from 200 °C to 400 °C, organic heat transfer liquids are preferable because the vapour pressure of water rises considerably when the temperature increases.

For these types of applications volute casing pumps have been specially developed. However because of the different physical properties of the heat transfer liquids the hot water pumps are different in design to the heat transfer oil pumps.

Process Pumps for Heat Transfer Pumps



An overview of the various Process Pumps









1 Circulation pumps (primary circuit)

In the primary circuit the transfer liquid is heated by the burner and pumped by the circulation pump around the primary pipe work. The requirements for these pumps depend on the temperature range and heat transfer medium. Thermal oil pumps are normally designed to industrial standards and have a nominal pressure of 16 bars. If water is used as the heat transfer medium the nominal pressure of the hot water pumps is much higher.

2 Circulation pumps (secondary circuit)

In most cases heat transfer systems operate with a primary and secondary circuit. The primary circuit is heated by the burner and supplies the heat to the smaller secondary circuit. These secondary circuits are for example installed on reaction vessels or ovens. The circulation of the heat transfer liquid in these circuits is done by the secondary circulation pumps, which are normally smaller than the pumps for the primary circuit. The technical requirements are similar to the requirements of the primary circuit pumps.

Innovative Solutions from Sterling SIHI

Process pumps	Pump types	Pump execution			
1 Circulation pumps primary circuit	Hot water pumps Type ZEN, ZDN, ZHN		Capacity: Shaft sealing: Material: Pressure:	max. 600 m ³ /h mechanical seal nodular iron, steel max. 40 bar	
	Hot oil pumps Type ZTK, ZTN		Capacity: Shaft sealing: Werkstoffe: Pressure:	max. 1000 m ³ /h mechanical seal, Mag drive nodular iron, stainless steel max. 16 bar	
2 Circulation pumps secondary circuit	Hot water pumps Type ZEN, ZDN, ZHN		Capacity: Shaft sealing: Material: Pressure:	max. 600 m ³ /h mechanical seal nodular iron, steel max. 40 bar	
	Hot oil pumps Type ZTK, ZTN		Capacity: Shaft sealing: Werkstoffe: Pressure:	max. 1000 m ³ /h mechanical seal, Mag drive nodular iron, stainless steel max. 16 bar	



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