

Rare Earth Alloy Grinding Balls

Product datasheet - grinding media and wear parts

Rare earth alloy grinding balls are forged from steel that is micro-alloyed with cerium and lanthanum before rolling. The rare earth elements refine the grain size, remove sulphur and oxygen from the melt and make the carbide distribution more uniform, which lifts hardness to HRC 60-65 without the drop in toughness that usually comes with a harder ball.

These balls are made for mills where standard B2/B3 media wears out too quickly - typically hard, abrasive ores such as quartz-rich gold ore, copper porphyry and iron ore. They are supplied from 40 mm to 120 mm and can be mixed with standard forged balls in the same charge.



Property comparison

Material	Hardness (HRC)	Impact (J/cm2)	Relative wear resistance*
45#	55-58	>=12	1.0
60Mn	58-60	>=12	1.2
B2	58-62	>=15	1.5
B3	60-62	>=15	1.7
Rare earth alloy	60-65	>=18	1.8-2.2

Chemical composition (typical)

Grade	C (%)	Si (%)	Mn (%)	Cr (%)	RE addition (%)
RE-60	0.60-0.70	0.20-0.40	0.80-1.00	0.40-0.60	0.03-0.08
RE-65	0.65-0.75	0.20-0.40	0.90-1.10	0.60-0.90	0.05-0.10

Typical applications

Grain size refined by 1-2 ASTM grades, which raises both hardness and toughness; Sulphur and oxygen reduced to below 0.02%, cutting inclusion-initiated spalling; More uniform carbide network, so the ball wears evenly instead of pitting; Higher tempering resistance - the ball keeps hardness in the hot zone of the mill; Sizes: 40, 50, 60, 70, 80, 90, 100, 110 and 120 mm.

Ordering notes

Minimum order, lead time and packing are confirmed against the size mix or drawing in your enquiry. Each shipment carries a test report with chemistry, hardness, impact value and breakage rate for the heat. Payment terms: T/T with 30% deposit, or irrevocable L/C at sight. Shipping: FOB Qingdao, CIF or DAP.

Ordering and technical support

Send the mill type, media size or liner drawing, quantity and destination port. We reply with a quotation, packing plan and lead time within 12 hours.

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