

HEALTH AND SAFETY DATA SHEET

MATERIAL **DUCTILE IRON CASTINGS** eg (BS EN 1563) or Comparable National or International Standards

DESCRIPTION Silver grey metal castings containing a minimum 85% of iron, used in a wide range of industrial applications.

<u>TYPICAL COMPOSITION RANGE</u>	<u>%</u>	<u>TYPICAL PROPERTY RANGE</u>	
Total Carbon	: 3.4 - 3.8	Tensile Strength	: 350-900 N/mm ²
Silicon	: 1.8 - 5.0	Proof Stress (0.2%)	: 220-600 N/mm ²
Manganese	: 0.1 - 0.5	Hardness	: 160-359 HB
Sulphur	: 0.01	Elongation	: 2-22%
Phosphorus	: 0.05	Melting Point Approx	: 1150°C
Nickel	: 0 - 1.0	Density	: 7.1-7.2 gm/cm ³
Molybdenum	: 0 - 1.0	Thermal Conductivity	: 36.5-33.5 W/mK
Copper	: 0 - 1.0	(100°C)	
Magnesium	: 0.04 - 0.06	Coeff. Thermal	: 11 x 10 ⁻⁶ K
Iron	: Balance	Expansion (20-200°C)	

HEALTH HAZARDS

Ductile Iron in its solid form is stable and not hazardous.

Dust from grinding operations will be predominantly iron but small amounts of some respirable quartz may be present even if the castings have been shot blasted. Dust from surface grinding should be extracted and/or approved respiratory protection should be worn.

Welding generates iron oxide fume. Small amounts of phosphine are generated during machining. In the concentrations normally present these fumes are harmless but extraction of the fume improves working conditions.

Eyes must be protected from stray metal particles when grinding or machining are carried out. Metal particles in the eyes will cause irritation and should be removed by trained personnel.

OCCUPATIONAL EXPOSURE LIMITS

Exposure limits for iron, iron oxide, phosphine and respirable quartz are given in the current edition of Health and Safety Executive Guidance Note EH40. "Occupational Exposure Limits". (Updated annually).

FIRE HAZARD

Ductile Iron castings do not constitute a fire or explosive hazard.

MATERIAL HANDLING

No special precautions are necessary.

This data sheet is issued as a guidance document for health and safety purposes only.