



AISI S7

S7 is a shock resistant tool steel that combines an easy heat treatment process, a very good toughness, along with a good machinability.

This grade is typically used for:

- > Backing plates
- > Blades, shears, punch, chisels
- > Support plates
- > Blanking dies

PROPERTIES

STANDARDS

- > **EURONORM** 50 CrMoV 13-15
- > **WERKSTOFF** ~1.2355
- > **ASTM A681-9** AISI S7
- > **DIN** ≈1.2355 (50CrMoV13-15)

CHEMICAL ANALYSIS -% WEIGHT

	C	Si	Mn	V	Cr	Mo	S	P
Min	0.48	0.20	0.60	0.20	3.00	1.30	-	-
Typical	0.50	0.50	0.70	0.25	3.30	1.35	< 0.002	< 0.005
Max	0.55	1.80	0.90	0.35	3.50	1.55	< 0.020	< 0.005

MECHANICAL PROPERTIES

S7 is delivered in annealed condition with hardness ≤ 225 HB

Hardness	Impact values	Elastic Modulus			
		HRC	J	GPa	KSI
41	13	53	16	207	29 -30
53	16				
57	17				

PROPERTIES

PHYSICAL PROPERTIES

Thermal conductivity $W m^{-1} K^{-1}$	Thermal expansion coefficient $10^{-6} °C^{-1} / 10^{-6} °K^{-1}$		
	20-100°C 68-212°F	20-200°C 68-392°F	20-500°C 68-932°F
28	12.5	13.3	14.2

PLATE PROCESSING

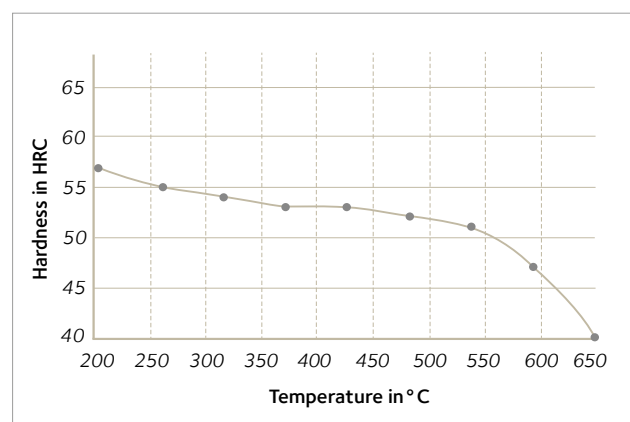
METALLURGICAL PROPERTIES

S7 has an excellent hardenability resulting in good uniformity of hardness and microstructure

HEAT TREATMENT

- > **Pre-heating** about 600°C with a sufficient holding time (0.5 hour/25 mm)
- > **Then Heat up** to 940°C with a sufficient holding time (0.5 hour/25mm)
- > **Then air cool or quench and temper immediately**
- > **Tempering:** Double tempering is advised. 2 hours/25mm thickness at a temperature depending on the targeted hardness (see tempering curve).

Tempering curve S7



DELIVERY CONDITIONS

DIMENSIONAL PROGRAM

Thickness	
9 - 100 mm	Continuous casting
101 -220 mm	Ingot casting/forged

YOUR CONTACTS

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Technical data and information are to the best of our knowledge at the time of printing. However, they may be subject to some slight variations due to our ongoing research programme on steels. Therefore, we suggest that information be verified at time of enquiry or order. Furthermore, in service, real conditions are specific for each application. The data presented here are only for the purpose of description, and considered as guarantees when written formal approval has been delivered by our company. Further information may be obtained from the address opposite.