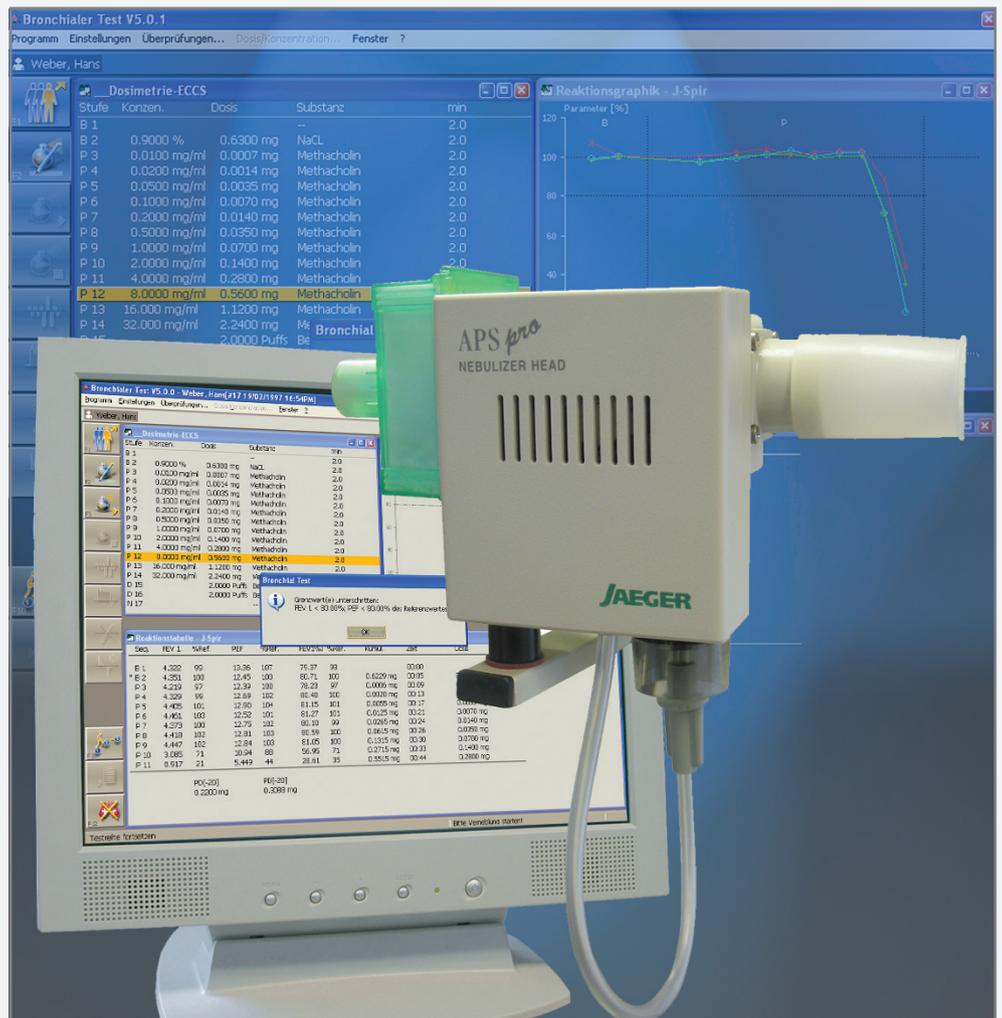


APS pro

- High drug efficiency due to sophisticated nebulization technology
- Multi-step provocation with a single concentration
- Convenient observation program
- Computerized control of nebulization
- Phase-controlled inhalation, pulse or continuous nebulization
- Complies with international regulations, MDD and FDA
- Supports common nebulizers



Precise, Easy, Fast and Reliable Provocation

APS pro - Aerosol Provocation System

Comfortable and relaxing provocation

The APS pro developed by CareFusion allows to use conventional as well as user-definable protocols. The sophisticated, yet easy-to-use computerized dosing system ensures the highest accuracy in drug delivery each and every time so that multi-step provocation with a single concentration can be performed. Measurement programs and provocation program work hand in hand.

The response measurement can be performed with the following programs:

- Spirometry/Flow-Volume
- Bodyplethysmography
- IOS (combined Spirometry and Airway Resistance via impulse oscillometry)
- ROCC (resistance via occlusion technique)

For on-line trend control a flexible observation program is available. User-specific test sequences and observation modules can be generated.

A test sequence can define:

- number and type of provocation steps
- substance and concentration
- dose of aerosol to be administered
- nebulization period
- exposure time
- mode of administration (pulse nebulization, continuous nebulization)
- Time-/volume-controlled start of nebulization for highest drug efficiency.

An observation module can define:

- observation parameters (e.g. FEV1, FEF50, sRAW)
- parameter limits for basic measurement
- parameter limits for defining the provocation dose (e.g. PD20 for FEV1, PD100 for sRaw)
- response graph and table

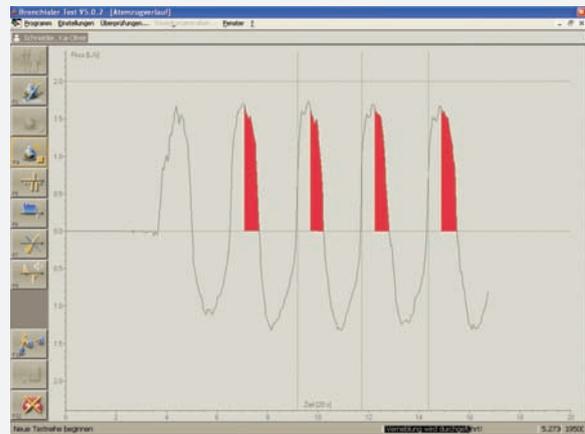
Once a specific sequence and an observation module is generated, the actual provocation test can be performed quite easily.

A simple mouse click starts the nebulization. The silent compressor, which is invisibly located on the trolley, starts automatically. The patient breathes at the APS mouthpiece. For optimal patient safety, a filter collects the exhaled particles. At the same time, APS exactly controls the administered aerosol dose.

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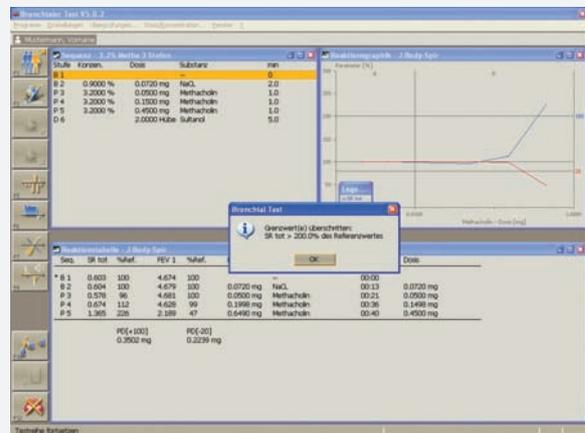
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Nebulization control

The patient's breathing pattern is displayed in a flow/time diagram. The horizontal auxiliary line marks the range for optimal aerosol inhalation. The vertical auxiliary lines indicate the inhalation period the aerosol needs to be deeply inhaled into the lungs. Considering these values, the program calculates the dose that is actually administered. The compressor automatically switches off when the preset dose of aerosol is administered.

After response time has expired, the measurement will be performed in one of the measurement programs. The results are provided in graphic and tabular views that can be generated by the user.



Observation module with parameter limits

If the provocation dose (PD) is not yet exceeded, the program will automatically start the next provocation step. Just start the nebulization and the patient inhales the next dose. As soon as one of the preset parameters is out of its limits, a warning message box will appear and the system will suggest to perform a dilatation measurement. Of course, the system calculates the PD automatically.

APS pro - provocation at its best!

