



ACCESS COVERS AND GRATINGS

Ductile Iron

Ductile iron is an iron-carbon-silicon alloy. During the molten stage in production, magnesium or cerium is added to the melt and transforms the morphology of graphite flakes into nodular form. The mechanical properties of this high-grade ductile iron, or spheroidal graphite, offer an unique combination of improved strength, fracture toughness and wear-resistance.

IPL group

Traditional cast iron ("grey iron") is an iron alloy characterised by its relatively high carbon content. When molten cast iron solidifies, some of the carbon precipitates as graphite, forming irregular flakes within the microstructure of the metal. This gives rise to desirable properties such as strength, hardness, good casting/machining ability and wear resistance but the same flakes also allows for crack points and cast iron's characteristic brittleness.

In Ireland, Drogheda has a strong history of successful cast iron products. Both the Drogheda Iron Works foundry (whose castings date from the 1800s) and Innovative Products Ltd (IPL group) have used cast iron for select quality covers, which can still be seen in towns and cities throughout the country.



IPL group | Cast Iron WSC and WSC-R covers

Today IPL group continues its tradition of attractive celtic cover designs but now uses only ductile iron in the manufacture of these products. The advancement in metallurgical science in the 1940s and our continuous product development mean that better tensile and compressive strengths, with a calculated degree of elasticity, is achieved in all ORBITAL access covers and gratings. Under stress loads, ductile iron yields rather than ruptures, which means better infrastructure performance and protection of the built environment.

IPL group's ductile iron castings meet international standards ISO1083 and EN1563 and are grade 500/7. All ORBITAL access covers and gratings are EN124 standard with Kitemark and/or LRQA certification.



Drogheda Iron Works | Cast Iron Covers & gratings

CAST IRON TRADITION TO DUCTILE IRON INNOVATION

ACCESS COVERS AND GRATINGS FROM DROGHEDA, IRELAND

IPL group continues to lead the way in developing new, intelligent foundation and ground installation designs with its range of highly successful patented products. The ORBITAL range is a further advancement in this area and draws on extensive material and manufacturing experience. All ORBITAL ductile iron covers and gratings, from light to heavy duty, are the result of good design, precision moulding, quality ingredient selection and technical craftsmanship. The use of ductile iron provides a greater "strength to weight" ratio over traditional cast iron, which benefits not only the infrastructure but all those involved in the design, build, maintenance and daily use of it.

ductile iron	
EN1563 GJS-500/07	

(Tensile strength 500 N/mm)
(Breaking elongation 7%)

Engineered ductile iron products:
Strength derived from material performance and structural design

Calculated mechanical performance:
Material elasticity gives impact resistance and reliability to access covers and gratings. Designs can achieve greater tensile and compressive strength, have a yield factor and improved lifetime performance

Safety positive:
High strength-to-weight ratio means lightweight, user-friendly designs for safe and easy transport and installation

Ergonomically positive:
Lightweight design allows for one-man operation and design features

cast iron	
EN1561 GJL-100	

(Tensile strength 100 N/mm)
(Breaking elongation <1%)

Traditional cast iron products:
Strength derived from material content (size, weight and density)

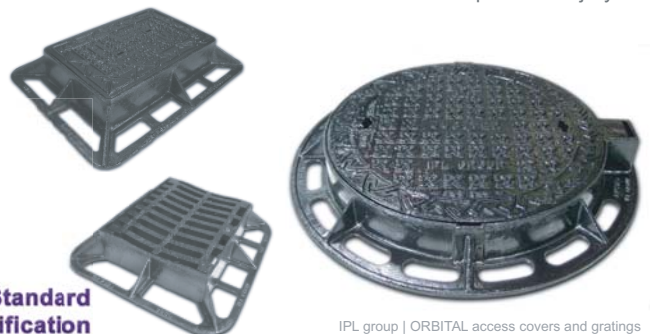
Limited mechanical performance:
Impact-sensitive material means restricted access cover design and strength options. Continued wear and peak traffic loading could lead to material cracks, rupture and product failure

Safety negative:
Relatively low strength-to-weight ratio results in heavy, hard to transport and to install covers and gratings

Ergonomically negative:
Two-man operation may be required, with increased chance of personal injury



**EN124 Standard
Kitemark Certification**



IPL group | ORBITAL access covers and gratings



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