

<b>Quality</b>	<b>PMHS 6-5-3C</b>	Supply conditions:	<i>Technical card</i>
According to standards	<b>Stahlschlüssel</b>	Annealed HB max 270	<b>Lucefin Group</b>
Number	<b>1.3395</b>		rev. 2014

### Chemical composition

C%	Si%	Mn%	P%	S%	Cr%	Mo%	V%	W%
1,25-1,32	max 0,70	max 0,40	max 0,030	max 0,030	3,80-4,50	4,70-5,20	2,70-3,20	5,90-6,70

### Temperature °C

Hot-forming	Stress-relieving after machining and before quenching	Pre-heating	Quenching +Q heatings must be carried out in controlled atmosphere furnace	1° Tempering +T immediately after quenching	2° - 3° Tempering +T
1170-1010	640-700 furnace cooling to 480, then air	500 pause then 850, pause then ▲	▲ 1050-1180 salt bath 550 °C inert gas, forced air	560 calm air	550-560 calm air
<b>Soft annealing +A</b>	850-880 cooling 10 °C/h to 680 then air (HB max 270)	All high-speed steels must be annealed after hot-forming	<b>Pre-heating welding</b>	<b>Stress-relieving after welding</b> not recommended	
			<b>Ac1</b>	<b>Ac3</b>	<b>Ms</b>
			810	890	175
					<b>Mf</b>
					-80 <sup>b)</sup>

<sup>b)</sup> subcooling

The symbol ▲ indicates temperature rise up to ..... °C ▲

### Mechanical properties

HRC hardness at different temperatures Hardening and Tempering

Hardening °C	1000	1040	1060	1080	1100	1120	1140	1160	1180	1220
Tempering 520 °C	-	-	-	-	-	63.5	64	65	65.5	66
Tempering 540 °C	-	-	-	-	-	62.5	64	65	65.5	67
Tempering 560 °C	56	58	59	60	61	62	63	64.5	65	66
Tempering 580 °C	-	-	-	-	-	60	61.5	62	63.5	65
Tempering 600 °C	-	-	-	-	-	58	59.5	60	61.5	63
Tempering 620 °C	-	-	-	-	-	56	57	57.5	59.5	61.5

Toughness J

	-	58	56	52	50	48	44	38	34	-
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The toughness values were determined on longitudinal unnotched spec. (7x10x55 mm) after hardening and 3 tempering at 560 °C

Hardness HRC as a function of holding time at different working temperature. Hardened material at 1130 °C and 3 tempering at 560 °C

h time	working temperature 600 °C	working temperature 650 °C
0,1	64	64
1	63	56
10	58	45
100	48	37

<b>Thermal Expansion</b>	10 <sup>-6</sup> •K <sup>-1</sup> ►	10.3	11.3	11.4	11.7	12.0	12.3	12.5	12.8	
<b>M. of Elasticity long.</b>	GPa	230			205		185			
<b>Specific Heat Capac.</b>	J/(Kg•K)	420			510		600			
<b>Thermal Conductivity</b>	W/(m•K)	24.0			28		27			
<b>Density</b>	Kg/dm <sup>3</sup>	8.10		7.87			7.80			
<b>Electric Resist.</b>	Ohm•mm <sup>2</sup> /m	0.54								
<b>Electrical Cond.</b>	Siemens•m/mm <sup>2</sup>	1.85								
<b>°C</b>		20	100	200	300	400	500	600	700	800

The symbol ► indicates temperature between 20 °C and 1000 °C, 20 °C and 200 °C ...

EUROPE	ITALIY	CHINA	GERMANY	FRANCIA	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
PMHS 6-5-3C	HS6-5-3 ~		1.3395	Z120WDCV06-05-04-03 ~			M3 cl. 2

Applications: broaching tools, metal saw bits, millings, cutters, twist drills, reamersi, shears, forming materials and abrasive plastics.  
Steel generally manufactured with the technology PM (Powder Metallurgy)