Note

subject: Brink Climate decentral ventilation unit type Air 70

date: 12 April 2017

reference: TS/RA/KS/A 3032-2E-NO-001

from: R.T. Allan

At the request of Brink Climate Systems (The Netherlands) sound power measurements and sound insulation measurements have been carried out on a decentral ventilation unit type Air 70 made Brink Climate Systems in the Laboratory for Acoustics of Peutz bv, at Mook, the Netherlands. The used standards and guidelines, tested constructions, measurement methods, accuracy, and measurement results are given in report A 3032-1-RA-001 date February 22, 2016. A summary of the measurements results and expected sound pressure levels are given in present note.

1 Summary measurements results

t1.1 Summary sound power (L_{wA}) measurements

opening	switch setting fan	rotation speed fan [rpm]	flow rate Q_v [m^3/h]	L_{wA} [dB(A)]
supply (inside)	1	810	15	28,0
	2	1050	25	33,0
	3	1440	40	41,5
	4	1800	55	47,5
	5	2100	70	52,5
	70%	1650	49	46,0
air intake (outside)	1	810	15	30,5
	2	1050	25	36,0
	3	1440	40	44,0
	4	1800	55	50,0
	5	2100	70	55,0
	70%	1650	49	48,0

t1.2 Summary sound insulation measurements

$D_{n,e,w}(C;C_{tr})$	40(-1;-3) dB

2 Calculated sound pressure levels

The pressure levels **inside** are calculated as

$$L_p = L_w + 10 \log\left(\frac{Q}{4\pi r^2} + \frac{4}{A}\right) \quad (1)$$

in which:

L_p = sound pressure level [dB]
L_w = sound power level [dB]
Q = angle of radiation
r = distance to source (unit)
A = reference sound absorption = 10 m^2

The pressure levels **outside** are calculated as

$$L_p = L_w + 10 \log\left(\frac{Q}{4\pi r^2}\right) \quad (1)$$

in which:

L_p = sound pressure level [dB]
L_w = sound power level [dB]
Q = angle of radiation
r = distance to source (unit) [m]

t2.1 calculated sound pressure levels

switch setting fan	flow rate Q_v [m^3/h]	sound pressure level L_p inside [dB(A)]		sound pressure level L_p outside [dB(A)]
		distance 1 m (Q = 2)	distance 3 m (Q = 2)	distance 3 m (Q = 2)
1	15	26	24	13
2	25	30	29	18
3	40	39	38	26
4	55	45	44	32
5	70	50	49	38
70%	49	44	42	30

Mook,

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