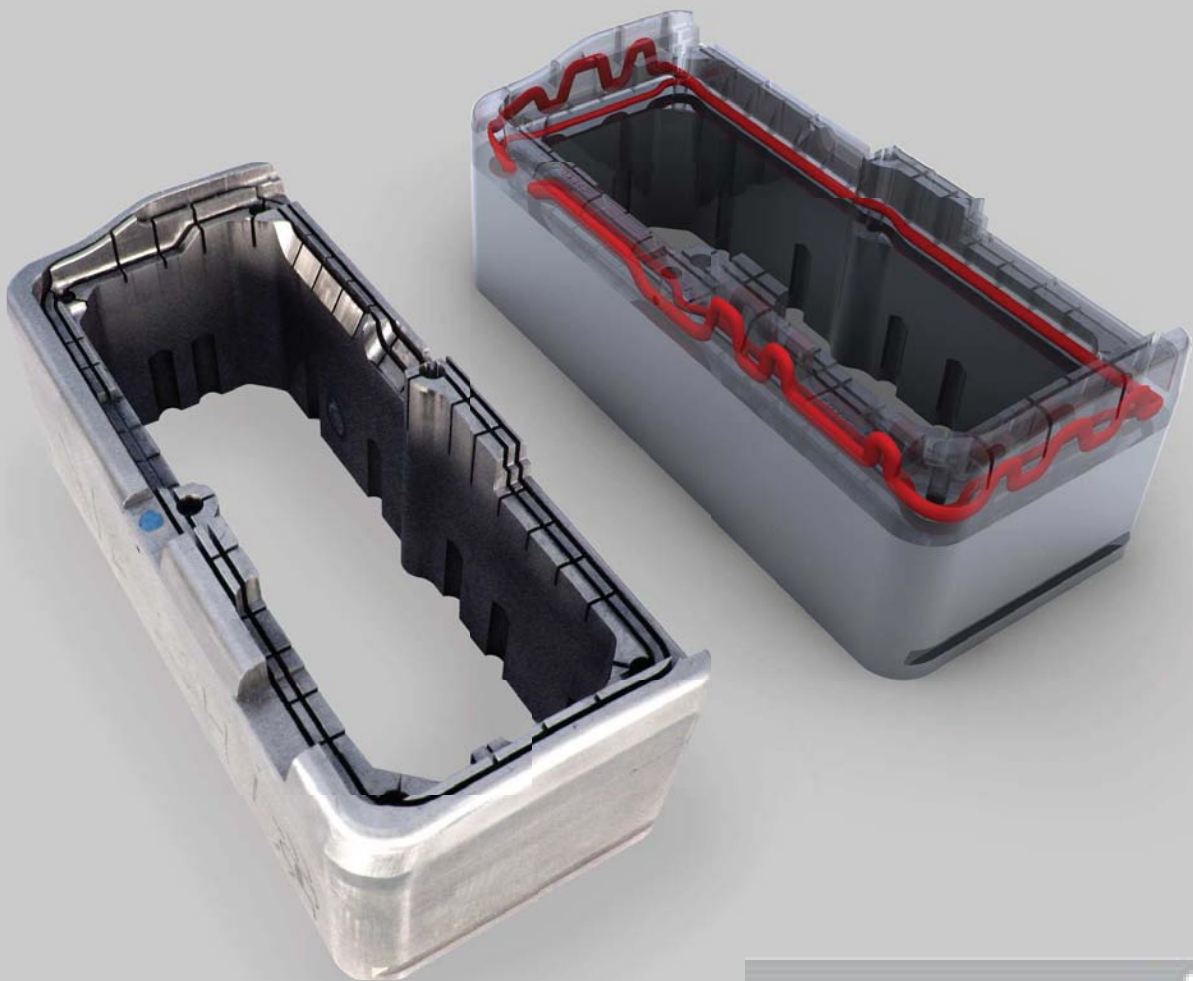




SLM TOOL INSERTS



WEGWIJS IN KUNSTSTOF

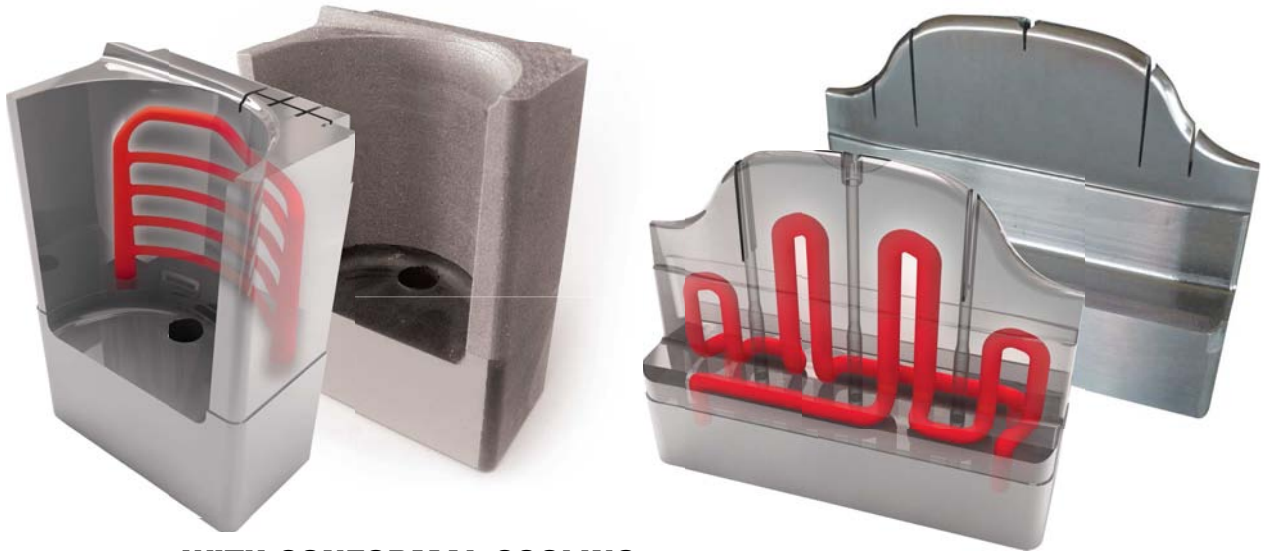


DAHANAN

TOOL INSERTS ADVANTAGES:

FOR PLASTIC INJECTION

- . Cycle time reductions of up to 40%
- . Greater durability of mould especially compared to Ampco® and Contura®
- . No temperature-related defect problems thanks to shape-conformed cooling channel
- . Easy repair of damaged mould parts
- . No sink marks, deformations and weld-lines
- . High costs abatement thanks to hybrid construction technique



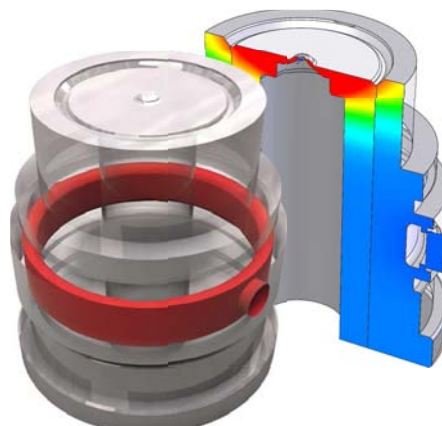
HOT RUNNER WITH CONFORMAL COOLING TOOL INSERTS

Visual defects are often caused by over-heating of mould areas around the hot runner tip. The long time required to cool the melt and the injection point means a loss in the cycle time. For these reasons a conformed cooling channel around hot runner tip can solve and avoid many issues of the moulding process like sink marks, deformations and cycle time.

The hybrid method allows us to combine conventional methods such as milling and turning with the SLM additive process. Traditional and innovative technologies are combined to maximize the cooling effect and minimize costs, leading to a complete solution of quality and time issues and a very short return on investment as well.



35-40% CYCLE TIME REDUCTION



traditional cooling 18 seconds



conformal cooling 11 seconds

CONTOUR PINS

Contour pins are some of the most difficult geometries to reach with traditional technologies. Most of the times are impossible parts and can cause many problems: cycle time increase due to overheating and visual defects (marks and sinking).

Contour pins with conformal cooling can be used both with water and air and starts from $\varnothing 2,5\text{mm}$. They can be built on standard mould parts such as ejector sleeves in order to minimize costs.



contour pin with conformal cooling. Spiral geometry to increase stiffness.



Contour pin with conformal cooling. Built on a standard ejector sleeve and with a $\varnothing 2,5\text{mm}$ on the top.

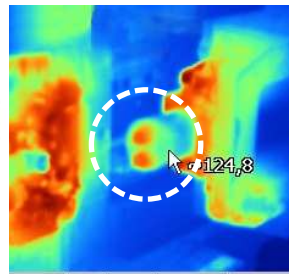
LIGHT METAL DIECASTING

Product benefits:

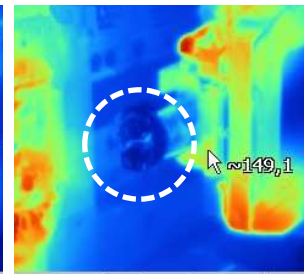
- .porosity reduction
- .even part cooling
- .better dimensional tolerances
- .reduction of post-process milling

Process benefits:

- .cycle time reduction
- .even part cooling
- .better dimensional tolerances
- .reduction and elimination of post process milling

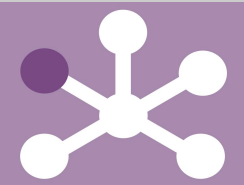


traditional cooling



conformal cooling





Material data sheet

DIN		yield point $R_{p0,2}$ (N/mm ²)	tensile strength R_m (N/mm ²)	Hardness (HRC)	E-modulus (10 ³ N/mm ²) at 20 °C	Elongation (%)	Thermal conductivity (W/mK) at 20 °C
CL 20ES 1.4404		470	570	20	-	> 30	ca. 15
<p>CL 20ES stainless steel: powder material for the production of acid and corrosion resistant parts or tool components for pre-production tools.</p>							
CL 50WS 1.2709	untempered	950	1.100	35 - 40	140	4,0	ca. 14
	tempered (490°C)	1.800	1.900	54	160	> 2-3	ca. 14
	tempered (540°C)	1.550	1.650	48	160	> 2-3	ca. 14
<p>CL 50WS Hot-work steel: Powder material for the production of components as well as tool components of production moulds for plastics and light metal diecasting. Mechanical and wear properties are similar to 1.2343. Baseplate materials: 1.1730, 1.2311, 1.2312, 1.2343, 1.2344, 1.2709.</p>							
CL 91RW	tempered (510°C)	ca. 1.600	ca. 1.700	48 - 50	ca. 140	ca. 2	ca.13
<p>CL 91RW Hot-work steel: Powder material with the characteristics of a hard stainless steel with high chrome content (>12%). The powder material is used for production of tool components for the serial injection moulding of packaging and medical products. Baseplate materials: Uddeholm Corrax, Stavax.</p>							