

## Test certificate

for the determination of the structure-borne sound insulation of elastic mounting elements according to the dual resonator method by means of the methods stated in DIN EN ISO 10846-4

<b>Type of test:</b>	Measurement of vibration transmission factors in the form of velocity level differences of elastic mounting elements		
<b>Client:</b>	Hilti Aktiengesellschaft Feldkircherstrasse 100 9494 Schaan Liechtenstein		
<b>Date of the test:</b>	2007-05-30 and -31	<b>Test report No.</b>	M68 276/10 of 2007-11-30
<b>Test object:</b>	Name: Ventilation angle	Manufacturer:	Hilti
	Type: MVA-L 60	Year of construction:	2007
	Product No.: 38745	State:	new
<b>Technical data:</b>	Side length: 60 mm	Material:	DC01/DD11
	Width: 30 mm	Elastic element MVI-B:	EPDM 55± 5 Shore A
	Height: 1.5 mm	Fixing holes:	6
<b>Test method:</b>	<b>Dual resonator method by means of the methods stated in DIN EN ISO 10846-4</b> "Laboratory measurement of the vibro-acoustic transfer properties of resilient elements", February 2004 Fixing and coupling of accelerometers according to DIN ISO 5348 "Mechanical mounting of accelerometers". Vibration excitation signal: sine sweep signal Frequency range: 20 Hz up to 2000 Hz		
<b>Calibration:</b>	According to DIN EN ISO 16063-21 within the scope of Müller-BBM's quality management system		
<b>Environmental conditions:</b>	Temperature: 21°C, relative humidity: 55 %		
<b>Test set-up:</b>	Test object: Installation according to practical use, fixing at exciting mass and isolating mass so that a good contact is guaranteed. Coupling of the vibration exciter via a tappet Vibration-exciting equipment: Brüel & Kjaer 4801 Exciting mass: 30 kg Vibration initiation: axial Isolating mass: 30 kg Static preload: Fastened with threaded rods 400 N, 630 N and 860 N.		
<b>Test results:</b>	Ventilation angle MVA-L 60 with elastic element MVI-B <ul style="list-style-type: none"> <li>The effectiveness of structure-borne sound insulation starts at: ventilation angle "without" elastic element: 100 Hz, "with" elastic element MVI-B: 31 Hz.</li> <li>Compared with the ventilation angle MVA-L 60 "without" elastic element MVI-B, the ventilation angle MVA-L 60 "with" elastic elements MVI-B achieves an improvement, which is between 14 to 20 dB depending on the static preload.</li> <li>For an increase of the static preload of up to 840 N, the structure-borne sound insulating effect of the ventilation angle MVA-L 60 with MVI-B decreases by up to 6 dB.</li> <li>For the ventilation mounting elements MVA-L 100, MVA-Z, MV-SI, MVA-S, MVA-MS, which are installed with the elastic element MVI-B, a similar structure-borne sound insulation can be expected as for the tested ventilation angle MVA-L 60 with the elastic element MVI-B.</li> <li>If the ventilation angle MVA-L 60 „with“ elastic element MVI-B is used in a professional way, an improvement of structure-borne sound insulation as defined in DIN 4109, „Sound insulation in buildings“ of November 1989 can be achieved.</li> </ul>		
<b>Place and date:</b>	Planegg near Munich, 2007-11-30		
<b>Test carried out by:</b>	Dr. M. Schmidt		
	Signature:		

## **Anhang**

### **Ergebnisse der Schwingungsmessungen Terzspektren der Schnellepegeldifferenzen**

## Ermittlung der Körperschalldämmung nach dem Tonpilzverfahren und der DIN EN ISO 10846-4

### Lüftungsmontageelement mit Stangenmontage

