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Cologne, 15 March 2011

### Type test certificate

### Validation according ISO 8573-1: 2010 Part 1: Contaminants and purity classes

Dear Sirs,

We have measured the total oil content (aerosols, liquids and vapours) in the outlet air stream of an Atlas Copco oil-free rotary tooth compressor. The measurements were done in accordance with the following guidelines and standards:

ISO 8573-1 : 2001 Part 1 : Contaminants and purity classes

ISO 8573-2 : 1996 Part 2: Test methods for aerosol oil content method B1 (full flow method)

ISO 8573-5 : 2001 Part 5: Test methods for oil vapour and organic solvent content

This being a type test, covering the entire range of aircooled and watercooled oil free rotary tooth compressors, between 15kW and 55kW, a model was randomly selected for the tests. For the tests a compressor type: ZR 37 VSD – FF – 10 bar – 230 V – 50 Hz was selected. The tests were carried out at the outlet of the air compressor without any cooling or oil removal devices in between the compressor and the measurement point. Different pressures and temperatures were maintained at the measurement point to check if there was any variation in the measurements.

The conditions of the test were:

Temperature at the measurement point : 40 °C, 50 °C.

Pressures at the measurement point : 1 bar(e) and 7 bar(e)

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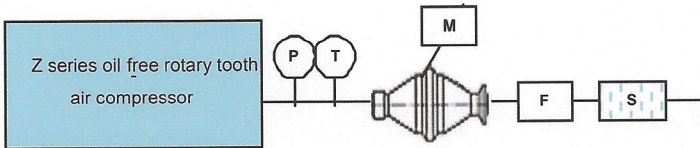
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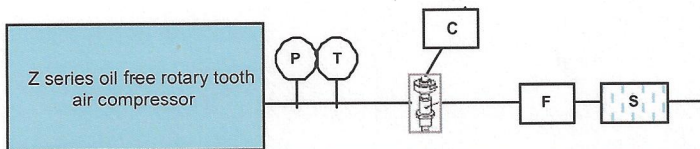
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Principle diagram for full flow measurement of Aerosols and liquids as per ISO 8573 Part 2, method B1



Principle diagram for measurement of oil vapour and organic solvent content as per ISO 8573 Part 5



Legend :

P : Pressure indicator

T : Temperature indicator

M : Measurement point with membrane

F : Flow meter

S : Silencer

C : Measurement point for oil vapour

It is to certify that at all the test conditions, no oil deriving from the compressor (including all hydrocarbons C6 and above) could be determined in the compressed air stream. On the basis of this test, we can certify the results to be valid for the Oil-free tooth compressors ZT/R15-18-22; ZT/R22VSD; ZT/R30-37-45; ZT/R37-50-55VSD.

It is to certify that the quality of air from the above compressors qualifies to be in the category 'Class 0' in terms of total oil content, as defined in the standard ISO 8573-1 : 2001 Part 1 (invalid) and ISO 8573-1 : 2010 Part 1 (valid version).

A detailed report with all conditions of the tests and results is available.

Best Regards

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