

## Test Report P-BA 91/2018e

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

**Client:** Pipelife Austria GmbH & Co KG  
IZ NOE-Sued - Strasse 1  
Objekt 27  
2355 Wr. Neudorf  
Austria

**Test object:** Wastewater system " PIPELIFE MASTER 3 PLUS, 110x3.0, PP, 28 FEB 18" (manufacturer: Pipelife Austria GmbH & Co KG), nominal size OD 110, consisting of straight plastic pipes, fittings and pipe clamps "BISMAT 2000, 108-114" (manufactured by Walraven) mounted as sliding and fixing clamps. Installation of the pipe clamps see test setup.

**Content:**

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Figures 1 to 3:	Detailed results
Figures 4 and 5:	Test set-up
Annex A:	Measurement set-up, noise excitation, acoustic parameters
Annex F:	Evaluation of measurements
Annex P:	Description of the test facility
Annex V:	Assessment according to VDI 4100

**Test date:** The measurement was carried out on May 8, 2018 in the test facilities of the Fraunhofer Institute for Building Physics in Stuttgart.

Stuttgart, July 9, 2018

Responsible Test Engineer:

Head of Laboratory:

Dipl.-Ing.(FH) J. Mohr

M.BP. Dipl.-Ing.(FH) S. Öhler

The test was carried out in a laboratory, accredited according to DIN EN ISO/IEC 17025:2005 by DAkkS. The accreditation certificate is D-PL-11140-11-01.

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

P-BA 91/2018e

Results sheet 1

**Client:** Pipelife Austria GmbH & Co KG, IZ NOE-Sued - Strasse 1, Objekt 27, 2355 Wr. Neudorf, Austria

**Test specimen:** Wastewater system "PIPELIFE MASTER 3 PLUS, 110x3.0, PP, 28 FEB 18" (manufacturer: Pipelife Austria GmbH & Co KG), nominal size OD 110, consisting of straight plastic pipes, fittings and pipe clamps "BISMAT 2000, 108-114" (manufactured by Walraven) mounted as sliding and fixing clamps. Installation of the pipe clamps see test setup. Test object S 11224-02; see figure 4 and 5.

**Test set-up:**

- The pipe system was mounted according to figure 4 and 5 (see also Annex A).
- The system consisted of wastewater pipes (nominal size OD 110), three inlet tees (87°), two 45°-basement bends and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by plugs supplied by the manufacturer.
- Pipe system: " PIPELIFE MASTER 3 PLUS, 110x3.0, PP, 28 FEB 18": Three-layer pipes with shaped pipe sockets: Material PP, wall thickness 3.2 mm, weight 1.2 kg/m, density 1.14 g/cm<sup>3</sup>, values measured by IBP. One-layer fittings: Material PP, wall thickness 3.5 mm, density 1.29 g/cm<sup>3</sup>, values measured by IBP. Plug connection of the pipes and fittings (shaped pipe sockets).
- Pipe clamps: Standard steel pipe clamps with elastomer insert "BISMAT 2000, 108-114" (manufactured by Walraven). In every storey (EG and UG) two pipe clamps were installed. In the upper wall area one sliding clamp with 10 mm space between the locking tabs of the clamp (two yellow spacers). In the lower wall area one fixing clamp with 5 mm space between the locking tabs of the clamp (one yellow spacer). The clamps were fixed to the installation wall 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/m<sup>2</sup>. 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 EN 14366: 2005-02).

**Test method:** The measurements were performed according to EN 14366:2005-02; 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 4109:2018-01 and VDI 4100:2012-10 (details in Annexes A, F and V).

**Result:**

Test specimen: " PIPELIFE MASTER 3 PLUS, 110x3.0, PP, 28 FEB 18" (manufacturer: Pipelife Austria GmbH & Co KG), nominal size OD 110, consisting of straight plastic pipes, fittings and pipe clamps "BISMAT 2000, 108-114" (manufactured by Walraven). In every storey (EG and UG) two pipe clamps were installed. In the upper wall area one sliding clamp with 10 mm space between the locking tabs of the clamp (two yellow spacers). In the lower wall area one fixing clamp with 5 mm space between the locking tabs of the clamp (one yellow spacer).	Flow rate [l/s]				
	0.5	1.0	2.0	4.0	
Airborne sound pressure level $L_{a,A}$ [dB(A)] <b>according to EN 14366</b> for the basement test-room	UG front	45	48	50	54
Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] <b>according to EN 14366</b> for the basement test-room	UG rear	<10	11	15	18
Installation sound level $L_{AFeq,n}$ [dB(A)] <b>following DIN 4109</b> in the basement test-room	UG front	45	48	50	54
	UG rear	12	15	18	22
Installation sound level $\overline{L_{AFeq,nT}}$ [dB(A)] <b>following VDI 4100</b> in the basement test-room	UG front	42	46	48	51
	UG rear	<10	11	15	19

**Test date:** May 8, 2018

**Notes:**

- For comparing test results with requirements note Annex A.
- 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 17025:2005 by DAkkS. The accreditation certificate is D-PL-11140-11-01.

Stuttgart, July 9, 2018  
Head of Laboratory: