

## Dura-Bar 60-40-18 Ductile Iron

### General Description:

Dura-Bar 60-40-18 is a nodular iron with a fully ferritic matrix. This iron grade's microstructure is achieved through annealing and offers excellent ductility and impact strength. Dura-Bar 60-40-18 has the most ductility out of the ductile iron family of Dura-Bar. Annealed Dura-Bar is NACE compliant and meets ASTM A395 and ASTM A536.

### Microstructure:



The microstructure consists of Types I & II nodular graphite as defined in ASTM A247. The matrix is 100% ferrite. The edge or rim will have a higher nodular count. Chill carbides will be less than 5% in any field at 100x and will be well dispersed.

### Chemical Composition:

Element	Percentage
Carbon*	3.50 - 3.90%
Silicon*	2.25 - 3.00%
Manganese	0.15 - 0.35%
Sulfur	0.025% Max
Phosphorus	0.05% Max

\*Carbon and silicon targets are specified for each bar size in order to maintain mechanical properties. Magnesium is added as an inoculant to produce nodular graphite.

## Mechanical Properties:

Hardness properties for various diameters are shown in the table. Hardness properties listed are minimum and maximum across the bar. For rectangles, squares and shapes, the hardness properties will depend on minimum and maximum section thickness and will be supplied on request.

Size Range		BHN	
Inches	mm	Min	Max
2.500 – 3.500	64-89	148	165
3.501 – 4.500	89-114	151	161
4.501 – 5.500	76-140	152	162

Tensile strength is determined from a longitudinal test specimen taken from mid-radius of the as-cast bar.

Mechanical Properties	
Tensile strength psi (min)	60,000
Yield strength psi (min)	40,000
Elongation (min)	18%

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