

IRON CASTINGS - TECHNICAL DATA

GRAY & HIGH ALLOY IRONS

Monmet helps our customers solve their problems with an unmatched expertise in alloy and process selection.



ALLOY	ASTM SPECIFICATION	CHEMICAL COMPOSITION (Maximum unless range specified)						MINIMUM MECHANICAL PROPERTIES				EQUIVALENT FOREIGN SPECS		CHARACTERISTICS & APPLICATIONS
		C %	Si %	Mn %	Ni %	Cr %	Other %	CONDITION	TENSILE STRENGTH (KSI)	ELONGATION	BRINELL HARDNESS (BHN)	BRITISH STANDARD	GERMAN STANDARD	
GRAY IRONS	A48: CLASS 20	3.1-3.9	2.0-2.9	0.3-0.9				As cast	20		150-180	BS 1452 100, 150	DIN 1691 GG-10	These low strength gray irons CLASS 20 & CLASS 25 are characterized by excellent machineability, high damping capacity & low modulus of elasticity. The grades are used for small & light cylinder blocks & heads, pistons, pump bodies, transmission cases, gear boxes, etc.
	A48: CLASS 25	3.0-3.7	2.0-2.7	0.3-0.9				As cast	25		167-220	BS 1452 180	DIN 1691 GG-15	
	A48: CLASS 30	2.8-3.5	1.7-2.5	0.3-0.9				As cast	30		179-230	BS 1452 200	DIN 1691 GG-15	These medium strength gray irons have slightly lower damping capacity, but higher tensile & compressive strength & hardness, and low coefficient of friction. They can be used for brake drums, clutch plates, pistons, cylinder blocks, heads, heavy duty transmission cases & gear boxes, machine tool beds, headstock, tables, press frames and crank cases.
	A48: CLASS 35	2.6-3.5	1.5-2.3	0.3-0.9				As cast	35		180-235	BS 1452 220,250,260	DIN 1691 GG-20	
	A48: CLASS 40	2.4-3.5	1.5-2.3	0.3-0.9				As cast	40		190-248			The high strength & hardness of these grades make them useful for applications such as heavy service gears, sheaves, cable drums, crane wheels, rollers, dies, chucks & pulleys.
	A48: CLASS 45	2.3-3.4	1.4-2.2	0.3-0.9				As cast	45		200-260	BS 1452 300	DIN 1691 GG-25	
	A48: CLASS 50	2.3-3.4	1.4-2.2	0.3-0.9				As cast	50		220-290	BS 1452 350	DIN 1691 GG-30	
	A48: CLASS 60	2.2-3.4	1.3-2.0	0.3-0.11				As cast	60		240-350	BS 1452 400	DIN 1691 GG-35	
ABRASION RESISTANT HIGH ALLOY IRONS	A532: CLI-A (NiHard-1)	2.8-3.6	0.8	2.0	3.3-5.0	1.4-4.0	Mo 1.0	As cast/SR Harden			530-550 600 Min	BS 4844 2B	DIN 1695 G-X330NiCr42	These high carbon Ni-Cr white irons possess excellent resistance to abrasion, erosion & wear. The alloys achieve most of their properties in the AS CAST condition. Applications include grinding balls, mill liners, slurry pumps, impellers and roll heads.
	A532: CLI-B (NiHard-2)	2.4-3.0	0.8	2.0	3.3-5.0	1.4-4.0	Mo 1.0	As cast/SR Harden			530-550 600 Min	BS 4844 2A	DIN 1695 G-X260NiCr42	
	A532: CLI-C (NiHard-3)	2.5-3.7	0.8	2.0	4.0	1.0-2.5	Mo 1.0	As cast/SR Harden			530-550 600 Min			The unique structure of the alloy provides greater resistance to impact loads than Ni Hard Type 1 & 2. Applications include impellers, liners, paddles & grinding rings.
	A532: CLI-D (NiHard-4)	2.5-3.6	2.0	2.0	4.5-7.0	7.0-11.0	Mo 1.5	As cast/SR Harden			480-510 600 Min	BS 4844 2C, 2D, 2E	DIN 1695 G-X300CrNiSi952	
	A532: CLII-B (15% Chrome)	2.0-3.3	1.5	2.0	2.5	14.0-18.0	Mo 3.0 Cu 1.2	Anneal Harden			400 Max 600 Min	BS 4844 3A	DIN 1695 G-X300CrMo153	These high carbon Cr-Mo irons possess excellent resistance to abrasion, erosion & wear under moderate impact conditions at temperatures up to 1500 F. Castings poured in these alloys are machineable in softened condition (400 BHN Max.). Hardness higher than 600 BHN is achieved through heat treatment after rough machining. Applications include sand & slurry pumps, blasting equipment, blow bars, pulverising balls & mill liners.
	A532: CLII-D (20% Chrome)	2.0-3.3	2.2	2.0	2.5	18.0-23.0	Mo 3.0 Cu 1.2	Anneal Harden			400 Max 600 Min	BS 4844 3C	DIN 1695 G-X260CrMoNi2021	
	A532: CLIII-A (25% Chrome)	2.0-3.3	1.5	2.0	2.5	23.0-30.0	Mo 3.0 Cu 1.2	Anneal Harden			400 Max 600 Min	BS 4844 3D, 3E	DIN 1965 G-X300CrMo271	
AUSTENITIC HIGH ALLOY IRONS	A436: NIRESIST-1	3.0	2.8	1.5	13.5-17.5	1.5-2.5	Cu 5.5-7.5	As cast SR	25		131-183	BS 3468 F1	DIN 1694 GGL-NiCuCr1562	The austenitic structure and high nickel content of these alloys provide its corrosion & heat resisting properties. The presence of graphite, distributed throughout, makes these alloys highly resistant to galling & metal-to-metal wear at low & high temperatures, up to 1500 F. The chromium bearing grades provide for improved caviation & erosion resistance. The high nickel grades, such as Types 3-5, are recommended for severe thermal shock service between room temperature & 800 F and have low thermal expansivity & non-magnetic characteristics.
	A436: NIRESIST-1B	3.0	2.8	1.5	13.5-17.5	2.5-3.5	Cu 5.5-7.5	As cast SR	30		149-212	BS 3468 F2, L-NiCuCr1563	DIN 1694 GGL-NiCuCr1563	
	A436: NIRESIST-2	3.0	2.8	1.5	18.0-22.0	1.5-2.5	Cu 0.5	As cast SR	25		118-174	BS 3468 L-NiCr202	DIN 1694 GGL-NiCr202	
	A436: NIRESIST-2B	3.0	2.8	1.5	18.0-22.0	3.0-6.0	Cu 0.5	As cast SR	30		171-248	BS 3468 L-NiCr203	DIN 1694 GGL-NiCr203	The corrosion resistance of the Austenitic Gray Irons lies between the Gray Iron & Austenitic Chromium-Nickel Stainless Steels such as CF8 & CF8M.
	A436: NIRESIST-3	2.6	2.0	1.5	28.0-32.0	2.5-3.5	Cu 0.5	As cast SR	25		118-159	BS 3468 F3	DIN 1694 GGL-NiCr303	
	A436: NIRESIST-4	2.6	5.0-6.0	1.5	29.0-32.0	4.5-5.5	Cu 0.5	As cast SR	25		149-212	BS 3468 L-NiCuCr3055	DIN 1694 GGL-NiSiCr3055	Ni Resist Alloys find extensive use in the petroleum industry to combat sulfide corrosion. These alloys are suitable for use in high temperature application (1500 F) as well as applications in pumps, diffusers & roller vane pumps.
	A436: NIRESIST-5	2.4	2.0	1.5	34.0-36.0	0.1	Cu 0.5	As cast SR	20		99-124	BS 3468 L-Ni35		
	A436: NIRESIST-6	3.0	1.5-2.5	1.5	18.0-22.0	1.0-2.0	Cu 3.5-5.5 Mo 1.0	As cast SR	25		124-176			

Monmet offers a complete range of iron castings from gray, ductile, ni-hard, ni-resist and high chrome white irons.

- Gray Irons
- Abrasion Resistant High Alloy Irons
- Austenitic High Alloy Irons