



SIQUAL 7225 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIQUAL 7225	VCMO140	1.7225	-	42CrMo4	4142

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
0.41	0.20	0.75	1.05	0.23	-	-	-	-

Description

This is one of the chromium, molybdenum, manganese low alloy steels noted for toughness, good torsional strength and good fatigue strength.

Applications

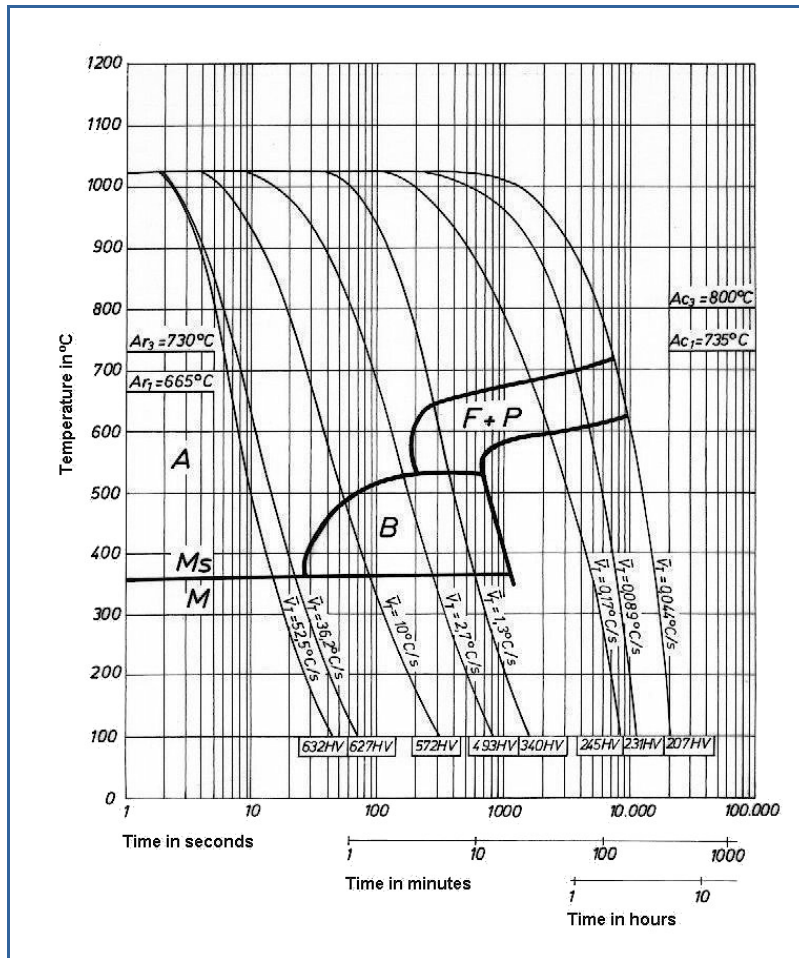
Statically and dynamically stressed components for vehicles, engines and machines. For parts of larger cross-sections, crankshafts, gears.

Physical properties (average values) at ambient temperature

Modulus of elasticity [$10^3 \times \text{N/mm}^2$]: 190-210

Density [g/cm^3]: 7.84

Continuous Cooling Transformation (CCT) Diagram



Soft Annealing

Heat to 680-720°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 241.

Hardening

Harden from a temperature of 820-850, 830-860°C followed by water or oil quenching.

Normalizing

Normalizing: 840-880°C

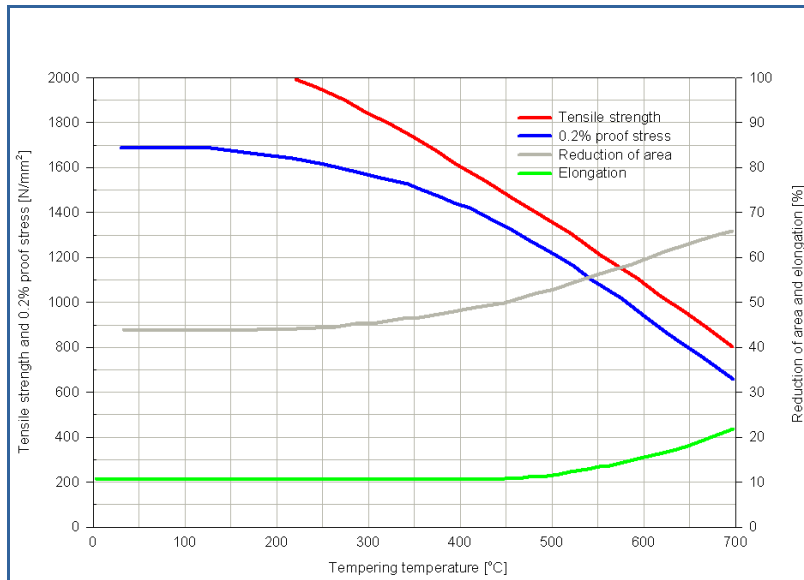
Tempering

Tempering temperature: 540-680°C

Mechanical Properties in Quenched and Tempered Condition

Diameter (mm)	0.2 % proof stress (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Reduction of area (%)	Notch impact energy (ISO-V) (J)
up to 16	900	1100-1300	10	40	35
17-40	750	1000-1200	11	45	40
41-100	650	900-1100	12	50	40
101-160	550	800-950	13	50	40
161-250	500	750-900	14	55	40

Diagram Tempering Temperature - Mechanical Properties



Hardenability in the end-quench test (Hardness (HRC) vs. Distance (mm))

Hardness	1.5	3	5	7	9	11	13	15	20	25	30	35	40
H max.	61	61	61	60	60	59	59	58	56	53	51	48	47
H min.	53	53	52	51	49	43	40	37	34	32	31	30	30
HH max.	61	61	61	60	60	59	59	58	56	53	51	48	47
HH min.	56	56	55	54	52	48	46	44	41	39	38	36	36
HL max.	58	58	58	57	56	54	53	51	49	46	44	42	41
HL min.	53	53	52	51	49	43	40	37	34	32	31	30	30

Forging

Hot forming temperature: 1050-850°C.

Machinability

Machinability of this alloy is good in the annealed condition. In the heat treated and quenched condition machining is best limited to finish grinding.

Corrosion Resistance

This alloy is a steel and is not corrosion resistant. Protective coating must be used in corrosive, or water, environments.

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

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