

HEALTH AND SAFETY DATA SHEET

MATERIAL AUSTENITIC DUCTILE IRON CASTINGS eg (BS 3468) or Comparable National or International Standards

DESCRIPTION Silver grey metal castings predominantly of iron, and to a lesser extent nickel.

<u>TYPICAL COMPOSITION RANGE</u>	<u>%</u>	<u>TYPICAL PROPERTY RANGE</u>	
Total Carbon	: 2.2 - 3.0	Tensile Strength	: 370-490 N/mm ²
Silicon	: 1.5 - 5.4	Proof Stress (0.2%)	: 170-260 N/mm ²
Manganese	: 0.5 - 7.0	Hardness	: 130-230 HB
Phosphorus	: 0.08 max.	Elongation	: 1-45%
Nickel	: 12 - 36	Melting Point Approx.	: 1150°C
Chromium	: 0 - 3.5	Density	: 7.3-7.6 gm/cm ³
Copper	: 0.5 max.	Thermal Conductivity	: 12.6 W/mK
Magnesium	: 0.03 - 0.06	(100°C)	
Iron	: Balance	Coeff. Thermal Expansion (20-200°C)	: 12.1-18.7 x 10 ⁻⁶ K

HEALTH HAZARDS

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

Dust from grinding operations will be predominantly iron but nickel and small amounts of 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 and nickel fume. Small amounts of phosphine are generated during machining. Extraction should be provided and/or approved respiratory protection should be worn.

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, nickel, chromium, 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

Austenitic 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.