

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Plastic Pipes, Thermoplastic**with type designation(s)
HDPE Pipes and Fittings

Issued to

Geberit International AG
Jona SG, Switzerland

is found to comply with

DNV GL rules for classification – Ships**DNV GL class programme DNVGL-CP-0072 – Type approval – Thermoplastic piping systems****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2017-11-29**This Certificate is valid until **2022-11-28**.for **DNV GL**DNV GL local station: **Augsburg**Approval Engineer: **Hagen Markus**

Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

The GEBERIT HDPE Pipes and Fittings plastic piping system consist of pipes, fittings, Connectors, Fastenings made of High Density Polyethylene (HDPE).

Overview

Size range O.D.	32 up to 160mm									
Outer diameter (mm)	32	40	50	56	63	75	90	110	125	160
Wall thickness (mm)	3.0	3.0	3.0	3.0	3.0	3.0	3.5	4.3	4.9	6.2
Fitting types ¹	Reducers, Bends, Solvent fitting, Branches, Access pipes, Caps, Flanges.									
Service temperature range	0°C to 40°C									
M.A.W.P. up to 20°C	1bar									
M.A.W.P. above 20°C	0.8bar up to 30°C, 0.5bar up to 40°C									
External pressure rating	1bar up to O.D. 50mm, 0.8bar up to O.D. 65mm, 0.5bar up to O.D.160mm									
Joining techniques										
- tension resistant	Butt welding, Electrofusion sleeve coupling, flanged joint									
- non-tension resistant	Screw threaded joint									

Notes

¹ Product catalogue "Geberit Piping System Catalogue 2017/2018, Chapter 1 HDPE, Chapter 2 Geberit HDPE – Waste and drainage system"

² Connections shall be of tensioned resistant type. Non-tension resistant connection only where necessary to compensate thermal extension or shrinking. Pipe sections are to adequately fixed by pipe clamps.

Production places

Pipes	DNV GL Station
Geberit Produzione Spa, Viale del Lavoro 4, Villadose (RO), Italy Product: HDPE Polyethylene, PN1 Fittings – O.D. 32mm up to 160mm	Venice, Italy
Fittings	
Geberit Produktions AG, Schachenstrasse 77, 8645 Jona, Switzerland Product: HDPE Polyethylene, PN1 Pipes – O.D. 32mm up to O.D. 160mm	Augsburg, Germany

Responsibility

The GEBERIT International AG, Schachenstrasse 77, 8645 Jona, Switzerland takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

The GEBERIT HDPE plastic piping system is type approved for application in piping systems as listed below. Reference "Table 1- Fire endurance requirements matrix" of DNVGL Rules Pt.4, Ch.6, Section 2.

Reference in Table 1	Piping system ¹
Sanitary and Drains and Scuppers	Black, grey water and waste water discharge lines

Notes

¹ Approved installation locations where "0" is specified. Appropriate footnotes of Table 1 are to be observed.

Extent of Type Tests applicable to piping system dependent on application

Fire endurance Level

The GEBERIT HDPE piping system is not tested with respect to Fire Endurance characteristics.

Flame spread

Surface flame spread characteristics is confirmed by ASTM D635:1991.

Smoke and toxicity

The GEBERIT HDPE piping systems is not tested with respect to smoke and toxicity characteristics.

Electrical conductivity

Not applicable.

Passenger vessels

For application on passenger vessels additional requirements specified in the Rules and Regulations of the appropriate flag state authority may have to be observed.

Installation

For installation of the piping system the following is to be observed:

- GEBERIT Document "Application Technique – Waste and Drainage Systems", issue 1st September 2013
- Installation requirements specific to the ship as specified by the ship yard
- DNVGL Rules Pt.4, Ch6, Section 9

The GEBERIT HDPE piping system is not approved for installation within tanks and in gas hazardous area.

Bulkhead penetration

When plastic pipes pass through watertight bulkheads or decks which are also a fire division and a fire may cause flooding of watertight compartments, the watertight integrity of the bulkhead or deck is to be maintained by a metallic shut-off valve fitted at the bulkhead or deck. The operation of this valve shall be provided from above the freeboard deck. Refer to DNV GL Rules Pt.4, Ch.6 Section 3 – 1.4 Fittings on watertight bulkheads.

On passenger vessels, where the watertight bulkhead is also a fire division, the requirements of the SOLAS Chapter II - 1, Regulation 13.2.3. are to be observed.

Type Approval documentation

Job Id: **262.1-026307-1**
Certificate No: **TAK0000020**

Tests carried out

Production Testing

Each batch of pipes and fittings shall be subjected to product tests as specified in DNVGL CP-0072 - Table 1 Requirements for manufacturers quality control.

Marking of product

	Scope	Example
Pipes	According to EN 1519	GEBERIT, Ø75x3.0 PE 80, pipe series – scope, EN1519, ring stiffness, pipe series, IMO 1bar 20°, 2017-11-29
Fittings	Manufacturer, Article No., System Name, Dimension, Packaging unit, etc.	367.045.16.1  4 025416 030539 AS/NZS 5065 VME 40011 SNA, SDR26 EN 1519 S 12.5 GEBERIT 1x PE-HD Ø110 45° 903.801.16.0 INTERNAL/T14112017
Colour	Black	

Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

End of certificate