MOMOLINE ®
TECHNICAL FURNITURE FOR LABORATORIES

Italian factory

Via Circumvallazione Esterna, 12 80025 - Casandrino (Naples) - ITALY
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Technical Datasheet: Fume Cupboards, series ΛK

1. Standard Models

| MODEL	OUTER DIMENSIONS [cm]	WORKTOP DIMENSIONS [cm]
k90	90x85x250	85x76
k120	120x85x250	115x76
k150	150x85x250	145x76
k180	180x85x250	175x76
k210	210x85x250	205x76
k240	240x85x250	235x76

2. Certification EN 14175 & EN 61010

a. ΛK Fume Cupboards are certified acc.to European Norm **EN ISO 14175**, specifically to all below Parts:
- *Part 1: Vocabulary;*
- *Part 2: Safety & Performance Requirements;*
- *Part 3: Type Test Methods;*
- *Part 4: On-site Test Methods;*
- *Part 5: N/A;*
- *Part 6: Variable Air Volume Fume Cupboards;*
- *Part 7: Fume Cupboards for High Heat and Acidic load*

b. ΛK Fume Cupboards are certified acc.to European Norm **EN ISO 61010-1** (*Safety Requirements for electrical equipment for measurement, control and laboratory use*);

c. Both Certifications are issued by Internationally recognized Third-Party Certification Authority (Bureau Veritas) given the successful outcome of all required tests. Multiple and regular inspections are performed so to grant the continuous quality and respect of Standard across the time;

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3. Compliance to the European Directives

a. ⋀K Fume Cupboards are compliant to the following European Directives:
    i. **European Machinery Directive - 2006/42/EC**;
    ii. **Electromagnetic Compatibility (EMS) Directive - 2014/30/EU**;
    iii. **Low Voltage Directive (LVD) – 2014/35/EU**;
b. All ⋀K are labelled with the **CE Mark**;

4. Main Structure of the Fume Cupboards

a. Main structure of ⋀K Fume Cupboards is realized in **anti-acid HPL sheets**, with various thicknesses, providing a solid and light structure, with a very innovative design;
b. Side jambs are equipped with **massive PVC edges**, to provide enhanced chemical resistance, also acting as rails for the sliding sash;
c. Main HPL structure of fume cupboard is installed on a floor-standing de-mountable steel structure, epoxy-powder coated to grant perfect chemical resistance, height adjustable through **threaded feet**;
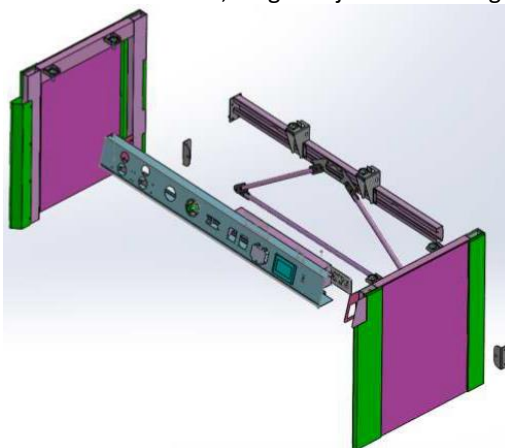
d. Floor-standing steel structure and Main structure of ⋀K Fume Cupboard are completely independent, and these can be also shipped as separate parts, both already assembled: this possibility allows to drastically reduce on-site installation activities, as the 2 parts shall be simply connected to each other:

e. Worktop is installed on the floor-standing steel structure;
f. **Worktop** located at 900 mm from floor level (in standard version). Different materials available according to request, always with 4-sides containment edge for liquid's spillage containment (as per EN 14175);
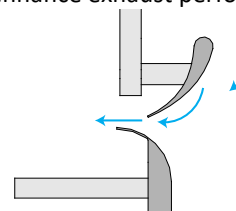
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g. Both side jambs are equipped by default with **safety glass transparent windows**, with a very innovative and modern shape, giving further illumination to the interior of the fume cupboard;

h. Front sliding sash is realized using 20-mm-thick HPL sheets, with safety glass;
i. Glass having **6.38 mm thickness** (2 x 3 mm safety glass + 0.38 mm rubber film holding preventing formation of sharp shards in case of breakage and preventing sheet's collapse), classified **2(B)2** acc.to EN 12600:04 and compliant to EN ISO 12543;
j. **Fall-prevention system** for front sash, stopping free falling on operators' hands in case of *failure of one or both* the suspension cords;
k. **Operational Sash Opening Stopper** (500 mm from worktop level, acc.to EN 14175), over-ridable with a deliberate act of the Operator;

l. **Airfoil-shaped profile** of the sash handle & front edge of fume cupboard, to enhance exhaust performances;

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m. **Pressure Relief Openings** located in the top of the Plenum to absorb possible blasts developed inside the Fume Cupboard;

n. **Lamp** located **outside of the working area**, protected by a 6.38 mm safety glass, housed in IP65 water-proof case (*EX-Proof Lamp available as an option upon request*);

o. OPTIONAL: **Horizontal opening** of the front sash, associated to the vertical movement;

p. OPTIONAL: **Electrically operated front sash**, by means of electric motor and transmission-toothed belt, having the following features:

  i. **Manual operation**: Motor is activated through dedicated "UP" and "DOWN" buttons available on the Touch Screen Operator's panel, until the desired position is reached;

  ii. **Automatic operation**: Motor is activated by **detectors for operator's presence**: specific sensors detect the approaching operator and automatically open the sash, which is automatically closed after a prolonged time of operator's absence so to avoid any energy waste / danger situation in case operators forget to close the sash *(closing time can be manually adjusted)*;

  iii. **Operational Sash Opening Stopper** is granted: upon raising, sash holds at 500 mm from worktop level (acc.to EN 14175) and can be further raised only through a deliberate confirmation of the operator (through the touch screen control panel);

  iv. **Safety sensors** installed below sash frame avoid descending sash can hot against operator's hands or any equipment located in the fume cupboard;

  VAV associated to Electrically operated front sash grant the best energy savings, as sash is automatically closed whenever the Fume Cupboard is not in use, so that Airflow consumption is accordingly reduced.

5. Special Version for Highly Aggressive Chemicals

a. OPTIONAL: ΛK Fume Cupboards can be upon request realized **entirely in massive anti-acid PVC**, in lieu of HPL, in order to provide enhanced resistance to aggressive acids and chemicals. Also the frame of front sliding sash is in this case realized in HPL.

b. Upon request, in case Hydro Fluoric Acid (HF) is employed, transparent window of front sash can be realized in Polymeric transparent panel (type "**LEXAN**").

c. Same technical features are applied in this case, unless the side transparent windows, which are usually not installed in this special version.

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6. Main Utilities of the Fume Cupboards

a. Main utilities of Fume Cupboard are installed below the worktop area, so to provide **maximum width** to the working surface;
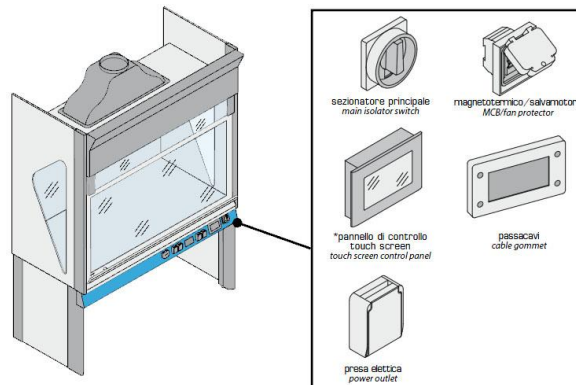
b. **Safety Protection Switches** (Thermal + Differential Protectors), dedicated for the whole device, for the lamp/exhaust fan (if fitted) and for the loop of electric outlets;

c. **Manual Isolator Switch** for total de-activation of Fume Cupboard in case of maintenance / emergency;
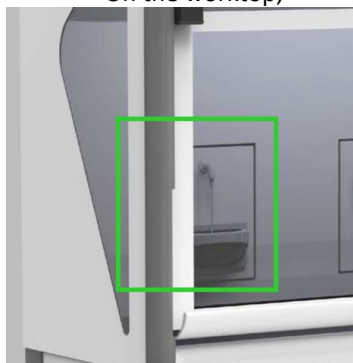

d. Standard Electric Outlets housed into **IP65 rated housings** (*Different socket Standards available upon request according to the specific World region*);


e. **Remote Control Handles for Gas/Water** installed under the worktop level out of the working area. Colors of handles are compliant to EN 13792;

f. **OPTIONAL:** **Water Dripcup**, to be installed in following alternative locations:
    ▪ Internal area of Back Panel, so not to occupy precious worktop's space;
    ▪ On the worktop;

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g. Back panels inside the fume cupboard can be also equipped with all other services (*water, gas outelts, electric outlets, …*):

7. Control of the Fume CupboardsControl of the Fume Cupboard
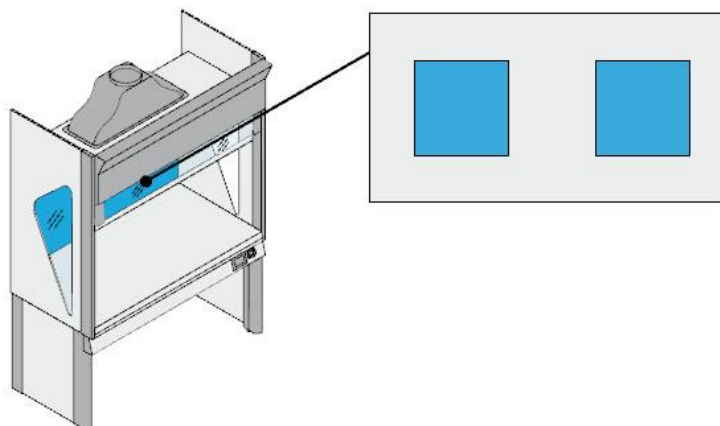
a. ΛK Fume Cupboards are equipped with a **Touch screen operator's panel** allowing the full control of all functions and parameters of the device;

b. Operator's panel runs 100% **Momoline Proprietary software** compliant to EN 14175, with double Language Option (English/Italian) *(other languages are available upon request, according to installation region)*;


c. Full set of Alarms available (visible – acoustic), acc.to EN 14175, with **Alarms History** to keep a record of time/date:

- *Failure of Main Exhaust Fan;*
- *Insufficient Exhaust rate from Fan;*
- *Lack of Power Supply;*
- *Spent filters;*
- *Sash over the Operational Safety Limit;*
- *Empty / Missing drainage cabister (if fitted);*
- *Temperature over range (if fitted);*

b. Lights Control Page;

c. Main Fan Control Page allowing **Automatic, Manual, Stand-By, MAX** features;

d. Sash Control Page *(in case of electrically operated front sash)*;

e. Secondary Fan Control Page *(for under-worktop units, if fitted)*;

f. *Refer to User's Manual for additional details about the Control Software;*

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g. **OPTIONAL:** **Tablet**: Operator's panel can be upon request replaced by a Tablet, running Android: an App is used to control the Fume Cupboard via **WiFi Connection Protocol**;
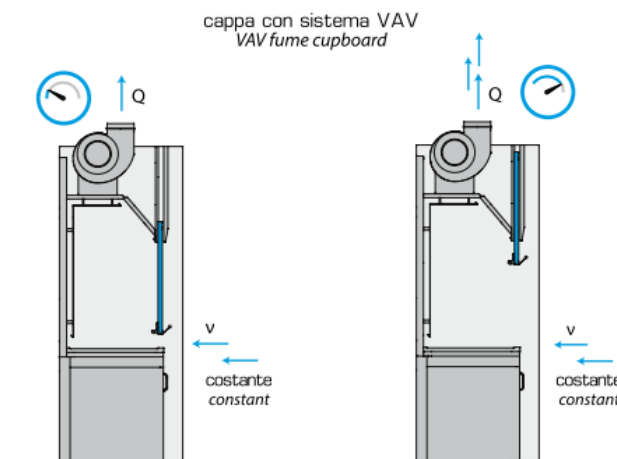

h. **OPTIONAL:** **Remote Assistance System**, to allow technicians technical interventions on the software from remote:
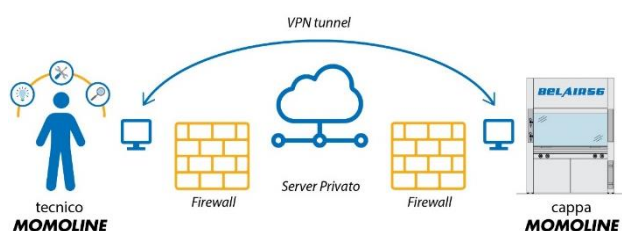
i. **OPTIONAL:** **VAV system** for the continuous airflow monitoring, to grant variable extract volume flow rate depending on the sash opening, controlled through the hot-wire anemometer and in closed loop (_feedback control_).

The variation of airflow is obtained through an Air **Control Damper** or through an **Inverter**.

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## 8. Under-Worktop Storage units

a. Under-worktop area of Fume Cupboard equippable with following units:
   - Simple Storage Cabinets
   - **Safety Cabinet** for Chemicals;
   - **Safety Cabinet** for Solvents (Flammables);
   - **Waste Cabinet** or "Controlled Disposal" of Chemicals;
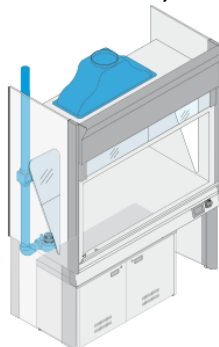   - **Waste Cabinet** or "Controlled Disposal" of Flammables;

b. Waste Cabinet for the safe and controlled disposal of chemicals embeds:
   - Cabinet for housing collection canisters, equipped with front transparent window *(different sizes and number of canisters available)*;
   - Pull-out trolley (with collection dripcup) for easy change of the canister;
   - Funnel through the worktop + flexible connection hose (all in PE-HD) with direct connection to canister;
   - Possibility of fitting Alarms for **Canister Presence** / **Full Canister**;
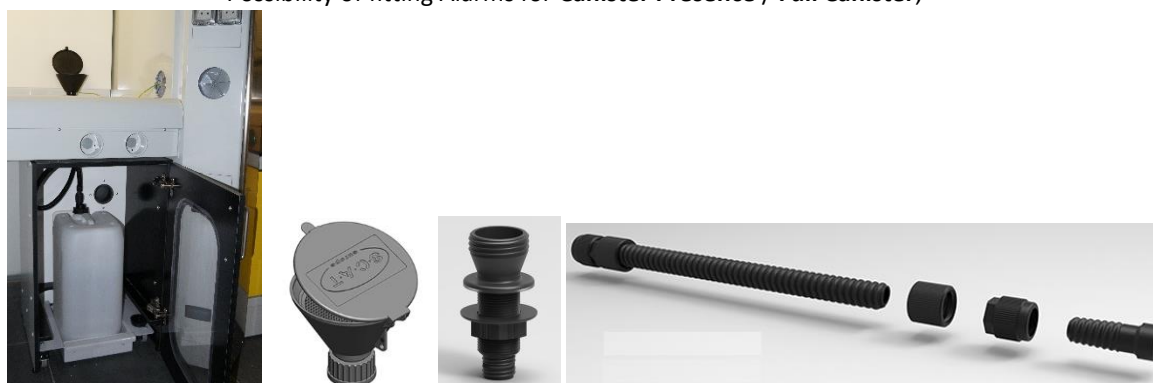
c. Possibility of **Air Exhaust for Under-Worktop Units:**
   - Independent Exhaust System, with **Additional Exhaust Fan;**
   - Common Exhaust System, connected to the same Main Exhaust Fan of the Fume Cupboard;
   - Possibility of adding a small **Box Filter;**

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9. Performance Tests

OPTIONAL: Following tests can be executed after installation, at customer's request, with release of **Test Report**:

- General Inspection, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.2
- Manufacturer's Declaration or Type Test Certification, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.3
- Face velocity test, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.4
- Extract Volume flow rate test, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.5
- Pressure drop test, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.6
- Air flow visualization, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.7
- Alarm System test, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.9
- Containment Test, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.10
- Sound Pressure Measurement, as prescribed by EN 14175 Norm, Part 4, Paragraph 5.11
- Robustness of containment, as prescribed by EN 14175 Norm, Part 4, Paragraph 7.11
- Illuminance Test, as prescribed by EN 14175 Norm, Part 4, Paragraph 7.14
- Tests on all installed power sockets
- Tests on all magneto thermal and differential switches