

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.

26
Fe
55,847

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 ²
Tensile Strength R_m ¹	1.650 N/mm ²
Elongation A ^{1,2}	2-3 %
Young's modulus ³	approx. $200 \cdot 10^3$ N/mm ²
Thermal conductivity λ ³	approx. 20 W/mK
Hardness ⁴	up to 52 HRC

¹ Tensile test at 20°C according to DIN EN 50125

² By using a special heat treatment a higher elongation can be achieved.

³ Specification according to the material manufacturer's data sheet.

⁴ Hardness test according to DIN EN ISO 6508

CL 50WS

Hot-work steel
1.2709

MICROSECTION

Test piece (x 20 magnification)



Test piece (x 100 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.

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 LaserCUSING®.

Concept Laser GmbH
 An der Zeil 8
 D 96215 Lichtenfels

Sales Department
 info@concept-laser.de
 T: +49 (0) 95 71.949 238
 F: +49 (0) 95 71.949 249

A company of

HOFMANN
 innovation group

www.concept-laser.de