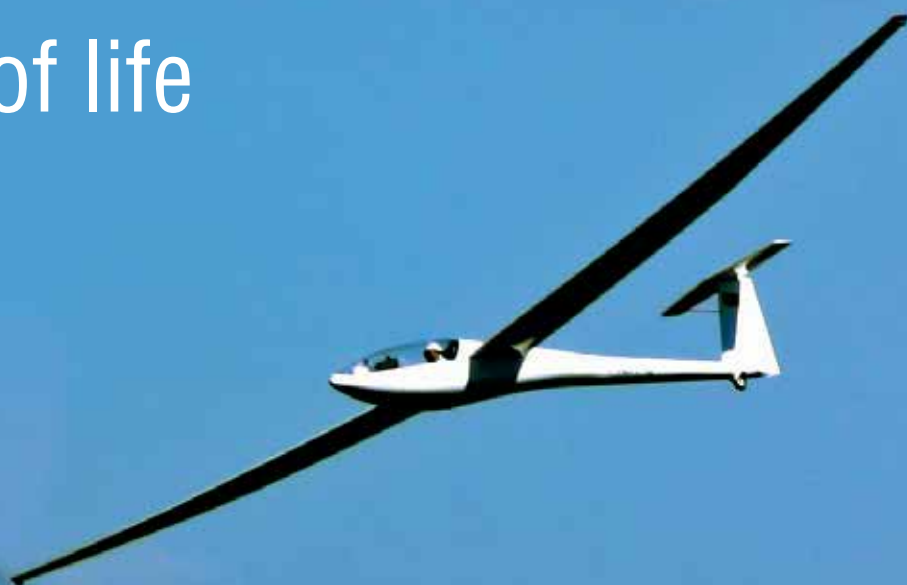


TECHNOLOGY IN MOTION



Revitalize
your quality of life



**VENTILATION EXPERTISE
FOR WINDOW MANUFACTURERS**



MACO window valve – The completely new generation for window ventilation

High quality of the room air is a decisive factor for people's well-being and health. At the same time, it also protects the structure of the building.

Energy-efficient design requires airtight building shells. Only in this way, is it possible to utilise the considerable potential available for energy savings.

Efficient composite systems for thermal insulation, modern windows and window installation with excellent sealing characteristics are the guarantee for sustained energy management.



The new challenge entails ensuring hygiene, well-being and, last but not least, the health of the occupants, using intelligent ventilation systems.

If ventilation systems are not implemented, the relative humidity caused by the airtight building shells cannot escape. This results in condensation, poor air quality, bacteria and mould.

Only a defined minimum exchange of air can prevent damage due to moisture and its consequences.

MACO's new overall package for window valves provides automated security for a minimum exchange of air as protection against mould.



MACO concealed window valve

In buildings that focus on energy savings, ventilation systems are an indispensable standard today. Modern architecture and highest energy efficiency go hand-in-hand.

MACO combines both of these factors and offers the window manufacturer new options for ventilation elements above the window.

The concealed window valve from MACO is the most expedient alternative to central and non-central ventilation systems.

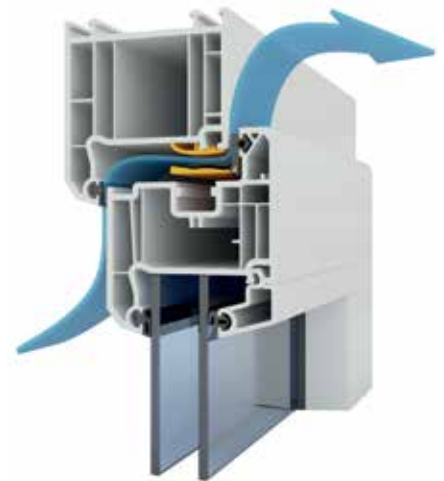
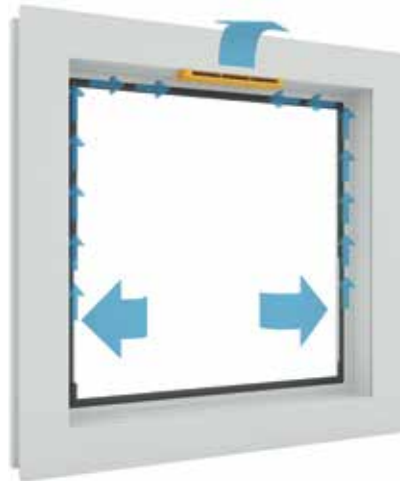
The concealed window valve ensures intelligent, automatic regulation of the air flow and provides a user independent, optimised exchange of air, and protection against moisture.

Furthermore, the user can intervene manually and select a flow volume between "completely open" and "fully sealed".





Windows can breathe freely – unnoticed



- Manually adjustable at any time with active/inactive switch
- Catch protects against strong gusts of wind (and prevents draughts)
- Installation in the window rebate
- Regulated air exchange with the window closed
- Minimum ventilation protects against moisture
- Patented aerodynamic action
- Length 140 mm
- Air permeability up to 8 m³/h per individual item

Advantages for the producer

- Ventilation advice from MACO"
- Regulated, controlled minimum exchange of air with the window closed
- Software tool for secure design of the LTM
- User-independent
- Invisible in the window rebate
- Easy installation, also for retrofits
- Additional lock for active and inactive position
- Stand acc. to DIN 1946-6 and/or DIN 18017-3
- For all conventional window profiles
- Retrofits at any time without special tool
- Does not impair burglary protection
- No routings in the frame

Benefits for the end user

- Automatic control of the minimum exchange of air
- Prevents development of bacteria and mould
- Protection against moisture damage
- Low cost and low maintenance
- Simple installation, no additional construction work necessary
- Additional lock for active and inactive position



MACO hydrophilic window valve attachment

The window ventilator is a system that is connected to the window. It enables automatic control of the air exchange when moisture develops inside rooms.

To extend the air-flow control of the window ventilation system, MACO has introduced a new generation of intelligent humidity-controlled ventilation functions.

The system operates unattended and without the need for intervention; it can be activated/deactivated at any time, however. Manual opening of window is no longer absolutely necessary.

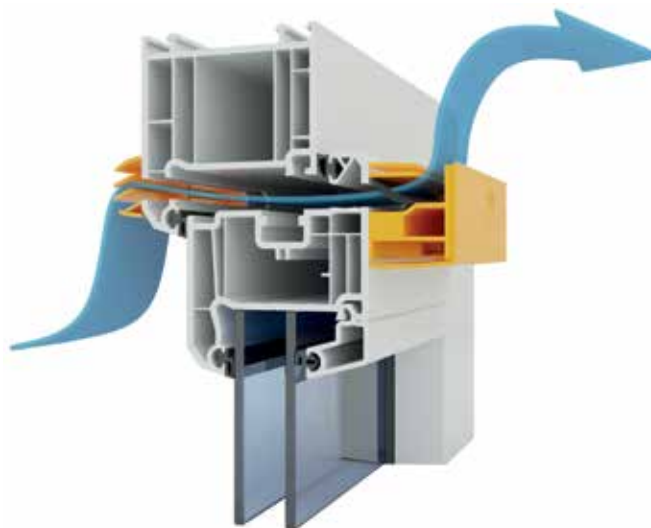




Advantages of the concept



- Aesthetic design
- Reacts automatically to air humidity
- User-independent acc. to DIN 1946-6
- Prevents damage due to moisture (e.g. mould or permanent condensation)
- Straightforward, low-cost installation
- Low maintenance
- Retrofit at window
- Does not affect the structure of the building
- Enhanced noise protection as option
- Also manually adjustable at any time with active/inactive switch
- Combine as required for more air





MACO window valve software tool – The right solution in compliance with DIN 1946-6 and DIN 18017-3

Cool air contains a lower portion of moisture than warm air, which is why cool air takes up additional moisture from the environment when it heats up. This is the physical principle that is utilised when ventilating.

To reduce energy losses to a minimum, ventilation measures must be planned precisely and regulated accurately.

For a healthy living climate, newest building standards state that the air must be exchanged through an open

window 5 to 10 minutes long, every two hours. This causes an uncontrolled loss of a large amount of energy.

During the day, occupants are often not at home. So a basic, user-dependent ventilation is neither expedient nor achievable.

For new or modernised buildings with modifications to the ventilation systems, it is always necessary to produce a ventilation concept - independent of the benefits to be expected.



One fundamental principle that applies is: **There is no universally popular standard case for ventilation.** The necessary modifications must always be tailored to the particular application needs. The software tool determines the requirements that apply and helps to establish the appropriate measures.

The tool has been developed and implemented in cooperation with experts and professors for structural physics. It is based both on DIN 1946-6: "Ventilation in apartments" as well as on DIN 18017-3: "Ventilation in rooms without outside windows". Individual, ventilation measures are implemented as promptly and provide window suppliers with security in all situations.



MACO Window Valve Competence Centre – Knowledge makes a difference

Air is the most vital resource for mankind. Without air, people can survive for only three minutes.

Air is absolutely decisive for people's well-being. But what does "well-being" and "health-promoting" mean?

What effects do moisture damage, condensation and mould have on health and the value of a property? What liability does the window maker have when carrying out renovation work and what standards must be complied with? Last but not least: Which solutions and products are suitable and have been tested?

These are just some of the many questions asked in connection with the new building technologies that apply especially in window making.

MACO's window valve competence centre provides answers to these questions. It offers seminars, workshops and discussions that provide full information on ventilation, placing special focus on issues that concern the window maker.



All-round package for the window-making industry


- Comprehensive ventilation expertise for the window-making industry
- Special knowledge of the damage that moisture can cause
- Health risk: Mould, radon, CO₂, CO
- High-energy, air-tight renovation and new requirements for minimum ventilation
- Variety of ventilation scenarios
- Documentation and information on how to ventilate properly
- Software application for determining the air volume
- Special test equipment
 - for the window unit
 - for the installed window valve
- Product development using state-of-the-art flow simulation software
- Knowledge of the relevant standards and guidelines
- Specifications and check lists for product handover

**MACO
VENTILATION**



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