

Measurement of Water Appliance Noises in the Laboratory

according to DIN EN ISO 3822-1, 07.2009

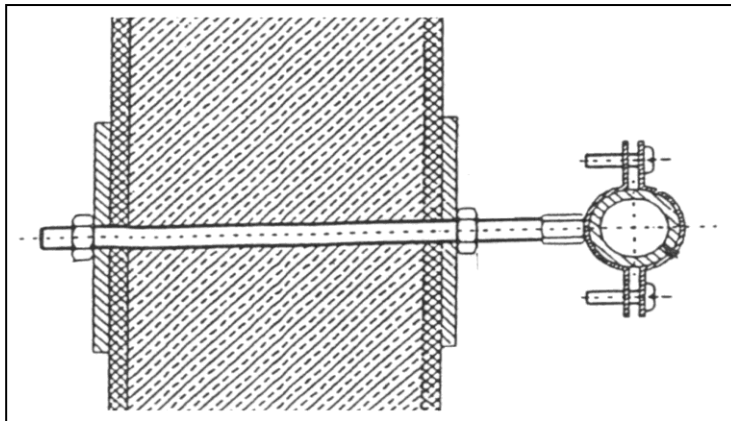
Enclosure 9

Client: Pentair Engineered Electrical & Fastening Solutions, Jules Verneweg 75, 5015 BG Tilburg, The Netherlands
 Test object: 1" steel pipe, outer dia d = 33,7 mm, fastened with Pipe clamp CADDY® MACROFIX PLUS (Silicon) (Article Number 402082), 32-35 mm, 1", M8/M10
 Operation: Withdrawal with IGN according to DIN EN ISO 3822-1 at flow pressure of 0.3 Mpa (3 bar)

Evaluation:

Measurement of the noise transmission at octave centre frequencies $f = 125$ to 4000 Hz and calculation of the difference between "rigid" and "decoupled" fastening, Evaluation using the normative IGN-reference values, conversion to the average expected noise transmission in the building. **Measurement 3** on 30.09.2015, air temperature in test stand: $20,1$ °C, relative humidity: $53,8$ %

Schematic diagram for build-up of test object:

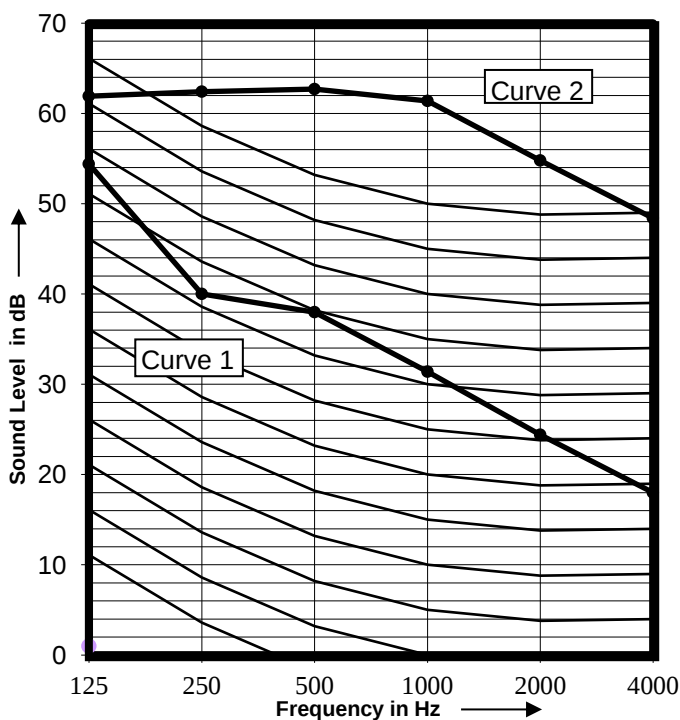


Test Criteria:

Volume test room: $V = 74,3 \text{ m}^3$
 Aver. reverb. time: $\bar{T}_N = 1,38 \text{ s}$
 Area measuring wall: $F = 8,20 \text{ m}^2$
 Area density: $g_F = 232 \text{ kg/m}^2$
 Length measuring pipe: $L = 3,20 \text{ m}$
 Outer diameter: $D = 33,7 \text{ mm}$
 Flow pressure: $p = 0,30 \text{ MPa}$
 Throughput: $q = 0,13 \text{ l/s}$

Decoupling insert: **profiled rubber**

Measuring diagram:



Evaluation:

Curve 1: Noise transmission with fastening with pipe clamp type see above

$L_{IN} = 18 \text{ dB(A)}$

Curve 2: Noise transmission when using rigid fastening

$L_{IN} = 45 \text{ dB(A)}$

Improvement:

Frequency f [Hz]	125	250	500	1000	2000	4000
VM L_{IN} [dB]	7,5	22,4	24,7	30,0	30,4	30,4

A-Evaluation $L_{IN} = 27 \text{ dB(A)}$

No. of Test Report: 1583-001-15
 SG-Bauakustik
 Institut für schalltechnische Produktoptimierung
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 45478 Mülheim an der Ruhr, 21.10.2015

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