

# UCB DATA SHEET

## Continuously Cast Iron

# UNIBAR GF

(ANNEALED)  
GUIDANCE ONLY

### Characteristics

A predominantly ferritic structure with fine undercooled graphite type (D/E). The fine film of graphite gives an improved surface finish with exceptional machinability, while the ferritic matrix encourages improved heat extraction from the material, due to its excellent heat conductivity, minimizing dimensional growth during the heating and cooling cycles. Noise and vibration damping are good in this grade.

### Size Range

| UNIBAR STANDARD SIZES AND SUPPLY |  |
|----------------------------------|--|
| <b>Round</b>                     | Supplied to customer order and size, subject to discussion   |
| <b>Half Round</b>                | Supplied to customer order and size, subject to discussion   |
| <b>Square and Rectangle</b>      | Supplied to customer order and size, subject to discussion   |
| <b>Lengths</b>                   | Standard 3 metres (other lengths available on request)   |
| <b>Supply condition</b>          | As-cast, turned and peeled (rounds). As-cast, milled (proof machined) and saw cut (rectangles and squares) |
| <b>Non Standard</b>              | Profiles to customer design available on special order, subject to discussion.                             |

### Chemistry

| ELEMENT            | TYPICAL %      |
|--------------------|----------------|
| <b>Carbon</b>      | 3.15 – 3.55    |
| <b>Silicon</b>     | 2.40 – 2.80    |
| <b>Manganese</b>   | 0.40 – 0.60    |
| <b>Sulphur</b>     | 0.02 Max       |
| <b>Phosphorous</b> | less than 0.10 |
| <b>Titanium</b>    | 0.15 – 0.30    |
| <b>Balance</b>     | Residual       |

Typical Ranges (Analysis at the discretion of UCB)

### Mechanical Properties

| MATERIAL GRADE | MATERIAL SECTION mm | TENSILE STRENGTH N/mm <sup>2</sup> MINIMUM | HARDNESS (HB) | MATRIX                  |
|----------------|---------------------|--|---------------|-------------------------|
| Unibar GF      | 20 < D ≤ 50         | 150  | 140 – 180     | Predominantly Pearlitic |
|                | 50 < D ≤ 100        | 130  |               |                         |
|                | 100 < D ≤ 200       | 115  |               |                         |
|                | 200 < D ≤ 400       | 105  |               |                         |

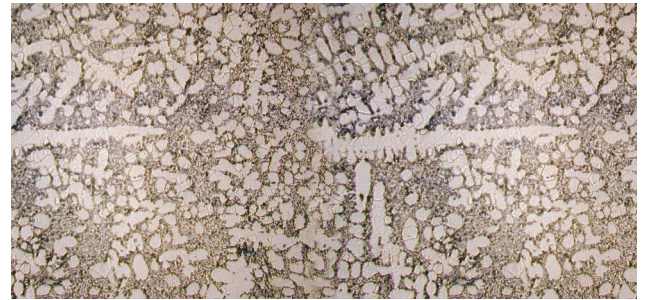
Taken from mid-radius of cast bar, not separately cast test bar.

### Brinell Hardness (HB)

Test 10mm dia Ball 3000Kg load depending on section size. Hardness readings are taken across the entire section of the bar. Hardness values for rectangles depend on the ratio of height to width and can be supplied upon request.

### Microstructure

Ferritic structure containing fine undercooled type 'D' & 'E' graphite flakes in accordance with ISO 945. The rim also contains type 'D' and 'E' interdendritic graphite, but finer. The matrix structure is predominantly ferritic with a maximum of 10% pearlite throughout. Supplied in the annealed condition.



(Photo 100x magnification)

### Heat Treat Response

Unibar GF cannot be hardened by heat-treatment.

### Surface Treatment

Suitable for thermal spray systems for increased wear resistance and repairs.

### Grade colour code



### Density

7.3 g/cc