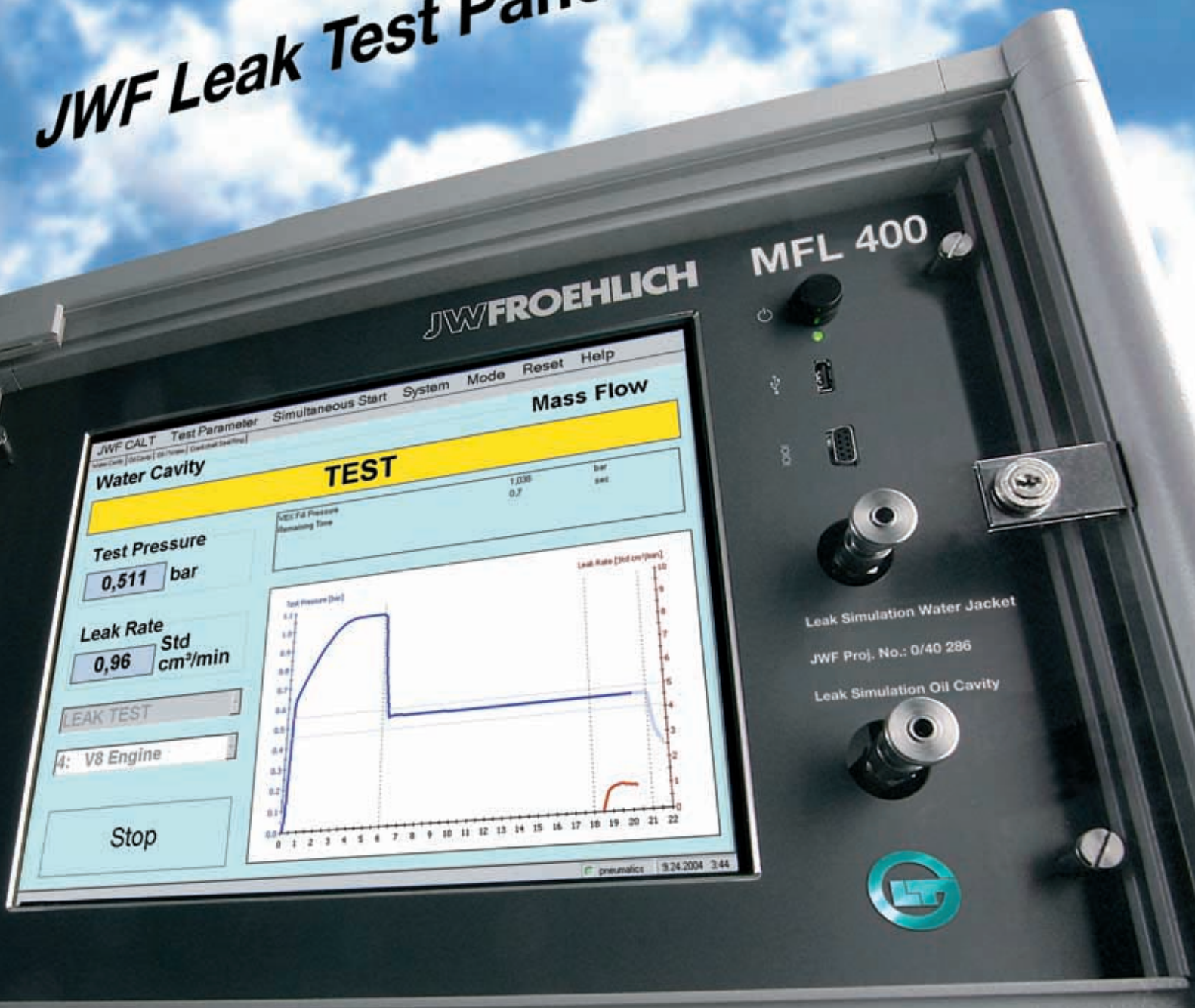


Automatic Dry Air Leak Testing

JWF Leak Test Panels Series 400



The New Direction in Leak Testing:

JWF Leak Test Panels Series 400

Capable of performing virtually every type of leak and flow test.

JWF Leak Test Panel MPS 400 Relative Pressure Measurement

- Test methods:
 - Pressure Decay or Rise
 - Overpressure or Vacuum
- Resolution: from 1 Pa

JWF Leak Test Panel MPS 450 Differential Pressure Measurement

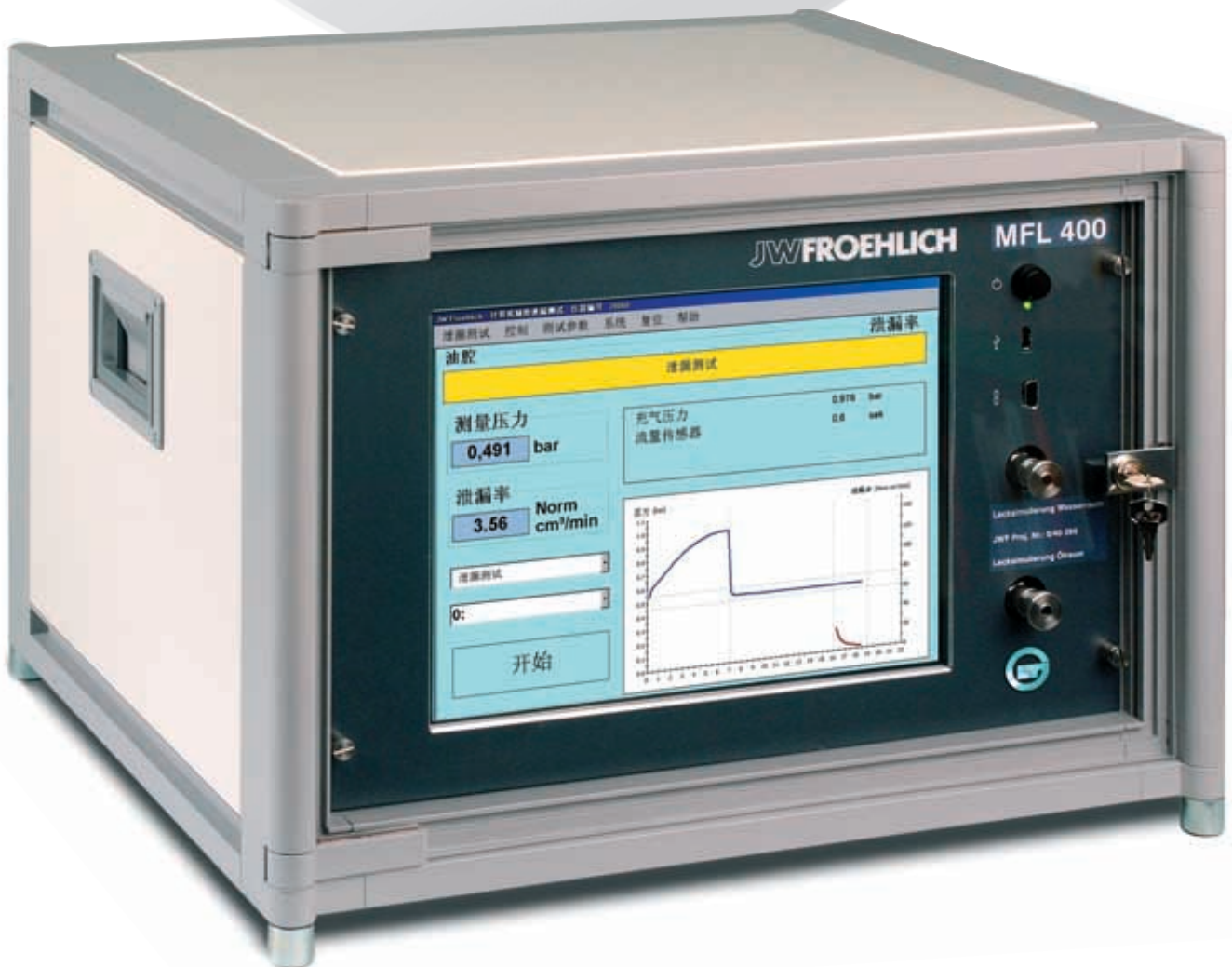
- The transmitter isolation valve is automatically monitored for proper closure during the test phase.
- Resolution: from 0.1 Pa

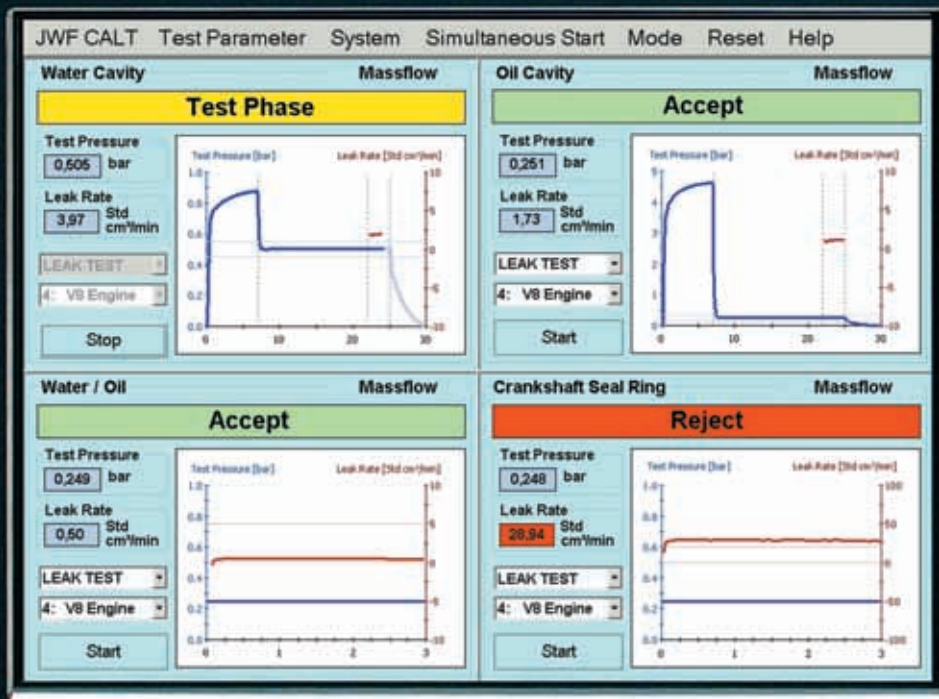
JWF Leak Test Panel MFL 400 Mass Flow Measurement

- Using the Low Resistance JWF Mass Flow Sensor
- The measurement signal is independent of atmospheric pressure and temperature.
- The measurement signal directly corresponds to the leaking air flow.
- Particularly suitable for large volume components
- Resolution: from 0.01 Std cm³/min

JWF Leak Test Panel MFL 450 Volume Flow Measurement

- For large flow rates
- Suitable for combination of leak and flow test in one system
- Resolution: from 1 Std cm³/min





Display of a multi channel Leak Test Panel. 4 leak tests can be displayed simultaneously.

Example of leak testing engine assemblies:

- leak test of the water jacket
- leak test of the oil cavity
- leak test between water jacket and oil cavity
- leak test of the lip seal rings

Technical Data

- Windows user interface
- 15 inch Touch Screen Monitor
- On-line display of the test sequence
- Instruction manual and help texts displayed on the Monitor
- Data Storage Module for
 - 100,000 test results
 - 5,000 measurement signal curves
- Statistical Analysis of the test results:
 - mean value, standard deviation, trend analysis
 - quality control chart
 - normal curve of distribution
- Number of measurement channels: 1 to max. 12
- Number of test programmes: 32 for each measurement channel, fully programmable
- Communication ports:
 - on front side of panel
 - 1 x serial connector
 - 1 x USB connector (for external mouse or keyboard)
 - on rear side of panel
 - 1 x Profibus
 - max. 30 inputs 24 VDC (optional)
 - max. 18 discrete outputs (dry contacts) (optional)
 - 1 x Ethernet (optional)
- On-line connection to a remote JWF Leak Calibrator. The amplification factor of the leak test panel is automatically adjusted according to the leak rate value of the JWF Leak Calibrator.
- Free programmable test pressure adjustment
- Optimised accessibility. All of the panel interior is easily accessible from the operator side.
- Automatic self test
- Lockable inspection door
- Steel cabinet 19" - 7 HE, protection class IP 54,
- Dimensions: 575 x 415 x 500 mm
- Weight: approx. 42 kg

- Electrical supply: 24 VDC, 5 A
- Pneumactical supply: Compressed air
 - min. 0.5 bar and max. 1.0 bar above the fill pressure
 - free of oil and water according to DIN ISO 8573-1 class 3

Optional

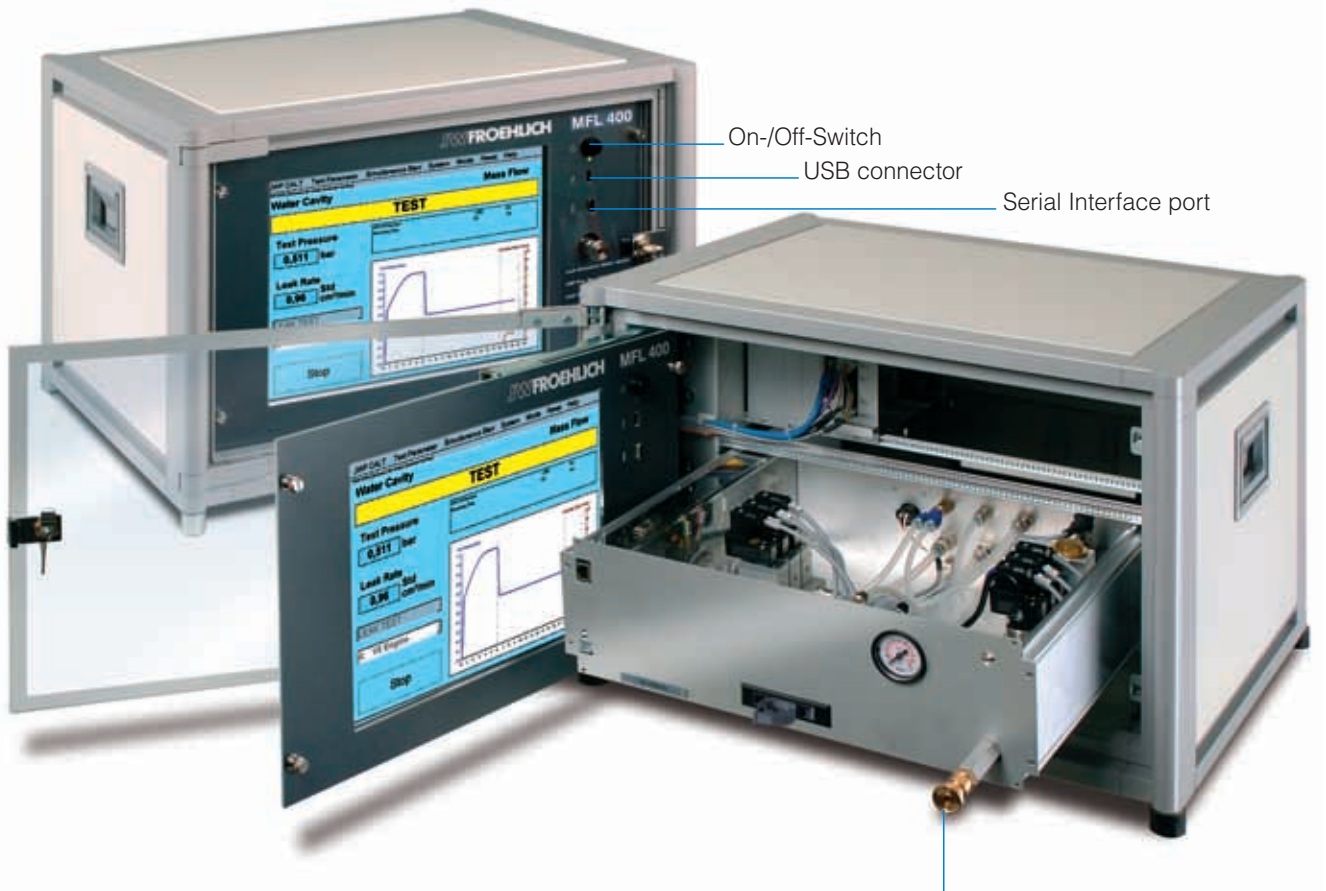
- Air Filtration Unit incl. dirt and water trap, pressure regulator and pressure gauge (delivered as loose item)
- Power Supply Unit for electrical connection to 110/230 V, 50/60 cycles (delivered as loose item)
- Temperature Compensation
- Selectable Languages
- Tele-Service (Remote Communication)
- JWF QAT 40 Software: Test result output in Q-DAS ASCII-Format.
- Freely programmable electrical control system for sealing fixtures
- Barcode reader
- Self recalibration functionality

Accessory

- Leak Calibrator LK 20 / LK 1000
- Calibrated leaks

Certificates

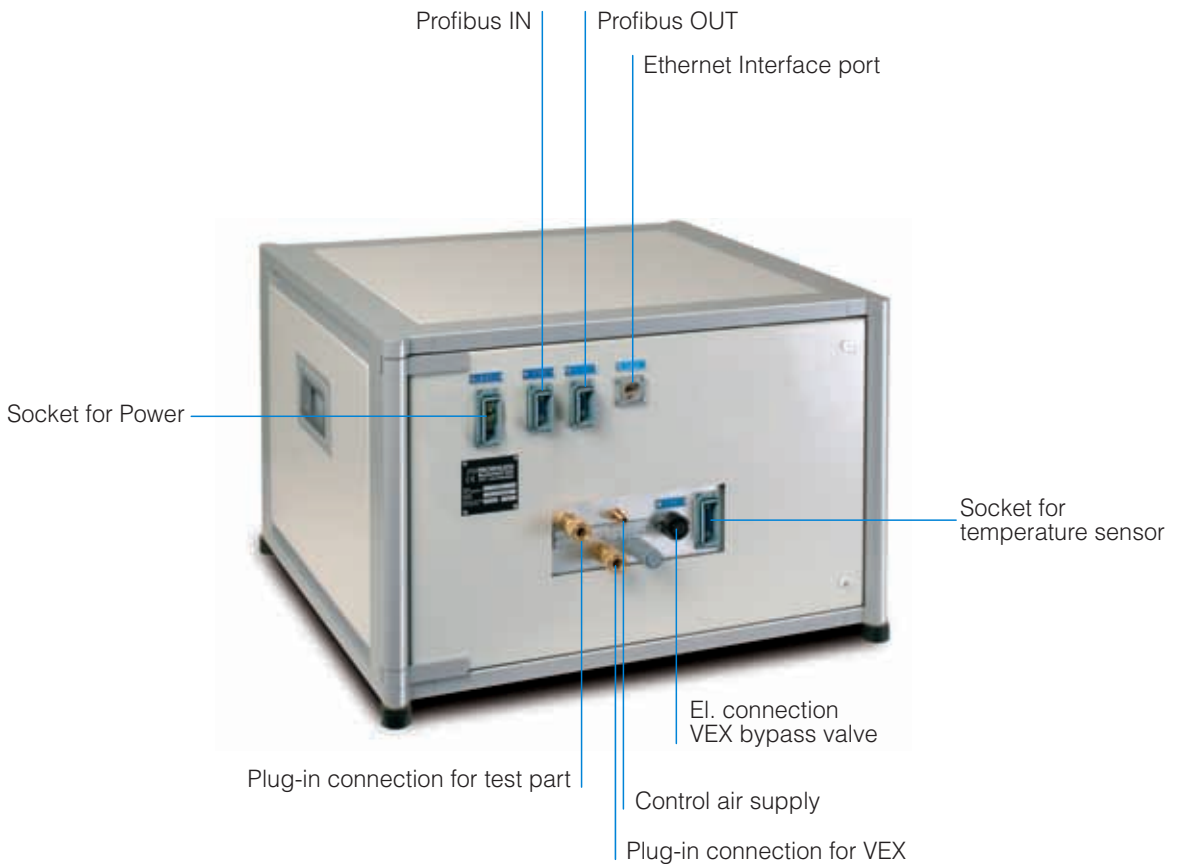
- Quality-Management ISO 9001:2000
- Quality-Management VDA 6.4
- Environmental-Management ISO 14001
- Q1 Award
- JWF Q-DAS Software QAT 40



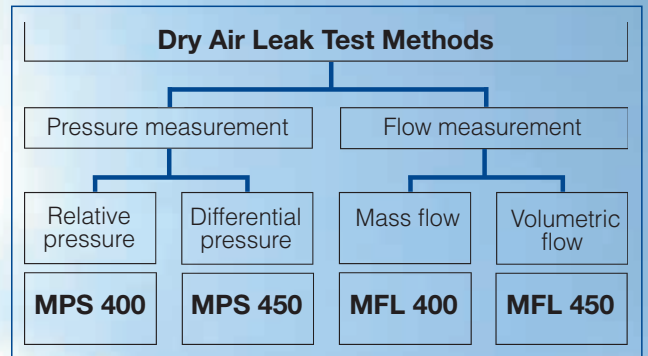
Service friendly concept

The interior of the panel is easily accessible from the operator side (service-friendly by swivel-mounted monitor and "drawer" concept racks). Service work can easily be performed from the front side.

Plug-in for leak simulation



Automatic dry air leak testing



When conducting any form of automatic dry air leak testing the part to be tested is subjected to a pressure difference and checked for air escaping. The escaping air itself cannot be measured directly but its consequences can. There are two different methods used to measure these affects: pressure measurement and flow measurement.

Pressure Measurement

Principle: The workpiece is pressurised with air, isolated from the compressed air source and test pressure changes monitored during the measurement phase.

Pressure measurement is the most commonly used method in mass production. With small test chambers it is possible to detect leaks as small as 0.1 cm³/min.

The Relative Pressure method enables the use of a simple test system and requires the smallest possible measurement system volume. It is also distinguished by high reliability and a wide measuring range.

The Differential Pressure method is recommended when using high test pressure (above 5 bar), as the measurement signal resolution is independent of the test pressure.

Both methods can be used for pressure decay or pressure rise measurement.

The Pressure Decay measurement method replicates the usual operating condition.

The Pressure Rise measurement method in a vacuum test reduces the influences of temperature variations and volumetric instability of the sealing fixture or the workpiece. Dirt, chips and other residues may, however, be sucked into the pneumatic test circuit contaminating the test system.

Using pressure rise measurement in the overpressure test method (capsule method) does not require the use of a balance phase. Also, in this case the test sensitivity is not limited by the range of the measuring sensor as it is not subjected to the actual test pressure.

Flow Measurement

Principle: The workpiece is pressurised with air and remains connected to the compressed air source during the measurement phase.

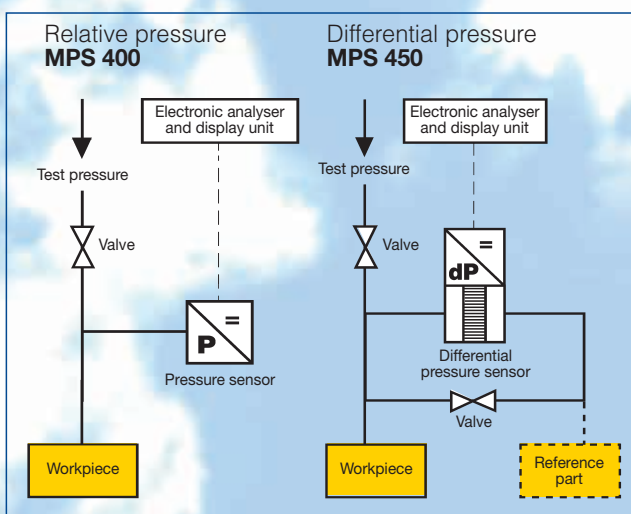
The test system monitors whether the air continues to flow into the workpiece during this phase.

Whereas the pressure measurement test signal becomes smaller with increasing test volume, the flow measurement test signal is independent of the test volume. This is an advantage in calibration because the flow measurement test signal corresponds directly to the air flow rate of the calibrated leak. It is not necessary to know the size of the test volume when determining the actual leak rate.

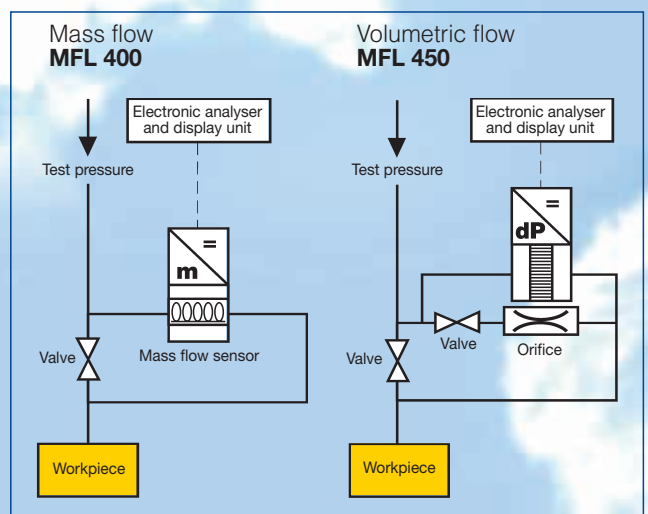
The Volumetric Flow measurement method (pressure drop across an orifice using a differential pressure sensor) is normally not used for leak testing, but for flow control, for example in monitoring unrestricted flow of gas systems. The same differential pressure sensor can be used for a subsequent pressure decay leak test.

With Mass Flow rate measurement (thermal measuring methods) the test signal is not only independent of the size of the test volume but also of the atmosphere pressure and atmosphere temperature. The test signal corresponds directly to the leak rate in standard cm³/min. The leak rate does not have to be calculated, as in pressure measuring methods.

Pressure Measurement



Flow Measurement



JWF Leak Testers



JWF Leak Test Panels Series 200

- 3 different test methods
- Windows user interface for setup and operation
- 6.5 inch Colour Display
- Front Panel Navigation Dial for quick and easy configuration
- On-line display of the test sequence
- Instruction Manual and Help Index available on Front Display
- Data Storage Module for up to 10,000 test results and 500 measurement signal curves
- Statistical Analysis of the test results
- Number of test programs: 32, fully programmable
- Communication ports
 - Front panel 1 x RS-232
1 x USB
 - Rear panel Digital Inputs/Outputs
- Programmable Test Pressure
- Automatic self test
- On-line connection to a remote JWF Leak Calibrator

JWF Leak Test Panels Series 100

- Automatic test sequence
- Measuring data processing by microprocessor
- Programming of all test parameters, display of the test results
- Operator guidance
- Display in 4 lines, 40 characters each
- Quick & easy input by structured menu
- Data Storage Module for 500 test results
- Statistical Analysis of the test results
- Number of test programs: 32, fully programmable
- Communication ports 1 x RS-232, Digital Inputs/Outputs
- Programmable Test Pressure
- Automatic self test



JWF Leak Calibrator

- For check and adjustment of Leak Test Panels
- Precise, quick and easy, handheld
- Battery operated
- Direct Display of the leak rate in Std cm³/min
- Overpressure and vacuum

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