

## Material specification sheet

### Saarstahl - 42CrMo4 - 42CrMoS4

Material No.:	Former brand name:	International steel grades:
1.7225	Mo 40	BS: 708M40, 709M40, 708A42 AFNOR: 42CD4
1.7227		SAE: 4140H, 4140RH

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

Chemical composition: (Typical analysis in %)	Steel	C	Si	Mn	Cr	Mo	S	other
	42CrMo4	0,42	0,25	0,75	1,10	0,22	<0,035	(Pb)
	42CrMoS4	0,42	0,25	0,75	1,10	0,22	0,020 0,035	(Pb)

**Application:** Alloyed heat treatable steel with a typical tensile strength of 900 - 1200 N/mm<sup>2</sup>. For automotive and aircraft components with high toughness as axle journals, gears, tyres, push rods.

<b>Hot forming and heat treatment:</b>	Forging or hot rolling:	1100 - 850°C
	Normalising:	850 - 880°C/air
	Soft annealing:	680 - 720°C/furnace
	Hardening:	820 - 860°C/oil, water
	Tempering:	540 - 680°C/air

**Mechanical Properties:** Treated for cold shearability +S: max. 255 HB  
Soft annealed +A: max. 241 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 <sub>p0,2</sub> [N/mm <sup>2</sup> ]	min. 900	min. 750	min. 650	min. 550	min. 500
Tensile strength R <sub>m</sub> [N/mm <sup>2</sup> ]	1100 - 1300	1000 - 1200	900 - 1100	800 - 950	750 - 900
Fracture elongation A <sub>5</sub> [%]	min. 10	min. 11	min. 12	min. 13	min. 14
Reduction of area Z [%]	min. 40	min. 45	min. 50	min. 50	min. 55
Notch impact energy ISO-V [J]	min. 30	min. 35	min. 35	min. 35	min. 35