

Dura-Bar G1 Continuously Cast Gray Iron Bar Stock ASTM A48

Category : Metal , Ferrous Metal , Cast Iron , Alloy Cast Iron , Gray Cast Iron

Material Notes:

Dura-Bar G1 contains flake graphite in a matrix that is pearlitic with small amounts of ferrite. This is the softest grade of the Dura-Bar gray irons and is normally selected when excellent machinability is desired and the application requires moderate strength, hardness and resistance to wear. Excellent surface finishes can be achieved which is especially significant where lapping is involved. The microstructure will contain Type VII, type A, size 4-6, graphite as defined in ASTM A247. The matrix is pearlite with 5-20% ferrite. The rim will consist of Type D, size 6-8, graphite in a ferrite matrix with small amounts of pearlite. Chill carbides will be less than 5% in any field at 100x and will be well dispersed. Dura-Bar G1 can be oil quench hardened from 1575°F (855°C) to a minimum hardness of 40 Rc on the outside of the bar. The inside diameter hardness will be less than 40 Rc. If quench hardness is critical to the application, G2 Dura-Bar is recommended. Dura-Bar G1 may be ferritize annealed to soften the material to approximately 130 BHN. Composition: Typical chemical composition and ranges, actual values depend on cross section size. Information provided by Dura-Bar.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Dura-Bar-G1-Continuously-Cast-Gray-Iron-Bar-Stock-ASTM-A48.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 7.20 g/cc | 0.260 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|----------|-----------|--|
| Hardness, Brinell | 160 | 160 | Average |
| Tensile Strength, Ultimate | 138 MPa | 20000 psi | Large bars; Common application load less than 15,000 psi |
| Modulus of Elasticity | 138 GPa | 20000 ksi | |
| Compressive Strength | 621 MPa | 90000 psi | |
| Fatigue Strength | 68.9 MPa | 10000 psi | |
| Machinability | 125 % | 125 % | Based on 1212 =100% |
| Shear Strength | 200 MPa | 29000 psi | |
| | 207 MPa | 30000 psi | |

| Thermal Properties | Metric | English | Comments |
|----------------------|----------------------------|-------------------------------------|----------|
| CTE, linear | 9.90 µm/m-°C | 5.50 µin/in-°F | |
| | @Temperature 21.1 - 100 °C | @Temperature 70.0 - 212 °F | |
| Thermal Conductivity | 53.33 W/m-K | 370.1 BTU-in/hr-ft ² -°F | |
| | @Temperature 21.1 - 100 °C | @Temperature 70.0 - 212 °F | |

| Thermal Properties | Metric | English | Comments |
|--------------------|---------------|---------------|----------|
| Carbon, C | 2.6 - 3.75 % | 2.6 - 3.75 % | |
| Manganese, Mn | 0.30 - 0.65 % | 0.30 - 0.65 % | |
| Phosphorous, P | <= 0.12 % | <= 0.12 % | |
| Silicon, Si | 1.8 - 3.0 % | 1.8 - 3.0 % | |
| Sulfur, S | <= 0.070 % | <= 0.070 % | |

| Electrical Properties | Metric | English | Comments |
|------------------------|------------|------------|----------|
| Electrical Resistivity | 110 ohm-cm | 110 ohm-cm | |

| Descriptive Properties | Value | Comments |
|---------------------------|-------|--|
| Endurance Ratio | 0.5 | |
| Heat-Treat Response (Rc) | 55-60 | |
| Relative Damping Capacity | 250 | Natural log of rate of successive amplitude. |
| Relative Wear Resistance | Fair | |

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