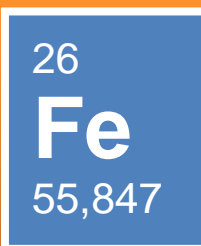


## CL 50WS Hot-work steel

Hot-work steel 1.2709 (powder)

CL 50WS is a powder material for the production of components for tool inserts with conformal cooling. These tool inserts can be used for series injection moulding as well as for die-casting. Furthermore the material can also be used for functional components.



### CHEMICAL COMPOSITION

Component	Indicative value (%)
Fe	Balance
C	0,03
Si	0,10
Mn	0,15
P	0,010
S	0,010
Cr	0,25
Mo	4,50 - 5,20
Ni	17,0 - 19,0
Ti	0,80 - 1,20
Co	8,50 - 10,0

## RANGE OF APPLICATION

Tool inserts with conformal cooling in the area of injection moulding and die-casting as well as functional components.

## TECHNICAL DATA AFTER RECOMMENDED HEAT TREATMENT

Yield Point $R_e^1$	1.550 N/mm <sup>2</sup>
Tensile Strength $R_m^1$	1.650 N/mm <sup>2</sup>
Elongation A <sup>1,2</sup>	2-3 %
Young's modulus <sup>3</sup>	approx. $200 \cdot 10^3$ N/mm <sup>2</sup>
Thermal conductivity $\lambda^3$	approx. 20 W/mK
Hardness <sup>4</sup>	up to 52 HRC

<sup>1</sup> Tensile test at 20°C according to DIN EN 50125

<sup>2</sup> By using a special heat treatment a higher elongation can be achieved.

<sup>3</sup> Specification according to the material manufacturer's data sheet.

<sup>4</sup> Hardness test according to DIN EN ISO 6508

### CL 50WS

Hot-work steel

1.2709

## MICROSECTION

Testpiece (x20 magnification)



Testpiece (x100 magnification)



## HEAT TREATMENT

Heat up with 100°C/h up to 540°C. Maintain temperature for 6-10 hours. Allow the components to cool down in the oven with 100°C/h.

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## MICROSTRUCTURE

Components made from hot-work steel CL 50WS display a homogeneous, dense structure after they are manufactured by means of the metal laser melting process.

All stated values are approximate values. All details given above are to our current up-to-date knowledge and depending on the process and machine parameters. The data contained in the material data sheet is merely for general information and therefore shall not be binding on the company.