

Aluminium Roof Outlets - Introduction to AV Outlets

The Harmer AV range offers unrivalled flow characteristics and has a proven track record for reliable performance.

Main Characteristics

Enhanced Performance

Harmer rainwater outlets provide, with the Harmer Roof AV range, anti-vortex performance from an economic, general purpose range of outlets. Harmer Roof AV incorporates a patented baffle within the grating, to prevent water swirl and air entrapment, enabling the outlet to drain at optimum pipe capacity.



The performance of AV outlets accelerates as the depth of water at the outlet or rainfall intensity increases.

The unique high flow performance of Harmer Roof AV outlets demands that each outlet is connected to a dedicated or individual rainwater stack. AV outlets should be used for securing optimum performance when connected to downpipes on a gravity system.



1 Bolts and Washers
Stainless steel

2 AV Grate
Tamper proof, secured to clamping ring by two pocketed stainless steel bolts

3 Clamping Ring
Designed to secure the waterproof membrane to the outlet body, the clamping ring is fixed to the outlet body with two stainless steel fixing studs

4 Outlet Body
Deep sump body is secured through flange to supporting structure

Key Benefits of the Harmer AV Roof Outlet Range

Drains more roof area than conventional gravity outlet.

Harmer AV can be used with any connecting pipework material, and all popular pipework sizes.

Easy installation into roofs and gutters using bituminous, single ply and wet-applied waterproofing systems.

High flow performance with increasing head of water at the outlet.

Ensures optimum efficiency of outlet capacity.

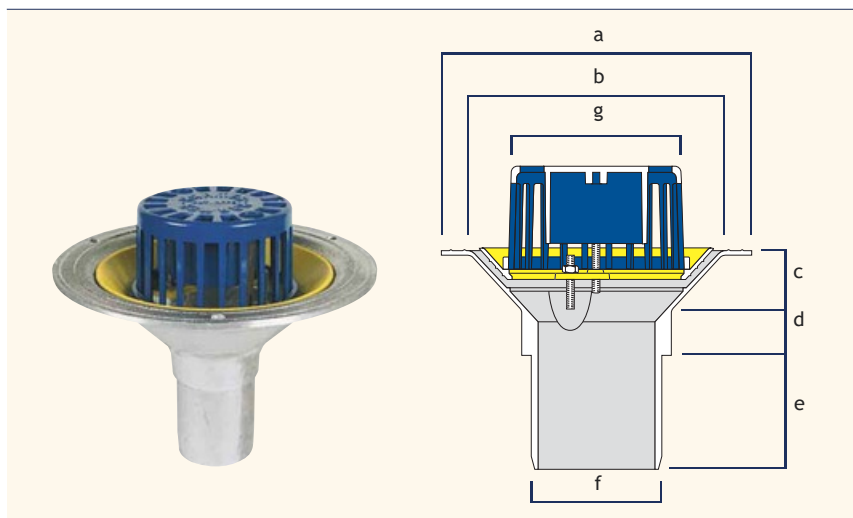
Special retro-gully for flat roof refurbishment is also available.

Aluminium Roof Outlets - AV Vertical Outlets

Harmer Roof AV Vertical rainwater outlets are designed for use with flat roof structures using either insitu cast concrete, timber or lightweight metal deck construction. Harmer Roof outlets are ideal for connection to continuous waterproofing systems using single ply membranes, mastic asphalt, high performance built-up felt and wet-applied systems.

Vertical Spigot Outlet - Domical Grate

Vertical Spigot outlets are suitable for direct connection to cast iron pipework to BS EN 877 and BS 416, HDPE pipework and PVC O-ring socketed pipe to BS 4514 and BS EN 1329-1 (AV300, AV400 and AV600 outlets only)



Flow Rate Note 1 (applies to all tables)

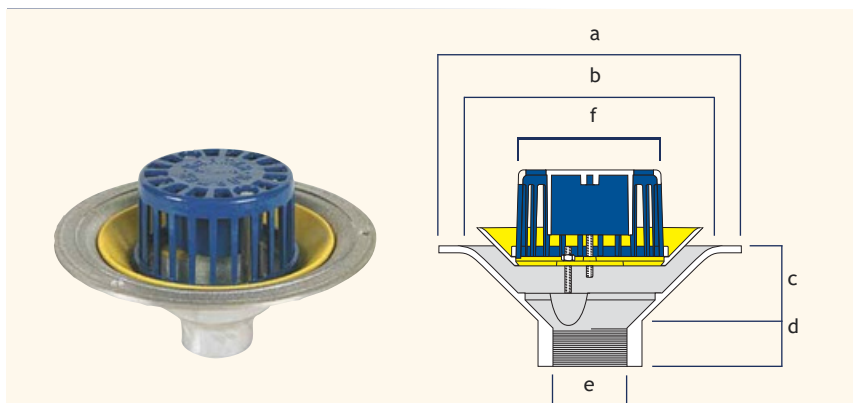
Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)	Flow Rate (l/s)	Weight (kg)	Product Code
50	292	239	74	47.5	50	73	137	1.69	2.5	AV200
75	292	239	74	47.5	75	83	137	4.97	2.7	AV300
100	380	305	94.5	39	114	110	210	10.71	4.9	AV400
150	380	305	65.5	53	129	160	210	14.07	5.0	AV600

Vertical Threaded Outlet - Domical Grate

Vertical Threaded outlets have a female socket with parallel thread to BS EN 10226-1 for direct connection to threaded tube conforming with BS EN 10226-1. This tube is supplied with BS EN 10255 taper male thread which ensures a completely watertight joint when screwed home into the socket outlet. Threaded outlets are particularly recommended where a connection to the outlet occurs within the thickness of a concrete slab. In such cases, a threaded connection will create a completely gastight seal within the slab.

Harmer Roof AV threaded outlets can be connected to socketed and socketless iron pipework, HDPE pipework and PVC pipework by means of the Harmer Roof Threaded Spigot Adaptor with appropriate Harmer coupling.



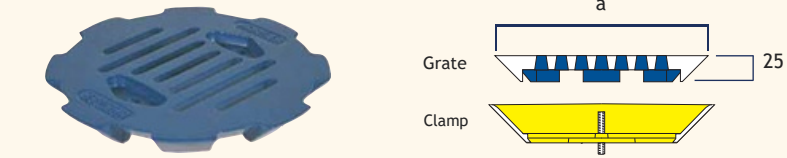
Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (BSP)	f (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50	292	239	74	47.5	2"	137	1.69	2.3	AV200T
75	292	239	74	47.5	3"	137	4.97	2.3	AV300T
100	380	305	94.5	39	4"	210	10.71	4.5	AV400T
150	380	305	65.5	53	6"	210	14.07	4.5	AV600T

Aluminium Roof Outlets - AV Vertical Outlets

Flat Grate

Flat grates should be used if the outlet occurs in an area which is subject to pedestrian traffic. These grates are also designed for use with Harmer Modulock drainage system where concealed rainwater outlets are used.

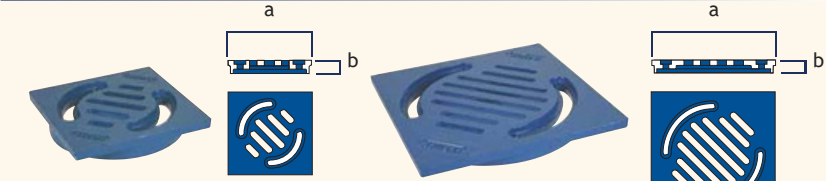
To specify or order, add suffix /F to the product codes on page 16, e.g 100mm Vertical Spigot outlet with Flat Grate: AV400/F.



Outlet Size (kg)	a	Flow Rate (l/s) ¹	Load Rating (tonne)	Weight (kg)	Suffix
50	200	1.69	1.5	0.8	/F
75	200	4.97	1.5	0.8	/F
100	270	10.71	1.5	1.2	/F
150	270	15.55	1.5	1.2	/F

Terrace Grates

Terrace Grates are designed for installation in terrace tiles or brick paviors. They should be used in connection with Grate Extension Pieces which raise the Terrace Grate to the level of the paved surface. The radius slots in the grate allow for movement through 90° permitting adjustment to suit surrounding paving prior to final tightening.



Terrace Grate 2/3TG (For use with Extension Piece 2/3EP)

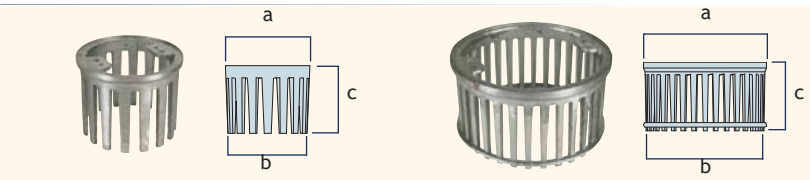
Terrace Grate 4/6TG (For use with Extension Piece 4/6EP)

Outlet Size (mm)	a (mm)	b (mm)	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Product Code
50	150	25	1.69	1.5	0.7	2/3TG
75	150	25	4.97	1.5	0.7	2/3TG
100	232	25	10.71	1.5	1.6	4/6TG
150	232	25	15.55	1.5	1.6	4/6TG

Grate Extension Pieces

Grate Extension Pieces are for applications where it is necessary to raise the level of the grate above the body of the outlet such as in inverted roof construction.

The Grate Extension Pieces will accept domical grates and terrace grates but not standard flat grates. Terrace Grates can be used only in connection with grate extension pieces. The extension pieces can be cut down if necessary to suit the thickness of paving or tiles. This can be done easily on site with a hacksaw, or, if required, pieces can be trimmed prior to delivery.



Grate Extension Piece 2/3EP


Grate Extension Piece 4/6EP

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	Weight (kg)	Product Code
50	161	150	128	0.7	2/3EP
75	161	150	128	0.7	2/3EP
100	233	222	128	1.3	4/6EP
150	233	222	128	1.3	4/6EP

Grate Extension Pieces are supplied with one set of stainless steel extension studs per outlet.

Gravel Guard

Made of stainless steel, the Gravel Guard is used with Domical Grates on roofs with gravel finish to prevent ingress of insulation and gravel into the outlet. Other heights are available to order.



Outlet Size (nominal)	a (mm)	b (mm)	Weight (kg)	Product Code
Medium Sump	150	200	0.5	C4/GG/15
Medium Sump	200	200	0.6	C4/GG/20
Large Sump	150	305	0.8	C6/GG/15
Large Sump	200	305	0.9	C6/GG/20

Aluminium Roof Outlets - AV Retro-Gully Outlets

Harmer Roof AV Retro-Gully outlets are designed to fit within the existing outlet and pipework of the roof which is being upgraded. Because of minimal disturbance and the ease with which the Retro-Gully is fitted, it represents an extremely cost-effective and efficient solution to flat roof upgrading.

Application

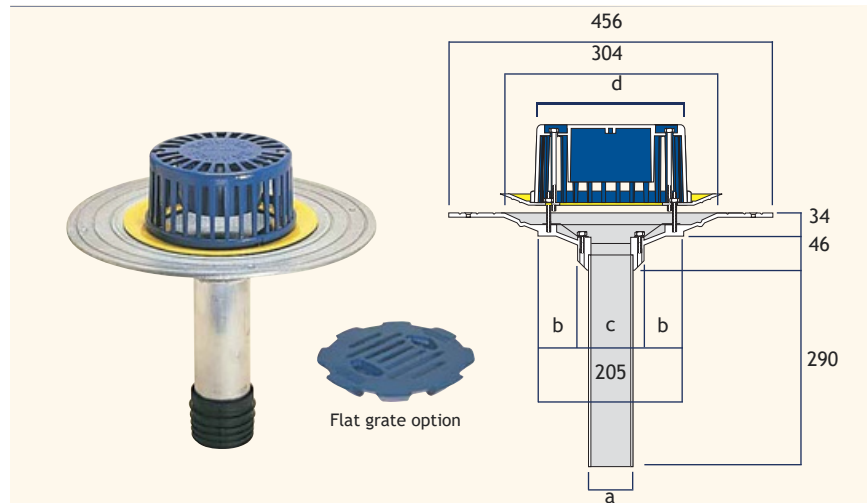
The use of AV increases flow performance at the outlet location regardless of pipe diameter downsizing.

There is no need to remove the old rainwater outlet.

The outlet body is in diecast LM6 aluminium silicon alloy to BS EN 1706, and incorporates a welded 300mm aluminium tail pipe. The tail pipe, cut to the required length, is simply inserted through the existing outlet, into existing pipework, and sealed by means of the Harmer Roof AV special multi-fin pipe seal. This seal creates a watertight junction between existing pipework and the Retro-Gully tail pipe. The outlet body's wide fixing flange incorporates concentric grooves which enhance the bond with roofing felts or asphalt.

An LM6 aluminium silicon clamping ring, also has a ridged under-surface for improved bond with roofing membranes.

Two sealable ports in the outlet body are designed for injection of PU foam to fill the void between old and new outlet.



Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	Flow Rates ¹ (l/s)	Weights (mm)	Product Code
75	63.5	55	95	137	4.63	5.4	RAV75
100	88.9	42	120	210	5.53	4.9	RAV100

Existing Pipe Diameter Ranges Suitable for Connection to AV Retro-Gully

Existing pipework internal diameter (mm)	Product Code
71.5 - 78.5	RAV75
97.0 - 104.0	RAV100

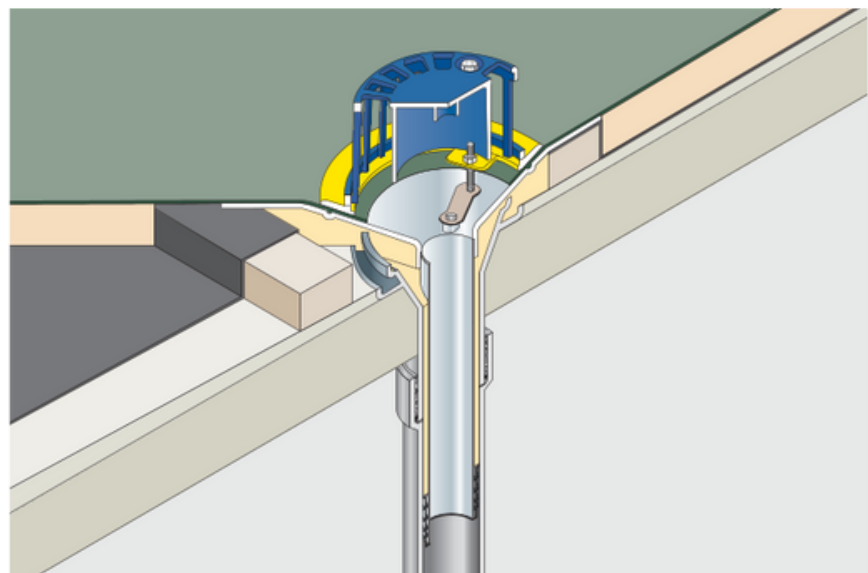
Connection to Pipework

The Retro-Gully may be used for any type of warm roof refurbishment and with any flat roof waterproofing system. 75mm and 100mm pipework options are available, and will accommodate variations on pipe internal diameter from PVC through to cast iron pipe systems.

The AV Retro-Gully has been designed in conjunction with the Flat Roofing Alliance (FRA).

Flow Rate Note 1 (applies to table)

Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.



Aluminium Roof Outlets - Introduction to Detail Outlets

The Harmer Roof Detail range includes outlets to cover all the awkward detailing situations that occur in building design and in refurbishment.

Main Characteristics

Harmer Roof Detail outlets incorporate all the key features inherent in the Alumasc design approach to trouble-free flat roof drainage:

Integral and generously proportioned sump ensures an adequate head of water for a steady flow into the rainwater pipe.

Clamp fixing of the waterproof membrane to the sides of the sump completely eliminates any risk of leakage through capillary action or back pressure.

Elimination of flashings means there is nothing which might reduce the effective bore of the rainwater pipe and restrict the flow of water.

Connection to all standard sizes of pipework.

Areas of Application

Harmer Roof Detail includes outlets specially designed for the following situations:

Spigot or Screw threaded aluminium outlets cast in LM6 aluminium alloy for connection to drainage pipework at 45° and 90°.

Two-way screw threaded outlets cast in LM6 aluminium alloy for connection to pipework through a parapet. Two-way outlets can be installed to provide either vertical or horizontal take-off, and are particularly suitable for parapet type applications.

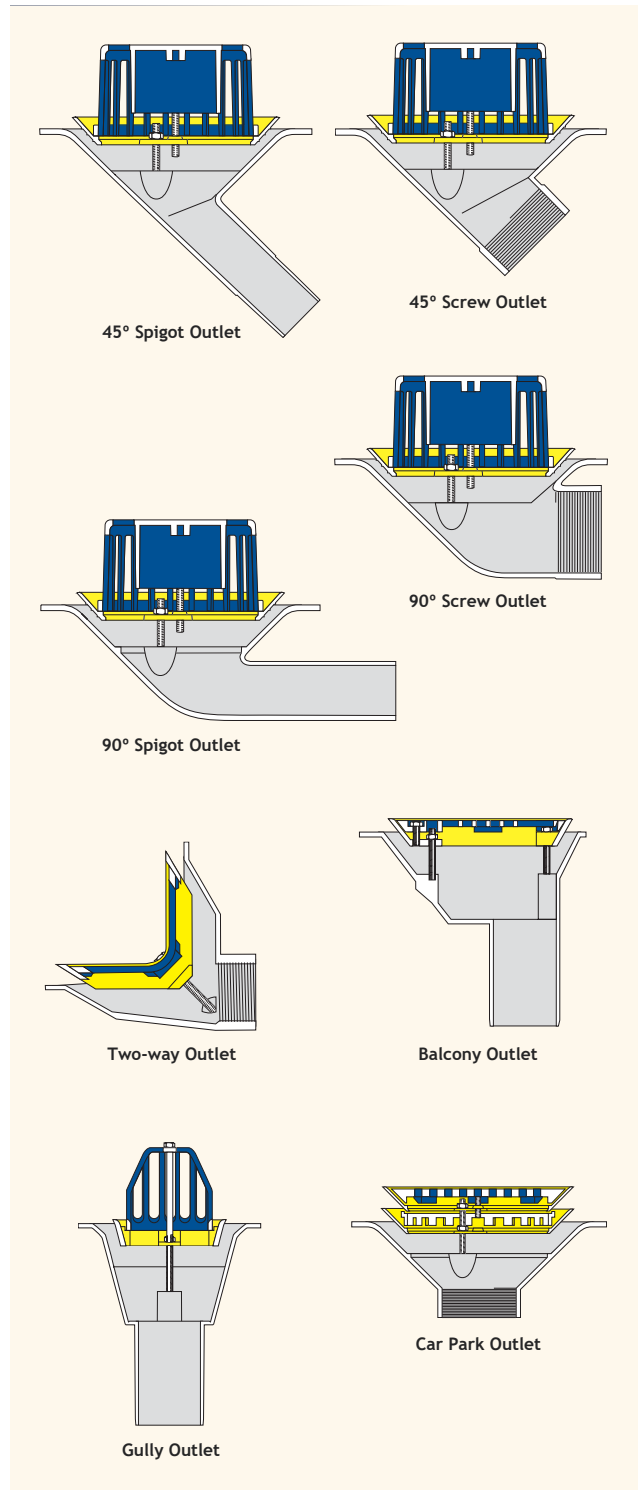
Balcony spigot outlets cast in LM6 aluminium alloy for balcony drainage or similar applications. Supplied with a flat grate, the balcony outlet is ideal for use in areas of pedestrian access. Grates can be hole punched to receive 50, 75 or 100mm diameter rainwater down pipes.

Gully spigot outlets cast in LM6 aluminium alloy for narrow gutter and gully drainage where an outlet narrower than the standard AV outlet is required.

Screw threaded car park and service deck drains cast in LM6 aluminium alloy for drainage requirements in multi-level car park and utility areas.

Bespoke Manufacture

Rainwater outlets can be modified to have extended pipework as well as pipe conversions to co-ordinate with Alumasc colour coated, external rainwater pipe systems. Contact Harmer Technical Department for all bespoke requirements.

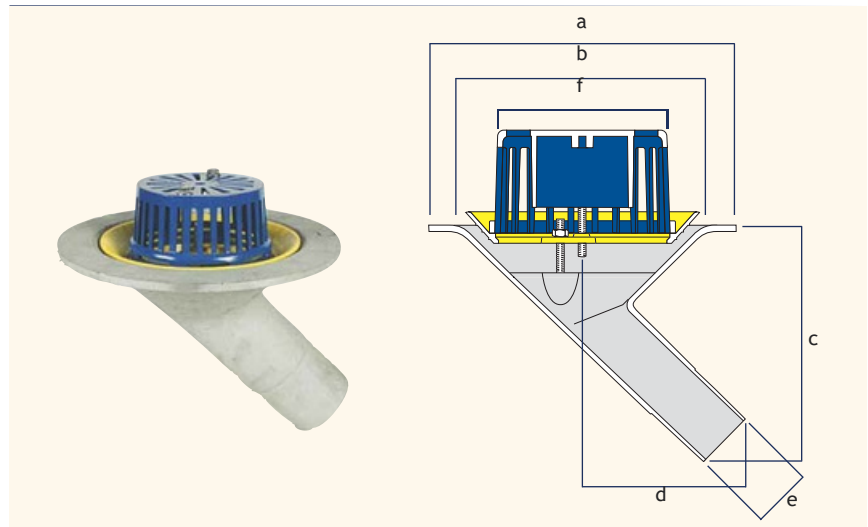


Aluminium Roof Outlets - 45° Detail Outlets

Harmer Roof 45° Detail outlets are designed for use with flat roof structures using either insitu cast concrete, timber and lightweight metal deck construction. Harmer Roof outlets are ideal for connection to continuous waterproofing systems using single ply membranes, mastic asphalt or high performance built-up felt.

45° Spigot Outlet - Domical Grate

45° Spigot outlets are suitable for connection to cast iron pipework to BS EN 877 and BS 416, HDPE pipework and PVC pipe to BS 4514 and BS EN 1329-1.

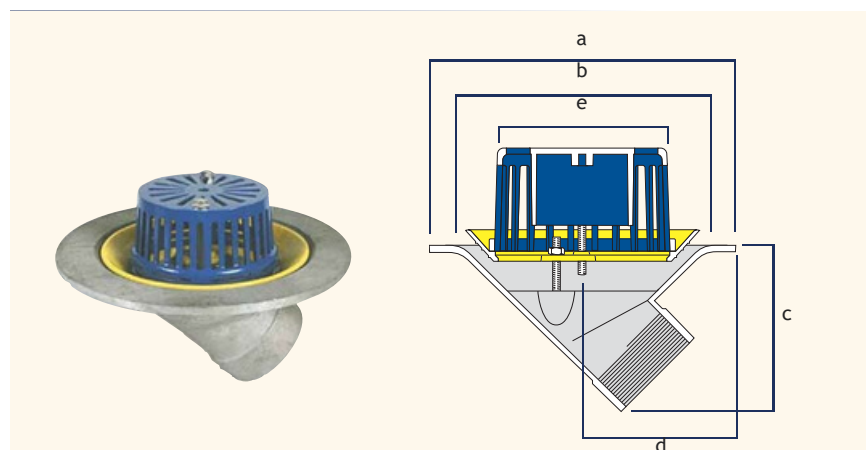


Flow Rate Note 1 (applies to all tables)
Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	Flow Rate1 (l/s)	Weight (kg)	Product Code
50	305	229	229	175	62	137	1.69	3.6	245
75	305	229	235	175	87	137	4.97	4.2	345
100	372	305	273	191	114	210	10.66	6.0	445

45° Threaded Outlet - Domical Grate

45° Screw outlets have a female socket with parallel thread to BS EN 10226-1 for direct connection to threaded tube conforming with BS EN 10226-1. This tube is supplied with BS EN 10255 taper male thread which ensures a completely watertight joint when screwed home into the socket outlet. Threaded outlets are particularly recommended where a connection to the outlet occurs within the thickness of a concrete slab. In such cases, a threaded connection will create a completely gastight seal within the slab. Harmer Roof AV threaded outlets can be connected to socketed and socketless cast iron pipework, HDPE pipework and PVC pipework by means of the Harmer Roof Threaded Spigot Adaptor (page 34) with appropriate Harmer coupling (page 32).

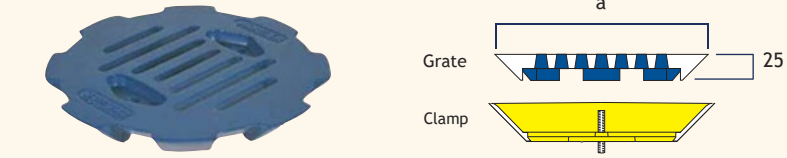


Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	Flow Rate1 (l/s)	Weight (kg)	Product Code
50	305	229	159	109	137	1.69	3.8	245T
75	305	229	159	109	137	4.97	3.5	345T
100	372	305	186	113	210	10.71	6.0	445T

Aluminium Roof Outlets - 45° Detail Outlets

Flat Grate

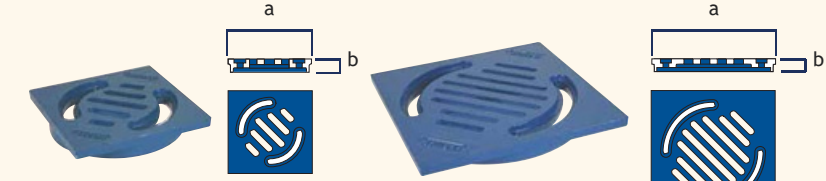
Flat grates should be used if the outlet occurs in an area which is subject to pedestrian traffic. These grates are also designed for use with Harmer Modulock drainage system where concealed rainwater outlets are used.



Outlet Size (kg)	a	Flow Rate (l/s) ¹	Load Rating (tonne)	Weight (kg)	Suffix
50	200	1.69	1.5	0.8	/F
75	200	4.97	1.5	0.8	/F
100	270	10.71	1.5	1.2	/F
150	270	15.55	1.5	1.2	/F

Terrace Grates

Terrace Grates are designed for installation in terrace tiles or brick paviors. They should be used in connection with Grate Extension Pieces which raise the Terrace Grate to the level of the paved surface. The radius slots in the grate allow for movement through 90° permitting adjustment to suit surrounding paving prior to final tightening.



Terrace Grate 2/3TG (For use with Extension Piece 2/3EP)

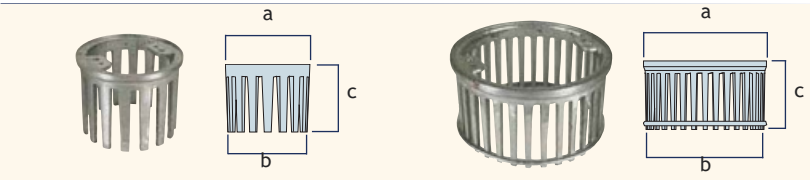
Terrace Grate 4/6TG (For use with Extension Piece 4/6EP)

Outlet Size (mm)	a (mm)	b (mm)	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Product Code
50	150	25	1.69	1.5	0.7	2/3TG
75	150	25	4.97	1.5	0.7	2/3TG
100	232	25	10.71	1.5	1.6	4/6TG
150	232	25	15.55	1.5	1.6	4/6TG

Grate Extension Pieces

Grate Extension Pieces are for applications where it is necessary to raise the level of the grate above the body of the outlet such as in inverted roof construction.

The Grate Extension Pieces will accept domical grates and terrace grates but not standard flat grates. Terrace Grates can be used only in connection with grate extension pieces. The extension pieces can be cut down if necessary to suit the thickness of paving or tiles. This can be done easily on site with a hacksaw, or, if required, extension pieces can be trimmed prior to delivery.




Grate Extension Piece 2/3EP

Grate Extension Piece 4/6EP

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	Weight (kg)	Product Code
50	161	150	128	0.7	2/3EP
75	161	150	128	0.7	2/3EP
100	233	222	128	1.3	4/6EP
150	233	222	128	1.3	4/6EP

Gravel Guard

Made of stainless steel, the Gravel Guard is used with Domical Grates on roofs with gravel finish to prevent ingress of insulation and gravel into the outlet. Other heights are available to order.



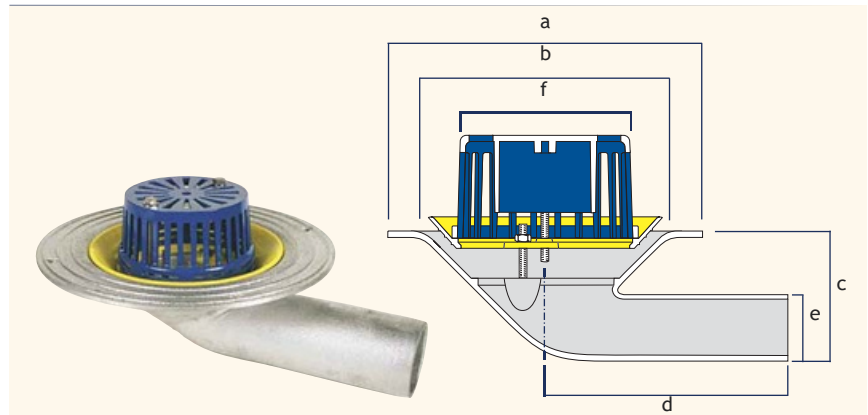
Outlet Size (nominal)	a (mm)	b (mm)	Weight (kg)	Product Code
Medium Sump	150	200	0.5	C4/GG/15
Medium Sump	200	200	0.6	C4/GG/20
Large Sump	150	305	0.8	C6/GG/15
Large Sump	200	305	0.9	C6/GG/20

Aluminium Roof Outlets - 90° Detail Outlets

Harmer Roof 90° Detail outlets are designed for use with flat roof structures using either insitu cast concrete, timber and lightweight metal deck construction. Harmer Roof outlets are ideal for connection to continuous waterproofing systems using single ply membranes, mastic asphalt or high performance built-up felt.

90° Spigot Outlet - Domical Grate

90° Spigot outlets are suitable for direct connection to cast iron pipework to BS EN 877 and BS 416, HDPE pipework and PVC O-ring socketed pipe to BS 4514 and BS EN 1329-1. Please see Harmer couplings available.



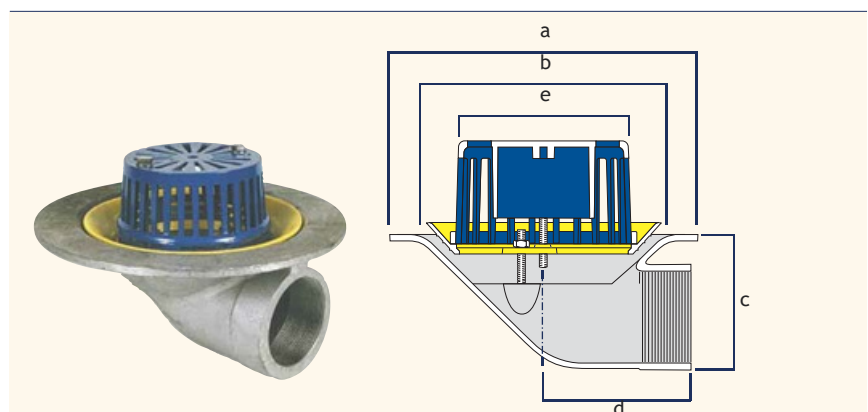
Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50	305	229	124	232	62	137	1.69	4.0	290
75	329	229	121	267	83	137	3.31	3.8	390
100	405	305	142	285	110	210	7.19	5.5	490

Flow Rate Note 1 (applies to all tables)

Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.

90° Threaded Outlet - Domical Grate

90° Screw outlets have a female socket with parallel thread to BS EN 10226-1 for direct connection to threaded tube conforming with BS EN 10226-1. This tube is supplied with BS EN 10255 taper male thread which ensures a completely watertight joint when screwed home into the socket outlet. Threaded outlets are particularly recommended where a connection to the outlet occurs within the thickness of a concrete slab. In such cases, a threaded connection will create a completely gastight seal within the slab. Harmer Roof AV threaded outlets can be connected to socketed and socketless cast iron pipework, HDPE pipework and PVC pipework by means of the Harmer Roof Threaded Spigot Adaptor with appropriate Harmer coupling.



Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50	305	229	127	140	137	1.69	3.9	290T
75	305	229	127	140	137	3.39	3.7	390T
100	356	305	172	152	210	7.29	5.5	490T
150	356	305	225	152	210	10.01	7.0	690T

Aluminium Roof Outlets - 90° Detail Outlets

Flat Grate

Flat grates should be used if the outlet occurs in an area which is subject to pedestrian traffic. These grates are also designed for use with Harmer Modulock drainage system where concealed rainwater outlets are used.

To specify or order, add suffix /F to the product codes on page 22, e.g 100mm Vertical Spigot outlet with Flat Grate: AV400/F.

Outlet Size (kg)	a	Flow Rate (l/s) ¹	Load Rating (tonne)	Weight (kg)	Suffix
50	200	1.69	1.5	0.8	/F
75	200	4.97	1.5	0.8	/F
100	270	10.71	1.5	1.2	/F
150	270	15.55	1.5	1.2	/F

Terrace Grates

Terrace Grates are designed for installation in terrace tiles or brick paviors. They should be used in connection with Grate Extension Pieces which raise the Terrace Grate to the level of the paved surface. The radius slots in the grate allow for movement through 90° permitting adjustment to suit surrounding paving prior to final tightening.

Outlet Size (mm)	a (mm)	b (mm)	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Product Code
50	150	25	1.69	1.5	0.7	2/3TG
75	150	25	4.97	1.5	0.7	2/3TG
100	232	25	10.71	1.5	1.6	4/6TG
150	232	25	15.55	1.5	1.6	4/6TG

Grate Extension Pieces

Grate Extension Pieces are for applications where it is necessary to raise the level of the grate above the body of the outlet such as in inverted roof construction. (See page 38)

The Grate Extension Pieces will accept domical grates and terrace grates but not standard flat grates. Terrace Grates can be used only in connection with grate extension pieces. The extension pieces can be cut down if necessary to suit the thickness of paving or tiles. This can be done easily on site with a hacksaw, or, if required, extension pieces can be trimmed prior to delivery.

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	Weight (kg)	Product Code
50	161	150	128	0.7	2/3EP
75	161	150	128	0.7	2/3EP
100	233	222	128	1.3	4/6EP
150	233	222	128	1.3	4/6EP

Gravel Guard

Made of stainless steel, the Gravel Guard is used with Domical Grates on roofs with gravel finish to prevent ingress of insulation and gravel into the outlet. Other heights are available to order.

Outlet Size (nominal)	a (mm)	b (mm)	Weight (kg)	Product Code
Medium Sump	150	200	0.5	C4/GG/15
Medium Sump	200	200	0.6	C4/GG/20
Large Sump	150	305	0.8	C6/GG/15
Large Sump	200	305	0.9	C6/GG/20

Aluminium Roof Outlets - Car Park Detail Outlets

Harmer Roof Car Park Detail outlets have been specially designed for installation in parking decks for cars and light commercial vehicles (ie, where there is a maximum single wheel loading of 1.5 tonne). The threaded body is available in two types, flanged and flangeless.

Car Park Outlet Flanged

Harmer Roof Car Park Detail outlets provide the ideal drainage and installation solution where car park deck drainage is required in either asphalted concrete deck or float finish concrete decks.

The Flanged Car Park outlets are designed to be cast insitu and feature a double clamp arrangement to allow the individual attachment of the wearing course and the waterproofing course that are applied to the concrete deck.

Load rating L15 - 1.5 tonne

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
100	380	305	95	38	288	10.71	5.0	400CP
150	380	305	76	38	288	15.55	5.1	600CP

Car Park Outlet Flangeless

Flangeless Car Park Detail outlets are also designed for cast insitu slab construction where waterproofing is not required. They feature a combined clamp and grate arrangement which is securely bolted to the body of the outlet. The combination of clamp and grate as a single unit generally improves strength and stability as well as providing quick and easy access to pipework.

Load rating L15 - 1.5 tonne

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
100	305	95	38	288	10.71	4.9	400T/DD
150	305	76	38	288	15.55	5.0	600T/DD

Connections

The use of Harmer Adaptors for both Flanged and Flangeless Car Park Detail outlets provides a convenient solution for pipe connection through a structural concrete deck.

A special length Adaptor is available where the depth of the concrete deck is greater than a standard Adaptor length.

Car Park Outlets have a female socket with parallel thread to BS EN 10226-1 for direct connection to threaded tube conforming with BS EN 10255. The tube must be threaded in accordance with BS EN 10226-1 taper male thread to ensure a completely watertight joint when screwed home into the socket of the outlet. Threaded outlets are particularly recommended where a connection to the outlet occurs within the thickness of the concrete slab. In such cases, a threaded connection will create a completely gastight seal within the slab. Harmer Roof Detail Car Park outlets can be connected to socketless cast iron pipework conforming to BS EN 877 as well as socketed PVCu and HDPE systems by means of the Harmer Roof Threaded Spigot Adaptor with appropriate Harmer coupling.

Aluminium Roof Outlets - Balcony Detail Outlets

Harmer Roof Balcony Detail outlets are designed for use with concrete balcony structures and are fitted with flat grates for safe drainage in pedestrian accessed areas. Balconies provide additional living space both in new build and refurbishment projects. AWMS can manufacture bespoke products especially for modern balconies on high-rise commercial developments.

Introduction

The range consists of the traditional large sump outlet and a NEW shallow sump range which incorporates a wide selection of grating options in Stainless Steel and Nickel Bronze for use with epoxy resin finishes and tiled areas. Harmer Balcony outlets are ideal for use with all types of waterproofing membranes including mastic asphalt, elastomeric felts, liquid plastics and most single ply systems.

The Harmer Balcony Detail range can be combined with Alumasc rainwater products including Flushjoint and Heritage pipework to provide continuous drainage in series on multi-storey buildings. Colour matching and bespoke manufacture of the rainwater system are catered for through Alumasc's made to order service.

The balcony outlet range is also suitable for use with the Modulock range of drainage channels and paving supports in areas where level access or permeable drainage is required.



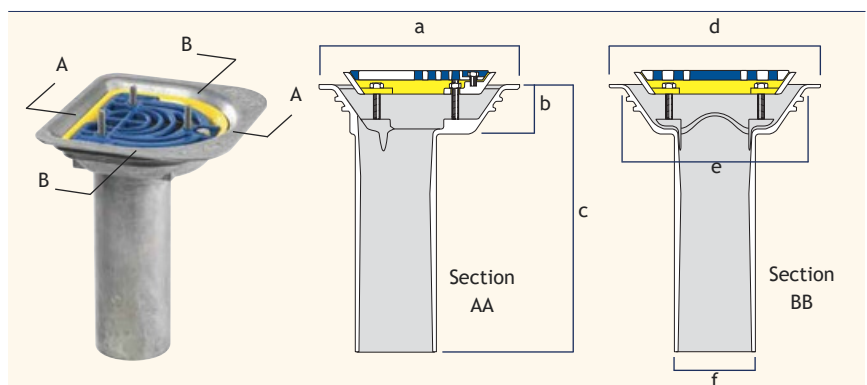
Mini Balcony Outlet

The new Harmer aluminium mini balcony outlet provides an unobtrusive solution for use on balcony applications. The shallow 50mm sump is designed to avoid interference with steel reinforcement and is easily installed in new and refurbishment applications. The standard range consists of 63mm and 83mm diameter outlet sizes. Other Round, Square and Rectangular outlet connections for use with Alumasc rainwater systems are available on request.

Standard Grate

Similar in function to the deep sump Harmer Detail Balcony outlet, the grating fits level with the clamping ring regardless of the thickness of waterproofing membrane.

Rainwater pipes from upper level balconies can either freely discharge over the grating or the cut-outs in the grating can be removed on site to allow the rainwater pipe to discharge within the sump area.



Flow Rate Note 1 (applies to table)

Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.

Outlet Size (mm)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	Flow Rate (l/s)	Load (tonn)	Weight (kg)	Product Code
50	197.5	50	270	215	185	63	1.7		1.6	2BO/M
75	197.5	50	270	215	185	83	4.8	0.3	1.7	3BO/M

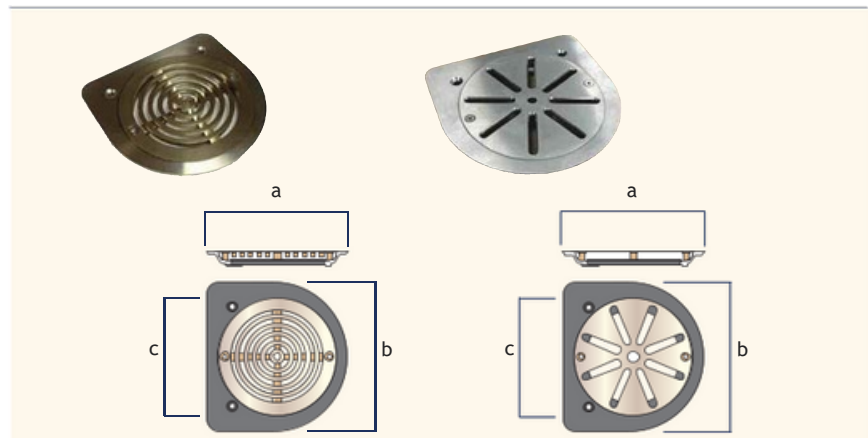
Aluminium Roof Outlets - Balcony Detail Outlets

Fixed Height Grate Options

For added quality and finished appearance of any Harmer Mini Balcony outlet installation, a choice of stainless steel or nickel bronze gratings can be fitted.

After waterproofing to the outlet and the clamp ring has been fastened down, an adaptor bezel is fitted to the clamp ring which allows for the fitting of a Star pattern or Concentric Ring grate.

Gratings are available in stainless steel or nickel bronze.



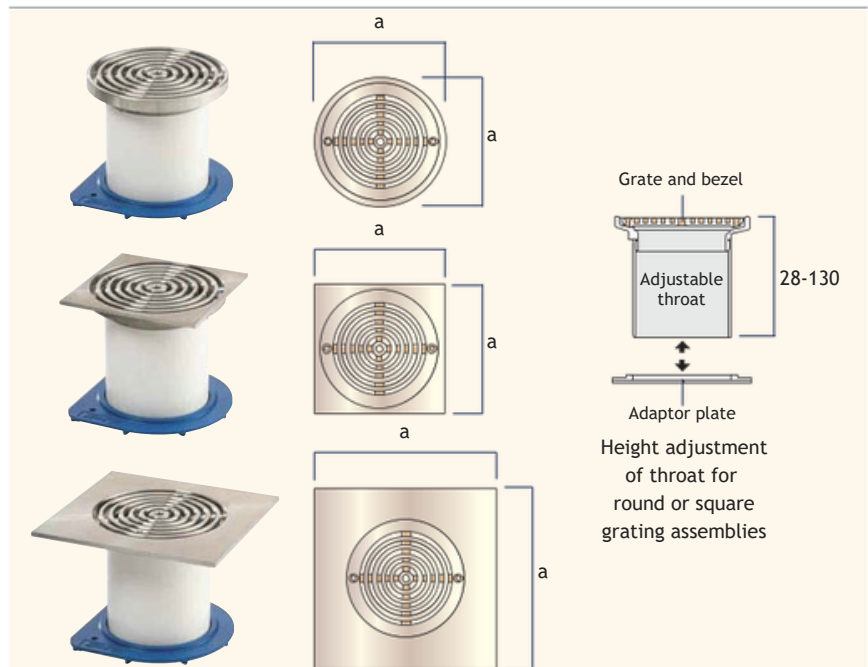
Material	Grate Type	a (mm)	b (mm)	c (mm)	Flow Rate ¹ (l/s)	Load Class	Weight (kg)	Product Code
Stainless steel	Star	165.5	175	137.5	3.3*	K3	1.1	/SS
Stainless steel	Concentric ring	165.5	175	137.5	2.1*	K3	1.1	/RS
Nickel bronze	Star	165.5	175	137.5	3.3*	K3	1.1	/SN
Nickel bronze	Concentric ring	165.5	175	137.5	2.1*	K3	1.1	/RN

*Flow rate on 2B0/M is restricted to 1.69 l/s in accordance with BS EN 12056 pipe capacity

Adjustable Height Grate Options

In addition to fixed height grates, height adjustable grates and bezels in stainless steel or nickel bronze are also available.

After waterproofing to the balcony outlet and the clamp ring has been fastened down, an adaptor plate is fitted to the clamp ring which allows for the insertion of a height adjustable throat complete with round or square grating assembly. The standard plastic throat can be cut down to the required height of paved or tiled surrounds. This is particularly useful where paving slabs are being laid on Harmer Modulock Raised Deck Supports.



Material	Grate Type	a (mm)	Flow Rate ¹ (l/s)	Load Class	Weight (kg)	Product Code
Stainless steel	Round 150mm	150	3.3*	K3	1.3	/C15S
Stainless steel	Square 150mm	150	3.3*	K3	1.3	/S15S
Stainless steel	Square 200mm	200	3.3*	K3	1.8	/S20S
Nickel bronze	Round 150mm	150	3.3*	K3	1.3	/C15N
Nickel bronze	Square 150mm	150	3.3*	K3	1.3	/S15N
Nickel bronze	Square 200mm	200	3.3*	K3	1.8	/S20N

*Flow rate on 2B0/M is restricted to 1.69 l/s in accordance with BS EN 12056 pipe capacity

Aluminium Roof Outlets - Balcony Detail Outlets

The Large Balcony outlet is ideal for use where larger balcony water catchment areas dictate the discharge requirements.

Large Balcony Outlet

Balcony outlets are suitable for direct connection to: Cast iron pipework to BS 416: 1973 or EN 877, PVC O-ring socketed pipe to BS 4514: 1983 (3BO and 4BO outlets only).

Balcony outlets can also be connected to Alumasc's aluminium Flushjoint and Heritage rainwater pipes.

Flat grates can be supplied with holes punched out to receive 50, 75 or 100mm nominal bore rainwater downpipes. When ordering pre-punched grates, add the following suffixes shown in blue to the product codes:

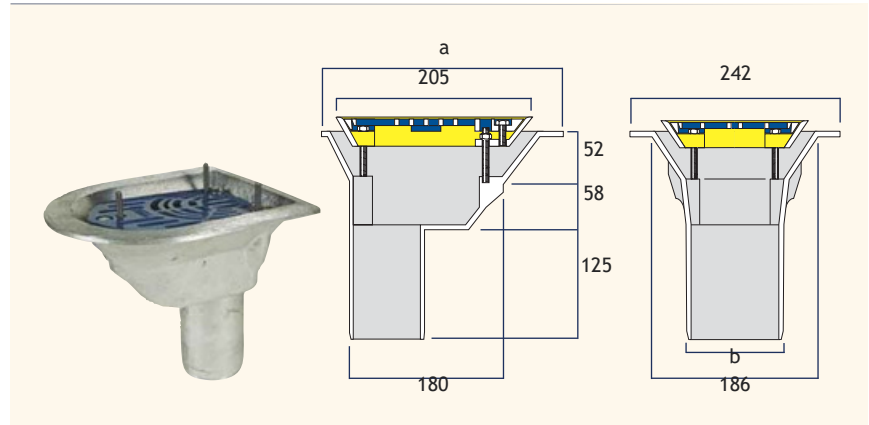
2BO/**2H** for 50mm pipe

3BO/**3H** for 75mm pipe

4BO/**4H** for 100mm pipe

Alternatively, where grates are not supplied pre-punched, the hole can be cut on site by the installer.

The Balcony outlet can be used with an extension piece.



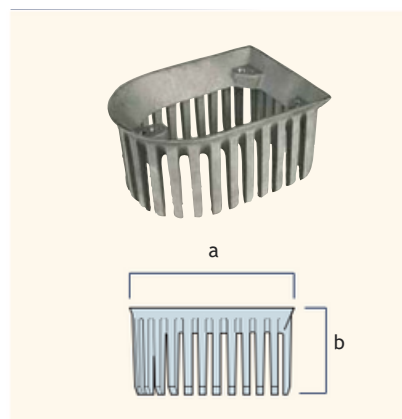
Outlet Size (mm)	a (mm)	b (mm)	Flow Rate1 (l/s)	Weight (kg)	Product Code
50	270	60	1.69	2.8	2BO
75	270	83	4.97	3.1	3BO
100	270	110	8.41	3.3	4BO

Grate Extension Piece

The Grate Extension Piece is for applications where it is necessary to raise the level of the grate above the body of the outlet such as in inverted roof construction.

The extension piece can be cut down if necessary to suit the thickness of paving or tiles. This can be done easily on site with a hacksaw, or, if required, extension pieces can be trimmed prior to delivery.

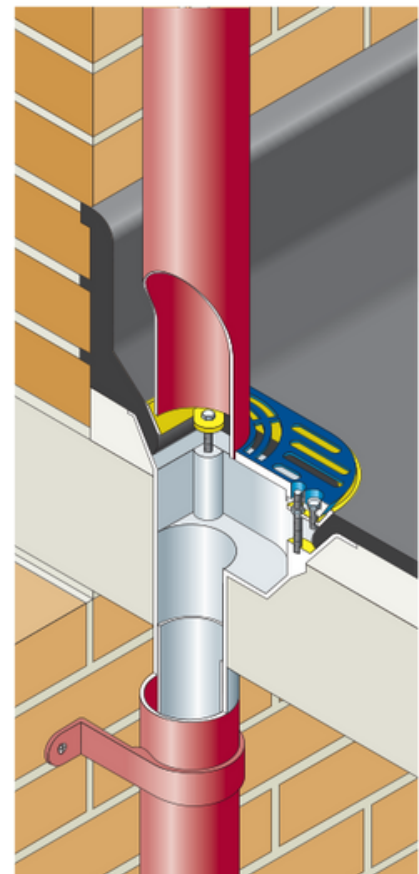
The Grate Extension Piece is supplied with one set of stainless steel extension studs per outlet.



Outlet Size (mm)	a (mm)	b (mm)	Product Code
50	220	115	BO/EP
75	220	115	BO/EP
100	220	115	BO/EP

Flow Rate Note 1 (applies to table)

Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.



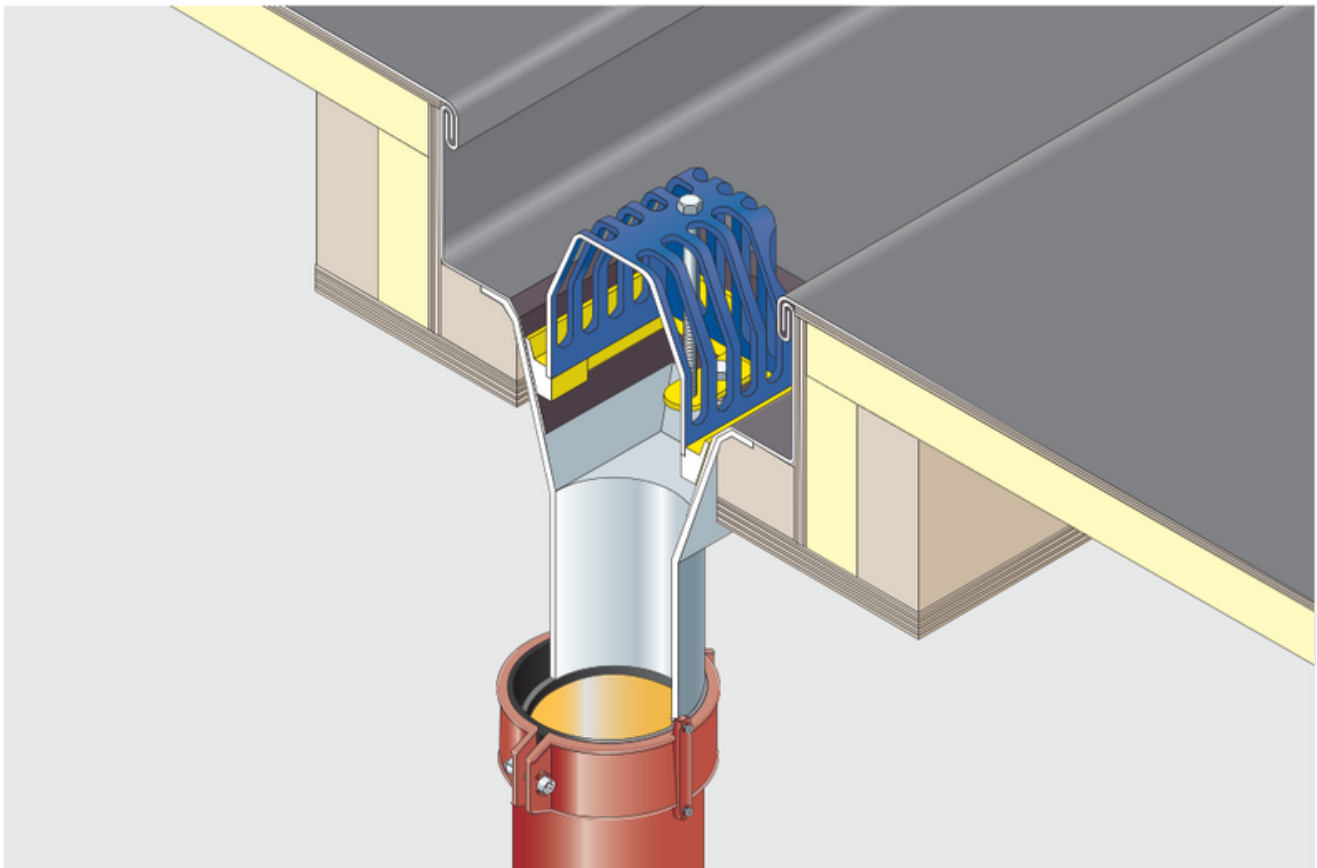
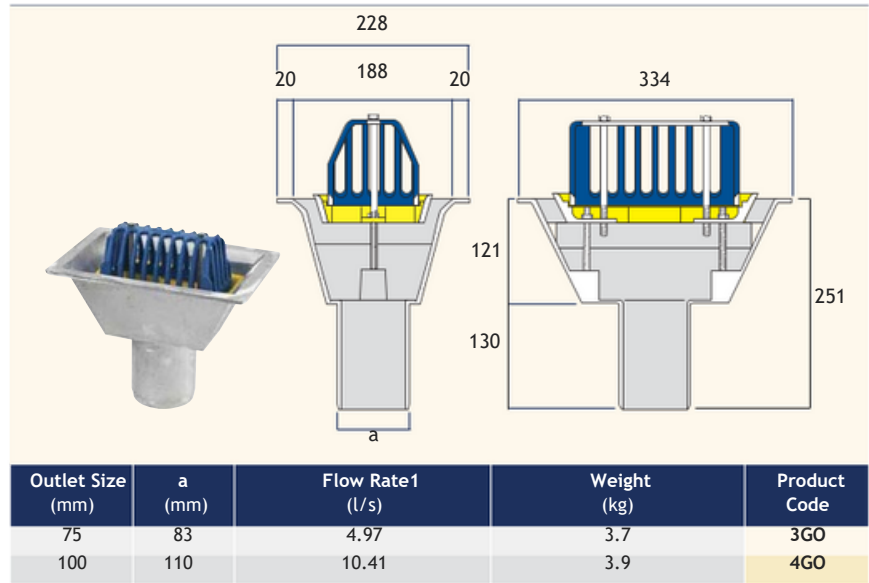
Aluminium Roof Outlets - Gully Detail Outlets

Harmer Roof Gully Detail outlets should be used in roof constructions incorporating formed drainage channels. They are specially designed to suit internal flat roof gutters.

Gully Outlet

Gully outlets are suitable for direct connection to: Cast iron pipework to BS EN 877 and BS 416, HDPE pipework and PVC O-ring socketed pipework to BS 4514 (3GO and 4GO outlets).

Spigots are sized to suit nominal diameter pipework shown in the table opposite.



Aluminium Roof Outlets - Two-Way Detail Outlets

Harmer Roof Two-Way Detail outlets are designed for applications where an angle is formed by the intersection of vertical and horizontal surfaces (for example, where a balcony or roof meets a parapet wall). They can be installed to provide either vertical or horizontal run-off and are suitable for use with most types of waterproofing membrane.

Two-Way Detail Outlets

Two-Way Detail outlets have a female socket with parallel thread to BS EN 10226-1 for direct connection to threaded tube conforming with BS EN 10226-1. This tube is supplied with BS EN 10255 taper male thread which ensures a completely watertight joint when screwed home into the socket outlet. Screw outlets are particularly recommended where a connection to the outlet occurs within the thickness of a concrete slab. In such cases a threaded connection, achieved by use of a Harmer Roof Threaded Spigot Adaptor, will create a completely gas-tight seal within the slab. Harmer Two-Way Detail outlets can be connected to socketed and socketless cast iron pipework, HDPE pipework and PVC pipework by means of the Harmer Roof Threaded Spigot Adaptor with appropriate Harmer coupling.

A welded spigot version of the Two-Way Detail outlet can also be manufactured on request.

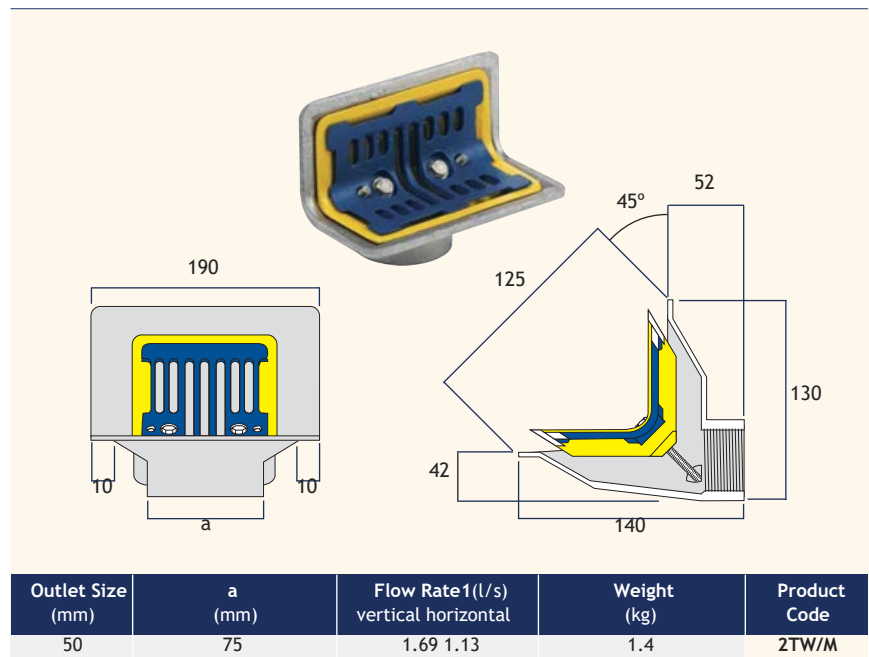


Mini Two-Way

Specially designed for connection to 50mm pipework in situations where the drainage requirement is small, such as domestic balconies. Outlet connection is 2" BSP thread.

Flow Rate Note 1 (applies to table)

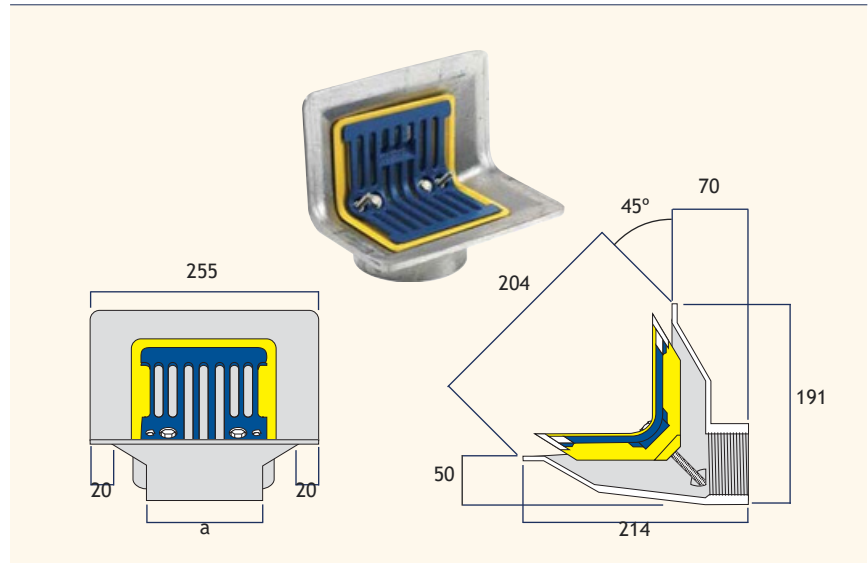
Flow rates are in litres per second based on flow rate test data. Where tested flow rates are greater than pipe capacity limits of BS EN 12056, the pipe capacity limit has been shown. Contact Harmer Technical Services for variable outlet performance to specific depth of water and rainfall intensity.



Aluminium Roof Outlets - Two-Way Detail Outlets

Regular Two-Way

The Regular Two-Way is designed for use in many applications. The sump is compact yet provides adequate drainage for most parapet applications, and it has three outlet options in 2", 3", and 4" BSP thread.



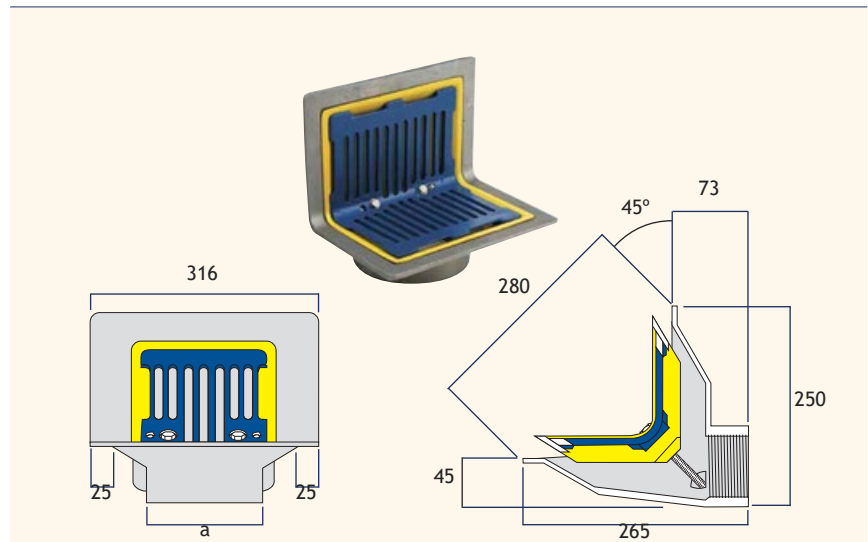
Note on special modifications

Roof outlets can have special modifications applied such as welded aluminium tail pipe to eliminate the typical jointing detail as associated within a concrete slab. Please refer to page 43.

Outlet Size (mm)	a (mm)	Flow Rate1 (l/s)		Weight (kg)	Product Code
		vertical	horizontal		
50	75	1.69	1.69	2.4	2TW
75	107	3.94	1.47	2.6	3TW
100	130	6.00	2.05	2.5	4TW

Large Two-Way

The Large Two-Way is designed for use on large surface drainage areas where 150mm outlets are required. Outlet connection is 6" BSP thread.



Outlet Size (mm)	a (mm)	Flow Rate1 (l/s)		Weight (kg)	Product Code
		vertical	horizontal		
150	181	6.37	2.91	5.1	6TW

Aluminium Roof Outlets - Parapet Downspouts

Harmer Roof Parapet Downspouts are designed to effectively discharge rainwater away from the building and avoid the problem of rainwater backtrack to the face of the wall. Parapet Downspouts can also be used in conjunction with parapet overflows.

Introduction

Harmer Roof Parapet Downspouts provide an attractive means of directing water away from the face of the building in such a way as to prevent the backtrack of rainwater from causing unsightly staining and damage.

Harmer Roof Parapet Downspouts can be used in combination with Alumasc's Flushjoint and Heritage rainwater pipes as well as hoppers, and when colour co-ordinated, will add to the finished appearance of the building.

Application

Downspouts are ideally suited for use with Harmer Detail Two-Way outlets fitted with Harmer Threaded Spigot Adaptors. They can also provide a discreet means of discharge when used with parapet overflows.

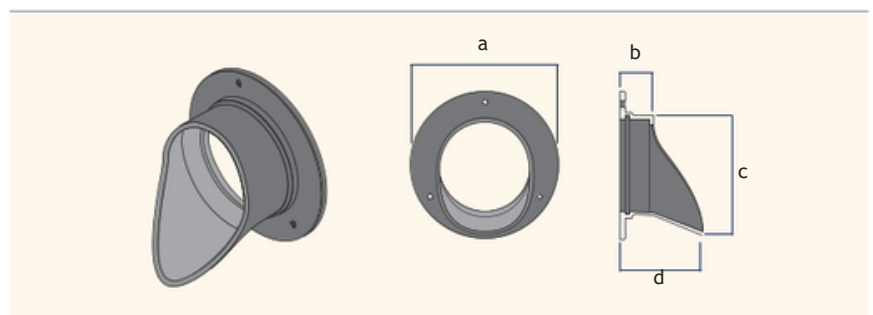
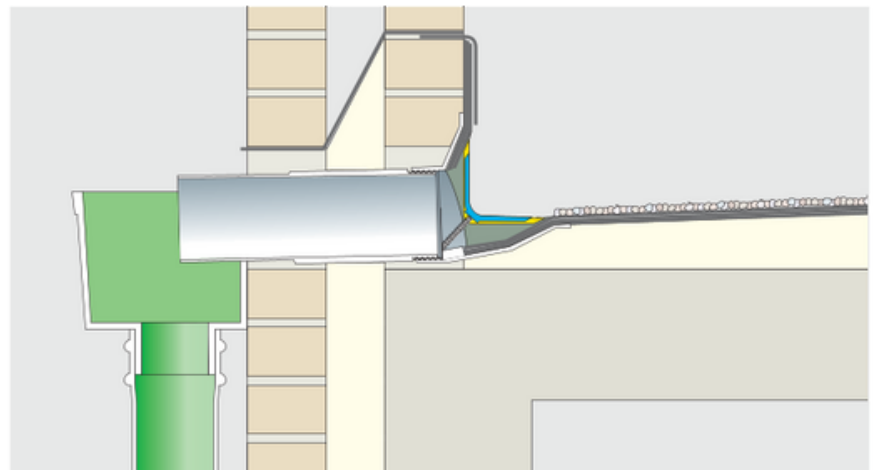
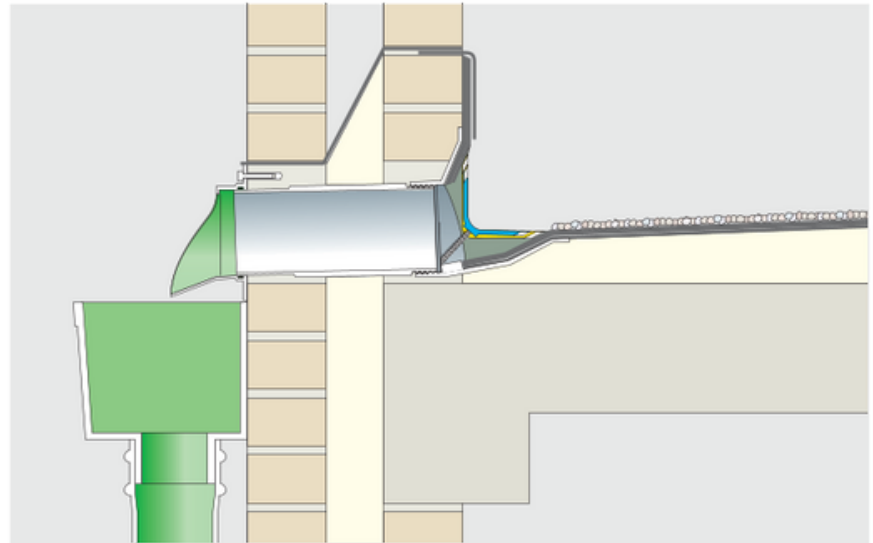
Material - Siliconised Cast Aluminium LM6

Finish

Aluminum downspouts are supplied in mill finish cast aluminium. Polyester powder coated finishes in Alumasc's standard colours are available to match external building finishes or colour coated rainwater pipes and hoppers.

Connection

For ease of installation and perfect alignment, Harmer Downspouts push-fit connect to standard 110mm diameter plain ended pipe using an "O" ring seal and mechanical fixing into masonry.



Outlet Size (mm)	Material	a (mm)	b (mm)	c (mm)	d (mm)	Weight (kg)	Product Code
100	Aluminium	180	40	146	100	0.5	ADS/4*

*Also available in polyester powder coated finish to Alumasc standard colour range or RAL.

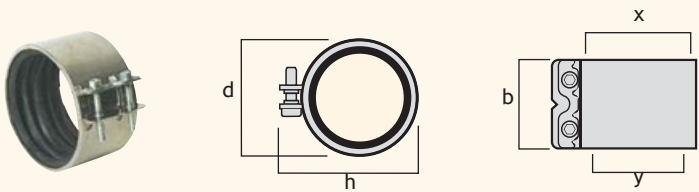
Aluminium Roof Outlets - Accessories and Connections

Harmer Couplings



Coupling Type	Pipe Dia (mm)	Product Code
SML Ductile Iron	50	235849
SML Ductile Iron	100	235357
SML Ductile Iron	150	235358
SML Duo	50	3140/50
SML Duo	100	3140/100
SML Duo	150	3140/150

Adaptor Couplings



Adapts lightweight 'soil' to conventional 'drain'

Pipe Dia (mm)	Bolts	d	h	b	x	y	Product Code
70	2	95	110	70	83-84	73-76	3151/070075
100	2	130	145	70	116-119	108-113	3102/100
150	4	180	215	70	168	159	3102/150

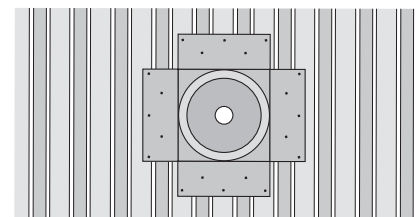
Metal Deck Support Plates

Harmer Roof pressed Metal Deck Support Plates are recommended for use where Harmer Roof metal and insulated rainwater outlets are installed in metal deck roof construction. They are designed to provide a secure and stable junction between roof deck and rainwater outlet.

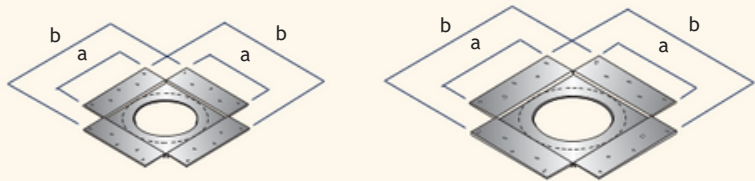
The Support Plates incorporate pre-punched holes for ease of fixing. Two sizes are available. The 335 x 335mm plate will suit 50 and 75mm metal outlets and all insulated outlets. The 415 x 415mm plate is designed for all 100 and 150mm metal outlets.

Materials

The Support Plates are manufactured from 2mm galvanised steel sheet, finished in epoxy primer. They are suitable for installation in all types of metal deck roofing.



Plan view of Harmer outlet body in the Metal Deck Support Plate fixed to the structural metal deck.

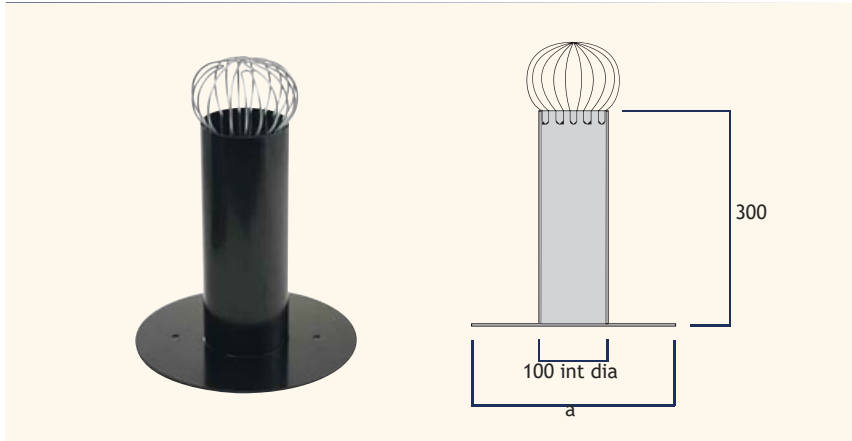


Outlet Type	a (mm)	b (mm)	Weight (kg)	Product Code
AV200 and AV300	335	490	2.7	SP1
AV400 and AV600	415	570	3.5	SP2

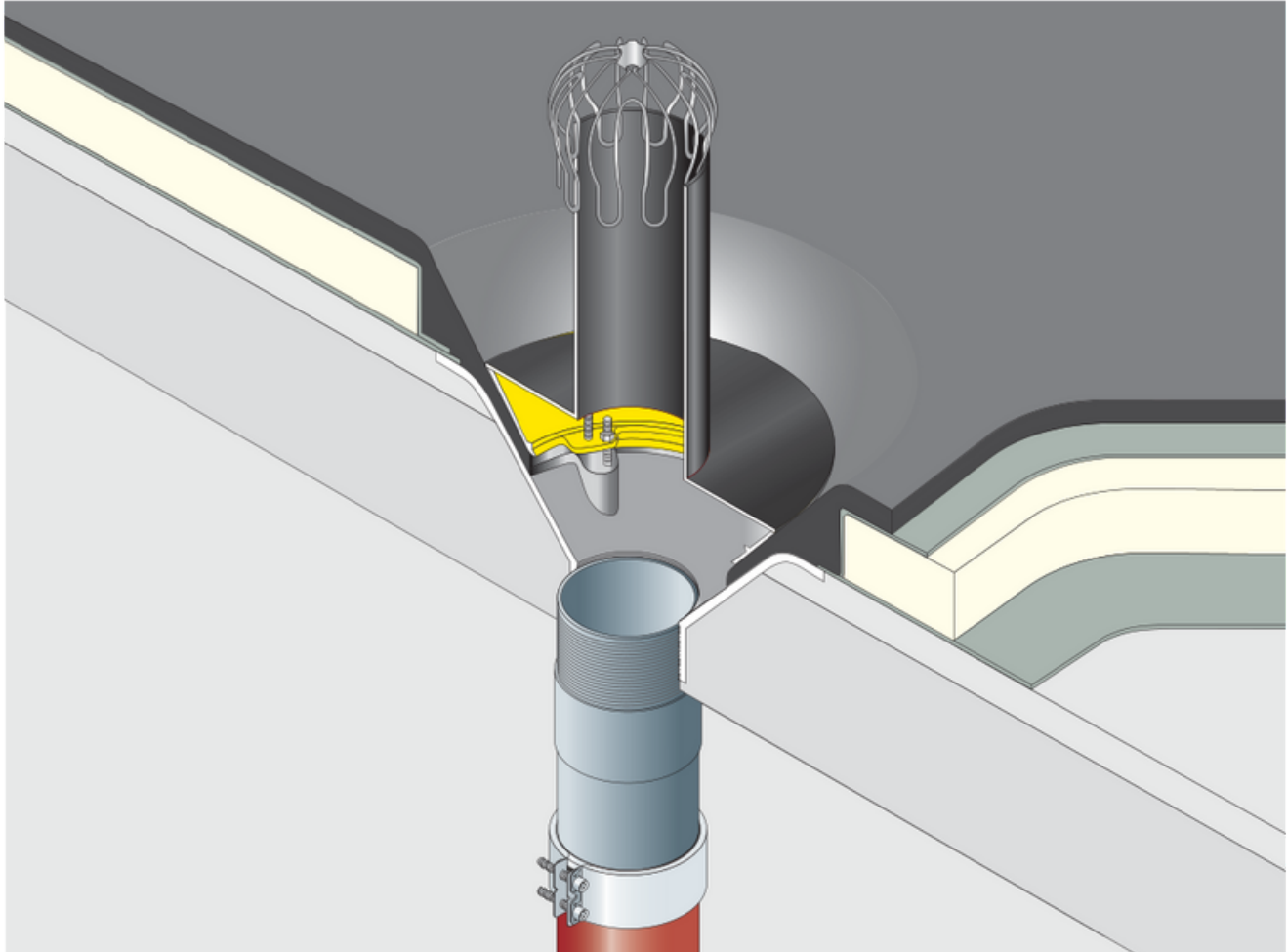
Aluminium Roof Outlets - Accessories and Connections

Overflow Outlet

The Overflow assembly simply bolts onto the clamp where the grate normally sits. Made from aluminium, the overflow is easily cut to the required length on site. The balloon grate can be re-fitted back into the overflow inlet to protect the outlet from debris.



Outlet Type	a (mm)	Weight (kg)	Product Code
AV200 and AV300	212	0.5	OF/23
AV400 and AV600	290	0.6	OF/46



Aluminium Roof Outlets - Accessories and Connections

Threaded Spigot Adaptors

The Threaded Spigot Adaptor has been designed to facilitate the connection of Harmer Roof AV and Detail threaded aluminium rainwater outlets to all types of pipe systems and presents an economic alternative to using a short length of steel gas tube to BS EN 10255 in the case of cast iron socketed or socketless systems.

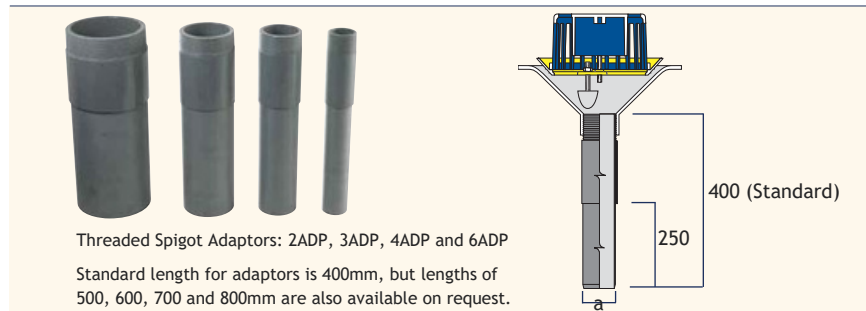
Materials

Threaded Spigot Adaptors in ABS plastic are supplied in 400mm lengths, taper-threaded externally at one end to BS EN 10226-1 and chamfered at the other end to BS 4514 and BS EN 1329-1 spigot dimensions. Sizes are available to suit 50, 75, 100 and 150mm nominal bore pipework.

Connection to Pipework

The Threaded Spigot Adaptor is screwed into the base of the outlet using a PTFE tape or silicone sealant to obtain a gas-tight seal. The spigot end of the adaptor can then be connected to the pipe socket. If necessary, the length of the spigot end of the adaptor can be reduced by cutting as required with a fine toothed saw.

The spigots of the Threaded Spigot Adaptors are suitable for direct connection to cast iron pipework to BS EN 877 and BS 416, HDPE pipework with appropriate Harmer couplings, PVC O-ring socketed pipe to BS EN 1329.



Nominal bore (mm)	a (mm)	Length h (mm)	Weight (kg)	Product Code
50	55	400	0.4	2ADP
50	55	600	0.6	2ADP/600
75	83	400	0.6	3ADP
75	83	600	0.9	3ADP/600
100	110	400	1.2	4ADP
100	110	600	1.8	4ADP/600
150	160	400	2.0	6ADP
150	160	600	3.0	6ADP/600

Fitting the Harmer Threaded Spigot Adaptor

Materials

A cast aluminium body with female parallel threaded boss.

A 400mm long taper male threaded pipe sized for Standard BSP onward connection. PTFE tape or silicone sealant.

Preparation

Wear protective (latex) gloves to avoid risk of injury or contamination during materials handling.

Process will require pipe chains for tightening the adapter into the outlet.

Degreasing agent and fine bristle brush.

Paper towels (this last relates to Method 2).

Connecting Adapter - Method 1

Using PTFE tape:

1. Inspect all threads and ensure they are free of dirt, grease and foreign matter.
2. Apply sufficient PTFE tape to the taper male threaded end of the adapter. This requires care as too much tape will limit the amount of travel within the parallel thread of the outlet and too little may prevent an effective seal.
3. Securely tighten the adapter into the outlet, using chains or similar equipment.

Connecting Adapter - Method 2

Using silicone sealant (DOW CORNING 791 recommended):

1. Inspect all threads and ensure they are free of dirt and foreign matter.
2. Allow for ventilation and degrease the threads of the outlet using a degreasing agent and fine brush.
3. Using paper towels ensure that threads are dry.
4. Apply a liberal coating of silicone sealant to the threads of the outlet and adapter and immediately tighten using chains or similar equipment.
5. A surplus of sealant will squeeze out indicating that all the thread void areas have filled.
6. Clean up with paper towels and dispose of appropriately.
7. Follow guidance cure advice on silicone product before subjecting outlet to water test.

For method 1 and 2 it is recommended that a Standing Water Test is undertaken before installation.

Aluminium Roof Outlets - NBS Specification

A typical NBS Specification for Harmer Aluminium Roof Outlets. A full range of NBS specifications and roof drainage calculators are available via the Harmer online NBS Specification Builder at www.harmerdrainage.co.uk. For project specific specification advice, contact Harmer Technical Services.



R10 Gravity Rainwater Drainage Systems

GENERAL

110 GRAVITY RAINWATER DRAINAGE SYSTEM
Roof Outlets, Pipework and Accessories: As per detail sections below

SYSTEM PERFORMANCE

210 DESIGN
Design: Complete the design of the rainwater drainage system
Standard: To BSEN12056-3:2000, clauses 3-7 and National Annexes
Proposals: Submit Drawings, technical information, calculations and manufacture's literature

PRODUCTS

365HARMER ALUMINIUM ROOF OUTLETS

Manufacturer: Alumasc Water Management Solutions,
Station Road, Burton Latimer,
Kettering, NN15 5JP
Tel: 01536 383810
Website: www.harmerdrainage.co.uk, Email: info@alumascwms.co.uk

- Outlet: Harmer AV Aluminium
- Type: AV Spigot Outlets
- Grate Type: Domed Grate
- Size: 150mm
- Product Code: AV600
- Reference: Harmer Roof Outlets
- Accessories: Flat grate, domed grate, trafficable grate



Create Harmer Drainage NBS specifications by selecting the required product range, profile, size and finish by visiting: www.harmerdrainage.co.uk



Drainage Design Calculator

Architects and Building Services Engineers can now design and quantify all their Rainwater Drainage requirements using Alumasc's dedicated design software.

Key Features

- Category 2 and 3 Flat Roof Drainage Calculator linked in to local rainfall data
- Rainwater Drainage Drawing tool integrating Quantities Schedule
- Eaves Drainage Gutter sizing and pipe calculator for Cast and Contemporary gutter types
- Hyperlinks to Product Literature, DWG files and application specific NBS Specification Clauses



Aluminium Roof Outlets - Installation

Introduction

The Harmer Roof Aluminium range of outlets are designed for use with flat roof structures using either insitu cast concrete, timber or lightweight metal deck construction. Harmer Roof outlets are ideal for connection to continuous waterproofing systems using mastic asphalt, high performance built-up felt, wet-applied waterproofing systems and most types of single ply membranes.

The Harmer range of outlets incorporate all the key features inherent in the Harmer design approach to trouble-free flat roof drainage.

Components

Harmer aluminium roof outlets are made up of three base components:

Body

An outlet body with integral sump for controlled flow of water into the pipe.

Clamping Ring

The clamping ring is designed to compress the waterproof membrane against the outlet body to ensure total integrity of seal. The side fixing of the clamping ring and domical grate to the outlet body, for both AV and Detail outlet types, ensures that the throat is completely unobstructed to optimise flow and facilitate rodding.

Grate

Domical grates permit a free flow of rainwater while preventing loose chippings or debris from entering the outlet. Flat grates are used for trafficked and pedestrian areas.

An important feature of both the Domical and Flat grate fixture is that it can be removed without disturbing the clamping ring and waterproof seal of the roofing membrane.

Site detailing is taken care of with a range of accessories which are designed for use in different types of applications. Accessories include, Extension Pieces, Terrace Grates, Support Plates, Overflows and Downspouts.

Materials

All Harmer aluminium outlets are cast using LM6 aluminium silicon alloy. This grade of alloy exhibits excellent resistance to corrosion under both ordinary atmospheric and marine conditions making it suitable for most types of flat roof applications.

The aluminium alloy is light in weight and therefore easy to handle on site and during installation. The alloy is stronger and less brittle than cast iron. This lightness also makes aluminium outlets suitable for a wide range of lightweight roof decks.

For copper or lead-clad roofs, where there is a risk of bi-metallic corrosion with aluminium, the Harmer Roof Cast Iron range should be used.

Installation and Sitework

Each site application will require careful assessment by the installer.

Consideration must be given to the type of outlet, roof construction and pipework connection that is used. The general principal of installation is common to all Harmer outlets and the following guidance should be used.

Threaded outlets using threaded spigot adaptors must be leak tested prior to fixing to the roof structure.

Position outlet in the roof construction so that the roof substrate is flush with outlet rim and ensure that the roof has adequate falls to the outlet.

Depending on the type of waterproofing membrane, degrease or prime the inside of the outlet body as per roof membrane manufacturer's recommendation i.e. for asphalt, prime the outlet with bitumen.

Dress the waterproof membrane into the outlet making sure that adequate material is available for full surface contact between the clamping ring and the outlet body. Bolt down the clamping ring ensuring that equal pressure is applied to the bolts.

Fix the Grate to the clamping ring using the bolts provided.

Flood test the outlet in accordance with good practice and commission the rainwater system.

Care and Maintenance

Maintenance is a key aspect of reliable, low cost operation.

Before completion of any drainage scheme:

Check if overflows have been provided. Anticipate blockage - never have a single rainwater outlet.

Once the rainwater outlets have been installed they should be inspected to ensure that all parts have been correctly fitted, that no parts are missing and that nuts and bolts are tight and secure.

Remove tacks, nails and screws left by other trades. These will damage the membrane if trodden on.

Every flat roof must have an inspection plan:

Inspection of the outlets should be on a regular basis and generally not less than twice annually - Autumn and Spring.

In locations with nearby trees, leaf congestion will require more frequent clearance.

Plastic bags blown onto the roof will wash to an outlet position and block the strainer.

Airborne grit and fines will silt up the inlets to the outlet and restrict flow. Remove silt and remove leaves.

Check overflows have leaf guards fitted.

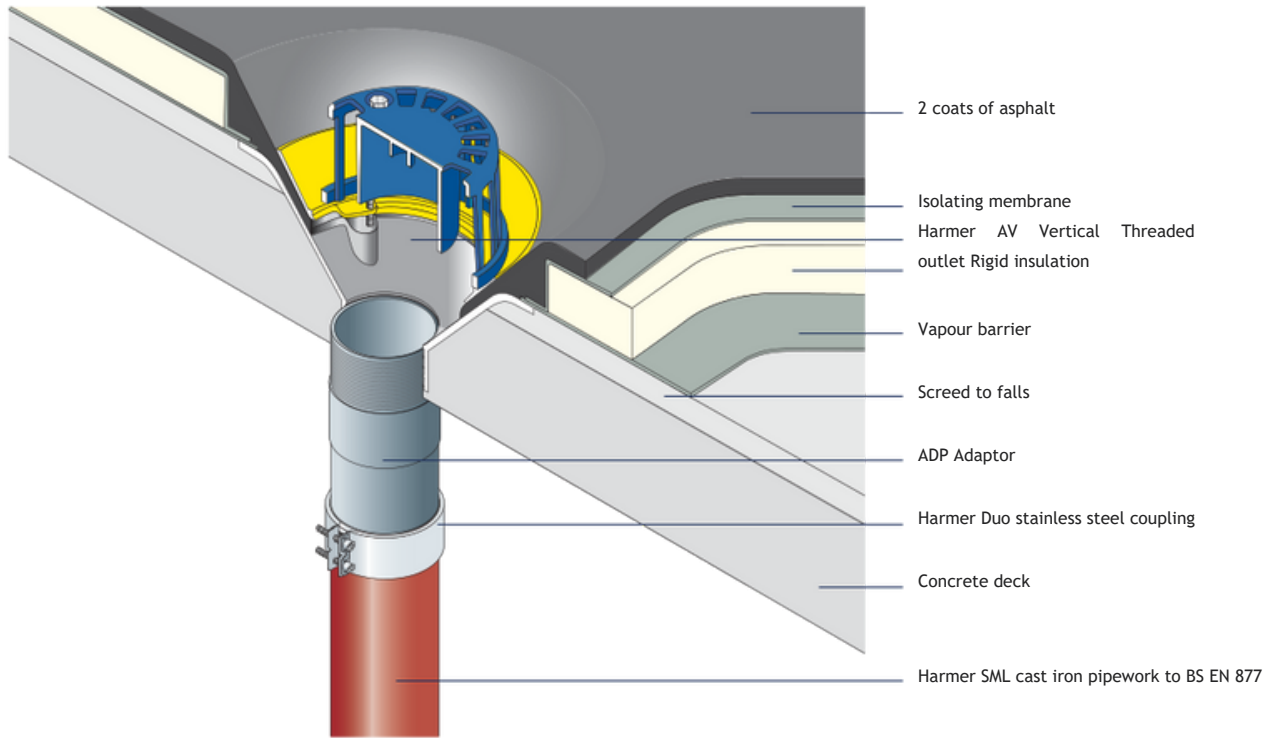
Clear any blockages immediately to ensure system does not overflow.

Health & Safety

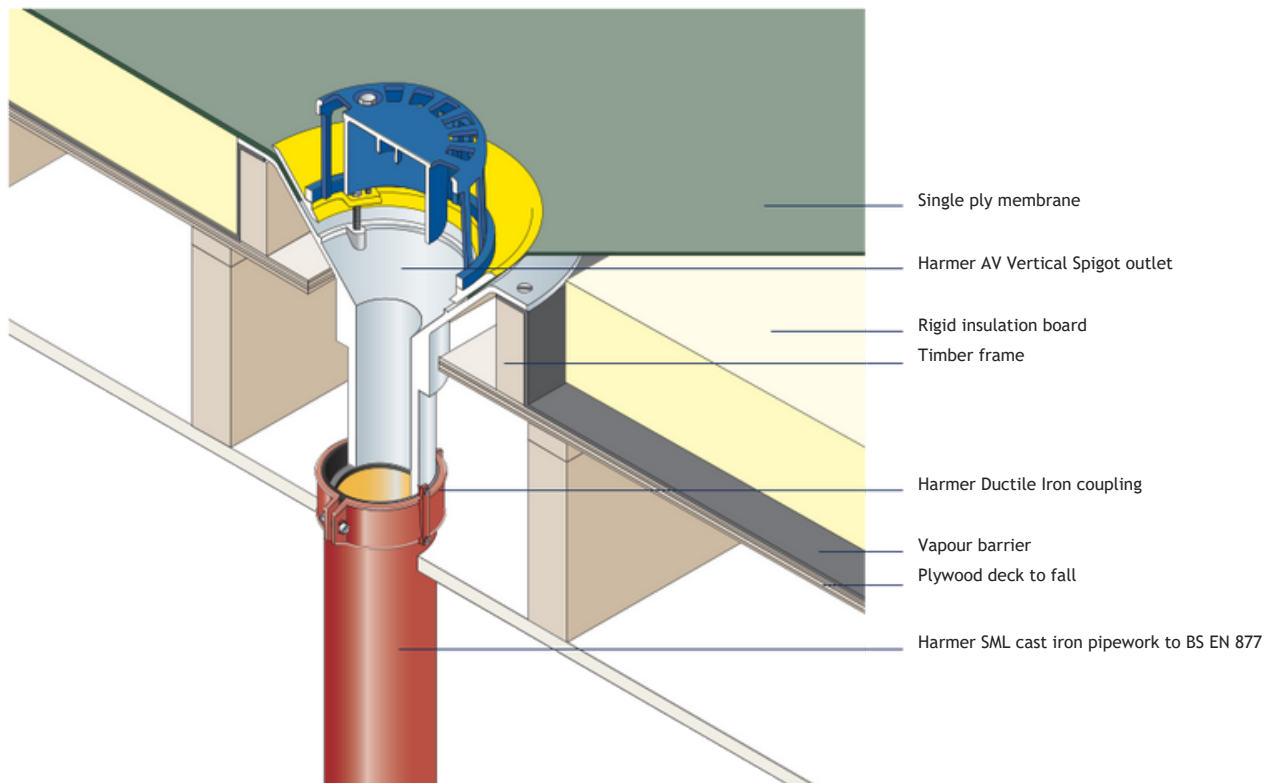
Always refer to current Health & Safety legislation, safe systems of work and the relevant material safety data sheets.

Aluminium Roof Outlets - Application Details

Harmer AV Vertical Threaded Outlet in Warm Roof Concrete Deck Construction with Asphalt Waterproofing

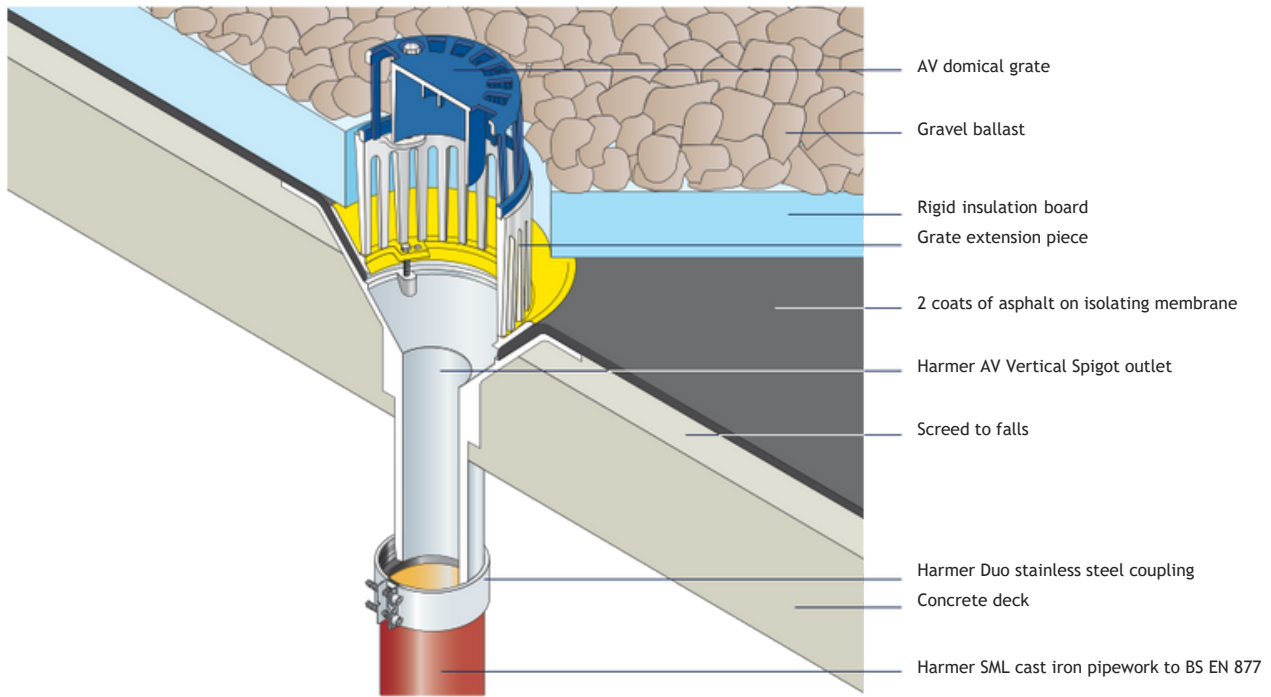


Harmer AV Vertical Spigot Outlet in Warm Roof Timber Deck Construction with Single Ply Waterproof Membrane

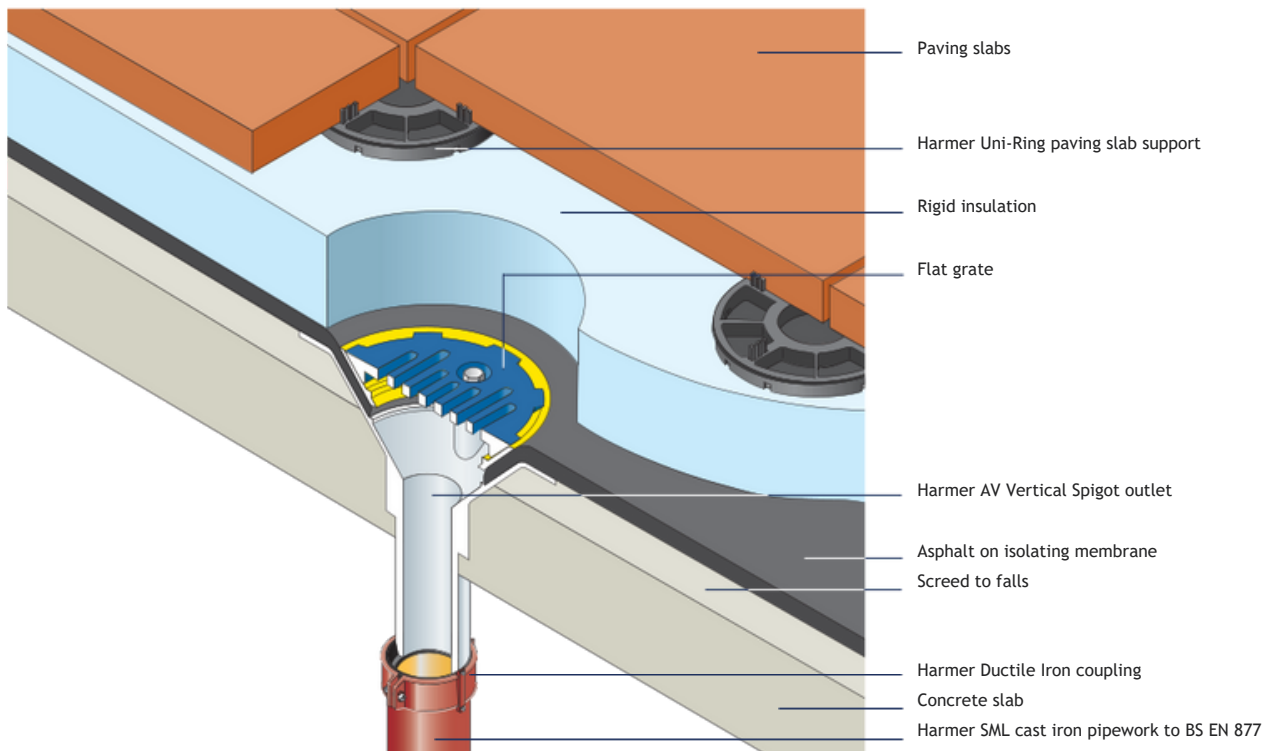


Aluminium Roof Outlets - Application Details

Harmer AV Vertical Spigot Outlet and Extension Piece in Inverted Roof Concrete Deck Construction

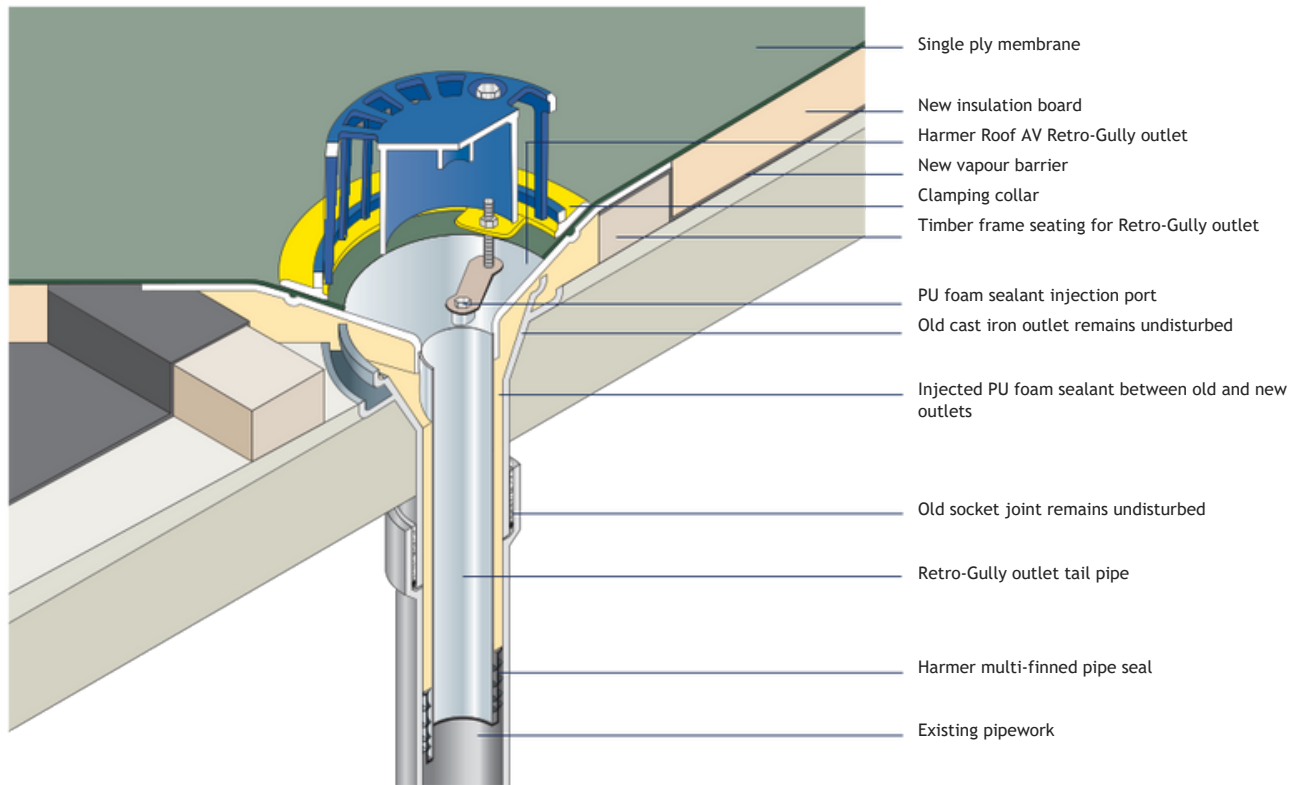


Harmer AV Vertical Spigot Outlet with Flat Grate in Inverted Roof Concrete Deck Construction with Paving Slabs on Uni-Ring Raised Deck Supports



Aluminium Roof Outlets - Application Details

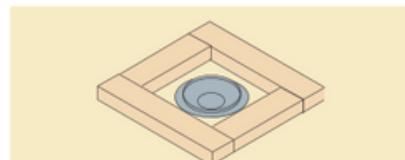
Harmer AV Retro-Gully Roof Refurbishment, Retaining Existing Cast Iron Outlet



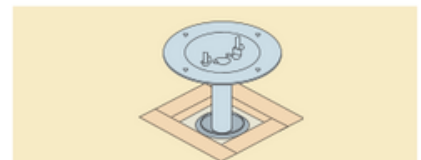
Installing Harmer AV Retro-Gully



1.Strip all roof coverings back to deck level. Wire brush old outlet and flush with clean water.



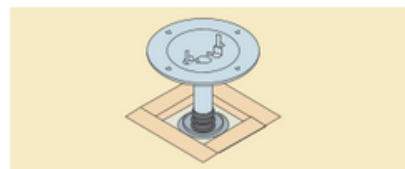
2.Form timber frame around old roof outlet, lay vapour barrier/insulation board (35mm+).



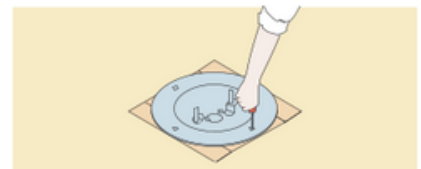
3.Check clearance, and cut tail pipe to required length if necessary.



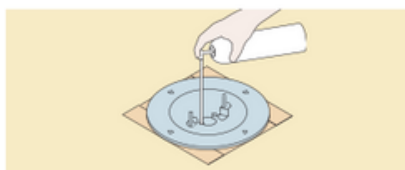
4.Once correct length of tail pipe has been established fit Harmer multi-finned pipe seal.



5. Repeat clean water flush. Insert tail pipe into existing pipework with flange seated on timber frame.



6.Secure flange by screw-fixing through pre-formed holes.



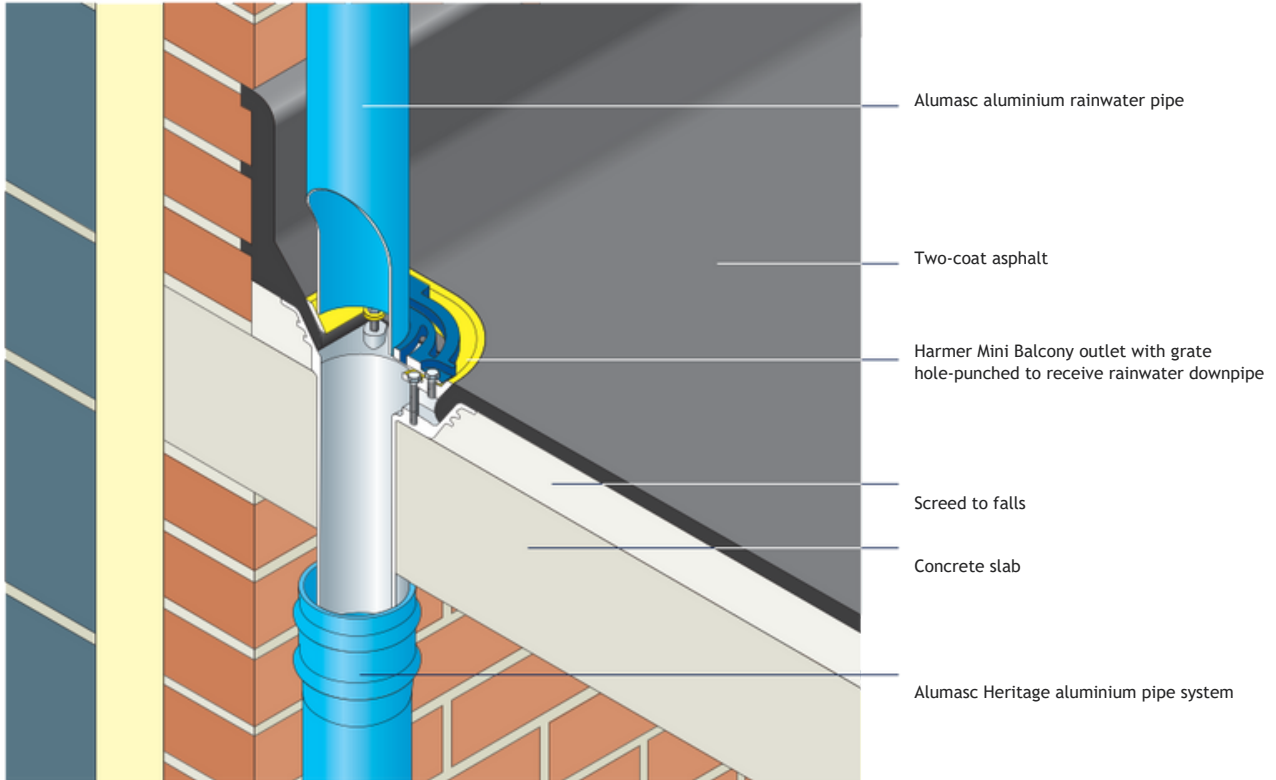
7.Inject intumescent PU foam in one injection port for up to 5 seconds. Wipe away surplus foam.



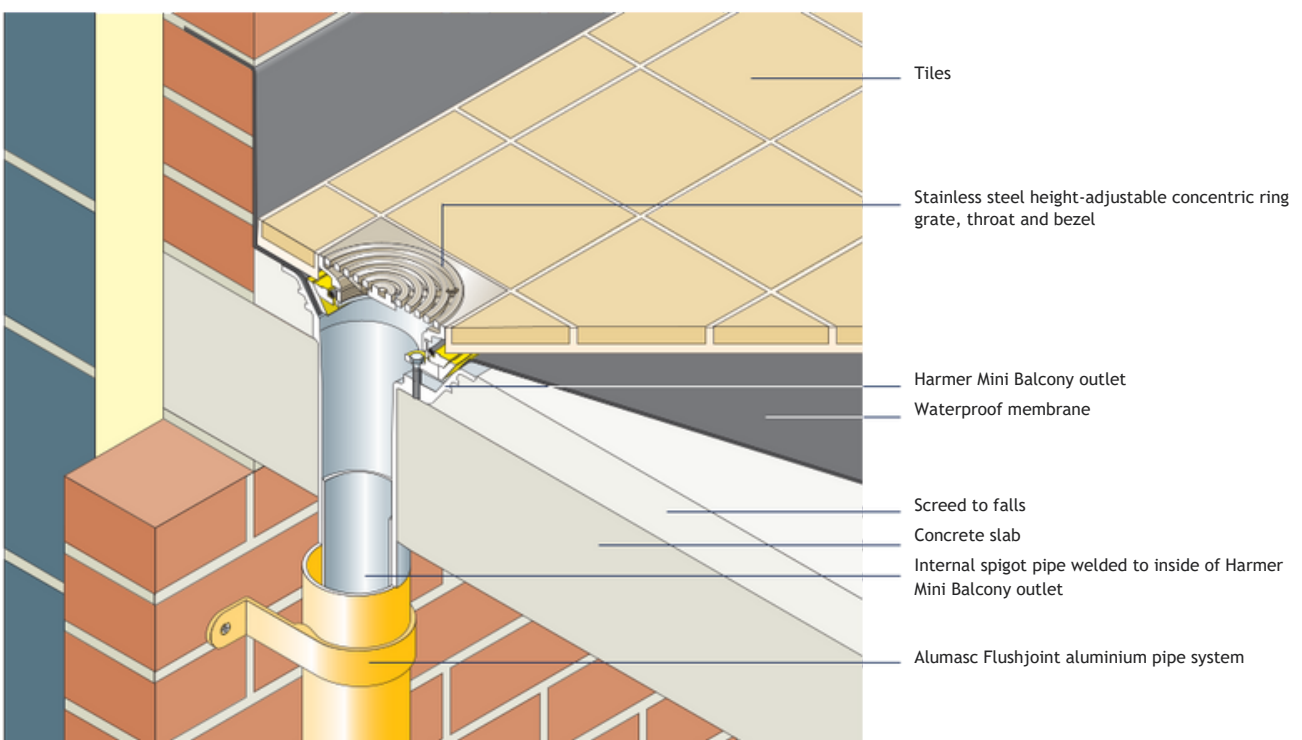
8.Close off port openings with the captive screws and washers. Complete weatherproofing and clamping ring/grate installation.

Aluminium Roof Outlets - Application Details

Harmer Mini Balcony Outlet with Standard Grate

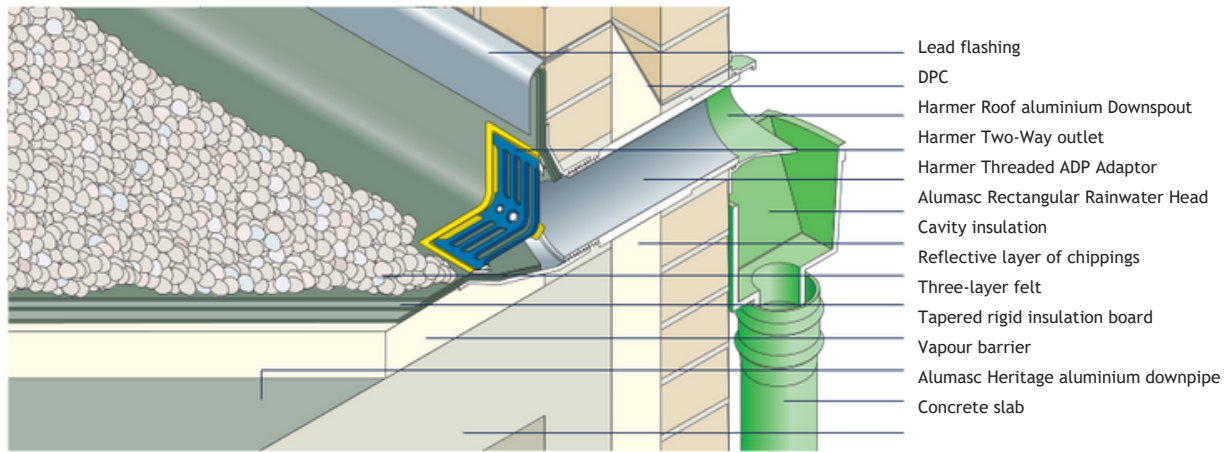


Harmer Mini Balcony Outlet with Stainless Steel Tile Grate

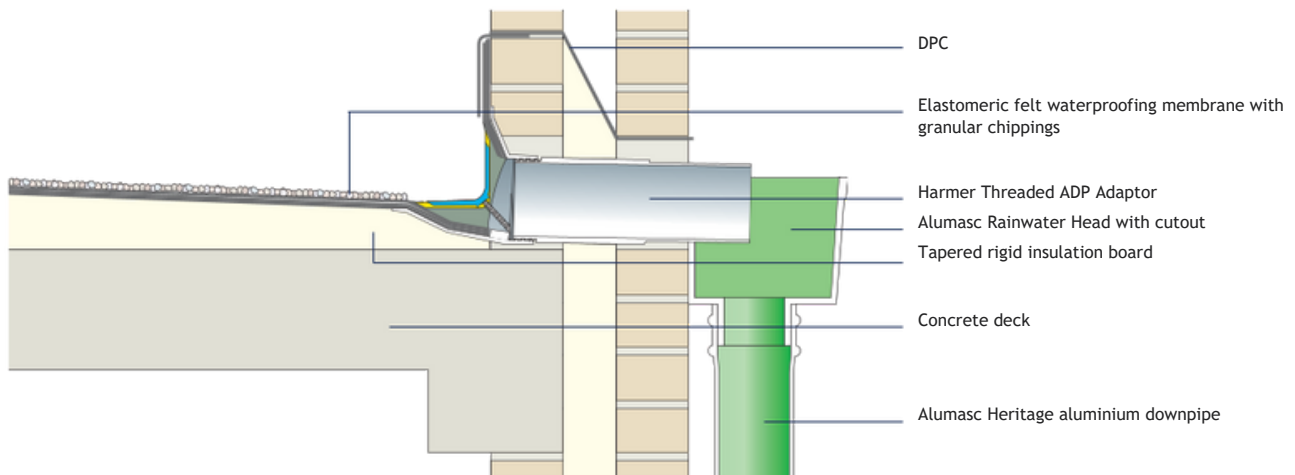


Aluminium Roof Outlets - Application Details

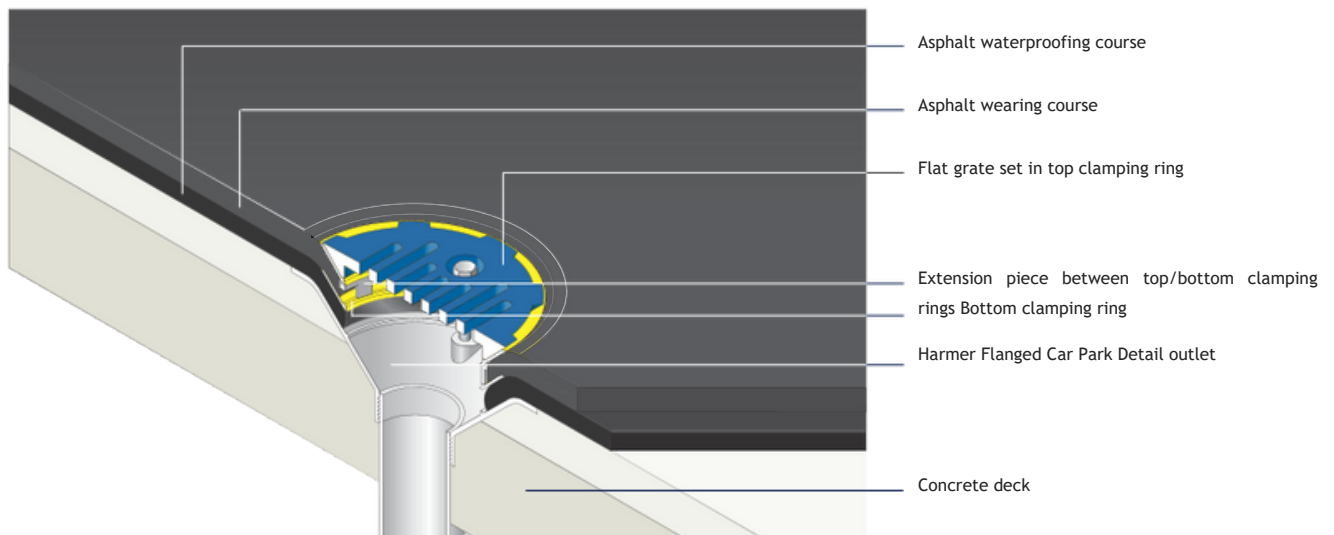
Harmer Two-Way Outlet in Warm Roof Concrete Deck Construction



Harmer Two-Way Outlet Section Showing Rainwater Discharge Via ADP Adaptor



Harmer Flanged Car Park Detail Outlet with Flat Grate

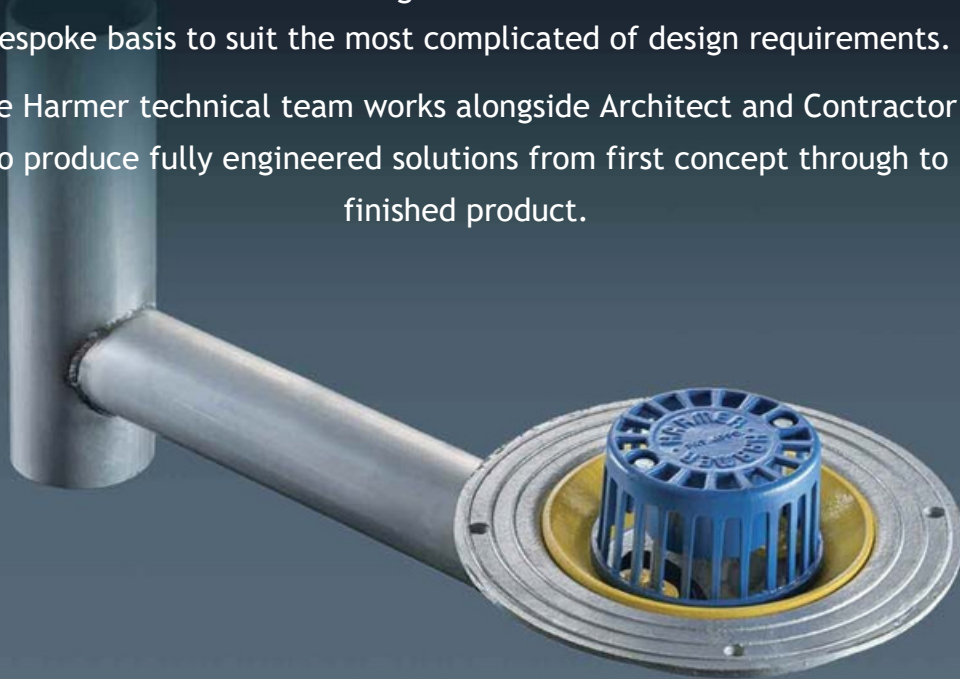


Harmer Drainage Bespoke Service

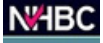
Roof The

The Harmer range of roof drainage products is amongst the widest available anywhere in the marketplace. But the variety of drainage conditions encountered in modern refurbishment and newbuild work means that a standard rainwater outlet will not always be available to address a particular detailing requirement. In such circumstances, a bespoke solution is the only answer.

By combining Harmer technical expertise with the advanced manufacturing capabilities in Alumasc's workshops, non-standard pipe and rainwater outlet configurations can be manufactured on a bespoke basis to suit the most complicated of design requirements. The Harmer technical team works alongside Architect and Contractor to produce fully engineered solutions from first concept through to finished product.



Aluminium Roof Outlets - Bespoke Solutions Introduction



No matter what the drainage problem - we have the answer

We have an extensive portfolio of successful past solutions in situations where a bespoke rainwater drainage design was the only answer. Our innovative, problem-solving specials cover a myriad of applications in which a bespoke design creates a drainage solution in applications that would otherwise be unworkable. Our special designs have solved problems with overflow, pipework configurations, flow rates, practical constructional issues, problems with the location of pipework, compliance with Building Regulations and conformity with the requirements of bodies such as the National Housebuilding Council (NHBC).

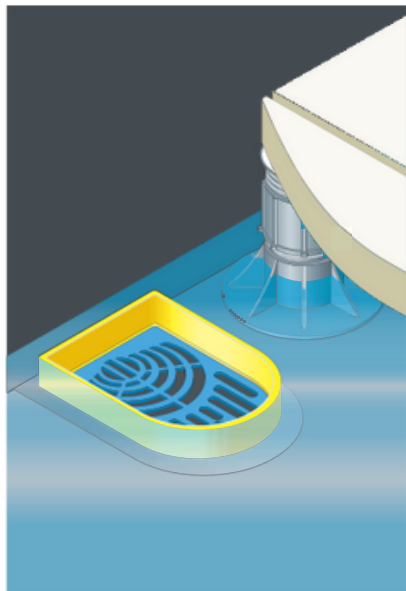
Our development of flush-mounted scupper drains, for example, provides a drainage solution in situations where achieving adequate coverage of the reinforcement within the slab is a potential problem issue.

Specially fabricated 'out of the box' unit for draining twin rainwater outlets into a single drainage stack - Harmer AV outlets welded to an Alumasc Flushjoint extruded aluminium downpipe.



In some circumstances, there may not be sufficient depth of cover for the reinforcement to allow installation of a standard two-way parapet outlet. Our bespoke flush-mounted scupper drains offer the solution by leaving the slab and reinforcement undisturbed.

Whatever the drainage problem you face, the Harmer specialist team is here to assist. We work alongside architect and contractor to produce a fully engineered solution from first concept through to finished solution. Whatever the problem, our expert team evaluates and devises an efficient solution - a unique service that gives designers confidence that all drainage issues are effectively dealt with and any potential problems solved.



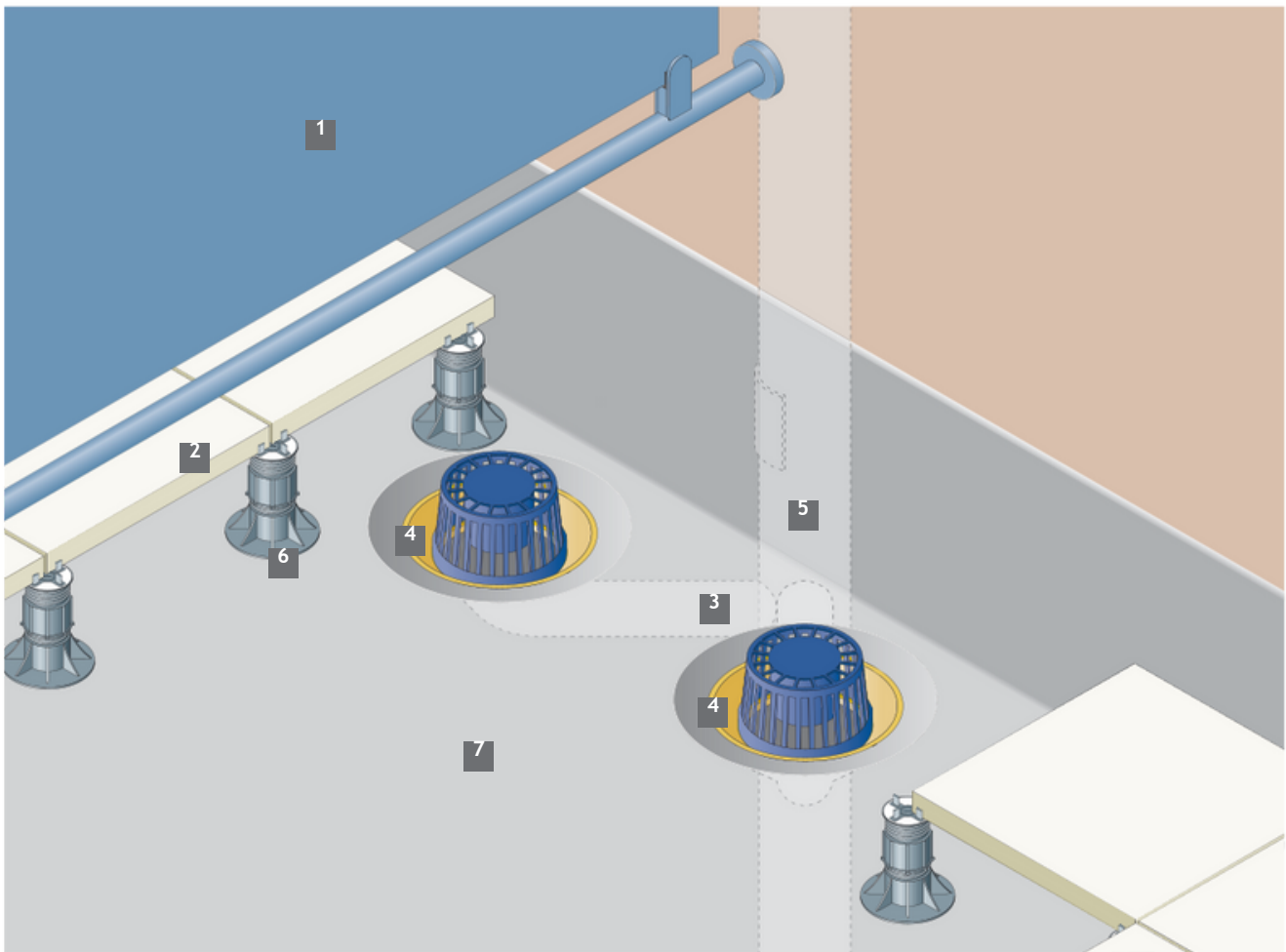
Meeting NHBC requirements

Our bespoke service has provided practical ways of complying with NHBC requirements. Where flat roofs of balconies have an upstand on all sides, NHBC requires provision of an overflow outlet in the event of other outlets becoming blocked. The Harmer design team has designed a baffle that is factory-welded to the clamping ring of a standard rainwater outlet, creating an overflow outlet that allows water build-up to drain freely before flooding danger level is reached (see left).

Bespoke baffle, factory-welded to the clamping collar. Baffle height designed to coincide with the flooding danger level



Aluminium Roof Outlets - Bespoke Solutions Application Detail 1



Harmer bespoke solution for draining two adjoining balconies separated by a privacy screen

Design challenge

Draining paired balconies to a shared rainwater stack in multi-storey construction.

Unique and innovative Harmer solution

Two Harmer 90 degree horizontal spigot outlets (Code ref 390) welded into a shared rainwater stack. A fully fabricated assembly with rodding access door and connection spigot designed to connect to a ducted rainwater pipe system.

Commentary

This drainage solution was devised specifically to drain paired balconies in a multi-storey construction. A privacy screen separates two adjacent balconies, which share a rainwater downpipe located within a recess. The downpipe is 110mm in diameter to accommodate a high flow demand from the balconies in the multi-storey arrangement, and also drains water from the flat roof of the building. The rainwater outlets use 75mm diameter pipework, not so much for flow demand but because it is preferable to 50mm pipework, which may be susceptible to blockage. The balconies are overdecked and the outlets are fitted with domical grates that fit within the void between the decking and the structural deck.

Each twin outlet assembly has been manufactured as an individual 'out-of-the-box' item, complete with rodding access door and spigot for connection to the principal rainwater stack above and below each balcony.

- Privacy screen between balconies
- Raised paving overdecking
- Pipework welded to outlet spigots and central stack
- Harmer horizontal spigot outlets
- Alumasc Flushjoint central drainage stack
- Modulock Pedestal raised deck supports
- Structural deck and waterproofing

