

Material specification sheet

Saarstahl - 52CrMoV4 (51CrMoV4)

Material No.:	Former brand name:	International steel grades:
1.7701	F4K	BS: AFNOR: 51CDV4 SAE:

Material group: Hot rolled steel for springs suitable for quenching and tempering according to DIN 17221

Chemical composition: (Typical analysis in %)	C	Si	Mn	Cr	Mo	V
	0,50	0,25	0,90	1,10	0,25	0,10

Application: Hot rolled steel for springs for highly strained springs suitable for quenching and tempering, as leaf springs and helical vehicle springs, stabilisers vehicle, torsion bars, cup springs.

Hot forming and heat treatment:	Hot forming:	1050 - 850°C
	Hot deformation:	920 - 830°C
	Normalising:	850 - 880°C/air
	Soft annealing:	640 - 680°C/furnace
	Hardening:	830 - 860°C/oil
	Tempering:	430 - 500°C/air

Mechanical Properties:	Treated for cold shearability +S:	max. 280 HB
	Soft annealed +A:	max. 248 HB
	Spheroidized annealed - GKZ (+AC)	max. 225 HB
	Core hardness after quenching:	min. 54 HRC

Hardened and tempered, H+A, 16 mm flat steel bars, 25 mm bars

0,2% proof stress R _{p0,2} [N/mm ²]	min. 1200
Tensile strength R _m [N/mm ²]	1400 - 1700
Fracture elongation A ₅ [%]	min. 6
Reduction of area Z [%]	min. 30
Notch impact energy ISO-V [J]	min. 6