



Fraunhofer TESTED[®] DEVICE

Festo AG & Co. KG
Miniature valve MH 1
Report No. FE 0705-402

DUPLIKAT

IPA Qualification Certificate

This is to certify that the product mentioned below manufactured by the company

Festo AG & Co. KG

Ruiter Straße 82
D-73734 Esslingen-Berkheim

has been awarded an IPA Qualification Seal bearing the report number FE 0705-402.

It can be derived that the system comprising four miniature valves MH1 connected in parallel and operated with a pressure of 2.0 bars, a volume flow rate of 1800 l/h and a switching time for each valve of 2 Hz is clearly suitable for use in cleanrooms fulfilling the specifications of ISO Class 5 (in accordance with ISO 14644-1; background particle emission from the test set-up ISO Class 3 in accordance with ISO 14644-1).

A material analysis of the particles using a Raman spectroscope and EDX/SEM indicated two main particle origins: particles originating from the manufacturing environment and particles generated by the miniature valve MH 1 itself.

Detailed information and parameters of the test environment can be found in the IPA Test Report compiled by the Fraunhofer Society.

Certified on 26th June 2007.

The duration of the validity of this certificate is unlimited. For further information visit our website at <http://www.ipa-qualification.com>.

Stuttgart, Germany, 26th June 2007

on behalf of



Fraunhofer Institut
Produktionstechnik und
Automatisierung