# DATASHEET

## SAFEMATE Q SERIES
## MICROBIOLOGICAL SAFETY CABINETS


- Low energy consumption DC motor blower
- State of the art microprocessor control system.
- Large digital display, high resolution
- Air and aerosol-tight sliding sash, electrically operated by finger touch
- Alarms for low air flow and wrong front window position
- Sloped front and back wall for the most comfortable access
- Lateral windows
- Front access for filter maintenance and service
- C-shaped support stand for the easiest *one-man installation* procedure
- Easy retrofit option kits

Safemate Q are a series of Microbiological Safety Cabinets Class II type A2, designed in compliance with EN12469-2000.
The internal design, the air flow aerodynamics and monitoring, the built-in safety devices and the very accurate manufacturing, guarantees the highest performances at the most stringent safety levels, as specified by EN12469 standard. The new soft plenum, along with a careful design of the airflows allow for a very low noise level to provide the most comfortable working environment.

## Main specifications

- Microprocessor controlled DC motor blower, with volumetric sensor for exhausted air flow monitoring
- State of the art Microprocessor control system offering:
  - 7” touchscreen monitor.
  - Automatic control of preset airflow volumes.
  - Sliding sash window with smart control.
  - Permanent monitoring of HEPA filters life span.
  - Alarms. Multilevel alarms, with redundancy functions.
  - Permanent display of working conditions.
  - Highest air flow stability both in case of transitional disturbances or to progressive filter clogging
  - Continuous monitoring of front barrier air flow for the highest operator safety
  - Low barrier alarm
  - Power failure alarm
- Volt-free contact for remote monitoring of exhaust fan.
- Automatic reset of initial conditions in case of power failure
- C-shaped support stand for the easiest *one-man installation* procedure

## Mechanical and functional specifications

- 5° Sloped front design for the highest operational comfort. Sloped back side of the working chamber for the best down flow distribution
- Utilities inlets from the top of the cabinet.
- Stainless Steel internal surfaces with SB finishing (including spillage tray). Solid work surface (3 sectors for 1.2 and 4 sectors for 1.8) and special designed front grill in stainless steel (AISI304)
- Electrically operated sliding multilayer safety glass window
- Comfortable 20cm front opening
- Easy to install retrofit options.
- Comfortable lateral side windows with two 20mm passthroughs for cables/tubings
- Exposed exhaust HEPA filter for easy visual integrity check.
- H14 class High Efficiency Particulate Air filters with 99.999% efficiency on .3micron particles (most penetrating particle diameter) (Efficiency >= 99.995% on 0.1-0.2 micron particles MPPS as per EN1822-1)
- ISO 3 (ISO14644-1) internal cleanliness level
- Both exhaust and Main Filters are equipped with a micromesh membrane located downstream which acts as airspeed equalizer expansion plenum, as well as a clear indicator of filter damages.
- Filter change and maintenance from the front of the cabinet.
- Exhaust transitions easily installable.
- Self-calibration cycle performed when cabinet is switched on.
- High speed rinse and set up cycle performed, before reaching the SAFE operating mode.
- Visual display of SAFE conditions. Pre-warning before actual alarm conditions are reached (visual and acoustic alarms)

- Interconnected UV and LED lights.
- Exhaust and recirculating flow rates ensure 25 air changes/min in the working area (30%/70% split)
- Front barrier air speed ≥ 0.5mt/sec
- Aperture protection Factor (Apf) ≥ 1.5 x $10^5$
- Max power (for all power point) 3Amps.

**ADVANCED FEATURES**

- Active front window belts tension control system. This mechanism interrupts the unrolling of the suspension belts supporting the front window in case of a jam or of the presence of obstacles to the window movements. This avoids the risks of the glass falling suddenly and reduces the risk of pinching during the window's movement.

- ECO Mode: this operational mode allows the reduction of power consumption and noise level while keeping the inner working area sterile. When engaged the front sash will be lowered to a few centimeters from the working surface and the motorblower will slow down. The reduced opening will allow the lower airflow to keep the front barrier active. Working is not allowed when in ECO Mode.

- Soft Plenum: the plenum is made with textile material to better compensate for blower vibrations and provide a more stable and uniform airflow in the working area, achieving a very quiet operation condition.

**CONTROL PANEL**

Controls are located in the front part of the cabinet and include the 7" touchscreen display.

The microprocessor will take care of regulating the motorblower to keep the airflows at the calibrated setpoints, based on the feedback data received from the vane anemometer installed in the exhaust path of the cabinet.

Access control is provided with a key for ON/OFF switching for users and a numeric password to access calibration and service menus.

The following parameters are monitored:

- Laminar vertical flow speed;
- Front barrier inflow speed;
- Audible/visual alarms for insufficient airflows, blower malfunction, front window position;
- UV exposure remaining time;
- Hour counters for: cabinet, HEPA filters, UV lamp.

The following controls are available:

- Ventilation ON/OFF;
- White light ON/OFF and intensity regulation;

- Internal sockets ON/OFF;
- Combustible gas solenoid safety valve OPEN/CLOSE;
- UV light timer setting.
- ECO Mode activation

**The electronic board provides a volt-free connector to switch on/off an external blower or for alarms remotization.**

## STANDARD UTILITIES

Utilities are located on the back wall of the working area. Connectors for the utilities are located on the top of the cabinet towards the back.

| |
|---|
| Vacuum tap provisioning. On the back wall, right side. |
| Gas tap provisioning. On the back wall, right side. |
| Electrical sockets. On the back wall. |
| DOP sampling port. Below the work surface, left side. |
| UV lamp on the back wall. Programmable activation time and exposure duration (up to 60min) |

## OPTIONALS ACCESSORIES

| Description | Part No. |
|---|---|
| Adjustable Stand for Safemate cabinets 1.2 with levelling feet | AS1L410 |
| Adjustable Stand for Safemate cabinets 1.5 with levelling feet | AS1L510 |
| Adjustable Stand for Safemate cabinets 1.2 with castors | AS1N410 |
| Adjustable Stand for Safemate cabinets 1.5 with castors | AS1N510 |

## TECHNICAL SPECIFICATIONS

| ***DESCRIPTION*** | | ***SIZE 1.2*** | ***SIZE 1.5*** |
|---|---|---|---|
| ***1.1*** POWER SUPPLY | | | |
| Mains supply voltage (V~): | | 220-240 | |
| Mains supply frequency (Hz): | | 50/60 | |
| Required power line *[720 W service socket included]* | (W): | 1175 | 1250 |
| Absorbed power *[fan and light on only]*: | (W): | 325 | 400 |
| Current: | (A): | 5,3 | 5.6 |
| Main fuses rating: | | steatite, 5x20, F10A H, 250 V, **$I^2t$:** 121 | |
| ***1.2*** REFERENCE STANDARDS | | | |
| SAFETY: | | IEC 61010-1:2010+A1:2016 / EN 61010-1:2010+A1:2019 | |
| Electrical insulating protection class [IEC 61140]: | | I | |
| ELECTROMAGNETIC COMPATIBILITY (EMC): | | IEC 61326-1:2012 / EN 61326-1:2013 | |
| MICROBIOLOGICAL SAFETY: | | EN 12469:2000 | |
| Microbiological class protection [EN 12469]: | | II | |
| IP protection degree [IEC 60529]: | | Ordinary equipment (IP xxB) | |
| ***1.3*** DECLARATIONS AND APPROVALS | | | |
| Mark of conformity: | | CE | |
| ***1.4*** USE ENVIRONMENTAL CONDITIONS | | | |
| Electromagnetic operating area: | | industrial | |
| Use: | | indoor | |
| Altitude (m): | | up to 2000 | |
| Temperature (°C): | | from 10 to 35 | |
| Maximum relative humidity (%): | | 80 for temperatures up to 31 °C, decreasing linearly to 55 at 35 °C | |
| Max MAINS supply voltage fluctuations (%): | | up to ±10 | |
| TRANSIENT OVERVOLTAGE CATEGORY: | | II | |
| POLLUTION DEGREE: | | 2 | |
| ***1.5*** TRANSPORT AND STORAGE CONDITIONS | | | |
| Ambient temperature (°C): | | from -5 to 45 | |
| Relative humidity (%): | | up to 90 | |
| Atmospheric pressure (mbar): | | from 800 to 1060 | |

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|---|---|---|---|
| ***1.6*** WEIGHT AND DIMENSIONS | | | |
| Weight *[without floor stand]* | (kg): | 245 | 275 |
| Overall dimensions L x D x H (mm): *(without floor stand – depth without backpanel for installation only 795mm)* | | 1380 x 846 (795) x 1450 | 1685 x 846 (795) x 1450 |
| Free space needed around the cabinet (mm): *[left/right/top/front]* | | 500/500/300/650 | |
| Height of the work surface from the cabinet bottom (mm): | | 100 | |
| Front aperture dimensions L x H (mm): *(safe - operating height)* | | 1165 x 195 | 1470 x 195 |
| Front aperture maximum height H (mm): *(unsafe - for cleaning and loading only)* | | 400 | |
| Front aperture in ECO MODE H (mm): | | 50 ±5 | |
| Working space dimensions L x D x H (mm): | | 1230 x 580 x 700 | 1535 x 580 x 700 |
| Safe working area dimensions L x D (mm): | | 1030 x 350 | 1335 x 350 |
| ***1.7*** PERFORMANCES | | | |
| Intended life of the equipment (years): | | 10 | |
| Laminar Air Flow mean velocity [EN 12469](m/s): | | 0,38 ± 0,02 | |
| Inflow Air Barrier mean velocity [EN 12469](m/s): | | 0,58 ±10% | |
| Exhaust Air flow rate ($m^3/h$): | | 480 ±10% | 600 ±10% |
| Exhaust Air flow ratio (%): | | 30 ±10% | |
| Aperture Protection Factor (Apf) [EN 12469]: *(Retention efficiency at front aperture)* | | ≥1,0 x $10^5$ | |
| Working space air cleanliness class [EN 14644-1]: | | ISO 3 | |
| Illuminance [EN 12469] (lux): | | >750 | |
| Sound level [EN ISO 3744] (dB[A]): | | <52 | <56 |
| Vibration [EN 12469] (mm RMS): | | <0,005 | |
| Max increase inside cabinet in temperature from the ambient [EN 12469] (°C): | | <5 | |
| Leaktightness index of the cabinet housing [EN 12469]: | | LI-C | |
| Cleanability index [EN 12469]: | | CI-B | |
| Sterilizability index [EN 12469]: | | SI-B | |

| | | |
|---|---|---|
| **1.8** MATERIALS | | |
| **1.8.1** *METAL PARTS* | | |
| Main structure: | cold rolled steel, epoxy powder coated | |
| Walls inner surface of the working area: | stainless steel AISI 304 - SB finishing | |
| Working surface: | stainless steel AISI 304 - SB finishing | |
| Maximum load possible on working surface (kg):<br>*[uniformly distributed]* | 15 | |
| **1.8.2** *GLASS PARTS* | | |
| Type: | 2 layers laminated safety glass | |
| Front window thickness (mm): | 3+3 | |
| Side windows thickness (mm): | 3+3 | |
| UV-C radiations minimum retention (%): | 98 | |
| Impact maximum energy sustainable (J):<br>*[EN 61010-1, clause 8.2.2]* | 4 | |
| **1.8.3** *FILTERS* | | |
| LAF filters dimensions L x D x H (mm): | 1219 x 610 x 68 | 1525 x 610 x 68 |
| Other features of LAF filter: | fabric equalizer downstream | |
| EXH filter dimensions<br>L x D x H | 610 x 457 x 68 | 762 x 457 x 90 |
| Filters efficiency class [EN 1822-1]: | H14 | |
| Filters global MPPS efficiency [EN 1822-1](%): | 99,995 | |
| MPPS diameter [EN1822-1](µm): | 0,1 ÷ 0,3 | |
| Expected average life (h): | 6000 *(1)* | |
| **1.8.4** *UV-C LAMP* | | |
| Type of lamp: | UV-C, tubular T8 | tubular T10 |
| UV-C lamp power (W): | 1x 30 | 1x 30 |
| UV-C spectral peak (nm): | 253,7 | |
| UV-C lamp average life (h): | 8000 | |
| UV-C radiation (W): | 11,6 | 11,6 |
| **1.9** OUTLET | | |
| **1.9.1** *SERVICE SOCKETS* | | |
| Supply voltage (V): | mains | |
| Maximum load (A):<br>*[distributed on all used sockets]* | 3 | |

| | | | |
|---|---|---|---|
| | Minimum IP protection degree: *[with cover closed]* | 54 | |
| ***1.9.2*** | *CONNECTOR VFC* | | |
| | Output type: | contact NO – voltage free | |
| | Maximum applicable voltage (V): | 24 SELV-PELV | |
| | Maximum load (A): | 1 | |
| ***1.10*** | OPTIONAL ACCESSORIES FEATURES | | |
| ***1.10.1*** | *FLOOR STAND* | | |
| | Material: | steel tube, epoxy painted | |
| | Non-adjustable floor stand height (mm): | 730 | |
| | *Adjustable floor stand height [min – max] (mm):* | *690 – 810 (1)* | |
| | Non-adjustable floor stand weight (kg): | 19,5 | 20,5 |
| | *Adjustable floor stand weight (kg):* | *26* | *27* |
| ***1.10.2*** | *INERT FLUIDS UTILITY* | | |
| | Valve type: | fine regulation head-valve with PTFE seal tap | |
| | Use: | Inert gases, vacuum, compressed air | |
| | Knob material: | polypropylene | |
| | Max operating pressure (kPa): | 300 | |
| | Inlet port thread [internal / external]: | G1/4” / G3/8” | |
| ***1.10.3*** | *FLAMMABLE GAS UTILITY* | | |
| | Valve type: | ceramic head-valve tap with safety lock | |
| | Usable categories of gases [EN 437]: | 1 – 2 - 3 | |
| | Knob material: | polypropylene | |
| | Max operating pressure (kPa): | 2 | |
| | Inlet port thread [internal / external]: | G1/4” / G3/8” | |
| | Solenoid valve inlet thread [female]: | G1/4” | |
| ***1.10.4*** | *LED LIGHTING* | | |
| | Type of LED: | SMD 3014 | |
| | Lamp power (W): | 44 | 54 |
| | Minimum CRI: | 90 | |
| | Lamp colour temperature (K): | 4000 | |