

Material information sheet

Material number: 1.2208

Material: 31 Cr V 2

Steel group: alloyed steel tools, Cr-V, Cr-V-Mn, Cr-V-Si -steels

Usage: tool steel for cold working
Screwdriver, spanner, socket wrench, nuts, cold extruded parts (for example: nippers)

Chemical composition:

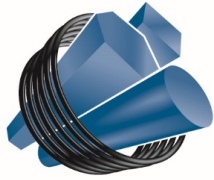
	C	Si	Mn	P	S	Cr	V
Minimum	0,28	0,25	0,40	0,00	0,00	0,40	0,07
Maximum	0,35	0,40	0,60	0,030	0,030	0,70	0,12

Heat-treatment:

Hot-forming	Soft-annealing (+A)	Stress relief annealing	Hardening in water
850 - 1050 °C	680 - 720 °C	650 - 680 °C	830 - 860 °C

Mechanical characteristics:

Tensile strength of tools in use	$R_m = 1080 - 1670 \text{ MPa}$
hardening after tempering	$R_m \approx 750 \text{ MPa}$
Surface hardness after hardening	$\approx 52 \text{ HRC}$
Quenching and tempering values	
Tempered at $\sim 100 \text{ °C}$	$\sim 52 \text{ HRC} \approx R_m = 1800 \text{ MPa}$
Tempered at $\sim 200 \text{ °C}$	$\sim 50 \text{ HRC} \approx R_m = 1700 \text{ MPa}$
Tempered at $\sim 300 \text{ °C}$	$\sim 47 \text{ HRC} \approx R_m = 1520 \text{ MPa}$
Tempered at $\sim 400 \text{ °C}$	$\sim 43 \text{ HRC} \approx R_m = 1360 \text{ MPa}$
Tempered at $\sim 450 \text{ °C}$	$\sim 46 \text{ HRC} \approx R_m = 1480 \text{ MPa}$
Tempered at $\sim 500 \text{ °C}$	$\sim 44 \text{ HRC} \approx R_m = 1370 \text{ MPa}$



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Stocks:

Bars:

- Bar length 3 – 4 m
- Tolerance data EN 10278
- Technical conditions of delivery: EN 10277, surface quality class 2

execution	Cross section design (data in mm)
	round
tolerance	h9
+U+C	5 -7
+A+C	7 - 40