

The Cast Iron Range

The high quality Cast Iron Roof Outlet range, featuring medium sump and large sump bodies, two-way outlets, balcony outlets and an extensive range of loadbearing grates.



Cast Iron Roof Outlets - Benefits

Harmer Cast Iron Roof outlets provide a practical solution to many building drainage applications. Inherently strong, cast iron is an ideal choice for load-bearing applications.

Compliances

The Harmer Roof Cast Iron range is cast to BS EN 1561 and is suitable for flat roof drainage applications. Designated load rating up to 12.5 tonnes. Drainage flow performance to BS EN 12056-3

Flow Performance

Medium and Large Sump outlet bodies are available with varying flow rate capacity to discharge requirements and building design. Two-Way Parapet outlets and Downspouts are available for connection to external rainwater systems.

Robust and Secure

The crystallised nature of cast iron gives the material very high strength and robustness. Once installed, cast iron components resist impact damage even in exposed areas, such as vehicular trafficked areas. Cast iron is inherently durable and can be used in conjunction with copper and lead clad roofs with reduced risk of bi-metallic corrosion. All Harmer cast iron clamps and grates are surface treated using a sherardizing zinc coating process which provides an extremely hard wearing anti-corrosive finish.

A Choice of Body and Grates

A wide choice of standard drain body variations with spigot and threaded outlet connections, for vertical and horizontal discharge. Fully secured grating options available for vehicular applications. The new balcony outlets with flat and aperture grate options.

Low Maintenance

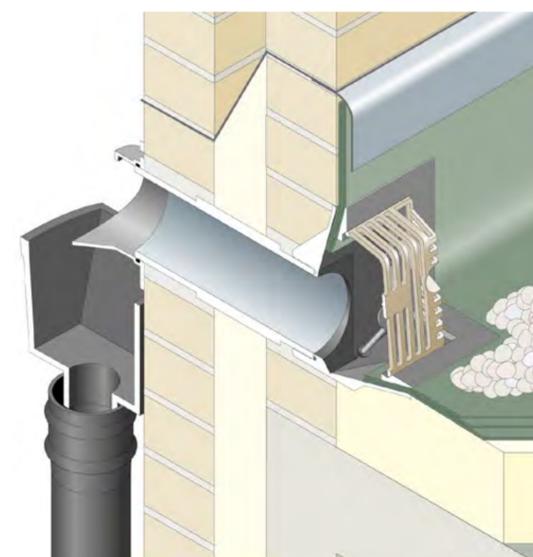
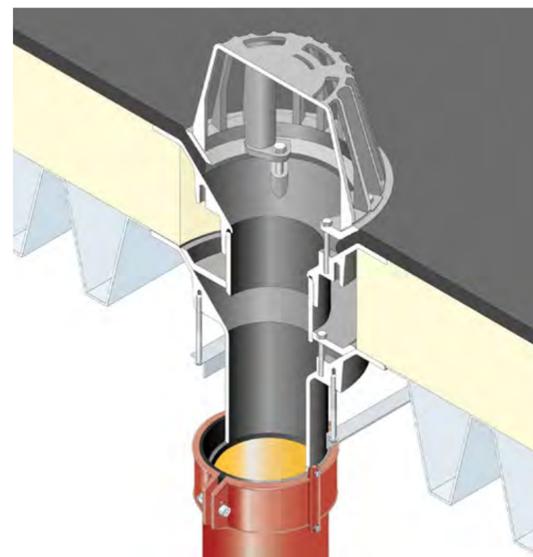
Domical grates made from UV-stable polypropylene to give long life service. Domical grate types are designed to permit a free flow of rainwater while preventing loose chippings or debris from entering the outlet. The side fixing of the clamping ring and domical grate to the outlet body ensures that the throat is completely unobstructed to facilitate rodding.

Easy and Quick to Install

A wide range of standard accessories such as extension pieces, pipe adaptors and grates are available to ensure successful installation of Harmer rainwater outlets in most types of roof construction.

Sustainable

Cast iron has a proven track record for its longevity over the lifetime of the building. Cast iron is 100% recyclable, therefore end of life Harmer Cast Iron outlets can be returned to the furnace to make new cast iron products.



Cast Iron Roof Outlets - Range Summary

The Cast Iron range offers the ideal drainage combination to accommodate in-situ construction, drainage performance as well as ease of installation, practical aesthetics and finishes.

Medium Sump Outlets

Page 57-58

Range of threaded and spigot, vertical and horizontal compact outlet bodies to connect to 50, 75 and 100mm pipework. Grates include domical grates and load bearing circular and square grates.



Large Sump Outlets

Page 59-60

Range of deep outlet sump bodies for 100 or 150mm vertical pipe connections. 4" and 6" BSP options available. Connection adaptors to suit cast iron, HDPE, PVCu and Stainless Steel. Grates include domical grates, and heavy duty ductile iron circular and square grates



Two-Way Outlets

Page 61

Unobtrusive outlets suitable for parapet wall construction. Suitable for vertical or horizontal use to connect to 50, 75 and 100mm pipework. Available in flat or rectangular grates made from cast iron, nickel bronze or aluminium



Balcony Outlets

Page 62

Available with spigot or threaded connections, and come with a choice of full or aperture grates. The threaded versions can accommodate standard Harmer ADP adaptors. The aperture grate allows for easy removal without any need to touch the associated rwp.



Accessories and Pipe Connection

Page 64-67

Available for successful installation of the Harmer rainwater outlets in most types of roof construction. The range includes gravel guards, underdeck clamp fixtures, overflow outlets, threaded adaptors, pipe couplings and metal deck support plates



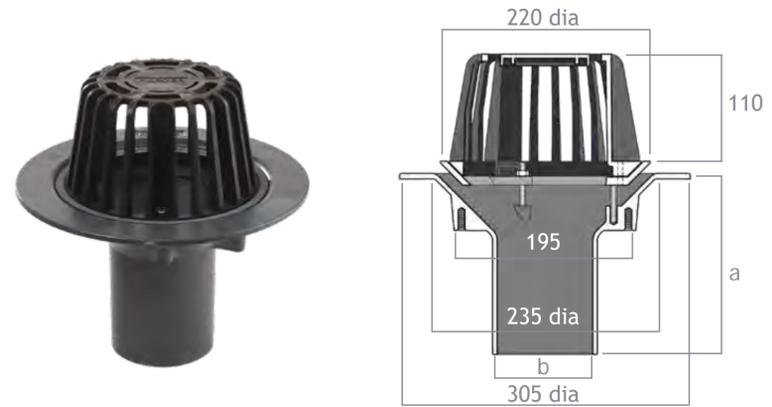
Cast Iron Roof Outlets - Medium Sump

Harmer Cast Iron Medium Sump roof outlets comprise of a compact integral sump body available in 50, 75 and 100mm outlet sizes for vertical or horizontal pipework connection.

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 EN1329-1. Please see pipework connections on page 65 for appropriate Harmer coupling selection.

Note: For Flat Grate version add suffix /F to the product code (see page 59) A range of accessories is available for use with special detail requirements (See page 59,65,66)



Outlet Size (mm)	a (mm)	b (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50*	220	60	1.69	7.2	C200
75*	220	83	4.97	7.8	C300
100	190	110	4.97	6.7	C400

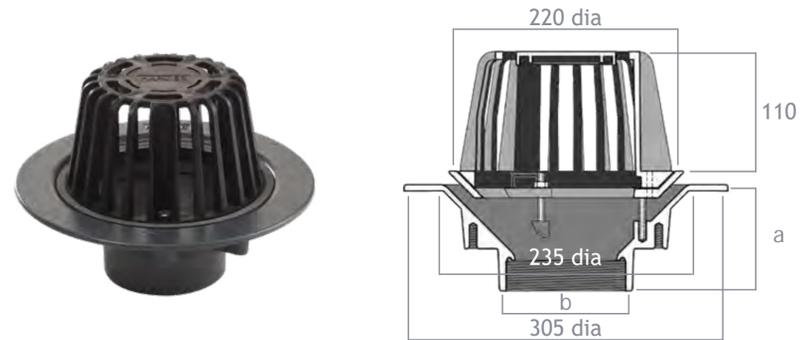
*50mm and 75mm spigot outlets are supplied with reducer pieces for assembly on site.

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

Vertical Threaded Outlet - Domical Grate

Vertical Threaded outlets have a female socket with parallel BSP thread suitable for connection to male BSP threaded pipe. Threaded outlets are 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 gas-tight seal within the slab. Harmer threaded outlets can be connected to socketed and socketless cast iron, HDPE and PVC pipework by means of the Harmer Threaded Spigot Adaptor) with appropriate Harmer coupling (page 65).

Note: For Flat Grate version add suffix /F to the product code (see page 59) A range of accessories is available for use with special detail requirements (See page 59,65,66)



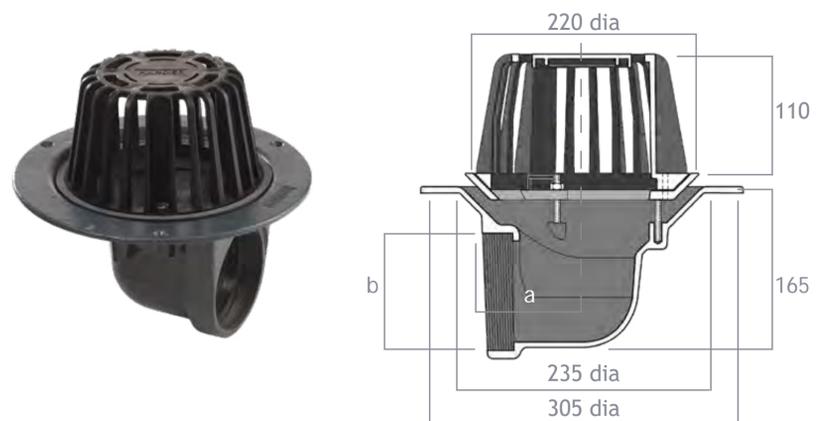
Outlet Size (mm)	a (mm)	b (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50*	112	2"	1.69	7.6	C200T
75*	112	3"	4.97	6.8	C300T
100	100	4"	4.97	5.5	C400T

*50mm and 75mm spigot outlets are supplied with reducer pieces for assembly on site.

Horizontal Threaded Outlet - Domical Grate

Horizontal Threaded outlets have a female socket with parallel BSP thread suitable for connection to male BSP threaded pipe. Threaded outlets are 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 gas-tight seal within the slab. Harmer threaded outlets can be connected to socketed and socketless cast iron, HDPE and PVC pipework by means of the Harmer Threaded Spigot Adaptor with appropriate Harmer coupling (page 65).

Note: For Flat Grate version add suffix /F to the product code (see page 59) A range of accessories is available for use with special detail requirements (See page 59,65,66)



Outlet Size (mm)	a (mm)	b (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50*	105	2"	1.69	9.0	C290T
75*	105	3"	4.97	8.2	C390T
100	90	4"	4.97	7.0	C490T

*50mm and 75mm spigot outlets are supplied with reducer pieces for assembly on site.

Cast Iron Roof Outlets - Medium Sump

The Harmer Cast Iron Medium Sump roof outlet range has options for use with specific types of drainage application and building design. To specify or order, add the correct suffix code to the appropriate body type on page 57. For example, 100mm Vertical Spigot Outlet with Flat Grate: C400/F.

Flat Grate

For use in areas with pedestrian traffic or light vehicle traffic (excluding forklift) in commercially used premises. These grates are also designed for use with Harmer Modulock Raised Deck Supports where concealed rainwater outlets are used.



Circular Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	6.30*	1.5	1.3	/F

**For 50 and 75mm outlets maximum pipe capacity to BS EN 12056 applies*

Extension Piece with Adjustable Height Grates

For use in inverted roofs and no fines screed areas with pedestrian or vehicle traffic (refer to load class). Waterproofing is achieved at the outlet body flange with the extension piece allowing permeable drainage into the outlet. Height adjustable grating assembly allows use with varying thickness's of insulation and roof finish. See page 69 for application details.



Square Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	6.30*	12.5	9.7	/ESD

**For 50 and 75mm outlets maximum pipe capacity to BS EN 12056 applies*

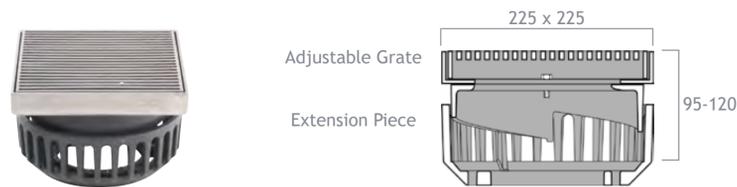
Circular Flat Grate



Circular Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	6.30*	1.5	5.5	/ECD

**For 50 and 75mm outlets maximum pipe capacity to BS EN 12056 applies*

Square Flat Grate - Stainless Steel



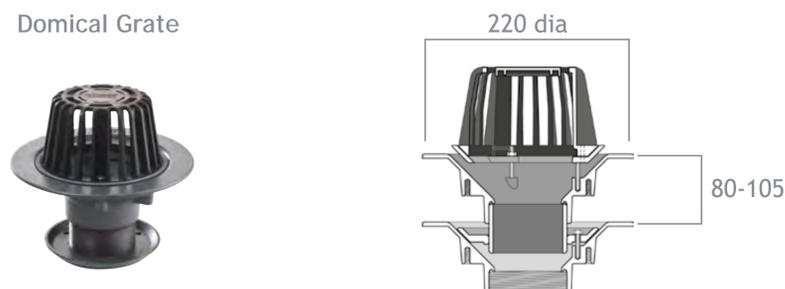
Square Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Stainless Steel	6.30*	12.5	7.8	/ESS

**For 50 and 75mm outlets maximum pipe capacity to BS EN 12056 applies*

Double Flange Variable Height Bodies

For use in loadbearing warm roof applications. Double flange construction allows fine adjustment for use with insulation thicknesses between 80-100mm. See page 69 for application details. For other insulation thicknesses, please contact Harmer Technical Helpline.

Domical Grate

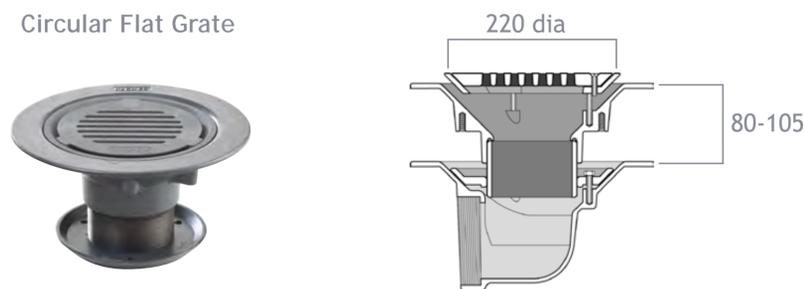


Shown with vertical outlet C400T

Circular Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Polypropylene	4.97*	n/a	6.4	/D

**For 50 and 75mm outlets maximum pipe capacity to BS EN 12056 applies*

Circular Flat Grate



Shown with horizontal outlet C490T

Circular Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	6.30*	1.5	7.7	/DF

**For 50 and 75mm outlets maximum pipe capacity to BS EN 12056 applies*

Cast Iron Roof Outlets - Large Sump

Harmer Cast Iron Large Sump rainwater outlets comprise of a deep sump integral body ideal for heavy duty locations such as car park decks requiring the inherent strength of cast iron. Threaded pipe sizes include 100mm and 150mm diameters for vertical pipework connections.

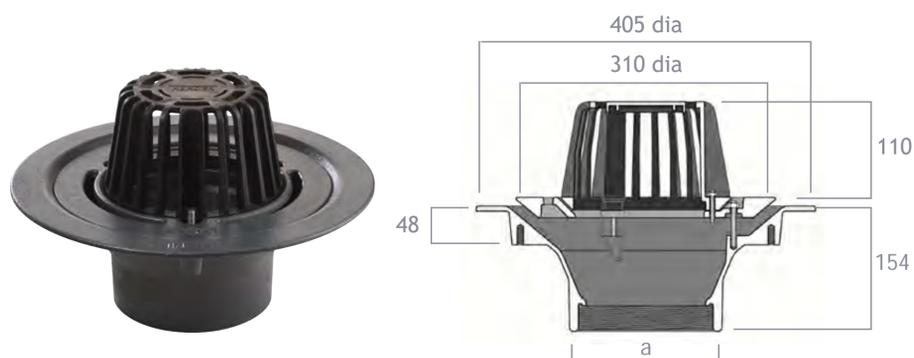
Vertical Threaded Outlet - Domical Grate

Vertical Threaded outlets have a female socket with parallel BSP thread suitable for connection to male BSP threaded pipe. 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 gas-tight seal within the slab. Harmer threaded outlets can be connected to socketed and socketless cast iron, HDPE and PVC pipework by means of the Harmer Threaded Spigot Adaptor with appropriate Harmer coupling (page 65).

Note: A range of accessories is available for use with special detail requirements (See page 61,65,66)

Grate Options

Two Flat Grate options are available, Circular and Square, to suit various applications. To specify or order, simply add the suffixes shown in the tables below to the product codes shown in the table above. For example, 150mm Vertical Threaded Outlet with Square Flat Grate: C600LT/S.



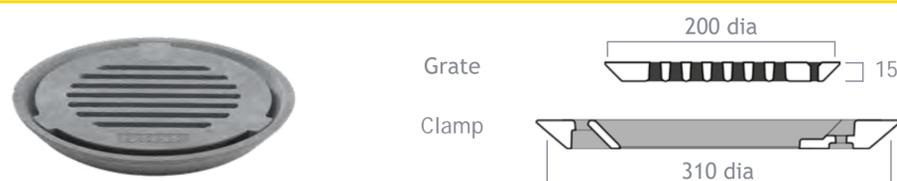
Outlet Size (mm)	a (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
100	4"	8.56	14.3	C400LT
150	6"	10.35	12.6	C600LT

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



Circular Flat Grate

For use in areas with pedestrian traffic or light vehicle traffic (excluding forklift) in commercially used premises. These grates are also designed for use with Harmer Modulock Raised Deck Paving Supports where concealed rainwater outlets are used.



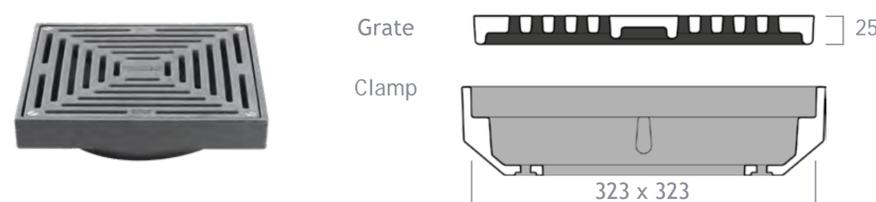
Circular Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	11.52*	1.5	1.3	/F

*For 100mm outlet size, maximum pipe capacity to BS EN 12056 applies



Square Flat Grate

Square Flat Grate 325 x 325mm Square Flat Grate is made of ductile iron and has a load rating of 12.5 tonnes. For use in areas with vehicular access, such as car parks, factories and workshops. The clamping collar extends above the outlet body to accommodate adequate thickness of concrete or asphalt finish around the grate surround. The clamping collar can also be rotated to suit paving alignment.



Square Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	14.56*	12.5	10.5	/S

*For 100mm outlet size, maximum pipe capacity to BS EN 12056 applies

Cast Iron Roof Outlets - Large Sump



Extension Piece with Adjustable Height Grates

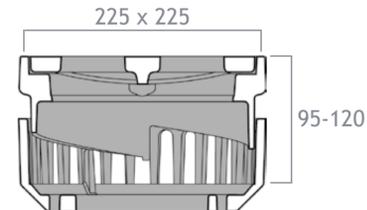
For use in inverted roofs and no fines screed areas with pedestrian or vehicle traffic (refer to load class). Waterproofing is achieved at the outlet body flange with the extension piece allowing permeable drainage into the outlet. Height adjustable grating assembly allows use with varying thicknesses of insulation and roof finish. See page 69 for application details.

Square Flat Grate - Ductile Iron



Adjustable Grate

Extension Piece



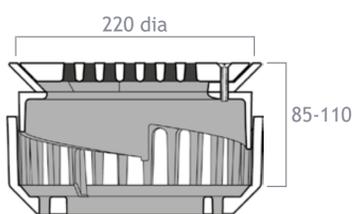
Square Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	6.3	12.5	9.7	/ESD

Circular Flat Grate



Adjustable Grate

Extension Piece



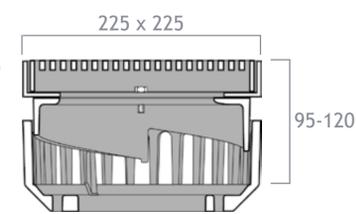
Circular Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	6.3	1.5	6.6	/ECD

Square Flat Grate - Stainless Steel



Adjustable Grate

Extension Piece



Square Grate Material (5mm aperture)	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Stainless Steel	6.3	12.5	8.9	/ESS



Double Flange Variable Height Bodies

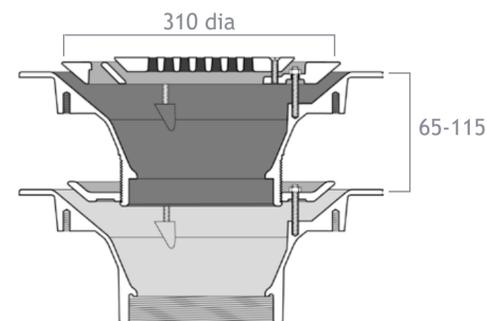
For use in loadbearing warm roof applications. Double flange construction allows fine adjustment for use with insulation thicknesses between 65-115mm. For other insulation thicknesses, please contact Harmer Technical Helpline.

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

Circular Flat Grate

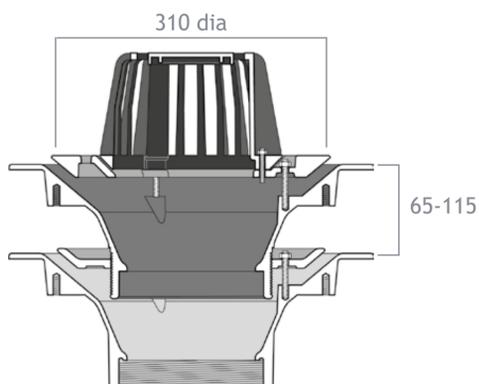


Shown with vertical outlet C600LT



Flat Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	11.52*	1.5	12.2	/DF

Domical Grate



Shown with vertical outlet C600LT

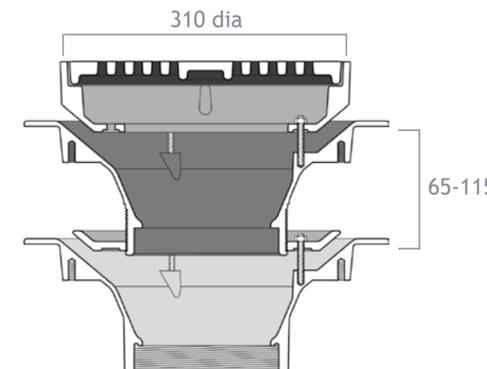
Domical Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Polypropylene	10.35*	n/a	10.9	/D

*For 100mm outlet size, maximum pipe capacity to BS EN 12056 applies

Square Flat Grate



Shown with vertical outlet C600LT



Flat Grate Material	Flow Rate ¹ (l/s)	Load Rating (tonne)	Weight (kg)	Suffix
Sherardized Ductile Iron	14.56*	12.5	21.0	/DS

*For 100mm outlet size, maximum pipe capacity to BS EN 12056 applies

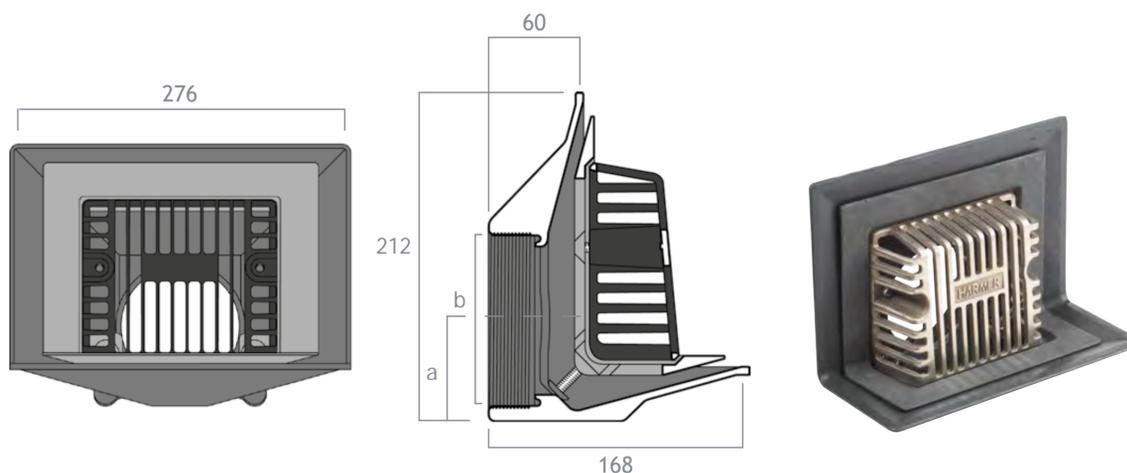
Cast Iron Roof Outlets - Two Way

The Harmer Cast Iron Two-Way outlet is 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.



Two-Way Outlet - Rectangular Grate

Two-Way Outlet with Rectangular Grate is suitable for use in the majority of parapet wall applications in either horizontal or vertical run-off. Two-Way outlets are available in 50, 75 and 100mm diameter outlet sizes. The outlet has a female socket with parallel BSP thread suitable for connection to male BSP threaded pipe and is usually used in conjunction with Harmer Threaded Spigot Adaptors and Downspouts (page 64). Rectangular Grates are available in Cast Iron (painted black), Nickel Bronze or Mill Finish Aluminium. Aluminium grates can be polyester powder coated to order - please contact Harmer Technical Helpline.



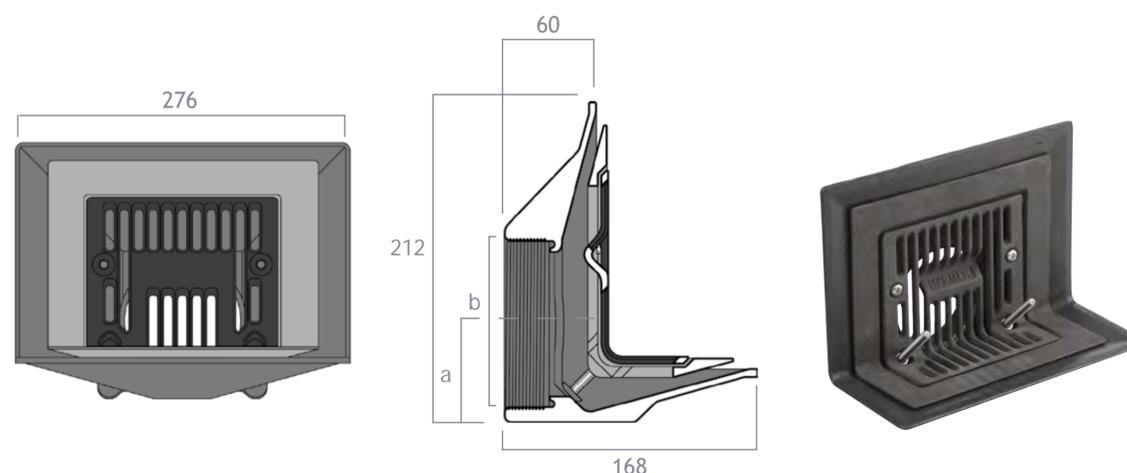
Outlet Size (mm)	Grate Material	a (mm)	b (BSP)	Flow Rate ¹ (l/s)		Load Rating (tonne)	Weight (kg)	Product Code
				Vertical	Horizontal			
50	Cast Iron	38	2"	1.4	0.7	0.3	5.9	CTW2/RC
50	Nickel Bronze	38	2"	1.4	0.7	0.3	6.1	CTW2/RN
50	Aluminium	38	2"	1.4	0.7	0.3	5.2	CTW2/RA
75	Cast Iron	52	3"	2.6	0.8	0.3	5.8	CTW3/RC
75	Nickel Bronze	52	3"	2.6	0.8	0.3	6.0	CTW3/RN
75	Aluminium	52	3"	2.6	0.8	0.3	5.1	CTW3/RA
100	Cast Iron	65	4"	2.6	0.8	0.3	5.7	CTW4/RC
100	Nickel Bronze	65	4"	2.6	0.8	0.3	5.8	CTW4/RN
100	Aluminium	65	4"	2.6	0.8	0.3	4.9	CTW4/RA

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



Two-Way Outlet - Flat Grate

Two-Way Outlet with Flat Grate is suitable for use in the majority of parapet wall applications in either horizontal or vertical run-off. Two-Way outlets are available in 50, 75 and 100mm diameter outlet sizes. The outlet has a female socket with parallel BSP thread suitable for connection to male BSP threaded pipe and is usually used in conjunction with Harmer Threaded Spigot Adaptors and Downspouts (page 64). Flat Grates are available in Cast Iron (painted black)



Outlet Size (mm)	Grate Material	a (mm)	b (BSP)	Flow Rate ¹ (l/s)		Load Rating (tonne)	Weight (kg)	Product Code
				Vertical	Horizontal			
50	Cast Iron	38	2"	1.4	0.7	0.3	5.8	CTW2/FC
75	Cast Iron	52	3"	2.6	0.8	0.3	5.7	CTW3/FC
100	Cast Iron	65	4"	2.6	0.8	0.3	5.5	CTW4/FC

Cast Iron Roof Outlets - Balcony

The Harmer Cast Iron Balcony outlet is designed for use with concrete structures whereby a flat grate is required for either a pedestrian accessed area or as internal perimeter drainage for vehicular traffic areas that necessitates the inherent strength of cast iron. This comprises of a medium sump and a clamping grate.



Balcony Outlet - Spigot Connection

The vertical spigot options are suitable for direct connection to cast iron pipework to BS EN 877 and BS 416, HDPE and PVC O-ring socketed pipe to BS 4514 and BS EN1329-1.

Balcony Outlet Grates

Can be used in areas with pedestrian or light traffic (excluding forklift) in commercially used premises. This has been designed to act as a drainage grate and clamp as a single one part component that is secured to the outlet body using stainless steel bolts and washers as provided. Two options are available as either a full or aperture grate. The aperture grate allows for 100mm nominal bore pipework from a higher level to finish within the outlet body. The grate can then be removed for inspection and/or maintenance without the need to move the higher level pipework.

Outlet with Full Grate

Outlet with Aperture Grate



Outlet Size (mm)	Grate Type	a (mm)	b (mm)	c (mm)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50	Full	231.0	69.5	60.0	1.7	8.26	C2BO
50	Aperture	231.0	69.5	60.0	1.7	8.12	C2BO/4
75	Full	231.0	58.0	82.0	5.0	7.38	C3BO
75	Aperture	231.0	58.02	82.0	5.0	7.17	C3BO/4
100	Full	200.0	44.35	110.0	5.8	6.54	C4BO
100	Aperture	200.0	44.35	110.0	5.8	6.40	C4BO/4

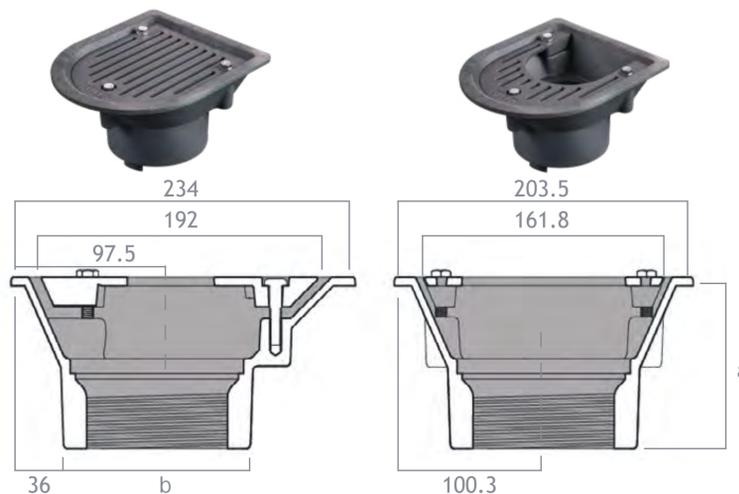


Balcony Outlet - Threaded BSP Connection

The vertical threaded options have a female socket with parallel BSP thread suitable for connection to male BSP threaded pipe. Threaded outlets are 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 gas-tight seal within the slab. Harmer threaded outlets can be connected to socketed and socketless cast iron, HDPE and PVC pipework by means of the Harmer Threaded Spigot Adaptor with the appropriate Harmer coupling (page 66).

Outlet with Full Grate

Outlet with Aperture Grate



Outlet Size (mm)	Grate Type	a (mm)	b (BSP)	Flow Rate ¹ (l/s)	Weight (kg)	Product Code
50	Full	127.3	2"	1.7	6.63	C2BO/T
50	Aperture	127.3	2"	1.7	6.31	C2BO/T/4
75	Full	127.3	3"	5.0	5.81	C3BO/T
75	Aperture	127.3	3"	5.0	5.49	C3BO/T/4
100	Full	127.3	4"	5.8	4.63	C4BO/T
100	Aperture	127.3	4"	5.8	4.31	C4BO/T/4

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

Cast Iron Roof Outlets - Parapet Downspouts

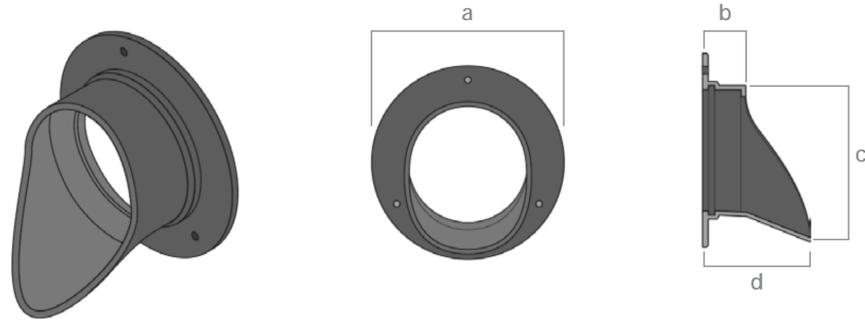
Harmer Roof Parapet Downspouts provide an attractive means of directing water away from the face of the building to prevent the backtrack of rainwater from causing unsightly staining and damage. Harmer Roof Parapet Downspouts can be used in combination with Alumasc rainwater pipes and hoppers, and can be colour co-ordinated.

Application

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

Finish

Cast iron downspouts are supplied as standard in primed finish for painting on site, or in a choice of colour finishes as available in the Alumasc range of cast iron rainwater goods.

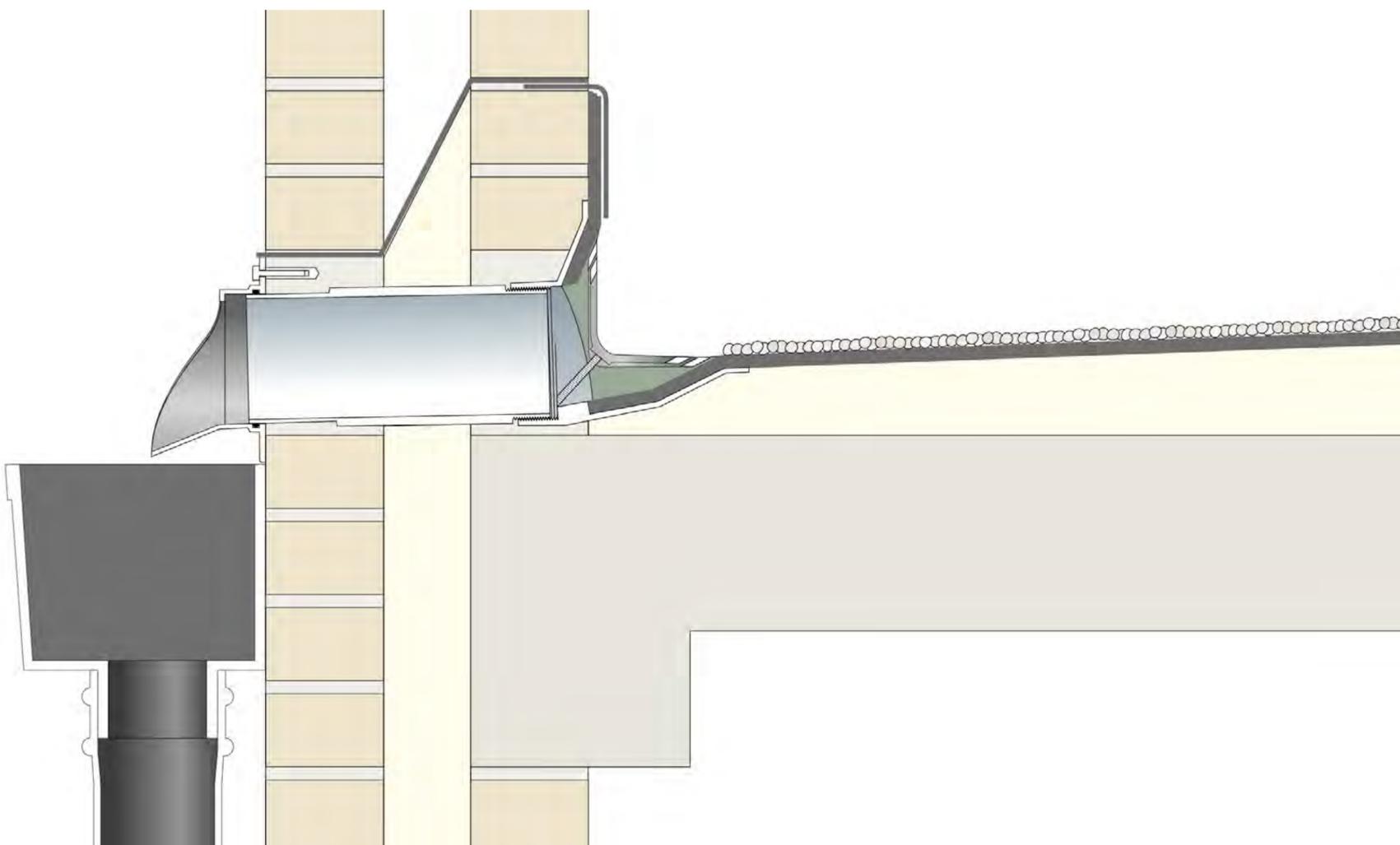


Outlet Size (mm)	Material	a (mm)	b (mm)	c (mm)	d (mm)	Weight (kg)	Product Code
100	Cast Iron	180	40	146	100	1.4	CDS/4*

*Also available in other colours to Alumasc standard colour range or RAL.

Connection

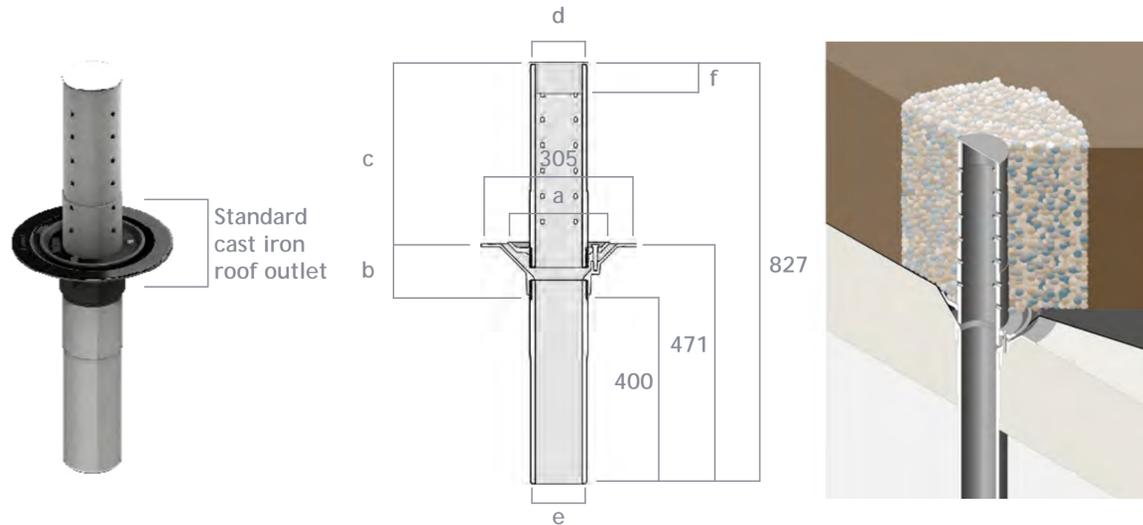
For ease of installation and perfect alignment, Harmer Downspouts push-fit connect to standard 110mm diameter plain ended pipe using an "O" ring seal and mechanical fixing into masonry.



Cast Iron Roof Outlets - Accessories & Connections

Planter Drain

The Planter Drain consists of a number of parts to be assembled on site using a standard Harmer cast iron roof outlet, ABS adaptor, ABS perforated upstand pipe and an aluminium closure top cap. The perforated standpipe design will allow for slow release of excessive water and moisture as a consequence of rainfall intensity and regular maintenance to hydrate and maintain soil quality in typical green roof applications.



Outlet Type	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	Weight (kg)	Product Code
Planter Drain	200	100	355	115	110	60	7.9	BVT100/PLANT



Cast Iron Threaded Spigot Adaptors

Coming Soon!
New Product!

50	58	400	2.6	2ADPCI
50	58	600	3.8	2ADPCI/600
75	83	400	5.3	3ADPCI
75	83	600	5.7	3ADPCI/600
100	110	400	6.5	4ADPCI
100	110	600	10.3	4ADPCI/600
150	160	400	11.1	6ADPCI
150	160	600	16.7	6ADPCI/600

ABS Threaded Spigot Adaptors

The ABS threaded spigot adaptor has been designed to facilitate the connection of Harmer Aluminium Roof Outlets and Harmer Cast Iron Roof Outlets where a fire rated solution is not applicable. This provides an economical method of connection onto all manor of pipework systems due to the external diameter of the spigot being that of most standard internal pipework systems.



Nominal Bore (mm)	a (mm)	Length (mm)	Weight (kg)	Product Code
50	63	400	0.4	2ADP
50	63	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

Threaded Spigot Adaptors: 2ADP, 3ADP, 4ADP and 6ADP

Standard length for adaptors is 400mm and 600mm, but lengths of 500, 600, 700 and 800mm are also available on request.

Cast Iron Roof Outlets - Accessories & Connections

Harmer Couplings

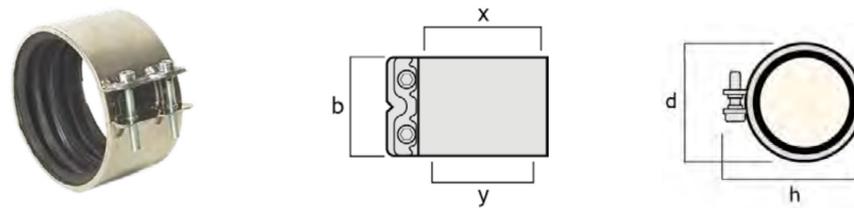
Harmer SML couplings are Available in either ductile iron or stainless steel and meet the requirements of BS EN 877. The internal pressure performance of couplings ranges from 0.5 bar to 10 bar. All couplings feature EPDM elastomeric seals as standard. Neoprene rubber seals are Available on request.



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

Adaptor Couplings

The Stainless Steel Harmer SML Adaptor coupling is used when it is necessary to make a connection between BS EN 877 lightweight cast iron 'soil' systems, conventional cast iron thick wall 'drain' systems and 3"/83mm imperial pipework. This coupling does not incorporate any provision for electrical continuity.



Pipe Dia (mm)	Bolts	d	h	b	x	y	Product Code
70	2	95	110	70	83-84	75-76	3151/010075
100	2	130	145	70	116-119	108-113	3102/100
150	4	180	215	70	168	159	3102/150

Pipe Connections

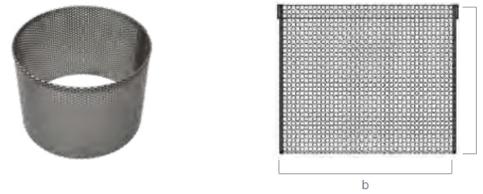
Outlet Type	Nominal Size (mm)	Outlet Diameter (mm)	Pipe Material and Connection Type			
			Cast Iron EN877	Stainless Steel	HDPE	PVCu
Vertical Spigot	50	60	SML Duo coupling	Post formed socket OR flexible coupling	SML Duo coupling	Post formed socket OR flexible coupling
	75	83	SML Adaptor coupling	"O" ring socket OR SML Duo coupling	SML Adaptor coupling	"O" ring socket OR SML Duo coupling
	100	110	SML Duo coupling	"O" ring socket OR SML Duo coupling	SML Duo coupling	"O" ring socket OR SML Duo coupling
Threaded	50	2" BSP	2ADP + SML Duo coupling	2ADP to Post formed socket OR flexible coupling	2ADP to Post formed socket OR flexible coupling	2ADP to Post formed socket OR flexible coupling
	75	3" BSP	3ADP + SML Adapter coupling	3ADP to "O" ring socket OR SML Duo coupling	3ADP + SML Adapter coupling	3ADP to "O" ring socket OR SML Duo coupling
	100	4" BSP	4ADP + SML Duo coupling	4ADP to "O" ring socket OR SML Duo coupling	4ADP + SML Duo coupling	4ADP to "O" ring socket OR SML Duo coupling
	150	6" BSP	6ADP + SML Duo coupling	6ADP to P "O" ring socket OR SML Duo coupling	6ADP + SML Duo coupling	6ADP to P "O" ring socket OR SML Duo coupling

Cast Iron Roof Outlets - Accessories & Connections



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.

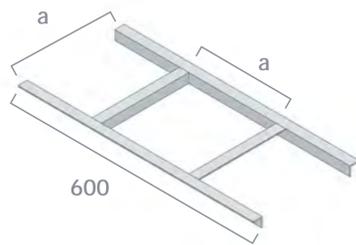


Outlet Size (nominal)	a (mm)	b (mm)	Weight (kg)	Product Code
Medium Sump	150	200	0.5	C4/GG/15
Medium Sump	200	200	0.6	C4/GG/20
Large Sump	150	305	0.8	C6/GG/15
Large Sump	200	305	0.9	C6/GG/20



Underdeck Clamp

The Underdeck Clamp is used to secure cast iron outlet body to roof deck (cannot be used with horizontal outlet).

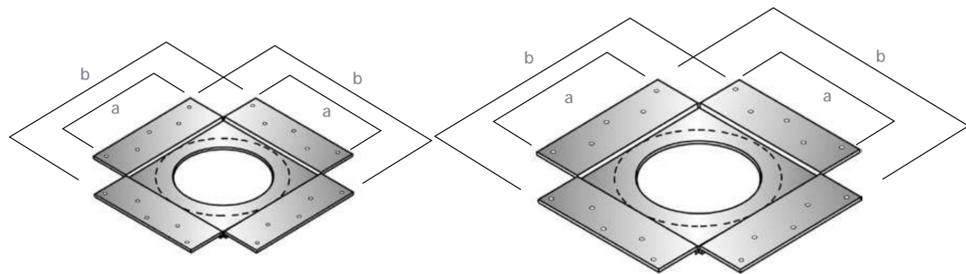


Outlet Size (nominal)	Material Type	a (mm)	Weight (kg)	Product Code
Medium Sump	Mild steel	175	1.7	C4/UC
Medium Sump	Stainless steel	175	2.1	C4/UC/SS
Large Sump	Mild steel	300	2.0	C6/UC
Large Sump	Stainless steel	300	2.4	C6/UC/SS

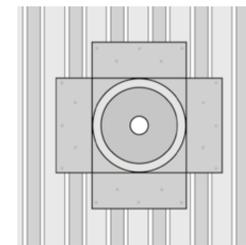


Metal Deck Support Plates

Recommended for use where Harmer cast aluminium rainwater outlets are installed in metal deck roofs. They are designed to provide a secure and stable junction between the roof deck and rainwater outlet.



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

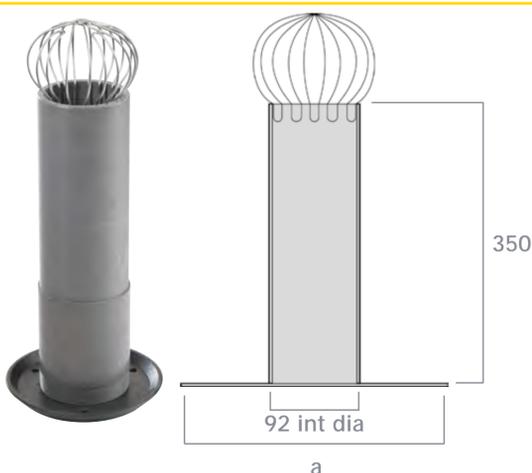


Materials

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.

Outlet Size (nominal)	a (mm)	b (mm)	Weight (kg)	Product Code
Medium Sump	335	490	2.7	SP1
Large Sump	415	570	3.5	SP2

Overflow Outlet



For use where overflow outlets are required. The overflow assembly simply bolts onto the rainwater outlet where the clamp normally sits. Made from ABS, the overflow is easily cut to the required length on site. The balloon grating can be re-fitted back into the overflow inlet to protect the outlet from debris.

Outlet Size (nominal)	a (mm)	Weight (kg)	Product Code
Medium Sump	200	2.6	C4/OF

Cast Iron Roof Outlets - Accessories & Connections

Threaded Spigot Adaptors

The cast iron threaded spigot adaptor has been designed to facilitate an A1 fire rated connection to Harmer Cast Iron Medium Sump, Large Sump, Two-Way and Balcony rainwater outlets to all types of pipe systems due to the external diameter of the spigot being that of most standard internal pipework systems.

Materials

Threaded Spigot Adaptors in cast iron or ABS are supplied in 400mm & 600mm 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.

Please see Harmer couplings available (pages 66).



Standard length for adaptors is 400mm, but lengths of 500, 600, 700 and 800mm are also available on request.

Nominal Bore (mm)	a (mm)	b (mm)	Length (mm)	Cast Iron Adaptors		ABS Adaptor	
				Weight (kg)	Product Code	Weight (kg)	Product Code
50	63	58	400	2.6	2ADPCI	0.4	2ADP
50	63	58	600	3.8	2ADPCI/600	0.6	2ADP/600
75	83	83	400	5.3	3ADPCI	0.6	3ADP
75	83	83	600	5.7	3ADPCI/600	0.9	3ADP/600
100	110	110	400	6.5	4ADPCI	1.2	4ADP
100	110	110	600	10.3	4ADPCI/600	1.8	4ADP/600
150	160	160	400	11.1	6ADPCI	2.0	6ADP
150	160	160	600	16.7	6ADPCI/600	3.0	6ADP/600

Fitting the Harmer Threaded Spigot Adaptor

Materials

- A cast iron 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:

- Inspect all threads and ensure they are free of dirt, grease and foreign matter.
- 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.
- Securely tighten the adapter into the outlet, using chains or similar equipment.

Connecting Adapter - Method 2

Using silicone sealant (DOW CORNING 791 recommended):

- Inspect all threads and ensure they are free of dirt and foreign matter.
- Allow for ventilation and degrease the threads of the outlet using a degreasing agent and fine brush.
- Using paper towels ensure that threads are dry.
- Apply a liberal coating of silicone sealant to the threads of the outlet and adapter and immediately tighten using chains or similar equipment.
- A surplus of sealant will squeeze out indicating that all the thread void areas have filled.
- Clean up with paper towels and dispose of appropriately.
- 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.

Cast Iron Roof Outlets - Installation

The Harmer Roof Cast Iron 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, hot melt, 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 cast iron 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 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, Adjustable Height Grates, Double Flange Variable Height Bodies, Support Plates, Gravel Guards, Pipe Adaptors, Overflows and Downspouts

Materials

All Harmer cast iron components are cast to material grade EN-GJL-200 to BS EN1561, ductile iron components are cast to material grade EN GJS-450-10 to EN1563..

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.

Typical application details are shown on pages 62-63. For further advice on installation, contact Harmer Technical Helpline 01536 383810.

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:

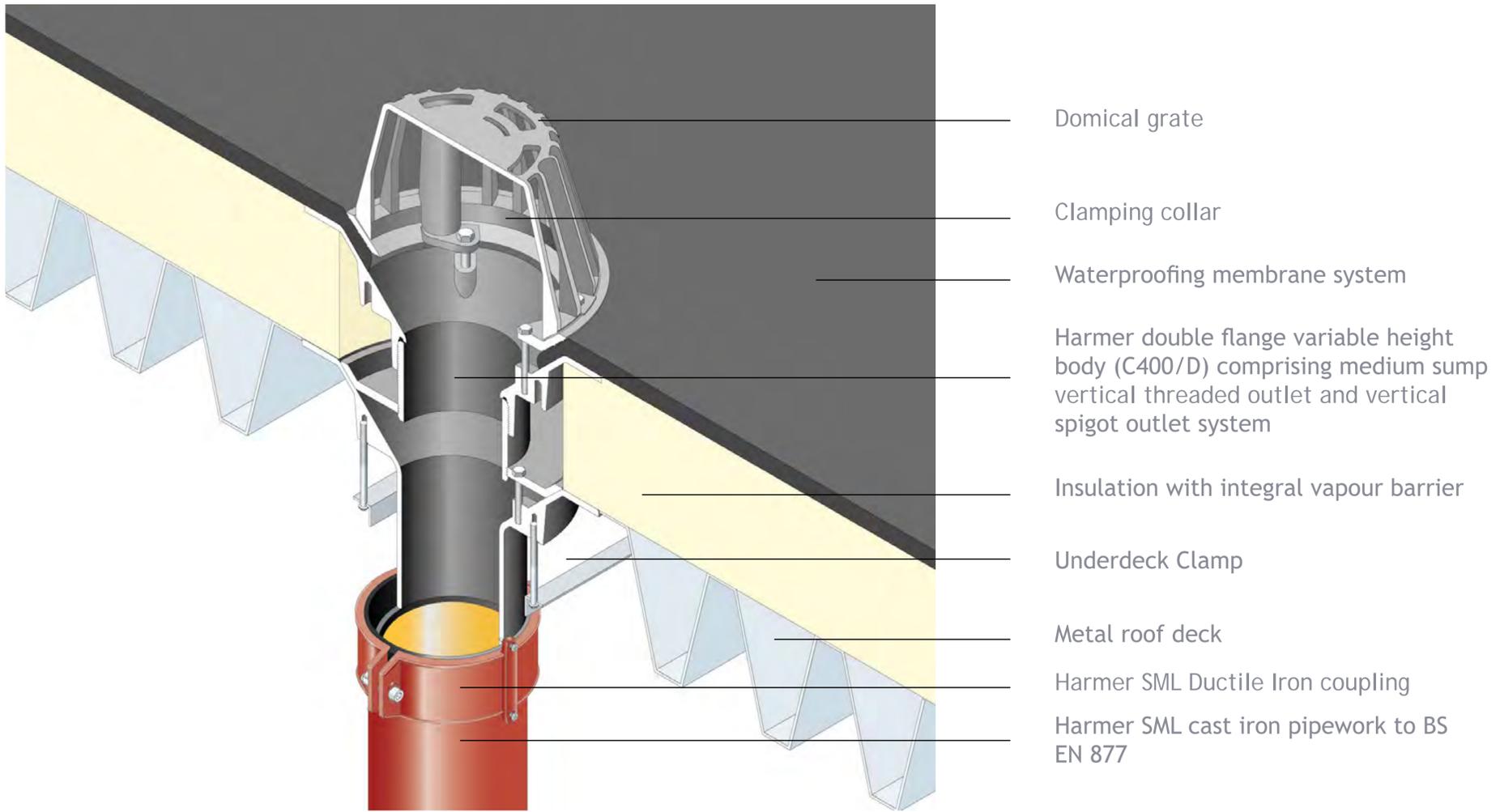
- Inspection of the outlets should be on a regular basis and generally not less than twice annually - Autumn and Spring.
- In locations with nearby trees, leaf congestion will require more frequent clearance.
- Plastic bags blown onto the roof will wash to an outlet position and block the strainer.
- 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

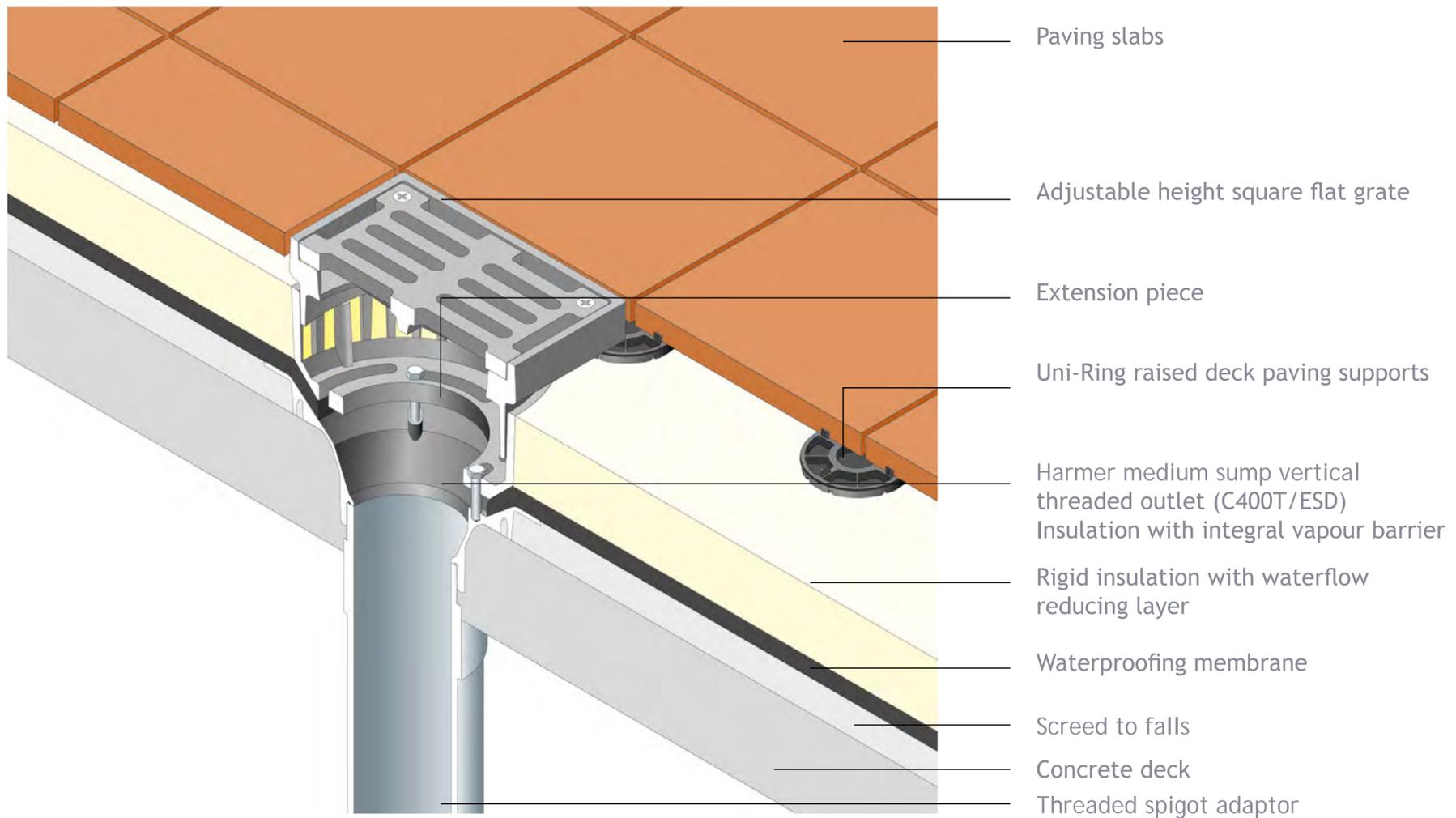
Always refer to current Health & Safety legislation, safe systems of work and the relevant material safety data sheets.

Cast Iron Roof Outlets - Application Details

Medium Sump Vertical Spigot Double Flanged Outlet - Warm Roof Metal Deck Construction

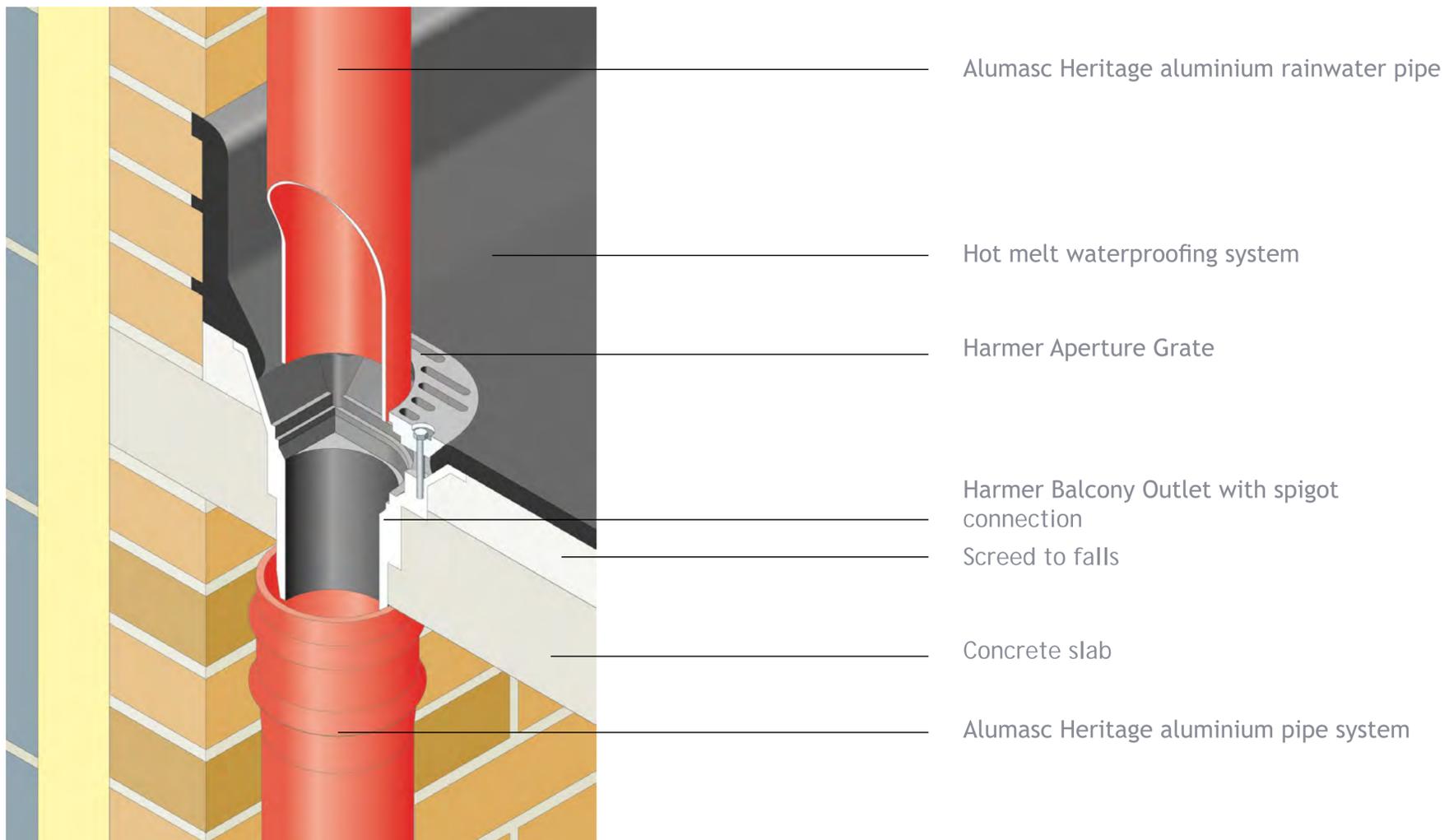


Medium Sump Vertical Threaded Outlet - Square Grate, Inverted Roof Concrete Deck Construction



Cast Iron Roof Outlets - Application Details

Balcony Spigot Outlet - Aperture Grate in Concrete Deck Construction



Two-Way Outlet - Warm Roof Concrete Deck Construction

