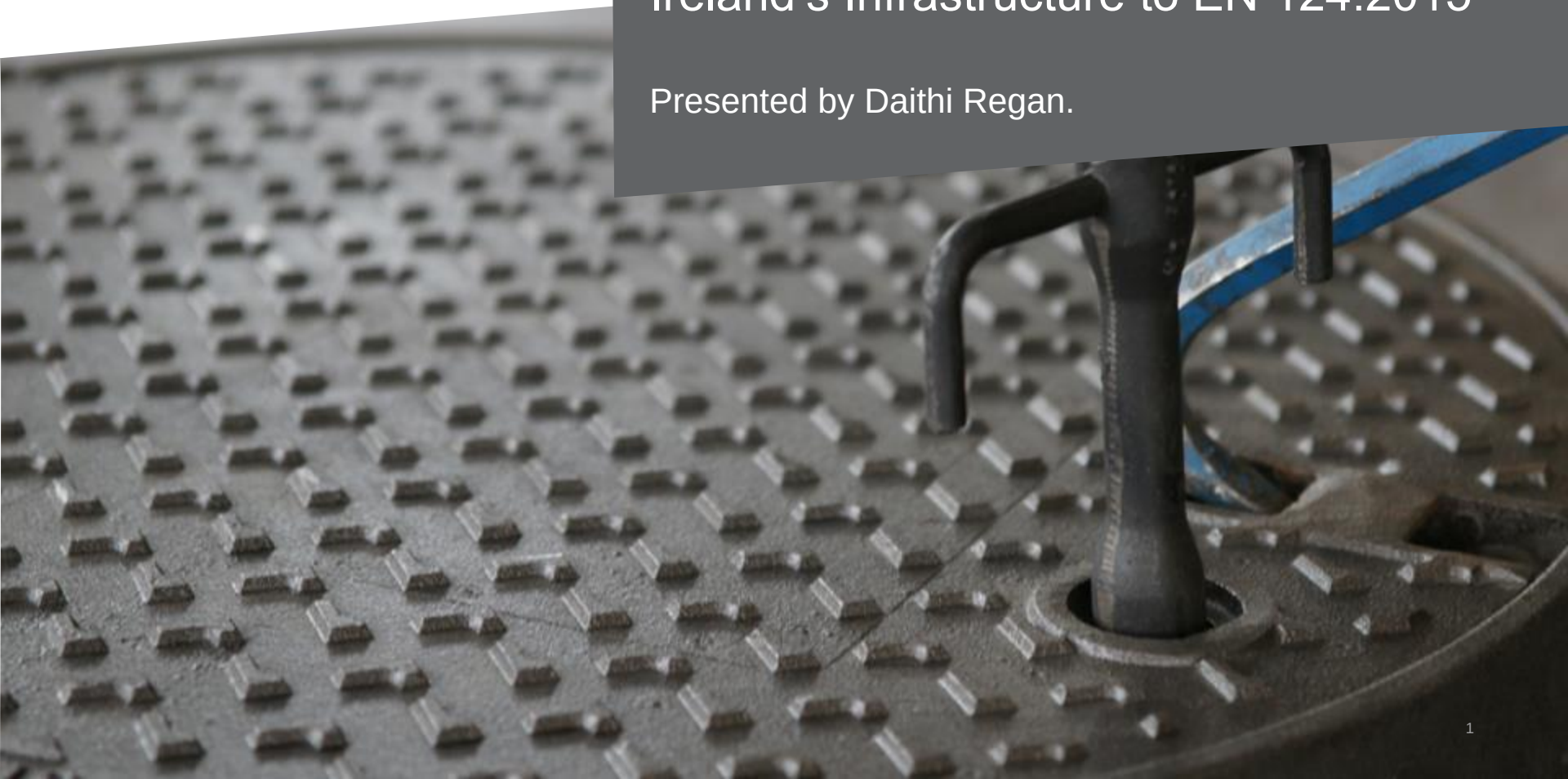
Raising the standard: Helping build Ireland's Infrastructure to EN 124:2015

Presented by Daithi Regan.



Sales, Distribution & Manufacturing facility in Birr

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

Picardie, France

- **Trace every product we make - day, month, year**

- Recycled Metal
- Recycled Air
- Carbon Monitoring
- Global sites

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

EN 124:1994 superseded by EN 124:2015

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.

Superseded By

- I.S. EN 124-1:2015
- I.S. EN 124-2:2015
- I.S. EN 124-3:2015
- I.S. EN 124-4:2015
- I.S. EN 124-5:2015
- I.S. EN 124-6:2015

ej

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

EN 124:2015 v EN 124:1994

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

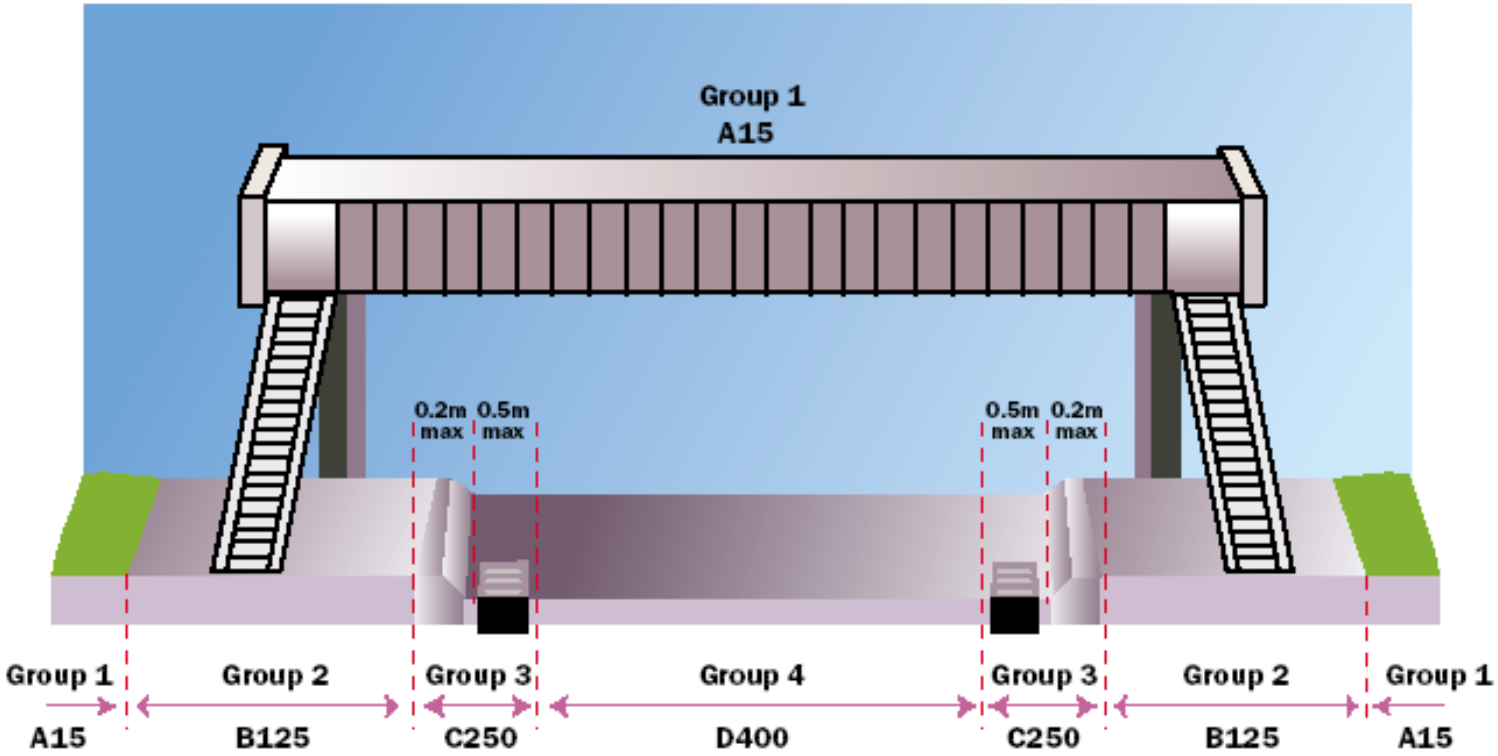
Group 2 - B125

Group 3 - C250

Group 4 - D400

Group 5 - E600

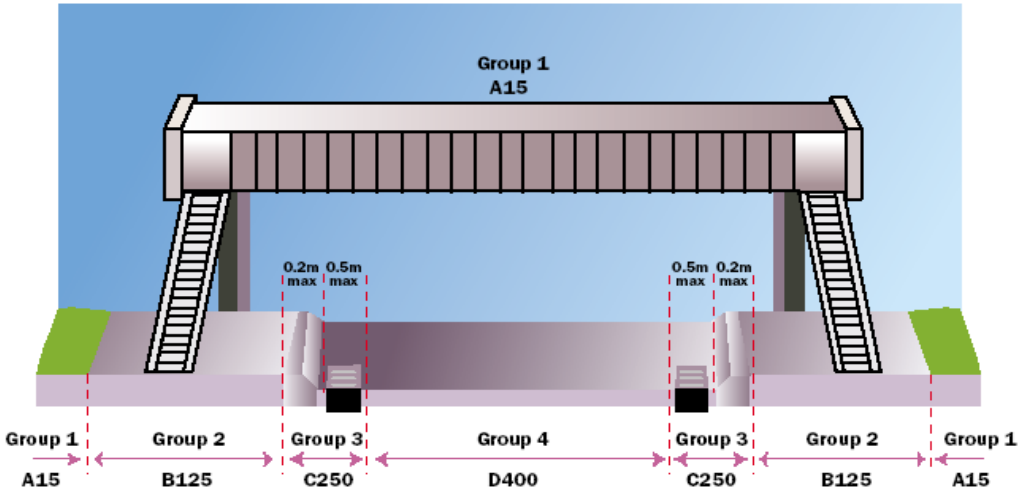
Group 6 - F900



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

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

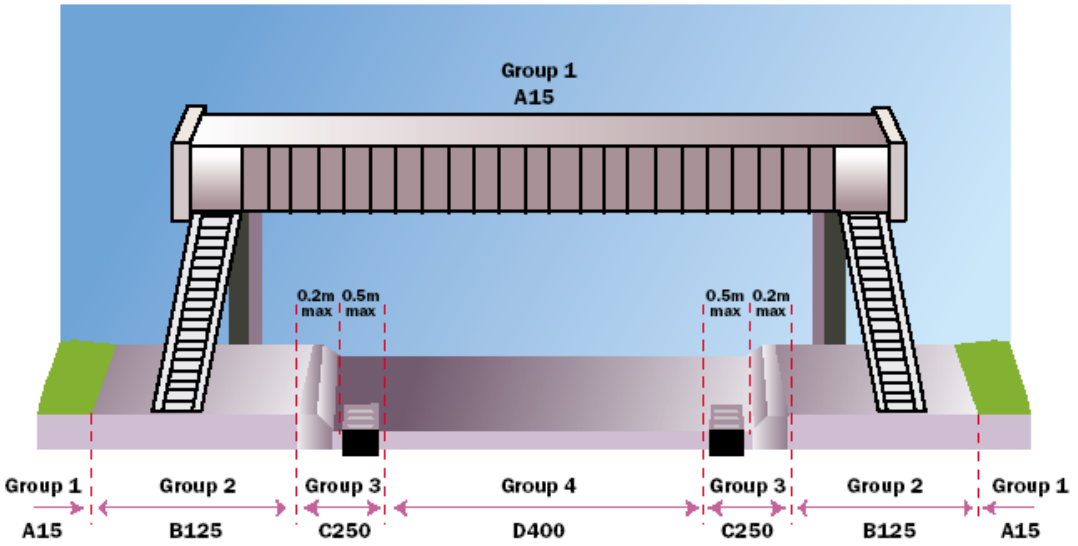
ej

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

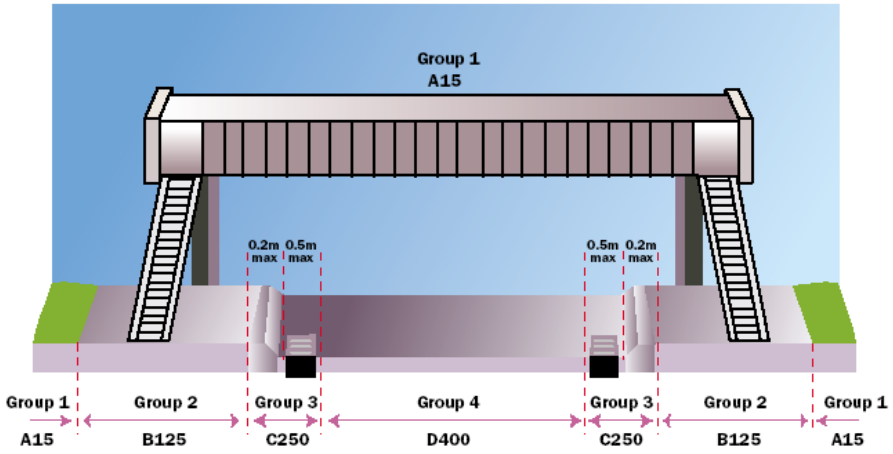


Gully Tops installed in Kerbside Channels of roads

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

ej

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

HIGHWAYS AGENCY

Group 5 - E600
Test Load - 600kN

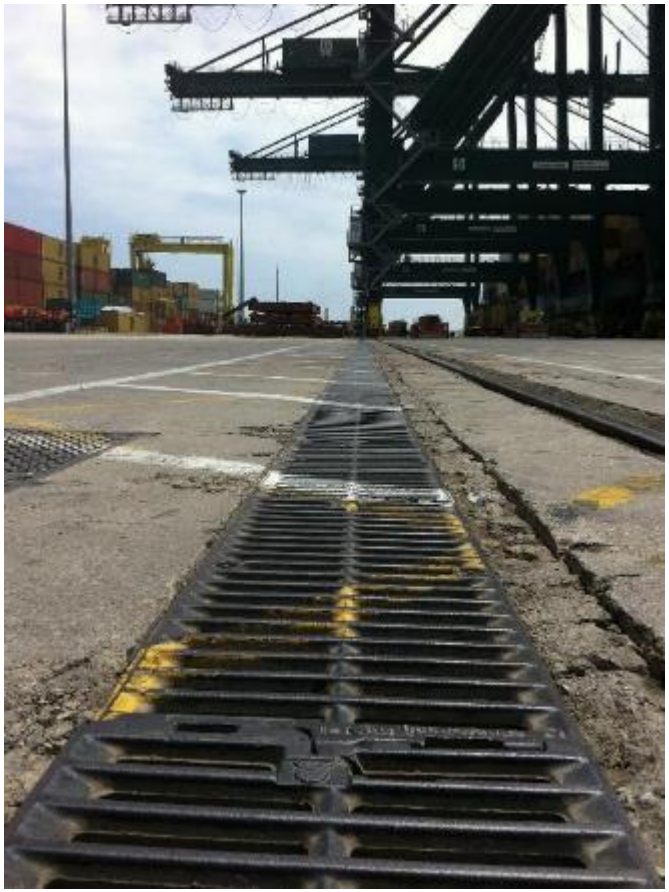
Areas of high wheel loads - Docks, Roads +1500 Commercial Vehicles per day

ej

Load Classification - F900

Group 6 - F900
Test Load - 900kN

Areas of particularly high wheel loads –
Aircraft Pavements, heavy trafficked areas

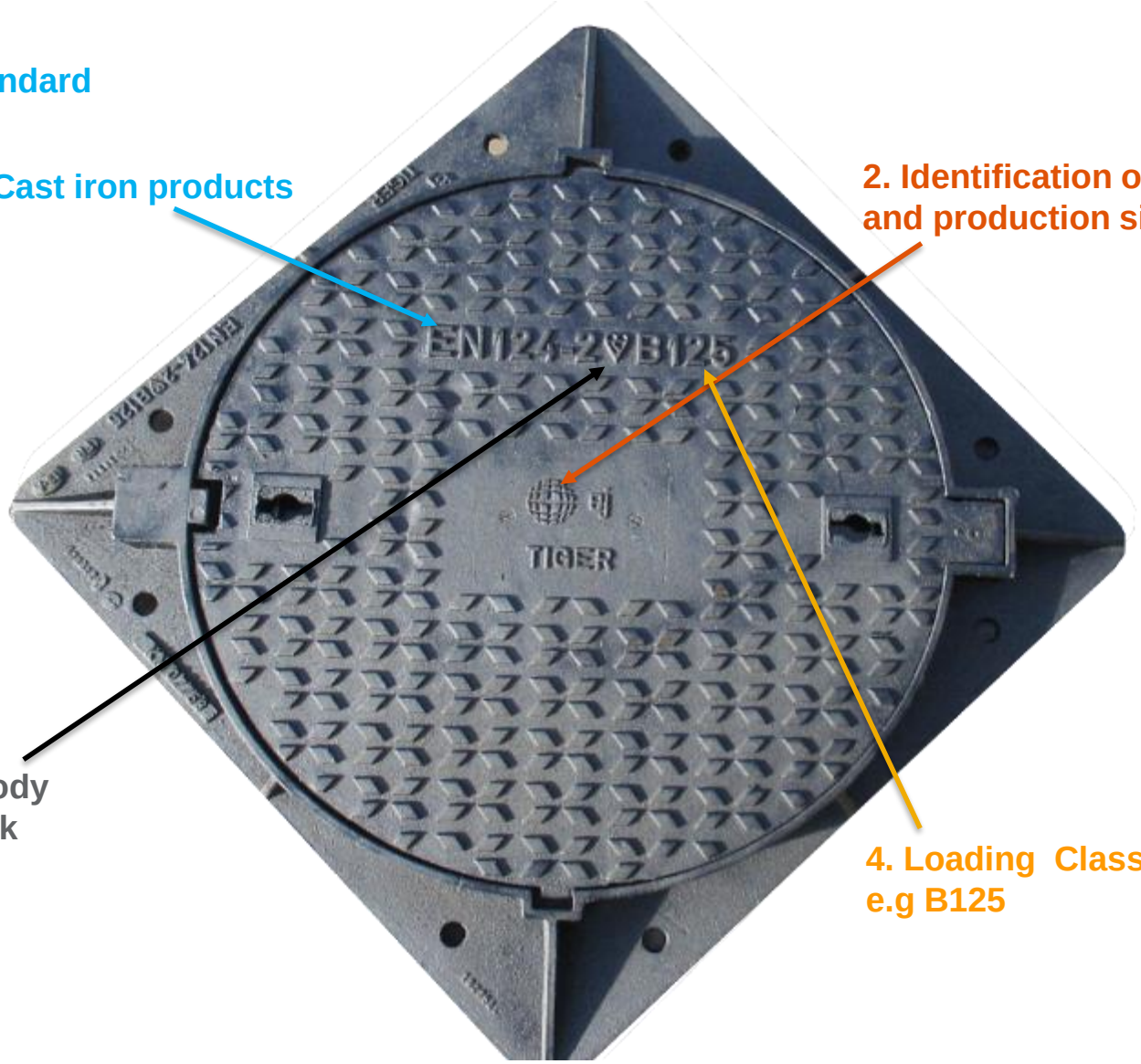


Product Markings - Access Covers

1. Reference of Standard

EN 124:2015-2

Part 2 applies to Cast iron products



2. Identification of Manufacturer and production site

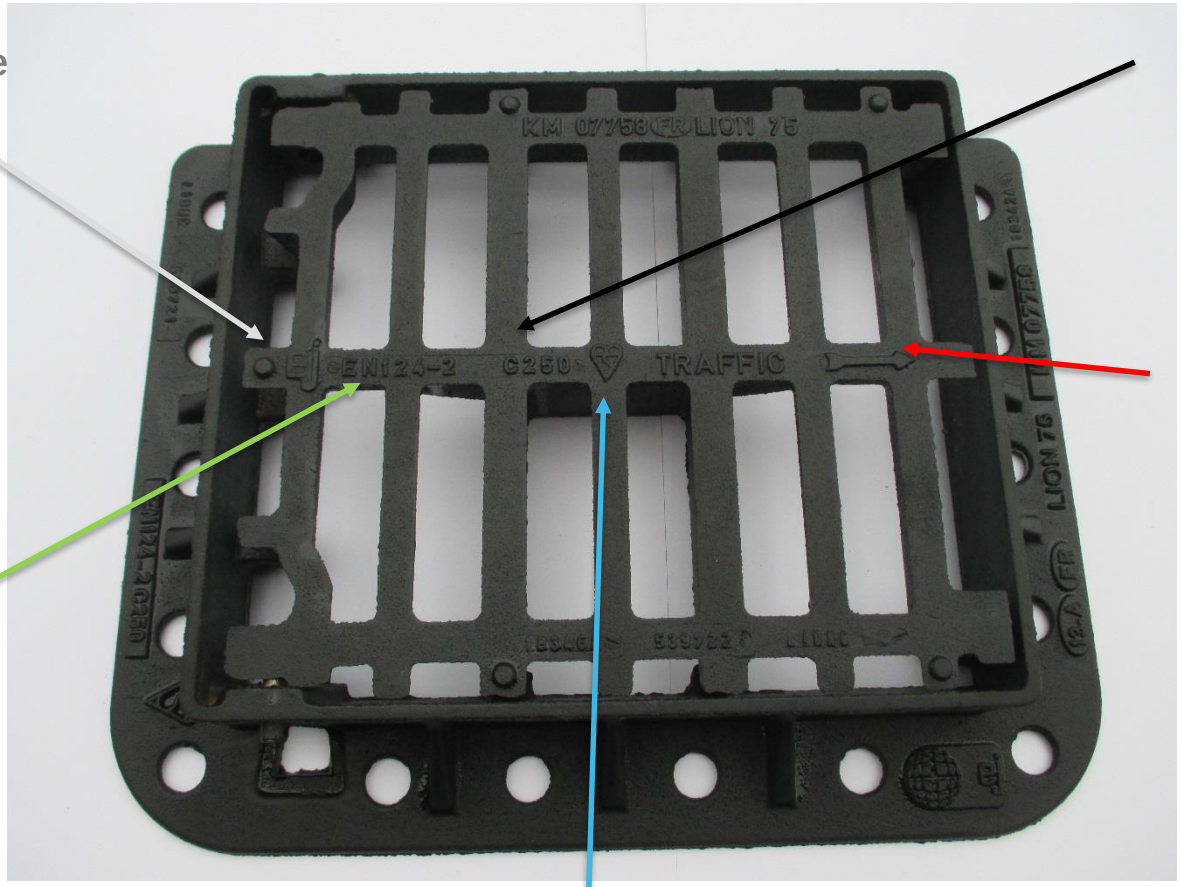
3. Certification Body – e.g BSI Kitemark

4. Loading Classification e.g B125

Note: All markings must be on both Cover and Frame

Product Markings- Gully Gratings

1.Identification of Manufacturer and the production site



4. Loading Classification e.g C250

5. Direction of Traffic - arrows

2.Reference to Standard EN124:2015- 2

3.Certification Body – e.g BSI kitemark

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.

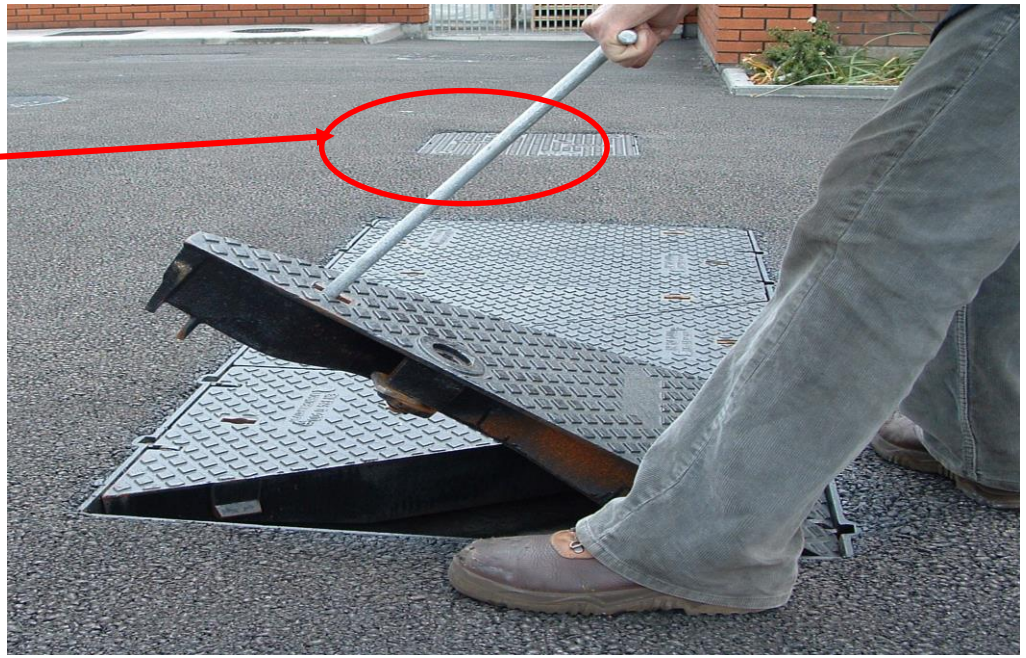
ej

Innovative products

Ergonomics

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

Design in safety from the start



Lift Assist range

LIFTING EFFORT < 25kg
Mechanical stainless steel strut

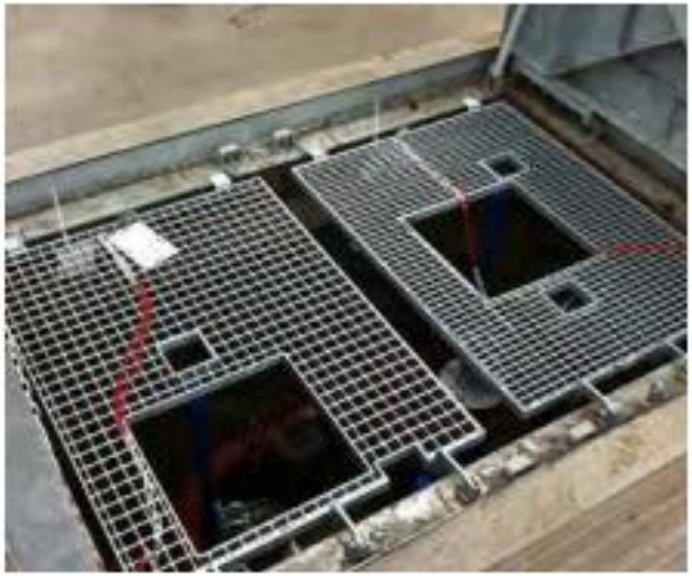
SAFE OPENING
Safety Bar

- 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

ENHANCE SAFETY

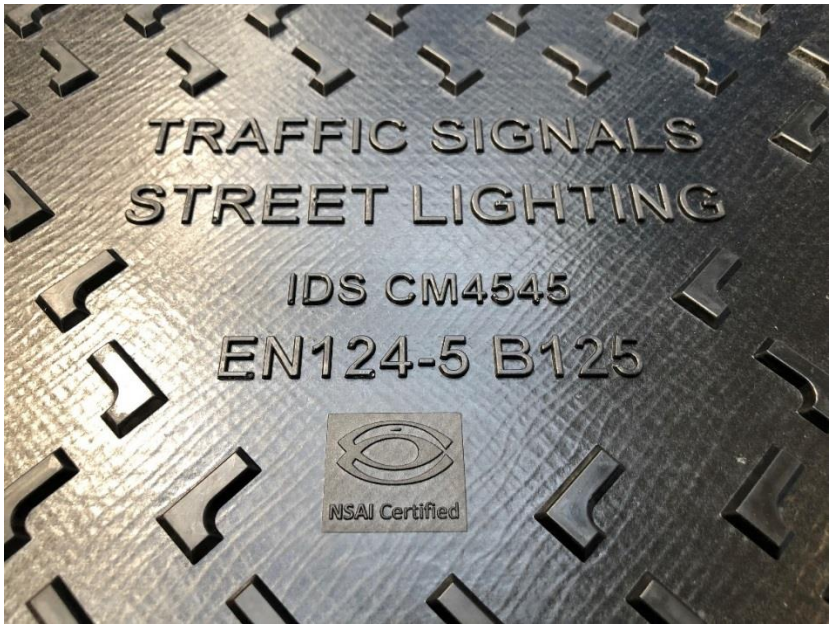


Safety Grid options for ductile iron covers

- 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

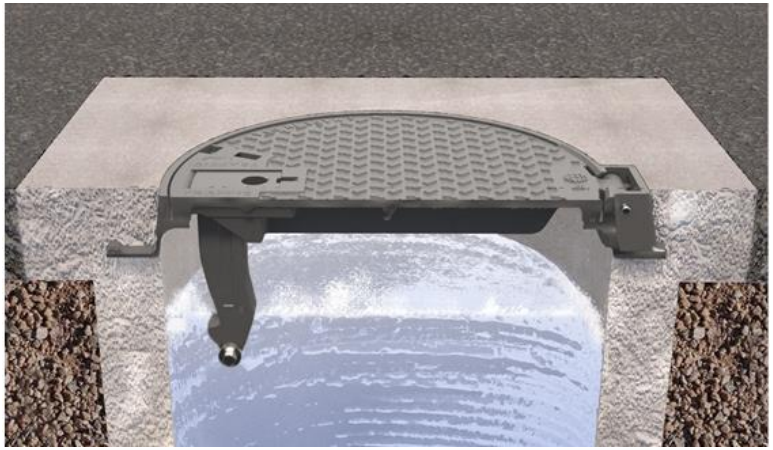


IDS4545

Surface Water Drainage solutions

- Large waterway capacity
- Bespoke design
- Captive hinge facility
- Openings greater than 600 mm

STORMSURGE® Access Assembly



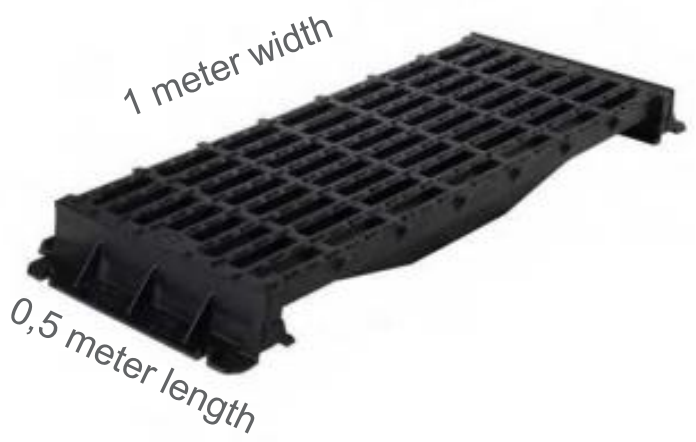
- Designed for flood prone areas
- Locking arm and hinge retain the cover
  - Allow it to return to the seated position once surcharge subsides
- Cover permanently attached to frame
- Safety catch at 90 degrees

ej

Keep your covers where they belong.

Linear drainage gratings – large waterway area

1 meter elements



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

EASY OPENING
Hinged grating

STABILITY
Polychloroprene cushioning insert

SAFETY
Gratings block at 90°

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

ej & Partners

Data Service

- Data management
- Covers management

Connectivity

Data transmission

Standard Business Applications

Tailored Applications

Data Storage

Data Management & Analysis

Infrastructure network Supervision

TELECOMMUNICATION INFRASTRUCTURE

Data Service

- Alert
- Monitoring

Connectivity

- Wireless
- Inter-operability

ej

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.