

Onix Plus™ Floorboxes and Power Grommets

Load Testing

Load Testing of Floorboxes to BS EN 50085 Part 2-2 (Clauses 10.5.103 and 10.5.104).

The floorboxes have been tested to and comply with the loading requirements of BS EN 50085 Part 2-2 (Cable trunking systems and cable ducting systems for electrical installations Part 2-2: Particular requirements for cable trunking systems and cable ducting systems intended for mounting underfloor, flushfloor, or onfloor).

There are two loading criteria for the floorboxes – one with a point loading to replicate foot traffic for example, and the other, with a large plate to replicate fork trucks and heavier larger loads for example. For both loading criteria the maximum allowable deflection under load is 6mm and the maximum permanent deflection after the load has been removed is 3mm. The loading position is the centre of the lid.

The Lid Deflection (loading) graph shows that the maximum test wheel loading classification achieved is 3kN and the maximum large plate loading classification achieved is 10kN.

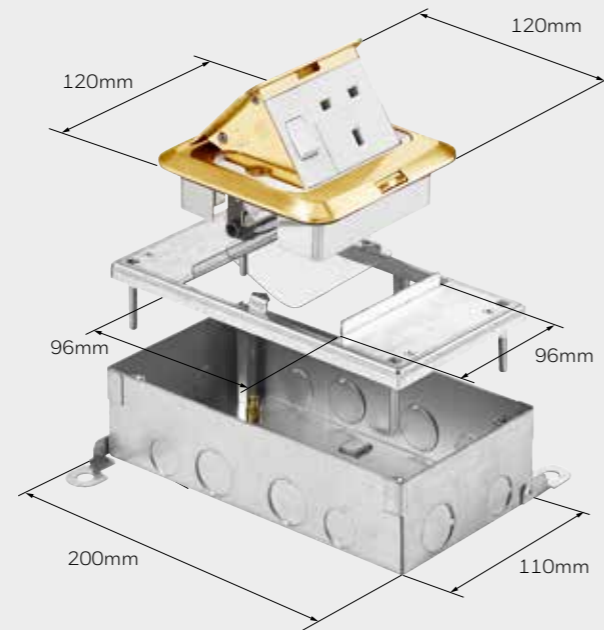
The Permanent Deflection graph shows the permanent deflection from the test wheel loading at 3kN is 0.8mm and large plate loading at 10kN is 1.65mm. This is well within the maximum allowable deflection of 3.0mm.

Note: This test data specifically refers to the 265 x 265mm sized cord outlet box assembly. The other floorbox sizes also comply with the required test criteria. Declarations of conformity are available on request for the entire range.

Metal Power Grommet Dimensions

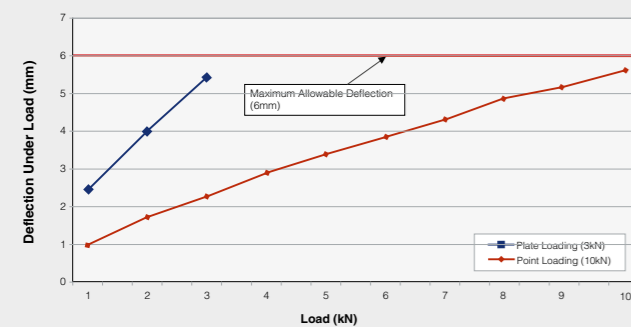
The Metal Power Grommet is designed to be used in conjunction with the Screed Base Unit, part number NXGB100-1 or NXGB100X-1, depending on the depth of the screed.

Onix Grommets are IP2X.

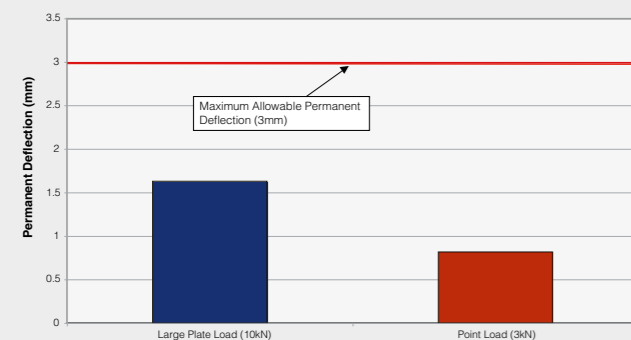


BASE UNIT	NXGB100-1	NXGB100X-1
Screed Depth (mm)	55-80mm	80-110mm

Lid Deflection – Onix Plus Cord Outlet Lid 265x265mm



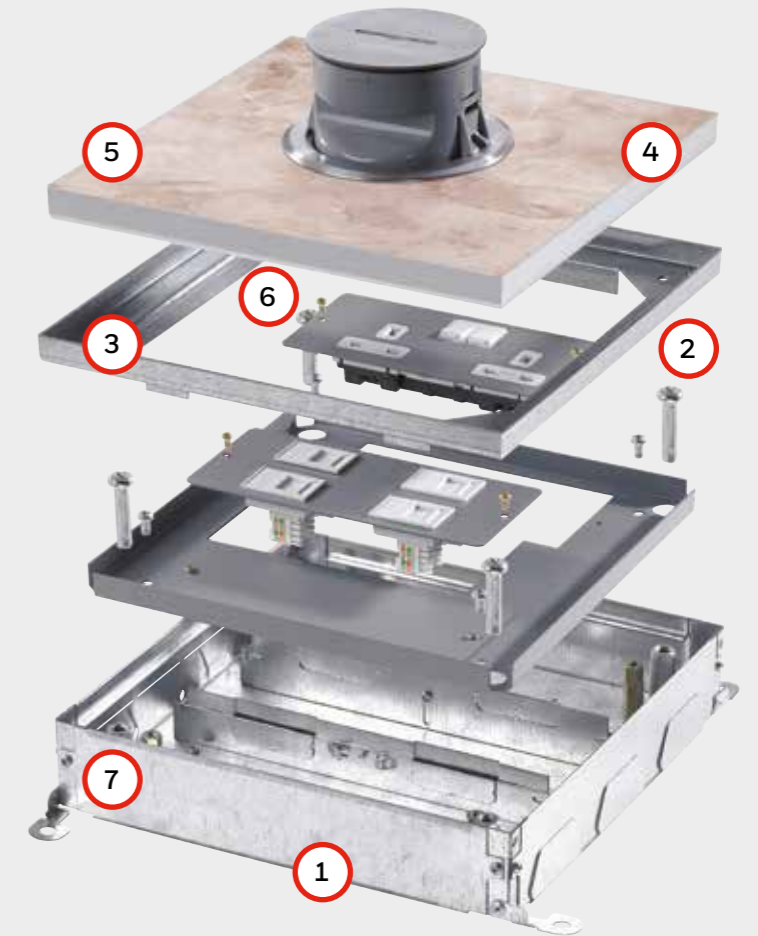
Permanent Deflection After Removal of Load – Onix Plus 265x265mm Cord Cap Lid



Onix Plus™ Floorboxes and Power Grommets

Installation of Snorkel Lid

- 1 The base unit is fixed to the slab and the ducts or conduits are fed into the base using the appropriate side entry plate.
- 2 The disposable screed cover is fitted to prevent the ingress of screed through the top. All areas of the box which may be susceptible to screed ingress should be sealed.
- 3 The Lid frame should be assembled and fitted after the disposable screed lid has been removed and the gasket can now be fitted.
- 4 The lid is supplied with an earth lead and must be bonded to earth for all power applications. As the lid is only installed when the floor covering is laid there is less chance the surface finish of the lid will be damaged.
- 5 A floor covering insert is required for the lid recess. The dimensions for the insert are given in the Lid Recess Dimensions section see page 685.
- 6 Sealing compounds are required for products that are for use in wet wash environments.
- 7 The bases are supplied with 35mm wiring space, but with the option to reduce to 25mm or increase to 45mm with the Cuba-1 height adjustment kit.



How to Install the Gasket



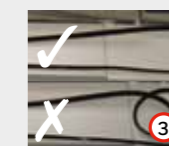
1 Identify the gaskets

The wider gasket is used in the frame and the narrower gasket is used on the lid. The gaskets are designed to sit next to one another, not one on top of the other.

2 Ensure gasket is clean

Ensure both lid and frame are dry, clean and free from oily deposits and debris such as grout and screed.

If replacing the gaskets ensure all traces of existing gasket and adhesive have been removed. An alcohol wipe will aid the removal of the adhesive backing.



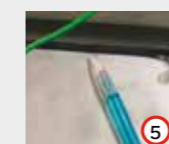
3 Ensure gasket is straight

The gasket must have no twists in it. Any twists will result in the gasket not fitting and functioning correctly.



4 Fitting lid gasket

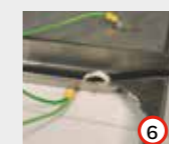
Start the lid gasket on the underside of the lid as close to the outer edge as possible, approximately half way along the length. Ensure the gasket runs underneath the Earth bonding cable. Do not run the gasket past the first corner at this stage.



5 Identify the gaskets

Butt the other end of the gasket to the start to ensure a good join. This also ensures the gasket is not stretched unduly.

Continue fitting the gasket around the edge of the lid keeping the corners as close to 90° as possible, until complete.



6 Fitting frame gasket

Start the frame gasket as close to the inner edge as possible, approximately half way along the length. Ensure the gasket runs underneath the Earth bonding cable. Do not run the gasket past the first corner at this stage.



7 Fitting frame gasket

Butt the end of the gasket to the start to ensure a good join. This also ensures the gasket is not stretched unduly.

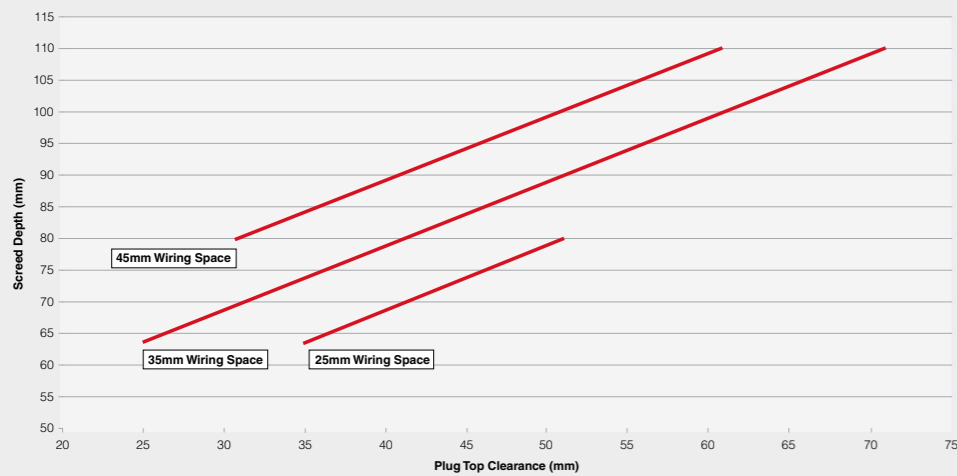


8 Fitting frame gasket

Continue fitting gasket around the inner edge of the frame, ensuring the gasket runs to the outside of the screw hole, until complete.

Onix Plus™ Floorboxes and Power Grommets

Screed Depth – 25mm, 35mm and 45mm Wiring Space



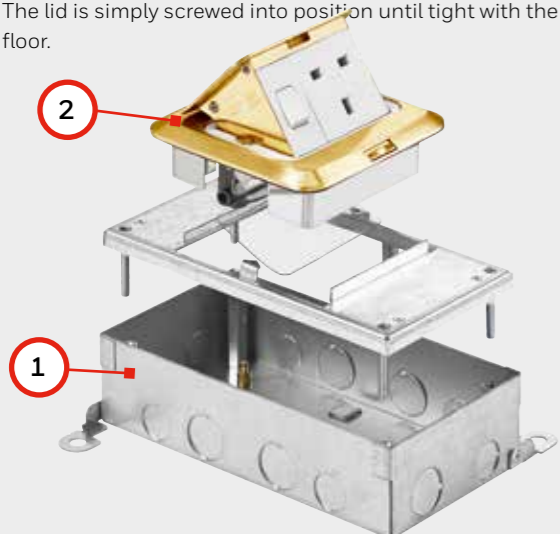
Installation of Metal Power Grommets

- The Screed Base Unit, is laid onto the concrete slab. There are two Screed Bases available depending on the screed depth.
 - Screed depth between 55mm and 80mm use **NXGB100-1**
 - Screed depth between 80mm and 110mm use **NXGB100X-1**

A metal plate supplied with the Screed Base Unit to keep the screed out of the interior of the box.

After screeding the mounting plate is fitted and the floor covering is laid.

- The grommet top is installed after the floor covering is laid. The lid is simply screwed into position until tight with the floor.



Cat 6 Compatibility

With Cat 6 data cabling the orientation and depth of many data outlets has changed, resulting in the need for greater backbox depths and wiring space to accommodate these longer data outlet. No longer is a 35mm wiring space sufficient to ensure data terminations can be made to the manufacturer's recommendations to prevent transmission losses. 45mm wiring space for the Cablelink Plus floorbox system is available.

Cablelink Plus Screed System

Standards and Approvals

Cablelink Plus Screed System range complies with the relevant requirements of the latest edition of 18th Edition of the IET Wiring Regulation (BS 7671) and to BS EN 50085 Part 1 and BS EN 50085 Part 2-2. Additionally the floorboxes also comply with IEC 60670 Parts 1 and 23. The metal used complies to the requirements of BS EN 10327:2004

Feature benefits

- Tested to BS EN 50085-2-2 to accept 5000N load
- The system incorporates numerous design features to ensure a fast and simple installation
- Designed to support Cat 6 & Cat 6A structured cabling systems
- Suitable for screeded depth from 55mm to 110mm (Height adjustment kits and floor coverings must be used)
- Minimum finished floor thickness (including carpet, tile etc) is 74mm, with a 35mm wiring space. Can be reduced to 64mm if a 25mm wiring space can be utilised. (A CUBA-1 adjustment kit must be used)
- Floorboxes are IP2X rated in accordance with BS EN 50085-1
- Choice of 1, 3 or 4 compartment floorboxes
- Self Closing lid in accordance with IEC 61534-22
- Wide range of power and data accessories available to meet all requirements
- PVCu ducting manufactured from 100% recycled material*
- Quality, reliability and safety come as standard
- Provision of RCD protection supports compliance to the 18th Edition of the IET Wiring Regulation (BS 7671)
- 5 year guarantee

Top tips

- Distance between two junction boxes must not exceed 6 metres
- Service Outlet Boxes** – fixed only on branch ducts and not on header ducts. Fixing service boxes on the header ducts affects cable capacity and constricts the header
- Workstations** – locate over Service Outlet Boxes so that it does not interfere with normal office traffic

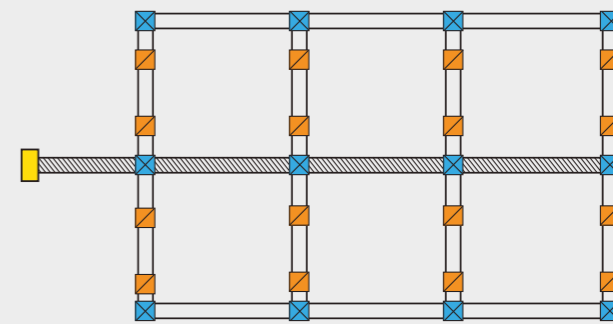
Layout

In order that the installation may exhibit the desired flexibility, the ducting is usually laid out on either a Grid, Fishbone or a Comb Pattern of single, double or triple runs.

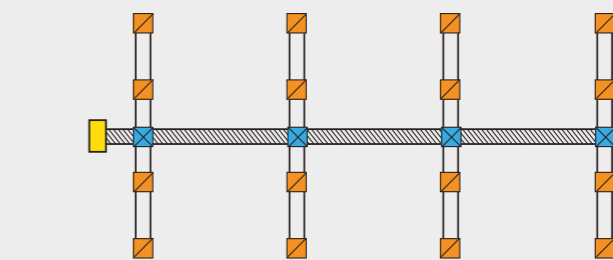
A **Grid Pattern** is widely used in areas where the occupants require the highest degree of flexibility in reorganising work areas. Capacity can be increased by returning individual ring mains through different runs of duct which in itself allows easier installation.

The **Fishbone Pattern** is ideal for a medium sized area where lesser boxes are required.

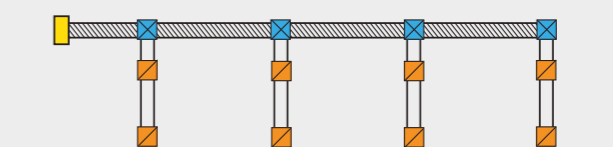
The **Comb Pattern** is the most economical way of installation where least duct is used. The comb pattern is suited for medium to small office areas.



Grid pattern



Fishbone pattern



Comb pattern

- Header Runs
- Service Outlet Box
- Vertical Access Box
- Universal Junction Box
- Branch Runs

For a full range of corresponding products, see pages 45-56.

Cablelink Plus Screed System

Cable Capacity Guide

The cable factor table below is based on the 18th Edition of the IET Wiring Regulation (BS 7671) and must be regarded only as a guideline. Care should be taken in selecting adequate trunking sections taking into consideration the number and size of cables involved and construction of the junction box. It is recommended that the initial design of trunking installations include adequate provision for future wiring. To determine the size of the trunking required, multiply the quantities of each size of conductor and appropriate factor from Table A and compare the total with the capacity unit figure in the appropriate Table B.

TABLE A - CABLE FACTORS		
CABLE TYPE	CSA	CABLE FACTOR
POWER CABLES		
PVC Stranded	1.5mm ²	8.6
	2.5mm ²	12.6
	4mm ²	16.6
	6mm ²	21.2
	10mm ²	35.3
	16mm ²	47.8
Twin & Earth	2.5mm ²	86
	4mm ²	99
	6mm ²	148
DATA CABLES		
Cat 5E UTP	5.5mm dia	30.2
Cat 5E STP	6.0mm dia	36
Cat 6 UTP	6.5mm dia	42.2
Cat 6 STP	7.0mm dia	49
Cat 6A	8.0mm dia	64

Sample calculation

To estimate the total number of cables that can be accommodated with a 100 x 38mm ducting:

Step 1 Pick the factor from Table B corresponding to 100 x 38 = 1563

Step 2 Select the size of the cable that needs to be pulled through the trunking and its corresponding factor from Table A e.g. 4mm² stranded = 16.6

Step 3 No. of cables = Value from (Table B / Table A)
e.g. 1563/16.6 = 94 Cables.

Top tips

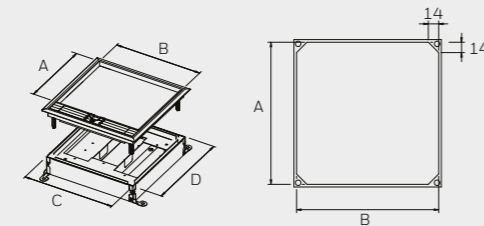
- The number and location of boxes will depend on the end user requirements
- If the furniture layout is available, a floor box should be considered for each workstation or desk
- If the final furniture layout is not available as a general guide the minimum recommended distribution is one floor box for every 10m², and the maximum being one floor box per 4m²

TABLE B - METAL SCREED DUCTING CABLING CAPACITY			
SIZE (MM)	COMPARTMENT SIZE	CAPACITY 100%	CAPACITY (45% FILL)
100 x 38	100 x 38 (1 comp)	3474	1563
225 x 38	112 x 25 (2 comp)	3940	1773
	75 x 38 (3 comp)	2613	1176
250 x 38	13 x 38 (3 comp)	2909	1309
275 x 38	91 x 38 (3 comp)	3206	1443
300 x 38	100 x 38 (1 comp)	3503	1576

Cablelink Plus Screed System ducting complies with BS EN 50085-1:2005 and BS EN 50085-2-2:2008.

The above table gives the available capacity units on 45% factor, applied to the internal wiring area.

Carpet Cut out Dimensions



The table below shows the sizes required for the carpet lid infill and carpet tile cut out for the Cablelink Plus Screed Floorboxes.

LID LIST NUMBER	CARPET LID INFILL DIMENSIONS (mm)		BASE LIST NUMBER	BOX CARPET CUT OUT DIMENSIONS (mm)	
	A	B		C	D
CXL100	152	93	CUB100	100	100
CXL265	219	251	CUB265	265	265
CXL340	219	326	CUB340	340	340
CUJL265	253	253	CUJ265	265	265
CUJL340	328	328	CUJ340	340	340

DUCTING CABLE CAPACITY - DATA CABLES				
DUCTING CAPACITY mm ²	60MM DUCTING		90MM DUCTING	
	1025		2300	
NOMINAL CABLE DIAMETER mm ²	NUMBER OF CABLES			
	60mm DUCTING		90mm DUCTING	
	@50%	@75%	@50%	@75%
5.5	17	25	38	57
6	14	21	32	48
6.5	12	18	27	41
7	10	15	23	35
8	8	12	17	26

Cablelink Plus Screed System

Cablelink Plus Screed Service Box

Materials	UL94 V2 rated nylon, Pre-galvanised steel.
Strength	The floor outlet boxes are capable of resisting minor accidental loading when rigidly supported under the outer rim of the cover frame.
Fire	The outer casing of the floor outlet box is manufactured from metal and is non-combustible. The 8mm recess frame and lid assembly is made from UL94 V2 rated nylon the 12mm recess frame and lid assembly is manufactured from metal and is non corrosive.
Chemical resistance	Non corrosive.
Water absorption	The floor outlet boxes are for use in situations where the cleaning method used does not result in the formation of pools of liquid or soaking of the floor surface.
Degree of protection	Enclosure classification of IP2X when installed in accordance with the instructions set out in the installation guide.

Ambient Temperature Range

	MINIMUM	MAXIMUM
Handling and storage	-5°C	60°C
During installation	-5°C	60°C
Operating	-5°C	40°C

Average not to exceed 35°C in any 24 hour period.

RAL Colours

Grey (GRY) = RAL 7011

PVCu Ducting and Accessories:

Manufacture	Duct straight lengths are extruded from 100% recycled PVCu. Fittings are formed by injection moulding*.
Appearance	All PVCu duct and accessories are normally smooth, matt white finish.
Strength	Heavy gauge, medium impact resistance under normal conditions.
Fire	Non flame propagating. Class 1 spread of flame.
Chemical resistance	Non-corrosive and not affected by sea water. Excellent resistance to mineral acids, alkalis and detergents but liable to attack from solvents such as alcohol, ketones, aromatics and hydrocarbons.
Vermin	Resistant to vermin and termites.
Thermal	Lower and upper limit of range of ambient temperature from -5°C to 60°C. All products are designed to accommodate local thermal expansion and fitting instructions cover differential movement at the interface with the building fabric. Thermal expansion coefficient: 5.5 x 10 ⁻⁵ /°C.
Electrical	Duct is non-conductive. Dielectric strength: 40kV/mm in DBP 17kV/mm in tx oil. Volume resistivity: >10 ¹⁴ Ω·cm.
Durability	The product is stable within the terms and conditions described above and will maintain its performance characteristics.
Workability	The duct is light weight and can be readily cut with hand tools. Short lengths can be readily incorporated and there is low wastage of material. Components and joints can be solvent welded together where necessary.

Metal Duct and Accessories

Material	Pre-galvanised sheet steel.
Standard thickness	1.2mm.
Standard length	2.44 metres.
No. of compartments	1, 2 or 3 compartments.
Standard depth	38mm.

Couplers have to be ordered separately.