

DATA SHEET

Ductile (Spheroidal Graphite) Cast Iron

TY Grade HD4R, HD4RM

- Characteristics:** HD4R is a high silicon ductile iron intended for use at elevated temperatures or when a part is subjected to thermal cycling, such as permanent mold applications. The ferritic structure will remain stable so that no significant transformation takes place minimizing stresses that lead to cracks and distortion of the finished part.
- Conforms:** EN 16482(continuous cast iron bars), Dura-Bar SSDI(Solution Strengthened Ductile Iron)
- Size Range:** HD4R is a non-inventoried item.

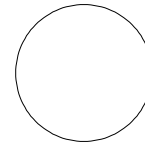
A wide variety of sizes and shapes is available by special order

STANDARD SIZE AND SUPPLY.		
Concast (HD4R)	Round	Special order
	Square & Rectangle	
Mold Cast (HD4RM)	Round	
	Square & Rectangle	
Standard Sizes	Length	
	Supply condition	
Non-Standard Sizes		

4. Chemistry: Typical Ranges:(Analysis at the discretion of T-Y)

Color Code(white)

ELEMENT	TYPICAL(%)
Carbon	3.20~3.90
Silicon	3.00~4.00
Manganese	max. 0.70
Phosphorous	max. 0.10
Sulfur	max. 0.02
Magnesium	max. 0.065
Copper	max. 0.25
Nickel	max. 0.15
Chromium	max. 0.15
Iron	Balance

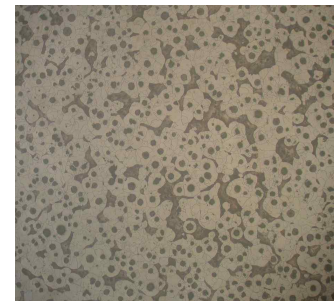


5. Mechanical Properties: (Taken from mid-radius of cast bar, not separately cast test bar)

Material grade	Diameter(D) (mm)	0.2% Proof Stress min. (N/mm ²)	Tensile (UTS) min. (N/mm ²)	Elongation min. (%)	BHN 3000kgf (10mm dia Ball)
HD4R	D < 60				max. 229
	60 < D ≤ 200	310	450	12	
	200 < D ≤ 400				

6. Microstructure: Contains Type V&VI nodular(spheroidal) graphite in accordance with ISO 945

- Nodularity: ≥80%
- Nodular Count(approximately): Rim Zone ≥200 nodules/mm²
Core Zone ≥80 nodules/mm²
- Ferritic/Pearlitic: ≥80% ferritic, ≤20% pearlite (core matrix)



7. Application:

HD4R is most commonly used in high temperature applications where resistance to growth and oxidation is required.

Glass Molds, Steel Mill Rolls, Plate Glass Furnace Rolls, Sealing Knives and so on.