

| Description | Stainless and acid-resistant steel strip in accordance with EN 10088-2 | En-Norm | AFNOR | AISI | DIN |
|-------------|--|---------|-----------|------|--------|
| | | 1.4301 | Z6CN18-09 | 304 | 1.4301 |
| | | 1.4307 | Z6CN18-09 | 304L | 1.4307 |
| | | 1.4306 | Z3CN18-10 | 304L | 1.4306 |

Chemical analysis

| Material | C | Si max. | Mn max. | P max. | S max. | Cr | Ni | N max. % | PREN |
|----------|------|---------|---------|--------|--------|-------------|-------------|----------|------|
| 1.4301 | 0.07 | 1.0 | 2.0 | 0.045 | 0.015 | 17.5 - 19.5 | 8.0 - 10.5 | 0.11 | 18 |
| 1.4307 | 0.03 | 1.0 | 2.0 | 0.045 | 0.015 | 17.5 - 19.5 | 8.0 - 10.5 | 0.11 | 18 |
| 1.4306 | 0.03 | 1.0 | 2.0 | 0.045 | 0.015 | 18.0 - 20.0 | 10.0 - 12.0 | 0.11 | 18 |

Chemical analysis according to the European standard EN in mass percentages. / *Other

Main technical properties and features

The rust-resistant steel material 1.4301 (V2A) is used in a wide range of applications thanks to its excellent general corrosion resistance, good cold forming properties (bending, deep drawing, rolling, etc.) and, last but not least, its good appearance.

This material is increasingly being produced by steelworks as a standard grade with the double-attestation 1.4301/1.4307/304L.

The material 1.4306, on the other hand, has better deep-drawing properties thanks to its higher nickel content. However, the availability of this material is limited.

The material 1.4301/1.4307 can be used very universally, for example in architecture, in vehicle construction, for household objects and appliances, in cabinet and kitchen construction, in medical technology, the food and pharmaceutical industries and many other applications.

Corrosion resistance

Cr-Ni steel is resistant to water, water vapour, humidity, food acids and weak organic and inorganic acids.

Use with chloride-containing substances (table salt, chlorinated cleaning agents, etc.) should be avoided as there is a risk of corrosion. In particular, use for load-bearing elements should be avoided (caution: stress corrosion cracking).

Weldability

Weldability is good with all electrical processes; gas fusion welding should not be used (carburisation). Due to the lower carbon content, 1.4307 has better resistance to intercrystalline corrosion after welding without subsequent heat treatment, especially for thicker dimensions with high heat input.

Limit temperature

As these grades tend to precipitate chromium carbides, the time in the temperature range of 450°C - 850°C must be carefully limited both during production and processing.

Resistant to intercrystalline corrosion in continuous operation up to 300°C (1.4301/1.4307) and 350°C (1.4306).

Mechanical Properties

| Finish | Tensile Strength | Hardness | 0.2% yield point | Elongation at break |
|----------|--------------------------|-------------------|--------------------------|---------------------|
| | MPa (N/mm ²) | HV approx. values | MPa (N/mm ²) | A % |
| annealed | 540 - 750 | 160 - 230 | min. 235 | min. 40% |
| 1/4 hard | 770 - 920 | 220 - 290 | min. 400 | min. 15% |
| 1/2 hard | 870 - 1020 | 265 - 320 | min. 500 | min. 7% |
| 3/4 hard | 1000 - 1150 | 300 - 360 | min. 750 | min. 4% |
| hard | 1130 - 1280 | 340 - 410 | min. 950 | min. 3% |

Other strength levels on request

The conversion between tensile strength and HV hardness is always subject to inaccuracies and only provides approximate values. In case of doubt, the test method specified in the product specification applies; tensile strength is to be preferred.

Physical properties

| | |
|--|--|
| density | 7.9 kg/dm ³ |
| Specific warmth | 500 J / (Kg*K) |
| Thermal conductivity | 15 W / (m*K) |
| Electrical resistivity | 0,73 (Ohm*mm ²) / m |
| Average coefficient of thermal expansion between 20° and 100°C | 16.0 (10 ⁻⁶ * K ⁻¹) |

| | |
|-------------------------------------|---|
| Magnetisability: | not present in annealed condition but increases with increasing cold forming. |
| Polishability: | good |
| Structure: | austenitic |
| Solution annealing: | 1000°C - 1080°C / quenching in air or water. Hardening by heat treatment is not possible. |
| Hardening by heat treatment: | when tested in accordance with DIN 50 914, no intergranular corrosion occurs when used up to 400°C and for a service life of up to 100,000 hours. |

Surface Finish

| Description | Acc. EN 10088-2 | DIN | ASTM |
|--|-----------------|----------|------|
| hot strip rolled, annealed, pickled, scale-free | 1D | c2(IIa) | 1 |
| cold rolled, bright annealed, "bright annealed" | 2R | m(III d) | BA |
| cold-rolled, annealed, pickled, lightly re-rolled | 2B | n(III c) | 2B |
| cold rolled, annealed, pickled, matt | 2D | h(III b) | 2D |
| cold-rolled, heat-treated, not descaled | 2E | | |
| work-hardened to a higher strength level, "temper rolled", bright | 2H | f(III a) | TR |
| Cold rolled, annealed, ground, grain size to be defined | 2G | o(IV) | 3 |
| Cold rolled, annealed, brushed, smoother than ground | 2J | q | 6 |
| cold rolled, annealed, fine ground, satin polished, for special requirements, roughness value Ra max. 0.5 my (e.g. OUTOKUMPU 4N) | 2K | p(V) | 4 |

Diameter

Steel strip:

thickness
0.05 - 5.00 mm

Delivery form:

- in coils
- wound on spools
- in straightened strips
- with cut edges
- with deburred edges
- with rounded edges
- or with specially manufactured special edges

Steel strip in sheets

| Diameter (mm) | Weight of sheets (kg) |
|-------------------|-----------------------|
| 0.10 x 300 x 2000 | 0.48 |
| 0.15 x 300 x 2000 | 0.72 |
| 0.20 x 300 x 2000 | 0.96 |
| 0.25 x 300 x 2000 | 1.20 |
| 0.30 x 300 x 2000 | 1.44 |
| 0.40 x 300 x 2000 | 1.92 |
| 0.50 x 300 x 2000 | 2.40 |

Sheets from stock:

Metal sheets 0.50 - 40 mm in standard formats

Other strip dimensions
can be produced in our service centre.

Diameter tolerances

| Cold rolled wide strip DIN EN ISO 9445-2 | | Precision rolled strip DIN EN ISO 9445-1 | |
|--|-------------------|--|-------------------|
| Nominal thickness [mm] | Tolerance [mm] | Nominal thickness [mm] | Tolerance [mm] |
| 0.30 - 0.499 | +/- 0.030 | | |
| 0.50 - 0.699 | +/- 0.040 | | |
| 0.70 - 1.099 | +/- 0.050 | 0.10 - 0.149 | +/- 0.10 |
| 1.10 - 1.499 | +/- 0.060 | 0.15 - 0.199 | +/- 0.012 |
| 1.50 - 1.999 | +/- 0.075 | 0.20 - 0.249 | +/- 0.012 |
| 2.00 - 2.499 | +/- 0.100 | 0.25 - 0.399 | +/- 0.015 |
| 2.50 - 2.999 | +/- 0.120 | 0.40 - 0.499 | |
| | +/- 0.018 | | |
| 3.00 - 3.999 | +/- 0.140 | 0.50 - 0.599 | +/- 0.020 |
| 4.00 - 6.499 | +/- 0.150 | | |

Width tolerance: according to DIN EN ISO 9445-1

Special tolerances: narrower or special thickness and width tolerances as well as special strength values can be produced in our service centre according to your specifications and on request.

These values were determined from laboratory tests and data from the literature. They are intended solely as an aid. Use of the information is at your own risk. No liability is accepted.

Note

All information provided in this data sheet is based on the best knowledge and the latest state of the art, but without guarantee. The use of materials should always be discussed with our [sales specialists](#) or our materials [laboratory](#) on a product- and application-specific basis.

