

Material specification sheet

Saarstahl - 51CrV4 (50CrV4)

Material No.:	Former brand name:	International steel grades:
1.8159	F2K	BS: 735A51, 735M50, 735H51 AFNOR: 50CrV4, 51CV4 SAE: 6150

Material group: Steel for quenching and tempering according to DIN EN 10083

Chemical composition: (Typical analysis in %)	C	Si	Mn	Cr	V	other
		0,50	0,25	0,90	1,10	0,12

Application: Alloyed heat treatable steel with a typical tensile strength of 900 - 1200 N/mm². For automotive and mechanical engineering components as gear parts, pinions, shafts.

Hot forming and heat treatment:	Forging or hot rolling:	1050 - 850°C
	Normalising:	870 - 900°C/air
	Soft annealing:	680 - 720°C/furnace
	Hardening:	820 - 860°C/oil
	Tempering:	540 - 680°C/air

Mechanical Properties: Treated for cold shearability +S: See condition A
Soft annealed +A: max. 248 HB

Quenched and tempered, +QT:

Diameter d [mm]	< 16	>16 – 40	>40 – 100	>100 – 160	>160 – 250
Thickness t [mm]	< 8	8<t<20	20<t<60	60<t<100	100<t<160
0,2% proof stress R _{p0,2} [N/mm ²]	min. 900	min. 800	min. 700	min. 650	min. 600
Tensile strength R _m [N/mm ²]	1100 - 1300	1000 - 1200	900 - 1100	850 - 1000	800 - 950
Fracture elongation A ₅ [%]	min. 9	min. 10	min. 12	min. 13	min. 13
Reduction of area Z [%]	min. 40	min. 45	min. 50	min. 50	min. 50
Notch impact energy ISO-V [J]	min. 30	min. 30	min. 30	min. 30	min. 30