ALLOY SELECTION

WEAR ALLOY GUIDE

Match the alloy to the wear mechanism. Use this guide as a starting point; our engineers confirm grade and heat treatment for every application.

ALLOY	TYPE	KEY CHEMISTRY (WT%)	CHARACTERISTICS	TYPICAL USES
HIGH-CHROMIUM WHITE IRONS · ASTM A532				
Class I Type A	Ni-Cr (Ni-Hard type)	Ni 3.3–5.0 · Cr 1.4–4.0	Martensitic white iron; cost-effective where impact is light	Mixer and pugmill liners, chute liners, low-impact wear plates
Class II Type A	12% Cr-Mo	Cr 11.0–14.0 · Mo ≤3.0	Tougher than Ni-Hard with better corrosion resistance	Wall and chute liners, small pump parts
Class II Type B	15% Cr-Mo	Cr 14.0–18.0 · Mo ≤3.0	Mo-bearing for through-hardness in heavier sections	Mill liners, roller and dredge parts, dry ore handling
Class II Type D	20% Cr-Mo	Cr 18.0–23.0 · Mo ≤3.0	High hardness with added toughness in thick castings	Crusher and mining wear parts in heavy sections
Class III Type A	25% Cr (incl. 27% Cr)	Cr 23.0–30.0 · Mo ≤3.0	Highest abrasion and erosion resistance with corrosion resistance; the workhorse grade	Pipe liners and spool inserts, cyclone and pump parts, VSI/HSI parts, chute liners
MANGANESE AND ALLOY STEELS				
ASTM A128 Grade A	Austenitic manganese (Hadfield)	C 1.00–1.30 · Mn ≥12.0	Work-hardens under impact while the core stays tough	Railway frogs, cone and jaw liners, track pads, racking
Martensitic steels	Cr-Mo alloy steels	Per application	Balance of hardness and toughness for mixed impact and abrasion	Blow bars, hammers, GET, impactor parts
PLATE PRODUCTS				
ChromeBond HC	Brazed bimetallic plate	A532 II-B or III-A on carbon steel	White-iron wear face that welds or bolts in like plate	Chutes, hoppers, transfer points, feed boxes
Chromium carbide overlay	Weld-deposited overlay plate	Cr-C overlay on mild steel	Formable and weldable; fabricated into liners	Chutes, hoppers, transfer points

ASTM A532 CHEMISTRY, WT%

ASTM A532	C	Mn	Si	Ni	Cr	Mo
I A	2.8–3.6	2.0 max	0.8 max	3.3–5.0	1.4–4.0	1.0 max
II A	2.0–3.3	2.0 max	1.5 max	2.5 max	11.0–14.0	3.0 max
II B	2.0–3.3	2.0 max	1.5 max	2.5 max	14.0–18.0	3.0 max
II D	2.0–3.3	2.0 max	1.0–2.2	2.5 max	18.0–23.0	3.0 max
III A	2.0–3.3	2.0 max	1.5 max	2.5 max	23.0–30.0	3.0 max

Selecting a grade: abrasion with little impact, Class III Type A; heavy sections, Class II Type B or D; high impact, austenitic manganese or a steel-backed ChromeBond liner; light-duty liners, Class I Type A. Chemistry per ASTM A532 and A128. Hardness and heat treatment are specified per application and confirmed at quotation. Castings are produced to Foothills specification by qualified partner foundries.

NOT SURE WHICH ALLOY?

Send the part, drawing or a worn sample with service conditions, and we'll recommend the grade.

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