



SIQUAL 1203 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIQUAL 1203	CK55	1.1203	Ck55 †	C55E	1055

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
0.56	max. 0.40	0.75	max. 0.40	max. 0.10	max. 0.40	-	-	(Cr+Mo+Ni) = max. 0.63

Description

SIQUAL 1203 steel has a higher (0.55%) carbon content for greater strength than the lower carbon alloys. It is hardenable by heat treatment, quench and tempering.

Applications

Steel for springs, for quenched and tempered springs, for surface hardened products like shafts, bushings, crankshafts, etc.

Physical properties (average values) at ambient temperature

Modulus of elasticity [$10^3 \times \text{N/mm}^2$]: 210

Density [g/cm^3]: 7.85

Soft Annealing

Hardness after soft annealing is 229 HB.

Normalizing

Normalizing temperature: 825-865°C.

Hardening

Harden from a temperature of 840-870°C, 850-880°C followed by water or oil quenching.

Tempering

Tempering from the quenched condition may be done at 540-680°C depending upon the strength desired.

Mechanical Properties in Hardened+Tempered Condition

Diameter (mm)	0.2 % proof stress (N/mm^2)	Tensile strength (N/mm^2)	Elongation A_5 (%)	Reduction Z (%)
up to 16*	540	780-930	12	25
17-40	460	740-890	14	35
41-100	420	700-850	15	40
up to 16	430	630-780	17	40

Hardenability Diagram

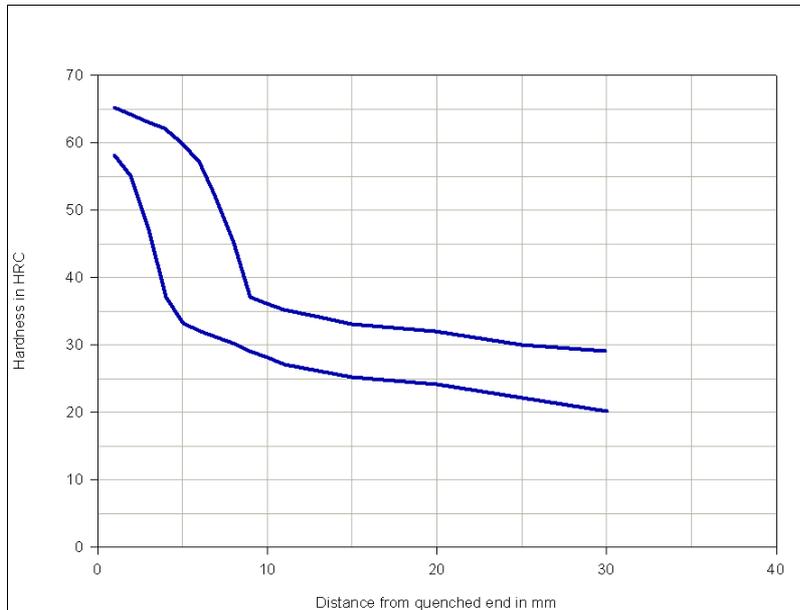
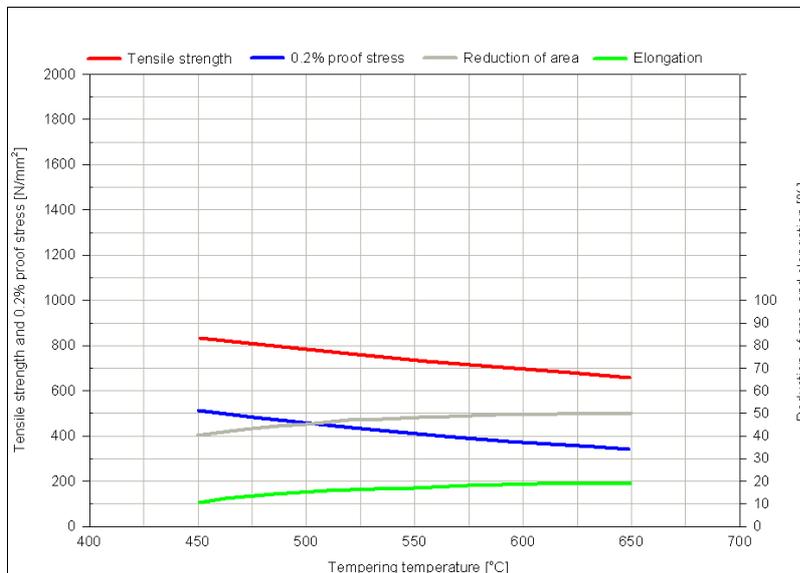


Diagram Tempering Temperature - Mechanical Properties



Forging

Hot forming temperature: 1100-850°C.

Machinability

Machinability is good, rated at 50% that of the AISI 1112 alloy used as a 100% machining rated steel.

Corrosion Resistance

This is a steel alloy and will rust if not protected. It is not corrosion resistant.

Welding

SIQUAL 1203 steel is weldable by all of the welding methods. However with its higher carbon content it is important to use both pre-heat at 150 to 260°C and post-heat at 590 to 650°C practice per an approved welding procedure.

Cold working

In the annealed state the CK55 alloy is readily cold worked by conventional methods.

Forms manufactured: Please see the [Dimensional Sales Program](#).

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