



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. K-3801

This Certificate consists of 3 pages

This is to certify that the
Plastic Pipes, Thermoplastic

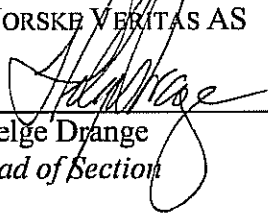
with type designation(s)
Geberit HDPE pipes

Holder of Certificate
Geberit International AG
Jona, Switzerland

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Type Approval Program for Thermoplastic Piping, preliminary

Application
Non-essential sanitary and drainage systems up to 1 bar and 20°C. The piping system is non-conductive, not for installation in gas hazardous area. The Fire Endurance and Flame Spread characteristic of the piping system has not been determined.

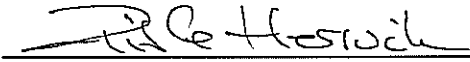
Place and date
Høvik, 2009-07-10
for DET NORSKE VERITAS AS


Helge Drange
Head of Section



Local Office
DNV Essen

This Certificate is valid until
2013-06-30


Gisle Hersvik
Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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Product description

High Density Polyethylene (HDPE) pipes in the following diameters:
32, 40, 50, 56, 63, 75, 90, 110, 125, 160 mm.

The HDPE pipes to be joined with Geberit HDPE fittings, ref. separate Type Approval Certificate issued to *Geberit International AG, Jona, Switzerland*.

Manufactured by

Geberit Produzione Spa, Viale del Lavoro 4, IT-45010 Villadose, Italy

Local DNV station: Venice

Responsibility

The Holder of Certificate 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

Non-essential sanitary and drainage systems up to 1 bar and 20°C.

The piping system is non-conductive, not for installation in gas hazardous area.

The Fire Endurance and Flame Spread characteristic of the piping system has not been determined.

The following limitations apply:

Maximum allowable pressure as a function of operating temperature.			
Operating temperature	20°C	30°C	40°C
Max. allowable pressure	1.0 bar	0.8 bar	0.5 bar

Maximum diameter as a function of external pressure.			
External pressure	1.0 bar	0.8 bar	0.5 bar
Diameter range	32 - 50 mm	32 - 65 mm	32 - 160 mm

Type Approval documentation

1. Previous Type Approval Certificate no. K-2676.
2. Survey Report from DNV Venice of 2008-08-26, Geberit test report of 2009-05-11, SKZ Report of 2008-01-16.



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3. Geberit Piping System Catalogue, 2009.

Tests carried out

Type Testing carried out according to **Type Approval documentation**.

Marking of product

Piping will be marked with: "Geberit PE 80 IMO 1 bar 20°"

Certificate Retention/Renewal Survey

The scope of the Retention/Renewal Survey is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Survey to be performed after two (2) years (Certificate Retention Survey) and at renewal after four (4) years (Certificate Renewal Survey).

The main elements of the survey are:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV Type Approval Certificate.

END OF CERTIFICATE