



# Zehnder EVO 1

Sound power measurements

always the best climate

## Test methods and applicable standards

Measurements of sound power were undertaken in accordance with the precision method as described in BS EN ISO 3741:2010 and BS EN 13141-7:2010.

Reverberation time measurements were undertaken for case radiated noise and extract / supply noise, including measurements of representative background noise. The data was processed to calculate casing radiated and supply/extract sound power levels in third octave bands.

In-duct sound power levels were calculated in accordance with BS EN ISO 5135:1999.



Zehnder EVO 1 is a centralised mechanical ventilation unit with high-efficiency recovery unit (recovery of heat alone in HRV units, recovery of heat and humidity in ERV units) which expels stale air while simultaneously supplying fresh air to rooms. It can be installed in homes, offices and similar locations.

EVO 1 Unit sound power measurements in accordance with BS EN ISO 3741:2010, BS EN 13141-7:2010

	Test Point	1	2	3	4	5	6	7	8	9	10
EVO 1	Ventilation (m <sup>3</sup> /h)	50	75	100			125			150	
	Pressure (Pa)	25	50		75	100	125	100	150	100	150

Test specimen details, octave band data ( $L_{w \text{ oct}}$ ) weighted sound power ( $L_{WA}$ ), and sound pressure (SPL) at 3 m (case radiated), can be seen for the Zehnder EVO MVHR units in the tables below

### Working point 1: Ventilation 50 m<sup>3</sup>/h, pressure 25 Pa

Test type	Octave band centre frequency Hz (dB)								Total $L_{WA}$	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	64.5	53.7	45.8	43.3	38.3	24.3	16.4	7.9	45.8	N/A
Extract	58.2	43.8	38.5	29.3	24.0	6.0	3.8	6.7	35.1	N/A
Exhaust	64.6	52.2	45.4	41.1	37.0	25.7	12.8	7.5	44.5	N/A
Fresh air	53.7	44.0	35.8	31.0	15.3	3.9	2.2	5.9	33.6	N/A
Case radiated	40.5	38.7	33.0	31.2	30.6	21.7	7.7	6.4	34.0	16.5

### Working point 2: Ventilation 75 m<sup>3</sup>/h, pressure 50 Pa

Test type	Octave band centre frequency Hz (dB)								Total $L_{WA}$	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	71.0	60.4	52.2	49.6	47.1	34.1	26.8	15.9	52.9	N/A
Extract	63.1	51.7	46.6	37.0	33.7	13.5	4.7	6.5	42.7	N/A
Exhaust	70.4	60.0	53.4	48.6	47.0	36.5	26.4	16.2	52.6	N/A
Fresh air	59.9	51.2	45.1	38.5	25.4	10.4	3.3	5.9	41.4	N/A
Case radiated	46.5	47.2	40.3	38.8	39.3	31.1	19.5	10.1	42.3	24.8

### Working point 3: Ventilation 100 m<sup>3</sup>/h, pressure 50 Pa

Test type	Octave band centre frequency Hz (dB)								Total $L_{WA}$	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	70.2	60.6	53.8	50.9	49.3	36.2	29.5	19.0	54.0	N/A
Extract	63.2	53.4	48.8	40.2	37.6	17.3	7.2	6.6	44.9	N/A
Exhaust	69.0	61.0	56.8	52.1	50.6	41.1	32.3	23.3	55.3	N/A
Fresh air	62.9	53.8	47.9	41.6	29.1	14.6	5.5	5.9	44.2	N/A
Case radiated	45.7	47.7	41.9	40.7	42.4	34.0	23.3	13.2	44.8	27.3

**Working point 4: Ventilation 100 m<sup>3</sup>/h, pressure 75 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	73.7	64.0	56.3	53.4	52.4	39.5	33.9	24.4	57.0	N/A
Extract	67.4	56.1	51.1	42.0	38.8	19.1	9.2	6.6	47.3	N/A
Exhaust	74.6	65.7	59.4	54.8	53.4	44.3	36.5	28.3	58.4	N/A
Fresh air	64.6	55.8	50.1	43.8	30.8	16.5	7.6	5.9	46.3	N/A
Case radiated	50.0	52.1	44.2	43.2	44.9	36.8	27.0	17.3	47.5	30.0

**Working point 5: Ventilation 100 m<sup>3</sup>/h, pressure 100 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	76.5	66.9	58.6	55.7	54.2	42.3	37.4	28.5	59.4	N/A
Extract	66.9	59.5	53.8	44.9	40.9	21.4	11.7	6.6	49.7	N/A
Exhaust	77.0	68.6	60.8	56.1	54.6	45.3	38.1	30.1	60.1	N/A
Fresh air	64.5	57.1	51.8	45.5	31.6	17.8	9.2	5.9	47.5	N/A
Case radiated	50.9	54.4	46.8	45.2	46.5	38.7	29.3	19.9	49.3	31.8

**Working point 6: Ventilation 100 m<sup>3</sup>/h, pressure 150 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	80.8	71.9	63.3	60.0	58.2	47.2	43.1	35.3	63.9	N/A
Extract	70.6	63.6	57.5	46.6	43.7	24.3	15.3	6.8	53.3	N/A
Exhaust	80.2	72.4	65.5	60.1	57.8	49.5	43.0	35.9	64.1	N/A
Fresh air	66.9	62.0	56.8	49.0	35.9	22.0	14.2	6.1	51.9	N/A
Case radiated	53.5	57.1	50.2	48.1	49.0	42.2	33.4	24.7	52.2	34.7

**Working point 7: Ventilation 125 m<sup>3</sup>/h, pressure 100 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	75.0	67.3	60.2	57.2	56.0	44.0	39.8	31.7	60.4	N/A
Extract	67.5	59.7	55.1	46.5	42.7	23.8	14.2	6.8	50.8	N/A
Exhaust	76.5	68.5	63.5	59.0	57.7	48.9	42.2	35.3	62.5	N/A
Fresh air	67.9	58.8	55.0	47.2	34.8	20.7	12.4	6.1	49.9	N/A
Case radiated	50.8	54.7	49.5	47.1	48.5	41.2	32.3	23.7	51.4	33.9

**Working point 8: Ventilation 125 m<sup>3</sup>/h, pressure 150 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	78.7	70.7	63.1	59.6	58.2	47.7	43.6	36.3	63.2	N/A
Extract	70.3	64.5	58.4	48.2	44.9	26.2	17.0	7.0	54.2	N/A
Exhaust	78.9	72.5	65.9	61.1	59.0	50.6	44.3	37.6	64.7	N/A
Fresh air	68.6	62.6	57.6	49.8	37.3	23.8	16.0	6.3	52.7	N/A
Case radiated	53.6	57.4	51.2	49.4	50.5	44.5	35.6	27.6	53.6	36.1

**Working point 9: Ventilation 150 m<sup>3</sup>/h, pressure 100 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	74.9	66.8	62.0	59.7	58.5	46.4	42.9	35.2	62.3	N/A
Extract	68.9	61.8	57.0	49.1	44.8	26.8	17.6	7.4	52.9	N/A
Exhaust	77.1	69.8	65.4	62.2	59.7	51.7	45.2	39.1	64.6	N/A
Fresh air	69.5	60.2	55.8	49.9	37.5	23.7	16.0	6.8	51.4	N/A
Case radiated	51.6	54.5	50.5	49.7	50.7	44.3	35.7	27.9	53.6	36.1

**Working point 10: Ventilation 150 m<sup>3</sup>/h, pressure 150 Pa**

Test type	Octave band centre frequency Hz (dB)								Total L <sub>WA</sub>	SPL at 3m
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)
Supply	78.8	71.2	64.9	61.6	60.0	49.8	46.1	39.3	64.7	N/A
Extract	70.5	63.3	59.6	50.4	46.2	28.4	19.3	7.7	54.6	N/A
Exhaust	79.0	73.5	67.2	63.3	60.7	52.9	46.7	40.9	66.3	N/A
Fresh air	69.8	62.7	58.2	51.1	38.7	25.6	17.8	6.8	53.4	N/A
Case radiated	54.4	59.1	53.2	51.5	52.2	47.8	38.0	30.8	55.8	38.3