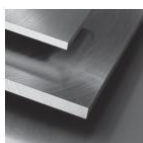


Steel grade

Material No. / Werkstoff-Nr.	PREMIUM HSS PM 23
Description	PMHS6-5-3
BS	BM 3
AISI/SAE	M3 Class 1; M3 Class 2; T11313; T11323
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.co.uk/alternatives/BM3

Specifications



€co-Präz[®] [€co]
L: 300 mm

Chemical composition BS BM 3 (reference value %)

C	Si	Mn	P	S	Cr	Mo	V	W
1.15 – 1.25	0 – 0.45	0 – 0.4	0 – 0.03	0 – 0.03	3.8 – 4.5	4.7 – 5.2	2.7 – 3.2	5.9 – 6.7

Physical properties

Hardness (delivery condition)	max. 270 HB, annealed			
Tensile strength R _m (as received condition)	approx. 920 N/mm ²			
Working hardness	max. 65 HRC			
Thermal expansion coefficient 10 ⁻⁶ m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	11.1	11.6	11.9	12.1
Thermal conductivity W/(m • K)	20°C	350°C	700°C	
	24.6	27.5	26.7	

Technical properties

High speed steel based on powder metallurgy. Similar to BS BM 2, due to a very clean and homogeneous microstructure with evenly spread carbides optimising wear resistance.

Applications

Stamping tools, precision cutting tools, machining tools, broaching tools, rotary knives, woodworking tools, gear shaper cutters, circular saw segments, metal saws, screw dies, countersinks, chasers, cold extrusion punches, deep drawing dies, plastic moulds with high wear resistance.

Heat treatment

	Temperature	Cooling	Hardness
Soft annealing	870 - 900°C	Furnace	max. 270 HB
Stress relief annealing	Temperature	Cooling	
	600 - 650°C	Furnace	
Hardening	Temperature	Quenching in	
	1050 - 1180°C	Air, oil, compressed gas (N ₂), basin (500 - 550°C)	

ABRAMS PREMIUM STEEL

is a registered trademark of
Abrams Engineering Services GmbH & Co. KG
Hannoversche Str. 38 · 49084 Osnabrueck / Germany
Managing Director: Dipl.-Wi.-Ing. Dr. Juergen Abrams

Amtsgericht Osnabrueck / Germany, HRA 6865
VAT-No.: DE 221940667
General Partner: Abrams Engineering Verwaltungs GmbH
Amtsgericht Osnabrueck / Germany, HRB 20019

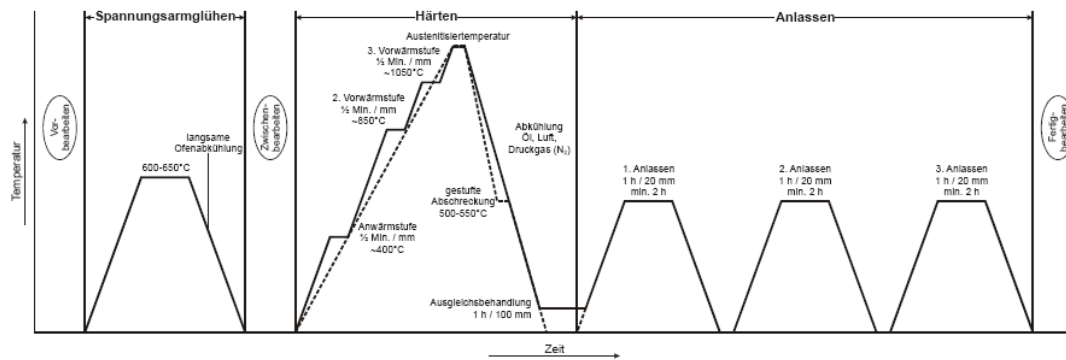
T: +44 (0) 121 368 0910
F: +44 (0) 121 368 0911

sales@premium-steel.co.uk
www.premium-steel.co.uk
www.shop.premium-steel.co.uk
www.steel-guide.co.uk

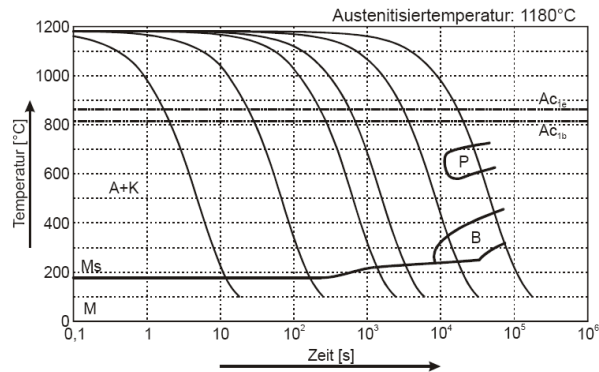
www.premium-steel.co.uk/news



Heat treatment scheme



Continuous ZTU-diagram



Tempering / Austenitizing Temperature

Anlasstemperatur	Austenitisiertemperatur			
	1050°C	1100°C	1150°C	1180°C
500°C	61,5 HRc	63,0 HRc	64,0 HRc	64,5 HRc
520°C	62,0 HRc	63,5 HRc	65,0 HRc	65,5 HRc
540°C	61,5 HRc	63,0 HRc	65,0 HRc	66,0 HRc
560°C	60,0 HRc	62,0 HRc	64,0 HRc	65,0 HRc
580°C	58,0 HRc	60,5 HRc	63,0 HRc	64,0 HRc
600°C	56,5 HRc	58,5 HRc	60,5 HRc	62,0 HRc

