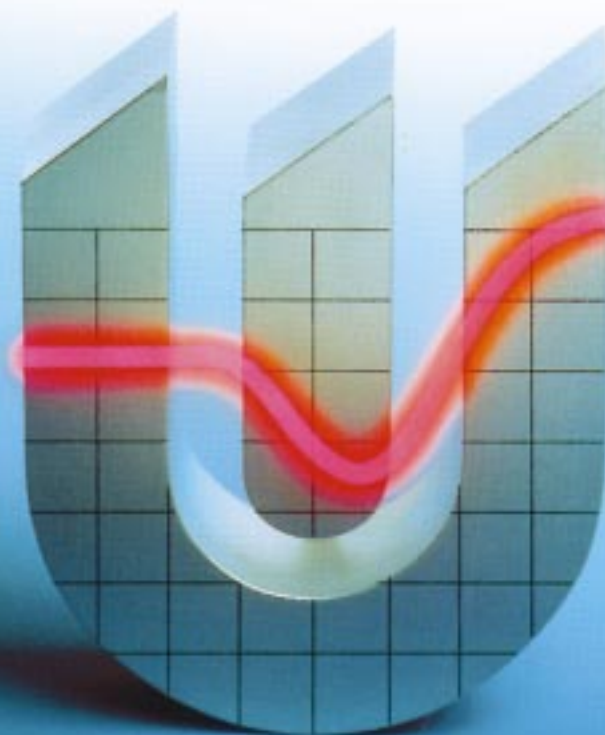


AISI O1 Cold work tool steel



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This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as a warranty of specific properties of the products described or a warranty for use for a particular purpose.



Documents

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General

AISI O1 general purpose oil-hardening tool steel is a versatile manganese-chromium-tungsten steel suitable for a wide variety of cold-work applications.

Its main characteristics include:

- Good machinability
- Good dimensional stability in hardening
- A good combination of high surface hardness and toughness after hardening and tempering.

These characteristics combine to give a steel suitable for the manufacture of tooling with good tool-life and production economy.

AISI O1 can be supplied in various finishes including hot-rolled, pre-machined, fine-machined and precision ground. It is also available in the form of hollow bar.

Typical analysis %	C 0.95	Mn 1.1	Cr 0.6	W 0.6
Standard specification	AISI O1, W.-Nr. 1.2510			
Delivery condition	Soft annealed approx. 190 HB			
Color code	Yellow			

Applications

Tools for	Material thickness	HRC
Cutting Blanking, punching piercing, cropping, shearing, trimming clipping	up to 1/8" (3 mm) 1/8–1/4" (3–6 mm) 1/4–13/32" (6–10 mm)	60–62 56–60 54–56
Short cold shears		54–60
Clipping and trimming tools for forgings	Hot Cold	58–60 56–58
Forming Bending, raising, drawing, rim rolling, spinning and flow forming		56–62
Small coining dies		56–60
Gauges, measuring tools Turning centres Guide bushes, ejector pins, high duty, small/medium drills and taps Small gear wheels, pistons, nozzles, cams		58–62

Properties

PHYSICAL DATA

Hardened and tempered to 62 HRC. Data at ambient temperature and elevated temperature.

Temperature	68°F (20°C)	375°F (200°C)	750°F (400°C)
Density lbs/in ³ kg/m ³	0.282 7 800	0.280 7 750	0.278 7 700
Modulus of elasticity psi N/mm ²	28 x 10 ⁶ 190 000	27 x 10 ⁶ 185 000	25 x 10 ⁶ 170 000
Coefficient of thermal exp. per °F from 68°F per °C from 20°C	— —	6.5 x 10 ⁻⁶ 11.7 x 10 ⁻⁶	6.3 x 10 ⁻⁶ 11.4 x 10 ⁻⁶
Thermal conductivity Btu in/ft ² h °F W/m °C	222 32	229 33	236 34
Specific heat Btu/lb. °F J/kg °C	0.11 460	— —	— —

COMPRESSIVE STRENGTH

The figures are to be considered approximate.

Hardness	Compressive yield strength, Rc0.2	
	N/mm ²	ksi
62 HRC	2200	319
60 HRC	2150	312
55 HRC	1800	261
50 HRC	1350	196



Clipping and edging tool in AISI O1 tool steel to clip and form edge of 0.036" (0.914 mm) thick stainless steel container approx. 10" x 6" x 8" (254 x 152 x 203 mm).