

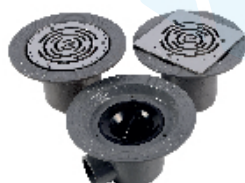
# VortX - Floor, Roof & Shower Drainage Products

UNICLASS L7315

CI/Sfb

(52.6)

JANUARY 2016



Saint-Gobain PAM UK is the primary supplier of ductile iron and cast iron products to the UK's key utilities, telecoms, highways, civil engineering, construction and housing sectors. Leading the market in manufacture and supply of:

- Cast iron soil & drain and rainwater systems
- Ductile iron water & sewer pipes, fittings, valves and couplings & adaptors
- Ductile iron access covers and gratings

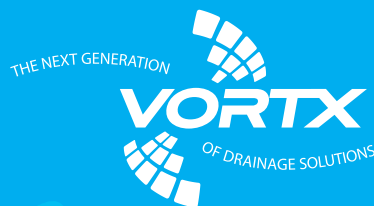
With access to worldwide technical excellence and a large portfolio of products, Saint-Gobain PAM UK are able to combine the benefits of a global presence with the ability to tailor to local specification, to ensure they provide the highest standard of drainage solutions in the UK market today. With Saint-Gobain PAM UK and the PAM brand of products you are assured of quality, innovation and technical expertise at all times.

To enhance the product portfolio of the soil drain business Saint-Gobain PAM UK have introduced VortX a new range of floor, roof & shower drainage products to supplement leading cast iron drainage systems Ensign and Timesaver.

The range consists of cast iron floor and shower gullies, gratings and rodding eyes in nickel bronze and stainless steel, and associated components such as adaptors, extension pieces and removable bottle traps to suit a variety of floor finishes i.e. tile & sheet and shower applications.

The roof outlets range currently consists of cast iron vertical, balcony and two way outlets with various body and grating options. This range will be developed further over the coming months.

The VortX Floor Drainage Range has been designed to comply with BS EN 1253 criteria and backed by the quality commitment of the PAM brand and 50 years experience in drainage.



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# Quality Assurance



BS EN ISO 9001:2008 – Registered No: FM12908

Products included in this manual are manufactured under the BS EN ISO 9001 Quality Assurance Scheme.

BS EN ISO 9001 legislates for Quality Assurance and may be chosen as an alternative 'third party guarantee'. It also provides a means of underwriting the quality of products which lie outside the scope of product standards such as BS EN 1253.

On occasions, owing to pressure on normal production units, it may be necessary to manufacture certain components outside the confines of the BS EN ISO 9001 Quality Assurance Licence. Such items will be produced, however, to a quality in keeping with that of accredited manufacturing units.

## Commitment to quality

Saint-Gobain PAM UK is committed to satisfying its customers' needs in both quality products and services.

It recognises the necessity for continual improvement in all disciplines throughout the organisation, and clearly states this objective to its employees at all levels.

As a basis for this objective, the company is committed to operating strict quality management systems in accordance with BS EN ISO 9001. It also recognises the responsibility of the company's employees in meeting the quality objectives and is conscious of their training and development needs.

## Environment Standard BS EN ISO 14001: 2004

Saint-Gobain PAM UK manufacturing sites, including Sinclair at Telford, have been awarded the 'Manufacturing to Environmental Standards' accreditation BS EN ISO 14001: 2004 which was developed to help manufacturers maintain and improve their management of environmental responsibilities and assist them in ensuring compliance with environmental laws and regulations.

Saint-Gobain PAM UK operates Integrated Pollution and Preventative Control (IPPC) regulations, and have implemented comprehensive environmental management systems throughout its manufacturing sites.

## Environmental Responsibility

Saint Gobain PAM UK is serious about its role in preserving the environment, setting significant reduction targets in water usage and waste to landfill from its operational activity. Saint Gobain PAM UK is committed to ethical sourcing of products and has been audited in compliance with BES6001.

## CEMARS certification

(Certified Emissions Measurement And Reduction Scheme)

Saint-Gobain PAM UK has been awarded certification to the world class, ISO accredited CEMARS (Certified Emissions Measurement And Reduction Scheme) standard by the Achilles carbonReduction programme.

CEMARS certification demonstrates the company's commitment to measuring, managing and reducing greenhouse gas emissions in a robust and credible way. It confirms the company has measured its greenhouse gas emissions in compliance with ISO 14064-1:2006 and has committed to managing and reducing its emissions in respect of all operational activities across its Water & Sewer, Municipals and Soil & Drain business units.

Saint-Gobain PAM UK is exceeding its CEMARS targets for its operational carbon footprint for the period 2011–2016.





# General Design Considerations

## Building regulations / standards

Local regulations take priority in relation to all sanitary and drainage pipework i.e. BS EN 12056 parts 1 – 3 for the UK market.

Drains should be considered in areas where water is supplied and any surface drainage required.

A trapped gully may be used to prevent foul air entering the building. The VortX range offer innovative new P and S trap designs that are lighter in weight and require less installation space than more traditional designs on the market.

Non-trapped gullies can be used with a P trap installed in the drainage systems.

## Load rating

It is important that the grating assemblies selected are able to withstand the anticipated load requirements for the application. All VortX gratings and rodding eyes have been tested in accordance with BS EN 1253.

### Loading Class K3 –

Pedestrian areas and wet room applications such as shower areas, bathrooms, swimming baths, leisure centres, balconies, retail areas, hotels, offices, schools, public buildings, hospitals, prisons, terraces and roof gardens.

### Loading Class L15 –

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

## Flow Rate

Flow rate is the maximum amount of water (litres/second) which a gully will drain. This is dependent on a number of factors:

- Grating free area
- Sump capacity
- Body free area
- Gully design
- Outlet size

Also – if the gully is to be trapped or include a filter bucket.

## General principles

At low heads of water the flow rate of a gully is mainly determined by the grating free area.

Flow rates for floor drains depicted against gratings pages 7 - 10 are flow rates taken at approx 20mm water depth in line with BS EN 1253-1-2015, without traps. Shower drain flow rates page 18 - assume gullies are trapped.

Flow rates for roof outlets pages 23 - 25 are taken at approximately 35mm water depth in line with BS EN 1253-2

## Pipework

The VortX range of gullies being made of cast iron and coated consistent to BS EN 877 – are the perfect solution to connect to the Ensign above & below ground system kitemark approved to BS EN 877 by standard couplings.

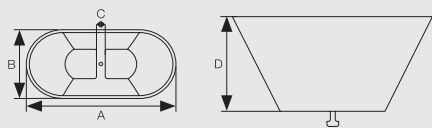
However, the VortX range can be connected to all pipework materials through a range of spigot adaptors and stepped couplings.

## Floor and Flooring

The type of gratings chosen will depend on the floor finishes such as ceramic tiles, concrete or sheet covering such as vinyl. Also those fitted in a finished floor area tend to be made of the attractive material nickel bronze or stainless steel and can be supplied polished for that extra aesthetic appeal.

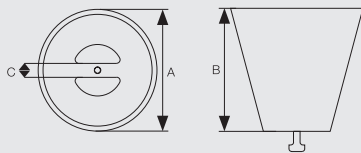
The depth of structural slab and available space will dictate the selection of gullies, and the necessity for raising pieces and extension products. Installations with a damp proof membrane will require additional clamping collars.

# Accessories



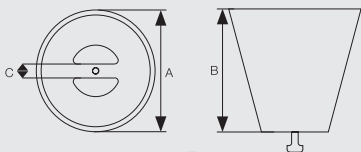
Oval Funnel/VX-F305

SAP code	Material	A	B	C	D	wt/kg
227116	Nickel Bronze	225	100	12	95	0.7



Circular Funnel/VX-F300

SAP code	Material	A	B	C	wt/kg
227117	Nickel Bronze	100	94	12	0.3



Circular Funnel/VX-F310

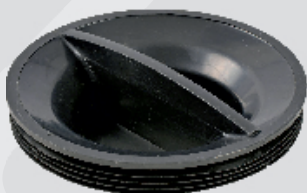
SAP code	Material	A	B	C	wt/kg
227115	Stainless Steel	100	94	12	0.2



Security Screws/VX-F420

SAP code	Material	A	B	C	wt/kg
233455	Stainless Steel	Ø	Ø	Ø	0.1

For securing gratings/rodding eyes.



Airtight Bung

GEN code	Material	Code	Size	wt/kg
VX-F430	ABS	241195	105	0.01

To fit all rodding eyes to make double seal.

# Gratings

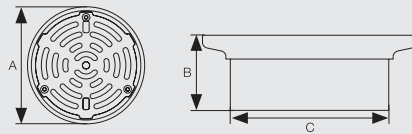
## Height Adjustable

Grating bodies are threaded NPSM supplied in both nickel bronze and stainless steel for typical use with tiles, marble, terrazzo, vinyl and resin floor finishes. Supplied with standard screw fixings-security screws are available which can be ordered separately (See page 6).

All gratings and rodding eyes are K3 loading class and may be supplied in a polished finish (to order) and can be installed with a removable bottle trap® where required (see page 17).

## Direct Fit

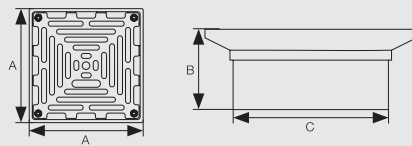
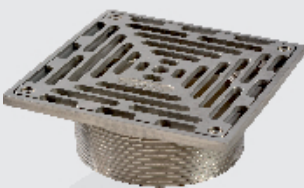
All VortX gratings and rodding eyes in both nickel bronze and stainless steel are available for direct fit connection to pipework when a gully body is not required. Ideal for connection to Ensign cast iron pipework to BS EN 877, however, the direct fit VortX gratings will connect to all pipe materials 110 OD. For other OD pipework stepped couplings or adaptors may be required (check with Technical 01952 262529).



## 150mm Circular Grating (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F010	Nickel Bronze	NPSM	Standard 227049	Polished 234170	150	53	110	1.7	2.0	K3
VX-F010	Nickel Bronze	Direct Fit	Standard 233415	Polished 234171	150	53	110	1.7	2.0	K3
VX-F020	Stainless Steel	NPSM	Standard 227050	Polished 234172	150	53	110	1.5	2.0	K3
VX-F020	Stainless Steel	Direct Fit	Standard 233407	Polished 234173	150	53	110	1.5	2.0	K3

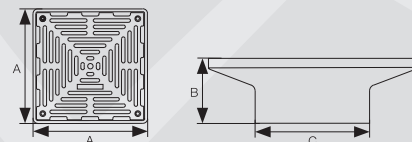
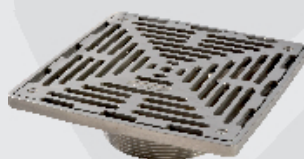
If bottle trap® required, see page 17.  
Flow Rate at 20mm water depth



## 150 x 150mm Square Grating (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F030	Nickel Bronze	NPSM	Standard 227101	Polished 234174	150	57	110	1.3	2.2	K3
VX-F030	Nickel Bronze	Direct Fit	Standard 233408	Polished 234175	150	57	110	1.3	2.2	K3
VX-F040	Stainless Steel	NPSM	Standard 227102	Polished 234176	150	57	110	1.2	2.2	K3
VX-F040	Stainless Steel	Direct Fit	Standard 233421	Polished 234177	150	57	110	1.2	2.2	K3

If bottle trap® required, see page 17.  
Flow Rate at 20mm water depth

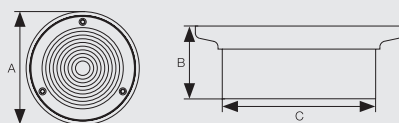


## 200 x 200mm Square Grating (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F050	Nickel Bronze	NPSM	Standard 227103	Polished 234178	200	62	110	3.1	3.0	K3
VX-F050	Nickel Bronze	Direct Fit	Standard 233423	Polished 234179	200	62	110	3.1	3.0	K3
VX-F060	Stainless Steel	NPSM	Standard 227104	Polished 234180	200	62	110	2.8	3.0	K3
VX-F060	Stainless Steel	Direct Fit	Standard 233424	Polished 234181	200	62	110	2.8	3.0	K3

If bottle trap® required, see page 17.  
Flow Rate at 20mm water depth

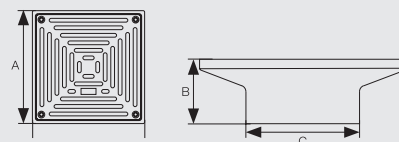
# Rodding Eyes



## 150mm Circular Rodding Eyes (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Load class
VX-F015	Nickel Bronze	NPSM	Standard 227105	Polished 234182	150	53	110	1.8	K3
VX-F015	Nickel Bronze	Direct Fit	Standard 233426	Polished 234183	150	53	110	1.8	K3
VX-F025	Stainless Steel	NPSM	Standard 227106	Polished 234184	150	53	110	1.6	K3
VX-F025	Stainless Steel	Direct Fit	Standard 233427	Polished 234185	150	53	110	1.6	K3

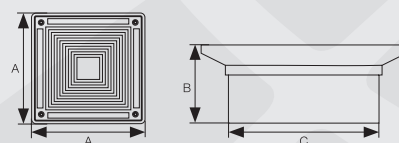
Can be fitted with airtight bung VX-F430, if double seal required see page 6



## 150 x 150mm Square Rodding Eyes (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Load class
VX-F035	Nickel Bronze	NPSM	Standard 227107	Polished 234187	150	57	110	1.4	K3
VX-F035	Nickel Bronze	Direct Fit	Standard 233428	Polished 234188	150	57	110	1.4	K3
VX-F045	Stainless Steel	NPSM	Standard 227108	Polished 234189	150	57	110	1.3	K3
VX-F045	Stainless Steel	Direct Fit	Standard 233430	Polished 234190	150	57	110	1.3	K3

Can be fitted with airtight bung VX-F430, if double seal required see page 6



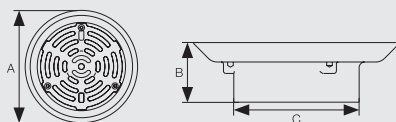
## 200 x 200mm Square Rodding Eyes (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Load class
VX-F055	Nickel Bronze	NPSM	Standard 227109	Polished 234191	200	62	110	3.4	K3
VX-F055	Nickel Bronze	Direct Fit	Standard 233431	Polished 234192	200	62	110	3.4	K3
VX-F065	Stainless Steel	NPSM	Standard 227110	Polished 234193	200	62	110	3.1	K3
VX-F065	Stainless Steel	Direct Fit	Standard 233433	Polished 234194	200	62	110	3.1	K3

Can be fitted with airtight bung VX-F430, if double seal required see page 6



# Gratings for Vinyl Floors

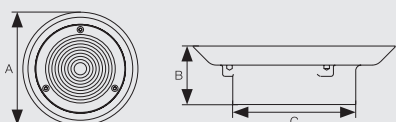


## 150mm Circular Grating (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F070	Nickel Bronze	NPSM	Standard 227111	Polished 234195	170	53	110	2.3	1.85	K3
VX-F070	Nickel Bronze	Direct Fit	Standard 233434	Polished 234196	170	53	110	2.3	1.85	K3
VX-F080	Stainless Steel	NPSM	Standard 227112	Polished 234197	170	53	110	2.1	1.85	K3
VX-F080	Stainless Steel	Direct Fit	Standard 233435	Polished 234198	170	53	110	2.1	1.85	K3

If bottle trap® required, see page 17.  
Flow Rate at 20mm water depth

# Rodding Eyes for Vinyl Floors



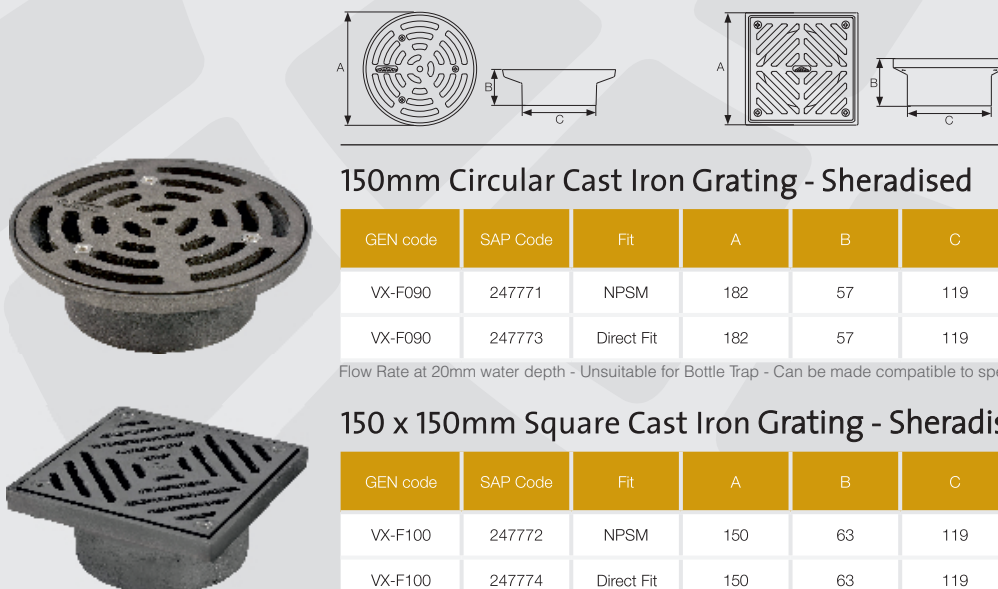
## 150mm Rodding Eye (NPSM threaded or Direct Fit)

GEN code	Material	FIT	Finish		A	B	C	wt/kg	Load class
VX-F075	Nickel Bronze	NPSM	Standard 227113	Polished 234199	170	53	110	2.4	K3
VX-F075	Nickel Bronze	Direct Fit	Standard 233438	Polished 234200	170	53	110	2.4	K3
VX-F085	Stainless Steel	NPSM	Standard 227114	Polished 234201	170	53	110	2.2	K3
VX-F085	Stainless Steel	Direct Fit	Standard 233439	Polished 234202	170	53	110	2.2	K3

Can be fitted with airtight bung VX-F430, if double seal required see page 6

**NEW**

# Cast Iron Gratings



## 150mm Circular Cast Iron Grating - Sheradised

GEN code	SAP Code	Fit	A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F090	247771	NPSM	182	57	119	2.9	1.5	L15
VX-F090	247773	Direct Fit	182	57	119	3	1.5	L15

Flow Rate at 20mm water depth - Unsuitable for Bottle Trap - Can be made compatible to special request.

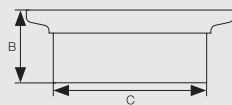
## 150 x 150mm Square Cast Iron Grating - Sheradised

GEN code	SAP Code	Fit	A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F100	247772	NPSM	150	63	119	2.9	1.5	L15
VX-F100	247774	Direct Fit	150	63	119	3	1.5	L15

Flow Rate at 20mm water depth - Unsuitable for Bottle Trap - Can be made compatible to special request.

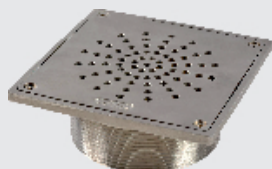
**NEW**

# Anti-Ligature Gratings



**150mm Circular Grating (NPSM threaded)**

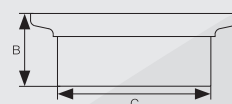
GEN code	Material	FIT	Finish	A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F021	Stainless Steel	NPSM	Standard 250676	150	53	110	1.5	TBA	K3



**150 x 150mm Square Grating (NPSM threaded)**

GEN code	Material	FIT	Finish	A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F041	Stainless Steel	NPSM	Standard 250677	150	53	110	1.6	TBA	K3

## Gratings for Vinyl Floors



**170mm Circular Grating (NPSM threaded)**

GEN code	Material	FIT	Finish	A	B	C	wt/kg	Flow Rate L/Sec	Load class
VX-F081	Stainless Steel	NPSM	Standard 250678	170	53	110	2.1	TBA	K3



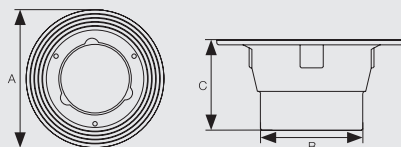
# Gully Bodies (Non-Trapped)

## Gully Bodies (Non-Trapped)

The VortX gully bodies are manufactured in cast iron, trapped or non-trapped, NPSM threaded to accept raising pieces and gratings.

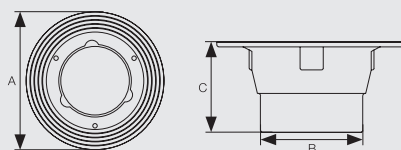
The VortX bodies have been designed to reduce the chance of build up of debris and provide improved flow. The unique flange design has 4 identification rings that give an excellent key to the waterproofing membrane or final floor finish and has dimples to assist drill location for fixing to the structural floor removing the requirement for a deck clamp.

All gully bodies are supplied in a grey epoxy coating consistent with BS EN 877 fittings.



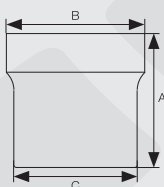
**Medium Sump Body (110mm Outlet )**

GEN code	SAP code	A	B	C	wt/kg
VX-F200	227119	205	110	100	2.4



**Medium Sump Body (Threaded 4" BSP)**

GEN code	SAP code	A	B	C	wt/kg
VX-F200	227118	205	121	100	2.6



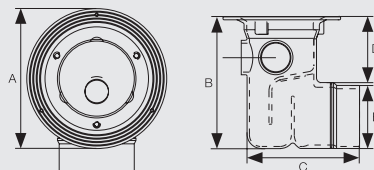
**Sumpless Body (110mm outlet)**

GEN code	SAP code	Material	A	B	C	wt/kg
VX-F210	227120	Cast Iron	124	120	110	1.6

# Gully Bodies (Trapped)

## Gully Bodies (Trapped)

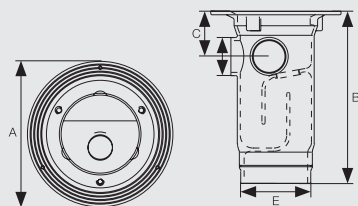
New innovative P and S trap designs are lighter in weight and minimise the space required that is needed by the more traditional products on the market. Supplied with 110mm spigot outlets, three plugged 2" BSP inlets incorporating the same flange design features and can be installed with the standard clamp ring if required.



P Trap (110mm outlet)

GEN code	SAP code	A	B	C	D	E	wt/kg
VX-F220	227129	205	230	196	115	110	6.4

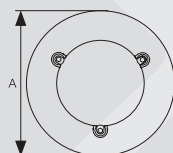
Registered Design 1345789-0001



S Trap (110mm outlet)

GEN code	SAP code	A	B	C	D	E	wt/kg
VX-F230	227130	205	295	72	60	110	6.4

Registered Design 1345789-0002



Clamping Ring (to suit all gullies )

GEN code	SAP code	Material	A	B	wt/kg
VX-F205	233440	Cast Iron	205	12	0.7

# Square Bell Trap

Adjustable height for use with non-membrane floors

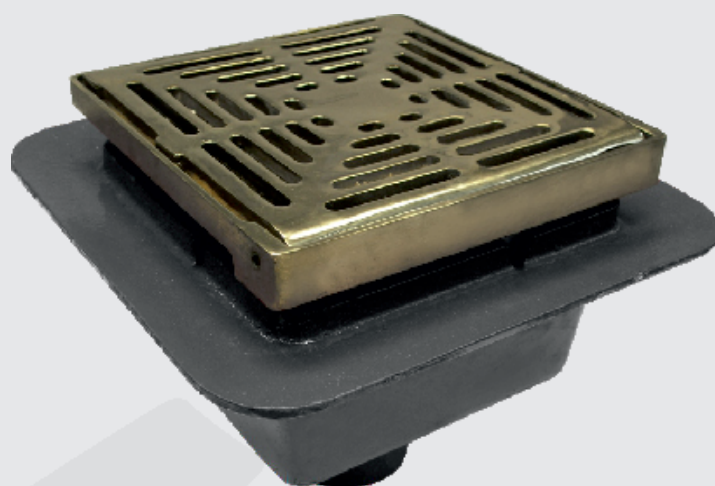
## VX-F950 square trapped floor drain

installations.

Weights	kg
Body	20.6
Sediment trap	2.8
Grating housing	5.3
Grating	5.2

Product code	Dia	A	B	C min	C max	D	E	F
191396	100	400	300	310	335	160	100	50

Outlet is 110 mm.



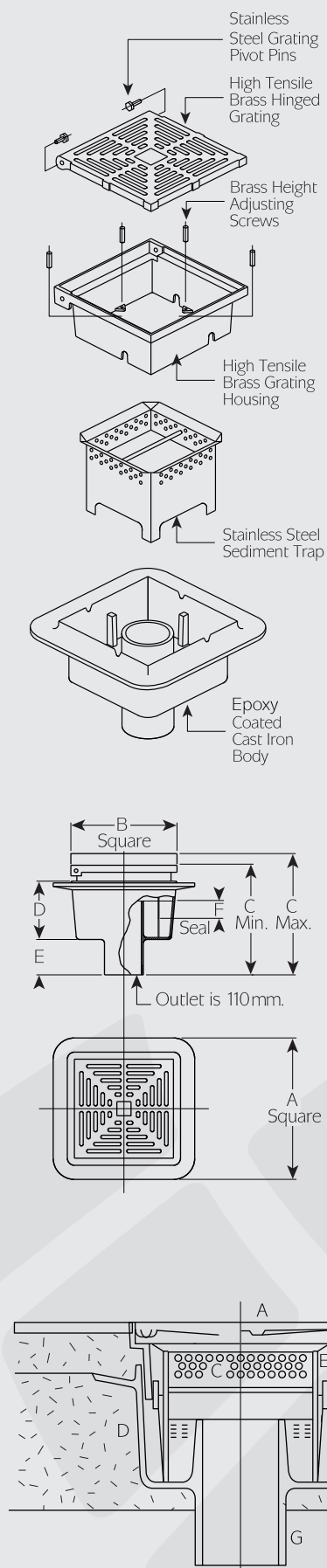
Adjustable height for use with non-membrane floors

### VX-F950 typical installation

- Hinged grating manufactured in high tensile brass to BS 1400 HTBI.
  - Grating housing manufacture in high tensile brass to BS 1400 HTBI.
  - Sediment trap manufactured in stainless steel.
  - Drain body manufactured in epoxy coated cast iron to BS EN1561 grade EN-JL1020.
  - Height adjusting and levelling screws (4 No.) in brass.
  - 50 seal height.
  - Drain body outlet to suit 110mm pipework.
- To connect to Ensign use ED001 coupling.  
To connect to Timesaver 437 drain use TD02 stepped coupling.

Free areas of floor drain grates in sq. mm.

VX-F950 floor drain  
Square grate 11250mm<sup>2</sup>



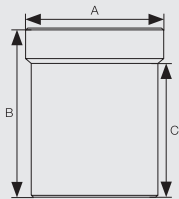
# Accessories

## Raising Pieces

Supplied in grey epoxy coated cast iron, NPSM threaded and in three standard height sizes to provide additional adjustment for the gratings and rodding eyes.

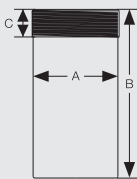
## Adaptors

Manufactured in cast iron - BSP threaded which are available in a number of diameters to connect to the 4" BSP floor drain body utilising reducing bushes. The adaptors allow connection to cast iron, PVC and other materials.



### Cast Iron Raising Pieces (NPSM threaded)

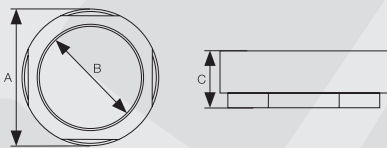
GEN code	SAP code	Size	A	B	C	wt/kg
VX-F350	227123	95-140	120	155	120	2.0
VX-F350	227122	40-95	120	117	80	1.5
VX-F350	227121	20-40	120	62	25	0.8



### Spigot Adaptor (BSP)

GEN code	SAP code	Size	A	B	C	wt/kg
VX-F500	227131	110 to 4" (BSP)	110	215	35	2.7
VX-F500	234204	80 to 3" (BSP)	80	215	27	2.1
VX-F500	234205	60 to 2" (BSP)	60	215	27	1.3
VX-F500	234207	56 to 2" (BSP)	56	215	27	1.1
VX-F500	247249	†160 to 6" (BSP)	160	300	35	6.2

† Use with 150 Vortx Roof Outlets. See page 23. Other lengths can be produced to special order.

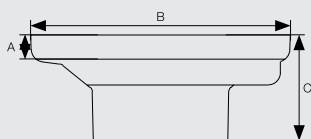


### Reducing Bushes (BSP)

GEN code	SAP code	Size	A	B	C	wt/kg
VX-F510	227136	4" x 3" (BSP)	103	75	39	1.1
VX-F510	227137	4" x 2" (BSP)	103	50	40	1.9

# Plant Room Drainage

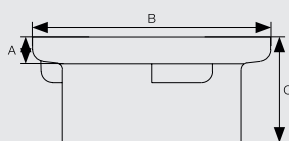
Floor gullies and traps from the Ensign range are suitable for plant room applications installed in a concrete screed/floor finish.



## Gully Inlet / ED060

SAP code	Dia	A	B	C	wt/kg	Load class
191825	100mm	20	215	87	2.4	L15

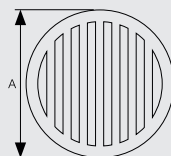
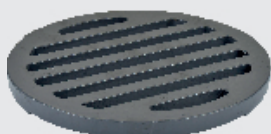
Can be supplied fitted with solid cover order ED066 (product code: 191852).



## Bellmouth / ED060

SAP code	Dia	A	B	C	wt/kg	Load class
191826	150mm	20	215	95	2.9	L15

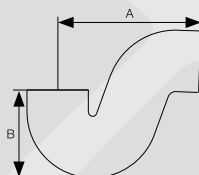
Can be supplied fitted with solid cover order ED066 (product code: 191853).



## Grating Plain / ED065

SAP code	A	wt/kg	Load class
191828	200mm	1.8	L15

Loose grating for ED060. Maximum load 2.0 tonnes.



## Traps / Plain / ED034 / EF034

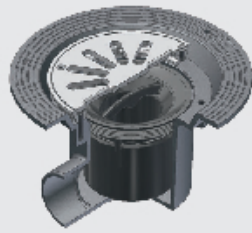
SAP code	Dia	A	B	wt/kg	Colour
191815	100mm	255	160	4.5	Grey
156666	100mm	255	160	4.5	Red

For access traps refer to Ensign catalogue.

# Shower Drain Kits

## Shower Drain Kits

VortX Shower drain kits consist of a cast iron shower drain, a removable bottle trap and a stainless steel grating of choice in either standard or polished finish, supplied in a box.



### VX-S260

Cast Iron Vertical Shower Drain - 100mm with a 50mm removable trap (VX-F400)  
Choice of Gratings:



					Flow Rate L/Sec			Flow Rate L/Sec
Standard	239376	239736	239734	239738	1.1	TBA	TBA	TBA
Polished	239733	239737	239735	239739	1.1	TBA	TBA	TBA
Kit wt/kg	3.3	3.2	3.5	3.4		TBA	TBA	

Flow Rate at 20mm water depth - trapped

### VX-S260

Cast Iron Vertical Shower Drain - 50mm spigot with a 50mm removable trap (VX-F400)  
Choice of Gratings:



					Flow Rate L/Sec			Flow Rate L/Sec
Standard	239340	239744	239742	239746	1.1	TBA	TBA	TBA
Polished	239741	239745	239743	239747	1.1	TBA	TBA	TBA
Kit wt/kg	3.3	3.3	3.5	3.4		TBA	TBA	

Flow Rate at 20mm water depth - trapped

### VX-S261

Cast Iron Horizontal Shower Drain - 50mm spigot with a 50mm removable trap (VX-F400)  
Choice of Gratings:



					Flow Rate L/Sec			Flow Rate L/Sec
Standard	239348	239752	239750	239754	0.9	TBA	TBA	TBA
Polished	239749	239753	239751	239755	0.9	TBA	TBA	TBA
Kit wt/kg	3.4	3.3	3.6	3.5		TBA	TBA	

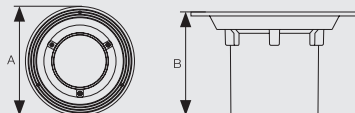
Flow Rate at 20mm water depth - trapped



# Shower Drain Bodies

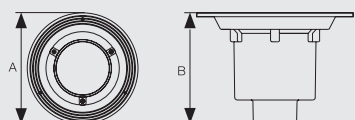
## Shower Drain Bodies

Manufactured in cast iron with grey epoxy coating incorporating the VortX styling flange design. The shower gullies are available in 110mm O.D. and 60mm O.D. horizontal spigots. The shower gullies should be fitted with the VortX removable bottle trap®.



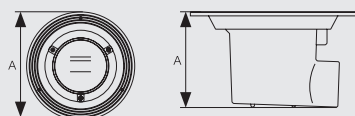
### Cast Iron Vertical Shower Drain

GEN code	SAP code	Size	A	B	wt/kg
VX-S260	227125	110mm	210	130	2.4



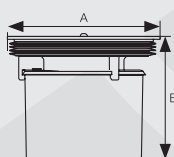
### Cast Iron Vertical Shower Drain

GEN code	SAP code	Size	A	B	wt/kg
VX-S260	227126	60mm	210	149	2.4



### Cast Iron Horizontal Shower Drain

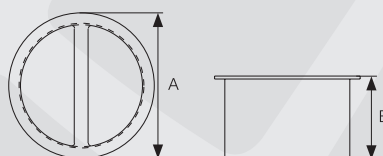
GEN code	SAP code	Size	A	B	wt/kg
VX-S261	227127	60mm	210	121	2.5



### 50mm Removable Bottle Trap (Registered design)

GEN code	SAP code	Material	A	B	wt/kg
VX-F400	227128	ABS	111	92	0.1

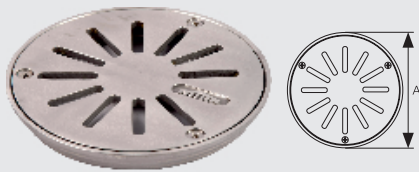
Registered design number 1285415 Ø 0001-0005 Can be fitted to gratings nickel bronze/stainless steel.



### Filter Basket

GEN code	SAP code	Material	A	B	wt/kg
VX-F410	227138	Stainless Steel	102	60	0.2

# Shower Drain Gratings



## 150mm Circular Grating for Vinyl Floor

GEN code	Material	Finish		A	wt/kg	Flow Rate L/Sec V.O	Flow Rate L/Sec H.O	Load class
VX-S270	Stainless Steel	Standard 227132	Polished 234208	150	0.8	1.1	0.9	K3

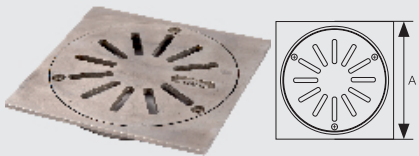
Flow Rate at 20mm water depth - trapped body. V.O = Vertical Shower Outlet. H.O = Horizontal Shower Outlet.



## 150mm Circular Decorative Grating for Vinyl Floor

GEN code	Material	Finish		A	wt/kg	Flow Rate L/Sec V.O	Flow Rate L/Sec H.O	Load class
VX-S270	Stainless Steel	Standard 227133	Polished 234209	150	0.7	1.1	0.9	K3

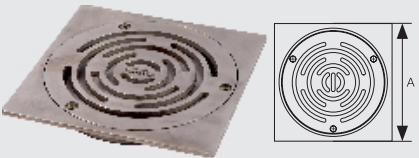
Flow Rate at 20mm water depth - trapped body. V.O = Vertical Shower Outlet. H.O = Horizontal Shower Outlet.



## 150 x 150mm Square Grating for Tiled Floor

GEN code	Material	Finish		A	wt/kg	Flow Rate L/Sec V.O	Flow Rate L/Sec H.O	Load class
VX-S271	Stainless Steel	Standard 227134	Polished 234210	150	1.0	1.1	0.9	K3

Flow Rate at 20mm water depth - trapped body. V.O = Vertical Shower Outlet. H.O = Horizontal Shower Outlet.



## 150 x 150mm Square Decorative Grating for Tiled Floor

GEN code	Material	Finish		A	wt/kg	Flow Rate L/Sec V.O	Flow Rate L/Sec H.O	Load class
VX-S271	Stainless Steel	Standard 227135	Polished 234211	150	0.9	1.1	0.9	K3

Flow Rate at 20mm water depth - trapped body. V.O = Vertical Shower Outlet. H.O = Horizontal Shower Outlet.

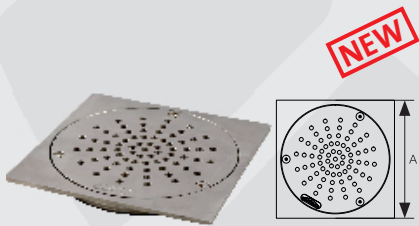


## Anti-ligature

## 150mm Circular Grating for Vinyl Floor

GEN code	Material	Finish		A	wt/kg	Flow Rate L/Sec V.O	Flow Rate L/Sec H.O	Load class
VX-S272	Stainless Steel	Standard 250679	Polished TBA	150	0.8	1.1	0.9	K3

Flow Rate at 20mm water depth - trapped body. V.O = Vertical Shower Outlet. H.O = Horizontal Shower Outlet.



## Anti-ligature

## 150 x 150mm Square Grating for Tiled Floor

GEN code	Material	Finish		A	wt/kg	Flow Rate L/Sec V.O	Flow Rate L/Sec H.O	Load class
VX-S273	Stainless Steel	Standard 250680	Polished TBA	150	1.0	1.1	0.9	K3

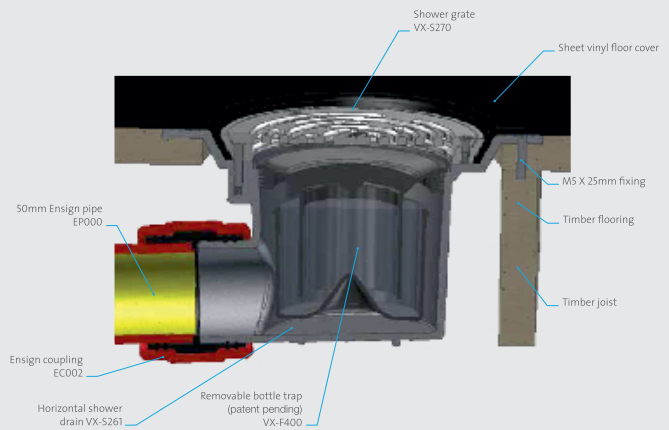
Flow Rate at 20mm water depth - trapped body. V.O = Vertical Shower Outlet. H.O = Horizontal Shower Outlet.

TBA - Please contact technical department 01952 262529

# Typical Installations

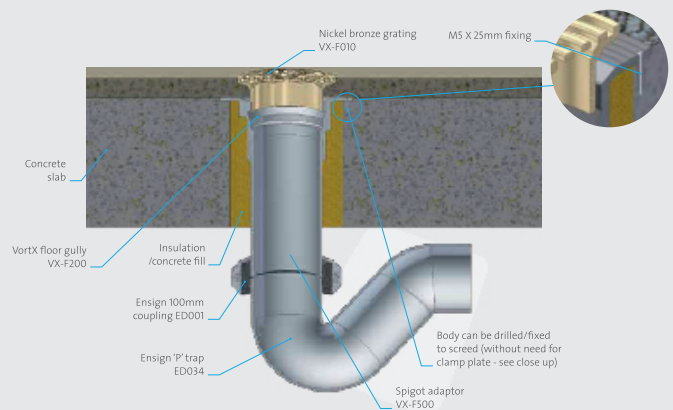
## Shower Application

VortX shower drains can be installed in many different applications. Typically the circular gratings VX-S270 are used for vinyl sheet style floor finishes, solid flooring, or timber deck as shown in the diagram. For tiled flooring use the square gratings VX-S271. New anti-ligature shower gratings have now been added to the range – check for availability.



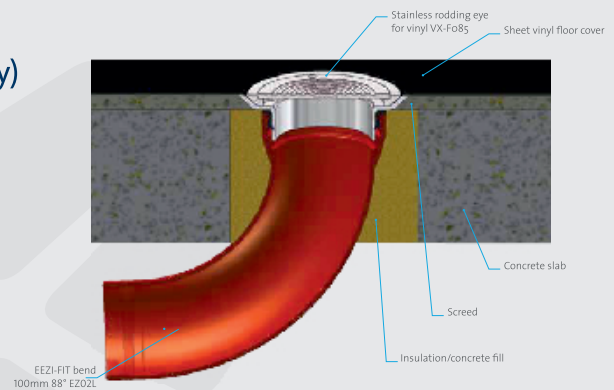
## Screed Floor With 'P' Trap

Installations which require a higher level of flow through the grating should use a P trap arrangement which offers less restriction as shown in the diagram. The VortX range of floor gullies, connect directly to the Ensign/Timesaver above and below ground systems using the VX-F500 spigot adaptors.



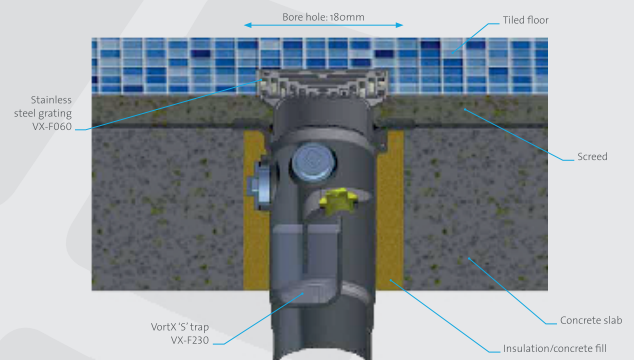
## Connection to Direct Fit Gratings (without gully)

Access to below ground or suspended drainage systems can be designed as simple rodding eye points using Direct Fit gratings. This diagram again shows the flexibility of the PAM ranges of products demonstrating how the grating can connect directly with an EEZI-FIT large radius bend.



## New 'S' Trap (for tiled floor)

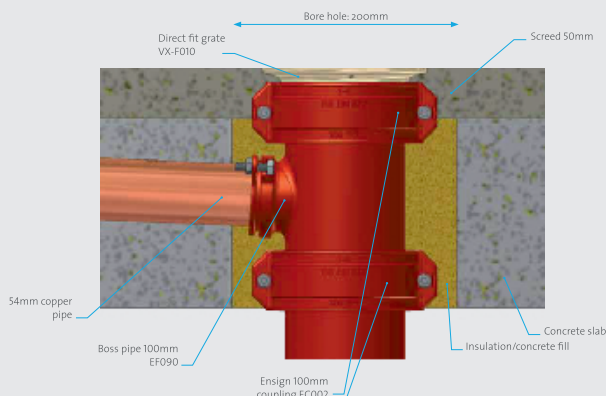
The VortX range includes the innovatively designed S Trap in 100mm diameter which has 3 no. 2" BSP back inlet positions which are supplied plugged off for potential future use. The slim-line S Trap incorporates an internal plug located for rodding/cleaning access and only requires a bore hole of 180mm.



# Typical Installations

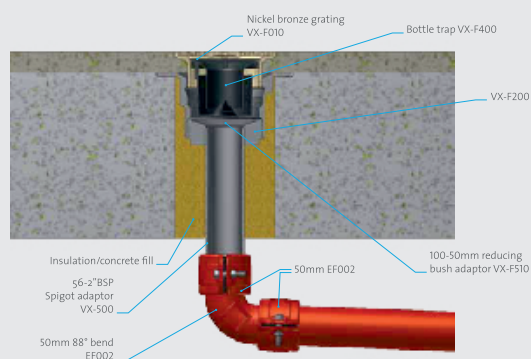
## Drain with Side Inlet

The VortX floor drain range can offer flexible solutions when used in conjunction with the Ensign or Timesaver cast iron drainage system. If there is a need to connect waste pipes from appliances to a back or side inlet – this can be achieved using a direct fit nickel bronze grating connected to an Ensign boss pipe (EF090) using a standard ductile iron coupling EC002. For an EEZI-FIT system the grating can be pushed directly into EEZI-FIT Boss pipes EZ090/91/92.



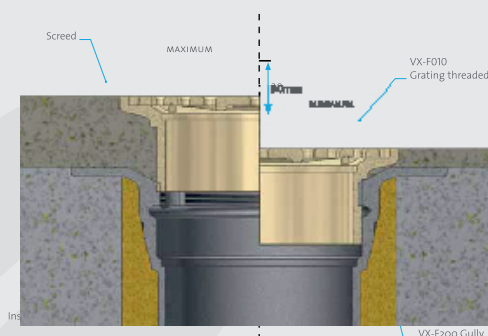
## Drain Connecting to 50mm Pipework

VortX cast iron floor gullies are 100mm/ 4" BSP – therefore to connect to smaller diameter pipework ie 50mm as shown – this can be achieved using a VX-F510 reducing bush which is screwed into the VX-F200 Sump body and a VX-F500 threaded spigot adaptor with a diameter to suit the pipework material.



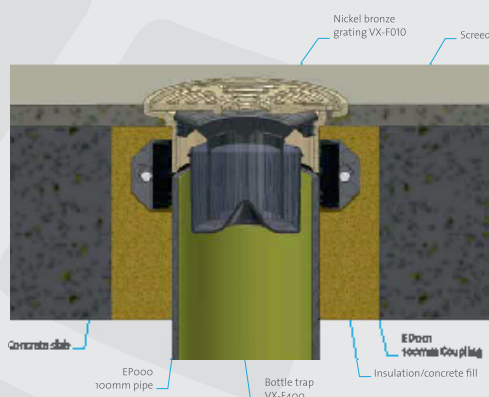
## Adjustable Grating Height

All VortX Nickel bronze and Stainless steel gratings with NPSM threaded spigots allow up to 30mm height adjustment for various depths of floor finish, when screwed directly into the floor gully (as shown). If further height adjustment is needed use in conjunction with VX-F350 NPSM threaded cast iron raising pieces to reach the height required.



## Direct Fit Floor Drain

If the grating can be installed in the floor screed without the need for height adjustment then a cost effective option can be to use a Direct Fit grating fitted with a bottle trap. The grating has a spigot of 110mm OD which allows connection to cast iron, HDPE, PVC pipework using a mechanical coupling to suit various ranges ie EC002 /ED001 /GT01 / TD02



# Other Information

## Maintenance

All trapped and un-trapped floor gullies require periodic inspection and maintenance.

Attention should be given to the integrity of seals and fixings.

The trapped gullies should have the grate and bottle trap removed and built up grime and silt cleaned away. The grate should be removed from the gully body and cleaned using warm soapy water with a sponge or bristle brush removing any grime within the grating slots.

## Air pressure testing

As with any installation the testing of the floor gully is essential for this to be carried out prior to the floor finishes including screed being laid. We would recommend that the following procedure as per BS8005:1987 part 1 section 5.1 is used.

All joints/seal faces should be clean and free from dust and debris.

If using a clamping flange with a DPM, please use a suitable thread sealant such as PTFE tape or silicone mastic (not supplied) around the washers and bolts that retain the clamp into the body.

Use PTFE tape or silicone mastic (not supplied) on the thread from the grating body that connects to the gully body and screw the grating body in a minimum of 2 complete rotations into the main body.

## Side inlet connections

For side inlet connections on the "P" trap VX-F220 & "S" trap VX-F230 bodies, these are provided by a 2"BSP female thread, which comes blanked off when supplied with a 2"BSP plug (with rubber washer). Ensure that these are tightened prior to installation of the body. For connections to alternative materials ie copper, muPVC or ABS etc please use a BSP adaptor and a PTFE tape to seal the thread.

Side inlets can also be achieved on other gully bodies / direct fit gratings by using boss pipes from Ensign EF090 – EF092 and EEZI-FIT EZ090 – EZ093. See page 20.

## Rodding eyes - Double seal

VortX rodding eyes are single seal. Fit airtight bung (see page 6) to rodding eyes to make double seal units.

## Connections to Pipe systems

	Material Type						
	Cast Iron					PVC/HDPE	Clay
<b>Floor Gully / Roof Outlet Bodies</b>	Ensign soil BS EN 877 – 100mm	Ensign drain BS EN 877 – 100mm	EEZI-FIT BS EN 877 – 100mm	Timesaver soil BS416 – 100mm	Timesaver drain BS437 – 100mm	BS46600 / BS EN 1401 – 110mm	BS EN 295-1 100mm
Spigot (110 OD)	EC002	ED001	EZ001	GT01	TD02	EC002/GT01	ED001/ED076
Spigot (4" BSP)	VXF-500/EC002	VXF-500 & ED001	VXF-500 & EZ001	VXF-500 & GT01	VXF-500 & TD02	VXF-500/EC002/GT01	VXF-500/ED001 & ED076
<b>Shower Gully Bodies</b>							
Spigot (110 OD)	EC002	ED001	EZ001	GT01	TD02	EC002/GT01	ED001 & ED076
Spigot (60 OD)	EC002	–	–	GT01	–	EF071R	–
<b>Direct Fit Gratings</b>							
Nickle Bronze Stainless Steel	EC002	ED001	EZ001	GT01	TD02	EC002/GT01	ED001 & ED076



# Materials & Specifications

## - Floor, Roof and Shower Drain Range

### Stainless Steel 304

Used for gratings, grating bodies, rodding eyes, funnels, filter buckets and fixings, available in a satin or polished finish. For alternative surface treatments contact Technical Department 01952 262529.

A corrosion-resistant material that can generally be kept clean using soap & warm water and wiping dry.

Do not treat with abrasive cleaners i.e. scouring pads or wire wool as these will potentially damage the surfaces and cause rusting.

### Nickel Bronze – BS 1400

Available in a standard finish for gratings, grating bodies, rodding eyes and funnels. Can also be supplied in a polished finish.

### Cast Bronze LG2 - Gratings option.

### ABS

Used for the removable bottle trap (patent pending) offering excellent chemical resistance.

### Rubber – EPDM EN681

Used for seals and gaskets

### Cast Iron – BS EN 1561

Used for gullies, clamping rings, spigot adaptors, reducing bushes, and extension pieces. An industry recognised material that offers robust, long lasting floor drainage solutions.

### Cast Iron Coating

Castings are coated internally and externally with a grey epoxy coating consistent with fittings coated to BS EN 877. The coating is applied to comply with clauses 4.6.1, 4.6.2 and 4.6.3 of BS EN 877 performing to high standards of adhesion, chemical resistance Ph1–Ph13, and temperature cycling.

The coating performs to A1 classification to EN 13501-1 and therefore LUL (London Underground) compliant.

### Product Marking

All VortX components carry the Saint-Gobain bridge logo, wherever possible.



Typical information on components depending on items.

<b>EN 1253</b>	{Standard Reference}
<b>1-XX</b>	{Manufacturer Site}
<b>01/09/15</b>	{Period of Manufacture}
<b>DN100</b>	{Nominal Diameter}
<b>L15</b>	{Loading Class}

### NBS Specification

R11 Foul drainage above ground

315 Floor Drains

Typical specification

**Manufacturer:** Saint-Gobain PAM UK

**Product ref:** PAM VortX

**Floor finish:** Vinyl sheet

**Body type:** Cast iron medium sump

**Grating cover:** 150mm circular grating

**Material:** Nickel bronze

**Outlet type:** 4" BSP

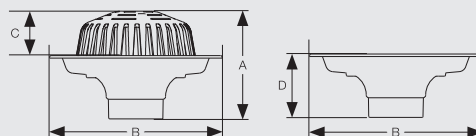
**Accessories:** 110 to 4" BSP spigot adaptor



# Roof Outlets

## VortX Roof Outlets

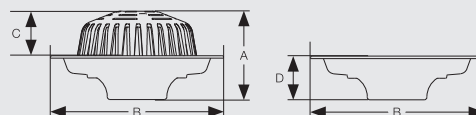
A new range of cast iron roof outlets that offer robust long lasting solutions for most construction market applications. Designed in accordance with BS EN 1253 the range consists of cast iron bodies epoxy coated to the high standard of BS EN 877 with the gratings and clamping rings protected by polyester coating for domed gratings and sheradising for flat gratings. All VortX roof outlets have been flowrate tested and comply fully with the standard and will connect to most drainage systems on the market.



### Vertical

GEN code	SAP code	Dia	A	B	C	D	wt/kg	Flow Rate L/S
VX-R105	241181	110	220	350	91	89	8.9	10.7

Dome grating & clamping - polyester coated.  
Flow Rate at 35mm water depth



### Vertical

GEN code	SAP code	Dia	A	B	C	D	wt/kg	Flow Rate L/S
VX-R155	241183	4" (BSP)	180	350	91	89	8.9	10.7
VX-R155	247418	6" (BSP)	184	386	64	120	12.4	14.5

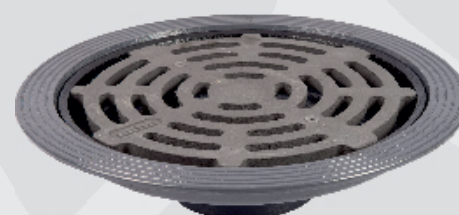
Dome grating & clamping - polyester coated. Threaded adapters (see page 14)  
Flow Rate at 35mm water depth



### Vertical

GEN code	SAP code	Dia	A	B	wt/kg	Load Class	Flow Rate L/S
VX-R100	241180	110	129	350	10.5	L15	8.1

Flat grating - sheradised.  
Flow Rate at 35mm water depth

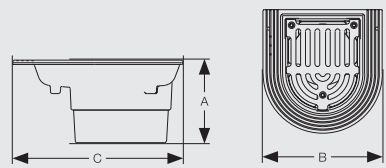


### Vertical

GEN code	SAP code	Dia	A	B	wt/kg	Load Class	Flow Rate L/S
VX-R150	241182	4" (BSP)	89	350	10.5	L15	8.1
VX-R150	247428	6" (BSP)	64	386	14.8	L15	14.2

Flat grating - sheradised. Threaded adapters (see page 14)  
Flow Rate at 35mm water depth

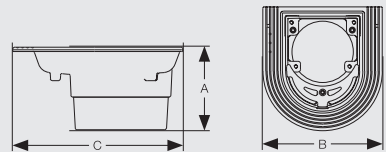
# Roof Outlets



## Balcony Spigot • Flat Grating

GEN code	SAP code	Spigot Dia	A	B	C	wt/kg	Flow Rate L/S
VX-R300	241184	110	100	200	210	6.3	4.99

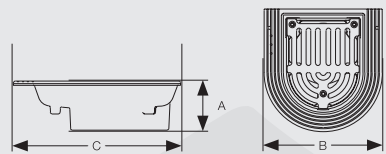
Flat grating - sheradised



## Balcony Spigot • Notched Grating

GEN code	SAP code	Spigot Dia	Pipework Dia	A	B	C	wt/kg	Flow Rate L/S
VX-R305	241187	110	100	100	200	210	5.8	4.99
VX-R305	241186	110	75	100	200	210	6.1	4.15
VX-R305	241185	110	50	100	200	210	6.2	1.41

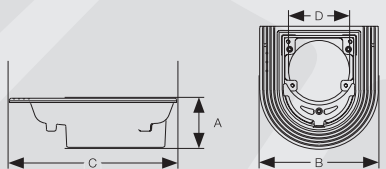
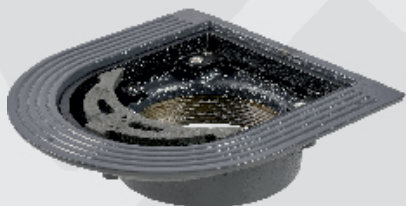
Notched grating - sheradised



## Balcony Threaded • Flat Grating

GEN code	SAP code	Spigot BSP	A	B	C	wt/kg	Flow Rate L/S
VX-R350	241188	4"	60	200	210	6.2	4.99

Flat grating - sheradised. Threaded adapters (see page 14)

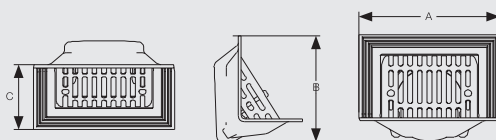
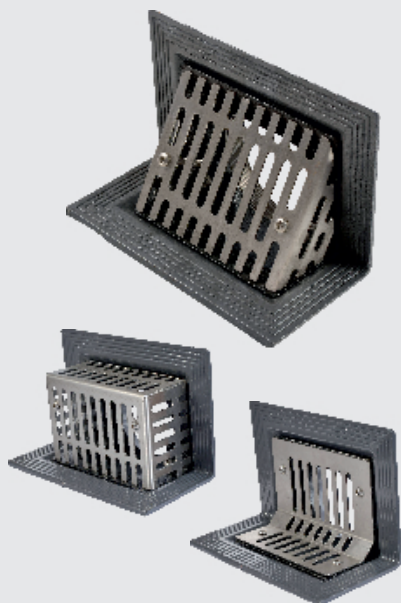


## Balcony Threaded • Notched Grating

GEN code	SAP code	Spigot Dia	Pipework Dia	A	B	C	wt/kg	Flow Rate L/S
VX-R355	241191	4"	100	60	200	210	5.8	4.99
VX-R355	241190	4"	75	60	200	210	6.0	4.15
VX-R355	241189	4"	50	60	200	210	6.2	1.41

Notched grating - sheradised. Threaded adapters (see page 14)

## Roof Outlets



### Two-Way Outlet BSP Threaded

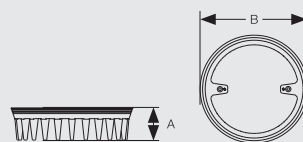
GEN code	SAP code	Grating	BSP	A	B	C	wt/kg	Flow Rate L/S
VX-R500	241192	Angled	4"	234	172	111	6.2	1.09
VX-R501	247964	Flat	4"	234	172	111	6.2	1.09
VX-R502	248015	Boxed	4"	234	172	111	6.2	1.09

Stainless steel gratings.

Threaded adapters (see page 14).

Concentric adapters for small diameters will be available shortly - check with manufacturer.

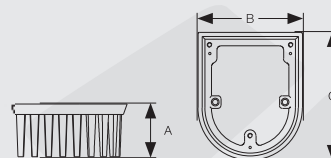
## Raising Pieces



### Raising Piece for Vertical Outlet VX-R100/150

GEN code	SAP code	A	B	wt/kg
VX-R710	241193	75	285	2.5

Polyester coated

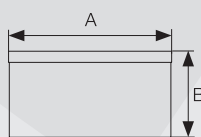


### Raising Piece for Balcony Outlet VX-R300/350

GEN code	SAP code	A	B	C	wt/kg
VX-R720	241194	73 (63 effective)	134	165	0.9

Polyester coated

## Gravel Guard

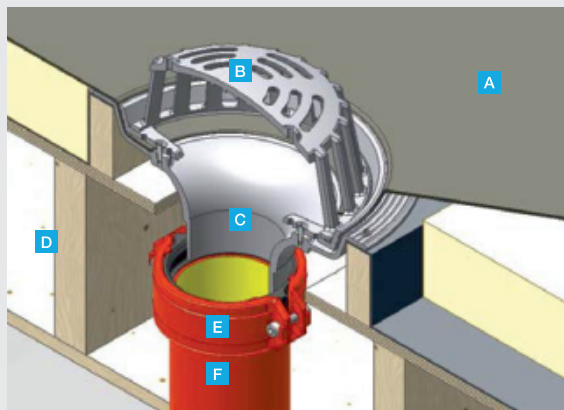


### Gravel Guard

GEN code	SAP code	Material	A	B	wt/kg
VX-R730	247752	Stainless Steel	291	155	0.2

To suit vertical outlets VX-R105/155. See page 23.

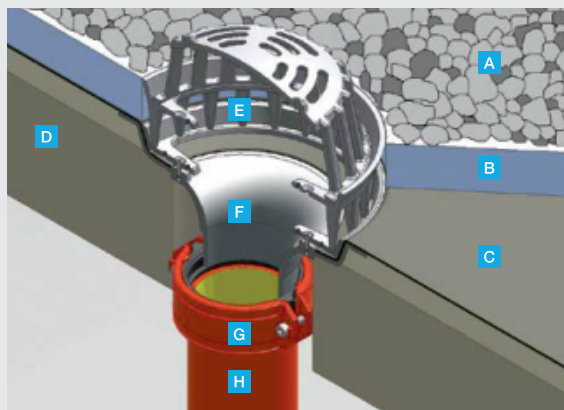
# Cast Iron Roof Outlets - Typical Installations



## Cold Roof Applications

### 1. Vertical outlet with dome grating

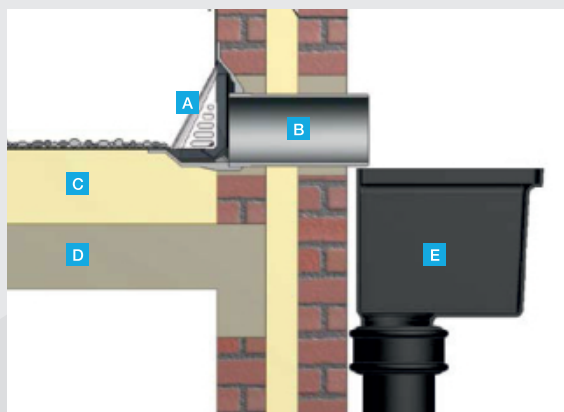
- A. Membrane
- B. Dome Grate
- C. VX-R105 Spigot Body
- D. Timber Deck
- E. 100mm Ensign Coupling EC002
- F. 100mm Ensign Pipework



## Warm Roof Applications

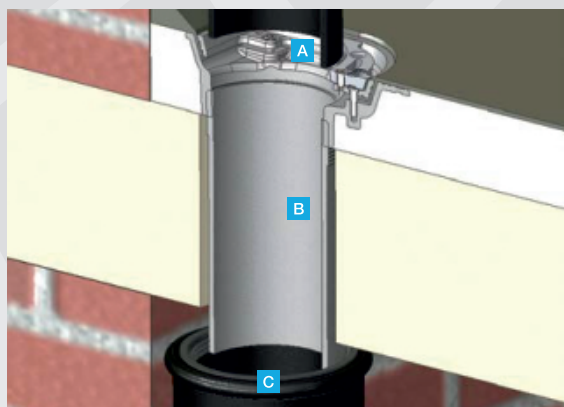
### 2. Vertical spigot outlet with raising piece

- A. Gravel
- B. Insulation
- C. Membrane
- D. Concrete Deck
- E. Raising Extension Piece VX-R710
- F. VX-R105 Spigot Body
- G. Ensign Coupling EC002
- H. Ensign Pipework



### 3. 2 way outlet with spigot adaptor

- A. VX-R500
- B. VX-F500 Adaptor
- C. Insulation
- D. Concrete Deck
- E. Cast Iron Rainwater Head



### 4. Balcony roof outlet with notched grating

- A. VX-R355 BSP Body
- B. VX-F500 Spigot Adaptor
- C. Soil Pipe Coupling GT05





The VortX range from Saint-Gobain PAM UK also consists of stainless steel floor gullies, channels and gratings in grade 304 as standard with grade 316 available on request.

#### Tiled Finish Applications

**Stainless Steel Floor Gullies**



**Stainless Steel Light/ Heavy Duty Channels**



**Stainless Steel Slot Drains**

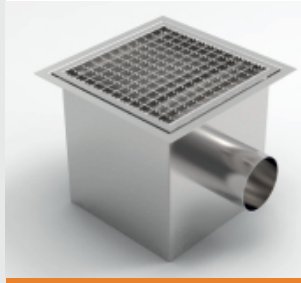


#### Vinyl Finish Applications

**Stainless Steel Vinyl Floor Gullies**



**Stainless Steel Kitchen Floor Gullies**

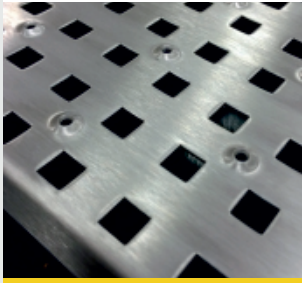


**Stainless Steel Channels**



#### Stainless Steel Channels

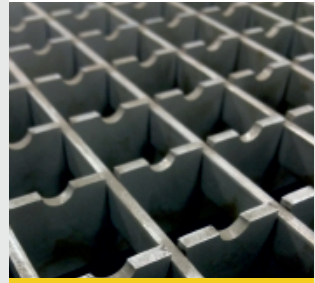
**Pressed Grate**



**Bar Grate**



**Anti-slip**



#### BIM Library



Saint-Gobain PAM UK has launched the first phase of its fully integrated parametric BIM library which includes:

- Ensign soil and drain products - most popular components
- Ensign EEZI-FIT
- VortX range of floor, roof and shower drainage products.

The Saint-Gobain PAM BIM library has been produced on the guidelines and frameworks defined by the UK standards documents, including BS 1192:2007, PAS1192-2, and BS8541-1 and BS8541-2:2011

The BIM library of components has been designed up to the LOD Specification level 350. Compatibility:

- From 2012 Autodesk REVIT (.rvt)

Access to the BIM library will be available through the Saint-Gobain website **[www.saint-gobain-pam.co.uk](http://www.saint-gobain-pam.co.uk)** or contact the PAM BIM technical consultant on 01952 262561.

**Please visit our website:**

[www.saint-gobain-pam.co.uk](http://www.saint-gobain-pam.co.uk)  
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or to request hard copies of any  
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**Quality Assurance**

Quality Management Systems  
BS EN ISO 9001:2008  
(Registered firm: 12908)



**Environmental Standard**

Environmental Management Systems  
BS EN ISO 14001:2004

visit: [www.saint-gobain-pam.co.uk](http://www.saint-gobain-pam.co.uk)

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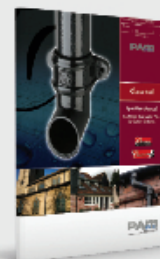
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# Other products and services available from Saint-Gobain PAM UK:



**Ensign Cast Iron Drainage**

Cast iron above and below ground drainage systems kitemarked approved to BS EN877.



**Classical Rainwater**

Traditional range of cast iron rainwater and gutter systems to BS 460.



**VortX Steel Channels & Gullies**

A range of stainless steel channels, gratings and gullies.



**Timesaver Specifiers Manual**

Cast iron above and below ground drainage systems kitemarked approved to BS 416 part 2 and BS 437.



**Access Covers and Gratings**

UK-manufactured high performing and innovative ductile iron access covers and grating solutions.



**Cyclone**

Steel gutters and rainwater systems designed to protect in the toughest weather.

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