

<b>Quality</b>	<b>HS 6-5-2-5</b>	Supply conditions:	<i>Technical card</i>
According to standard	<b>UNI EN ISO 4957: 2002</b>	Annealed HB max 269	<b>Lucefin Group</b>
Number	<b>1.3243</b>		rev. 2018

### Chemical composition

C%	Si%	Mn%	P%	S%	Cr%	Mo%	V%	W%	Co%
	max	max	max	max					
0,87-0,95 ± 0.03	0,45 + 0.03	0,40 +0.04	0,030 + 0.005	0,030 + 0.005	3,80-4,50 ± 0.10	4,70-5,20 ± 0.10	1,70-2,10 ± 0.07	5,90-6,70 ± 0.10	4,50-5,00 ± 0.10

Product deviations are allowed

It can be agreed a sulphur content of 0.060 - 0.150%; in this case, max Mn value is 0.80%

### Temperature °C

Hot-forming	Stress-relieving after machining and before quenching	Pre-heating	Quenching +Q heatings must be carried out in controlled atmosphere furnace	Tempering +T
1150-950	600-650 furnace cooling to 320, then air	450, pause then 870, pause, then 1050, pause, then ▲	▲ 1190-1230 oil, polymer, forced air or salt bath (500-550)	550-570 calm air minimum 2 cycles
Soft annealing +A	+TH annealing	Pre-heating welding		Stress-relieving after welding
820 furnace cooling to 600, then air (HB max 269)	870-900 cooling 22 °C/h  (HB 235-269)	All high-speed steels must be annealed after hot-forming		not recommended
		<b>Ac1</b>	<b>Ac3</b>	<b>Ms</b>
		825	855	190
				<b>Mf</b>
				-50 subcooling

Hardness in annealed and **cold-drawn** condition can be max HB 319. Hardness in annealed and **cold-rolled** condition can be HB 339  
The symbol ▲ indicates temperature rise up to .....°C ▲

### Surface treatments

Nitriding	Steam Oxidation	Chrome-plating Burnishing Laser quenching
520-570	380-520	

### Mechanical properties

**Table of tempering** values obtained at room temperature on round of Ø 15 mm after quenching at 1210 °C in oil

HB	688	688	688	688	688	688	688	688	688	697	722	739	706	577	432
HRC	62	62	62	62	62	62	62	62	62	62.5	64	65	63	56	46
R N/mm <sup>2</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	2160	1520
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600	650	700	

### Hardness at elevated temperatures

HRC	65	64	60	57	40
°C	20	315	425	540	650

<b>Thermal Expansion</b>	10 <sup>-6</sup> .K <sup>-1</sup>	▶	11.5	11.7	12.2	12.4	12.7	13.0	12.9	
<b>Modulus of Elasticity long.</b>	GPa		217							
<b>Modulus of Elasticity tang.</b>	GPa		83							
<b>Specific Heat Capacity</b>	J/(Kg.K)		460							
<b>Thermal Conductivity</b>	W/(m.K)		19.0							
<b>Density</b>	Kg/dm <sup>3</sup>		8.10							
<b>Specific Electric Resist.</b>	Ohm.mm <sup>2</sup> /m		0.60							
<b>Electrical Conductivity</b>	Siemens.m/mm <sup>2</sup>		1.67							
°C			20	100	200	300	400	500	600	700

The symbol ▶ indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C ...

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
HS 6-5-2-5	HS 6-5-2-5	W6Mo5Cr4V2Co5	HS 6-5-2-5	Z90WDKCV06-05-05-04-02	BM35	R6M5K5	A600 M36