

I HWS-Supreme

	C	Si	Mn	P	S	Cr	Mo	Ni	V
min.	0.30	0.25	0.20			4.95	1.70	0.25	1.00
max.	0.35	0.35	0.30	0.010	0.003	5.05	1.80	0.35	1.10

Chemical Composition Range in weight-%

Characteristics

modified 5%-CrMoV Hot-Work Tool Steel with a chemical composition optimized for reduced susceptibility to Temper Embrittlement and improved Toughness while retaining extremely good high temperature Wear- & Heat Checking Resistance.

As standard, HWS-Supreme is produced using our special fine-structure heat treatment process to ensure an optimum fine-grained microstructure for highest Mechanical Properties and longest Tool Life.

Applications

Hot-Work Tools

suitable for highly-stressed Forging Dies requiring extreme Wear Resistance in addition to improved Toughness compared to traditional 5-7% CrMoV Steels, Die-Casting Molds and Inserts with high Tool Life Expectancy, Extrusion Tools and Dies, etc.

Plastic Molding

suitable for processing Polymers with abrasive additives (Glass Fiber, etc.) or for tools with a high life expectancy requiring extremely good Wear Resistance.

HWS-Supreme can be Nitrided-, Carbonitrided and / or PVD-coated in Quenched + Tempered or Hardened condition for further increased Abrasion- & Wear Resistance

Delivery Condition

Annealed to max. 229 HB

Quenched and Tempered to customer specification on request

Physical Properties (JMatPro)

Thermal expansion coefficient (10 ⁻⁶ /K)	20–100 °C	20–250 °C	20–500 °C
	12.0	12.8	13.7
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	24.8	30.7	32.0
Young's modulus (GPa)	20 °C	250 °C	500 °C
	215	205	180

Heat Treatment

Soft Annealing	Temperature:	800 °C
	Duration:	1 hour per 25 mm wall thickness
	Cooling:	Furnace
Hardening	Temperature:	1020 °C
	Duration:	30 seconds per mm wall thickness
as-quenched Hardness	max. 55 HRC	in Oil, Salt-Bath or Vacuum
Tempering	Temperature:	See tempering curve
	Duration:	1 hour per 25 mm wall thickness
	Cooling:	Air
Working hardness	30–50 HRC	

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