

# Measurement of Water Appliance Noises in the Laboratory

according to DIN EN ISO 3822-1, 07.2009

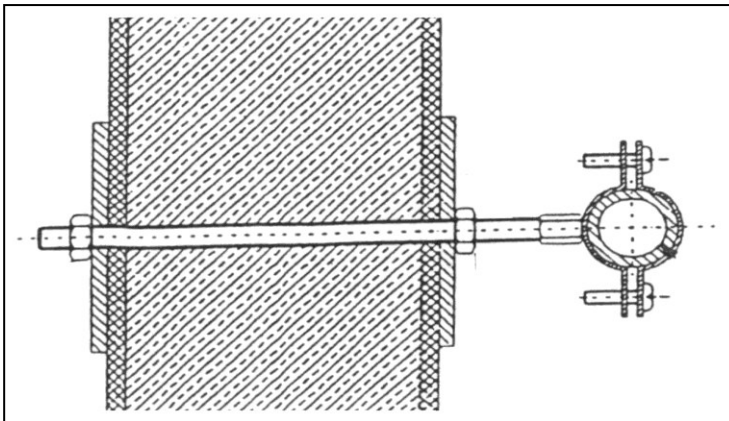
## Enclosure 3

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 Insulated M8/M10, 31-37 mm, 1", (Article Number MFD037)  
 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 1** on 13.09.2017, air temperature in test stand:  $21,3$  °C, relative humidity:  $55,4$  %

### Schematic diagram for build-up of test object:

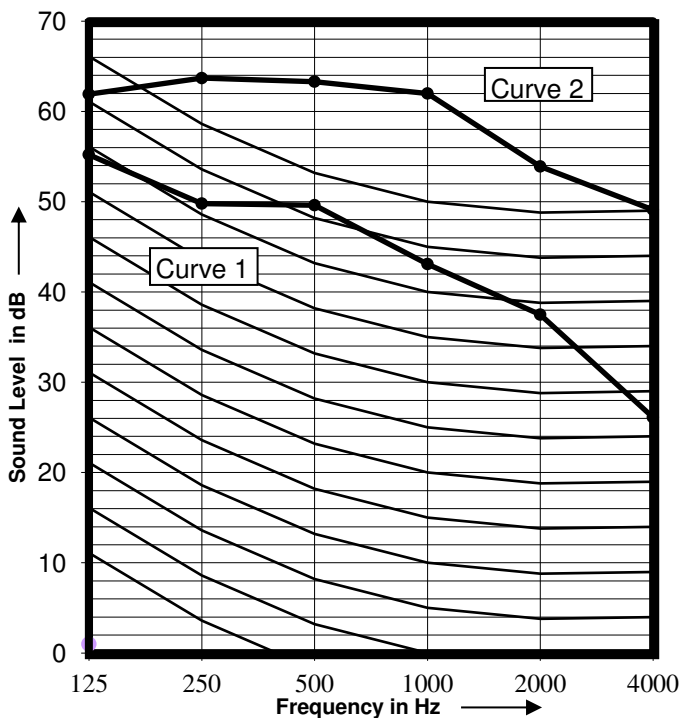


### Test Criteria:

Volume test room:  $V = 74,3$  m<sup>3</sup>  
 Aver. reverb. time:  $\bar{T}_N = 1,34$  s  
 Area measuring wall:  $F = 8,20$  m<sup>2</sup>  
 Area density:  $g_F = 232$  kg/m<sup>2</sup>  
 Length measuring pipe:  $L = 3,20$  m  
 Outer diameter:  $D = 33,7$  mm  
 Flow pressure:  $p = 0,30$  MPa  
 Throughput:  $q = 0,13$  l/s

Decoupling insert: **profiled rubber**

### Measuring diagram:



### Evaluation:

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

**$L_{IN} = 29$  dB(A)**

Curve 2: Noise transmission when using rigid fastening

**$L_{IN} = 45$  dB(A)**

### Improvement:

Frequency f [Hz]	125	250	500	1000	2000	4000
VM $L_{IN}$ [dB]	6,7	13,9	13,7	18,9	16,4	23,0

**A-Evaluation  $L_{IN} = 16$  dB(A)**

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