

Valid as of 1 September 2017



Legal Information

System design / dimension data

This document contains only general, technical information. The design of the Geberit Duofix system, especially the dimensions, must be drawn up and calculated separately for each specific individual application.

The dimension data stated in this planning manual is not binding and is in particular subject to works tolerances and possible future modifications.

Disclaimer

All information contained in this document, which is based on or which refers to standards, ordinances or regulations etc., has been thoroughly researched and compiled with the greatest possible care. However, we cannot guarantee that such information is correct, complete or up to date.

Further product information

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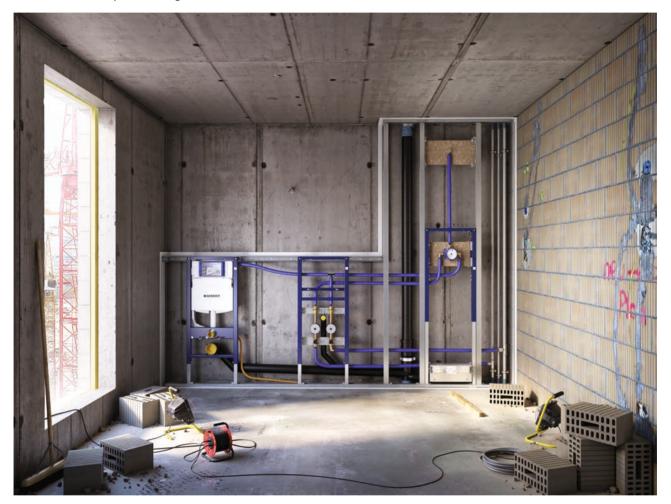
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1 Geberit Duofix

Geberit Duofix are self-supporting installation elements for mounting sanitary appliances.

 $This \ document \ shows \ the \ potential \ applications \ of \ the \ Duo fix \ Installation \ element \ in \ different \ wall \ and \ installation \ types.$

Information on the product range is not included.



2 Overview of wall and installation types

In building applications, the design of the structure is an important distinguishing feature.

Solid construction describes a type of structure whereby separating walls and ceilings also provide static support. Dry wall construction is a method of manufacturing structures for room separation and encasing components that are mounted using dry wall construction.

Drywall construction		Solid construction		
Metal framed walls	Geberit Duofix system	Wood frame walls	Masonry wall	Concrete wall
	wall			

For sanitary installation, the term inwall installation is used when built-in sanitary components are mounted in the wall. If built-in sanitary components are installed in front of a rear wall, the term used is prewall installation.



Table 1: Combinations of installation types and wall types in dry-wall construction

Inwall installation	Prewall installation	
Metal framed wall Geberit Duofix system wall Wood frame wall	Prewall models: • Metal framed wall • Geberit Duofix system wall • Wood frame wall Rear wall models: • Metal framed wall • Geberit Duofix system wall • Wood frame wall • Masonry wall • Concrete wall	

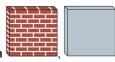


Table 2: Combinations of installation and wall types in solid construction

Inwall installation	Prewall installation
Masonry wall	Prewall models: • Masonry wall Rear wall models: • Masonry wall • Concrete wall

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3 Drywall construction

3.1 Installation walls

An installation wall is defined as a drywall that can accommodate sanitary installations. Sanitary installations are, for example, WC elements and the associated supply and discharge pipes.

An installation wall can be designed as a part-height, room-height or a partition wall.

There are the following types of installation walls:

- Metal framed wall
- · Geberit Duofix system wall
- · Wood frame wall







Taking an installation element as a basis, the following installation models can be defined:

- Installation behind the wall = Inwall installation
 - The drywall is the installation wall
 - The installation element is built into the drywall
- Installation in front of the wall = Prewall installation
 - An installation wall is mounted in front of a rear wall
 - The installation element is built into the installation wall, in front of the rear wall

Table 3: Overview of dry wall installation types

Inwall installation	Prewall installation

3.2 Metal framed wall

A metal framed wall is a drywall with a substructure made of C-profiles (CW profiles) and U-profiles (UW or UA profiles). UW profiles are fastened to the ground and, in the case of room-height walls, to the ceiling as well. CW profiles are positioned vertically in the UW profiles. UA profiles are reinforced profiles. Elbow connectors are used to fasten these directly to the floor and ceiling in order to provide the necessary stability.

Metal framed walls are suitable as installation walls.

Metal framed walls can be further differentiated depending on their installation models:

- · Inwall installation
 - Room-height double stud wall (e.g. Knauf W116)
 - Room-height single stud wall (e.g. Knauf W112)
- Prewall installation
 - Room-height single stud wall (e.g. Knauf W21)
 - Part-height single stud wall (e.g. Knauf W21)

The installation of installation elements transfers the loads from the heavy weights of the sanitary appliances to the installation wall and distributes them. To guarantee the statics of the installation wall, the specifications of the drywall manufacturer regarding creation of the wall and installation of the installation elements must be adhered to precisely. The instructions contained here are based on the recommendations of leading drywall manufacturers. Depending on the manufacturer, it may be necessary to comply with deviating specifications in order to fulfil the manufacturer's statics guarantee for the entire installation wall.

3.2.1 Normative and technical requirements

Installation walls with built-in Duofix installation elements can be fastened to the unfinished floor (concrete or wood) or to the finished floor.

The minimum compressive strength of the floor of 5 N/mm² and also the minimum covering thickness for the cast plaster floor of 70 mm must be adhered to here.

When mounting the installation walls on wooden floors, the support system mountings must be fixed directly to the beam. Wood screws with a diameter of 7 mm must be used for this.

The design of a metal framed wall is governed by various standards. These apply to both prewalls and rear walls:

- DIN 18183-1:2009-05 "Partitions and wall linings with gypsum boards on metal framing - Part 1: Panelling with gypsum plasterboards"
- DIN 18182-1:2015-11 "Accessories for use with gypsum boards – part 1: "Steel sheet profiles" in connection with DIN EN 14195:2015-03 "Metal framing components for gypsum board systems – Definitions, requirements and test methods"
- DIN 18181:2008-10 "Gypsum plasterboards for building construction – Application"
- DIN EN 520 "Gypsum plasterboards Definitions, requirements and test methods" in connection with DIN 18180:2014-09 "Gypsum plasterboards – Types and requirements"
- DIN 18340 "German construction contract procedures (VOB) – Part C: General Technical Specifications in Construction Contracts (ATV) - Dry Lining and Partitioning Work"

3.2.2 Inwall installation in double stud wall

Requirements for the double stud wall

A room-height double stud wall (e.g. Knauf W116) has a double structure made of C-profiles (CW), U-profiles (UW) and U-stiffening profiles (UA). UA profiles are reinforced profiles required for the mounting of elements for WCs and

bidets. This design of double stud wall creates room for installation. It is particularly suitable as an installation wall because of its static characteristics and sound insulation.

In order to ensure that the double stud wall remains stable during the installation of Geberit installation elements, the additional requirement of Geberit applies.

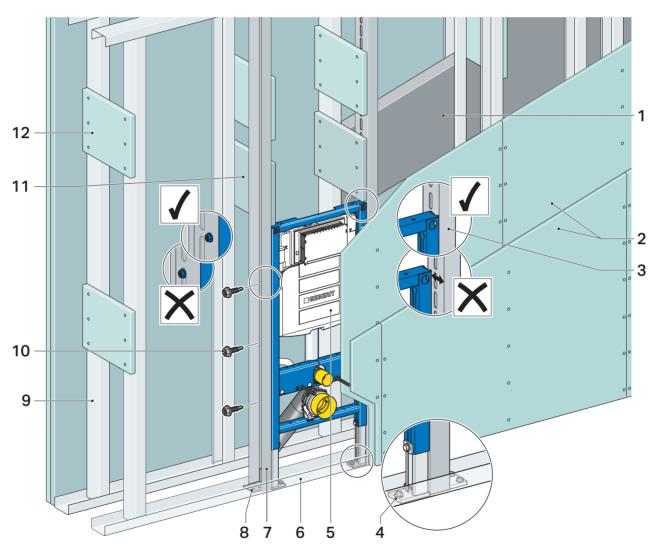


Figure 1: Structure of a room-height double stud wall

- 1 Insulation
- 2 Double-layer panelling
- 3 Surface-even mounting of the installation element with the front edge of the stud
- 4 Fastening for installation element on floor
- 5 Duofix installation element for wall-hung WC
- 6 UW profile

- 7 UA profile
- 8 UA fixing bracket with screws
- 9 CW profile
- 10 Fastening for installation element on UA profile
- 11 Additional bracing above the installation element for stabilising the double stud wall
- 12 Bracing for double stud wall in accordance with drywall installation rules

Additional requirements for a double stud wall for the installation of **Installation elements for wall-hung WCs and wall-hung bidets**:

- Minimum size of CW profiles: 50 x 50 x 0.6 mm
- Replace CW profiles on left and right next to the installation elements with UA profiles
- Minimum size of UA profiles: 50 x 40 x 2.0 mm
- Fasten UA profiles on the ceiling and floor profiles in addition with elbow tap connectors
- Bracing for double stud wall using plasterboard strips with a minimum height of 30 cm directly above the Duofix installation element
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness



Use of UA profiles based on the recommendations of the leading drywall manufacturer.

For public invitations to tender (VOB), use of UA profiles is also mandatory for installation elements for washbasins.

Additional requirements for a double stud wall for the installation of **Installation elements for washbasins**, **urinals**, **taps**, **loads** etc.:

- Minimum size of CW profiles: 50 x 50 x 0.6 mm
- Bracing for double stud wall using plasterboard strips with a minimum height of 30 cm directly above the Duofix installation element
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness

Requirements for fastening the installation element

The Geberit Duofix installation elements are placed in the UW profile fastened to the floor. The foot of the installation element is turned when UW profiles with a depth of 75 mm are used. As a result, the installation element is an exact fit and is flush with the UW profile.

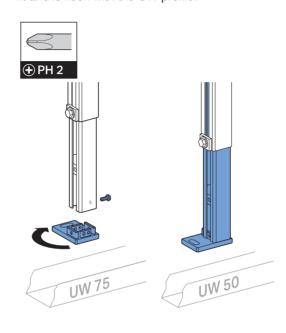


Figure 2: Installation element with turned foot

If a UW profile lower than 75 mm is used, the foot of the element is not turned, and it is positioned front flush in the profile.

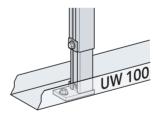


Figure 3: Position of the installation element in a UW profile: 100 mm

The element is fastened to the floor by the UW profile at two fastening points.

The element frame is aligned front flush at the vertical CW or UA profiles and screwed to the profiles laterally at a distance of 30 cm using three self-cutting screws in each case.

3.2.3 Inwall installation in single stud wall

Requirements for the single stud wall

A room-height single stud wall (e.g. Knauf W112) has a single-layer structure made of C-profiles (CW), U-profiles (UW) and U-stiffening profiles (UA). UA profiles are reinforced profiles required for the mounting of elements for WCs and bidets. The single stud wall is suitable as an installation wall.

In order to ensure that the single stud wall remains stable during the installation of Geberit installation elements, the additional requirements of Geberit apply.

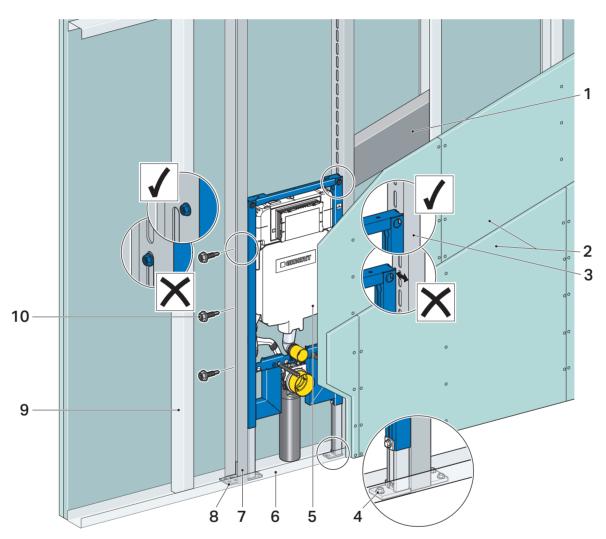


Figure 4: Structure of a room-height single stud wall

- 1 Insulation
- 2 Double-layer panelling
- 3 Surface-even mounting of the installation element with the front edge of the stud
- 4 Fastening for installation element on floor
- 5 Duofix installation element for wall-hung WC
- 6 UW profile
- 7 UA profile
- 8 UA fixing bracket with screws
- 9 CW profile
- 10 Fastening for installation element on UA profile

Additional requirements for a single stud wall for the installation of **Installation elements for wall-hung WCs and wall-hung bidets**:

- Minimum size of CW profiles: 100 x 50 x 0.6 mm
- Replace CW profiles on left and right next to the installation elements with UA profiles
- Minimum size of UA profiles: 100 x 40 x 2.0 mm
- Fasten UA profiles on the ceiling and floor profiles in addition with elbow tap connectors
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness



Because of the low installation depth in a roomheight single stud wall the discharge pipe can only be routed downwards vertically through the floor.



The Geberit Duofix element for wall-hung WCs, with Sigma 8 cm concealed cisterns is particularly suitable for installation in a room-height single stud wall because of its low element depth.



A room-height single stud wall as an installation wall is not suitable to satisfy sound installation requirements.

Additional requirements for room-height single stud wall for the installation of **Installation elements for washbasins, urinals, taps, loads** etc.:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness

Requirements for fastening the installation element

The Geberit Duofix installation elements are placed in the UW profile fastened to the floor. The foot of the installation element is turned when UW profiles with a depth of 75 mm are used. As a result, the installation element is an exact fit and is flush with the UW profile.

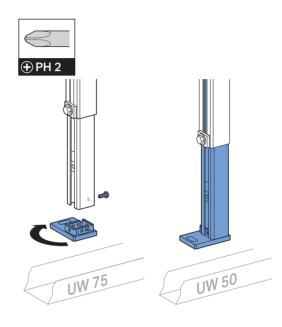


Figure 5: Installation element with turned foot

If a UW profile lower than 75 mm is used, the foot of the element is not turned, and it is positioned front flush in the profile.

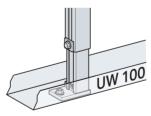


Figure 6: Position of the installation element in a UW profile: 100 mm

The element is fastened to the floor by the UW profile at two fastening points.

The element frame is aligned front flush at the vertical CW or UA profiles and screwed to the profiles laterally at a distance of 30 cm using three self-cutting screws in each case.

3.2.4 Prewall installation with rear wall connection

Requirements for prewall installation

If the installation element is mounted in a prewall installation with a connection to the rear wall, the composition of the rear wall influences the mounting process. The rear wall must be able to withstand the forces that the part-height or room-height prewall

installation exert on it. Reinforcements for the rear wall are required in certain construction situations. These additional requirements from Geberit are indicated below for each type of rear wall.

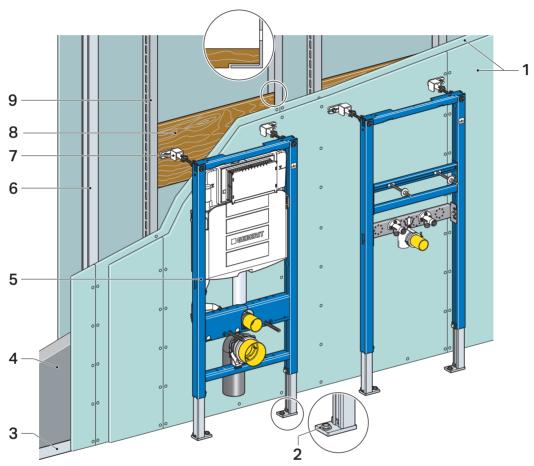


Figure 7: Prewall installation in front of a single stud wall as a rear wall

- 1 Double-layer panelling
- 2 Fastening of installation element on floor
- 3 UW profile
- 4 Insulation
- 5 Duofix installation element for wall-hung WC
- 6 CW profile
- 7 Fastening the installation element to the rear wall using wall brackets
- 8 Bracing for rear wall to fasten the installation element
- 9 UA profile

Requirements for the rear wall

A prewall installation with a connection to the rear wall can be fitted in front of the following types of rear wall:

- · Metal frame wall (double stud wall, single stud wall)
- · Masonry wall
- · Concrete wall
- Wood frame wall

Metal framed wall as rear wall

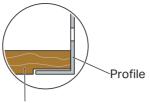
If the rear wall is a non-loadbearing interior stud wall, it must comply with the standard DIN 18183-1:2009-05 "Partitions and wall linings with gypsum boards on metal framing - Part 1: Panelling with gypsum plasterboards".

Minimum requirements for the **double stud wall** (e.g. Knauf W116) as the rear wall:

- Minimum size of CW profiles: 50 x 50 x 0.6 mm
- Bracing for double stud wall using plasterboard strips in accordance with drywall installation rules
- When installing an installation element, additional reinforcement behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical profile frames (e.g. crossbonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement). Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness

Minimum requirements for the **single stud wall** (e.g. Knauf W112) as the rear wall:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm
- · Alternative:
 - Minimum size of CW profiles: 50 x 50 x 0.6 mm, with UA profiles 50 x 40 x 2.0 mm in the area where the element is fastened, with Duofix wall brackets, reinforced
 - Maximum room height: 2.8 m
- When installing an installation element, additional reinforcement in the area of the wall brackets behind the panelling, e.g. with a 23 mm thick, cross-bonded multilayer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement). Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness



Multi-layer wood panel with recess

Figure 8: Surface-even mounting of the multi-layer wood panel through recesses

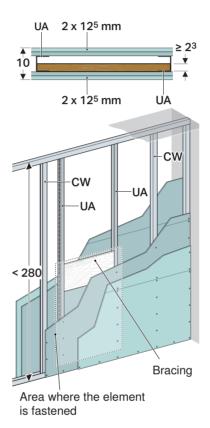


Figure 9: Structure of a single stud wall with 50 mm deep profiles (alternative) and bracing

Minimum requirements for the **overhanging shell** (e.g. Knauf W626, single stud wall panelled on one side) as the rear wall:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm, with UA profiles 75 x 40 x 2.0 mm in the area where the element is fastened, with Duofix wall brackets, reinforced
- When installing an installation element, additional reinforcement in the area of the wall brackets behind the panelling, e.g. with a 23 mm thick, cross-bonded multilayer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement). Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on one side, double-layer, each layer with at least 12.5 mm panelling thickness

Solid wall as rear wall

If the rear wall is a solid wall made of masonry or concrete, it must comply with the following standards:

- Masonry walls: DIN EN 1996-1-1 "Design of masonry structures"
- Concrete walls: DIN 1045 Concrete and reinforced concrete: Design and construction

The rear wall must be capable of withstanding the forces applied to it by the prewall installation. Where the rear wall is made of masonry and concrete, this is equivalent to the forces that are produced when sanitary appliances are mounted directly on the rear wall.

Wood frame wall as a rear wall

If the rear wall is a non-loadbearing interior wood frame wall, it must comply with the following standard:

 DIN 4103-4:1988-11 "Internal non-loadbearing partitions; partitions with timber framing"

Minimum requirements for the wood frame wall as rear wall:

- Cross sections of the frame in a single stud wall, 60 x 80 mm
- Additional reinforcement in the area of the wall anchoring behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical wood frames
- Alternatively: Fastening of the wall anchoring directly on the vertical beam
- · Panelling on both sides:
 - single layer with panelling thickness at least 18 mm or
 - double-layer, each layer with at least 12.5 mm panelling thickness

Requirements for fastening the installation element

The Geberit Duofix installation elements are either screwed directly into the floor or into the UW profile fastened to the floor. The flush rotatable foot plates of the installation elements ensure that assembly will be flush with the UW profiles with depths of 50 mm or 75 mm. If the profile is lower than 75 mm, the foot of the installation element is positioned front flush in the profile. The element is fastened to the floor by the UW profile at two fastening points.

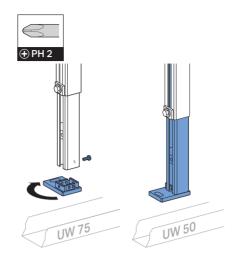


Figure 10: Installation element with turned foot

The element is fastened to the rear wall with Duofix wall brackets.

Where the **rear wall is a solid wall**, the Duofix set of wall brackets for single installation is used for fastening.

Where the **rear wall is a drywall**, the Duofix set of wall brackets for single installation is used for fastening to the bracing applied to the rear wall.

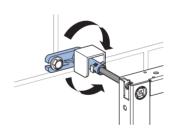


Figure 11: Wall brackets for fastening the installation element to a drywall construction or solid wall

At the upper corners of the installation elements, the wall brackets is locked into the openings provided from the front. The wall brackets and the installation element will then form a non-positive unit.

The prewall depth can be adjusted via the wall brackets. For prewall depths > 20 cm, use the Duofix extension set for wall brackets or, alternatively, an M10 threaded rod with an M10 double ring seal socket.

Requirements for the panelling

- Panelling joints are to be placed centrally on the installation element frame and fastened with panel screws in each case.
- All panelling supports are to be aligned surface-even with the installation element.

3.3 Duofix system wall

The Geberit Duofix system wall is a complete drywall that provides all components up to a tileable surface:

- · Substructure:
 - Profiles
 - Fastening elements
 - Studs
- · Installation elements:
 - Elements for WCs and bidets
 - Elements for urinals
 - Elements for washbasins
 - Elements for showers and bathtubs
 - Elements for taps
 - Elements for loads
- · Panelling:
 - Panels
 - Panel screws
 - Filler

In contrast to metal framed walls, Duofix system walls consist of system rails and studs. The system rails are coordinated with the feet of the installation elements. These can be fastened into the system rails using clips without the necessity for tools.

The installation of installation elements transfers the loads from the heavy weights of the sanitary appliances to the Duofix installation wall and distributes them. To guarantee the statics of the installation wall, the specifications of Geberit regarding creation of the wall and installation of the installation elements must be adhered to precisely.

3.3.1 Inwall installation

Room-height system wall

The room-height Duofix system wall is a complete installation wall. For an inwall installation, the room-height system wall can also be used as a partition wall.

For Duofix system walls, individual wall shells must not be fastened to each other. In this way, non-symmetrical walls can be implemented, e.g. on one side of a wall, three urinal elements are installed and, on the other, a WC element for a wheelchair-suitable WC. The fact that the wall shells are not connected also offers additional advantages with regard to sound insulation.

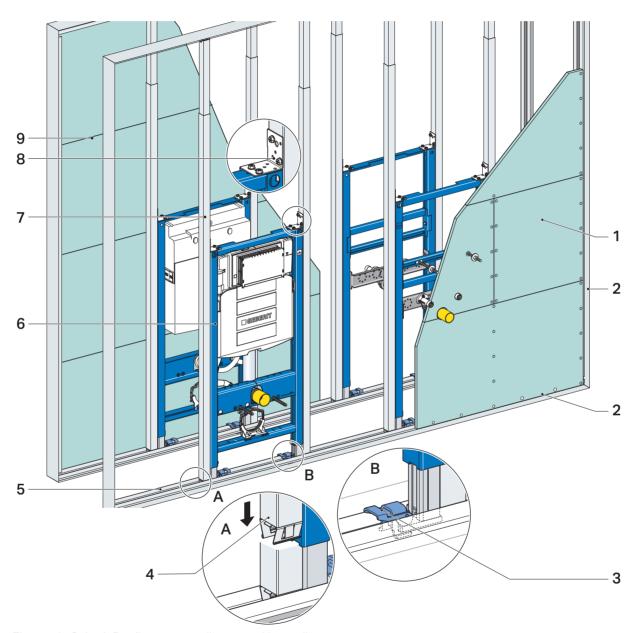


Figure 12: Geberit Duofix system wall as a partition wall

- 1 Panelling with Duofix panels
- 2 Geberit acoustic insulation tape
- 3 Fastening of the installation element in the Duofix system rail using a system rail clip
- 4 Duofix room-height stud fastening in Duofix system rail
- 5 Duofix system rail

- Duofix installation elements for wall-hung WC
- 7 Duofix room-height stud
- Fastening of the installation element to Geberit Duofix room-height stud using angle brackets
- 9 Panelling of rear wall with Duofix panels

Minimum requirements for the room-height Duofix system wall:

- Fastening of the system rails to the building structure with a fastening distance of 50 cm in the solid wall construction or a fastening distance of 20 cm in the drywall construction.
- · Maximum permitted height of the system wall: 4.00 m
- Maximum distance of the room-height studs: 55 cm
- Fastening of the installation elements to two roomheight studs using angle brackets. Angle brackets are included in the scope of delivery of the room-height studs.
- Four Duofix hex cap crosshead screws, self-cutting, are used in each case to fasten the angle brackets to the element and to the stud on both sides.
- Rail clips are used to fasten Duofix installation elements into the system rails on the floor. Rail clips are included in the scope of delivery of the room-height studs.
- Horizontal panelling with Duofix panel 200 x 60 x 1.8 cm

Fastening the installation element

It is irrelevant whether a prewall or a partition wall is concerned when fastening an element in a room-height Duofix system wall. The feet of the Duofix installation elements are positioned in the system rail fastened to the floor and aligned. The element is fastened into the system rails using rail clips.

The flush foot plates ensure that the installation elements can be mounted flush with the room-height studs.

The element is fastended to the room-height studs using the fixing brackets. The predrilled holes on the angle brackets and the installation element as well as the stopper on the angle brackets ensure installation flush with the room-height studs even at the top of the installation element.

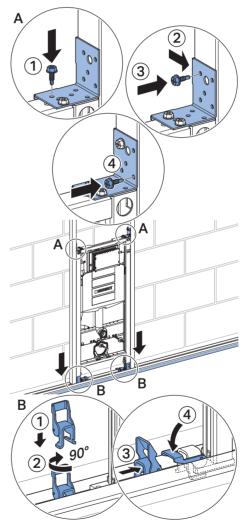


Figure 13: Fastening of a Duofix installation element in a room-height Duofix system wall

- A Fastening to the room-height studs using fixing brackets
- B Fastening into the system rail on the floor using rail clips

3.3.2 Prewall installation without rear wall connection

Requirements for prewall installation

Geberit Duofix system walls are suitable for use as installation walls for the room-height prewall installation without a rear wall connection.

In the Geberit Duofix system, the regulations for prewall installation without a rear wall connection correspond to inwall installation ("Inwall installation", page 18). Inwall

installation consists of two single wall shells that are not fastened to one another. A single wall shell of this kind can thus also be used as a room-height prewall installation without a rear wall connection.

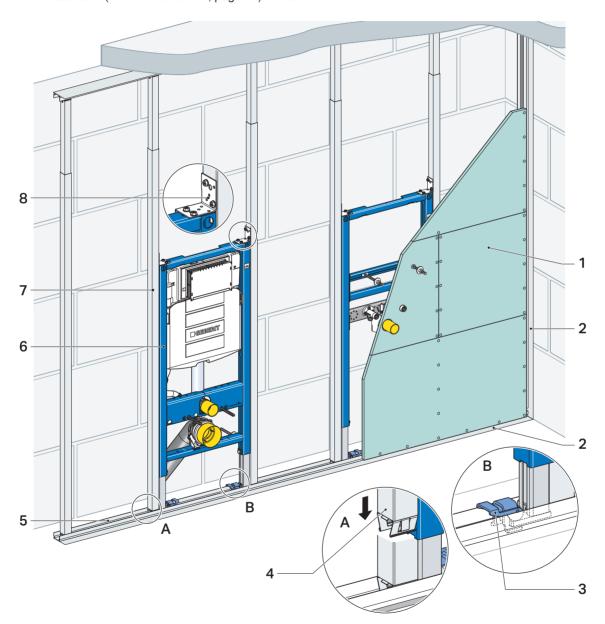


Figure 14: Geberit Duofix system wall as a room-height prewall without a rear wall connection

- Panelling with Duofix panels 1
- 2 Geberit acoustic insulation tape
- Fastening of the Duofix installation element in the 3 Duofix system rail with a system rail clip
- Fastening of the Duofix room-height stud in the 4 Duofix system rail
- Duofix system rail
- Duofix installation element for wall-hung WC 6
- 7 Duofix room-height stud
- Fastening of the installation element on Duofix room-height stud with angle brackets

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Requirements for the rear wall

If the prewall installation is not connected to the rear wall, the composition of the rear wall does not have any influence on the stability of the prewall installation. In this case, there are no special requirements for the rear wall. Only the requirements for the prewall installation need to be taken into account.

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3.3.3 Prewall installation with rear wall connection

Requirement for prewall installation

Geberit Duofix system walls are suitable for use as installation walls for part-height prewall installation with a rear wall connection.

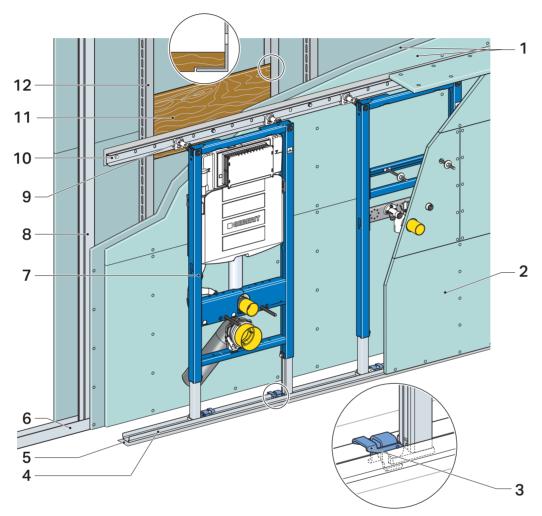


Figure 15: Geberit Duofix system wall as part-height prewall installation in front of a single stud wall as a rear wall

- 1 Double-layer panelling of the rear wall
- 2 Single-layer panelling of the prewall using Duofix panels
- 3 Fastening of the installation element into the Duofix system rail using system rail clips
- 4 Duofix system rail
- 5 Acoustic insulation tape

- 6 UW profile
- 7 Duofix installation element for wall-hung WC
- 8 CW profile
- 9 Fastening of the installation element into the system rail using wall brackets
- 10 Duofix system rail
- 11 Bracing of the rear wall
- 12 UA profile

Requirements for the rear wall

The rear wall of a prewall installation may be composed as follows:

- Metal framed wall (double stud wall, single stud wall, overhanging shell)
- · Geberit Duofix system wall
- · Masonry wall
- · Concrete wall
- · Timber post-and-beam wall

Metal framed wall as rear wall

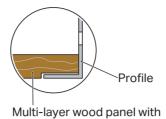
If the rear wall is a non-loadbearing interior stud wall, it must comply with the standard DIN 18183-1:2009-05 "Partitions and wall linings with gypsum boards on metal framing - Part 1: Panelling with gypsum plasterboards".

Minimum requirements for the **double stud wall** (e.g. Knauf W116) as the rear wall:

- Minimum size of CW profiles: 50 x 50 x 0.6 mm
- Bracing for double stud wall using plasterboard strips in accordance with drywall installation rules
- When installing an installation element for a wall-hung WC or bidet, additional reinforcement behind the panelling, e.g. with a 23 mm thick, cross-bonded multilayer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement).
 Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness

Minimum requirements for the **single stud wall** (e.g. Knauf W112) as the rear wall:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm
- · Alternative:
 - Minimum size of CW profiles: 50 x 50 x 0.6 mm, with UA profiles 50 x 40 x 2.0 mm in the area where the element is fastened, with Duofix wall brackets, reinforced
 - Maximum room height: 2.8 m
- When installing an installation element for a wall-hung WC or bidet, additional reinforcement in the area of the wall brackets behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement). Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness



recess

Figure 16: Surface-even mounting of the multi-layer wood panel through recesses

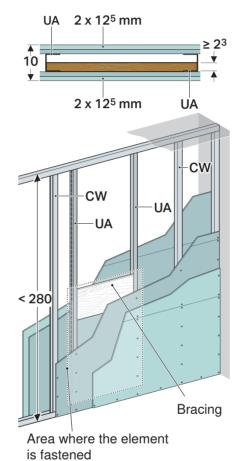


Figure 17: Structure of a single stud wall with 50 mm deep profiles (alternative) and bracing

Minimum requirements for the **overhanging shell** (e.g. Knauf W626, single stud wall panelled on one side) as the rear wall:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm, with UA profiles 75 x 40 x 2.0 mm in the area where the element is fastened, with Duofix wall brackets, reinforced
- When installing an installation element for a wall-hung WC or bidet, additional reinforcement in the area of the wall brackets behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical profile frames (e.g. crossbonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement).

Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile

· Panelling on one side, double-layer, each layer with at least 12.5 mm panelling thickness

Solid wall as rear wall

If the rear wall is a solid wall made of masonry or concrete, it must comply with the following standards:

- · Masonry walls: DIN EN 1996-1-1 "Design of masonry structures"
- · Concrete walls: DIN 1045 Concrete and reinforced concrete: Design and construction

The rear wall must be capable of withstanding the forces applied to it by the prewall installation. Where the rear wall is made of masonry and concrete, this is equivalent to the forces that are produced when sanitary appliances are mounted directly on the rear wall.

Wood frame wall as a rear wall

If the rear wall is a non-loadbearing interior wood frame wall, it must comply with the following standard:

· DIN 4103-4:1988-11 "Internal non-loadbearing partitions; partitions with timber framing"

Minimum requirements for the wood frame wall as rear wall:

- · Cross sections of the frame in a single stud wall, 60 x 80 mm
- · Additional reinforcement in the area of the wall anchoring behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical wood frames
- Alternatively: Fastening of the wall anchoring directly on the vertical beam
- Panelling on both sides:
 - single layer with panelling thickness at least 18 mm
 - double-layer, each layer with at least 12.5 mm panelling thickness

Duofix system wall as a rear wall

Minimum requirements for the Duofix system wall:

- · Fasten the system rail to at least four room-height studs
- · Maximum distance of the room-height studs: 55 cm
- Maximum permitted height of the system wall: 3.60 m
- · Two Duofix hex cap crosshead screws, self-cutting, are used in each case to fasten the system rail to the roomheight studs
- Horizontal panelling with panel 200 x 60 x 1.8 cm No panelling in the area of the prewall installation in order to keep the installation depth as small as possible.

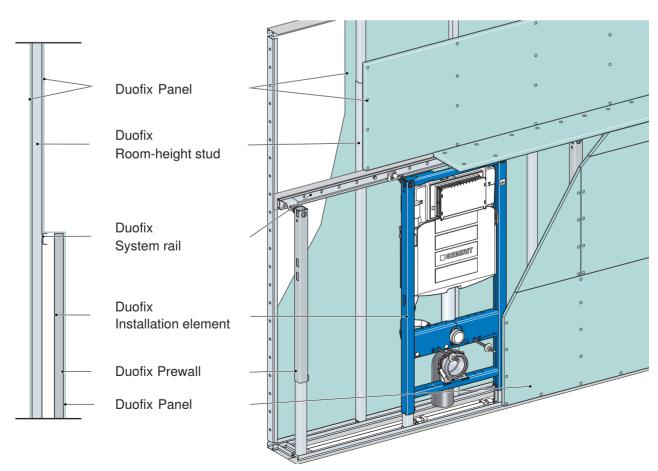


Figure 18: Duofix system wall (part-height prewall) in front of a Duofix system wall (single wall shell) as a rear wall

Fastening the installation element

The feet of the Duofix installation elements are positioned in the system rail fastened to the floor and aligned. The feet are fastened using rail clips. The installation element is hooked into the system rail using wall brackets.

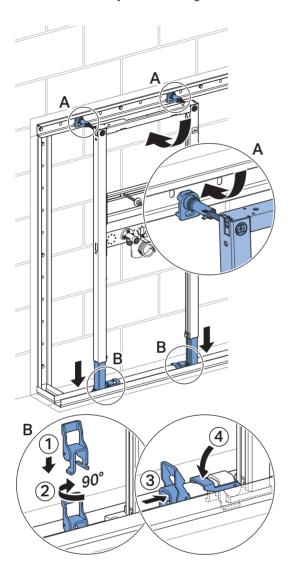


Figure 19: Fastening in system rails

- A Fastening using wall brackets
- B Fastening using rail clips



For the horizontal panelling the maximum distance between the individual Geberit Duofix installation elements and the Geberit Duofix studs shall be no more than 55 cm. If necessary, additional Geberit Duofix studs must be used to comply with this distance.

3.3.4 Installation dimensions

Maximum dimensions of roomheight Duofix system walls

Only the height of the wall represents a limitation for the Duofix system wall: there are no limitations regarding the width or depth of the system wall.

The maximum height is the maximum possible construction height of the Duofix room-height stud including the floor construction.

Four stud heights are available for each of the following room heights:

- · 220-280 cm
- 260-320 cm
- 300-360 cm
- 340-400 cm

The maximum height of a Duofix system wall is 4.0 metres.

Maximum dimensions of partheight Duofix system walls

With a part-height Duofix system wall, there are no restrictions on the width of the wall. The height of the prewall depends on the element height.

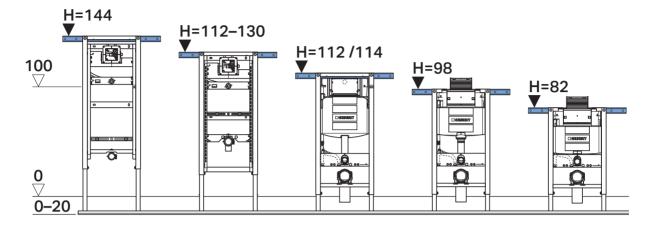


Figure 20: Possible element heights in a Duofix system wall

The depth of the prewall depends on the wall bracket and any extensions that may be used.

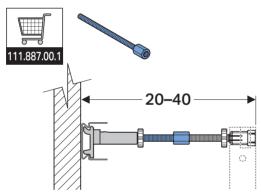


Figure 21: Installation depth of the wall bracket

Fastening the Duofix system rail

Before the Duofix system rail is fastened to the building structure, acoustic insulation tape is to be taped flush to the rear of the system rail on one side. The tape reduces sound transmission. As the acoustic insulation tape protrudes at one side, this also creates a clear joint for the system wall.

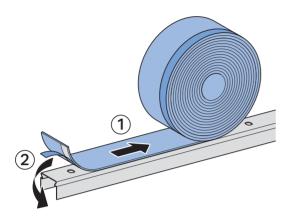


Figure 22: Correct position of the Geberit acoustic insulation tape on the Duofix system rail

The applicable fastening distances vary depending on the type of wall to which the Duofix system rails are fastened.

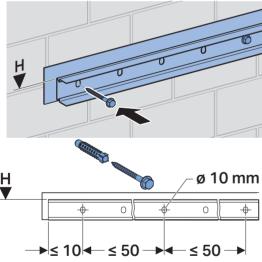


Figure 23: Fastening distances for a Duofix system rail on a solid wall

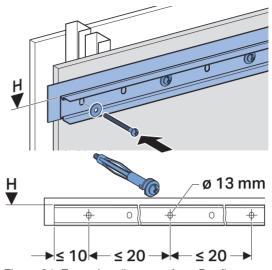


Figure 24: Fastening distances for a Duofix system rail on a stud wall with metal void dowels

When installing the system rail, ensure a gap-free connection to the building structure.

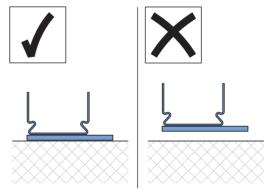


Figure 25: Correct position of the Geberit system rail on the floor

Distances between studs

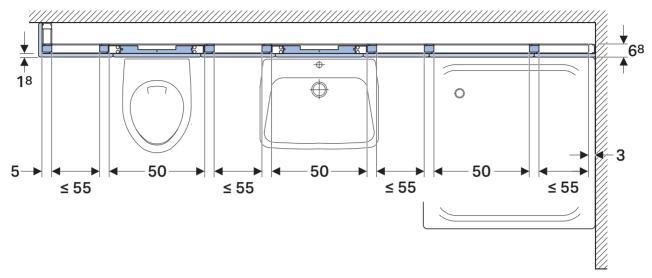


Figure 26: Distances of Duofix room-height studs taking a room-high prewall installation as an example



The maximum distance between two adjacent studs must not exceed 55 cm.

3.3.5 Pipe fixation

Pipe fastenings or similar fixtures in the Duofix system wall are installed on the Geberit Duofix universal mounting plate, art. no. 111.859.00.1, or on the Geberit Duofix pipe fixation holder, art. no. 111.891.00.1.

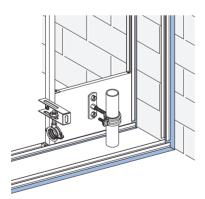


Figure 27: Pipe fixation in the Duofix system wall

3.3.6 System wall for roof pitch

Duofix system walls are suitable for installation under roof pitches. It is irrelevant here whether the system wall is structured as a partition wall or a room-height prewall. The room-height studs are set to the height required in each case in line with their position on the roof pitch. The head of the studs is screwed into the system rail and can be tilted to the required angle.

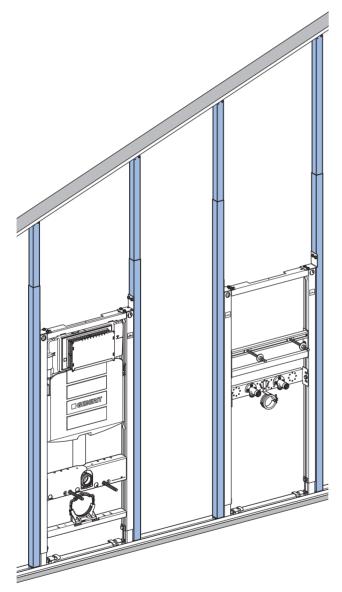


Figure 28: Duofix system wall with roof pitches

The following must be observed here:

- Maximum tilt angle to the roof pitch: 50°
- Maximum distance between the studs: 55 cm

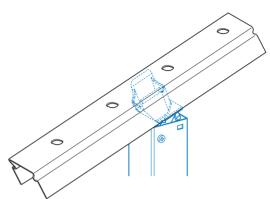


Figure 29: Tilting of the stud head until the required angle is obtained

3.3.7 Installation tools

There are no special requirements for the tools to be used to fasten Geberit Duofix elements and the panelling for this. The customary tools for drywall construction are used.

The tools listed below enable effective installation and can be obtained through specialist trade outlets.

Table 4: Recommended tools

Product	Tool	
Geberit Duofix system rails	Cold circular saw	
Geberit Duofix studs	Spirit level with magnet	
	Cordless drill driver with hexagon socket wrench, insert 13 mm	
Geberit panel screws	Cordless drill driver with insert for crosshead Philips PH2	
Geberit panel screws, in magazine (for frequent use)	Quick-fit auto-feed screwdriver, e.g. magazine screwdriver 6843 from Makita	

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Product	Tool	
	Blade	
Geberit Duofix panel	Keyhole saw	
	Planer for chamfering the panels	
Geberit Aqua panel Pro	Core drill for cutting out the drilling holes for waste fittings • 120 mm, e.g. for connection bend for WC • 60 mm, e.g. for flush bend • 50 mm, e.g. for concealed stop valve • 40 mm, e.g. for clip M 10 • 30 mm, e.g. M 12 screws	

3.3.8 Panelling

A special panel with a thickness of 18 mm was developed for the Duofix system. This means that single-layer panelling of the Duofix system wall is possible and sufficient.

The following must be observed for panelling:

- Different requirements depending on the type of installation wall
- · Professional installation
- · Joint technique and filler quality
- Further processing of the panels

Requirements for the panelling

Duofix system walls are panelled in a single layer with 18 mm Duofix panels.

Alternatively, double-layer panelling is possible with a panelling thickness of at least 12.5 mm per layer.

Installation rules for the panelling

Mount Geberit Duofix panels horizontally.

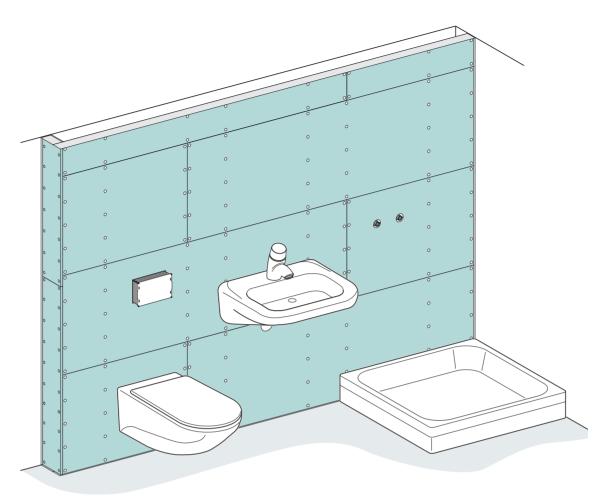


Figure 30: Horizontal mounting of the Duofix panels

In each case, the full surface of the panel joint must be positioned on the studs or the installation element.

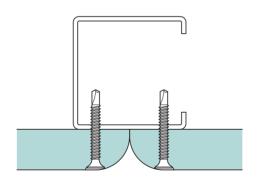


Figure 31: Panel joint on studs or installation element

Maintain the following distances for the panelling:

- Screw clearance: 12-16 cm
- Clearance between building structure and panel: approx. 1 cm
- Clearance between the panels: maximum 0.3 cm

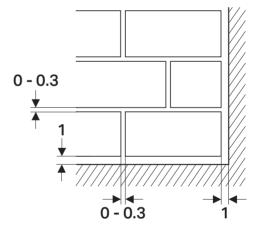


Figure 32: Clearances of the panels

Chamfer all cut edges of the panels to an angle of approx. 45° for 2/3 of the panel thickness.

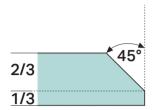


Figure 33: Chamfer the cut edges

Fill all joints of Geberit Duofix panels using Geberit filler. A separate filler is available for the Geberit aqua panel Pro.

Seal pipe feed-throughs using elastic sealing putty.

Bridge joints using groove cover strips if white plaster is visible where edges have been cut.

Ceiling lowering

Building movements can occur due to the inherent weight of the components, changing loads (useful loads) and expansion as a result of external forces or temperature changes (dilatation).

When assessing possible movements, the span widths of the components (e.g. the distance from pedestal to pedestal) as well as the floor plan structure of the floors above and below play a role. If the floor plans are the same, the lowering of the floor is the same as that of the ceiling. Thus, only small movements of the building are to be expected.

The structural engineer is responsible for providing details of the expected building structure movement.



For the assessment of Duofix system walls, the expected lowering after creation of the wall is decisive. The lowering directly after stripping the ceiling does not usually need to be considered.

If lowering of the ceiling by more than 5 mm is to be expected when installing a room-height Geberit Duofix system wall, a flexible, non-hardening sealing putty must be used for the circumferential joint between the panels and the building structure instead of the usual filler. This measure allows the Duofix system wall to withstand a maximum lowering of the ceiling by up to 10 mm.

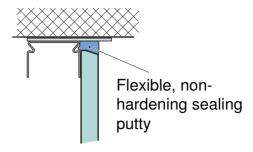


Figure 34: Joint between panel and building structure with a ceiling lowering of 5–10 mm

Joint technique and filler quality

The joint technique and/or filler quality on the panels depends on surface treatment and subsequent coating. As a general rule, all joints must be filled with Geberit filler. The plumber installs the panelling up to the tile-ready surface that corresponds to the quality level Q1 in accordance with Information Sheet No. 2 of the Gypsum Board Industry Group (→ www.gipsindustrie.de).

Table 5: How the joint technique depends on the surface and the coating

Coating	Surface	Joint technique
Finished plaster or painting	Cut/chamfered edges (white plaster visible)	Bridge joints using groove cover strips
Finished plaster or painting	Preformed plasterboard edges	Bridge joints using groove cover strips
Ceramic tiles		Fill joints with Geberit filler



As a general rule, the subsequent trade (tiler or painter) is under obligation to check the surface to see whether it complies with the requirements of his work. Coordination between plumber and tiler and/or painter is required.

Further processing of the panels

After the joints have been filled, the panels must be treated further.

- A coat of primer must be applied to the panel surface in any case, e.g. Knauf deep penetrating primer. The cut edges and pipe feed-throughs are also treated at the same time.
- All automatic tap and drainage feed-throughs must be sealed with sealing washers or permanently elastic mastic. Depending on the manufacturer information, deep penetrating primer or bonding agent must be used for processing of the permanently elastic mastic.
- The joints of the pipe feed-throughs in the damp area must be filled with water-resistant permanently elastic sealing putty, e.g. Knauf silicone plumbers putty.
 Because of the hazard of stress corrosion cracking, no plumbers putty may be used that releases ammonia.
- In the damp area (shower or bathtub), the plasterboard panel surfaces must be additionally sealed with a permanently elastic rubber-bitumen emulsion, e.g.
 Knauf Flächendicht or corresponding adhesive sealant.
- The adhesives of wall coverings must be suitable for the respective underground treatment.
- Corner joints in the tile area must be given permanently elastic backfilling.

3.3.9 Admissible loads

Loads in this context are loads which are transferred to the wall by the sanitary appliance and direct forces into the wall through their weight. Here a distinction is made between light, medium and heavy loads.

- Light and medium loads, e.g. pictures, towel rails and cabinets, are fastened using nails or dowels.
- Heavy loads such as storage water heaters, radiators or facilities for disabled people must be fastened to the:
 - Geberit Duofix element for support handles,
 112 cm, barrier-free, art. no. 111.790.00.1
 - Geberit Duofix Universal mounting plate, art. no. 111.859.00.1
- All sanitary appliances are in the group of heavy loads.
 A load such as a WC ceramic appliance can therefore be fastened safely using the Duofix installation element for wall-hung WCs.

3.4 Wood frame wall

Wood frame walls are drywalls with a substructure made of wooden beams. The wooden beams are fastened to the floor, wall and ceiling. The vertical wood frames are fastened to this frame at the top and bottom.

Wood frame walls are suitable as installation walls.

Wood frame walls can be further differentiated depending on their installation models:

- Inwall installation
 - Room-height wood frame walls
- · Prewall installation
 - Room-height wood frame walls
 - Part-height wood frame walls

The installation of installation elements transfers the loads from the heavy weights of the sanitary appliances to the wood frame wall and distributes them. To guarantee the statics of the wood frame wall, the specifications of the manufacturer regarding creation of the wall and installation of the installation elements must be adhered to precisely. Depending on the manufacturer, it may be necessary to comply with deviating specifications in order to fulfil the manufacturer's statics guarantee for the entire wood frame wall.

3.4.1 Normative and technical requirements

Installation walls with built-in Duofix installation elements can be fastened to the unfinished floor (solid floor or wooden floor) or to the finished floor.

Minimum compressive strength of the floor of 5 N/mm² and also the minimum covering thickness for a cast plaster floor of 70 mm must be complied with.

When the installation walls are mounted on wooden floors, the support system fastenings must be positioned directly on the beam. Wood screws with a diameter of 7 mm must be used for this.

The design of a wood frame wall is set out in standards. These apply to both front and rear walls:

 DIN 4103-4:1988-11 "Internal non-loadbearing partitions; partitions with timber framing"

3.4.2 Inwall installation

Requirements for the wood frame wall

In order to ensure that the wood frame wall remains stable during the installation of installation elements, the minimum requirements apply.

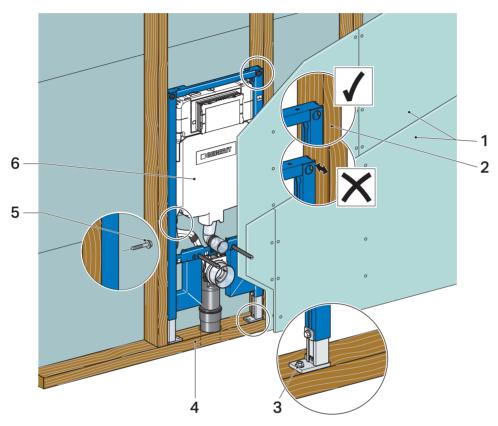


Figure 35: Structure of a room-height wood frame wall

- 1 Double-layer panelling
- 2 Surface-even mounting of the installation element with the front edge of the stud
- 3 Fastening of installation element on threshold
- 4 Threshold
- 5 Fastening of installation element on wood frame
- 6 Duofix installation element for wall-hung WC

Minimum requirements for the wood frame wall:

- Stud cross-section on a single stud wall 60 x 80 mm
- · Panelling on both sides
 - single layer with a panelling thickness of at least
 18 mm or
 - double-layer, each layer with at least 12.5 mm panelling thickness

If the stud clearance is greater than 50 cm, a crossbar must be fitted directly above the installation element.

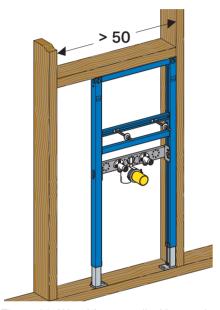


Figure 36: Wood frame wall with crossbar

The following installation elements can be fastened to a crossbar:

- · Duofix elements for urinal
- · Duofix elements for washbasin
- Duofix elements for outlet taps
- · Duofix elements for sink
- · Duofix elements for support handles



Because of the load, it is not possible to install Duofix elements for wall-hung WCs or wall-hung bidets in a wood frame wall with stud clearance of more than 50 cm.

Requirements for fastening the installation element

The installation element is positioned with its feet on the threshold and screwed down at two fastening points using hexagon bolts.

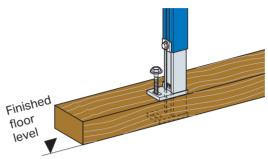


Figure 37: Fastening the installation element to a threshold

If the wood frame wall is mounted on a finished floor, the feet of the installation element can be inserted by a maximum of 5 cm in order to compensate for the installation height.

If the stud clearance is greater than 50 cm, a crossbar must be fitted directly above the installation element. The fitted crossbar is fixed at two fastening points.

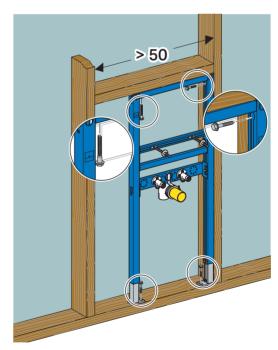


Figure 38: Fastening the installation element to the crossbar

3.4.3 Prewall installation without rear wall connection

Requirements for prewall installation

Wood frame walls are suitable for use as installation walls for room-height prewall installation without a rear wall connection. In order to ensure that the wood frame wall remains stable during the installation of the installation elements, the minimum requirements apply.

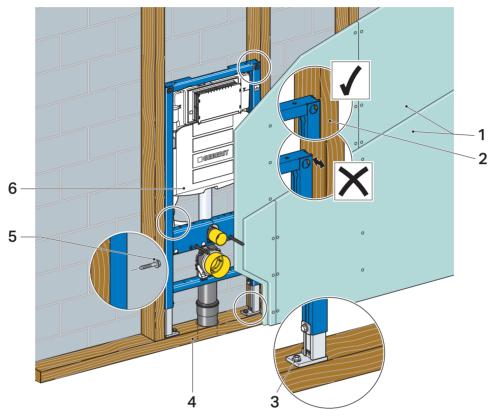


Figure 39: Prewall installation for a room-height wood frame wall in front of a solid wall

- 1 Double-layer panelling
- 2 Surface-even mounting of the installation element with the front edge of the stud
- 3 Fastening of installation element on threshold
- 4 Threshold
- 5 Fastening of installation element on wood frame
- 6 Duofix installation element for wall-hung WC

Minimum requirements for the wood frame wall:

- Cross section of the frame in a single stud wall, 60 x 80 mm
- · Panelling:
 - single layer with a panelling thickness of at least 18 mm or
 - double-layer, each layer with at least 12.5 mm panelling thickness

If the stud clearance is greater than 50 cm, a crossbar must be fitted directly above the installation element. The crossbar is fixed at two fastening points.

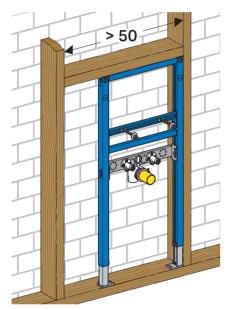


Figure 40: Prewall installation with crossbar in front of a solid wall

The following elements can be fastened to a crossbar:

- · Duofix elements for urinal
- · Duofix elements for washbasin
- · Duofix elements for outlet taps
- · Duofix elements for sink
- · Duofix elements for support handles



Because of the load, it is not possible to install Duofix elements for wall-hung WCs or wall-hung bidets in a wood frame wall with stud clearance of more than 50 cm.

Requirements for the rear wall

If the prewall installation is not connected to the rear wall, the composition of the rear wall does not have any influence on the stability of the prewall installation. In this case, there are no special requirements for the rear wall. Only the requirements for the prewall installation need to be taken into account.

Requirements for fastening the installation element

The installation element is positioned with its feet on the threshold and screwed down at two fastening points using hexagon bolts.

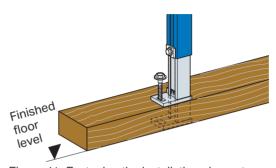


Figure 41: Fastening the installation element on a threshold

If the wood frame wall is mounted on a finished floor, the feet of the installation element can be inserted by a maximum of 5 cm in order to compensate for the installation height.

If the stud clearance is greater than 50 cm, a crossbar must be fitted directly above the installation element. The fitted crossbar is fixed at two fastening points.

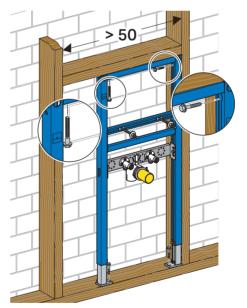


Figure 42: Fastening the installation element in a wood frame wall where the crossbar does not have a connection to the rear wall

3.4.4 Prewall installation with rear wall connection

Requirements for prewall installation

If the installation element is mounted in a prewall installation with a connection to the rear wall, the composition of the rear wall influences the mounting process. The rear wall must be able to withstand the forces that the part-height or room-height prewall

installation exert on it. Reinforcements for the rear wall are required in certain construction situations. These additional requirements from Geberit are indicated below for each type of rear wall.

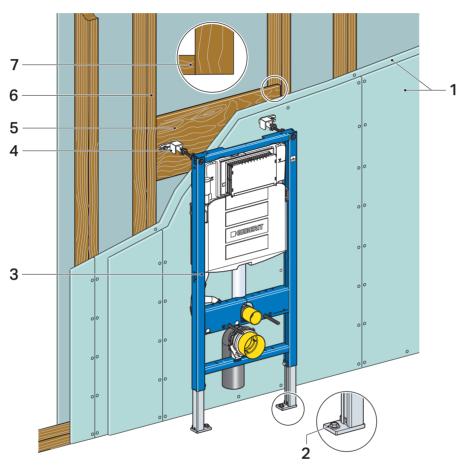


Figure 43: Prewall installation in front of a wood frame wall as a rear wall

- 1 Double-layer panelling
- 2 Fastening of installation element on floor
- 3 Duofix installation element for wall-hung WC
- 4 Fastening the installation element to the rear wall using wall brackets
- 5 Bracing for rear wall to fasten the installation element
- 6 Wood frame
- 7 Surface-even mounting of the multi-layer wood panel on the wood frame

Requirements for the rear wall

The composition of the rear wall of a prewall installation made of wood frames may be as follows:

- Metal framed wall (double stud wall, single stud wall)
- · Masonry wall
- · Concrete wall
- Wood frame wall

Metal framed wall as rear wall

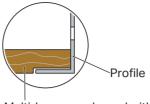
If the rear wall is a non-loadbearing interior stud wall, it must comply with the standard DIN 18183-1:2009-05 "Partitions and wall linings with gypsum boards on metal framing - Part 1: Panelling with gypsum plasterboards".

Minimum requirements for the **double stud wall** (e.g. Knauf W116) as the rear wall:

- Minimum size of CW profiles: 50 x 50 x 0.6 mm
- Bracing for double stud wall using plasterboard strips in accordance with drywall installation rules
- When installing an installation element, additional reinforcement behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement). Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness

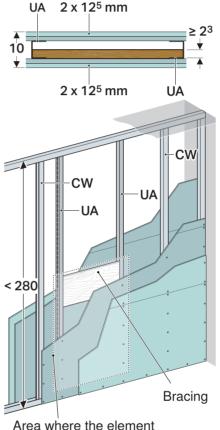
Minimum requirements for the **single stud wall** (e.g. Knauf W112) as the rear wall:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm
- · Alternative:
 - Minimum size of CW profiles: 50 x 50 x 0.6 mm, with UA profiles 50 x 40 x 2.0 mm in the area where the element is fastened, with Duofix wall brackets, reinforced
 - Maximum room height: 2.8 m
- When installing an installation element, additional reinforcement in the area of the wall brackets behind the panelling, e.g. with a 23 mm thick, cross-bonded multilayer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement).
 Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile
- Panelling on both sides, double-layer, each layer with at least 12.5 mm panelling thickness



Multi-layer wood panel with recess

Figure 44: Surface-even mounting of the multi-layer wood panel through recesses



is fastened

Figure 45: Structure of a single stud wall with 50 mm deep profiles (alternative) and bracing

Minimum requirements for the **overhanging shell** (e.g. Knauf W626, single stud wall panelled on one side) as the rear wall:

- Minimum size of CW profiles: 75 x 50 x 0.6 mm, with UA profiles 75 x 40 x 2.0 mm in the area where the element is fastened, with Duofix wall brackets, reinforced
- When installing an installation element, additional reinforcement in the area of the wall brackets behind the panelling, e.g. with a 23 mm thick, cross-bonded multilayer wood panel fastened between the two vertical profile frames (e.g. cross-bonded multi-layer wood panel 660 x 300 x 23 mm or equivalent reinforcement).

Surface-even mounting of the multi-layer wood panel with the profiles through recesses on the right and left sides of the tile

 Panelling on one side, double-layer, each layer with at least 12.5 mm panelling thickness

Solid wall as rear wall

If the rear wall is a solid wall made of masonry or concrete, it must comply with the following standards:

- Masonry walls: DIN EN 1996-1-1 "Design of masonry structures"
- Concrete walls: DIN 1045 Concrete and reinforced concrete: Design and construction

The rear wall must be capable of withstanding the forces applied to it by the prewall installation. Where the rear wall is made of masonry and concrete, this is equivalent to the forces that are produced when sanitary appliances are mounted directly on the rear wall.

Wood frame wall as a rear wall

If the rear wall is a non-loadbearing interior wood frame wall, it must comply with the following standard:

• DIN 4103-4:1988-11 "Internal non-loadbearing partitions; partitions with timber framing"

Minimum requirements for the wood frame wall as rear wall:

- Cross sections of the frame in a single stud wall, 60 x 80 mm
- Additional reinforcement in the area of the wall anchoring behind the panelling, e.g. with a 23 mm thick, cross-bonded multi-layer wood panel fastened between the two vertical wood frames
- Alternatively: Fastening of the wall anchoring directly on the vertical beam
- · Panelling on both sides:
 - single layer with panelling thickness at least 18 mm or
 - double-layer, each layer with at least 12.5 mm panelling thickness

Requirements for fastening the installation element

The Geberit Duofix installation elements are either fastened directly to the floor or the feet of the element are placed on the threshold and screwed with hexagon head setscrews via two fastening points.

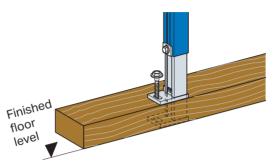


Figure 46: Fastening of the installation element to a threshold

The element is fastened directly to the rear wall with wall brackets.

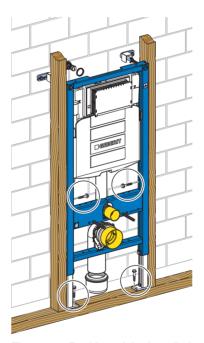


Figure 47: Position of the installation element between wood frames and fastening to the rear wall with wall brackets

Where the **rear wall is a solid wall**, the Duofix set of wall brackets for single installation is used for fastening.

Where the **rear wall is a drywall**, the Duofix set of wall brackets for single installation is used for fastening to the bracing applied to the rear wall.

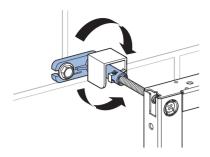


Figure 48: Wall brackets for fastening the installation element to a drywall construction or solid wall

At the upper corners of the installation elements, the wall bracket is locked into the openings provided from the front. The wall brackets and the installation element will then form a non-positive unit.

The prewall depth can be adjusted via the wall brackets. For prewall depths > 20 cm, use the Duofix extension set for wall brackets or, alternatively, an M10 threaded rod with an M10 long nut.

Requirements for the panelling

- Single-layer panelling with at least 18 mm panelling thickness or double-layer panelling, each layer with at least 12.5 mm panelling thickness.
- Panelling bond joints are positioned centrally on the frame of the installation element and each are to be fastened with panel screws.
- All panelling supports are to be aligned so that they are surface even with the installation element.

Solid construction

Solid walls

A solid wall is a masonry or concrete wall.

A solid wall can be designed as a part-height or roomheight wall or a partition wall.

If a solid wall is also a partition wall or a room separator, the term "inwall installation" is used. If the solid wall is mounted in front of a rear wall, the term used is "prewall installation".

Table 6: Overview of solid construction installation types

Inwall installation	Prewall installation

The installation of installation elements transfers the loads from the heavy weights of the sanitary appliances to the solid wall and distributes them. To guarantee the statics of the solid wall, the specifications of the manufacturer regarding creation of the wall and installation of the installation elements must be adhered to precisely.

4.1.1 Normative requirements for a solid wall

If the installation element is to be embedded, recesses and slots may need to be installed to lay the pipes. The requirements for slots and recesses can be found in DIN EN 1996-1-1:2013-02: 2010-12; Chapter 8.6 "Slots and recesses in walls".

Pay attention to these points:

- It is not permissible to make the slots afterwards using a hammer and chisel.
- A defined slot depth can only be achieved through milling.
- The slots and recesses must be arranged in such a way that they do not have a detrimental effect on the stability of the masonry.
- · Slots and recesses reduce the sound insulation and fire resistance of the wall.
- · All components must be suitable for embedding: if necessary, they must be insulated.



According to DIN 4108-2:2013-02 "Thermal protection and energy economy in buildings - Part 2: Minimal requirements for thermal protection", the laying of pipes in outer walls should be avoided. The thermal protection of the building shell may be impaired or water-filed pipes may



Where discharge pipes are laid in chased wall channels the mass of the remaining wall in terms of area in relation to the space requiring protection should be a minimum of 220 kg/m² (sound reduction index in accordance with DIN 4109).

If the rear wall of a sanitary installation is a solid wall made of masonry or concrete, it must comply with the following standards:

- Masonry walls: DIN EN 1996-1-1:2013-02 Design of masonry structures
- Concrete walls: DIN 1045 Concrete and reinforced concrete: Design and construction

45

4.1.2 Use of concrete walls

A concrete wall is just as suitable as a rear wall for a prewall installation as a masonry wall is.

A concrete wall is less suitable as a prewall, because the built-in sanitary installations are generally not designed for this.

In particular, please note that Geberit concealed cisterns are not allowed to be embedded in concrete. The pressure generated as the concrete dries and the heat produced may result in indefinable distortions of the cistern that cannot be repaired. This may result in the cistern's function being impaired.

If a concealed cistern has to be positioned in a concrete wall, a recess is to be provided in the concrete wall. The concealed cistern is embedded afterwards into the recess of the concrete wall.

If the intention is for the concrete wall in front of the cistern to remain visible (exposed concrete), contact Geberit to check the options for implementing this special installation situation.

4.2 Inwall installation

4.2.1 Requirements for the masonry wall

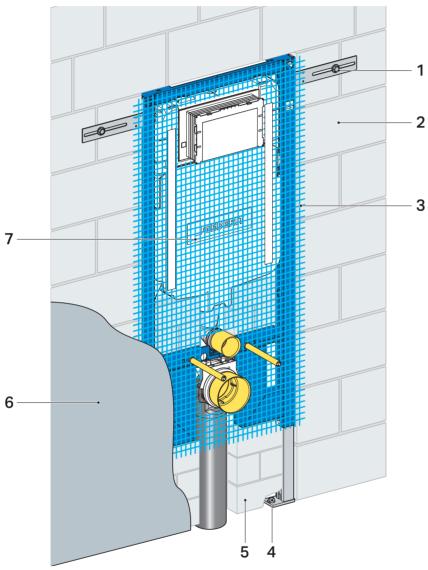


Figure 49: Structure of a masonry wall with installation element

- 1 Fastening the installation element to the masonry wall using wall anchoring
- 2 Masonry wall
- 3 Direct plastering netting
- 4 Fastening for installation element on floor
- 5 Brick-lined hollow spaces between the installation element
- 6 Plaster
- 7 Duofix installation element for wall-hung WC

4.2.2 Requirements for fastening the installation element

The installation element is positioned in the recess created, then aligned and fastened to the floor. Make sure here that the recess next to the element pillars provides enough space for the selected stones. Wall anchoring that is suitable for embedding in masonry is used to fasten the element. Wall anchoring is fastened to the installation element frame using self-tapping bolts.

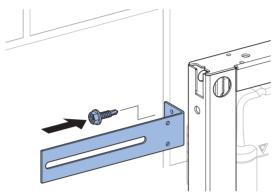


Figure 50: Fastening the element with wall anchoring

4.3 Prewall installation with rear wall connection

4.3.1 Requirements for prewall installation

If the installation element is mounted in a prewall installation with a connection to the rear wall, the composition of the rear wall influences the mounting

process. The rear wall must be able to withstand the forces that the part-height or room-height prewall installation exert on it.

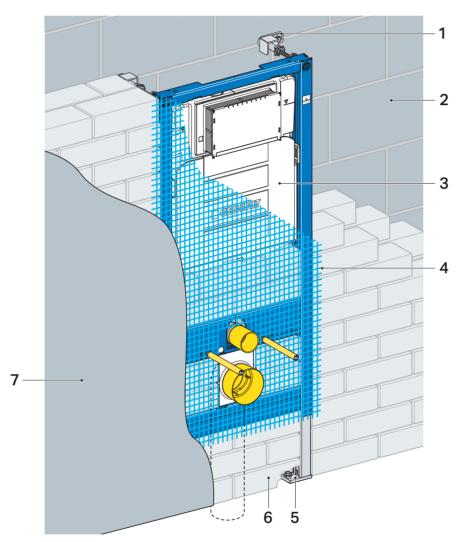


Figure 51: Prewall installation with solid rear wall

- 1 Fastening the installation element with wall brackets
- 2 Masonry wall as a rear wall
- 3 Duofix installation element for wall-hung WC
- 4 Direct plastering netting

- 5 Fastening of installation element on floor
- 6 Masonry lined hollow space between the installation element
- 7 Plaster

4.3.2 Requirements for the rear wall

An Duofix installation element can be fastened in front of a masonry or concrete wall.

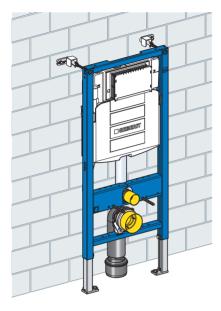


Figure 52: Duofix element in front of a masonry wall

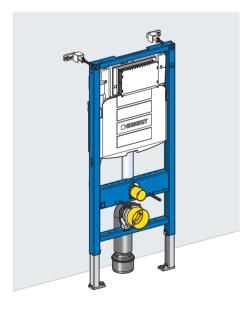


Figure 53: Duofix element in front of a concrete wall

Solid wall as rear wall

If the rear wall is a solid wall made of masonry or concrete, it must comply with the following standards:

- Masonry walls: DIN EN 1996-1-1 "Design of masonry structures"
- Concrete walls: DIN 1045 Concrete and reinforced concrete: Design and construction

The rear wall must be capable of withstanding the forces applied to it by the prewall installation. Where the rear wall is made of masonry and concrete, this is equivalent to the forces that are produced when sanitary appliances are mounted directly on the rear wall.

4.3.3 Requirements for fastening the installation element

A Duofix element can be fastened to a masonry or concrete wall using wall brackets.

For fastening using wall brackets, the Duofix element is fitted and aligned in front of the masonry or concrete wall. The rear fastening uses the Duofix set of wall brackets for single installation.

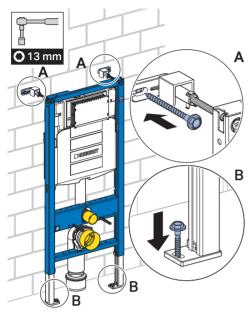


Figure 54: Fasten Duofix WC element to a wall

- Fastening to wall with wall brackets Α
- В Fastening to the floor using hexagon bolts

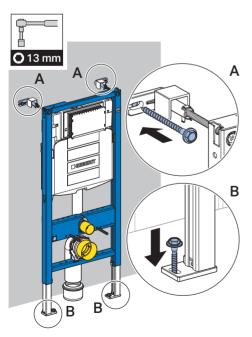


Figure 55: Fasten Duofix WC element to a concrete wall

- Α Fastening to concrete wall using wall brackets
- В Fastening to the floor using hexagon bolts

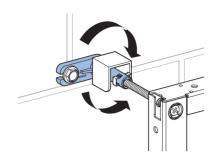


Figure 56: Adjust wall brackets

At the upper corners of the installation elements, the wall brackets is locked into the openings provided from the front. The wall brackets and the installation element will then form a non-positive unit. The prewall depth is adjustable. For prewall depths > 20 cm, use the extension set for wall brackets or, alternatively, an M10 threaded rod with an M10 double ring seal socket.

As an alternative to wall brackets, flat fixing brackets suitable for embedding in walls can be used for fixing the element to the rear wall.

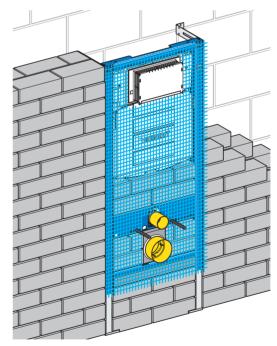
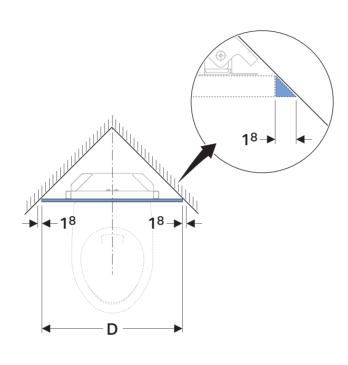
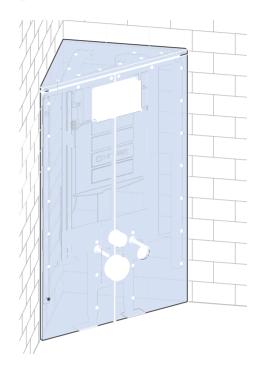


Figure 57: Duofix WC element embedded in wall

5 Special applications

5.1 Corner element for wall-hung WC





D Diagonal dimensions front edge element

	Minimum	Maximum
Diagonal dimension front edge of element without panelling	56 cm	76 cm
Diagonal dimension front edge of element with panelling	59.6 cm	79.6 cm
Angle range	30°	60°

The foot construction of the installation element allows various types of waste water installation:

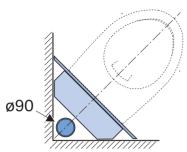


Figure 58: Free space for discharge pipe d90 behind the element

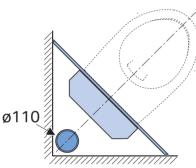


Figure 59: Free space for discharge pipe d110 behind the element

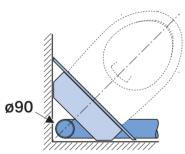


Figure 60: Lateral offset of discharge pipe behind the element

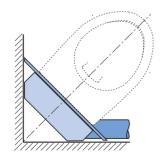


Figure 61: Lateral offset of discharge pipe

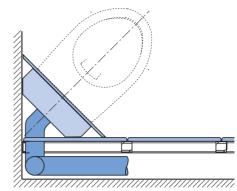


Figure 62: Can be combined with Geberit Duofix system wall

5.1.1 Fastening of corner element

The corner element is fastened to the building structure using four fastening points directly accessible from the front. Depending on your requirements, the installation element can be placed at any angle to the walls.

Requirements for mounting:

- Wall bracket fastening set for oblique walls, art. no. 111.835.00.1
- Wall width for 45° corner installation is a minimum of 69 cm, without panelling

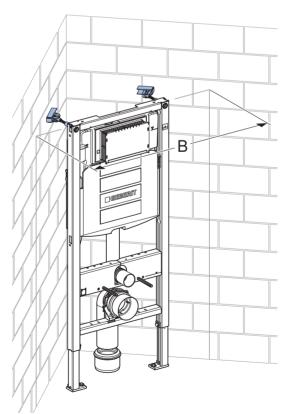


Figure 63: Minimum wall width for installation in one corner

B Minimum of 69 cm

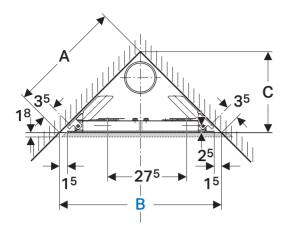


Figure 64: Installation dimensions of Duofix installation element for corner Installation

А	В	С
39.6	56.0	28.0
40.3	57.0	28.5
41.0	58.0	29.0
41.7	59.0	29.5
42.4	60.0	30.0
43.1	61.0	30.5
43.8	62.0	31.0
44.5	63.0	31.5
45.2	64.0	32.0
45.9	65.0	32.5
46.6	66.0	33.0
47.3	67.0	33.5
48.0	68.0	34.0
48.7	69.0	34.5
49.5	70.0	35.0
50.2	71.0	35.5
50.9	72.0	36.0
51.6	73.0	36.5
52.3	74.0	37.0
53.0	75.0	37.5
53.7	76.0	38.0

5.2 Geberit support brackets for WC ceramic appliances with small contact surfaces

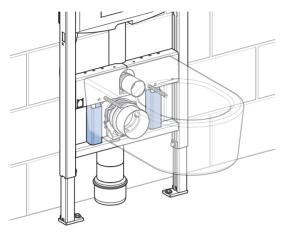


Figure 65: Geberit support brackets for WC ceramic appliances with small contact surfaces

- Required for small WC ceramic appliances which are not supported on the lower crossbar (e.g. WC ceramic appliances made by Flaminia).
- Can be used for all Geberit Duofix elements for WCs.
- The accessory must already be fitted in the building shell, i.e. the WC ceramic appliance type must be known in advance.
- The bearing forces are exerted on both vertical crossbars instead of on the lower crossbar.
- · Can be installed without tools with plug-in system.

5.3 Foot fastener on rear wall

If it is not possible to screw the element to the floor, it can be fastened to the rear wall using special fixing brackets.

A fastening on the rear wall is especially recommended for floor heating systems and vapour-proof floors.

In this respect:

- The foot plates are not screwed to the floor.
- Fastening is possible both on the galvanized foot and also on the lower section of the frame.
- The fastening type can be used for all Geberit Duofix installation elements.

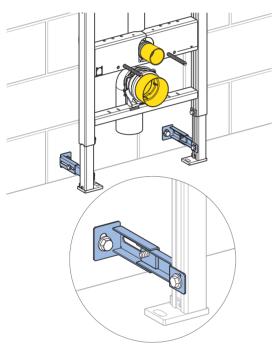


Figure 66: Foot fastener on the rear wall using Geberit Duofix set

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