

# UCB DATA SHEET



## Continuously Cast Spheroidal Graphite Iron:

### UCB Grade Unibar 400-15 Fully Annealed (Guidance only)

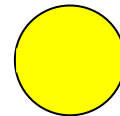
**Characteristics:** Offers superior machinability combined with good impact, fatigue, electrical conductivity and magnetic permeability. Noise and vibration damping are good in this grade. Compares with standard **EN-1563-GJS-400-15 GGG40** and **Meehanite SF400**

Unibar Profile and Size Range	
Round	25mm - 645mm + diameter
Square	Up to 520 mm x 520mm
Rectangle	Unibar is produced in a wide range of combinations, in height and width, up to 650mm x 510mm and 620mm x 370mm for example, other sizes to customer requirements can also be considered after consultation.
Ingots	Up to 1200mm diameter x 2100mm metre long (proof machined).
Ingot Blocks	Up to 800mm x 750mm x 2100mm long (proof machined).
Standard Length	Continuously Cast Bar 3 metres (other lengths available upon request)
Supply condition	As-cast, turned and peeled (Rounds). As-cast, milled (proof machined) and saw cut (rectangles and squares)
Non Standard	Sizes/profiles to customer design available on special order, subject to discussion.

**Chemistry(Typical Ranges):**  
(Subordinate to Mechanical Properties)

Element	Typical %
Carbon	3.25 - 3.70
Silicon	2.40 - 3.00
Manganese	0.10 - 0.30
Sulphur	0.005 - 0.020
Phosphorous	0.015 - 0.08
Magnesium	0.04 - 0.07
Others/Alloying	Residual
Iron	Balance

Grade colour code



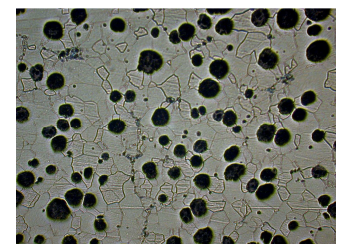
Yellow

**Mechanical Properties:** (As taken from mid-radius of cast bar, not separately cast test bar)

MATERIAL SPECIFICATION	MATERIAL SECTION	ANTICIPATED VALUES		
		Tensile strength UTS N/mm <sup>2</sup>	0.2% Proof Stress N/mm <sup>2</sup>	Elongation %
Unibar400-15 EN-GJS 400-15:1997 (GGG40)	25mm - 50mm	400	250	15
	55mm - 100mm	390	250	14
	105mm - 200mm	370	240	11
	205mm - 600mm +	370	240	11

**Brinell Hardness:** (Range) 130-180 (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:** Contains Type I & II nodular (spheroidal) graphite in accordance with ASTM A247. The rim contains approximately 200/250 nodules/mm<sup>2</sup>, and is predominately ferritic (>90%), with the core containing 90/150 nodules/mm<sup>2</sup>. The core matrix is essentially ferritic with ≤10% pearlite. Chill carbides will be less than 5%, well dispersed.  
(Photo 100x magnification)



**Heat Treat Response:** Unibar 400-15 is not recommended for Hardening and Tempering.

**Density:** 7.3 g/cc

**United Cast Bar Ltd**

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

(UCB Issue 8 10-06-2013 UB400-15 Fully Annealed)