

DILLIDUR 450

Wear resistant steel

Material data sheet, edition November 2023¹

DILLIDUR 450 is a wear resistant steel with a nominal hardness of 450 HBW in delivery condition ex works. DILLIDUR 450 is preferentially used by the customers where elevated resistance to wear is required together with good workability and especially good weldability.

Examples of application are earth moving and loading machines, dredgers, skip cars, conveying plants, trucks, cutting edges, knives and breakers, waste elimination and recycling plants.

In spite of their high tensile properties, DILLIDUR steels are not intended for safety relevant components. For this purpose, high strength steels DILLIMAX are available.

Product description

Range of application

DILLIDUR 450 can be delivered in thicknesses from 6 mm to 100 mm (1/4 in. to 4 in.)² according to the dimensional program. Other dimensions may be possible on request.

Chemical composition

For the ladle analysis, the following maximum values in % are applicable:

| C | Si | Mn | P | S | Mo | Ni | Cu | Cr | V | Nb | B |
|------|------|------|-------|-------|------|------|------|------|------|------|-------|
| 0.25 | 0.70 | 1.60 | 0.020 | 0.005 | 0.50 | 0.80 | 0.30 | 1.50 | 0.08 | 0.05 | 0.005 |

The steel is fully killed and fine grain treated.

Indicative values for the carbon equivalent:

| Plate thickness [mm] | 10 | 40 | 80 |
|----------------------|------|------|------|
| CEV ^a | 0.46 | 0.55 | 0.69 |
| CET ^b | 0.34 | 0.36 | 0.39 |

^a $CEV = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$

^b $CET = C + (Mn + Mo)/10 + (Cr + Cu)/20 + Ni/40$

Delivery condition

The plates are controlled water quenched.

¹ The current version of this material data sheet can be also found on www.dillinger.de

² The approximately converted values in brackets are for information only.

Mechanical properties in the delivery condition

Hardness

| Plate thickness t [mm] (in.) ^a | Surface hardness in Brinell [HBW] at room temperature |
|---|---|
| t < 8 (0.3) | 420 - 510 |
| t ≥ 8 (0.3) | 420 - 480 |

^a The approximately converted values in brackets are for information only.

Charpy-V impact test on longitudinal specimens (indicative values for ≤ 20 mm plate thickness)

Charpy impact energy: 35 J at -40 °C (-4 °F)³

Testing

Brinell hardness testing acc. to EN ISO 6506-01 or Leeb hardness testing acc. to EN ISO 16859-01 on a ground surface in general 0.5 mm - 2.0 mm below the sheet surface. Brinell surface hardness is tested once per heat and 40 t.

Unless otherwise agreed, the test results are documented in an inspection certificate 3.1 in accordance with EN 10204.

Identification of plates

Unless otherwise agreed the marking is carried out via steel stamps with at least the following information:

- steel grade (DILLIDUR 450)
- heat number
- number of mother plate and individual plate
- the manufacturer's symbol
- inspector's sign

Processing

The entire processing and application techniques are of fundamental importance to the reliability of the products made from this steel. The user should ensure that his design, construction and processing methods are aligned with the material, correspond to the state of the art that the fabricator has to comply with and are suitable for the intended use. The customer is responsible for the selection of the material. The recommendations in accordance with EN 1011-2 (Welding) and CEN/TR 10347 (Forming) as well as recommendations regarding job safety in accordance with national rules should be observed while considering the higher strength and hardenability.

The steel can be heated to about 200 °C (390 °F) without any substantial drop in hardness.

For further processing recommendations, please refer to the corresponding processing information.

³ The approximately converted values in brackets are for information only.

General technical delivery requirements

Unless otherwise agreed, the general technical requirements in accordance with EN 10021 are applicable.

Tolerances

Unless otherwise agreed, the tolerances are in accordance with EN 10029, with class A for thickness.

Surface quality

Unless otherwise agreed, the provisions in accordance with EN 10163-2, class A2 are applicable.

General note

If special requirements, which are not covered in this material data sheet, are to be met by the steel due to its intended use or processing, these requirements are to be agreed before placing the order.

The information in this data sheet is a product description. This data sheet is updated at irregular intervals. The current version is relevant. The latest version is available from the mill or as download at www.dillinger.de.

Contact

AG der Dillinger Hüttenwerke
Tel.: +49 6831 47 3454
e-mail: info@dillinger.biz
P.O. Box 1580
66748 Dillingen / Saar
Germany

You can find your contact person on www.dillinger.de.