

## Material information sheet

**Material number:** 1.2249

**Material:** 45 Si Cr V 6

**Steelgroup:** unalloyed tool steels Cr-V, Cr-V-Mn, Cr-V-Si and Cr-V-Mn-Si-Steels

**Usage:** tool steels for cold working:

Plug-in tools and chisel for pneumatic tools, cold forming stamp, piercer, drawing tool, cold and warm cuts, forming die, furthermore as shank material for hard metal-drill bit.

High toughness, good grind ability and lower size alteration

### Chemical composition:

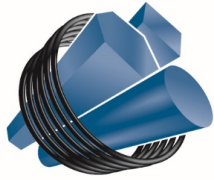
	C	Si	Mn	P	S	Cr	V
Minimum	0,40	1,30	0,50	0,00	0,00	1,30	0,07
Maximum	0,50	1,60	0,70	0,035	0,035	1,60	0,12

### Heat treatment:

Hot-forming	Soft-annealing (+A)	Hardening in oil	Tempered
850 - 1050 °C	710 - 780 °C	860 - 890 °C	180 - 300 °C

### Mechanical characteristics:

Tensile strength after glowing	$R_m \leq 705 \text{ MPa}$
Hardness after quenching	~ 56 -58 HRC
Quenching and tempering values:	
Tempered at ~ 100 °C	~ 58 HRC
Tempered at ~ 200 °C	~ 57 HRC
Tempered at ~ 300 °C	~ 53 HRC $\approx R_m = 1845 \text{ MPa}$
Tempered at ~ 400 °C	~ 51 HRC $\approx R_m = 1740 \text{ MPa}$
Tempered at ~ 500 °C	~ 46 HRC $\approx R_m = 1485 \text{ MPa}$



# WILHELM JUNGERMANN GMBH

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## Stocks:

### Bars:

- Bar length: 3 m or 6 m
- Tolerance data: EN 10278
- Technical delivery conditions: EN 10277, surface quality class 2 (bright) EN 10221 (rolled)

execution	round	
	round	round
Tolerance	h9	+AR
+AC+SH+PL	17,88 – 23	
+A+AR	22 - 38	22 – 28