An environmentally friendly **cleaning process for** shell and tube **heat transmitters**

Cleaning the tubes of two tube bundles with the RTC method.

This article relates an efficient, environmentally friendly cleaning process for shell & tube heat transmitters in which there are to be found hard crusts and corresponding closures/blockages.

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Shell & tube heat transmitters (colloquially also known as heat exchangers) are used for the transfer of large amounts of heat (often at high temperatures) from an emitting medium into an absorbing medium for the purpose of cooling or heating during industrial processes.

Regardless of whether the emitting medium or the receiving medium flows through the tubes of the tube bundle or flows around these tubes, there is always the possibility of a mix of chemical, physical, or mechanical contamination of the outer surface or the inner surface, depending on the type of material the tubes of the tube bundle are made of.

Of those service companies that specialize in the cleaning of shell & tube heat transmitters (STHT), high-pressure cleaning processes (HPCP) are used more or less successfully.

Once the inner surfaces of tubes and pipes have become contaminated their capability for further efficient heat transfer depends on the success of the cleaning method used. All users of heat exchangers want to use efficient and effective cleaning methods that are economically justifiable to remove the existing contamination.

Unfortunately, the success of conventional cleaning methods of inner tubes of STHT in the presence of hard crusts and closures, especially like HPCP, leaves something to be desired. There is therefore a need for a method that guarantees the necessary cleaning success.

The Rädler Tube Cleaning (RTC) cleaning process guarantees a superior cleaning performance with economically justifiable effort.

As such, the drill is carefully kept away from the inner surface of the pipes by a hydraulic cushion. It is created by a pad of water, which comes out from the side of the drill guidance at low pressure. The water absorbs the material that is removed from the inner surface of the tube. The throughput between the inner tube surface and the guide hereby creates a very clean surface for the inner tubes.

In practice, the cleaning quality results in an extension of the service lifespan of STHTs cleaned in this way. In contrast the inner surfaces of STHT pipes that are less effectively cleaned still often contain residues of contamination. These quickly lead to renewed contamination of the inner surface of the pipes.

Another significant result of cleaning in this way is the environmental impact and the workload of the operator are significantly lower. There are, moreover, no safety risks. «

The lance shortly before entering the dirty tube.

Propulsion of the rotating lance during the cleaning process.

The lance is retracted after cleaning the tube.