

## 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.

<b>Hot forming and heat treatment:</b>	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

<b>Mechanical Properties:</b>	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

<b>0,2% proof stress</b> R <sub>p0,2</sub> [N/mm <sup>2</sup> ]	min. 1200
<b>Tensile strength R<sub>m</sub></b> [N/mm <sup>2</sup> ]	1400 - 1700
<b>Fracture elongation A<sub>5</sub></b> [%]	min. 6
<b>Reduction of area Z</b> [%]	min. 30
<b>Notch impact energy ISO-V</b> [J]	min. 6