

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

P-BA 12/2026e

Results sheet 1

**Client:** PRINCE Pipes and Fittings Ltd., Haridwar-249402, Uttarakhand, India

**Test specimen:** Wastewater system made of plastic "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) with PP-MD fittings "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) mounted with acoustic pipe clamps "BISMAT® 1000" made by Walraven GmbH. Test object no.: S 12254-01; see figure 4 and 5.

**Test set-up:** The pipe system was mounted according to figure 4 and 5 (see also Annex A).  
 - The pipe system consisted of straight wastewater pipes (nominal size OD 110), three inlet tees (~87.5°, swept), a 2 x 45° basement bend with ring seal socket "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by lids supplied by the manufacturer. According to DIN EN 14366 the air gaps between the tube and floor in the entrance and exit openings are stuffed with porous absorber in order to prevent any structure-borne sound bridges influencing the building.  
Pipe system: "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) ". Three-layer pipes with ring seal socket and with shaped pipe sockets: PP/PP-MD/PP, wall thickness ~ 3.6 mm, weight ~ 1.67 kg/m, density ~ 1.4 g/cm<sup>3</sup>, values measured by IBP. One-layer PP-MD fittings: Material PP, wall thickness ~ 3.3 mm, density ~ 1.4 g/cm<sup>3</sup>, values measured by IBP. Plug connection of the pipes and fittings (shaped pipe sockets). The wastewater system was equipped with a basement bend "PRINCE DECILO" consisting of 2 x 45° bends and a horizontal drain section, length 100 cm (manufacturer: PRINCE Pipes and Fitting Limited). Pipe clamps: Acoustic pipe clamps, type: "BISMAT® 1000" (manufacturer: Walraven GmbH); structure-borne sound insulating support attachment consisting of "BISMAT® SL" guidance clamps and "BISMAT® SX" socket clamps. In each storey (EG and UG) respectively two clamps were installed. At the upper wall area one guidance clamp (SL, DN 100) was mounted. At the lower wall area one double clamp "BISMAT® 1000" consisting of support (guidance) clamp (SL, DN 100) and fixing (socket) clamp (SX, DN 100) was installed. To prevent contact to the pipe, the guidance clamps (SL) were mounted with 15 mm space between the locking tabs of the clamps (two 7.5 mm spacers on each side). The clamps were closed with a tightening torque of 2 Nm. The support/guidance clamps (SL) were fixed to the installation wall with an adjustable wall plate with dowels and thread rods. 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>, mass per unit area of the ceiling: 440 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 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 4109:2018-01 and VDI 4100:2012-10 (details in Annexes A, F and V). As of the test date, DIN EN 14366:2020-02 had been withdrawn and replaced by DIN EN 14366:2023-09.

**Result:**

Test specimen: Wastewater system made of plastic "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) with fittings "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) mounted with acoustic pipe clamps "BISMAT® 1000" made by Walraven GmbH.	Flow rate [l/s]				
	0.5	1.0	2.0	4.0	
Airborne sound pressure level $L_{a,A}$ [dB(A)] according to <b>DIN EN 14366</b> for the basement test-room	UG front	40	46	48	51
Structure-borne sound characteristic level $L_{s,c,A}$ [dB(A)] according to <b>DIN EN 14366</b> for the basement test-room	UG rear	<10	<10	13	18
Installation sound level $L_{AFeq,n}$ [dB(A)] following <b>DIN 4109</b> in the basement test-room	UG front	40	46	48	51
	UG rear	<10	<10	12	17
Installation sound level $L_{AFeq,nT}$ [dB(A)] following <b>VDI 4100</b> in the basement test-room	UG front	38	44	46	49
	UG rear	<10	<10	<10	14

**Test date:** January 23, 2026

**Notes:**

- For comparing test results with requirements according to DIN 4109 and VDI 4100 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 above-mentioned measurement results require careful assembly of the pipe clamps (see test set-up).



The test was carried out in laboratory facilities of the IBP which is accredited according to DIN EN ISO/IEC 17025:2018 by the DAkkS. The accreditation certificate is D-PL-11140-11-00.

Stuttgart, March 2, 2026  
 Dep. Head of the test laboratory: *[Signature]*

