

FSB International

Perfection in Detail



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FSB. Founded in 1881.

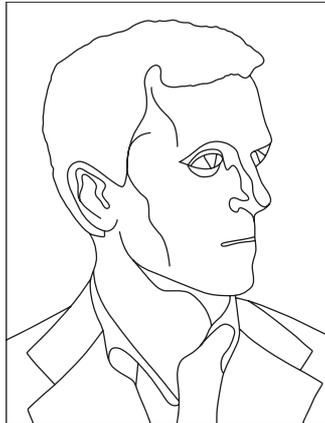
Quality “made in Germany” for all door hardware.

Our logo handle by philosopher-cum-architect Ludwig Wittgenstein sums up our holistic perception of architecture – a handle is always more than just a handle for us. As the interface between buildings and their users it is one of the key elements in the architectural shaping of detail. The Wittgenstein handle quintessentially embodies an architecturally driven perception of hardware in which the function and application of any building element are viewed as constituent parts of an all-embracing whole.

This approach likewise applies unrestrictedly to FSB’s involvement at international level, which is geared towards the global public project business with its focus on the whole door. The handle’s many layers of significance as a) extension of the human hand and b) interface between people and architecture continue to point the way for us to this end.

FSB has won many awards for outstanding design and was the first maker of door hardware to be represented in the permanent exhibition at New York’s Museum of Modern Art. It is a company that marries looks of the highest order to the lasting dependability of its products’ functions, engineering and quality.

FSB was the first architectural hardware company anywhere in the world to satisfy the stringent conditions of the Environmental Product Declaration ISO 14 025 and is thus doing its bit for sustainable architecture.



Philosopher and architect
Ludwig Wittgenstein
(1889–1951)



Wittgenstein handle 1147,
FSB logo



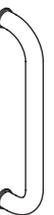
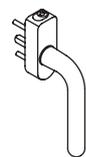
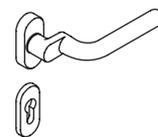
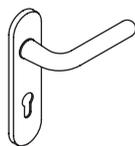
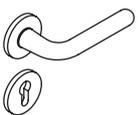
fsb-worldwide.com/leed





The Wittgenstein House, Vienna 1928

FSB: project hardware with a unique systemic depth



From common-place to cultural asset.

It used to be said that modernist German design was sober, severe, matter-of-fact and orderly. Some felt it was short on lust for life and glamour and long on boredom. In an age in which function was going into overdrive, meanwhile, others began to find beauty in uncluttered forms and elegance in straight lines.

One person who appreciates orderliness is Apple's chief designer Jonathan Ive. He cites Dieter Rams as a force behind his work, a man who, as one of the best-known designers in Germany, came to be the very epitome of West German design through his more than twenty years' work for Messrs Braun. Ive's iPods and iPhones for Apple have instilled sexiness into functionalist forms that were long accused of lacking emotion.

The germ cell of functionalism is considered to have been the Ulm Design College (1954–1968), set up after the Second World War with the lofty aim of harnessing better design to the cause of creating a similarly better democratic society. The big names in West Germany's subsequent design history studied and taught here, this is where the first cooperative ventures with companies such as Braun were entered into, and it was here that concepts of good, timeless form defined solely by its function were spawned.

One of the College's co-founders and first lecturers was graphic artist Otl Aicher, who was to shape the perception of West German design for decades with work such as the corporate identity he fashioned for Lufthansa or his visuals for the Munich Olympic Games in 1972, from which a new image of Germany went round the world not least due to Aicher's own work.

Better society through better design

FSB joined forces with Aicher to come up with a new corporate identity and a fundamentally new design culture, one that, as well as addressing the company's origins and tradition, also takes in the cultural history of the handle and, indeed, the entire history of the holding process.

This led to the unearthing of the handle as a design issue: in 1986, FSB invited the likes of Mario Botta, Peter Eisenman, Hans Hollein, Alessandro Mendini and Dieter Rams to the first Handle Workshop

in Brakel. The company achieved celebrity in next to no time due to the outcome of this workshop and to the event itself.

This early "name design" project turned what had long been regarded as a low-interest product into a design topic that well-known architects and designers immediately began addressing themselves to.

Otl Aicher also refashioned the FSB logo, taking as his point of departure a handle designed by the philosopher Ludwig Wittgenstein – no pictogram could have fewer frills – for the house his sister had built in Vienna between 1926 and 1928.

Role model Dieter Rams

Aicher also thought up the Four-Point Guide to Good Grip – thumb brake, fore-finger furrow, support for the palm and gripping volume – that served thenceforth as a means of gauging the quality of handle designs. 1987 saw FSB initiate what must be one of the most comprehensive series of publications by any company on the cultural history of its own core product. FSB proceeded to publish books on philosophy, ergonomics, artistic subjects and even literary issues as they affect the handle.

The company effectively wrote the design history of the door handle, a topic that had already been aired in Scandinavian modernism, at the "Bauhaus" or at the Design College in Ulm, one to which designers such as Alvar Aalto, Max Bill or Arne Jacobsen too had turned. The huge popularity of these books caused some critics to jestingly muse that FSB must be a publishers able to afford the luxury of making handles as a sideline.

Handle as design topic

Initially just a metalware makers from small-town Brakel, FSB has grown to become one of the most noted design-driven enterprises in Germany, in the process transforming the handle from a disregarded common-or-garden item into a cultural asset. You may wish to call that clever marketing, but it is also possible to see in it the design earnest and sense of responsibility that has now once again allowed German design and design-oriented German enterprises to be celebrated, and occasionally even loved, the world over.

1. Light system luminaire

Mario Bellini for ERCO 1986
www.erco.com

2. SE 42 chair

Egon Eiermann for Wilde + Spieth 1949
www.wilde-spieth.com

3. Front-loading washer W 1000 S

Miele works design 2008
www.miele.com

4. Door handle 1034

Johannes Potente for FSB 1952
www.fsb.de

5. SK 4 radiogram

Hans Gugelot and Dieter Rams for Braun 1956
www.braun.com

6. Arzberg 2050 tableware service

Heinrich Löffelhardt for Arzberg
www.arzberg-porzellan.de

7. Caroussel S slide projector

Hans Gugelot for Kodak 1963
www.kodak.com

8. Fitting Tara

Sieger Design for Dornbracht 1992
www.dornbracht.com

9. Aluminium suitcase

Richard Morszeck for RIMOWA 1950
www.rimowa.com

10. Easy chair 601

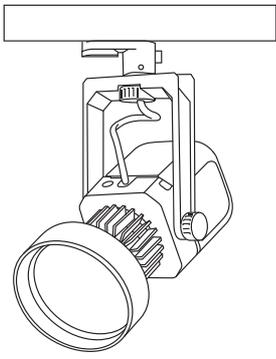
Dieter Rams for Vitsoe 1960
www.vitsoe.com

11. Pott 87 cutlery

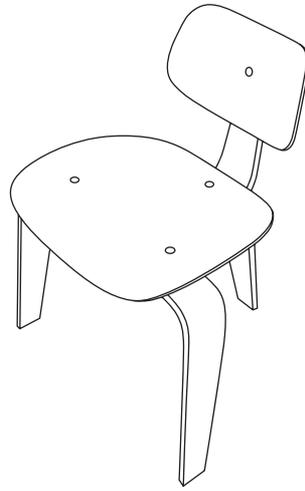
Carl Pott for Pott 1959
www.pott.com

12. Porsche 911 sports car

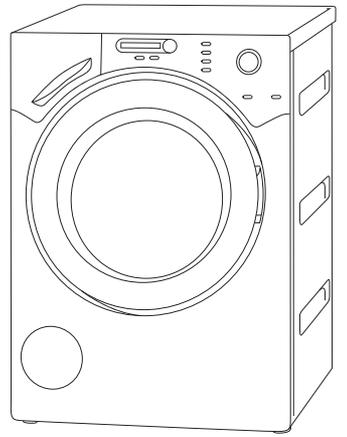
Porsche works design 1964
www.porsche.com



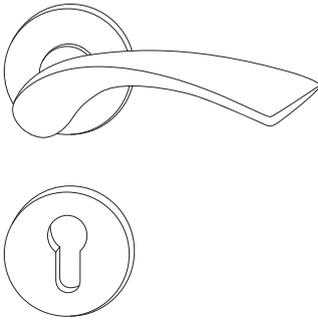
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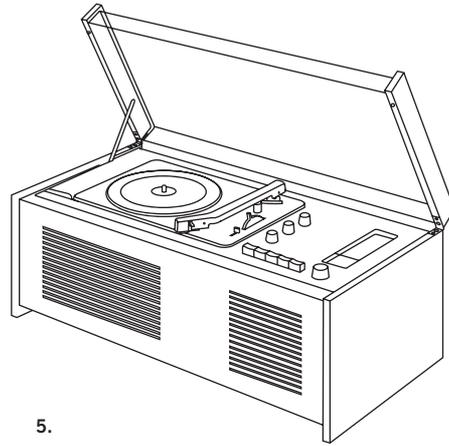
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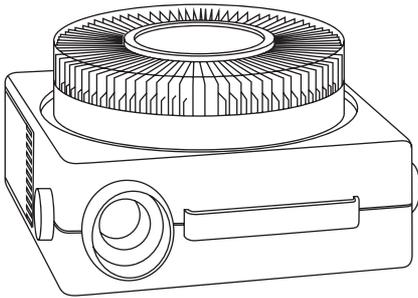
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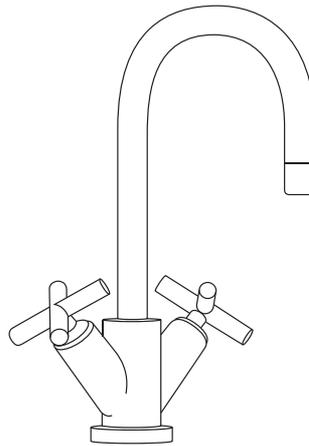
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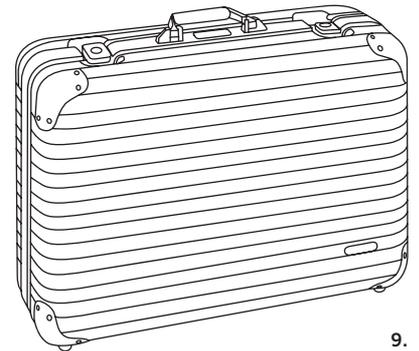
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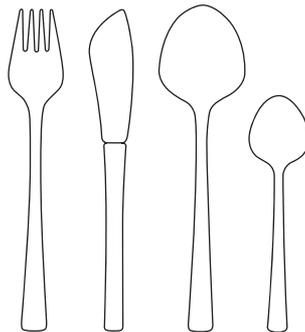
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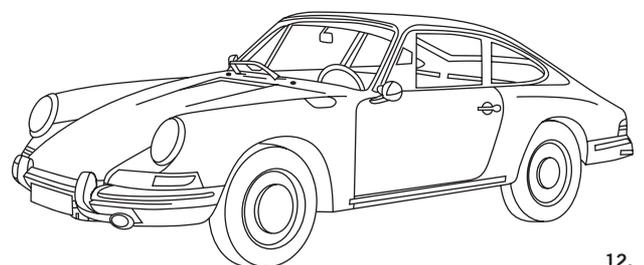
9.



10.



11.



12.

“How green is our business?”

Everything gets a green light



Institut Bauen
und Umwelt e.V.



DGNB[®]

Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council

FSB and our subsidiary SSF Sächsische Schlossfabrik provide an environmental product declaration (EPD) for each material to ISO 14 025, making a valid contribution to sustainable architecture. Our EPDs cover more than 25,000 items, giving us a leading role in our sector around the world.

With typical German thoroughness, we have not just examined individual products but have used objective criteria to show our appreciation of sustainability in black and white over FSB's and SSF's entire range. This applies without restriction both for our classic commercial fittings as well as for SSF's lock products. It applies for all of our barrier-free and sanitary products and even applies for our innovative electronically organised access solutions (EZK system). We actively support a globally established concept which understands sustainability as an equal balance between ecological, economic and social factors. There is now a global consensus that, in view of the worldwide social and climatic challenges, this understanding of sustainability is of fundamental importance for coming generations' quality of life.

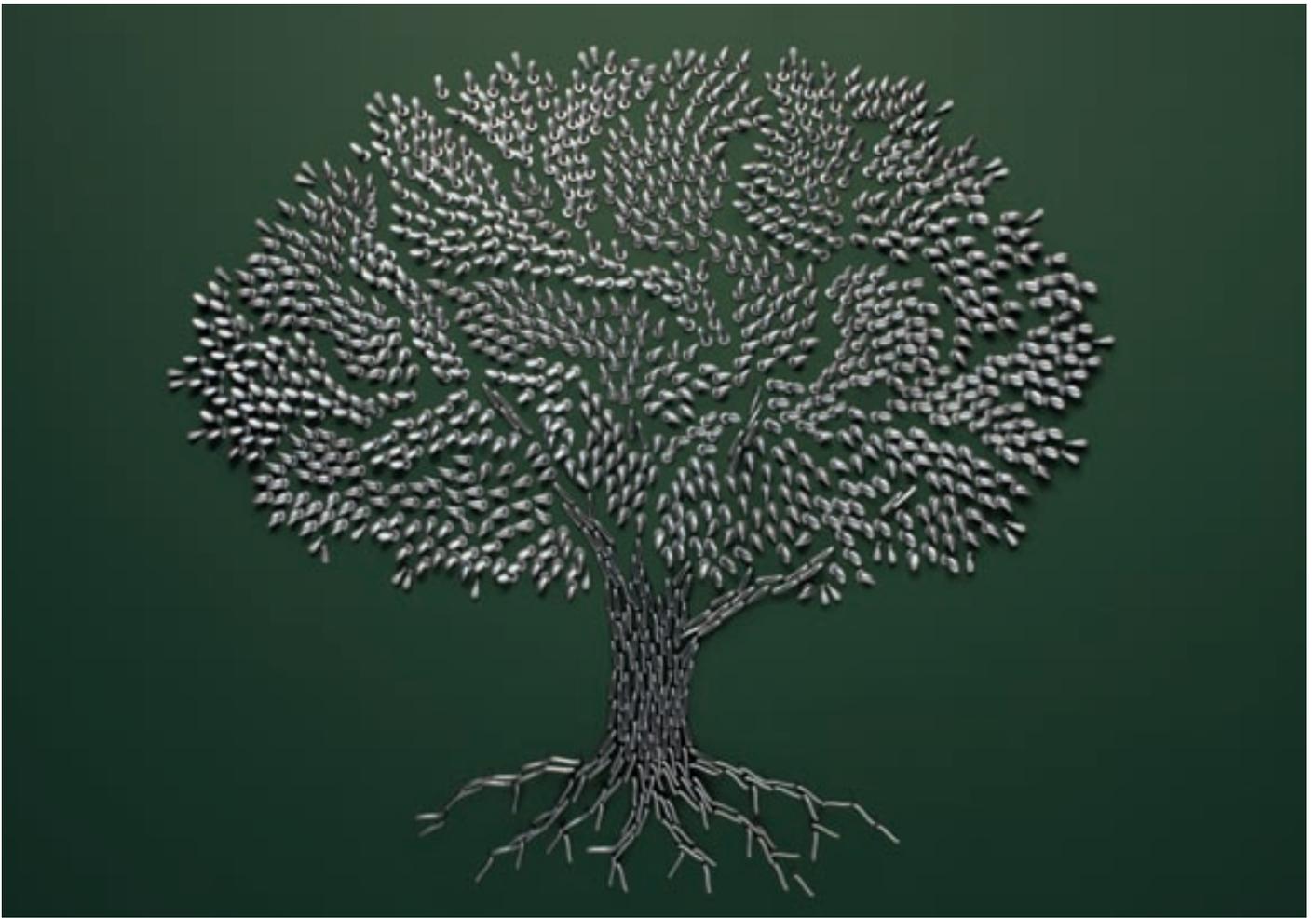
We have always understood our products as “Architecture en miniature”. This does not just mean that our products are used in architecture, rather that we assess technology and design against the length of time that buildings or architecture are used in the widest sense. For us, constructing buildings is first and foremost an architectural task affecting the entire community and we see our products as the interface between people and architecture, to which we have made a satisfactory contribution for over 130 years. The prerequisite for this is a product philosophy aiming for first class quality and thus for sustainability. “Sustainability” – something which everyone is talking about these days – was

something on which FSB had already taken action, even when ecology was still viewed as something at the fringe of society, which only concerned those who wore – at least that's what was said at the time – hand knitted clothes made from natural wool. FSB had already started reflecting on the subject in the 1990s, when “ecology” was still greeted with a weary smile in most companies, with its project entertainingly called “clean underwear” about ecological effects at our production site in Brakel and what to do with the waste products resulting from production. At the end of 1995, FSB was the first company in North Rhine Westphalia and only the second company in Germany to be audited to the strict rules of the EU's ecological audit. This was preceded in 1991 by the first company agreement in Germany on the protection of the environment. Over a period of what is now almost twenty years, we still ask ourselves again: “How green is our business?”

Here is FSB's “green” history:

- 1991 First company agreement in Germany on the protection of the environment
- 1992 Setup of a company organisation which reflects environmental concerns
- 1993 First environmental declaration
- 1994 German environmental prize for the district of East Westphalia Lippe
- 1995 ISO 9001 environmental manual
- 1996 EU eco-audit certification since
- 1996 every 3 years, certification to ISO 14 001 and EMAS
- 2008 Joined DGNB 2009, preparation for ISO 14 025
- 2010 FSB and SSF are the first architectural hardware companies in the world with an environmental product declaration to ISO 14 025





Environmental product declarations to ISO 14 025 are necessary for the certification of sustainable buildings to the German DGNB certification system. The DGNB certificate is awarded to buildings which protect the environment, are commercially efficient and user-friendly, whatever use the building is put to. The aims of sustainable construction are based on minimising the consumption of energy and resources. The consequence of this approach, which was formulated in 2007 and which amongst other things forms the basis of the EN standard 15 804, is now seen as pioneering around the world. The DGNB certificate consistently pursues the evaluation of the entire value creation chain over all phases in the the life of a building.

The aim is to optimise all factors affecting the life cycle, from the extraction of raw materials, through building and on to demolition. It is not just the materials used to construct a building which are considered but the components used as well. The requirements for this are product-specific ecological balance sheets, which are verifications of product and company data which are produced independently

& neutrally The essential characteristics of ecological balance sheets are not just very specific environmental aspects such as we know from the “blue angle” in Germany, (e.g. “environmentally compatible – made of 100% recycled paper”), but much more the assessment of the entire chain of value creation of a product. In this context, a check is made how the environment is protected while the product is being made and then used, as well as considering how it can be recycled. It was ideal here that on the one hand FSB could use the results of the certifications to ISO 14 001 and EMAS, and on the other hand, the materials always used by FSB: aluminium, stainless steel, bronze and brass are ideal candidates for the calculations. FSB’s and SSF’s environmental product declarations as listed below are available for inspection.

After all that, the question remains: “How green is your business?” It’s in your hands.

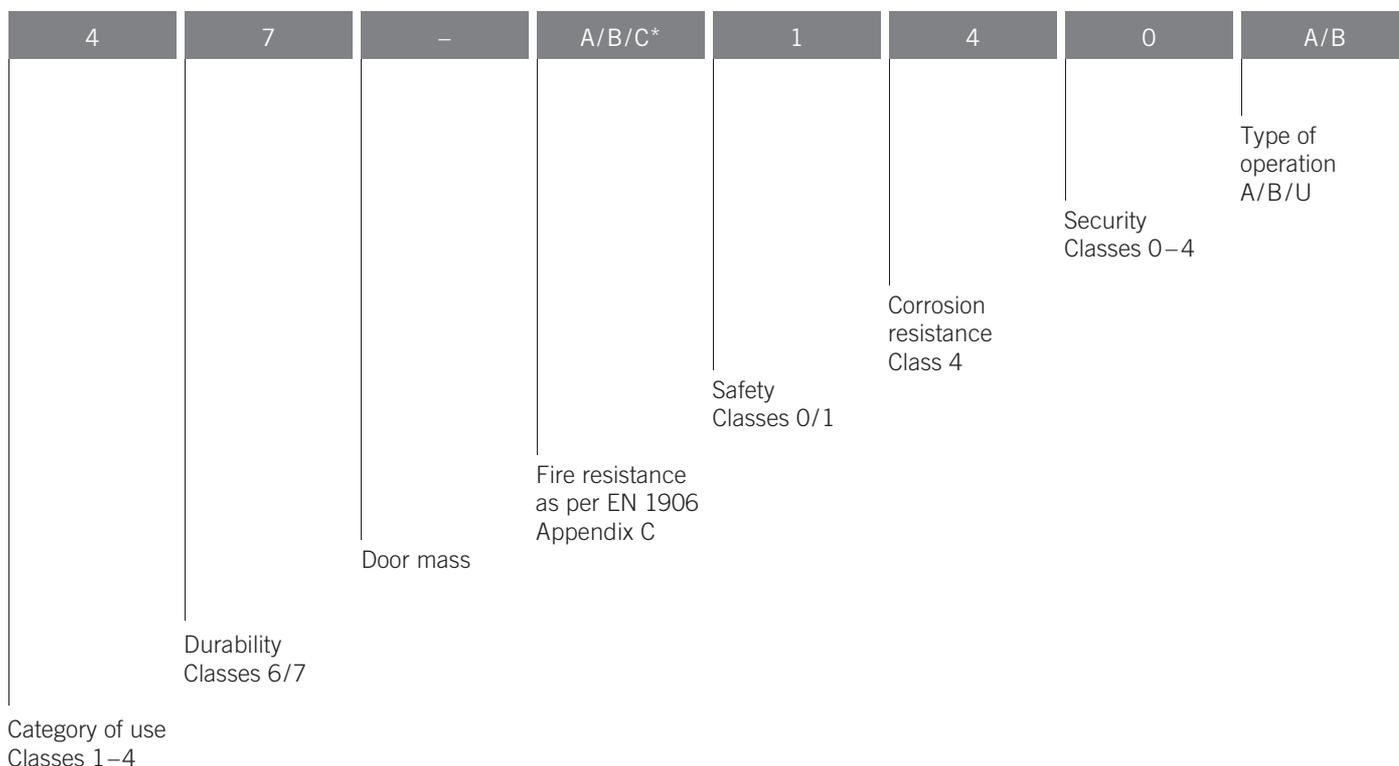
FSB declaration numbers:

- door handles, window handles, EZK system made of aluminium: EPD-FSB-2010111-D
- door handles, window handles, EZK system made of stainless steel: EPD-FSB-2010211-D
- door handles, window handles, EZK system in bronze or brass: EPD-FSB-2010311-D
- barrier-free ErgoSystem® (stainless steel): EPD-FSB-2010411-D

SSF declaration number:

- locks and strike plates: EPD-FSB-2010511-D

FSB on the subject of standards



The classification key needs to be applied in its entirety when determining the use value and grading of hardware. In the case of FSB heavy-duty furniture (8 mm and 9 mm spindles), the following code applies. Only if all test criteria are met and the relevant readings produced does conformity to EN 1906 obtain. All FSB products adhere to the values prescribed in this standard with quite a bit to spare.

* fire safety handles to EN 1634-1/
EN 1906

Our aspiration: to be above-standard

International standards can only be arrived at if, whilst taking account of national interests, the various institutions involved are willing to make compromises. The harmonisation phase frequently lasts many years as a result. Which in turn means that there is a constant danger of insufficient consideration being given to technical progress. The upshot is that, owing to the compromises entered into and the amount of time lost, the demands made of products manufactured to the standard are in many cases a recipe for “mediocrity”. Added to this is the fact that many suppliers meet the requirements but make no use of any better opportunities.

We at FSB will not and cannot make do with mediocrity. To be sufficient does not suffice for us. We believe that quality is no coincidence but rather the outcome of brains being applied, the sum of a great many facets and experiences. And that specifically means that, as a makers of brand products, FSB merely regards standards as being a minimum requirement. We do our utmost to achieve better results

by resorting to leading-edge technologies. There are no normative specifications in place for design, workmanship and surface finish unfortunately. FSB regrets this, since comparison tables would be more than likely to set us favourably apart from our competitors in these respects too. FSB products undergo a large number of intricate processing stages to ensure their typical finishes. Nevertheless, critical comparisons can be made without tables if need be, using hands and eyes instead. Such criteria may well be subjective, but they’re unerring for all that.

The ideal materials for door and window handles as FSB sees it are aluminium, stainless steel, brass and bronze. These materials meet the most exacting demands as regards functionality, cost-effectiveness, use value and environmental compatibility. Stainless steel proves to be virtually indestructible on frequently operated doors and windows in particular. The same applies to bronze, whose natural patina formation lends it added visual appeal. Aluminium is characterised by pleasant haptic properties, a decoratively anodised finish and its low weight.

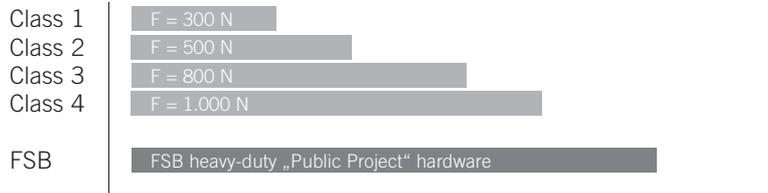
“Made in Germany” continues to be a quality mark of which we can be proud: FSB door and window fittings are made in Brakel and are hence goods of German origin.

Certificates of origin and long-term supplier declarations in respect of goods with preferential origin status under EC Regulation No. 1207/2001 can be supplied on request. In your own interests, please double-check whether the product you are assessing is actually German as opposed to simply bearing a “German” brand name. We will gladly take you on a tour round our Brakel works to show you the facts of our own case. Certification to ISO 9001 as a desirable precondition for participation in competitive tendering is just as much a matter of course for FSB as is validation under the EU’s “eco-audit” directive and certification to ISO 14001. Since 2010 these have been joined by Environmental Product Declarations (EPDs) pursuant to ISO 14 025 for the range of over 25,000 products we supply.

It stands to reason that a highly developed society should have recourse to equally highly developed products. Sustainability has a big part to play in this. Doors and windows accompany us over many decades. Reason enough, therefore, to bear their longevity in mind at the same time as considering their materials, design and engineering. Handle schemes and fittings that merely conform to the prescribed standard are not of necessity on a par with our own products.

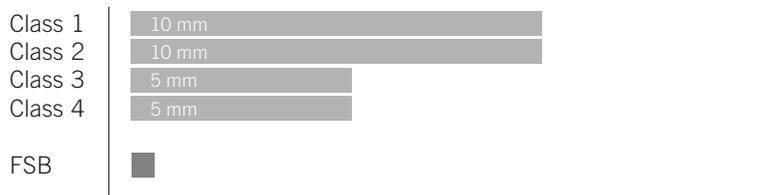
Set out alongside are a number of diagrams illustrating the ways in which FSB fittings significantly outperform the provisions of EN 1906, for instance. Why you can trust products by FSB is explained in an exhaustive brochure entitled “FSB on the subject of standards: DIN EN – Quality to get to grips with” – quality can, after all, be gauged. We will send it to you free if you like from www.fsb.de/brochures

Tensile stress on fitted furniture



FSB heavy-duty “Public Project” hardware withstands higher levels of tensile stress due to its compact construction and the ruggedness of its connecting parts.

Free angular movement



The FSB Stabil spindle prevents the door handle “moving about” through its no-play tensioning.

Durability

The force/motion correlations arising in use are recreated on a test rig and simulated in a fatigue test.



FSB furniture likewise continues to meet the requirements for the user category Classes following fatigue tests.

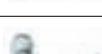
EN 179 for emergency exit devices

It can be safely said that the standards mentioned have now acquired the status of established engineering practice: adopting conformant hardware solutions is exceedingly advisable, even if they are not actually stipulated in a given call for competition. Model and special building regulations stipulate that doors on escape routes be easy to open from the inside across their full width – by means of a handle if applicable. EN 179 governs the use of and requirements for emergency exit devices fitted with lever handles and push pads. Hardware combinations within the spirit of EN 179 are to be regarded as products of relevance for building regulations purposes that have the requisite EU/CE conformance credentials. They comprise a lock, hardware and a striking plate and are required to be tested and certified together. FSB supplies what must be the most wide-ranging selection of hardware in the sector in this respect precisely so you do not need to worry about such formalities.

The following FSB fire-safety hardware systems plus the lever handle models listed fall within the scope of EN 179 and have been jointly tested and certified with lock and striking plate series approved for use in combination with them:

- lever-handle, entrance-door and inactive-leaf furniture, either as FSB
 - rose
 - short-backplate
 - long-backplate
 - or broad-backplate hardware
- frame-door lever handles and
- security hardware.

Pictogram markings of corresponding design:

	79 1002			09 1002 06 1002
	79 1134			09 1134 06 1134
	79 1016			09 1016 06 1016
	79 1053			09 1053 06 1053
	79 1031			09 1031 06 1031
	79 1045			09 1045 06 1045
	79 1070			09 1070 06 1070
	79 1088			09 1088 06 1088
	79 1094			09 1094 06 1094
	79 1177			09 1177 06 1177
	79 1178			09 1178 06 1178
	79 1159			09 1159 06 1159
	79 1164			09 1164 06 1164
	79 1074			09 1074 06 0644
	79 1223			06 1223

International standards

Set out below is a list of EN standards with a bearing on doors and windows that does not in any way claim to be exhaustive:

EN 179

Emergency exit devices

Emergency exit doors according to EN 179 are intended for buildings that are not subject to public traffic and the users know the function of the emergency exit doors. Safe escape must be guaranteed with a single operation.

EN 1125

Horizontal panic exit devices

Emergency panic doors according to EN 1125 are intended for public buildings for use in emergency situations where there may be a panic situation. This device must be activated with no prior knowledge and operable without instruction by a horizontal mounted push bar.

EN 1154

Controlled door closing devices

This standard covers door closing devices for swing doors, such devices being mounted on or in the frame, on or in the door or in the floor. The scope is limited to manually operated door closing devices where the energy for closing is generated by the user upon opening the door, such that when the door is released, it returns to a closed position, in a controlled manner.

EN 1155

Electrically powered hold open devices

This standard specifies requirements for separate hold open devices and also for hold open mechanisms incorporated in a door closer intended to be used on fire and smoke compartmentation doors. Electrically powered hold open devices for swing doors manufactured according to this standard can hold a swing door at a fixed position or can allow the door to swing freely. In each case interruption of the electrical supply will cause the controlled door to close positively.

EN 1303

Cylinders for locks

This standard applies to cylinders for locks normally used in buildings, which are designed to be used with cylinders.

EN 1670

Building hardware – corrosion resistance

This European Standard specifies the requirements for the corrosion resistance of building hardware including the metal fastenings. EN 1670 is not, itself, a product standard but it is the referenced corrosion standard included in all current EN product standards.

EN 1906

Lever handles and knobs

This 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 lever handles, knobs.

EN 1634/1

Fire Resistance

Fire resistance test for door and shutter assemblies.

EN 1935

Single axis hinges

This standard specifies requirements for single-axis hinges for windows and doors opening in one direction only whose rotation axis is no more than 30mm from the face of the door.

EN 12209

Mechanical locks and latches

This standard specifies requirements and test methods for durability, strength, security and function of mechanically operated locks and latches and their locking plates for use in doors, window doors and entrance doors in buildings.

Material and finishes

■ Aluminium

FSB 0105 | 6217

Aluminium natural-colour anodised



Aluminium is the most commonly occurring metal in the Earth's crust. In comparison to other metals, aluminium has not been known for long – it was first produced with a chemical reaction in 1808.

Right from the start, aluminium has been used as a high-tech material, when light weight and high durability are required. Space travel as well as aircraft and car-making are inconceivable without it and it was responsible for making some innovations possible in the first place. Especially in the second half of the 20th century, aluminium started its triumphal advance into interior design and into design in general. Its technological mystique together with its silvery, glittering surface opened up new horizons in the use of metal in interior design. At FSB this started with the designs by Johannes Potentes in the 1950s. Still today, the expertise which we gained at the time in the machining of aluminium is the basis of all of FSB's families of handles made of this wonderful material.

Aluminium is a light metal (density 2.699 g/cm³). It melts at 660 degrees Celsius.

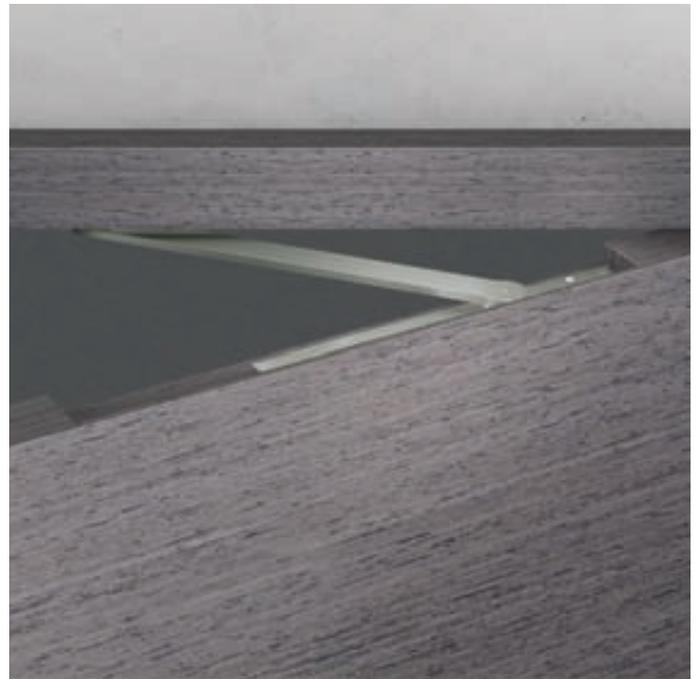
Admittedly, its initial extraction requires a relatively large amount of energy. This energy balance is however compensated by its many positive characteristics in use and when recycled. The energy savings associated with recycling are about 95% compared to its initial extraction. And aluminium can be recycled again and again, without any loss.

It is very pleasant to handle, above all as this lightweight amongst the metals is very good at matching the ambient temperature. FSB only uses pure alloys from the smelters to EN 573 with the following material numbers:

AlMg3: material no. 3.3541.02
AlMg1: material no. 3.3315
AlMgSi0,5: material no. 3.3206

After the mechanical machining, its surface is protected by anodising.

FSB uses a standard process for anodising. This process uses direct current and a sulphuric acid electrolyte. The oxide layer built up in this standard process is approx. 10 µm thick. The hardness of this layer is



up to 350 kp/mm² (Vickers), corresponding to 2,500 to 3,500 N/mm². This artificially created anodised layer protects the aluminium. Dirt spots can be removed with water and a soft cloth.

In daily use aluminium surfaces can be worn or scratched by harder materials. Damage is typically caused by rings worn on fingers. This "damage" to the aluminium surface may impair the aesthetic impression but has no effect on its function. Many users even like this patina resulting from use.

Aluminium-coloured stoving enamel is applied to the closer cover flap and hinges so as to ensure a consistent finish whilst also guaranteeing functional precision and durability. The base material is stainless steel, which is exceedingly hard and corrosion resistant. Amongst other things this allows the hinges to lastingly withstand the forces generated by the door's weight. The lacquered closers and hinges have been tested to EN 1670 and easily meet the criteria for Class 4 status, which testifies to a high degree of durability in outdoor applications under very extreme

conditions. Thus FSB once again shows how to reconcile consistent end-to-end design with functionality, combining the two so as to fulfil the exacting demands of select public construction.

Aluminium-coloured finishes are specified with code 6217, Aluminium anodised with code 0105.

Material and finishes

■ Stainless steel

FSB 6204

Stainless steel



In 1912, Krupp in Essen, received the first patents for a new material which became familiar in pre-war Germany under the names “Nirosta” (never rust) and “V2a-steel”. A variety of applications quickly opened up for this new material: from the construction of containers in the chemical industry through to designs in car and aircraft construction, from building materials to household equipment.

The general term of stainless steel includes more than 100 different steels which resist corrosion and acids. When making our fittings we use a chrome-nickel steel which, according to EN 10 088 takes the material number 1.4301. It contains approx. 18% chrome and 8% nickel. This alloy has proven itself in the building trade.

Characteristics of stainless steel

Stainless steel is outstanding in its suitability for door and window fittings as its surface is extremely resistant to corrosion, even when very roughly treated its scarcely shows traces of dents or scratches, its shows little wear even in continuous use

and, above all due to the additional alloys of chrome and nickel, it requires very little care. An invisible passive layer forms on its surface which is even supposed to have bactericidal properties.

Places it is used

We recommend stainless steel door and window fittings for all heavily used doors, especially in public buildings, for public authorities, hospitals, on ships in motorway service areas, in parks and sports facilities, just about anywhere where there are lots of people and a fitting is to continue to work long term while being easycare.

Care

In principle, architectural fittings made of stainless steel need no care. Traces of dirt can be removed with a moist cloth. If, after some time, exterior fittings or fittings in chlorinated swimming pools show traces of surface rust, this will not be from the material itself but will have been transported from outside to the fitting. This can be removed with vigorous rubbing.



Notes on selection

When selecting and ordering door and window fittings and their accessories, to avoid queries, misunderstandings and the associated waste of time, all of the general explanations and technical information in this catalogue should be considered.

Finishes

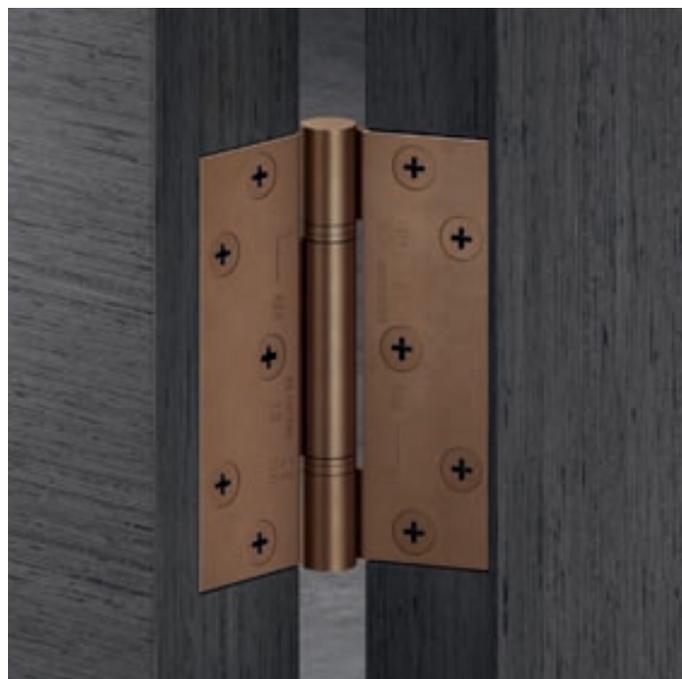
Stock versions made of matt stainless steel are particularly robust. Mirror finish stainless steel is an environmentally friendly alternative to chrome-plated surfaces and is made to order.

Material and finishes

■ Bronze

FSB 7615 | 6218

Bronze



Fittings made of bronze develop a certain radiance as years go by. The patina of use results in a articular aesthetic charm. Bronze parts darken in the air and due to environmental influences.

Patina should not be understood as damaging the material. It is rather a sign of credible aging and profiting from change. Bronze is not a material which is not used up, it is just used. For our fittings, we use a copper-tin alloy with 92% copper and 8% tin, which is called CuSn8, or material no. 2.1030. This composition is characterised by outstanding resistance to corrosion, high strength and it is very hard. Its resistance to wear makes it suitable for heavily stressed products which are used every day. The bronze fittings in the 7615 finish are first polished and then pretreated using a process especially developed by FSB. Immersion in a bath for metals containing copper imitates the material's natural aging process. With this pre-aging, we create a typical bronze patina, which is just as good as that produced naturally. The final waxing in the factory protects it from external influences which would lead to discolouration of untreated surfaces.

Protection from corrosion

If you absolutely have to outsmart the patina, on express request, we can varnish our bronze door handles. As this treatment falsifies the material's typical character, we would like to advise against it. Varnished bronze fittings also lose their gloss finish as soon as the varnish is damaged and the intercrystalline corrosion starts – please see the corresponding notes about brass.

Surface hygiene

Owing to the increasing occurrence of antibiotic-resistant germs, FSB's bronze takes on a new significance owing to its bactericide effect. Critical studies in the USA and in Great Britain show that bacteria on copper alloy surfaces are 99.9% killed off after two hours at the latest. This group of bacteria includes the Methicillinresistant Staphylococcus aureus (MRSA), one of the most virulent and dangerous germs known. When the prescribed hygienic measures are carried out at the same time, it was confirmed that contamination was prevented by more than 99%. Owing to this fact this characteristic of the copper alloy used by FSB, called CuSn8 (UNS designation



C52100) has been officially taken up by the EPA (Environmental Protection Agency) into US building regulations, US registration number 82012-2. FSB bronze fittings also carry the European copper quality seal “Cu+ Antimicrobial Copper” (for more information, see www.antimicrobialcopper.com)

Bronze-coloured finishes are specified with code 6218, solid bronze light patinated with code 7615.

Bronze-coloured stoving enamel is applied to the closer cover flap and hinges so as to ensure a consistent finish whilst also guaranteeing functional precision and durability. The base material is stainless steel, which is exceedingly hard and corrosion resistant. Amongst other things this allows the hinges to lastingly withstand the forces generated by the door's weight. The lacquered closers and hinges have been tested to EN 1670 and easily meet the criteria for Class 4 status, which testifies to a high degree of durability in outdoor applications under very extreme conditions. Thus FSB once again shows how to reconcile consistent end-to-end design with functionality, combining the two so as to fulfil the exacting demands of select public project construction.

Door types

Sliding doors

A sliding door consists of tracks, rollers and hangers which allow timber, metal and glass doors to slide horizontally within an opening. These openings can be in a pocket created within the wall or surface mounted on the face of the wall. They can be sliding in a single direction as well as bi parting. The track and roller systems are designed to accommodate a variety of door weights, thicknesses and materials. Sliding door sets have become increasingly popular due to their space saving abilities and flexibility of design.

Special consideration should be taken when specifying hardware for flush operating hardware, locks and any mortised pull or handles.

Locations

Office entrances, single offices, single toilet rooms and a variety of other applications.

Door thicknesses range from between 40–60 mm.

Conforming to EN 1527:1998.



Flush recessed pulls for bathrooms and WCs



Closed flush pulls ensure a uniform appearance for the door leaf. The operating aperture is always blanked out by a flap that springs neatly into the closed position when the hardware is not being used. Hardware and door are suffused into a single entity in this way – the door's design credentials are significantly enhanced as a result. With FSB 4255 9000 and FSB 4255 9001, FSB is adding furniture for bathrooms and WCs to the range of flush pulls.

Strike plate



As well as being visually compelling, the Class 3 sliding door mortise lock and striking plate supplied with the hardware (71/WC or 72/WC series) also guarantee straightforward assembly and dependable functioning thanks to the precision with which all components harmonise with one another. No visible fixings are required. FSB recommends performing all routing work on a CNC basis.

Door types

Framed doors

A framed door consists of extruded aluminium profiles joined together forming horizontal stiles and vertical rails that contain a full tempered glass panel. Framed doors are heavy in weight by nature and require proper consideration in the specifying of the hanging and closing devices to suit the application, function and aesthetic intention. A framed door set requires different hardware fittings from that of a timber or metal version due to the shape and size of the aluminium profiles.

Due to the possibility of a reduced width of the vertical stiles special narrow back-set locks and lever handles with oval roses are fitted to such doors.

Locations: Entrance doors to office buildings, entrances to office suites and a variety of other applications.

Door thicknesses range from between 55–80 mm.



Lever handles and locks for frame doors



FSB not only offers a complete programme of fittings such as door handles, knobs and pulls for framed doors made of metal, plastic or wood, but the company's mounting technology has also been designed to suit the particular requirements of framed doors and fittings, and has been consistently improved over the years.

FSB's heavy-duty framed door fittings generally have an oval or square rose and an integrated positive mechanism plus tightening sliding bearings. Attachment is invisible, and carried out using M5 countersunk screws, screw holes 50 mm apart. The attachment of standard versions is visible, and does not include the positive mechanism.

For a reputable company, not only should adequate product solutions be a matter of course, but reliable function should also continue throughout the product's entire life cycle. As an option, FSB has matched the fixing technology of its framed door fittings to SSF framed door locks with the through screw connection points of series 01 and 02.

Door closer



Door closers complement the FSB hardware programme and are an additional component of aesthetic design and practical functionality. Furthermore they provide a wide range of convenient installation and adjustment possibilities with the support of supplementary mounting accessories.

Door stop



Before placing an order or carrying out any installation, please check the weight of the door leaf, the angle of impact, the height of the bottom edge of the door above the floor and the strength of the floor. Depending on requirements, it is possible to choose between simple stops, stops with anti-twist capability, stops with baseplates, directional and non-directional stops and stops fitted straight into the floor or those where rawlplugs are used.

Door types

Frameless glass doors

A frameless glass door is manufactured from a tempered glass panel that is hung using patch fittings at the pivot points, full top and bottom horizontal rails or with special glass door hinges that are surface mounted.

Special consideration should be taken when specifying hardware that mounts on or within the glass panel. This includes locks and pulls which have thru bolt fixings or any hardware that requires a templated cut out in the glass panel. This hardware must be clearly specified prior to manufacture as there is no site preparation or modification possible for tempered glass panels.

Locations

Single office interior doors, single toilet/shower doors and a variety of other applications.

Glass panel thicknesses generally range from 8–12 mm.



Fitting for glass doors



Glass has always had a multi-layered role in architecture as a design tool and shape-giving material. Glass doors take the interior architectural shape into account. They create more light, link rooms, and radiate a wonderful atmosphere. The transparency of glass doors requires a particularly high level of care when choosing the fittings.

Glass door hinge



Hinges to match the glass door fittings are the perfect complement to the FSB programme. Glass door hinges are prepared at the factory for glass thicknesses 8 mm and 10 mm.

Door stop



Before placing an order or carrying out any installation, please check the weight of the door leaf, the angle of impact, the height of the bottom edge of the door above the floor and the strength of the floor. Depending on requirements, it is possible to choose between simple stops, stops with anti-twist capability, stops with baseplates, directional and non-directional stops and stops fitted straight into the floor or those where rawlplugs are used.

Door types

Fire and smoke resistant doors

Fire and smoke resistant doors are manufactured using both wood and metal surface panels and a fireproof core material designed to resist fire penetration. In timber doors the core material is usually a high density mineral core infilled with chipboard, plywood or MDF fillings. The door edge and veneers are normally in a hardwood with the face veneer selected by the architect. In metal fire doors the core material is generally of gypsum base but will vary by manufacturer. Fire doors are available in both single and pair configurations in a variety of sizes as tested by the door manufacturers. Handles with latches, panic device bars/locks with closing devices should always be used for fire doors.

The doors' fire rating can be 30, 60 or 90 minutes. The minute rating required for any fire door is as directed by the architect to suit their overall fire strategy plan for the building.

All types of fire doors have at least one of the two following functions.

1. To protect escape routes from the effect of fire and smoke so that occupants can safely reach a final exit and/or a place of safety.
2. To protect the contents and/or the structure of a building by limiting the spread of fire and smoke.

Locations

Fire separations, stairwells, electrical rooms and a variety of other applications depending upon the fire strategy of the overall building.

Door thicknesses range from 45–65 mm depending on the fire rating.

Conforming to EN 1634-1.



Flush fittings for solid doors



The architectural trend of reducing visible structures is continued in doors and windows. Precision installation is at the centre of the world of flush fittings, where the roses are literally sunk into the surface of the door. The very distinctive character shines a very positive light on a craftsman's design skills, especially in projects where great weight is placed on interior design.

Door stop



Depending on requirements, it is possible to choose between simple stops, stops with anti-twist capability, stops with base-plates, directional and non-directional stops and stops fitted straight into the floor or those where rawlplugs are used.

Door closer



Door closers complement the FSB hardware programme and are an additional component of aesthetic design and practical functionality. Furthermore they provide a wide range of convenient installation and adjustment possibilities with the support of supplementary mounting accessories.

Butt hinge



FSB hinges blend in perfectly in terms of their form and proportions with the other components in the Perfection range. A choice of versions with either round or square corners makes for variety of design. Both versions are supplied in any of five borehole configurations to suit the various door masses involved.

The GAI standard format of ironmongery specification

Functional Door Types	Hang the Door				Bolt the Door	Close the Door			
	Butt Hinges	Glass Hinges	Invisible Hinges	Track / Roller	Bolts	Floor Spring	Pivots	Surface Closer	Concealed Closer
Private Office (Timber)	●							●	
Private Office (Glass)		●							
Main Office (Timber)	●							●	
Building Entry (Framed)							○		●
Public Toilet (Timber)	●							●	
Private W/C (Timber)	●					●			●
Stair Door (Steel)						○	○		
Exit Door (Steel)	●							●	
Emergency Exit (Steel)	●							●	
Apartment Entry (Timber)	●								●
Electric Hotel Entry (Timber)			●						●
Flush Door (Timber)			●						●
Sliding Door				○					
Double Corridor					○	○			

● FSB product

○ Partner products

Secure the Door		Furnish the Door		Protect the Door		Seal the Door		Label the Door				
Glass Door Lock	Lock	Cylinder	Flush Lock / Pulls	Exit Lock	Standard Handles	Electronic Handles	Flush Handles	Exit Device	Protect Plate	Door Stop	Seal	Signage
●	●	●			●	●				●	○	●
	●	●			●	●				●	○	●
	●	●			●	●				●	○	●
	●	●			●	●			●	●		●
	●	●			●	●				●		●
	●	●			●	●			●	●	○	●
		●		●				●	●	●	○	●
		●		●				●	●	●	○	●
	●	●			●					●	○	●
	●	●				●				●	○	●
		●	●				●			●	○	●
	●		●						●	●	○	●
			●								○	●
	●				●				●	●	○	●

To meet your individual demand, we will also supplement our competence with that of renowned partners who support us or even surpass us with their own expertise.

2

- 36 Door closers
- 46 Butt hinges
- 60 Mortice locks
- 76 Lever handles
- 78 Roses and backplates
- 80 Crossbar fittings
- 82 Door knobs
 - Frame door handles
 - Frame door knobs
- 88 Flush pulls
 - Pull handles
 - Flush ring handles
- 90 Door stops
 - Accessories
 - Numbers and letters
- 92 Hardware for glass doors
- 94 Door pulls and hardware for entrance doors
- 98 Information signs
 - Pictograms
- 100 Sales / distribution partners

Door closers

General points

Door closers act to automatically close hinged doors in a controlled manner after they have been opened by hand. The energy required to achieve this is generated by the preceding opening operation and is stored mechanically (spring). Door closers and door drives employ an hydraulic damping process to close doors and the degree of damping, the closing force and further functions can be set to differing amounts depending on the model involved.

Reasons for automatically closing a door are:

- Fire and/or smoke check function
- Security aspects
- Energy economies
- Protection against noise and other environmental impacts
- Preservation of privacy.

Door closers

Door closers deliver a broad spectrum of functions and designs. There are door closers for overhead or standard mounting on the pull or push side of the door to cater to the various installation scenarios for door elements. Modern architecture frequently prefers hardware systems in top-notch public project ventures that are as inconspicuous as possible or, indeed, wholly concealed. Overhead door closers integrated into the door leaf and outer frame or else floor-concealed door closers are suitable for such design concepts. FSB has accommodated this architecturally momentous aspect with an integrated overhead door closer and has additionally subjected its door closers for overhead or standard mounting scenarios to a thorough overhaul in formal terms.

Form: Perfection.

FSB is for the first time offering the market door closers that meet premium interior design standards for design quality, formal accuracy and fineness of finish, standards with which we have been familiar for years in the notable case of stainless steel components in kitchens.

FSB door closers blend in perfectly in terms of their form and proportions with the other components in the Perfection range. There are three design variants to choose from:

- overhead door closers with armset
- overhead door closers with slide channel
- integrated, concealed door closers

All requisite dimensional details for the individual door closers are specified in the course of the chapter; you will find the various accessory components, which are dedicated to specific utilisation and installation scenarios and considerably extend the door closers' scope of application, on the following double page.

These components are:

- soffit bracket
- angle plate
- extended arm
- backplate
- parallel arm bracket
- drop plate
- cover cap

Basic functions

FSB door closers can, moreover, be equipped with a variety of functions some of which are combinable.

Closing force

It is possible with most closers to continuously adjust their closing force to suit the door scenario involved. The requisite closing force is determined by the width and weight of the door leaf. EN 1154 states that it must be possible to set the closing force for fire/smoke check doors to at least door closer Size 3.

Closing speed adjuster

This enables the time taken to close the door to be randomly altered.

Latch action

To ensure the latch bolt engages properly it must be possible to set the damping of the closer so it can be disabled within an area of approx. 7°.

Backcheck mechanism

Set accordingly, this will brake the swing of a vigorously opened door as from a specified opening angle. This reduces any damage done to the handle, closer and wall. In certain application scenarios such as when a door opening outwards is caught by the wind, the backcheck mechanism cannot assume the function of a door stop.

Door closers

Tests, approval processes, quality

The CE mark forms the basis for the free movement of goods within the European Union. The CE-marking of door closers has been legally obligatory since October 2004. This is designed to ensure that products were tested to the relevant standards and legal provisions within the European Union. The conformance assessment process embraces product testing and certification as well as the monitoring of production at the manufacturer's by a notified body. FSB door closers are tested by Warrington Certification Ltd. (part of Exova (UK) Ltd.) in a process designed to guarantee that end users are exclusively offered products that are safe. Over and above this, such certification is regarded internationally as symbolising the high level of quality of German/European products and goods. This is particularly so in the case of door and window fittings that are in constant use and are subjected to a high degree of strain.

Door closers are governed in the CE context by the provisions of the following standards and other bodies of rules:

- EN 1154: Controlled door closing devices
- EN 1634: Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware
- EN 1670

Corrosion control: EN 1670

Our precisely coordinated finishes for the various products in the Perfection range meet exacting demands as regards their chromatic consistency and uniformity of visual appeal and, in many cases, reliable corrosion control also plays a crucial role. We have done a great deal of research on the issue of meticulously matching processes and materials up with one another so as to ensure a lastingly consistent optical impression is made by all the relevant hardware components.

The principal, i.e. visible, materials and finishes for FSB door closers have been tested under EN 1670 and classified as follows:

- Stainless steel with a satin nap (Design 6204): Class 4
- Aluminium (aluminium scumble-lacquered stainless steel 6217: Class 4
- Bronze (bronze scumble-lacquered stainless steel 6218): Class 4

Class 0

Corrosion resistance: no corrosion resistance specified
Conditions of use: no specific conditions of use for which a stipulated form of corrosion behaviour is of relevance

Class 1

Corrosion resistance: low resistance
Conditions of use: indoor areas in a dry environment, 24-hour salt spray fog testing

Class 2

Corrosion resistance: moderate resistance
Conditions of use: indoor areas in which condensation may occur, 48-hour salt spray fog testing

Class 3

Corrosion resistance: high resistance
Conditions of use: outdoor areas in which moisture, rain or dew may occasionally or frequently occur, 96-hour salt spray fog testing

Class 4

Corrosion resistance: very high resistance
Conditions of use: outdoor areas subject to very extreme conditions, 240-hour salt spray fog testing

Class 5

Corrosion resistance: exceptionally high resistance
Conditions of use: outdoor areas subject to exceptionally extreme conditions necessitating long-term protection of the product.

FSB butt hinges are accordingly suitable for outdoor areas and the stress loadings commonly encountered on the outside of public project buildings.

All other finishes not covered here merely meet visual aspirations.

Classification key for FSB door closers as per EN 1154

	 Franz Schneider Brakel GmbH + Co KG Nieheimer Straße 38 D-33034 Brakel	11					
1121-CPD-AD0112	EN 1154: 1996+A1:2002	4	8	6 2	1*	1	3
Dangerous substances: None							
1121-CPD-AD0112	EN 1154: 1996+A1:2002	4	8	4 2	1*	1	3
Dangerous substances: None							
1121-CPD-AD0192	EN 1154: 1996+A1:2002	3	8	3	1*	1	2
Dangerous substances: None							

91 9104 00000

Surface mounted overhead door control, regular arm, pull side mounting

91 9104 00010

Surface mounted overhead door control, low profile track, pull side mounting

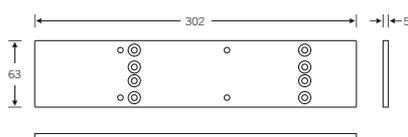
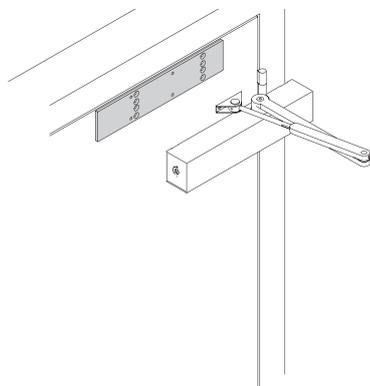
91 9104 00020

Overhead door control, concealed mounting in door

Door closers

additional components

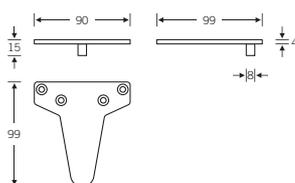
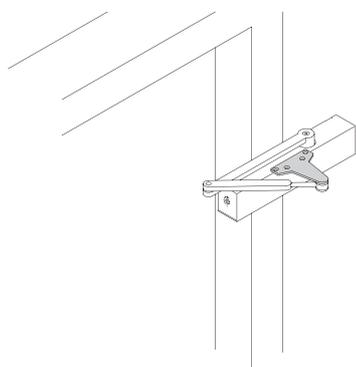
88 9104 09000 



Backplate

Means of mounting closers to door leaves in the event of the substructure being non load-bearing. The backplate additionally acts to ensure adherence to the fixing dimensions laid down in EN 1154. Adding further boreholes to the plate serves the sole purpose of making the hardware more secure but no longer conforms to EN 1154.

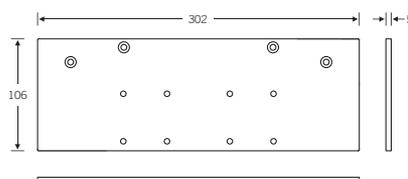
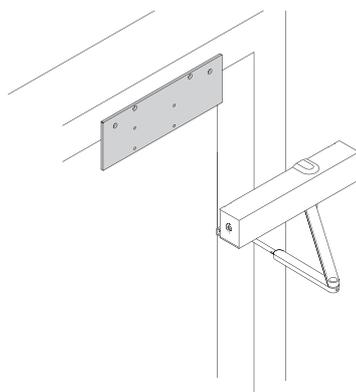
88 9104 09001 



Parallel arm bracket

Means of mounting a standard closer as a parallel arm variant. The arm is positioned tight against the face of the door with this type of assembly. This is an option that may be adopted for aesthetic reasons or in order to preclude vandalism.

88 9104 09002 



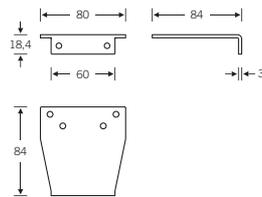
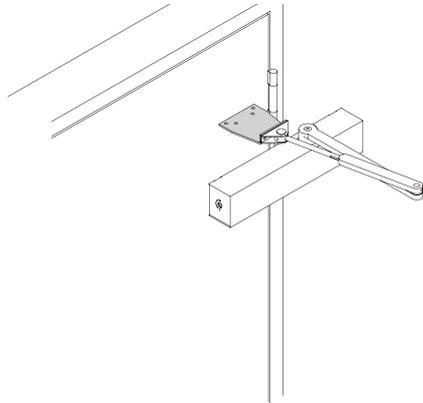
Drop plate

Means of mounting closers in cases where there is insufficient scope for fastening the hardware to the door frame or where there is not enough space above the door. Use can additionally be made of a drop plate when fitting a door closer to profiled doors.

Door closers

additional components

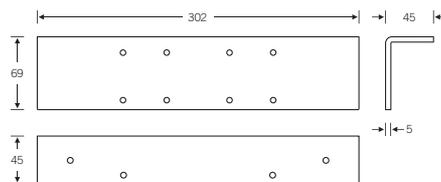
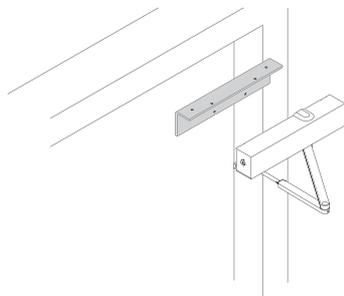
88 9104 09003 



Soffit bracket

Means of mounting a standard closer if the outer frame incorporates a moulded architrave, curvature or the like that would otherwise make it impossible to fit the door closer.

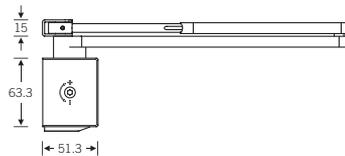
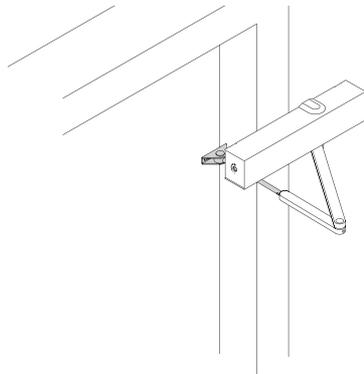
88 9104 09004 



Angle plate

Means of mounting a standard closer beneath the outer frame. Angle plates are used where the lintel on the push side of the door is particularly deep. They must not be fitted to fire or smoke check doors.

88 9104 00002 



Extended arm

Means of spanning large gaps between door and outer frame. Extended arms cannot be ordered separately. Should it be necessary to fit an extended arm, a complete closer must be ordered under product code 88 9104 00002. The arm length spans a lintel width of between 50–80mm.

Surface-mounted overhead door control

regular arm / pull side mounting

88 9104 00000 



Surface mounted, universal-option (regular, parallel, top jamb possible) rack and pinion door control complete with solid stainless steel flat form scissor arm and 2 piece FSB design metal cover offering a design and finish consistent throughout the FSB product range.

Door controls are approved for fire and smoke assemblies. Features include field adjustable power sizes for door leaves with maximum widths of 1400 mm and adjusted door weights of 120 kg. The maximum door opening is 180 degrees (trim permitting). Additional features include adjustable latching speed from 15 degrees open – 0 degrees, adjustable closing speed from 180 degrees – 15 degrees and adjustable back check effective in the opening cycle beyond 60 degrees.

Technical details

- Triple mounting option – regular, parallel* and top jamb
- Non handed installation
- Fully adjustable opening force and closing speeds
- Fully adjustable back check
- Thermo constant valve
- Spring size adjustable EN2 – EN6
- Maximum door width = 1400 mm
- Maximum adjusted door weight = 120 kg
- Maximum degree of opening = 180°

Certification

CE Certificate
EN 1154
EN 1634-1

Classification key

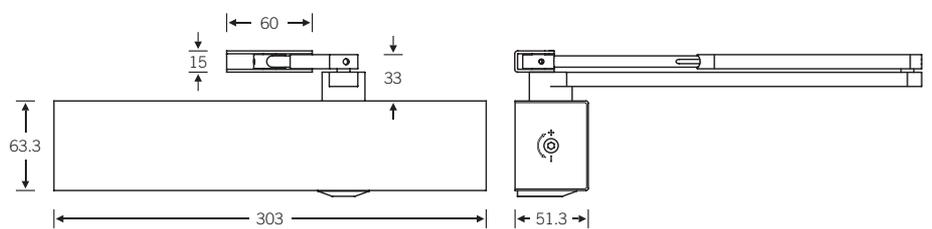
4 8 6 / 2 1 1 3



Additional versions

88 9104 00001 with parallel arm bracket
 88 9104 00002 with extended arm

* Requires parallel arm bracket
 88 9104 09001



Surface-mounted overhead door control

low profile track / pull side mounting

88 9104 00010 



Surface mounted, universal-option (push side or pull side mounting possible*) rack and pinion door control complete with solid stainless steel flat form main arm, low profile track and 2 piece FSB design cover offering a design and finish consistent throughout the FSB product range.

Door controls are approved for fire and smoke assemblies. Features include field adjustable power sizes for door leaves with maximum widths of 1100 mm and adjusted door weights of 80 kg. The maximum door opening is 180 degrees (trim permitting). Additional features include adjustable latching speed from 15 degrees open – 0 degrees, adjustable closing speed from 180 degrees – 15 degrees and adjustable back check effective in the opening cycle beyond 60 degrees.

Technical details

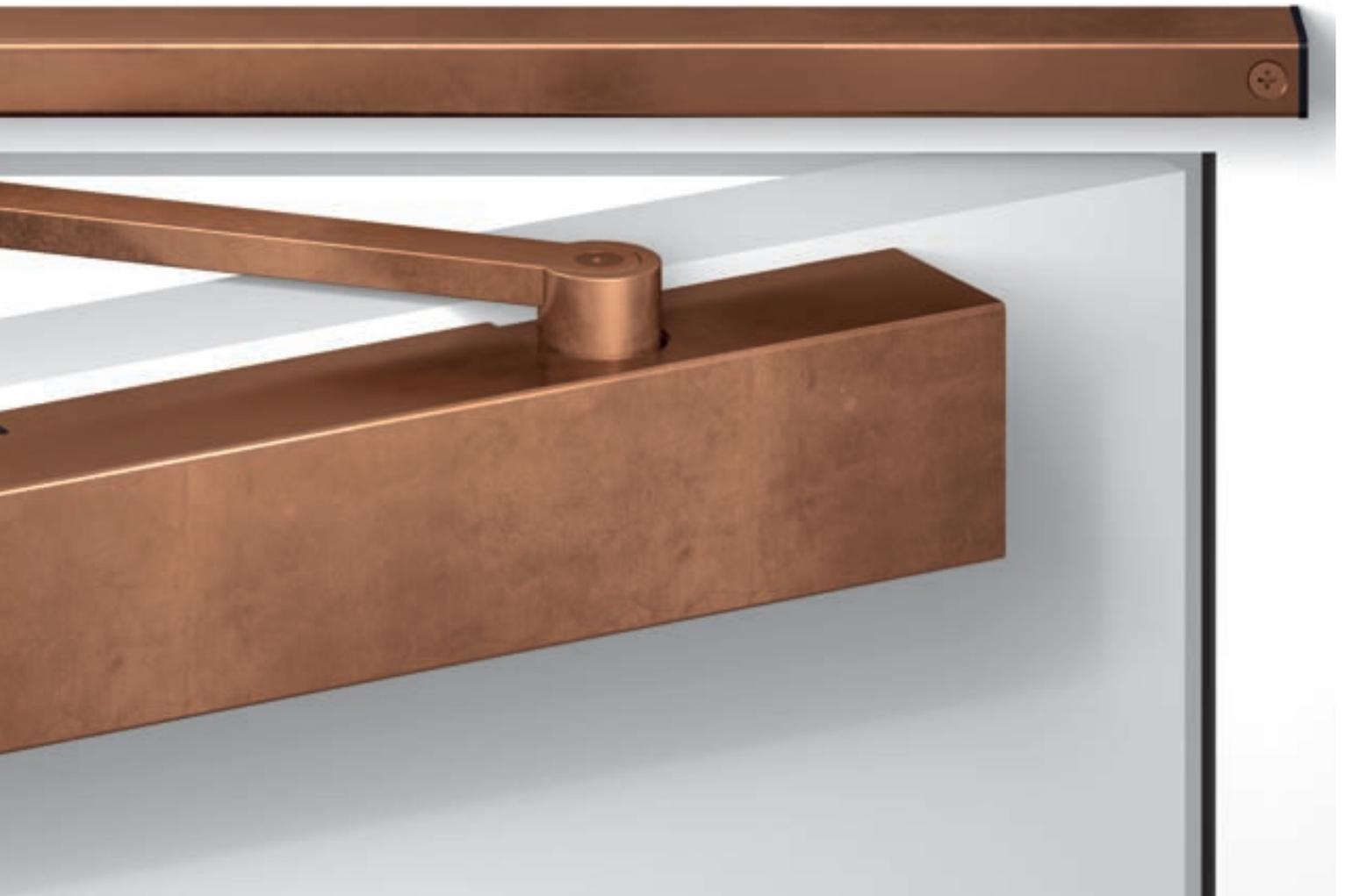
- Dual mounting option
- Non handed installation
- Fully adjustable opening force and closing speeds
- Fully adjustable back check
- Thermo constant valve
- Spring size adjustable EN2 – EN4
- Maximum door width = 1100 mm
- Maximum adjusted door weight = 80 kg
- Maximum degree of opening = 180°

Certification

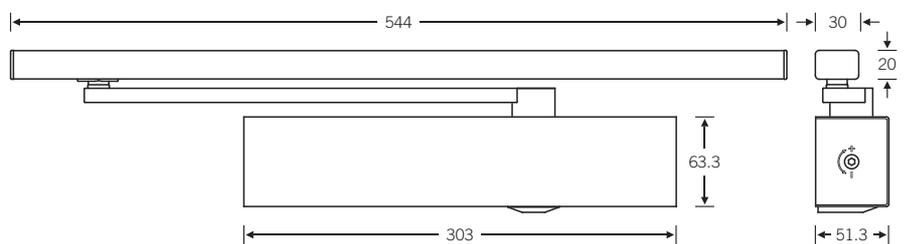
CE Certificate
EN 1154
EN 1634-1

Classification key

4 8 4 / 2 1 1 3



- * pull side mounting 00010
- push side mounting 00011
- push side mounting
with hold open device 00012
- pull side mounting
with hold open device 00013



Overhead door control

concealed mounting in door

88 9104 00020 



Concealed mounting in door, rack and pinion door control complete with solid stainless steel flat form main arm and stainless steel low profile track offering a design and finish consistent throughout the FSB product range.

Door controls are approved for fire and smoke assemblies. Features include fixed opening force spring size and adjustable closing speeds for door leaves with maximum widths of 950 mm and door weights of 60 kg. The maximum door opening is 120 degrees (trim permitting). Additional features include adjustable latching speed from 15 degrees open – 0 degrees and adjustable closing speed from 120 degrees – 15 degrees.

Technical details

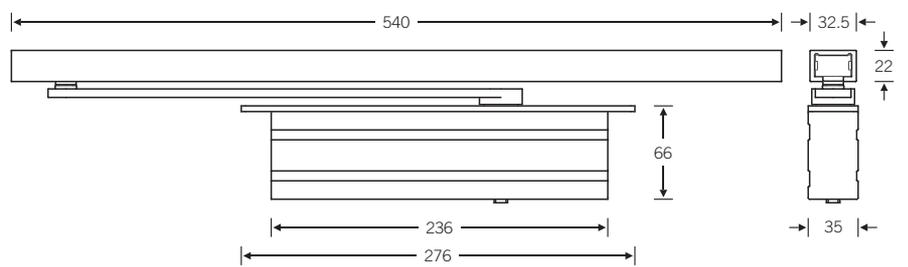
- Concealed mounting in door/frame
- Non handed installation
- Fixed opening force
- Fully adjustable closing and latching speeds
- Thermo constant valve
- Fixed spring sizes EN 3
- Maximum door width = 950 mm
- Maximum door weight = 60 kg
- Maximum degree of opening = 120°

Certification

CE Certificate
EN 1154
EN 1634-1 (30 min fire = 45 mm min)

Classification key

3 8 3 1 1 2



Butt hinges

Tests, approval processes, quality

CE Marking remains the easiest way to show that a product complies with the essential requirements of the Construction Product Regulations. It shows that you have exercised due diligence in sourcing products which are proven in their suitability for use in fire/life safety situations.

There will be a statutory obligation for certain products to be CE-marked as of July 2013. This is designed to ensure that products are technically up to date as well as conforming to the relevant standards and legal provisions within the European Union. It is designed to guarantee that end users are exclusively offered products that are safe. Over and above this, it is regarded internationally as symbolising the high level of quality of German/European products and goods. This is particularly so in the case of door and window fittings that are in constant use and are subjected to a high degree of strain.

Specifically, hinges are governed by the provisions of the following standards and other regulations in this respect:

- EN 1935
- EN 1634/1 covering the fire testing of hinges on fire and smoke check doors
- EN 1670
- regular audits to production facilities by the responsible testing institute, in our case Exova (UK) Ltd.

Warrington Certification Ltd. (part of Exova (UK) Ltd.), an internationally active testing institute, has issued FSB with EU conformance certificates for “single-axis door and window fittings” pursuant to EN 1935 that bear the numbers 1121-CPD-AC 5006 / 5007 / 5008. Fire safety tests have also been passed there.

CE-certificated products are classified by means of an eight-digit key, notably for specification business purposes. This key denotes the principal particulars for the hinge’s area of application, its load-bearing properties and its general nature and is explained in detail below:

Hinge models 88 9101 00054 / 00055 / 00056 / 00057

4	7	6	1*	1	0	0	13
---	---	---	----	---	---	---	----

Hinge models 88 9101 00058 / 00059

3	7	4	1*	1	4	0	11
---	---	---	----	---	---	---	----

Hinge models 88 9101 00060 / 00061 / 00062 / 00063

4	7	6	1*	1	4	0	13
---	---	---	----	---	---	---	----

- 1st digit: category of use (use light (1) to very heavy (4), fitted to doors and/or windows)
- 2nd digit: durability (7 – the highest Class – indicates 200,000 test cycles)
- 3rd digit: door mass and closing force (4 = 80 kg, 6 = 120 kg, kg particulars equate with the effective door mass – cf. Tables 1 and 2)
- 4th digit: suitability for use on fire/smoke doors (0 or 1)
- 5th digit: safety (1)
- 6th digit: corrosion resistance and temperature (0, 1, 2, 3 or 4)
- 7th digit: security and drill resistance (0 or 1. 0 = not for use on anti-burglary doors)
- 8th digit: field of door application (1 to 14)

* the corresponding parameters for the use of FSB hinges on fire and smoke check doors as per EN 1634 are set out in the applicable test reports, which we will be pleased to provide you with on request.

Testing to EN 1935 is only ever conducted on load-bearing hinges. To make your lives as planners easier, we have gone ahead and tested/certificated all FSB hinges to the highest class of use (very heavy use/ Class 4) with the greatest number of opening operations (200,000 cycles) allowed for under the standard. Over and above this, all FSB hinges are tested with significantly higher loadings than prescribed as the maximum value in the EN 1935 body of rules. High quality standards and consistent product quality are ensured both by the in-house production control regime at FSB and by annual monitoring audits made by Exova (UK) Ltd.

FSB generally recommends using hinges of Class 11 or higher, since hinges with protruding knuckles in particular are subjected to a high degree of leverage and may suffer extreme levels of strain.

Selection criteria: hinge loading and door weight

Loading levels are often equated with door weight when selecting/specifying hinges. Owing to a variety of factors, it may, however, be the case that the load exerted on the hinge far exceeds the effect of the door's weight. An additional allowance should nevertheless always be factored in when specifying hinges even if such criteria are taken account of. Even if a straightforward door-weight assessment might indicate otherwise, adequately dimensioned hinges should certainly be employed in project ventures, where building elements can be expected to experience particularly high degrees of loading and there is, moreover, only qualified knowledge of the opening frequencies involved.

It also needs to be added that a hinge is only as good as its subsequent fabrication. Proper fitting and assembly are accordingly vital. Only hinges fitted observing the rules of engineering will be able to function dependably and durably.

Ultimately crucial to the hinge's subsequent continuous functioning are the material properties of the building element being fitted and its sound connection with the masonry or other host.

Key criteria for the selection of hinges are enumerated in the following Tables.

Table 1:

Adjusted Door Weight Calculator/Calculation Table											
Door of excess width											
Please refer to Side Loading Calculation Table											
Actual Door Weight	+	<table border="1"> <tr> <td>Door Closer</td> <td>+20%</td> </tr> <tr> <td>DoorCloser (Backcheck)</td> <td>+75%</td> </tr> <tr> <td>Extra Heavy Use</td> <td>+10%</td> </tr> <tr> <td>Light Use</td> <td>-10%</td> </tr> </table>	Door Closer	+20%	DoorCloser (Backcheck)	+75%	Extra Heavy Use	+10%	Light Use	-10%	= Adjusted Door Weight
Door Closer	+20%										
DoorCloser (Backcheck)	+75%										
Extra Heavy Use	+10%										
Light Use	-10%										

Table 2:

Side Loading Calculations			
Door Size		Factor	Normal Increase of Mass of Door Leaf
Door Height mm	Door Width mm		
2000	1000	2.00	0
2000	1050	1.90	10
2000	1100	1.82	18
2000	1150	1.74	26
2000	1200	1.66	33
2000	1250	1.60	40

It may be necessary when selecting hinges to add incremental values in order to establish the effective door mass (3rd digit in the classification key) in accordance with the Tables above – an illustrative calculation is provided below:

door size W 1,100 mm x H 2,100 mm
door mass 40 kg
self-closing via a door closer with backcheck function

door mass = 40 kg
door size increment: 2,100 : 1,100 = 1.9
or 10% (cf. Table 2) = 4 kg
backcheck door-closer increment: 75% of 40 kg = 30 kg
total: 74 kg

The actual door weight of 40 kg would require Class 7 hinges. Owing to the factors set out above, however, an effective door mass of almost 80 kg is to be assumed, making it necessary to use Class 11 hinges.

Butt hinges

Screw fastening

- The countersinks for all FSB butt hinges fitted to timber and metal frames are prepared for proprietary screws with a 90° countersunk head and a diameter of 5 mm.
- M5 x 16 mm machine screws (e.g. Spax®) should be used for metal door/metal frame combinations.
- Ø5 x 32 mm (1¼") wood screws should be used for timber door / timber frame combinations.
- M5 x 16 mm machine screws and Ø5 x 32 mm (1¼") wood screws should be used for metal/timber combinations.

It is generally wise to drill pilot holes for screws used in timber frames/doors so as to guarantee the best means of support and hence deliver the loading values indicated.

The heads of screws are finished to exactly match their hinges and are, therefore, supplied in dedicated accessory bags for each of the above combinations. As a standard feature, five wooden screws and five machine screws are included in delivery of every hinge. If more or a different combination of screws is needed, these should be ordered separately citing the product codes listed in the table to the right.

Hinge pads for fire and smoke check doors

It is essential that hinge pads be used when fitting butt hinges to fire and smoke rated doors. As well as protecting the hinges against excessive heat in the event of fire, hinge pads expand so as to continue the frame seal that has been interrupted by the hinge mortice. Hinge pads of the correct dimensions must be used with the applicable butt hinges, as set out below:

- 88 9101 00064 9000 fits item nos. 91 9101 0054 / 0055 / 0056 / 0057
- 88 9101 00065 9000 fits item nos. 91 9101 0058 / 0059
- 88 9101 00066 9000 fits item nos. 91 9101 0060 / 0061
- 88 9101 00067 9000 fits item nos. 91 9101 0062 / 0063

10 metric screws M5 x 16 mm, for mounting hinge on steel frame and steel door.

0 05 0599 00022 6204	Head finished in Satin Stainless Steel
0 05 0599 00022 6217	Head finished in Silver Anodised Aluminium
0 05 0599 00022 6218	Head finished in Bronze Bright Patinated

10 stainless steel wood screws 4.2 x 32 mm, for mounting hinge on timber frame and timber door.

0 05 0599 00020 6204	Head finished in Satin Stainless Steel
0 05 0599 00020 6217	Head finished in Silver Anodised Aluminium
0 05 0599 00020 6218	Head finished in Bronze Bright Patinated

5 stainless steel wood screws 4.2 x 32 mm and 5 stainless steel machine screws M5 x 16 mm, for mounting hinge on steel/timber frame and door.

0 05 0599 00023 6204	Head finished in Satin Stainless Steel
0 05 0599 00023 6217	Head finished in Silver Anodised Aluminium
0 05 0599 00023 6218	Head finished in Bronze Bright Patinated

8 stainless steel machine screws M5 x 16 mm, for mounting hinge on steel frame and steel door.

0 05 0599 00021 6204	Head finished in Satin Stainless Steel
0 05 0599 00021 6217	Head finished in Silver Anodised Aluminium
0 05 0599 00021 6218	Head finished in Bronze Bright Patinated

8 stainless steel wood screws 4.8 x 30 mm, for mounting hinge on timber frame and timber door.

0 05 0599 00019 6204	Head finished in Satin Stainless Steel
0 05 0599 00019 6217	Head finished in Silver Anodised Aluminium
0 05 0599 00019 6218	Head finished in Bronze Bright Patinated

4 stainless steel wood screws 4.8 x 30 mm and 4 stainless steel machine screws M5 x 16 mm, for mounting hinge on steel/timber frame and door.

0 05 0599 00024 6204	Head finished in Satin Stainless Steel
0 05 0599 00024 6217	Head finished in Silver Anodised Aluminium
0 05 0599 00024 6218	Head finished in Bronze Bright Patinated

Hinge Positioning

- For maximum resistance to warping, position the hinges with equal spacing (A & C).
- For maximum load carrying ability, fit 2 hinges high and 1 or 2 hinges low (Fig B & D).

Third hinge

Fitting a third hinge has a considerable impact on a door's effective mass and is hence something that EN 1935 recommends. It is only when the third hinge is fitted in the upper third of the door that this has a positive effect on the loading value, however. EN 1935 recommends fitting the third hinge 250 mm beneath the top hinge (see drawing). This increases the hinges' load-bearing capacity (safe working stress) by approx. 30%.

Form: Perfection.

FSB hinges blend in perfectly in terms of their form and proportions with the other components in the Perfection range. A choice of versions with either round or square corners makes for variety of design. Both versions are supplied in any of five borehole configurations to suit the various door masses involved. All requisite dimensional details for the individual hinges are specified in the course of the chapter.

Corrosion control

Our precisely coordinated finishes for the various products in the Perfection range meet exacting demands as regards their chromatic consistency and uniformity of visual appeal and, in many cases, reliable corrosion control also plays a crucial role. The principal materials and finishes have been tested under EN 1670 and classified as follows:

- Stainless steel with a satin nap (Design 6204): Class 4
- Aluminium (aluminium scumble-lacquered stainless steel 6217): Class 4
- Bronze (bronze scumble-lacquered stainless steel 6218): Class 4

Class 0

Corrosion resistance: no corrosion resistance specified

Conditions of use: no specific conditions of use for which a stipulated form of corrosion behaviour is of relevance

Class 1

Corrosion resistance: low resistance
Conditions of use: indoor areas in a dry environment, 24-hour salt spray fog testing

Class 2

Corrosion resistance: moderate resistance,
Conditions of use: indoor areas in which condensation may occur, 48-hour salt spray fog testing

Class 3

Corrosion resistance: high resistance
Conditions of use: outdoor areas in which moisture, rain or dew may occasionally or frequently occur, 96-hour salt spray fog testing

Class 4

Corrosion resistance: very high resistance
Conditions of use: outdoor areas subject to very extreme conditions, 240-hour salt spray fog testing

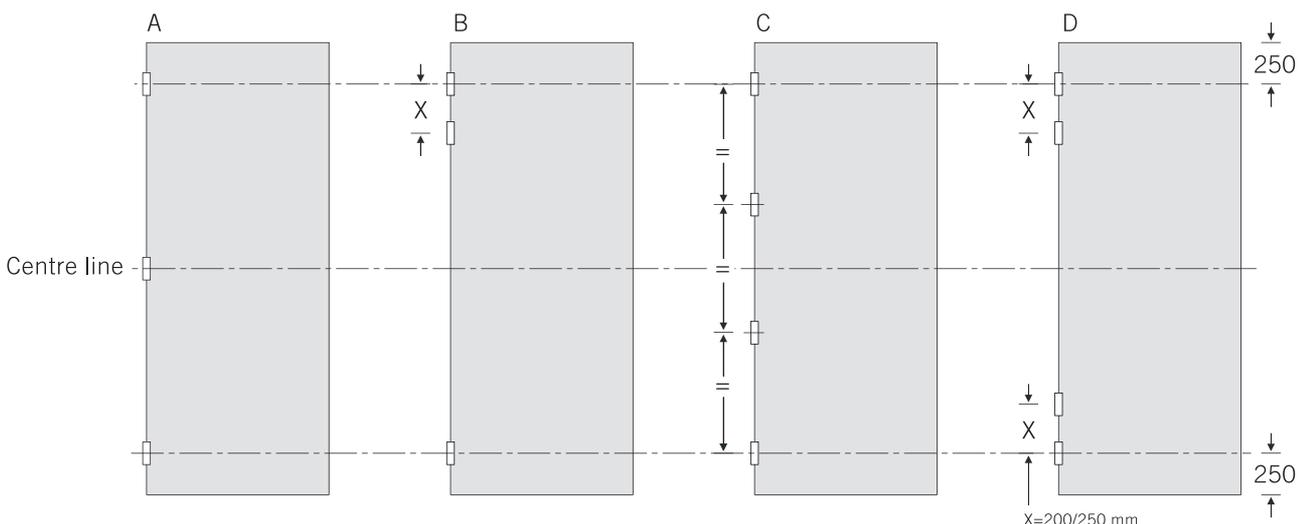
Class 5

Corrosion resistance: exceptionally high resistance
Conditions of use: outdoor areas subject to exceptionally extreme conditions necessitating long-term protection of the product

FSB butt hinges are accordingly suitable for outdoor areas and the stress loadings commonly encountered on the outside of public project buildings.

All other finishes not covered here merely meet visual aspirations.

All the details given here are predicated upon accurate and proper fitting as per the FSB assembly instructions. Should you have any questions regarding the correct selection of hinges, please contact the FSB Field Service or FSB product management team.



Exposed bearing butt hinge

88 9101 00054 



100 x 106 x 3 mm, exposed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, square corners. Hinge conforms to EN 1935, grade 13, supporting a maximum adjusted door weight of 100 kg. CE mark and Certifire approved CF 209.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 40 mm.

Technical details

100 width x 106 height x 3 mm thickness
Square corners
Grade 13
Maximum adjusted door weight of 100 kg

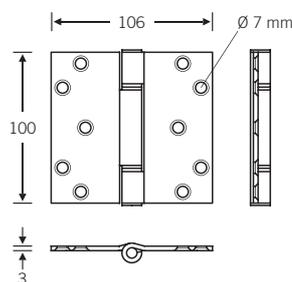
Certification

CE Certificate
EN 1935
EN 1670

Classification key

4 7 6 1 1 0 0 13

5 wood screws and 5 machine screws furnished



Exposed bearing butt hinge

88 9101 00055 



100 x 106 x 3 mm, exposed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, 10 mm-radius corners. Conforming to EN 1935, grade 13, supporting a maximum adjusted door weight of 100 kg. CE mark and Certifire approved CF 209.

Appropriate for use with back check door closers & requires a minimum door thickness of 40 mm.

Technical details

100 width x 106 height x 3 mm thickness
10 mm-radius corners
Grade 13
Maximum adjusted door weight of 100 kg

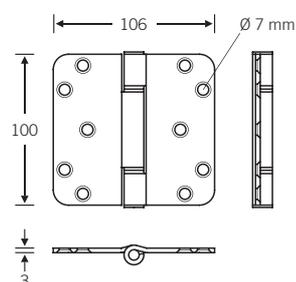
Certification

CE Certificate
EN 1935
EN 1670

Classification key

4 7 6 1 1 0 0 13

5 wood screws and 5 machine screws furnished



Exposed bearing butt hinge

88 9101 00056 



124 x 100 x 3 mm, exposed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, square corners. Hinge conforms to EN 1935, grade 13, supporting a maximum adjusted door weight of 80 kg. CE mark and Certifire approved CF 209.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 40 mm.

Technical details

124 width x 100 height x 3 mm thickness
Square corners
Grade 13
Maximum adjusted door weight of 80 kg

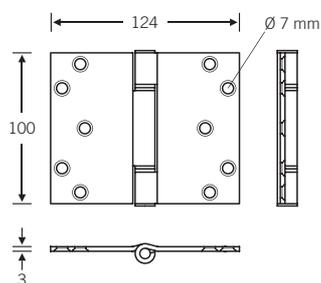
Certification

CE Certificate
EN 1935
EN 1670

Classification key

4 7 6 1 1 0 0 13

5 wood screws and 5 machine screws furnished



Exposed bearing butt hinge

88 9101 00057 



124 x 100 x 3 mm, exposed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, 10 mm-radius corners. Hinge conforms to EN 1935, grade 13, supporting a maximum adjusted door weight of 80 kg. CE mark and Certifire approved CF 209.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 40 mm.

Technical details

124 width x 100 height x 3 mm thickness
10 mm-radius corners
Grade 13
Maximum adjusted door weight of 80 kg

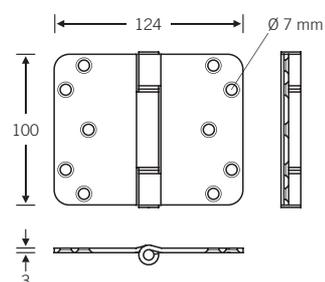
Certification

CE Certificate
EN 1935
EN 1670

Classification key

4 7 6 1 1 0 0 13

5 wood screws and 5 machine screws furnished



Exposed bearing butt hinge

88 9101 00058 



75 x 100 x 2.3 mm, exposed bearing butt hinge Satin stainless steel grade 304 material, fixed pin, square corners. Conforming to EN 1935, grade 11, supporting a maximum adjusted door weight of 80 kg. CE mark and Certifire approved CF 209.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 35 mm.

Technical details

75 width x 100 height x 2.3 mm thickness
Square corners
Grade 11
Maximum adjusted door weight of 80 kg

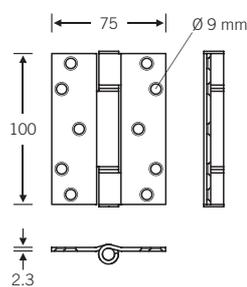
Certification

CE Certificate
EN 1935
EN 1670

Classification key

3 7 4 1 1 4 0 11

5 wood screws and 5 machine screws furnished



Exposed bearing butt hinge

88 9101 00059 



75 x 100 x 2.3 mm, exposed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, 10 mm-radius corners. Conforming to EN 1935, grade 11, supporting a maximum adjusted door weight of 80 kg. CE mark and Certifire approved CF 209.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 35 mm.

Technical details

75 width x 100 height x 2.3 mm thickness
10 mm-radius corners
Grade 11
Maximum adjusted door weight of 80 kg

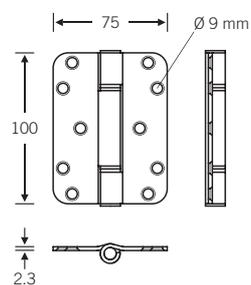
Certification

CE Certificate
EN 1935
EN 1670

Classification key

3 7 4 1 1 4 0 1 1

5 wood screws and 5 machine screws furnished



Concealed bearing butt hinge

88 9101 00060 



76.2 x 101.6 x 3 mm, concealed bearing butt hinge Satin stainless steel grade 304 material, fixed pin, square corners. Conforming to EN 1935, grade 13, supporting a maximum adjusted door weight of 120 kg. CE mark and Certifire approved CF 215.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 35 mm.

Technical details

76.2 width x 101.6 height x 3 mm thickness
Square corners
Grade 13
Maximum adjusted door weight of 120 kg

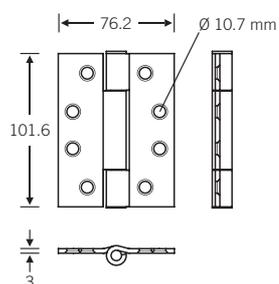
Certification

CE Certificate
EN 1935
EN 1670

Classification key

4 7 6 1 1 4 0 13

5 wood screws and 5 machine screws furnished



Concealed bearing butt hinge

88 9101 00061 



76.2 x 101.6 x 3 mm, concealed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, 10 mm-radius corners. Conforming to EN 1935, grade 13, supporting a maximum adjusted door weight of 120 kg. CE mark and Certifire approved CF 215.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 35 mm.

Technical details

76.2 width x 101.6 height x

3 mm thickness

10 mm-radius corners

Grade 13

Maximum adjusted door weight of 120 kg

Certification

CE Certificate

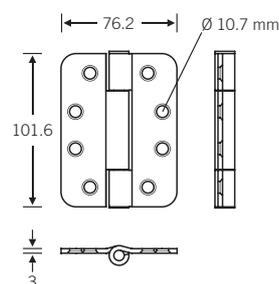
EN 1935

EN 1670

Classification key

4 7 6 1 1 4 0 13

5 wood screws and 5 machine screws furnished



Concealed bearing butt hinge

88 9101 00062 



88.9 x 101.6 x 3 mm, concealed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, square corners. Conforming to EN 1935, grade 13, supporting a maximum adjusted door weight of 120 kg. CE mark and Certifire approved CF 215.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 40 mm.

Technical details

88.9 width x 101.6 height x 3 mm thickness
Square corners
Grade 13
Maximum adjusted door weight of 120 kg

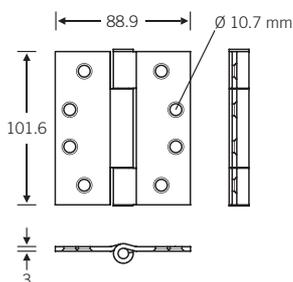
Certification

CE Certificate
EN 1935
EN 1670

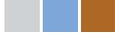
Classification key

4 7 6 1 1 4 0 13

5 wood screws and 5 machine screws furnished



Concealed bearing butt hinge

88 9101 00063 



88.9 x 101.6 x 3 mm, concealed bearing butt hinge. Satin stainless steel grade 304 material, fixed pin, 10 mm-radius corners. Conforming to EN 1935, grade 13, supporting a maximum adjusted door weight of 120 kg. CE mark and Certifire approved CF 215.

Appropriate for use with backcheck door closers & requires a minimum door thickness of 40 mm.

Technical details

88.9 width x 101.6 height x

3 mm thickness

10 mm-radius corners

Grade 13

Maximum adjusted door weight of 120 kg

Certification

CE Certificate

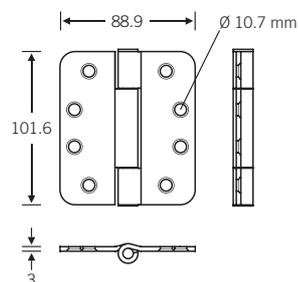
EN 1935

EN 1670

Classification key

4 7 6 1 1 4 0 13

5 wood screws and 5 machine screws furnished



Mortice locks by FSB

Satisfactory doesn't satisfy us

Competent product solutions ought to be a matter of course for a highly evolved society, as should equally reliable functioning over a product's full life cycle. Doors accompany our lives for a great many years after all. That's reason enough to scrutinise the material, design, engineering but also, crucially, the durability of a door as a whole. Durability equates with cost-effectiveness, meaning that dearer can be cheaper in the long run. That's because, as well as procurement costs, it is also necessary to bear in mind all outgoings over a product's anticipated life cycle – repairs, servicing and any replacement included. That holds particularly true for doors subject to constant heavy-duty operation – open/shut, open/shut, open/shut – for many decades.

It's accordingly a question of the stability of the door in its entirety. And that ultimately depends on the performance properties of all the individual components, those being:

- lock
- hardware
- cylinder
- hinges
- frame
- door leaf

A system's overall performance, however, is as strong as its weakest link, as they say. It is not enough, therefore, to conform to standards that solely relate to individual components.

Mortice locks for framed doors

In the case of hardware for framed doors in particular, though, reliable functioning is dependent not only on the lever handle and its bearings but also on the fixing system. FSB has thus optionally adapted the fixing system for its framed door hardware to FSB 88 8813 00007 framed door locks with through fixing points. A special fixing set enables FSB framed door hardware to be prepared to order at the works. As well as ensuring a secure fit, this form of through fixing also makes for significantly shorter assembly times for framed door hardware.

Classification keys as per EN 12209

1. Use category (three classes only have been specified)

Class 1: Use by persons with a high incentive for careful treatment. Risk of improper use is low, e.g. internal doors in residential dwellings.

Class 2: Use by persons with some incentive for careful treatment. There is some probability of improper use, e.g. office doors.

Class 3: Use by persons with little incentive for careful treatment. There is a high probability of improper use, e.g. doors in public buildings.

2. Fatigue resistance

Class A: 50,000 test cycles with no load on the latchbolt

Class B: 100,000 test cycles with no load on the latchbolt

Class C: 200,000 test cycles with no load on the latchbolt

Class F: 50,000 test cycles with a load on the latchbolt of 10N

Class G: 100,000 test cycles with a load on the latchbolt of 10N

Class H: 200,000 test cycles with a load on the latchbolt of 10N

Class L: 100,000 test cycles with a load on the latchbolt of 25N

Class M: 200,000 test cycles with a load on the latchbolt of 25N

Class R: 100,000 test cycles with a load on the latchbolt of 50N

Class S: 200,000 test cycles with a load on the latchbolt of 50N

Class W: 100,000 test cycles with a load on the latchbolt of 100N

Class X: 200,000 test cycles with a load on the latchbolt of 100N

3. Door weights and closing force

Class 1: ≤ 100 kg max. 50N closing force

Class 2: ≤ 200 kg max. 50N closing force

Class 3: > 200 kg or as specified by the manufacturer; max. 50N closing force

Class 4: ≤ 100 kg max. 25N closing force

Class 5: ≤ 200 kg max. 25N closing force

Class 6: > 200 kg or as specified by the manufacturer; max. 25N closing force

Class 7: ≤ 100 kg max. 15N closing force

Class 8: ≤ 200 kg max. 15N closing force

Class 9: > 200 kg or as specified by the manufacturer; max. 15N closing force

4. Use on fire/smoke doors

Class 0: not to be fitted to fire and smoke doors

Class 1: suitable for fitting to fire/smoke doors assuming assessment of the lock's contribution to the resistance of specified fire/smoke doors yields satisfactory results

5. Security

6. Corrosion resistance

Class 0: No corrosion resistance laid down, no temperature requirement

Class A: Low corrosion resistance, no temperature requirement

Class B: Mean corrosion resistance, no temperature requirement

Class C: High corrosion resistance, no temperature requirement

Class D: Very high corrosion resistance, no temperature requirement

Class E: Mean corrosion resistance, temperature requirement -20°C to $+80^{\circ}\text{C}$

Class F: High corrosion resistance, temperature requirement -20°C to $+80^{\circ}\text{C}$

Class G: Very high corrosion resistance, temperature requirement -20°C to $+80^{\circ}\text{C}$

Classification keys as per EN 12209

1	2	3	4	5	6	7	8	9	10	11
Category of use	Fatigue resistance and load on latch	Door mass and closing force	Suitability for use on fire/smoke doors	Safety	Corrosion resistance and temperature	Security and drill resistance	Door-related area of use	Type of key operation and locking system	Type of spindle operation	Key's characteristics

7. Level of security and resistance to drilling

Class 1: Minimum level of security and no resistance to drilling

Class 2: Low level of security and no resistance to drilling

Class 3: Mean level of security and no resistance to drilling

Class 4: High level of security and no resistance to drilling

Class 5: High level of security with resistance to drilling

Class 6: Very high level of security and no resistance to drilling

Class 7: Very high level of security with resistance to drilling

8. Door-related area of use

15 Classes have been laid down for door-related areas of use as set out in the table below.

Class	Type	Use 1	Use 2	Use 3
A	Mortice lock	Unrestricted use		
B	Mortice lock	Hinged door		
C	Mortice lock	Sliding door		
D	Rim lock	Unrestricted use		
E	Rim lock	Hinged door		
F	Rim lock	Sliding door		
G	Lock for drilled fixing	Unrestricted use		
H	Mortice lock	Hinged door	Supported	
J	Rim lock	Hinged door	Open inwards	
K	Mortice lock	Hinged door		Locked from the inside
L	Mortice lock	Sliding door		Locked from the inside
M	Rim lock	Hinged door		Locked from the inside
N	Rim lock	Sliding door		Locked from the inside
P	Mortice lock	Hinged door	Supported	Locked from the inside
R	Rim lock	Hinged door	Open inwards	Locked from the inside

9. Type of key operation and locking system

Class 0: Not applicable

Class A: Cylinder lock manual deadlocking

Class B: Cylinder lock automatic deadlocking

Class C: Cylinder lock manual deadlocking with intermediate locking

Class D: Lever lock manual deadlocking

Class E: Lever lock automatic deadlocking

Class F: Lever lock manual deadlocking with intermediate locking

Class G: Lock without key operation manual deadlocking

Class H: Lock without key operation automatic deadlocking

10. Type of spindle operation

Class 0: Lock with no follower

Class 1: Lock for thumbturn operation or operation of a lever handle with positive mechanism

Class 2: Lock for operation of a lever handle without any positive mechanism

Class 3: Lock for operation of a lever handle subject to heavy loading and fitted with a heavy-duty positive mechanism

Class 4: Lock for operation, as specified by the manufacturer, of a lever handle subject to heavy loading and fitted with a heavy-duty positive mechanism

11. Requirements for key's characteristics

Class 0: no requirements

Class A: at least three retainers

Class B: at least five retainers

Class C: at least five retainers; extended number of effective differs

Class D: at least six retainers

Class E: at least six retainers; extended number of effective differs

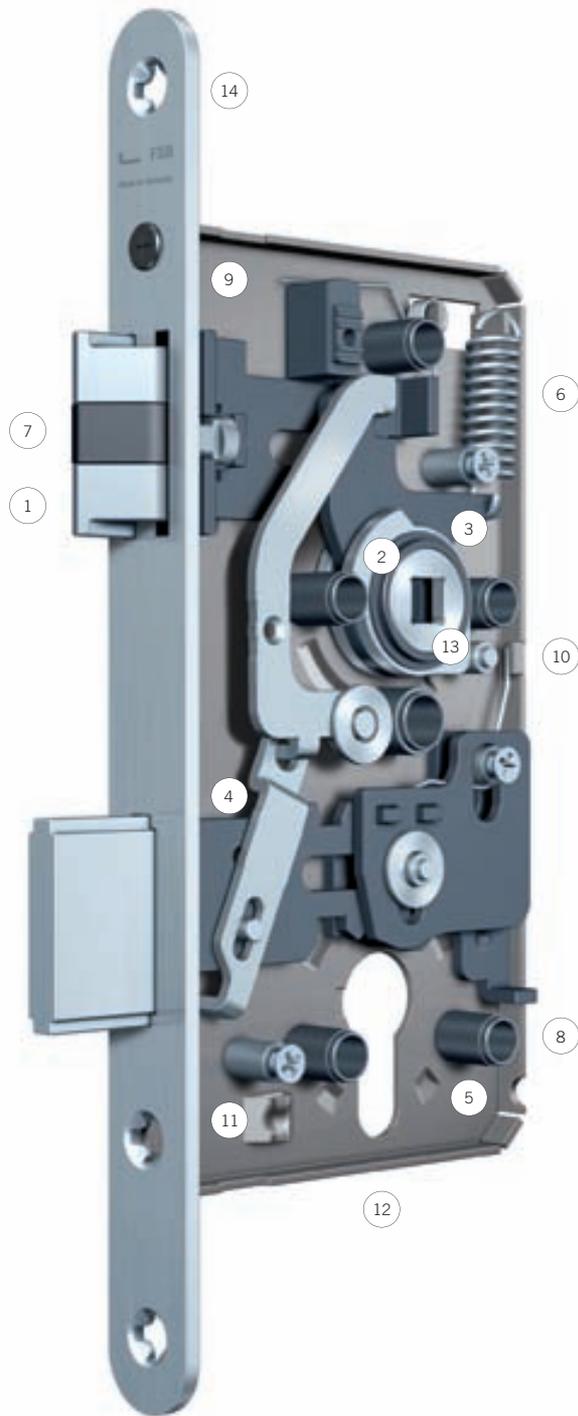
Class F: at least seven retainers

Class G: at least seven retainers; extended number of effective differs

Class H: at least eight retainers; extended number of effective differs

Mortice locks

conforming to EN 12209



Features

1. Latchbolt steel nickel-plated with sound damping function
2. Steel handle follower
3. Follower with steel bearing
4. Hardened steel deadbolt of conical design
5. Protective sleeves at all through fixing points
6. High quality sprung follower for durability and protection against handle sag
7. Latchbolt reversible without opening lockcase, deadbolt design symmetrical, latchbolt and deadbolt centred
8. Fully enclosed lockcase, zinc-plated and lacquered
9. Lubrication device
10. Corrosion resistance as per EN 1670
11. Screw guide for cylinder fixing
12. Backsets from 50 mm up to 100 mm
13. Tested and certified for fire and smoke stop doors as per DIN standard 18 250 with 9 mm □ follower and as per EN 1906 with either 8 mm □ (Class B) or 9 mm □ (Class C) follower
14. Stainless steel forend, material no. 1. 4301

Mortice locks

conforming to EN 12209

88 8813 00006

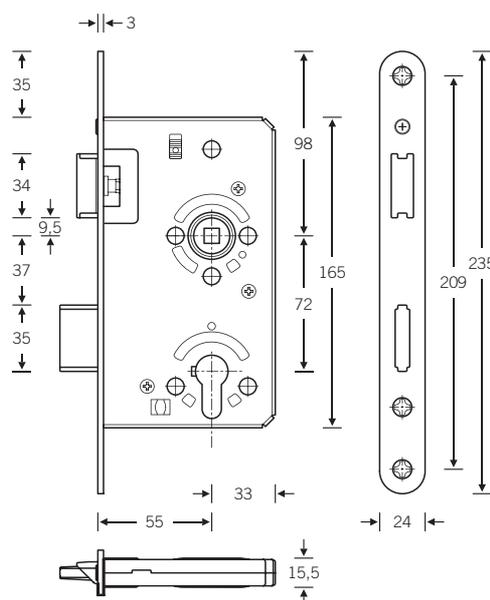


Reversible latch
Europrofile cylinder keyhole (PZ),
c:c distance 72 mm, latchbolt can be
retracted by cylinder, latchbolt reversible
without opening lockcase, latchbolt and
deadbolt centred on forend

Deadbolt double-throw: 20 mm
Spindle: 8 mm □
C:c distance: 72 mm
Backset: 55 mm
Forend width: 24 mm, stainless steel,
rounded
Security grade 6
Very high corrosion resistance

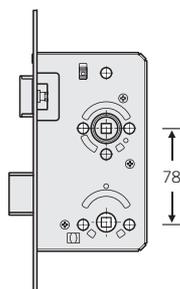
Classification key EN 12209:

3 S 5 1 0 G 6 B C 2 0



Versions supplied on request

- Backsets 50, 60, 65, 80 and 100 mm
- Follower with 9 or 10 mm □
- Square forend
- Forend width 20 mm
- Forend in different material and finishes (silver metallic, bronze)
- WC/bathroom version (re: illustration alongside)



Equipment

- All versions with through fixing points for FSB roses 1731/1735 + 1703/1704
- Supplied with 2 Phillips screws 4.5 x 25 mm

Mortice locks

conforming to EN 12209

88 8813 00001

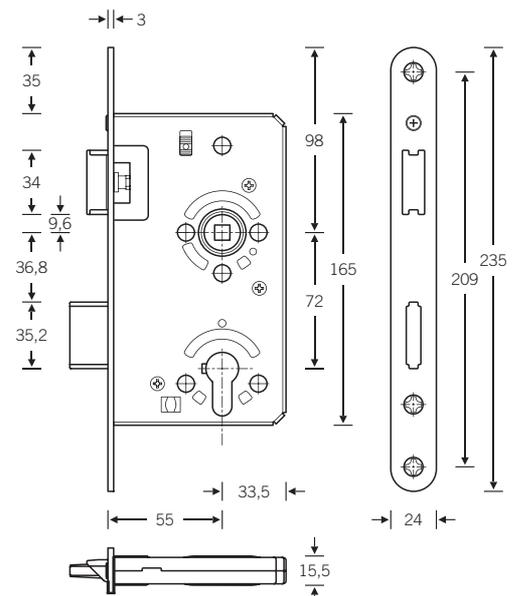


Latchbolt can be retracted by cylinder Europrofile cylinder keyhole (PZ), c:c distance 72 mm, latchbolt reversible without opening lockcase, latchbolt and deadbolt centred on forend

Deadbolt double-throw: 20 mm
 Spindle: 8 mm □
 C:c distance: 72 mm
 Backset: 55 mm
 Forend width: 24 mm, stainless steel, rounded
 Security grade 3
 High corrosion resistance

Classification key EN 12209:

3 M 5 1 0 F 3 B C 2 0



Versions supplied on request

- Backsets 50, 60, 65, 80 and 100 mm
- Follower with 9 or 10 mm □
- Square forend
- Forend width 20 mm
- Forend in different material and finishes (silver metallic, bronze)

Features

- Steel handle follower with nylon bearing
- High quality sprung follower for durability and protection against handle sag
- Latchbolt steel nickel-plated
- Conical steel dead bolt
- Fully enclosed lockcase, zinc-plated
- Lubrication device
- Protective sleeve at follower through fixing points

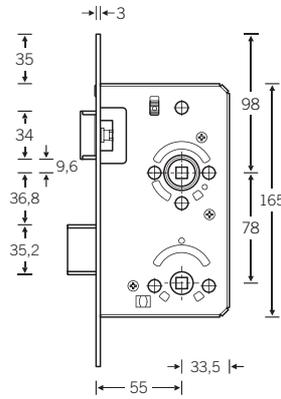
Equipment

- All versions with through fixing points for FSB roses 1731/1735 + 1703/1704
- Supplied with 2 Phillips screws 4.5 x 25 mm

Mortice locks

conforming to EN 12209

88 8813 00002

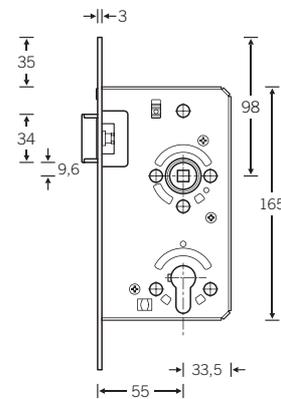


Bathroom/WC function

Latchbolt reversible without opening lockcase, latchbolt and deadbolt centred on forend

Deadbolt double-throw: 20 mm
Handle follower: 8 mm
c:c distance: 78 mm
Indic. furniture follower: 8 mm

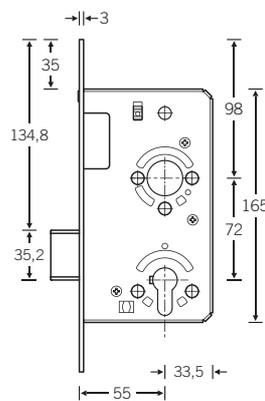
88 8813 00003



Latch function

Latchbolt reversible without opening lockcase, latchbolt centred on forend
Handle follower 8 mm

88 8813 00004



Deadbolt function double-throw 20 mm
Deadbolt centred

Mortice locks for framed doors conforming to EN 12209

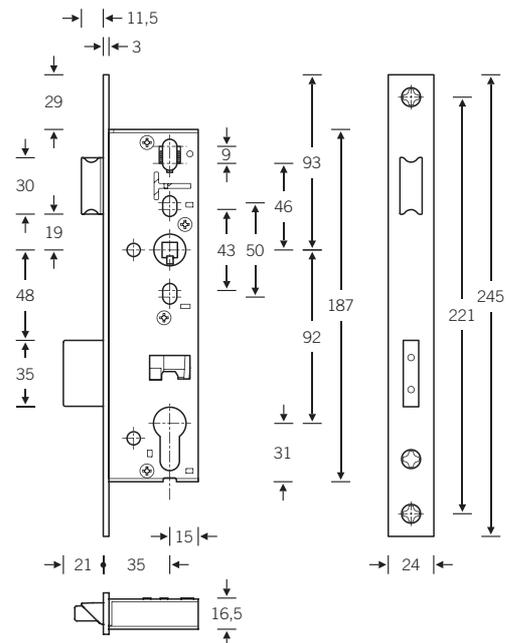
88 8813 00007

Europrofile cylinder keyhole (PZ), c:c distance 92 mm, latchbolt reversible without opening, lockcase, latchbolt and deadbolt centred on forend

Deadbolt single-throw: 21 mm
Follower: 8 mm
Backset: 35 mm
Forend width: 24 mm, stainless steel, square

Classification key EN 12209:

3 M 5 0 0 C 3 B A 2 0



Versions supplied on request

- Backsets 25, 30, 40, 45 and 50 mm
- Forend widths 16, 20 and 22 mm
- Forend in different finishes
- Follower with 10 mm □
- Latchbolt and deadlock with 5 mm projection (backsets equal to or smaller than 45 mm)

Features

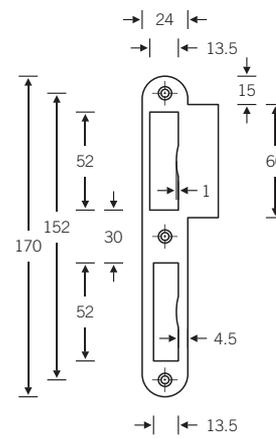
- Latchbolt with sound damping function
- Latchbolt and deadbolt nickel-plated
- Steel handle follower
- Lockcase closed at top and bottom
- Protective sleeve at follower through fixing points

Strike plates

88 8814 00003 ■

Stainless steel, Reversible, thickness 3 mm

Supplied with 3 Phillips screws 3.5 x 20 mm



FSB Latches

Areas of application

Besides mortice locks, FSB also supplies three types of latches for the most diverse areas of application. They comprise a tubular passage latch, a tubular latch with cylindrical privacy mechanism and a tubular deadbolt.

The passage latch, for instance, is a simple type of latch lock but one that, with its straightforward borehole layout and less demanding milling work involved, is easier to fix than a mortice latch. It is likewise possible to retrofit hardware to the door. Thus, a door fitted with a passage latch can be additionally fitted with a deadbolt at a later date should it become necessary to be able to lock the door for privacy. As a general rule, deadbolts are used in combination with passage latches in any case.

The tubular latch with cylindrical privacy mechanism combines the functions of a latch with those of a deadbolt. It is no longer necessary when privacy function is desired to additionally fit a deadbolt. The latch is secured by depressing a pin on the inside of the door that cannot be operated from the outside, meaning the door cannot be opened from that side either. Operating the lever handle from the inside causes the locking mechanism to be disabled – in a manner similar to that of a panic function. To avoid anyone accidentally locking themselves out (pin is depressed with the door open, door latches shut), this latch sports an anti-lockout feature. If the door does latch shut – a process that involves the latch being briefly pushed back by the strike plate – the locking function is automatically disabled by the pin being ejected from the latch. Consideration has also been given to an emergency opening function: the latch can be unlocked from the outside where circumstances so demand.

The tubular passage latch and tubular latch with cylindrical privacy mechanism can be combined with all lever handles in FSB's extensive product range. FSB supplies a range of different thumbturn variants for the tubular deadbolt - designed to visually blend in with FSB level handles and hence make ideal companions for these. It is possible to attach a rose with emergency release, with or without

indicator, from the opposite side or else a blank rose or, indeed, no rose at all.

To ensure lasting operation of products, FSB latches have been subjected to 400,000-cycle testing in our lock factory.

Material

Latches and deadbolt come in Stainless Steel Satin and Bronze Bright Patinated Waxed finishes. Where bronze is used, the deadbolt and latch are made of die-cast zinc. These components are coloured bronze to optically match the latch and deadbolt components made of solid bronze. Bronzed parts darken with time in much the same way as does solid bronze, thus guaranteeing uniform patination of the entire product in the long-term.

Items supplied

The items supplied with each latch and deadbolt include a faceplate, striking plate and dustbox plus the screws required for perfect fitting. These parts are likewise adapted to the colour scheme of the latch and deadbolt.

Roses and accessories for FSB Latches

Heavy duty lever latch, passage | 88 8802 07134, 88 8808 07138

Latchbolt by handle either side

17 1731 00401 *



17 1703 00401 



17 1736 00001 



Heavy duty lever latch, privacy | 88 8802 07144, 88 8802 07148

Latchbolt by handle either side. Outside handle locked by push button inside. Inside handle retracts latchbolt and unlocks outside handle.

17 1798 09001 



03 0450 09030 Spacer



Heavy duty deadbolt, privacy | 88 8802 07124, 88 8802 07128

Deadbolt by thumbturn inside. No operation outside. No indication.

17 1744 00069 *



17 1712 00069 



17 1796 09007 



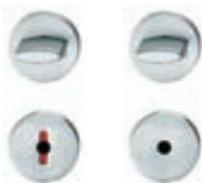
17 1744 09001 



Deadbolt by thumbturn inside and emergency release outside.
With or without indication.

17 1744 00059 *

17 1744 00060 *



17 1712 00059 *

17 1712 00060 *



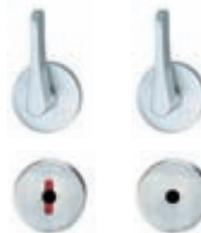
17 1796 09010 *

17 1796 09011 *



17 1744 09002 

17 1744 09003 



* Brass, please refer to FSB-Manual 2012/2013

FSB Passage Latch



88 8802 

- Latch bolt by handle either side
- combination with all FSB lever handles possible (see page 81)
- combination with round and rectangular rose possible (see page 71)
- flush mount possible

Specifications

Field reversible

Backsets

- 88 8802 07134 Backset 60 mm
- 88 8802 07138 Backset 70 mm

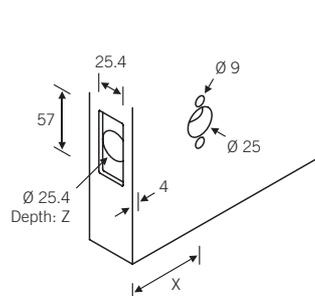
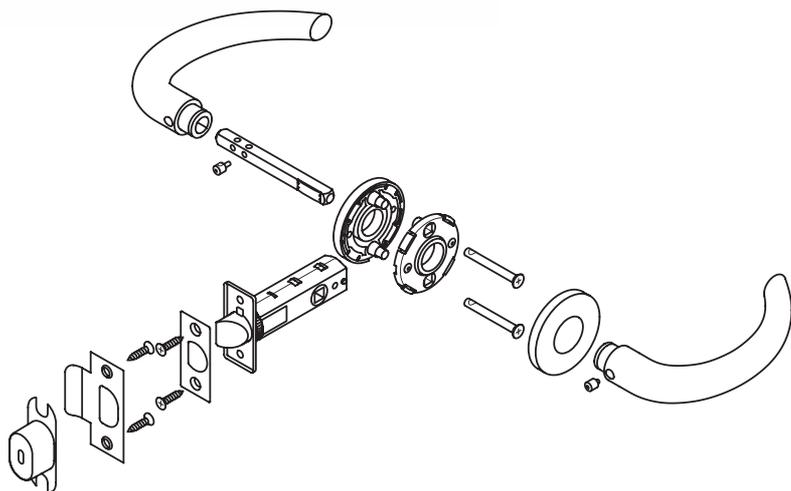
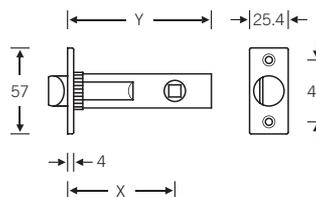
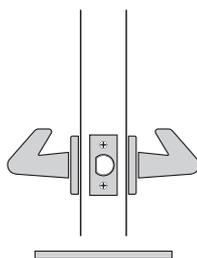
Strike

Universal curved lip T-Strike with dustbox included.

Faceplate width 25.4 mm, height 57 mm for minimum 35 mm door thickness.

For use with 8 mm straight (one piece) spindle.

Mounting screws included.



	x	y	z
Backset 60 mm	60	84	87
Backset 70 mm	70	94	97

FSB Privacy Deadbolt



88 8802 

- Deadbolt by thumbturn inside
- combination with various thumbturns possible (see page 71)
- Options
 - thumbturn inside / emergency outside
 - thumbturn inside only

Specifications

Full bolt extension achieved with 90° thumbturn

Backsets

- 88 8802 07124 Backset 60 mm
- 88 8802 07128 Backset 70 mm

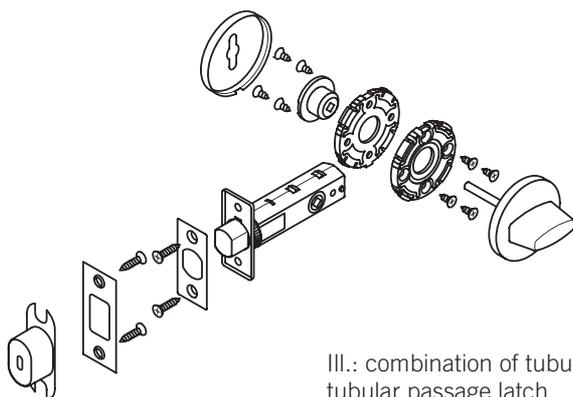
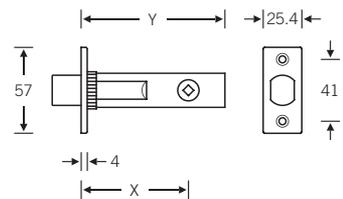
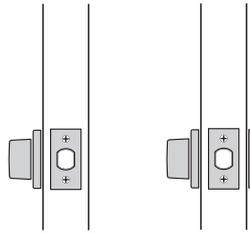
Strike

Universal deadbolt strike with dustbox included.

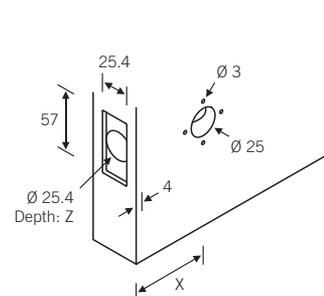
Faceplate width 25.4 mm, height 57 mm.

For use with 5 mm square hub as shown, 45°.

Mounting screws included.



III.: combination of tubular deadbolt and tubular passage latch



	x	y	z
Backset 60 mm	60	84	87
Backset 70 mm	70	94	97

FSB Privacy Latch



88 8802 

- Latch bolt by handle either side
- combination with all FSB lever handles possible (see page 81)

Specifications

Field reversible

Backsets

88 8802 07144 Backset 60 mm

88 8802 07148 Backset 70 mm

Strike

Universal curved lip T-Strike with dustbox included.

Faceplate width 25.4 mm, height 57 mm
for 35 mm door thickness
for 45 mm door thickness with spacers.

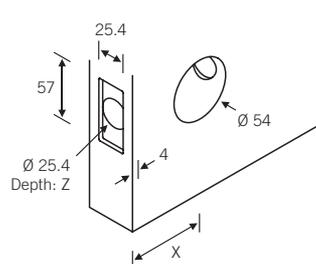
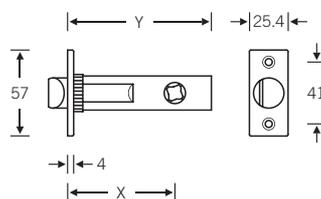
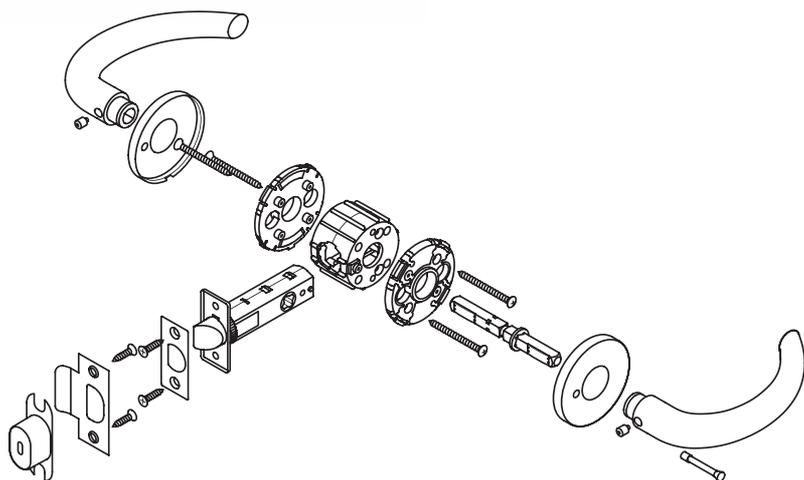
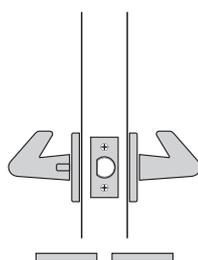
For use with 8 mm swivel spindle.

Privacy mechanism

- Anti lockout feature
- Emergency release feature
- Emergency egress function

Outside handle locked by push button inside. Inside handle retracts latch bolt and unlocks outside handle.

Mounting screws included.



	x	y	z
Backset 60 mm	60	84	87
Backset 70 mm	70	94	97

Technical information

Europrofile cylinders

Great flexibility due to modular design

FSB cylinders are of modular design, making for a high degree of flexibility. They accommodate any variety of door thickness and can thus be adapted to suit differing circumstances to perfection.

But this is not the only added advantage of these cylinders. They serve as a locking system for individually-secured cylinders and lock suites in accordance with the applicable standard as well as providing separate profile systems for central locking and (grand) masterkey suites with up to 20 radially arranged locking pins in 4 rows per side. A variable longitudinal profile system prevents the insertion of unauthorised keys. Serial drill-protection and anti-extraction features, modular cylinder structure facilitating length alterations as required, keyway protected by means of special cylinder plugs, one-piece cam made of sintered steel, non-toxic and corrosion-resistant, ergonomic nickel silver keys, vertical key insertion, excellent scope for combination with security fittings due to extended 13mm shoulder on key.

FSB cylinders suitable for all systems minor and major

FSB cylinders are suitable for the most varied of lock suites, moreover. They are as ideal for non-suite locking in the home as for complex locking systems in office buildings etc. This is because they provide scope for bespoke customised solutions as well as for expansion as and when required. They make it easy to respond rapidly to restructuring or organisational changes owing to their modular design as well as to their flexibility of deployment, "MK" (master key) and "GMK" (grand master key) suites. Our partner Winkhaus will be able to plan and implement a lock suite that precisely meets with the customer's wishes.

The cylinders have all been tested and certified to EN 1303. This standard lays down requirements and test methods for lock cylinders and locks. Items are tested for properties such as mechanical strength, security of locking, durability and corrosion-resistance. A lock cylinder's properties are denoted by means of an eight-character classification key per EN 1303 standards. FSB cylinders additionally offer systems capable of up to 170 million differs with patent protection to 2025.

Classification key conforms to EN 1303

Item	Class
1 Category of use	1
2 Durability	6
3 Door mass	0
4 Fire resistance	1
5 Safety	0
6 Corrosion-resistance and temperature	C
7 Key security	6
8 Attack resistance	2*

* The lock cylinder tested does not feature a built-in plug extraction device and hence Class 2 resistance to tampering can only be attained in conjunction with security hardware having a built-in plug extraction device as specified in EN 1906 and DIN 18257.

Europrofile cylinders

88 8812 0200 

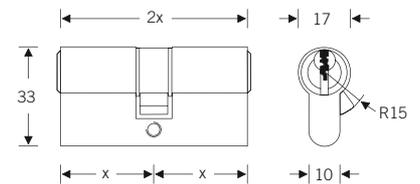


88 8812 02003 | x = 30.2 mm

88 8812 02004 | x = 35.2 mm

Europrofile double-cylinder

- EN 1303 compliant, Class 2 attack resistance
- Up to Grand Master key system standard
- Computer generated key layout
- Factory authorized user system
- Up to 20 pins
- Patent protected key sections
- Modular construction
- Ergonomically designed keys (2 keys furnished)
- Drilling and anti-pulling protection standard
- Complete with cylinder retaining screws



FSB's standard offer for cylinders complies with the standard EN 1303 using patent protected key section while additionally offering a Class 2 resistance against attack status. The cylinders offer the added value of a modular construction allowing the cylinder type and length to be modified in the field (in 5 mm steps).



- Supplied with 2 nickel silver keys
- Labelled with "FSB" on one side
- 13 mm shoulder

88 8812 0220  

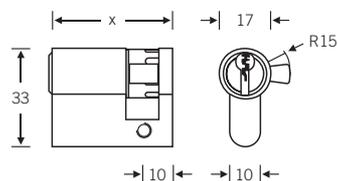


88 8812 02203 | x = 40.2 mm

88 8812 02204 | x = 45.2 mm

Europrofile single cylinder

- EN 1303 compliant, Class 2 attack resistance
- Up to Grand Master key system standard
- Computer generated key layout
- Factory authorized user system
- Up to 20 pins
- Patent protected key sections
- Modular construction
- Ergonomically designed keys (2 keys furnished)
- Drilling and anti-pulling protection standard
- Complete with cylinder retaining screws



FSB's standard offer for cylinders complies with the standard EN 1303 using patent protected key section while additionally offering a Class 2 resistance against attack status. The cylinders offer the added value of a modular construction allowing the cylinder type and length to be modified in the field (in 5 mm steps).



- Supplied with 2 nickel silver keys
- Labelled with "FSB" on one side
- 13 mm shoulder

Europrofile cylinders

88 8812 0210 

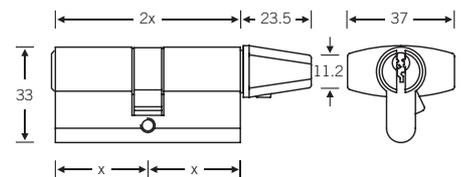


88 8812 02105 | x = 30.2 mm

88 8812 02106 | x = 35.2 mm

Europrofile cylinder + turn Type 04

- Knob Type 0448
- EN 1303 compliant, Class 2 attack resistance
- Up to Grand Master key system standard
- Computer generated key layout
- Factory authorized user system
- Up to 20 pins
- Patent protected key sections
- Modular construction
- Ergonomically designed keys (2 keys furnished)
- Drilling and anti-pulling protection standard
- Knob finish: aluminium, stainless steel, bronze
- Complete with cylinder retaining screws



FSB's standard offer for cylinders complies with the standard EN 1303 using patent protected key section while additionally offering a Class 2 resistance against attack status. The cylinders offer the added value of a modular construction allowing the cylinder type and length to be modified in the field (in 5 mm steps).



- Supplied with 2 nickel silver keys
- Labelled with "FSB" on one side
- 13 mm shoulder

Lever handles

Standard hardware



Rejigging our entire bearing philosophy led to meticulously well-conceived functions being factored into our second-generation AGL® bearing whilst also delivering enhanced new product properties for FSB's standard bearings. These now boast a clear advantage in assembly terms in that the handle-and-bearing unit – usually a characteristic of Classes 4 and 5, though with FSB it already features in Class 3 products – is actually implemented on the door. The connection between lever handle and base rose has been modified in such a way that the handle can be secured in the base at the assembly stage by simply pushing it home. The unit is then straightforwardly finished off in traditional style with clip-on top roses.

In addition, FSB roses and backplates sport a 7 mm bushing along with securing lugs. These lugs combine with the handle-and-bearing constellation to ensure that – assuming the hardware has been properly fitted – the tensile, compressive and rotational pressures arising in normal use are supported, absorbed and efficaciously channelled into the door leaf. These are design details that have proved their worth in practice.

Classification Key
3 7 - 0 1 4 0 U

AGL® heavy-duty hardware



AGL® and AGL® fire safety hardware is the measure of all things on doors and has been a byword for unsurpassed heavy-duty hardware for many years. As well as having become the non plus ultra for architects, its canny engineering and durable functioning have been impressing architects, fabricators, clients, operators and investors alike for three decades now.

Door handle furniture is subject to greater stresses on heavily used doors than in standard residential scenarios. A particularly high-performing bearing is needed when operating such doors continuously over long periods. Tests to establish levels of tensile strain, angular movement and longevity have revealed that, far from simply fulfilling User Category 4 / EN 1906, AGL® and AGL® fire safety hardware outperforms the requirements laid down therein by quite a great deal.

Convenient configuration*

AGL® furniture involves just two sub-units prefitted at the works. There are no longer any loose parts to deal with.

Assembled in less than 10 seconds*

The prefitted sub-units are simply slotted together at the door and then secured using the AGL® tool supplied.

B positive mechanism

A positive mechanism with spring pre-tensioning puts an end to handle sag.

Added aesthetic value by dint of exact 0° positioning

AGL® furniture features a defined 0° stop built into the positive mechanism that ensures handles are always perfectly horizontal when at rest.

Classification Key
4 7 - 0 1 4 0 B

AGL® fire safety hardware



Heavy duty AGL® door lever handle set on roses, permanently coupled in a compensating bearing designed to offset assembly and manufacturing play in the interaction between boreholes, the lock and lock mortice and the hardware.

- Complete with 8 mm spindle to engage the specified 8 mm / 9 mm (fire rated) lock follower.
- Fixing lugs for lever roses and escutcheon are 8.5 mm deep and fastened with M5 stainless screws.
- Diameter of cover roses 55 mm resp. 55 x 55 mm (square roses) and 7 mm deep with an edge radius 1 mm
- Centres of fixing points 38 mm

Standard lever handle set utilizes the „click-tight“ connection installation method. The installation is accomplished by a „click-tight“ connection between the lever handle and the suitably designed bushing and the sub-rose ring to the inner rose. Positive locking between the male and the female handles for optimised absorption of forces exerted on the door leaf.

- Complete with 8 mm spindle to engage the specified 8 mm lock follower.
- Fixing lugs for lever roses and escutcheon are 8.5 mm deep and fastened with M5 stainless screws.
- Diameter of cover roses 55 mm resp. 55 x 55 mm (square roses) with and edge radius 1 mm.
- Centres of fixing points 38 mm.

* does not apply to square roses

Classification Key
4 7 - 1 1 4 0 B

10 1001 	10 1003 	10 1004  New	10 1005 	10 1015 	10 1016 
					
10 1021 	10 1023  *	10 1025 	10 1028 	10 1035 	10 1045 
					
10 1057  *	10 1058 	10 1070 	10 1076  *	10 1078 	10 1093 
					
10 1102  *	10 1106  *	10 1107 	10 1108 	10 1144 	10 1147  *
					
10 1159  New	10 1163 	10 1183 	10 1222  New		
					

* Brass, please refer to FSB-Manual 2012/2013

Roses and backplates for mortice locks

Basic points

Opening a door involves two forces, pushing and pulling. Both forces need to be supported if a set of door hardware is to remain lastingly fit for function. Backplates and roses perform this support function, which is why it is so vital that they be correctly fitted. All backplates and roses supplied by FSB feature a bushing 7 mm wide made of glass fibre-reinforced plastic. They are additionally fitted with rugged securing lugs, furthermore. Door handle hardware and its accessories need to harmonise with the locks used and it is important, therefore, to bear the following data in mind when ordering:

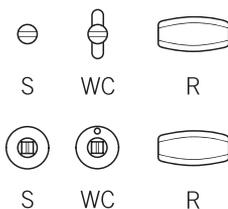
Bathroom/WC hardware

FSB bathroom/WC hardware is fitted with a bolt (R) on the inside and an emergency release with indicator (WC) on the outside. The bolt can be released from the outside with the aid of a coin. The indicator can be dispensed with if so desired (S). A reinforced emergency release is supplied for nursing homes and nursery schools.

Flush roses and hardware

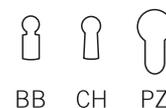
A special feature in the FSB range are its flush hardware sets – a modern accent in the design and architecture-driven appointment of interiors that has scope for really setting a space apart. Our flush hardware sets, equipped with FSB's AGL II compensating bearings or as fire safety variants, and our flush roses for standard doors constitute a solution that is compelling both visually and in assembly terms. The precision inherent in the solution we have come up with has enabled us to utterly eschew the use of bonding agents practised by some market players. You will find details on this in the system brochure entitled "Less is more: flush hardware solutions by FSB", which we will be pleased to send you free of charge. We further supply cut backplates and roses for special aesthetic effects that can be produced in a wholly customised manner.

Bathroom/WC versions



Keyways

Backplates and roses are available with the following keyways:



17 1731 ■ ■ ■ ■ *
17 1735 ■ ■ ■ ■ *



17 1703 ■ ■ ■ ■
17 1704 ■ ■ ■ ■



17 1735 ■ ■



17 1736 ■ ■ ■ ■
17 1737 ■ ■ ■ ■



7201 ■ ■ ■ ■



17 1729 ■ ■
17 1768 ■ ■



17 1757 ■ ■ ■ ■ *
17 1758 ■ ■ ■ ■ *



17 1765 ■ ■ ■ ■
17 1766 ■ ■ ■ ■



14 1451 ■ ■ ■ ■ *



14 1418 ■ ■ ■ ■ *



14 1450 ■ ■ ■ ■



14 1410 ■ ■ ■ ■



14 1458 ■ ■



14 1459 ■ ■



17 1795
17 1796



* Brass, please refer to FSB-Manual 2012/2013

Technical information

Crossbar fittings

EN 1125

FSB crossbar fittings provide a means of escape for outwardswinging final exit doors.

Via a horizontal bar extending across at least 60% of the width of the door, force exerted is transmitted to the lock follower by a bevel gear pair acting directly through the spindle. The door can be opened by pressing any part of the crossbar.

In most countries, crossbar fittings of this type have hitherto predominantly been used on panic doors in combination with the appropriate mortice locks. Other hardware systems for panic doors are also available on the European market, however. Surface-mounted designs are often employed, for instance. The differing views on the fitting-out of fire-escape, emergency-exit and panic doors have now been harmonised through the drafting of European standards that are binding upon all EU States. The requirements for emergency exit devices are set forth in EN 179 and those for panic exit devices in EN 1125. The hardware package for panic doors comprises a fastening element (lock), a lock receiver (striking plate) and a horizontal bar.

Crossbar fitting conforming to EN 1125

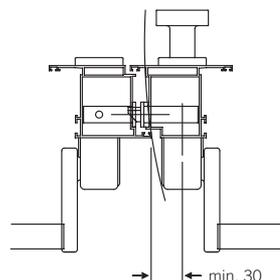
The standard prescribes the use of panic exit devices wherever high levels of public traffic are to be expected and where panic may arise due to unfamiliarity with the surroundings. Besides design-engineering requirements, there are also exacting stipulations as regards fitness for function. The hardware must, for example, be capable of opening the panic door through exertion on the bar of a force of just 220 N even whilst the closing device is being subjected to a load of 1,000 N.

A panic device must be constructed in such a way that it immediately releases the door if the bar on the inside is operated at any point in the direction of escape. The forces required to operate it must be such that even children or persons with disabilities can release the locking mechanisms involved. FSB has joined with lock makers Winkhaus, Wilka, Fuhr and BMH to have a variety of panic crossbar fittings tested and certified.

The fulfilment of this and further stipulations such as service longevity and ability to withstand misuse has to be demonstrated by means of tests and certification procedures in respect of the system as a whole conducted by an independent test institute. The CE kitemark on the hardware ensures that only tested fittings conforming to the applicable standards can be fitted.

FSB crossbar fittings have been tested for door weights of up to 200 kg.

FSB's crossbar hardware only forms part of any panic-exit system. It has been adapted to lock systems made by a variety of leading companies, and tested and certified for use with same.



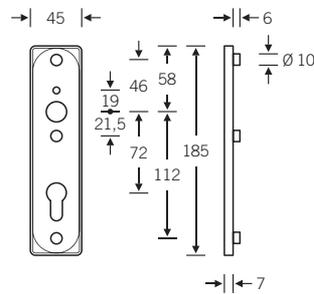
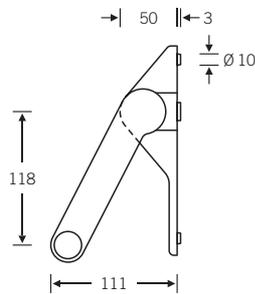
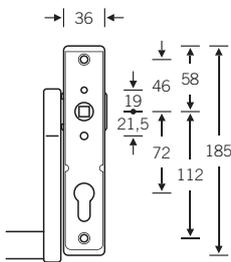
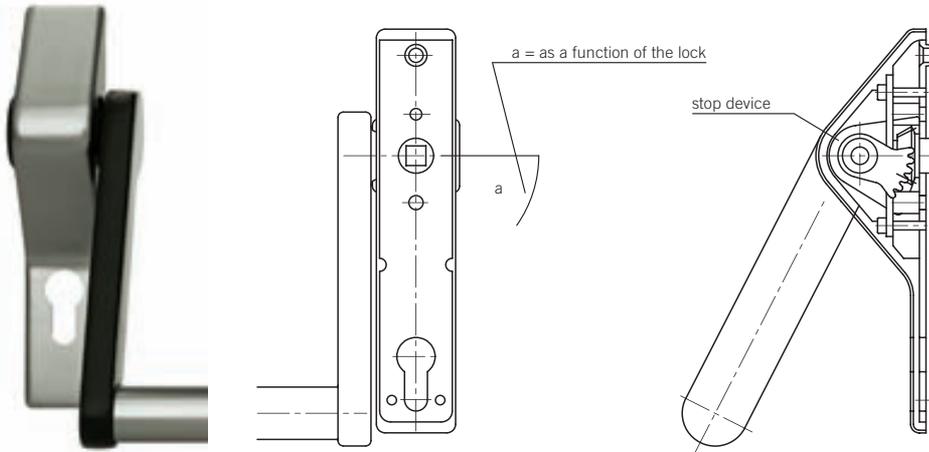
To prevent the crossbar fitting striking the door's own frame when the door is opened, it is necessary to maintain a distance between the frame and the centre of the bar of at least 30 mm. Please bear this in mind when deciding on the door's stile and general configuration.

Crossbar fitting

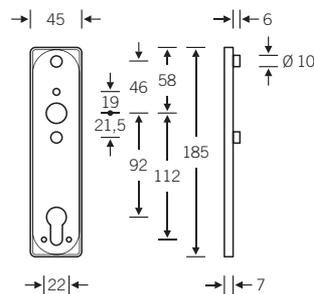
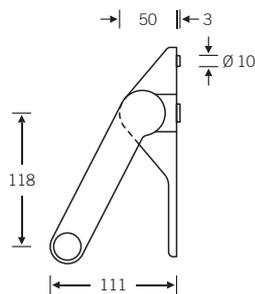
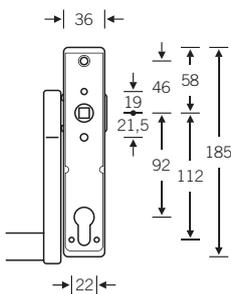
EN 1125

77 7980 

Bevel gearing and spindle combine to convert pressure exerted on the crossbar into rotary motion acting on the lock follower. A fixed stop is fitted as a means of absorbing the requisite test forces. A spring ensures that the crossbar fitting returns to its original position once it has been operated.



Size and connecting dimensions for crossbar fittings with 72 mm lock centres



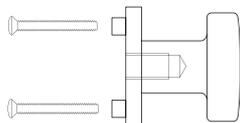
Size and connecting dimensions for crossbar fittings with 92 mm lock centres

Technical information

Knobs / Fixing methods

Doorknobs on roses

Concealed back-to-back fixing (06)



There are two methods of fixing inseparable knob-on-rose furniture: concealed back-to-back or face fixing.

Prepared for M5-screw fastening with lugs at 38 mm centres. A lever handle rose with M5 through-fixing lugs, FSB 17 1731 019 or FSB 17 1703 019, is fitted on the reverse of the door.

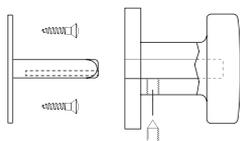
The M5 screws are 45 mm long and suitable for doors 37–46 mm thick. Screws

with 10 mm length increments should be used for thicker doors as applicable (FSB 05 0308 005).

In this configuration it is necessary to rotatably connect the doorknob to a lever handle on the reverse using a FSB Stabil half-spindle 05 0177 / 05 0107 screwed into the M12 thread in the knob (width across 13 mm). The FSB Stabil half-spindle should be ordered separately.

Doorknobs on roses

Concealed face fixing (05)



The concealed face fixing of doorknobs involves first screwing a steel base to the door.

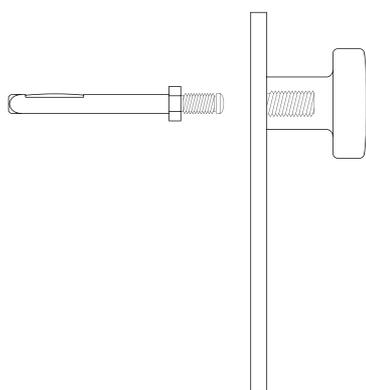
The doorknob is then slotted over the 8 mm pin on the base and secured with a grub screw.

It needs to be ensured when fastening the base that it is positioned in such a way that

the grub screw is aligned with the longitudinal bore on the base pin (cf. illustration alongside). The knob has been correctly fitted when the top of the grub screw lies flush with the surface of the knob's shank.

Knob backplates

Concealed back-to-back fixing
Concealed face fixing

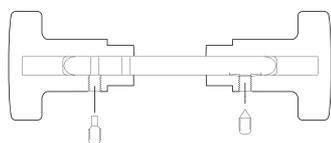


The doorknobs in FSB knob backplate furniture are inseparable from their backplates.

All FSB knob backplates feature an M12 thread in the shank of the knob to accept the FSB Stabil half-spindle supplied. Before fitting the knob backplate, the thread of FSB Stabil half-spindle 05 0177 / 05 0107 is screwed into the shank of the knob (width across 13 mm). The backplate cum spindle is then fitted to the door and the assembly routine then proceeds on the other side.

Knob handles

Can be combined with rose and backplates as separate parts adopting either visible or concealed fixing



Knob handles are made and supplied by FSB as female parts.

Knob handle sets are assembled using two female parts joined together using FSB Stabil spindle 05 0102.

First, the FSB Stabil spindle is used to create a male handle out of one of the female sections by accurately screwing the grub screw into the borehole provided. The head of the grub screw

generally needs to lie flush with the surface of the knob's shank for a male handle to have been correctly constructed. The fitting is then as that set out for the FSB Stabil spindle.

It is also, of course, possible to combine female knob handles rotating in backplates or roses on one side of a door with dead knobs or knob backplates on the other using FSB half spindles.

08 0802 *



08 0804 



08 0826 



08 0844 



23 0802 *



23 0804 



23 0826 



23 0844 



23 0846 



08 0829 



23 0829 



23 0809 



23 0873 



23 0812 
New



23 0811 
New



23 0833 



19 1964 *



19 1927 *



19 1963 



19 1970 



06 7816 



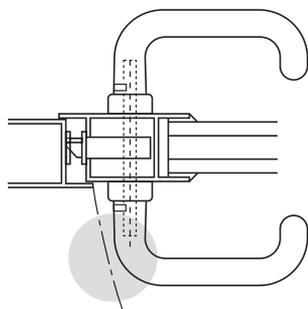
06 7816 



* Brass, please refer to FSB-Manual 2012/2013

Technical information

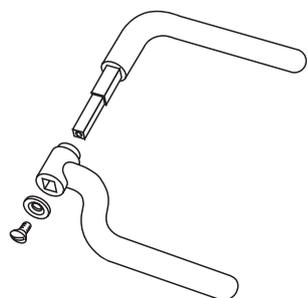
Hardware for frame doors



As well as offering a complete range of handles embracing lever handles, door-knobs and door pulls for frame doors in metal, plastic or timber, FSB doubles up with a fixing system to suit the special requirements of frame doors and their hardware that has been constantly enhanced over the years.

The spatial constraints of frame doors can lead to fingers getting caught between the closing face and the jamb when the door is operated (cf. Fig.). A further consequence of said spatial constraints is that there may be some difficulty fixing the hardware owing to the shortness of

backsets and the absence of through-fixing options.

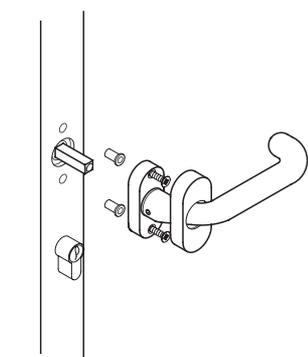


The ingenious idea thought up by the philosopher Ludwig Wittgenstein

The Austrian philosopher and qualified engineer Ludwig Wittgenstein took time off from philosophising in the 1920s to design the interior of his sister's house, Palais Wittgenstein, in Vienna.

To enable furniture to be firmly fixed onto the stiles yet prevent hands getting caught between the closing face and the door jamb, Ludwig Wittgenstein had a cranked handle made for the closing face to his own drawings, and to this he connected a normal male lever handle on the opening

face. This inspired combination saw a man who otherwise applied himself to the imponderables of language produce very clear-cut answers to the hand injury hazard.



Fixing accessories come with the product

Matching fixing material forms part of the frame door hardware product supplied by FSB. Fastenings comprise non-loosening M5 screws and rivet nuts to suit the bases for frame door fittings. The heads of these rivet nuts (Ø 11 mm) fit exactly into the underside of FSB fittings for frame doors.

Male handle: handle and spindle lock together

The spindle sits fast at the back of the handle recess, being secured by a grub screw. The grub screw's steel point fits exactly into a corresponding hole in the spindle to durably lock spindle and handle together.

Handles joined fast

On the opposite side, the female frame door handle is firmly and durably secured using the million-times proven FSB clamping spring to join the handles fast. The clamping spring makes for a lastingly reliable connection between handle and spindle. Loose or, to be more precise, floating spindles, which against better judgment are commonly used on metal doors, are thus a thing of the past.

Efficient absorption and dissipation of forces

A further merit of the joining method set out is that the axial forces arising when doors and handles are operated are absorbed far more efficiently than with floating spindle connections and are dissipated into the frame door stile: any leverage potential in the forces arising is thus offset from the outset by reducing assembly tolerances to the greatest possible extent for all subassemblies involved.

Antislip/screw-retention device

All FSB roses forming part of hardware for frame doors have screw bushings fitted with rubbery plastic retarder plugs. These protrude slightly beyond the reverse of the rose and are compressed when the screws are tightened. Hence, they act as an anti-slip device against their host surface whilst also providing the necessary axial and radial tension to hold the screws tight.

Frame door handles

Frame door knobs

06 1001 ■
09 1001 ■



06 1002 ■
09 1002 ■



06 1004 ■ ■ ■



06 1015 ■ ■ ■
09 1015 ■ ■ ■



06 1016 ■ ■
09 1016 ■ ■



06 1023 ■ ■ ■
09 1023 ■ ■ ■



06 1031 ■ ■
09 1031 ■ ■



06 1035 ■ ■
09 1035 ■ ■



06 1043 ■ ■
09 1043 ■ ■



06 1045 ■ ■ ■
09 1045 ■ ■ ■



06 1053 ■ ■ ■
09 1053 ■ ■ ■



06 1070 ■ ■
09 1070 ■ ■



06 1074 ■ ■
09 1183 ■ ■



06 1076 ■ ■
09 1076 ■ ■



06 1078 ■ ■
09 1078 ■ ■



06 1088 ■ ■
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06 1093 ■ ■
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06 1094 ■ ■
09 1094 ■ ■



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09 1107 ■ ■



06 1108 
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06 1159 
09 1159 



06 1163 
09 1163 



06 1164 
09 1164 



06 1177 
09 1177 



06 1178 
09 1178 



06 1223 



07 0804 



07 0809 



07 0812 
New



07 0846 



Flush pulls

Pull handles

Flush ring handles

Flush pulls for sliding doors

Sliding doors are a formally appealing option when it comes to linking spaces in a particularly flexible and inviting manner. FSB supplies the right hardware for every door: everything from classic recessed handles with visible fixing through variants for end-fixing to flush-fitting pulls whose excellence has now duly been honoured.

As you have come to expect from FSB, our flush pulls embody our usual lofty aspirations as regards design, functionality and manufacturing sophistication.

Smooth as you like: the blanking flap

Our new closed flush pulls ensure a uniform appearance for the door leaf. The operating aperture is always blanked out by a flap that springs neatly into the closed position when the hardware is not being used.

FSB-Flush pulls of series 425X are assembled with surface-mounted flat perimeter or fully recessed to the door. The handles are designed in such a way that untidily or inaccurately machined edges can be concealed by means of the surface-mounted perimeter.

The closed version boasts more than just aesthetic qualities, though. The user soon learns to appreciate the playful pleasure of flicking the flap alternately to the left and right. Flush pulls are generally fitted on timber doors. The leaf or frame is machined to accept the hardware, which is then clipped or glued in place as required.

Bespoke solutions

FSB manufactures small flush pulls for lightweight doors, as well as larger variants for heavy-duty doors, in square / rectangular and round / oblong designs respectively. Round flush pull 4254 requires a cut-out just 17 mm in depth, for example. It is just the job for small, lightweight sliding doors as well as for fitted furnishings or furniture in general.

With FSB 4255 9000 and FSB 4255 9001, we are adding furniture for bathrooms and WCs to our range of flush pulls. As well as being visually compelling, the Class 3 sliding door mortise lock and striking plate supplied with the hardware (71/WC or 72/WC series) also guarantee straightforward assembly and dependable functioning thanks to the precision with which all components harmonise with one another. No visible fixings are required. FSB recommends performing all routing work on a CNC basis.



reddot design award
honourable mention 2008

42 4250 ■ ■



42 4250 ■ ■



42 4252 ■ ■



42 4254 ■ ■



42 4251 ■ ■



42 4251 ■ ■



42 4253 ■ ■



66 6629 ■ ■
51 5325 ■ ■



66 6628 ■ ■

42 4299 ■



42 4299 ■



42 4255 ■



42 4255 ■



42 4205 ■



42 4203 ■



Door stops

Accessories

Numbers and letters

Numerals

FSB's programme of numerals and letters draws on a design that Otl Aicher recommended to our company as a headline typeface.

For Otl Aicher, good legibility from a distance was all important. Our numerals and letters are made of 4 mm-thick stainless steel, material code 1.4301. All characters feature two standardised fixing points comprising 4 mm threaded sockets. These are fitted with bolts which in turn are secured in 8 mm rawlplugs. Each character is supplied with a fixing template that also determines the distance between characters. Custom spacing can be achieved by reducing the width of templates.

The program contains the following digits and letters:

1 2 3 4

001 002 003 004

5 6 7 8

005 006 007 008

9 0

009 000

a b c d

011 012 013 014

e /

016 015

Pictograms

The quality of any system of pictograms is primarily defined by its simplicity and exhaustiveness. Our pictograms have no truck with fads and trends, having recourse to a clear and unequivocal visual language instead.

Still today, the Otl Aicher system originally developed for the Olympic Games in Munich, is regarded as exemplary solution for sign in the public and commercial environment. Continual extension with new pictograms takes technical innovations and also the merging of international markets into account. A range of more than 400 signs includes pictograms for almost every conceivable application in the most varied fields, such as function areas, communication, safety, culture and leisure or transport and traffic.

All pictograms draw on a uniform, copyrighted formal vocabulary, thus allowing for random permutations within the system. FSB engraves, lasers or tampon-prints these pictograms onto aluminium or stainless steel signplates.

Door stops

As with all architectural hardware, door stops will only give satisfaction if correctly fitted and properly used. Before ordering or fabricating, it is necessary to check the weight of the door leaf, the angle of contact, the height of the bottom of the door from the floor and the quality of the flooring itself. Depending on requirements, it is then possible to choose between simple stops, stops with anti-skew capability, stops with baseplates, directional and non-directional stops and, finally, stops fitted straight into the floor or those where rawlplugs are used.

Moreover, individual models are available in different designs. The door stoppers 38 3880 ad 38 3896, for instance, can be optimally adapted to the individual situations by the availability of 60, 90 or 120 mm length variants. Model 38 3884 can be optionally used with or without base plate. Our scope of delivery includes the fastening material for all door buffer models.

38 3816 



38 3817 



38 3878 *



38 3881 *



38 3884 *



36 3646 



38 3880 



38 3896 



36 4059 



36 4059 



36 4059 



36 4059 



36 4059 



36 4005 

2a

* Brass, please refer to FSB-Manual 2012/2013

Technical information

Hardware for glass doors

Glass has always played a multifaceted part as both a means of design and a shaping material in architecture. Glass doors carry this role into the sphere of interior design.

They create more light, link up spaces and are conducive to a great sense of roominess. The innate transparency of glass doors means that great care needs to be taken when designing hardware for them, moreover. It is the lock, handles and hinges, after all, that turn a glass door into a design factor.

We would like to draw attention in this respect to a fitting for glass doors FSB has developed together with the Christoph Ingenhoven firm of architects. This fitting, a lockset plate, is characterised by an absence of handle roses (even for the heavy-duty version) as well as by its extremely slender dimensions. Its surface, furthermore, can be made to lie flush with any DIN frame to great visual effect.

Mention should also be made of a delightful design detail in 13 4224 Series glass door fittings: the dividing line on the grip section of handle 1078 is aligned with the edge of the lockset plate.



Variants:

- warded lock (BB)
- no keyway
- bathroom/toilet variant: please indicate when ordering, as the lockset plate is prepared for 17 1735 09005 WC-R indicating furniture as standard at the works. The indicating bolt is fitted on site and should be ordered separately.

If so desired, the lockset plates and accompanying handles can also be powder-coated in any colour from the RAL colour chart to match their host door stiles. Hardware in the 13 4220/13 4223 Series can also be fitted either with or without rose/lever handle furniture, thus providing scope for the use of lever handle furniture with heavy-duty AGL® bearings for heavy and/or large-format doors.

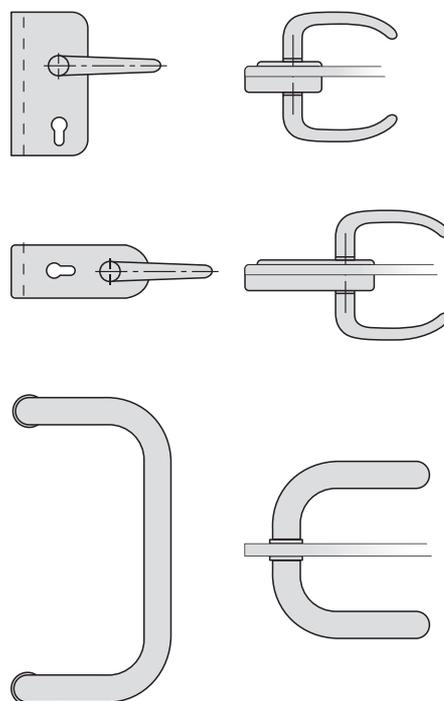
Completing the FSB collection of lockset plates for glass doors are hinges to match. All hardware variants covered in this section can be combined with virtually any FSB lever handle model.

Extensive planning and technical information is to be found in the latest FSB Manual.

Pull handles for glass doors

Door pulls of round or oval cross-section can be versatily deployed on glass doors either as a means of operating the door or as decorative security elements with specialised types of fixing singly or in pairs.

FSB can either adopt existing specialised solutions for glass doors or else it can custom-develop new handle designs.



Order details for 13 4220 | 13 4223 | 13 4224

Lockset plates for glass doors are not supplied with handles. Please provide the following information with your order: the door handle model desired, standard or heavy-duty „Project“ bearing, DIN handing.

Variants for 13 4220 | 13 4223

- warded lock (BB)
- no keyway
- bathroom/WC variant
- lockset plate prepared for indicating furniture from the range supplied by FSB, please order indicating furniture separately, assembled on site.

Measurement data for 13 4220 | 13 4223 | 13 4224

Measurement data assuming glass 8 mm thick. Lockset plates and strike boxes for glass doors are prepared for glass 8 and 10 mm thick at the works (13 4224 on request).

13 4220 ■ ■



13 4220 ■ ■



13 4220 ■ ■



13 4223 ■ ■



13 4223 ■ ■



13 4223 ■ ■



13 4224 ■ ■



13 4224 ■ ■



13 4227 ■ ■



13 4228 ■ ■



13 4230 ■



42 4299 ■



42 4299 ■



23 0802 ■ ■ ■ ■ *



23 0829 ■ ■



23 0844 ■ ■



* Brass, please refer to FSB-Manual 2012/2013

Door pulls and hardware for entrance doors

Square. Practical. New. Angular main door hardware from FSB.

With the publication of its new Manual, FSB is for the first time adding a small but perfectly formed selection of pulls of angular/square cross-section to its established range of round and oval tubular pulls.

The “angular” main door range embraces the following products:

- The new “S-Flat” push/pull pad handle range designed by that long-established master of his trade, Hartmut Weise. In the finest Bauhaus tradition, he has opted for a geometrical approach in his concept that sees every straight-cornered handle matched by a rounded variant.
- FSB’s tried and tested ht range, a handle solution that wears its engineering on its sleeve.
- Angular and cranked crossbars with a 25 x 25 mm handle cross-section – requests for custom variants and impressive special lengths gladly received – Models 66 6519 and 66 6520.
- As an alternative, crossbars of 40 x 10 mm rectangular cross-section, FSB 66 6548, likewise in special lengths.
- And, rounding things off fair and square, the new FSB 73 7397 armoured rose, has also now been tested and certified to EN 18 257 ES1 in angular form.

Bronze hardware for main doors

The FSB range of bronze hardware for main doors is now a byword for the highest quality of exclusive fitments for entrance areas. It covers pulls from the ht kit (welded variant, round and oval) in lengths of up to 2,100 mm, modern designs in the form of the “light + elegant” pull series with a flattened oval cross-section, and classic pull designs 30 mm in diameter in lengths up to 1,200 mm.

Materials Fixing method

FSB has added a fully-fledged alternative to its traditional tubular pull-handle range in the form of a comprehensive collection of oval designs. In the name of consistency, both sets of designs can be fixed in a variety of ways to suit virtually all types of door marketed.

Materials

FSB is fundamentally intent on supplying its entire range of pulls in Aluminium and Stainless Steel as well as some of its standard designs in Bronze and/or Brass, with Stainless Steel being recommended for heavily frequented doors. Aluminium finishes are easily “damaged” under such conditions, though this “ageing process” in no way impairs the handle’s fitness for function.

Clamping-rose fixing method

FSB’s user-friendly clamping-rose fixing method enables all FSB pulls with a round shank to be tightened fast against the surface of the door. The visible fixing screws otherwise required are done away with. The radial play allowed for by FSB ensures the requisite compensatory tolerances during fitting.

Fixing scenarios

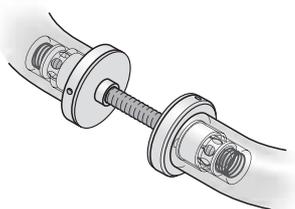
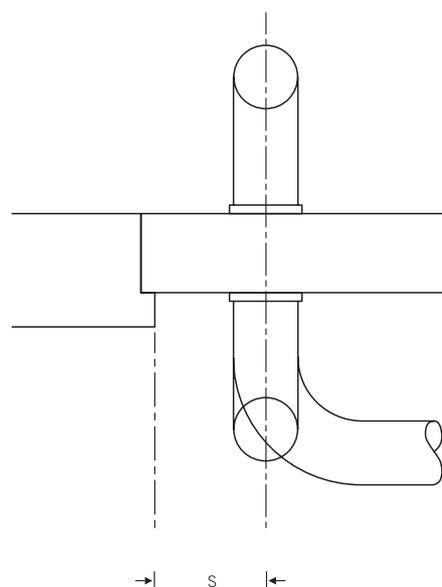
Pull handles can be either face or through-fixed to doors made of the most diverse of materials. Either a pair of pulls or a single handle can be fitted in the case of through-fixing. There are three conceivable fixing options – “back-to-back fixing”, “bolt through fixing” and “face fixing with self-tapping insert” – for each of which FSB has produced clear illustrations (see below).

On account of the threaded-insert fastening technique deployed by FSB, face fixing is both aesthetically pleasing and sufficiently durable as a rule. This needs to be qualified, however, in the case of heavy-duty applications and large-format doors: here, we definitely recommend bolt through-fixing, which allows the forces involved to be absorbed on both sides of the door.

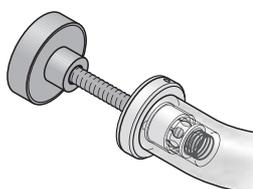
Safety clearance (S)

When fitting a pull handle to the closing face of a door, a safety clearance needs to be allowed for between the handle, stile and jamb. The assembly scenario is made more readily comprehensible by the following sketch.

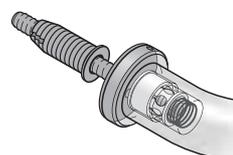
Ideally, safety clearances as recommended by FSB should be adhered to. Nevertheless, conditions at the point of assembly are ultimately decisive.



back-to-back fixing



bolt through fixing



face fixing with self-tapping insert

66 6501 ■ ■ ■ *



66 6507 ■ ■ ■



66 6514 ■



66 6519 ■
New



66 6520 ■
New



66 6526 ■ ■



66 6522 ■ ■



66 6524 ■ ■



66 6527 ■
New



66 6533 ■ ■ ■



66 6534 ■ ■ ■ *



66 6535 ■ ■ ■ *



66 6536 ■ ■ ■ *



66 6537 ■ ■



66 6538 ■ ■



66 6540 ■



66 6541 ■ ■



66 6542 ■



66 6546 ■



66 6548 ■
New



66 6602 ■ ■ ■ ■ *



66 6610 ■ ■



66 6611 ■ ■



66 6612 ■ ■



66 6613 ■ ■



66 6615 ■



66 6616 ■



66 6620 ■



66 6621 ■



* Brass, please refer to FSB-Manual 2012/2013

Door pulls and hardware for entrance doors

66 6630 



66 6635 



66 6642 



66 6643 



66 6650 



66 6652 



66 6653 



66 6655 



66 6662 *



66 6669 



66 6679 *



66 6681 



66 6683 *



66 6674 



66 6675 



* Brass, please refer to FSB-Manual 2012/2013

61 6190 ■



61 6188 ■



61 6195 ■



61 6193 ■



61 6194 ■



61 6192 ■



61 6189 ■



61 6187 ■



61 6186 ■



61 6254 ■



61 6191 ■



61 6268 ■



66 6801 ■



66 6802 ■



66 6715 ■
66 6716 ■



66 6717 ■
66 6718 ■



66 6735 ■
66 6736 ■



66 6737 ■
66 6738 ■



66 6810 ■



66 6811 ■



66 6812 ■



66 6710 ■
66 6711 ■



66 6712 ■
66 6713 ■



Information signs

Pictograms

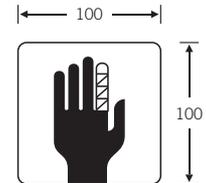
36 4059 

Design: Otl Aicher

These two pages show but a small selection from our wide-ranging system. You will find a complete rundown at www.fsb.de/pictograms

The system covers the following areas of application:

- Information signs
- Function rooms
- Communication
- Service
- Security
- Health
- Culture and leisure
- Shops
- Transport
- Sport

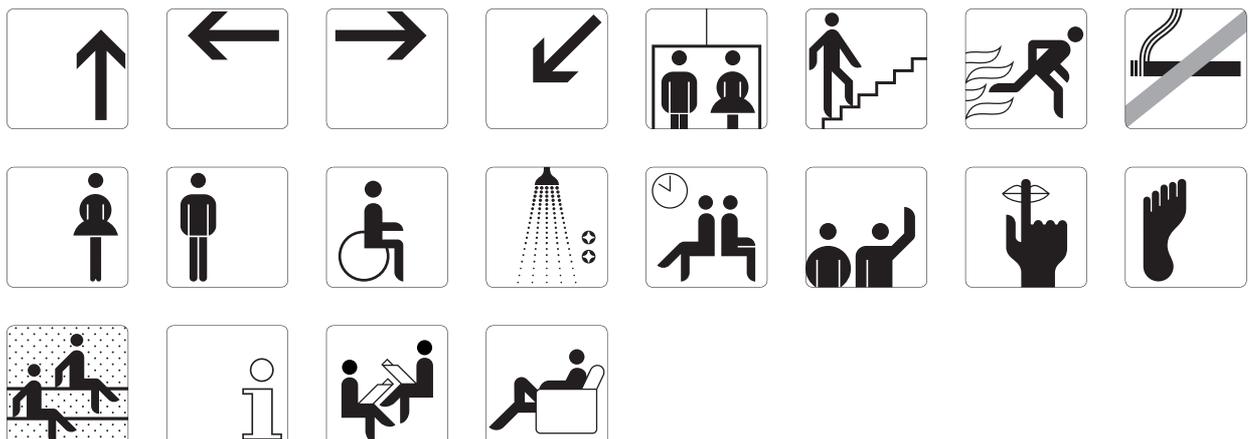


36 4059

- 00002 Arrow pointing upwards
- 00003 Arrow pointing left
- 00004 Arrow pointing right
- 00005 Arrow pointing down to the left
- 00012 Lift
- 00014 Stairs up
- 00017 Escape route
- 00030 No smoking

- 00100 Ladies' toilet
- 00101 Gents' toilet
- 00103 For the disabled
- 00106 Shower
- 00121 Waiting room
- 00122 Visitors' terrace
- 00041 Quiet please
- 00042 No shoes

- 00151 Sauna
- 00330 Information
- 00633 Reading room
- 00634 Lounge



The quality of any system of pictograms is primarily determined by its simplicity and exhaustiveness. Our pictograms have no truck with fads and trends, having recourse to a clear and unequivocal visual language instead.

Originally devised as signage for the Munich Olympic Games and Frankfurt Airport by graphic artist Otl Aicher, they have lost none of their exemplary impact and are still utterly contemporary 40 years on: the ongoing addition of new pictograms reflects technical innovations as well as the convergence of international markets. The spectrum of over 400 signs covers virtually every application in the public and commercial spheres.

All pictograms draw on a uniform, copyrighted formal vocabulary, thus allowing for random permutations within the system. We will be glad to develop pictograms to your individual requirements.

FSB engraves, lasers or pad-prints pictograms onto aluminium or stainless steel signplates.

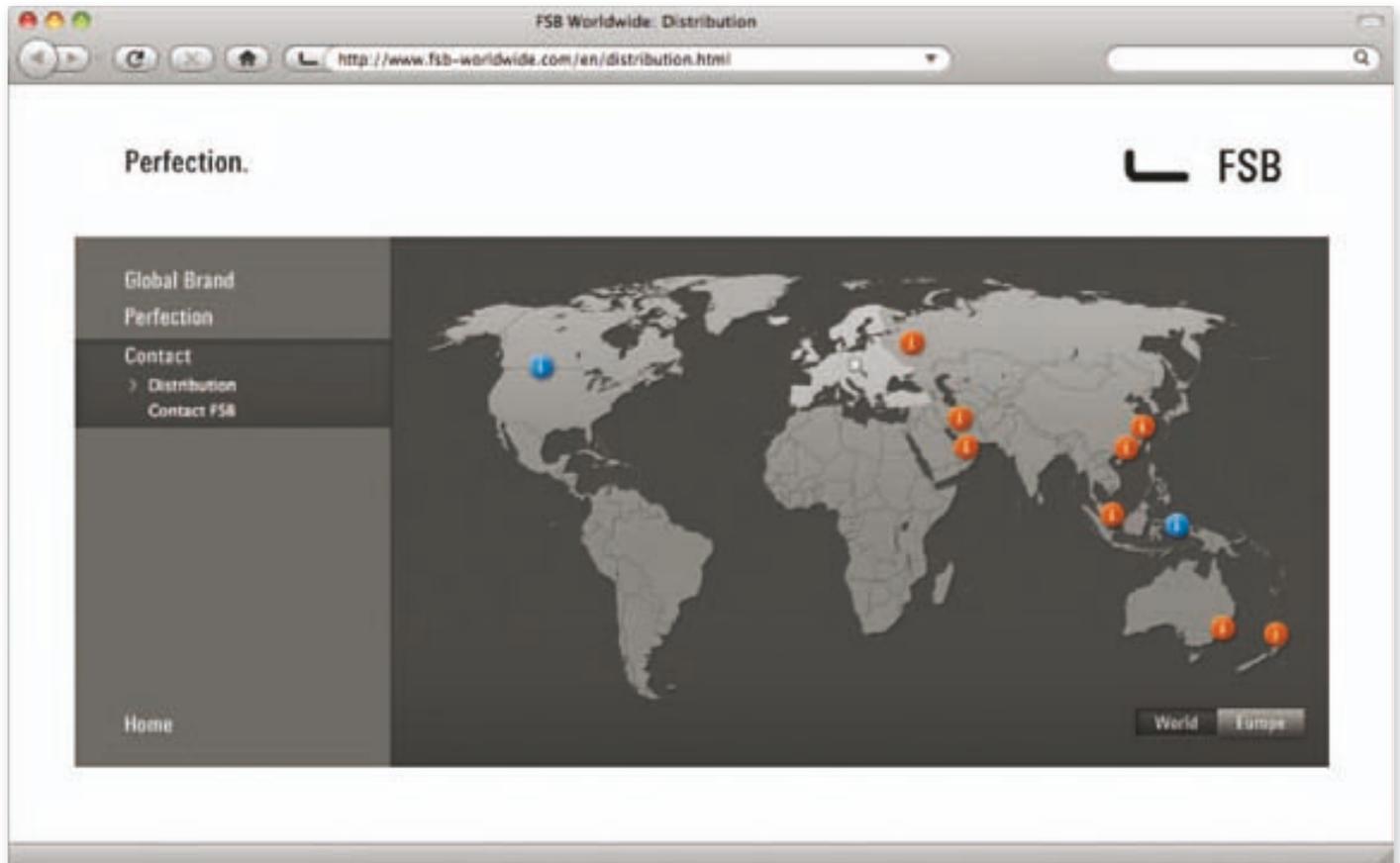
00131 Men's changing room
 00142 Drying room
 00144 Utility room
 00911 Swimming pool
 00528 Massage
 00300 Hotel
 00301 Reception
 00310 Restaurant

00313 Bar
 00200 Telephone
 00201 Fax
 00220 Laptop
 00403 Fire extinguisher
 00211 Parcels
 00212 Stamps
 00213 Letterbox

00153 Conference room
 00332 Bank
 00334 Ticket office
 00511 Registration
 00605 Lecture hall



FSB project service worldwide



The FSB Brand is available worldwide. Our Points of Contact are divided in regions looked after from FSB Regional Sales Managers and local distribution partners in their countries. Please refer to www.fsb-worldwide.com for your region or local distribution. Furthermore our qualified sales and specification team is available at all times for your questions and demands.

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