

# UCB DATA SHEET



## Continuously Cast Spheroidal Graphite Iron:

### UCB Grade Unibar 500 + (Guidance only)

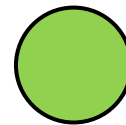
**Characteristics:** Offers higher wear resistance; strength & heat-treatment response compared to Unibar 400-15, and improved ductility (elongation) against standard 500-7, while still possessing good machinability and excellent surface finish. Noise and vibration damping are good in this grade.

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**

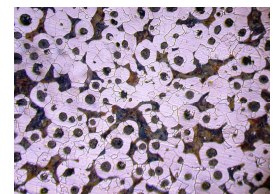


**Mechanical Properties:** (As taken from mid-radius of cast bar, not separately cast test bar)

MATERIAL SPECIFICATION	MATERIAL SECTION	ANTICIPATED VALUES		
		Tensile strength UTS N/mm <sup>2</sup>	0.2% Proof Stress N/mm <sup>2</sup>	Elongation %
Unibar 500 +	0mm - 60mm	500	320	15
	60mm - 120mm	450	300	14
	120mm - 700mm	420	290	11

**Brinell Hardness:** (Range) 170-210 (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 V & VI nodular (spheroidal) graphite, in accordance with ISO 945. The rim contains approximately 200/250 nodules/mm<sup>2</sup>, and is predominately ferritic (>70%) with the core containing 90/150 nodules/mm<sup>2</sup>. The core matrix is mixed ferritic/pearlitic (10-50% pearlite). Chill carbides will be less than 5%, well dispersed.  
(Photo 100x magnification)



**Heat Treat Response:** Unibar 500 + can be hardened by conventional methods, but Unibar 600/3 and 700/2 are recommended.

**Density:** 7.3 g/c

**United Cast Bar Ltd**

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

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