wieland

DuroPlast® NCS

Technical Datasheet

Short Name	~ CW111C	**Chemical**	Ni	Si	Cr	Cu
Code	CuNi2SiCr	**Composition**	2.4	0.7	0.5	balance
Material-No.(old)	~ 2.0855	**(Reference values in %)**				

Material Properties	High thermal conductivity combined with good hardness and high-temperature. Good retention to tempering. Not suitable for case hardening and nitriding.
Applications	– Plastic injection molds: Solid molds or inserts (core and cavity side) – Tips for hot runner systems – Plunger tips for horizontal die casting machines – Molds for gravity casting

Mechanical Properties (Reference values)	Conditions		aged
	Hardness	HB 62,5/2,5	190 – 240
	Tensile strength	N/mm^2	min. 650
	Yield strength	N/mm^2	min. 500
	Elongation L = 5 D	%	10 – 15
	Modulus of elasticity	kN/mm^2	140
Physical Properties	Electrical conductivity 20 °C (293 K)	MS/m	ca. 26
	Coefficient of thermal expansion 20 – 100°C (293-373 K)	$\frac{1}{K}$	$16.0 \cdot 10^{-6}$
	Specific heat	$\frac{J}{g \cdot K}$	0.42
	Thermal conductivity 20 °C (293 K)	$\frac{W}{m \cdot K}$	160
	Density	g/cm^3	8.78

Products	Depending on Rods and Plates size: cold drawn, extruded or forged executions
Wieland DuroPlast® Materials	DuroPlast® is Wieland's advanced material solution for applications requiring exceptional hardness, thermal conductivity and durability. Our materials are designed for precision mold-making and high-performance components across multiple industries in the plastic market.

Key Benefits	- High hardness and wear resistance	→ Suitable for medium/ long production series
	- Excellent thermal conductivity	→ Reduce moulds cycle time improves plastic parts quality
	- Superior toughness/ ductility	→ Reduce risks of moulds premature failures
	- Excellent corrosion resistance	→ Reduce the moulds maintenance costs

Wieland Copper Alloys for Plastic Tooling				
Product Name	Hardness	Thermal Conductivity (W/mK)	Tensile Strength (N/mm2)	Elongation L=5D
DuroPlast® HH CuBe2	36 - 42 HRC	110 (20°C)	1150 - 1350	min. 5
DuroPlast® HA CuCo1Ni1Be	240 - 260 HB	210 (20°C)	700 - 900 (*)	min 5 - min 10 (*)
DuroPlast® SC CuNi7Si2Cr	240 - 260 HB	160 (20°C)	700 - 900	min.5
DuroPlast® NCS CuNi2Si (+Cr)	190 - 240 HB	160 (20°C)	min. 650	min.5
DuroPlast® AB CuAl10Ni5Fe4	180 - 210 HB	50 (20°)	680 - 740	min.8

** depending on the thickness*

Wieland No-Copper Based Alloys for Plastic Tooling					
Product Name	Hardness	Thermal Conductivity (W/mK °)	Tensile strength (N/mm2)	Elongation L=5D	
DuroPlast® TZM	200 - 250 HV	130 (20°C)	750 - 900	min. 6	
		Chemical Composition			
Ti	Zr	C	Mo		
0,50%	0,08%	0,03%	Rest		
Applications:	Gate Inserts, Spure Bushings, Core Pins (Thin-Wall Sections), Parts Exposed to High Temperature				
DuroPlast® 7075	150 HB	130-160 (20°C)	440-560 (*)	min. 6	
		Chemical Composition			
Si	Fe	Mg	Cr	Zn	Al
0,40%	0,50%	2,90%	0,28%	6,10%	Rest
Applications:	Blow Molding Molds, Prototypes Plastic Injection Molds, Thermoforming Tools				

** depending on the thickness*

Product Name	Hardness	Thermal Conductivity	Heat Resistance	Corrosion Resistance	Machinability
DuroPlast® HH					
DuroPlast® HA					
DuroPlast® SC					
DuroPlast® NCS					
DuroPlast® AB					
DuroPlast® TZM					
DuroPlast® 7075					

0425 I MC.ED.UL I Wieland