



## Charles Tennant & Co Ltd

Craighead  
Whistleberry Road  
Blantyre G72 0TH  
Tel: 01698 717900 Fax: 01698 717910

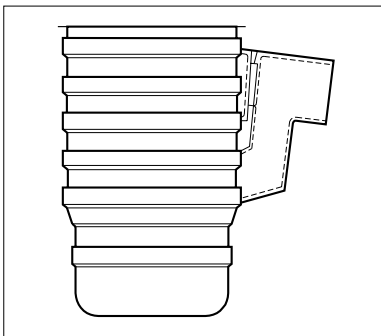
**Roads and Bridges  
Agrément Certificate  
No 01/R127**

Designated by Government  
to issue  
European Technical  
Approvals

## TENNANT HIGH DENSITY POLYETHYLENE ROAD GULLIES

Elément de canalisation  
Abzugsgraben

## Product



- THIS CERTIFICATE REPLACES 95/R088 AND RELATES TO TENNANT HIGH DENSITY POLYETHYLENE ROAD GULLIES.
- The products are for use as trapped or untrapped road gullies for direct connection to PVC-U plastic pipe systems and, with suitable adaptors, to clay and twinwall drainage systems.
- The products are to be surrounded with concrete which must be in accordance with the Requirements of the Department for Transport, Local Government and the Regions, Highways Agency (DTLR, HA).

Department for Transport,  
Local Government and the Regions,  
Highways Agency Requirements

### 1 Requirement

The requirements for road gullies are set out in the following Manual of Contract Documents for Highway Works (MCHW):

Volume 1 : *Specification for Highway Works : May 2001 Edition.*

Volume 3 : *Highway Construction Details : 2001, Drawing No F13 (1991).*

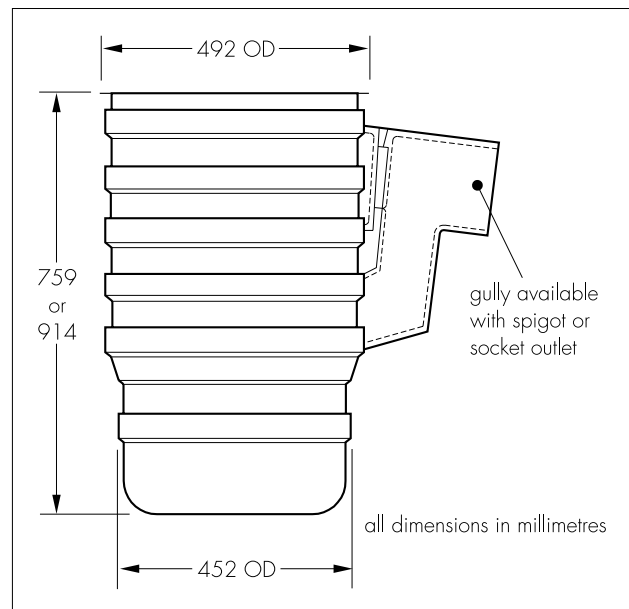
## Technical Specification

### 2 Description

2.1 Tennant High Density Polyethylene Road Gullies comprise blow-moulded, high density polyethylene (HDPE) gullies with a nominal outside diameter of 450 mm and available in depths of 759 mm and 914 mm (see Figure 1). The gully can be provided with an outlet spigot diameter of 160 mm or 178 mm or alternatively with an outlet socket of 179 mm diameter. The trapped gully (see Figure 2) incorporates an integral trap, outlet socket and a rubber access plug with an integral retaining strap. If the access plug is not used, the gully can be considered untrapped.

2.2 Gullies with 160 mm diameter outlet spigots are for connection to pipe or fittings incorporating ring seal sockets to BS EN 1401-1 : 1998.

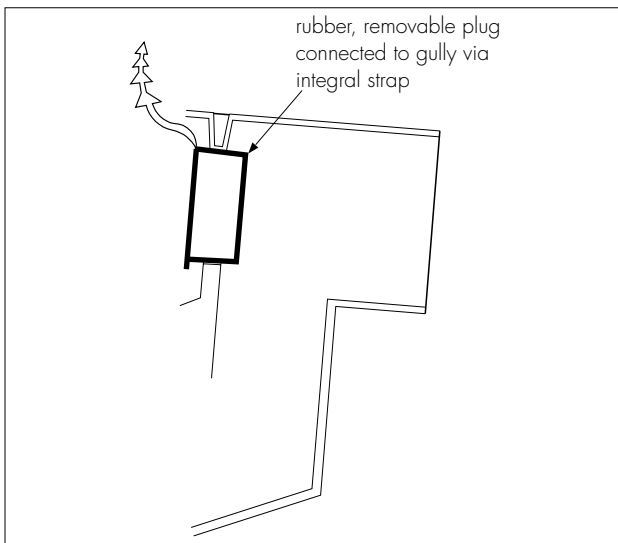
Figure 1 Gully details



2.3 Gullies with 178 mm diameter outlet spigots are for connection to fittings incorporating ring seal sockets designed for pipe with an outside diameter of 178 mm $\pm$ 1.5 mm, eg thin wall clay pipe system conforming to BS EN 295-1 : 1991, spigot controlled jointing system E.

2.4 Gullies with a nominal 179 mm diameter socket outlet (see Figure 3) are for connection to twin wall pipe eg a BBA approved 150 mm pipe, with an outside diameter of 178 mm $\pm$ 1.5 mm. The pipe ring seal should be installed in the correct corrugation of the pipe in accordance with the manufacturer's instructions.

Figure 2 Trap detail



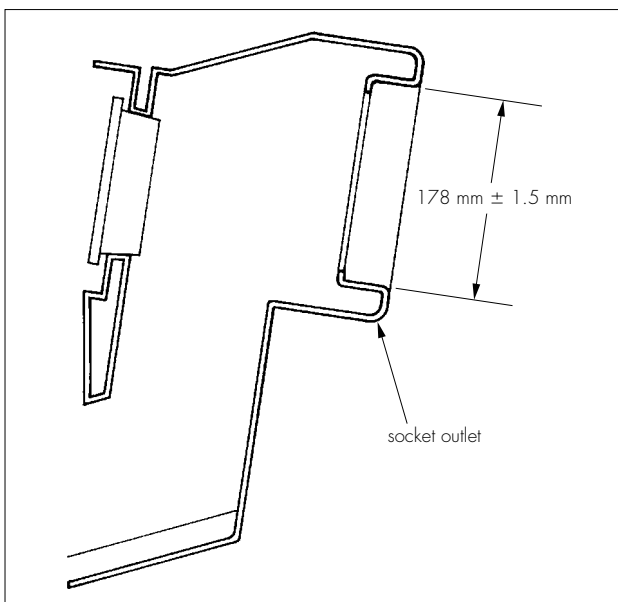
2.5 Connection to other drainage systems may be made with suitable adaptors which are outside the scope of this Certificate.

2.6 Quality control includes visual examinations on each moulding and checks on dimensions and weight.

### 3 Delivery to site, handling and storage

Tennant High Density Polyethylene Road Gullies are delivered to site unprotected and are identified by the manufacturer's product code bearing the BBA identification mark incorporating the number of this Certificate.

Figure 3 Socket outlet to gully



## Design Data

### 4 General

Tennant High Density Polyethylene Road Gullies are satisfactory for use when surrounded with a minimum thickness of 150 mm of concrete to the specification required by the DTLR, HA.

### 5 Flow characteristics

5.1 Tennant High Density Polyethylene Road Gullies have flow characteristics equivalent to those of precast concrete units to BS 5911-2 : 1982.

5.2 The nominal holding capacities, dimensions and weights of the gullies are given in Table 1.

Table 1 Nominal characteristics

| Outside diameter (mm) | Depth (mm) | Weight (kg) | Volume (litres) | Outlet spigot diameter OD (mm) |
|-----------------------|------------|-------------|-----------------|--------------------------------|
| 452                   | 759        | 5.3         | 83              | 160 or 178                     |
| 452                   | 914        | 5.8         | 107             | 160 or 178                     |

### 6 Strength and stability

6.1 The products have adequate strength to withstand the loads associated with placing the concrete.

6.2 The products have adequate resistance to impacts likely to be encountered during transport, installation and emptying.

### 7 Watertightness

7.1 The connections between Tennant High Density Polyethylene and plastics or clay pipes specified in this Certificate, when installed as shown in Drawing No F13 of the *Highway Construction Details*, without a concrete surround, are partly watertight in accordance with the MCHW, Volume 1 : *Specification for Highway Works*, Clause 509.7. The joints will remain partly watertight under conditions of deflection in excess of those normally found on site.

7.2 When surrounded by concrete to the DTLR, HA specification, and installed as shown in Drawing No F13 of the MCHW Volume 3 : *Highway Construction Details*, the joints are fully watertight in accordance with the MCHW, Volume 1 : *Specification for Highway Works*, Clause 504.3.

### 8 Rodding and maintenance

8.1 The drain from the gully may be rodded using conventional flexible drain rods, by removing the drain plug. In common with other standard plastics drainage systems, toothed root cutters and rods with metal ferrules used in some mechanical cleaning systems could damage the gully and should not be used. To maintain the effectiveness of the trap the plug must be replaced after rodding.

8.2 The gully is emptied using conventional suction tankers.

### 9 Practicability of installation

The gully is installed easily under normal site conditions.

### 10 Durability

When surrounded by concrete, the gully will have a life equivalent to that of precast concrete and clay gullies.

### 11 Procedure

11.1 The gully should be installed in a suitably sized pit, allowing for a minimum surround of 150 mm of concrete to the DTLR, HA specification and any trench shoring required.

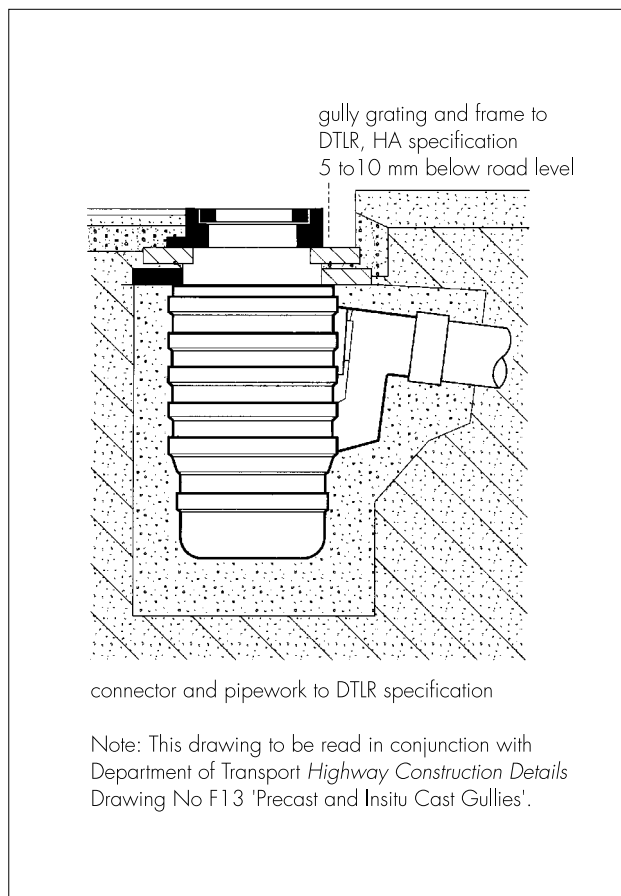
11.2 A concrete base 150 mm thick is laid.

11.3 The gully should be set level and in line with the branched drain.

11.4 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.

11.5 The gully is surrounded, up to the top, with a minimum of 150 mm of concrete (see Figure 4). To prevent distortion and flotations, 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.

Figure 4 Typical installation details



11.6 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).

The following is a summary of the technical investigations carried out on Tennant High Density Polyethylene Road Gullies.

### 12 Investigations

12.1 The manufacturing and assembly processes were examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

12.2 Tests were carried out to determine:

- watertightness of joints
- resistance to external pressure equivalent to that of wet concrete
- capacity
- dimensional accuracy
- Vicat softening temperatures to BS 2782-1 : Method 120A : 1976
- tensile strength to ISO R527 : 1966
- melt flow rate to BS 2782 -7 : Method 720A : 1979
- density to ISO 1183 : Method A : 1987.

12.3 An assessment of Tennant High Density Polyethylene Road Gullies was made based on existing data relating to:

- resistance to chemicals
- environmental stress cracking resistance
- flow capacity
- durability
- impact resistance
- ease of rodding.

12.4 Visits were made to sites in progress to assess the practicability and ease of handling, and installation on site was assessed.

### Bibliography

- BS 2782 *Methods of testing plastics*
- BS 2782-1 *Thermal properties*
- Method 120A : 1976(1983) *Determination of the Vicat softening temperature of thermoplastics*
- BS 2782-7 *Rheological properties*
- Method 720A : 1979 *Determination of melt flow rate of thermoplastics*
- BS 5911 *Precast concrete pipes, fittings and ancillary products*
- BS 5911-2 : 1982 *Specification for inspection chambers and street gullies*
- BS EN 295 *Vitrified clay pipes and fittings and pipe joints for drains and sewers*
- BS EN 295-1 : 1991 *Requirements*
- BS EN 1401 *Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinylchloride) (PVC-U)*
- BS EN 1401-1 : 1998 *Specifications for pipes, fittings and the system*

ISO R527 : 1966 *Plastics — Determination of Tensile Properties*

ISO 1183 : 1970 *Method for determining the density and relative density (specific gravity) of plastics excluding cellular plastics*

Method A : 1987 *Methods for determining the chemistry and relative density of non-cellular plastics*

## Conditions of Certification

### 13 Conditions

13.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (d) is copyright of the BBA.

13.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, shall be construed as references to such publication in the form in which it was current at the date of this Certificate.

13.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabricating process(es) thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;
- (b) continue to be checked by the BBA or its agents;
- (c) are reviewed by the BBA as and when it considers appropriate; and
- (d) remain in accordance with the requirements of the Department for Transport, Local Government and the Regions, Highways Agency.

13.4 In granting this Certificate, the BBA makes no representation as to:

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature of individual installations of the product, including methods and workmanship.

13.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, Tennant High Density Polyethylene Road Gullies are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 01/R127 is accordingly awarded to Charles Tennant & Co Ltd.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'P. C. Hewitt', is written over a light grey background.

Date of issue: 21st December 2001

Chief Executive