

Quality	120WV4	Supply conditions:	<i>Technical card</i>
According to standards	Werkstoff	Annealed HB max 230	Lucefin Group
Number	1.2516		rev. 2018

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	W%	V%
1,15-1,25	0,15-0,30	0,20-0,35	0,035	0,035	0,15-0,25	0,90-1,10	0,07-0,12

Temperature °C

Hot-forming	Stress-relieving after machining and before quenching	Pre-heating for ¹⁾ and ²⁾	Quenching ¹⁾ +Q	Quenching ²⁾ +Q	Tempering for ¹⁾ and ²⁾ +T		
1050-850	600-650 calm air	400-450 pause, then ▲ ¹⁾ or ²⁾	▲ 780-800 water	▲ 810-830 oil or polymer	180-250 calm air minimum 2 cycles		
Soft annealing +A		Tempering +T		Pre-heating welding	Stress-relieving after welding		
710-740 furnace cooling to 500, then air		see table 1)		250-300	650 furnace cooling		
(HB max 230)				Ac1	Ac3	Ms	Mf
				730	755	190	-20 ^{b)}

^{b)} subcooling

the symbol ▲ indicates the climb of the temperature until°C ▲

Mechanical and physical properties

Table 1) of tempering values at room temperature after quenching at 820 °C in oil

HB	758	739	714	688	624	595	560	496	482	432	390	336
HRC	66	65	63.5	62	58.5	57	55	51	50	46	42	36
R N/mm ²					2375	2240	2070	1820	1760	1520	1340	1110
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600

Thermal expansion	10 ⁻⁶ · K ⁻¹	▶	10.5	11.0	11.5	12.2	13.0	
Modulus of elasticity long.	GPa		215					
Modulus of elasticity tang.	GPa		82					
Specific heat capacity	J/(Kg·K)		460					
Thermal conductivity	W/(m·K)		31.5					
Density	Kg/dm ³		7.85					
Specific electric resist.	Ohm·mm ² /m		0.30					
Electrical conductivity	Siemens·m/mm ²		3.33					
°C			20	100	200	300	400	500

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

Europe	Germany	China	Japan	India	R. of Korea	Russia	USA
EN	DIN	GB	JIS	IS	KS	GOST	AISI/SAE
	120WV4						

Tool steel for cold-working

- steels containing tungsten with a considerable resistance to wear
- extremely suitable for heat treatment; it can also be quenched in water
- limited deformations during heat treatment
- easily machinable after annealing
- suitable for grinding
- applications: *screw taps, twist bits, centre bits, cutting tools, blades for metals, broaches, timber machining tools, lockpins, nose cone, wear proof parts, ejectors, reamers, countersinks, engraving tools*