MACO

TECHNOGRAMM

ENTER INTO
MACO's
WORLD OF

SMART
BUILDING
COMPONENTS
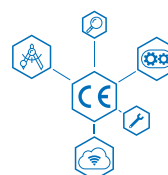
BAU 2017
January 16–21 · Munich

SMART BUILDING COMPONENTS: ALWAYS IN THE LEAD WITH MACO.

Dear readers, dear friends of MACO,

2016 is coming to an end. It's time to reflect and set new goals. What are you going to focus on, where can we win new customers? Also: what will drive you? Are you selling with passion or frustration?

We are driven to provide you with specific solutions for operational use and show you ways to increase your company's efficiency beyond the existing products, equipping you to win in the hard-fought market. This requires attractive products that generate added value and offer convenience and security as well as the standard benefits. We realise these based on customers' individual interests and needs, which generally arise from day-to-day situations. Working hand in hand with you, the direct line to the market, and listening to the customer. This is why we always keep our hardware up to date, transforming them into *smart building components* by integrating our partners' expertise. They provide the drive and determine the topics in this edition, whether it's the motor in the lift-and-slide element, the fully automated door drive unit or the sensor element in windows / doors for building monitoring. We want to manage the variety

and complexity involved in buildings and create an energetic market place for building automation. To do so, we are creating new business models which overcome the challenges inherent in networking, digitalisation and the smart home. Whether it's a private home or a commercial building, automation within our own four walls is increasingly becoming the key to successfully retaining customers and winning new ones.

New technologies are used to create completely new, intelligent business processes, products and services. The question remains, however, of how to successfully implement these changes? What we need is a clear picture and an environment that supports the changes. We are your partner, providing comprehensive solutions that generate drive and passion.

We hope you have a great festive season and a successful start to the new year.

The Management Board of the MACO Group

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

CONTENTS

NEW TO THE MARKET:
BARRIER-FREE WITH MULTI ZERO – NO EXCEPTIONS!

The hook lock for the zero-barrier threshold system with tilt function is now here. Everyone's talking about barrier-free. However, for what are known as 'barrier-free thresholds', the current German industrial standard 18040-2 accepts a tolerance limit of 20 mm if barrier-free is not technically feasible. It has long been difficult to create an effective seal without a stop edge. Working with GKG, MACO has overcome this hurdle and now offers a zero-millimetre threshold system that not only creates a completely tight, secure seal but also, as requested by customers, now has both a tilt and turn position. This functionality is unique in the market.

Open: The smart double hook is countersunk into the sash rebate.

Tilted: The anti-jemmy protection in the tilt position provides the maximum possible security.

Closed: A locking point in the threshold provides the maximum possible security.

SELF-LOCKING DRIVE GEAR:
PUT A STOP TO BURGLARS

The self-locking drive gear has been available since autumn 2016. Will your customer plan ahead or retrofit? It's the ideal solution for both choices, fighting back against rising burglary rates. When it is closed, the self-locking drive gear prevents the supporting cam from being shifted; even with up to 300 kg of force applied to it, it won't slide and the window can't be unbolted. This increases the fundamental level of security in a standard window and acts like a lockable handle. This means that conventional window handles can be used, increasing the range of handle designs and colours to choose from that suit the interior décor.

Flexible window shape and material
The self-locking drive gear is suitable for both the turn and turn&tilt window and a range of window shapes as well as all window construction materials. This enables you to clearly stand out from the competition.

Unit drive gear without self-locking: The handle opens when the supporting pin is shifted

Unit drive gear with self-locking: Even a force of up to 300 kg won't shift the supporting pin.

Make your own attempted break-in and visit us at BAU in Munich.
Try for yourself to beat the self-locking drive gear:
Hall B4, Booth 528.

BAU 2017
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MACO is listed in the State Offices of Criminal Investigations' directory of manufacturers.

INTELLIGENT LIVING IS HERE.
START YOUR UPDATE WITH US!

The term 'smart home' includes many different scenarios and technologies, but what exactly is behind it and what does it really mean? We have discovered that the term is used by many people, but they each understand it as something different. Until smart homes are used as naturally as cars are – get in and drive off – there is still some way to go. The Technogramm team has done some research and will try and explain a few things.

© VadimGuzhva / Fotolia

Smart home

Smart home or intelligent living means the networking of several devices to create practical building technology. When it goes dark, the venetian blinds close automatically, the heating is turned up and the lighting is switched on, to indicate that someone is in. Or the front door unlocks and opens using biometric facial recognition as soon as the owner approaches.

Building technology can therefore be adapted to the owner's requirements; it's convenient, secure and saves energy. One of today's greatest catalysts for new technologies is the desire for greater energy efficiency and secure buildings.

Smart home evolution:
From cable to wireless

DRIVING SMART HOME TECHNOLOGIES:

Video / building monitoring, alarm systems

Heating control, lighting systems, power supply for stair lifts, communication / intercom systems, energy, photovoltaics, solar thermal energy

55%
SECURITY AND CONTROL

53%
ENERGY EFFICIENCY AND SUPPLY

48%
HOME COMFORT
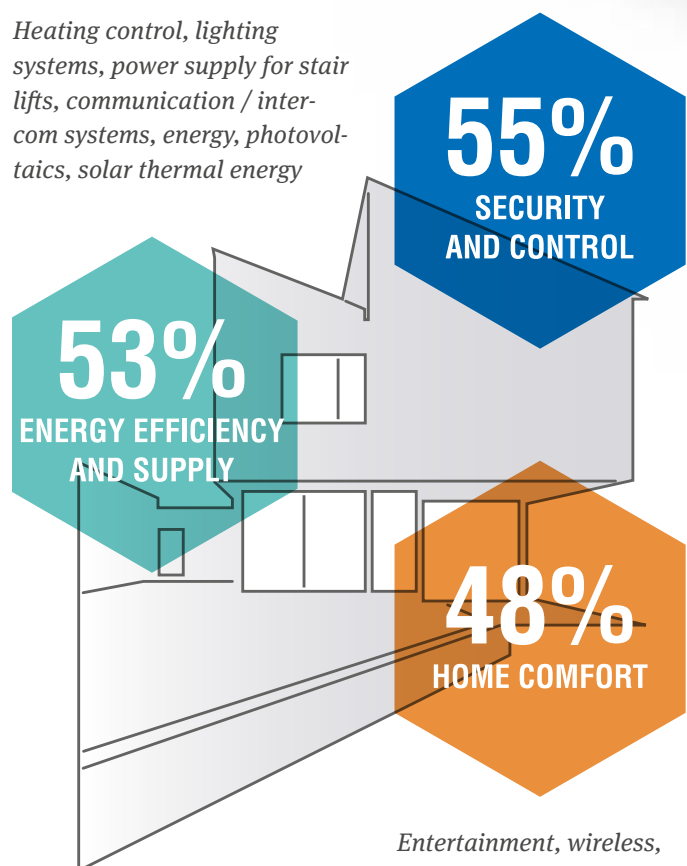
Entertainment, wireless, use of audio / video content throughout the home

Interest in smart home applications among 7,000 people surveyed.

You hear some people say that central home automation was around ten years ago, it's not new. Back then, heating, venetian blinds and lighting could be operated automatically. However, this involved wired components that took a lot of time and significant technological know-how to install in the home, with the control panel often hidden in the fusebox in the garage. Even for technology geeks, it wasn't exactly convenient. What has changed since then, drastically increasing the integration of smart home technology, is the technological development in the background in the form of new, wireless networks.

It's all a question of protocol
In order for individual components (e.g. the window sensor with the heating or building monitoring) to work reliably together, they have to be able to communicate with each other flawlessly. In other words, they have to be able to speak the same language. This is because of transfer protocols. In the last few years, the development of Bluetooth, WiFi, RFID and KNX has resulted in significant progress, with wireless superseding cable.

Previously, transfer protocols only had one channel and could therefore only send in one direction, with no backward channel. The command to be issued, e.g. to switch on a lamp, could only be controlled if you were within visual range. The aim of a smart home, however, is to send wireless commands over a wide range throughout the entire house and have control outside of the area that is visible.

This has been achieved thanks to bi-directional communication. Using this, the issued commands, which used to be only one-way, can be checked without making visual contact, usually via a mobile app. Technological transmission standards for smart home applications have been successfully created.

Wireless protocols have a different frequency (868 MHz, up to 2.4 / 5 GHz in WiFi area), a better range, can penetrate obstacles such as steel or solid walls in old buildings and are more secure.

Smart home wireless standards for home automation vary depending on the manufacturer and system. It is important for smart home services that the wireless standard will continue to be supported in future and is widely used so that a range of products can be networked with each other. The opposite to this is a proprietary system that is closed and only works with selected products.

WiFi There are many criteria for smart home wireless that WiFi cannot fulfil. It uses high amounts of energy and, as an open network, is vulnerable if it is not protected. This requires IT skills.
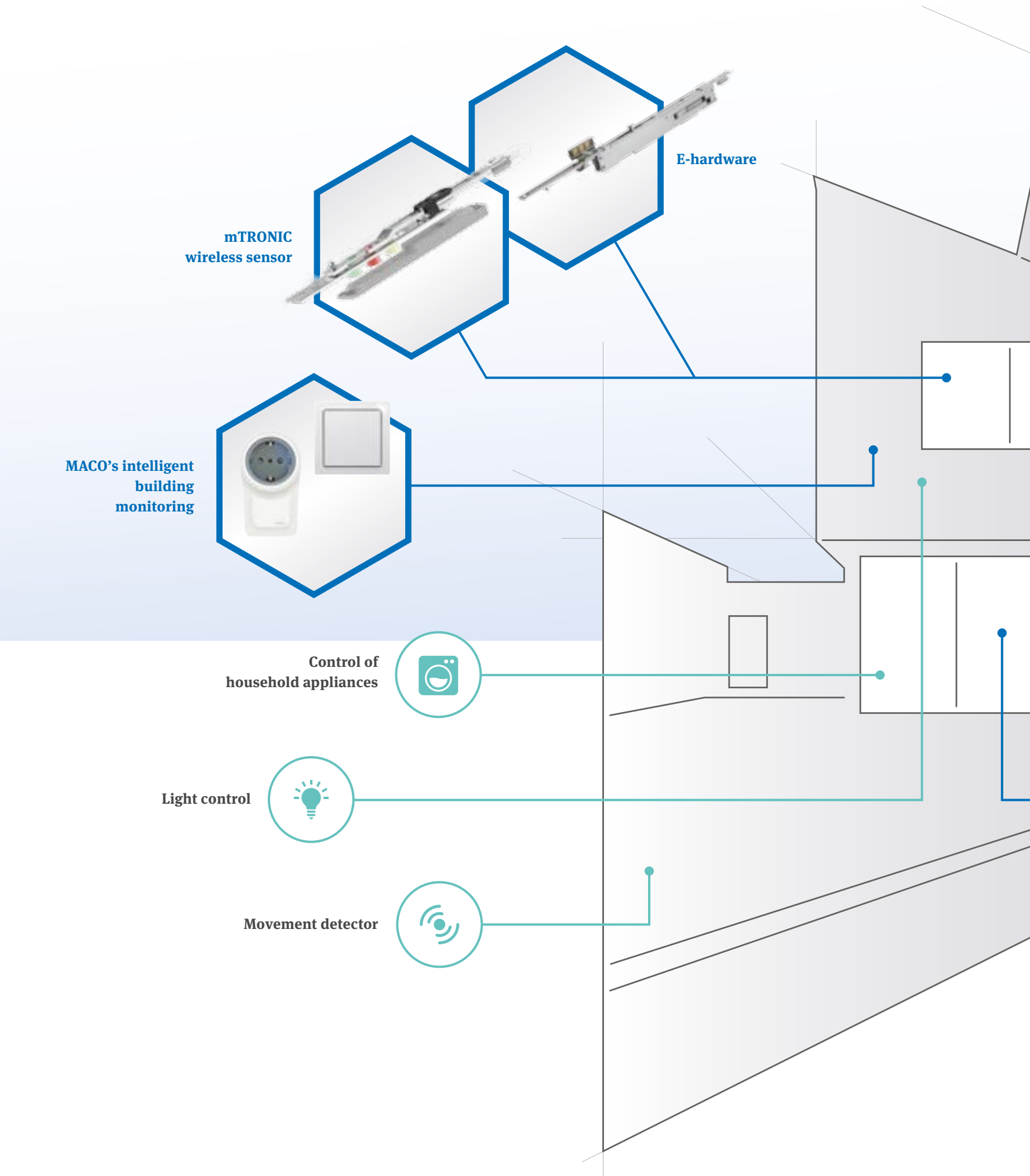
KNX One of the most widely used cable and wireless standards is KNX, use of which has noticeably grown across a range of devices and manufacturers. KNX can be used to control a whole variety of systems – heating, lighting, venetian blinds, security technology and ventilation.
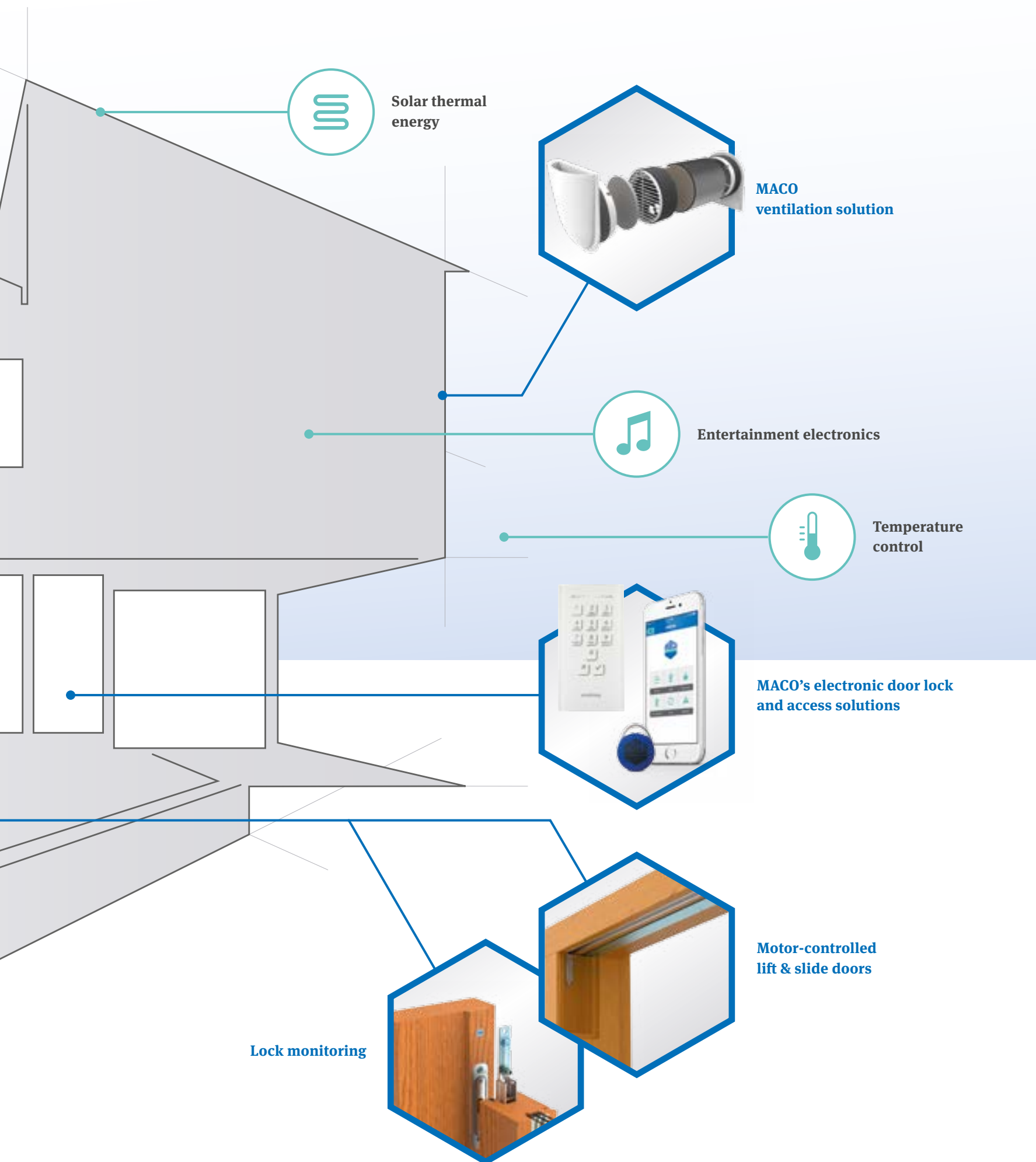
Bluetooth Bluetooth is particularly common in the smartphone and entertainment sector as its bandwidth is still pretty small and its range is limited to just a few metres, but this is being worked on. Currently, Bluetooth is often used in wireless locking systems.

enocean EnOcean is a standard for battery-less wireless sensors that applies to all manufacturers and is primarily used for monitoring and controlling home and building technology. EnOcean is currently one of the mostly widely used wireless standards and differentiates from others through the principle of 'energy harvesting'. This means that the sensors and switches primarily work without batteries and generate their energy as they work.

Z-WAVE Z-Wave is a high-quality wireless standard with a simple, but extremely well thought-out design. Using this wireless standard, a very wide range of devices can communicate with each other, creating a stable, fail-safe smart home network.

ZigBee When ZigBee was developed, it was a wireless standard that revolutionised smart home wireless systems. Individual devices and components are all networked together, communicating directly with one another. This ensures an energy-saving, efficient and secure smart home network for use in home automation.

E-hardware

**mTRONIC
wireless sensor**

**MACO's intelligent
building
monitoring**

**Control of
household appliances**

Light control

Movement detector

Solar thermal
energy

MACO
ventilation solution

Entertainment electronics

Temperature
control

MACO's electronic door lock
and access solutions

Motor-controlled
lift & slide doors

Lock monitoring

Using smartphones as control panels

The expansion of network and internet connections and the rapid rise of smartphones from 2007 gave a huge boost to the development of smart homes. Suddenly, mobiles could show and control devices remotely, which could previously only be managed locally using a computer.

TV   PC   **2007** SMARTPHONE   TABLET   SOCIAL MEDIA   CLOUD   WEARABLES
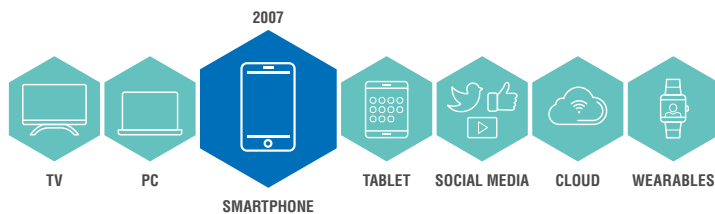
Convenience wins over fear of technology

At the turn of the millennium, who would have thought that phones would be used as cameras, radios, navigation devices and TVs? This development meant that the computer became less of a multi-purpose device, with heating, alarm systems and door locks being able to be controlled from a smartphone or tablet. Daily life is now all about convenience; this has encouraged the development of what's known as the Internet of Things.

Internet of Things (IoT) with many stand-alone solutions

And so we now come to the IoT, the Internet of Things, connecting things with places and people. This is done using a network of sensors installed in machines, devices and objects, etc., making everything 'intelligent'. MACO's window sensor mTRONIC, for example, that sits in the window and reports any changes in the connected devices to the signaller, is part of the IoT.

It's one of many solutions and just one example of things that make up a smart home. The multi-layered networking of the IoT is being particularly driven by Ambient Assisted Living. Assisted living in old age is becoming increasingly important due to demographic shifts and aims to support living in a familiar, home environment for longer. The baby boomer generation wants to counter the shortage in care home places and aspires to live independently in their own home into their old age. This requires not only sensors and actuators on windows, doors and lights but also in the floor to report a fall, sensors in the laundry basket to notify a cleaning service and ultimately sensors in clothing too, to name but a few – imagination knows no limits.

Fragmented smart home landscape?

Whether the system uses Bluetooth, EnOcean or ZigBee, as long as the various devices speak the same language, i.e. use the same protocol, they can be controlled and monitored in the same network. This task is done by the gateway, which is the central control unit. It creates the connection between smartphone, tablet or PC and the controllable products (sensors such as mTRONIC and actuators such as the signallers for lighting and alarm notifications) and builds a network between the integrated components. The more universal the wireless protocol, the more sensors and actuators can be integrated by the gateway and allowed to 'talk to one another'.

Whether there are individual components for building monitoring, smart entry or to control lighting and sound, this is just the start of the interaction between the various electronic systems in a home.

It will be exciting to see how these different systems will be controlled together in the future. Presumably, the most influential providers will come out on top: Industry giants such as Microsoft, Apple and Google but also Amazon or Samsung will be the ones offering central gateways based on traditional IP technology which can then be used for user-friendly control software via PC or apps. This will bring the various wireless
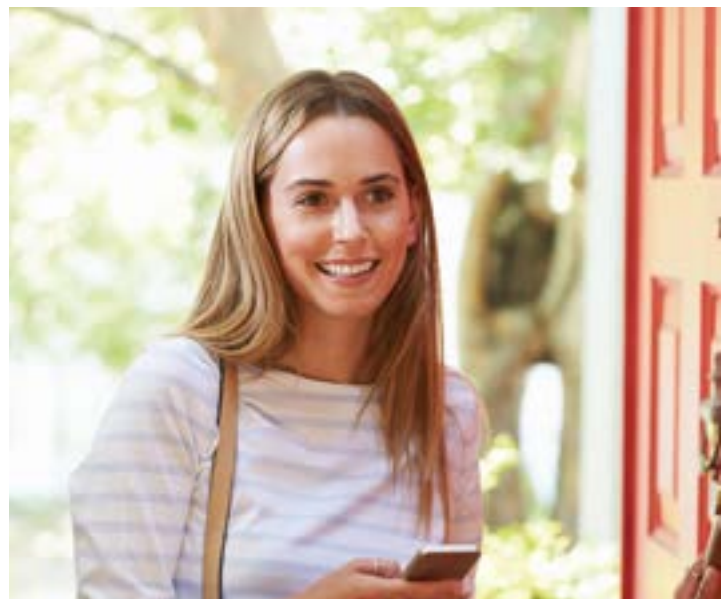
standards, operating systems and integration into the internet down to a common denominator. However, until this happens, significant technical knowledge and precise selection of the individual components and standards is required in order to maintain a networked home, not a damaged one.

COMMUNICATION STANDARDS IN THE SMART HOME

Protocols / Application	WiFi (2.4 / 5 GHz)	Bluetooth (2.4 GHz)	ZigBee (2.4 GHz, 868 MHz)	Z-Wave (868 MHz, 908 MHz)	EnOcean (868 MHz)	KNX (own cables)
Consumer electronics (tablets etc.)	current	current	not available	not available	not available	current
Household appliances (washing machine etc.)	current	future	current	future	future	current
HVAC (heating, air-conditioning)	current	future	current	current	current	current
Electrics (sockets, lighting etc.)	not available	future	current	current	current	current
Safety (smoke, gas, water)	current	future	current	current	current	current
Doors / windows (contacts, roller shutter)	not available	current	current	current	current	current

● current areas of use   ◐ future areas of use   ○ not available

Source: mm1 adapted

We talk to everyone

At MACO, we are therefore applying ourselves to the task of scouring the market for all available options so that we can offer the best components for the best complete solutions. We don't want a stand-alone solution; we are talking to everyone. What this means is that our solutions packages are compatible with current systems and smart-home enabled. Whether you are looking for home automation, a smart home or the Internet of Things, MACO's innovative products are designed to be used in networked, diverse ways. This flexibility lends them added value and opens up promising areas of business.

Editorial team contact:

Are you interested in further topics, questions and requirements relating to smart homes? Send your enquiry to technogramm@maco.eu.

We will happily include your requested topics in future editions.

MACO HOME

0%   UPDATING...   100%

Sources: c't Wissen, c't Smart Home 2016, Wikipedia, www.qivicon.com, GFK Smart Home Study 2015.

SMART ENTRY – CONVENIENCE AND THE ULTIMATE IN SECURITY

The 'Internet of Things' is changing our daily routines at home and at work. The networking of 'things' is automating our lifestyles. Smart buildings, self-driving cars and intelligent solutions in all areas open up new business models and market opportunities. We would like to introduce our smart solutions.

ROBERT ANDEXER
Head of Business Unit Door
at MACO

TG: Mr Andexer, you introduced MACO openLife at the Fensterbau Frontale trade fair and have since launched it on the market. What are you hoping to achieve with the networked, electronic access control system?

Andexer: Using the intelligent access management system, MACO openLife, we can support all the demands of modern living, offering genuine added value when it comes to controlling front door access. As security experts in the field of mechanical hardware, it was a logical consequence to transfer our know-how in mechanical security into electronic solutions and help both

ourselves and our customers to advance. We turn our traditional hardware into intelligent components, enabling integrated system solutions for the ultimate in convenient living. Our focus is always on both convenience and security. That is where our roots lie and our quality standards compels us to maintain this.

TG: What do you mean by "help our customers to advance"?

Andexer: We provide our customers with new business models. When you focus on manufacturing and selling doors, you're very driven by hardware but you always have the door itself as the

central product. It is therefore our task to not only produce what our customers need to manufacture doors but also to identify what the market will need beyond today. With MACO openLife, we are no longer just selling the door to our customers; access is now a new key aspect of the service we offer. This means the door is now offered to the end customer as an intelligent access system with the ultimate in flexibility and control. An access management system such as MACO openLife generates added value and new sales opportunities and opens up new circles of customers.

TG: The editorial talks about

smart homes. Is MACO open-Life a smart home solution?

Andexer: In theory, yes, but I prefer the expression smart entry, as access requires much higher standards of security than many smart home functions. In a smart home, often very simple signals are being transmitted to show positions such as 'Open-Shut', 'In-Out' using effective wireless protocols, but in smart entry, it is more complex, 'multi-lane' information that is being transmitted, including authorisation checks and data verification. We're not just measuring whether something is 'open or shut'; we're moving into an area that is registering access profiles.

Our objective is to continue to develop the MACO openLife platform and integrate the windows, lift & slide systems and many other automated components made by MACO. The status of building elements and alarm functions in the event of unauthorised 'access' are features that we also see as enhanced benefits within the platform.

TG: Who exactly provides the security?

Andexer: We separate the wheat from the chaff and work with the best partners so that we can offer an outstanding package at competitive prices. When it comes to access, security is extremely important. Convenience is an added benefit. We offer a two-pronged model, with a solution that uses M2M[1] communication and WiFi. This fulfils the high security requirements and at same

time, meets the demands of the sales channel. MACO uses the M2M solution to construct MACO openLife on a wireless personal area network. As the communication interface for all components, IQ is the central control element, controlled via M2M using an integrated SIM card. The MACO openLife hardware components automatically connect to the IQ, with communication based on the ZigBee wireless protocol as a connection standard and all communication between the components encrypted.

The WiFi solution uses an 'open' IQ which can be flexibly integrated in an existing local wireless network. Security is, of course, a top priority here.

TG: How do you ensure this?

Andexer: Sensitive applications require special security mechanisms. This primarily concerns access. Just like when we open a car, we have to secure the wireless link by keeping the signals as short as possible. When connecting individual components, bi-directional wireless protocols help with the extensive authentication by exchanging cryptographic keys. For basic actions, MACO openLife always requests a personal code. Cryptographic keys for MACO openLife are only valid for a maximum of eight seconds. When it comes to this automatic identification for the coordination of components such as transponder tags and profile cylinders, for example, RFID technology[2] with AES encryption[3] plays a key role. This is also used in military and government

applications. Only the best is good enough for MACO openLife.

I would also like to add that the more secure the authentication, the greater the volume of wireless traffic. If you really want a smart home and would like to network everything, you need to think whether you need authentication every time or whether you would rather limit it to building monitoring and the access system.

TG: Where would you recommend using MACO openLife?

Andexer: MACO openLife can be expanded in a modular fashion and so is as suitable for a private home with one front door as for apartment buildings, SMEs with 50 access points and 250 users, medical practices or private landlords with several properties. The hardware is completely wireless and simple to install. It's only the IQ that needs a power source. Managing it via https://home.macoopenlife.com/ is easy and self-explanatory.

TG: Where can customers buy MACO openLife?

Andexer: We offer the access management system to our existing customers, door manufacturers. However, MACO openLife is suitable for locksmiths, electricians, the security trade and many more. We talk to everybody.

TG: Many thanks for talking to us.
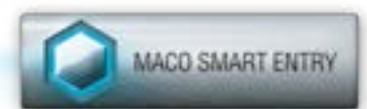
[1] Machine-to-machine communication. Data is collected and communicated using integrated sensors and network connections. From blood pressure monitors, fitness watches or cargo containers, more and more objects are being networked. M2M has evolved into the 'Internet of Things'.

[2] RFID stands for Radio Frequency Identification. This technology enables the clear, wireless identification of any object fitted with an RFID transponder. A chip that serves as data storage communicates wirelessly with a base unit.

[3] 'Advanced Encryption Standard' is approved in the US for documents with the highest level of confidentiality (AES 192 or AES254)

ALWAYS MEETING STANDARDS WITH **MACO CE4ALL**

Anyone who manufactures windows or doors and sells them on the market has to check that their window system is fit for use. The new services for easy CE marking does this for you.
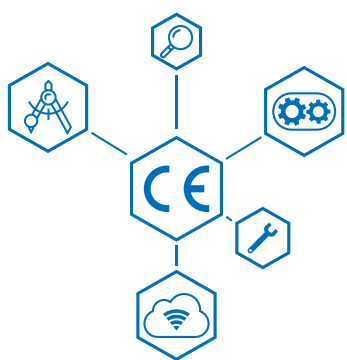
Put to the test

It costs up to EUR 30.000 per system for each initial type test. The tests can only be carried out in an official test centre and require comprehensive documentation.

CE4ALL –
MACO will do it for you

Testing is time-consuming, expensive and difficult to take on for small companies (SMEs). MACO is aware of this problem and so, from January 2017, the CE service platform CE4ALL is offering the option

WIND RESISTANCE

AIR PERMEABILITY

DRIVING RAIN

HEAT TRANSFER

of cost-effective, hassle-free CE marking for windows, doors and large-scale units. With this service, you can rest assured that you are complying with the requirements of the Construction Products Regulation (BauPVo) and EU Directive 305/2011 by implementing the harmonised product standard EN14351-1.

Don't get left in the lurch

As part of the obligation to provide a CE marking, every window manufacturer must provide practical verification that the building elements are airtight, water-tight and resistant to wind. Manufacturers can test their units for joint and water-tightness at the test centre in Salzburg and receive a valid test certificate. Tests for burglary resistance can also be carried out.

The right window for the right property

On www.CE4ALL.eu, the new service platform for easy CE conformity, you the unit manufacturer can navigate securely and easily through the CE process; using the configurator, you can determine the legal construction requirements (sound and heat insulation, wind resistance, air permeability and water-tightness) of the specific construction project as well as the general CE marking requirements. After all, these are different for a window at high altitude than they are in the valleys or in urban areas.

Always meeting standards

In the planning tool, a self-explanatory menu guides you through entering the property's address and, using its location, other criteria such as the type of area,
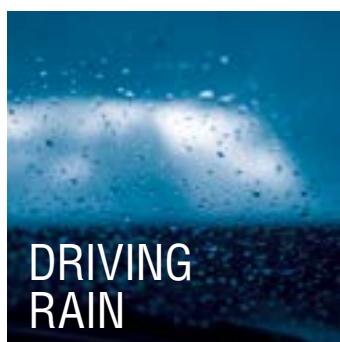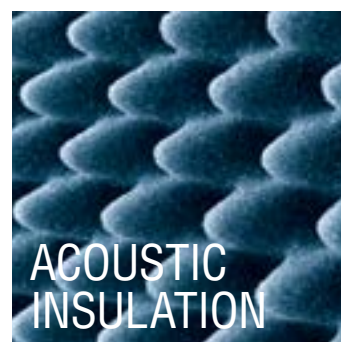
ACOUSTIC INSULATION

installation height of the windows, the site's noise level and specific details about the walls and windows such as the desired U-value, wall dimensions, wall construction etc. The configurator then calculates the precise specifications required for the property's units. MACO provides one of the most up-to-date and comprehensive collections of data for these verifications, comprising test certificates and designs.

If required, these performance characteristics can be acquired from selected test specimens. In order to guarantee that the units are of high quality and function properly, the company carries out its own factory production control, documenting all manufacturing steps, including CE marking with a performance statement and archiving for 10 years. In addition, operating and maintenance instructions are required by law. CE4ALL can help with this, too, and provide all of them.

MACO CE4ALL makes customers more efficient
MACO CE4ALL is designed so that the programme can grow in line with the requirements of the market and integrate additional tests as well as new fields. MACO CE4ALL guarantees the window manufacturer impartially tested quality products, consistently high quality and impartial production monitoring, creating credibility and trust with the customer and reducing complaints. Significant added value at an affordable price.

No more grey areas
The most important thing for the manufacturer is to be certain they are acting within a secure legal framework and reducing their personal liability risk to a minimum. Many people don't realise that when selling directly to the consumer, the window manufacturer becomes a planner, taking on full liability.

© industrieblick / Fotolia

KLAUS AUERSBERG
HEAD OF PRODUCT DEVELOPMENT
SUPPORT PROCESSES

"With CE4ALL, MACO offers benefits from planning through to archiving, in addition to CE marking. This consistency reflects the platform's sustainable focus, taking into account the whole product life cycle and offering hassle-free solutions for all stages."

OVERVIEW OF **SERVICE PACKAGES**

CE MARKING – WHAT IS IT?

CE stands for Conformité Européene, or European Conformity, and confirms that a product with this marking is suitable for the free and secure movement of goods within Europe. The CE mark is a declaration by the manufacturer that they comply with all requirements in European directives. This declaration is based on the Construction Products Regulation (BauPVo), EU Regulation 305/2011 and its implementation through the harmonised standard EN14351-1 for windows and doors. Since 1 February 2010, windows and doors have to carry the CE mark and therefore demonstrate that the products comply with EU requirements.

All mandated properties must be cited in accordance with national regulations. For multi-panel insulating glass units, these are joint permeability, driving rain, wind load, loadbearing capacity of safety devices, sound, heat and hazardous substances. Also: The hardware manufacturer cannot provide the CE mark as hardware is not a complete system and the CE mark is not intended for hardware. The company bringing the product onto the market is the one responsible for providing the CE mark. With CE4ALL.EU, MACO is helping all unit manufacturers to design their products in line with the CE requirements.

CE HASSLE-FREE PACKAGE

- ✓ Planning and definition of requirements
- ✓ Performance or construction-based access
- ✓ Option of reference check
- ✓ Factory production control
- ✓ CE marking with proof of performance
- ✓ Operating and maintenance instructions
- ✓ Download documentation
- ✓ Option of third-party archiving

Service-oriented | Construction-oriented | 10-year archiving

PLANNING — CE MARKING — DOCUMENTATION

Factory production control (FPC)

CE declaration of performance

Operation and maintenance instructions

| Definition of requirements | Manufacture | Installation/ acceptance |
| Enquiry | Order | Delivery | Archiving |

This service, including our CE hassle-free package, is being launched in Austria on 1 January 2017.
You can rest assured that your units comply with the requirements of the Construction Products Regulation (BauPVo) and EU Directive 305/2011 as well as Austrian standard B-5300. The service will subsequently be rolled out in other countries.

This is why MACO has created CE4ALL and put together attractive service packages. The focus is always on providing a comprehensive service at an affordable price.

SERVICE PACKAGE JAR

For both the joint test and the driving rain test, there is a basic, standard and premium package available. They include:

- Test equipment preparation and documentation
- Factory test and weak-spot analysis
- Test

The difference between the packages relates to how quickly they are processed and the test certificate. With the basic package, the test is carried out within 40 days of the unit being available at MACO and the customer receives a MACO factory test certificate. With the standard package, the test is carried out within 20 days of the unit being available and with the premium package, within 10 days of the unit being available at MACO. In the standard and premium package, the test is carried out by gbd-LAB and a certificate issued by the notified test centre.

SERVICE PACKAGE RC2 / RC2N / RC3

This service package includes, depending on requirements, a basic, standard or premium package.

- The basic package includes testing the unit against standards, a weak-spot analysis, a test within 40 working days from the unit being delivered to MACO and a MACO factory test certificate.
- The standard package expands upon the basic package with the main test carried out on two units, within 30 working days and with a gbd-Lab test certificate.
- In the premium package, the main unit test is carried out within 14 working days and a gbd-Lab test certificate is provided.

SYSTEM TEST RC2 / RC3

Tests for burglary resistance can also be carried out.

With MACO, you can manufacture windows to security class RC 3 without needing to invest in your own testing. Simply purchase a license and you can manufacture windows to security class RC 3 without carrying out your own testing thanks to the system matrix for wooden units tested to RC 2 and RC 3, developed by MACO. All sizes of window can be manufactured within this matrix.

More information can be found on www.ce4all.eu

LIFTING AND SLIDING
ARE DRIVEN BY A MOTOR

At BAU 2017, MACO will present innovative product solutions for the automated home. See live how smart building components are installed and networked in a building, increasing security and helping to create a sophisticated, convenient home.

Look at what you can't see: the motor is fully concealed.

MACO's new motorised lift & slide units represent their next step in building technology automation. The drive unit is available in two versions:

A concealed version for wooden units in a new build and a surface-mounted version for retrofitting onto all materials, from aluminium to PVC. Up to 300 kg can now be opened and closed easily at the touch of a button. For users who like their technology, the integrated interface for smart home connections is a great plus. Security-conscious users can rest reassured, as both versions are RC 2 compatible.

A highlight for manufacturers is the modular linear operation, i.e. the drive unit on the unit length is flexible and adjustable to the size of the unit, whether big or small. At BAU in Munich, MACO will use this to show everything that's now possible in the lift & slide premium segment.

alexandre zveiger/Shutterstock

The new stop absorber in the flush guide track stops the sash securely if it is closed too forcefully. This reduces the risk of injury and protects the fabric of the building. The stop absorber can be positioned anywhere in the guide track and the customer can decide themselves where it is placed and how wide the door can open.

This convenience package is now available from MACO for PVC with the Gealan S9000.
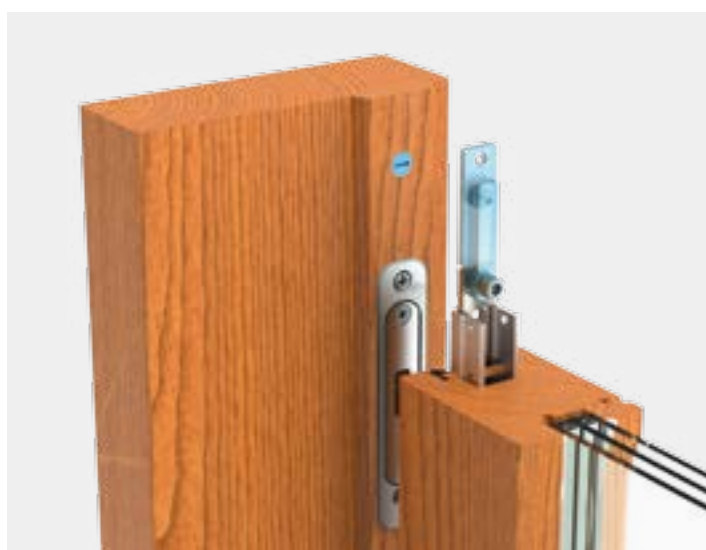
Monitored around the clock The locking monitoring indicates whether the lift & slide unit is open or closed. This data can be transferred to smart home solutions, heating control systems or alarm systems. It's ideal for scaring burglars away. The locking monitoring is available for wood and PVC and highlights how diverse and secure MACO's products are, down to the last detail.

INNOVATIVE
DOOR LOCK SOLUTIONS

The future is right at your door. It features fully automated access. Nowhere else is the combination of elegant design, excellent security and the ultimate in convenience using sophisticated access management as obvious as in a front door. MACO has kept an eye on the market and is forging ahead.

The HTA1 – a fully automated door system
You're standing outside the door, hands full, and your key is right at the bottom of your bag. Help comes in the form of the HTA1 door drive unit, which receives the wireless authorisation for the door lock and then opens the door, as if by magic. The door lock is opened by a handheld

transmitter or the openDoor / MACO openLife components; these can be a touchkey, keypad or the latest transponder tag. This combination of door drive unit, access system, door lock, door hinge and profile system makes up an outstanding overall package for a fully automated door system, allowing the customer plenty of scope for adjustments.

Users can have touch-free, barrier-free access into their home, apartment or office.

Cable harness 1

Z-TA automatic
3-latch lock

Z-TA motor

Horizontal
front door drive

Electronics for
front door drive

Cable transition

Cable harness 2
with connection to
MACO openLife components
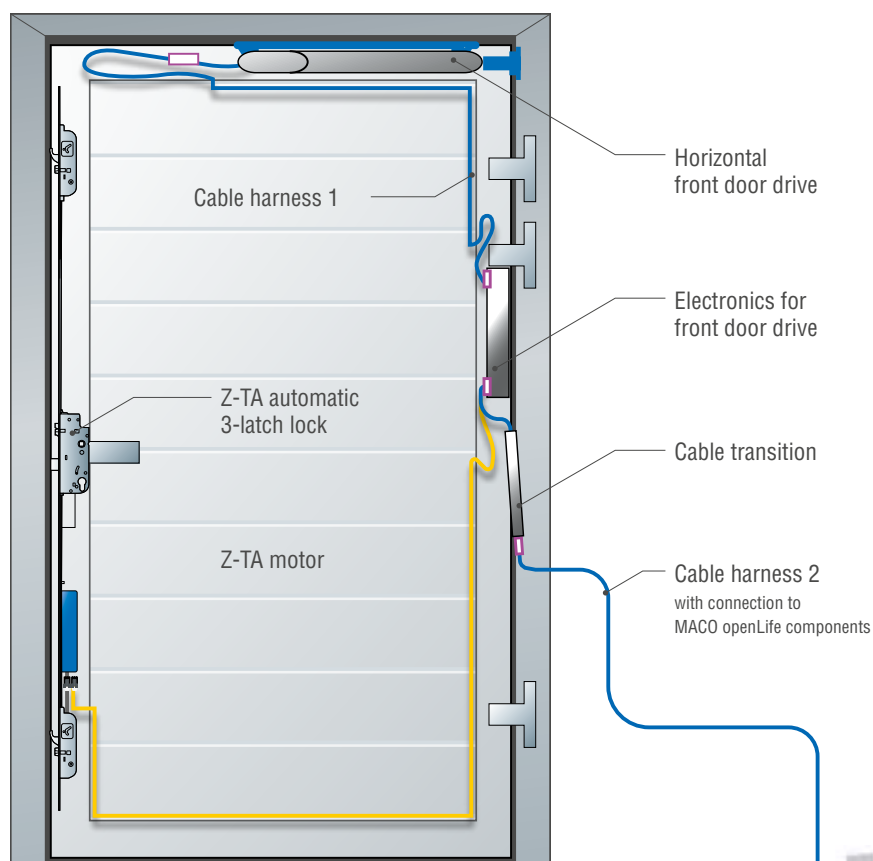
Example door system at BAU.

Wall
Reader

Control
Unit

IQ

M-TS 3-latch motorised lock
With the M-TS 3-latch motorised lock, MACO has achieved full automation in door locking and expanded their product range in entry technology.

MACO's tried-and-tested 3-latch technology ensures long-lasting, high clamping pressure across the whole height of the door, making it almost impossible to warp. The M-TS will be presented at BAU in Munich prior to its launch on the market in the second half of 2017.

openDoor, open Sesame
The new 'door openers' in the openDoor product group gives MACO's access systems the advantage of being more contemporary, modern, attractive and more pleasant to use than previous models.

OpenDoor Keypad is the state-of-the-art code solution that is easier to operate and is back-lit, making it convenient to use, even at night. The keypad can be integrated into the door panel and does not have to be drilled in.

Your fingerprint, please
The new finger scanner is a more personal, individual and practical door opener: You always have your finger with you, so cannot lock yourself out. New fingerprints are easy to add using Bluetooth. The accompanying app can be used to manage it; some entries can be deleted, made inactive or new ones added. Flexibility to suit you.

mTRONIC:
THE BEATING HEART OF BUILDING MONITORING

mTRONIC always works
The wireless sensor creates the connection with the hardware and permanently monitors the status of the building elements. It provides information to the property management system regarding any movement at windows, doors or large-scale units and detects all the positions, e.g. on the turn&tilt hardware, the positions open, tilted or closed.

Smart building components
mTRONIC isn't just a locking monitoring system; it's an intelligent status display for all-round monitoring, 24/7.

open

tilted

closed

As experts in anti-burglary protection, MACO has always relied on mechanical security with the best hardware providing fundamental window security. Our new wireless sensors are taking this fundamental security to new, digital levels. mTRONIC provides omnipresent equipment condition monitoring on windows, doors or large-scale units and is at the heart of MACO's new building monitoring.

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Slim, communicative, always accessible

With a rebate width of just 18 mm, the mTRONIC is a thoroughly sophisticated design that fits into any window / door frame. It is perfectly suited for retrofitting and is not only very light, but also concealed and can be used with any hardware or manufacturer.

The wireless sensor transmits any movement to the building monitoring gateway and communicates using the common EnOcean wireless protocol. It can therefore be combined with all current electronic devices and smart home systems. This makes it an all-rounder in building security and, together with MACO's self-locking unit drive gear, is the ideal security system.

Compatible with smart homes and expandable using modules

Fans of networked homes will be pleased; when it comes to building security, in addition to the MACO mTRONIC window sensors, they can integrate any other sensors they want for heating control, roller shutters or sunshades, add temperature sensors and movement detectors and create their own personal home security system that's usefully customised to their own needs and individual well-being. This is based on the standardised wireless protocol between the components, the widely used, certified wireless standard EnOcean, one of the most secure and the best currently available on the market.

Permanently accessible

Who doesn't know the feeling of setting off from home and then suddenly not being sure if you locked everything? Using MACO's clever, wireless building protection, you can leave the house with confidence as any change in status of windows or doors will be displayed and any unusual movements reported. All you need for this is a Tipp-Funk® wireless button, a Tipp-Funk® signaller and the MACO mTRONIC window contact.

These are the basic building blocks of MACO building security, incredibly easy to install and expandable up to the level of a professional smart home solution. The Tipp-Funk® wireless button and the MACO mTRONIC window contact are programmed into the signaller. Monitoring can then be switched on or off using the programmed wireless button. That's all you need to do to secure the building.

MACO secures your property using multi-sensor mTRONIC as the beating heart of intelligent building security; it's always ready, around the clock, without having to prime it first.

ULTRA-MODERN PRODUCTION MACHINERY FOR IN-HOUSE TOOLING

The quality of production is all about having the right tool. Whether it's a milling cutter, rotary blade, extrusion tool or embossing and stamping, by investing in a new grinder, MACO has all the tools needed for the complex manufacture of hardware, quickly and cost-effectively.
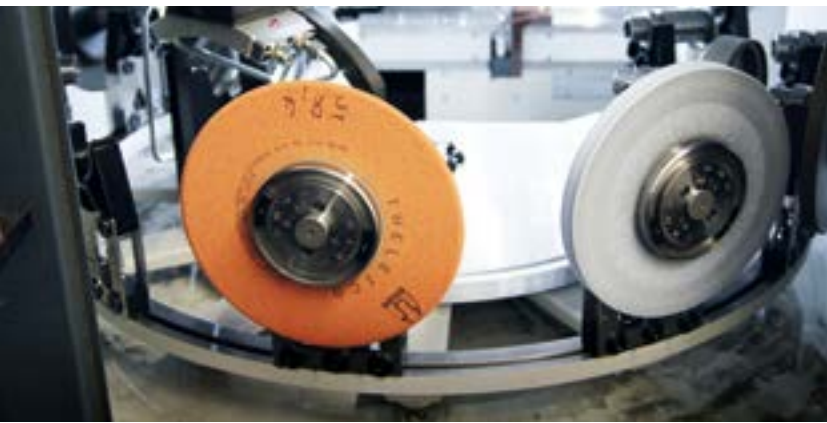
If it doesn't fit, we'll fix it
You know what it's like – you look through your toolbox, but you don't have the right tool? We'll make it quickly and easily, customised for the quantity and individual fit. That's how MACO does it. Over the course of 2016, we've introduced the latest hard metal processing technology, further complementing our tooling repertoire.

Significant vertical integration producing the best quality
The Salzburg hardware specialist is known throughout the industry for their significant vertical integration. At MACO, almost everything demanded by the hardware market is made in-house. There's no such thing as can't. The existing grinder only had cylindrical grinders and couldn't grind complex parts, so a new machine was needed. If it doesn't fit, we'll fix it, so that you can always find the tool you're looking for. Once again, MACO showed their innovative, pioneering spirit, making their hard metal processing for tooling state of the art.

Professionals through and through
MACO's commitment to quality permeates the whole company. Professionalism and perfection is demanded at every level. This particularly applies to MACO's modern machinery and its maintenance with the perfect tool. "We've found the HAAS Multigrind® CA equipment to be a very precise, compact grinder with some lovely technical refinements, enabling us to provide traditional cylindrical grinding and master requirements of hard metal processing which previously hadn't been possible," says Andrea Domberger, Head of Technology at MACO and decision-maker when it comes to machinery procurement.

Meeting demands precisely with no wastage
"Using this, we can manufacture complex parts with geometrically defined blades precisely and flexibly, as they are only needed for individual applications in MACO," says Raimund Maccani, tool manufacturing team leader at MACO. It doesn't matter whether 50 or 1,000 pieces are needed. The quantity of manufactured parts can be changed in very little time. For MACO's needs, the quantity varies between one, seven or 70 pieces. "Ordering this number from an external supplier is almost not possible or not worth it as a special order,"

ANDREA DOMBERGER
Head of Technology at MACO

says Ms Domberger. With the new HAAS equipment, we can now manage variable capacities and are fully autonomous, as we're used to being at MACO. "We have the manufacturing process under control," says the Head of Technology.

The most complex variety

Using the HAAS equipment, MACO manufactures complex parts such as milling cutters, rotary blades, extrusion tools or embossing tools and special tools such as cutting punches. Only 50% of the tool goes through the extrusion press, e.g. to manufacture the in-line cam (as reported in the last Technogramm). This includes extrusion and punch stamps, milling cutters, female dies, slide bars and riveting pins, as seen in the illustration. Thanks to finely balanced grinding spindles, milling and
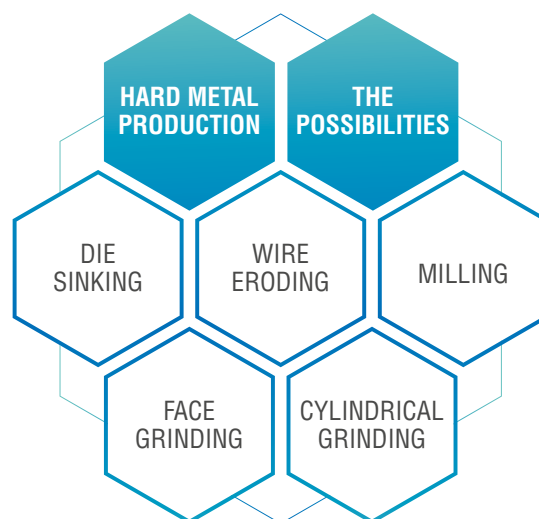
boring tools can be reground extremely professionally; in cars, the wearing parts have to be replaced regularly. MACO manufactures these parts in-house, which is quicker and more cost-effective than using an external supplier. The other 50% of tools go into mould making for casting, making cross-sections for punching tools and tools for final assembly.

High-speed precision

The manufacturing time for processing an item, depending on the size of the component, desired geometry and quality of the hard metal, is between two minutes and one and a half hours. Depending on the complexity and force applied to it, the manufactured tool's service life can range from 100,000 to several million items.

Perfected process

Using detailed tooling requirements from production, the design department decide on the geometry and create a program using CAM software. The data is then loaded onto the machine, which controls the HAAS equipment, sets the cutting data and appropriate technology and selects the right grinding wheel.

Profitability makes customers and Controlling smile

As the proportion of hard metal tools, particularly in extrusion pressing, is becoming ever greater, it is important to MACO to be able to work in this area themselves so that they can become faster, more cost-effective and ultimately, more efficient. The customer benefits from this investment through short processing cycles such as delivery times and consistently high-quality products.

Always state-of-the-art

Ernst Mayer, owner and son of the company's founder, was known for his commitment to quality. It was his love and machinery and tools that allowed production to become the heart of the company. Mr Mayer knew all 50,000 items by heart and, with a focus on detail, made production what it is today. This is why MACO has the largest, best machinery in the industry. Tooling is based in the MACO equipment manufacturing department, which currently has 83 employees including 5 designers and 24 apprentices.

SUCCESSFUL PARTNERSHIP BEGINS AFTER THE SALE

The construction industry is booming, but at the same time, standardisation, consolidation and internationalisation is applying pressure to window / door manufacturers' profitability. Manufacturers are therefore well advised to keep re-examining their business model and position themselves clearly.

Brands in the region

Top quality, reliable delivery and equal partnership, both within the team and with suppliers, provide the long-term, fertile conditions for healthy, stable growth. It's even better if the company occupies a niche and is known for specialist manufacturing, making them a brand name in the region. This sort of foundation is not easily destroyed, not even by fire.

MARKUS KLEINHANS
COMPANY OWNER

"After a short period of shock, we saw the crisis as an opportunity and grasped it valiantly."

Qualität in Holz und Design

An opportunity, not a crisis

In summer 2015, the Kleinhans company in Kehl am Rhein caught fire and a production building burnt to the ground. It's something that would bring many companies to their knees. Not so for Markus Kleinhans and his employees. They took shelter with colleagues in the region and were able to continue working almost seamlessly. That helped the company to more or less keep going and quickly brought a sense of stability to the team.

"During that time, we grew closer, tackled anything, repaired damage, planned the new building and looked for new machines and equipment. Today, the joinery department looks out onto ultra-modern machinery,

designed for batches of 1, and we can make up to 24 window and door systems," says the company's owner proudly.

How it all began

Kleinhans has been a brand name in the region for fifty years and has been fitting their high-quality products with MACO hardware for almost 25 years. It was in 1992 when Kleinhans thought that with MACO products, he could make even higher quality windows than with his current suppliers; his decision has been consistently confirmed over the last 25 years. "Technological progress in MACO's products and their helpful support made them leaders in the European market, and it still does today," says Kleinhans. The quality of the hardware,

flexibility of their use and the rapid availability through their regional distributor Asal in Offenburg make them an all-round winner and is exactly what we need.

Nothing off the shelf

Quality and long-term, faithful cooperation make Kleinhans the leader in the region in window manufacturing and interior fittings. Window manufacturing makes up 60% of the company, with their individual solutions in high-quality wood / aluminium and wood production being one of their greatest strengths and ideally suited to MACO hardware. "For our window systems, we rely on MACO MULTI-MATIC, MULTI POWER and MAMMUT hardware, for our sliding doors, on the comprehensive range of MACO RAIL SYSTEMS and for our doors, we draw on the extensive MACO PROTECT door lock range," says Markus Kleinhans. Design is becoming increasingly important, with small fabricators being able to stand out against large manufacturers.

If people need niche solutions, bespoke products or small details in their lift & slide doors, they go to Kleinhans. Nothing is off the shelf. Great flexibility, comprehensive advice and individual support complete the perfect service.

Cooperation on an equal footing

It's not all about selling hardware. Innovative products are created together and developed in cooperation. Kleinhans employees are with customers every day and pass on their feedback to the MACO sales team, who are always open to new ideas. Positive cooperation can also be seen with the largest common customer, Weberhaus; next year, Kleinhans will have been manufacturing for them for 50 years. Supplying Germany's primary prefab house builder for half a century and being successful together only happens when you have the best quality and work together in an equal partnership. Kleinhans thus has confidence in MACO's quality, rapid availability and flexibility, all crucial factors for success in a hard market, particularly for short-notice and large orders. This successful cooperation is based on give and take, an attitude of partnership and a shared commitment to quality and performance, functionality, convenience, security and design, combined with a sensible price.

Successful partnership begins after the sale

New machines also mean the opportunity to test which products will be used in the future. After the fire, it was important to bring the production process back up to speed quickly. Thanks to data maintenance by MACOWinPlus, all hardware data was quickly and smoothly entered into the new IT system. For planning, quotations and transferring orders to the CNC machines, MACOWinPlus provides current data for processing and issues regular changes via the interface. The software supports the ideal interaction between product data and the CNC machines and ensures a fast, precise and therefore efficient manufacturing process, which the customer notices in the final

product by way of the excellent manufacturing quality. The service doesn't stop once the sale is made, but actually only starts there, with positive partnership and support. Kleinhans appreciates this about MACO, as it is this support and respect that they pass onto their customers.

The Kleinhans joinery is one of many examples of how fabricators, retailers and MACO work successfully and hand-in-hand together.