



Drainage Systems



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What we do

For over 40 years our roof drains, floor drains and biomastic grease separator products have been successfully installed in a wide range of commercial and public buildings.

Manufactured in cast iron, nickel bronze and stainless steel, our drainage products are designed to perform reliably in all environmental conditions for many years. Used as an integral part of the building's drainage system, Frost drainage products can be adapted to fit with a variety of pipe materials, floor finishes and roof structures.

Specifiers can select with confidence and contractors can be assured of maintenance free, durable drainage products.



Technical Advice and Support

Our skilled engineers have years of knowledge and experience. Technical advice and support is readily available.

Warranty

Subject to FC Frost Ltd's Terms and Conditions, our products are supported by a 12 month warranty.

International Standards Compliance

Frost design and products accredited to:



BS EN ISO9001:2008

Our quality management system is accredited to ISO9001:2008 and our products are designed and manufactured in accordance with industry standards and regulations.



American National Standards Institute Member



Stainless Steel BS EN 10088-1:2005
Grade 1.4301 (304) or (316) if specified
Average recyclable content 75% - 85%

Nickel Bronze BS 1400
Greater than 80% recycled material
100% recyclable

Cast iron Grade EN-GJL-150 to BS EN 1561:1997 80% - 97% recycled materials
100% recyclable

Ductile iron BS EN 1563 and BS EN 1564
Greater than 80% recycled material
100% recyclable

Aluminium Grade LM6 to BS EN 1559-4:1999 Greater than 90% recycled material
100% recyclable

Leadership in Energy and Environmental Design
LEED compliant products

Environmental Sustainability

All manufacture complies with strict standards in order to minimize waste and the use of raw resources at all stages of the production process.

Water and Energy Consumption :

We use timers and auto shut off mechanisms to actively promote energy and water saving

Advantages of Frost Drainage Systems

MODULAR DESIGN

Our concept is simple and our final products are assembled from a largely common pool of component parts.

Each complete assembly consists of a top, drainage body and where applicable membrane clamps, deck clamps and extensions as required.

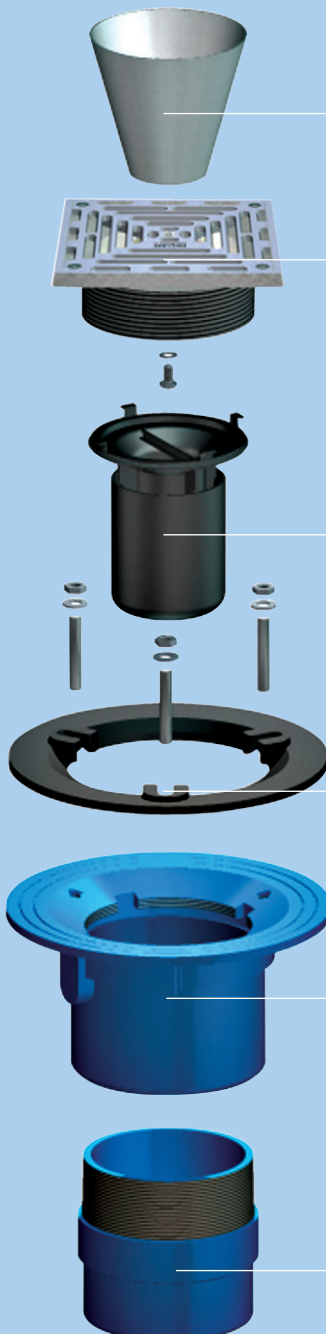
Our entire range of roof drains, floor drains and rodding eyes feature only 10 basic bodies to ensure product economy and flexibility.

MULTI - ADJUSTABLE INSTALLATION LEVELS

Each installation on site requires speed, accuracy and adjustability.

Our threaded products are designed to allow adjustment of the drain body and drain top to achieve correct finished floor height for all common varieties of floor finish. Further, increased degrees of adjustment to suit thicker floor and roof structures can be achieved with extension pieces and spigot adaptors. This ensures ease of installation and accuracy to match individual site requirements.

Space saving and economy can be achieved where no drainage body is required by using our direct connection gratings and rodding eyes.



Funnel

Bolt-on funnel for indirect drain waste pipes such as condensate discharge

Grating

Square or circular to suit floor finish

Bottle trap

Removable bottle trap for use with untrapped drain bodies or direct connection gratings

Clamp ring

Membrane clamp ring for sub-surface waterproof layer

Body

Trapped and untrapped cast iron drain bodies some available with side inlets

Adaptor

Outlet spigot adaptor to connect drain body with pipe system

Some UK Projects

We would like to highlight examples from the last 40 years which demonstrate the quality, extent and reliability of our business and its capabilities.



Wembley Stadium – London



London Stansted Airport



1 Canada Square, Canary Wharf – London



British Library - London



London Gatwick Airport



Manchester Royal Infirmary



Bank of America – London



Royal Lancaster Hotel - London

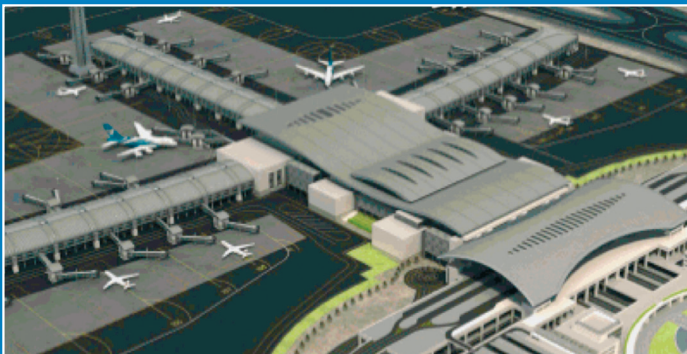
Some Worldwide Projects



Chep Lap Kok International Airport – Hong Kong



Gazprom HQ - Moscow



Muscat International Airport - Oman



Majlis Building - Oman



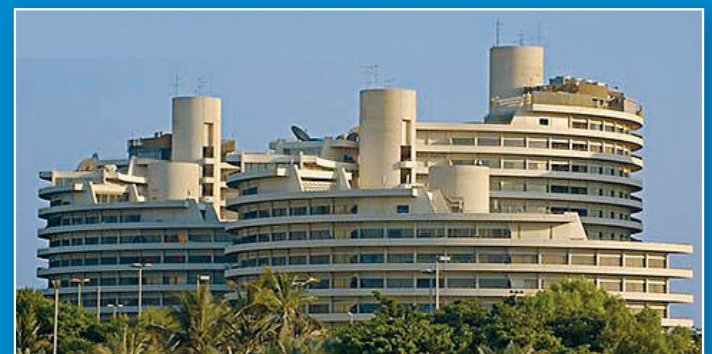
Hamad Medical City - Doha, Qatar



Arab Museum of Modern Art - Doha, Qatar



Villas at Mirdif - Dubai, UAE



Ruwais Housing Complex - Abu Dhabi, UAE

Floor Drains





Nickel bronze circular grating in an in situ floor



Ductile iron circular grating in a concrete floor



Stainless steel grating in a tiled floor



Polished nickel bronze circular grating in a vinyl floor

SUITABLE FOR ALL FLOOR FINISHES AND APPEARANCES

Frost gratings and covers are designed to suit the wide variety of modern floor finishes such as ceramic tiles, resin floors, sheet vinyl and concrete. We offer Nickel Bronze, Stainless Steel etc to allow aesthetic choice.

MAINTENANCE FREE AND DURABLE

Frost drainage products are designed to be maintenance free and to last for the life of the building. Original visual appearance can be maintained by appropriate normal cleaning.

EASY TO USE

Our products are quick and easy to install and have the flexibility in fitting, function and appearance to meet varying individual site requirements.

Our service includes full technical advice and support which is always available from our skilled engineers. We understand the realities of product selection, product procurement and the practicalities of installation.

Our CD supplied with this catalogue allows images and specifications to be emailed to clients or colleagues.

Our **product comparator** on our website at **frostdrainage.com** allows the rapid conversion of others products into our own products.

It also has a unique **drainage assembly configurator** that allows a specifier to determine which Frost drain will be the most suitable using a series of simple step by step questions. For further information see page 67.

COMPETITIVELY PRICED

Our products are efficient, cost effective and competitively priced. Please ask us for a quotation.

We have over 40 years experience

Floor Drains - Design Considerations

Factors including size, shape, appearance and anticipated drainage requirements need to be taken into account in planning effective drainage solutions. Design is usually the responsibility of consulting engineers familiar with the floor construction, floor finish, piping systems, operations and function intended for particular building areas.

BUILDING REGULATIONS / STANDARDS

International regulations and local building codes must be observed for all sanitary and other drainage installations so it is recommended these are considered as the first step.

As a matter of good practice drains should be considered for any location where water is supplied or where surface drainage must be accommodated.

To prevent foul air from entering a building a trapped gully may be used and various types are available Bell, Bottle, P and S.

In other cases a non-trapped gully may be used with a trap installed in the drain line.

WEIGHT BEARING AND LOAD RATING

As an integral part of the floor it is vital gratings and assemblies withstand all anticipated loads. This catalogue shows the load rating class for each grating, cover or gully assembly based on BS EN 1253, as follows :

Loading K3 (Pedestrian Only)

Areas for foot traffic only, such as washrooms, shower areas, hotels, schools, museums, retail centres, swimming baths, leisure centres, balconies, terraces and roof gardens.

Loading L15 (Light Industrial)

Areas with light vehicular traffic such as cycle ways and domestic drives.

Loading M125 (Heavy Industrial)

Areas with vehicular traffic, such as car parks, factories, warehouses and workshops.

FLOW RATE

Flow rate is the maximum amount of water (litres/second) which a gully will drain and is influenced by several factors such as grating free area (i.e. gaps in the grating), sump capacity, body free area, design of the gully, outlet size, and additional features and accessories such as filter buckets and traps.

At low heads of water the flow rate of a gully is mainly governed by the size of grating free area. At heads of water above 50mm flow rate is governed by the body free area, or the grating free area, whichever is the smaller.

Selected top size (i.e. grate free area), gully outlet size and piping system size all relate to each other and should be within recognised parameters.

PIPEWORK

The type and size of pipework in an installation is fundamental to the correct selection of gullies. Frost drainage gullies can be connected to all pipework in general use.

FLOOR AND FLOORING

Floor construction type has a direct influence upon appropriate drainage selection and so should be established at the outset.

The depth of the structural slab and available space will influence the selection of gullies, while selection of an extension may be necessary to bring the grating or cover to finished floor level.

Installations with a drainage membrane will normally require the use of gullies with a membrane clamping collar.

Drains located in pedestrian surfaces or access routes must be disabled compliant.

Different kinds of floor finishes, such as concrete, epoxy resin, ceramic tiles or sheet vinyl will influence the type of grating or cover to be selected.

MATERIALS AND APPEARANCE

Strength, corrosion resistance and appearance are important considerations when making drainage selections

Finished floor areas

Gullies with attractive gratings or covers made of satin nickel bronze, polished nickel bronze or stainless steel are for use in areas where they contribute to the aesthetic appeal of an area.

Unfinished floor areas

Ductile iron gratings, whilst extremely durable and visually acceptable are best suited in unfinished and/or industrial settings such as service areas or for restoration projects to match period architecture.

INTERNATIONAL STANDARDS

Satin Nickel Bronze and **Polished Nickel Bronze** to BS1400 : **Stainless Steel** to BS EN 10088-1:2005 Grade 1.4301 (304) or Grade 1.4401 (316) if specified

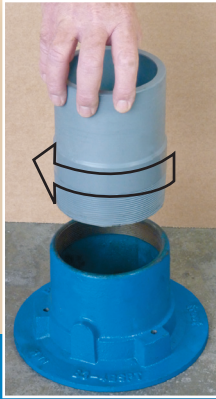
Ductile Iron to BS EN 1563 & 1564 Cast with the ductility of steel and more than doubling the tensile strength of cast iron.



Floor Drains - Installation Guide

The following notes are for typical installations but as individual circumstances may vary, please contact our technical department if you require any assistance. Before starting read all these guidelines and ensure the gully suits the requirements for its purpose – see 'Design Considerations'.

1. Preparation



We recommend that components are trial-assembled before installation to double check compatibility. If used, screw the spigot adaptor into the body outlet using a suitable sealant to ensure a watertight joint.

2. Measure distance to finished floor level



Ensure the distance between the finished floor level and the top of pipework is sufficient to fit the completed floor assembly.

This distance should enable the complete assembly (with extensions, if applicable) to be installed so that the top face of the grating or cover finishes at the finished floor level.

If using side inlets ensure their position allows a fall to the gully. The body must be installed with the top of the flange at or below membrane level.

3. Install body



Connect body (with spigot adaptor if applicable) to the pipework. All our bodies can be used in solid floors.

Use a wide flanged body for timber decks. The flange can be drilled for fixings or use an underdeck clamp (33.9610 or 33.9620) to fix assembly. If the deck is recessed for the flange, consider the need to reinforce the cut timber edge.



4. Dress membrane and fit clamp

If used, dress the membrane over the flange to the edge of the body sump in accordance with membrane manufacturer's instructions ensuring the membrane does not restrict the outlet or threads for the grating.

Bolt the membrane clamping collar to the body. Thin membranes may require the screw length to be reduced.

Note: some clamps are reversible to increase height adjustability to the finished floor level. In some cases, e.g. large sump bodies (31.1024 etc), the membrane clamp must be used as it connects the grating to the body.



5. Install grating

Fit grating or rodding eye to the body ensuring the surface is at finished floor level using the height adjustability of the top. With square gratings ensure body is rotated so any height adjustment of the grating allows it to align with tiles or paving.

Use screws provided with cam type height adjustment to lock the grate at the required level.



6. Finish floor

Lay floor screed and apply the floor finish around the grating or cover. Fit removable accessories, e.g. funnels, sediment buckets etc. If sheet vinyl flooring or similar is used dress the finish over the grating bezel and clamp using the in-built clamp ring.

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Common Floor Drain Assemblies - Height Adjustable

31.0041  P18	31.0042  P18	31.0043  P18	31.0044  P18	31.0047  P18	31.0081  P18
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31.0219  P18	31.0221  P17	31.0227  P17	31.0231  P17	31.0237  P17	31.0241  P17
31.0251  P17	31.0257  P17	31.0261  P17	31.0271  P17	31.0277  P17	31.0281  P17
31.0291  P17	31.0297  P17	31.0301  P17	31.0311  P17	31.0321  P17	31.0331  P17
31.0337  P17	31.0341  P17	31.0351  P17	31.0357  P17	31.0361  P17	31.0371  P17

 Nickel Bronze

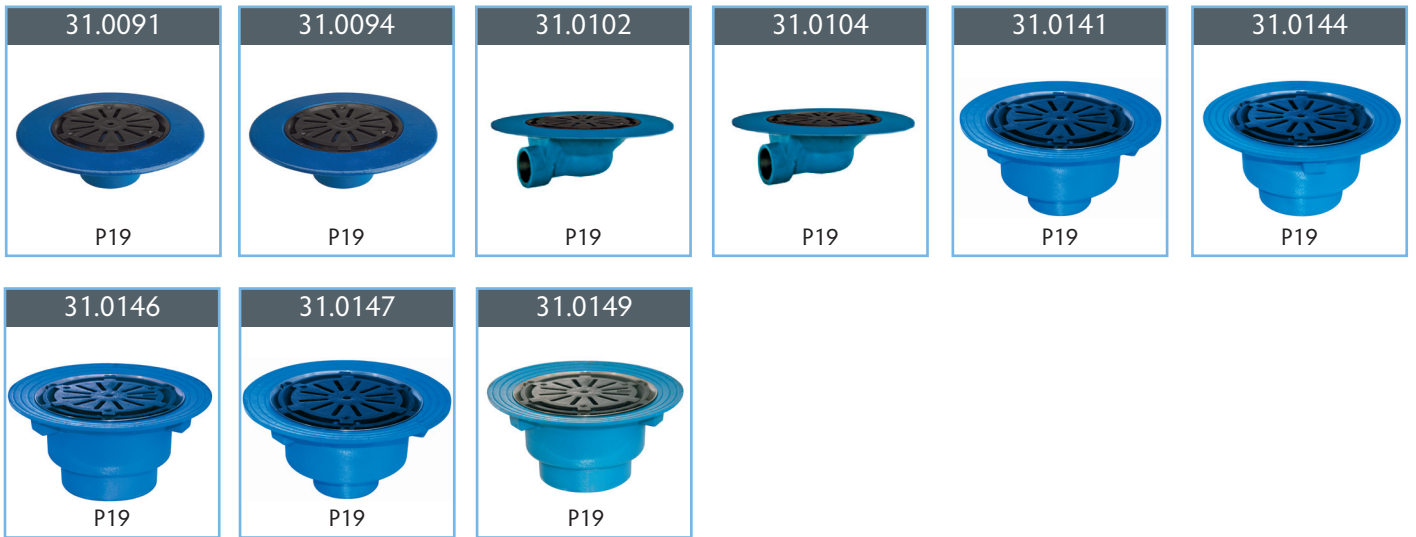
 Polished Nickel Bronze

 Stainless Steel

 Ductile Iron

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Common Floor Drain Assemblies - Fixed Height



Shower Drains



Gratings - Height Adjustable

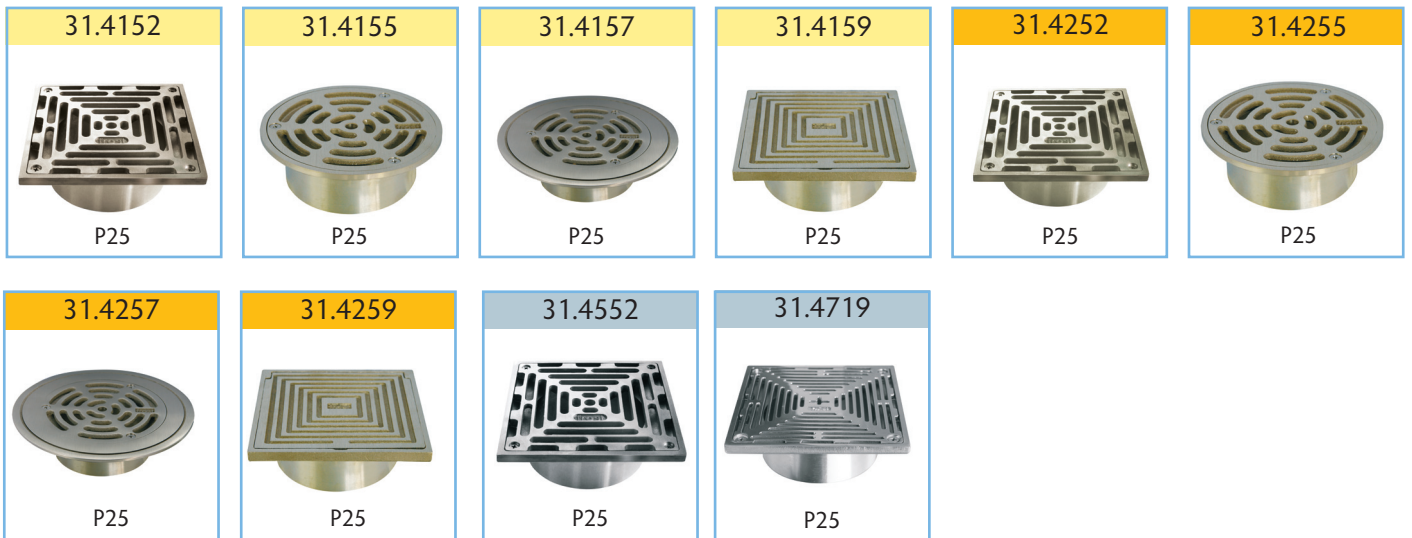


PICTORIAL INDEX

Gratings - Height Adjustable (Con'td)



Gratings - Direct Connection



Nickel Bronze
 Polished Nickel Bronze
 Stainless Steel
 Ductile Iron

PICTORIAL INDEX

Bodies - Threaded Outlet



Bodies - Spigot Outlet



Bodies - Trapped outlet



PICTORIAL INDEX

Floor Drain Accessories

<p>31.2020</p>  <p>P26</p>	<p>31.2030</p>  <p>P26</p>	<p>31.3100</p>  <p>P26</p>	<p>31.3320</p>  <p>P26</p>	<p>31.3340</p>  <p>P26</p>	<p>31.4114</p>  <p>P26</p>
<p>31.4115</p>  <p>P26</p>	<p>31.4514</p>  <p>P26</p>	<p>31.6000</p>  <p>P26</p>	<p>31.6001</p>  <p>P26</p>	<p>31.6002</p>  <p>P26</p>	<p>31.6010</p>  <p>P26</p>
<p>31.6511</p>  <p>P26</p>	<p>31.6517</p>  <p>P26</p>	<p>31.6519</p>  <p>P26</p>	<p>31.6521</p>  <p>P26</p>	<p>31.6525</p>  <p>P26</p>	<p>31.6527</p>  <p>P26</p>
<p>31.6529</p>  <p>P26</p>	<p>31.6561</p>  <p>P26</p>	<p>31.9204</p>  <p>P26</p>	<p>31.9510</p>  <p>P26</p>		

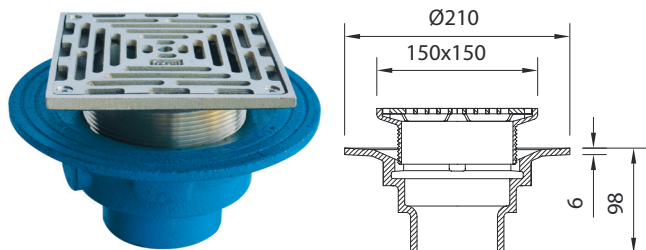
Nickel Bronze
 Polished Nickel Bronze
 Stainless Steel
 Ductile Iron

Common Floor Drain Assemblies - Height Adjustable

An extensive range of height adjustable gratings and BSP and spigot outlet bodies allow for a vast range of drainage solutions.

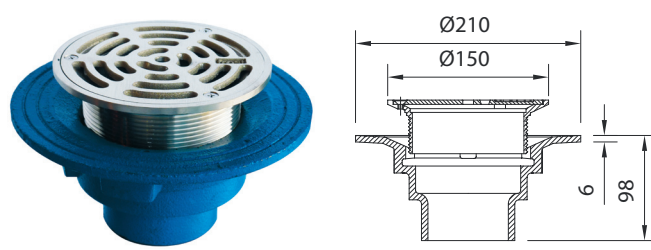
The assemblies below are configured as the most frequently used and are shown here for the convenience of specifiers.

Many more assemblies can be configured using the component parts shown on the following pages.



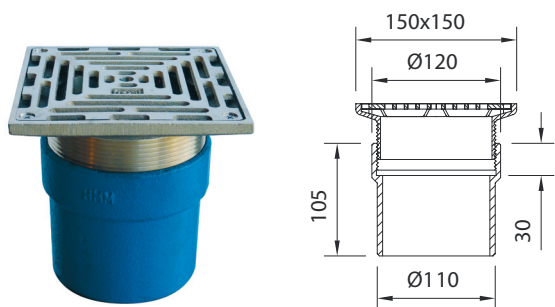
150mm square grating with medium sump body and vertical spigot outlet

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Outlet Size	Load Rating
31.0297	31.0277	31.0357	75	L15
31.0291	31.0271	31.0351	100	L15



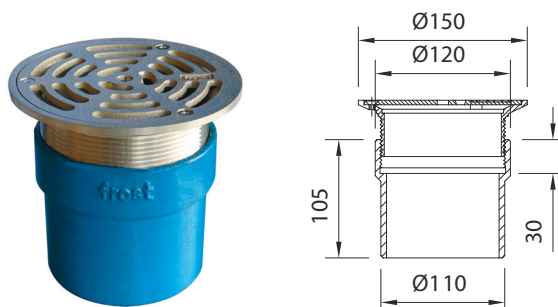
150mm circular grating with medium sump body and vertical spigot outlet

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Outlet Size	Load Rating
31.0257	31.0237	31.0337	75	L15
31.0251	31.0231	31.0331	100	L15



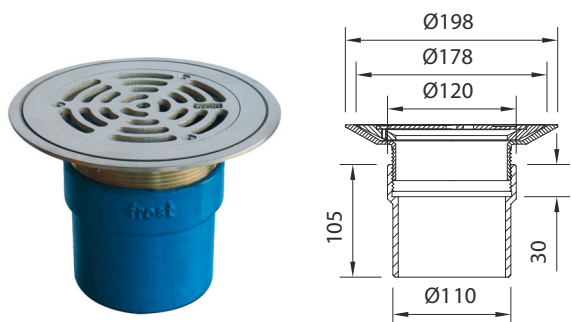
150mm square grating with medium sump body without flange and vertical spigot outlet

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Outlet Size	Load Rating
31.0301	31.0281	31.0361	100	L15



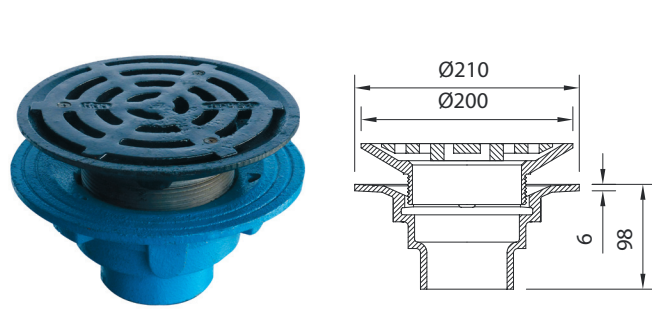
150mm circular grating with medium sump body without flange and vertical spigot outlet

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Outlet Size	Load Rating
31.0261	31.0241	31.0341	100	L15



178mm circular grating for vinyl floors with body without flange and vertical spigot outlet

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Outlet Size	Load Rating
31.0321	31.0311	31.0371	100	L15



200mm circular ductile iron grating with medium sump body and vertical spigot outlet

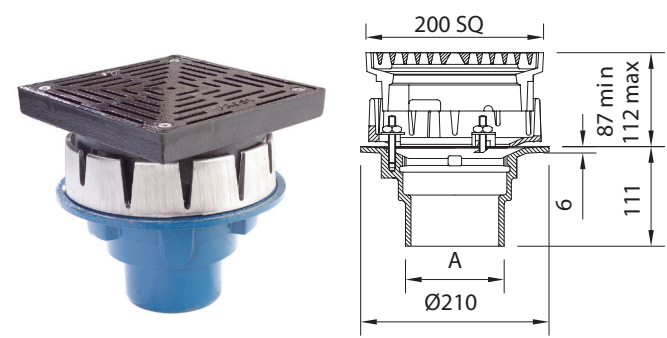
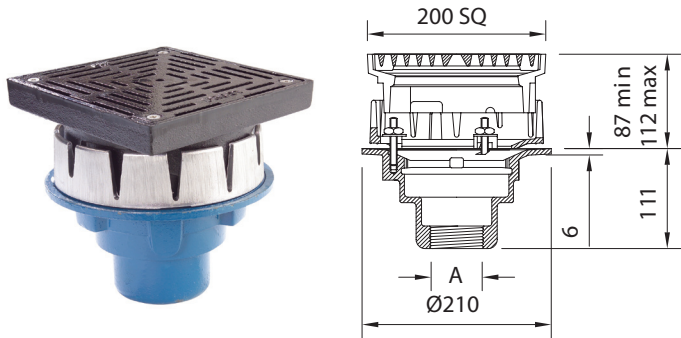
Ductile Iron	Outlet Size	Load Rating
31.0227	75	L15
31.0221	100	L15

Floor Drain Assemblies - Height Adjustable

Untrapped assemblies for use in unfinished, screeded or paved concrete floors such as parking areas, warehouses and plant rooms. Available with either a spigot outlet for connecting directly to pipework or BSP threaded outlet for connection using an adaptor.

Medium duty assemblies are supplied with a membrane clamp. Please note that the overall height of assemblies will vary according to membrane thickness.

Body: Cast iron
 Grating: **Ductile iron**
 Loading: L15 (medium duty)
 M125 (heavy duty)
 For details of accessories see page 26

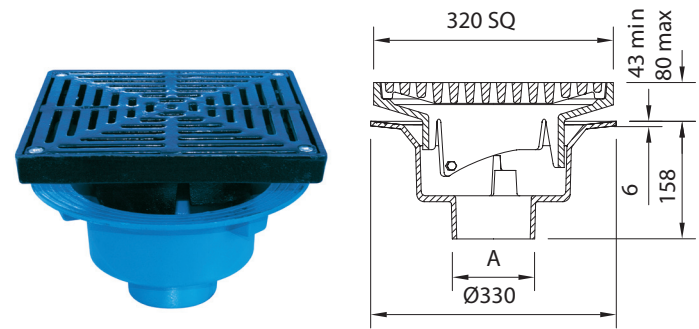
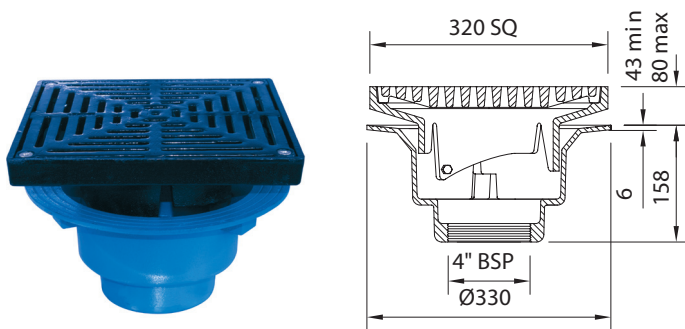


Square grating – medium duty – threaded outlet – small sump

Square grating – medium duty – spigot outlet – small sump

Part Number with clamp	Size A	Loading	Slab Opening (mm)
31.0042	BSP 2	L15	170
31.0043	BSP 3	L15	170
31.0044	BSP 4	L15	170

Part Number with clamp	Size A	Loading	Slab Opening (mm)
31.0047	75	L15	170
31.0041	100	L15	170



Square grating – heavy duty – threaded outlet – large sump

Square grating – heavy duty – spigot outlet – large sump

Part Number - No clamp	Part Number with clamp	Size	Loading	Slab Opening (mm)
31.0084	31.0214*	BSP 4	M125	290

Part Number - No clamp	Part Number with clamp	Size A	Loading	Slab Opening (mm)
31.0087	31.0217*	75	M125	290
31.0081	31.0211*	100	M125	290
31.0089	31.0219*	150	M125	290

*clamp only 31.2020

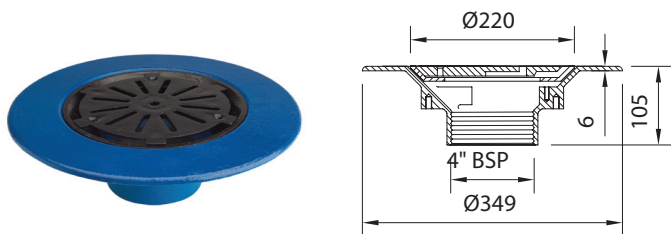
*clamp only 31.2020

Floor Drain Assemblies - Fixed Height

Untrapped medium duty assemblies with membrane clamp for use in floors with an asphalt or composition surface membrane and subject to light vehicular traffic.

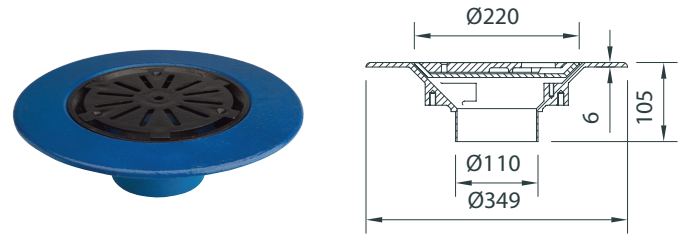
Available with either a spigot outlet for connecting directly to pipework or BSP threaded outlet for connection using an adaptor.

Body: Cast iron
Grating: Ductile iron
Loading: L15 (medium duty)
For details of accessories see page 26



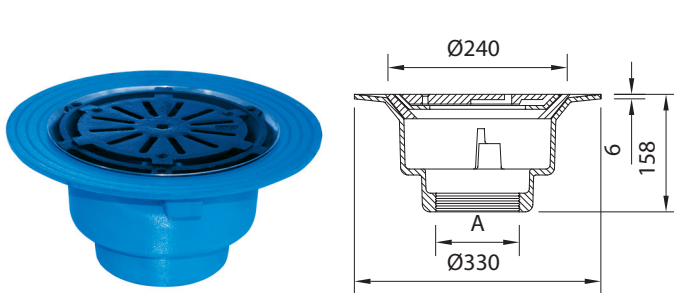
Vertical threaded outlet – medium sump

Part Number	Size	Grating (mm)	Slab Opening (mm)
31.0094	BSP 4	Ø220	240



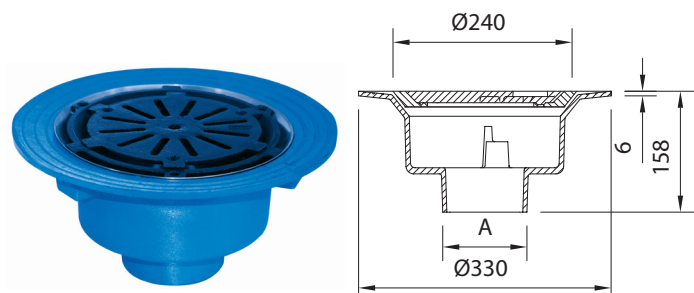
Vertical spigot outlet – medium sump

Part Number	Size	Grating (mm)	Slab Opening (mm)
31.0091	100	Ø220	240



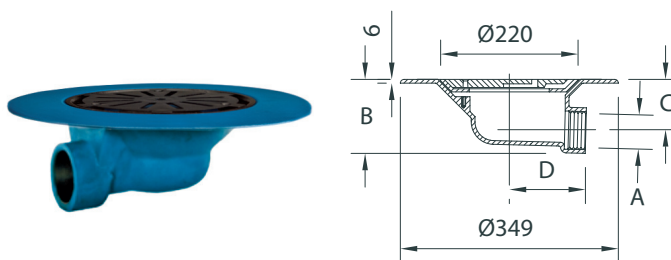
Vertical threaded outlet – large sump

Part Number	Size A	Grating (mm)	Slab Opening (mm)
31.0144	BSP 4	Ø240	290
31.0146	BSP 6	Ø240	290



Vertical spigot outlet – large sump

Part Number	Size	A (mm)	Grating (mm)	Slab Opening (mm)
31.0147	75	Ø87	Ø240	290
31.0141	100	Ø110	Ø240	290
31.0149	150	Ø163	Ø240	290



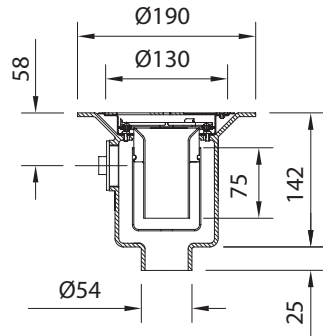
Horizontal threaded outlet – medium sump

Part Number	A	B (mm)	C (mm)	D (mm)	Grating (mm)	Slab Opening (mm)
31.0102	BSP 2	118	81	122	Ø220	290
31.0104	BSP 4	179	117	93	Ø220	290

Shower Drain Assemblies

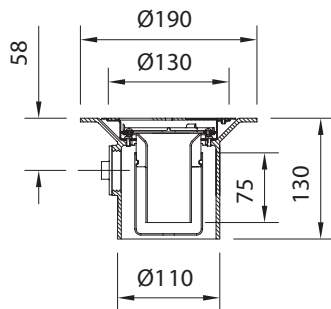
Designed for use in wet rooms with sheet vinyl floor finish.

1½" BSP side inlet supplied with blanking plug.
 For details of accessories please see page 26
 Grating: Polished Stainless Steel
 Body: Cast iron
 Flow rate: 1 litre/second



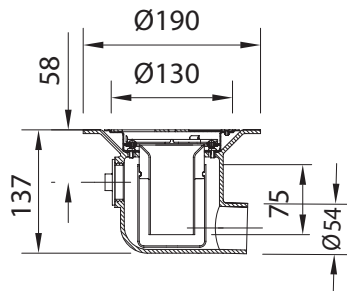
Vertical spigot outlet – vinyl floors

Part Number	Size	Grating (mm)	Slab Opening (mm)	Loading
31.0165	50	Ø130	160	K3



Vertical spigot outlet – vinyl floors

Part Number	Size	Grating (mm)	Slab Opening (mm)	Loading
31.0171	100	Ø130	160	K3



Horizontal spigot outlet – vinyl floors

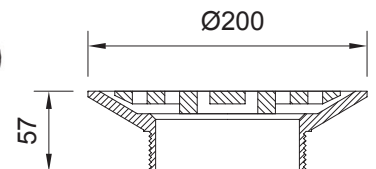
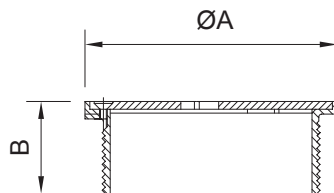
Part Number	Size	Grating (mm)	Slab Opening (mm)	Loading
31.0155	50	Ø130	160	K3

Gratings - Height Adjustable

An extensive range of height adjustable gratings designed to suit almost any floor finish.

The threaded outlet allows the grating to be set precisely with the finished floor level. Each grating will typically give a height adjustment range of 25mm. Extra adjustment is available with extension collars. See page 26

The 4" NPSM threaded outlet is compatible with Frost cast iron bodies on pages 22-24. For details of accessories see page 26

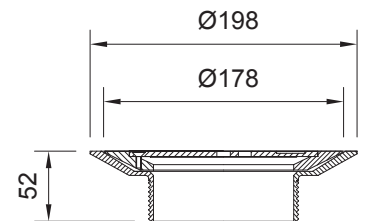
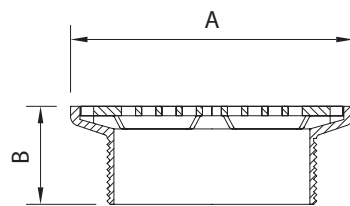


Circular - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	A (mm)	B (mm)	Load Rating
31.4104	31.4204	31.4504	Ø130	48	K3
31.4105	31.4205	31.4505	Ø150	50	L15
31.4106	31.4206	31.4506	Ø200	58	L15

Circular - concrete floors

Ductile Iron	Size (mm)	Height (mm)	Load Rating
31.5100	Ø200	57	L15

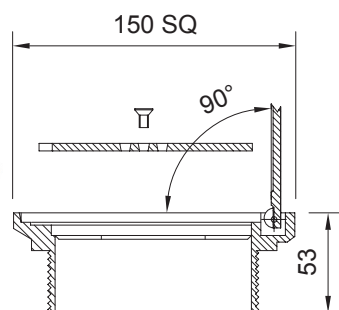


Square

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	A (mm)	B (mm)	Load Rating
31.4102	31.4202	31.4502	150 x 150	52	L15
31.4103	31.4203	31.4503	200 x 200	62	L15

Circular - vinyl floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4107	31.4207	31.4507	Ø178	52	L15



Square with hinged cover plate

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4109	31.4209	31.4509	150 x 150	53	L15

 Nickel Bronze
 Polished Nickel Bronze
 Stainless Steel
 Ductile Iron

Bodies - Threaded Outlet

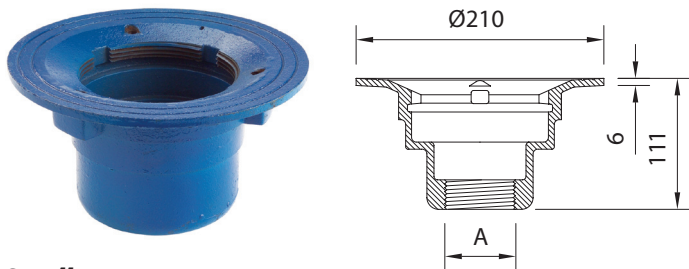
A comprehensive range of untrapped cast iron bodies for use with height adjustable gratings and rodding eyes

Unless noted, bodies are supplied with a membrane clamp as standard. Connect bodies to pipework using adaptors. Bodies with a 2" BSP side inlet are supplied with removable blanking plugs.

Floor drain assemblies can be trapped by installing a removable trap with most gratings. For details of accessories please see page 26.

Note 1 - These bodies have permanent sub-surface drainage facility.

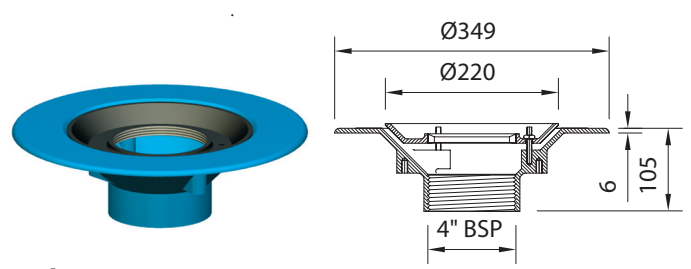
Note 2 - These bodies can have permanent sub-surface drainage added.



Small sump - see Note 1

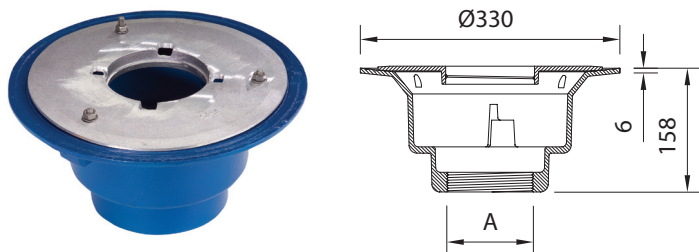
Part Number	Outlet Size A	Clamp	Slab Opening (mm)
31.1032	BSP 2	extra*	170
31.1033	BSP 3	extra*	170
31.1034	BSP 4	extra*	170

*Membrane clamp 31.2030



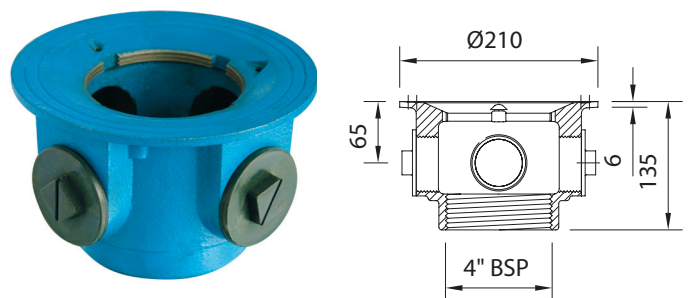
Medium sump - see Note 2

Part Number	Outlet Size	Clamp	Slab Opening(mm)
31.1194	BSP 4	Yes	240



Large sump - see Note 1

Part Number	Outlet Size A	Clamp	Slab Opening (mm)
31.1024	BSP 4	Yes	290
31.1026	BSP 6	Yes	290

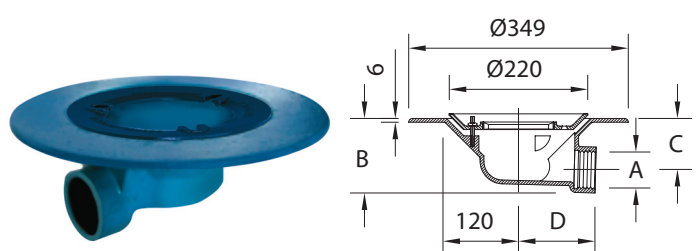


Medium sump with side inlets

Supplied with 4 plugged holes (2" BSP) - see Note 1

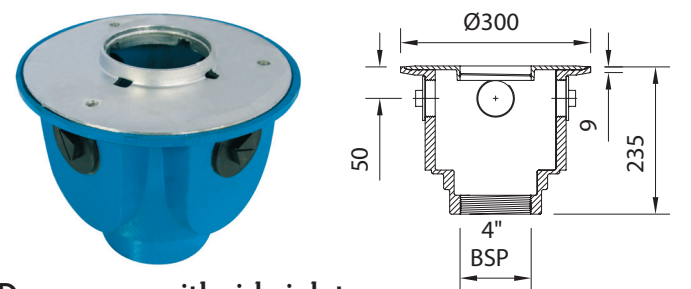
Part Number	Outlet Size	Clamp	Slab Opening(mm)
31.1114	BSP 4	extra*	240

*Membrane clamp 31.2030



Medium sump - horizontal outlet - see Note 2

Part Number	Outlet Size A	Clamp	B (mm)	C (mm)	D (mm)
31.1222	BSP 4	Yes	118	81	122
31.1224	BSP 6	Yes	179	117	93



Deep sump with side inlets

Supplied with 4 plugged holes (2" BSP) - see Note 1

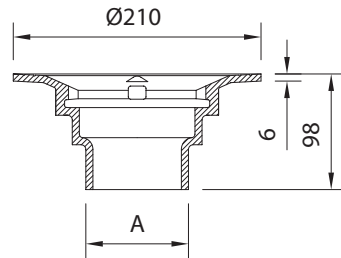
Part Number	Outlet Size	Clamp	Slab Opening(mm)
31.1084	BSP 4	Yes	275

Bodies - Spigot Outlet

A comprehensive range of untrapped cast iron bodies for use with height adjustable gratings and rodding eyes

Unless noted, bodies are supplied with a membrane clamp as standard. Connect bodies to pipework using adaptors.

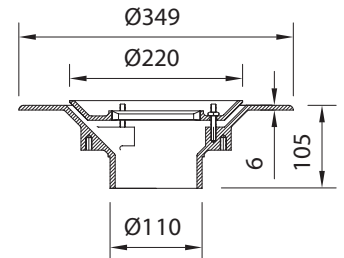
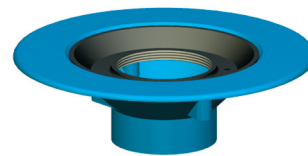
Floor drain assemblies can be trapped installing a removable trap with the grating. For details of accessories see page 26.



Small sump - see Note 1

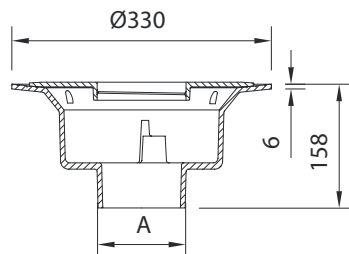
Part Number	Outlet Size	Clamp	A (mm)	Slab Opening (mm)
31.1037	75	extra*	Ø87	170
31.1031	100	extra*	Ø110	170

*Membrane clamp 31.2030



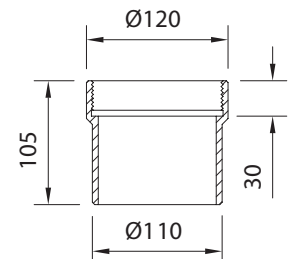
Medium sump - see Note 2

Part Number	Outlet Size	Clamp	Slab Opening(mm)
31.1191	100	Yes	240



Large sump - see Note 2

Part Number	Outlet Size	Clamp	A (mm)	Slab Opening (mm)
31.1027	75	Yes	87	290
31.1021	100	Yes	Ø110	290
31.1029	150	Yes	Ø163	290



Small sump - without weep holes

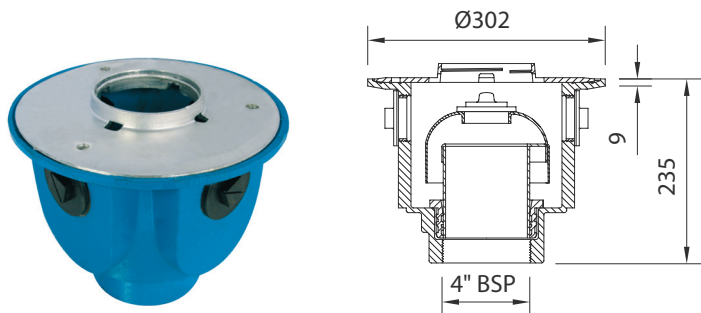
Part Number	Outlet Size	Clamp
31.1041	100	N/A

Trapped Bodies

A range of trapped cast iron bodies for use with height adjustable gratings and rodding eyes

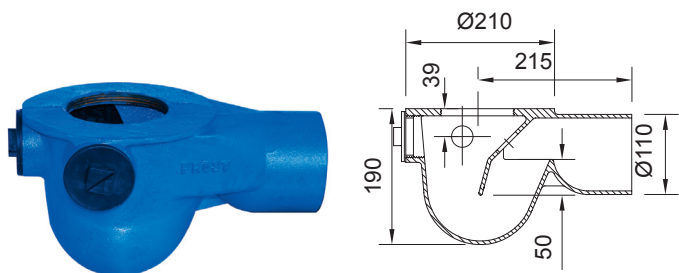
The 'S' and 'P' trap bodies can be supplied with or without a membrane clamp. Connect bodies to pipework using adaptors. Bodies with a 2" BSP side inlet are supplied with blanking plugs.

Note 1 - These bodies have permanent sub-surface drainage facility.



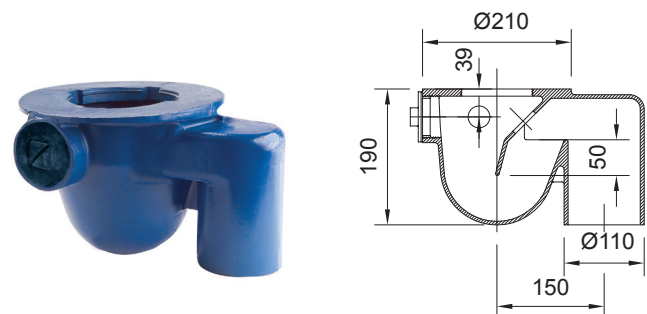
Large sump – threaded outlet, 4 side inlets, 2" BSP with plugs - see Note 1

Part Number	Outlet Size	Clamp	Slab Opening (mm)
31.0134	BSP 4	Yes	275



Medium sump – 'P' trap – spigot outlet, 3 side inlets, 2" BSP with plugs

Part Number	Outlet Size	Clamp	Slab Opening (mm)
31.1061	100	Extra*	220 x 320 + pipe

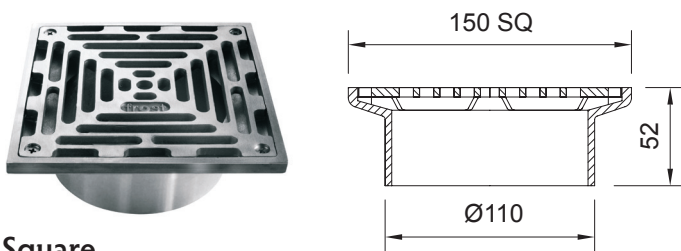


Medium sump – 'S' trap – spigot outlet, 3 side inlets, 2" BSP with plugs

Part Number	Outlet Size	Clamp	Slab Opening (mm)
31.1071	100	Extra*	220 x 320

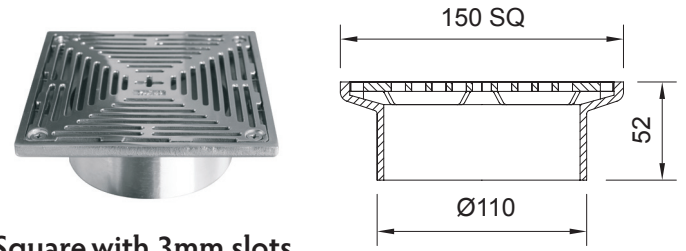
Gratings - Direct Connection

Identical in appearance to height adjustable gratings but with spigot outlets for direct connection to nominal 100mm drainage pipework. Designed for use where no body is required.



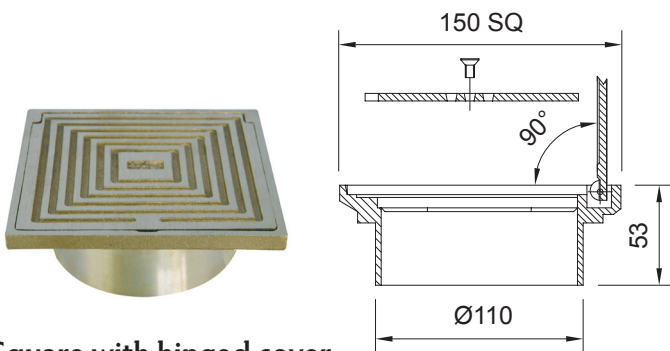
Square

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4152	31.4252	31.4552	150 x 150	52	L15



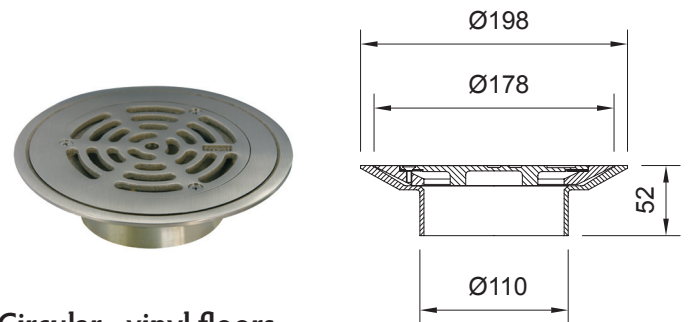
Square with 3mm slots

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
-	-	31.4719	150 x 150	52	L15



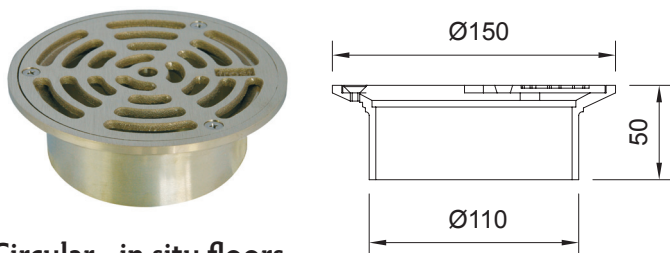
Square with hinged cover

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4159	31.4259	-	150 x 150	52	L15



Circular - vinyl floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4157	31.4257	-	Ø178	52	L15



Circular - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4155	31.4255	-	Ø150	50	L15

Nickel Bronze
 Polished Nickel Bronze
 Stainless Steel

Floor Drain Accessories

Bolt on funnels

For use with floor drain gratings on pages 21 and 25. Oval version for multiple waste pipes.

Nickel Bronze	Stainless Steel	Description
31.4114	31.4514	Circular
31.4115	-	Oval



Extension collars

For use with threaded gratings and rodding eyes. Extensions can be stacked for further adjustability.

Part Number	Min(mm)	Max (mm)
31.6000	20	40
31.6001	40	95
31.6002	95	140



For use with cast iron floor drain assemblies with 320mm square gratings on page 18

Part Number	Min (mm)	Max (mm)
31.6010	100	140



Removable bottle trap

Provides a 75mm seal trap in most gratings and shower drains. Can be retro-fitted on site.

Part Number	Seal (mm)
31.9510	75



Spigot adaptors

BSP(T) to BS4514 PVC-U pipework

Part Number	Pipe Size (mm)	Tapered Thread BSP(T)	Length (mm)
31.6517	75	3"	145
31.6511	100	4"	145
31.6519	150	6"	160



BSP(T) to BS416/BS EN 877 cast iron soil pipework

Part Number	Pipe Size (mm)	BSP(T)	Length (mm)
31.6525	50	2"	110
31.6527	75 (BS416)	3"	110
31.6521	100	4"	110
31.6529	150	6"	130

BSP(T) to BS437 cast iron drain pipework

Part Number	Pipe Size (mm)	Tapered Thread BSP(T)	Length (mm)
31.6561	100	4"	500

Sediment bucket

Perforated stainless steel filter

Part Number	Fits
31.3320	Medium duty assemblies p18
31.3340	Heavy duty assemblies p18
31.3100	Gratings - Threaded & Direct Connection



Back water valve

Part Number	Size
31.9204	4"



Membrane collar

For use with large sump floor drain assemblies

Part Number	Material
31.2020	Aluminium



Membrane collar

For use with medium sump Ø210mm flanged bodies

Part Number	Material
31.2030	Cast Iron



Rodding Eyes

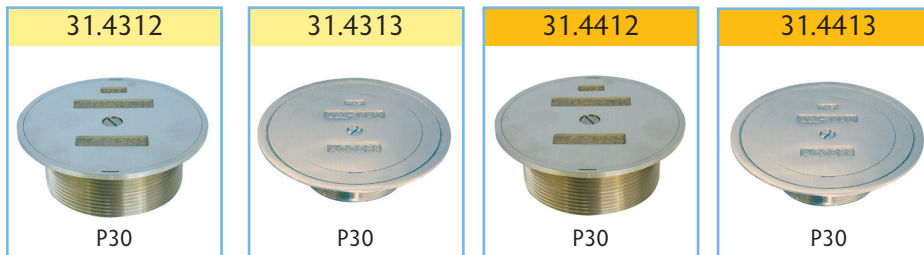


PICTORIAL INDEX

Rodding Eyes - Height Adjustable - Single Seal



Rodding Eyes - Height Adjustable - Triple Seal



Rodding Eyes - Direct Connection - Single Seal



 Nickel Bronze
 Polished Nickel Bronze
 Stainless Steel

Rodding Eyes - Direct Connection - Triple Seal

31.4362



P31

31.4363



P31

31.4462



P31

31.4463



P31

Rodding Eyes Accessories

31.2020



P32

31.2030



P32

31.6000



P32

31.6001



P32

31.6002



P32

31.6511



P32

31.6517



P32

31.6519



P32

31.6521



P32

31.6525



P32

31.6527



P32

31.6529



P32

31.6561



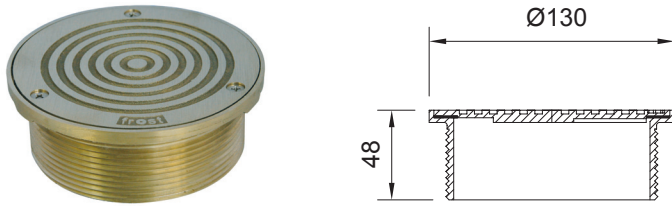
P32

Rodding Eyes - Height Adjustable

An extensive range of height adjustable rodding eyes designed to suit almost any floor finish. Rodding eyes with a single seal are suitable for external use or for surface water drains.

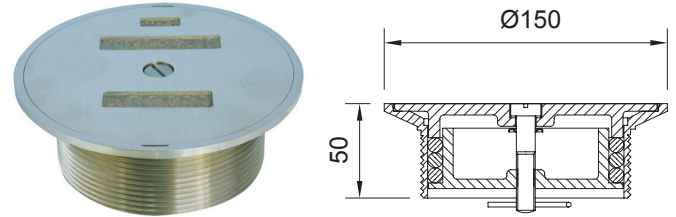
The threaded outlet allows the rodding eye to be set precisely with the finished floor level. Each rodding eye will typically give a height adjustment range of 25mm. Extra adjustment is available with extension collars. See page 26

The 4" NPSM threaded outlet is compatible with Frost cast iron bodies on pages 22-24. For details of accessories see page 26



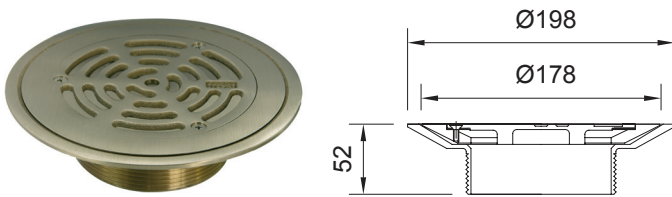
Circular (single seal) - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4304	31.4404	-	Ø130	48	L15



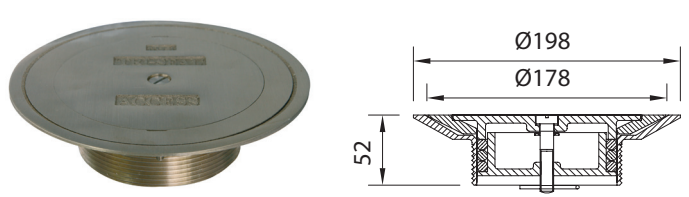
Circular (triple seal) - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4312	31.4412	-	Ø150	50	L15



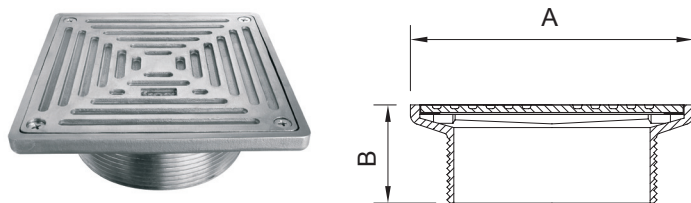
Circular (single seal) - vinyl floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4307	31.4407	-	Ø178	52	L15



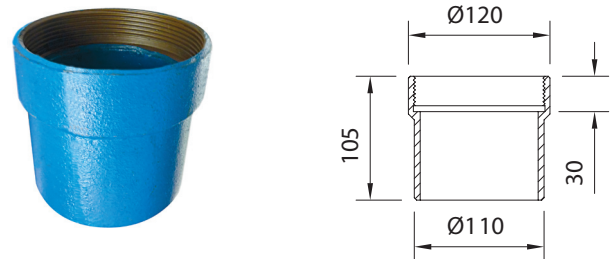
Circular (triple seal) - vinyl floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4313	31.4413	-	Ø178	52	L15



Square (single seal)

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	A (mm)	B (mm)	Load Rating
31.4302	31.4402	31.4602	150 x 150	53	L15
31.4303	31.4403	-	200 x 200	62	L15



Small sump - without weep holes

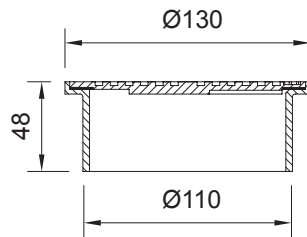
Part Number	Outlet Size	Clamp
31.1041	100	N/A

Nickel Bronze
Polished Nickel Bronze
Stainless Steel

Rodding Eyes - Direct Connection

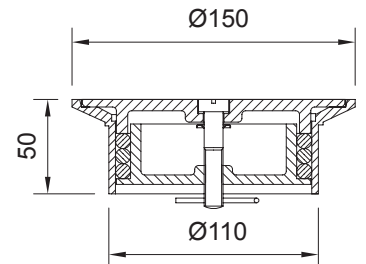
Identical in appearance to height adjustable rodding eyes but with spigot outlets for direct connection to nominal 100mm drainage pipework. Designed for use where no body is required.

Rodding eyes with a single seal gasket are suitable for external use or for surface water drain lines. Triple seal rodding eyes are best suited for foul water drain lines. For details of accessories see page 26.



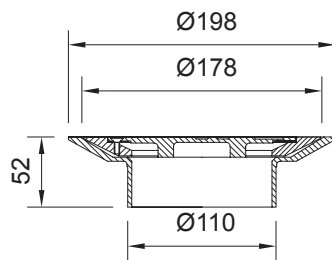
Circular (single seal) - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4354	31.4454	-	Ø130	48	L15



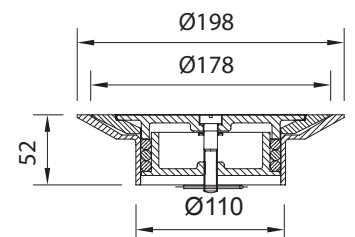
Circular (triple seal) - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4362	31.4462	-	Ø150	50	L15



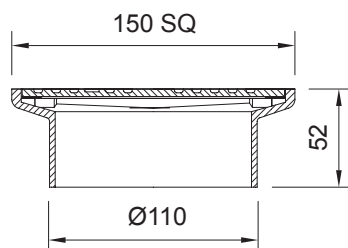
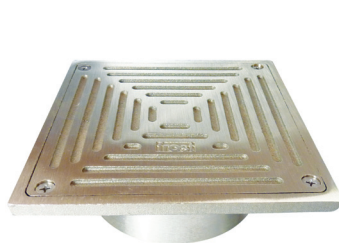
Circular (single seal) - vinyl floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4357	31.4457	-	Ø178	52	L15



Circular (triple seal) - vinyl floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4363	31.4463	-	Ø178	52	L15



Square (single seal) - in situ floors

Nickel Bronze	Polished Nickel Bronze	Stainless Steel	Size (mm)	Height (mm)	Load Rating
31.4352	31.4452	31.4652	150 x 150	52	L15

Rodding Eye Accessories - General

Extension collars

For use with threaded gratings and rodding eyes. Extensions can be stacked for further adjustability.

Part Number	Min (mm)	Max (mm)
31.6000	20	40
31.6001	40	95
31.6002	95	140



Rodding Eye Accessories - If sub-surface drainage required

Membrane collar

For use with large sump floor drain assemblies

Part Number	Material
31.2020	Aluminium



Membrane collar

For use with medium sump Ø210mm flanged bodies

Part Number	Material
31.2030	Cast Iron



Spigot adaptors

BSP(T) to BS4514 PVC-U pipework

Part Number	Pipe Size (mm)	Tapered Thread BSP(T)	Length (mm)
31.6517	75	3"	145
31.6511	100	4"	145
31.6519	150	6"	160



BSP(T) to BS416/BS EN 877 cast iron soil pipework

Part Number	Pipe Size (mm)	BSP(T)	Length (mm)
31.6525	50	2"	110
31.6527	75	3"	110
31.6521	100	4"	110
31.6529	150	6"	130



BSP(T) to BS437 cast iron drain pipework

Part Number	Pipe Size (mm)	Tapered Thread BSP(T)	Length (mm)
31.6561	100	4"	500



Roof Drains

Roof Drains - Design Considerations

The primary purpose of any roof drainage system is to remove water from roofs as quickly as possible in a controlled and predictable way.

Factors including roof outlet size, shape, appearance and anticipated drainage requirements need to be taken into account. Design is usually the responsibility of consulting engineers familiar with the roof construction, piping systems and additional functions intended for particular roofs.

BUILDING REGULATIONS / STANDARDS

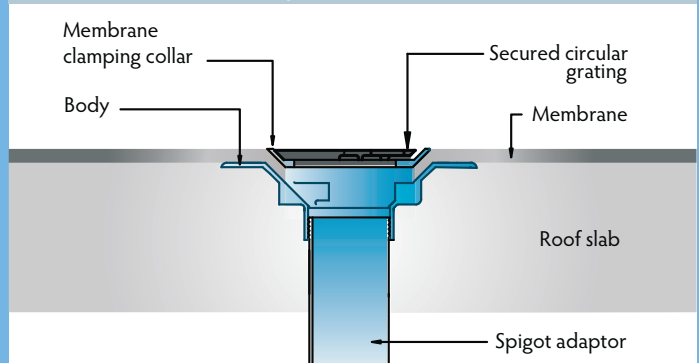
International regulations and local building codes must be observed for all drainage installations. Local rainfall rates should be taken into account.

ROOF CONSTRUCTION

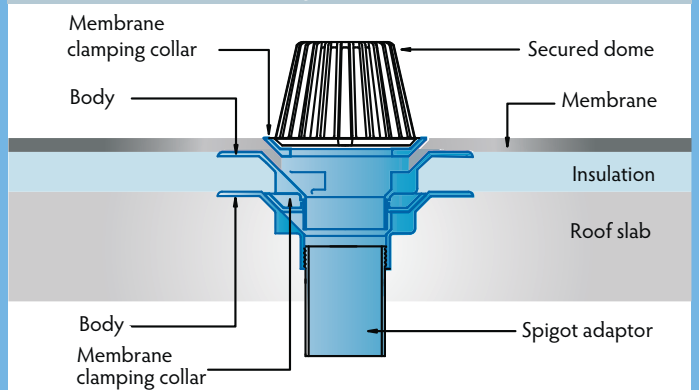
Roof outlets are not multi-purpose and products are designed for use with specific types of roof construction (e.g. cold roof, warm roof, inverted roof parapet roof and balconies).

The depth of structural slab, thickness and location of insulation and the type and location of waterproof membrane are factors to consider at the outset of any drainage selection.

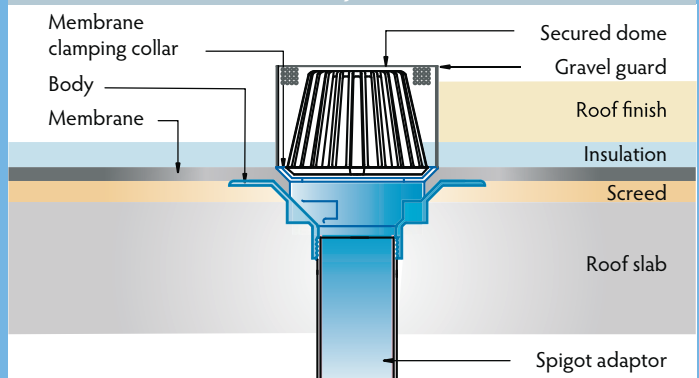
Cold Roof Assembly



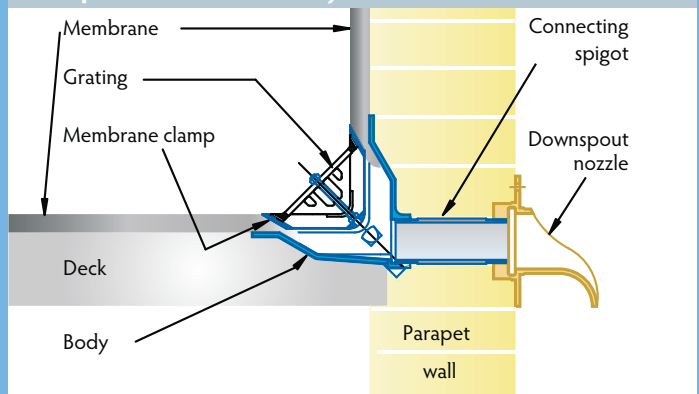
Warm Roof Assembly



Inverted Roof Assembly



Parapet Roof Assembly



FLOW RATE

The quantity and types of roof outlet to be used in a given application must be related to the roof area and anticipated volume of rainwater to be drained.

Flow rate is the maximum amount of water (litres/second) which a roof outlet will drain and is influenced by several factors : grating free area (i.e. gaps in the grating), sump size, body free area, design of the outlet, outlet size and additional accessories such as gravel guards and filter buckets. Flow rates of Frost roof outlets are shown as the square metre area drained per outlet based on a head of water of 35mm and a rainfall intensity of 75mm per hour (0.021 litres /second/sq.m).

The roof outlet size and piping system size relate to each other and should be within recognised parameters.

PIPEWORK

The type and size of pipework in an installation is fundamental to the correct selection of roof outlets.

Frost roof outlets can be connected to all pipework in general use

THERMAL INSULATION

Local climatic conditions and regulations should be considered in connection with local insulation requirements.

MATERIALS AND APPEARANCE

Strength, corrosion resistance and discreet appearance are important considerations when making roof outlet selections. For areas such as balconies or roof terraces products are available in nickel bronze, ductile iron, stainless steel or aluminium materials. Drains located in pedestrian surfaces or access routes must be disabled compliant.

WEIGHT BEARING AND LOAD RATING

As an integral part of the roof it is vital gratings and assemblies withstand all anticipated loads. This catalogue shows the load rating class for each grating, cover or gully assembly based on BS EN 1253, as follows :

Loading K3 (Pedestrian Only)

Areas for foot traffic only, such as washrooms, shower areas, hotels, schools, museums, retail centres, swimming baths, leisure centres, balconies, terraces and roof gardens.

Loading L15 (Light Industrial)

Areas with light vehicular traffic such as cycle ways and domestic drives.

Loading M125 (Heavy Industrial)

Areas with vehicular traffic, such as car parks, factories, warehouses and workshops.

ACCESSORIES AND VARIATIONS

Standard optional items are available such as filter buckets to intercept debris, gravel guards, bearing pans to spread roof loadings and underdeck clamps to secure outlet bodies.

INTERNATIONAL STANDARDS

Satin Nickel Bronze and **Polished Nickel Bronze** to BS1400 :

Stainless Steel to BS EN 10088-1:2005 Grade 1.4301 (304) or Grade 1.4401 (316) if specified

Ductile Iron to BS EN 1563 & 1564 Cast with the ductility of steel and more than doubling the tensile strength of cast iron.

Aluminium LM 6 to BS EN 1559-4: 1999



Roof Drains - Installation Guide

The design of the roof drainage system should be in accordance with the building regulations and standards of the country in which the system is to be installed.



1. Check the dimensions

Before installing, check the total height of the components to ensure the correct finished level is achieved. Allowance must be made for the thickness of any membranes used and, where applicable, roof insulation.



2. Fit spigot and check outlets

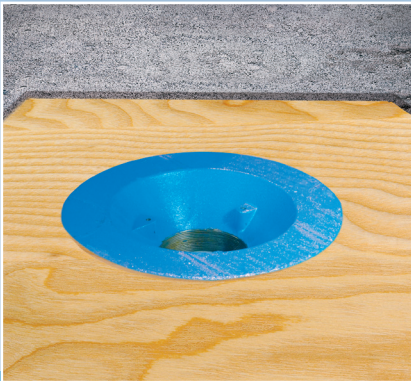
Screw spigot, where required, into the body, using a suitable sealant to create a watertight joint. Position the body in the roof deck and ensure the outlet is accessible.



3. Install body

Install body so that the flange is at or just below roof deck level. If the body is not cast in it should be secured to the deck. Use a wide flanged body for timber decks. The flange can be drilled for fixings or use an underdeck clamp (33.9610 or 33.9620). If the deck is recessed for the flange consider the need to reinforce the cut timber edge.

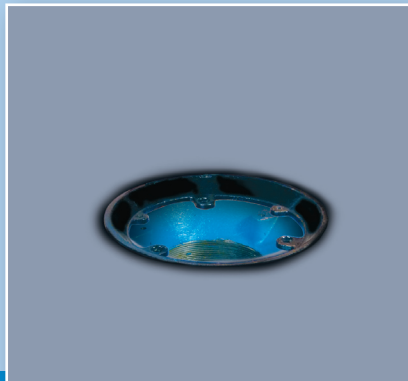
Note: Membrane flange level is determined by roof build up



4. Dress membrane and clamp

Dress the membrane over the flange over the edge of the body sump in accordance with the manufacturer's instructions, ensuring that the membrane does not restrict the outlet. Ensure that the flange is at or below the level of the membrane.

Bolt the membrane clamping collar to the body using the supplied fittings. Thin membranes may require the screw length to be reduced.



5. Install insulation

Install any additional roofing materials and build-up (e.g. insulation) around the roof outlets.



6. Fit dome and apply finish

Fit the dome or grating using height adjustment where applicable to ensure grating is flush with the roof finish.

PICTORIAL INDEX

Cold Roof Assemblies - Flat Grate



Cold Roof Assemblies - Domed



PICTORIAL INDEX

Warm Roof Assemblies - Flat Grate

33.0101



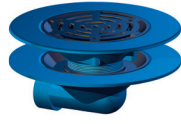
P43

33.0104



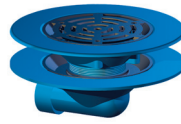
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33.0112



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33.0114



P44

Warm Roof Assemblies - Domed

33.0121



P44

33.0124



P44

33.0132



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33.0134



P43

Inverted Roof Assemblies - Flat Grate

33.0351



P45

33.0354



P45

33.0357



P45

33.0359



P45

33.0361



P45

33.0364



P45

33.0367



P45

33.0369



P45

PICTORIAL INDEX

Inverted Roof Assemblies - Domed

33.0301



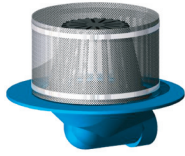
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33.0304



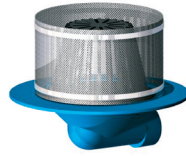
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33.0312



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33.0314



P46

33.0321



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33.0324



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33.0326



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33.0327



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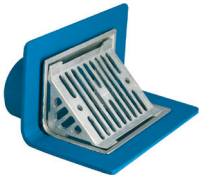
33.0329



P46

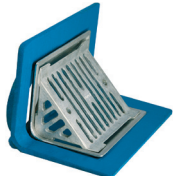
Parapet and Balcony Outlets

33.0411



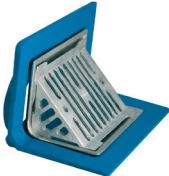
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33.0413



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33.0414



P47

33.0417



P47

33.0433



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33.0434



P47

33.0442



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33.0443



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33.0444



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PICTORIAL INDEX

Planter Drains

33.0454



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33.0451



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33.0482



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33.0484



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33.0471



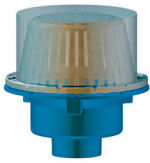
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33.0474



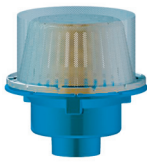
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33.0477



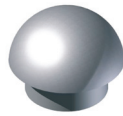
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33.0479



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33.4010



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Roof Drain Outlets Accessories

33.6010



P48

33.6511



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33.6517



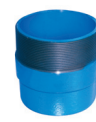
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33.6519



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33.6521



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33.6525



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33.6527



P48

33.6529



P48

33.6561



P48

33.9310



P48

33.9320



P48

33.9325



P48

33.9415



P48

33.9510



P48

33.9610



P48

33.9620

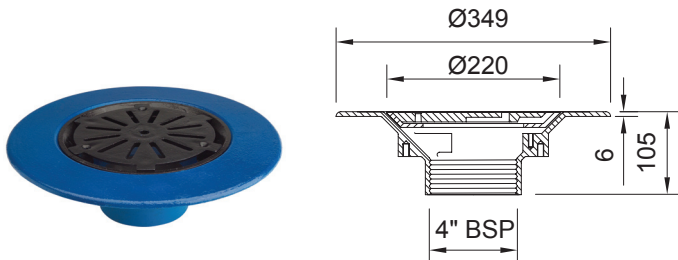


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Cold Roof Assemblies - Flat Gratings

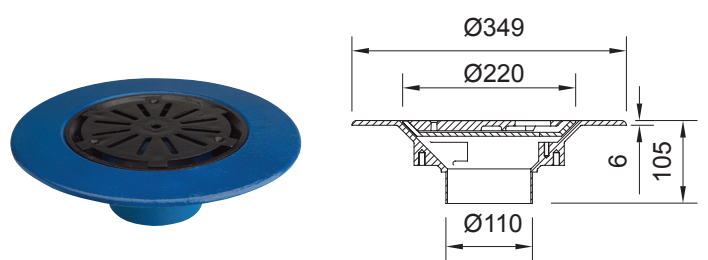
Rain water outlets suited to cold roof construction where the waterproof membrane is located on top of the roof deck (diagram page 34).

Body and clamp: Cast iron
 Grating: **Ductile iron**
 Area drained: Based on a head of 35mm and rainfall intensity of 75mm per hour.
 For details of accessories please see page 48



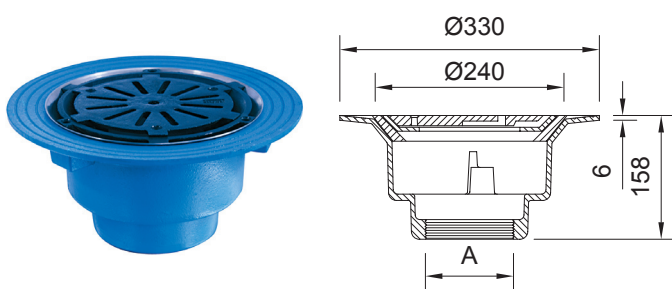
Vertical threaded outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0014	BSP 4	240	168



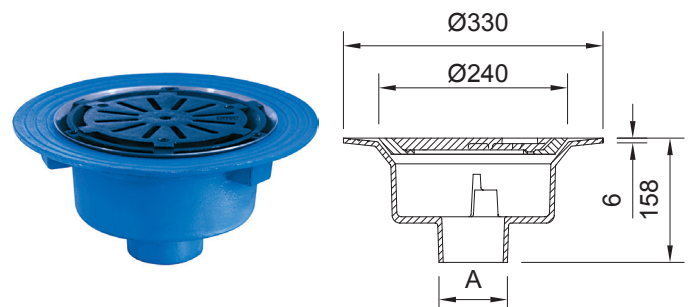
Vertical spigot outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0011	100	240	168



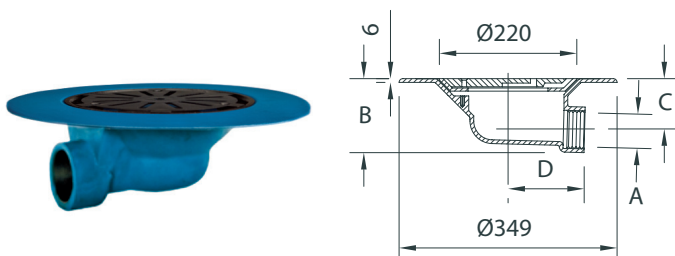
Vertical threaded outlet – large sump

Part Number	Size A	Deck Opening (mm)	Area Drained (sq.m)
33.0054	BSP 4	290	168
33.0056	BSP 6	290	168



Vertical spigot outlet – large sump

Part Number	Size	A (mm)	Deck Opening (mm)	Area Drained (sq.m)
33.0057	75	Ø87	290	142
33.0051	100	Ø110	290	168
33.0059	150	Ø163	290	168

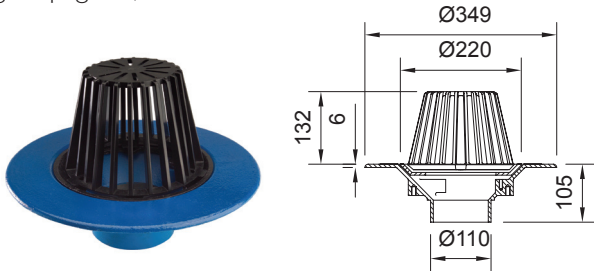


Horizontal threaded outlet – medium sump

Part Number	Size A	B (mm)	C (mm)	D (mm)	Area Drained (sq.m)
33.0022	BSP 2	118	81	122	120
33.0024	BSP 4	179	117	93	168

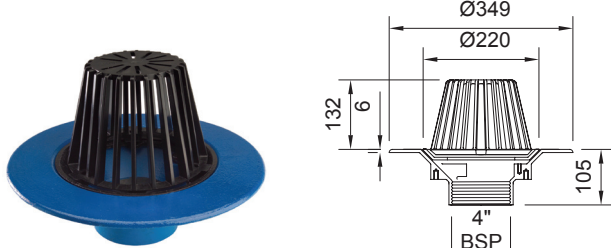
Cold Roof Assemblies - Domed Gratings

Domed rain water outlets suited to cold roof construction where the waterproof membrane is located on top of the roof deck (diagram page 34).



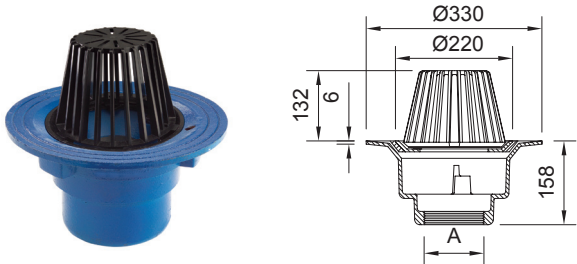
Vertical spigot outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0031	100	240	290



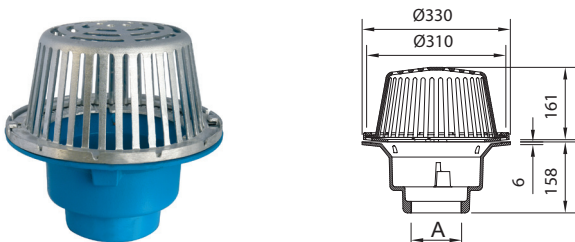
Vertical threaded outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0034	BSP 4	240	290



Vertical threaded outlet – large sump

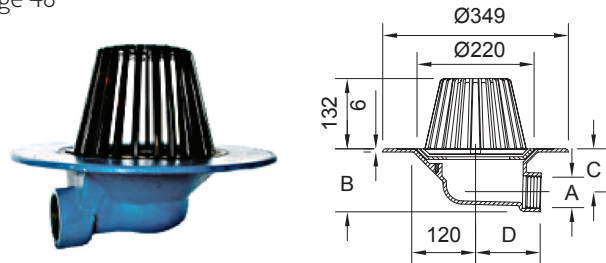
Part Number	Size A	Deck Opening (mm)	Area Drained (sq.m)
33.0064	BSP 4	290	370
33.0066	BSP 6	290	495



Large sump roof outlet with cast aluminium dome

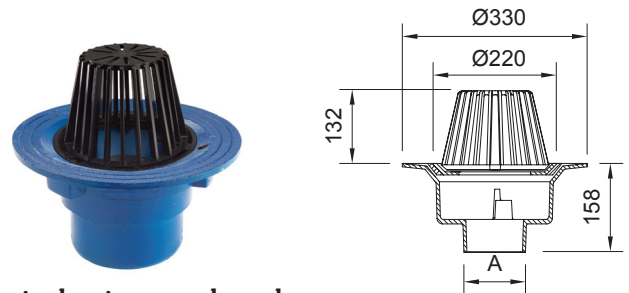
Part Number	Size A	Area Drained (sq.m)
33.0464	BSP 4	319
33.0466	BSP 6	340

Body and clamp: Cast iron Dome: Polycarbonate or Aluminium as detailed Area drained: Based on a head of 35mm and rainfall intensity of 75mm per hour. For details of accessories please see page 48



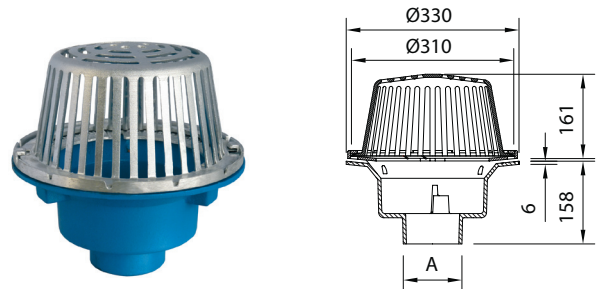
Horizontal threaded outlet – medium sump

Part Number	Size A	B (mm)	C (mm)	D (mm)	Area Drained
33.0042	BSP 2	118	81	122	120
33.0044	BSP 4	179	117	93	230



Vertical spigot outlet – large sump

Part Number	Size A	Deck Opening (mm)	Area Drained (sq.m)
33.0067	75	290	270
33.0061	100	290	370
33.0069	150	290	495



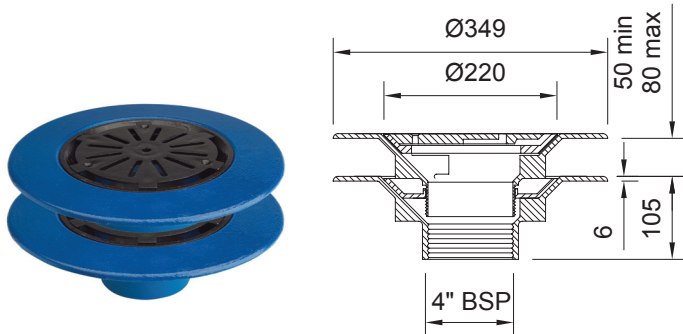
Large sump roof outlet with cast aluminium dome

Part Number	Size A (mm)	Area Drained
33.0467	Ø87	240
33.0461	Ø100	319
33.0469	Ø163	340

Warm Roof Assemblies - Flat Gratings

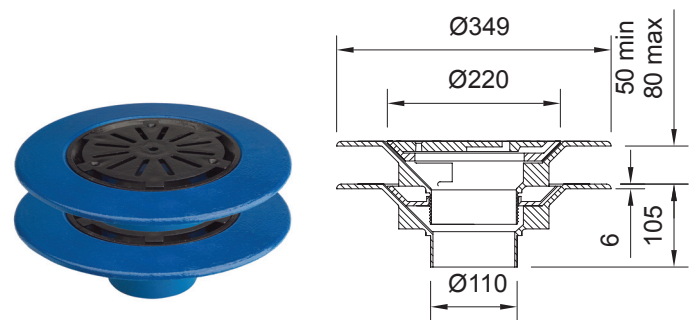
Rain water outlets with flat gratings suited to warm roof construction where the waterproof membrane is located above the insulation layer on top of the roof deck (diagram page 34).

Body and clamp: Cast iron
 Grating: Ductile iron
 Area drained: Based on a head of 35mm and rainfall intensity of 75mm per hour.
 For details of accessories please see page 48



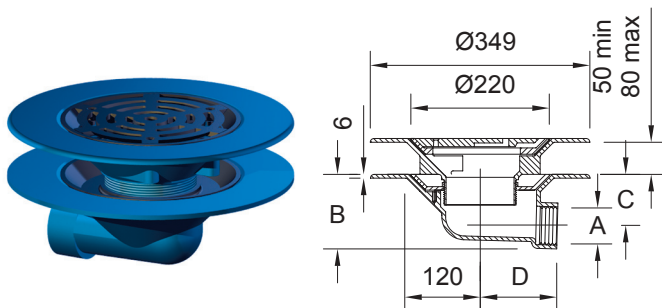
Vertical threaded outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0104	BSP 4	240	168



Vertical spigot outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0101	100	240	168



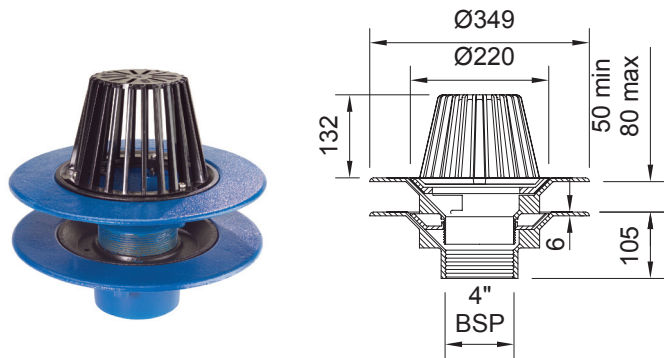
Horizontal threaded outlet – medium sump

Part Number	Size A	B (mm)	C (mm)	D (mm)	Area Drained
33.0112	BSP 2	118	81	122	115
33.0114	BSP 4	179	117	93	168

Warm Roof Assemblies - Domed Gratings

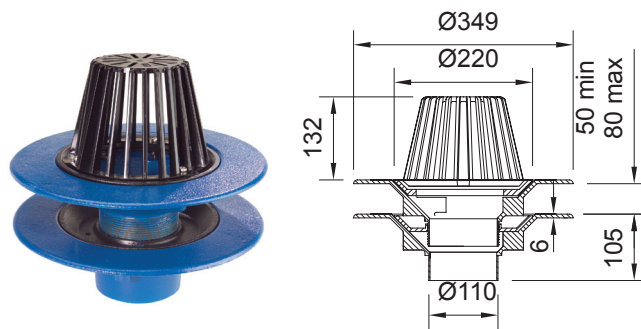
Rain water outlets with domed gratings suited to warm roof construction where the waterproof membrane is located above the insulation layer on top of the roof deck (diagram page 34).

Body and clamp: Cast iron
 Dome: Polycarbonate
 Area drained: Based on a head of 35mm and rainfall intensity of 75mm per hour.
 For details of accessories please see page 48



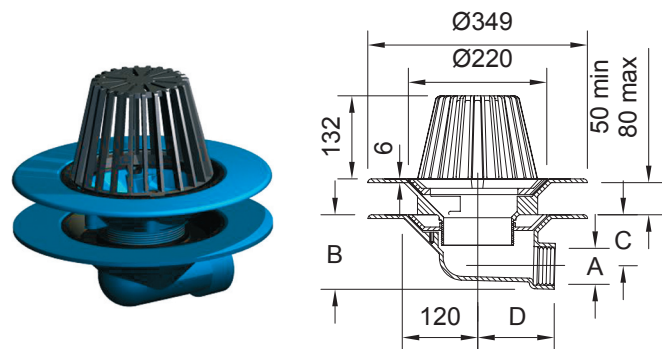
Vertical threaded outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0124	BSP 4	240	290



Vertical spigot outlet – medium sump

Part Number	Size	Deck Opening (mm)	Area Drained (sq.m)
33.0121	100	240	290



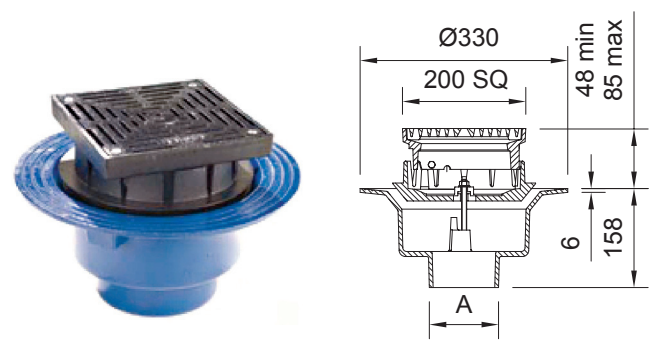
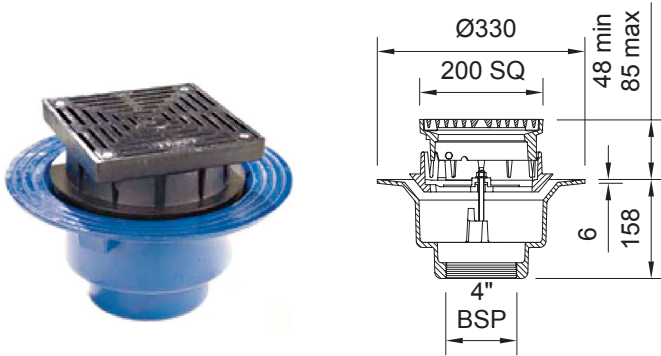
Horizontal threaded outlet – medium sump

Part Number	Size A	B (mm)	C (mm)	D (mm)	Area Drained
33.0132	BSP 2	118	81	122	120
33.0134	BSP 4	179	117	93	230

Inverted Roof Assemblies - Flat Gratings

Rain water outlets with flat gratings suited to inverted roof construction where the waterproof membrane is located above the roof deck but below the insulation layer (diagram page 34).

Body and clamp: Cast iron
 Grating: **Ductile iron**
 Area drained: Based on a head of 35mm and rainfall intensity of 75mm per hour.
 For details of accessories please see page 48

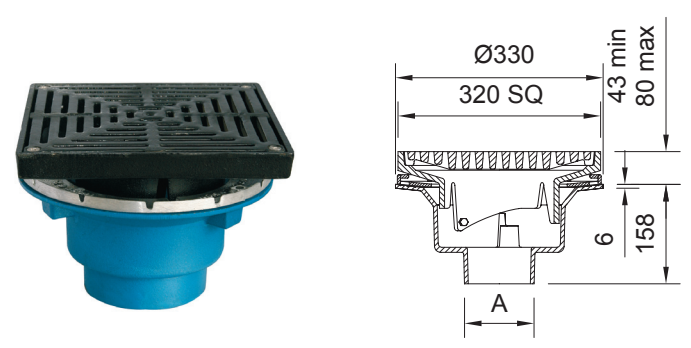
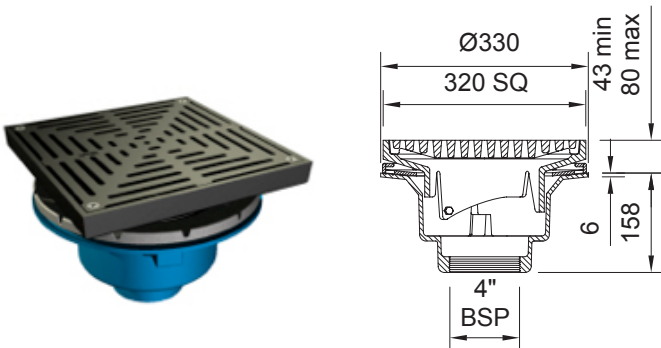


Vertical threaded outlet – large sump

Part Number	Grating Size	A	Deck Opening (mm)	Area Drained (sq.m)	Loading
33.0354	200 x 200	BSP 4	290	200	L15

Vertical spigot outlet – large sump

Part Number	Grating Size	A (mm)	Deck Opening (mm)	Area Drained (sq.m)	Loading
33.0357	200 x 200	87	290	150	L15
33.0351	200 x 200	110	290	200	L15
33.0359	200 x 200	163	290	215	L15



Vertical threaded outlet – large sump

Part Number	Grating Size	A	Deck Opening (mm)	Area Drained (sq.m)	Loading
33.0364	320 x 320	BSP 4	290	410	M125

Vertical spigot outlet – large sump

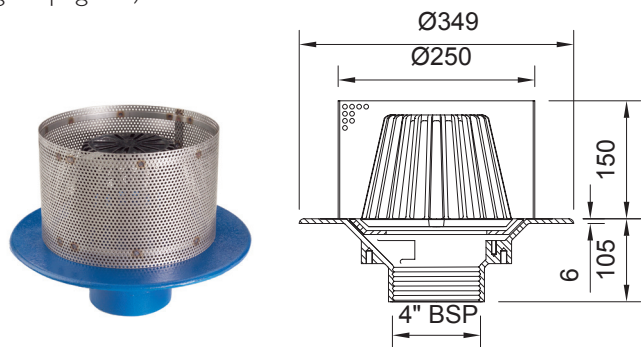
Part Number	Grating Size	A (mm)	Deck Opening (mm)	Area Drained (sq.m)	Loading
33.0367	320 x 320	87	290	300	M125
33.0361	320 x 320	110	290	410	M125
33.0369	320 x 320	163	290	495	M125

Inverted Roof Assemblies - Domed Gratings

Rain water outlets with domed gratings are suited to inverted roof construction where the waterproof membrane is located above the roof deck but below the insulation layer (diagram page 34).

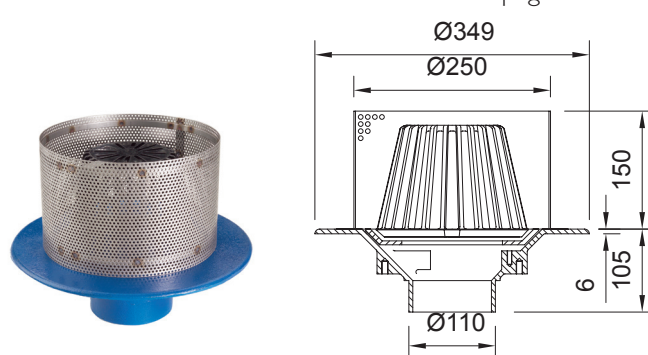
The stainless steel gravel guard prevents ballast entering the drainage system during maintenance. Gravel guards higher than 150mm are available. (see page 48)

Body and clamp: Cast iron
Dome: Polycarbonate
Area drained: Based on a head of 35mm and rainfall intensity of 75mm per hour.
For details of accessories see page 48



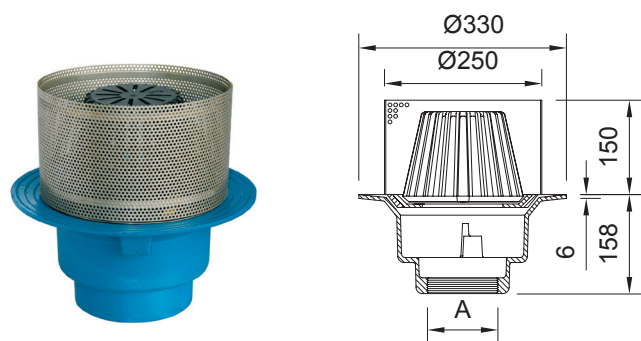
Vertical threaded outlet – medium sump

Part Number	Outlet Size	Deck Opening (mm)	Area Drained (sq.m)
33.0304	BSP 4	240	205



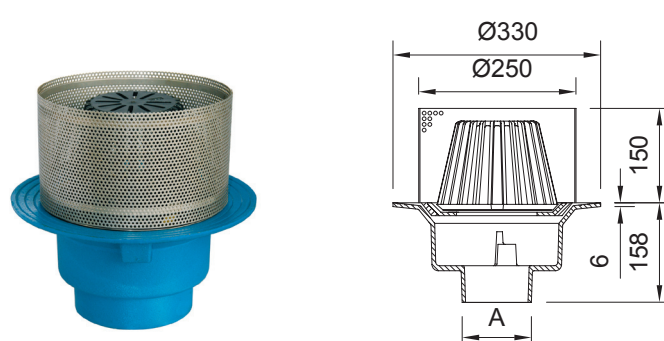
Vertical spigot outlet – medium sump

Part Number	Outlet Size (mm)	Deck Opening (mm)	Area Drained (sq.m)
33.0301	100	240	205



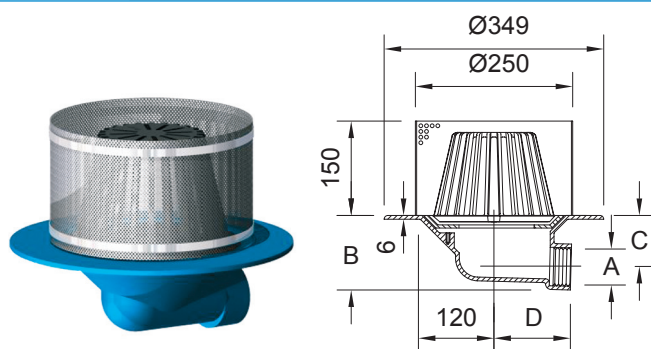
Vertical threaded outlet – large sump

Part Number	Size A	Deck Opening (mm)	Area Drained (sq.m)
33.0324	BSP 4	290	210
33.0326	BSP 6	290	260



Vertical spigot outlet – large sump

Part Number	Outlet Size	A (mm)	Deck Opening (mm)	Area Drained (sq.m)
33.0327	75	Ø87	290	190
33.0321	100	Ø110	290	210
33.0329	150	Ø163	290	220



Horizontal threaded outlet – medium sump

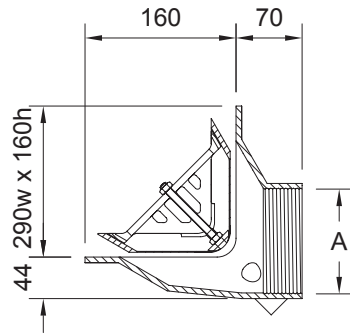
Part Number	Size A	B (mm)	C (mm)	D (mm)	Area Drained
33.0312	BSP 2	118	81	122	95
33.0314	BSP 4	179	117	93	200

Note: For deeper gravel guards see accessories on page 48

Parapet and Balcony Outlets

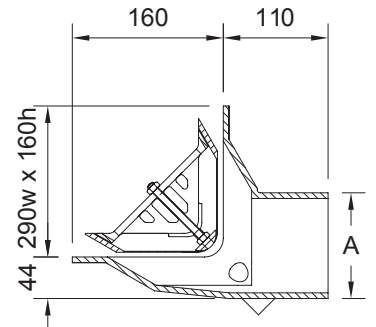
Parapet and balcony outlets are supplied complete with membrane clamp. For details of accessories please see page 47.

Body: Cast iron
Grating: Aluminium LM6
Downspout: Gunmetal



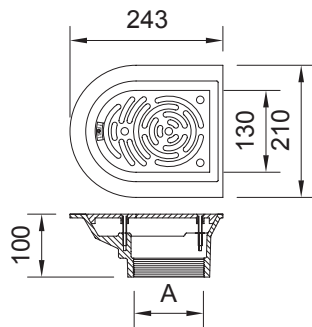
45° angle grate – 2 way threaded outlet

Part Number	Outlet Size A	Area Drained (sq.m)
33.0413	BSP 3	45
33.0414	BSP 4	46



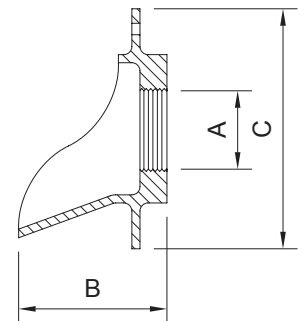
45° angle grate – 2 way spigot outlet

Part Number	Outlet Size	A (mm)	Area Drained (sq.m)
33.0417	75	87	45
33.0411	100	110	46



Vertical threaded outlet

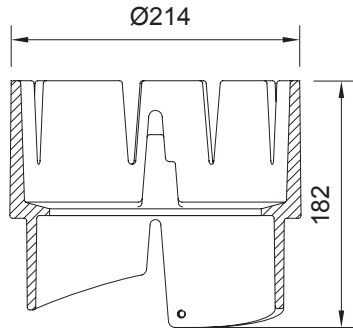
Part Number	Outlet Size A	Area Drained (sq.m)
33.0433	BSP 3	60
33.0434	BSP 4	108



Downspout nozzle – horizontal threaded

Part Number	A	B (mm)	C (mm)
33.0442	BSP 2	110	Ø178
33.0443	BSP 3	110	Ø178
33.0444	BSP 4	144	Ø208

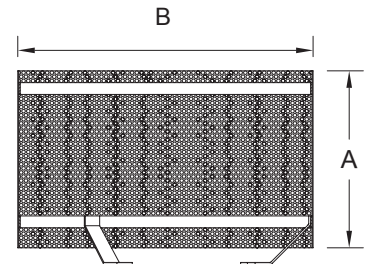
Roof Drain Accessories



Extension

For use with large sump roof drains to raise the height of 320mm sq gratings

Part Number	Min	Max	Suitability (sq.m)	Assemblies
33.6010	100	140	Variable	33.036x range

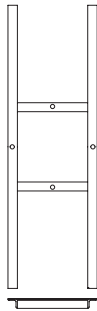


Gravel Guard

For use with inverted installations to stop ballast entering the drain system

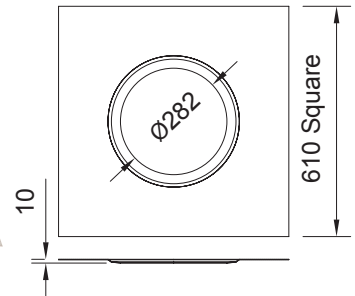
Part Number	Size (mm) B	Height (mm) A
33.9310	Ø250	150
33.9320	Ø250	200
33.9325	Ø250	250
33.9415*	Ø260	150

* For use with aluminium domes only



Underdeck clamp - stainless steel

Part Number	Sump
33.9610	Medium
33.9620	Large



Bearing Pan - Galvanised Mild Steel

Part Number	Sump
33.9510	Large

Spigot adaptors

BSP(T) to BS4514 PVC-U pipework

Part Number	Pipe Size (mm)	Tapered Thread BSP(T)	Length (mm)
33.6517	75	3"	145
33.6511	100	4"	145
33.6519	150	6"	160



BSP(T) to BS416/BS EN 877 cast iron soil pipework

Part Number	Pipe Size (mm)	BSP(T)	Length (mm)
33.6525	50	2"	110
33.6527	75 (BS416)	3"	110
33.6521	100	4"	110
33.6529	150	6"	130



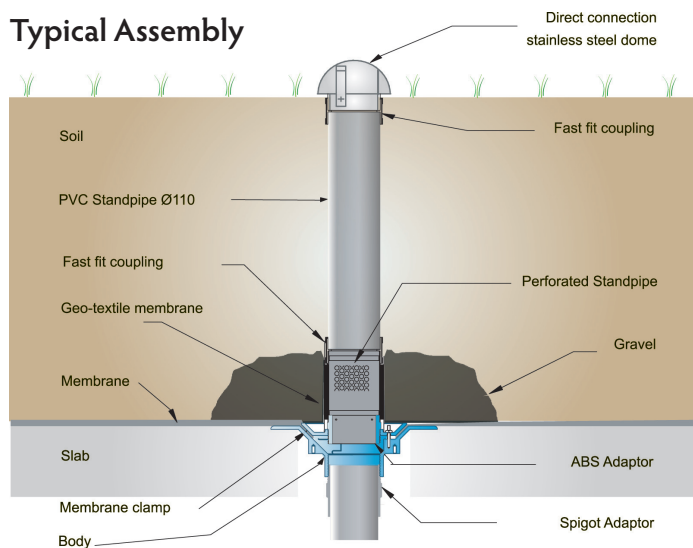
BSP(T) to BS437 cast iron drain pipework

Part Number	Pipe Size (mm)	Tapered Thread BSP(T)	Length (mm)
33.6561	100	4"	500

Planter Drain Assemblies

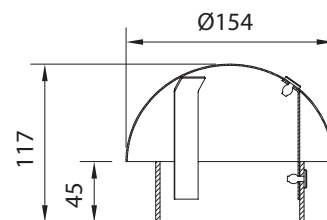
For applications where the standpipe is concealed by soil. Providing drainage of moisture in planting areas and flower boxes, Dome is removable for access purposes.

Typical Assembly



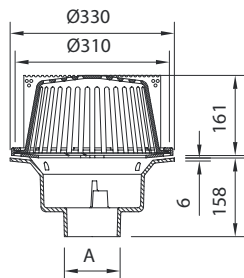
Part Number	Outlet	Size
33.0454*	BSP 4 Vertical	4"
33.0451*	100MJ	110mm
33.0482*	BSP 2 Horizontal	2"
33.0484*	BSP 4 Horizontal	4"

* Standpipe can be cut or extended to suit required installation depth



Hard Landscape

Compatible with direct connections gratings and rodding eyes (pages 29-30)



Part Number	Type	Outlet	A (mm)
33.0471	Spigot	100	110
33.0474	Threaded	4" BSP	
33.0477	Spigot	75	87
33.0479	Spigot	150	163

Soft Landscape

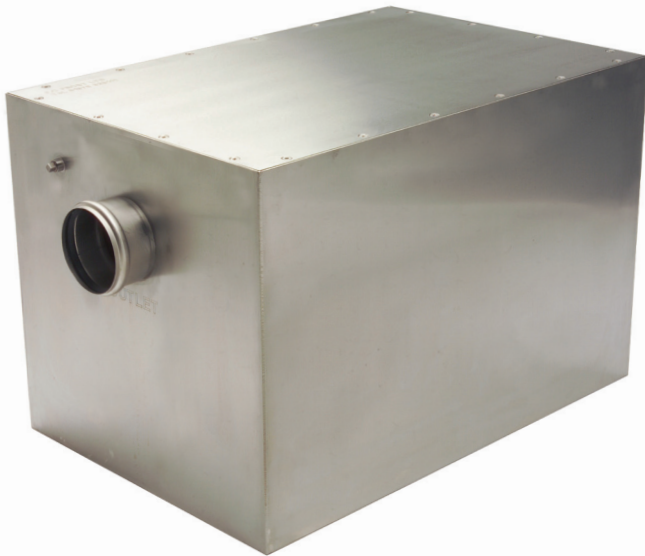
Stainless steel dome for use within subsoil installations

Part Number	Material
33.4010	Stainless Steel



Grease Separators

Grease Separators - Design Considerations



WHY SEPARATORS ARE NECESSARY

Grease, fats and oils discharged into the drainage system from food preparation, commercial food processing and general catering operations quickly blocks pipes. The purpose of a grease separator is to keep drains clean and free running avoiding blockages, smells and commercial expense and disruption.

HOW SEPARATORS WORK (SEPARATION AND NATURAL ENZYME DIGESTION)

Grease separators physically extract grease and oil from the waste water stream using a baffle filter, causing those elements to float to the surface and form a layer.

Biomatic (natural) bacteria digest the waste layer and convert it to an environmentally safe solution which will pass freely downstream and safely into the main sewerage system.

WHERE SEPARATORS ARE USED

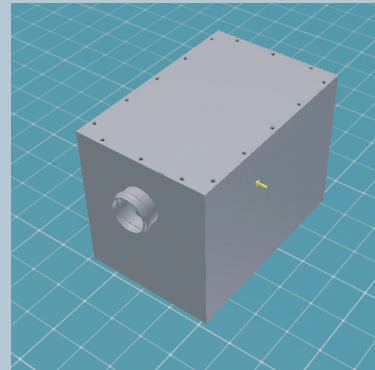
Grease separators form part of a system and used together with an automatic, programmable dosing unit and liquid Biomatic enzyme provide a permanent solution.

Applications include both existing and new facilities such as restaurants, canteens, hotels, hospitals, as well as commercial premises where food products are cooked, processed or prepared.

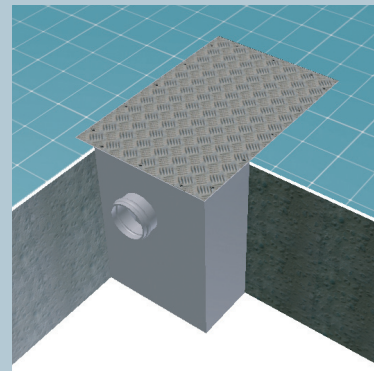
TYPES OF SEPARATORS

Frost separator products include a standard range of separators from 50 Litres to 300 Litres capacity. Larger sizes are made to order up to several thousand litres. All Frost separators are made from Grade 304 stainless steel with an airtight access cover, removable inner baffle filter and a roddable deep-seal outlet trap. All products can also be manufactured in Grade 316 stainless steel.

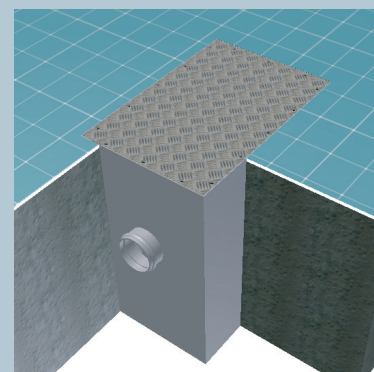
Low Profile - for use under sinks



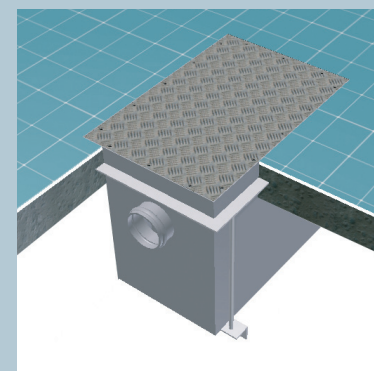
Fully Recessed - Standard Invert



Fully Recessed - Extended Height



Suspended



CORRECT SIZING

Selecting the correct size (i.e. capacity) of separator will depend upon several factors including the number and volume of fixtures being discharged into the separator; the type of catering equipment; the number of meals and types of foodstuffs prepared per day, available space and desired physical location. For appropriate specialised technical advice, based upon your identified needs, please contact us and we will recommend an appropriate solution.

Certain factors may require an increase in the capacity of any contemplated grease separator such as extent of detergents in the waste, ratio of grease to water, specific gravity of grease filtrates, speed of waste water flow and the presence of large food particles in grease laden water.

Ideally grease separators should be installed as close as practically possible to the discharging fixtures to minimise the distance untreated waste has to travel through the pipe system before reaching the separator.

AUTOMATIC PROGRAMMABLE DOSING UNITS

To avoid the inconvenience and disruption of repeated manual daily dosing we advise the use of a fully automatic programmable dosing unit. Our automatic dosing units are adjustable in volume and frequency to meet your individual environment requirements. Simple to use and adjust each unit comes pre-set from our factory.

We recommend automatic dosing twice per day and once set the system regulates itself. The only attention it requires is to replenish the Biomatic enzyme liquid as determined by usage.

Frost automatic dosing units are mains powered and are usually supplied with a mounting cradle or, if required a lockable cabinet to ensure safe and discreet installation in busy food preparation environments. Other units are available for use under sinks or in plant / store room locations.

BIOMATIC ENZYME LIQUID

This is a special formulation of several strains of natural, environmentally friendly bacteria, which digest and break down grease, oils and other complex organic matter.

Customer's experience shows that liquid is the most convenient form of storing and using Biomatic enzymes. User mixed dry powders raise issues concerning appropriate storage, accuracy of dosing solution mixture (i.e. effectiveness and cost) and inconvenience.

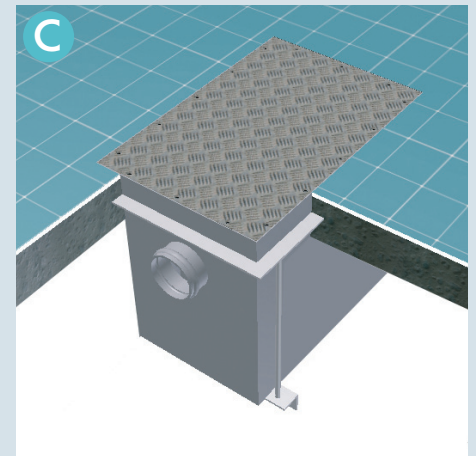
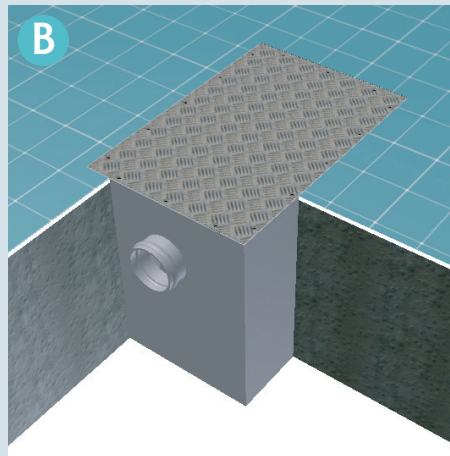
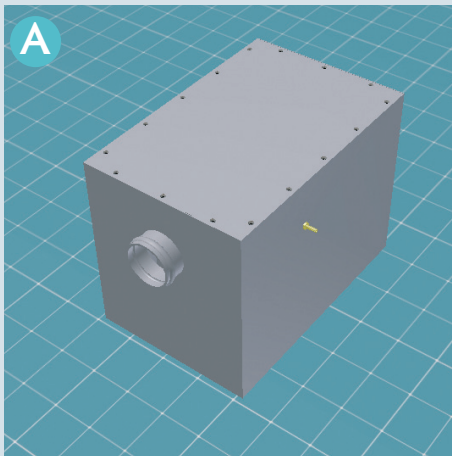


Used correctly as part of our integrated grease separator systems Biomatic enzyme liquid ensures free flowing drains, elimination of odours and reduction in maintenance costs.

SEDIMENT SEPARATION

Created by Frost to process food waste with a high starch content and particulate debris, such as rice, certain vegetables and potatoes. This additional function is achieved by including a removable stainless steel filter basket in the grease separator to physically remove particulates and always ensure the grease separator can operate unhindered.

Grease Separator - Installation Guide



1. Model Type

The location of the Separator will depend on its size and the available space. This will determine the interceptor as one of the following types.

- A Floor standing or semi recessed in a ground bearing slab
- B Fully recessed in a ground bearing slab
- C Fully recessed in a suspended floor

See diagrams for typical installations

2. Distance from appliances

Ensure that the distance between the appliance(s) and the Separator will not allow the grease or fat to solidify before entering the Separator.

Allow at least 2 metres (more is preferable but no more than 8m) of un-insulated pipework between the outlet of an appliance and the Separator inlet.

3. Temperature

Frost Biomatic liquid works best between 15-30° C. Externally sited above ground interceptors should be insulated.

4. Unsuitable Waste

The Separator is designed to deal with liquid waste only. **Foul drainage should never be fed into the Separator.**

Solid matter should be filtered from the waste as much as possible before entering the Separator, we can manufacture two chamber Separators, which includes a solids interceptor. Please contact our Technical Department for more information.

Waste disposal units should bypass the Separator where possible.

5. Support

Separators should be fully supported from below. A 100mm - 150mm concrete slab is ideal. Where the interceptor is to be recessed into the ground a back-fill of lean mix mortar is recommended. Alternatively stand the Separator in a separate chamber with separate cover, supported by a slab as above.

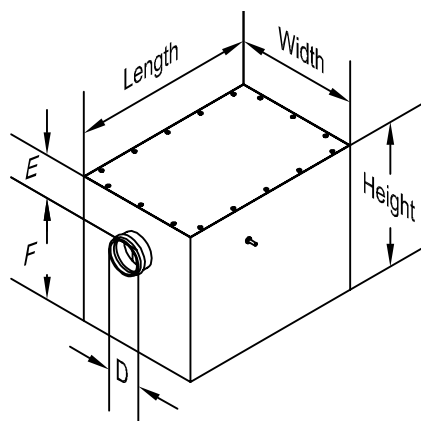
For suspended floors we will supply a hanger system for Separators up to 300L capacity. Separators larger than this must be supported from below by structural fabrication by others.

6. Connections to Pipework

Depending on the model of Separator there will be either 100mm or 150mm nominal push-fit sockets or 50mm plain spigots, see the datasheets for more information. Use standard pipework couplings to seal the joint to 50mm pipework.

The Separator is designed to operate with a level pipe invert from inlet to outlet and level cover as standard.

Grease Separators



Product specification
 Material: Stainless steel grade 304
 Airtight access cover
 Removable inlet baffle
 Roddable deep seal outlet trap
 Dosing unit inlet port

Vinyl floor finishes

Grease separator access covers with a vinyl clamping frame are available on request.

Above Ground

With brushed satin grain finish as standard

Part Number	Inlet/Outlet (mm)	Outlet	Capacity (litres)	Length (mm)	Width (mm)	Height (mm)	E* (mm)	F* (mm)
30.0050	54	Spigot	50	600	350	405	105	300
30.0075	54	Spigot	75	600	400	455	105	350
30.0100	100	Socket	100	650	450	540	140	400
30.0150	100	Socket	150	850	550	510	140	370
30.0200	100	Socket	200	850	550	640	140	500
30.0300	100	Socket	300	950	650	690	140	550

Low profile - as above ground but for low waste outlet appliances

30.1075	54	Spigot	75	850	550	280	95	185
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Below Ground

With a Durbar anti-slip tread plate for pedestrian duty (Class K3) as standard

Part Number	Inlet/Outlet (mm)	Outlet	Capacity (litres)	Length (mm)	Width (mm)	Height (mm)	E* (mm)	F* (mm)
30.2100	100	Socket	100	650	450	540	140	400
30.2150	100	Socket	150	850	550	510	140	370
30.2200	100	Socket	200	850	550	640	140	500
30.2300	100	Socket	300	950	650	690	140	550

Extended – as above but to suit invert level of below ground pipework.

30.4100.xxxx	100	Socket	100	650	450	E+400	xxxx*	400
30.4150.xxxx	100	Socket	150	850	550	E+370	xxxx*	370
30.4200.xxxx	100	Socket	200	850	550	E+500	xxxx*	500
30.4300.xxxx	100	Socket	300	950	650	E+550	xxxx*	550

Suspended – as standard but supplied with hangers and frame (larger floor opening required).

30.3100.xxxx	100	Socket	100	650	450	E+400	xxxx*	400
30.3150.xxxx	100	Socket	150	850	550	E+370	xxxx*	370
30.3200.xxxx	100	Socket	200	850	550	E+500	xxxx*	500
30.3300.xxxx	100	Socket	300	950	650	E+550	xxxx*	550

*xxxx This dimension can be customised to suit your installation. Please indicate your preferred size when ordering

Automatic Dosing Units - Biomatic Products



Dosing units can be programmed to automatically dose twice daily and can be supplied in a lockable stainless steel cabinet for installation within food preparation areas or where access is restricted. Other models are available for use under sinks or in plant room/store room locations. All dosing units must be wired to the mains supply.

Dosing Unit

For use under sinks or in areas without restricted access

Part Number
27.8004



Dosing unit with wall cradle

Ideal for installations in store room or plant room locations.

Part Number	Size (mm)
27.8001	280(W) x 170(D) x 900(H)



Dosing unit with stainless steel lockable cabinet

For use where restricted access is required.

Part Number	Size (mm)
27.8003	300(W) x 200(D) x 700(H)

A special formulation of several strains of bacteria that break down grease and other complex organic matter. Frost Biomatic products will, if used correctly, decrease or eliminate odours and can reduce maintenance costs significantly.



Biomatic Liquid

Part Number	Quantity
26.5010	10 Litres

Frost Catalogue Index

Part Number	Page	Part Number	Page	Part Number	Page
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26.5010	55	31.0155	20	31.4203	21
27.8001	55	31.0165	20	31.4204	21
27.8003	55	31.0171	20	31.4205	21
27.8004	55	31.0211	18	31.4206	21
Grease Separators		31.0214	18	31.4207	21
30.0075	54	31.0217	18	31.4209	21
30.0050	54	31.0219	18	31.4252	25
30.0100	54	31.0221	17	31.4255	25
30.0150	54	31.0227	17	31.4257	25
30.0200	54	31.0231	17	31.4259	25
30.0300	54	31.0237	17	31.4502	21
30.1075	54	31.0241	17	31.4503	21
30.2100	54	31.0251	17	31.4504	21
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30.2200	54	31.0261	17	31.4506	21
30.2300	54	31.0271	17	31.4507	21
30.3100	54	31.0277	17	31.4509	21
30.3150	54	31.0281	17	31.4552	25
30.3200	54	31.0291	17	31.4719	25
30.3300	54	31.0297	17	31.5100	21
30.4100	54	31.0301	17	Bodies	
30.4150	54	31.0311	17	31.1034	22
30.4200	54	31.0321	17	31.1021	23
30.4300	54	31.0331	17	31.1024	22
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31.0044	18	31.0361	17	31.1032	22
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31.0081	18	Gratings		31.1034	22
31.0084	18	31.4102	21	31.1037	23
31.0087	18	31.4103	21	31.1041	23
31.0089	18	31.4104	21	31.1061	24
31.0091	19	31.4105	21	31.1071	24
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31.0104	19	31.4109	21	31.1191	23
31.0141	19	31.4152	25	31.1194	22
31.0144	19	31.4155	25	31.1222	22
31.0146	19	31.4157	25	31.1224	22
31.0147	19	31.4159	25		

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31.2030	26	31.4463	31	33.0361	45
31.3100	26	31.4602	30	33.0364	45
31.3320	26	31.4652	31	33.0367	45
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31.4514	26	33.0022	41	33.0414	47
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31.4403	30	33.0321	46	33.9510	48
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Worldwide Distribution

Frost drainage solutions are available throughout the World. We have distributors throughout the Middle East and handle many international projects from our UK offices.

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Frost New Interactive Website

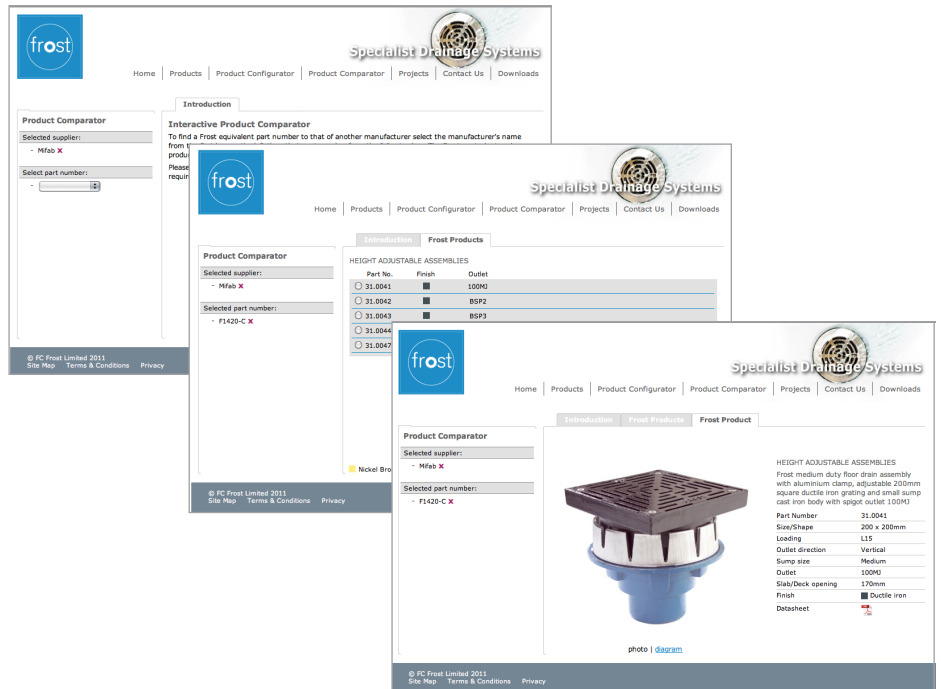
Interactive Product Comparator www.frostdrainage.com/product-comparator

INTERACTIVE PRODUCT COMPARATOR

We have introduced a revolutionary new product comparator via our website which enables you to automatically find a Frost equivalent part number to that of another manufacturer.

Selecting the manufacturer's name and product number, you will be given the Frost equivalent and product details will also be shown. www.frostdrainage.com/product-comparator

Please note that, before ordering, it is important to check that our suggested product matches your requirements.



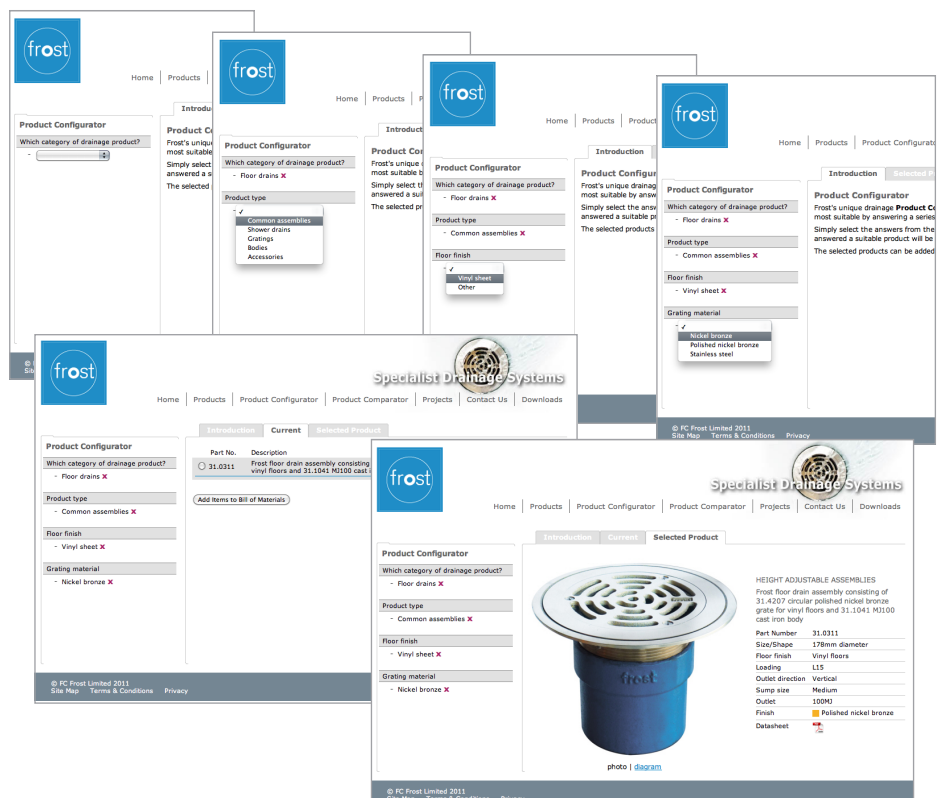
Interactive Drainage Assembly Configurator www.frostdrainage.com/product-configurator

INTERACTIVE DRAINAGE ASSEMBLY CONFIGURATOR

We have introduced a unique drainage assembly configurator via our website which enables a specifier to determine which Frost drain will be most suitable using a series of simple step by step questions.

Simply select the answers from the drop down boxes and after all the questions have been answered a suitable product will be displayed. www.frostdrainage.com/product-configurator

The selected products can be added to an enquiry that will be emailed to us.





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