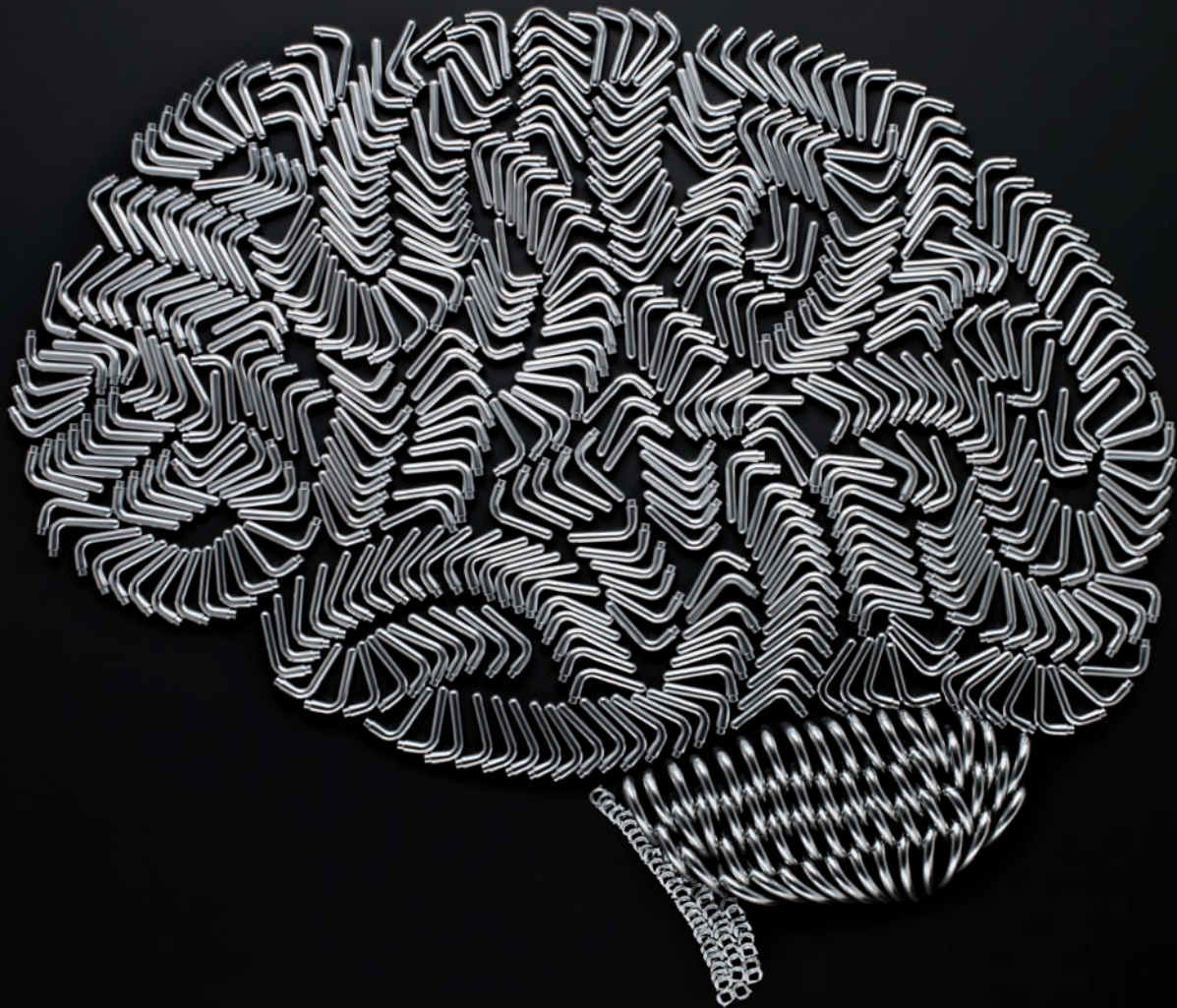


FSB

AGL[®] – speed and accuracy



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Fast and accurate: the AGL® compensating bearing

AGL® legend

AGL® is the measure of all things on doors and, for decades now, has been a byword for unsurpassed heavy-duty hardware. Not only has it become a benchmark amongst architects, it has also been thrilling fabricators, clients, operators and investors for nigh on 30 years with its well-conceived engineering and durable functioning.

It was in 2007 that FSB began re-evaluating hardware requirements for “public projects” and completely rethinking its long-standing AGL® hardware. The developers in the FSB team were intent on preserving the compensating bearing’s technical core whilst adding easy-grasp benefits for all parties to the public project business.

In the end, then, the orderer’s specifications for the second-generation AGL® bearing cited no fewer than ten criteria to be met, some of which are set out here:

- cost-effectiveness embracing more than just sustainability
- great ease of assembly
- enhance safety of assembly process whilst cutting down likelihood of errors
- simplify and reduce number of individual components
- make good function-related aesthetic drawbacks
- with regard to ranges: take account of heavy lever handles in stainless steel or bronze whilst also ensuring functional longevity in conjunction with doors and locks
- AGL® fire safety (FS) variant

There was nevertheless no question of diluting the tenets or performance parameters underpinning the AGL® philosophy, to wit:

- compensating bearing with low-friction, no-maintenance Teflon-coated bushing for lever handle on rose/back-plate
- compensating bearing to offset any play arising from bore-holes, locks/lock mortises and Stabil spindles
- superiority of user category Class 4/EN 1906 with more than a million tested operations
- positive locking of male and females parts for optimised absorption by the door leaf of forces exerted.

Basic Approach and Motivation

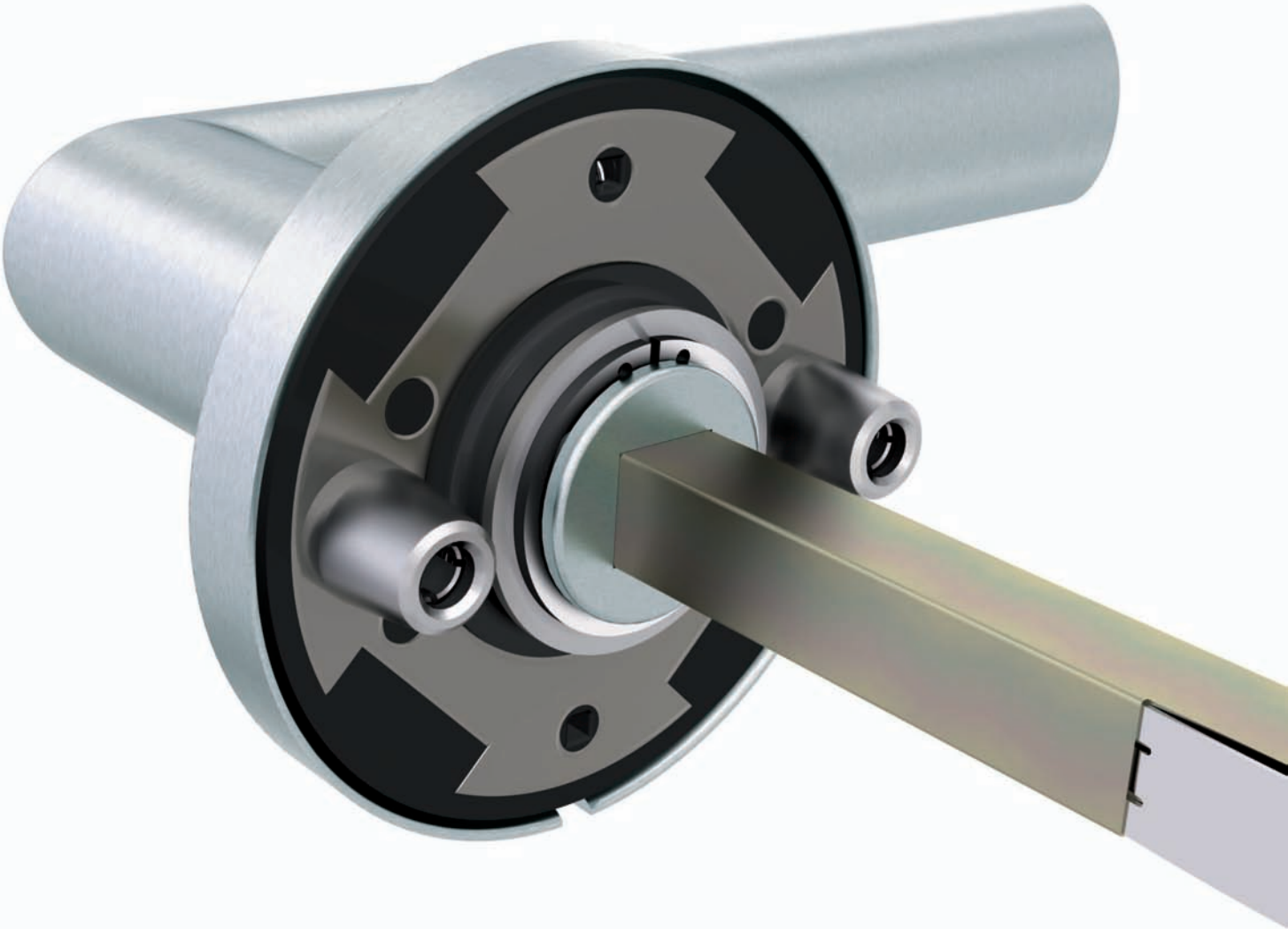
FSB views “public project” construction as an architectural task and hence one with overarching social implications, the inevitable consequence of this being a sustainable product philosophy geared towards first-class quality on our part.

This basis approach motivates us to apply technical solutions and innovation potential to changing conditions and to steadfastly translate them into easy-grasp results. With FSB being a leading public project brand, this goes without saying anyway.

Quality and performance of this kind don’t come for nothing of course. But they do immediately begin to pay for themselves in public building projects due to your not having to bother about remedying anything and being able to set about fitting the hardware far more quickly and accurately than was ever the case before.

FSB. It’s in your hands.

Compelling inner values:
With our second-generation
AGL® bearing, we've made
good even better.



AGL® / AGL® FS – four easy-grasp benefits

Over and above the AGL® technology we have now added no fewer than four completely new-style functions and features that we would like present to you in greater detail over the next few pages:



Convenient AGL® hardware

Convenient configuration: AGL® rose furniture now involves just two sub-units prefitted at the works – a lever handle set and a pair of roses. There are no longer any loose parts to deal with.



Assembled in less than 10 seconds

AGL® rose furniture delivers a unique benefit in terms of the time and hence money saved in its assembly: the sub-units are simply slotted together at the door and then secured on the female side using the AGL® tool. An assembly routine that's over within ten seconds.

The following benefits make up for aspects that have always been regarded as aesthetic drawbacks:



Positive mechanism A and B

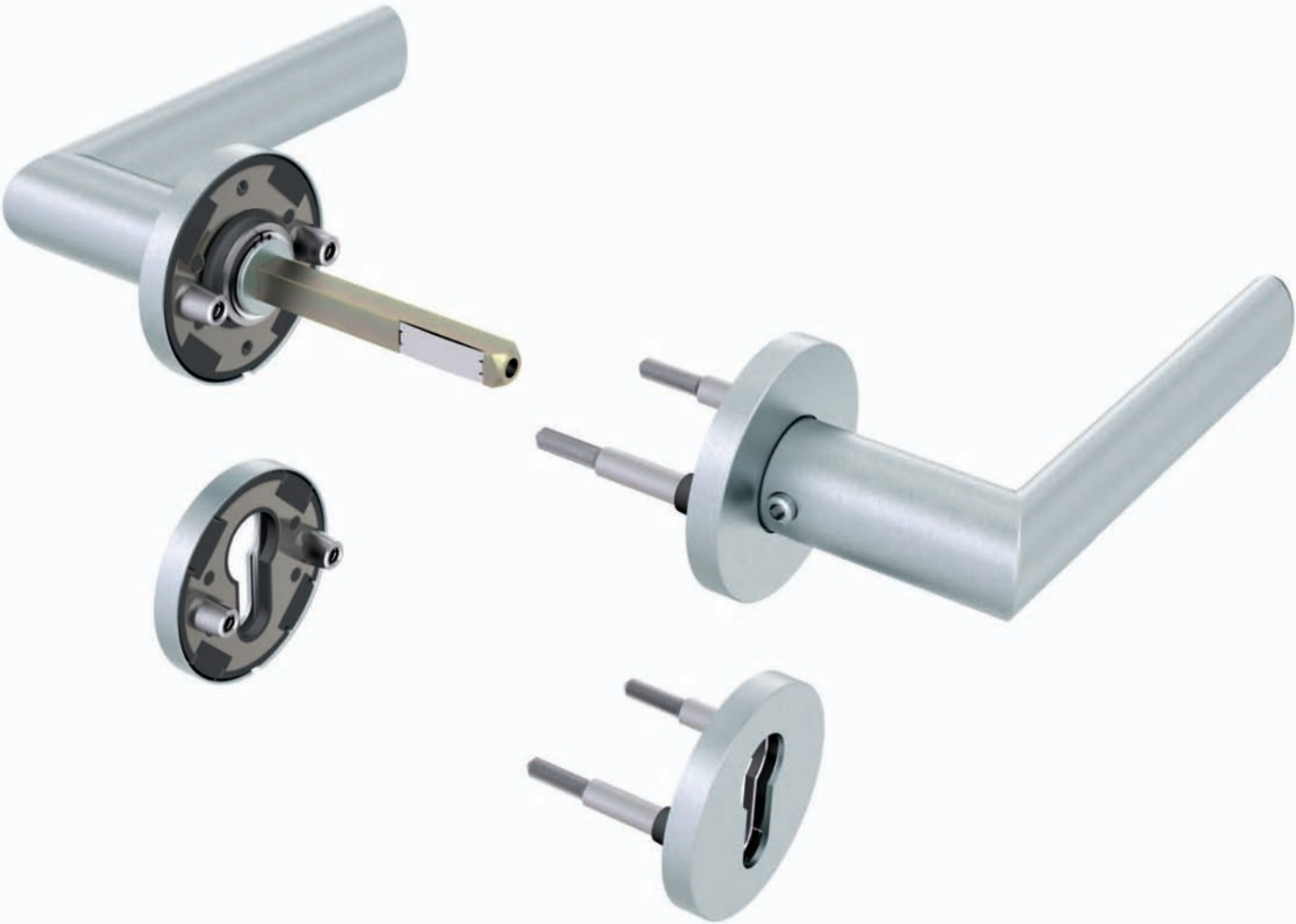
AGL® furniture features a positive mechanism with spring pre-tensioning pursuant to EN 1906/ Designs A and B that puts an end to handle sag.



0° position

AGL® furniture also features a defined horizontal stop built into the positive mechanism. This puts an end to lever handles being improperly aligned when at rest. They usually tend to be pulled about 2 degrees upwards from their – ideally horizontal – position by the lock spring. The AGL® positive mechanism offsets any effects of the lock spring from the outset.

There could hardly be fewer parts: All the parts in the new AGL® furniture are combined in the furniture “ex works”.



Sustainability: Economic benefits through convenience

The challenge

In physics, performance is defined as being “work per unit of time”. And it’s a case of making more out of less in the Public Project sector too: dictating our customers’ day-to-day work are tight deadlines, tight budgets and knife-edge costings that leave no room whatsoever for remedial work or, heaven forbid, product complaints. We set ourselves the challenge of placing products in the hands of architects, planners and clients with which they can meet such challenges. FSB has re-evaluated the concept of Public Project hardware and in the process completely rethought its AGL® heavy-duty hardware.

At the heart of the solution we have come up with is the convenient integration of all components in two sub-units.

Practice hitherto

A questionable trend has gained credence over recent years: components have been radically simplified so as to reduce the number of individual parts. At the same time, “click-lock mechanisms” on spindles have been launched that can at best be referred to as parts with a bit of a clamping effect. Such solutions have been combined with solid spindles in some cases.

On account of their high manufacturing and assembly tolerances, by turn, half-sets have been fitted with so-called positive mechanisms that primarily serve to hold furniture together and give it some sense of solidity. Whilst this has increasingly simplified assembly routines and brought about an added degree of convenience, the suitability of such hardware for heavy-duty application and, in particular, for fitting to heavy doors has left a lot to be desired, as has the long-term functioning of the hardware.

Our solution

FSB has trodden a path all of its own by distilling all the components encountered in the assembly of heavy-duty rose furniture into two sub-units whilst also taking further novel functions on board.

The male unit in AGL® rose furniture comprises the following components:

- door lever handle with square spindle
- baserose with:
 - all components in the AGL® compensating bearing for handle-and-rose assemblies
 - all components in the A/B positive mechanism
 - retention sleeves
 - FSB 1731 cover rose

The female unit is made up of:

- lever handle with grub screw
- baserose with:
 - all components in the AGL® compensating bearing for handle-and-rose assemblies
 - threaded studs
 - all components in the rapid clamping mechanism
 - FSB 1731 cover rose

Loose parts are a thing of the past. The same applies by analogy to the FSB 1735 escutcheon set. The technical concept behind AGL® rose furniture minimises the risk of overlooking or losing parts due to there being so many of them.

This new, additional AGL® core feature provides a great opportunity for obviating errors at the assembly stage as well as delays or product complaints when a building comes up for acceptance. All parties to the public project business stand to gain as a result.

Over and above its proven continuous long-term function, AGL® furniture acquires a further financially quantifiable benefit from the point of view of sustainability. And this also applies with regard to the simple assembly process involved, which is covered on the next page but one.

Position. Turn. Secure.
Assembling AGL® furniture
takes less than 10 seconds.



Sustainability: Economic benefits through speedy assembly

Practice hitherto

In tandem with the aforementioned endeavours to cut down on components, schemes have also been thought up that pay added attention to a system's capacity for continuous functioning. For both technical and practical reasons, however, such initiatives are fraught with difficulties.

A number of fittings have been marketed that contain a wealth of individual parts which have to be successively assembled and meticulously matched in what is a very complex process. During market research activities, FSB counted up to seventeen separate parts needing to be "managed" during the assembly process. Said parts are supplied in no fewer than eight different product bags in some cases.

Our solution

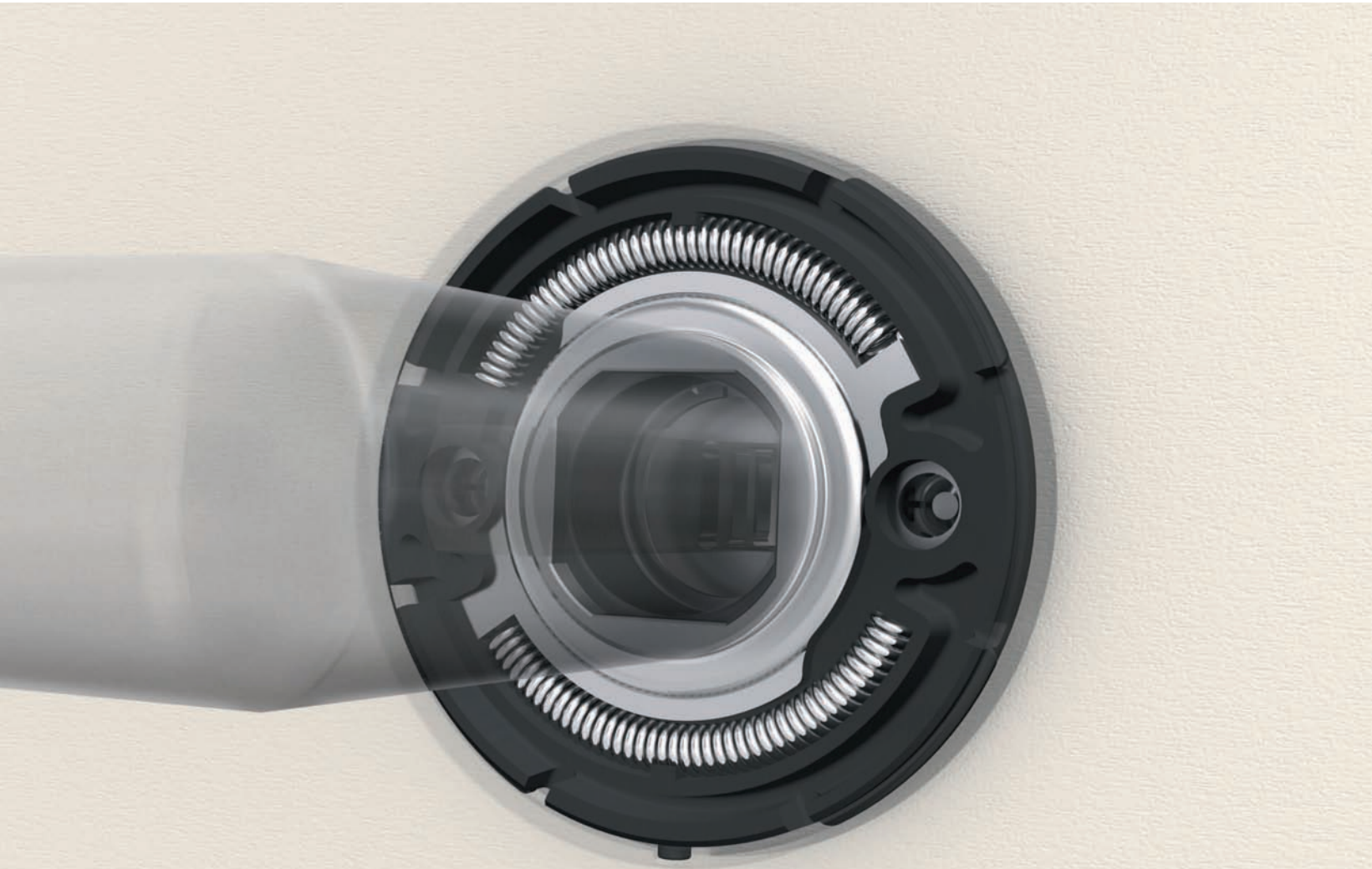
It takes less time to fit an AGL® set by FSB and have it ready to operate than it does, with some products by our fellow-competitors, to work out what parts do what and how they are to be assembled, or even to get them out of their wrapping.

Second-generation AGL® rose furniture still comprises a female and a male side – just as you've always been used to from FSB. Now, however, you no longer need to fiddle about with individual parts: all components are firmly united in the two half-sets. Assembling these simply involves removing them from their packaging, joining them through the door and securing them with a quick 40° twist of the AGL® tool. The process is the same for handles and escutcheons. The whole assembly routine takes less than 10 seconds. Step-by-step assembly of components and bases or the final clipping-on of top roses are things of the past.

All such assembly steps are performed by FSB at its works in Brakel. Thus, FSB yields value added from which fabricators in particular can directly profit. The assembly process is considerably speeded up. Not only does this raise the daily output of hardware assemblers on site, it also allows for a far greater degree of flexibility in contractors' costings – up to and including a considerably more flexible capacity for planning the rostering of assemblers.

You are sure to quickly appreciate the economic benefit this, too, entails. But as if all that weren't enough, there are a lot more easy-grasp benefits inside the AGL® system. Please see over.

Handle sag is a thing of the past: our AGL® Version A/B positive mechanism puts an end to wobbly handles.



Positive mechanism – Versions A and B

The challenge

So far we've talked about consistently cutting down on parts and about financially quantifiable assembly benefits. The inner values of our second-generation AGL® furniture also include a positive mechanism that really holds up.

Wobble is something to which door handle furniture definitely should not be prone. Unsightly sagging handles are nevertheless a common occurrence, unfortunately, especially on heavily frequented doors or where heavy lever handles are used in combination with locks of inferior quality. This is a thoroughly unsatisfactory state of affairs from both a visual and a technical angle.

Practice hitherto

Positive mechanism A or B, Class 3 or 4: you generally have to opt for one or the other where furniture by our fellow-competitors is concerned. Hence, Public Project buildings have hitherto had to make do with a 'B' positive mechanism and Class 3 at best. Class 4 is stipulated for heavy and heavily frequented doors, however. And an 'A' positive mechanism is ultimately not much more than a spring support that lent the bearings some sense of strength prior to assembly of the hardware.

A truly positive mechanism needs to be a bit more than that.

Our solution

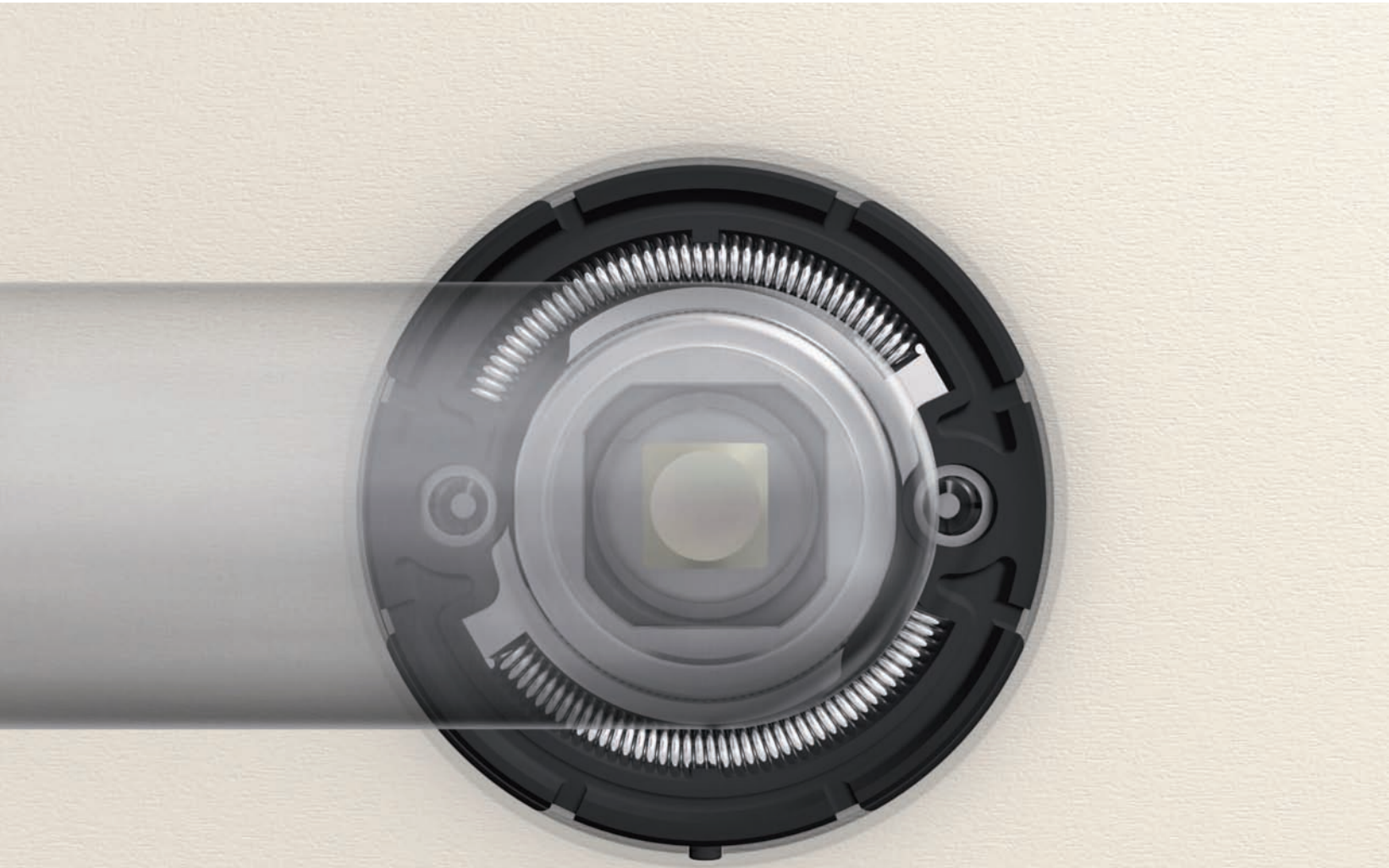
In addition to there being compensating bearings on both sides, our second-generation AGL® hardware features a completely reconceived positive mechanism. It meets criteria A and B as laid down in EN 1906. EN 1906 states Criterion A as encompassing "spring support" whilst Criterion B supplements this with a return action on the door handle by means of spring pre-tensioning with a view to attaining a predefined position.

The carrier plate central to FSB's positive mechanism is characterised by two springs and the attendant bump stops. The bearing for the springs is made of toughened steel set within glass-fibre reinforced plastic, the carrier plate is made of stainless steel, and the shank is borne in Teflon-coated, low-friction sliding-bearing bushings, all of which guarantees enduring wear/maintenance-free functioning of AGL® furniture. The Class A and B positive mechanism – particularly rugged and accurate in the FSB version – is a key entity in ITT specification practice on its own, as its return action is qualitatively far superior

to all commonly marketed solutions and therefore enjoys niche status relative to these. In combination with the ITT specification criteria for AGL® furniture (cf. page 13), FSB's positive mechanism yields additional synergies for FSB ITT exercises. Pin-point criteria, easy-grasp benefits for investors and clients, and quantifiable differences are all effective means of demarcation from comparable alternatives: a valuable benefit notably for architects and planners in their ITT specification work.

But AGL® has yet more to offer. The fourth benefit concerns the offsetting of a further technical shortcoming rooted in the design of a great many locks: that of door handles being pushed 2° above the horizontal by the force of the lock spring. More on this on the following page.

Our definition of accuracy:
The handle always dependably
comes to rest in its original
horizontal position.



0° position

The challenge

In our previous versions of the criterion B positive mechanism we went along with EN 1906, which prescribes a return action on the door handle so as to achieve a predefined position by means of spring pre-tensioning. At the same time, EN 1906 is silent on the actual return position of the handle and does not prescribe anything specific in this respect.

Practice hitherto

Anything not governed by some form of rule is all too often peremptorily swept under the carpet. That's what's happened here too: to date none of our fellow-competitors has come up with a solution that deals with the return action stipulated from an aesthetic point of view. It's high time handles were really straightened out!

Our solution

FSB wouldn't be FSB if we did not apply the aspect of a return action to architecture and hence harness it for a product that is wholly thought through and which, once fitted to the door, meets the most exacting aesthetic demands long-term.

By suitably fashioning the bearing areas for the positive mechanism springs, the carrier plate and the bump stops in the base, by delivering positive locking and an exact fit of the handle in this mechanism, and by turning all the constituent parts into a smoothly interacting whole, we quickly set about ensuring that, assuming proper fitting, the handles in AGL® furniture will always come to rest horizontally.

That's really the way it needs to be, after all.

AGL® / AGL® FS – the Details

Notes on ranges

It is necessary to distinguish between AGL® rose furniture and AGL® (long and short) back-plate furniture:

Both AGL® rose and AGL® back-plate furniture feature a Class A and B positive mechanism and 0° position.

For reasons that soon become obvious, the qualities of convenience (two sub-units) and rapid assembly (joining and clamping handles via the handle rose) only apply with regard to AGL® rose furniture, as it is not generally possible to secure back-plate furniture with one turning movement owing to its dimensions and reinforcement lugs.

There are essentially no restrictions to the range available (materials, door handle models, EN 179 etc.).

All door handle models indicated in the 2010 Manual as being AGL® or FS and FS/EN 179 versions can also be supplied as second-generation AGL® with FS approval.

Rose versions available with second-generation AGL®:

- FSB 1731/1735
- FSB 1703/1704
(new straight-cornered version)

Items not available with 2nd-generation AGL® are:

- FSB 1707/1708
- flush furniture in the FSB 7201 and 7601series

Handing details are required with orders for lever/deadknob furniture.

Classification key

User Category Class 4

Durability Class 7

Door mass (not applicable)

Fire resistance Class 1

Conformance

- EN 1906
- DIN 18 255
- EN 1634-1
- DIN 18 173
- EN 179
- ÖNORM B 3859

Availability

AGL® rose furniture:
from 1 July 2010

AGL® backplate furniture:
from 1 October 2010

Prices

Prices indicated for AGL® furniture in the 2009 price-list continue to be applicable in 2010 for second-generation AGL® furniture. FSB is supplying this higher-quality version for the same price.

Technical properties for preliminary ITT specification notes

- convenient two-piece hardware comprising male and female units so as to cut down on mistakes during assembly
- positive locking of male and female units for optimised absorption by the door leaf of forces exerted
- furniture designed to secure huge time savings in the assembly process
- positive mechanism Version A/B
- positive mechanism designed for 0° position of the door handle
- compensating bearing to offset play in the interaction between boreholes, the lock and lock mortise, and the Stabil spindle
- compensating bearing with low-friction, no-maintenance Teflon-coated bushing for lever handle on rose/backplate
- superiority of user category 4/EN 1906 with more than a million tested operations
- fire resistance pursuant to DIN 18 273 (FS version)

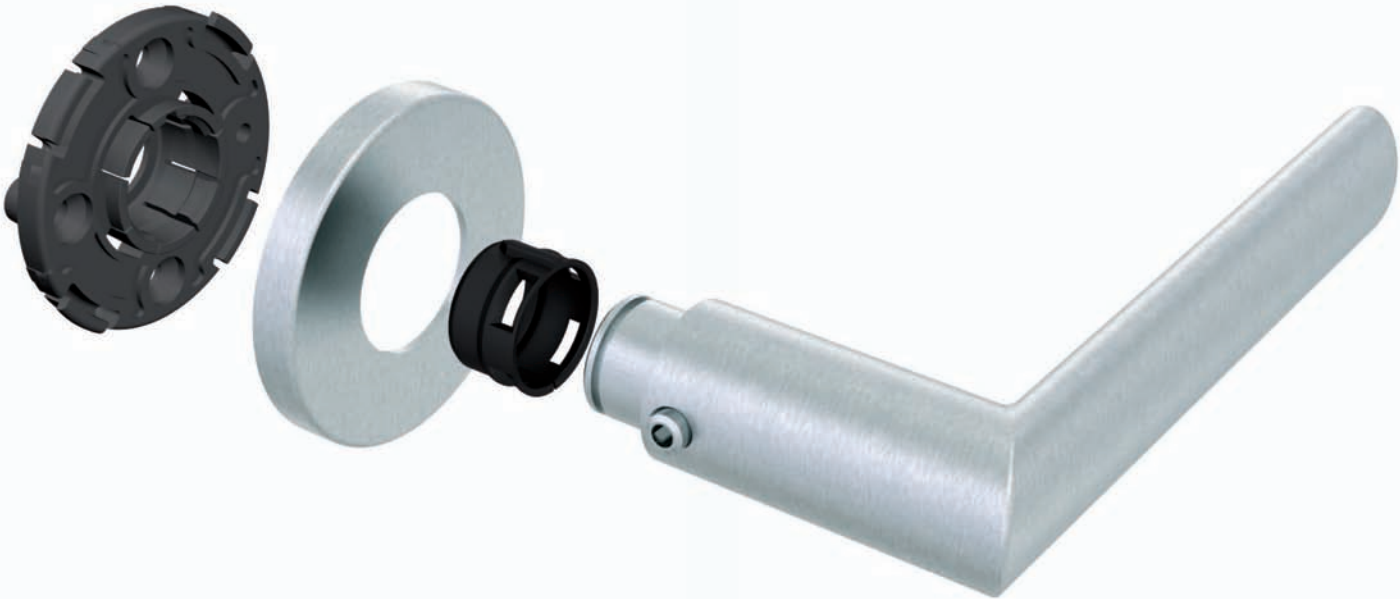
Safety in use Class 1

Corrosion behaviour Class 4

Resistance to burglary Class 0

Version A/B

Well above average: the click-stop mechanism for our new standard bearing makes assembly child's play.



The new bearing for standard applications

The challenge

A market tendency to install standard doors in less heavily frequented areas of public/commercial buildings has become discernible in recent years. There has been a simultaneous shift towards fitting such standard doors with Class 3 user category furniture in which lever handles are permanently connected to their rose or back-plate, a choice in many cases purely and simply designed to make up for huge manufacturing tolerances in such furniture. The use of furniture of this type most definitely has a negative, delaying impact on the assembly routine at any rate.

Practice hitherto

There is fundamentally a case for employing such lever-handle assemblies in that the axial forces exerted at the door are more effectively absorbed by the door leaf. From a sustainability point of view, this property is to be welcomed.

One drawback of such hardware solutions is that the permanent connection between handle and rose comes at the expense of ease of assembly, since it is always necessary to “screw past” the handle or, in the case of a lever handle design in which the covering rose cannot be pulled over the handle, the process is rendered even more awkward by the rose. This drawback has simply been ignored by many fellow-competitors, who as often as not proudly proclaim the incorporation of such lever-handle assemblies into Class 3 hardware as well. FSB was accordingly intent on finding a solution that did adequate justice to both aspects.

Our solution

It was the rejigging of our entire bearing philosophy that set us on course to solve the problem. The new product properties, a raft of niche features and a wealth of rigorously conceived functions that have been factored into the second-generation AGL® bearing made FSB realise that the handle-on-rose upgrade to the FSB standard bearing nevertheless also needed to embody the objective of improving the assembly process and that it would constitute yet another single-minded step towards embracing changing requirements in the public project sector.

The conceptual foundations for our new solution were laid by no lesser a person than our in-house designer Hartmut Weise, who was wondering why it shouldn't be possible to create handle-on-rose units when actually fitting the furniture to the door. Hartmut Weise first went about modifying the connection between handle and baserose in such a way that simply inserting the handle causes it to click tight in the ready-fitted base.

The requisite flexibility was achieved by means of eight slots in the area of the bearing. The complete sub-unit was then secured by straightforwardly clipping on the cover roses in the long-familiar FSB manner.

All that really needs to be added here are the words of former Braun AG head designer Dieter Rams:

“Straightforward is (simply) better than complicated.”

Standard bearing – the Details

Notes on ranges

FSB lever handle hardware can now be permanently connected in standard bearings by dint of the cover roses or backplates clipped on at the end of the assembly process. Crucial to this occurring is a guide ring that is slotted over the handle shank and then clicks tight in the appropriately engineered base along with the handle.

Positive locking, finally, is facilitated by clipping on cover furniture in the typical FSB manner mentioned above.

Available rose versions
(invisible fixing):

- FSB 1731
- FSB 1707
- FSB 1703
(new straight-cornered version)

Available backplate versions
(invisible fixing):

- FSB 1410 03
- FSB 1418 03
- FSB 1450 03
- FSB 1451 03

Visibly fixed and/or cut roses and backplates cannot be supplied for this new standard bearing hardware in which lever handles click tight in their roses/ backplates. Removal of the guide ring referred to above allows handles to be combined with visibly fixed roses and backplates without fuss or restriction, however.

Stockists

FSB has been supplying lever handles with shanks engineered to accord with the new click-tight standard bearing since March 2010. Our dealers accordingly have no need to re-stock; existing inventories can be sold off without any problems, since the new shank is compatible with the existing standard bearing.

Classification key

User category Class 3

Durability Class 7

Door mass (not applicable)

Fire resistance Class 0

Conformance

- EN 1906
- DIN 18 255

Availability

Rose version:
from 1 July 2010

Backplate version:
from 1 October 2010

Prices

Prices indicated for standard-bearing furniture in the 2009 price-list continue to be applicable in 2010 for the new click-tight facility. FSB is supplying this higher-quality version for the same price.

Technical properties for preliminary ITT specification notes

- hardware designed to guarantee practical, fabricator-friendly assembly
- slide bearing for lever-handle assemblies on standard doors,
 - click-tight connection of lever handle and suitably designed guide ring to base
 - cover furniture clips on to provide positive locking of the click-lock and bearing technology
- positive locking of male and female units for optimised absorption by the door leaf of forces exerted
- requirements for User Category Class 3/EN 1906 significantly overfulfilled
- lever handle models can be used for either invisibly or visibly fixed roses and backplates due to the option of removing the guide ring on site

Safety in use Class 1

Corrosion behaviour Class 4

Resistance to burglary Class 0

Version U



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