AR500 Wear Plate

OMEGA STEEL CO.
Istanbul · Dilovası plant

AR500 is the hard end of the standard wear-plate range: 470–530 HB, about 30 % more life than AR400 and 15 % more than AR450 in sliding abrasion. The price is formability — it bends only at 5–6 × t and must be welded with preheat — so it goes where plates stay flat and are bolted or welded into place: crusher and mill liners, chute and hopper floors, screen decks, dredge and mining wear parts. We supply 6–40 mm from Hardox 500, Dillidur 500, XAR 500, Raex 500 and equivalent mills, plasma-cut at Dilovası.

470–530 HB | 6–40 mm | Bend ≥ 5 × t only | Preheat for welding | Liner grade

When a liner is changed every six weeks and every change stops the line, another 30 % of life is worth more than the difference in plate price. AR500 is the grade of the mining, cement and aggregate plants that count downtime in tons per hour.

CHEMICAL COMPOSITION

Element	C	Si	Mn	P	S	Cr	Ni	Mo	B
max. % (ladle)	≤ 0.30	≤ 0.70	≤ 1.60	≤ 0.020	≤ 0.010	≤ 1.50	≤ 1.50	≤ 0.60	≤ 0.005

CEV about 0.50–0.65 → preheat required for welding; check the certificate for the actual analysis of the thickness ordered.

HARDNESS AND MECHANICAL PROPERTIES

Property	Requirement	Typical value	Note
Brinell hardness	470–530 HB	500 HB	EN ISO 6506-1
Yield strength Rp0.2	not guaranteed	≈ 1 300 MPa	
Tensile strength Rm	not guaranteed	≈ 1 550 MPa	
Elongation A5	—	≈ 8 %	
Charpy V	—	≈ 30 J at −40 °C	longitudinal
Max. service temperature	—	200–250 °C	

EQUIVALENT GRADES

System	Grade	Note
SSAB	Hardox 500	reference brand
Dillinger	Dillidur 500 V	
thyssenkrupp	XAR 500	
SSAB Raahe	Raex 500	
JFE	JFE-EH500	
GB/T 24186	NM500	Chinese mills

RELATIVE WEAR LIFE BY HARDNESS CLASS

Grade	Hardness	Relative life	Cold bending	Welding
S355J2	≈ 160 HB	1	free	free
AR400	400 HB	3–4	3 × t	no preheat ≤ 20 mm
AR450	450 HB	3.5–4.5	3.5–4 × t	preheat ≥ 15 mm
AR500	500 HB	4.5–5.5	5–6 × t (avoid)	preheat always
AR550 / 600	550–600 HB	5.5–7	not recommended	preheat, special
Chromium-carbide overlay	58–62 HRC	10–20	no	bolt or stud-weld

Ratios are for sliding abrasion with mineral particles; under heavy impact the tougher AR400/450 often outlast AR500 because they do not chip.

STANDARDS

Mill specifications (Hardox 500, Dillidur 500 V, XAR 500, Raex 500, NM500) · EN ISO 6506-1 · EN 10029 · EN 10204 3.1