Material specification sheet

Saarstahl - C55R (Cm55)

Material No.:	Former brand name:	International steel grades:
1.1209	**R 5**	**BS:** 070M55 **AFNOR:** C55R, 3C55, XC55H1 **SAE:** 1055

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

Chemical composition: (Typical analysis in %)	**C**	**Si**	**Mn**	**S**	**other**
	0,55	0,25	0,75	0,020 0,035	(Pb)

Application: Plain carbon steel for mechanical engineering and automotive components.

Hot forming and heat treatment:

Forging or hot rolling:	1100 - 850°C
Normalising:	825 - 865°C/air
Soft annealing:	680 - 710°C/furnace
Hardening:	805 - 845°C/oil, water
Tempering:	550 - 660°C/air

Mechanical Properties:

Treated for cold shearability +S:	max. 255 HB
Soft annealed +A:	max. 229 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. 550	min. 490	min. 420	-	-
Tensile strength R_m [N/mm²]	800 - 950	750 - 900	700 - 850	-	-
Fracture elongation A_5 [%]	min. 12	min. 14	min. 15	-	-
Reduction of area Z [%]	min. 30	min. 35	min. 40	-	-
Notch impact energy ISO-V [J]	-	-	-	-	-

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. 370	min. 330	min. 300		
Tensile strength R_m [N/mm²]	min. 680	min. 640	min. 620		
Fracture elongation A_5 [%]	min. 11	min. 12	min. 12		