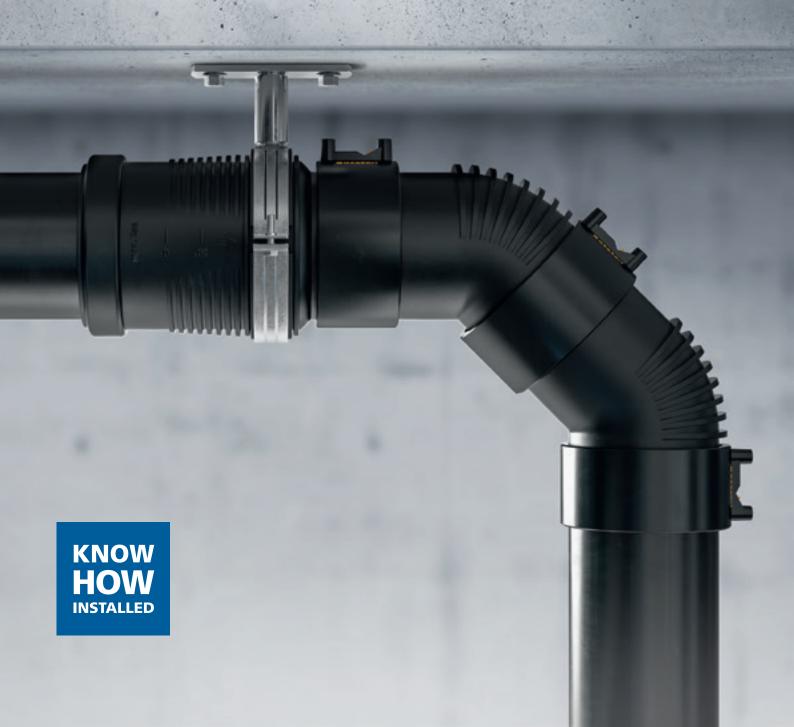


GEBERIT DRAINAGE SYSTEMS

### SAFE BET FOR CLEAN DRAINS





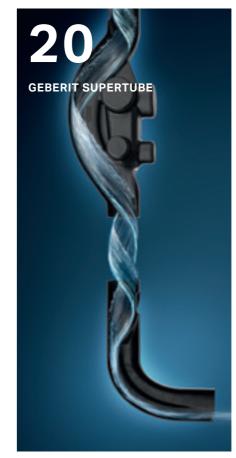
### PLAY IT **SAFE**

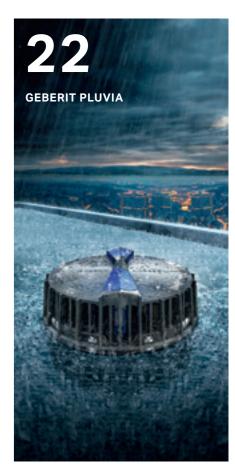
The piping systems of Geberit stand for know-how in the field of sanitary technology. From the connection to the water supply through to the distribution on the floor to the consumers, all the way to the drainage of roofs and buildings into the public sewage system, you can rely on Geberit systems.

With Geberit, you can provide your customers with state-of-theart technological solutions in the areas of hydraulics, fire protection and sound insulation, reliability and environmental properties.









### **CONTENT**

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GEBERIT'S SYSTEMATIC APPROACH TO TECHNOLOGY

### WHEN EVERYTHING MATCHES AND FITS

Drainage means more than simply draining off water – at least for Geberit. To ensure that its drainage technology can keep up with reality on the building site and with the high fire protection and sound insulation requirements, Geberit invests lots of know-how into developing innovative products.

### **ALWAYS ROOM FOR IMPROVEMENT**

Geberit is the market leader in the area of sanitary technology in Europe. This is particularly true in the field of building drainage. Hardly any other company in this sector invests as much year after year in continually optimising existing systems and in developing new technologies and products as Geberit.

### **SAFETY IN THE SYSTEM**

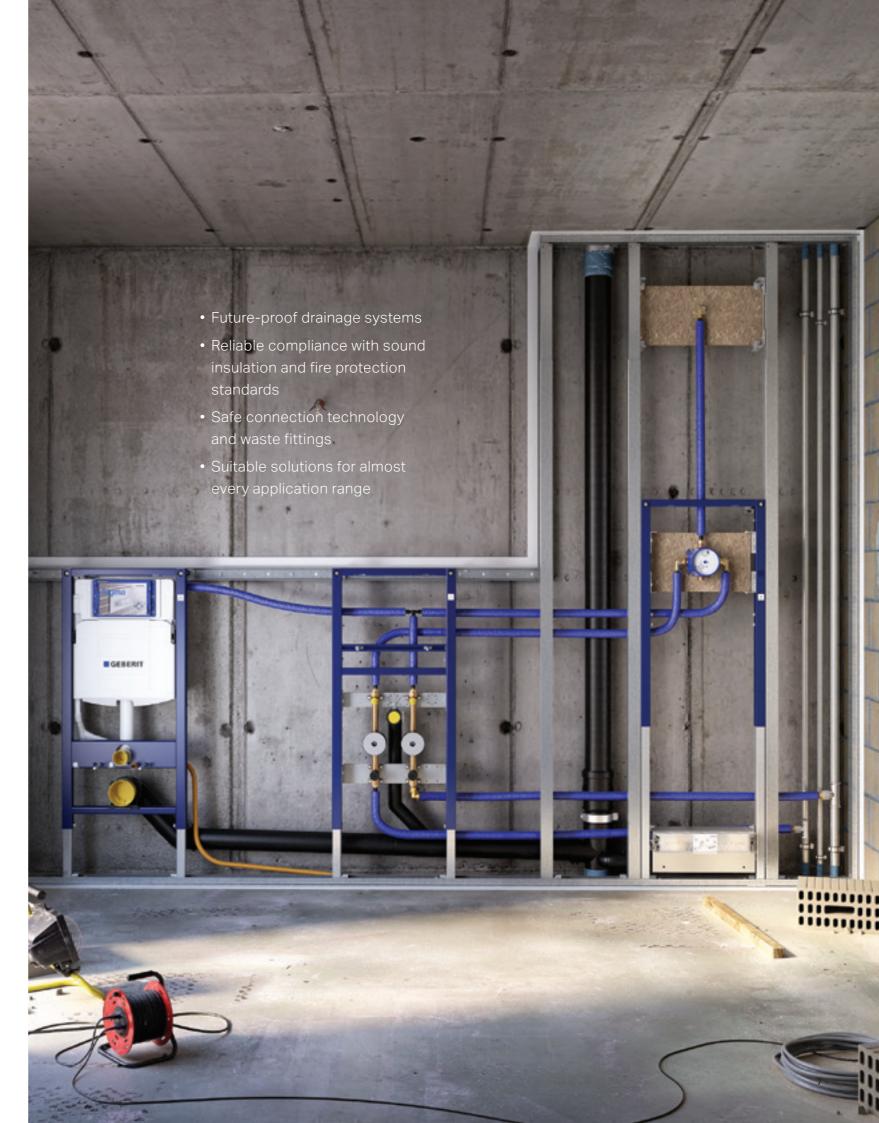
The fire protection and sound insulation of a drainage system are only ever as good as their weakest component. If you combine elements from different manufacturers, you risk compromises at the interfaces. This also makes it more difficult to comply with current standards and regulations. Geberit therefore provides complete systems with a warranty and the necessary documentation for your project. You can therefore offer your customers a proven high degree of protection against the spread of fire through the discharge pipes. Furthermore, with the sound insulation expertise of Geberit, you can ensure that waste water noise is minimised in private houses, public buildings, hotels and business premises.

### SYSTEM SOLUTIONS WITH HIGH FLEXIBILITY

For Geberit, the waste fittings are the visible part of the waste water installation, which, together with the Geberit piping systems, form a homogeneous unit with simple interfaces. Geberit waste fittings also form perfect connections with the sanitary appliances. Regardless of whether the bathroom design needs to fulfil the highest expectations, barrier-free applications are required or the construction simply needs to be as space-saving as possible: Geberit has the right solution.

### **GO WITH THE PROS**

The success of a product or technology goes hand in hand with its practicality at the building site and its economic efficiency. For this reason, the feedback and suggestions provided by plumbers from across the globe are taken into account for all new innovations and further developments. This means that Geberit products and systems incorporate your know-how!



### SOUND INSULATION, FIRE PROTECTION AND HYDRAULICS

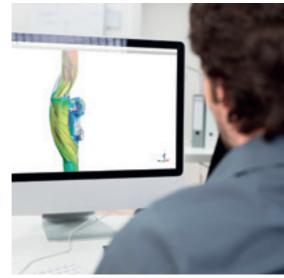
### CONVENIENCE SAFELY INSTALLED

Contemporary buildings are setting ever-higher requirements, including for drainage systems. To ensure convenience and safety at all times, including during peak loads, Geberit develops hydraulically optimised, innovative products and solutions, which fulfil the requirements for safe installations, fire protection, sound insulation and saving resources to ensure that you and your customers have peace of mind.



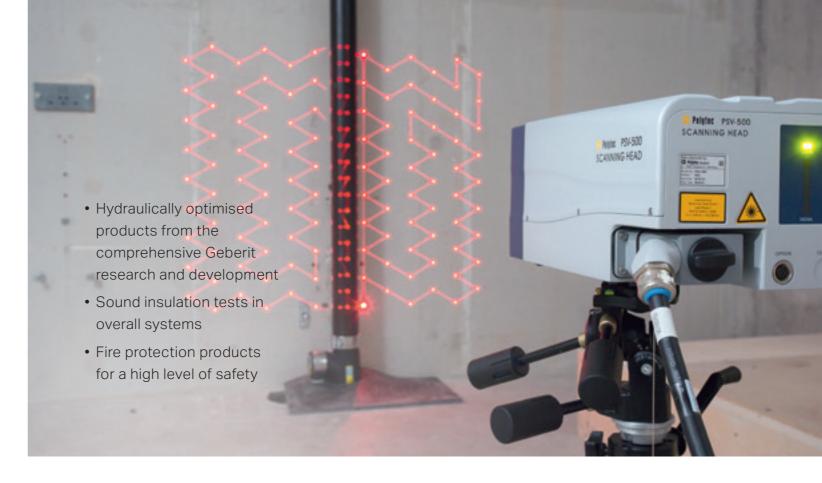
### COMPREHENSIVE TESTING AND CONSISTENT DEVELOPMENT

In addition to laboratories for sanitary technology and materials development, Geberit also operates a unique Building Technology and Acoustics
Laboratory for testing components and entire drainage systems with respect to their hydraulics and acoustics. Thus, for example, the sound transmission of discharge stacks through several floors can be tested under realistic conditions. For the subject of fire protection, Geberit works closely with external testing laboratories. Both prototypes and series products are subjected to realistic fire tests. Country-specific fire protection requirements are thereby taken into account in full during product development.



### WASTE WATER HYDRAULICS CHALLENGE

Empty traps or highly fluctuating water levels in the WC, as well as oversized systems or unnecessary ventilation ducts, are all indications of inadequate planning or installation. This can result in user complaints and significant costs. Geberit anticipates these problems with hydraulically optimised products that are the result of in-house research in the laboratory and on the computer. With the practical training of sanitary engineers and plumbers on Geberit drainage towers, Geberit contributes to knowledge transfer in the area of hydraulics.



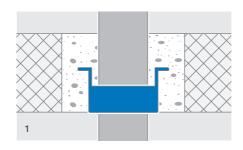
### SOUND INSULATION FROM A SINGLE SOURCE

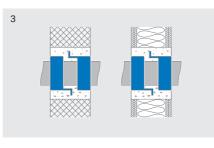
In addition to the piping system with sound insulation, intelligent fastening and insulation technologies ensure that the development of noise from waste water is kept to a minimum. The system pipe brackets for Geberit Silent-db20, the Geberit sound insulation mat Isol Flex, the insulation hose comprised of HDPE and the self-adhesive sealing tape complete the sound insulation system.

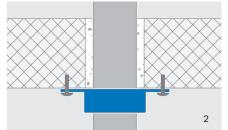
### SAFER PROTECTION AGAINST FIRE SPREAD

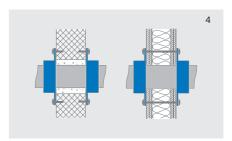
Wall and ceiling openings as well as installation ducts can make it easier for fires in buildings to spread if they are not sealed in a proper, standard-compliant way. The Geberit fire protection sleeve RS90 Plus seals the pipe opening in case of fire and prevents smoke, fire and heat spreading to other rooms or parts of the building. The fire protection sleeve RS90 Plus can be used with all Geberit drainage systems.

### PROOF OF FIRE PROTECTION FOR A LARGE NUMBER OF DIFFERENT CONSTRUCTION SITUATIONS









### Examples::

- 1 Installed flush with the ceiling
- 2 Mounted outside on ceiling
- 3 In-wall installation
- 4 Mounted outside of the wall



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**GEBERIT SERVICES** 

# A STRONG PARTNER FOR EVERY TASK

Quality and innovation are worth a great deal. Equally valuable are reliability, partnership and personal advice. We operate at full steam not only in the development of high-quality products, but also in offering you the services and support you need for your success – even at the building site if necessary.



### PERSONAL ADVICE AND SERVICES

We are happy to help. Regardless of whether you need us on the service telephone, in a personal meeting or on site – Geberit is available to you with advice and action everywhere. Whether it be specialist information or technical advice or support for all planning issues, we offer you comprehensive and uncomplicated help. We go the extra mile for your project and also supervise entire building projects on request. And even if something should happen not to work on occasion, you can rely on Geberit's support.

### **OUR KNOW-HOW FOR YOU**

With the comprehensive training courses it offers, Geberit supports the sanitary industry in preparing for the challenges of the future. In our own seminars, via webinar or directly at your building site, we share our knowledge with you and thereby contribute to our shared success. We provide you with helpful media for a large number of questions and tasks, from manuals to installation videos.

### **DIGITAL PLANNING SUPPORT**

Successful sanitary projects start with good planning. With the Geberit ProPlanner planning software, the practical Geberit ProApp and numerous other tools, we support you in your day-to-day operations. BIM data are also available for building planning in Autodesk Revit.



- Effective sound insulation
- High discharge capacity
- Varied options of use
- Available in all standard dimensions



**GEBERIT SILENT-DB20** 

### **SOUND INSULATION**FOR WASTE WATER

Be it in a residential estate, a hotel or a meeting room: Noisy drainage pipes are a nuisance. This problem does not even occur with the Geberit Silent-db20 drainage system. The sound and hydraulically optimised pipes and fittings are suitable not only for stacks but also for floor connections and ensure quiet and effective drainage in any building.

### **EFFECTIVE SOUND INSULATION**

The high inherent weight of Silent-db20 means that its natural vibrations are reduced and the sound is noticeably absorbed. The product design with special sound insulation ribs also reduces the noise on the impact zones.

### SPACE-SAVING CONSTRUCTION

The hydraulically optimised product geometry of the fittings enables a cost-effective dimensioning of the product with a high discharge rate. This creates new free spaces, as a space-saving configuration is also sufficient for the pipe ducts of the stacks.



### GEBERIT SILENT-DB20

### **SOLUTIONS FOR EVERY TYPE OF BUILDING**

With the Geberit Silent-db20 drainage system, practically any building drainage can be solved perfectly and without compromise. Geberit Silent-db20 is available in all standard pipe diameters between d56 – d160, and the assortment of fittings and accessories caters to virtually any need.



### **INNOVATIVE FITTINGS**

Geberit continuously develops its piping systems. For instance, the floor height can be reduced with the combined branch fitting, swept-entry for toilet and shower element.

### TIME-SAVING INSTALLATION

The drainage system Geberit Silent-db20 sufficient. enables efficient operation on the building site thanks to a comprehensive assortment of fittings and tools which have undergone practical trials. For the corn from Gebe Furthermore, the Geberit Silent-db20 is also suitable for prefabrication in the plumber's own workshop. This pays off for serial production, in particular.



### CONNECTIONS FOR ALL CIRCUMSTANCES

You have all of the options: The system can be connected in three different ways – regardless of whether using a quick electrofusion welding, a clamping connector or using butt welding if lower sound insulation requirements are sufficient.

### SAFE ADATPER CONNECTION

For the connection of floor drainages from Geberit HDPE to stacks from Geberit Silent-db20, Geberit offers special adapters that ensure permanent connection thanks to retaining claws made of stainless steel.





**GEBERIT HDPE** 

### ROBUST RESISTANCE NO MATTER WHAT

The Geberit HDPE drainage system defies temperatures, pressure and aggressive media. The robust pipes are available in all common diameters from d32 to d315, and the range of fittings including the special fittings is nearly comprehensive. The polyethylene piping material is very light yet unbelievable tough, and the connection technologies guarantee permanent tightness and high tensile strength. The system includes detail-tested components and practical tools for the building site and workshop.



### **IDEAL FOR PREFABRICATION**

Due to the fixed connection technology, Geberit HDPE is perfectly suitable for prefabrication and thereby cost-effective production of series.

### **DEFIES EXTREME TEMPERATURES**

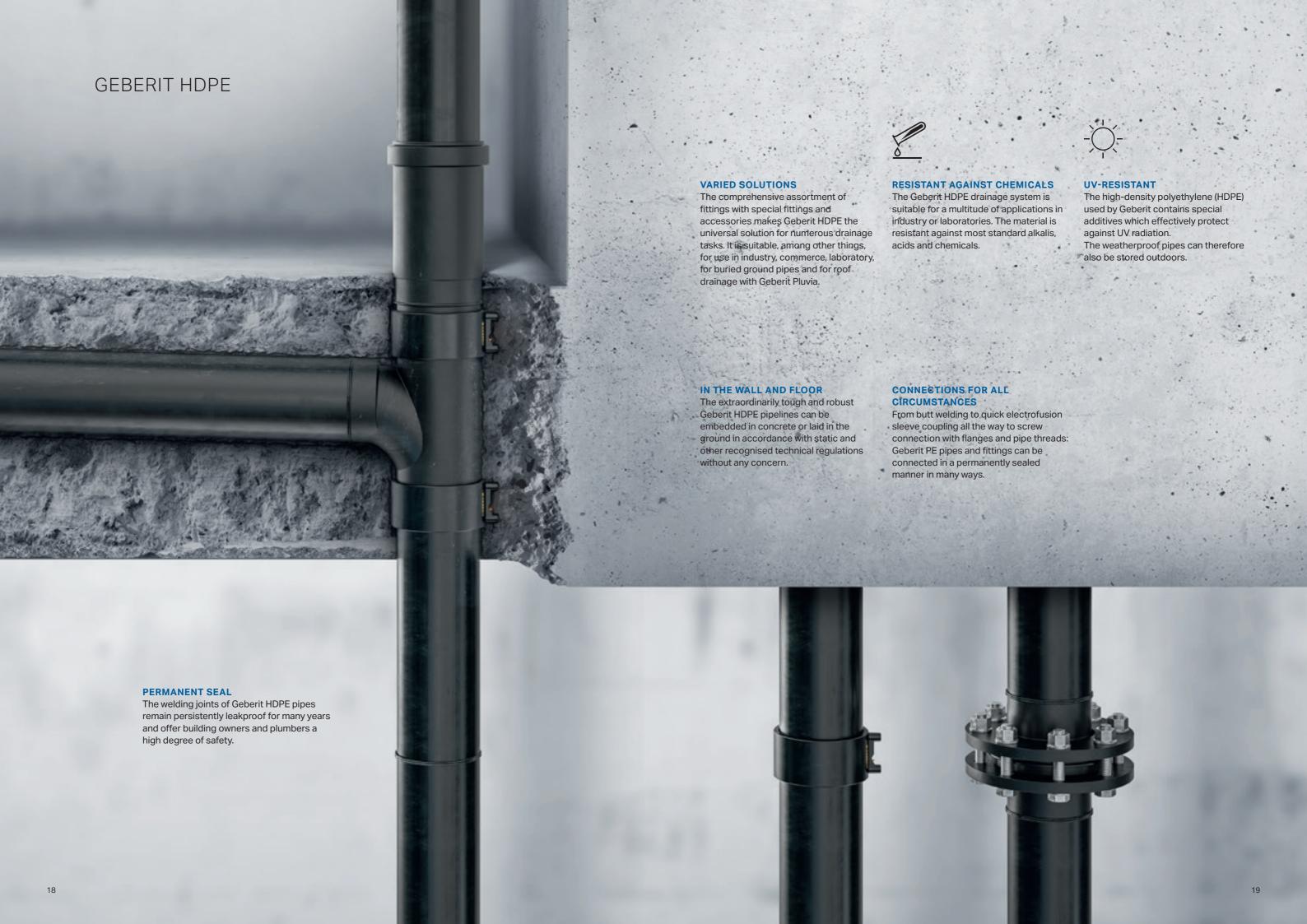
The high density of the material makes Geberit HDPE particularly robust. Hot water does not affect the material at temperatures of up to  $80\,^{\circ}\text{C}$  – or even up to  $100\,^{\circ}\text{C}$  in the short term and under certain conditions. In the event of cold, the tough material is even still shockproof at temperatures of -  $40\,^{\circ}\text{C}$ .

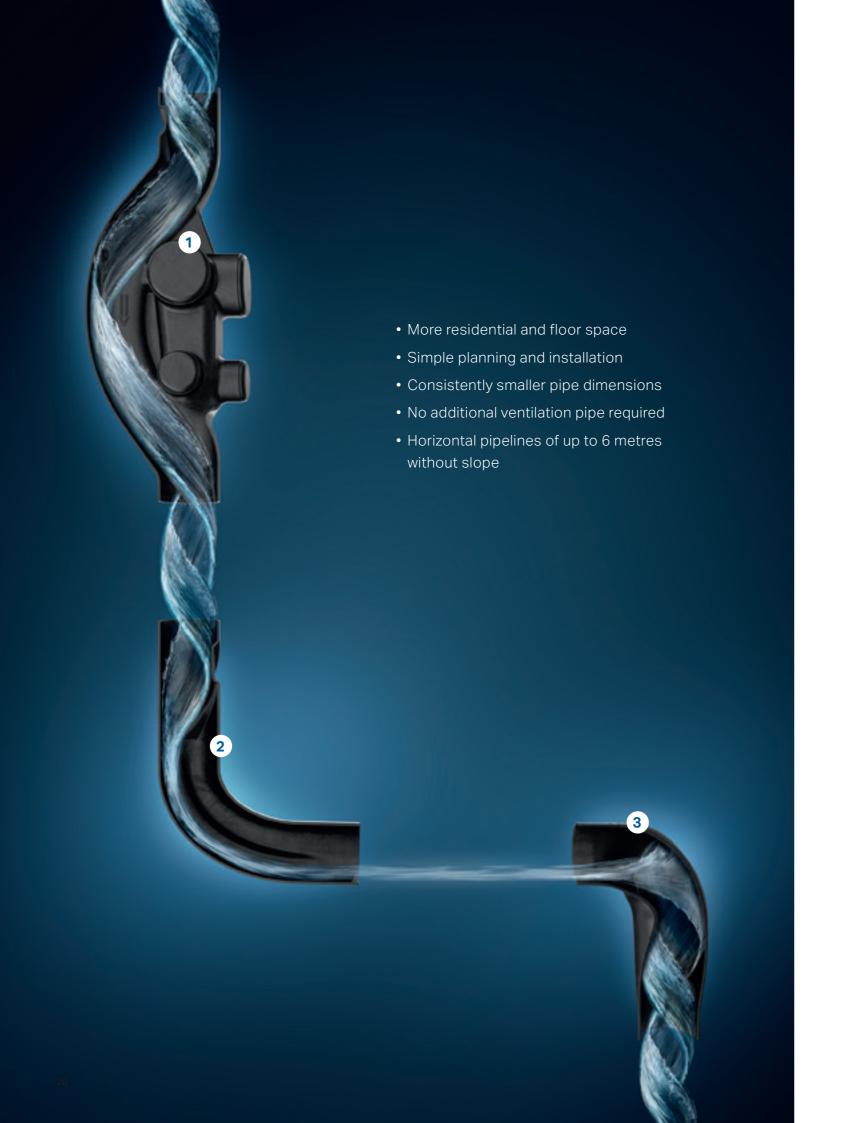
### SHOCKPROOF AND FLEXIBLE

The pipes and fittings withstand shocks, drops, impacts or pressures of up to 1.5 bar without breakage or permanent deformation. This robustness provides, most notably, a guarantee during the construction stage that the pipeline will remain intact despite possible mechanical influences.

### **GENTLE TO THE ENVIRONMENT**

Polyethylene, the material used, is environmentally friendly, has a positive ecobalance and is 100 % recyclable. No toxic emissions whatsoever are released if processed correctly. Also, no problematic hydrochloric gases are created in the event of a fire.





### **GEBERIT SUPERTUBE**

# THE SPACE GAINING SYSTEM

Geberit SuperTube offers space savings in all directions – both vertical and horizontal – by accommodating smaller pipe dimensions and doing away with additional ventilation pipes. Horizontal pipelines of up to 6 metres can be installed without a slope.



### GEBERIT HDPE SOVENT FITTING

The optimised geometry of the Geberit HDPE Sovent fitting guides the water within the stack, sets it in rotation and thereby causes it to press against the pipe wall. The resulting annular flow creates a stable, consistent column of air inside, which facilitates a high discharge capacity.



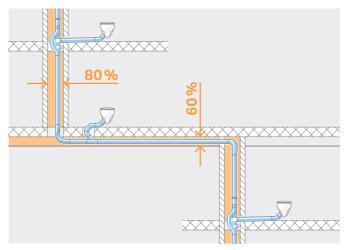
### GEBERIT HDPE BOTTOMTURN BEND

With the Geberit HDPE BottomTurn bend, a change in direction causes the wall of water to break and the annular flow to become a layered flow without disrupting the column of air. This change significantly reduces impulse losses compared with conventional solutions.



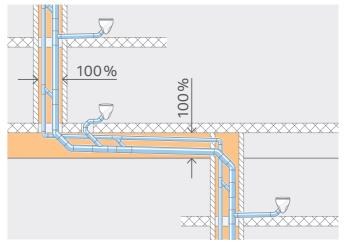
### 3 GEBERIT HDPE BACKFLIP BEND

The twisted Geberit HDPE BackFlip bend guides the layered flow back into a swirling, offset annular flow so that the air column is maintained throughout the remaining stack.



### GEBERIT SUPERTUBE

This technology facilitates a consistent discharge capacity of 12 l/s with a pipe dimension of d110 without a parallel ventilation pipe. Horizontal pipelines of up to 6 metres can be installed without a slope.



### **CONVENTIONAL SYSTEMS**

A conventional discharge pipe with a pipe dimension of d160 and the additional d90 ventilation pipe for a discharge capacity of 12.4 l/s. Horizontal pipelines must be installed with a slope of 0.5–5%.



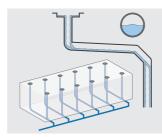
### **GEBERIT PLUVIA**

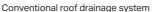
# **SYPHONIC**ROOF DRAINAGE

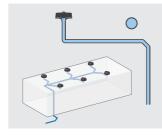
Geberit Pluvia drains roofs efficiently and reliably even under the heaviest rainfall. Because significantly less product material and space is required for syphonic roof drainage than for conventional systems, free space is opened up. More design freedom in planning, higher profitability during installation and in operation: Good reasons to opt for Geberit competence. Through tried-and-tested technology, innovative details and comprehensive service, Geberit Pluvia has been setting new standards for many years.

While conventional systems simply allow rain to run off through sloping pipes, the compact Geberit Pluvia pipe system fills up quickly and extracts the rainwater from the roof using the resultant negative pressure. The Geberit Pluvia roof outlets prevent air from being sucked in and guarantee reliable performance.

The result: Double the amount of rainwater discharge at half the pipe diameter. There is also greater design freedom in terms of planning, since there is no longer any need for pipelines that have to be laid with a slope.







Geberit Pluvia syphonic roof drainage

### SUITABLE FOR PRACTICALLY ANY ROOF SHAPE

Geberit Pluvia ensures architectonic freedom, as different roof shapes can be reliably drained with it. The syphonic roof drainage makes many things possible that would not be technically feasible with conventional systems.

### **FEWER ROOF OUTLETS**

Thanks to the high discharge rate of the syphonic roof drainage system, fewer roof outlets are required. This results in savings in product material and the amount of work needed, while also preserving the roof.

### **FEWER DISCHARGE STACKS**

Because the pipes are filled completely, fewer drains are required. The effect: more flexibility in planning.

### FEWER UNDERGROUND PIPE CONNECTIONS

Fewer discharge stacks and fewer connections mean lower installation and material costs.

### **SMALLER PIPE DIAMETERS**

Geberit Pluvia pipelines are designed for complete filling. This reduces the pipe diameter to the bare necessity.

### **SELF-CLEANING SYSTEM**

The high flow velocity of more than 0.5 m/s when the pipeline is filled produces suction which contributes to the self-cleaning of the system. This ultimately means less time spent on maintenance.

### NO SLOPE

Because Geberit Pluvia pipelines are laid horizontally, the drainage system does not result in any loss of space.

### **GEBERIT PLUVIA**

### **ALL-ROUND RELIABILITY**

Perfectly matched components ensure that the overall system functions flawlessly. Sophisticated details and a consistently high level of material quality reliably ensure durability, safety and smooth operation.

### THE GEBERIT PLUVIA ROOF OUTLETS

- Geberit roof outlets for all roof types
- Reliable sealing with the Geberit flange gasket made of EPDM
- Each roof outlet is tested individually for tightness at the factory
- Rotating lock bar sealing for easy installation
- With the Pluvia emergency overflow, it is possible to convert to an emergency overflow system

### SIMPLER PLANNING AND CALCULATION

- With a few clicks to the right solution for your design situation with the Geberit Pluvia Product Finder
- Geberit ProPlanner software for hydraulic calculation
- Complete BIM data available





ROOF STRUCTURES - A SOLUTION FOR EVERY CONSTRUCTION SITUATION



Example 1
Concrete roof with bitumen roof foil



Example 2
Lightweight roof, insulated with roof foil and the Geberit vapour barrier connection



**Example 3**Weight-bearing concrete roof with bitumen roof foil



**Example 4**Roof with steel gutter

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### TOOLS

# **DEVICES**THAT WELD TOGETHER



### **GEBERIT PIPE SCRAPER**

In a short period of time, a pipe or fitting can be prepared for welding with a Geberit electrofusion coupling.

- For Geberit HDPE and Geberit Silent-db20 with d110
- · Can be used with traditional cordless drill drivers
- Ideal in narrow areas or areas that are difficult to access
- Scraping knife that can be quickly and easily replaced



### **BUTT WELDING MACHINES**

The Universal and Media butt-welding machines are easy to operate and can be converted quickly. Thanks to their particular robustness, they are well suited to both prefabrication in the workshop and use at the building site.



### **GEBERIT ELECTROFUSION MACHINE ESG 3**

The Geberit electrofusion machine ESG 3 for the piping systems Geberit HDPE and Geberit Silent-db20 is made for demanding everyday work at the building site. It is powerful and suitable for electrofusion welding or electrofusion coupling with integrated thermal fuse of all pipe dimensions from d40 to d315.

### GEBERIT ESG 3



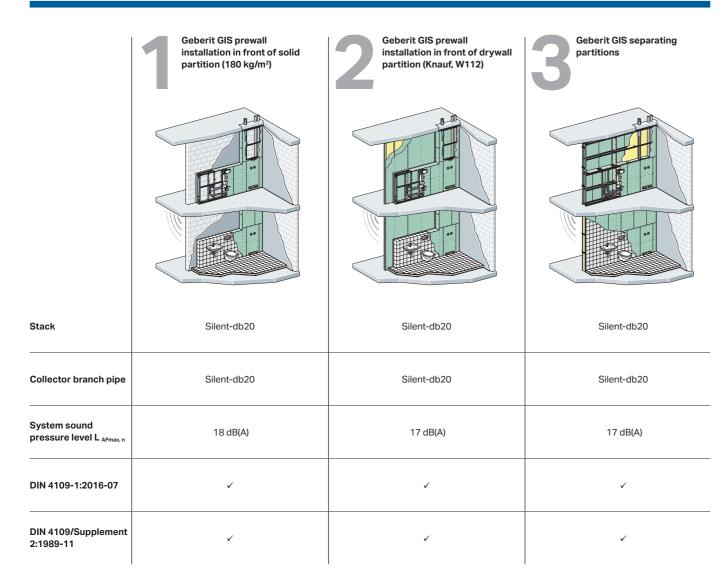
Geberit electrofusion machine	GEBERIT ESG 3
d40 - d160	✓
d200 - d315	✓
Electrofusion couplings	✓
Electrofusion tapes	✓
Electrofusion couplings with integrated thermal fuse	✓
Quick exchange of the connecting cable for electrofusion coupling	✓
Fall impact cushioning	✓
Right angle plug	✓
Remote control	✓
Simultaneous welding of up to three electrofusion couplings	✓
Possible to interrupt the welding procedure	✓
Operation with power generator	✓
Weight in kg	5.9

### TECHNICAL DATA

# SOUND INSULATION PROOF

### TRIED-AND-TESTED SOLUTIONS FOR ALL STANDARD CONSTRUCTION SITUATIONS





The acoustics information is based on measurements and calculations done by the Fraunhofer Institute for Building Physics in Stuttgart, Germany. The measurements were carried out in accordance with the German standards and directives under real-life conditions. All information refers to the structural setting in the installation test facility of the Building Technology and Acoustics Laboratory of Geberit AG under the described installation conditions. The test facility represents a section from a typical residential building and can be used directly for proving compliance with the sound insulation requirements stipulated by construction supervision authorities.

Other building conditions can lead to deviating results. The Geberit Silent-db20 drainage system with pipe brackets type Silent-db20 are used for the measurements.

	Geberit Duofix system wall prewall installation in front of drywall partition (Knauf, W112)	Geberit Duofix installation elements in separating drywall partition (Knauf, W116)	Geberit Kombifix installation elements in masonry prewall installation in front of a solid partition (180 kg/m²)
Stack	Silent-db20	Silent-db20	Silent-db20
Collector branch pipe	Silent-db20	Silent-db20	Silent-db20
System sound pressure level L AFmax, n	20 dB(A)	21 dB(A)	27 dB(A)
DIN 4109-1:2016-07	~	<b>√</b>	·
DIN 4109/Supplement 2:1989-11	·	·	<b>✓</b>

### GEBERIT PIPING SYSTEMS FOR DRAINAGE

# **TECHNICAL**DATA

SUITABLE DRAINAGE SOLUTIONS FOR NEARLY ANY APPLICATION AREA





	Geberit Silent-db 20	Geberit HDPE
Available dimensions	d56; d63; d75; d90; d110; d135; d160	d32; d40; d50; d56; d63; d75; d90; d110; d125; d160; d200; d250; d315
DN nominal width	DN56; DN60; DN70; DN90; DN100; DN125; DN150	DN30; DN40; DN40; DN50; DN56; DN60; DN70; DN90; DN100; DN125; DN150; DN200; DN 250, DN300
Building drainage	<b>✓</b>	✓
Conventional interior roof drainage system	✓	✓
Additional applications	Geberit drainage systems are approved for various other application areas.  Additional applications on request from Geberit.	Geberit drainage systems are approved for various other application areas.  Additional applications on request from Geberit.
Material	HDPE-S2	HDPE
Coefficient of linear expansion	0.17 mm/(m·K)	0.17 mm/(m·K)
Absorption of linear expansion	Requires an expansion socket	Requires an expansion socket
Permanent load application temperature	-20 to 60 °C	-20 to 80 °C
Chemical resistance	95 % of all standard alkalis, acids and chemicals	95 % of all standard alkalis, acids and chemicals
Fire protection sleeve (approval in acc. with EN)	Geberit fire protection sleeve RS90 Plus EN	Geberit fire protection sleeve RS90 Plus EN





- Higher than average innovative capacity thanks to ongoing investment in our own development and research projects
- Reputation for outstanding expertise in numerous fields
- Uncompromisingly high quality and production standards

# THE FUTURE REQUIRES AN ORIGIN FOR TOMORROW'S SANITARY TECHNOLOGY

Geberit aims to improve people's quality of life over the long term with innovative solutions in the area of sanitary technology. To do this, the company is constantly developing its products, systems and solutions and, as the market leader in sanitary technology, is continuously setting new standards.

On average, Geberit invests two percent of sales into its own research and development and applies for around 20 new patents every year. Geberit's innovative capacity is based on existing know-how and the ongoing research activities in fields such as hydraulics, statics, hygiene, acoustics, materials and fire protection.

### SYSTEMATIC APPROACH

A customer requirement or brilliant idea is often the starting point for developing a new product. Meticulous, systematic work then follows, because the innovation process at Geberit does not leave anything to chance. This is why, for example, the required characteristics of the product material that will later go into series production are defined at a very early stage. If such a product material does not yet exist, the product material engineers get to work and – in close cooperation with plastic producers, universities and test institutes, of course – develop a new product material themselves.

### **50 YEARS IN THREE MONTHS**

As soon as the first prototypes for a new product are available, they are put through their paces. To do this, tough tests are carried out in the sanitation laboratory to simulate a product life of 50 years within three months. Only the best product solutions survive this hardness test. At the Building Technology and Acoustics Laboratory, the static and acoustic characteristics of individual products as well as whole systems are tested. Here, experts investigate how a particular innovation or improvement behaves in conjunction with other sanitary technology components.

Testing is carried out by the application engineers once the scientists and engineers have given a new innovation the green light. Series production is not contemplated until the product has proved successful in the market within the scope of numerous test installations.

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### READY FOR GREEN BUILDING

Green building continues to gain in importance. The economical use of water is one of the key characteristics of a sustainable building.

Not far from the Northern Irish village of Bushmills stands a building that hardly looks like one from the outside. Thanks to its sustainable overall concept, the visitor's centre at the Giant's Causeway – which was designed by Heneghan Peng Architects and opened in 2012 – is considered a model green building. Design, materials, energy concept, transportation concept – the significance of sustainability spans all areas here, with water consumption clearly playing a main role.



### DESIGN: MELTED INTO THE LANDSCAPE

The facade, which is made of basalt that was mined nearby, is modelled on the cliffs that stand proudly above the world-famous Giant's Causeway. The visitor's centre, which has a green roof, appears to melt into the breathtaking landscape.



### WATER CONSUMPTION: -75 %

The visitor's centre consumes only a quarter of the water volume used by conventional domestic engineering solutions. This is due in part to the Geberit Sigma concealed cisterns 12 cm with dual flush. These are equipped with Sigma50 actuator plates.



The Giant's Causeway consists of around 40,000 uniformly shaped basalt columns.



### **AWARD: BREEAM EXCELLENT**

Projects require exemplary water consumption, energy consumption and sound insulation solutions if they are to meet the high standards of BREEAM, LEED, DGNB, Minergie and other recognised sustainability labels; Geberit offers these kinds of solutions.

www.geberit.com/products/references

For further information, visit:

www.international.geberit.com

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