DEFENSO® LPCB
Certified Security Range
Fabricated Steel Access Covers
Norinco is now EJ

EJ has been established in the UK for almost 20 years with our European head office based in France for over 45 years. We manufacture an extensive range of access solutions in galvanised steel, stainless steel, aluminium and ductile iron finishes in our world class production facilities, which are certified to the ISO 9001, ISO 14001 and OHSAS 18001 management systems.

Our fabrication facility contains the most advanced technology in the world, such as plasma cutting and welding robots, providing tailor made solutions to the marketplace.

Our on-going commitment to network security is acknowledged with us achieving accreditation by the Loss Prevention Certification Board (LPCB) for our Fabricated Steel Access solutions to LPS 1175: Issue 7 (date of issue June 1st, 2010). Our range of Upstand Covers are certified to Level 4 and Flush Fit Covers certified to Levels 3 & 4.

We now have the widest range of Level 4 access covers certified to the most up to date issue, Issue 7, available in both flush fit and above ground products, offering you real choice in the marketplace.

Suitable for the Water, Sewer, Telecommunications, Power, Rail and industrial applications, our covers with lift assistance in accordance with manual handling regulations.

Safety and environmental considerations are at the core of our manufacturing process. Our commitment to you is that we will continue to create ingenious solutions that aid the installation process and improve people’s lives. We will do that in ways that are smarter, greener and safer than ever before.
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LPCB Standard LPS 1175: Issue 7, issue date June 1st 2010

The Loss Prevention Certification Board (LPCB) has been working with industry and government for more than 100 years to set the standards needed to ensure that fire and security products and services perform effectively. LPCB offers third-party approval confirming that products and services have met and will continue to meet these standards. This benefits both specifiers and manufacturers.

**Specifiers** can select LPCB approved products to reduce fire safety and security risks and demonstrate due diligence (the use of approved products is encouraged by insurers). It also avoids wasting money on purchasing inappropriate equipment, and saves time spent on searching for and assessing products and services.

**Manufacturers** gaining LPCB approval can increase the value and sales of their products, because LPCB approved products are specified worldwide and recognised for their ability to conform every time. In addition, third-party approval demonstrates due diligence and reduces liability for manufacturer - and their insurers and customers.

Find the Loss Prevention Standards (LPS 1175) and details of LPCB approved products and services listed in the BRE Global Red Book and online at Redbooklive.com
Guide to Site Risk Assessment

Protecting our water infrastructure from the threat of contamination or malicious contamination is of paramount importance to nations and government agencies.

A recent press release from the European Commission stated that “coordinated attacks in Mumbai in 2008, the attacks by Al-Qaeda against a gas production plant in Algeria and the bomb attacks during the Boston Marathon have highlighted the need for increased protection both against attacks on crucial infrastructure and other public areas in domestic and cross border contexts”

The DEFENSO range is designed to prevent unauthorised persons gaining access to key assets, on Critical National Infrastructure sites.

Over the coming years the priority will be to protect drinking water reservoirs against chemical terrorism, eliminate potential threats in busy urban areas, eradicate unauthorised access to the waste water and utility networks, and protect against the risk of theft and explosions.

Site definition

The designer must ensure that adequate consideration is given to site specific variable risks such as site location and history of previous incidents. Levels of security should be measurable against a recognised security standard.

Low to Medium risk - Level 3 Security Access covers

Typical rural location with major risk or urban situation with minor risk of vandalism. Increased level of security to deter vandals. Products are designed in accordance with LPCB Security Rating 3.

High Risk – Level 4 Security Access Covers

Typical urban sites and locations with a history of serious vandalism. Areas where there is a significant threat of terrorist attack. High level of security. Products designed in accordance with LPCB Security Rating 4.

Product selection and site risk assessment is the responsibility of the scheme designer. Our experienced technical team is available for site visits, to make recommendations on choosing the correct access products and then applying the appropriate risk assessment security level. Please contact our Sales Engineers on 01582 720744.
Customer Satisfaction

From the site survey stage through to the design, installation and maintenance of your product, EJ are committed to working with you offering custom built security solutions that meets the highest standards in the world.

Grontmij, one of Europe’s largest multidisciplinary consultancy firms, works closely with clients across water, transportation, energy and building sectors. They were faced with the issue of large opening chambers on an outfall diversion pipe for the Dunfermline Outfall Sewer Diversion Project.

The complexity of the site requirement involved the use of box culverts as the access shaft for the chambers. The cover dimensions had to match the internal and external dimensions of the box culvert and still allow the required access and fixing points.

The EJ Engineering Manager provided on site assistance from the consultancy and site survey stage, working closely with Grontmij to design the correct cover that was fit for purpose and then liaising with our internal product design team. There were on-going meetings with the Contractors’ on-site agent to gain a better understanding of the project and advise on the installation process.

“The EJ team could not have been more helpful, the local Engineering Manager worked closely with ourselves to find the correct solution that was fit for purpose and I would not hesitate to use EJ in the future” Graham Harvey- Senior Engineer Grontmij Ltd.

MWH have engaged with EJ on numerous projects in the past. Their focus is water infrastructure – providing services to a full range of water-related projects ranging from water supply to treatment, storage and management for sites around the world.

EJ have supplied Carl Tidy, Agent with Leslie MWH JV, with a range of bespoke Access Covers and frames for oversized chamber openings on previous projects.

For the Loch Ryan Strategic Solution site, the issues to overcome were specific access requirements, and the protection of critical assets to prevent unauthorised entry.

Working closely with the EJ technical team in developing this solution, Carl Tidy stated he would “have no hesitation in availing of the service EJ provide in the future. Their technical team was very helpful”
Upstand Security Rating 4 Range of Access Covers

**DEFENSO AG1S SR4**

**Place of installation:** Non trafficked areas where frequent access is required.
For medium to high risk sites.

- **Lifting handle**
- **Padlock** (not included)
- **Option: Safety Grids**
  - different types available, see page 9
- **Option: Insect mesh faced vent**
- **Option: Alarm** and junction box brackets
- **Torsion spring assisted cover**
  - 316 Stainless Steel springs
  - lifting effort reduced to less than 25kg
- **Holding down anchor points** internal to frame
  - (For M16 bolts - not provided)
- **Option: Inner lid**
  - for chambers requiring secondary contamination protection
- **Unobstructed Clear Opening**
- **High security with padlock** (not included)
- **Hinged and assisted cover**
  - for easy handling and safety for the operator. The opening of cover is assisted, thus reducing the lifting effort to less than 25 kg.
- **Cover and frame are Above Ground**

**Wide range of clear openings available**
**DEFENSO AG1S SR4**

**How to specify your product.**
To order an above ground unit, single skin, Level 4 security rating, 1500 x 500 mm clear opening, hinged, padlockable with a seal and safety grid use:

**AG1S SR4 150 050 A V J GS**
For additional detailed specification on safety grids please refer to page 9.

**Abbreviations for Specifying Fabricated Steel Product**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AG</td>
<td>Above Ground</td>
</tr>
<tr>
<td>1S</td>
<td>Single Skin, Smooth Surface Finish</td>
</tr>
<tr>
<td>1DS</td>
<td>Double Skin, Smooth Surface Finish</td>
</tr>
<tr>
<td>1ST</td>
<td>Single Skin, Chequer Surface Finish</td>
</tr>
<tr>
<td>1DST</td>
<td>Double Skin, Chequer Surface Finish</td>
</tr>
<tr>
<td>A</td>
<td>Hinged</td>
</tr>
<tr>
<td>H</td>
<td>Torsion Springs</td>
</tr>
<tr>
<td>V1</td>
<td>Padlockable via 1 Padlock</td>
</tr>
<tr>
<td>V2</td>
<td>Padlockable via 2 Padlocks</td>
</tr>
<tr>
<td>V3</td>
<td>Padlockable via 3 Padlocks etc</td>
</tr>
<tr>
<td>J</td>
<td>Odour Sealed</td>
</tr>
<tr>
<td>GS30JB 1B</td>
<td>300kg resistant, Jail Bar Type Grid, hinged on the opposite side to cover hinge.</td>
</tr>
<tr>
<td>IM</td>
<td>Insect Mesh</td>
</tr>
</tbody>
</table>

**Clear opening:** Select from table of dimensions below, 1st dimension indicates the cover hinge side

| Dimensions in mm | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 | 3100 | 3200 | 3300 |
|------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| A                | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 | 3100 | 3200 | 3300 |
| B                | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 | 3100 | 3200 | 3300 |

**Other key features for our fabricated products include:**

- increased thickness of zinc coating through galvanisation for enhanced durability. By increasing the thickness we can double the service life of the unit. Site specific factors which may affect the average corrosion rate (μm per annum) can be taken in account at the design stage.
- multiple leaf units
- powder coating for durability and increased resistance to corrosion. We can offer powder coating to the C5 Industrial and C5 Marine categories. Powder coated surfaces are more resistant to chipping, scratching, fading, and wearing than other finishes.
- unobstructed clear openings
Flush Fit Security Rating 4 Range of Access Covers

**DEFENSO FF1S SR4**

**Place of installation:** For medium to high risk sites.

- **FF1S 15 kN:** Footways, pedestrian and cycle areas.
- **FF2S 125 kN:** Footways, pedestrian areas, car parks.
- **FF3S 250 kN:** Slow moving, occasionally trafficked areas, parking areas.
- **FF4S 400 kN:** Carriageway of roads (incl pedestrian streets), hard shoulders and parking areas.

**Options:**

- **Safety Grids**
  - Jail Bar type
  - Mesh type
  - Open mesh floor
  - Grids opening at 90° with auto-locking
  - Individual bar type

- **Removable chain** connected to the cover for easy opening

**Cover Handling**

- 2 BS keyways

**Padlock** (not included) please consult us for advice on padlock types

**Sealed BS keyways**

**Hinged and assisted cover**

- for easy handling and safety for the operator. The opening of cover is assisted, thus reducing the lifting effort to less than 25 kg.

**High security padlock box** (padlock not included)

**For security reasons certain product features are blurred on our images.**

**Wide range of clear openings available**

**Hand Operated Safety Blocking System**

**Torsion spring assisted cover**

- 316 Stainless Steel springs lifting effort reduced to less than 25 kg

**Unobstructed Clear Opening**

**Holding down Anchor points helps secure frame to concrete**

**Cover and frame are Flush Fit**

**LPS 1175: Issue 7**

Cert No. 1187a/03
DEFENSO FF SR4

How to specify your product.
To order a flush fit unit, single skin, 1000 x 1000 mm clear opening, 250kN loading, Level 4 security rating, hinged, padlockable with a seal and safety grid use:

FF3S SR4 100100 A V J GS

For additional detailed specification on safety grids please refer to page 9.

Abbreviations for Specifying Fabricated Steel Product

| FF  | 15 kN Solid Top          | IM  | Insect Mesh          |
| FF2 | 125 kN Solid Top         | AB  | Alarm Bracket       |
| FF3 | 250 kN Solid Top         | AI  | Alarm Installed     |
| FF4 | 400 kN Solid Top         | MS  | Motion Sensor Installed |
| S   | Single Skin, Chequer Surface Finish | VS | Vibration Sensor |
| A   | Hinged                   | PT  | Painted             |
| V1  | Padlockable via 1 Padlock | AS | Anti-skid coating (LKF type) |
| V2  | Padlockable via 2 Padlocks | EC | Epoxy Coating |
| V3  | Padlockable via 3 Padlocks etc | 100μm | 100 Micron Galvanisation |
| J   | Odour Sealed             | 140μm | 140 Micron Galvanisation |
| GS30| Safety Grid 300 kg resistant, please see page 9 for additional options. | SR3 | LPCB Certified Security Rating 3 |
| GS40| Safety Grid 400 kg resistant, please see page 9 for additional options. | SR4 | LPCB Certified Security Rating 4 |
| ME  | Moat Draining Externally | MI  | Moat Draining Internally |

Clear opening: Select from table of dimensions below, 1st dimension indicates the cover hinge side

<table>
<thead>
<tr>
<th>Dimensions in mm</th>
<th>B</th>
<th>800</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 300</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td>400</td>
<td>600</td>
<td>750</td>
</tr>
<tr>
<td>500</td>
<td>900</td>
<td>1000</td>
</tr>
<tr>
<td>600</td>
<td>1200</td>
<td></td>
</tr>
<tr>
<td>750</td>
<td>1400</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>1600</td>
<td></td>
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<tr>
<td>1000</td>
<td>1800</td>
<td></td>
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<tr>
<td>1200</td>
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<tr>
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</tr>
<tr>
<td>1800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DEFENSO FF SR3 & SR4 Clear Opening Sizes

Other key features for our fabricated products include:

- increased thickness of zinc coating through galvanisation for enhanced durability. By increasing the thickness we can double the service life of the unit. Site specific factors which may affect the average corrosion rate (μm per annum) can be taken in account at the design stage.
- powder coating for durability and increased resistance to corrosion. We can offer powder coating to the C5 Industrial and C5 Marine categories. Powder coated surfaces are more resistant to chipping, scratching, fading, and wearing than other finishes.
- multiple leaf units
- unobstructed clear openings
Flush Fit Level 3 Range

DEFENSO FF SR3

Place of installation: For low to medium risk sites.

FF1S 15 kN: Footways, pedestrian and cycle areas.

FF2S 125 kN: Footways, pedestrian areas, car parks.

FF3S 250 kN: Slow moving, occasionally trafficked areas, parking areas.

FF4S 400 kN: Carriageway of roads (incl pedestrian streets), hard shoulders and parking areas.

For security reasons certain product features are blurred on our images.

Please refer to Page 7 for list of clear opening dimensions.
Safety and Security accessories

At EJ we incorporate safety practices into every process, product and service we provide - from design and manufacture through distribution and end use. Our highly trained and experienced in-house product development teams will provide the optimum solutions to solve customers’ challenges installation requirements and operational needs.

Specifications

- Resistance 150 or 300 kg
- Auto blocking at 90°
- One man operation (lifting effort less than 25 kg)
- Lockable on request (padlock not supplied)
- Removable
- Delivered with a lifting chain
- Assembled on a product or wall chamber mounting option

<table>
<thead>
<tr>
<th>Load bearing</th>
<th>Structure</th>
<th>Safety blocking at 90°</th>
<th>Number of parts</th>
<th>Clear Opening</th>
<th>Secondary access</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 kg</td>
<td>GP15</td>
<td>Welded mesh</td>
<td>No</td>
<td>Dimensions 0 x 0</td>
<td>C3030 = Cut Out</td>
</tr>
<tr>
<td>300 Kg</td>
<td>GS30</td>
<td>M05</td>
<td>Yes</td>
<td>O 300x300 mm</td>
<td>300x300mm C/O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rungs</th>
<th>Walk on</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>W</td>
<td>NB</td>
<td>B</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>C/O</td>
<td>CA3030</td>
<td>Hinged</td>
<td>Secondary Grid with 300x300mm C/O</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2, 4, 6 part safety grids:
suited for pump removal
2LR (Grids hinged on adjacent sides to the Cover hinge side i.e Left to Right)
2FB (Grids hinged on parallel sides to the Cover hinge side i.e Front to Back) used for extraction of 1 pump
4LR or 4FB Grid layout, is used for extraction of 2 pumps.
6LR or 6FB Grid layout, is used for extraction of 3 pumps.

Grids with secondary hatch or cut out
Allows access to an equipment without opening the grid completely.

Safety railings
Various options on safety and fall protection railings are available in compliance with Health and Safety regulations.
Installation Instructions

DEFENSO AG1S SR4

1. **Handle** the product with slings.
   Check the load capacity of the slings according to the weight indicated on the product data sheet (Annex 1).

2. **Support:**
   a) Prepare a chamber corresponding to the dimensions and material shown on the product drawing.
   b) Clean the surfaces.

3. **Installation, fixing:**
   a) Centre the product over the clear opening of the chamber. Refer to product data sheet and open the hatch.
   b) Place bolts into each of the holes of the frame (11 minimum).
      If the frame is in several pieces, each piece must have 11 bolts minimum.

   **For concrete:** Use anchor bolts M16x130 mini grade 8.8 mini. Adapted to chamber material, refer to the requirements of manufacturer.

   **For structural steelwork:** Use bolt M16x40 mini grade 8.8 mini with nut M16 grade 08 mini.

4. **Finishing:**
   a) Clean the entire product with water if necessary.
   b) To ensure tightness, provide a seal between the frame and the chamber with a suitable sealant.
   c) Close the product.
   The product is ready for use.
Installation Instructions

DEFENSO FF SR3

1. **Handle** the product with slings by the lifting points provided for this purpose on the frame (Fig. 1).
   Check the load capacity of the slings according to the weight indicated on the product data sheet (Annex 1).

2. **Rebate:**
   a) Prepare a rebate corresponding to the dimensions and material shown on the product data sheet.
      Concrete 3000 psi (20 MPa) mini and concrete block full solid 12MPa mini
   b) Clean the rebate surfaces.

3. **Installation,** levelling and shuttering:
   a) Centre the product over the clear opening of the chamber.
      Refer to product data sheet or if necessary temporarily open the hatch and then close it after centring.
   b) Put the product at the correct level using nuts and bolt M12 or M14 (not supplied) in Ø16mm holes in the frame or use spacers (not supplied).
   c) Place anchor bolts M12 x Length 106 mm - carbon steel, thread rod 8.8 grade (Adapted to chamber material, refer to the requirement of manufacturer) into the holes Ø16 of the frame (Fig. 1).
      Anchor bolts should not be over tightened, as this can cause frame distortion/deformation.
   d) Create form work/shuttering if necessary.
   e) It is imperative that the covers are completely closed/ secured using the turnbuckle systems while levelling the frame and during the rebate curing process.

4. **Fixing:**
   a) Prepare the concrete seal according to manufacturer’s recommendations. Concrete 3000 psi (20 MPa minimum)
      A quick-setting non shrinking mortar is recommended if normal curing time for standard mortar cannot be secured (minimum 7 days).
   b) Pack up the mortar under frame and along the formwork.
      The frame must be fully in contact with the fixing material to ensure a uniform distribution of the load and avoid distortions.
   c) Fill the rebate unless a layer of asphalt is specified, in which case a 20 mm depth must be left unfilled.
   d) Cover filled rebate with wet canvas or tarpaulin to prevent excessive drying. Wait for complete curing of concrete.

5. **Finishing**
   a) Remove shuttering.
   b) Render the chamber wall with mortar if necessary.
   c) Open the cover and clean the entire product with water if necessary.
   d) Close the product.

The product is ready for use.
Global expertise. Local understanding.

EJ designs, manufactures and distributes access solutions for water, sewer, drainage, telecommunications and utility networks worldwide. We have been delivering access products for over 125 years and we excel at serving our customers by leveraging our global and local strengths.

Castings by EJ are made from recycled materials, with ferrous scrap metals as the primary component. Every day we recycle hundreds of tonnes of post consumer material into useful products. Our solutions have a very long service life and typically require little or no maintenance. You can be assured that products that bear our name are endorsed by independent certification bodies who work to the same high standards and values as we do.

We also specialise in major civil engineering, industrial projects including airports, ports and carriageways. Our innovative range of products are specified on numerous prestigious projects throughout the UK and Ireland such as:

- Heathrow Airport
- HMNB Docks - various locations
- M6 Birmingham
- LUAS Light Rail Tram System Dublin
- N52 Mullingar to Tyrrellspass
- Port of Felixstowe
- Energy for Waste Projects - country-wide
- Manchester Airport
- M50 Motorway upgrade
- Corrib Natural Gas Terminal
- Edinburgh Airport
- Belfast International Airport
- Edinburgh Trams
- Dublin Airport
- M6 Galway to Athlone Motorway

For more information on our range of innovative access solutions please call us on 01582 720744 to speak to one of our Sales Engineers, or visit ejco.com

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