

Quality	120WV4	Supply conditions:
According to standards		Annealed
Number	1.2516	

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	Pre-heating for 1) and 2)	Quenching 1)	Quenching 2)	Tempering for 1) and 2)	
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	Tempering		Pre-heating welding		Stress-relieving after welding	
710-740 furnace cooling to 500, then air	see table		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 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	
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	

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

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*