



AUSTRIAN LIVING COMFORT

WE ARE OPENING NEW DOORS TO
DESIGN, SECURITY & CONVENIENCE FOR YOU



AUSTRIAN LIVING COMFORT

MACO DEMONSTRATES
INNOVATION LEADERSHIP

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MACO as system supplier and solution provider

FROM HARDWARE COMPANY TO
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Security solutions for windows

INTELLIGENT SECURITY
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& WITHSTAND NATURAL FORCES

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MACO
INNOVATIONS
FIND OUT
MORE INSIDE

ADDED VALUE THROUGH APPRECIATION

Dear readers, dear friends of MACO,

The crisis in the Ukraine showed just how quickly political events can have an effect on the economic situations of individual countries. Now it is Brexit which is clearly illustrating the volatility of the markets. More than ever, these rapid developments and market fluctuations call for company structures which can react to these conditions with agility and flexibility, like a sailing boat, and can guide a company calmly through stormy seas, like a tanker.

Therefore, MACO has re-adjusted its sails and, as a premium manufacturer, remains on course as the industry's innovation and performance leader thanks to continued research and development. Product quality that knows no compromise and keeps up with the times, based on a consistent focus on maximum customer benefit: these are our top priorities and the keys to success.

However, the MACO values and the successful value creation of all resources are essentially what leads to greater appreciation of employees, customers and partners and forms the stabilizing foundation, as symbolised by the tanker. Stability arises through the embodiment of the company culture, social responsibility and values

such as partnership and sustainability in accordance with economic, environmental and social aspects. In this regard, MACO is both proud of and grateful for the team spirit within the company and pursues common goals with outstanding, enthusiastic employees and long-standing trust-based partnerships with customers and co-operation partners.

This has brought about an inspiring interchange, which drives us to excel together and results in innovations which help us to shape MACO's transformation from a hardware manufacturer to a system supplier and solution provider, together.

On that note, we look forward to continuing this inspiring collaboration with you and hope you enjoy reading this latest edition.

The Management Board of the MACO Group



MACO Management Board from left to right: Guido Felix, Ulrich Wagner and Ewald Marschallinger

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FENSTERBAU FRONTALE 2016

AUSTRIAN LIVING COMFORT

Under the umbrella of our mission statement of “Austrian Living Comfort”, we presented a whole host of new product developments relating to the hot topics of design, security and convenience, which set a new visitor record for the MACO stand and amazed visitors.

MACO demonstrated innovation leadership

With a wealth of technical innovations, trendsetting studies and, last but not least, the open, modern stand design, encompassing around 1,000 m², we reflected our transition from classic hardware manufacturer to industry innovation leader. And we demonstrated how a company can become a supplier of complex system solutions and

an industry service partner through research and integrated services in the form of professional partnerships.

A solution provider for the future: MACO sets standards on the market

As part of an ongoing collaboration with fabricators, installers and experts, we

developed a standard-compliant method for connecting floor-depth units together with MACO thresholds. This was met with widespread interest and comments such as “finally someone has thought about this right through to the connection” were often to be heard from the trade visitors.

MACO EXHIBITION STAND a real crowd puller . . .



WINNER of the MACO competition
Top image: from left to right: Guido Felix, Ewald Marschallinger, winner Lois Pescosta, Senior Partner of Tecno Fenster GmbH, Jürgen Pratschke, Ulrich Wagner, Karl Leitner

Bottom image: from left to right: Ewald Marschallinger with the winners from A. Krain GmbH

Not shown is winner Andreas Jaud, Tischlerei Jaud Achenkirch





FIXED VENTILATION
The brake stay with adjustable holding force fixes the opening angle, thereby ensuring secure ventilation.

VENTILATION WITH RC 2
The sash protrudes 10 mm at the top; air flows in, rainwater is kept out.



MAXIMUM FUNCTIONALITY
The load-bearing element enables large-format windows to be created with maximum functionality. Mount & Go guarantees easy hinging: the sash no longer needs to be supported.



CLEVER LOCK
The dead weight of the sash is used to firmly anchor the hooks in the frame.



CONSTRUCTION WITHOUT BARRIERS
With a flat design of 20 mm, MACO thresholds do not present any obstacles whatsoever. Now also available for PVC profiles.



PRODUCT HIGHLIGHTS IN ALL AREAS

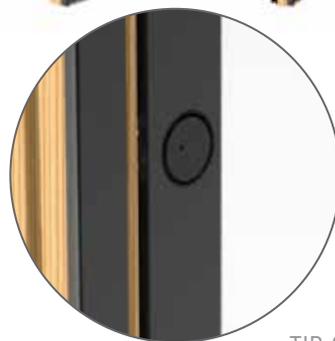
The security solutions for windows were also met with great interest: most notably the locking hook for the zero-barrier threshold systems (more on this on page 9), the self-locking drive gear for increased basic security and the MULTI-SEC-UAIR secured ventilation position. What is more, MACO is offering a system matrix for RC 3 timber units, which can

be fitted in all window sizes within this matrix by means of a licence – a first on the market. Those looking for convenience and design, were greeted with numerous new products: on large-format units, the locking monitoring, hinge security provision and the concealed steel-hook drive unit for all schematics generated positive responses. The new gasket

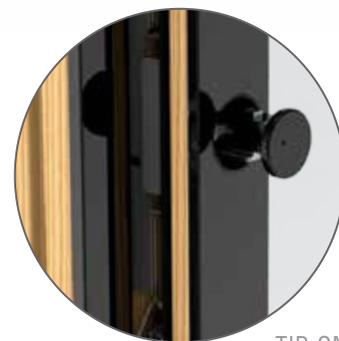
tracks and the silicone sash gasket which runs around the corner were also a real hit with fabricators. The doors impressed with their security technology, for example, with the special flood protection setup. Alongside these, MACO also exhibited new products and further developments relating to the topics of design and convenience.



TIP-ON
open



TIP-ON
closed



TIP-ON
in ventilation position



TENTAZIONE 2.0 WINDOW HANDLE

A LOOK AT THE FUTURE, AS A CREATIVE SPIRIT

In addition to the new products, it was primarily the trendsetting studies – such as the door of the future, the TIP-ON and the TENTAZIONE 2.0 window handle which attracted a lot of attention.

The value of the research and development work in terms of the international sustainability of the company can be seen in the concept studies, which created a huge buzz

at the trade fair. The door of the future, the concealed MULTI POWER hardware for angled or half round windows, the TIP-ON and the TENTAZIONE 2.0 window handle all sparked discussion and amazed the international visitors.

This positive feedback from the visitors encourages us to continue to develop some of the following studies.

FOR THE DESIGN-CONSCIOUS: TIP-ON WINDOW HANDLE

For design lovers, MACO exhibited a window unit with built-in TIP-ON window handle. TIP-ON is a flush, round button, which only pops out, and thereby becomes a handle, when it is tapped briefly. If it is then pulled out further, the window can be unlocked and opened. To close and lock the window, the sash is turned in the frame and the

button is pushed in again. Needless to say, the innovative handle also offers a ventilation position – in the form of a reduced turn opening. This unique MACO solution was met with great interest by the trade fair visitors.

A WINDOW HANDLE WITH THE CLOSING FUNCTION OF A CAR DOOR

Building upon the TENTAZIONE from the Emotion handle range, the TENTAZIONE 2.0 offers maximum closing convenience and can be used on all



turn-only and turn&tilt units, hinge-sides and materials. TENTAZIONE 2.0 combines the design of a countersunk window handle with the LOCK-MATIC component in the frame and sash. Just like when you close a car door, the sash remains firmly closed in the frame when it is pushed shut. A gust of wind will not open the window again by itself.

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*“It is the innovations
that make trade fairs
a success for MACO”*

EWALD MARSCHALLINGER
MANAGING DIRECTOR



THE MODERN DOORMAN

MACO's vision of the door of the future was the highlight at the Fensterbau Frontale: the door as the first point of contact and 'business card' of the house or company. No access barriers, just a smart, highly automated reception and entrance system tailored to requirements. Taking on the role of the modern doorman, the door is responsible for controlling access reliably, discreetly and conveniently. It can be controlled in a variety of ways, for example by app as well as remote communication via the intercom system, and it displays the house number and the family or company name. The door unit of the future offers state-of-the-art, biometric access control, by means of 3D face recognition, for example. Maximum security against physical or virtual manipulation takes on a key role in the MACO door concept.

SECURITY, CONVENIENCE AND DESIGN COMBINED

Three key elements take care of the drive and the smooth opening: the innovative M-LOCK door locking concept from MACO, which opens and closes automatically, cleverly and autonomously. This mechanical locking system also impresses with motorised pulling of the door sash for optimum gasket compression and its motorised opening. This is complemented by an access and communication solution using sound and



THE DOOR BECOMES A DOORMAN
FaceEntry – with 3D face recognition in the infrared range for maximum reliability.

A REVOLUTION IN THE SHAPE OF DOOR DESIGN THANKS TO MACO M-LOCK

The concept door, which was a real eye-catcher on the trade fair stand, breaks away from hitherto unshakeable shape standards and is completely revolutionary in that it can be realised as a design element in terms of outline and overall appearance, for example in the shape of the company logo. This is possible thanks to the M-LOCK: the locking elements are equipped with batteries, which re-charge inductively when the door is closed. They can be positioned independently from one another and do not need a cylinder or

visible hardware. This opens up unlimited possibilities when it comes to the design and shape of the door. Depending on the number of M-LOCK locking points, the door can be used flexibly for every security class. Full automation, easy user and access management and equipment condition monitoring all ensure maximum convenience.

A REVOLUTION IN THE SHAPE OF THE DOOR THANKS TO MACO M-LOCK
The sash and frame contour can be designed as desired.

vision based on 3D face recognition: regardless of the time of day and lighting conditions, an infrared camera detects authorised faces, unlocks the locking points and activates the revolving door drive, which is the third element, to automatically open the door. The drive unit is not visible in the door frame and ensures maximum convenience and a barrier-free design when passing through the door, without a cable transition.



MACO ON THE WAY TO BECOMING SYSTEM SUPPLIER AND SOLUTION PROVIDER

From a hardware company to system supplier

Statements such as “MACO closes the gap between the individual trades” and “Finally someone has thought about the entire construction process and is offering a ready-made solution” were frequently heard from customers at the Fensterbau Frontale in Nuremberg, where we presented the standard-compliant building connection for floor-depth large-format units.

MACO is no longer content to be a pure hardware manufacturer, instead the company sees itself more as a system supplier and provider of complete solutions. We regard the hardware, the window unit, including the building connection as one complete performance criterion in building technology.

MACO focuses on a system concept

To be specific: MACO thinks about the needs of window/door manufacturers and takes the individual processing steps into account, from planning to installation. This works, because MACO is the lynchpin between unit manufacturers, fabricators and installers and experts in the construction and security industry. Here at MACO, products are created in collaboration with partners and as a result of day-to-day practice, not at the drawing board or in the laboratory.

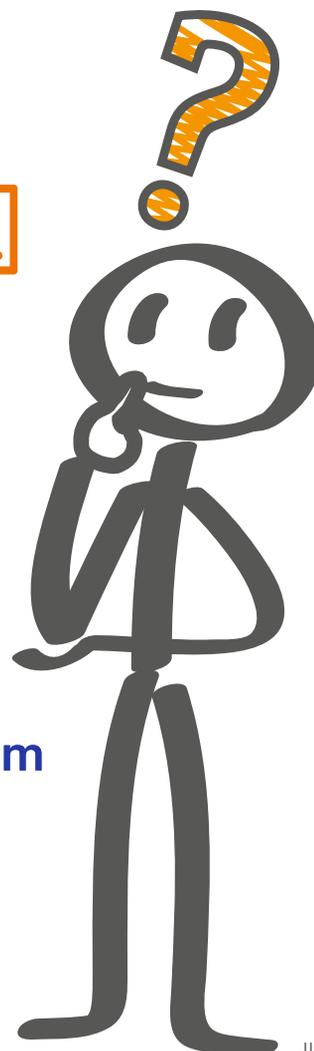
Why is this important? Always meet standards with MACO.

As “distributors”, all window and door manufacturers are obligated to comply with the CE marking legislation in Europe, and with regard to the question of product liability they are the first point of contact for customers. When connecting floor-depth units, for example, the main challenge is designing the connection so that installers can correctly carry out adjustment and sealing work. The “fitters” often encounter great difficulties on balconies, patios and flat roofs and the biggest challenge is ensuring a wind and watertight connection. If something goes wrong during installation and the customer later suffers water damage, it quickly becomes a question of who is responsible. Several trades are involved here and ensuring optimum interaction of the individual elements becomes increasingly difficult.

The question is: who carries out the necessary tests and thereby ensures that standards are met? It is often difficult to clearly assign responsibility. So what can be done? MACO has complete solutions at the ready for the windows and large-scale business areas.



EuroNorm





SYSTEM CONCEPT FOR WINDOWS

MULTI POWER with threshold

For professional installation, MACO offers window manufacturers precise solutions for the various system combinations, which are self-explanatory, easy to process and can be combined perfectly with one another. This includes MACO's concealed hinge-side MULTI POWER, which can be combined with six thresholds from various manufacturers. As all systems were checked under precisely defined conditions, they ensure smooth installation without any nasty surprises. The joint and watertightness test was passed, CE marking is assured and installation is straightforward.

MULTI ZERO – the flat revolution

Thresholds without obstacles, trip-free for children's trikes, walking frames and wheel-chairs – this is no longer a thing of the future, it is available from MACO from the end of September.

Barrier-free re-defined

With the unique locking hook for zero-barrier thresholds, MACO helps create professional thresholdless transitions – one of the most difficult tasks in building planning.

Nothing short of zero millimetres will do

Driven by DIN-Norm 18040 for barrier-free construction, MACO is the first in the industry to offer a solution for a fully barrier-free design with lock in the threshold. We are redefining barrier-free design and offering a unique technical solution which makes it possible to create thresholds without any obstacles. And when we say barrier-free, we really mean zero millimetres and not, as was previously the case, up to 20 mm thresholds which are accepted as barrier-free according to DIN 18040-1/ÖNORM B 1600 if less is not technically feasible.

Strong together

This kind of solution is a technical challenge which cannot be developed by one manufacturer alone. Only by utilising the synergies of the best solutions from the best manufacturers, can the best complete solution be developed. In order to offer our customers this level of quality, MACO looks to system partners such as the specialist for drop-down seals swiss Planet, the threshold manufacturer Grundmeier KG Fensterbau and profile manufacturer VEKA, for its hardware solution. As an innovator and the inventor of the locking hook, MACO leads this alliance of professionals with the aim of redefining the term zero-barrier threshold with a common element. Once again, MACO is leading the way and setting standards in the industry with regard to this key topic of barrier-free design.

Flush-fit threshold with no compromises

MACO's stepless new product MULTI ZERO fulfils all the requirements for barrier-free access while at the same time providing impermeability and security. The extendable locking hook integrated into the sash extends when the window or casement door is tilted and locked, in a similar manner to a door lock, and engages into the striker plates of the flush-fit threshold, from above. Thanks to the perfect synergy of the premium components, it meets all the requirements for water and air tightness while also providing burglar-resistance up to RC 2.

An end to the building connection problem

In the large-scale business area, MACO has embodied the system concept from the get go. As lift&slide units cannot stand alone and must always be fitted together with a threshold, MACO developers have always taken the entire unit into consideration and planned the building connection too.

Standard-compliant building connection for large-format units

MACO's research has resulted in the MACO threshold, which guarantees standard-compliant installation of lift&slide units in building shells. This means that the MACO large-format units meet the requirements for wind and construction phase impermeability, the ÖNORM and DIN standards and are tested by external assessors. Manufacturers and fabricators can focus fully on their day-to-day work: processing, selling and increasing their competitive edge together with MACO.



MAKING INSTALLATION EASIER
The MACO installation solution for connecting floor-depth units optimally fulfils common standards.



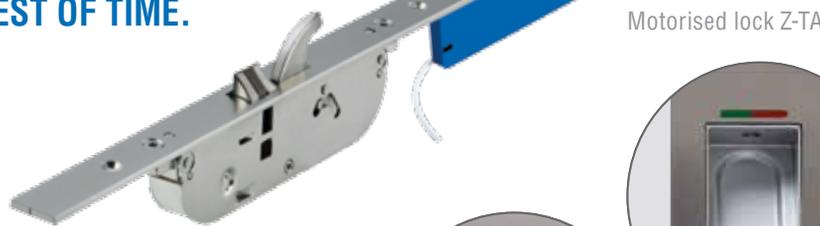


TIES THAT STAND THE TEST OF TIME.

From the classic door lock to the electronic access management system, a great partnership is what makes it possible.

Modern lifestyles call for modern and secure access systems in the door area. In the medium term, conventional door locks with key and, in the best case, a security cylinder, will be replaced by electronic access solutions. Manufacturers will need to get to grips with motor-operated opening mechanisms and automatically driven doors, which are managed via mobile apps and convenient software.

This is why MACO combines its hardware, which represents the heart of the door, with products from the industry professionals, from electronic access management to smart entry solutions. The result of successful collaboration with partner products can be seen in the intelligent MACO openLife access solution or the



Motorised lock Z-TA

integration of the Z-TA 3-latch automatic lock with revolving door drive.

Here MACO demonstrates successfully integrated services: by cleverly linking mechanical and electronic components, an intelligent access system for contemporary lifestyles is created.

The best of the best: systematic integration

Never have to search for your key again, never have to stand in front of a locked door with heavy shopping bags. The best example of successfully integrated services is MACO's Z-TA 3-latch automatic lock combined with the openDoor access system and door automation with integrated

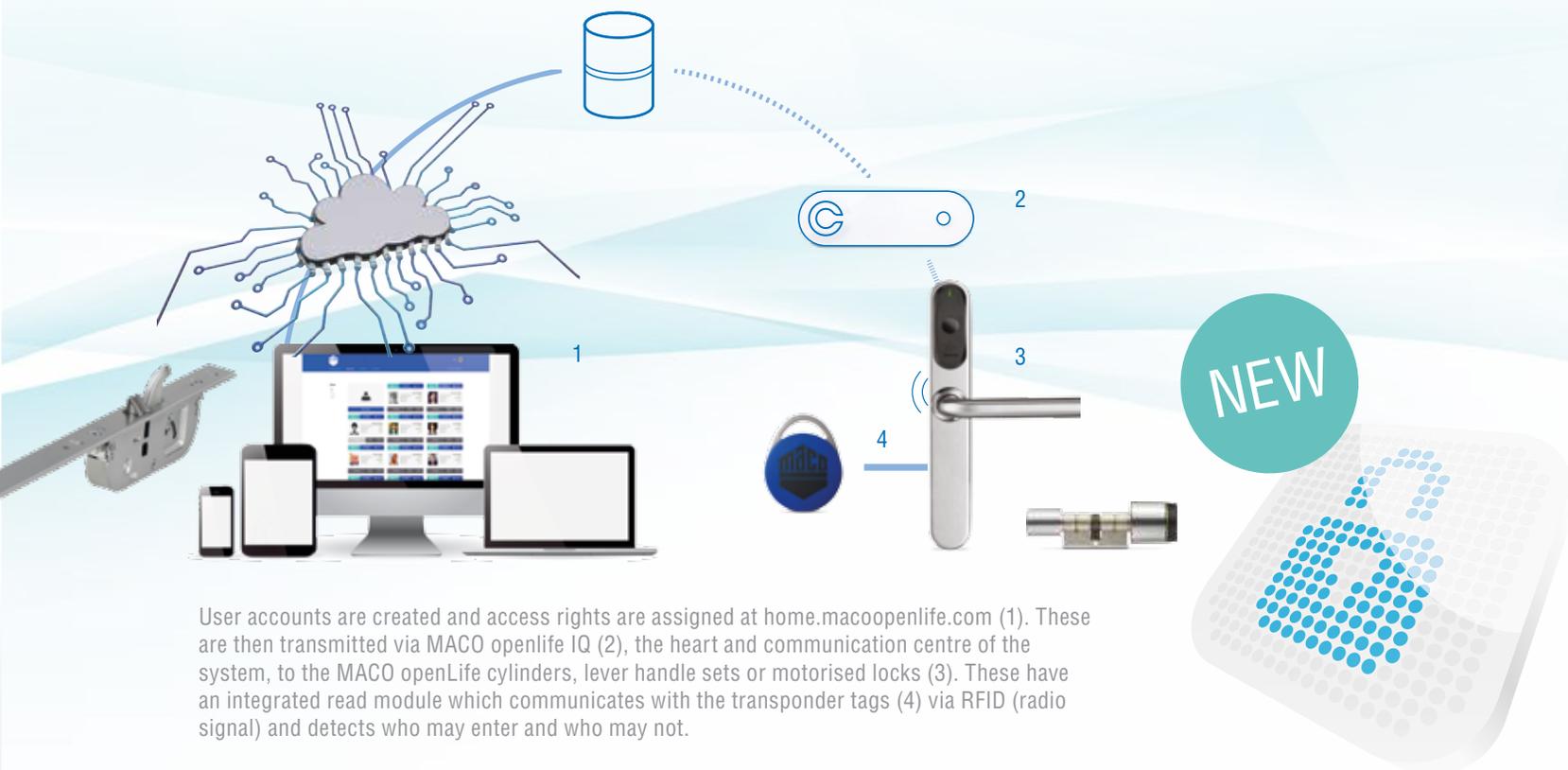


MACO openDoor
The access control system can be operated by transponder media (e.g. car key, credit card) or by finger scan.

- 1 | Fingerprint
- 2 | Transponder
- 3 | Car key
- 4 | Credit card

revolving door drive. MACO openDoor access control systems can be fully controlled without a key by means of touch (fingerprint), code (keyboard), transponder tag, credit card or car key.

The formula for success is: security with the Z-TA + easy operation with openDoor + automation with revolving door drive = optimum convenience.



User accounts are created and access rights are assigned at home.macoopenlife.com (1). These are then transmitted via MACO openlife IQ (2), the heart and communication centre of the system, to the MACO openLife cylinders, lever handle sets or motorised locks (3). These have an integrated read module which communicates with the transponder tags (4) via RFID (radio signal) and detects who may enter and who may not.

MACO OPENLIFE: INTELLIGENT ACCESS CONTROL

Open the door for the postman or son who has forgotten their key, even though you are still at work, allow cleaners or the gardener access to the house at specific times: all possible with MACO openLife, the modern, location-independent, real time access management system.

These innovative access solutions combines MACO's motorised hardware with electronic components from global market leaders, such as wall readers, E-cylinders or lever handle sets, and creates clear benefits for end customers.

MACO openLife is the intelligent, wireless access solution for small and medium-sized enterprises (SMEs), tradespeople, offices, practices and

chambers as well as the high-end private market. It provides flexible and convenient access management in real time, meeting the needs of modern lifestyles anywhere, any time.

Access organisation made easy

Grant or revoke access rights in real time from any location, open doors while on the go, while always keeping control of who has operated which door and when. MACO openLife takes on this function, operated from a PC or via app for Android and iOS. Doors and windows can also be opened locally via a transponder tag. This solution is also highly convenient for landlords of apartments or holiday resorts.

Highly secure thanks to encryption

No more security risks associated with losing a mechanical key, no more annoying and expensive cylinder and key changes: with MACO openLife, all communication between the components is encrypted and therefore protected against interception and replication. Critical security processes have a double layer of security: as well as entering a personal code (PUSH/TAN method), a verified smartphone must also be used.



DETERS BURGLARS AND WITHSTANDS NATURAL FORCES

NEW SECURITY SOLUTIONS FOR WINDOWS



The current figures from the German police crime statistics¹ give pause for thought. They make one thing crystal clear: home protection is more important than ever. Fortunately, the Reconstruction Credit Institute (KfW)² in Germany is increasing aid money for retrofitting burglary protection. This has prompted many German home owners to upgrade their windows.

As a result, we would like to take this opportunity to shed some light on the jungle of concepts surrounding the topic of security.

Burglar protection versus burglar resistance

Essentially, we must make it clear to end users that there is no such thing as 100% burglary protection. Instead we talk about burglary resistance. The burglar-resistant properties of the units are of crucial importance. These make breaking in as difficult as possible with the aim of stopping the burglar in their tracks, before they actually gain entry.

The extent to which a window needs protecting always depends on the location of the

property and the individual sense of security. In addition, we must make a distinction between remote properties, windows on the ground floor or easy to access areas on the first floor. It is important to distinguish between basic security and standardized security.

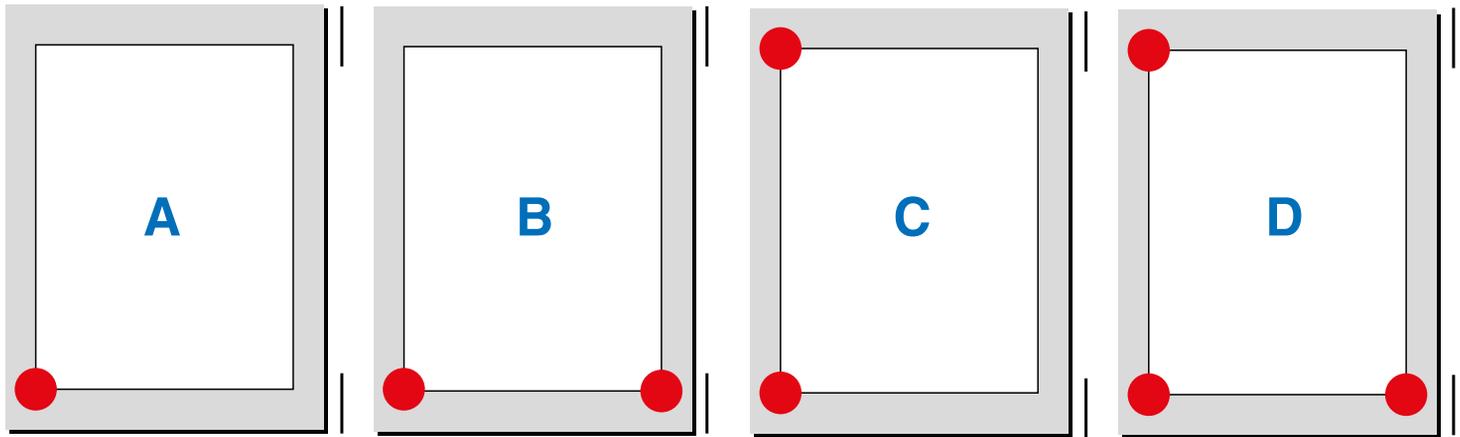
Basic security versus standardized security

Basic security is not tested and offers protection against vandalism and inexperienced opportunists. The majority



¹ Presented on May 23, by the German Minister of the Interior, de Maizière

² Kreditanstalt für Wiederaufbau (Reconstruction Credit Institute) with headquarters in Frankfurt am Main



of the windows currently available on the market offer basic security. These standard windows are not subjected to any security standards. No requirements are placed on the window design or glazing. Here, the hardware plays the leading role. After all, the hardware represents the point of attack for the burglar in almost every break in. In this case, the security is determined by the quality and the design or amount of hardware fitted.

MACO basic security

As a premium supplier, MACO's top priority is to guarantee basic security and optimum protection against thieves, even with its standard

versions. Our basic security is created through the interplay of the i.S. security roller cams on the central locking system and the security striker plates on the frame. In the case of MACO's MULTI-MATIC hardware range, the clever arrangement of the i.S. cam/the rocker holding bolt at the bottom, horizontally on the sash, make jemmying the unit out in the locked or tilted position almost impossible. With this solution we are already able to effectively counteract around three-quarters of all burglary attempts. Those who want to increase this basic security can secure additional corner points with security striker plates, as shown on the graphic above (basic security B – D).

Tested burglar resistance, standardised security

In contrast, standardised security is based on a range of standards which precisely define the requirements and test conditions for a window. Six burglary-resistance grades (RC) are defined in the standard EN-1627. The higher the RC grade, the longer the mechanical burglary protection must be able to withstand an attempted burglary and the more stringent the test conditions. In general, burglary-resistance grades RC 1 N and RC 2 are the most common. The N indicates that the glazing is not taken into consideration. It is assumed that in dense neighbourhoods, burglars generally do not tend

to attempt to gain access by the noisy method of breaking a window pane.

The choice of security class is normally made based on the location or the value of the property to be protected.

BURGLARY-RESISTANCE GRADE DEFINITIONS		
Burglary-resistance grade (RC)	Security to protect against . . .	Resistance duration
Basic security	Vandalism (kicking in or pushing in a window)	—
RC 1 N	Opportunists in inhabited/busy surroundings	—
RC 2 N	Opportunists with smaller tools in busy surroundings	3 minutes
RC 2	Skilled burglar with smaller tools, in remote residential areas or businesses	3 minutes
RC 3	Experienced burglars with larger tools, for upmarket residential areas and high-risk business areas (banks, jewellers)	5 minutes
RC 4	Forceful burglars with heavy-duty tools, e.g. for government or administration buildings	10 minutes
RC 5	Forceful burglars with electric tools in luxurious, remote residential areas	15 minutes
RC 6	Trained forceful burglar with extensive knowledge of high-security fields	20 minutes



MACO PRODUCTS PROVIDE PROTECTION

Sleep soundly thanks to self-locking drive gear

In addition to jemmyming the sash, intruders offer try to manually shift the cam in order to open the window. To prevent this without needing to fit an additional component, such as a lockable handle, MACO has developed the self-locking drive gear, which created a huge buzz at the trade fair in Nuremberg.

It prevents the security cam from being manually shifted in the locked and tilted position. Even if the cam is exposed during an attempted burglary, it cannot be shifted – it can withstand a force of over 300 kg. This function replaces the lockable handle. The self-locking drive gear is scheduled to be available from the end of July.

MACO MULTI SECUAIR – Breathe easy with secured ventilation position

Leave the house feeling safe and secure with tilted windows. No need to worry about uninvited guests or a sudden rainstorm. With its reduced tilt depth, the secured ventilation position provides energy-efficient ventilation. It is ideal for modern lifestyles, as it provides continuous ventilation and a constant indoor climate when the occupants are away for extended periods and for building shells with increased air tightness.

Do you want to provide ventilation when occupants are away but still benefit from the security offered by burglary resistance grade RC 2 according to EN 1627? The solution is MACO MULTI SECUAIR.



VENTILATION WITH RC 2 – MULTI SECUAIR
The sash protrudes 10 mm at the top: air flows in, rainwater is kept out.

Secure ventilation for greater thermal and visual comfort

The secure ventilation position can be achieved with just one item and extends the operation of the window to include an additional ventilation function. In addition to the familiar tilting at the full tilt depth in the additional 135° handle

position, a reduced tilt opening via the familiar 180° position is now possible. With a maximum opening width of 10 mm, this reduced tilt position is large enough to allow continuous air circulation yet small enough to maintain the same level of resistance to burglars as a locked window. As it is not visible from the outside, it does not even tempt bur-

glars to try. MACO is particularly proud to have developed a solution which stands up to all three security tests according to the standard.

Mechanical burglary resistance combined with electronics
Those who want an even higher level of security can combine mechanical burgla-

ry resistance with electronic burglary protection. Here, MACO offers additional reed/magnetic contacts for the locking and tilt monitoring which interact with the hardware components. Useful components such as a contactless sensor for alarm glass and glass break sensors round off our security offerings.



PRODUCTION: THE BEATING HEART OF MACO

Every day, more than 50,000 individual items pass through the conveyors in MACO's production halls. This is achieved thanks to sophisticated mechanisms, well thought-out technology and extraordinary process expertise.

No "cookie-cutter" workflows

Consistently customer-oriented. This is how MACO has operated since the company was founded, producing highly-customised items by request. This customer focus with a solution-based service approach has made MACO what it is today: a leader in engineering and technology, a hardware manufacturer as a system supplier, solution-oriented and a company with cross-trade plans.

Impossible isn't in our vocabulary: Our own tool/installation technology

If the tools and machines needed for the highly-customised production process are not available on the market, then we build them ourselves. Tool and machine building are a fixed part of MACO production, which now has a fleet of machinery, enabling a very high level of in-house production. This means that design, development, production and manufacture all take place under one roof, ensuring short paths, low failure rates and quick response times. In this way, not only has MACO created an enormous competitive advantage, the company also has an extraordinary level

of in-house production – 98% is made in Austria. In comparison: the average in-house production in the industry is around 30%.

A wealth of expertise: Enormous production variety

No other manufacturer offers such an extensive range of production processes as MACO. Crimping, die casting, injection moulding, extrusion, aluminium casting, turning, milling, cranking, laser welding, galvanising, cathodic dip and powder coating, TRICOAT-PLUS, anodising, varnishing, evaporation and slide grinding, riveting, compression moulding, welding and clinch riveting are used. Manual, semi-automatic and fully automatic mounting processes complete the production range. Other processes such as hardening, eroding and grinding are used for tool making.

Unique level of in-house production

MACO is the Austrian leader in injection moulding and surface treatment technology. MACO carries out on-going research and work on new materials and methods of PVC processing and surface

treatment, both internally and in collaboration with external partners. This enables us to meet future requirements today.

The in-house surface treatment technology is a real MACO USP. No other manufacturer has such a wide surface range, never mind one that is produced in-house. Even here, MACO does not need to call upon external suppliers to provide surface treatments. The huge advantage of this is that MACO has a direct influence on the product quality and can detect and remedy any errors in the early stages.

Quality and quantity – MACO makes it happen

As a result, MACO has a very low error reject rate and enjoys its reputation of providing practically perfect product quality. Customers benefit from this level of production quality through reduced service requirements, less complaints and low margins. Only premium goods that have been 100% checked leave our factory. This also significantly speeds up our production cycles and virtually eliminates any industrial espionage. This is how MACO consistently maintains its competitive edge

and preserves the flexibility needed to carry out the work they do.

Appreciation through added value

Even the very best machines are of little use if they are not operated and monitored by skilled employees. And an individual expert in an area is of little help if there is no cross-department work or communication to maintain the product flow as a team. Our professed goal, here in the MACO production department, is to be the best by exploiting all the potential of a closed value creation chain. Our on-going implementation of further developments and improvements with the aim of achieving perfection always takes the entire process into account.

The introduction of shop floor management as part of the lean management process has really turned things around at MACO in no time at all. Internally, it has been met with a lot of positive feedback, as employees have noticed that they are now working better together. Interdisciplinary exchange with colleagues enables them to see how their work is a valuable part of the overall process.



Clearer structures and daily key figures in their workflow keep them grounded and provide orientation. Regular feedback with one another lowers error rates, increases praise and recognition, and last but not least, raises self-esteem and appreciation of their work. As a result, it also increases their sense of identification with their workplace and employer.

“Drive by sight”

Every single job must be carefully staffed and each link in the chain must be able to respond quickly, flexibly and smoothly. MACO’s production department meets this

requirement and is therefore a key part of the value stream within the MACO Group. All those involved in the value stream are responsible for

skills and expertise, which are developed further as part of a learning organisation and tested regularly via key figures and external benchmarks.

The daily meetings on the shop floor are vital as they bring the team together and help identify deviations in production as soon as they arise, which means that measures can be taken to counteract them without delay. The aim is to “drive by sight”, as MACO knows that: 20% of the error sources cause 80% of the problems. Therefore errors are analysed immediately and sustainable solutions are found for frequent, typical errors. A regular group of people, consisting of all those involved in the product manufacturing process, take care of the continued development of this process.



Forward-looking production

Highly flexible systems and motivated employees are the key to maintaining our competitive edge and MACO's Austrian production location. Here, the clever networking of IT control and the open interaction between people and machines play a decisive role.

The most successful companies of the future will be those that can link all their production processes as perfectly as possible. Our hardware is being transformed into intelligent building technology by the addition of electronic components: Smart Home solutions such as opening door lock systems remotely,

ventilation and shading via software control, from any location and in real time are all scenarios which would have been classed as science fiction just a few years ago. This means a high level of adaptability is required from our production department. Our fleet of machinery is continuously being upgraded or converted and communications between people, machines and products are linked. We are combining all our measures with regard to Industry 4.0 and increasing quality as well as cost-effectiveness and time and resource efficiency. This is how we meet the rapidly changing requirements of the various markets.

Industry 4.0 is standard at MACO

The MULTI POWER system is a prime example of this perfect interaction between people and machine. This high-tech system was developed and built by MACO especially for scissor stay and pivot post production. Only a few components, such as the gripper robot and the control technology, were purchased from leading manufacturers and fitted. The MULTI POWER system is highly automated and, thanks to the ease of setup, it is extremely cost-effective: as the setup time is almost zero, it can be used to produce even very small batch sizes at a low cost. Only aspects which would involve

high costs if they were automated are carried out by the machine operator – as shown here in the images. She inserts complex parts, while the subsequent fully-automated tasks are carried out by the machine. It also goes without saying that the production process can also be interrupted at any point to carry out customised punching processes.



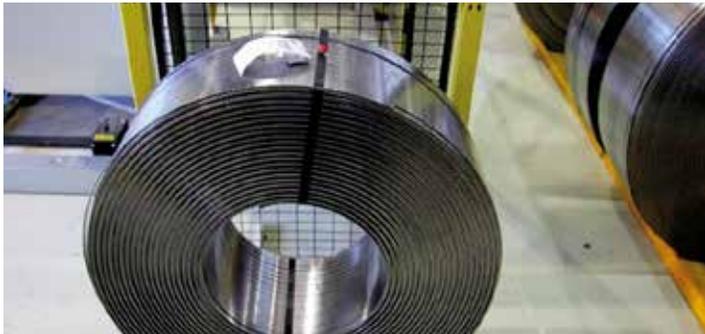
MULTI POWER system.



The result is 100% quality-tested parts, packaged and ready for loading.

HIGH-PERFORMANCE MACHINES IN USE

The high-performance punching system PF 80 is MACO's flexible flat belt system for producing faceplates. The starting product is a steel roll, called a coil. It is clamped in front of the PF 80. Every minute, 24 metres of steel pass through and 10 parts are produced. In total, it moves 1000 kg of steel in half a second.



Through the interchangeable insertion of tool slides, cutting dies can be adjusted and changed over within five to ten minutes. The machine moves 1000 kg of steel in half a second, which allows MACO to carry out flexible punching according to customer requirements.

High-performance extrusion press for producing i.S. cams. It produces 180 parts per minute. A wire coil is clamped and the i.S. cam is created from this in five forming stages. The material is subjected to a press force of 350 kN per forming stage.



FOCUS ON FABRICATORS

UNITED IN TRUST

With the trend for ever larger lift&slide doors and the increasing technical demands placed on large-format units, Gaulhofer continues to rely on MACO. Now they are forging ahead with their successful partnership in window production, which spans over 30 years, by also working together in the lift&slide segment.

A successful partnership builds strength
MACO's quality standards, innovative strength, expertise and collaboration with partners have impressed the Purchasing, Development and Product Management departments at Gaulhofer.

The best units call for the best hardware
Barrier-free thresholds place new demands on lift&slide units, which must offer smooth running during operation as well as no-compromise sealing systems and security, while accommodating ever larger glass surfaces, narrower frames and heavier weights. Contemporary lifestyles also call for impressively beautiful views unhindered by visible hardware. When it comes to high requirements such as these, Gaulhofer needs a partner they can rely on, and as a result they have opted for MACO's lift&slide hardware from the well-known PANORAMA series.

The quality is in the details
"Adjust-ability is the most crucial aspect of a lift&slide door. The need for flexibility is growing, while the tolerances



The manual wet sealing with special silicone ensures 100% impermeability.

are becoming ever smaller," says Dietmar Hammer, Head of Product Management at Gaulhofer. "With MACO's lift&slide hardware, we are able to offer a top quality hardware package, even in the basic configuration, which impresses with extensive and intelligent, well-thought-out details. Thanks to the various designs and different material groups, it offers versatility and can be individually combined, which means more convenience for trade partners as well as security and design for the end customer."

Flexible modular design
"The flexible design of the new lift&slide units is particularly important to us. We are a company which focuses on

service, which takes a highly customised approach to customer requirements. MACO's hardware range is the best way to achieve this and with its modular concept, it offers us great freedom when it comes to product design. We can retrofit a standard unit with just one or two components or perfect it and turn it into a high-end unit. With MACO, RC 2 security can even be achieved on standard designs. This offers us so many sales and distribution advantages," says Head of Marketing Christian Taucher.



Head of Marketing at Gaulhofer Christian Taucher (right) and MACO Product Manager Florian Ebner with a large unit.

No compromise sealing systems

Increased sealing with regard to air permeability and driving rain are the be-all and end-all for Gaulhofer, who accepts no compromise and demands absolute perfection on large, floor-depth units. This is why the company relies on MACO's four-sided sealing system with the proven multi-chamber gasket track. Two track bodies with four inter-hooking sealing profiles for frame and sash impermeability offer optimum protection and guarantee a competitive advantage.

Turn a corner

In addition to this, MACO offers a unique silicone sash gasket for lift&slide units – the first of its kind on the market – which also provides a permanent connection in the corner. As a continuous seal which runs around the corner in the sash rebate leg, it provides an

increased, permanent seal, optimised operation and reduced closing pressure.

Security on the go with MACO

“The security solutions that the Salzburg-based hardware professional can produce for large-format units are impressive”, says Head of Purchasing Ferdinand Rieser. Previously, Gaulhofer's large units did not feature increased burglary protection or RC 2, now it can be easily implemented using MACO components.

Concealed steel hook drive gear – one-of-a-kind for more security

Everything is smooth and even, there are no protruding locking parts, any risk of injury is ruled out. As a responsible company, Gaulhofer looks out for its customers, and especially family properties where there are children run-

ning in and out. Only when the door closes, do the hooks move out and silently engage into the frame-side, flush recessed striker plates without contact – at all other times they are not visible. The increased locking security when closing, results from the dead weight of the sash, whose hooks are firmly anchored in the frame. This solution provides a high level of mechanical burglary protection up to RC 2, which is not a given in conventional large units.

Secure, sealed and barrier-free

MACO's hinge security provision on PVC gasket tracks also provides particular convenience and security according to RC 2. It enables a barrier-free design to be achieved, and can be fitted or retrofitted easily and in a concealed manner. Giant windows which offer convenience, design and

security can be realised. The excellent properties of the gasket track with regard to the required space, wind and watertightness or thermal insulation are maintained.

Anti-drill plate-RC2 as standard

MACO's array of sophisticated components open up a wide range of design options. For example, the anti-drill plate, which can be fitted or retrofitted quickly and easily, is a must on large-format units that need to meet RC 2. It prevents the lock case from being drilled open from outside, thereby preventing the lift&slide unit from being opened.

Gaulhofer Fusionline lift&slide doors in oak





Despite the space-saving design, the gasket tracks are characterised by their excellent thermal properties.

Hinge security provision on PVC gasket tracks

The flat roller track impresses with its low height of just 5 mm.

By using a special process, the new silicone sash gasket for lift&slide units can also be permanently connected in the corner.

USP:

The GRP threshold

The thermally broken threshold and a low passover are regarded as self-evident luxury at Gaulhofer. Therefore, integration of the MACO GRP threshold is a must, which Gaulhofer uses to set new standards in convenience and design. With a flat roller track and low threshold tread board, the boundary between inside and out disappears. Not only does this look attractive, it also eliminates any risk of tripping. Whether it is a child's trike, walking frame or wheelchair, it is barrier-free for every generation. What is more, it is

extremely stable and provides improved handling from production to installation. Using the optional insert profiles, it also impresses with its outstanding thermal properties with extremely low U values. The range of threshold versions means that systems with up to three running axles can be realised. This multi-track option for opening the large-format unit is highly appreciated by Gaulhofer for their foreign markets, where this is an important criterion.

A clear view

Contemporary lifestyles also call for convenience and

design as well as security. An ultra-narrow design, frameless fixed parts, concealed hardware, to name just a few, turn the inside outwards and give the INLINE series from Gaulhofer a special touch for modern architecture with light-filled rooms.

High operating convenience

The ability to operate giant windows up to 400 kg easily with a single hand is essential for Gaulhofer. The roller-guided guide unit serves to smoothly move the sliding door. The sash and hydraulic drive gear damper or additional roller are used to

ensure perfect force transfer for smooth running, low-noise operation. They brake the sash and the return of the handle in a controlled manner and ensure gentle closing with a discreet closing noise. All components are designed to ensure easy installation and make it easy to hinge and unhinge the sash.

SEE AND BE SEEN

MACO Germany has opened a showroom and we would like to invite you to come and visit. At the new slide world in Schöllnach, we demonstrate the options on offer for meeting modern living and design requirements. By combining large-format units such as lift&slide doors with MACO hardware, a connection can be established between indoors and outdoors, creating openness and space.

With a range of large-format displays, we present timber and timber/aluminum systems, with frameless fixed glazing, narrow frame designs of just 80 mm, sash weights of up to 400 kg and security hardware according to RC 2 for example, to trade partners, fabricators and architects.

On the PVC units, you can assess concealed locks, brush technology on rollers or the barrier-free passage, for example.

The parallel-stop-hardware display allows visitors to take a look at the secured ventilation position, open sash units up to 200 kg or admire the appearance and advantages of the corrosion resistant TRICOAT surface coating.

The new connection for floor-depth units, which was in demand at the Fensterbau Frontale trade fair, is of particular interest. Here, MACO demonstrates its specially-developed solution for standard-compliant installation in building shells according to the standards of the Germany, Austria and Switzerland.



WANT TO KNOW MORE?
Then why not make an appointment with MACO:
d-maco@maco.de

Furthermore, a range of door lock variants and the latest new products for windows are on display.





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