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PRESS RELEASE

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Hot Runner Systems – A Key Component of Modern Injection Moulds

When plastic remains where it does not belong

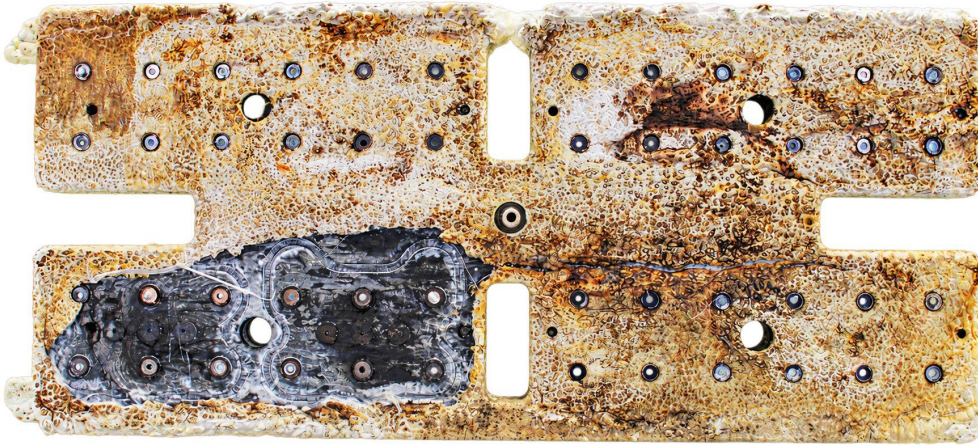
Hot runner systems are used wherever high production volumes, short cycle times, complex components and geometries, or high process reliability are required. Their task is to guide the molten plastic from the machine nozzle through a heated manifold and the hot runner nozzles into the mould in a controlled manner.

Deposits can form as a result of long residence times, temperature loss and residues from material changes. Particularly in hard-to-reach areas, such residues can accumulate over an extended period. Cleaning a hot runner system must therefore not only remove polymer deposits, but at the same time protect the sensitive geometries and surfaces of its components.

The consequences of polymer deposits are not merely a visual issue. They can directly affect production. Quality may deteriorate, while the production process can also be negatively affected by changes in flow behaviour and uneven temperature distribution.

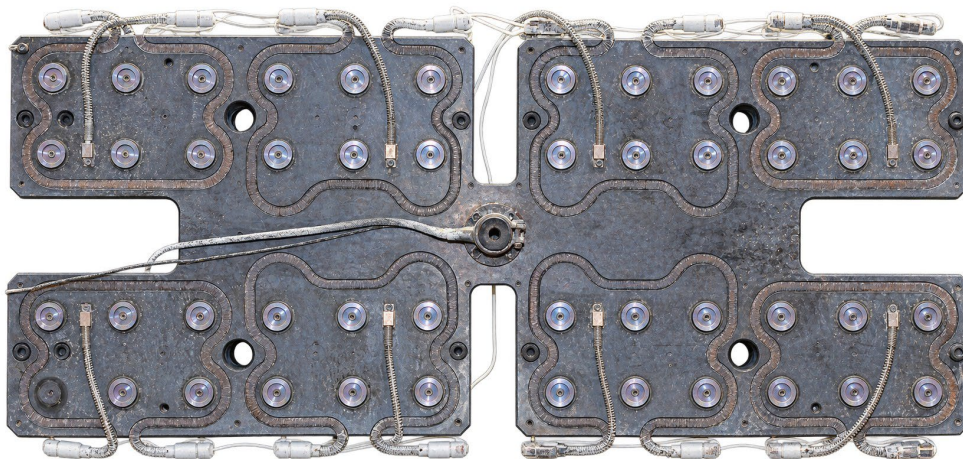
The long and, in some cases, highly complex internal flow channels of a hot runner manifold are particularly critical. These channels are difficult, and in some cases impossible, to access mechanically. This is precisely where the thermal cleaning technology from **SCHWING Technologies** demonstrates one of its key strengths.

For this cleaning requirement, SCHWING offers thermal cleaning systems in various sizes and configurations as an alternative to cleaning compounds or mechanical processes. These systems can remove adhering plastics from both small and large hot runner systems with complex geometries – thoroughly, without leaving residues and with high energy efficiency. This applies in particular to internal channels that are difficult to access.



SCHWING Technologies enables the safe thermal removal of plastic residues from hot runner systems – shown here is a heavily contaminated hot runner system prior to cleaning.

Image credit: SCHWING Technologies



Cleaning a hot runner system in a large pyrolysis unit (MAXICLEAN) takes approximately four to eight hours – shown here after cleaning.

Image credit: SCHWING Technologies

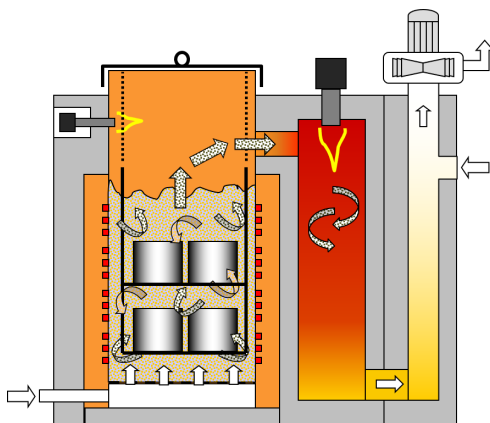
Cleaning Technology for Smaller Hot Runner Components

The energy-efficient, environmentally friendly and low-emission fluidised-bed cleaning system **INNOVACLEAN** is particularly suitable for smaller hot runner components, such as hot runner nozzles.

Within 90 minutes (e.g. PE and PP), two to three hours (glass-fibre-reinforced plastics) or five to six hours (high-temperature polymers), the system removes all types of plastics completely in a single process step. With the addition of further components, even halogenated plastics can be removed without difficulty.

The precisely controllable cleaning process uses the heat and mass transfer properties of fluidised sand in the fluidised bed. During this process, hot runner components are freed from plastic at polymer-specific temperatures of 450 to 520 °C, without mechanical or thermal damage.

The system operates completely without wastewater or waste.



Functional principle of the INNOVACLEAN – cross-sectional view and example drawing
Image credit: SCHWING Technologies

Cleaning Technology for Larger Hot Runner Systems

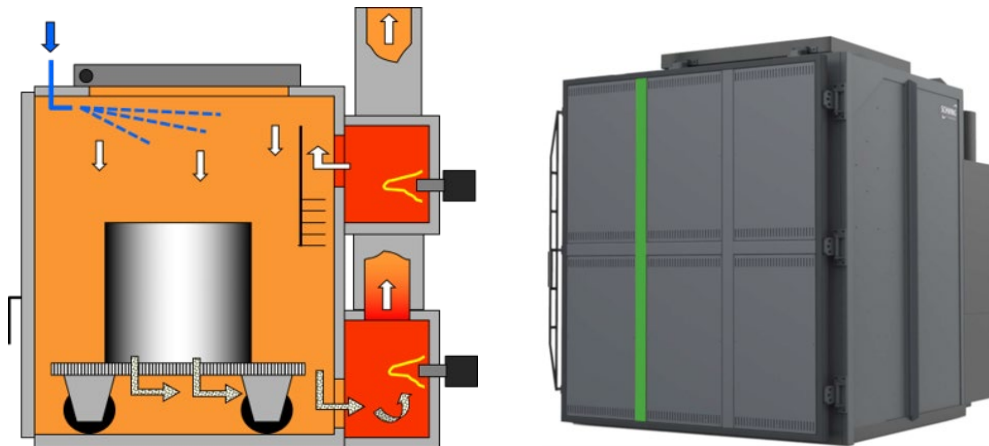
The removal of plastics from larger hot runner systems can also be carried out in an environmentally friendly and low-emission manner. They are cleaned in SCHWING's large thermal pyrolysis systems **MAXICLEAN**.

Within approximately four to eight hours, the systems remove all polymer residues in a single process step. At the same time, hot runner systems and components are protected against mechanical damage.

The precisely controllable and fully reproducible cleaning process takes place in an externally gas-heated cleaning chamber with a specially designed hot-air flow system. This ensures optimum temperature distribution throughout the chamber.

Automatic process control ensures short cleaning times. Inorganic residues are removed during a coordinated post-treatment process.

The system operates without wastewater and features a separate afterburner, which completely combusts the resulting pyrolysis gases at temperatures above 800 °C before they are discharged through the chimney.



Cross-sectional functional principle and example drawing of the MAXICLEAN
Image credit: SCHWING Technologies

About SCHWING Technologies

With almost 60 years of experience in the market, **SCHWING Technologies GmbH** is a global technology leader in high-temperature systems for the thermal cleaning, thermo-chemical material refinement and heat treatment of metal parts and tools used in manufacturing industries.

SCHWING manufactures and operates its systems at its headquarters in Neukirchen-Vluyn on the Lower Rhine in Germany. Its approximately 2,500 customers worldwide include companies from the plastics and fibre industries as well as the chemical and automotive sectors. With around 80 employees, the company offers the most economical, environmentally friendly and high-quality equipment and system solution for every cleaning requirement.

As a cleaning service provider, SCHWING is also a reliable service partner, cleaning more than 250,000 workpieces every year in accordance with the highest quality and environmental standards.

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