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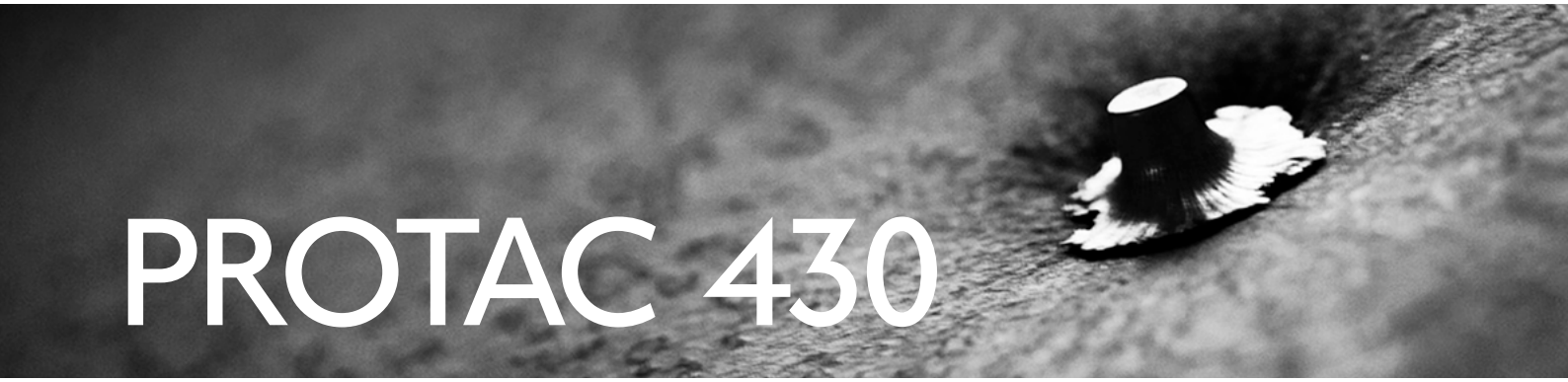

PROTAC 430

GENERAL INFORMATION

PROTAC 430 is a high-strength and high-hardness steel used for armour applications. These steel plates have excellent workshop properties regarding welding and bending due to the unique balance between high strength, elongation and impact toughness even at low operating temperatures. Vehicles and structures made of PROTAC 430 offer a high level of blast and shock protection.

STANDARDS

- General technical delivery requirements in accordance with EN 10021.
- Tolerances on dimensions and shape according to EN 10029.
- Delivery requirements for surface condition according to EN 10163-2.
- Ultrasonic testing according to EN 10160.
- Tensile testing at room temperature according to EN ISO 6892-1.
- Impact testing according to EN ISO 148-1.
- Brinell hardness testing according to ISO 6506-1.

MECHANICAL PROPERTIES

Delivery condition	Thickness [mm]	Surface hardness [HB]
QT (quenched + tempered)	6–50	420–480

* One measurement per plate.

Tensile properties					
Delivery condition	**Thickness [mm]**	**Testing direction**	**$R_{p0.2}$ [MPa] min.**	**R_m [MPa] min.**	**$A_{5.65}$ [%] min.**
QT (quenched + tempered)	6–50	transverse	1100	1250	8.0

* Measured on one plate per thickness per heat.

Impact toughness				
Delivery condition	**Thickness [mm]**	**Testing direction**	**Temperature [°C]**	**KV_2 [J]* min.**
QT (quenched + tempered)	6–50	transverse	–20	20

* Measured on one plate per thickness per heat. Measured on standard specimen 10 x 10 x 55 mm. The specified minimum value is the average of 3 tests. One individual value may be below the minimum average value specified, provided that it is not less than 70 % of that value. For plate thickness below 12 mm, subsize specimens shall be used. The minimum values of subsize specimens shall be reduced in direct proportion to the cross-sectional area of the test piece.

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DIMENSIONS

PROTAC 430	Hot rolled quarto plates – trimmed edges	Hot rolled quarto plates – untrimmed edges
Thickness [mm]	6–50	6–50
Width [mm]	1000–2500*	1000–2560*
Length [mm]	up to 12500	up to 12500

* Nominal plate thickness 6 and 7 mm available only up to 2000 (2060) mm width.

TOLERANCES ON DIMENSIONS

- Hot-rolled quarto plates: EN 10029

DELIVERY CONDITION

- Hot-rolled quarto plates in quenched and tempered condition

SURFACE CONDITION

- Sandblasted
- Sandblasted and anti-corrosion painted*

* Maximum width of the anti-corrosion painted plates is 2000 mm. Thickness of the coating is 20–60 µm.

CHEMICAL COMPOSITION

	Heat analysis									
PROTAC 430	C	Si	Mn	P	S	Cr	Ni	Mo	B	CEV*
max. in %	0.30	1.2	1.0	0.02	0.004	0.9	1.3	0.5	0.004	0.70

$$*CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

GENERAL WORKSHOP RECOMMENDATIONS

PROTAC 430 blast and shock protection steel is produced through a carefully controlled alloy design resulting in good welding characteristics. Due to the high mechanical properties, more care is necessary for cold bending, saw-cutting and milling. During the processing in the workshops, the steel shall not be exposed to a temperature over 180 °C which would result in loss of mechanical properties, especially its hardness.

INSPECTION DOCUMENTS

The type of document shall be agreed upon at the time of enquiry and order. A test certificate according to EN 10204/3.1 is issued mandatorily.

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