



## Abrasion-Resistant Cast Iron 12% Cr

12% Cr is a popular abrasion resistant cast iron in ASTM A532 standard; it is one type of White Iron.

### Casting Methods in Casting Quality Industrial:

- Sand Casting
- Shell Casting

### Equivalent Abrasion-Resistant Cast Iron Grade:

EN 12513 Grade EN-GJN-HB555(XCr11) EN5.5607

### Reference Casting Standards:

#### ASTM A532 Standard Specification for Abrasion-Resistant Cast Irons

**ASTM A532 Class II type A 12% Cr chemistry requirement:** [www.castingquality.com](http://www.castingquality.com)

Standard	ASTM A532
Class	II
Type	A
Designation	12% Cr
Carbon %	2.0-3.3
Manganese %	2.0 max
Silicon %	1.5 max
Nickel %	2.5 max
Chromium %	11.0-14.0
Molybdenum %	3.0 max
Copper %	1.2 max
Phosphorus %	0.10 max
Sulfur %	0.06 max



### ASTM A532 Class II type A 12% Cr Mechanical Property:

No requirement about tensile/yield and elongation. [www.castingquality.com](http://www.castingquality.com)

### ASTM A532 Class II type A 12% Cr Hardness Requirements:

Standard	ASTM A532
Class	II
Type	A
Designation	12% Cr



As Cast or As cast and Stress relieved	550HB/53HCR/600HV	
Hardened or Hardened and Stress Relieved	Level 1	600HB/56HRC/660HV
	Level 2	650HB/59HRC/715HV
Chill Cast, min	550HB/53HRC/600HV	
Softened, max	400HB/41HRC/430HV	

[www.castingquality.com](http://www.castingquality.com)

### ASTM A532 Class II type A 12% Cr Heat treatment process

It will be up to the hardness requirement: as Cast, as Cast and Stress relieved, Hardened, Hardened and stress relieved, Softened for machining. [www.castingquality.com](http://www.castingquality.com)

Generally, the 12%Cr material is frequently ordered in the annealed condition with a maximum hardness of 400HB, after machining operations are performed the castings may then be hardened.

### ASTM A532 Class II type A 12% Cr Typical Casting Application:

- Pump industry.
- Mining industry, crusher liner, chute liner.
- Oil or recycling.

### What is White Iron?

When white iron solidifies, virtually all the carbon appears in the form of carbides, White irons are hard and brittle, and they break with a white fracture. These irons are usually alloyed with Chromium and Nickel. The hardness is in the range of 500 to 600 BHN, the specific alloying that is required in a function of section size and application; there must be coordination between designer and foundry. These irons exhibit outstanding wear resistance and are used extensively in the mining industry for ball mill shell liners, balls, impellers, and slurry pumps. [www.castingquality.com](http://www.castingquality.com)