HAPAS

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**HAPAS Certificate**

**14/H216**

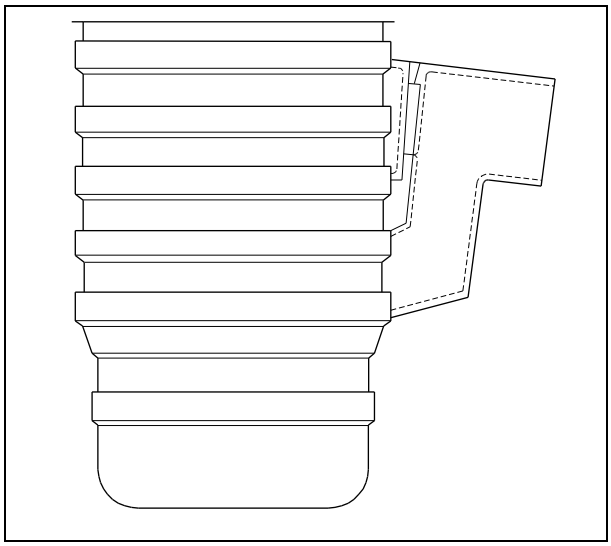
Product Sheet 1

# CHARLES TENNANT DRAINAGE PRODUCTS

# TENNANT HIGH DENSITY POLYETHYLENE ROAD GULLIES

This HAPAS Certificate Product Sheet(1) is issued by the British Board of Agrément (BBA), supported by Highways England (HE) (acting on behalf of the Overseeing Organisations of the Department for Transport; Transport Scotland; the Welsh Assembly Government and the Department for Infrastructure, Northern Ireland), the Association of Directors of Environment, Economy, Planning and Transport (ADEPT), the Local Government Technical Advisers Group and industry bodies. HAPAS Certificates are normally each subject to a review every three years.
(1) Hereinafter referred to as 'Certificate'.

This Certificate relates to Tennant High Density Polyethylene Road Gullies, 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.



**CERTIFICATION INCLUDES:**

- factors relating to compliance with HAPAS requirements
- factors relating to compliance with Regulations where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

**KEY FACTORS ASSESSED**

**Flow characteristics** — the products have sufficient flow characteristics (see section 6).

**Strength and stability** — the products have adequate strength to resist the loads and impact likely to be encountered during transport, installation and use (see section 7).

**Watertightness** — the connections between the gullies and the pipes are watertight (see section 8).

**Airtightness** — the trap is airtight (see section 9).

**Durability** – the products will not deteriorate significantly and will have an anticipated life equivalent to that of the installations into which they are incorporated (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 23 July 2020

Originally certificated on 4 June 2014

Hardy Giesler
Chief Executive Officer

## Requirements

In the opinion of the BBA, Tennant High Density Polyethylene Road Gullies, when used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the requirements of the *Manual of Contract Documents for Highways Works* (MCHW)(1), Volumes 1 *Specification for Highways Works* and 3 *Highway Construction Details*, Drawing No F13.

(1) The MCHW is operated by the Overseeing Organisations: Highways England (HE), Transport Scotland, the Welsh Government and the Department for Infrastructure (Northern Ireland).

## Regulations

### Construction (Design and Management) Regulations 2015
### Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.2) of this Certificate.

## Technical Specification

### 1 Description

1.1 Tennant High Density Polyethylene Road Gullies are high density polyethylene (HDPE) gullies with a nominal outside diameter of 450 mm, available in depths of 760 and 910 mm (see Table 1 and Figure 1). The gully can be provided with an outlet spigot diameter of 160 or 178 mm, or alternatively with an outlet socket of 179 mm diameter. The trapped gully (see Figure 2) incorporates an integral, airtight 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.

*Table 1 Nominal characteristics*

| Outside diameter (mm) | Depth (mm) | Mass (kg) | Volume (litres) | Outlet spigot diameter (OD) (mm) |
|---|---|---|---|---|
| 450 | 760 | 5.3 | 83 | 160 or 178 |
| 450 | 910 | 5.8 | 107 | 160 or 178 |

*Figure 1 Gully detail*

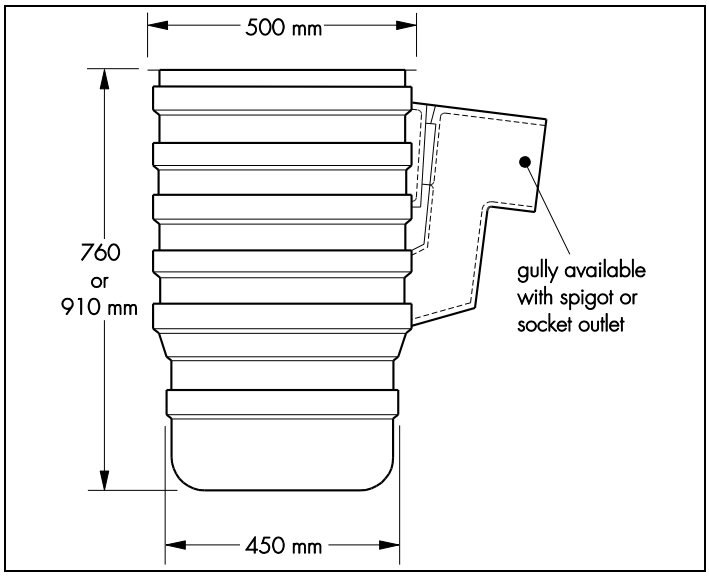
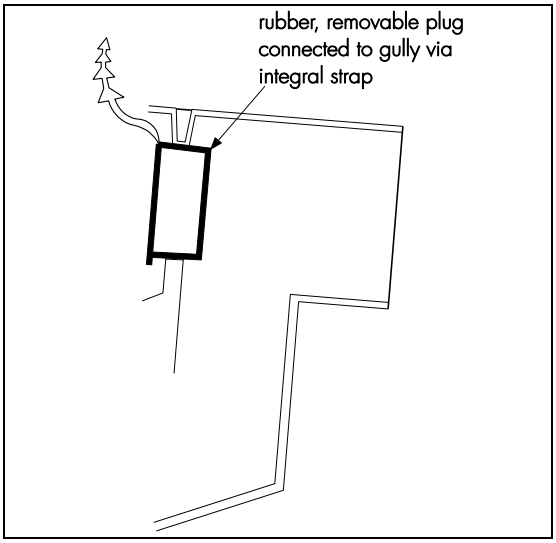


*Figure 2 Trap detail*

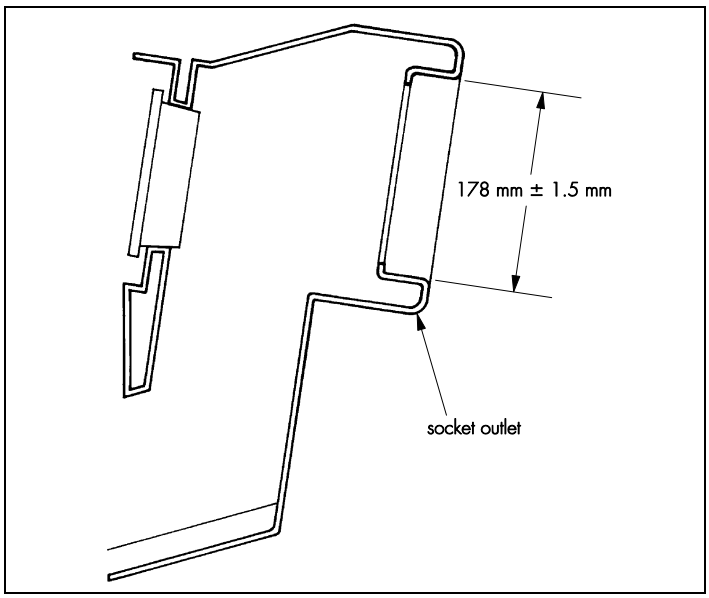



1.2 Gullies with 160 mm diameter outlet spigots are for connection to pipe or fittings incorporating ring seal sockets to BS EN 1401-1 : 2019.

1.3 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 ± 1.5 mm, eg a thin wall clay pipe system conforming to BS EN 295-1 : 2013, spigot controlled jointing system E.

1.4 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 ± 1.5 mm. The ring seal should be installed in the correct corrugation of the pipe in accordance with the manufacturer's instructions.

*Figure 3 Socket outlet to gully*




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

## 2 Manufacture

2.1 The gullies are manufactured using a conventional blow-moulding process.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken

- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of Champion Mouldings Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by QMS International Plc (Certificate GB13077).

## 3 Delivery and site handling

3.1 The gullies are delivered to site unprotected and are identified by the manufacturer's product code bearing the BBA logo incorporating the number of this Certificate.

3.2 The products weigh around 5.5 kg and are handled easily.

# Assessment and Technical Investigations

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

## Design Considerations

## 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 Highways England (HE).

## 5 Practicability of installation

The products are designed to be installed by a competent general builder, or a contractor, experienced with these types of products.

## 6 Flow characteristics

6.1 The gullies have flow characteristics equivalent to those of precast concrete units to BS 5911-4 : 2002 and BS EN 1917 : 2002.

6.2 The nominal holding capacities of the gullies are given in Table 1.

## 7 Strength and stability

7.1 The gullies have adequate strength to withstand the loads associated with placing the surrounding concrete.

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

## 8 Watertightness

The connections between the gullies and the pipes specified in this Certificate, when installed as shown in the MCHW, Volume 3, Drawing No F13 and, when surrounded by concrete to HE specification, are fully watertight in accordance with the MCHW, Volume 1, Clause 504.3. Without a concrete surround, the joints are partly watertight.

## 9 Airtightness

When used as a trapped system, the gullies are airtight.

## 10 Maintenance

10.1 The drain from the gullies may be rodded using conventional flexible drain rods, by removing the rubber plug (see Figure 2). 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.

10.2 The gullies are emptied using conventional suction tankers.

## 11 Durability

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

## 12 Reuse and recyclability

The gullies are manufactured from HDPE, which is readily recyclable.

# Installation

## 13 Procedure

13.1 Each gully should be installed in a suitably sized pit, allowing for a minimum surround and base of 150 mm of concrete to HE specification and any trench shoring required.

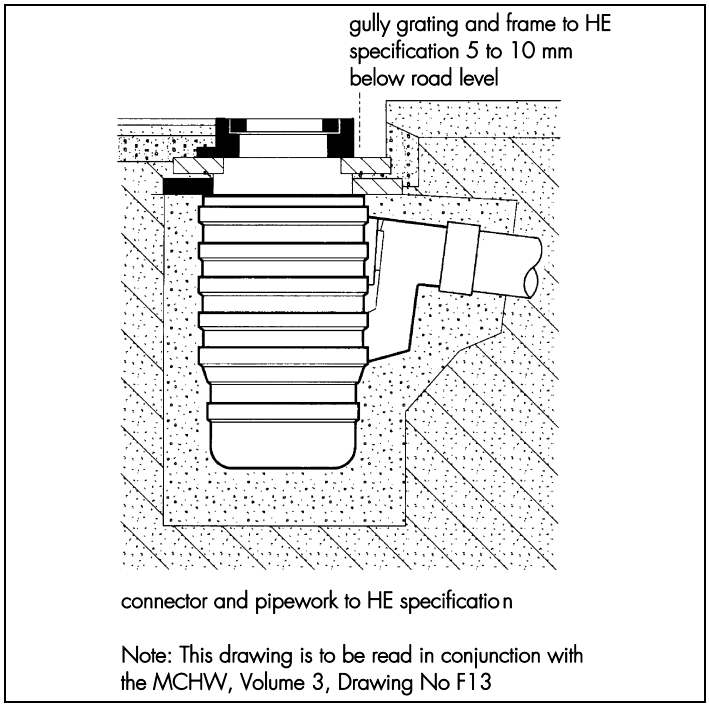
13.2 A concrete base at least 150 mm thick is laid. The gully should be set level and in line with the branched drain, and haunched with concrete up to its second rib.

13.3 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.

13.4 The gully is surrounded, up to the lip, 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.

13.5 Installation is completed by the construction of a suitable support for the gully grating and frame, as shown in the MCHW, Volume 3, Drawing No F13.

*Figure 4 Typical installation details*




## Technical Investigations

## 14 Tests

Tests were carried out and the results assessed to determine:

**Product**

- watertightness of joints
- airtightness of the trap
- resistance to external pressure equivalent to that of wet concrete
- capacity
- dimensional accuracy

**Material**

- tensile strength
- melt flow rate
- density.

## 15 Investigations

15.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

15.2 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.

15.3 Visits were made to sites in progress to assess the practicability and ease of handling and installation.

## Bibliography


BS 5911-4 : 2002 + A2 : 2010 *Concrete pipes and ancillary products — Specification for unreinforced and reinforced concrete inspection chambers (complementary to BS EN 1917 : 2002)*

BS EN 295-1 : 2013 *Vitrified clay pipe systems for drains and sewers — Requirements for pipes, fittings and joints*

BS EN 1401-1 : 2019 *Plastics piping systems for nonpressure underground drainage and sewerage — Unplasticized poly(vinylchloride) (PVC-U) — Specifications for pipes, fittings and the system*

BS EN 1917 : 2002 *Concrete manholes and inspection chambers, unreinforced, steel fibre and reinforced*

BS EN ISO 9001 : 2015 Quality Management Systems — Requirements

Manual of Contract Documents for Highway Works, Volume 2 *Notes for Guidance on the Specification for Highway Works*, November 2009 (as amended)

Manual of Contract Documents for Highway Works, Volume 3 *Highway Construction Details*, May 2006 (as amended)

## 16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

16.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

16.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

16.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

16.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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