

## HX220YD

Steels with high yield strength  
for cold forming - ultra high strength IF

|              |                                       |
|--------------|---------------------------------------|
| Material no. | <b>1.0923</b>                         |
| according to | <b>DIN EN 10346/<br/>DIN EN 10143</b> |

### Mechanical properties (transverse)

|                           |
|---------------------------|
| Yield strength $R_e^{1)}$ |
| 220 – 280 MPa             |

|                        |
|------------------------|
| Tensile strength $R_m$ |
| 340 – 420 MPa          |

|                                |
|--------------------------------|
| Total elongation $A_{80}^{2)}$ |
| ≥ 32 %                         |

|                             |
|-----------------------------|
| Hardening exponent $n_{90}$ |
| ≥ 0,17                      |

|                          |
|--------------------------|
| Anisotropy $r_{90}^{3)}$ |
| ≥ 1,5                    |

### Available dimensions

| Thickness in mm | Width in mm |
|-----------------|-------------|
| 0,50 – 0,68     | 900 – 1.590 |
| 0,69 – 0,86     | 900 – 1.750 |
| 0,87 – 2,00     | 900 – 1.850 |
| 2,01 – 3,00     | 900 – 1.600 |

### Surface finish

Thickness ranges

|                  |                    |
|------------------|--------------------|
| MB               | <b>0,50 – 3,00</b> |
| MC <sup>1)</sup> | <b>0,50 – 2,00</b> |

<sup>1)</sup> By agreement

### Chemical composition<sup>1)</sup>

(in percent by weight)

|    | min. | max.  |
|----|------|-------|
| C  |      | 0,010 |
| Si |      | 0,200 |
| Mn |      | 0,900 |
| P  |      | 0,080 |
| S  |      | 0,025 |
| Ti |      | 0,120 |
| Al |      | 0,100 |

<sup>1)</sup> Ti + Nb + V ≤ 0,22%. The addition of Boron is permitted.

The samples for the tensile test are taken at right angles to rolling direction unless the product width is opposed to this.

- 1)  $R_{p0,2}/R_{eL}$
- 2) Reduced minimum values of elongation are valid for thicknesses ≤ 0,5 mm (minus 4 units) and for thicknesses > 0,5 mm and ≤ 0,7 mm (minus 2 units).
- 3) A thickness > 1,5 mm reduces the values of  $e_{r90}$  about 0,2.