

Test Report P-BA 82/2021e

Test bench measurement of noise from the ViConnect toilet installation system and Subway 3.0 TwistFlush ceramic toilet

Bauaufsichtlich anerkannte Stelle
für Prüfung, Überwachung und
Zertifizierung
Zulassung neuer Baustoffe, Bauteile
und Bauarten

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Test object: ViConnect toilet installation system for drywall installation and ceramic toilet
Villeroy & Boch AG Subway 3.0 TwistFlush, mounted on a solid plumbing wall
with low-noise fresh and waste water plumbing.

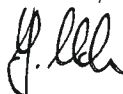
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Test date: Measurement was performed on 19 January 2021 at the measuring and
testing facility of the Fraunhofer Institute for Building Physics in Stuttgart.

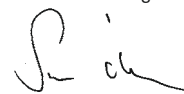
SStuttgart, 4 June 202

Processed by:



Dipl.-Ing.(FH) J. Mohr

Test site manager:



M.BP. Dipl.-Ing.(FH) S. Öhler

The test was performed in a test laboratory at the IBP, which is accredited in accordance with
DIN EN ISO/IEC 17025:2018 by DAkkS under number D-PL-11140-11-01.

The measurement results stated refer only to the item being tested. Publication of this test report
in part is permitted only with the permission of the Fraunhofer Institute for Building Physics.

Summary of the results from test report P-BA 82/2021

Acoustic test

to DIN 4109-1:2018-01, VDI 4100:2012-10, SIA 181:2020, ÖNORM B 8115-2:2006-12-01 of the ViConnect toilet installation system and Subway 3.0 TwistFlush ceramic toilet

The Villeroy & Boch ViConnect system for drywall toilet installation and the Subway 3.0 TwistFlush wall-mounted ceramic toilet have been tested by the Fraunhofer Institute for Building Physics (IBP) in Stuttgart with good results. The sound level from the plumbing was determined in accordance with DIN 4109, VDI 4100, SIA 181, ÖNORM B 8 115-2. **Test date:** Tuesday, 19 January 2021

DIN 4109, VDI 4100 Requirements and presentation of results

Requirements: **DIN 4109**¹⁾: Minimum requirement: 30 dB(A), elevated requirements: 27dB(A)
VDI 4100¹⁾: Soundproofing level: level I: 30 dB(A), level II: 27dB(A), level III: 24dB(A)

Result:

Villeroy & Boch AG ViConnect standard element for drywall toilet installation with V & B flush plate and Subway 3.0 Twistflush wall-mounted toilet and associated toilet soundproofing set, drywall installation on a solid plumbing wall (mass per unit area 220 kg/m ²) and on the unfinished floor, with low-noise fresh and waste water plumbing.	Room in which measurement performed		
	Cellar, front (vertical)	Cellar, rear (diagonal)	Ground floor, rear (horizontal)
Plumbing system sound level $L_{AFmax,n}$ in dB(A) - DIN 4109			
Flush process with large flush volume (approx. 6 litres)	22	23 ¹⁾	29
Flush process with small flush volume (approx. 4.5 litres)	23	23 ¹⁾	29
Plumbing system sound level $L_{AFmax,nT}$ in dB(A) - VDI 4100			
Flush process with large flush volume (approx. 6 litres)	20	20 ¹⁾	26
Flush process with small flush volume (approx. 4.5 litres)	21	19 ¹⁾	26

¹⁾For the floor plan situation under consideration, the requirements in accordance with DIN 4109 and VDI 4100 apply only to the "cellar, rear" room (middle results column)

SIA 181 Requirement and presentation of results

Requirement:

Total value $L_{H,tot}$ in dB(A) according to SIA 181	Cellar, front (vertical)	Cellar, rear (diagonal)	Ground floor, rear (horizontal)
	medium	high	low
Noise of toilet in use (sporadic noise)	29	25	34
Result:			
Flush process with large flush volume (approx. 6 litres)	20	20	26
Flush process with small flush volume (approx. 4.5 litres)	21	19	26

ÖNORM B8115-2, Requirements and presentation of results

Requirement:

System noise level $L_{AFmax,nT}$ in dB(A) in accordance with ÖNORM B 8115	Cellar, front (vertical)	Cellar, rear (diagonal)	Ground floor, rear (horizontal)
Brief, fluctuating noise (e.g. toilet flush) and travel noise (e.g. of lifts, garage doors, automatic parking systems)	35 ¹⁾ 30 ²⁾	30 ¹⁾ 25 ²⁾	30 ²⁾
Result:			
Flush process with large flush volume (approx. 6 litres)	20	20	26
Flush process with small flush volume (approx. 4.5 litres)	21	19	26

Further details in Test Report P-BA 82/2021

¹⁾Minimum requirements

²⁾Elevated requirements

Test bench:

The tests are carried out on a special installation test bench simulating two residential units, one located above the other. The plumbing walls are built in accordance with the minimum required wall masses for plumbing in accordance with DIN 4109 (with a mass per unit area of 220 kg/m²). The measurement cycle begins before the flush is activated. The entire measurement cycle is the reference for interpretation of the results and assessment. Maximum sound pressure level (mean maximum value of measurements over three time periods).

