

Galvatite high-strength steel

Galvatite high-strength steel allows the user to increase the strength of the finished component or reduce the steel thickness, or both. It also offers corrosion resistance and good forming properties.

Typical applications

- automotive components
- cold-formed tubes
- building frames
- floor decking
- racking and shelving
- building components

Standard

Galvatite high-strength steel complies with EN 10292 : 2000 and is available in the grades and coatings shown in table 49 (right).

Mechanical properties

The values shown for the mechanical properties in table 50 below are for temper-rolled material and are for test pieces taken either transverse to or in the rolling direction (see test direction in table).

Chemical composition

Galvatite high-strength steel meets the requirements of the cast analysis in the standard, as shown in table 51 on page 68.

Dimensions

The width and thickness limits are shown in table 52 on page 68. The minimum width for all products is 900mm. Widths below this may be available after consultation.

Table 49: Standard: EN 10292 : 2000

| Grade | Symbol for coating type |
|---------|-------------------------|
| H180BD | Z, ZF |
| H220BD | Z, ZF |
| H220PD | Z, ZF |
| H300PD | Z |
| H220YD | Z |
| H260YD | Z |
| H260LAD | Z, ZF |
| H300LAD | Z, ZF |
| H340LAD | Z |
| H380LAD | Z |
| H420LAD | Z |

Table 50: Mechanical properties: EN 10292 : 2000

| Grade | Test | $R_{p0.2}$ (N/mm ²) | BH_2 (N/mm ²) | R_m (N/mm ²) | A_{80} (%) | r_{90} | n_{90} |
|---------|------|---------------------------------|-----------------------------|----------------------------|--------------|----------|----------|
| | | Min-Max | Min | Min-Max | Min | Min | Min |
| H180BD | t | 180-240 | 35 | 300-360 | 34 | 1.5 | 0.16 |
| H220BD | t | 220-280 | 35 | 340-400 | 32 | 1.2 | 0.15 |
| H220PD | t | 220-280 | – | 340-400 | 32 | 1.3 | 0.15 |
| H300PD | t | 300-360 | – | 400-480 | 26 | – | – |
| H220YD | t | 220-280 | – | 340-410 | 32 | 1.5 | 0.17 |
| H260YD | t | 260-320 | – | 380-440 | 30 | 1.4 | 0.16 |
| H260LAD | t | 260-330 | – | 350-430 | 26 | – | – |
| H300LAD | t | 300-380 | – | 380-480 | 23 | – | – |
| H340LAD | t | 340-420 | – | 410-510 | 21 | – | – |
| H380LAD | t | 380-480 | – | 440-560 | 19 | – | – |
| H420LAD | t | 420-520 | – | 470-590 | 17 | – | – |
| H260LAD | l | 240-310 | – | 340-420 | 27 | – | – |
| H300LAD | l | 280-360 | – | 370-470 | 24 | – | – |
| H340LAD | l | 320-400 | – | 400-500 | 22 | – | – |
| H380LAD | l | 360-460 | – | 430-550 | 20 | – | – |
| H420LAD | l | 400-500 | – | 460-580 | 18 | – | – |

Note: The letters in the test column indicate test direction. The letter t indicates transverse to the rolling direction and the letter l indicates longitudinal, i.e. in the rolling direction.

Table 51: Chemical composition: EN 10292 : 2000

| Grade | C | Mn | Si | Al | P | S | Ti' | Nb' |
|---------|------|------|------|-------|-------|-------|-------|-------|
| | Max | Max | Max | Min | Max | Max | Max | Max |
| H180BD | 0.04 | 0.70 | 0.50 | 0.020 | 0.060 | 0.025 | – | – |
| H220BD | 0.06 | 0.70 | 0.50 | 0.020 | 0.080 | 0.025 | – | – |
| H220PD | 0.08 | 0.70 | 0.50 | 0.020 | 0.080 | 0.025 | – | – |
| H300PD | 0.10 | 0.70 | 0.50 | 0.020 | 0.080 | 0.025 | – | – |
| H220YD | 0.01 | 0.90 | 0.10 | 0.020 | 0.080 | 0.025 | 0.120 | – |
| H260YD | 0.01 | 1.60 | 0.10 | 0.020 | 0.100 | 0.025 | 0.120 | – |
| H260LAD | 0.10 | 0.60 | 0.50 | 0.015 | 0.025 | 0.025 | 0.150 | 0.090 |
| H300LAD | 0.10 | 1.00 | 0.50 | 0.015 | 0.025 | 0.025 | 0.150 | 0.090 |
| H340LAD | 0.10 | 1.00 | 0.50 | 0.015 | 0.025 | 0.025 | 0.150 | 0.090 |
| H380LAD | 0.10 | 1.40 | 0.50 | 0.015 | 0.025 | 0.025 | 0.150 | 0.090 |
| H420LAD | 0.10 | 1.40 | 0.50 | 0.015 | 0.025 | 0.025 | 0.150 | 0.090 |

Notes:

1. The sum of the contents of these elements should not exceed 0.22%.
2. Values are in weight percentages.

Table 52: Dimensions: EN 10292 : 2000

| Thickness | | Width | | | | | | | |
|-----------|------|--------|--------|--------|--------|-------------------|-------------------|---------|--------------------|
| | | Max | | | | | | | |
| | | H180BD | H220BD | H220YD | H260YD | H220PD H260LAD | H300PD H300LAD | H340LAD | H380LAD H420LAD |
| > | ≤ | | | | | | | | |
| 0.38 | 0.40 | – | – | – | – | 970 | – | – | – |
| 0.40 | 0.43 | – | – | – | – | 1220 | – | – | – |
| 0.43 | 0.45 | 1070 | – | – | – | 1220 | – | – | – |
| 0.45 | 0.50 | 1250 | – | – | – | 1520 | – | – | – |
| 0.50 | 0.56 | 1520 | – | – | – | 1520 | 1300 | – | – |
| 0.56 | 0.60 | 1520 | 1520 | 1320 | 1320 | 1520 | 1300 | – | – |
| 0.60 | 0.63 | 1520 | 1520 | 1580 | 1580 | 1520 | 1500 | 1450 | – |
| 0.63 | 0.68 | 1520 | 1520 | 1605 | 1605 | 1520 | 1500 | 1450 | – |
| 0.68 | 0.70 | 1605 | 1605 | 1605 | 1605 | 1605 | 1500 | 1450 | – |
| 0.70 | 0.75 | 1605 | 1605 | 1620 | 1620 | 1605 | 1500 | 1450 | 1500 |
| 0.75 | 0.90 | 1620 | 1620 | 1620 | 1620 | 1620 | 1600 | 1550 | 1500 |
| 0.90 | 0.98 | 1620 | 1620 | 1620 | 1620 | 1620 | 1600 | 1600 | 1500 |
| 0.98 | 1.10 | 1620 | 1620 | 1620 | 1620 | 1620 | 1600 | 1600 | 1550 |
| 1.10 | 1.20 | 1620 | 1620 | 1620 | 1620 | 1620 | 1620 | 1620 | 1550 |

Note: Dimensions are in millimetres.