

Alleima® 10C28Mo2

Strip steel

Datasheet

Alleima® 10C28Mo2 is a martensitic stainless chromium steel developed for razor blade and knife applications with high demands on corrosion resistance. The carefully chosen chemical composition in combination with a very fine microstructure also provides a high hardness, good edge retention, toughness and edges that are easy to re-sharpen.

After heat treatment the grade is characterized by:

- Very good corrosion resistance
- High hardness which gives good wear resistance
- Good toughness

Typical applications for Alleima® 10C28Mo2 are kitchen knives and other tools where a dishwasher-safe material is required, professional butcher knives that need to be easily re-sharpened, outdoor knives, medical blades and razor blades, with high requirements on corrosion resistance and toughness.

Chemical composition (nominal)

Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Mo	N
0.53	0.4	0.7	≤0.03	≤0.01	14	1.0	0.08

Forms of Supply

The strips can be supplied either in coils or as straightened lengths of 0.5 - 4.0 meter (1.6 - 13.1 feet). The coil weight is max 5 kg/mm (280 lbs/in.) of strip width.

Hardening and tempering of the strip steel is needed to achieve the correct finish and to meet the properties required by the end user.

Dimensions

Thickness, mm (in.)		Width mm (in.)	
min	max	min	max
0.074 (0.0029)	4.5 (0.177)	5 (0.197)	380 (14.96)

Other sizes can be supplied to meet specific requirements.

Tolerances

The thickness and width tolerances are +/- tolerances to the nominal size. The normal tolerance classes for most of our strip products are T2 and B1. Tighter tolerances as well as other tolerance limits can be offered upon request.

Heat treatment

The exact hardening parameters need to be adjusted in every individual furnace. A general recommendation is given below:

Austenitizing:

Piece hardening:

To room temperature: Recommended temperature: 1050°C (1920°F)
Deep freezing to -70°C: Recommended temperature: 1070°C (1960°F)
 Time in furnace according to table.

Thickness (mm)	Thickness (in.)	Time (minutes)
2.5	0.100	5
3.0	0.118	6
3.25	0.128	7
3.5	0.138	8

3.75	0.148	10
4	0.157	12

Batch hardening:

To room temperature: Recommended temperature: 1040°C (1900°F)

Deep freezing to -70°C: Recommended temperature: 1060°C (1940°F)

Soaking time 30 minutes in furnace.

The temperature should first be equalized at 850°C (1560°F) for 30 minutes to avoid necessary temperature variations.

Quenching:

Quench to room temperature as rapid as possible. For optimum results 600°C (1110°F) should be reached within 2 minutes or less.

Tempering:

It is recommended that tempering is performed between 175-350°C (345-660°F) for 2 hours. Below is an estimation of the hardness levels that can be expected with different tempering temperatures.

After quenching to room temperature:

Hardness	Temperature
58 HRC	175°C (345°F)
56 HRC	225°C (435°F)
55 HRC	350°C (660°F)

After deep-freezing:

Hardness	Temperature
60 HRC	175°C (345°F)
58 HRC	225°C (435°F)
56 HRC	350°C (660°F)

Mechanical properties

Condition	Tensile strength	Hardness ¹⁾
	MPa (ksi)	HV
Annealed	720 ± 100 (105 ± 14)	225 ± 35
Cold rolled	800 – 1200 (116 - 174)	240 - 360

1) Hardness data is for guidance only.

Physical Properties

The physical properties of a steel are related to a number of factors, including alloying elements, heat treatment and manufacturing route, but the data presented below can generally be used for rough calculations.

Density: 7.7 g/cm³ (0.28 lb/in³)

Disclaimer: Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Alleima materials.