

Acoustic data



Standard: BS EN ISO 13141-6:2014

Product

CME3 Qplus

| | | Sound Power Levels dB re. 1pW | | | | | | | | Overall L _W | Overall L _{WA} | Casing Breakout dBA @ 3m |
|-------------------|----------|-------------------------------|-----|-----|-----|----|----|----|----|---------------------------|----------------------------|--------------------------------|
| | | Frequency Hz | | | | | | | | | | |
| Speed | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | | | |
| 1 (18% - 20l/s) | Inlet | 35 | 27 | 24 | 22 | 16 | 14 | 19 | 24 | 36 | 27 | 14 |
| | Breakout | 35 | 28 | 25 | 26 | 26 | 22 | 24 | 24 | 37 | 31 | |
| 2 (30% - 30l/s) | Inlet | 35 | 37 | 31 | 29 | 22 | 17 | 19 | 24 | 40 | 31 | 16 |
| | Breakout | 37 | 39 | 31 | 31 | 27 | 23 | 24 | 24 | 42 | 33 | |
| 3 (41% - 42l/s) | Inlet | 42 | 46 | 36 | 36 | 29 | 25 | 19 | 24 | 48 | 37 | 21 |
| | Breakout | 45 | 46 | 40 | 38 | 31 | 26 | 24 | 24 | 50 | 39 | |
| 4 (53% - 54l/s) | Inlet | 44 | 42 | 52 | 47 | 35 | 33 | 22 | 24 | 54 | 47 | 27 |
| | Breakout | 42 | 45 | 47 | 44 | 36 | 32 | 25 | 24 | 51 | 44 | |
| 5 (65% - 69l/s) | Inlet | 44 | 44 | 61 | 48 | 40 | 38 | 27 | 25 | 62 | 53 | 32 |
| | Breakout | 44 | 48 | 52 | 50 | 41 | 38 | 29 | 25 | 56 | 50 | |
| 6 (77% - 80l/s) | Inlet | 45 | 48 | 58 | 49 | 43 | 42 | 31 | 25 | 59 | 52 | 39 |
| | Breakout | 49 | 52 | 63 | 55 | 44 | 41 | 32 | 27 | 64 | 57 | |
| 7 (88% - 92l/s) | Inlet | 47 | 50 | 64 | 54 | 46 | 45 | 35 | 27 | 65 | 57 | 44 |
| | Breakout | 50 | 54 | 69 | 57 | 48 | 45 | 37 | 30 | 69 | 61 | |
| 8 (100% - 104l/s) | Inlet | 57 | 53 | 62 | 64 | 51 | 48 | 39 | 31 | 67 | 62 | 45 |
| | Breakout | 63 | 56 | 63 | 63 | 54 | 48 | 40 | 34 | 68 | 62 | |

The CME 2 Qplus was installed in a ducted set up as defined in BS13141-6, as described below:-

125mm diameter plastic ductwork

The three inlets were connected with:

90° bend

0.5m duct

Air Teminal Device

The single outlet was connected with:

0.5m duct

45° bend

2m duct

Grille

Acoustic Testing – Powered products

Acoustic testing of Titon mechanical ventilation products is measured in accordance with the following standards:-

CME – BS EN 13141-6 – “Ventilation for buildings. Performance testing of components/products for residential ventilation. Exhaust ventilation system packages used in a single dwelling”

MVHR – BS EN 13141-7 – “Ventilation for buildings. Performance testing of components/products for residential ventilation. Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings”

The results are presented in the following format which provides details of the acoustic performance of the unit at each of the standard speed settings.

The ‘A’ Weighted Sound Power Level in dB is an “in-duct” measurement for the Outlet and Inlet and are given across the frequency range from 125Hz to 8kHz.

The overall level is the logarithmic addition of the frequency bands to give a single figure, this is provided with and without ‘A’ weighting

The casing breakout is a sound pressure level at a distance of 3 meters, this figure is the lowest quoted and is usually stated in catalogue details. It is calculated from the Overall L_{WA} (sound power level) with a reduction to convert to the sound pressure at 3 meters.

Acoustic data



Standard: BS EN 13141-7:2004

Product **HRV1 Qplus**

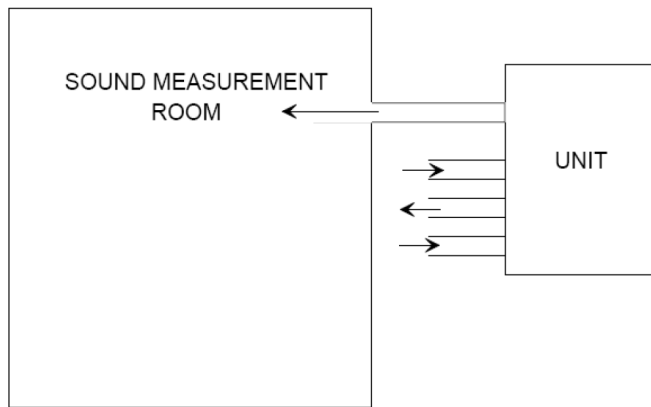
| | | 'A' Weighted Sound Power Levels dB re. 1pW | | | | | | | Overall L _W | Overall L _{WA} | Casing Breakout dBa @ 3m |
|-------|----------|--|-----|-----|----|----|----|----|---------------------------|----------------------------|--------------------------------|
| | | Frequency Hz | | | | | | | | | |
| Speed | | 125 | 250 | 500 | 1k | 2k | 4k | 8k | | | |
| 1 | Outlet | 31 | 32 | 36 | 24 | 16 | 18 | 22 | 49 | 39 | 9 |
| | Inlet | 26 | 24 | 29 | 18 | 16 | 18 | 22 | 43 | 32 | |
| | Breakout | 11 | 15 | 23 | 14 | 13 | 18 | 22 | 31 | 27 | |
| 2 | Outlet | 42 | 42 | 49 | 40 | 31 | 21 | 22 | 59 | 51 | 14 |
| | Inlet | 31 | 32 | 35 | 24 | 17 | 18 | 22 | 48 | 38 | |
| | Breakout | 16 | 21 | 29 | 19 | 15 | 18 | 22 | 37 | 31 | |
| 3 | Outlet | 45 | 46 | 50 | 55 | 37 | 27 | 23 | 63 | 57 | 16 |
| | Inlet | 33 | 36 | 36 | 31 | 20 | 18 | 22 | 51 | 41 | |
| | Breakout | 22 | 26 | 31 | 26 | 17 | 18 | 22 | 41 | 34 | |
| 4 | Outlet | 49 | 50 | 51 | 58 | 42 | 33 | 26 | 67 | 60 | 20 |
| | Inlet | 36 | 39 | 39 | 36 | 24 | 19 | 22 | 54 | 44 | |
| | Breakout | 23 | 28 | 35 | 31 | 20 | 19 | 22 | 43 | 37 | |
| 5 | Outlet | 51 | 53 | 54 | 56 | 46 | 38 | 30 | 69 | 60 | 23 |
| | Inlet | 39 | 42 | 41 | 39 | 28 | 20 | 22 | 57 | 47 | |
| | Breakout | 26 | 35 | 37 | 34 | 24 | 22 | 22 | 47 | 40 | |
| 6 | Outlet | 54 | 56 | 57 | 57 | 50 | 42 | 36 | 72 | 63 | 27 |
| | Inlet | 42 | 45 | 45 | 41 | 32 | 23 | 22 | 59 | 49 | |
| | Breakout | 28 | 33 | 44 | 36 | 28 | 24 | 22 | 50 | 45 | |
| 7 | Outlet | 58 | 59 | 60 | 60 | 54 | 46 | 41 | 75 | 66 | 32 |
| | Inlet | 44 | 47 | 49 | 45 | 37 | 27 | 23 | 62 | 53 | |
| | Breakout | 30 | 36 | 49 | 39 | 32 | 28 | 22 | 54 | 50 | |
| 8 | Outlet | 59 | 63 | 63 | 63 | 59 | 50 | 46 | 77 | 69 | 33 |
| | Inlet | 47 | 51 | 51 | 47 | 42 | 31 | 25 | 65 | 56 | |
| | Breakout | 32 | 38 | 49 | 42 | 37 | 32 | 24 | 55 | 51 | |

Measurements taken at full speed with a resistance of 50Pa, then at the nominal speed settings of the unit and corresponding pressure.
Inlet and outlet levels are Induct

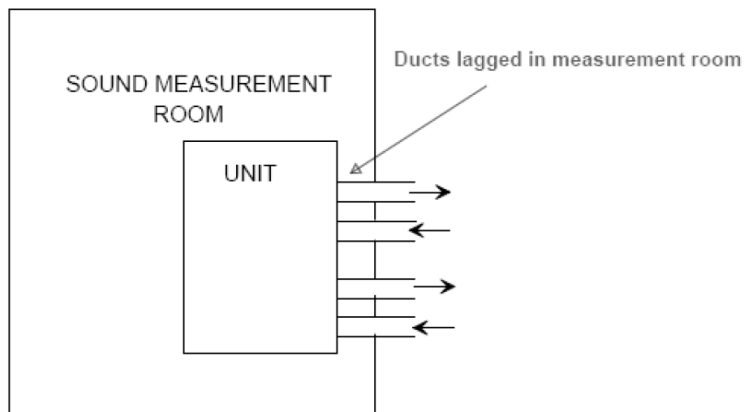
MD0028a-01 14/08/09

MVHR – Installation set up used during testing

In-duct sound power level measurement – the unit is installed with the outlet (or inlet) connected to the measurement room and



Casing breakout – the inlet and outlet ducts are connected to a separate room so the only noise measured is breakout from the casing



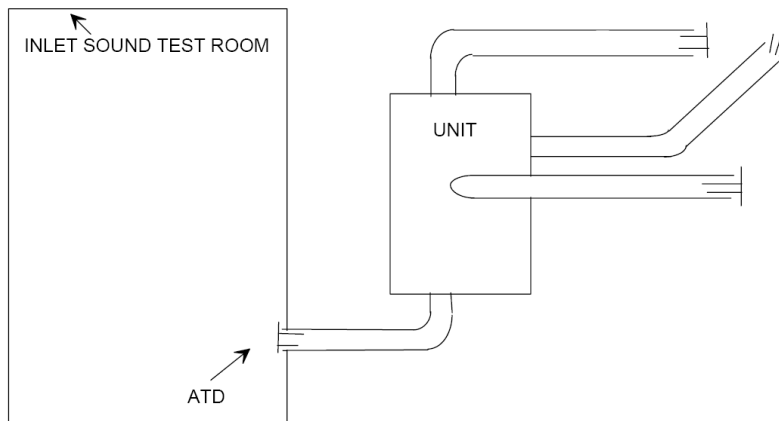
CME – Installation set up used during testing

Inlet sound power levels – all 3 inlets from the CME are fitted with a standard duct set up (as BS EN 13141-6, one is connected to the measuring room and the inlet sound power level recorded.

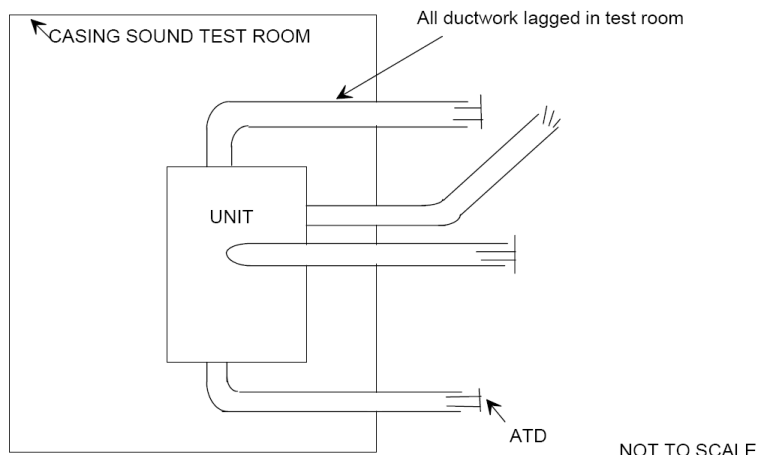
The three inlets connected with 90 degree bend, 0.5m duct, air terminal device

The single outlet connected with 0.5m duct, 45 degree bend, 2m duct, grille

All duct work 204 x 60mm plastic.



Casing breakout – the inlet and outlet ducts are connected to a separate room so the only noise measured is breakout from the casing



Glossary

Sound Power Level – is a measurement of the actual sound level created at the source, it is not therefore affected by the environment in which the product is installed. This will always be the highest levels quoted as no reductions have been applied for either the environment or distance from the source. Actual installed levels will therefore be significantly lower than these figures but they are useful from which to base any system calculations.

Sound Pressure Level – this must be quoted at a given distance and is dependant on both the distance from the source and environment (a hard walled reflective surface will have a higher level than a soft furnished room which absorbs more sound). Titled levels are given at a distance of 3m (which is commonly quoted) and are free field, hemispherical radiation.

Free field – An environment in which there are no reflective surfaces (useful to describe the sound pressure levels for comparative purposes)

Hemispherical radiation – Sound radiates from a source in all directions, where the product is mounted on a wall or ceiling some sound is reflected from this mounting face. The casing sound pressure levels are based on hemispherical radiation which will be slightly higher than spherical radiation.

‘A’ Weighting – this is a correction to the frequency bands to replicate the sensitivity of the human ear to different frequencies. The weighting can be removed from the octave bands if required, the corrections are given in the table below.

| Frequency Hz | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---------------|-----|-----|-----|------|------|------|------|
| ‘A’ Weighting | -16 | -9 | -3 | 0 | 1 | 1 | -1 |

Octave band – sound is produced at various frequencies and is therefore measured across a range of frequency or Octave bands (as the above table). The figures can be combined to give an overall level using logarithmic addition.

In Duct levels – a measurement of sound that is taken inside the duct of a ventilation system, this is likely to be a higher level than a non ducted measurement.

Casing Breakout – a measurement of the sound that breaks out of the casing of a unit, the sound from the inlet and outlets of the unit does not form part of this measurement.