



DILLINGER HÜTTE GTS

ABRACORR 30

WEAR-RESISTANT STEEL PLATE
WITH ENHANCED CORROSION RESISTANCE

Specification DH-E42-A
Edition December 2003

ABRACORR 30 is a fine-grained steel with good weldability, particularly suited for applications where high wear is combined to wet environment and/or high temperatures (up to 600 °C). ABRACORR 30 shows good fabrication properties with respect to its high mechanical properties. The typical application fields of ABRACORR 30 are steelmaking, cement industry, sugar and phosphate industry and mining, as well as materials handling in marine environment or construction machinery.

Product description

Designation and range of application

ABRACORR 30 can be delivered from 5 to 40 mm (0.6 to 1.6 in.) thickness. Higher plate thickness may be possible on request.

Chemical composition

Limiting values for the ladle analysis in %:

| | C | Si | Mn | P | S | Cr | Ni | Mo | V |
|-----|------|------|------|-------|-------|------|------|------|------|
| min | 0.06 | 0.30 | 1.30 | - | - | 1.50 | 1.00 | - | - |
| max | 0.12 | 0.50 | 1.80 | 0.030 | 0.015 | 2.50 | 1.30 | 0.30 | 0.20 |

Delivery condition

ABRACORR 30 plates are delivered in the normalized condition.

Mechanical and technological properties in the delivery condition

Hardness values at room temperature

| Thickness in mm (in.) | Minimum hardness in HBW ¹⁾ |
|-----------------------|---------------------------------------|
| ≤ 15 (0.6) | 320 |
| > 15 (0.6) ≤ 40 (1.6) | 300 |

¹⁾ Surface Brinell hardness

Hot tensile properties (indicative values for 10 mm plate thickness)

| Temperature in °C (°F) | 20 (68) | 100 (212) | 200 (392) | 300 (572) | 400 (752) | 450 (842) | 500 (932) |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|
| R _{p0.2} in MPa (ksi) | 775 (112) | 825 (120) | 875 (127) | 805 (117) | 775 (112) | 745 (108) | 700 (101) |
| R _m in MPa (ksi) | 1160 (168) | 1055 (153) | 1095 (159) | 1155 (167) | 1070 (155) | 985 (143) | 880 (128) |

Testing

Hardness measurement is performed on plate surface once per heat and plate thickness. Tensile testing is optional and will be carried out if specifically required.

Hardness testing is performed according to EN ISO 6506-1. Tensile testing is carried out in accordance with EN 10002-1 on specimens of gauge length $l_0 = 5,65 \sqrt{S_0}$ or $l_0 = 5d_0$.

Identification of plates

The marking is carried out via steel stamps with at least the following information:

- the manufacturer's symbol
- steel designation (ABRACORR 30)
- heat number
- rolled plate number
- individual plate number

Processing properties

The entire fabrication and application techniques are of fundamental importance to the reliability of the products made from this steel. The fabricator should ensure that his calculation, design and fabricating 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 of EN 1011 should be observed.

Flame cutting and welding

Due to its high chromium content, ABRACORR 30 tends in oxidizing environment to form a heat resistant oxide layer. This oxide layer must be removed as well as scale before flame cutting (this can be performed by mechanical grinding or flame descaling of the plate surface). As a rule, but depending on the actual conditions and procedure, preheating before flame cutting is not necessary.

ABRACORR 30 can be welded using any classical process: with low hydrogen basic electrodes, shielded arc welding (SMAW, GSMAW) or submerged arc welding. It is recommended to use, if possible, weld metals with lower yield strength. In case of very high wear intensity in the weld region, a last hard layer may be deposited.

Cold forming

ABRACORR 30 is suitable for cold forming in spite of its high hardness. It is recommended to grind sheared or flame cut edges in the bending area, and slightly machine the angles in areas of tensile stress. The bending radius should be at least three times the plate thickness.

Hot forming and heat treatment

Since the hardness level in the delivery condition is obtained through normalization followed by air cooling, hot forming is possible without a drop in hardness if a similar heat treatment is carried out after forming, or if an equivalent procedure is observed during hot forming.

Machining

ABRACORR 30 can be machined with HSS-drills and especially HSS-Co-alloyed drills with a satisfactory service life, if the drill advance and cutting speed are accommodated accordingly. Because of the heat-resistant oxide layer, it is recommended to grind the drilling area and point the hole carefully out to avoid any drill slip at the beginning.

Drilling with hard metal drills is not necessary. For grinding and sawing, the use of tools with reversible carbide tips and negative cutting edge is recommended.

General technical delivery requirements

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

Tolerances

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

Surface quality

Unless otherwise agreed, the provisions in accordance with EN 10163 are applicable.

General note

If particular requirements are demanded and not covered in this material specification, please contact us with these requirements for our review and agreement prior to ordering.

The indications in this specification are product descriptions. This specification is updated at irregular intervals. The latest version is available from the mill or as download at www.dillinger.de.

Sales organisations:

Germany

Vertriebsgesellschaft
Dillinger Hütte GTS
Postfach 104927
D-70043 Stuttgart
Tel: +49 711 61 46-300
Fax: +49 711 61 46-221

France

DILLING-GTS Ventes France
Immeuble Pacific
TSA 10001
F-92070 La Défense CEDEX
Tel: +33 1 41 25 87 28
Fax: +49 6831 7 68 71 49

For your local representative
please contact our coordination
office in Dillingen

Tel: +49 6831 47 23 85
Fax: +49 6831 7 68 71 70

AG der Dillinger Hüttenwerke

Postfach 1580
D-66748 Dillingen/Saar

e-mail: info@dillinger.biz
<http://www.dillinger.de>

Tel: +49 6831 47-21 46
Fax: +49 6831 47-30 89