

Material specification sheet

Saarstahl - C55R (Cm55)

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|---------------|--------------------|---|
| Material No.: | Former brand name: | International steel grades: |
| 1.1209 | R5 | 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.

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|--|-------------------------|------------------------|
| 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:

| | < 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. 550 | min. 490 | min. 420 | - | - |
| Tensile strength R_m [N/mm²] | 800 - 950 | 750 - 900 | 700 - 850 | - | - |
| Fracture elongation A₅ [%] | 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 A₅ [%] | min. 11 | min. 12 | min. 12 | | |