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Aluminium

Aluminium is the most common metal in the Earth's crust (8 %). It occurs widely in feldspar, mica, and clay materials and is mainly extracted from bauxite.

Aluminium is a light metal (relative density 2.699 g/cu.m) with a melting point of 660 degrees Celsius. Its natural colour is silvery white. It can be cast or rolled into virtually any shape, including foil.

Aluminium is extracted from bauxite in two separate stages. Pure aluminium oxide (alumina) is generated, and this is then broken down into aluminium and oxygen by a process of electrolysis in fused cryolite solution.

Despite the high energy cost of the initial extraction process, aluminium is environmentally sound. Being a lightweight amongst metals, it saves energy when used. It can also be fully recycled at a fraction of the cost involved in its manufacture.

FSB processes only pure smelting alloys, as follows:

- AlMg3:
Mat.-No. 3.3541.02
DIN 1725
- AlMg1:
Mat.-No. 3.3315
DIN 1725
- AlMgSi0,5:
Mat.-No. 3.3206
DIN 1725

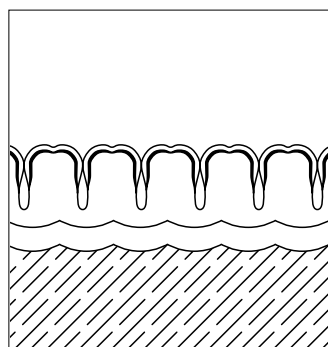
After machining, the surface is anodised. This is an electrochemical process which transforms the surface of the metal into a given thickness of aluminium oxide.

FSB uses the standard GS process to form its anodised coatings. GS are the German initials for direct-current sulphuric acid electrolysis, which produces an oxidised layer approx. 10 µm thick. Coating hardness is between 250 and 350 kp/sq.mm (Vickers), equivalent to 2,500 - 3,500 N/sq.mm.

The silvery oxidised layer can be stained to extend the range of possible finishes. FSB makes use of two methods:

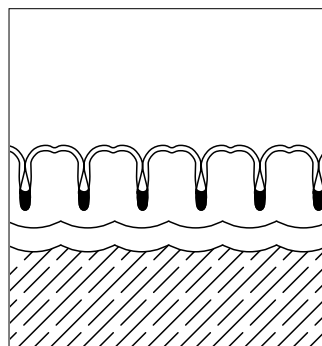
1. Surface and penetrating staining by immersion and absorption

The silvery white anodised aluminium is chemically stained in organic and inorganic dye solutions. The non-fade factor is between 6 and 7.



2. Deep staining of the oxidised coating

Metals and metal compounds are electrolytically implanted into the silvery oxidised layer using an alternating current. This is also known as the two-step method. Non-fade factors range between 7 and 8.



Once colouration is complete, the surface is sealed. This ensures abrasion strength as well as colour and weather fastness.

Aluminium essentially needs no looking after. The surface is protected by natural or artificial anodisation. Marks can be removed with water and a soft cloth.

Harder materials can gouge or abrade an aluminium surface. The scratches left by rings are a typical example. Though such blemishes may be a visual nuisance, they in no way impair the functional properties of the product. There are many users who view the impact of time on the objects of everyday use as an ennobling process.

We would also like to say a clear word on the subject of surface hygiene as it affects levers, handles and knobs.

FSB is not in the game of playing one material off against another. Whether a given surface destroys bacteria in 24 hours or 72 is a bit academic really, since people are using doors all the time in practice. You'd have to get out a disinfectant every time a handle were touched if you wished to eliminate germs altogether.

The finishes



The natural colour of aluminium is natural silver. This is the obvious choice for anyone seeking an authentic metal finish.

FSB aluminium products are colour classified as follows:

FSB 01
Aluminium natural colour anodised



FSB 02
Aluminium German silver-colour anodised

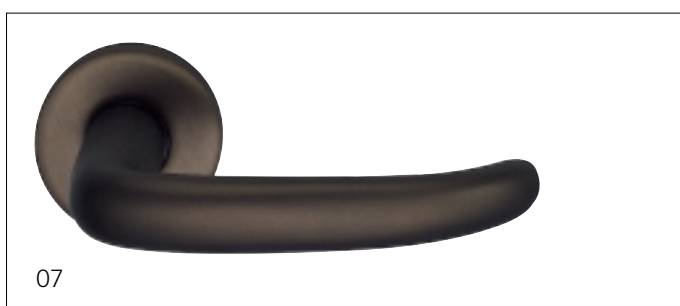
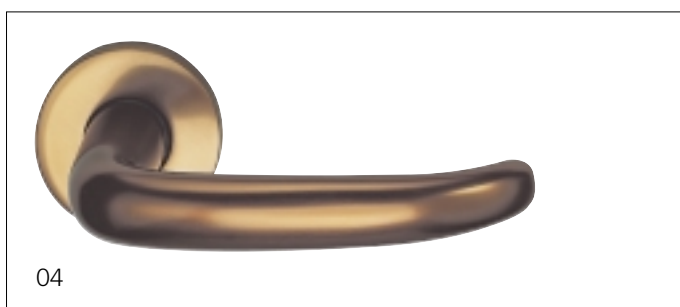
FSB 03
Aluminium brass-coloured anodised

FSB 04
Aluminium bronze-coloured anodised



FSB 07
Aluminium dark bronze colour anodised

The listed standard colours are reproduced opposite as accurately as printing technology will allow, as featured on the FSB 1023 lever handle. To ensure accurate matching, you are advised to request a sample product. Slight colour deviations arising from the manufacturing process are inevitable.



Stainless steel

Stainless steel

In 1912, the Krupp company in Essen patented a new material that was known in the inter-war period as 'Nirosta' or 'V2a steel'. It was soon adopted for applications ranging from the construction of containers for the chemical industry and components for motorcar and aviation design to building materials and domestic appliances.

Chromium-nickel steel, material No. 1.4301 under DIN 17440

The generic term stainless steel embraces over 100 separate rust and acidresistant steels. We manufacture our builders hardware utilizing a chromium-nickel steel classified as material 1.4301 under DIN 17440. It contains approx. 18 % chromium and 8 % nickel. This alloy has proved particularly successful in the building industry.

Properties of stainless steel

Stainless steel is an excellent material for door and window furniture, since its surface is extremely resistant to corrosion, knocks, scratches and abrasion and, owing to the chromium and nickel additives, needs little looking after. An invisible passive layer forms on the surface that is even said to kill bacteria.

Applications

We recommend stainless steel for all door and window furniture subject to heavy use, viz. in public buildings, office blocks, hospitals, motorway service areas, and public parks, at sporting venues, or on ships - wherever large numbers of people regularly congregate and reliable, low-maintenance fittings are a must.

Care

Stainless steel furniture basically requires no looking after. Smudges can be removed with a damp cloth. Outdoor fittings and those at chlorinated pools can develop what is known as 'flash rust' after a while. This is not generated from within the metal itself and can be removed by vigorous rubbing.

Notes on selection

When selecting and ordering door and window furniture, please read carefully the general material and technical data in this Catalogue. This avoids misunderstandings, queries, and delays.

A comprehensive 24 page guide containing information on Stainless steel and it's main-tenance is available from the Stainless steel information centre:

Informationsstelle
Edelstahl Rostfrei
P. O. Box 10 22 05
40013 Düsseldorf
Germany

The finishes



6204

FSB supplies stainless steel door and window furniture as standard in the following finishes:

FSB 6204
Satin Stainless steel
(stock version)

FSB 6205
Mirror polished Stainless steel

FSB 6206
Matt Stainless steel

FSB 6210
Stainless steel in brass finish

The stock satin finish is exceedingly hard-wearing. The optional mirror polished model is an ecologically sound alternative to chrome plating. The matt model has a very granular looking grip, though it has to be said that constant use gradually buffs the matt surface up. The mirror polished, the matt and the brass/gold hue variants are made to order. Production time, processing, and outlay are dependent on your overall order.

Surface Hygiene

There are those amongst our competitors who, citing the findings of research institutes, make much in their brochures of the enhanced sterilizing properties of certain finishes. FSB likewise has access to reports proving that, for instance, cupriferous metals kill germs more effectively than, in particular, synthetic materials. But FSB sets no great store by such findings. Whether a given finish destroys bacteria in 24 hours or in 72 is academic really, since in practice, doors tend to be in fairly regular use anyway. You'd have to take remedial action every time a door was opened or closed if you wished to eliminate germs altogether.



6205



6206



6210

Brass

The finishes



FSB 4205
Brass polished lacquered

FSB 4305
Brass polished waxed

FSB and brass

FSB has been supplying select door and window furniture in brass, together with accessories, for forty years. From the very beginning we strove for originality, spurning hackneyed forms such as post horns or duck bills.

DIN 17 660

Brass furniture is available in a wide range of alloys and at widely differing prices. But not all that glitters is pure brass. It is in our case though. We make exclusive use of the CuZn37 copper-zinc alloy specified under DIN 17 660 as material no. 2.0321 and 2.0335.

Corrosion protection

Brass is prone to corrosion in everyday use - a fact that is sometimes glossed over.

Polishing is the only way round this. Anyone acquainted with more northerly countries will have observed the weekly buffing given to brass furniture on front doors there.

This chore becomes redundant if the surface is either lacquered or waxed.

Waxed brass components are self-polishing through use. Areas that are not handled will rapidly develop a brown or grey-green patina. Many buyers deem this surface discolouration positively alluring. Lacquered brass furniture loses its gloss once the lacquer is damaged. Intercrystalline corrosion then quickly sets in. Corroded handles can be reconditioned, however - for a charge covering costs.

Recommendation

For anyone interested in a lasting golden 'sheen', FSB recommends titanium-coated stainless steel fittings in a golden brass finish. The hardness of the base material ensures that the brass stained titanium coating will withstand the ravages of the environment in normal use (shown on page 503).

For those who prefer to stick with brass despite what we have said on the previous page, FSB has the following recommendations to make:

Only use waxed brass finishes. Waxed brass polished finish can be looked after using proprietary cleansers.

Do not use lacquered brass finishes in outdoor applications where the sun and the environment will hasten the onset of corrosion.

Brass furniture should not be considered for heavy duty applications in public buildings, since there is too much cleaning involved.

Surface Hygiene

A brief word of clarification concerning the hygienic properties of door handles:

There are those amongst our competitors who, citing the findings of research institutes, make much in their brochures of the enhanced sterilizing properties of certain finishes. FSB likewise has access to reports proving that, for instance, cupriferous metals kill germs more effectively than, in particular, synthetic materials.

But FSB sets no great store by such findings. Whether a given finish destroys bacteria in 24 hours or in 72 is academic really, since in practice, doors tend to be in fairly regular use anyway. You'd have to take remedial action every time a door was opened or closed if you wished to eliminate germs altogether.

Aluminium + colour The finish



Aluminium + colour

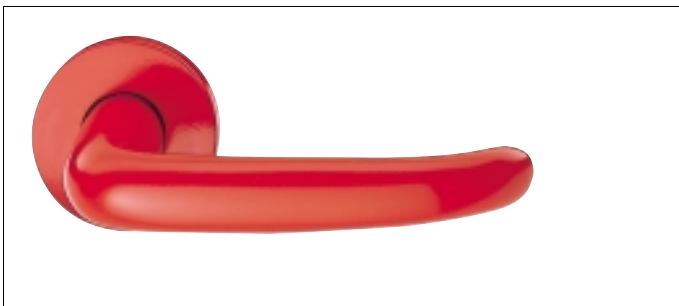
Coloured door and window furniture has been making waves for twenty years now. Against a background of featureless concrete, it has often provided the sole relief. The builders hardware industry is no longer conceivable without it.

Coating processes

Forming the basis of FSB's coated hardware are cast and polished aluminium models from the standard range. The surface is electrolytically oxidised and subsequently electro-statically powder coated. FSB uses a solvent-free lacquering process to produce a colour coating some 80 µm thick. Non-fade factor, surface hardness, and resistance to abrasion are roughly as for anodised aluminium coatings.

FSB is occasionally asked to supply colour coated versions of tubular handles in various types of steel. The danger here, especially with ordinary steel, is that, once the coating has been breached, the metal inside will corrode. FSB specifically draws your attention to this and is compelled to reject all claims to liability from the outset.

Assuming FSB colour coated handles are correctly fixed and properly treated, they will withstand day-to-day use. Surfaces can be damaged if knocked by hard angular items such as rings, keys, or boxes. Such scratch marks do not impair the handle's functioning, however.



Standard range

FSB regards itself primarily as a producer of door and window furniture in metal. Colour-coated fittings constitute but a very small proportion of our business. Nevertheless given a sufficiently sizeable order, we will be pleased to extend our range to individual requirements.

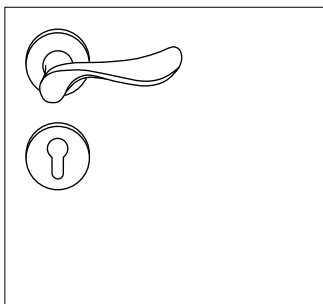


Colours

White	approx. RAL 9016
Crimson	approx. RAL 3002
Black	approx. RAL 9005

Examples of German specifications

Standard-Türdrückergarnitur



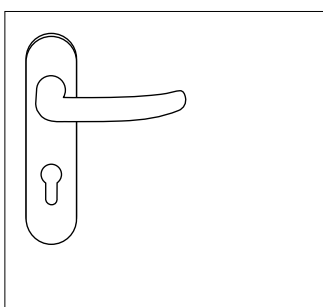
FSB-Türdrückergarnitur Aluminium eloxiert mit 8 mm FSB-Stabilstift für Türdicke 40 mm

gelagert in Türdrückerrosetten mit Stütznocken und Gleitlager aus glasfaserverstärktem schwarzem Kunststoff

Schlüsselrosetten gelocht

FSB-Handformdesign 1020 Design Johannes Potente Türdrückerrosette FSB 1731 Schlüsselrosette FSB 1735

Securitas -AGL- Behördengarnitur



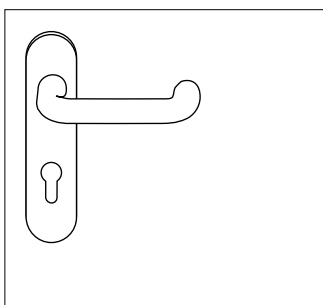
FSB-Türdrückergarnitur Securitas AGL Edelstahl mit 8 mm FSB-Stabilstift für Türdicke 40 mm

festdrehbar passgenau gelagert in wartungsfreiem FSB-Ausgleichslager auf FSB-Schildern 185 x 45 mm

mit stabilisierenden Stütznocken, Befestigung beidseitig unsichtbar Entfernung 72 mm

FSB-Design 7223 04 Grundentwurf Max Bill überarbeitet von Johannes Potente

FS-Türdrückergarnitur



FSB-Türdrückergarnitur für Rauch- und Feuerschutz-türen nach DIN 18 273

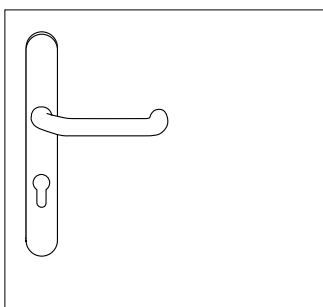
Aluminium eloxiert mit 9 mm FSB-Stabilstift für Türdicke 40 mm

festdrehbar gelagert auf FSB-Schildern 185 x 45 mm

versehen mit stabilisierenden Stütznocken, Befestigung beidseitig unsichtbar Entfernung 72 mm

FSB-Design 7646 04 authentischer FSB-Werksentwurf

Türdrückergarnitur für Rahmentüren



FSB-Türdrückergarnitur für Rahmentüren aus Aluminium eloxiert mit 8 mm Vollstift für Türdicke 40 mm

festdrehbar gelagert auf ovalen Langschildern 245 x 35 mm

mit stabilisierenden Stütznocken, Gleitlager aus schwarzem Kunststoff beidseitig unsichtbare Befestigung Entfernung 72 mm

FSB-Design 7816 authentischer FSB-Werksentwurf

Recommendation

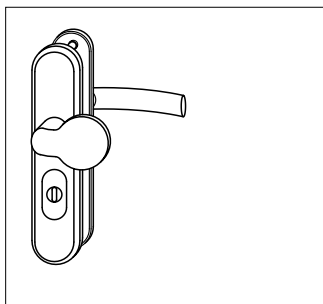
In describing our products at such length, we have sought to stress their distinctive 'personalities', i.e. the factors that set them apart from their market rivals.

Whether you are a briefing architect, a consultant joiner, a builders hardware wholesaler or an 'enlightened' end-

user, to ensure an FSB product is absolutely right for a given door or window you should heed all the specific 'traits' accorded that product. Indicated on these two pages are examples of how to ensure that the FSB products chosen are the most suitable for German customers.

Examples of German specifications

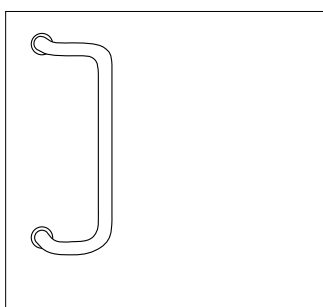
Schutzbeschlag



FSB-Schutzbeschlag
Schutzklasse 2-ZA
Aluminium . . . eloxiert
in FSB-Schichtbauweise
mit Zylinderabdeckung für
Überstände von 8 - 16 mm
mit drehbar am Kopfhals
verankertem 8 mm FSB-
Stabilstift
Entfernung 72 mm PZ

FSB-Design 7384 5510
Knopf und Türdrücker
Design Hartmut Weise

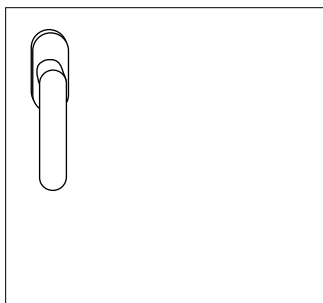
Türgriff



FSB-Türgriff aus Rundmaterial
z. B. Messing poliert gewachst
Grifflänge 350 mm
Griffdurchmesser 30 mm
mit Stützrosetten zur Stabilisie-
rung auf der Türoberfläche
Befestigung paarweise 1

FSB-Design 6662 38

Fenstergriff

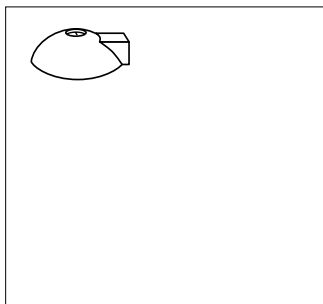


FSB-Fenstergriff
Aluguss und Thermoplast
grau-schwarz
RAL-geprüfte Kugelrastung
dauerhafter Gleichlauf
spürbare Positionierung
ganzflächig abdeckende
Korbbogenrosette

Befestigung unsichtbar mit
stabilisierenden Stütznocken,
Durchmesser 10 mm

FSB-Design 3436
Entwurf Dieter Rams

Türstopper



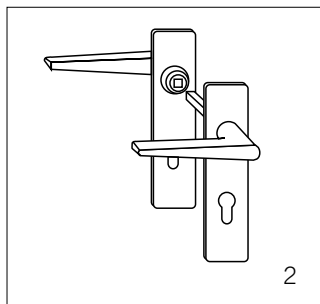
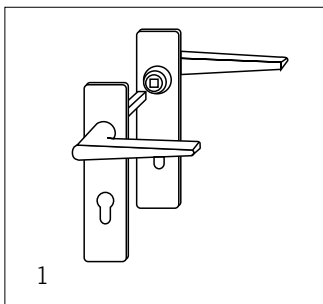
FSB-Bodentürstopper
Edelstahl . . .
Durchmesser 70 mm
komplett mit Befestigungs-
material

FSB-Design 3884 00
authentischer
FSB-Werksentwurf

Handing details

Lever handle furniture for doors DIN l.h., inward opening

male handle points right, female handle points left.

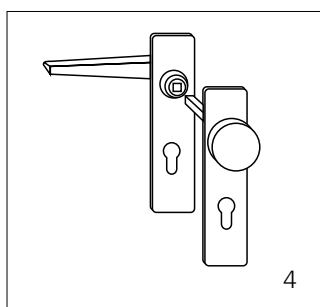
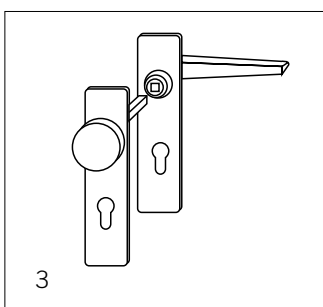


Lever handle furniture for doors DIN r.h., inward opening

male handle points left, female handle points right.

Lever furniture with dead knob for doors DIN l.h., inward opening

female handle points left.

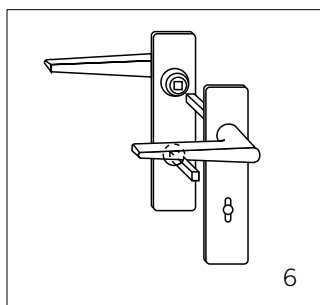
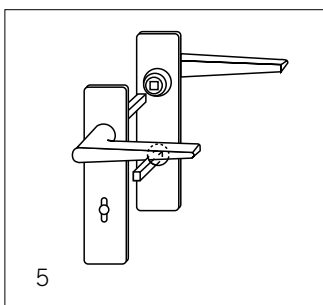


Lever furniture with dead knob for doors DIN r.h., inward opening

female handle points right.

Bathroom/WC furniture for doors DIN l.h., inward opening

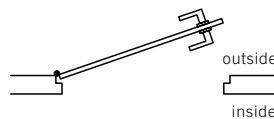
male handle points right, with WC perforation; female handle points left, with thumbturn.



Bathroom/WC furniture for doors DIN r.h., inward opening

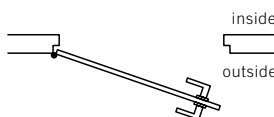
male handle points left, with WC perforation; female handle points right, with thumbturn.

DIN left hand inward opening



DIN right hand outward opening

DIN right hand inward opening



DIN left hand outward opening

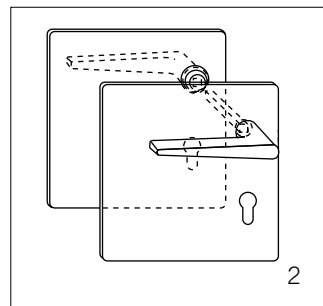
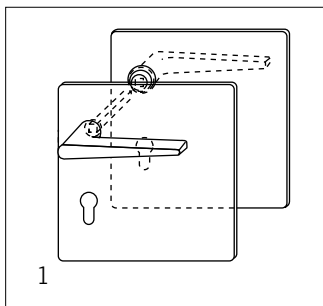
Explanation:

The German specifications DIN right hand respective DIN left hand refer to the positioning of the things on the opening face of the door.

Doors are either right or left hand, relative to which way they open. When ordering lever furniture with dead knob or if you require the spindle element to be located on the outside, you should specify left or right hand. Indication with use of diagram nos. would suffice.

Lever handle furniture for doors DIN l.h., inward opening

male handle points right, female handle points left.

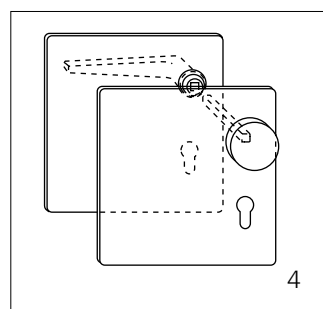
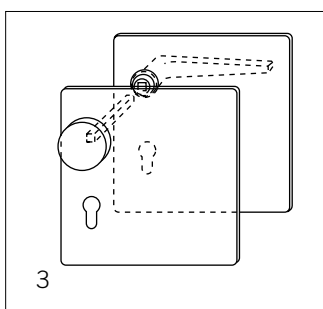


Lever handle furniture for doors DIN r.h., inward opening

male handle points left, female handle points right.

Lever furniture with dead knob for doors DIN l.h., inward opening

female handle points left.

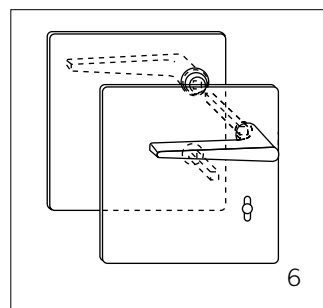
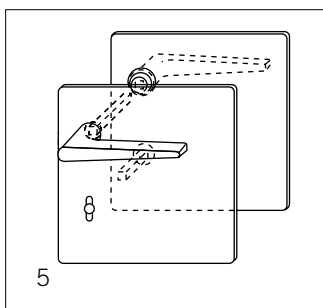


Lever furniture with dead knob for doors DIN r.h., inward opening

female handle points right.

Bathroom/WC furniture for doors DIN l.h., inward opening

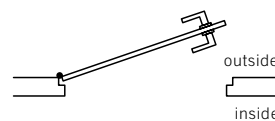
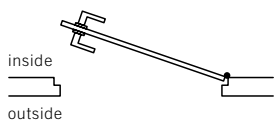
male handle points right, with WC perforation; female handle points left, with thumbturn.



Bathroom/WC furniture for doors DIN r.h., inward opening

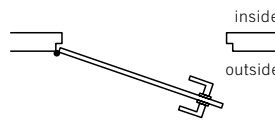
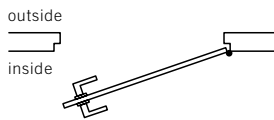
male handle points left, with WC perforation; female handle points right, with thumbturn.

DIN left hand inward opening



DIN right hand outward opening

DIN right hand inward opening



DIN left hand outward opening

About product liability

Under the Product Liability Act, FSB is liable for damage caused by faulty products, the precondition being that, in the selection, installation and use of the goods, all the applicable regulations set down in the FSB manual shall have been complied with.

We would additionally like to point out that what the law defines as product liability and what the end user actually expects of a product can be two radically different things. Door and window handles, after all, are in the first instance 'tools' for opening and closing doors and windows. However beautiful they might be, such tools still remain subject to the laws of wear and tear. Though prime materials are used, production is organised to ISO 9001, and the company has successfully undergone an EU 'eco-audit' (1996) and been certificated to ISO 14001 (1997), the laws of physics will inevitably manifest themselves to the end user in the form of wear and tear.

The main definitions and regulations are recapitulated in the following.

1.0 Product definitions

1.1 Lever handles and accessories

Lever handles and their accessories are implements with which to open and close doors. They do this in concert with the door frame, the door's hinges, the door leaf, the lock, and the cylinder, and all these components need to be properly synchronized. It's no use trying to use a lever handle to open a door if the door is locked, for instance, the only exception to this being the special mechanisms featured on panic doors.

1.2 Tubular handles

The same applies to tubular handles. The door frame, door hinges, door leaf and other closing devices such as door closers need to be compatible with one another.

1.3 Window handles and accessories

Again, window handles are but one element of the window. The method of closure will generally determine which type of handle is appropriate.

2.0 Improper use

Lever handles, pull handles and window handles and sliding ventilators are subject comparatively frequently to improper use, and this can lead sooner or later to damage for which the manufacturer can no longer be held responsible. Typical examples:

- Lever handles are used as supports, especially when on doors at the base of steep stairs.
- Doors are used as a sort of roundabout by children, the handles serving as the main source of support.
- In the absence of door stops, lever handles and pull handles bang against the wall.
- Lever handles and pull handles are used to hang heavy objects on.

3.0 Product Performance

Notions of product performance are only codified in norms to a very limited degree. For the most part, they are the up-shot of many years of experience and are by now common property in the builders hardware trade. FSB keeps faith with these general informal standards. The norms listed below apply for special performance requirements.

- **DIN 18 255**
This norm sets general standards for door furniture and accessories.
- **DIN 18 273**
This norm sets out limits specifically for firecheck and smoke stop doors.
- **DIN 18 257**
This norm lays down minimum requirements for security furniture.

FSB products are constantly evolving, and production is subject to continuous quality control. We reserve the right to make technical modifications.

4.0 Product maintenance

Most FSB products are 'implementations' for the opening and closing of doors and windows. Sooner or later, depending on what they are made of and where they are fitted, they will inevitably begin to show signs of wear. The properties of the various materials can be summarized as follows:

4.1 Aluminium

Aluminium has performed admirably in everyday use for many decades. The metal is protected by a tough anodised coating. Surface scratch marks in no way impair the operating efficiency of the furniture but simply denote the passing of time.

4.2 Stainless steel

Stainless steel is commonly regarded as being indestructible. In fact, even stainless steel can develop scratches and traces of rust. This latter is the phenomenon known as 'flash rust', which can be removed with the aid of standard cleansing agents.

4.3 Brass

Much has already been said in the FSB manual regarding the properties of brass. Whereas aluminium is more or less a pure metal, brass is an alloy with tendencies towards corrosion. We would therefore like to emphasize once again here that only regularly cleaned brass components without lacquer retain their initial allure. Once the coating of the lacquered version has been breached, unsightly corrosion sets in, and this can only be reversed in our factory after a laborious stripping operation.

4.4 Aluminium + colour

Coloured FSB lever handles are generally given a flexible colour membrane approx. 250 microns thick that is long-lived given correct use. Contact with sharp objects may lead to some denting.

5.0 Requisite information and instructions

Relevant information and instructions can be gleaned from the following material:

For stockists, architects and consultants: catalogues with all the necessary detailed descriptions.

For installers: besides catalogues - fitting instructions and templates and, where necessary, technical drawings.

For end users: fitting instructions, templates, and instructions for use and - in specific instances - care, all included with products.

To ensure the correct functioning of door and window furniture,

architects and designers are urged to bear in mind where and under what conditions the furniture is going to be in use and to select accordingly. Any queries should be addressed to the trade wholesalers, the FSB External Service, or FSB itself.

the sales trade is urged to rigorously double check the specifications provided by architects, designers and clients so as to ensure the compatibility of these specifications with those of the furniture selected.

installers are urged to make sure they receive from the sales trade all the products information and fitting and maintenance instructions needed for them to be able to fit the furniture correctly and pass on any relevant information to the customer.

Sales aids

You're wondering perhaps why we've spent so much time discussing something as secondary as sales aids. The point is, we don't see them as being secondary.

Builders hardware isn't changed every day like dirty clothes. Opting for the wrong product - wrong in terms of design, quality, or even the profit margin - can cause lasting damage, so there has to be forward planning. Practical sales aids - promotion, presentation and a strong case - can draw the customer's attention to the right product at the critical moment.

Once, all was well with the world and the term 'sales aids' meant little. Business ran its preordained course. Merchandise didn't hang around long on its way to the distribution networks and on to the joiners yards and building sites. It was the seller who set the agenda, while the buyer was happy simply to get the goods.

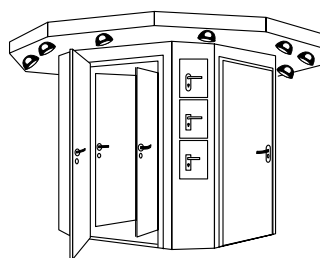
Things are pretty different now, though. What was formerly a seller's is now decidedly a buyer's market. The enlightened consumer responds to advertising, a well-conceived layout, accessible catalogue material, and down-to-earth advice. It's a trend we've all taken cognizance of in recent years, but still there's quite a bit to be done.

We at FSB do not consider it appropriate, for instance, to simulate a supermarket in an exhibition setting. Our trade should realize that simply bombarding the customer with builders hardware is counter-productive. Sliding partitions and revolving display add leanness to the sales argument.

You should also consider for a moment whether it is acceptable to present our furniture 'abstractly', i.e. without a concrete context. We know from the fashion world that anyone wishing to sell a shirt or a dress also has to display accessories such as a tie or a blouse. We're asking too much of our customers if we expect them to simply imagine the rest of the door when they're buying door furniture. Together with allied companies, FSB has several times in recent years shown at fairs how builders hardware can be introduced to the consumer in a 'concrete' fashion, i.e. with referential touch on sales arguments. We've all frequently been asked, 'What do you recommend, then?' Out comes some garbled reply to the effect that beauty is in the eye of the beholder but that such-and-such a model is going rather well at present. But have we ever seriously attempted to come up with genuine arguments?

We at FSB have been doing our homework on this one over the past few years. We published a booklet on the relationship between handles and the human hand entitled 'Greifen und Griffe'. We organized a work-shop around the issue of design and the commonplace, and acknowledged our own part in the history of design with a biography of Johannes Potente. We would be pleased if our fellow companies were to acquaint themselves with these publications and pass on the ideas contained within them.

In answer to the often posed question as to what constitutes the handle of handles, for instance, we would invite the questioner to, literally, try his hand and apply the 'four rules of the grip'. It is this sort of approach that strikes a chord with the enlightened customer.



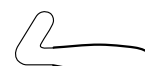
Thumb guide



Forefinger forrow



Ball of the thumb support



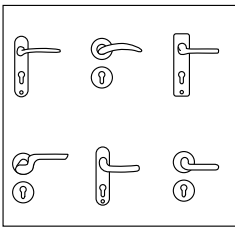
Gripping substance

There are of course more pro-saic sales aids, which we will now briefly run through.

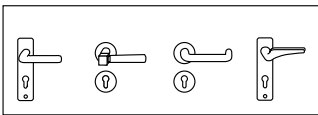
Take sample boards for a start. We supply them in four standard sizes. Up to six items can be displayed on each of these boards, which we have given a grey coating to reflect our corporate identity. Metallic tones show up well against a grey background. Items are fitted on special lock mechanism.



210 x 300 mm

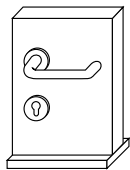


650 x 610 mm



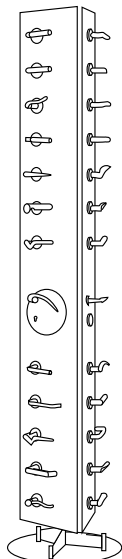
870 x 300 mm

Architects often look for something a bit more ambitious than a sample board. They like to see the furniture in conjunction with a lock and cylinder on a working door element. We produce sample blocks for this purpose.

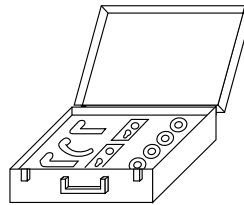
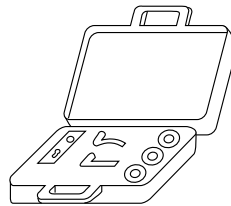


210 x 300 mm

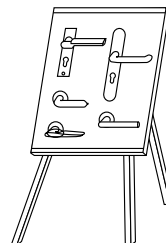
FSB's triangular display stand allows the company to exhibit its entire range in the most confined of areas and yet remain sharply demarcated from other exhibitors. The FSB stand requires 0.5 square metre of floor space at the outside and generates ideal display space for over 35 of our company products.



Triangular stands don't travel awfully well, though, which is why we devised our special sample cases to accommodate the entire FSB range. They can be bought and, in individual instances, hired. The FSB External Service has the details.



Exhibitions often call for display systems that are convenient to handle, and FSB's answer has similarities with a painter's easel. FSB standard boards (1,000 x 600 mm) are supported by a lightweight black steel frame which can be erected and dismantled in next to no time. The subject matter on display can be tailored to fit customer requirements.



ments.

Catalogues and prospectuses are also an important sales aid. To quote the familiar line from Goethe: 'If it's not down in black and white . . .'

We have put a great deal of effort into our new catalogues and prospectuses, with the primary objective of being of tangible assistance to the sales sector. Please place your orders with FSB's External Service.

German Standards (DIN)

Please find hereafter some German Standards (DIN) for doors and windows:

DIN 107

Bezeichnung mit links oder rechts im Bauwesen

DIN 4102, Beiblatt 1

Brandverhalten von Baustoffen und Bauteilen; Inhaltsverzeichnis

DIN 4102, Teil 5

Brandverhalten von Baustoffen und Bauteilen; Feuerschutzabschlüsse, Abschlüsse in Fahr-schachtwänden und gegen feuerwiderstandsfähige Verglasungen, Begriffe, Anforderungen und Prüfungen

DIN 4102, Teil 13

Brandverhalten von Baustoffen und Bauteilen; Brandschutzverglasungen, Begriffe, Anforderungen und Prüfungen

DIN 4102, Teil 18

Brandverhalten von Baustoffen und Bauteilen; Feuerschutzabschlüsse, Nachweis der Eigenschaft 'selbstschließend' (Dauerfunktionsprüfung)

DIN 1080, Teil 1

Begriffe, Formelzeichen und Einheiten im Bauingenieurwesen, Grundlagen

DIN 18 054

Fenster; Einbruchhemmende Fenster – Begriffe, Anforderungen, Prüfungen und Kennzeichnung

DIN 18 055

Fenster; Fugendurchlässigkeit, Schlagregendichtheit und mechanische Beanspruchung; Anforderungen und Prüfungen

DIN 18 082, Teil 1

Feuerschutzabschlüsse
Stahltüren T 30-1, Bauart

DIN 18 095, Teil 1

Türen; Rauchschutztüren; Begriffe und Anforderungen

DIN 18 095, Teil 2

Türen; Rauchschutztüren Bauartprüfung der Dauerfunktions-tüchtigkeit und Dichtheit

DIN 18 100

Türen; Wandöffnungen für Türen; Maße entsprechend DIN 4172

DIN 18 101

Türen; Türen für den Wohnungs-bau; Türblattgrößen, Bandsitz und Schlosssitz; gegenseitige Abhängigkeit der Maße

DIN 18 103

Türen; Einbruchhemmende Türen, Begriffe, Anforderungen, Prüfungen und Kennzeichnungen

DIN 18 111, Teil 1

Türzargen; Stahlzargen, Standardzargen für gefälzte Türen

DIN 18 250

Einsteckschlösser für Feuerschutzabschlüsse

DIN 18 251

Schlösser; Einsteckschlösser für Türen

DIN 18 252

Schließzylinder für Türschlösser; Begriffe, Benennungen

DIN 18 254

Schließzylinder für Türschlösser; Maße, Anforderungen, Prüfungen für Profilzylinder mit einreihigen Stifzuhaltungen

DIN 18 255

Baubeschläge; Türdrücker, Türschilder und Türrosetten – Begriffe, Maße, Anforderungen

DIN 18 257

Baubeschläge; Schutzbeschläge – Begriffe, Maße, Anforderungen, Prüfungen und Kennzeichnungen

DIN 18 268

Baubeschläge; Türbänder; Bandbezugslinie

DIN 18 273

Baubeschläge; Türdrückergarnituren für Feuerschutztüren und Rauchschutztüren – Begriffe, Maße, Anforderungen und Prüfungen

DIN 18 357

VOB Verdingungsordnung für Bauleistungen Teil C: Allgemeine Technische Vertragsbedingungen für Bauleistungen (ATV) Beschlagarbeiten

DIN 18 361

VOB Verdingungsordnung für Bauleistungen; Teil C – Allgemeine Technische Vorschriften für Bauleistungen, Verglasungsarbeiten

DIN 32 617

Hausbriefkästen; Anforderungen, Prüfung und Aufstellung

DIN 58 125

Schulbau, Bautechnische Anforderungen zur Verhütung von Unfällen

DIN 68 706, Teil 1

Innentüren aus Holz und Holzwerkstoffen; Sperrtürlätter, Begriffe, Vorzugsmaße, Konstruktionsmerkmale

DIN V ENV 1627

Fenster, Türen, Abschlüsse – Einbruchhemmung – Anforderungen und Klassifizierung

DIN V ENV 1628

Fenster, Türen, Abschlüsse – Einbruchhemmung – Prüfverfahren für die Ermittlung der Widerstandsfähigkeit unter statischer Belastung

DIN V ENV 1629

Fenster, Türen, Abschlüsse – Einbruchhemmung – Prüfverfahren für die Ermittlung der Widerstandsfähigkeit unter dynamischer Belastung

DIN V ENV 1630

Fenster, Türen, Abschlüsse – Einbruchhemmung – Prüfverfahren für die Ermittlung der Widerstandsfähigkeit gegen manuelle Einbruchversuche

prEN 1906

Baubeschläge, Türdrücker, und Türkäufe – Anforderungen und Prüfverfahren

General terms of sale

1. General

The following Terms of Sales represent the exclusive basis for all quotations and contracts; any deviating terms of the Customer, unless expressly acknowledged in writing, have no binding force.

2. Quotations

All quotations remain subject to confirmation unless expressly stipulated as binding or fixed. A contract of sale comes into being only with our written confirmation of order.

3. Delivery and passing of the risk

Shipment is made at the risk and expense of the Customer. The risk passes to the Customer when goods are delivered to the shipping or forwarding agent.

4. Delivery dates

The delivery dates indicated represent the foreseeable delivery dates with which we shall endeavour to comply.

5. Prices

Unless other agreements as to price are made, the price in application on the date of delivery is the price agreed. Prices are ex works Brakel excluding packaging. Packing is charged at cost. Tools for which prorata payments have been received remain our property.

6. Payment, setoff and withholding and return shipment

Our invoices are payable within 14 days after date of invoice less 2 % discount or within 30 days after date of invoice net. Sums below offer EUR 50.00 are payable net immediately. If the Customer is in default of payment, he must pay default interest at a rate of 3 % above the relevant basic rate of the ECB. If we become aware of circumstances, after an order has been placed, which give us good cause to doubt the credit worthiness of the Customer, we are entitled to deliver this order subject to cash in advance only and to make the delivery of other orders subject to their prior payment. The Customer may only set off claims which are not disputed and may exercise a right of withholding only in respect of such claims as are based on the same contract. The Customer is only entitled to return goods provided that an express prior agreement has been made to this effect. Such return shipments are subject to a deduction from goods value of at least 30 % to compensate for expenses.

7. Reservation of title

The products delivered (reserved title goods) remain our property until payment in full of the selling price and all existing and future claims arising from the business relations with the Customer. This is also valid in case that individual claims or all of them have been consolidated into one single invoice, the balance being stroked and recognised. The Customer has the right to sell the reserved title goods in the due course of business provided that he meets his contractual obligations. Otherwise we have the right to require the surrender of the reserved title goods; in this case, the Customer has no right of possession. We are then entitled, without prejudice to the payment obligation of the Customer, to sell the repossessed goods and to credit the Customer with any surplus. Already at the time of purchasing the reserved-title goods, the Customer assigns to us all claims arising from the

resale which accrue to him against his customers. Subject to revocation, he is authorised to collect the assigned claims, however, upon our demand, he shall notify us without delay and in full of the amount of these claims and the names of his customers. In case of a delivery by the manufacturer is regulated by a draft, the reservation of title will only expire after the draft being re-deemed. Whenever the value of existing securities is surpassing the liabilities to be guaranteed by more than 20 % the customer is entitled to force the manufacturer delivering orders.

8. Details

Unless expressly described as binding, all details and illustrations contained in our brochures and catalogues are merely approximate values usual in the trade. The duty is on the Customer to perform his own examination as to whether the goods are suitable for the intended purpose.

9. Warranty

Complaints regarding recognisable defects, wrong deliveries or substantial differences in quantity must be notified to us without delay in writing at the latest within ten days of delivery of the goods. If the Customer does not notify any defects within this period, the goods are deemed to have been approved free of defects. Concealed defects must be notified in writing without delay upon their discovery, however, at the latest within six months of delivery. We give a warranty for a freedom from defects conforming for a period of two years from the date of delivery. Complaints must be notified to us without delay in writing. Excluded from warranty are damages resulting from wear and tear and improper handling or repair. In the event of a justified and timely complaint, we shall, at our discretion, either undertake improvement or replacement delivery of the goods; all further claims, in particular, claims for consequential damage, are excluded. In the event that such improvement or replacement fails, the Customer retains

the right to require a reduction in the purchase price or rescission of the contract.

10. Place of performance and court of jurisdiction

Place of performance, place of payment and court of jurisdiction, also for actions based on bills of exchange or cheques is, as far as admissible, Brakel. This contract is governed exclusively by German law. The application of the United Nations Convention of 11.04.1980 on Contracts for the International Sale of Goods (CISG - 'Vienna Sales Convention') is excluded.

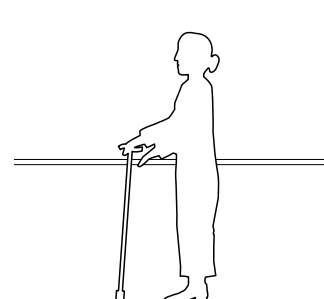
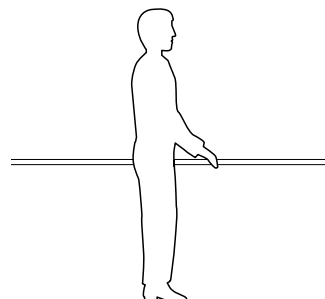
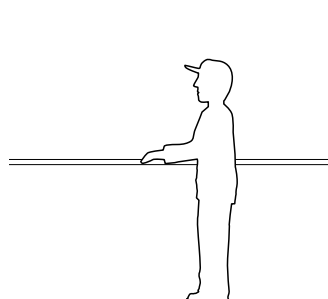
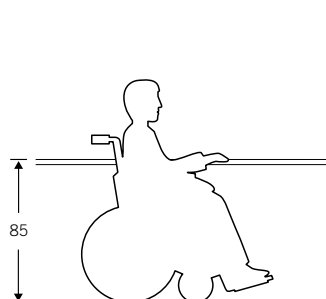
11. Data protection

The business data of the Customer shall be processed in accordance with the provisions of the Federal Data Protection Act (Bundesdatenschutzgesetz).

12. Concluding provision

The legal invalidity of individual provisions shall not affect the binding force otherwise of these terms of sale.

Building without barriers



FSB possesses copies of the German standards DIN 18 024 (Non-barrier access points in public buildings, spaces and workplaces) and DIN 18 025 (Non-barrier residential units) as well as guidelines and observations on this subject issued by the Bavarian Chamber of Architects. There follow extracts from these:

Operating devices on single-action hinged doors

Empirical studies have shown that, when adults - be they little or large - stand with arms dangling, their finger tips are at a height of roughly 73 - 75 cm. In the case of hinged doors in residential buildings, there must be clearance of at least 50 cm from the side wall or any furniture, measured from the centre-line of the door, to enable wheelchairs to be manoeuvred up to the handle from the side. The reveal in the wall, moreover, should be no wider than 20 cm.

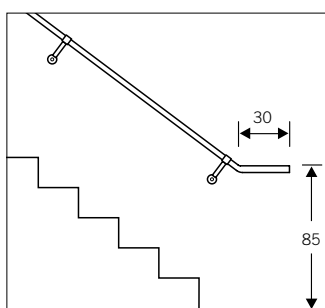
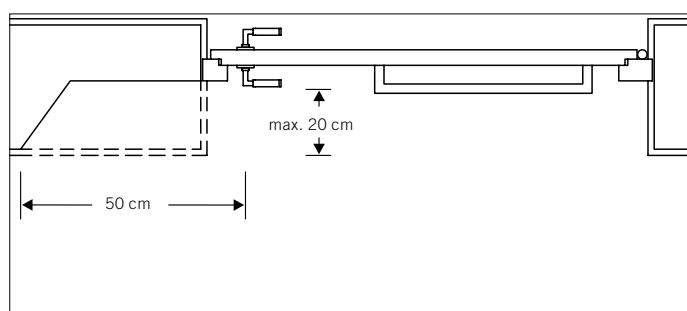
Movement areas near hand-operated doors

Wheelchair users have very limited scope for movement. The movement area on the slamming side of a hinged door is calculated as being 1.50 m x 1.50 m. Once someone in a wheelchair has passed through the doorway, the easiest way for them to close the single-action door is if a bar is mounted across the inside of the door at a height of approx. 85 cm. Thus adults will always be able to reach operating devices fitted at a height of 85 cm. Those of impaired mobility do not need to raise their walking aids at this height. Wheelchair users are able to tackle a gripping height of 85 cm with their arms on their rests. Hence, operating devices (e.g. lever handle crossbars for closing hinged doors, French window openers, operating units for automatic doors) should always be fitted at a height of 85 cm in nonbarrier spaces. Operating devices need to be designed to take account of those with impairments of manual functions, e.g. by cranking lever handles at their ends to prevent hands slipping off too easily.

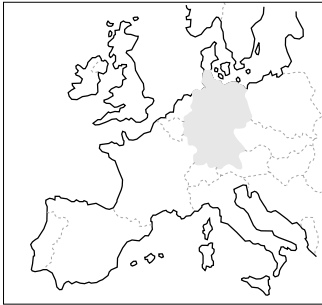
Railings

Stairs must be appointed in such a manner that safe use is assured. For a person to raise or support themselves, they need to be able to enclose the handrail with their hands. Handrail diameters of 30 - 45 mm are recommended. Stairs should be fitted with handrails on both sides. At the tops and bottoms of stairs, handrails should run horizontally for 30 cm. These areas should also be marked by means of tactile features.

FSB recommends careful study of the relevant regulations and will be willing to act as a development partner if required.



How to reach FSB



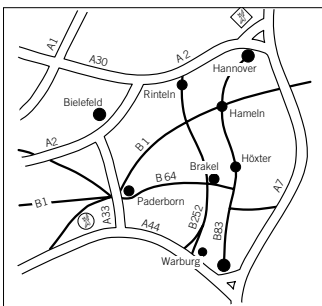
Brakel is situated in the south-easternmost corner of the German federal state of North-Rhine Westphalia. Geographically speaking, it is where the Egge mountains merge with the Weserberg hills.



Paderborn is connected with Berlin, London, Munich, Paris and Stuttgart, etc. The distance of the ICE-railway station Kassel-Wilhelmshöhe is about 55 minutes by car to Brakel.

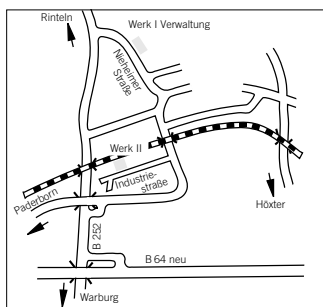
The distances to the most important German airports in km are:

Düsseldorf	about 200 km,
Frankfurt	about 220 km,
Hannover	about 120 km.



When going by car from the north, you'll come to Brakel via motorway, Hannover-Dortmund, exit point Rinteln, picking up then the route from Rinteln-Bartrup-Blomberg to Brakel. The distance from Rinteln to Brakel is about 90 km.

When coming from the south, leave the motorway Kassel-Dortmund at the exit point Warburg/Brakel driving then from Warburg over Peckelsheim, Siddessen and Rheder about 35 km to Brakel.



FSB has two production sites in Brakel.

Central administration is located together with the aluminium foundry and development units at Nieheimer Strasse 38.

Facilities II and III are housed along with the logistics centre at Industriestrasse 12 on the Brakel industrial estate.

Domestic Agencies



Domestic Agencies

<p>1 Klaus-Dieter Heib Sandberg 131a 25524 Itzehoe Telefon (0 48 21) 9 37 95 9 42 39 Telefax (0 48 21) 9 42 48 www.kd-heib.de kd.heib@fsb.de</p>	<p>Wolfgang Doetkotte Eisenbahnweg 27 a 48599 Gronau Telefon (0 25 62) 81 77 77 Telefax (0 25 62) 81 77 78 fj.hund.doetkotte@fsb.de</p>	<p>8 Comos GmbH Mönninghofer Weg 34 58285 Gevelsberg Telefon (0 23 32) 1 21 96 Telefax (0 23 32) 1 44 33 j.comos@fsb.de</p>	<p>12 Heinz W. Perplies Postfach 7 90585 Veitsbronn Telefon (09 11) 9 75 45-0 Telefax (09 11) 9 75 45-11 www.perplies.de hw.perplies-nordbayern@fsb.de</p>
<p>2 Hans-Gert Feldtange Kornblumenweg 2 26125 Oldenburg Telefon (04 41) 9 36 11-0 Telefax (04 41) 9 36 11-11 www.feldtange.de hg.feldtange@fsb.de</p>	<p>5 Möller & Sohn GmbH Karl Heinz Möller Pottenhauser Straße 12 32791 Lage Postfach 1665 · 32775 Lage Telefon (0 52 32) 30 78 44 58 Telefax (0 52 32) 35 30 www.moellerundsohn.de kh.moeller@fsb.de</p>	<p>Axel Baals Taubengasse 38 41189 Mönchengladbach Telefon (0 21 66) 5 72 91 Telefax (0 21 66) 55 11 26 j.comos.baals@fsb.de</p>	<p>13 Arnold Reinstädler Kirchendell 39 66787 Wadgassen-Differten Telefon (0 68 34) 96 01-0 Telefax (0 68 34) 96 01-18 www.reinstaedtler.de a.reinstaedtler@fsb.de</p>
<p>3 Klaus-Dieter Heib Werksvertretung GmbH Büro Anklam Frank Maibohm Neue Tor Str. 6 17389 Anklam Telefon (0 39 71) 21 06 36 Telefax (0 39 71) 21 06 42 www.kd-heib.de kd.heib.maibohm@fsb.de</p>	<p>Rolf Fischgrabe Lefken Heller 2 32351 Stemwede-Wehdem Telefon (0 57 73) 13 43 Telefax (0 57 73) 84 20 Mobil (01 71) 7 47 88 11 kh.moeller.fischgrabe@fsb.de</p>	<p>9 Karl-Heinz Beyl GmbH Rösrather Straße 604 51107 Köln Postfach 95 02 29 · 51087 Köln Telefon (02 21) 86 20 41 Telefax (02 21) 86 45 50 www.beyl.net kh.beyl@fsb.de</p>	<p>14 Heinz W. Perplies Moritzburger Weg 67 01109 Dresden Telefon (03 51) 8 85 91-0 Telefax (03 51) 8 85 91-11 www.perplies-sachsen.de hw.perplies-sachsen@fsb.de</p>
<p>4 Franz-Josef Hund Rudolf-Harbig-Straße 7 48301 Nottuln Telefon (0 25 02) 64 22 Telefax (0 25 02) 32 05 www.fjhund.de fj.hund@fsb.de</p>	<p>Walter Heilmann Heinrich-Heine-Straße 50 30173 Hannover Telefon (05 11) 88 51 70 Telefax (05 11) 88 90 84 Mobil (01 71) 4 10 83 73 kh.moeller.heilmann@fsb.de</p>	<p>10 + 11 Karlheinz Peters GmbH Martinstraße 27 63533 Mainhausen Telefon (0 61 82) 9 37 50 Telefax (0 61 82) 2 85 84 Mobil (01 71) 8 24 91 87 www.kh-peters.de kh.peters@fsb.de</p>	<p>15 Link Objektberatung Böblinger Straße 29 71229 Leonberg Telefon (0 71 52) 9 79 66-0 Telefax (0 71 52) 9 79 66-50 www.objektberatung.de j.link@fsb.de</p>
<p>Gerd Leßmann Unterdorfstraße 22 f 58239 Schwerte Telefon (0 23 04) 7 41 06 Telefax (0 23 04) 7 02 44 fj.hund.lessmann@fsb.de</p>	<p>6 Möller & Sohn GmbH Jens Hostmann Mittagstraße 1a 39124 Magdeburg Telefon (03 91) 2 51 52 16 Telefax (03 91) 2 51 52 17 Mobil (01 71) 7 77 22 80 www.moellerundsohn.de kh.moeller.hostmann@fsb.de</p>	<p>Adalbert Eulenstein Gräfenthaler Straße 4 07330 Probstzella Telefon (03 67 35) 7 07 90 Telefax (03 67 35) 7 07 90 Mobil (01 70) 8 31 73 68 kh.peters.eulenstein@fsb.de</p>	<p>16 Wolfgang Fuchs Helmut Immler Wallbergstraße 3 82024 Taufkirchen Telefon (0 89) 61 45 61 00 Telefax (0 89) 61 45 61 70 www.immler-fuchs.de w.fuchs@fsb.de</p>
<p>Ludger Hammelbeck Eichenweg 34 59556 Lippstadt Telefon (0 29 41) 8 14 11 Telefax (0 29 41) 8 14 46 fj.hund.hammelbeck@fsb.de</p>	<p>7 Hendrik Orsinger Sperberfeld 35 14532 Kleinmachnow Telefon (03 32 03) 5 98-0 Telefax (03 32 03) 5 98-17 www.orsinger.de h.orsinger@fsb.de</p>		

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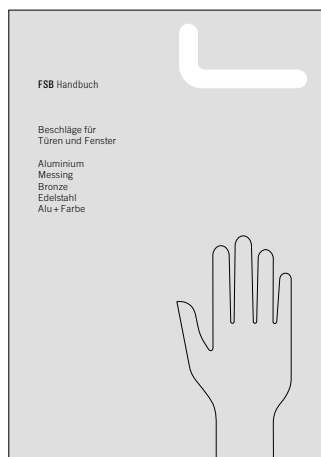
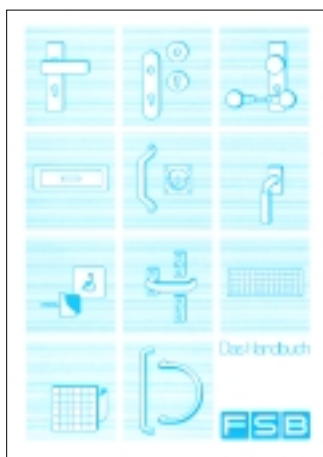
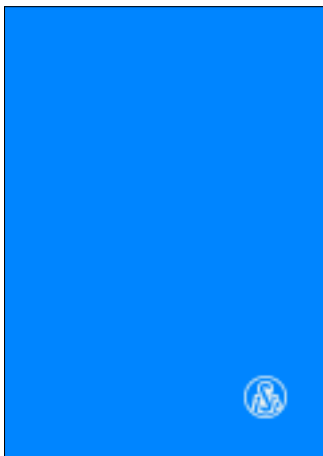
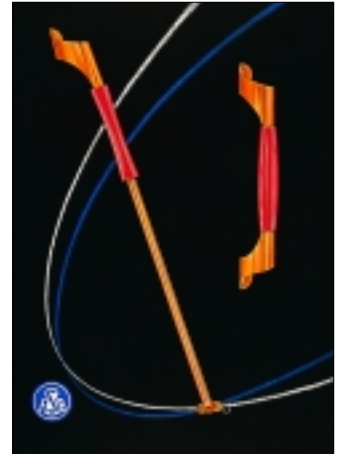
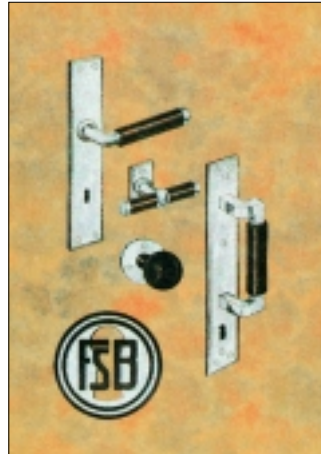
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Proud tradition

This Manual is part of a proud tradition stretching back to 1881. Since then, FSB has been presenting itself to the market in new guises every 15 years or so. This approach has kept us fresh and has clearly also helped keep us going.

We hope you will make use of this new aid at every opportunity. Should you encounter difficulties in your day-to-day dealings, please do not hesitate to communicate them to us. Only thus can we continue to match market requirements.



Many diligent helping hands have taken part of this Manual. One co-operation is specially to be emphasized. For the last time Herr Reinhard Hellmiß had taken pictures for us. For more than 30 years he had been the companion on our way. Thank you.

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