

Quality	HS 6-5-2C	Supply conditions:	<i>Technical card</i>
According to standards	UNI EN ISO 4957: 2002	Annealed HB max 269	Lucefina Group
Number	1.3343		rev. 2018

Chemical composition

C%	Si%	Mn%	P%	S%	Cr%	Mo%	V%	W%
0,86-0,94	0,45	0,40	0,030	0,030	3,80-4,50	4,70-5,20	1,70-2,10	5,90-6,70
± 0.03	+ 0.03	+0.04	+ 0.005	+ 0.005	± 0.10	± 0.10	± 0.07	± 0.10

Product deviations are allowed

It can be agreed a sulphur content of 0.060-0.150; in this case, max Mn 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	1° Tempering +T immediately after quenching	2° Tempering +T	
1100-950	600-650 furnace cooling to 400, then air	450, pause, then 850, pause, then 1050, pause, then ▲	▲ 1180-1230 oil polymer forced air or salt bath (500-550)	540-560 calm air	500-550 calm air	
Soft annealing +A	Isothermal annealing +I	+TH annealing	Pre-heating welding	Stress-relieving after welding		
840 furnace cooling to 550, then air (HB max 269)	870 furnace cooling 10 °C/h to 700, then air (HB 230-280)	870-900 cooling 22 °C/h (HB 212-241)	not recommended			
			Ac1	Ac3	Ms	Mf
			800	845	210	-30 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 ▲

All high-speed steels must be annealed after hot-forming

Mechanical properties

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

HB	722	706	670	688	697	722	739	722	688	560	442
HRC	64	63	61	62	62.5	64	65	64	62	55	47
R N/mm ²	-	-	-	-	-	-	-	-	-	2070	1580
Tempering at °C	100	200	300	400	500	525	550	575	600	650	700

Hardness at elevated temperatures

HRC	65	62	59	55	36
°C	20	315	425	540	650

Thermal Expansion	10 ⁻⁶ .K ⁻¹ ►	9.6	10.4	10.5	11.1	11.6	12.0	12.4	12.7	13.0
Modulus of Elasticity long.	GPa			224	220	214	207	199	191	180
Modulus of Elasticity tang.	GPa			85	84	82	79	76	73	69
Specific Heat Capacity	J/(Kg.K)			460						
Density	Kg/dm ³			8.12						
Specific Electric Resist.	Ohm.mm ² /m			0.524	0.581	0.664	0.751	0.844	0.940	1.043
Thermal Conductivity	W/(m.K)			27.6	27.9	27.7	27.5	27.0	26.6	26.1
Electrical Conductivity	Siemens.m/mm ²			1.91	1.72	1.51	1.33	1.18	1.06	0.97
Red hardness	HRC			64	64	62	60	60	56	48
°C		-100	0	20	100	200	300	400	500	600

DIN SEW 310 (08/1992) Physical properties. The symbol ► indicates temperature between -100 °C and 0 °C, -100 °C and 20 °C ...

Suggested cutting parameters

carbide insert

Annealed hot-rolled	0,5 / 1	1 / 4	4 / 8	<i>ap</i> depth of cut mm
	0.2 / 0.3	0.2 / 0.4	0.3 / 0.6	<i>fn</i> feed mm/rev
	210 / 150	180 / 140	130 / 100	<i>Vc</i> cutting speed m/min

EUROPE	ITALY	CHINA	GERMANY	FRANCE	U.K.	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
HS 6-5-2C	HS 6-5-2	CW6Mo5Cr4V2	S 6-5-2 1.3343	Z90WDCV06.05.02	BM2	R6M5	M2