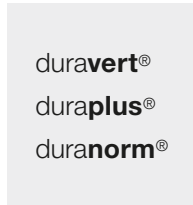


Technical standards
 page 5



The product lines
 page 6



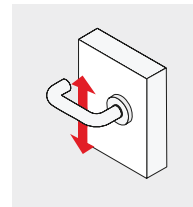
Materials and their maintenance
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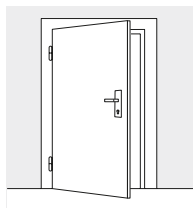
Resista®
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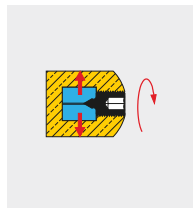
Operational guarantee
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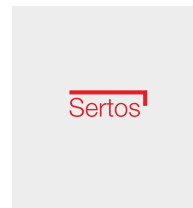
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HOPPE profile-spindle
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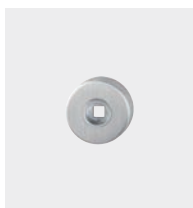
HOPPE Quick-Fit connection
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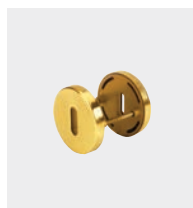
HOPPE Quick-FitPlus connection
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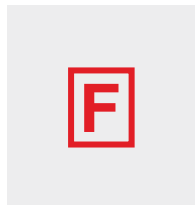
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Profile door and security escutcheons
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Fire-resistant door sets

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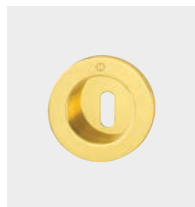
DIN EN 179 and DIN EN 1125

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Sliding door sets

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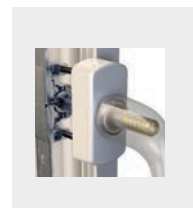
Fitting HOPPE window handles

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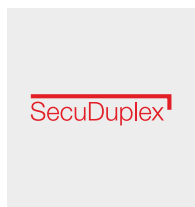
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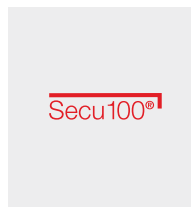
The adjustable spindle from HOPPE

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Secu100® + Secustik®

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US950S (lockable window handle rose)

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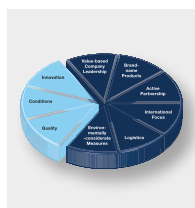
Reference buildings worldwide

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The HOPPE Group Profile

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The Beneficial Performance offered by HOPPE to customers
























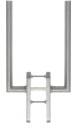





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The original

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Sets for ...		Keyhole	Distance
Profile doors 	8 mm	 PZ (profile cylinder)	 Distance between centre of lock follower and centre of profile cylinder hole Standard: 92 mm
Entrance doors 	10 mm	 PZ (profile cylinder)	 Distance between centre of lock follower and centre of profile cylinder hole Standard: 92 mm
Interior doors 	8 mm	 BB (standard keyhole)	 Distance between centre of lock follower and centre of keyhole Standard: 72 mm or 90 mm
		 OB (oval standard keyhole)	 Distance between centre of lock follower and centre of keyhole Standard: 70 mm or 90 mm
		 PZ (profile cylinder)	 Distance between centre of lock follower and centre of keyhole Standard: 90 mm
Privacy doors 	8/8 mm	 SK/OL (external: slotted head/ internal: turn button)	 Distance between centre of lock follower and centre of privacy spindle Standard: 90 mm
		 RW-SK/OL (external: red-white-plate indicator/ internal: turn button)	 Distance between centre of lock follower and centre of privacy spindle Standard: 90 mm
Fire doors  	9 mm	 PZ (profile cylinder)	 Distance between centre of lock follower and centre of profile cylinder hole Standard: 72 mm
Lift/slide doors 	10 mm	 PZ (profile cylinder)	 Distance between centre of lock follower and centre of profile cylinder hole Standard: 69 mm
Balkony doors 	7 mm	 PZ (profile cylinder)	-
Windows 	7 mm	-	-

The product lines

HOPPE divides its product range into three lines based on the customers' different requirements in price and perception of value – **duravert**®, **duraplus**® and **duranorm**®. The purpose behind this is to enable you, our partners, to get a better overview of our product range and to make it easier for you to find the right handle of excellence.

Whatever the differences, all three product lines have one thing in common: the proverbial HOPPE quality.



duravert®

for the discerning



duraplus®

more than usual



duranorm®

consistently good value

Product range

Packaging
(examples)

Technology and Security Classes (ES)

Guarantees

Service range



- Security handles ES1-3 (SK2-4)
- Interior door handles with HOPPE Quick-Fit connection and spring cassette technology
- Window handles within existing requirements, RAL and market standards, with Secu100® + Secustik®, Secu100® and Secustik® technology



Resista®

10-year guarantee on selected finishes

Core range

Service range



- Security handles ES1-3 (SK2-4)
- Selected interior door handles with HOPPE Quick-Fit connection and spring cassette technology
- Window handles within existing requirements, RAL and market standards, selected products with Secu100® + Secustik®, Secu100® and Secustik® technology



Resista®

10-year guarantee on selected finishes

Core range



- Security handles ES0 (SK1)
- Interior door handles with HOPPE profile spindle
- Window handles below existing requirements and market standards, no RAL





Aluminium:

The surface of HOPPE aluminium fittings is protected by either anodising or powder coating. Anodising consists of a controlled, electrically induced oxidation process with the aid of sulphuric acid, which causes the base material to bond with oxygen and to grow a protective surface layer, the so-called oxide film. This film protects the products against detrimental influences such as hand perspiration, humidity and light mechanical stress.

In powder coating, the coating powder is applied to the aluminium surface by means of an electrostatic process. It is then heated to a temperature of 150°-200°C causing the paint particles to melt to a film of paint in a chemical cross-linking reaction. There is no known risk to health in aluminium hardware. No special care is needed for aluminium as the oxide film protects it. Dirt can easily be removed with a damp cloth.



Stainless steel:

HOPPE brand stainless steel hardware is manufactured from chrome-nickel steel (steel no. 1.4301 to DIN). Thanks to its longevity, its harmlessness to the environment and to health as well as its corrosion acid-, and abrasion resistance, it is used in the food industry as well as the medical and domestic sectors besides the building trade. Stainless steel is also called corrosion-resistant because the alloy components of chromium and nickel develop an invisible passivation layer.

If stainless steel hardware show signs of rust, they are caused by rust particles naturally present in the atmosphere. Rust particles as well as traces of dirt and grease can be removed with a household detergent suitable for stainless steel.

Stainless steel hardware is also available with our Resista® surface guarantee (see page 9).



Polyamide:

HOPPE brand polyamide hardware is manufactured using high quality polyamide (PA) which not only has enhanced mechanical properties but is also impact and wear resistant. Combined with its anti-static properties, and weathering and chemical resistance makes it a favourite material for engineering applications, such as hardware. HOPPE polyamide products are additionally UV-stabilised. Soiling can be removed with water and/or conventional cleaners.



Brass:

HOPPE brand brass hardware is made of high quality brass alloys. The surface is protected either by a transparent lacquer of elevated adhesive strength and resistance to solvents and chemicals, by electro plating such as chrome-plating or by a special vacuum coating process. If the protective coat of lacquer is damaged by mechanical action such as accidental scratching with keys corrosion (tarnishing brown) can occur.

Brass hardware requires no special care. Dirt can easily be removed with a damp cloth. Use of caustic and abrasive cleansers should be avoided.

Brass hardware is also available with our Resista® surface-guarantee (see page 9).

Resista® – HOPPE's surface guarantee

HOPPE Resista® hardware has a 10-year surface guarantee (please see "Guarantee" on the right-hand margin).

They are therefore ideal for coastal areas and highly frequented areas such as public buildings, shops and hotels.

All products with the Resista® surface guarantee have undergone continual quality testing and, when new, conform to the requirements of the European standard EN 1670 ("Locks and hardware – corrosion resistance – requirements and test methods").

Care:

Dirt can easily be removed with a damp cloth. The use of caustic cleansers or chemicals should be avoided. No further special care is needed.




Brass sets with chrome finish in the duravert® and duraplus® product lines also have the HOPPE Resista® surface guarantee, providing 10 years' cover on the surface of these products, too.

Guarantee

Guarantee:

As manufacturer, we guarantee, under the conditions set forth below, the durability of properly-used HOPPE hardware, over and above the seller's legal liability for material defects. The Resista® surface guarantee includes all defects which can be proved to have been caused through fault in manufacturing or material, for example when the surface is tarnished or discoloured (appearance of spots) or the protective surface has become separated from its base material, and not through improper use.

Guarantee Exclusions:

All interchangeable parts, such as screws, connecting spindles and springs etc, are excluded from this guarantee. Furthermore, no liability will be assumed for any damage caused through:

- unsuitable or improper use
- incorrect or negligent treatment
- disregard for instructions for fitting or care
- alterations or repair by the enduser or a third party
- chemical or physical agents, where the surface has been improperly treated, for example by sharp-edged instruments.

Guarantee Conditions:

This guarantee relates, within the guarantee period, solely to either replacing the handle free of charge or to repairing same free of charge, on behalf of the original enduser, this decision being at HOPPE's discretion. Costs and expenses, postage and packaging and similar, as incurred by the complainant, shall not be reimbursed. Claim to guarantee shall only occur on presentation of the product itself and the receipt and shall not exceed the original purchase price.

Guarantee period:

The guarantee period shall be for 10 years and shall begin on the day of purchase by the original enduser. In the event of any claim, complainants should address themselves directly to the seller or manufacturer presenting both the product and the receipt.

HOPPE Holding AG
 Via Friedrich Hoppe
 7537 Müstair

HOPPE's operational guarantee



According to **HOPPE, a brand name product** keeps its promise of quality to the enduser. As a way of ensuring this, HOPPE gives a **10-year guarantee** on all door and window handles (as long as the respective assembly and maintenance guidelines are fulfilled; please see "Guarantee" on the right-hand margin).

HOPPE brand name products undergo numerous tests to ensure flawless operation. Static impact tests and durability tests are also made depending on the product type. These closely reflect the everyday knocks hardware has to take and extend beyond the tests and requirements of DIN EN 1906 or RAL-GZ 607/9.

Whereas for DIN EN 1906 and RAL-GZ 607/9 hardware is tested in isolation, HOPPE, more realistically, conducts operational tests on the door and window itself. This means that not just the function, but also the durability of the attachment between hardware and door or window, too, is tested.

HOPPE realistically tests door and window handles in situ, – on doors and windows.



With the **10-year operational guarantee**, HOPPE extends way beyond the statutory 4 years of European regulations.

The next page gives you an overview of the operational guarantee tests made by HOPPE.

1. Tests on door handles

There are two durability grades (see p. 12) for door handles in DIN EN 1906 necessitating durability tests with various test cycles.

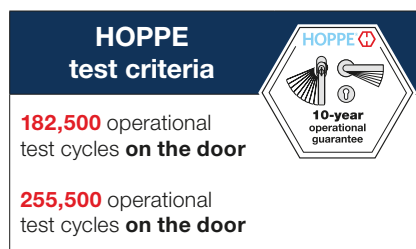
- **Grade 6:**

Medium frequency of use, for residential hardware: 100,000 test cycles (1 test cycle = once opening and closing of a door).

- **Grade 7:**

High frequency of use, for non-residential hardware: 200,000 test cycles.

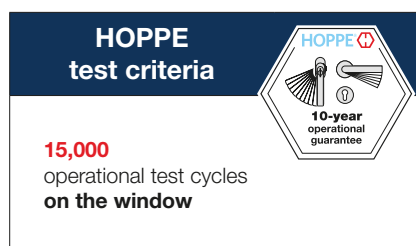
Application-related standards are set for the HOPPE operational guarantee. In all durability tests, the door handles are tested on the doors themselves. Residential hardware is tested in **182,500** operational cycles (1 cycle = 1 x opening and closing the door) and handles for non-residential use are tested in **255,500** operational cycles. This is the equivalent of 50 or 70 operational cycles a day over a period of 10 years. Neither the door handle itself, nor any part of it, must become loose during the course of the test. The sets are then tested for their stability, ensuring they work flawlessly.



2. Tests on window handles

RAL-GZ 607/9 prescribes 10.000 tilt/turn test cycles in durability tests for window handles.

HOPPE, again, tests in an application-related way. In tests for the operational guarantee, HOPPE window handles undergo a **15,000** tilt/turn cycle test on the window itself. This is the equivalent to 4 x opening and closing plus 4 x tilting and closing per day over 10 years (1 tilt/turn cycle = 1 x opening and closing of the window plus 1 x tilting and closing of window). The window handles are then tested for their stability to ensure perfect operation.



Guarantee

Guarantee:

As manufacturer, we guarantee, under the conditions set forth below, the durability of properly-used HOPPE hardware, over and above the seller's legal liability for material defects. The guarantee applies to the function of HOPPE door and window hardware and includes all defects which can be proved to have been caused through fault in manufacturing or material.

The operational guarantee includes the following features:

- transfer of the rotary motion to the door lock or the window turn-/tilt-hardware
- incorrect or negligent treatment,
- the disregard of instructions for fitting or care, alterations and repair by the enduser or a third party,
- chemical or physical agents, where the surface has been improperly treated, for example by sharp-edged instruments,
- elements (door, window) and/or hardware parts (e.g. locks, hinges etc.) which do not work perfectly.

Guarantee Exclusions:

All interchangeable parts, such as screws, connecting spindles etc., are excluded from this guarantee. Furthermore, no liability will be assumed for any damage caused through:

- unsuitable and improper use,
- incorrect or negligent treatment,
- the disregard of instructions for fitting or care, alterations and repair by the enduser or a third party,
- chemical or physical agents, where the surface has been improperly treated, for example by sharp-edged instruments,
- elements (door, window) and/or hardware parts (e.g. locks, hinges etc.) which do not work perfectly.

Guarantee Conditions:

This guarantee relates, within the guarantee period, solely to either replacing the handle free of charge, or to repairing same free of charge, on behalf of the original enduser, this decision being at HOPPE's discretion. Costs and expenses, postage and packaging and similar, as incurred by the complainant, shall not be reimbursed. Claim to guarantee shall only occur on presentation of the product itself and the receipt and shall not exceed the original purchase price.

Guarantee period:

The guarantee period shall be for 10 years and shall begin on the day of purchase by the original enduser. In the event of any claim, complainants should address themselves directly to the seller or manufacturer presenting both the product and the receipt.

**Still the Handle of Excellence,
even after 10 years' hard use!**

HOPPE Holding AG
Via Friedrich Hoppe
7537 Müstair



Example of certificate

DIN EN 1906 – European and German standardisation for hardware

For the purposes of European standardisation, EN 1906 has been worked out to specify the requirements and test methods for door handles and knobs. It was implemented as a European standard in October 2001. After several revisions it is currently valid as EN 1906:2012.

The DIN EN 1906 only defines performance parameters while the dimensions of the hardware is not taken into account. It introduces a classification code system, allowing products to be compared. This European Standard specifies test methods and requirements for spindle and fastening elements, operating torques, permissible free play and safety, free angular movement and misalignment durability, static strength and corrosion resistance for sprung and unsprung handles and knobs for doors on backplates or roses. Requirements and test methods are structured in such a way that everyday use is simulated:

1	2	3	4	5	6	7	8
Category of use	Durability	Door mass	Fire resistance	Safety	Corrosion resistance	Security	Type of operation

Meaning of the numbers in the classification key:

Classification key	Grades	Description of grades
1. digit: Category of use	1 - 4	more information on p. 13
2. digit: Durability	6 or 7	6 = 100.000 cycles 7 = 200.000 cycles
3. digit: Door mass	no classification	
4. digit: Fire resistance <i>(You can find further information about fire resistance on p. 32)</i>	0, A, A1, B, B1, C, C1, D or D1	0 = Not approved for use on fire/smoke door assemblies A = Suitable for use on smoke door assemblies A1= Suitable for use on smoke door assemblies (tested with 200,000 test cycles on a test door) B = Suitable for use on fire/smoke door assemblies (tested with 200,000 test cycles) B1= Suitable for use on fire/smoke door assemblies (tested with 200,000 test cycles on a test door) C = Suitable for use on smoke and fire-resistant doors with requirements for fire-resistant dividers in backplate, door rose and escutcheon C1= Suitable for use on smoke and fire-resistant doors with requirements for fire-resistant dividers in backplate, door rose and escutcheon (tested with 200,000 test cycles on a test door) D = Suitable for use on fire/smoke door assemblies with require for a steel core in the handle D1= Suitable for use on fire/smoke door assemblies with require for a steel core in the handle (tested with 200,000 test cycles on a test door)
5. digit: Safety *	0 or 1	0 = Normal use 1 = Safety applications
6. digit: Corrosion resistance <i>(You can find further information on HOPPE's surface guarantee on p. 8-9)</i>	0-5	0 = No defined corrosion resistance (no test) 1 = Mild resistance (24-hr salt-spray test) 2 = Moderate resistance (48-hr salt-spray test) 3 = High resistance (96-hr salt-spray test) 4 = Very high resistance (240-hr salt-spray test) 5 = Extremely high resistance to corrosion (480-hour salt-spray test)
7. digit: Security	0-4	0 = Furniture not approved for use on burglary resistand doors 1 = Mild burglary resistance 2 = Moderate burglary resistance 3 = High burglary resistance 4 = Very high burglary resistance
8. digit: Type of operation	A, B or U	A = Spring-assisted furniture B = Spring-loaded furniture U = Unsprung furniture

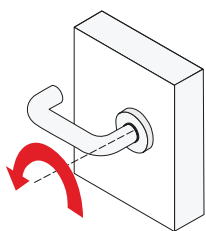
* According to DIN EN 1906 the increased safety tests (for example for doors to cellars where there is risk of falling) are optional, so the figure 0 may appear by digit 5 in the classification key. However, according to DIN 18255, all public building sets, and as such subject to categories of use grades 3 and 4, must pass this test.

The hardware is classified into 4 categories of use which are based on frequency of use and the expected area of use. The requirements and test loads are graded according to these categories.

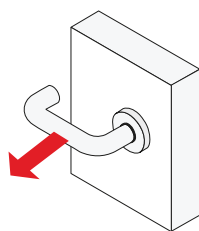
1. Category of use (excerpt from the most important tests out of a total of 13)

Rotational torque strength test	Axial strength test	Free play "at rest"	Free angular movement	Grades	Description
20Nm	300N	< 10mm	< 10mm	1	Medium frequency of use by people with a high incentive to exercise care and with a small chance of misuse, e.g. internal residential doors.
30Nm	500N	< 10mm	< 10mm	2	Medium frequency of use by people with some incentive to exercise care but where there is some chance of misuse, e.g. internal office doors.
40Nm	800N	< 6mm	< 5mm	3	High frequency of use by public or others with little incentive to exercise care and with a high chance of misuse, e.g. public office doors.
60Nm	1000N	< 6mm	< 5mm	4	High frequency of use on doors which are subject to frequent violent usage, e.g. football stadiums, offshore installations (oil rigs), barracks, public toilets, etc.
* HOPPE handle sets for public buildings					

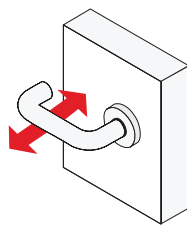
Examples



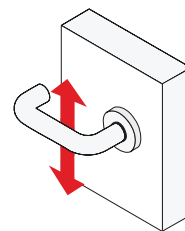
Rotational torque strength test



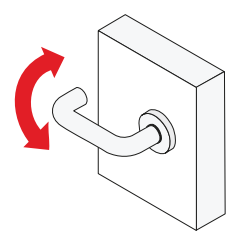
Axial strength test



Free play "at rest"



Free angular movement



Durability test

The requirements and testing procedures are formulated in such a way that the actual strain of everyday use is simulated by firmness tests, corrosion-resistance tests as well as measurement of free-play before and after durability tests on the hardware. At the top of the page, you'll find some test examples depicted.

In order to maintain the exchangeability of locks and hardware, some national dimension standards are unavoidable. This is why dimensions for door handle sets compatible with DIN 18255 locks and DIN 18252 profile cylinders continue to be determined by the DIN 18255 standard which appeared as a so-called residual standard in May 2002 as an addendum to DIN EN 1906.

All HOPPE architectural door handle sets correspond to DIN EN 1906 (May 2002), category of use 4, as well as to the residual standard DIN 18255. Furthermore, they have a long tradition of being supplied to the architectural sector.

For specifiers, HOPPE offers external or internal test certificates for door handle sets according to DIN EN 1906 which serve as verification of suitability (see example of certificate on p. 12).

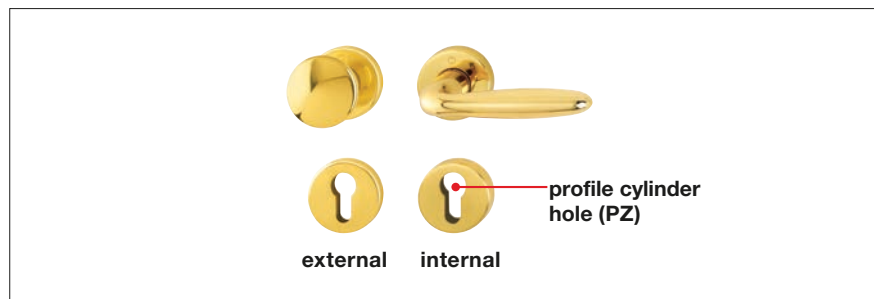
How to tell between a left-hand or right-hand door:

In order to tell whether you have a left-hand or right-hand door according to DIN specification, you have to ascertain where the hinges are on the inside of the door.

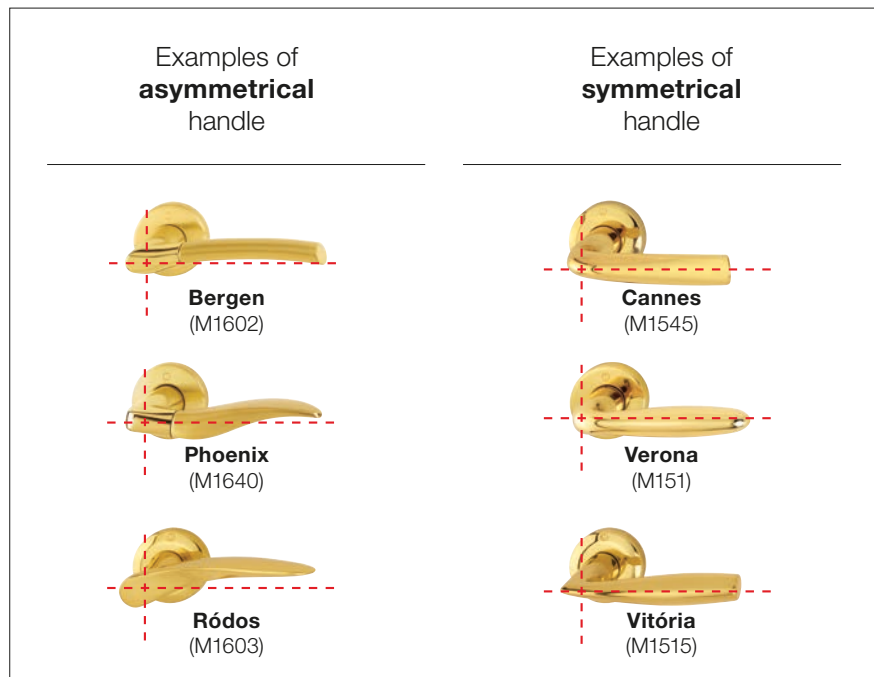
1. What does a knob (pad) / handle set consist of and what is it for?

A knob (pad) / handle set has a knob or a push-pad on the exterior side of the door and a handle on the interior side. The knob (pad) or push handle on the exterior side prevents the normal opening of the unlocked door. A knob (pad) / handle set always has a profile cylinder holing and is often used on entrance doors as well as on profile doors (side entrances).

Below is an example of a knob (pad) / handle set with knob for corridor doors with a symmetrical handle shape on the interior side.



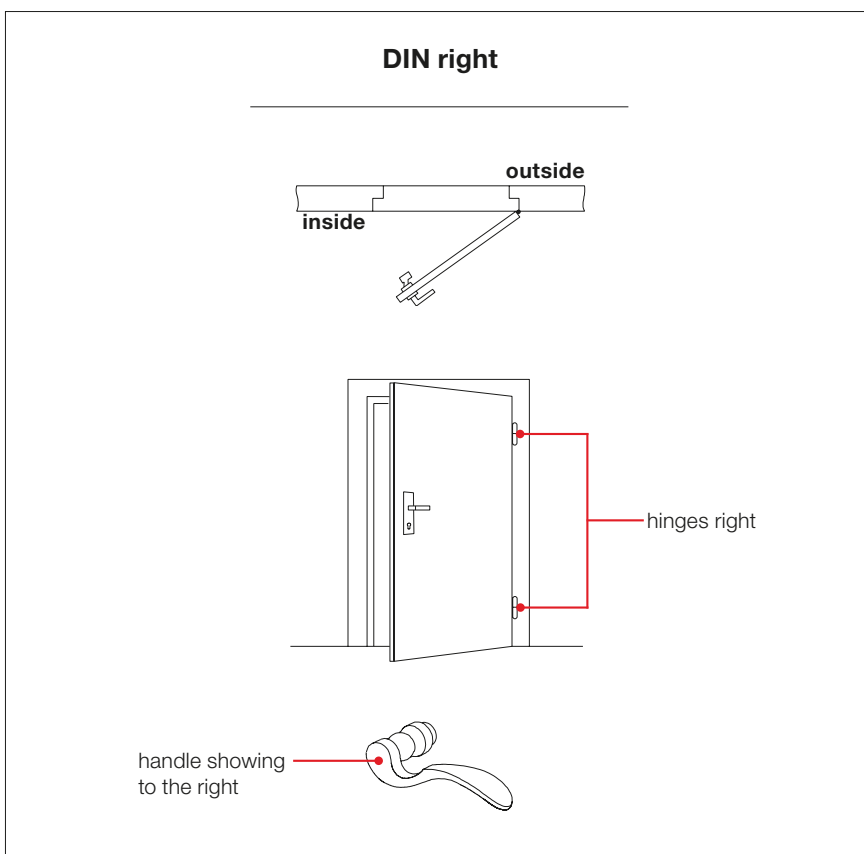
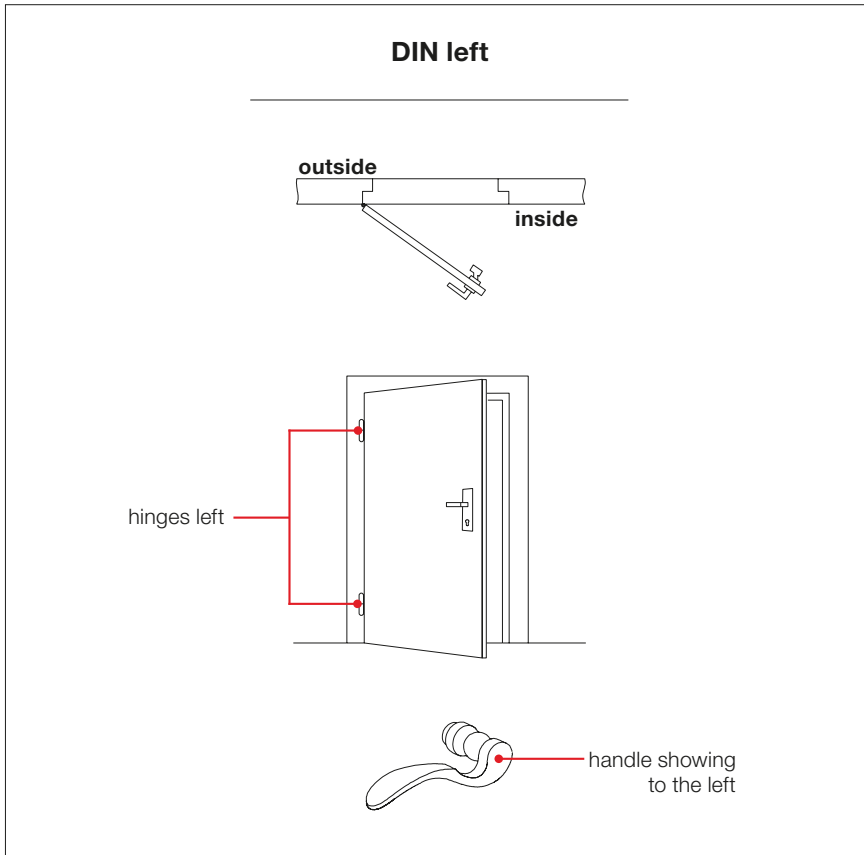
2. What do asymmetrical and/or symmetrical handle designs look like? You will find some examples below.



In the case of asymmetrically-shaped handles and knob / handle sets it is important to ascertain whether the handle on a door is to be fitted to the left or to the right according to DIN.

3. How do I recognise a left-hand and right-hand door?

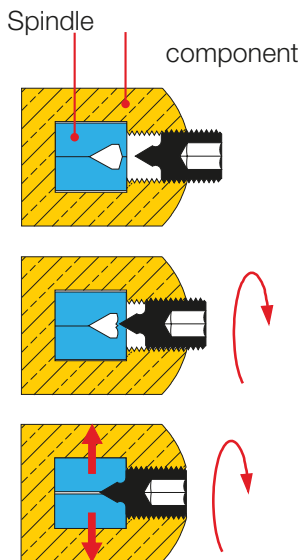
In order to ascertain whether you have a left-hand or right-hand door according to DIN, you need only check where the hinges are on the interior side of the door.





The HOPPE profile-spindle

- Easy to install.
- The Allen screw cannot loosen itself.
- Perfect operation regardless of door thickness.



How it works

Handle receiver

The spindle is made in such a way that it can easily be inserted into the handle, whereby even tension is created over the whole lock follower.

Initial tightening:

After just one turn, the special screw enters the spindle, holding the handle in the correct position.

Firm tightening:

The onion-shaped tip of the screw presses the two halves of the spindle and is then held firmly in place by the pressure against the sides of the handle. To ensure play-free fitting, the screw must be **firmly** tightened.

The HOPPE profile spindle is used in many cases where handles are fitted on both sides of the door, whether profile door sets, security sets or interior door sets.



The HOPPE Sertos clip-in technology and its advantages

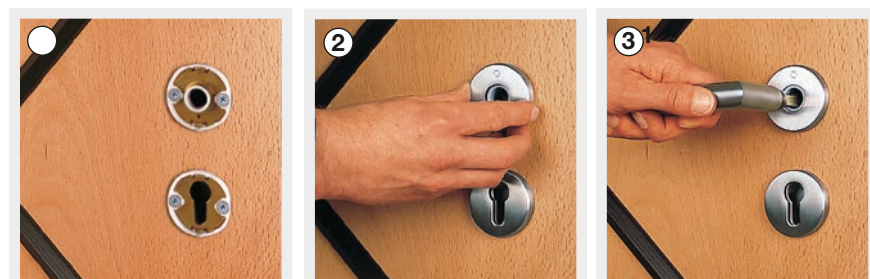
Easier and more time-saving fitting:

The fitting of the steel base can be done beforehand in the workshop (picture ①). The clipping-in of the cover roses (or cover plates) and fitting of the door handles then takes place in situ (pictures ② and ③).

Flexible stock-keeping:

In delivering the various versions and handles as individual parts (door handles, cover roses, cover plates and steel base parts), flexible stock keeping is possible.

The HOPPE Sertos clip-in technology is used in half sets for interior doors, complete interior door sets for project business (e.g. heavily used doors in public buildings, shops and hotels etc.) and fire resistant sets.



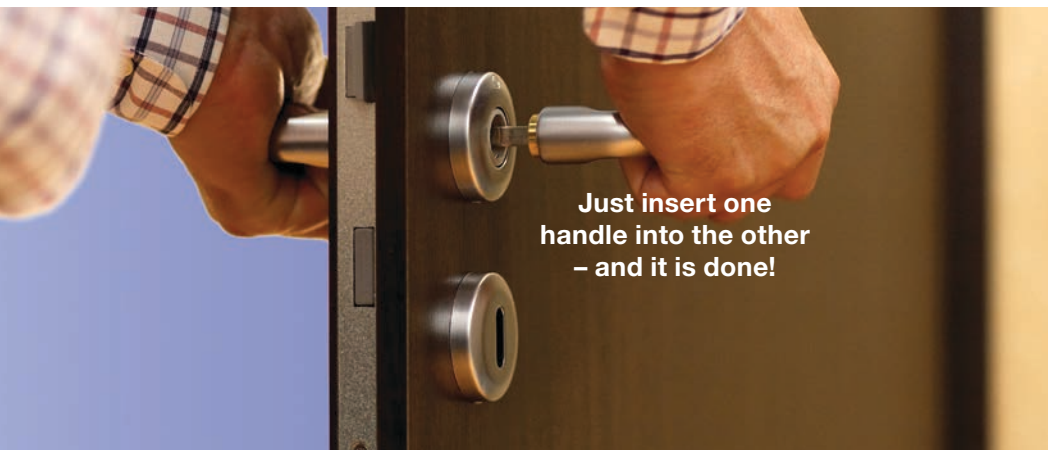
Time is money – quicker and better: The HOPPE Quick-Fit connection

With normal door handle installation, lots of steps have to be taken, quite often not without awkward fumbling. This is tedious and takes time. What is infinitely better is the **HOPPE Quick-Fit connection**. With its advanced technology, door handles can be installed in one simple step – and to last!

The key point of the technology is the blocking mechanism, developed by HOPPE, in the receiver handle. This holds the solid spindle of the other handle firmly and without play. It is with the whole width of the spindle that maximum torque transmission is achieved. The HOPPE Quick-Fit connection is a variable axial handle fitting, tested according to DIN EN 1906 and can be used for various door-thicknesses (in a defined area).

Quick-Fit

Door handle fitting
in about 8 seconds only



You can find HOPPE Quick-Fit connection films (assembly and disassembly) at www.hoppe.com. If you have any questions please get in touch with your HOPPE contact person.

The advantages of the HOPPE Quick-Fit connection at a glance:

- Very quick door handle fitting: around **75% time saving** compared with normal fitting
- No Allen screw or transverse spindles needed
 - no hole for Allen screw needed
 - no alignment of the spindle necessary when tightening the Allen screw
 - no loosening of the Allen screw or spindle possible
- Integrated blocking mechanism in the receiver handle
 - no tools needed for installation
 - play-free handle connection
 - long-lasting, firm fitting of the door handles
- Use of a solid spindle
 - solid spindle for maximum torque transmission
- Variable axial handle fitting tested to DIN EN 1906
 - can be used for various door-thicknesses (in a defined area)
- Easy and quick removal of door handles
 - eg, with the Allen key included or a screwdriver



Important:

HOPPE Quick-Fit products should not be combined with spindles from other manufacturers!

European Patent **EP 1683933**
U.S. patent no. **7,686,357**
HOPPE Quick-Fit connection

Quick-FitPlus

HOPPE Quick-FitPlus Less is more

HOPPE Quick-FitPlus is the logical further development of the tried and tested HOPPE Quick-Fit connection.

This technology not only allows simple installation, without the need for screws, of door handles, but also of round, square and rectangular flat roses. The new HOPPE Quick-FitPlus sets are making an impression with their virtually flush rose design.

Simple fitting

Aesthetically pleasing flat roses and door handles using the Quick-Fit connection are installed on the door in just a few steps: The handle roses – either self-adhesive or with supporting lugs – are affixed to the prepared door and the door handles are simply put together. The full set is therefore installed with precision in just a few seconds without any screws – even in renovations.

Attractive design

The new Quick-FitPlus sets are a perfect match for current design trends. The stainless steel roses are just 2 mm thick and virtually flush with the door leaf.

Depending on the door preparation, they can be used with or without escutcheons.

You can find HOPPE Quick-Fit-Plus films at www.hoppe.com. If you have any questions please get in touch with your HOPPE contact person.



HOPPE Quick-FitPlus handle sets are available in several designs which differ in terms of assembly and door preparation:

- Handle rose with short supporting lugs
- Handle rose and escutcheon with through-going supporting lugs
- Self adhesive handle rose and escutcheons

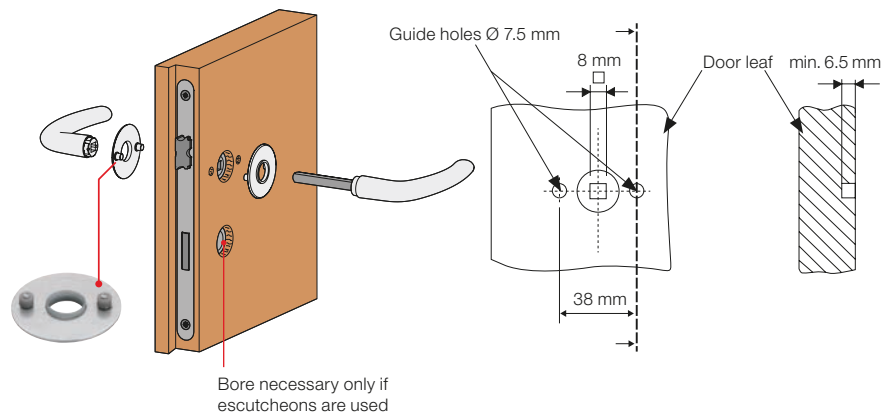
On the following pages you will find detailed information about the different execution.

European Patent **EP 1683933**
U.S. patent no. **7,686,357**
HOPPE Quick-Fit connection

Handle rose with short supporting lugs

Door preparation

This solution is for use on standard doors with standard locks. No special door preparation is needed. Only two 7.5-mm-Ø guide holes are necessary for the **short** supporting lugs.



Handle roses E847, E848 and E849 with short supporting lugs can be fit with a spring cassette as an option. Please see p. 22 for door preparation.

The HOPPE Quick-FitPlus is so easy to fit

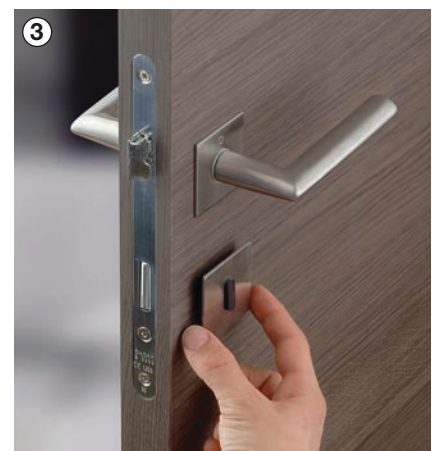
The handle roses with **short** supporting lugs and the door handles are simply fitted together and self-adhesive escutcheons added if necessary (see p. 24), with the whole set able to be installed without the need for screws.



1 Place the handle roses in position



2 Put the door handles together

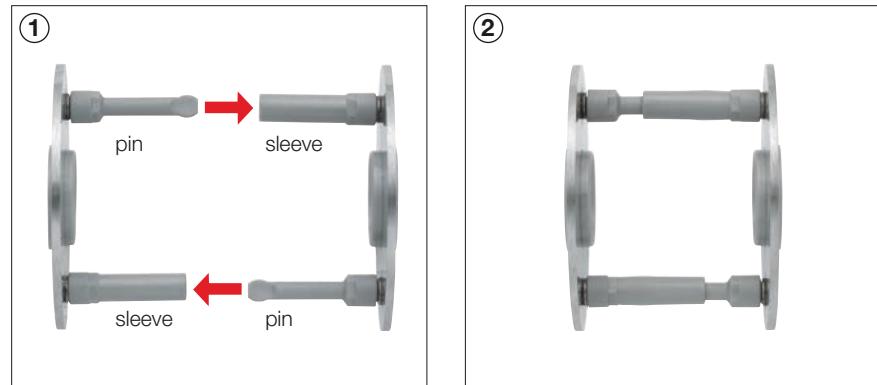


3 If necessary, stick on the escutcheons – and fitting is complete!

Handle rose with through-going supporting lugs

The through-going supporting lugs of the handle roses consist of a nylon pin and sleeve each. By plugging one into the other a play-free and firm fixing is produced.

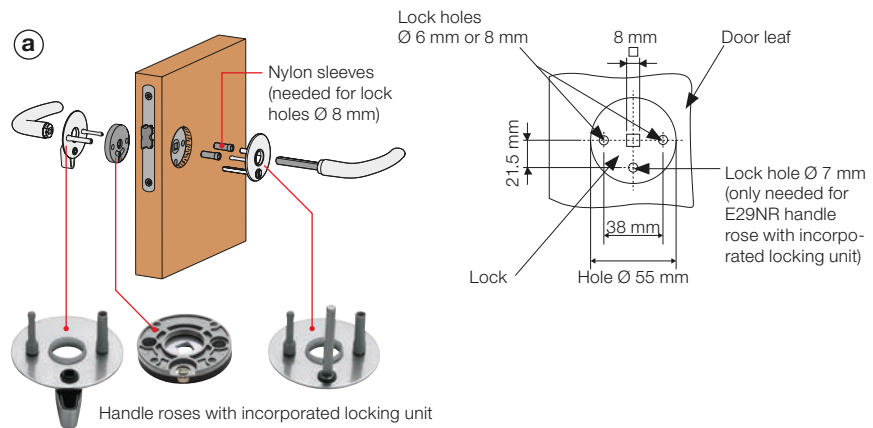
Matching escutcheons with through-going supporting lugs are also available. Please see p. 23 for door preparation and fitting.



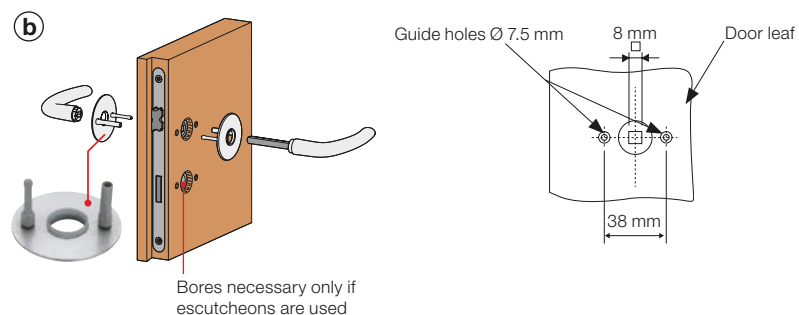
Door preparation

Only one bore is necessary in the case of a handle rose with incorporated locking unit (a) (E29NR).

If a handle rose without locking function is used, door preparation can ensue as in (a) (E29N) or in (b) (E847N, E848N and E849N). Please note that the lock case must have the appropriate holes.



Handle roses E29N, E29NR, E847N, E848N and E849N with through-going supporting lugs can be fit with a spring cassette as an option. Please see p. 22 for door preparation.



The HOPPE Quick-FitPlus is so easy to fit

The handle roses with **through-going supporting lugs** and door handles are simply fitted together, with the whole set able to be installed without the need for screws.

If a locking function is preferred, either a handle rose with incorporated locking unit (E29NR) or conventional escutcheons can be used. These escutcheons are available with through-going supporting lugs (see p. 23) or as self-adhesive version (see p. 24).

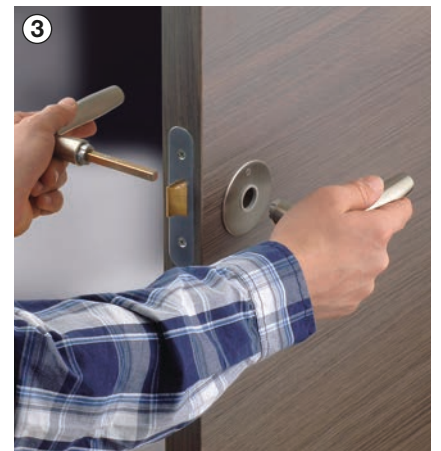
a) HOPPE Quick-FitPlus with handle roses E29N or E29NR:



1 The enclosed black nylon sleeves are in place (though only in the case of lock holes of Ø 8 mm)



2 Put the handle roses together



3 Put the door handles together and fitting is complete! (if necessary, stick on the escutcheons)

b) HOPPE Quick-FitPlus with handle roses E847N, E848N or E849N:



1 Put the handle roses together



2 Put the door handles together



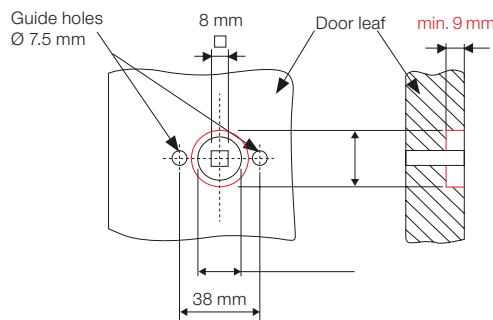
3 If necessary, put the escutcheons together – and fitting is complete!

Spring cassette for flat handle roses with supporting lugs

Handle roses with short or through-going supporting lugs (E29N and E29NR, E847 and E847N, E848 and E848N as well as E849 and E849N) can be fit with a spring cassette as an option.

Door preparation

As the bore must be 28 mm in diameter in the area of the handle hole, it might be necessary to increase the existing hole.



Drill the bore by using a standard Forstner bit (28 mm diameter) and the drilling jig available from HOPPE for the spring cassettes of flat handle roses.

Important Note

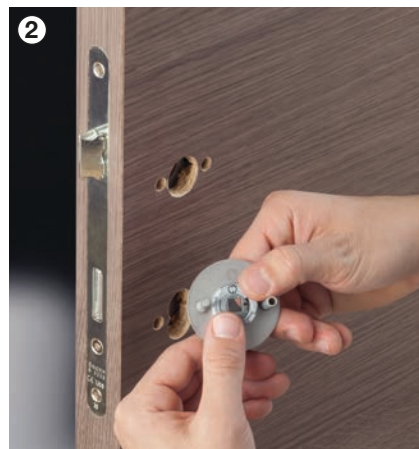
For rebated doors, it is recommended to drill the bore for the spring cassette on the rebated side of the door.

Fitting

Before fitting the HOPPE Quick-FitPlus handle set, clip in the spring cassette on the back of the handle rose.



Please make sure to clip in the spring cassette in the right direction (the arrow indicates the handle's direction of operation).



Clip in the spring cassette on the back of the handle rose.

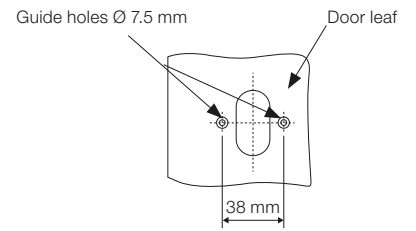


Put the handle roses together – and fitting is complete!

Escutcheon with through-going supporting lugs

Door preparation and fitting

This solution is for use on standard doors with standard locks. No special door preparation is needed. Only two 7.5-mm-Ø guide holes are necessary for the **through-going** supporting lugs. Then the escutcheons can simply be put together.



1 Fix the template on the door by inserting the key into the keyhole and mark the bores for the guiding lugs.



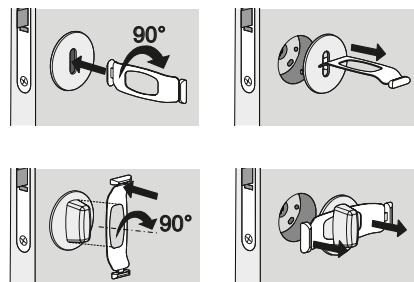
2 Drill the holes for the guiding lugs (remove the lock case for this).



3 Put the escutcheons together – and fitting is complete!

Disassembly

By using the disassembly aid, the flat handle roses and escutcheons (both self-adhesive and with supporting lugs) can easily be removed.





Simply stick on instead of screwing: Self-adhesive handle rose and escutcheon

In many areas, today's advanced bonding technologies have replaced screwed fastening used for ages. For example, the foil used for HOPPE Quick-FitPlus, which is adhesive on both sides, is used by the car and furniture industry, too. According to the respective demands, it is resistant to elevated temperatures, moisture and ageing.

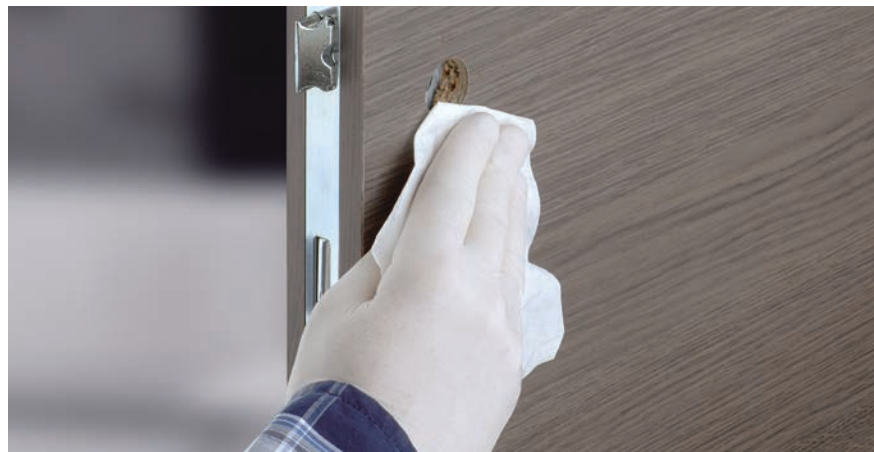
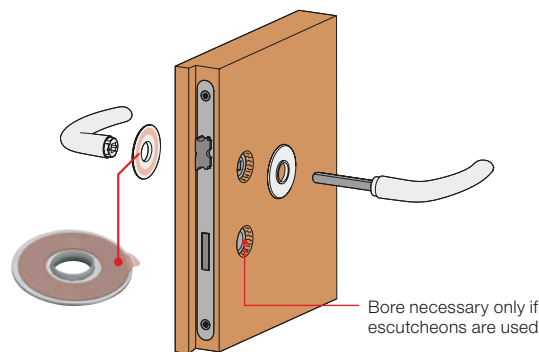
The self-adhesive handle roses and escutcheons are suitable for:

- Solid wood doors
- Real wood veneer doors
- Painted doors
- Decorative surface-/laminated doors

The door surfaces in the area where the adhesive is to be used must be totally flat. The sticking surfaces must be clean, dry and free of both grease and separating agents as well as capable of bearing the weight. Yet, for stained doors and doors with oil finish, conventional escutcheons with screw fixing are recommended.

Door preparation

This solution is for use on standard doors with standard locks. No special door preparation is needed.



Clean the door surface in the area where the adhesive is to be used. Only the cloth delivered with the products should be used to clean or remove grease from the surface of the door. Smooth the protruding edges of the holes if necessary.

The HOPPE Quick-FitPlus is so easy to fit

All you need to do is put the handle roses and door handles together and attach the self-adhesive escutcheons if required. So, the whole set can be fitted without any screws and tools.



1 Stick on the handle roses



2 Put the door handles together



3 If necessary, stick on the escutcheons – and fitting is complete!

Positioning and sticking of the escutcheons



Installation key for oval keyholes (OB)

The self-adhesive oval keyhole escutcheons can be positioned with the enclosed installation key.

For the installation of the profile cylinder escutcheons the cylinder already fitted serves as a guide.

The privacy version can be positioned by using the spindle connected to the handle rose.

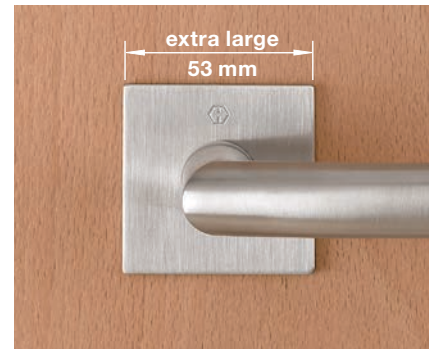
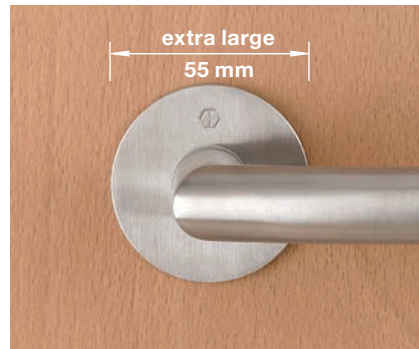
Should the escutcheon not be positioned accurately enough, it is still possible to re-position it as adhesion is complete only after 24 hours.

Disassembly

With the help of a normal hairdryer you can loosen the adhesion again and then gently remove the handle rose from the door panel by using the disassembly aid (see p. 23) or a scraper.

Renovation with HOPPE Quick-FitPlus

The extra-large square or round handle roses are ideal for renovation work as they completely cover any signs of the old fittings.



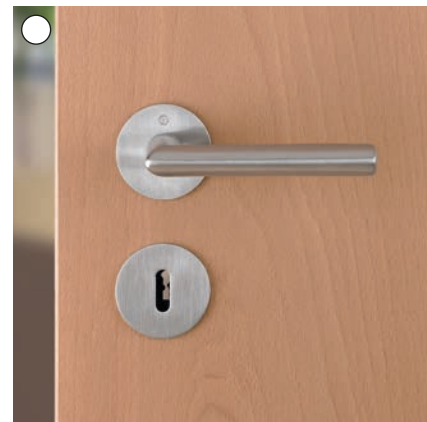
You can give your door a whole new appearance with a new handle – with HOPPE Quick-FitPlus sets.



1 The **current hardware** is no longer quite up to date, so you want to replace it.



2 Its removal quite often leaves unsightly marks on the door.



3 The HOPPE Quick-FitPlus fittings completely cover any signs of the old fittings.

Non-fixed bearing, HOPPE spring and bases

Non-fixed HOPPE standard bearing

HOPPE uses a washer made of a part crystalline and glide-modified nylon here. This type of nylon is characterised by its high resistance to wear-and-tear. This is why the washer, or the non-fixed bearing, is suitable for heavily used doors.

The washers come in finishes to match the surface of the handle.



The non-fixed bearing is used as standard on security sets, interior door sets and partly on profile door sets.

The new HOPPE spring for sets for interior doors

Some of the HOPPE door sets on rose or backplate (loose) have a new spring developed by HOPPE (see section “Program for entrance doors”).

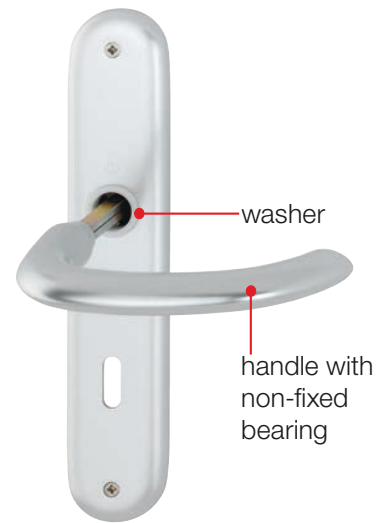
The advantages of the new spring:

- they can be used for left-hand or right-hand handles, so
 - they are suitable for both interior and exterior door handles
 - no need for left-hand and right-hand versions for symmetric handle designs
- they help the lock to keep the handle in the correct position, so
 - it feels even better when the handle is turned
 - there is less probability of fatigue in the lock
 - the handle always returns to the 90° position

The HOPPE bases for the clip-on escutcheons

The nylon bases have guiding lugs (pictured is the M42KVS). The alternate screwing ensures a precise and firm fitting. Both bases are identical, thereby excluding any risk of confusion.

All interior door sets on rose (non-fixed) with cover caps in aluminium, stainless steel, nylon and brass have these nylon bases.



Zamak insert in the nylon base to receive the spindle in the spring mechanism.

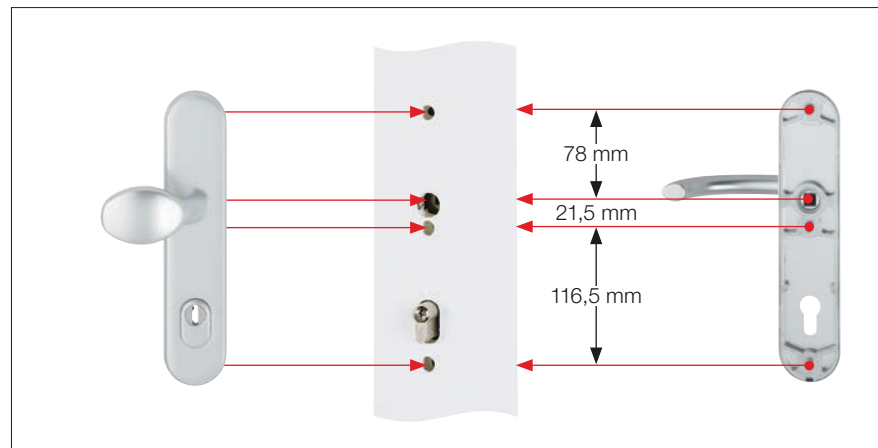
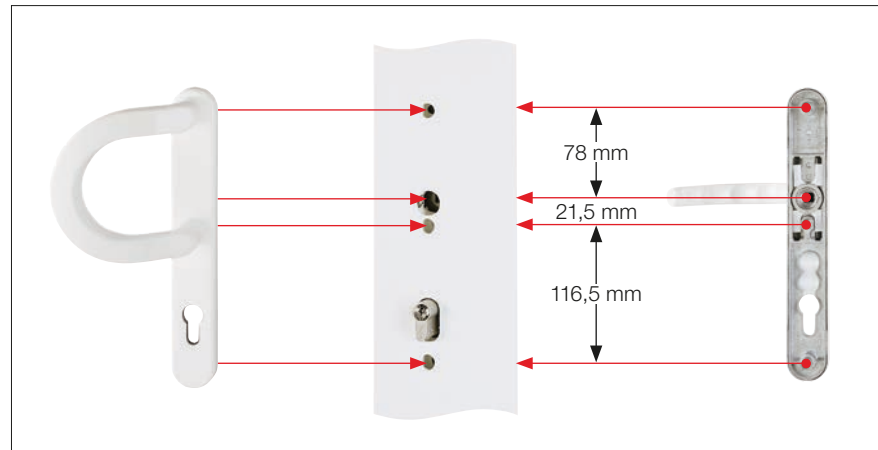
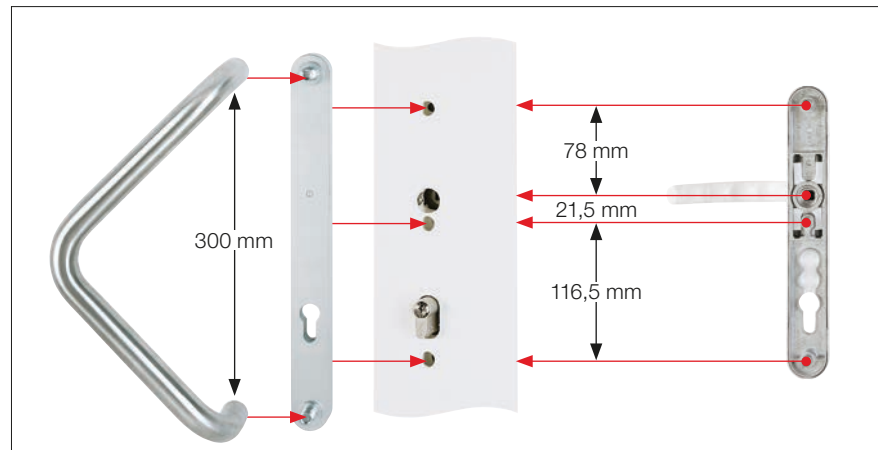




Advantages and fixing examples of HOPPE exterior door products

- Uniform drilling in the case of profile door sets on backplate, security sets and the narrow backplate for pull handles (247N), resulting in:
 - greater flexibility in shape
 - simple fitting of the door handles in situ
 - no damage in transit
 - space-saving in transit

Exterior side of door	Profile with 3 drill-holes	Interior side of door
-----------------------	----------------------------	-----------------------



Important:

You can find in our product range a drilling jig to fix profile door sets with backplate, security sets and interior door sets with escutcheon.



HOPPE profile door sets

Like all HOPPE products, profile door sets are renowned for their quality, workmanship, technology and durability.

HOPPE profile door sets come in aluminium, stainless steel, nylon and brass. These products have been specially developed for doors with narrow profiles (frames) and come in numerous types.

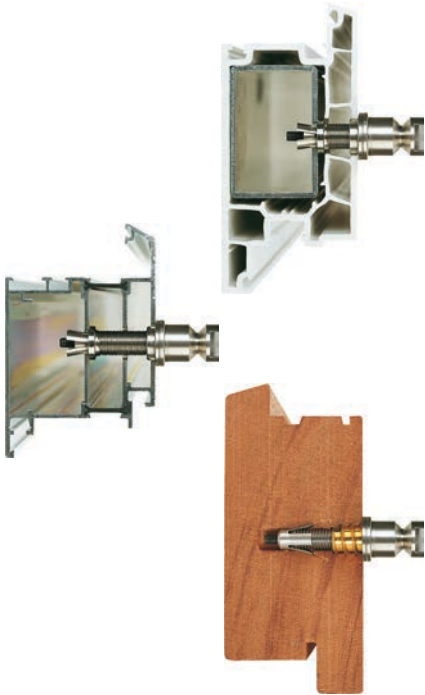
- ES1 (SK2) Security set on backplate
 - knob (pad) / handle sets with cranked pads, push handles or knobs
 - sets with handles on both sides
 - fixed / movable door handles
 - with spring
 - with and without cylinder cover
 - with steel base and lugs in the external backplate and zamak base and lugs in the internal backplate
 - concealed fixing with M6 thread screws
 - tested to **DIN 18257**

- Sets on backplates
 - knob (pad) / handle sets with cranked pads, push handles or knobs
 - sets with handles on both sides
 - sets with short neck handles on the exterior – for doors with blinds
 - fixed / movable or non-fixed handles
 - with or without spring
 - with stainless steel base and lugs, zamak base and lugs or without base and lugs
 - concealed or visibly fitted with M6 thread screws from the inside

- Sets on rose
 - knob (pad) / handle sets with cranked knobs/pads (fixed)
 - knob (pad) / handle sets with cranked knobs/pads (fixed/movable)
 - sets with handles on both sides
 - fixed / movable handles
 - with spring
 - with zamak base
 - concealed fixing with M5 fixing nuts (for aluminium doors) or M5 expanding lugs for PVC doors

- Fire-resistant rose sets
 - Fire-resistant knob / pad handle sets with cranked knobs (fixed)
 - Fire-resistant knob / pad handle sets with cranked knobs (fixed/movable)
 - Fire-resistant sets with handles on both sides
 - Fire-resistant door handles (fixed/movable)
 - with spring
 - with metal base
 - concealed fixing with M5 fixing nuts (for aluminium doors) or M5 expanding lugs (for doors)
 - tested to **DIN 18273**





European Patent **EP 0785320**
 Fixing system for pull handles

A splaying system is used for the one-side-fixing of the pull handle onto PVC and aluminium profiles. The pull handle is thereby firmly fixed, completely play-free, for a long period.

- A long term firm attachment is established by means of the support provided by the steel/aluminium reinforcement (or the main chamber), along with the splaying of the fixing system into the reinforcement (or main chamber) at the same time.
- In addition to the splaying system, the one-side-fixing of pull handles to wooden doors is provided with a threaded sleeve. This gives the fixing system extra strength. The pull handle is thereby fixed firmly for a long period of time and remains play-free.
- In addition, HOPPE can provide fixing sets for:
 - pull handle/pull handle attachments,
 - glass doors (one-side with cover roses and pull handle/pull handle attachments),
 - wooden doors with a thickness of less than 56 mm (with cover roses on the interior side of the door),
 - fixing to walls.



BS-1101



BS-1103



BS-1102

The advantages of the HOPPE pull handle fixing system no. 11

- Fixing system no. 1101
 - is a solution to mounting the pull handle near the lock case (see picture on right)
 - can be used with all nylon profiles with a pre-chamber dimension = V-dimension of 11-16 mm), as well as with aluminium- and wooden profiles (except single chamber profiles)
- Fixing system no. 1103
 - is a solution to mounting the pull handle near the lock case
 - can be used with all nylon profiles (pre-chamber dimension = V-dimension 11-26 mm), with aluminium- and wooden profiles (except single chamber profiles)
- Fixing system no. 1102
 - can be used with all nylon-, aluminium-, and wooden profiles with a minimum door thickness of 56 mm (except single chamber profiles)
 - can be used regardless of pre-chamber dimension = V-dimension
 - allows simple and time-saving mounting (only a 10 mm drilling is necessary, as the fixing system has a self-cutting thread)

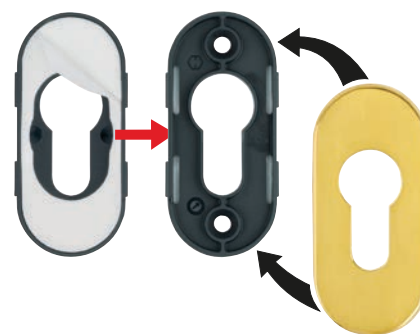


Important:

In order to mount the pull handles to ensure play-free attachment to the door, we recommend the use of our drilling jig set.

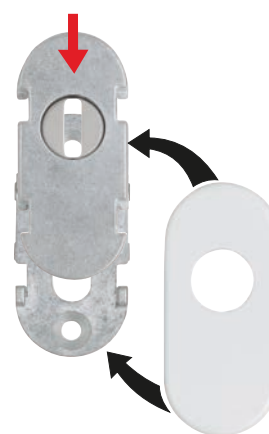
The HOPPE clip-on escutcheon with self-adhesive base

The reverse side of the nylon base used in the HOPPE clip-on escutcheon with a height of 8 mm for profile doors is provided with a self-adhesive pad. In fitting, the foil covering the pad needs to be removed; the base is then stuck on the door and the cover cap is clipped onto the base. In the case of 3 mm high clip-on escutcheons, the self-adhesive pad is fitted directly into the reverse side of the cover cap. Cover caps come in various finishes in aluminium and stainless steel.



The HOPPE profile door sliding rose

The HOPPE profile door sliding escutcheon has a two-part zamak base. In fitting, the lower part of the base is screwed onto the profile first. The second part is then slid on, covering the screwing points of the lower part and the cover cap clipped on. Once the cylinder has been fitted, movement of the upper base is no longer possible, as access to the screws is prevented. The sliding escutcheon comes with a cylinder cover (see picture – height 11 or 14 mm) or with profile cylinder holing (height 6, 8 or 14 mm). The cover cap comes in various finishes in either aluminium or stainless steel.



The HOPPE profile door security escutcheon with removal safeguard

In the profile door rose illustrated, the zinc pressure die-cast base is attached to the profile with special fixing means. The rose is protected from unlawful removal by a steel plate, which is held in place by the profile cylinder. The cover cap which is available in aluminium, stainless steel, brass or nylon is simply clipped over the zinc base.



The HOPPE ES1 security set according to DIN 18257:2003-03

The HOPPE ES1 security set comes with a steel plate which has an adhesive pad on one side and has to be stuck onto the lock case in the area of the profile cylinder (i.e. on the lock side pointing towards the door exterior side) before fitting the security escutcheon. The security escutcheon, which is available in aluminium and stainless steel or without cylinder cover (for protruding cylinder lengths of 10-18 mm), comes with a hardened base.





Fire doors

Fire doors may remain in use for a long time and can have a long life, depending on circumstances. If any changes are necessary over the course of time, the following points should be noted.

- A fire door must be authorised by building inspectors.
- Once authorised, no changes or alterations may be carried out.

Fire barriers are, according to DIN 4102, part 5, doors or gates which close automatically and whose purpose is to prevent the spread of fire. Fire-doors are categorised according to the length of time they can resist fire (T30 = 30 minutes, T60, T90 or T120). Fire doors must fulfil the following basic requirements:

- they must close automatically
- they must meet the specified fire safety requirements (ie they must prevent the spread of fire)
- they must operate reliably over some time (200,000 openings and closings)

How should fire-resistant door sets be manufactured?

Fire-resistant door sets have to be manufactured according to the requirements of DIN 18273 if they are to guarantee the fire-resistance of fire doors. This standard is valid for all fire-resistant door sets used in fire and smoke doors. In addition to the door set, other fire-tested parts, such as the lock, the hinges, the door closer etc., also make up the fire door. Should any non fire-tested part be used in the make-up of the fire door, then the above-mentioned requirements as mentioned above may not be met.

Important:

Fire door sets according to DIN 18273 form part of the building regulation list A of the German Länder (Federal States) Building Regulations and must have the conformity certificate as proof of application.

The conformity certificate is issued by a recognised testing and certification body as long as the building product corresponds to the appropriate technical regulation (in this case DIN 18273) and has undergone a continual in-house production test as well as an external test by the certification body.

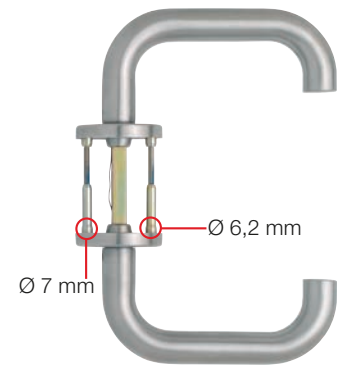
HOPPE fire resistant sets (not individual parts) have been tested by the Materials Testing Institute of North Rhine-Westphalia, bear the "Ü" (for supervision) sign and assure you, as a planner, of using the appropriate proof of application as required by law.

Basic features of sets manufactured according to DIN 18273 mean that:

- The materials and assembly of the fire-door handles must be of such that the fire-preventing properties and long term function of the door are not infringed in any way when fitted to the door under the prescribed conditions and used appropriately.
- The square spindle must be made of steel, measure 9 mm x 9 mm and lengthwise be made up of one single part only.
- If fire door handle sets (for example aluminium sets) are made from a material which melts below 1,000 degrees (300 degrees for smoke-doors) then, as a rule, all individual parts relating to the function of the door handle set (handle with steel core/backplates and roses with steel underplate/fixing means made of steel) must be made from material which melts above 1,000 degrees. What is important is that the fire door can still be operated after a fire.
- Fire door handle sets have to be able to withstand an endurance test (200,000 openings and closings, inactive door leaf set 100,000) without incurring damage such as distortion or cracks.
- Doors on escape routes must be provided with door handles the ends of which are suitably shaped (e.g. curving back towards the door) to avoid injury – see HOPPE fire-resistant FS-138F handle.

HOPPE fire-resistant handle sets conform to DIN 18273 requirements (to suit doors up to T90 requirements)

All HOPPE fire-resistant sets of the Paris and Bonn series have long lugs to bridge relatively large door thicknesses. In the case of sets on rose or short backplate, the lugs have been reduced from a 7 mm diameter to 6,2 mm. This means that the lock hole, depending on the type of door, should be at least 6,5 mm (see line drawing). If this is not the case, please state exact dimensions of the lock hole and door thickness.



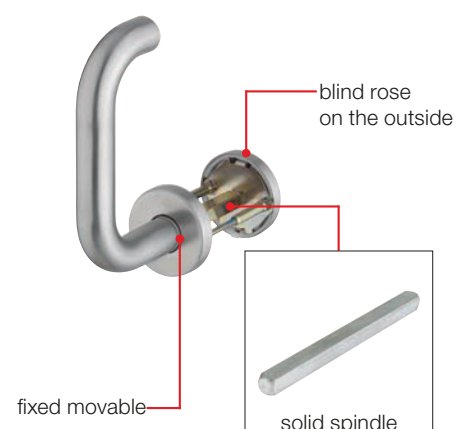
HOPPE fire-resistant handle-knob sets are all fitted with a fixed knob and a fixed/movable spindle. In escape-routes, handle-knob sets may only be used when the direction of the way of escape is absolutely clear.



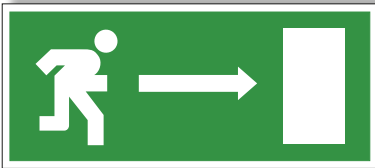
It is usual for panic door handle sets (FS-AP) to be fitted on doors in escape routes. For this reason it is advisable to choose a type of handle which is curved in towards the door leaf. All door handle sets for locks with an panic function must have both a firm and movable handle fixing on the base plate. All HOPPE fire-resistant sets come as fixed/movable versions. In such a way force is not spread to the lock follower.



Inactive door leaf sets (FS-SF) produced by HOPPE all come with an exterior backplate or exterior blind rose. The square spindle can be fitted accordingly, depending on the type of lock.



DIN EN 179 for emergency exit devices and DIN EN 1125 for panic devices



The new European standards, DIN EN 179 for emergency exit devices and DIN EN 1125 for panic devices, have been in force since June 2002 and were revised in 2008 in terms of the requirements for handle dimensions among other things.

In the past, no distinction was made in escape routes between doors with emergency exit devices and doors with panic devices. All fire and panic door hardware with a spindle of 9 mm and handle shapes turned towards the end of the door leaf was admissible.

The above-mentioned standards differentiate between two types of devices. They define the requirements and test procedures and give concrete advice on their use.

DIN EN 179 emergency exit devices



- **Area of application:**

For doors in escape routes where emergency situations can arise. The people in the building are familiar with the exits and their hardware (ie in office buildings not used by the public at large).

- **Emergency situations:**

An emergency situation is when a life-threatening situation arises for one or more persons yet is not necessarily a cause for panic. A typical scenario is a fire in an office where the office-staff are familiar with the escape route and where evacuation can occur in a controlled way.

DIN EN 1125 panic devices



- **Area of application:**

For doors in escape routes where panic situations might arise. The exits and their hardware are **not** familiar to everyone (eg exit doors on public buildings).

- **Panic situations:**

A panic situation can arise when many people have to evacuate a building. Thick smoke, darkness and the presence of people not familiar with the surroundings are important factors. A typical example is a fire in a cinema.

**DIN EN 179
emergency exit devices**

- **Permitted hardware:**
Door handles or push-bars which have been developed for emergency situations (please see drawings below).
- **Important information:**
Handles or push-bars and lock must always be tested and certified together. It is absolutely essential to adhere to national regulations.

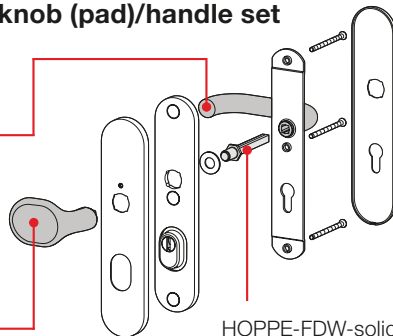
**DIN EN 1125
panic devices**

- **Permitted hardware:**
Horizontal push-bars, which cover the width of the door.
- **Important information:**
Handles or push-bars and lock must always be tested and certified together. It is absolutely essential to adhere to national regulations.

**Important features of fire-resistant hardware
for emergency exits to DIN EN 179**

1. Fire-resistant knob (pad)/handle set

"U-shaped"-handle with steel core and fixed/moveable connection



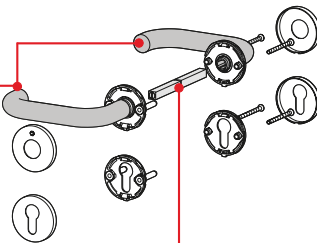
knob

HOPPE-FDW-solid profile spindle (□ 9 mm)



2. Fire-resistant panic handle set (FS-AP)

"U-shaped"-handle with steel core and fixed/moveable connection

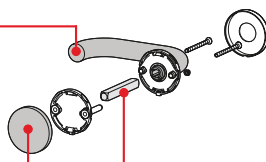


HOPPE-FS-AP solid spindle (□ 9 mm)



3. Fire-resistant set for inactive door leaves (FS-SF)

"U-shaped"-handle with steel core and fixed/moveable connection

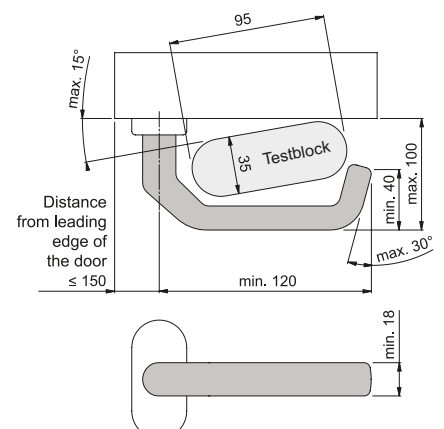


exterior blind rose

HOPPE-solid spindle (□ 9 mm)



**Dimensional requirements
for a handle to DIN EN 179**



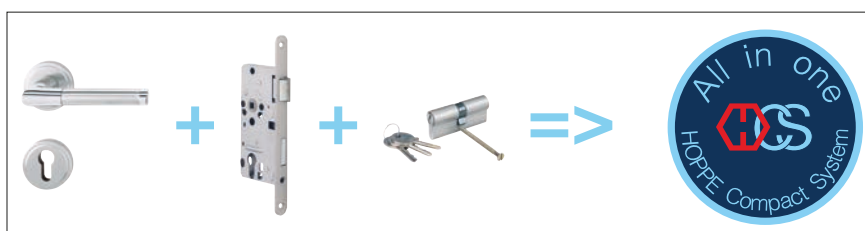


HCS® – HOPPE Compact System

HCS® is a compact lock and hardware system for the home and office. It is suitable for all timber and glass doors as well as for partition doors. The wide selection of versions, materials and designs with a variety of finishes offers a large choice for interior doors in the home and office.

HCS®:

- is a unique product developed by HOPPE
- is ideal for wood, glass and partition doors for the home
- can be fitted in less than a minute
- is internationally patented – there is nothing else like it!
- comprises door hardware, lock and locking function in one



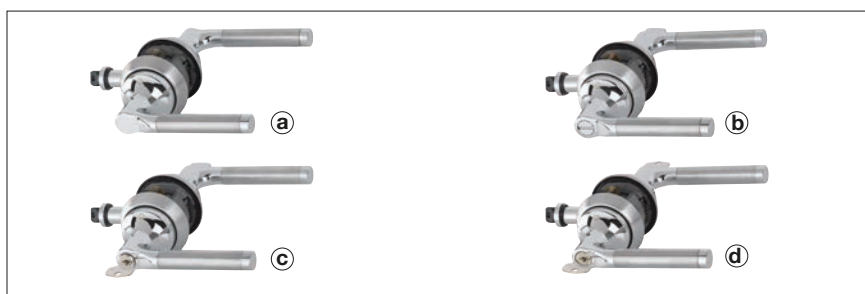
HCS® consists of the following five components:

- ① System core with integrated handle set (for flush or rebated doors)
- ② Latch set (bolt and tube)
- ③ Decorative rings (appropriate versions for different door thicknesses)
- ④ Clip-in components (for non-keyed and keyed locking)
- ⑤ Strike plates (for flush or rebated doors)



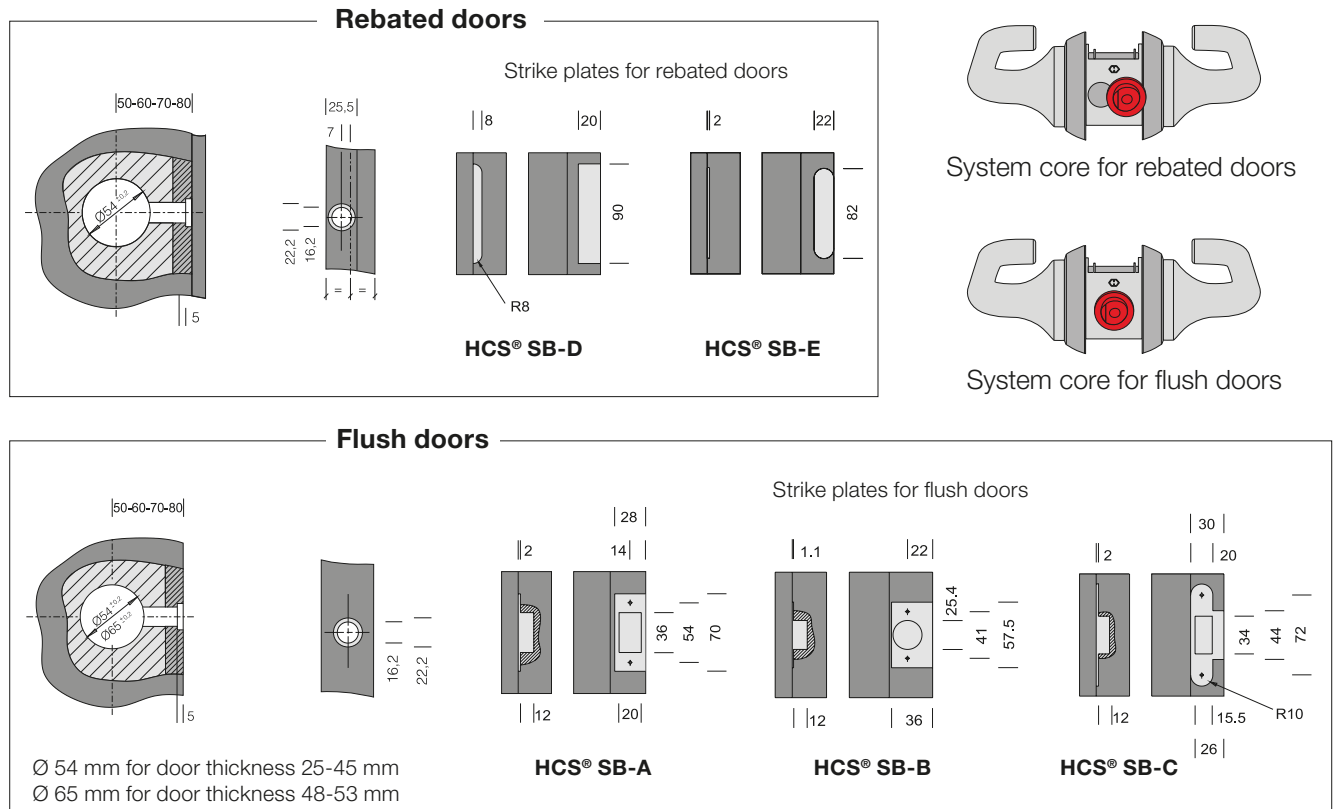
There are four HCS® versions:

- HCS® passage:** for doors which do not need to be locked (without clip-in components)
- HCS® with non-keyed locking (SK/OL-15):** for doors which need to be locked such as bathrooms or toilets. Turn button (OL-15) on the interior with emergency release (SK) on the exterior for emergency opening.
- HCS® with keyed/nonkeyed locking (15/OL-15):** for doors which need to be locked by key from the outside such as bedrooms or studies. Turn button (OL-15) on the interior and cylinder (15) on the exterior.
- HCS® with keyed locking (15/15):** for doors which need to be locked. Cylinder on both interior and exterior sides.



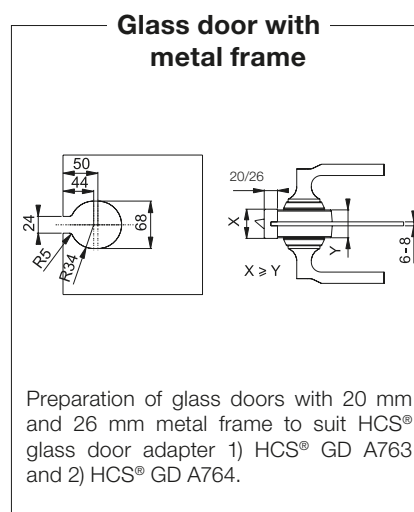
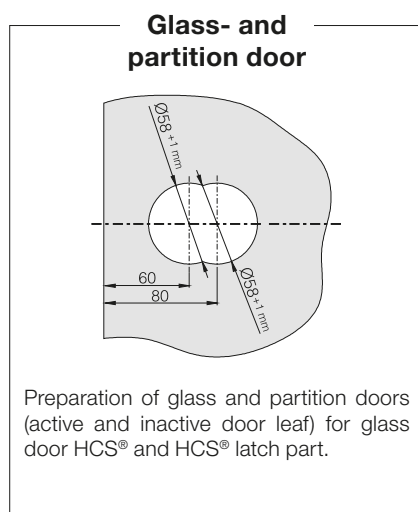
HCS® – The preparation of timber doors

- Handle and latch bolt are at the same height from finished floor level
- Backset of 50 mm, 60 mm (standard backset), 70 mm or 80 mm
- Door thickness of rebated doors: 38-43 mm
- Door thickness of flush doors 25-45 mm and 48-53 mm
- For other door thicknesses please get in touch with your HOPPE contact partner
- For the preparation of steel frames please contact the manufacturer.



HCS® – The preparation of glass and partition doors

Glass and partition doors should be prepared for the installation of HCS® as illustrated below.



HCS® – Preparation



1 Place HCS® jig at required handle height on door.



2 Flush door: Centre small drill plate on flush edge of door and tighten.
Rebated door: Position small drill plate against rebate and tighten.



3 Drill \varnothing 7 mm guiding hole for HCS® hole saw.



4 Drill \varnothing 7 mm guiding hole for stepped drill bit.



5 Drill 3 mm into door on one side using the \varnothing 54 mm diameter hole saw.



6 Drill through from opposite side.



7 Drill hole for latch tube using the HCS® \varnothing 16,2 mm/22,2 mm stepped drill bit.



To fit the HCS® securely and permanently to the door, we recommend our HCS® tool kit.

HCS® – Installation



Insert the system core in the 54 mm hole with the HOPPE logo at the **bottom** and the handles pointing to the **edge of the door**.



Turn the handles through 180°. The HOPPE logo is then at the **top** with the handles pointing to the **hinges of the door**.



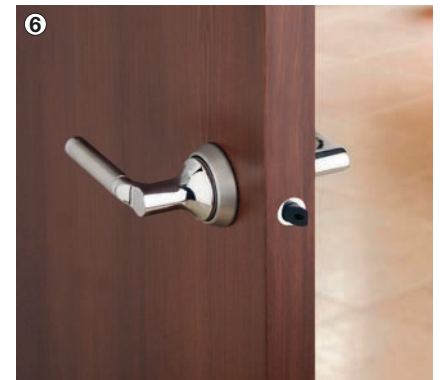
Put the latch tube on the installation key and insert it into the appropriate hole. Position it in the system core and turn it but do **not** tighten completely.



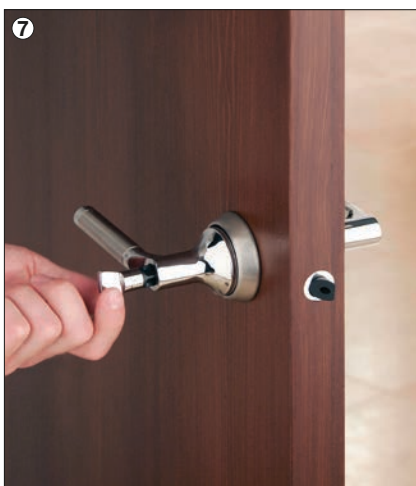
Put the decorative rings over the handles and turn them tight. Only **now** tighten the latch tube.



Put the latch bolt on the installation key and insert it **fully** into the tube with the **strike face of the bolt** showing **upwards**. Depending on the **closing direction of the door**, put it to the final position by turning it 90°.

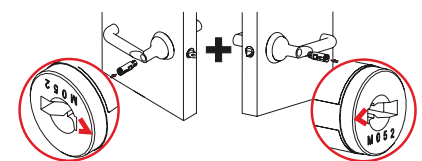


That's all! Depending on the HCS® version chosen, the appropriate clip-in components can now be fitted (see picture 7).



Non-keyed locking: The turn (OL) can be clipped into the handle on the **interior side of the door**. The emergency release (SK) or the red/green indicator (RG-SK) can be clipped into the handle on the **exterior side of the door**.

Keyed locking: Insert the appropriate key cylinder if needed. Please make sure to position it correctly (cf. drawing)!



Note: Installation of locking HCS®

Before inserting the clip-in components (emergency release, turn, key cylinder etc.) into the handles, establish their correct position regarding the interior and exterior side of the door. **Once fitted, the clip-in components cannot be removed!**

The new HOPPE range for sliding doors

With the new range for sliding doors, the fitting technology has been further developed for simplicity and ease. For example, with the innovative telescopic spindle (in the panic release/ turn button version), it is no longer necessary to have a set screw and the respective drill hole.

Furthermore, this enhanced technology can be used with a wide range of door-thicknesses. The doors are not spoiled in any way by drilling or unsightly preparation.

Advantages at a glance:

- Quick and easy fitting
- Shorter fitting time
- With innovative telescopic spindle (no need for set screw)
- Suitable for a wide range of door-thicknesses
- Concealed fixing (exception: 4930)

door-exterior side:
emergency release
with telescopic spindle
(insert, solid spindle)



door-interior side:
turn button with
telescopic spindle
(receiver part, sleeve)

Features of sliding door sets of the duravert® product line:

- Matching finishes from the duravert® product line, all with the Resista® surface guarantee
- Maximum projection including stowable turn button = 4 mm
- Solutions with normal or stowable turn button (stowable turn button as standard with oval and square shells)




Features of sliding door sets of the duraplus® product line:

- Matching finishes from the duraplus® product line, some with the Resista® surface guarantee
- Maximum projection including stowable turn button = 4 mm
- Solutions with normal or stowable turn button (stowable turn button as standard with oval and square shells)

Features of sliding door sets of the duranorm® product line:

- Solutions with round, square, oval and rectangular shells
- Easy assembly
- Maximum projection 2 mm

The sliding door sets are available in the following types:

	oval standard keyhole (OB)	Set 3
	external: emergency release, internal: turn button (SK/OL)	Set 1 and Set 2
	external: emergency release, internal: stowable turn button (SK/OL)	Set 7
	without keyhole (UG)	Set 5

Door preparation

You will find details of door preparation for the new sliding door sets with round and oval sliding door shells below. Detailed installation instructions are enclosed with every set.

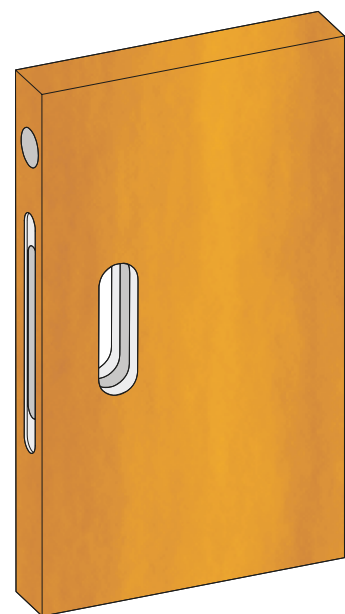
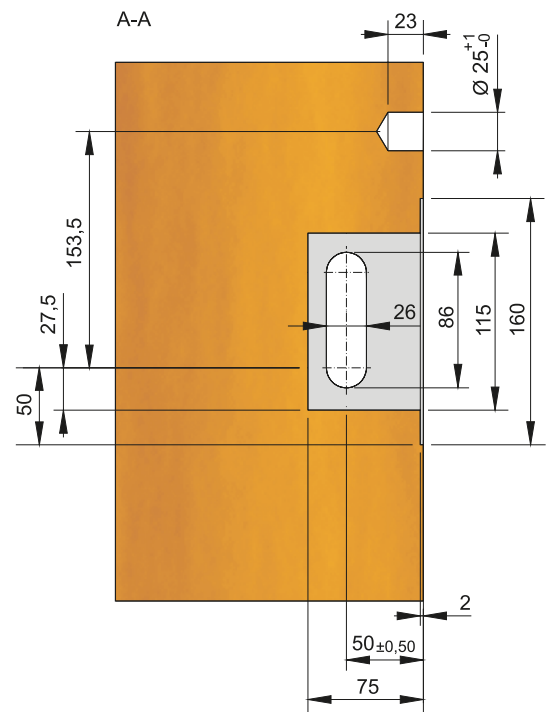
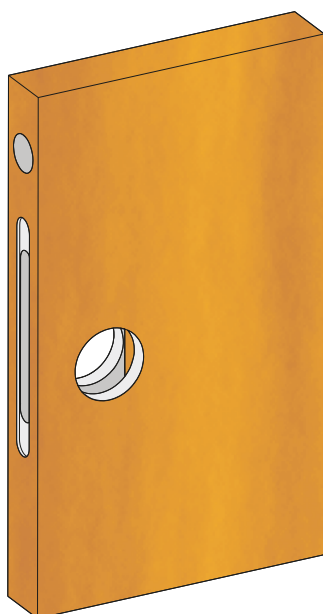
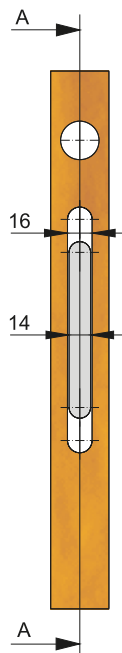
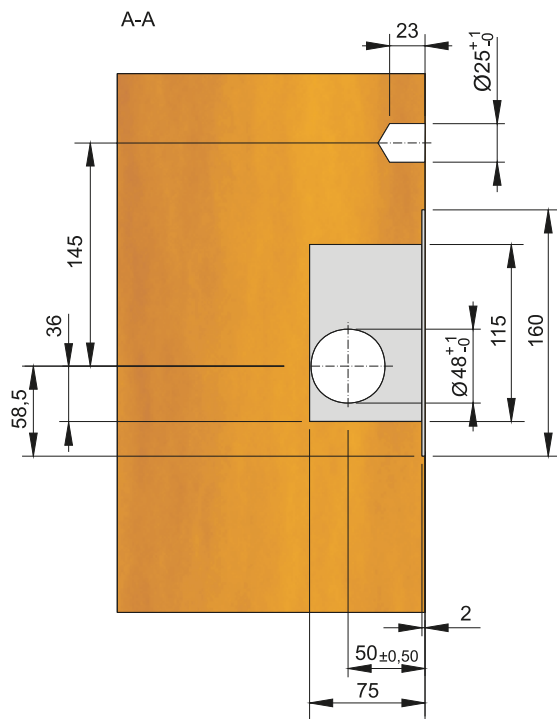
Sliding door sets:

- 4920
- 4921
- M425
- M462
- M471



Sliding door sets:

- 4930
- M463
- M472



The HOPPE sliding door sets M425, M462, M463, M471, M472:

The above-mentioned sliding door sets come with a nylon base (exception: M425 is entirely in brass) and brass inlay, and in a finish to match the set. Once the base has been fixed to the sliding door, all you need to do is to clip the brass frame onto the base which then covers the screwing points. With the stowable turn button it is even easier to move the door.

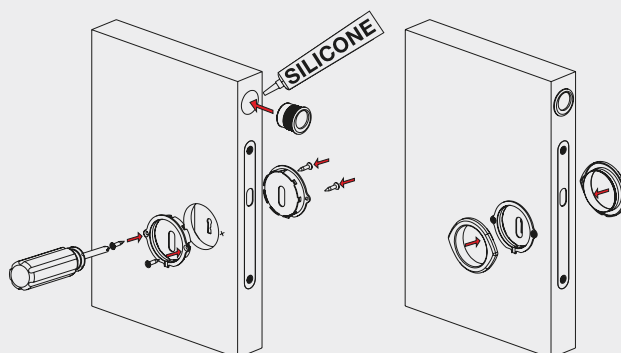


Fitting instructions for M425

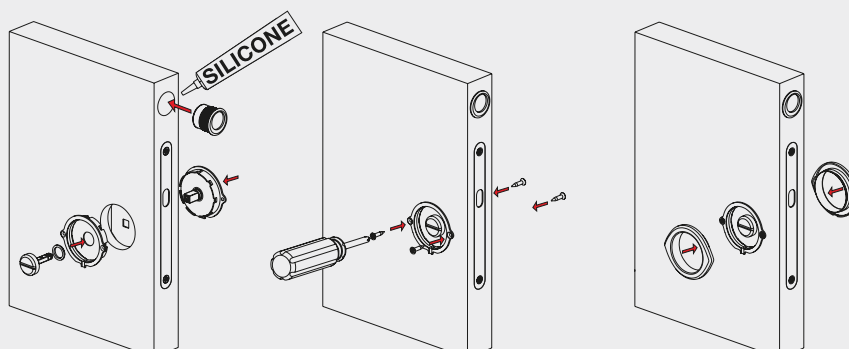
Sliding door set 4
with keyhole



Sliding door set 5
without keyhole,
with pull ring



Sliding door set 7
with emergency
release and stowable
turn button

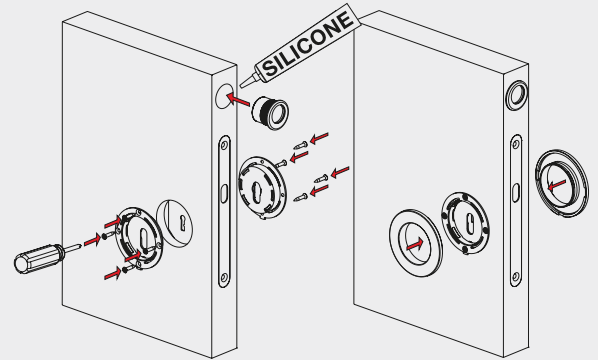


Fitting instruction for M462 and M471

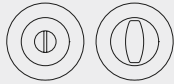
Sliding door set 4
with keyhole



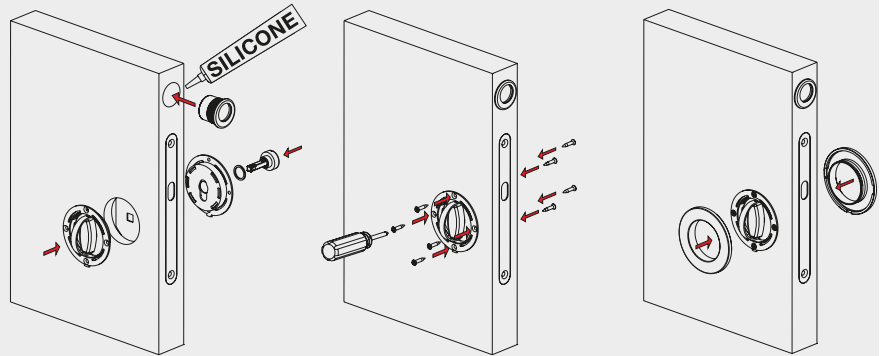
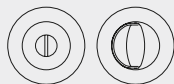
Sliding door set 5
without keyhole



Sliding door set 2
with emergency
release and
turn button

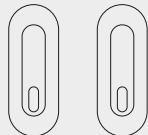


Sliding door set 7
with emergency
release and stowable
turn button

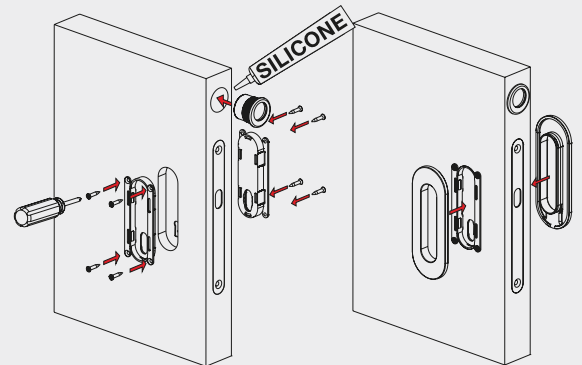
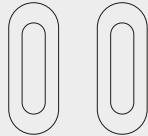


Fitting instructions for M463 and M472

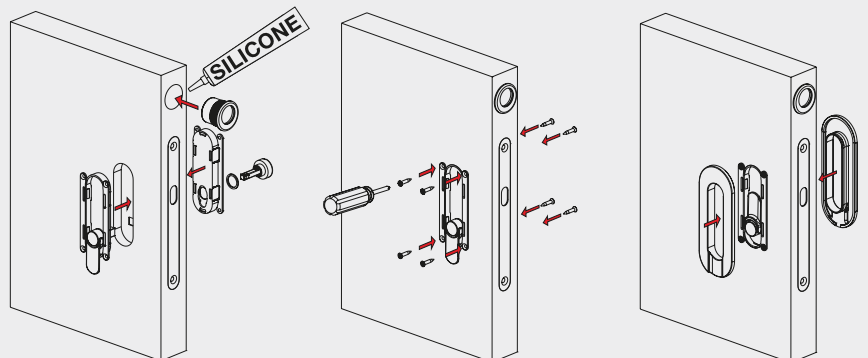
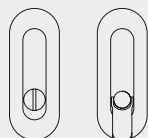
Sliding door set 4
with keyhole




Sliding door set 5
without keyhole

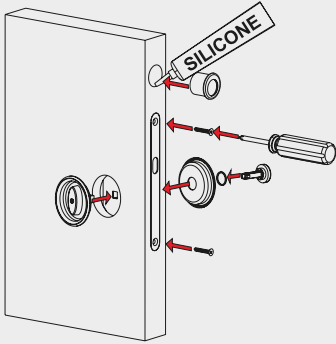



Sliding door set 7
with emergency
release and stowable
turn button

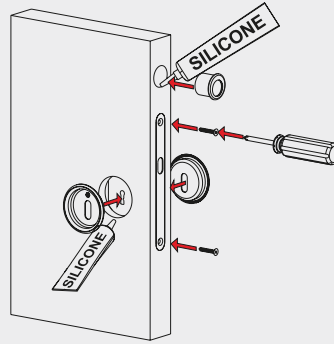



Fitting instructions for 4920 and 4921

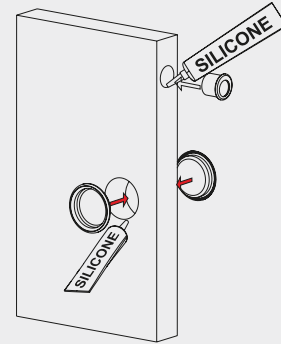
Sliding door set 1 and 2
with emergency release
and turn button 



Sliding door set 3
with keyhole 

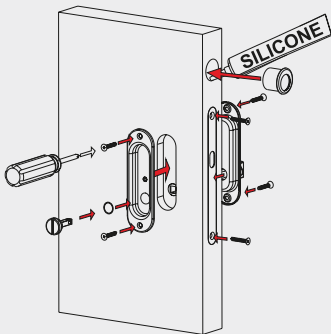



Sliding door set 5
without keyhole 

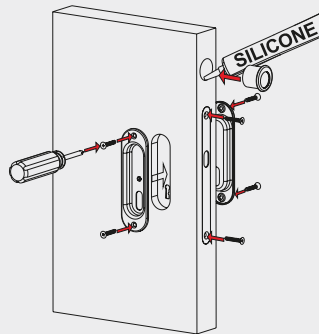



Fitting instructions for 4930

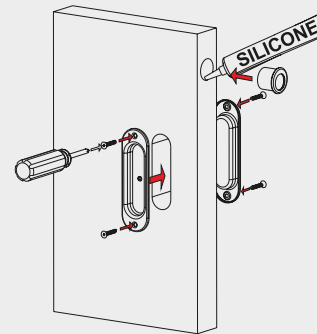
Sliding door set 1 and 2
with emergency release
and turn button 



Sliding door set 3
with keyhole 

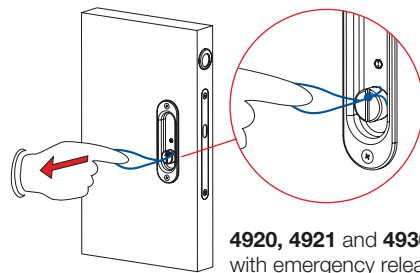


Sliding door set 5
without keyhole 



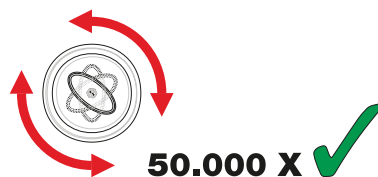
Easy removal of sliding door sets with turn button and emergency release

Simply tie a piece of string with a loop around the emergency release and pull out slowly and horizontally.

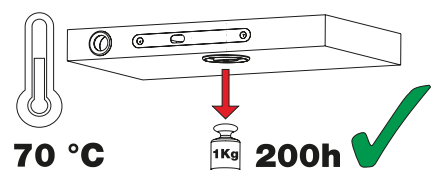


4920, 4921 and 4930
with emergency release

Reliability tests



Turn button and emergency release have successfully undergone a test of **50,000** operational cycles.



Test over **200 hours** with a load of **1 kg** at a temperature of **70° Celsius**.

HOPPE recommends the following combinations:

	M18	M462 – M463			
	M25	M425			
	(E/M)19	M471 – M472			
	M23	M471 – M472			
	M15	M471 – M472			
	(E/M)42	M471 – M472			
	(M)843	4921			
	(E)52	4921			
	24	4921			
	(E)17	4920 – 4930			
	(M)88	4920 – 4930			



Windows and breaking in

About two-thirds of all break-ins in detached houses occur through windows or French doors. Common ways of breaking in are by forcing the window with levers or by tampering with the window fitting from outside, whereby the window handle can be moved to the open position. Tilted windows, too, can be an invitation for burglars. The window handle can be reached through the opening and then turned to the opening position, thereby allowing free entry into the house.

HOPPE can provide more protection for windows with the technical solutions Secustik®, Secu100® and Secu100® + Secustik®.

- **Secustik® technology**

Window handles with Secustik® technology hinder unauthorised tampering with the window fitting from outside by an integrated jamming mechanism. The precision clicking of the blocking mechanism when engaging itself is the audible sign of more security for your windows. For more information about this technology see page 53.

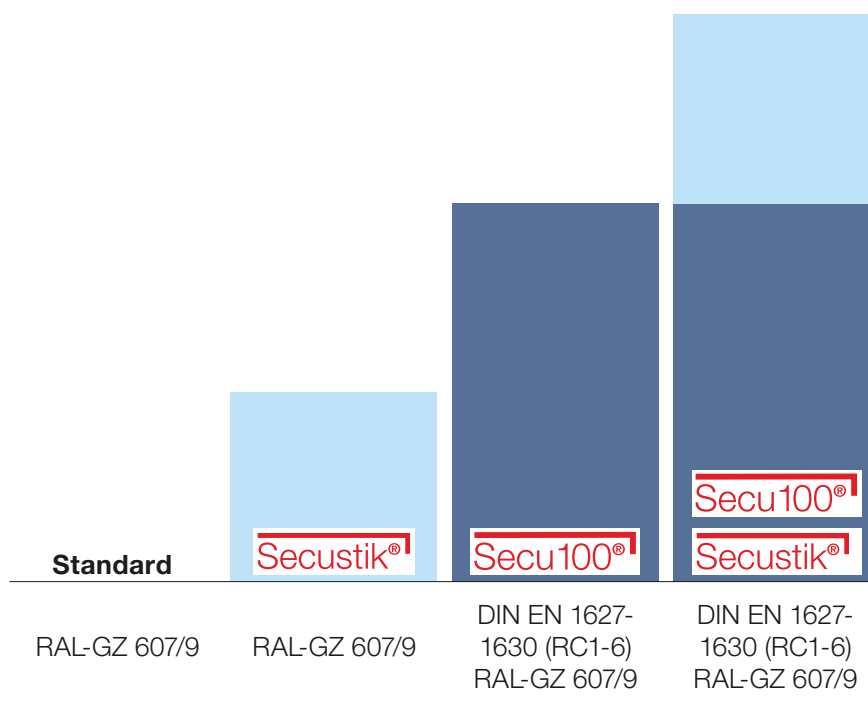
- **Secu100® technology**

The Secu100® technology prevents the turning and pulling off of the window handle up to a torque of 100 Nm*. For more information about this technology see page 57.

* 1 Nm (Newton metre) is equal to the torque resulting from a force of one Newton applied perpendicularly to a lever arm which is 1 metre long.

- **Secu100® + Secustik® technology**

The Secu100® + Secustik® combines the Secu100® with Secustik® technology. With this, not only is there a high degree of safety when locked, but also an in-built permanent, basic security even when unlocked. For more information about this technology see page 58.



On the following pages you will find not only detailed information about window handles but also about relevant standards. You will also learn what distinguishes a HOPPE handle from others as well as finding out about the technology developed by HOPPE.

DIN EN 13126-3 for window handles

The European standard **DIN EN 13126** comprises 19 parts relating to hardware for windows and door height windows. Part 3 has been fully revised (February 2012 edition) and uses a 9-digit classification key (see page 49-51) to define requirements and testing procedures for handles, particularly Tilt and Turn, Tilt-First and Turn-Only hardware.

Two categories of use for handles were defined for the first digit of the classification key, taking into account the various quality levels in Europe. The superior grade 2 reflects the tried-and-tested product properties of existing RAL window handles. The seventh digit defines three security grades for lockable window handles. They were designed in such way to match the requirements of the European burglar resistance standard DIN EN 1627.

The European standard DIN EN 13126 does not stipulate any requirements in terms of window handle dimensions. These requirements are defined in **DIN 18267** (e.g., square spindle \square 7 mm, screw fixing distance 43 mm).

The revised DIN EN 13126-3 also forms the basis for the revised quality guideline **RAL-GZ 607/9** (September 2012 edition). As a minimum requirement, the window handles must meet grade 2 of category of use and grade 2 or 3 in the security category (see tables on page 47-48). Additionally, RAL-GZ 607/9 uses the following classifications:

- **RAL**

Window handles with RAL-compatible click mechanism, min. 10,000 tilt and turn cycles, min. 48 h corrosion resistance in salt spray test.

RAL minimum requirements in accordance with DIN EN 13126-3:

Category of use	Durability	Mass	Fire resistance	Safety in use	Corrosion resistance	Security	Application	Test size
2	3/180	-	0	1	2	0/0	C1	-

- **RAL100**

Keyed or non-keyed lockable window handle with RAL-compatible click mechanism, min. 10,000 tilt and turn cycles, min. 48 h corrosion resistance in salt spray test, 100 Nm resistance against forceful turning and pulling, non-keyed locking mechanism or keyed locking mechanism with at least 100 possible locking variations.

RAL100 – minimum classification in accordance with DIN EN 13126-3:

Category of use	Durability	Mass	Fire resistance	Safety in use	Corrosion resistance	Security	Application	Test size
2	3/180	-	0	1	2	2/1*	C1	-
2	3/180	-	0	1	2	2/3**	C1	-

* Non-keyed locking mechanism

** Keyed locking mechanism



- **RAL200**

Keyed or non-keyed lockable window handle with RAL-compatible click mechanism, min. 10,000 tilt and turn cycles, min. 48 h corrosion resistance in salt spray test, 200 Nm resistance against forceful turning and pulling, non-keyed locking mechanism or keyed locking mechanism with at least 100 possible locking variations.

RAL200 – minimum classification in accordance with DIN EN 13126-3:

Category of use	Durability	Mass	Fire resistance	Safety in use	Corrosion resistance	Security	Application	Test size
2	3/180	-	0	1	2	3/1*	C1	-
2	3/180	-	0	1	2	3/3**	C1	-

* Non-keyed locking mechanism

** Keyed locking mechanism

Obtaining the RAL Quality Mark requires compliance with the minimum requirements defined in accordance with DIN EN 13126-3, constant internal and external supervision by a recognised test institute. This ensures a consistently high level of quality.

The following pages explain the classification key in DIN EN 13126-3.

HOPPE window handles with RAL

HOPPE window handles based on U10, U26 and U34 rosettes and Secustik® US10, US945, US952 and US956 rosettes are tested to DIN EN 13126-3, meet the dimensional requirements of DIN 18267 and fulfil the quality and test specifications of RAL-GZ 607/9.

HOPPE window handles with RAL100

The **Secu100®** and **Secu100® + Secustik®** lockable window handles meet the dimensional requirements of DIN 18267 and are suitable for use in burglary-resistant windows meeting resistance classes RC1 to RC6 of DIN EN 1627.

For RAL100 certification

HOPPE window handles with RAL200

The Secu200 lockable window handles based on U52Z, U945Z and U11Z rosettes meet the dimensional requirements of DIN 18267, are suitable for use in burglary-resistant windows meeting resistance classes RC1 to RC6 of DIN EN 1627 and fulfil the quality and test specifications of RAL-GZ 607/9.

The classification key in DIN EN 13126-3:2012-02

1st digit: Category of use (corresponding to the main test parameter)

Grade 1

Click torque before and after durability testing	Between-clicks torque $M_0 \leq 1.4 \text{ Nm}$	Click-out torque $M_a \leq 6.0 \text{ Nm}$	Difference $M_d \geq 0.4 \text{ Nm}$
Free play perpendicular or parallel to the mounting plane	$\Delta \leq 6 \text{ mm}$		
Torsional strength 200 N/85 mm/30 s	Permissible deformation $\Delta \leq 5 \text{ mm}$		
Tensile strength of spindle joining	$F \geq 100 \text{ N}$		
Eccentric tensile strength	$F = 600 \text{ N}$		

Grade 2

Click torque before and after durability testing	Between-clicks torque $M_0 \leq 0.8 \text{ Nm}$	Click-out torque $M_a \leq 4.0 \text{ Nm}$	Difference $M_d \geq 0.8 \text{ Nm}$
Free play perpendicular or parallel to the mounting plane	$\Delta \leq 4 \text{ mm}$		
Torsional strength 200 N/85 mm/30 s	Permissible deformation $\Delta \leq 2 \text{ mm}$		
Tensile strength of spindle joining	$F \geq 100 \text{ N}$		
Eccentric tensile strength	$F = 1,200 \text{ N}$		

2nd digit: Durability

Grade 3/90	10,000 turn-only cycles
Grade 4/90	15,000 turn-only cycles
Grade 5/90	25,000 turn-only cycles
Grade 3/180	10,000 tilt and turn cycles
Grade 4/180	15,000 tilt and turn cycles
Grade 5/180	25,000 tilt and turn cycles

3rd digit: Mass

No requirement according to the main section of EN 13126-1

4th digit: Fire resistance

No requirement according to the main section of EN 13126-1

5th digit: Safety in use

Grade 1 in accordance with main section of EN 13126-1

6th digit: Corrosion resistance

Minimum grade 2 of EN 1670, in accordance with main section of EN 13126-1

7th digit: Security (in accordance with additional test parameters)

Grade 0:	Without security
Grade 1:	35 Nm resistance against twisting-off and forcing-off
Grade 2:	100 Nm resistance against twisting-off and forcing-off
Grade 3:	200 Nm resistance against twisting-off and forcing-off
Extension 0:	No locking mechanism
Extension 1:	Non-keyed locking mechanism
Extension 2:	Keyed locking mechanism with ≤ 99 locking varieties
Extension 3:	Keyed locking mechanism with ≥ 100 locking varieties

This results in the following possible combinations for the 7th digit:

0/0	Without security/without locking mechanism
1/1	35 Nm resistance against twisting-off and forcing-off/non-keyed locking mechanism
1/2	35 Nm resistance against twisting-off and forcing-off/keyed locking mechanism with ≤ 99 locking variations
1/3	35 Nm resistance against twisting-off and forcing-off/keyed locking mechanism with minimum 100 locking variations
2/1	100 Nm resistance against twisting-off and forcing-off/non-keyed locking mechanism
2/2	100 Nm resistance against twisting-off and forcing-off/keyed locking mechanism with ≤ 99 locking variations
2/3	100 Nm resistance against twisting-off and forcing-off/keyed locking mechanism with minimum 100 locking variations
3/1	200 Nm resistance against twisting-off and forcing-off/non-keyed locking mechanism
3/2	200 Nm resistance against twisting-off and forcing-off/keyed locking mechanism with ≤ 99 locking variations
3/3	200 Nm resistance against twisting-off and forcing-off/keyed locking mechanism with minimum 100 locking variations

8th digit: Application

Applicable part of this European standard: Grade 3

Application N:	No click function
Application C:	Click function
Type 1:	Window handle
Type 2:	Geared window handle

This results in the following possible combinations for the 8th digit:

3/N1	Part 3/no click function/window handle
3/N2	Part 3/no click function/geared window handle
3/C1	Part 3/with click function/window handle
3/C2	Part 3/with click function/geared window handle

9th digit: Test size

No requirement

Example:

Category of use	Durability	Mass	Fire resistance	Safety in use	Corrosion resistance	Security	Application	Test size
2	3/180	-	0	1	2	3/3	3/C1	-

Explanation:

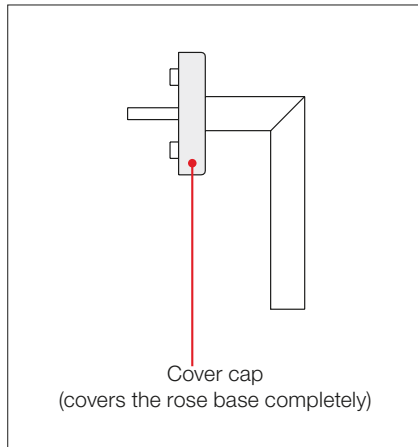
- 1st digit:** Handle with category of use grade 2
- 2nd digit:** Tested with 10,000 tilt and turn cycles
- 3rd digit:** No requirements for window mass (not requested)
- 4th digit:** No requirements for fire resistance (not requested)
- 5th digit:** Safety in use grade 1 (only provided as such)
- 6th digit:** Corrosion resistance grade 2 according to DIN EN 1670 (corresponding to 48 h in neutral salt spray test)
- 7th digit:** 200 Nm resistance against twisting-off and forcing off and a keyed locking mechanism with at least 100 locking variations
- 8th digit:** Application as window handle with click mechanism
- 9th digit:** No requirements for window test size (not requested)



Fitting HOPPE window handles

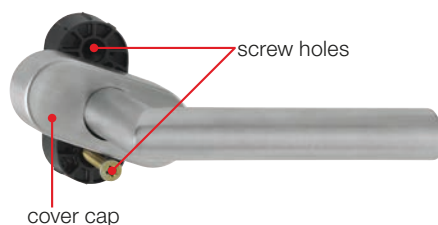
You can fit or remove HOPPE window handles easily as they come with either a full cap or with a turnable, spring-loaded cover plate.

Window handle with cover plate

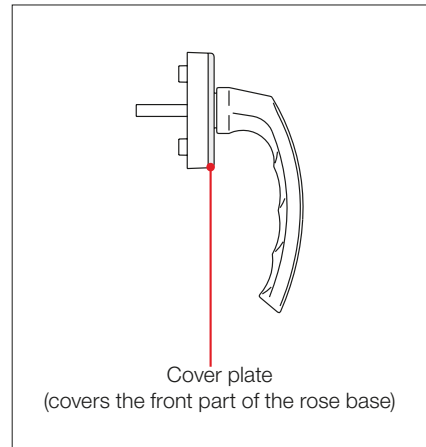


Fitting example:

When assembling, the handle just has to be put in the opening (horizontal) position with the cover cap removed from the front of the rosette via the neck and turned to the side. Now you have free access to the screw points.

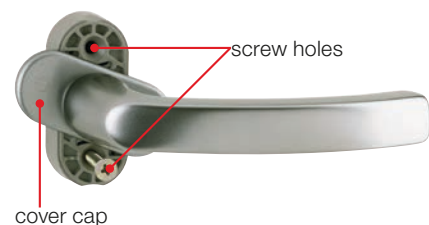


Window handle with cover cap



Fitting example:

To fit the handle all you need to do is put it in the opening (horizontal) position with the cover plate slightly raised and turned. Now you have free access to both screw-holes.



Secustik® – The window handle with the built-in security you can hear

Secustik® window handles contain a patented jamming-device which provides integrated security. This makes it more difficult to move the window fitting unlawfully from outside. It works by a coupling element acting as a sort of mechanical diode. This allows for normal use of the window handle from inside, but jams the handle if anyone tries to turn it from outside by way of the fitting.

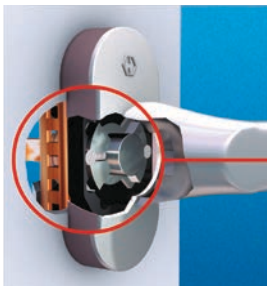


As the handle is turned through 180 degrees from the closed position to the tilt position, the jamming-device makes a series of clicks – proof of the **built-in security you can hear**.

Secustik®

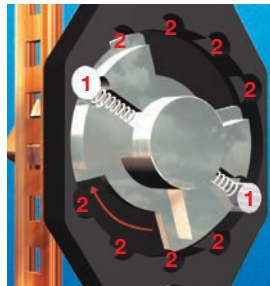


This is how the typical Secustik® clicks are made

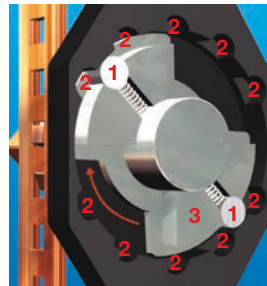


Patented blocking mechanism of the Secustik® window handle.

European Patent
EP 112150
Secustik®

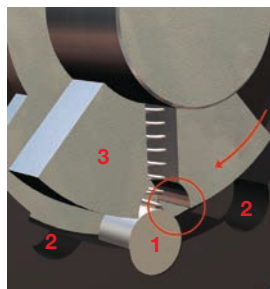


As the window handle is turned, the sprung security bolts ① click as they go over special notches ② in the housing, indicating the built-in security.

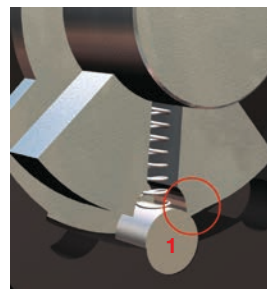


As the handle is turned, the security bolts ① are carried by the coupling element ③ to the individual notches ②, producing the clicking sound.

This is how Secustik® technology effectively helps impede break-ins.



As a break-in is attempted, the security bolts ① are forced into special notches ② in the housing by a second coupling element ③.



It's in this position that the security bolts ① effectively impede the turning of the window handle from outside. The window handle locks and foils the attempted break-in.

You can find a Secustik® film at **www.hoppe.com**. If you have any questions please get in touch with your HOPPE contact person.

The adjustable spindle from HOPPE

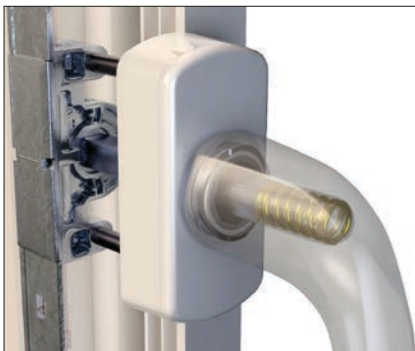


The perfect fit!

The New York window handle with adjustable spindle

There are many different profile systems available for aluminium, wood and PVC windows, and this stems in no small part from energy saving requirements and safety concerns, as well as design considerations. What is more, these systems also require compatible spindle lengths.

It follows that a range of window handles with different spindle lengths must be held in stock. This is inconvenient and leads to considerable additional logistical and administrative costs.



The product solution from HOPPE

A **single** window handle for a range of window profiles. With the adjustable spindle for window handles, you will have the right spindle length for a variety of window profiles already in stock.

This is because the length of the adjustable spindle in the window handle adapts to the depth of the individual window profile, which is enabled by means of a pressure spring fitted on the spindle in the inside of the window handle. Thanks to the spring mechanism, the spindle is pressed smoothly into the square recess of the gear follower, ensuring a perfect fit.

The window handle can be used with an installation depth range of up to 10 mm. It can be installed with ease and flexibility on window profiles of various depths.

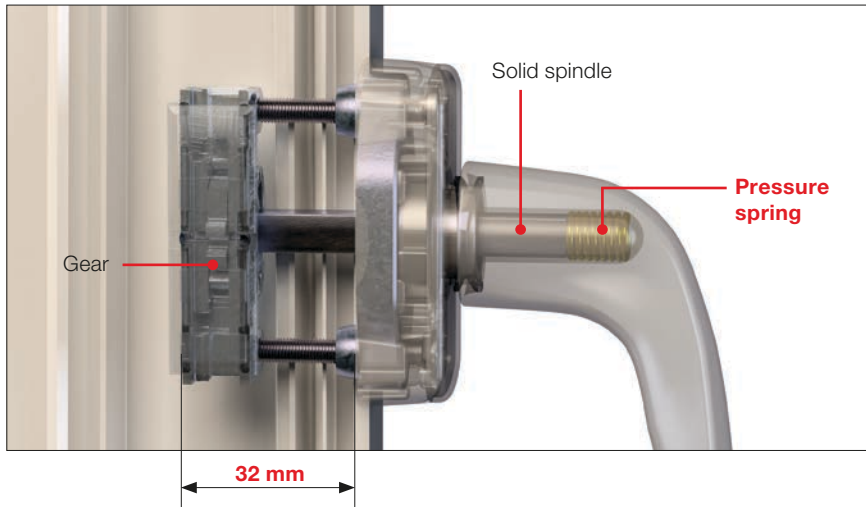
The integrated **Secustik® technology*** hinders movement of the window fitting and turning of the spindle from outside. Naturally, the Secustik® window handle with adjustable spindle has been tested to RAL.

Compared to the current window handles with fixed spindle lengths, the new window handle with adjustable spindle reduces the number of variants considerably. The associated cost saving potential from the reduction in complexity is clear to see.

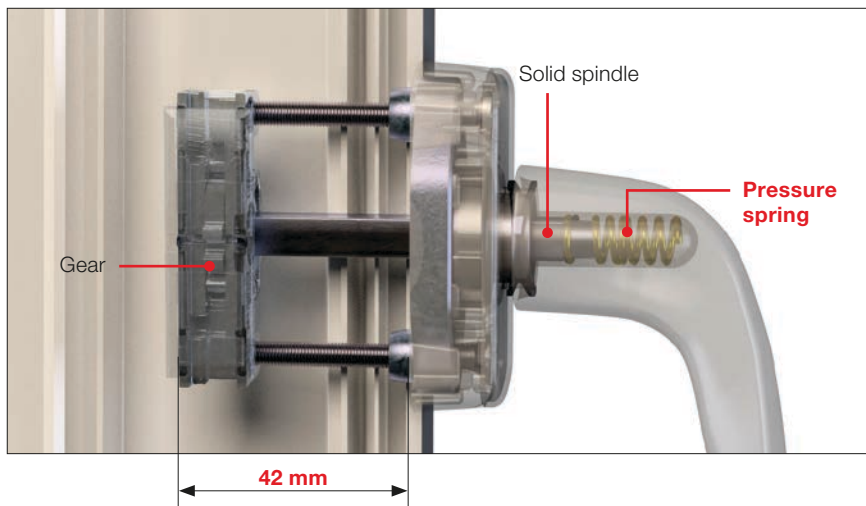
Secustik®

* Window handles with Secustik® technology feature a patented locking mechanism to protect against unauthorised movement of the window fitting and turning of the spindle from outside.

Secustik® window handle with adjustable spindle. Projecting spindle length 32 mm.



Secustik® window handle with adjustable spindle. Projecting spindle length 42 mm.



The adjustable spindle is used for the first time with the new Secustik® window handle model **New York**. It is supplied in the 32–42 mm version (projecting spindle length), complete with 2 pairs of screws. Additional spindle length ranges are available upon request.

Overview of the special features of the New York Secustik® window handle with adjustable spindle:

- Flexible use on window profiles of various depths thanks to pressure spring integrated into the handle neck
- Spindle length adjusts smoothly to the depth of the individual window profile
- Length adjustable up to 10 mm
- Window handle contains patented lock mechanism that uses tried-and-tested Secustik® technology
- Great potential for savings on storage and logistical costs
- 10-year operational guarantee
- Brand quality, tested to RAL



European Patent **EP 2107187**
 Secustik® window handle with adjustable spindle

SecuDuplex – The window handle with innovative double function

SecuDuplex

The SecuDuplex window handle connects the push-to-open technology with a locking cylinder. The two functions combined – that’s the innovative double function technology developed by HOPPE.

“Normal” lockable window handle:

With a normal lockable window handle, the handle can be moved when the locking cylinder is unlocked by the key. If the locking cylinder is pressed in the closed or 180° tilt position, the window handle remains locked.

SecuDuplex window handle with innovative double function:

With the SecuDuplex window handle and its double function, the handle can only be moved when the push button locking cylinder is unlocked and then pressed when turning. This means, once unlocked with the key, the handle can only be moved by pressing the push button locking cylinder, too. If the push button locking cylinder is not pressed, the handle remains locked in the 0° closed or 180° tilt position.

- Moving the window hardware and turning the spindle from the outside is made more difficult by automatic locking (push-to-open technology) – even when the window is not locked.
- Locking the window handle by key prevents the unwarranted moving of the handle from inside, and attempted break-in from outside is made considerably more difficult.



1
Unlock,



2
keep pressed,



3
turn!



Secu100® – standard for performance, security and ease of use

Secu100® – The performance standard

- The handles meet the requirements of the European standard DIN EN 1627-1630 so they can be sold throughout the European Union
- Attractive and well-proven handle designs
- Meets the DIN 18104-1 standard for burglar-resistant retrofitted products – meaning additional sales opportunities in the renovation area
- Attractive benefit/price ratio

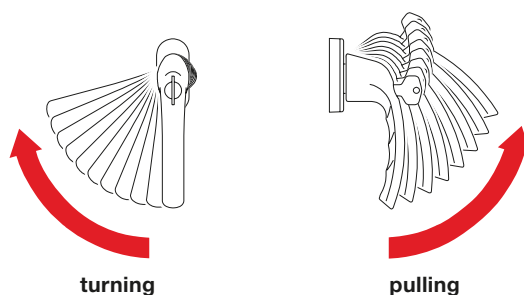
Secu100®



Secu100® – The security standard

- Lockable window handle with a tested torque of 100 Nm: High mechanical security hampering break-ins and effective protection against tampering by children
- Meets all requirements of resistance classes RC1-6 when used with the appropriate window element

Can resist a forceful **turning** or **pulling** of the window-handle from the rose up to 100 Nm



Secu100® – The standard for ease of use

- Enables quick and easy locking of the closed or tilted window „at the touch of the button“ on the lock
- Increased ease of use by means of the large reversible key

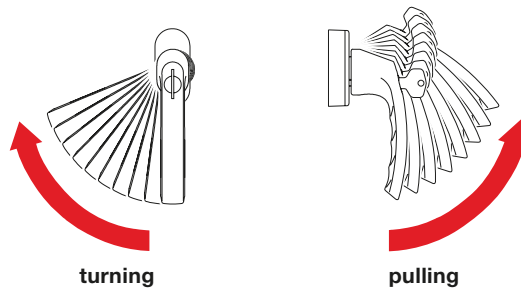
Secu100® is protected by trademark.

Secu100® + Secustik® = the standard for ease and built-in security you can hear

Secu100®
Secustik®

The Secu100® + Secustik® window handle combines the technology of the Secu100® and Secustik®. This not only creates a high standard of mechanical safety when locked, but also a permanent basic security when not locked. This means that:

The Secu100® technology is able to resist a forceful **turning** or **pulling** of the window-handle from the rosette up to 100 Nm



It is the Secustik® technology which helps impede unlawful tampering of the window-handle from outside by an integrated blocking mechanism. The clicking sound is the audible sign of greater basic security.



Secu100® + Secustik® – The most important advantages

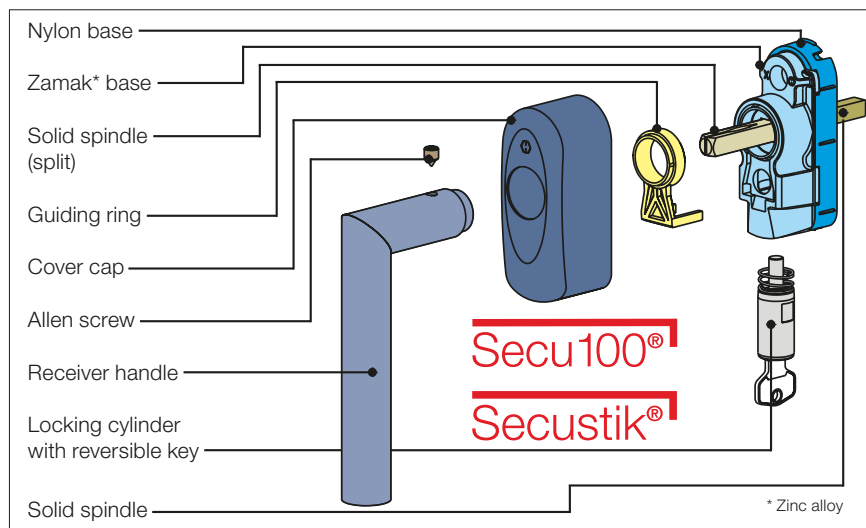
- The handles meet the requirements of the European standard DIN EN 1627-1630 so they can be sold throughout the European Union
- Meets the DIN 18104-1 standard for burglar-resistant retrofitted products – meaning additional sales opportunities in the renovation area
- They also meet the requirements of all resistance classes of DIN EN 1627-1630 RC1-6, when used with the appropriate window
- Attractive and successful handle designs

Lockable and easy to use – window handles with the US950S rose

The lockable window handle rose US950S is equipped with the Secu100® + Secustik® technology developed by HOPPE. This ensures both high mechanical security when locked as well as a permanent basic security when not locked. What this means is that:

The Secu100® technology prevents the **turning** and **pulling** off of the window handle up to a torque of 100 Nm.

In addition, the patented Secustik® technology effectively hampers unlawful tampering of the window handle from outside by an integrated jamming mechanism – even when the window handle has not been locked with a locking cylinder! It is the movement of the catches which makes the **audible sign** of increased basic security in your window.

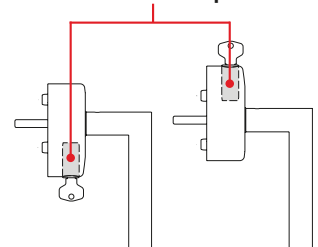


The new window handle rose can be fitted with a locking cylinder which points upwards or downwards so you can choose the way you prefer.

The most important advantages of window handles with the US950S rose at a glance

- With **Secu100® + Secustik®** technology: high mechanical security in the locked position, permanent basic security in the non-locked position
- Very easy to use as a result of variable positioning of the locking cylinder and large reversible keys
- Quick and easy locking of the tilted or closed window by pressing the cylinder
- Wide choice of designs in aluminium, stainless steel or brass to suit individual tastes
- Meets the requirements of the European standard DIN EN 1627-1630 and can be sold throughout the European Union
- Meets the requirements of DIN 18104-1 for burglary-resistant retrofitted products providing increased sales opportunities in the renovation sector
- When used with the appropriate windows, meets the requirements of all resistance classes RC 1-6
- Also available for **TBT4** windows

Possibility to fit the locking cylinder
on the bottom or **on the top** of the rose



European Patent **EP 1837461**
US950S rose

Reference buildings worldwide (selection)

Gerling-Ring-Karree (Köln)



Asia/Pacific

Hotel Mandarin Oriental Hong Kong
 SIEMENS-NIXDORF Head Office Kuala Lumpur
 PETRONAS Head Office Kota Kenabalu (Sabah)
 Kota Kenabalu (Sabah) Malaysia
 Acrovista - Seoul Korea

Austria

Ärztehaus Baden Baden (near Wien)
 Porsche-Hof Salzburg

Czechia

Hotel Aria***** Praha

France

Deutsche Bank Paris
 Musée du quai Branly Paris
 Stade de France Paris - Saint Denis
 Parlement Européen Strasbourg

Germany

Spree-Ufer-Residenz Berlin
 Düsseldorfer Stadttor Düsseldorf
 Europa-Center Hamburg
 RheinEnergieStadion Köln

Hungary

Külügyminisztérium Budapest
 Művészetek Palotája Budapest

Italy

Selimex Laces
 Ospedale "Alessandro Manzoni" Lecco
 Centro di recupero "Fatebenefratelli" Cernusco sul Naviglio Milano
 Fiera di Milano Milano
 Palazzo Pirelli Milano

Netherlands

Eempolis Amersfoort
 La Guardia Plaza Toren I en II Amsterdam
 Kantoor La Tour Apeldoorn
 Montevideo Rotterdam

Slovenia

Grand Hotel Sava Rogaška Slatina
 Hotel Astoria Bled

Spain

Edificio Banco Vitalicio Barcelona
 Edificio Central RACC Barcelona
 Hospital de Santiago Compostela (La Coruña)
 Hospital Universitario de Canarias Santa Cruz de Tenerife

Switzerland

Stade de Suisse Bern
 Zürich Hilton Hotel Zürich

Turkey

Atatürk Airport Istanbul Istanbul

United Kingdom

British Telecom Headquarters London
 The Royal Thai Embassy London
 The University of Worcester Worcester

You can find other reference buildings on our internet site at www.hoppe.com.

Montevideo
(Rotterdam)





Stadttor am Landtag (Düsseldorf)



Selimex (Laces)



Ärztelhaus (Baden near Wien)



RheinEnergieStadion (Köln)



Művészetek Palotája (Budapest)



Parlement Européen (Strasbourg)