

Material-information-sheet

Material-number 1.7131

Material: 16 Mn Cr 5

Steel-group: Alloyed Steels, Cr-Si-, Cr-Mn-, Cr-Mn-B- and Cr-Si-Mn-steels

Usage: Case hardening steel
Gearwheel, crown wheel, control parts, cardan joint, bolts, spindle, pins and so on

Cold work hardening steel

Especially suitable for parts with a high core strength with a high toughness, good machinable.

High performed engine parts, jigmaking, plant construction, apparatus constructions, slides, connecting rods, adapter plates, , clamping system, cog-wheels, parts of joints, cam shaft, piston pins, cardan joint, pins, cavity plate, used for plastic processing, artificial resin mould

Chemical composition:

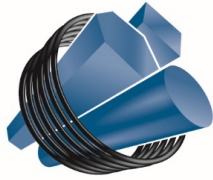
	C	Si	Mn	P	S	Cr
Minimum	0,14	0,00	1,00	0,00	0,00	0,80
Maximum	0,19	0,40	1,30	0,025	0,035	1,10

Heat-treatment:

Hot-forming	Soft-annealing (+A)	Normal glow	Hardening in oil	Tempering
850 - 1100 °C	680 - 720 °C	840 – 880 °C	820 - 860 °C	480 - 650 °C

Mechanical-characteristics:

Hardness after tempering	$R_m \leq 840 \text{ MPa}$	
Hardness after AC -tempering	$R_m \leq 720 \text{ MPa}$	
Reduction	$Z \geq 58 \%$	
	2 – 5 mm	5 – 40 mm
Hardness after AC –tempering and cold-drawing	$R_m \leq 710 \text{ MPa}$	$R_m \leq 700 \text{ MPa}$
Reduction	$Z \geq 60 \%$	$Z \geq 60 \%$
Hardness in remunerated condition	700 – 1400 MPa	



Cold drawn and tempered condition:

Dimension [mm]	> 16 - 40	> 40 – 63	> 63 - 100
Elastic limit $R_{p0,2}$ [MPa]	≥ 900	≥ 800	≥ 800
Tensile strength R_m [MPa]	1100-1300	1000-1200	1000-1200
Flexural Strength A_s [%]	≥ 10	≥ 11	≥ 11

Stock:

Bars:

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

Execution	Dimension in mm
	round
Tolerance	h9
+AC+C	9,95 - 40
+AC+SH	29 - 40