# Mas-Q-Check



Palas® developed the Mas-Q-Check to subject protective masks to a quick, simple, and meaningful test before use. A particle-counting measurement device is used to detect efficiencies in the size range of viruses and bacteria. The system can also be used for training, as it immediately shows the efficiency of protective masks.

Two versions are available:

- Mas-Q-Check Basic with a volume flow of 9.5 l/min
- Mas-Q-Check Professional with a volume flow of 95 l/min (pictured)

## OPERATION PRINCIPLE

## TESTING OF PROTECTIVE MASKS

The head with the installed mask is inserted into the aerosol chamber. The PAG 1000 aerosol generator is used to introduce the aerosol into the chamber. In this way, the degree of separation of the mask at the head can be determined with a defined aerosol.

This enables the separation efficiency of everyday masks to be determined quickly and easily in accordance with the new EU directive CAW 17553.

The mask is placed on the test head before use. Using a high-resolution aerosol spectrometer, the particle contamination (size and quantity) in the ambient air is measured. Afterward, the device switches automatically and determines the value of the particle contamination behind the protective mask. This can be repeated automatically several times. The ratio of the two measured values is used to determine the degree of protection of the protective mask. A simple display immediately shows whether the mask can be used.

## PALAS® — Mas-Q-Check basic

| manual sampling | FFP classes |
|---|---|
| protective rating | |

| expert user menu | shut down |
|---|---|

| menu | measurement stopped... | ⚠ | 20:35:48 05/04/2020 |

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## PALAS® — Mas-Q-Check protection rating

start

FFP1 60%
FFP2 83.66
FFP3 94.05%

0 10 20 30 40 50 60 70 80 99

mask-ID: 20200405_0012

**45 %**
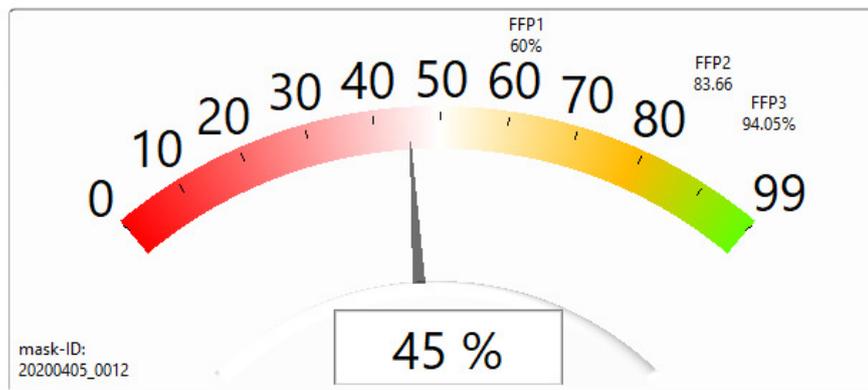
print

| menu | measurement stopped... | ⚠ | 20:40:01 05/04/2020 |

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The degree of protection provided by a respirator depends on the mask material's filtration effect and the correct fit on the head. Leakage can occur (i.e., air passes the material and enters behind the mask unfiltered), which affects the protective effect.

Using the test on the standard head with the Mas-Q-Check, both effects are simulated simultaneously, and the real protective effect of the mask against particles in the outside air is measured.

The result shows the degree of protection compared to the FFP Class of the mask on the test head. Optional on display is the efficiency for different particle sizes. So the degree of protection may vary about the particle size.

The Mas-Q-Check works in suction mode with a volume flow of either 9.5 l/min or 95 l/min, defined according to EN149 or EN143, corresponding to the maximum human breath. The measurement of particle contamination in the room and after the breathing mask is carried out using a high-resolution aerosol spectrometer, which precisely measures particle sizes from 140 nm to 1 $\mu$m. Thus, the protective effect of viruses is also determined.
With the Mas-Q-Check, safe on-site testing of respiratory masks is therefore possible automatically within 1 minute.

**Extensions/Accessories**

Mas-Q-Box consists of an aerosol chamber with an aerosol generator for oil and salt aerosols (we recommend this accessory in combination with Mas-Q-Check Professional).

## BENEFITS

- Self-explanatory operation

- Quick easy and exact measurement of the degree of protection of masks on site
- Quality control of masks in daily use
- Reral evaluation of the degree of protection from filtration efficiency and leakage combined.
- Highly resolved measurement result in the range of 140 nm up to 1 $\mu$m
- Fully automated test
- Evaluation of the degree of protection in comparison to the FFP class, optional display with regard to particle size
- Clear distinction of protection degree in the size range of viruses and bacteria and above

## NORMS AND CERTIFICATES

CAW 17553

## DATASHEET

| | |
|---|---|
| Measuring principle | Optical light-scattering |
| Reported data | Protection class filter mask |
| Measurement range (number $C_N$) | 0 – 20,000 particles/cm$^3$ |
| Measurement range (size) | 0.14 – 10 $\mu$m |
| Volume flow (clean air) | 9.5 l/min, 95 l/min |
| User interface | Touchscreen, 800 • 480 pixel, 7″ (17.78 cm) |
| Data acquisition | Digital, 20 MHz processor, 256 raw data channels |
| Power consumption | Approx. 200 W |

Mas-Q-Check

## APPLICATIONS

- Confirmation of the degree of protection of masks

- Confirmation of the protection of employees working in medical environment

- Training to show the correct use of masks with direct measurement of the degree of protection

- Evaluation of the real degree of protection in comparison of the FFP Class

Mehr Informationen:
https://www.palas.de/en/product/mas-q-check