

Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory according to EN 14366

P-BA 14/2020e

Results sheet 1

Client: SÖĞÜT PLASTİK VE KALIP SANAYİ VE TİCARET A.Ş. Organize Sanayi Bölgesi 3. Cadde No: 18 34776 Yukarı Dudullu/Ümraniye -İSTANBUL / TURKEY

Test specimen: Wastewater installation system "SPK S-PP SILENT WASTE WATER PIPE 110x3.4 BD H-PP 19/06/2019" (manufacturer: SPK), size OD 110, consisting of straight plastic pipes and fittings and pipe clamps "Bismat 1000" (manufacturer: Walraven). Test object no.: 11447-2; see figure 4 and 5.

Test set-up:

- The pipe system was mounted according to figure 4 (see also Annex A).
- The system consisted of wastewater pipes (nominal size OD 110), three inlet tees (87°), a 2 x 45°-basement bend and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by lids supplied by the manufacturer.
- Pipe system "SPK S-PP SILENT WASTE WATER PIPE 110x3.4 BD H-PP 19/06/2019": Three-layer pipes: Material PP, wall thickness 3.6 mm, weight 1.84 kg/m, density 1.57 g/cm³, values measured by IBP. One-layer fittings: Material PP, wall thickness 3.4 mm, density 2.01 g/cm³, values measured by IBP. Plug connection of the pipes and fittings (shaped pipe sockets).
- Pipe clamps: Acoustic pipe clamps "Bismat 1000": Structure-borne sound insulating support attachment consisting of Bismat SL guidance clamps and Bismat SX socket clamps. In every storey (EG and UG) respectively one double clamp (SL and SX) was installed at the lower wall area and one guidance clamp (SL) at the upper wall area. To prevent contact to the pipe, the guidance clamp (SL) was mounted with 15 mm space between the locking tabs of the clamp (two 7.5 mm spacers on each side). The Bismat 1000 clamps were fixed to the installation wall with an adjustable wall plate with dowels and thread rods (figure 5).

The wastewater installation system was mounted by a technician under the authority of Fraunhofer IBP.

Test facility: Installation test facility P12, mass per unit area of the installation wall: 220 kg/m², mass per unit area of the ceiling: 440 kg/m². Installation rooms: sub-basement (KG), basement (UG) front, ground floor (EG) front and top floor (DG), measuring rooms: UG front, UG rear (details in Annex P and DIN EN 14366: 2020-02)

Test method: The measurements were performed according to DIN EN 14366: 2020-02; noise excitation by steady water flow with 0.5 l/s, 1.0 l/s, 2.0 l/s and 4.0 l/s. Additional evaluation for comparison with requirements following German standards DIN 4109-1:2018 and VDI 4100:2012-10 (details in Annexes A, F and V).

Result:

Test specimen: Wastewater installation system "SPK S-PP SILENT WASTE WATER PIPE 110X3.4 BD H-PP 19/06/2019" (manufacturer: SPK). The wastewater system consisted of straight plastic pipes and fittings and pipe clamps "Bismat 1000" (manufacturer: Walraven).	Flow rate [l/s]				
	0.5	1.0	2.0	4.0	
Airborne sound pressure level $L_{p,A}$ [dB(A)] according to EN 14366 for the basement test-room	UG front	43	47	50	52
Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] according to EN 14366 for the basement test-room	UG rear	<10	10	12	15
Installation sound level $L_{A,Feq,n}$ [dB(A)] following DIN 4109 in the basement test-room	UG front	43	47	50	52
	UG rear	10	13	16	19
Installation sound level $\overline{L_{A,Feq,nT}}$ [dB(A)] following VDI 4100 in the basement test-room	UG front	41	45	48	50
	UG rear	<10	10	13	16

Test date: January 31, 2020

Notes:

- For comparing test results with requirements note Annex A.
- The above-mentioned measurement results require careful assembly of the pipe clamps (see test set-up).
- Sound levels below 10 dB(A) are not mentioned in the official test report, since they are subject to an increased measurement uncertainty and moreover are not noticeable in a normal living environment.



The test was carried out in a laboratory, accredited according to DIN EN ISO/IEC 17025:2018 by DAkkS. The accreditation certificate is D-PL-11140-11-01.

Stuttgart, 06 May 2020
Head of Laboratory