Raising the standard: Helping build Ireland’s Infrastructure to EN 124:2015

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Accreditations

**BS EN ISO 9001**
Quality Management System.
Accreditation since 1995.

**ISO 14001**
Environmental Management System
Accreditation since 1999.

**ISO 18001**
Occupational Health and Safety Management System.
Accreditation since 2007.
Manufacturing Facilities - Europe

- Trace every product we make - day, month, year
- Recycled Metal
- Recycled Air
- Carbon Monitoring
- Global sites

Picardie, France

Ardennes Metal Fabrication, France

Nuneaton, UK
Agenda

• Ironwork issues and product failures
• The revised standard EN 124:2015
• Innovative solutions:
  - Ergonomics & Fall protection grids
  - Surface Water drainage solutions
  - Asset Management
  - Smart cities of the future
Our Goal

• Understanding of the relevant standard – IS EN124: 2015
• Select the most suitable product for the area of installation
• Recognise non conforming product
Issues

• Incorrect product selection and load classification – Lack of understanding of markings and required performance levels

• EN124 – a minimum performance standard

• Substandard manhole covers

• Incorrect bedding material

• Inconsistent installations
Issues for the Client

• High reactive reinstatement costs - € 40m Ire approx – not included in Local Authority budgets (Tarstone estimate)

• Public safety risks

• Potential litigation and court appearances

• Traffic disruption and traffic management issues

• Noise pollution & out of hours call outs
Safety risks

Dublin Airport approach road
Safety risks

Dublin Port
Non compliant product – Fuel Farm
Safety risks

F900 cover rocking under foot in trafficked area
The Standards in Ireland

Revised standard is split into 6 parts:

- Part 1 contains general design and performance requirements.
- Parts 2 – 6 outlines performance requirements for manhole tops and gully tops made of specific materials.
EN 124:2015

• Applies to gully tops and manhole tops – new revision includes ductile, steel & composite

• Clear opening <1000mm

• For areas subject to pedestrian and/or vehicular traffic
Additional performance requirements include:

- **Skid resistance test added** – the durability of skid resistance against loss of grip is ensured
- **Tilt & Pull-out test added**— in addition we road test all D400, E600 and F900 product
- **Definition for "securing feature" added** – securing by mass per unit area or a securing feature
- **Definition for "locking accessory" added** – requires type of locking system to be defined
- **Test for securing of covers/gratings within the frame added** – ensured by using materials with proven resistance to corrosion
- **Child safety feature added**— tests the resistance against the removal of covers or gratings by children
- **Recommendations for installation added.**
Load Classification

Group 1 - A15
Group 2 - B125
Group 3 - C250
Group 4 - D400
Group 5 - E600
Group 6 - F900

Note: “The selection of the appropriate class is the responsibility of the designer. EN124 is the minimum performance specification, if there is any doubt, a higher category cover and frame should be selected.”
Load Classification - B125

**Note:** EN124 is the minimum performance specification, if there is any doubt, a higher category cover and frame should be selected.

Group 2 - B125

Test Load - 125kN

Footways, Pedestrian & Comparable Areas, Car Parks or Car Parking Decks
Load Classification - C250

Note: EN124 is the minimum performance specification, if there is any doubt, a higher category cover and frame should be selected.

Group 3 - C250

Test Load - 250kN

Gully Tops installed in Kerbside Channels of roads

Maximum of 0.5 m into the Carriageway and 0.2 m into the Footway
Load Classification - D400

Note: EN124 is the minimum performance specification, if there is any doubt, a higher category cover and frame should be selected.

Group 4 - D400

Test Load - 400kN

Carriageway of Roads, Hard Shoulders, Parking Areas for road vehicles
Additional requirements in Europe

- **Germany** – require a minimum mass per unit area for access covers
- **France and Benelux countries** - require a 3 month road test
- **Scandanavian countries** – specify SELFLEVEL covers and frames only
Load Classification - E600

Note: EN124 is the minimum performance specification, if there is any doubt, a higher category cover and frame should be selected.

Group 5 - E600
Test Load - 600kN

Areas of high wheel loads - Docks, Roads +1500 Commercial Vehicles per day
Load Classification - F900

Group 6 - F900
Test Load - 900kN

Areas of particularly high wheel loads – Aircraft Pavements, heavy trafficked areas
Product Markings - Access Covers

1. Reference of Standard
   EN 124:2015-2
   Part 2 applies to Cast iron products

2. Identification of Manufacturer and production site

3. Certification Body
   – e.g BSI Kitemark

4. Loading Classification
   e.g B125

Note: All markings must be on both Cover and Frame
1. Identification of Manufacturer and the production site


3. Certification Body – e.g. BSI kitemark

4. Loading Classification e.g. C250

5. Direction of Traffic - arrows

**Note:** All markings must be on both Grating and Frame
Check list for Non conforming product

The role of a specifier, procurement officer or contractor in the selection of manhole covers and drainage gratings is hugely significant.

- It is important to remember that for safety critical products such as manhole covers and gully gratings your choice cannot be taken lightly.

- You are responsible for the whole life performance of an installation, which in turn will influence on-going public safety and you have one opportunity to get it right.
Innovative products
Ergonomics

“proactive ergonomics” can prevent problems from developing in the first place

Design in safety from the start

Lifting requirement < 25kgs
Lift Assist range

- Lift assist by mechanical stainless steel strut
- Cover opens at 105°
- Safety bar and removal of cover at 90°
- 2 closed keyways
Enhance Safety
With Safety grids
Safety Grid options for ductile iron covers

- Walk on Mesh type, 300 kg load bearing
- Safety blocking & removable
- Lifting chain for safe opening
- Secondary hatch or cut outs available
- Mesh type can be fixed to chamber wall
Composite – Lightweight solution

- IDS range – 5 sizes, EN 124-5: 2015 B125 loading
  - Traffic Signals and Street Lighting
  - Composite cover, fabricated steel frame

IDS4545
Surface Water Drainage solutions

- Large waterway capacity
- Bespoke design
- Captive hinge facility
- Openings greater than 600 mm
STORMSURGE® Access Assembly

- Designed for flood prone areas
- Locking arm and hinge retain the cover
  - Allow it to return to the seated position once surcharge subsides
- Cover permanently attached to frame
- Safety catch at 90 degrees
Keep your covers where they belong.
Linear drainage gratings – large waterway area
1 meter elements

1 meter length

1 meter width

0.5 meter length

LARGE WATERWAY AREA
CAPACITY
Up to 1000 x 855 mm
3024 cm²

GRATING finish or
LINEAR DUCT option

SECURED ACCESS

HIGH DRAINAGE
EFFICIENCY
Smooth ribs design to
enhance water
dynamic behaviour
Circular drainage gratings

RESISTANCE – F900
High wheel load and high traffic intensity

STABILITY
Polychloroprene cushioning insert

SAFETY
Gratings block at 90°

EASY OPENING
Hinged grating

SELF LEVEL
alternative for hot asphalt installation
Chamber Management System

• Data Base Management System for recording ironwork / Chamber information, giving each Ironwork a unique ID number

• Assist Engineers who are responsible for the administration, construction, and maintenance of access covers and drainage gratings.

• RFID Tag unique Ironwork ID Number can be retrieved using a hand held tag reader.
EJ connected covers: the future

Data Service
- Data management
- Covers management

Connectivity
Data transmission

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Infrastructure network Supervision

Telecommunication infrastructure

Connected Access Cover
Sensors

Data Service
- Alert
- Monitoring

Connectivity
- Wireless
- Inter-operability
Ergonomics & Connectivity
Main Points of Presentation

• Meets EN124
  – 3rd Party Certification
  – Product Markings
  – Load Classification

• Product Selection
  – Expected Lifetime
  – End User requirements
    i.e. Locking, Lift assist, Odour Sealed, Customised Markings, Water tight etc
Go raibh maith agaibh.

Thank you.