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/mm². For automotive and aircraft components with high toughness as axle journals, gears, tyres, push rods.

Hot forming and heat treatment:

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 $R_{p0,2}$ [N/mm²]	min. 900	min. 750	min. 650	min. 550	min. 500
Tensile strength R_m [N/mm²]	1100 - 1300	1000 - 1200	900 - 1100	800 - 950	750 - 900
Fracture elongation A_5 [%]	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