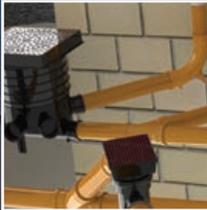


CLARK-DRAIN



THE DRAINAGE COMPANY

UNDERGROUND FITTINGS



50 years serving the
construction industry

Welcome

Clark-Drain is renowned all over the world for the innovative drainage products it brings to the market.

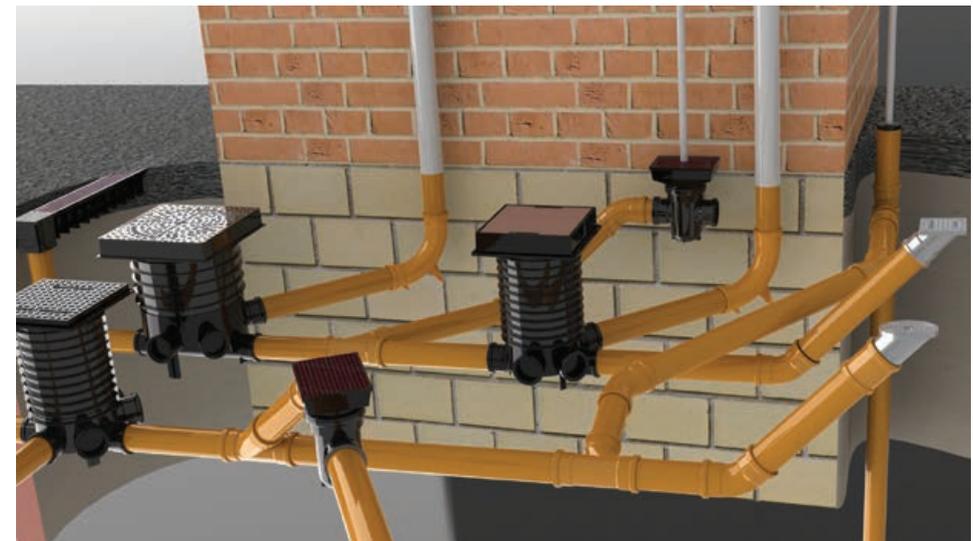
We have been offering intelligent solutions to the construction industry since 1962, covering the housing, industrial, commercial and highways sectors.

Clark-Drain underground fixtures and fittings offer cost-effective PVC and polypropylene systems designed for waste and surface water applications. We provide 110mm diameter options which include a range of fittings, gullies, chambers and covers, as well as adaptors for connection to other pipe systems.

MANY CHOICES. ONE TRUSTED SOURCE.

The more layout alternatives you have, the more possibilities there are for reducing installation costs. Other products within the Clark-Drain portfolio combine with our underground range to provide reliable solutions and economical choices.

Our residential linear drainage series and wide range of robust plastic chambers and covers are designed and manufactured to perfectly complement our underground range to provide a complete solution.



CONTENTS

FITTINGS

Couplings	4
Bends	4
Tee Junctions	5
Y Junctions	5
End Caps	6
Spigot Ends	6
Non-return Valve	6

BOTTLE GULLY AND ACCESS

P Trap	6
Hopper Heads	6
Bottle Gully	6

PPIC AND COVERS

Chamber Bases	7
Risers	7
Solid Top Covers	7

RUBBER CONNECTORS AND ADAPTORS

Connectors	8
Waste Adaptors	8
Rainwater Adaptors	8
Lubricants	8

INSPECTION CHAMBERS

320mm diameter	8
450mm diameter	9 – 11
450mm Road Gullies	12

INSTALLATION INSTRUCTIONS

300mm diameter	13
450mm diameter	14
Road Gullies	15

110mm Underground Range

Fittings



CD U1111
110mm PVC double socket coupling
Pack 60



CD U1112
110mm PVC double socket repair/slip coupling
Pack 60



CD U1121
15° single socket bend
Pack 40



CD U1122
30° single socket bend
Pack 40



CD U1123
45° single socket bend
Pack 30



CD U1124
87.5° single socket swept bend
Pack 25



CD U1125
87.5° single socket elbow bend
Pack 16



CD U1131
15° double socket bend
Pack 40



CD U1132
30° double socket bend
Pack 40



CD U1133
45° double socket bend
Pack 30

110mm Underground Range

Fittings



CD U1134
87.5° double socket swept bend
Pack 25



CD U1135
87.5° double socket swept bend
Pack 15



CD U1128
87.5° single socket long radius bend
Pack 1



CD U1129
45° single socket long radius bend
Pack 1



CD U1137
0 – 90° double socket adjustable bend
Pack 1



CD U1142
87.5° double socket equal tee junction
Pack 16



CD U1144
87.5° triple socket equal tee junction
Pack 16



CD U1141
45° double socket equal Y junction
Pack 16



CD U1143
45° triple socket equal Y junction
Pack 16

110mm Underground Range

Access Fittings



CD U1161
110mm end cap
Pack 1



CD U1162
110mm socket plug
Pack 1



CD U1163
110mm screwed
access cap spigot end
Pack 1



CD U1171
Oval aluminium
rodding eye spigot end
Pack 1



CD U1172
Square aluminium
rodding eye spigot end
Pack 1



CD U1173
110mm non-return
valve single flap
Single socket pack 1

Bottle Gully and Access



CD U1155
Low back 'P' trap
Pack 10



CD U1156
Back inlet hopper
head rectangular
with waste inlets
Pack 16



CD U1157
Square hopper head
with waste inlets
Pack 20



CD U1150
Universal bottle gully
Pack 54

110mm Underground Range

PPIC and Covers



CD U353
320mm diameter
5 inlet chamber base
Pack 28



CD U355
320mm diameter
chamber riser c/w seal
Effective height 400mm
Pack 36



CD U453
450mm 5 inlet chamber
base c/w 3 bungs and
3 blanking plates
Pack 20



CD U455
450mm diameter
riser c/w sealing ring
Effective height 300mm
Pack 20



CD 499
450mm PPIC chamber
reducing ring for non-
man entry. Compatible
with CD 452 and CD
450 SR.
Pack 1



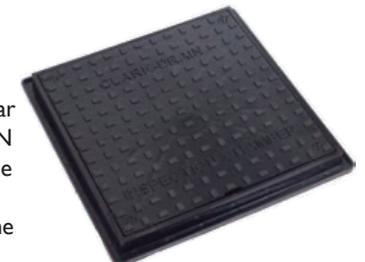
CD U653
460mm dia inspection
chamber base
3 x 160mm inlets
2 x 110mm inlets
Pack 1



CD 452
450mm diameter
clear opening
dual locking
35kN
polypropylene
cover and frame
Pack 48



CD 456
450mm
diameter clear
opening square
dual locking self
levelling 35kN cover
and frame
Pack 48



CD 300
220-300mm
diameter clear
opening 35kN
polypropylene
dual locking
cover & frame
Pack 60

110mm Underground Range

Rubber Connectors and Adaptors



CD U941
Flexible rubber connector 110/110mm coupler
Pack 1



CD U1182
EPDM rubber rainwater adaptor 110mm spigot
Pack 1



CD U943
Flexible rubber adaptor 110mm PVCu to 110mm clay.
Pack 1



CD U1183
EPDM rubber rainwater adaptor 110mm socket
Pack 1



CD U1181
EPDM rubber 32/40mm waste adaptor to 110mm
Pack 1

Lubricants



CD U991
250ml tube lubricant
Pack 1



CD U992
500ml tube lubricant
Pack 1

450mm Inspection Chambers

CD 456

- Dual locking facility
- 35kN driveway loading
- Extended frame for levelling to surrounding surfaces
- New deeper frame
- Square frame with unique circular lid for ease of access and installation



CD 452

- 450mm diameter clear opening
- Circular solid top polypropylene cover and frame
- 35kN driveway loading
- Circular opening to suit all standard 450mm inspection chambers
- Dual locking



450mm Inspection Chambers

CD 450SR

- 450mm diameter clear opening
- 80mm deep recessed top
- Block pavior recessed cover and frame
- Integral lifting keys
- Circular opening to suit all standard 450mm inspection chambers



CD 450SR/46SL

- 450mm diameter clear opening
- 46mm deep recessed top
- Recessed sealed and locking internal tray
- Integral lifting keys
- Circular opening to suit all standard 450mm inspection chambers



CD 499

- Polypropylene Reducer ring
- Reduces clear opening to 350mm
- Conforms to Building Regulations for chambers over 1.2m needing restricted access
- Compatible with CD 452 CD 450 SR and CD 456



450mm Inspection Chambers

CD U455 RISER

300mm (rise height) 340mm (overall height). The grooves on the riser enable easier cutting when required.



CD U453 BASE



The blanking plates help to stop waste lying in the bottom of the unused inlet(s), eliminating any unnecessary smells.

Easy fit bungs



The CD U453 comes with three bungs and three blanking plates. Base height 300mm.



One, two or three flows can be stopped by using the bungs and the blanking plates.

The blanking plates reduce any waste being deposited in the unused inlet(s).

Angled channels to aid flow.



450mm Diameter Road Gullies

Highways Compliant

- HAPAS approved

Watertight

- The Gullies are fully watertight in accordance with the Manual of Contracts for Highways Work

Airtight

- When used as a 'trapped' system, the Gullies are airtight, and can be connected to surface water, foul water or combined systems

Easy maintenance

- A removable rubber plug with integral retaining strap enables the gully to be rodded using conventional flexible draining rods

Durability

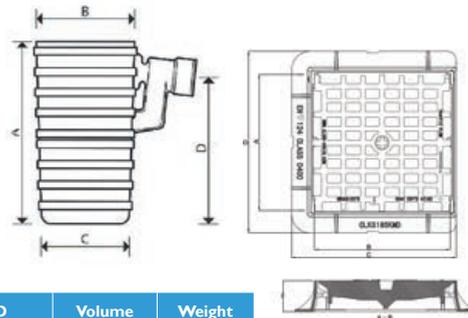
- With a minimum thickness of concrete of 150mm the Gullies' strength resists the loads likely to be encountered during use and has a working life equivalent to precast concrete and clay gullies

Flexibility

- Connects directly to PVC-U pipe systems and can be supplied with a gully outlet adaptor (available separately) for clay and twinwall drainage systems

Outlet

- 160mm outlet as standard
- 178mm available by using CD U205 outlet



Product code	A (mm)	B (mm)	C (mm)	D (mm)	Volume (Litres)	Weight (Kg)
CD U220	760	500	450	580	83	5.3
CD U230	910	500	450	730	107	5.8

Recommended BS EN 124 Class D400 Gully Grates

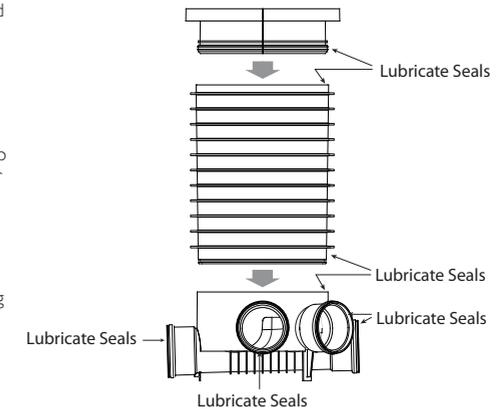
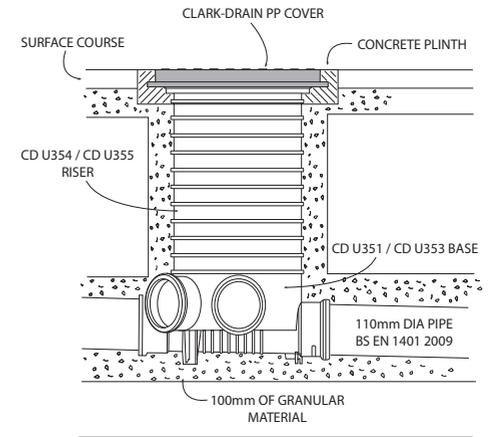
Product Code	Clear Opening (mm) A/B	Overall Size (mm) C/D	Depth (mm) E	Waterway (cm ²)	HA Grating Type (HA102/00)	Weight (Kg)
CD 180 KMD	430 x 370	570 x 459	100	994	S	30
CD 1845 KMD	425 x 425	580 x 521	100	1103	R	34
CD 185 KMD ¹	452 x 452	592 x 538	100	996	R	37
CD 1855 KMD	450 x 450	592 x 538	100	1258	R	36

¹Cycle-friendly mesh design
HA104/09 COMPLIANT

300 Series Installation Guide

INSTALLATION

- 1 The Clark-Drain 320mm inspection chamber can be installed up to a maximum depth of 600mm using the CD U351 or CD U353 Base & CD U354 or CD U355 Riser. Total Depth can be reduced by cutting the riser to required depth using a fine-tooth saw.
- 2 The chamber has a push-fit jointing system using a ring seal fitted around the riser to enable water testing to be carried out at depths of up to 600mm. Lubricate all seals prior to assembling the chamber base, risers and cover, as per diagram.
- 3 Chambers should be installed on a 100mm bed of suitable as-dug or granular material. Care should be taken to ensure the bedding material is evened out under the base to give full support. Check all connections are clean and free from dirt or grit that could prevent the seals working effectively.
- 4 All unused inlets should be capped off using the provided bungs. Should more than three bungs be required contact your local Clark-Drain stockist for further supplies.
- 5 It is recommended that only pipes of 110mm O/D conforming to BS EN 1401:2009 are connected to the inlets & outlets. Pipes of smaller diameters can be connected by using an appropriate level invert reducer. Contact your Clark-Drain stockist for information.
- 6 Using the same material as used when bedding the chamber; apply back-fill around the base to the underside of the inlet/outlet sockets in 100mm layers – this will ensure adequate stability of the base when installing the riser. Keep the inside of the base free from debris. Prior to fitting riser ensure rubber seal is in place. Sufficient lubricant should be applied to both inner top edge of base and to the ring seal itself.
- 7 It is recommended at this point the cover and frame are fitted to stop debris from entering into chamber. Backfilling can then take place around the chamber and connecting pipes, using suitable granular material. The back fill should be finished just below ground level so that the cover and frame can be set in a concrete plinth. The surrounding finishing layer can then be put down.



MAINTENANCE/CLEANING

The Clark-Drain inspection chambers can be cleaned by jet/pressure washing. When removing cover place any fixings to one side for re-use. Take care when lifting recessed covers (such as CD 450SR) filled with blocks as these may be quite heavy and always seek help if necessary.

The inside of walls and base can be cleaned with cold or hot water not exceeding 65° C. For rodding the chamber remove cover and rod in the direction of flow. In order to avoid unnecessary contamination of drainage systems, the use of detergents and/or bleach should be avoided where possible, although both the chamber base and risers are designed to withstand such substances and chemicals. Always ensure that excess water is "flushed" out of the chamber base in the normal direction of flow, towards the outlet pipe.

For rodding the chamber remove cover and rod in the direction of flow.

Depending on loading class required, suitable polypropylene covers can be supplied by Clark-Drain i.e. for 15kN applications CD U352 circular cover & frame or CD U356 square-to-round cover & frame or for 35kN applications CD 300 square or CD 300SR square-to-round recessed cover & frame. All are a direct fit on Clark-Drain 320mm inspection chambers and risers.

Once cleared replace cover and re-secure with original fixings.

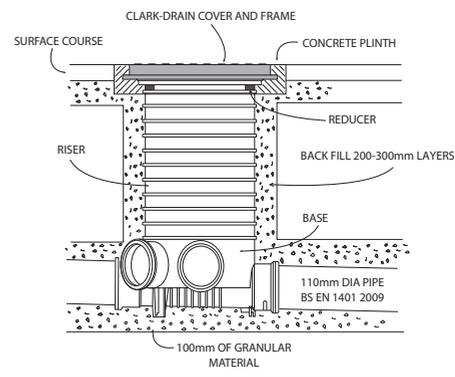
Clark-Drain accepts no responsibility for product defect or failure as a result of not following these instructions.

450 Series Installation Guide

INSTALLATION

- 1 450mm inspection chambers may be used as an alternative to traditionally constructed manholes for invert depths of up to 1.2 metres, (using the CD 453 base and CD 455 Risers as supplied by your Clark-Drain stockist).
- 2 Alternative depths can easily be created by simply cutting a riser section in between the rib sections, to the required height using a fine tooth saw.
- 3 The chamber has a push fit jointing system using ring seals fitted around the risers to enable water testing to be carried out on depths up to 1.2 metres. Lubricate seals prior to use.
- 4 Chambers should be installed on a 100mm bed of suitably as-dug or granular material and care should be taken to ensure the bedding material is evened out under the base so that the chamber is fully supported. Check all connections are clean and free from dirt or grit that could prevent the seals working effectively.
- 5 All unused inlets/holes should be closed off using the provided easy-fit bungs. Use the blanking plates that are provided in unused inlets to stop waste build-ups and unwanted smells and odours. If more than 3 easy-fit bungs or blanking plates are required, please contact your local Clark-Drain stockist for further supplies.
- 6 It is recommended that only pipes of 110mm O/D conforming to BS EN 1401-1: 1998 are connected to the CD 453 base inlets and outlet. Pipes of smaller diameters can be used, but correctly-specified level invert reducers must be used – contact your Clark-Drain stockist for further information.
- 7 Using the same material as used when bedding the chamber, apply backfill around the base to the underside of the inlet/outlet sockets in 100mm layers. This will provide the base with adequate stability when locating the risers. The inside of the base should again be kept free from debris.
- 8 Before a riser is installed into the base or a preceding riser section, the ring seal should be located in the recess provided – care should be taken to ensure the seal is correctly fitted and seated around the entire circumference of the riser and has no kinks. Sufficient lubricant (e.g. silicon) should be applied to both the inside top edge of the base or preceding riser section AND the ring seal itself – this will ensure both ease of installation and performance of the seal.
- 9 The riser should be evenly positioned into the base or previous riser section ready to be pushed into place – physical force should be enough for this; However if not, then a protective wooden block, or similar item, should be placed over the top of the riser so that light mechanical force can be used to fit the riser into the base.

- 10 When all risers and the cover and frame are securely fitted, the trench can be back-filled using dug-out material in 200-300mm layers mechanically packed down tightly. The dug-up material should be free from stones larger than 40mm, lumps of clay over 100mm, timber, frozen material and vegetable matter. Care must be taken not to knock the risers and keep the units free from debris while back-filling.
- 11 Once back-filled the top riser can be levelled to match the finished ground level, and then the cover and frame (available separately) fitted to further prevent debris from entering the drain. (The use of Clark-Drain products (CD 451, CD 452, CD 1657 KMB, CD 450SR or CD 450SR/46SL) is recommended as suitable covers & frames.)
- 12 Back-fill should extend to just below ground level so that the cover and frame can be set in a concrete plinth. The surrounding finishing layer can then be put down.
- 13 If the finished ground level is not being put down straight away it can prove to be good practice to leave the top riser sticking out of the ground and trim down at the last stages to ensure the unit is at the correct height. If this is the case, a Clark-Drain cover and frame can still be fitted on a temporary basis to prevent debris from entering the drain.



Clark-Drain inspection chambers CD 453 and risers CD 455 are designed and manufactured to BS EN 13598-1:2010. Chambers may be filled to ground level (1.2 metres max) in isolation or as part of a pipeline or complete drainage installation.

Due to the non-absorbent nature of plastic materials the one hour conditioning period is not necessary prior to carrying out a water test.

After cleaning or rodding, re-fit the cover and re-secure with original screws.

Road Gully Installation Guide

INSTALLATION

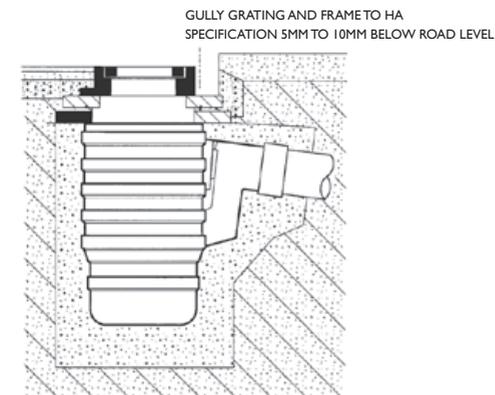
Each gully shall be installed in a suitable sized pit, allowing for a minimum surround and base of 150mm concrete to the HA specification and any trench shoring required.

A concrete base at least 150mm thick is laid. The gully should be set level and in line with the branched drain and haunched with concrete up to its second rib.

The trapped or untrapped gully is connected directly to the branch drain for PVC-U systems, and by the appropriate adaptor for clay or twin wall systems.

The gully is surrounded, up to the top, with a minimum of 150mm of concrete (see diagram below) To prevent distortion and floatations, the gully should be weighted by filling with water or suitable ballast prior to placing the concrete. The concrete must be evenly distributed and must fully surround the outlet spigot and connection joint; the use of a vibrating poker will assist compaction and reduce void formation.

Installation is completed by the construction of a suitable support for the gully grating and frame, as shown in the MCHW, Volume 3: Highway Construction Details, Drawing No F13 (1991).



CONNECTOR AND PIPEWORK TO HA SPECIFICATION

Note: This drawing to be read in conjunction with MCHW, Volume 3: Highways Construction Details Drawing No F13 'Precast and insitu cast gullies'

MAINTENANCE/CLEANING Please see instructions on previous page.

CLARK-DRAIN



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LOCAL STOCKIST

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Due to our continual development programme, we reserve the right to upgrade products without prior notice.
All products must be installed in accordance with Clark-Drain installation guidelines.