WearTuf 500

Revision:01

CHARACTERISTICS

WearTuf 500 is a fully martensitic Q&T abrasion resistant steel having hardness of average 500 Brinell. WearTuf 500 combines very high wear resistant with excellent weldability and bending performance. In respect to the hardness WearTuf 500 offers very good impact toughness granting good crack resistance.

APPLICATIONS

WearTuf 500 is mainly used within the mining and recycling industry. Common applications are: heavy dumper and tipper bodies, buckets, cutting edges, hammers, shredders, crushers, sieves and various lining parts.

DIMENSIONS

WearTuf 450 is supplied in the thickness range of 4.0 - 50.0 mm and in plate width 900 - 3 100 mm. Supplied plate length from 4 000 to 18 000mm.

HARDNESS GUARANTEE

Surface hardness: 470 – 530 Brinell

Guaranteed hardness range, measured on a milled surface at a depth of 0.5 – 2.0 mm below the plate surface, according to EN ISO 6506-1.

Min center hardness:

Plate thickness ≤ 20 mm : min 470 Brinell
Plate thickness > 20 mm: 95% of min guaranteed surface hardness (*)

IMPACT TOUGHNESS

Typical 35J/-40°C (-40°F)

The impact toughness is given as absorbed energy at temperature, being the average of three full size Charpy-V test samples in longitudinal direction to rolling, according to EN ISO 148-1. (**)

CHEMICAL COMPOSITION

Ladle analysis:The steel is grain refined and fully killed, wt%

Thickness (mm)	C max	Si max	Mn max	P max	S max	Cr max	Ni max	Mo max	B max	CEV Typical	CET Typical
4.0 – 12.0	0.27	0.60	1.20	0.02	0.01	1.00	0.50	0.30	0.004	0.48	0.34
12.1 – 25.0	0.29	0.60	1.50	0.02	0.01	1.30	0.70	0.50	0.004	0.61	0.41
25.1 – 50.0	0.29	0.60	1.60	0.02	0.01	1.30	0.90	0.60	0.004	0.66	0.44

$$\text{CET} = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

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

MECHANICAL PROPERTIES TYPICAL VALUES

Yield strength	Tensile strength	Elongation
Rp0.2	Rm	A5
1250 MPa	1600 MPa	8%

According to EN ISO 6892-1, uniaxial tensile testing is performed in transverse direction to Rolling.

ULTRASONIC TESTING

All plates delivered meets the Class E2, S2 requirement, according to EN 10160.

DELIVERY CONDITION

WearTuf 500 is delivered in the as quenched (Q) condition, and when found necessary in the condition of quenched and tempered (QT).
The plates are delivered with sheared or thermally cut edges.

TOLERANCES

The thickness tolerances of WearTuf 500 meets and exceeds the thickness tolerance of EN 10029 Class A (***). Tolerances on shape, length and width meets the requirements of EN 10029. Flatness tolerances conforms to EN 10029 Class S or closer. For more information, consult the Leong Jin catalogue: General Product Information.

SURFACE CONDITION AND PROPERTIES

The delivered surface finish meets and exceeds that of EN10163-2 Class A, Subclass 3.

The plates will be delivered as painted, using a low zinc silicate corrosion protective shop primer. Plates can also be delivered as unpainted.

HEAT TREATMENT

Since the properties in the as delivery condition cannot be retained after exposure at service temperatures above 250°C, WearTuf 500 is not intended for further heat treatment.

PROCESSING PERFORMANCE

More information on the steel processing performance of WearTuf 500 can be found by consulting the WearTuf Technical manuals on 1) Bending, 2) Welding, 3) Cutting and 4) Machining.

(*) The centre of plate hardness is defined as the mean hardness over the plate through thickness centre, corresponding to a width of 25% of the plate thickness.

(**) In plate thickness less than 12 mm, subsize Charpy test samples are used. The specified min value is then proportional to the cross section of the sample. According to EN 10025 -1, impact tests are not required for nominal thickness < 6 mm.

(***) In the range of 4.0 - 12.0 mm the Leong Jin thickness tolerances can be offered.