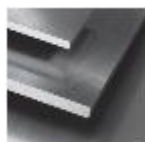


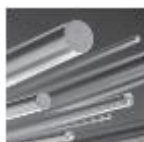
Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2360 / 1.2360 mod.
Description	X48CrMoV8-1-1 / X48CrMoV8-1
AISI/SAE	~Chipper / ~Chipper mod.
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/Chipper

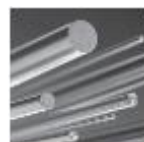
Specifications



€co-Präz* [€co]
L: 500 mm



Precision round steel [PRS/BA] / 1.2360
peeled / rough-turned
L: 500 mm
L: 1.000 mm



Precision round steel
with machining allowance [PRS/BA] / 1.2360 mod.
peeled / rough-turned
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE ~Chipper* (reference value %)

C	Si	Mn	P	S	Cr	Mo	V
0,45 - 0,5	0,7 - 0,9	0,35 - 0,45	0 - 0,02	0 - 0,005	7,3 - 7,8	1,3 - 1,5	1,3 - 1,5

* This specification will be delivered as Chipper-Knife-Steel (reduced content of vanadium - approx. 0,5 % V - in order to increase the toughness of your application).

Physical properties

Hardness (delivery condition)	max. 250 HB, annealed		
Tensile strength R _m (as received condition)	approx. 850 N/mm ²		
Working hardness	max. 60 HRC		
Thermal expansion coefficient 10 ⁻⁶ m/(m • K)	20 - 200°C	20 - 400°C	
	11,6	11,3	
Thermal conductivity W/(m • K)	20°C	200°C	400°C
	26,1	27,1	28,6

Technical properties

Very robust cold work steel which can be used for a wide range of applications. Has a good through-hardening ability and high toughness. High cutting power, high wear resistance as well as excellent tempering resistance.

Applications

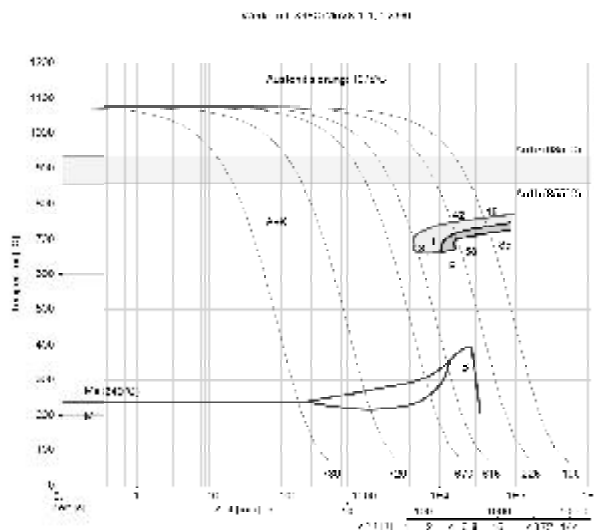
Blanking tools, stamping tools, embossing tools, forming dies, press dies, die inserts, extrusion dies, reinforcements, cold extrusion tools, tube tools, cutting tools, industrial knives, wood chipping knives, veneer knives.



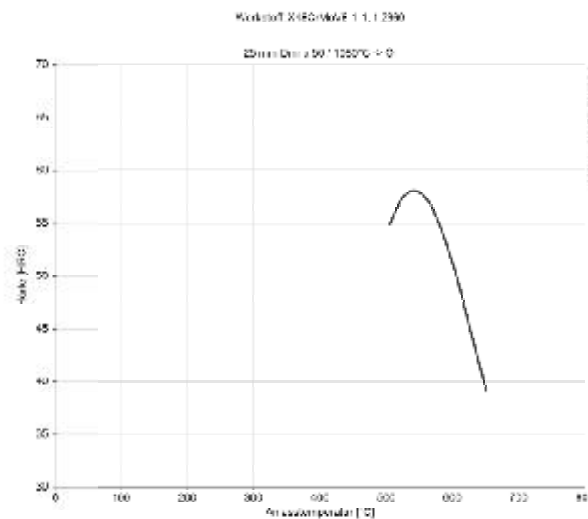
Heat treatment

	Temperature	Cooling	Hardness				
Soft annealing	830 - 860°C	Furnace	max. 250 HB				
Stress relief annealing	approx. 650°C	Furnace					
	Temperature	Quenching in	Hardness after quenching				
Hardening	1030 - 1070°C	Air, oil, hot basin (550°C)	60 - 61 HRC				
	100°C	200°C	300°C	400°C	500°C	550°C	600°C
Tempering	61 HRC	60 HRC	58 HRC	58 HRC	60 HRC	57 HRC	53 HRC

Continuous ZTU-diagram



Tempering diagram



The data shown here is to be used only as an indication of the statistics, thus we accept no liability.
Diagrams are taken from Datenbank StahlWissen Dr. Sommer Werkstofftechnik
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