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**Inspection Chambers and Covers**

**Design and Installation Guide**

**inspection chambers**

**covers**

FOR RESIDENTIAL,  
COMMERCIAL AND  
INDUSTRIAL APPLICATIONS

**Intelligent Solutions for Below Ground Projects**

## Introduction to OSMA Inspection Chambers and Covers

### Introduction

OSMA Inspection Chambers offer a safe and effective method of providing access to the drainage system, with options to meet all access and layout requirements. The range includes:

	Max. Depth to Invert (m)
Shallow Inspection Chamber (SIC)	0.6
Multi-Base Inspection Chambers	0.6
Universal Inspection Chambers (UIC)	1.2
Non-Entry Inspection Chambers (NIC)	3.0

### Simple and easy to install

OSMA Inspection Chambers offer significant advantages over traditional manholes in both time and cost:

- No need for wet trades
- No additional excavation required
- Quick and easy connection to pipe runs
- Satisfies all regulatory requirements for access provision
- Range of configurations to meet all drainage layout requirements
- Round and square cover options, for trafficked and non-trafficked areas

The comprehensive range is designed to meet the requirements of building regulations and covers the latest amendments to approved document H as highlighted below:

### Inspection Chambers

#### - Shallow ▼

(see 'Table 11 from Part H doc')

In the 2002 Building Regulations update, the maximum depth for a shallow inspection chamber was increased from 1m to 1.2m.

### Inspection Chambers

#### - Deep ■

(see 'Table 11 from Part H doc')

A reduced access inspection chamber has an access opening reduced to a maximum of 350mm to prevent man entry. Inspection and maintenance operations are carried out from the surface using remotely operated equipment.

The 2002 update of the Building Regulations allows for the use of reduced access inspection chambers as an alternative to a manhole at depths greater than 1.2m down to a maximum of 6m (as set out in BS 7158:2001). The OSMA Non-Entry Inspection Chamber (NIC), system can be installed to a maximum depth of 3m.

This change reflects "The Confined Spaces Regulations 1997".

*"No person shall enter a confined space to carry out work for any purpose unless it is not reasonably practicable to achieve that purpose without such entry".*

Figure 1. Table 11 from Part H Document (Building Regulations)

Table 11 Minimum dimensions for access fittings and inspection chambers						
Type	Depth to invert from cover level (m)	Internal sizes		Cover sizes		
		Length x width (mm x mm)	Circular (mm)	Length x width (mm x mm)	Circular (mm)	
Rodding eye		As drain but min 100			Same size as pipework <sup>1</sup>	
Access fitting						
small	150 diam					
large	150 x 100 225 x 100	0.6 or less, except where situated in a chamber	150 x 100 225 x 100	150 225	150 x 100 <sup>1</sup> 225 x 100 <sup>1</sup>	Same size as access fitting
Inspection chamber						
▼ shallow	0.6 or less 1.2 or less	225 x 100 450 x 450	190 <sup>2</sup> 450	- Min 430 x 430	190 <sup>1</sup> 430	
■ deep	> 1.2	450 x 450	450	max 300 x 300 <sup>3</sup>	Access restricted to max 350 <sup>3</sup>	

Notes:  
<sup>1</sup> The clear opening may be reduced by 20 mm in order to provide proper support for the cover and frame.  
<sup>2</sup> Drains up to 150mm.  
<sup>3</sup> A larger clear opening cover may be used in conjunction with a restricted access. The size is restricted for health and safety reasons to deter entry.

### Introduction to OSMA Inspection Chambers and Covers

#### Inspection Chamber Covers

The regulations have been updated to reflect health and safety issues on site.

Extract from Part H: "Small lightweight access covers should be secured (for example with screws) to deter unauthorised access (for example by children)."

A lightweight access cover is defined as a cover that meets the requirements of standard loading classification A15 (1.5T). Larger plastic lightweight covers and frames however, are typically designed to withstand a load greater than 1.5T, usually 3 – 3.5 T (30 – 35kN), which can be used in domestic driveways when surrounded by a concrete plinth.

All OSMA lightweight access covers listed below are secured to the frame by means of screws to prevent unauthorised access. Certain products can also be secured to the inspection chamber shaft by means of eyebolts or screws i.e. 4D920, 4D924 and 4D927.

Fig. 3 4D920



Fig. 4 4D924



Fig. 5 4D927



Figure 2. OSMA Inspection Chamber Cover Table.

#### OSMA Inspection Chamber Covers

Cat Code	Description	Installation Depth	Loading	Nominal Size (mm)	Cover Size (mm)
4D325	S/S Sealed, Round Cover and Frame	Up to 0.6m	10kN	-	322
4D961	P/E Sealed, Square Cover and Adjustable Frame	Up to 0.6m	10kN	-	325 x 325
4D969	P/E Sealed, Square Cover and Adjustable Frame	Up to 0.6m	10kN	-	323 x 323
4D920	P/E Sealed, Square Cover and Adjustable Frame	Up to 3.0m	15kN	-	450 x 450
4D924	P/E Sealed, Round Cover and Adjustable Frame	Up to 3.0m	15kN	-	450
4D927	P/E Sealed, Round Cover and Frame	Up to 3.0m	15kN	-	450
4D942	DI Cover and Frame - Class BS EN 124-B125	Up to 3.0m	125kN	-	450

### Shallow Inspection Chambers

#### Product Specification

- ▲ Internal shaft diameter - 239mm
- ▲ External shaft diameter - 250mm
- ▲ Maximum installation depth - 0.6m
- ▲ Manufactured from Polypropylene
- ▲ Kitemarked to British Standard BS 7158:2001

#### Benefits

- ▲ D/S Shallow Inspection Chamber 4D960 for use with the 110mm OsmaDrain system
- ▲ Ideal cost-effective solution for access to drains at max. 600mm invert
- ▲ Manufactured as a single unit with a straight 110mm main channel and two 45° 110mm inlets, one either side of the main channel
- ▲ Unit supplied with two blank-off plugs to seal unused side entries

#### Cover options

- ▲ S/S Sealed Round Cover and Frame 4D325
- ▲ P/E Sealed Square Cover and Adjustable Frame 4D961

#### Key installation points

- ▲ No additional trench excavation is required
- ▲ Sit Chamber on a 100mm bed of granular or suitable as-dug material
- ▲ Make pipe connections in the normal way
- ▲ Cut shaft to size using a fine toothed saw
- ▲ Lubricate top of shaft - inside for 4D961, outside for 4D325 and push-fit the appropriate Cover and Frame
- ▲ For loadings up to 10kN (1 Tonne), support frame with a 150mm concrete plinth

Fig. 6 Shallow Inspection Chamber installation

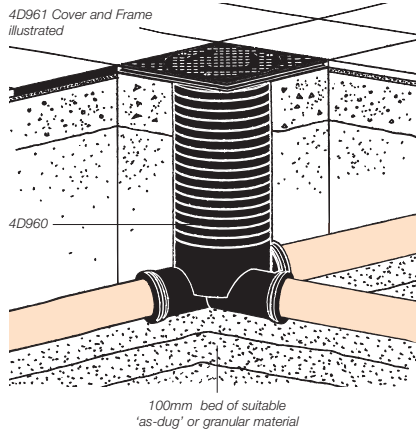
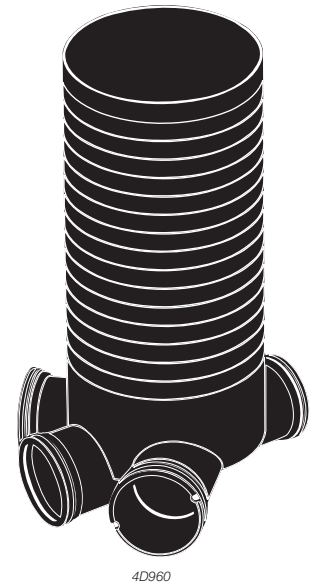


Fig. 8 Shallow Inspection Chamber components



4D960



4D961



4D325

Figure 7. OSMA Shallow Inspection Chamber Table.

#### OSMA Shallow Inspection Chambers

Cat Code	Description
4D960	D/S Shallow Inspection Chamber
4D325	S/S Sealed, Round Cover and Frame
4D961	P/E Sealed, Square Cover and Adjustable Frame

# BELOW GROUND DRAINAGE SYSTEMS

## Multibase Shallow Inspection Chambers

### Multibase Shallow Inspection Chambers

#### Product Specification

- Internal shaft diameter - 317mm
- External shaft diameter - 324mm
- Maximum installation depth - 0.6m
- Manufactured from PVC-U
- Kitemarked to British Standard BS 7158:2001

#### Benefits

- 10 unique 110mm base configurations
- Push fit shaft
- Tilt and rotate push fit cover and frame
- Lightweight
- Easy to install
- Modular system

#### Maximum flexibility

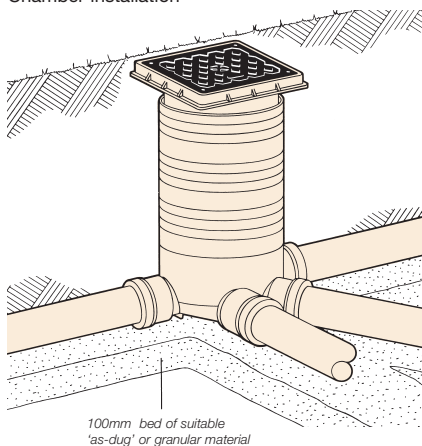
The many options within the range ensures maximum flexibility for installation

- By selecting the most appropriate base for the job, the cost of additional bends is avoided
- One or two push-fit shaft sections may be used to achieve invert required
- All component parts carry a kitemark and are fast and easy to install

#### Cover options

- P/E Cover and Adjustable Frame 4D969 ♡. Not suitable for internal use.

Fig. 9 Multibase Shallow Inspection Chamber installation



#### Key installation points

- No additional trench excavation is required
- Sit Chamber on a 100mm bed of granular or suitable as-dug material
- Make pipe connections in the normal way
- Depending on required depth, push-fit either one or, two shaft sections together, after pre-lubricating the inside of the shaft section
- Lubricate inside of top shaft section and insert Cover and Frame directly into top shaft section

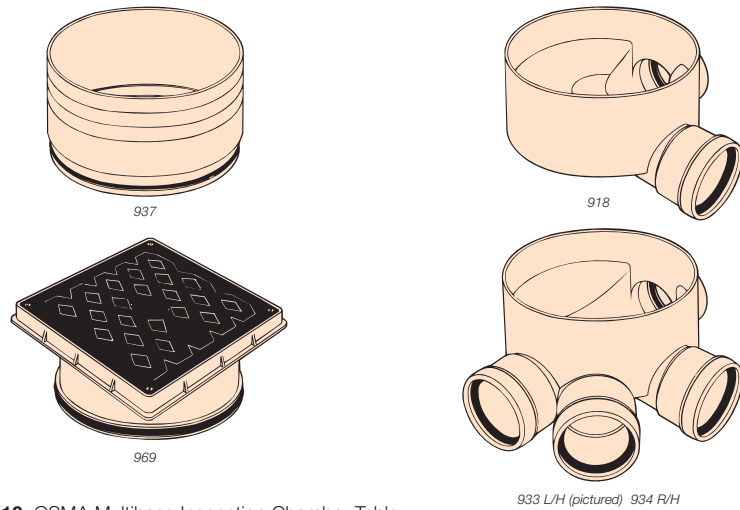


Figure 10. OSMA Multibase Inspection Chamber Table.

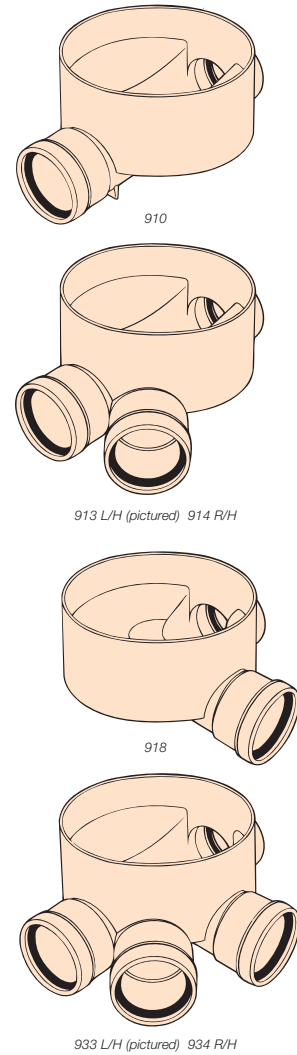
#### OSMA Multibase Inspection Chambers

##### Cat Description

##### Code

4D910 ♡	D/S Shallow Inspection Chamber Base - straight main channel
4D911 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 1x90° LH entry
4D912 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 1x90° RH entry
4D913 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 1x45° LH entry
4D914 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 1x45° RH entry
4D917 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 2x45° entries either side of the main channel
4D918 ♡	D/S Shallow Inspection Chamber Base - 90° bent main channel
4D933 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 1x45° and 1x90° LH entries
4D934 ♡	D/S Shallow Inspection Chamber Base - straight main channel, 1x45° and 1x90° RH entries
4D935 ♡	D/S Shallow Inspection Chamber Base - 2x90° LH/RH entries
4D937 ♡	P/E Shallow Inspection Chamber Shaft - 150mm effective length, supplied with seal
4D969 ♡	P/E Sealed, Square Cover and Adjustable Frame

Fig. 11 Multibase Shallow Inspection Chamber components



### Universal Inspection Chambers

#### Product Specification

- Invert depth of base (4D922) - 270mm
- Internal shaft diameter - 450mm
- External shaft diameter - 475mm
- Maximum installation depth - 1.2m
- Manufactured from Polypropylene
- Kitemarked to British Standard BS 7158:2001

#### Benefits

- Lightweight
- Easy to install
- Modular system: shaft can be built up to required length

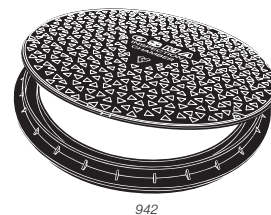
For use with 110mm and 160mm OsmaDrain pipework and 150mm UltraRib.

#### Cover options

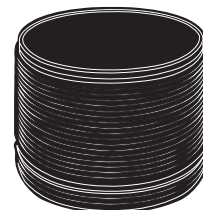
- DI Cover and Frame - 4D942 ♡
- P/E Sealed, Square Cover and Adjustable Frame - 4D920 ♡
- P/E Sealed, Round Cover and Adjustable Frame - 4D924 ♡
- P/E Sealed, Round Cover and Frame - 4D927 ♡
- P/E Sealed, Round Cover and Frame - 4D927 ♡
- P/E Square, Steel Recessed Cover and Polypropylene Frame - 4D945
- P/E Sealed, Square, Steel Recessed Cover and Polypropylene Frame - 4D946

#### Key installation points

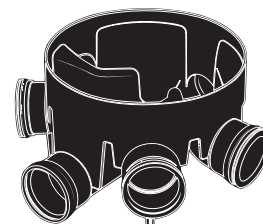
- No additional trench excavation is required
- Sit Chamber on a 100mm bed of granular or suitable as-dug material
- Make pipe connections in normal way
- Assemble Chamber to the required invert depth by placing one, two or three shaft sections on to the base, after pre-lubricating the inside of the shaft
- Intermediate depths are simply catered for by simply cutting the shaft section using a fine toothed saw
- Surround the Chamber with 150mm of similar material to that of the base bedding
- For loading applications support the appropriate frame with a 150mm concrete plinth



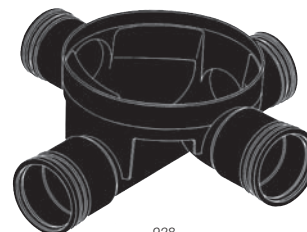
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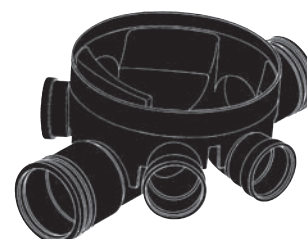
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922



928



929

Fig. 12 Universal Inspection Chamber components



920



924 / 927

Figure 13. OSMA Universal Inspection Chamber Table.

#### OSMA Universal Inspection Chambers

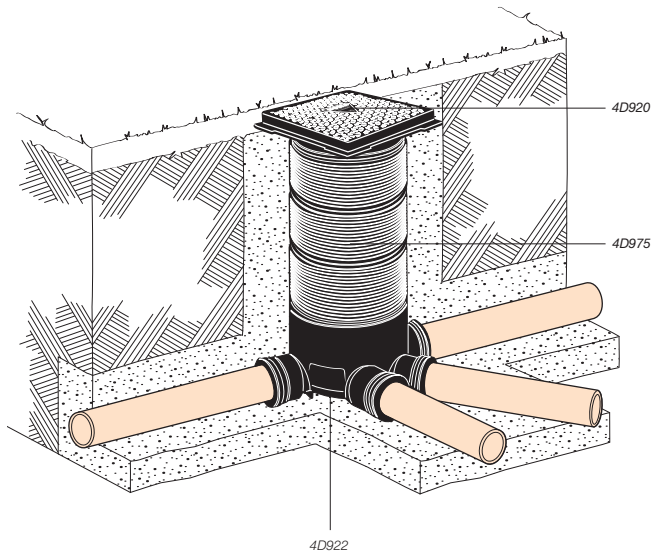
Cat Code	Description
4D922 ♡	D/S Equal Inspection Chamber Base - 110mm
6D928 ♡	D/S Equal Inspection Chamber Base - 160mm
6D929 ♡	D/S Unequal Inspection Chamber Base - 160 x 110mm
6UR928 ♡	D/S Equal Inspection Chamber Base - 150mm
6UR929 ♡	D/S Unequal Inspection Chamber Base - 150 x 110mm
4D975 ♡	Inspection Chamber Shaft - 305mm
4D942 ♡	DI Cover and Frame
4D920 ♡	P/E Sealed, Square Cover and Adjustable Frame
4D924 ♡	P/E Sealed, Round Cover and Adjustable Frame
4D927 ♡	P/E Sealed, Round Cover and Frame
4D945	P/E Square, Steel Recessed Cover and Polypropylene Frame
4D946	P/E Sealed, Square Steel Recessed Cover and Polypropylene Frame

# BELOW GROUND DRAINAGE SYSTEMS

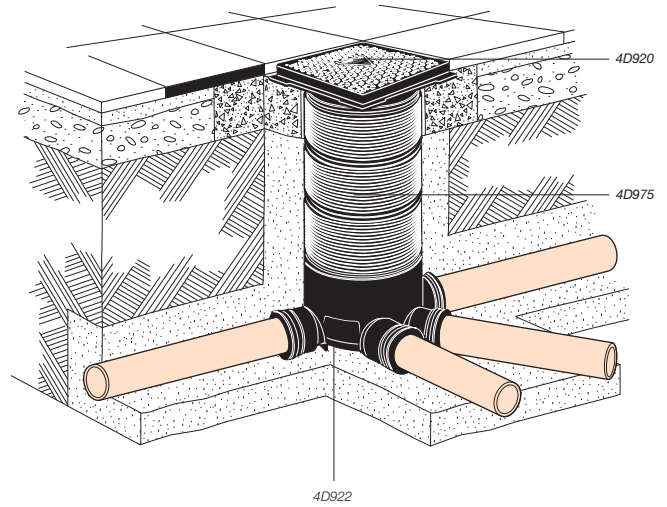
## Universal Inspection Chambers

### Universal Inspection Chambers

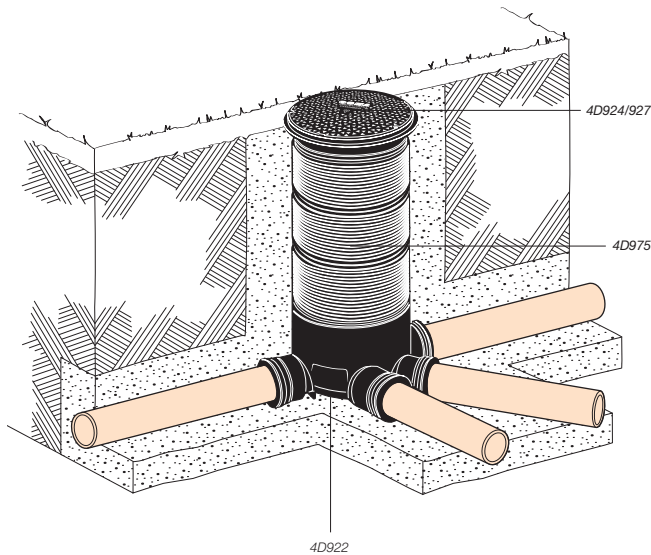
**Fig. 14** Universal Inspection Chamber - non-load installation - utilizing 4D920 P/E Sealed, Square Cover and Adjustable Frame



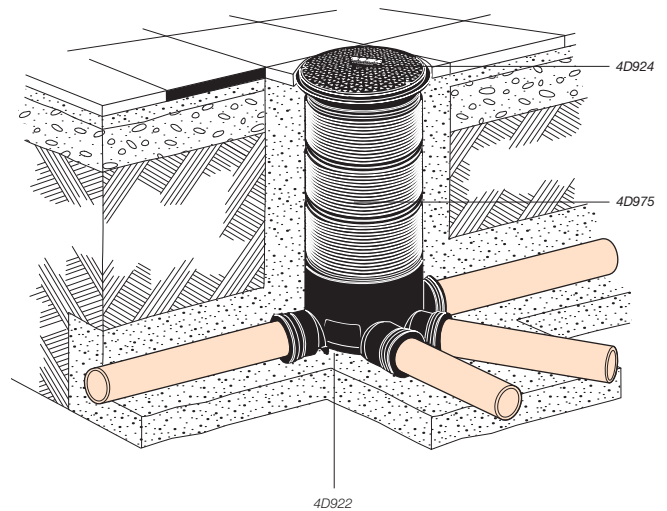
**Fig. 16** Universal Inspection Chamber - in areas requiring loads up to 50kN (5.0 Tonnes), utilizing 4D920 P/E Sealed, Square Cover and Adjustable Frame



**Fig. 15** Universal Inspection Chamber - non-load installation - utilizing 4D924/927 P/E Round Cover and Frame



**Fig. 17** Universal Inspection Chamber - non-load installation (patio) - utilizing 4D924 P/E Round Cover and Adjustable Frame



### Non-Entry Inspection Chamber (NIC)

#### Product Specification

- ▲ Invert depth of base - 300mm
- ▲ Internal shaft diameter - 500mm
- ▲ External shaft diameter - 572mm
- ▲ Maximum installation depth - 3m
- ▲ Manufactured from Polypropylene
- ▲ Kitemarked to British Standard BS 7158:2001
- ▲ Meets technical requirements of NHBC, LANTAC and STAS

#### Benefits

- ▲ Lightweight
- ▲ Easy to install
- ▲ No need for lifting equipment
- ▲ Modular system: shaft can be easily cut to required length
- ▲ Narrower trench required than manhole
- ▲ No requirement to work in a confined space (in line with Confined Spaces Legislation 1997)

#### Cover options

- ▲ P/E Sealed, Square Cover and Adjustable Frame - 4D920 ♡

#### Key installation points

- ▲ No additional trench excavation is required
- ▲ Sit the Chamber on a bed of 100mm of granular material or, alternatively a concrete bed
- ▲ Make pipe connections in normal way
- ▲ Assemble Chamber using the appropriate shaft section
- ▲ Intermediate depths are simply catered for by simply cutting the shaft section, using a fine toothed saw
- ▲ Surround Chamber with 150mm of granular material
- ▲ For loading applications support the appropriate frame with a 150mm concrete plinth

Fig. 19 Non-Entry Inspection Chamber (NIC) components

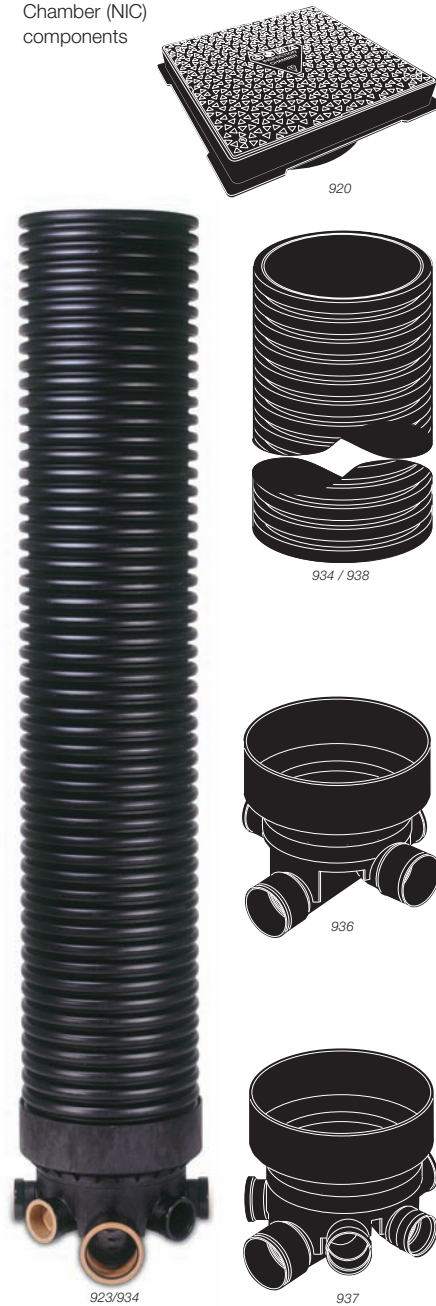


Figure 18. OSMA Non-Entry Inspection Chamber (NIC) Table.

#### OSMA Non-Entry Inspection Chambers (NIC)

Cat Code	Description
4D923 ♡	D/S Equal NIC, Inspection Chamber Base - 110mm
6D936 ♡	D/S Equal NIC, Inspection Chamber Base - 160mm
6D937 ♡	D/S Unequal NIC, Inspection Chamber Base - 160 x 110mm
6UR936 ♡	D/S Equal NIC, Inspection Chamber Base - 150mm
6UR937 ♡	D/S Unequal NIC, Inspection Chamber Base - 150 x 110mm
4D920 ♡	P/E Sealed, Square Cover and Adjustable Frame
6D938 ♡	P/E NIC, Inspection Chamber Shaft - 3.0m
6D934 ♡	P/E NIC, Inspection Chamber Shaft - 1.5m



### Covers and Frames

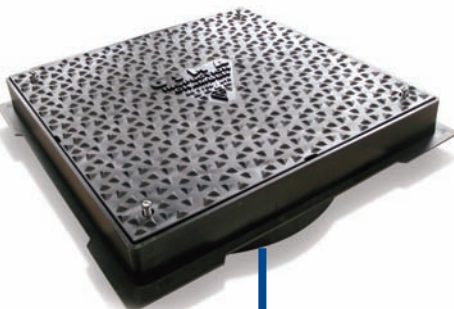
#### 4D920 - P/E Sealed, Square Cover and Adjustable Frame

A square plastic cover and frame manufactured from black polypropylene. The 4D920 has a 450mm diameter opening restricted to 350mm - see Fig. 23 making it suitable for use at a maximum depth to invert of 3 metres. The unit also has the added benefit of being suitable for use with both the Universal Inspection Chamber and Non-Entry Inspection Chamber (NIC) systems

#### Product Features/Benefits

- ▲ Kitemarked to British Standard BS 7158:2001
- ▲ Can be loaded to 50kN (5.0 Tonnes) when surrounded by a concrete plinth (150mm x 150mm)
- ▲ Overall depth of the unit - 56mm
- ▲ The cover employs a dual fixing system so the frame can be fixed to the shaft and the cover to the frame, providing additional safety - see Fig. 22
- ▲ 350mm restricted access for use to a maximum depth of 3 metres
- ▲ Suitable for use with both the Universal Inspection Chamber and Non-Entry Inspection Chamber (NIC) systems
- ▲ For external use only

Fig. 20 Square Cover and Adjustable Frame - 4D920



#### 4D924 - P/E Sealed, Round Cover and Adjustable Frame

A round plastic cover and frame manufactured from black polypropylene. The 4D924 has a 450mm diameter opening restricted to 350mm - see Fig. 23 making it suitable for use at a maximum depth to invert of 3 metres. The unit also has the added benefit of being suitable for use with both the Universal Inspection Chamber and Non-Entry Inspection Chamber (NIC) systems

#### Product Features/Benefits

- ▲ Kitemarked to British Standard BS 7158:2001
- ▲ For use in non-load applications up to 15kN (1.5 Tonnes)
- ▲ Overall depth of the unit - 56mm
- ▲ The cover employs a dual fixing system so the frame can be fixed to the shaft and the cover to the frame, providing additional safety
- ▲ 350mm restricted access for use to a maximum depth of 3 metres
- ▲ Suitable for use with both the Universal Inspection Chamber and Non-Entry Inspection Chamber (NIC) systems
- ▲ For external use only

Fig. 21 Round Cover and Adjustable Frame - 4D924



Fig. 22 Frame fixing eye bolts



Fig. 23 350mm restricted access (4D920 pictured)



Fig. 24 Increased location depth ensuring the unit is not easily knocked off during installation



**Covers and Frames** continued

**4D927 - P/E Round Cover and Frame**

A round plastic cover and frame manufactured from black polypropylene. The 4D927 has a 450mm diameter opening and is suitable for use with the Universal Inspection Chamber

**Product Features/Benefits**

- The round cover and frame provides a high level of security via the dual fixing system. This enables the frame to be fixed to the shaft and the cover to the frame - see Fig. 26
- Designed for use with the OSMA Universal Inspection Chamber Shaft (4D975)
- For use in non-load applications up to 15kN (Tonnes)
- Suitable for external use only

**Fig. 25** Round Cover and Frame 4D927



**Fig. 26** Frame fixing eye bolts





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## Inspection Chambers and Covers

## Design and Installation Guide



### Meeting your needs

Below Ground Drainage systems, developed by Wavin Limited, form part of a comprehensive range of systems to provide intelligent solutions for all building, construction and utilities projects.

*All OSMA systems are backed by full technical literature and project support.*



ISO 9001:2000

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