

Material specification sheet

Saarstahl - C22

Material No.:	Former brand name:	International steel grades:
1.0402		BS: C22, 070M20, 22HS AFNOR: C22, AF42C20, XC25 SAE: (M) 1020, M 1023

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

Chemical composition: (Typical analysis in %)	C	Si	Mn	P	S	Cr	Mo	Ni	Cr+Mo+Ni
	0,17 0,24	<0,40	0,40 0,70	<0,045	<0,045	<0,40	<0,10	<0,40	<0,63

Application: Plain carbon steel for mechanical engineering and automotive components

Hot forming and heat treatment:	Forging or hot rolling:	1100 - 850°C
	Normalising:	880 - 920°C/air
	Soft annealing:	680 - 710°C/furnace
	Hardening:	860 - 900°C/water
	Tempering:	550 - 660°C/air

Mechanical Properties:	Treated for cold shearability +S:	Shearable in as rolled condition
	Soft annealed +A:	-

Quenched and tempered, +QT:

	< 16	>16 – 40	>40 – 100	>100 – 160	>160 – 250
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. 340	min. 290	-	-	-
Tensile strength R_m [N/mm²]	500 - 650	470 - 620	-	-	-
Fracture elongation A₅ [%]	min. 20	min. 22	-	-	-
Reduction of area Z [%]	min. 50	min. 50	-	-	-

Normalised, +N:

Diameter d [mm]	< 16	>16 – 100	>100 – 250		
Thickness t [mm]	< 16	16<t<100	100<t<250		
0,2% proof stress R_{p0,2} [N/mm²]	min. 240	min. 210	-		
Tensile strength R_m [N/mm²]	min. 430	min. 410	-		
Fracture elongation A₅ [%]	min. 24	min. 25	-		