

# Hepworth

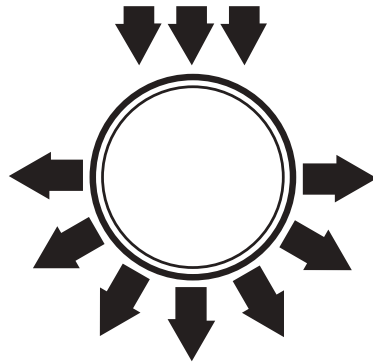


## PLASTICS DRAINAGE AND SEWERAGE SYSTEMS

TECHNICAL / PRODUCT GUIDE

# Hepworth Plastics Drainage and Sewerage Systems

## FLEXIBILITY



P.V.C.u. pipes and fittings are regarded as flexible under the stresses set up by backfill and surcharge loads. Properly installed in a suitable bed and surround, part of this load is transmitted to the side fill which is correspondingly consolidated.

The modulus of elasticity of P.V.C.u. varies from about 400,000 p.s.i. when new to about 200,000 p.s.i. after 50 years.

In the event of unforeseen excess loading which could cause fracture of pipes of rigid materials, the P.V.C.u. pipes merely take on a small, and generally temporary, increase in deformation.

## PRECISION MANUFACTURE

The P.V.C.u. system has been based on the past usage and experience with pressure pipe for gravity purposes. Sewerdrain joints are made with the same precision as pressure pipe there is no need to allow for it in design. Connections at a later date can be done with equal confidence.

Precision joints together with longer pipe lengths reduce the risks of blockage and have a minimal effect on flow.

## LIGHT WEIGHT

Handling costs reduced to a minimum. Easily stored, easily laid with fewer men and less machinery.

## RUGGEDNESS

P.V.C.u. can reduce breakage dramatically because of its higher impact strength. Even pipes which have suffered some damage can be partially saved by removing the damaged section.

## CORROSION RESISTANCE

Normal acid or alkali soil conditions have no adverse effect. Sewerdrain can be used for a wide range of industrial effluents. For more detailed information contact our technical department or consult BS code of practice CP.312, Part 1 : 1973.

## EASILY WORKED

No special tools required and not unkind to the hands.

# Hepworth Plastics Drainage and Sewerage Systems

## EXPERIENCE

P.V.C.u. pipes are a proven part of modern building and civil engineering and pressure pipes up to 24" diameter have for many years been used for gravity drainage schemes in all parts of the United Kingdom. They have been used on many major trunk roads and motorways, often with the original pipe design changed to make the most of the wider ranges of sizes available in P.V.C.u.

The crushing strength requirements of rigid material are not relevant to P.V.C.u. because of its flexibility. The wall thickness/diameter ratio of Sewerdrain has been selected so as to be comparable with class B "Pressure Pipes" to BS 3505. The outside diameters are in accordance with ISO/R161 recommendations.

## PREFERRED METRIC RANGE



Because the SEWERDRAIN system has been designed to use a logical size progression from 110mm to 400mm with a single wall thickness to diameter ratio, a more accurate system using the extra available sizes can be designed, often resulting in considerable cost saving.

## GENERAL INFORMATION

### STANDARD LENGTHS

Pipes are normally available and supplied with integral joints in 6m or 9m lengths, but lengths of 3m can be produced if required. Colour, the metric Sewerdrain system is terracotta coloured. Imperial pipe to BS 3505/BS 3506 is grey.

### FLOW

See Appendix III (Flow Charts), page 35. For the Colebrooke white formula the following co-efficients of friction should be used.

When new 0.003mm.

Mature 0.6mm (the normal accepted value for a mature sewer).

#### NOTE

Whilst it is difficult to claim the use of the lower value for a mature P.V.C.u. sewer it should be noted that because of the long lengths and precision joints, it is difficult to induce roughness by misalignment of joints. Stepping does not occur.

## PHYSICAL PROPERTIES

Specific Gravity	1.42
Inflammability	Will not support combustion
Specific Heat	1.00kJ / kg / °C
Thermal Conductivity	0.180 J/m <sup>2</sup> / s / °C/m
Co-efficient of Linear Expansion	0.06mm/m / °C
Vicat Softening Point (5kg)	79 °C
Impact Strength	Complies with <b>EN 1401 - 1,3505</b>
Modulus of Elasticity	3000 MN / m <sup>2</sup> at 20 °C
Poisson's Ratio	1 : 3
Tensile Strength	In excess of 45 MN / m <sup>2</sup> at 20 °C
Elongation at Break	In excess of 80%

# Hepworth Plastics Drainage and Sewerage Systems

## RELEVANT STANDARDS AND RECOMMENDATIONS



### METRIC

110mm - 160mm pipe and fittings . . . . . EN 1401-1  
 200mm - 400mm pipe and fittings . . . . . EN 1401-1  
 Inspection Chamber . . . . . Agreement Certificate No. 76 / 367

### IMPERIAL

18" - 24" pipe and fittings . . . . . BS 3505 : 1986  
 Rubber rings, rubber to . . . . . BS 2494/EN 681-1

It should be noted that Imperial Pipe to BS 3505 is to inch dimensions as I.S.O. / R / 330 and can only be jointed to Sewerdrain by means of adaptors.

### SPECIFICATION

The most straightforward way to ensure a trouble free system is to SPECIFY SEWERDRAIN.

"P.V.C.u. gravity drainage pipes and fittings shall be SEWERDRAIN as marketed by Hepworth Industrial Plastics Ltd., Padiham, Burnley, Lancs."

"Sewerdrain P.V.C.u. gravity drainage system may be used as an alternative throughout. Flow requirements in the various sections will be provided on request and size reductions in keeping with the manufacturers flow charts will be considered."

## PRODUCT DATA

### PIPES

#### metric

<i>Nominal Size m.m.</i>	<i>Min. O.D m.m.</i>	<i>Min. Wall Thickness m.m.</i>	<i>Weight Kg / M</i>
110	110.0	3.2	1.677
160	160.0	4.1	3.005
200	200.0	4.9	4.536
250	250.0	6.1	7.022
315	315.0	7.7	11.095
400	400.0	9.8	17.889

The above form the present Sewerdrain range.

For some time pipes to BS 3505 and 3506 have been supplied for gravity drainage. These are still available: fittings can be fabricated, but the normal Sewerdrain fittings are not suitable. For your information, we have included their dimensions and weights.

#### Imperial

Until our range is extended above 400mm, we recommend the use of 18", 20", 22" and 24" Class B pipes to BS 3506 - 1986

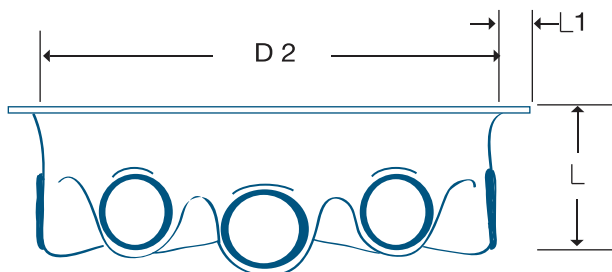
Class B P.V.C.u. to BS 3506 : 1986

<i>Nominal Bore Size Inches.</i>	<i>Min. O.D mm</i>	<i>Min. Wall Thickness mm</i>	<i>Weight Kg / m</i>
18	456.7	11.0	22.55
20	507.5	12.2	27.89
22	558.3	13.4	33.79
24	609.1	14.6	40.14

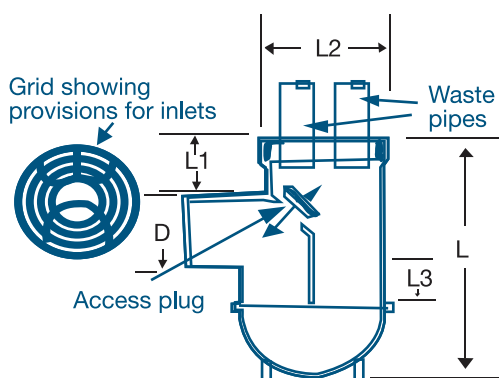
# Hepworth Plastics Drainage and Sewerage Systems

## INSPECTION CHAMBER base

Pipe Dia.	D2	L	L1	Weight Kg.
160	750	300	37	15
200	1200	480	37	20
315	1200	600	37	24

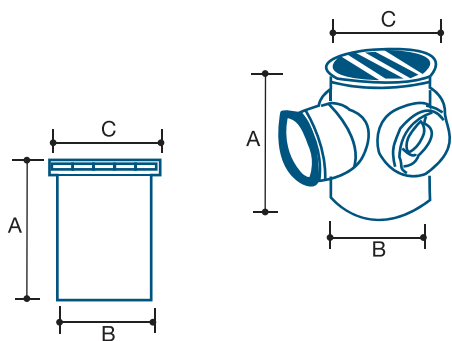


## ACCESS GULLEY polypropylene



D	L1	L2	L3	L	Weight Kg.
110	80	170	115	370	0.92

## Bottle Gully including Grid and Rodding Eye



Size	Angle	Code	A	B	C
110mm	87 $\frac{1}{2}$ °	DS46	264	185	148

### Raising Piece for DS46

Size	Code	A	B	C
160mm	DS48	300	160	180



# BOTTLE GULLIES

- Simple to install
- Ideal for domestic, industrial and commercial installations
- Accepts waste or rainwater pipework from 32mm up to 110mm sizes
- Includes rodding access point

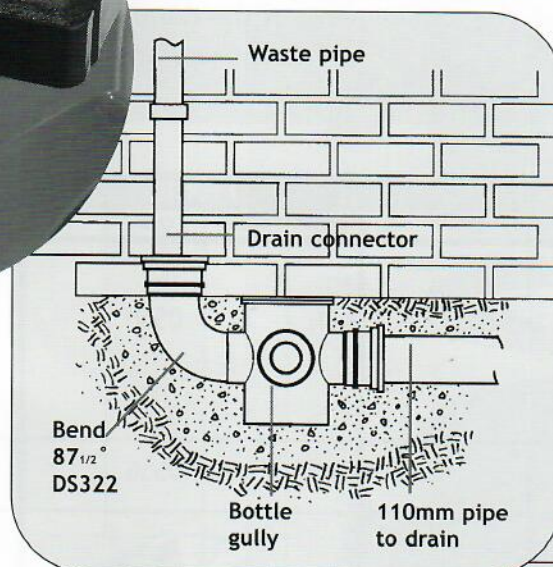
## HUNTER BOTTLE GULLIES

Hunter Gullies offer a wide range of applications to suit most building situations. The Hunter bottle gully trap (DS46) circular top and (DS49) square top, can be used to remove surface water from paved pedestrian areas. Side and back boss inlets accept waste water from ground floor domestic appliances and/or rainwater from roofs.

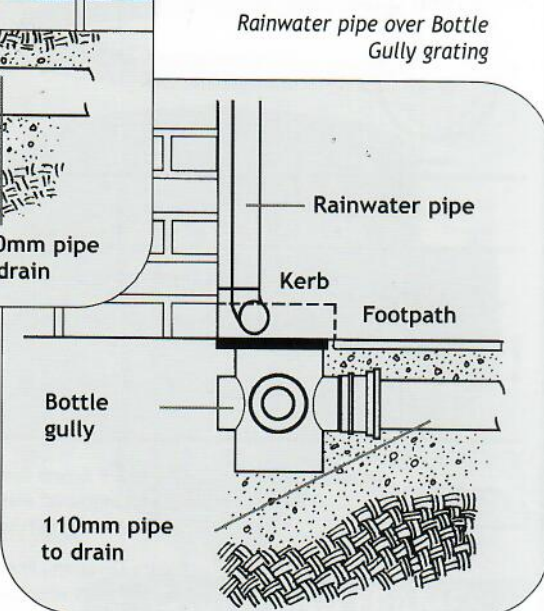
By adding a raising piece (DS48) the gully grating can be installed where paving is set at varying heights, where a new surface is laid or if deep bedding is required. It can be cut to the desired length to allow the gully to be installed at depths of up to 600mm, reducing the need for additional bends.

The square top is sized at 200mm with spacer nibs at the edges to complement block paving and is designed to make finishing neat and simple when installed in slab or block paved areas. The offset top is designed to fit snugly against a wall, reducing the need for time-consuming or untidy finishing. The gully top accepts a standard Hunter circular grille which meets all the requirements for load-bearing without the need for screws.

The Hunter Bottle Gully is ideal for removing surface water from paved areas as well as waste water from ground floor domestic appliances and rainwater from roofs.



Rainwater pipe to bottle gully back entry via drain connector



The Hunter bottle gully trap comprises a body, removable grating and lock-fit sealed rodding access eye. The body incorporates a 110mm diameter outlet socket with integral ring seal joint. Side and back inlet bosses provide direct access for 50mm or 110mm connections.

## DRAIN

110mm

Description	Pack/Sack	Colour	Code
<b>BOTTLE GULLY</b>			
(includes Grid and Rodding Access)			
Circular Top	1/2	G/B	DS46
Square Top	1/2	G/B	DS49
Circular Top Open Back Inlet	1/2	G/B	DS43
Square Top Accessory (use with DS46) 200mm x 200mm	1/10	B	DS54
Circular Grid-Spare (Use with DS46, DS49 or DS54)	1/25	B	DS55
Raising Piece for DS46, DS49 and DS54	1/8	G/B	DS48
150mm x 150mm Sealed Access (also fits 110mm and 160mm pipes)	1/10	B	DS47

