EuroWindoor feedback on the proposal for a new regulation replacing the Construction Product Regulation

EuroWindoor appreciate the opportunity to give feedback to the proposal from the European Commission for a new regulation laying down harmonised conditions for the marketing of construction products, amending Regulation (EU) 2019/1020 (market surveillance regulation) and repealing Regulation (EU) 305/2011 (CPR).
EuroWindoor is a firm supporter of the concept of the single European market for construction products and sees the EU Construction Products Regulation as the main instrument to obtain a well-functioning internal market.

Structure of the EuroWindoor feedback

1 General comment

EuroWindoor welcomes the outspoken aim to strengthen a smooth functioning of the single market for construction products based - as the main route - on harmonised standards as the instrument for technical language and harmonised assessment methods.
We also support the increased focus on a level playing field, expressed among others through increased focus on the functioning of the market surveillance and of the Notified Bodies.
The inclusion of sustainability is furthermore appreciated by EuroWindoor.

However, we also consider that many aspects of the draft CPR are too complicated and many areas are too open for interpretation. The complicated structure of the regulation and referencing between different articles make it difficult to read and understand, which may cause huge problems for implementation by manufacturers. This does to some extend make it difficult to give concrete input to all specific articles, as the consequence of them depends in a high degree on the practical implementation. Additionally there are numerous places where the Commission is empowered to develop delegated acts. EuroWindoor fully recognize that, if the Commission had this power under the current CPR, some of the identified problems could have been handled without starting a revision process. However, EuroWindoor believes this option to deliver delegated acts needs to be used with great care, as it does introduce a high degree of uncertainty and risk especially for the economic operators who will need to comply to an ever-changing ruleset.

2 Broadening of the scope of regulation leads to over-regulation

In general, EuroWindoor support a principle where regulation is based on documented regulatory needs, where the regulatory scope is justified and where the implemented regulation is proportional to the needs addressed. The present draft includes many new areas to be regulated, such as:

- Annex I Part A, now including "workers, consumers and occupants". Today these areas are already regulated through European legislation (e.g. Framework Directive on Safety and Health at Work - Directive 89/391 EEC) and by national means and EuroWindoor does not see the need for changing that.
- Annex I Part B 'Requirements ensuring appropriate functioning and performance of products". This topic is today covered by the sentence "Construction works as a whole and in their separate parts must be fit for their intended use, taking into account in particular the health and safety of persons involved throughout the life cycle of the works. Subject to normal maintenance, construction works must satisfy these basic requirements for construction works for an economically reasonable working life'. EuroWindoor is not aware of any need to go further than that and therefore suggest keeping the wording of the current CPR.
- Annex I Part C "Inherent product safety requirements". For the products marketed by EuroWindoor members we are not aware of any documented need to regulate this topic. For example glass is a main key part of windows and is known by everybody as breakable with some injury risks. It is not possible to omit from such breakage and injuries, only the risk can be evaluated for the place of use, but the hazard cannot be eliminated completely.
- Annex I Part D "Product information requirements". Besides the very lengthy list, several types of information are considered confidential and critical and some types are difficult to see the practical solution to and use of, e.g. 1.2(e) and 1.6. EuroWindoor also have concerns about 1.2(d) as such an information could give rise to legal disputes in cases where a products service life ends out being e.g. 38 and not 40 years as declared – who bears the burden of proof in such cases? There could be many reasons for such a deviation, and it will be very difficult for not only the manufacturer but also the customer to gather sufficient and reliable documentation to support their case.

EuroWindoor is afraid that the mentioned principle for regulation may fall short. This will lead to an unpractical, unclear and overly regulated market for construction products which no one is in fact wishing.

Recommendation:
EuroWindoor recommends that it is specifically mentioned in the CPR that any regulated area shall be based on documented regulatory needs and any information required must be based on an actual and documented need. EuroWindoor recommends to refrain from expanding the regulated frame beyond what is needed to establish a smooth functioning market for construction products with respect to the eight basic requirements for construction works. Any expansion from that will most likely prolong the time and effort needed for the implementation and increase the administrative burden for the construction products industry considerably.

3 New definitions "construction products" and "product types" (Article 3)

3.1 Article 3(1) "construction product"

In the new definition of "construction product" packaging and instructions for use are included and therefore all requirements to the construction product belongs also to the packaging and instruction for use. EuroWindoor has to point out that packaging of a physical construction product could be different depending from route and means of transportation, weather conditions, duration of transportation, number of pieces of an order etc.
Especially the inclusion of packaging leads to a massive multiplication of the numbers of construction products with their own DoP and DoC, because of different combination and amount of raw materials or components from the packaging, e.g. for the environmental characteristics. The number of construction products becomes nearly endless and thus the number of type testing. The implementation of the new regulation is not accomplishable.

Recommendation:
EuroWindoor recommends to delete the inclusion of packaging and instructions for use in the definition of construction products.

3.2 Article 3(31) "product type"

Windows, doors and curtain walling are very complex construction products with a near endless combination of key parts different in size and layout. Many key parts themselves have their own product standards with clearly defined performance characteristics (e.g. insulating glass units). It is the daily practice that such key parts can be used from different suppliers without changing the product performance. This is important to have cost optimal solutions when suppliers are in competition. If there are changes and there is a new product type, because of key part from a different supplier, products will become more expensive without any advantage. It will only result in a multiplication of product types and required type testing.
Furthermore, the limitation by excluding "any variation with regard to performance" does no longer llow declaration of the worst performing product as a product type to be used for a range of better performing products to limit the number of DoP and DoC.

Recommendation:
EuroWindoor recommends not to make the product type dependent on different suppliers and to delete "[…] produced in a specific production process using a given combination of raw materials or components, whilst identical items of different manufacturers also belong to different product types." Also the wording "which exclude any variation with regard to performance" shall be deleted.

4 Essential characteristics of products (Article 4)

4.1 Limitation of the requirement to the regulatory needs of the Member State (Art. 4(2))

EuroWindoor appreciates the statement of 4(2) that essential characteristics in view of the basic requirements of construction works shall take account of the regulatory needs of Member States but find the formulation too wide.

Recommendation:
EuroWindoor suggest strongly to replace "…shall take account of …" to "…shall be limited to….". this will ensure the active participation of the Member States and the limitation of the essential characteristics to reflect the regulatory needs. This will stimulate a faster implementation and limit the burdens on manufacturers.

4.2 Derogation from harmonized technical specification (Art. 4(3))

EuroWindoor recognises the need for having an alternative to the main route of harmonised standards in case these of unjustified reasons do not develop as needed. However, it is our firm opinion that such alternative route must remain an exception, ideally never used. The criteria listed in 4(3) for selecting the alternative route are far too unclear and open for interpretation.

Recommendation:
Set up a set of criteria for choosing the alternative route that are much more specific.
Furthermore, EuroWindoor urges to set up a clear written and stable set of processes, roles, responsibilities and time limitations for the development of hENs – from the standardisation request over the technical drafting to the publishing of the reference in the OJEU. This will enable a faster and more secure development of harmonised standards, enable clear criteria for choosing the alternative route and limit the needs for such alternative route.

4.3 Voluntary characteristics

EuroWindoor would like to point out that there are voluntary product characteristics for windows, doors and facades which are not covered by the basic requirements for construction works in

Annex I. Such characteristics of windows and doors are for example those related to “security” like “bullet resistance” (EN 1522 / EN 1523) or “explosion resistance” (EN 13123-1 / EN 13124-1 and EN 13123-2 / EN 13124-2). These are voluntary characteristics and important for customers. The harmonized standards originate from standardisation requests according to 4(2) and include therefore always essential characteristics which are in our understanding mandatory. The mentioned characteristics related to security are missing.

Recommendation:
EuroWindoor proposes to allow voluntary characteristics in the product standard as today which do not fall under the harmonized zone of the “basic requirements for construction works” in Annex I Part A as non-mandatory part of the harmonized standard outside of the DoP / DoC.

5 Modified DoP for used, remanufactured and surplus products (Article 12)

It is not clear, if products which are remanufactured or improved during renovation of a building without changing the owner does fall under the Article 12 with the need of having a modified DoP. Moreover, the large restrictions under 12 (3) a) and b) are not clear as well.

Recommendation:
EuroWindoor proposes to clarify in the article that improvement of existing products for renovation purposes of a building the DoP is not needed. Also the restrictions under 12 (3) a) and b) should be clarified.

6 Obligations of all economic operators (Article 19) and Obligation of manufacturers (Article 21)

6.1 Unnecessary Bureaucratic burden

These articles replace article 11 of the present CPR and puts significant additional burdens and complexity on the manufacturers. E.g Art 19(3) where the information requested by authorities does not need to be based on reasoned needs and seem to go beyond what is reasonable, like requiring information on social media profiles and bank accounts of suppliers. Art 19(5) requires all data for all CE-marked constructions products to be implemented into the database or system of article 78 within two months. This period is not realistic and must be significantly longer since some manufacturers have thousands of DoPs. Furthermore, the amount of information to be implemented into the system is disproportional leading to increased administrative and bureaucratic burdens.

Recommendation:
EuroWindoor recommends to simplify the obligations to manufacturers to a level corresponding to article 11 of the present CPR and only expand to a level which is justified by regulatory needs and proportional to the extra administrative and/or economic burdens added to manufacturers. Furthermore, we recommend to scale requirements, timelines and information amounts to a more practical level thereby limiting the increased bureaucratic burden.

6.2 Communication of performance according to the DoP

Art 21(2(a)) limits any communication of performance to what is based on the assessment methods of harmonised technical specifications. While this is fully relevant with respect to legal requirements, the fact of the market is that customers require information in several shapes and in order to fulfil such demands, manufacturers are often asked to inform the performance of a declared characteristic in a different form than what is used for the declaration.

Recommendation:
EuroWindoor suggest instead to allow only communication of characteristics which are included in the DoP. This will allow to communicate the characteristic as described in the DoP and used for legal requirements – and to inform about the characteristic on a more individual base to a customer.

6.3 Construction products for professionals and consumers

Art 21(5) requires as something new the manufacturer to indicate on the product if it is only for professional use. If not labelled as such it per default indicate that the product is also intended for consumers. EuroWindoor finds this either/or classification wrong and unnuanced. Products like windows and doors are as many other construction products also sold through DIY shops and can therefore also be bought by consumers. However, it does require some skills to install the product correctly, and as a correct installation is a pre-requisite for it to work as intended and be durable not all consumers would be recommended to do it, but on the other hand you do not necessarily need to be a trained carpenter to do it. The way the product is used after installation is also different to products normally classified and seen as consumer products. This could cause unjustified strict processes in handling new requirements, like e.g. restrictions of new substances regulated under REACH. This could as a consequence result in the ban of use of some essential substances that are used and integrated in a non-harmful manner in the product but needed ensure a long lifetime to the overall benefit of a sustainable economy.

Recommendation:
EuroWindoor suggest to avoid the introduction of a differentiation of construction products into either only for professionals or intended for consumers.

6.4 CE-marking (Article 16)

The Article 16 requires the CE marking to be affixed to the product and to key parts. The CE marking needs to be in line with the general principles set out in Article 30 of Regulation (EC) No 765/2008. EuroWindoor would like to point out that the CE marking of windows, doors and curtain walling does include many characteristics and information which is difficult to be affixed on the product itself. Also customers and users do normally not like to have any markings visible on the product itself, especially on the glass. The request to additionally CE marking the key parts does make this even more complicate and normally not possible to comply.

Recommendation:
EuroWindoor recommends to make the order to affix the CE marking arbitrary and to allow to have CE on accompanying documents equivalent to affixing to the construction product itself. Because the manufacturer is responsible for the complete product there is no need to have each key part additionally CE marked.

7 Additional environmental obligations of manufacturers (Article 22)

7.1 Certain requirements are not always applicable and not always exact to define

It is positive that the requirements listed in 22(2) shall only apply when specified in a harmonised standard or a delegated act. However, the requirements can only be seen as indicative, e.g. 22(2d) requires durability not to fall below average of products of that category. That is per definition not possible for all products. Another example is the “state of the art” mentioned in 22(2a) that cannot be defined as a fixed level and differs between Member States and regions. 22(2f) requires information on repair to be made available. This may be relevant for some construction products and for some areas but certainly not for all. 22(2j) requires manufacturers to regain ownership of surplus and unsold products. Again, this may be possible for some types of construction products but not for all, e.g. a door or window is typically made to order and may be painted for a specific use and in a size requested by the customer. Such a product cannot be regained without serious economic risk for the manufacturer.

Recommendation:
Make it clear that the requirements listed in 22(2) are only applicable where relevant. Please use only clearly defined requirements.

7.2 Environmental sustainability labelling

In 22(5) empowers the Commission to establish an environmental sustainability labelling including a “traffic-light-labelling”. This contradicts the general consensus that the environmental effects of construction products can only be assessed as part of the final construction works and always depends on the required technical performance.

Recommendation:
EuroWindoor suggest to refrain from this option – or to limit the potential scope to areas where there is clear documentation that environmental sustainability labelling of construction products on individual basis is scientifically sound.

8 Declaration of environmental characteristics (Annex I Part A 2)

According to article 11(2) the declaration of performance shall be drawn up using the model set out in Annex II and at least cover mandatory essential characteristics listed in Annex I Part A Point 2 e.g. climate change effects. Environmental characteristics are to assess according to Art. 22(1)) with harmonised technical specifications or using a software made freely available on the website of the European Commission.
These methods/procedures for the Life Cycle Assessment due to varying system boundaries and assumptions and methodological choices have problems with reproducibility and are ignoring effects from different use. Today the Environmental Product Declarations according to EN 15804 are widely used and accepted to deliver information on the environmental characteristics of construction products.

Recommendation:
Construction products like windows are often complex products fulfilling a lot of functions and the environmental characteristics as climate change effects depend not only on the product, but also on the construction/building and his position. Therefore the common methodology for the determination of environmental characteristics of construction products needs to be in accordance with EN 15804. The rules for construction products according to EN 15804 should not change and continue allowing for example the use of generic data, use of company average data and using different scenarios for e.g. end-of-life as manufacturers often do not know the place of use of the product after placing on the market.
For generic data the Annex V 7. e) with an audit of the manufacturing plant, the suppliers and service providers does not make sense und needs to be modified. Requiring „zero tolerance“ in the verification of company specific or secondary data regarding environmental sustainability is not possible, because the assessment is bound to be based on a lot of assumptions or using „averages“.

9 Product information requirements (Annex I Part D)

Additionally to the legal implications for confidential information explained in clause 2, EuroWindoor would comment on the impact of the huge amount of requested information. According to 21(6) products shall be accompanied by information set out in harmonised technical specifications and in Annex I Part D in a language determined by the Member State.
EuroWindoor did ask a manufacturer to draft a product information for a simple external doorset according to Annex I Part D which you can find as an Annex to EuroWindoor`s feedback. EuroWindoor found that this information for a single product (e.g. a doorset) is too comprehensive. The amount of content is so huge because of many information has to be delivered which is usually not needed by the customer. Especially windows are normally assembled in the factory, delivered and usually installed by professionals (often by the manufacturer himself). For those products information like instructions for the assembly, installation and connection, including drawings, diagrams… according to Annex I Part D 1.3. (a) (ii) is useless.
Additionally, documented information for all products of similar type is mostly the same so the customer receives unnecessarily multiple identical product information in paper form which goes against the resource efficiency and the European climate targets.

Recommendation:
EuroWindoor recommends to only demand information from the manufacturer about the product which is needed by the customer and only when specified in the standardisation request as it is different for each product group.
It should be possible to provide the information for download on the manufacturer's website, because of the comprehensive amount of documentation which is often the same for different products of similar type. The link for the information can be provided in the DoP by the manufacturer.

10 Committee on Construction Products (Article 88)

EuroWindoor believes that a successful implementation of the CPR requires close cooperation between all relevant stakeholders, not least that Member States finds that the rules fulfil their national needs for documenting construction works. EuroWindoor thinks an important tool for this is how the Committee of Construction Products is organized and mandated giving some of the responsibility to the Member States.

Recommendation:
EuroWindoor suggest that the mandate of the Committee of Construction Products is changed from an assisting to a co-deciding role, e.g. based on majority voting among the Member State representatives and where the vote of the Commission could be decisive in the event of a tie.

11 Assessment and verification system (Annex V)

11.1 Increase of costs and burden by the new AVS

Members of EuroWindoor manufacture products which predominantly fall within the present AVCP 3 which is closest related to the suggested AVS 3. While we find it positive to establish a stronger certainty for NB to make sure that the products assessed are in fact similar to what is placed on the market, EuroWindoor finds the proposed AVS unpractical, expensive and not necessarily meeting the goal. Furthermore, only large manufacturers will have the competence to assess the performance themselves with expensive test equipment and will in the end rely on test laboratories to assess the performance. Checking 20 (30, 40, 50) random documentation points may be too many for some products and maybe too little for others. It may help the NB verifying the product but will not help the manufacturer further in his FPC or the market surveillance in assessing, if the marketed product is in fact meeting the declared performance. It will also lead to „double testing", because a lot of tests cannot be verified by the NB without testing themselves.
Additionally some product standards like EN 14351-1 already include simplified procedures (tabulated values or simple calculations) for some characteristics on the safe side to make give a cost effective solution for complex products like windows with often changing performance characteristics (e.g. U value) depending from different combination of components. The use of those simplified procedures does not really require Notified Bodies as it is easy to check by everybody while the use of simplified procedures should always be linked to AVS 4. It will reduce costs for CE marking and the bureaucratic burden which is essential.

Recommendation:
EuroWindoor sees several other ways to accommodate the objective of increasing the liability of declared performances and information without having to rethink the entire system, but through modifications and amendments to the existing AVCP systems. One idea could be to focus on the design parameters of the assessed product which have special impact on the assessed performance (the Critical to Performance parameters) rather than checking random points. They should be suggested by the manufacturer, verified by the NB - including detailed control that the product corresponds to the drawings and technical information - and documented in the assessment report. This information is useful for the manufacturer's FPC and later for the Market Surveillance Authority to verify that the manufacturers FPC in fact addresses and verifies the Critical to Performance parameters.
Additionally the use of those simplified procedures should always be linked to AVS 4.

11.2 Rule for withdrawing certificate (Annex V 7. f)

This requirement for NB to refuse issuing certificates or withdrawal of certificate for minimum one year before permitting a new issue when failure rates have been trespassed or where a grave error occurs is not possible, because there is no definition for „non-compliance“ or „grave non-compliance“ but the consequences (and legal issues following them) will be crippling for manufacturers and NBs! A fire door manufacturer would be forced out of business – and if this is taken to court and the decision of the NB has to be revoked, the compensations will easily be exceeding the NBs insurance coverage.

Recommendation:
The certificates shall become reissued when reason for “non-compliance” is solved.

12 Simplified Procedures (Chapter VII)

12.1 Use of appropriate technical documentation (Article 64)

The known “cascading type testing” of the current CPR Article 36 1. (c) existing CPR is now presented in Article 64 1 b) and limited to products covered by harmonised technical specification. There are products on the marked which do not fall under a harmonised product standard and are therefore covered by European Assessment Documents (EADs), examples are EADs untraditional stairs or structural sealant glazing system (bonded glazing). As EADs are very expensive the provider of such a system normally does the type testing and supplies the documentation to the manufacturers following the same cascading procedure. Actually, products according to EADs are excluded from the solution.

Recommendation:
EuroWindoor recommends to include also European Assessment Documents for the “cascading” procedure in 64 1 b).

12.2 Omission of option “shared type testing” of the current CPR Article 36 1. (b)

The option “shared type testing” of the current CPR Article 36 1. (b) where the manufacturer may use the test results obtained by another manufacturer only after having obtained an authorisation of that manufacturer is often used by SME to reduce costs and has been not included in the new CPR.

Recommendation:
EuroWindoor recommends to reintroduce the “shared type testing” of the current CPR Article 36 1. (b) in 64 as it is an important simplified procedure for SME.

13 Transition to new CPR (Art. 93)

EuroWindoor realises that the Article 93(5) could make all existing test documentation invalid five years after a new hTS enters into force. We would like to point out that the sector invested billions of Euros to test and comply with the existing CPR which would be required again for retesting only because a new hTS enters into force.
Relevant for retesting should only be substantial changes of the product or of the test method leading to a negative influence of the performance of the product.

Recommendation:
EuroWindoor suggest to keep the test reports of the existing CPR valid as long as the test method is not changed.

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About EuroWindoor AISBL – EuroWindoor AISBL was founded as an international non-profit Association, in order to represent the interests of the European window, door and facade (curtain walling) sector. Our 19 national associations speak for European window, door and facade manufacturers that are in direct contact with consumers, and thereby having large insights on consumers' demands and expectations. We are at the forefront interacting with dealers, installers and consumers buying windows and doors, and the companies behind the associations cover selling all over Europe.

EuroWindoor AISBL
Schuman Business Center, 40, Rue Breydel, 1040 Bruxelles / Belgium
or
Walter-Kolb-Str. 1-7, 60594 Frankfurt am Main / Germany
Internet: www.EuroWindoor.eu

EU Transparency Register ID Number: 29749561729-18

Example of documentation according to Annex 1 Part D

1.1 Product identification:
unequivocal type number on the basis of the determination of product type pursuant to Article 3 point 31

SAPA 2086 *door Type no. D00.15.1*

1.2 Product description

a) Intended uses

External pedestrian door for buildings to be installed at Town Hall in Høje Taastrup
The door is intended to be used as door on escape route.

b) Intended users

All people with access to the building – the building has public access.
The intended end-user is not identical to the client/requester of the door

c) Conditions of users

End-users are not known to HSHansen
End users can be a broad section of the population

d) Estimated average and minimum service life span for intended use (durability)

50 years acc. EPD-K/Sapa_EPD_ECOproduct.21.05.2021, Please see Annex A:

e) Nominal dimensions (drawings)

Please see Annex B:

f) Main materials used

Aluminium profiles with thermal break of Polyamide PA6.6,
Insulating Glass Unit

g) Key parts

Insulating Glass Unit CE-marked according to EN 1279, 6(tgh)/18/6/18/44.1(lam)
Hardware (visible hinges)
Lock and cylinder: EL 495-35
Handle (internal): Push bar EN1125
Door closer: RUKO DC700 + G461
Magnetic contact (both leaves): MC 250
Standard 4mm SAPA gasket

1.3 Transport, installation, maintenance, deconstruction and demolition rules:

a) Safety during transport, installation, maintenance, deconstruction and demolition:

(i) potential risk of the product and any reasonably foreseeable misuse thereof

The door is to be used as an escape room from the conference room and is therefore equipped with appropriate push bar according to EN 1125.

(ii) instructions for the assembly, installation and connection, including drawings, diagrams and, where relevant, the means of attachment to other products and parts of construction works

Please see Annex C:

(iii) instruction for operation and maintenance to be carried out safely, including the protective measures that should be taken during these operations

Doors should be installed by trained craftsmen with knowledge of mounting doors with door closers. Protective measures should be taken according to regulations from the Danish Working Environment Authority.

(iv) if necessary, instructions for the training of the installers or operators

Not applicable.
Doors will be installed by HSHansen installers.

(v) information of what to do in case of failure or accidents

(b) Compatibility and integration into systems or kits

(i) compatibility with other materials or products regardless of whether they are covered by this Regulation or not

Unknown to the manufacturer when placing the product on the market.

(ii) Electric and electro-magnetic compatibility

Not applicable.

(iii) Software compatibility

The product does not incorporate software

(iv) integration info systems or kits

Not applicable

c) Maintenance needs with a view to maintaining the performance of the product during its service life span

(i) description of the adjustment and maintenance operations that should be carried out by the users and the preventive maintenance measures that should be observed

*Please see **Annex C***

(ii) The type and frequency of inspections and maintenance required for safety reasons and, where appropriate, the parts subject to wear and the criteria for replacement

*Please see **Annex D**:*

(iii) Information on what to do in case of failure or accident

In case of failures on the function of the door contact:
HSHansen A/S
Bredgade 4, 6940 Lem
www.hsh.dk
96751100

In case of accidents contact the janitor of the building

d) Safety during use

(i) instruction on the protective measures to be taken by the user, including where appropriate, the personal protective equipment to be provided

No protective measures should be taken by the users of the door
No protective equipment is needed to use the door

(ii) instruction designed for the safe use of the product, including the protective measures that should be taken during its use

The door is equipped with a push bar according to EN 1125 to ensure safe escape from the room in case of fire.
No protective measures are needed.

(iii) information on what to do in case of failure or accident during use

In case of failure or accidents the janitor of the building should be contacted

e) Training and other requirements necessarily to be fulfilled for safe use

Not applicable

f) Risk mitigation possibilities going beyond points 1.2 to 1.3

Unknown to the manufacturer when placing the product on the market.

1.4 Contact details of the manufacturer or the representative

a) address/website/telephone number /email details

HSHansen A/S
Bredgade 4, 6940 Lem
www.hsh.dk
96751100 / info@hsh.dk

b) if possible, specific contact details should be given for

(i) information of installation, maintenance, use, deconstruction and demolition

HSHansen A/S
Bredgade 4, 6940 Lem
www.hsh.dk
96751100

(ii) information on risks

HSHansen A/S
Bredgade 4, 6940 Lem
www.hsh.dk
96751100

(iii) information in case of failure

HSHansen A/S
Bredgade 4, 6940 Lem
www.hsh.dk
96751100

1.5 Contact details of relevant authorities in case of risky or faulty products

Bolig- og Planstyrelsen
Carsten Niebuhrs Gade 43
1577 København V

1.6 Rules or recommendations for repair, deconstruction, reuse, remanufacturing, recycling or safe deposit

The door can at end-of-life be separated into fractions that can be recycled to produce new products. The main fractions are aluminium and glass.
Please see Annex A:

Annex A: Environmental Product Declaration

ENVIRONMENTAL PRODUCT DECLARATION

according to ISO 14025 and EN 15804

Declaration owner	Hydro Building Systems Germany GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-K/Sapa_EPD_ECOproduct.21.05.2021.13:20:26
Date of issue	21.05.2021
Valid until	21.05.2026

K/Sapa_EPD_ECOproduct; 1: 2086 Door 1 Leaf Open OUT

Hydro Building Systems

www.ibu-epd.com / https://epd-online.com

Institut Bauen und Umwelt e.V.

sapa:

sapa:

1. Product general information

Hydro Building Systems

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Deutschland

Owner of the declaration
Hydro Building Systems Germany GmbH
Einsteinstrasse 61
89077 Ulm
Deutschland

Declaration number
EPD-K/Sapa_EPD_ECOproduct.21.05.2021.13:20:26-English

Declared product/declared unit
Door of the series ,with the dimensions
(width x height) 1 230 mm x 2 180 mm.

This declaration is based on the product category rules:
Windows and doors, 11.2015
(PCR tested and approved by the independent committee of experts)

Date of issue
21.05.2021

Valid until
21.05.2026

Scope of application:
This declaration is a company EPD and refers to the aluminium construction product described, which is manufactured using the profile system described in a given dimension and with standard glazing. The product declared is specified by the profile series, product name, product properties and view as shown in this EPD document. This EPD is based on software created by Hydro Building Systems Germany GmbH and provided to the creator via TechDesign. The data entry is performed by the creator responsible for the specifications described in this EPD and the manufacture of the door. The production location of the declared door is the location of the creator.
The owner of the declaration is liable for the underlying information and proof, liability of IBU with regard to manufacturer information, LCA data and proof is excluded.

Verification
The CEN standard /EN 15804/ serves as the core PCR
Verification of the EPD by an independent third party according to /ISO 14025/
internal ☐ external ☐

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of the Instituts Bauen und Umwelt e.V.)

Hans Peters
(Managing director IBU)

Matthias Schulz
(Independent auditor appointed by the SVA)

2. Product

2.1. Product description / product definition

Profile technology:
The aluminium door- and window system of the 1086/2086 series is designed as an insulated multi-chamber composite system. The door- and window system consists of construction depth of 86 mm and is characterized by the specification of the construction depth behind the series names 1086/2086.

The aluminium door system of the series 2050/2060 is designed as an one chamber system. The door system consists of construction depths 50/60mm and is characterized by the specification of the construction depth behind the series names 2050/2060.

Frame connections by means of patented, mechanically secured corners and butt joint technology ensures high components strength.

The surface Treatment takes place opitionllay by means of anodizing, wet and powder coating.

Sealing concept:
Fitting, glazing and threshold stop seals are made of EPDM or EPDM foam and are used in the following variants:

- All round installation without impact in the corner area
- With gluing of joints

Fittings:
Tested doors with system matched fittings and door closing devices. Available opening options are singled and double leaf hinged doors, opening inwards and outwards, finger protection doors, panic-/emergency doors, doors with fixed and moveable side parts, depending on function requirements and fitting application.

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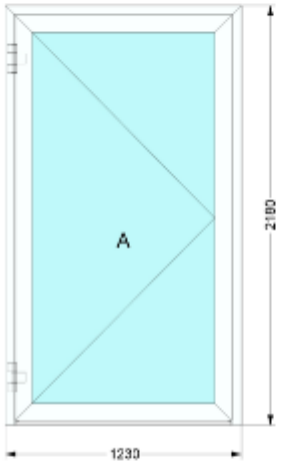
Tested windows with system matched fittings.
Available opening options are turn, turn-/tilt, tilt first, top/bottom hanged, opening inwards and outwards depending on fitting/application.

Heat protection:
The insulation area of 1086/2086 is constructed as a triple-chamber system. By means of continuous heat insulating strips made of fibre plastic.

Infill thickness:
Infill thickness up to 60 mm

Burglar prevention:
Burglar prevention according to /DIN EN 1627/ up to RC3.

FB4 S/FB4 NS and combinable burglar prevention.



Product:
Opening type: npd
Area: 2.68 m²
Transparent area: 0.00 m²
Surface treatment: PAINTED

For marketing in the EU/EFTA, /Regulation (EU) No 305/2011/. The product requires performance specifications taking into account the harmonised product standard /DIN EN 14351 -1/, window and external doors and the CE marking.
For use, the respective national regulations apply.

2.2. Application
The 2086, 2050, 2060 door series is used as interior and exterior doors in residential and commercial buildings.

2.3. Technical data

Structural data

Designation	Value	Unit
Heat transfer coefficient glass according to /DIN EN 673/	0	W/(m²K)
Total energy transmittance glass according to /DIN EN 410/	NaN	%
Heat transfer coefficient profile frame according to /DIN EN 10077-2/	0	W/(m²K)
Heat transfer coefficient door according to /DIN EN 10077-1/	0	W/(m²K)
Heat transfer coefficient panel according to /DIN EN 6946/	npd	W/(m²K)
Joint permeability coefficient according to /DIN EN 1026/	-*)	m³/h
Driving rain proof according to /DIN EN 12208/	npd	Class
Sound insulation index against outside noise according to /DIN EN ISO10140/ and /DIN EN ISO717/	-*)	dB
Deflection due to wind loads according to /EN 12210/	npd	mm
Deflection due to vertical loads according to /EN 947/	-*)	mm
Fire resistance class for fire doors and windows according to /DIN EN 13501/	-*)	Class
Air permeability according to /DIN EN 12207/	npd	Class
Radiation properties according to /DIN EN 410/ Total energy transmittance g according /DIN EN 13363-1/ and /DIN EN 13363-2/	npd	%
Radiation properties according to /DIN EN 410/ Light transmission degree TI according /DIN EN 13363-1/ and /DIN EN 13363-2/	npd	%
Fittings type	-*)	-
Opening type	-*)	-
Sound insulation class (SSK1–SSK6)	-*)	Class
Sound reduction index, Rw (c, ctr)	-*)	dB
Burglar prevention class RC1 – RC4	-*)	Class

*) omitted, as not a mandated property according to product regulation /DIN EN 14351/.

Product according to /CPR with hEN/:
Performance values of the product according to the performance specifications with regard to its essential characteristics according to /DIN EN 14351-1/.

2.4. Delivery condition
All details about the present door series are order specific.
The balanced door element is delivered to the installation site ready for installation as described in chapter 2.1.

Number of pieces: 1 piece
Width: 1 230 mm
Height: 2 180 mm

2.5. Raw materials/auxiliary materials
The aluminium window considered consists of the following materials:

Designation	Value	Unit
Aluminium-Druckguss	1.52	kg
Stahl	0.03	kg
Edelstahl Schraube	0.07	kg

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Aluminium	1.36	kg
PE-HD	0.08	kg
Polyamid 6	0.00	kg
PP	0.02	kg
EPDM Schaum	0.76	kg
REDUXA	24.01	kg
Glas, Float	48.36	kg
Polyamid 66 GF	3.81	kg
EPDM	0.31	kg
Total Weight	80.33	kg

The product/article/at least a partial product contains substances from the candidate list (15.01.2018) above 0.1 by mass-%: no.

The product/article/at least one partial product contains further CMR substances of category 1A or 1B above 0.1 % by mass in at least one partial product which are not included in the candidate list: no

Biocidal products have been added to this construction product or it was treated with biocidal products (this is a treated product within the Biocidal Products Ordinance (EU) no. 528/2012): no

2.6. Manufacturing

The surface treatment of the extruded aluminium profiles takes place before the actual processing by anodizing or powder coating.
The extruded and thermally separated aluminium profiles are processed by sawing, milling, drilling and punching on corresponding semi or fully automatic machines. Scrap from processing (profile sections, chips) is collected sorted and recycled as secondary materials.
Subsequently, the profiles are fixed to frames.
The permanently elastic seals are matched to the respective receiving area in the aluminium profile and are removed automatically or by hand.
The fittings and other components are matched to the 2086 product series. They are positively and/or frictionally connected to the profile system.
The glazing, panels or other fillings are used and secured depending on the overall construction (weight, dimensions, etc.) in the manufacturing of the metalwork shop or directly during assembly on the site.

2.7. Environment and health during production

Measures that go beyond national regulations for environmental protection and occupational safety are not required during the entire manufacturing process.

2.8. Product processing / installation

The bases for the processing and installation of the 2086 product series are the currently applicable processing guidelines of Hydro Building Systems Germany AB and the notes detailed here. There are also recommendations for suitable aids contained therein.
In addition, standards and guidelines for the planning, execution and installation of windows and doors must be observed.
Particular attention is drawn to the /Guidelines for the design and installation of windows and entrance doors/ from RAL Gütegemeinschaft Fenster und Haustüren e.V. In this document explanations for training and the execution of the building connection are provided.

2.9. Packaging

The door elements are stacked on transport racks.
A proper securing of the elements is achieved by tie rods and straps. Elastic intermediate bearings between the individual elements prevent damage to the paintwork.
When transporting on an open loading surface, the transport unit can be wrapped with PE film to protect it from dirt and moisture.
PE foil, PE foam moulded parts, cardboard and spruce wood are used as packaging materials. These are taken to the regional waste sorting system or reused in the recycling process.

2.10. State of use

Doors of the 2086 product range are installed in a thermally separated design as a building closing component and are exposed to weather conditions.
As a thermally non-separate construction, the product can also be installed in the building interior.
Depending on the type of opening and the installed fitting or other attachments, the maintenance instructions of the hardware manufacturer must be observed.

Maintenance or care of the profile surface is not required.

2.11. Environment & health during use

The door element is stable in the wall opening to fasten or build in as a building closure.
According to research report /Emissions from building elements/, ift Rosenheim, there is no danger to the environment.
Under normal conditions of use and regular maintenance, there is no danger to the health of the user.

2.12. Reference service life

According to the /Sustainable Building Assessment System/ exterior doors comply with Code 334.211 with a service life of more than 50 years.

2.13. Exceptional influences

Fire

According to the /DIN EN 14351-1/ window and door product standard, doors are without properties regarding fire protection and smoke proofing.
If this product has properties, these are listed under chapter 2.3 Technical data.
A classification of the individual components according to /DIN EN 13501-1/ resulted in:

Fire protection

Designation	Value
Building material class	E
Burning dripping	d0
Smoke development	s1

Water

Due to the unforeseen effects of water no substances are released.
It is unlikely that there will be any impact on the environment.

Mechanical destruction

Mechanical destruction can cause sharp edges at the break points.
Negative impacts on the environment are not to be expected in case of unforeseen mechanical destruction.

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2.14. End of life phase

The theoretical service life of the actual door frame exceeds the service life of, for example, the glazing or the permanently elastic seals. If individual components of the doors are renewed, the door frame can be used again according to the original purpose. This corresponds to a so-called "re-use" of the door frame.
The aluminium profiles are 100 % recyclable. Primary and secondary aluminium have identical product quality. Scrap from demolition, conversion or refurbishment can easily be separated and recycled (via the recycling industry). The process waste produced in the production and further processing of the profile is completely recorded in the factory and processed into new input material in a recycling process in the re-melting plant. Press studs can be made with reused extruded profiles as the starting material.

2.15. Disposal

Aluminium

Due to its high value, aluminium scrap is not disposed of as a raw material but is recycled in an established cycle for reuse or recycling.
Old aluminium doors are collected regionally, shredded in shredders and cleaned of foreign bodies. Recycling companies separate metals and non-metallic materials with specially developed processes, so that aluminium is sorted and separated from fractions such as stainless steel, iron, other non-ferrous metals, plastics and other materials. Separation methods used today guarantee that aluminium scrap can be returned to foundries all over Europe after appropriate processing
Al-Mg-Si-0.5 press studs can be remelted and pressed into profiles in press shops.
/EAK/ 170402 Aluminium

Metals

Low and high alloy steels and other non-ferrous metals are separated from the aluminium fraction by separation during recycling and are recycled separately.
/EAK/ 170403 lead
/EAK/ 170404 zinc
/EAK/ 170405 iron and steel
/EAK/ 170406 tin
/EAK/ 170407 mixed metals

Flat glass

Production scrap of flat glass during the production is directly taken for local recycling. When dismantling or renovating the doors, the glazing is removed from the frame on location at the construction site and taken separately to the glass industry return system/collection circuit. Architectural glass is collected, separated from foreign substances, granulated and reused or deposited in raw materials.
/EAK/ 170202 Glass

Plastics/permanent elastic sealants

Plastics and sealants can be recycled materially or thermally.
/EAK/ 170203

Insulation materials

Insulating materials made of panels or attachments are not soiled and can be recycled. Soiled insulation materials are deposited on a construction material landfill. For details on the current take back and recycling recommendations refer to the insulation industry.
/EAK/ 170604

2.16. Further information

On the SAPA homepage you will find more information about the products.
www.wicona.de

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3. LCA: Calculation rules

3.1. Declared unit

The declared unit is a door in specific dimensions 1 230 mm x 2 180 mm with a frame proportion of 100.00 %

Declared unit

Designation	Value	Unit
Declared unit door 1 230 mm x 2 180 mm	1	Piece
Conversion factor to 1kg	1/80.33	-
Conversion factor to the reference door 1.23 m x 2.18 m	1.00	-

3.2. System limit

This EPD is an EPD of the cradle-to-gate type - with options.
The stage of production (module A1-A3 raw material supply, transport to the factory and production), the stage of construction of the structure (module A4 transport to the construction site), parts of the end of life cycle (modules C3 and C4 waste treatment and disposal) are taken into account. In addition, the credits and charges are considered outside the system limits (module D).

3.3. Estimates and assumptions

For the transport of the raw materials to the factory (module A2) a distance of 500 km is assumed.
The packaging materials are not considered in this study due to their minor influence on the results.
For the disposal of metals, material recycling (module D) is modelled (e.g. aluminium profiles). If necessary, a collection rate of 96% is taken into account. For the remainder, landfill is accepted (module C4).
Plastic parts are thermally recycled (module C3), whereby energy is gained. Credits from the substitution or saved expenses for electricity and steam are allocated to module D.
For glass, a sink is modelled. It can be assumed that recycling takes place. However, this is not included in the LCA, as no data are available.

3.4. Truncation rules

All materials that are included in the parts list from TechDesign are taken into account in the calculation of the life cycle assessment. Packaging is neglected due to different options and the minimal effect on the results.

3.5. Background data

All background data are taken from the databases of /GaBi ts Software/. The version underlying this EPD is stated at the end of the bibliographic references. The consistent records contained in the GaBi ts database are documented in the online /GaBi-Documentation/.
For some precursors existing EPDs are used, if available, which were created in accordance with the current standard /DIN EN 15804/.

3.6. Data quality

The last revision of the GaBi ts background data was performed in 2018.
The quality and representativeness of data from TechDesign can be considered high.

3.7. The period under consideration

This declaration was created on 21.05.2021.

3.8. Allocation

The life cycle assessment takes into account the recycling potential of the metal parts used. Of the metal scrap produced in the system from the production and end of life of the metal parts, the required amount of secondary aluminium for the production is first returned or saturated ("closed loop"), followed by the awarding of a credit for the remaining net scrap quantity.
Environmental impacts of combustion of plastic parts in the EoL scenario are attributed to module C3; resulting credits for thermal and electrical energy are declared in module D.
The credits are based on European average data for the environmental burden of the production of electrical energy and thermal energy from natural gas.

3.9. Comparability

In principle, a comparison or evaluation of EPD data is only possible if all records to be compared were compiled in accordance with /DIN EN 15804/ and the building context or product specific specifications are taken into account.

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4. LCA: Scenarios and other technical information

The following technical information is the basis for the declared modules or can be used for the development of specific scenarios in the context of a building assessment, if modules are not declared (MND).

Transport to construction site (A4)

Designation	Value	Unit
Liters of fuel		
Train (electric)	0.01158	l / 100 km
Plane (kerosine)	0.42164	l / 100 km
40 t truck (Diesel)	0.00165	l / 100 km
7,5 t truck (Diesel)	0.00591	l / 100 km
22 t truck (Diesel)	0.00231	l / 100 km
Ship (heavy heating oil)	0.00040	l / 100 km
Transport distance		
Train	0.00	km
Plane	0.00	km
40 t truck	0.00	km
7,5 t truck	0.00	km
22 t truck	0.00	km
Ship	0.00	km
Utilisation (including empty runs)		
Train	51.00	%
Plane	61.00	%
40 t truck	55.00	%
7,5 t truck	40.00	%
22 t truck	66.00	%
Ship	48.00	%
Volume utilisation factor	1	-

Reference useful life

Designation	Value	Unit
Reference service life	50	a

End of life (C1-C4)

Designation	Value	Unit
Separately collected waste type	56.33	kg
Collected as mixed construction waste	23.05	kg
For reuse	0.00	kg
For recycling (D)	73.63	kg
For energy recovery (C3)	5.63	kg
For landfilling (C4)	1.08	kg
For thermal utilisation (C4)	0.00	kg

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5. LCA: Results

In the following, the results of the indicators of the impact assessment, resource use as well as waste and other output flows related to 1 piece door in specific dimension 1 230.00 mm x 2 180.00 mm are shown.
For the conversion to the unit declared see chapter 3.1
LCA results are based on the characterisation method CML

SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT, MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1]	Refurbishment[1]	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X

RESULTS OF THE LIFE CYCLE ASSESSMENT ENVIRONMENTAL IMPACT:
1 230 mm x 2 180 mm

Parameter	Parameter	Unit	A1-A3	A4	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	199.44	0.00	15.37	1.84E-03	-127.97
ODP	Depleting the stratospheric ozone layer	[kg CFC_{11}-Eq.]	9.09E-06	0.00	2.33E-07	4.15E-16	-7.55E-06
AP	Acidification potential of soil and water	[kg SO_2-Eq.]	1.01E00	0.00	2.47E-02	1.09E-05	-7.83E-01
EP	Eutrophication	[kg $(PO_4)^{3-}$-Eq.]	9.54E-02	0.00	5.89E-03	1.50E-06	-4.13E-02
POCP	Forming potential for tropospheric ozone	[kg Ethen-Eq.]	-1.81E-02	0.00	1.21E-03	8.45E-07	-6.53E-02
ADPE	Potential for the abiotic degradation of non-fossil resources	[kg Sb-Eq.]	3.58E-04	0.00	4.01E-05	7.04E-10	-3.04E-04
ADPF	Potential for the abiotic degradation of fossil fuels	[MJ]	2 165.07	0.00	35.99	2.37E-02	-1 249.80

RESULTS OF THE LIFE CYCLE ASSESSMENT RESOURCE ACCOUNT:
1 230 mm x 2 180 mm

Parameter	Parameter	Unit	A1-A3	A4	C3	C4	D
PERE	Renewable primary energy as an energy source	[MJ]	1 487.52	0.00	4.15E00	0.00E00	-559.34
PERM	Renewable primary energy to the material use	[MJ]	0.00	0.00	0.00	0.00	0.00
PERT	Total renewable primary energy	[MJ]	1 487.52	0.00	4.61E00	3.06E-03	-600.20
PENRE	Non-renewable primary energy as an energy source	[MJ]	2 155.75	0.00	175.26	0.00E00	-1 387.54
PENRM	Non-renewable primary energy to the material use	[MJ]	134.08	0.00	-134.08	0.00	0.00
PENRT	Total non-renewable primary energy	[MJ]	2 289.89	0.00	41.18	2.46E-02	-1 542.29
SM	Use of secondary materials	[kg]	14.15	0.00	0.00	0.00	0.00
RSF	Renewable secondary fuels	[MJ]	0.00	0.00	0.00	0.00	0.00
NRSF	Non-renewable secondary fuels	[MJ]	0.00	0.00	0.00	0.00	0.00
FW	Use of freshwater resources	[m^3]	5.87E00	0.00	4.24E-02	4.70E-06	-1.13E00

RESULTS OF LIFE CYCLE ASSESSMENT OUTPUT RIVERS AND WASTE CATEGORIES:
1 230 mm x 2 180 mm

Parameter	Parameter	Unit	A1-A3	A4	C3	C4	D
HWD	Hazardous waste for landfill	[kg]	7.25E-01	0.00	1.48E-01	4.24E-10	1.19E-01
NHWD	Discarded non-hazardous waste	[kg]	41.03	0.00	2.87E01	1.08E00	-61.72
RWD	Discarded radioactive waste	[kg]	4.15E-02	0.00	2.72E-04	3.58E-07	-1.99E-02
CRU	Components for reuse	[kg]	0.00	0.00	0.00	0.00	0.00
MFR	Materials for recycling	[kg]	0.00	0.00	22.40	0.00	28.83
MER	Materials for the energy recovery	[kg]	0.00	0.00	0.65	0.00	0.00
EEE	Exported electrical energy	[MJ]	0.00	0.00	17.00	0.00	0.00
EET	Exported thermal energy	[MJ]	0.00	0.00	30.66	0.00	0.00

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6. LCA: Interpretation

The LCA results in the production phase (modules A1-A3) are dominated by the materials used. The two main drivers are the material fractions of aluminium and glass. Other materials such as plastics or other metal components are less relevant in terms of mass as well as life cycle assessment. Transport (module A2) plays a significantly subordinate role compared to the materials used.
In Module C3, the costs of thermal utilisation of the plastics used are to be considered as a low contribution.

The recycling of aluminium is shown in Module D and includes both the costs of the remelting process and the credits for the expenses saved (substitution of primary aluminium). The credits are higher than the charges, which leads to negative LCA results in module D. The recycled aluminium, as well as the other metal parts used in the product, can be re-used in the next product system.

7. Proof

Proof regarding formaldehyde and MDI emissions, toxicity of the combustion gases, as well as the testing for pretreatment of the input materials (wood preservatives, heavy metals, etc.) are not relevant for the declared product, since no wood based materials are used.

The proof regarding VOC emissions is also classified as not relevant with reference to the final report/emissions from construction elements/, ift Rosenheim and therefore is not declared.
In the above mentioned independent study, representative metal components (e.g. metal windows) were tested for VOC emissions. The chamber test was terminated after 7 days due to a clear shortfall of the termination criteria, i.e. the decision criteria of the AgBB scheme were fulfilled.

8. Bibliographic references

/Institut Bauen und Umwelt e.V./, Berlin (ed.):
Creation of environmental product declarations (EPDs)

/General programme guide/
For the creation of EPD at the Institut Bauen und Umwelt e.V.(IBU), 10/2015
www.ibu-epd.com

/PCR Part A/
Institut Bauen und Umwelt e.V., Königswinter (ed.)
Product Category Rules PCR for Construction products Part A
Calculation rules for the life cycle assessment and requirements for the background report 2017-04
www.bau-umwelt.de

/PCR Part B/
Institut Bauen und Umwelt e.V., Königswinter (ed.)
Product Category Rules PCR for Construction products Part B
Guidance texts for building related products and services of the window and door component group 2015-11
www.bau-umwelt.de

/Regulation (EU) No. 305/2011/
also EU Construction Products Regulation (EU CPR) of the European Parliament and of the Council of 9 March 2011 establishing harmonised conditions for the marketing of construction products.
It replaces Directive 89/106/EEC.

/Sustainable Building Assessment System/
Service lives of components for life cycle analysis according to the Sustainable Building Assessment System
Revision: 22.02.2017.
www.nachhaltigesbauen.de

/GaBi ts Software/
GaBi ts 8.5 (Service Pack 35): Software and database for comprehensive accounting, thinkstep , 2018.

/GaBi documentation/
Documentation of the GaBi ts records of the comprehensive accounting database, thinkstep,
http://www.gabi-software.com/support/gabi/gabi-database-2018-lci-documentation

/Emissions from building elements/
Examination of the emissions of windows and exterior doors to evaluate the behaviour of building elements in terms of hygiene, environmental protection and health, Final report 2010,
ift Rosenheim

/Guidelines for planning and the execution of the installation of windows and entrance doors/
Guidelines for assembly, issue March 2010,
RAL-Gütegemeinschaft Fenster und Haustüren e.V.

/REACH/
Candidate list from 15.01.2018

/Maintenance and operating Instructions/
Hydro Building Systems Germany GmbH

/CPR with hEN/
Construction Products Regulations with harmonised European standard
Please refer to: /Regulation (EU) No. 305/2011/

/EAK/
European waste catalogue

/DIN EN 410/
Glass in building - Determination of photometric and radiation physical parameters of glazing;
German version DIN EN 410:2011-04.

/DIN EN 12208/

sapa:

/DIN EN 673/
Glass in building - Determination of thermal transmittance (U-value) - Method of calculation;
German version DIN EN 673:2011-04.

/DIN EN 717/
Acoustics - Assessment of sound insulation in buildings and building components - Part 1: Airborne sound insulation (ISO 7171:2013);
German version DIN EN ISO 717-1: 2013-06.

/DIN EN 947/
Swing doors - Determination of resistance to wind load against vertical load;
German version DIN EN 947:1999-05.

/DIN EN 1026/
Windows and doors - air permeability
Test methods;
German version DIN EN 1026:2017-03.

/DIN EN 1522/
Windows, doors, shutters - bullet resistant
Requirements and classification;
German version DIN EN 1522:1999-02.

/DIN EN 1627/
Draft - doors, windows, curtain walling, grilles and shutters - Burglar prevention - Requirements and classification;
German version DIN EN 1627:2011-09.

/DIN EN 6946/
Components - Thermal resistance and thermal transmittance coefficient calculation method (ISO 6946: 2007);
German version DIN EN ISO 6946: 2018-03.

/DIN EN 10077-1/
Thermal performance of windows, doors and shutters - Calculation of thermal transmittance coefficient - Part 1: General (ISO 10077-1: 2017);
German version DIN EN ISO 10077-1: 2018-01.

/DIN EN 10077-2/
Thermal performance of windows, doors and shutters - Calculation of thermal transmittance coefficient - Part 2: Numerical method for frames (ISO 10077-2: 2017);
German version DIN EN ISO 10077-2: 2018-01.

/DIN EN 10140-1/
Acoustics - Measurement of the sound insulation of components in a test bench - Part 1: Application rules for specific products (ISO 10140-1: 2016)
German version DIN EN 10140:2016-12.

/DIN EN 12207/
Windows and doors - air permeability - classification;
German version DIN EN 12207:2017-03.

Windows and doors - driving rain proof - classification;
German version DIN EN 12208:2000-06.

/DIN EN 12210/
Windows and doors - Wind load resistance - Classification;
German version DIN EN 12210:2016-09.

DIN EN 13363-1/
Sun protection devices in combination with glazing - Calculation of solar radiation and light transmittance Part 1: Simplified procedure;
German version DIN EN 13363-1: 2009-09.

/DIN EN 13363-2/
Sun protection devices in combination with glazing - Calculation of solar radiation and light transmittance Part 2: Detailed calculation method;
German version DIN EN 13363-2: 2007-04.

/DIN EN 13501/
Classification of construction products and types regarding fire behaviour - Part 1: Classification with the results of the fire behaviour tests of construction products;
German version DIN EN 13501-1: 2010-01.

/DIN EN ISO 14025/
Eco-labelling and declarations - Type III Environmental declaration - Principles and procedures;
German version DIN EN ISO 14025: 2011-10.

/DIN EN 14351/
Windows and doors - Product standard, performance characteristics - Part 1: Windows and exterior doors;
German version DIN EN 14351-1: 2016-12.

/DIN EN 14351/
Windows and doors - Product standard, performance characteristics - Part 2: Interior doors without fire-protection and/or smoke proofing properties;
German version DIN EN 14351-2: 2014-06.

/DIN EN 15804/
Sustainability of buildings - Environmental product declarations - Basic rules for the product category construction products;
German version DIN EN 15804: 2014-07.

This declaration is based on the versions:
TechDesign Version 8.2.300.23
Mapping Liste Version 1.5
LCA-Indikatoren Liste Version 1.0
Datenbank Version 8.2.300.23.01
Gabi Service Pack Version 36
EPD Template Fenster Version 1.0

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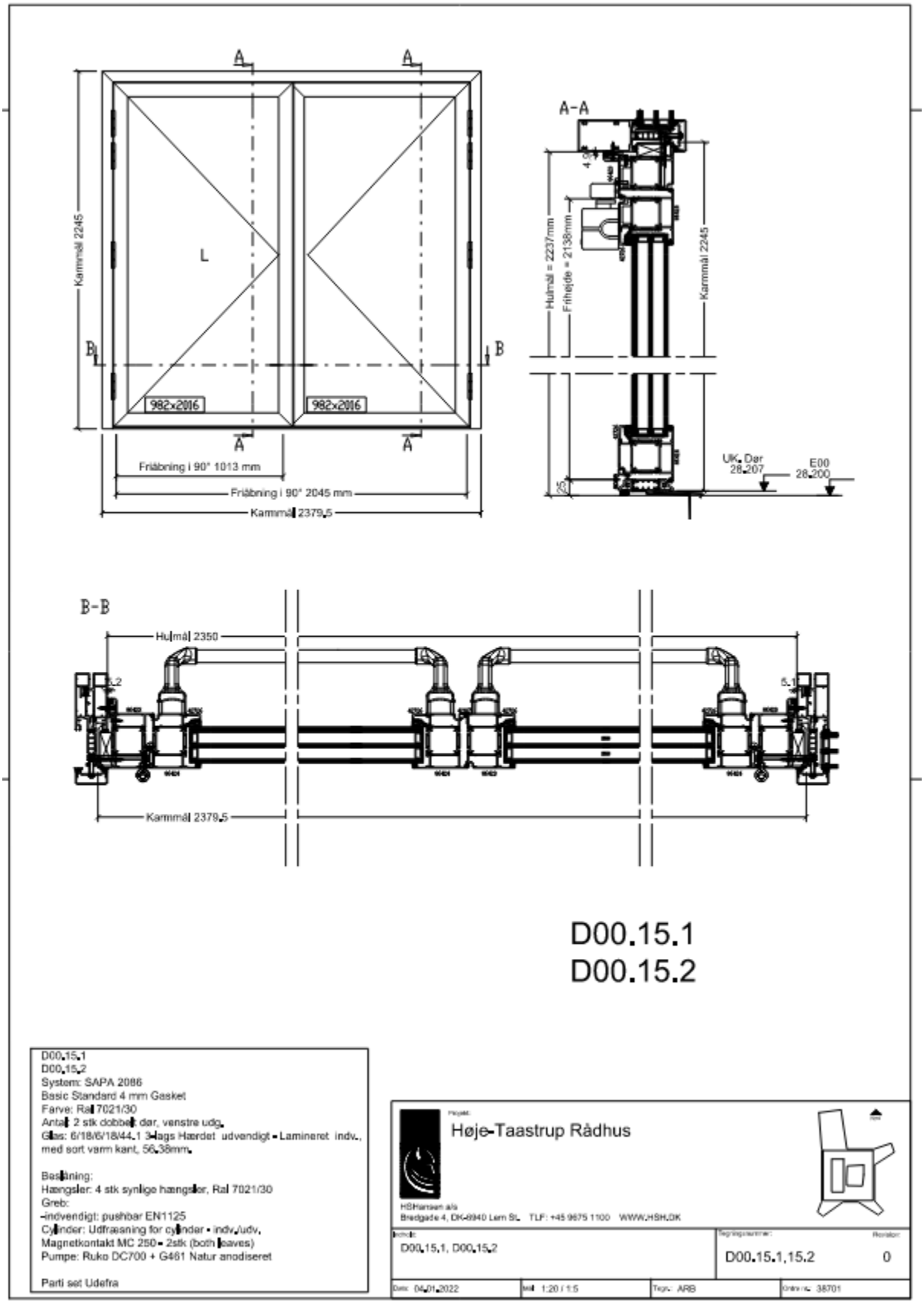
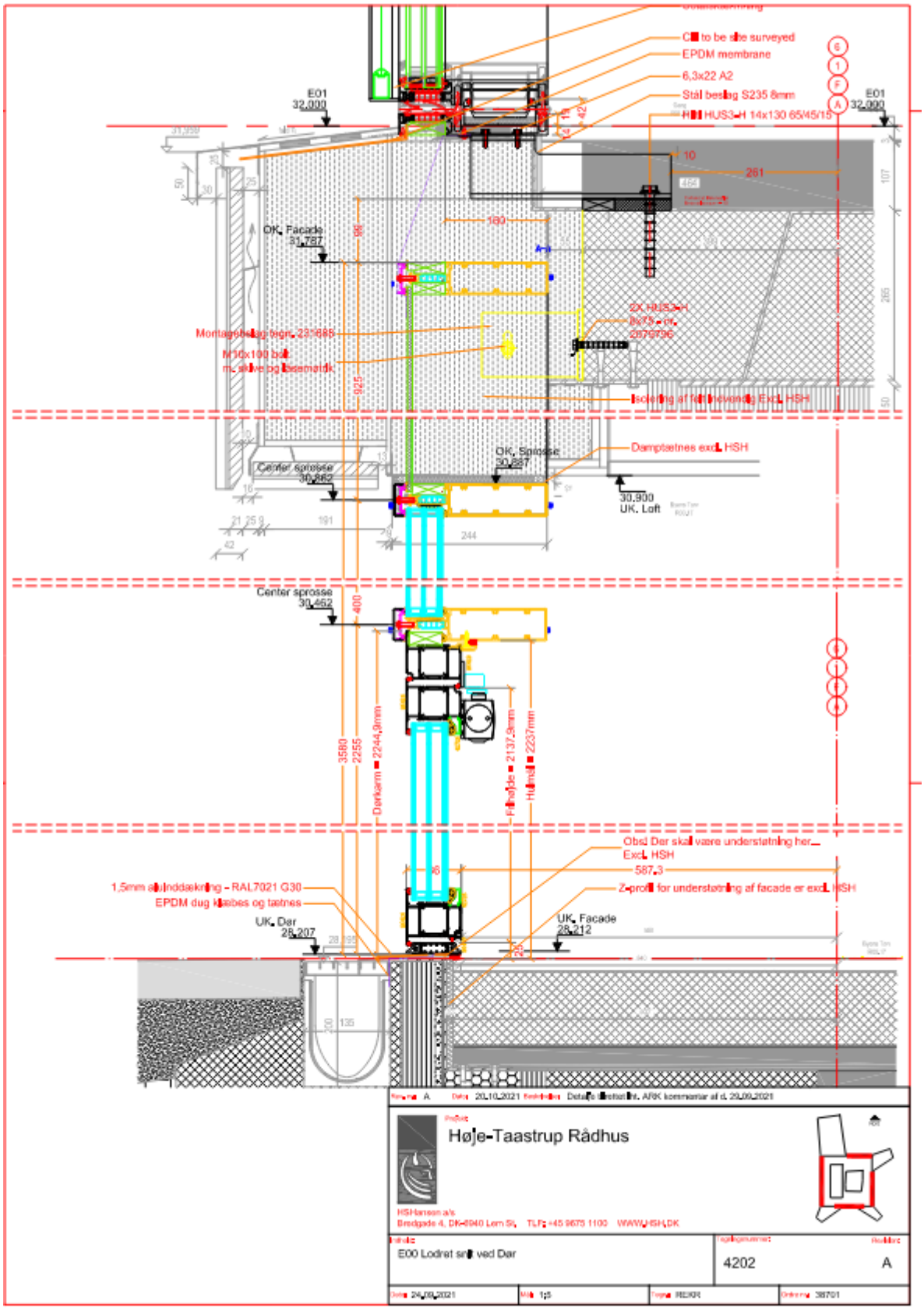
	Publisher Institut Bauen und Umwelt e.V. Panoramastr.1 10178 Berlin Germany Tel +49 (0)30 3087748- 0 Fax +49 (0)30 3087748- 29 Mail info@bau-umwelt.com Web **www.bau-umwelt.com**
	Programme holder Institut Bauen und Umwelt e.V. Panoramastr.1 10178 Berlin Germany Tel +49 (0)30 3087748- 0 Fax +49 (0)30 3087748- 29 Mail Info@bau-umwelt.com Web **www.bau-umwelt.com**
thinkstep	**Creator of the life cycle assessment** thinkstep AG Hauptstraße 111-113 70771 Leinfelden-Echterdingen Germany Tel +49 (0)711 341817-0 Fax +49 (0)711 341817-25 Mail info@thinkstep.com Web **www.thinkstep.com**
Hydro	**Declaration owner** Hydro Building Systems Germany GmbH Einsteinstraße 61 89077 Ulm Germany Tel +49 (0)731 3984-0 Fax +49 (0)731 3984 241 Mail info@wicona.de Web **www.wicona.de**

Annex B: Drawings



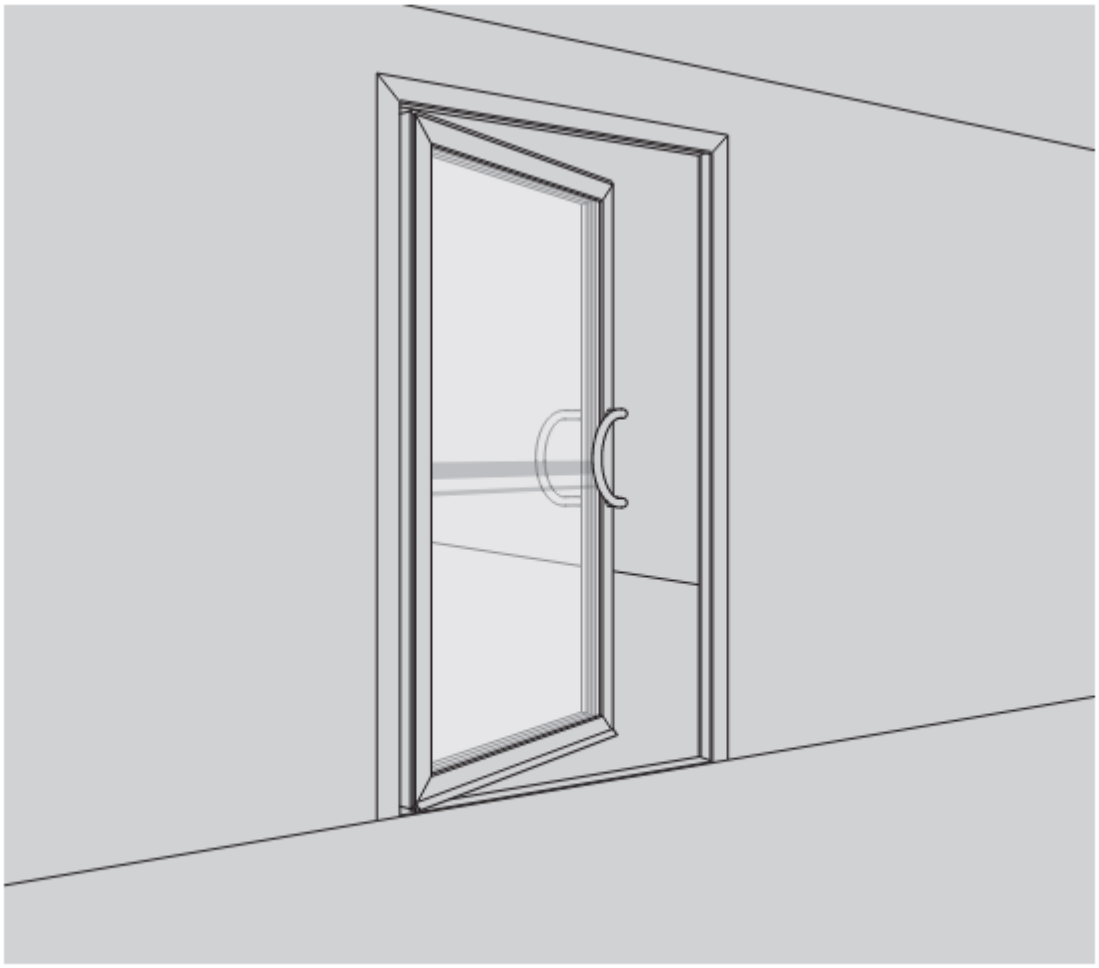
Annex C: Installation instructions



sapa:

Sapa Dörr 2086

Montageanvisning



Sapa Dörr 2086

Montageanvisning

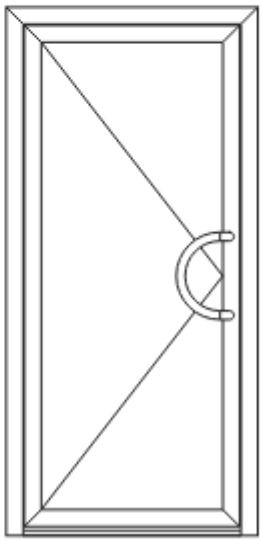
Gäller inte för brand- och inbrottsklassad dörr

Allmän information

Granska först måtten för levererad karm enligt den tillverkningsritning som tillhör projektet. Kontrollera att måtten överensstämmer med väggöppning och att utrymme finns för drevning/tätning. Avstånd mellan karm och vägg rekommenderas vara 15–20 mm. Förutom de anvisningar som redovisas i detta underlag hänvisas till följande allmänna föreskrifter och svenska standarder för kompletterande information.

- AMA Hus 18 kapitel NSC
- AMA Hus kapitel KHD
- Svensk Standard SS 81 73 32, Dörrar och fönster – Karminfästning – Klassindelning och val av don.
- Svensk Standard SS 81 81 43, Fönster – Placering av fästhål
- Svensk Standard SS 81 70 52, Dörrar – Grundläggande mått

Montageanvisningen förutsätter att väggar, golv och tak är korrekt dimensionerade och överensstämmer med rekommendationer i AMA Hus.



Transport, lagring och hantering

Ur AMA Hus:

Glasade fönster, fönsterdörrar, väggpartier av glas, skall transporteras och lagras i samma läge som de skall monteras, dvs. med understycket nedåt. Alternativt får transport och lagring ske i annat läge om sakvarorna förses med transportsäkringar insatta mellan karm och båge. Lagring skall ske på plan, torr väl ventilerad och nederbördsskyddad uppställningsplats.

Beslag som levereras separat skall förvaras inomhus. Fönster, fönsterdörrar, dörrar och dylikt får inte under någon del av byggtiden utsättas för fuktbelastning som överskrider den normala fuktbelastningen under brukstiden.

Tillverkarens anvisningar för transport, lagring och montering skall följas.

Förberedelse för montage

1. Kontrollera lod och våg

Vid montering av dörrpartier är det av yttersta vikt att partiet är 100 % i lod och våg. Kontrollera därför med ett långt vattenpass att underlaget för partiet är i våg och stabilt. Fig 1.

Observera:

Mätning med vattenpass ska ske löpande under hela monteringsprocessen.

Avstånd mellan karm och vägg rekommenderas vara 15–20 mm.

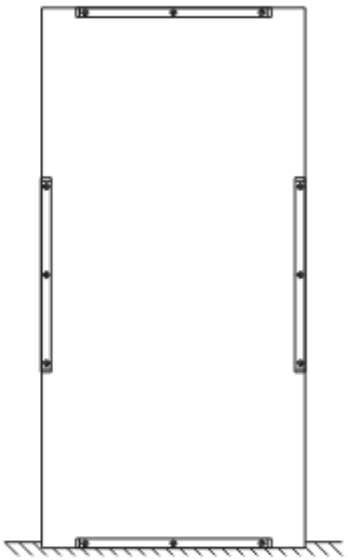


Fig 1

2. Avstånd infästningar

Max avstånd mellan infästningar, 600 mm. I de fall infästningar inte är förberedda och utplacerade från fabrik placeras de enligt Fig 2.

Enkeldörrar med bredd ≥ 1200 mm och pardörrar ska utföras med infästning i ovankant. Fig 2.

Dörrar med vikt ≥ 100 kg ska kompletteras med infästning i höjd med respektive gångjärn.

Till montage rekommenderas justerbara karmhylsor som uppfyller kraven enligt Svensk Standard SS 81 73 32 eller Sapa vridankare C02077.

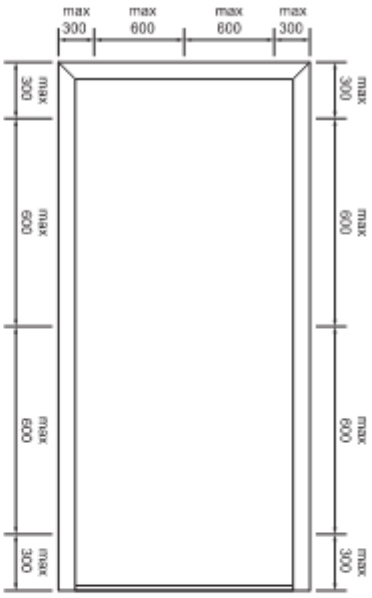


Fig 2

Förberedelse för montage

3. Kontrollera infästning

Kontrollera karmhylsor eller montera vridankare. Fig 3 och 4.

Förbered tröskelinfästning. Frigångshål för infästningsskruv borras med 300 mm förskjutning i längsled mellan respektive profilhalva. Samtliga borrhål försänkes. Fig 5.

Beroende på planhet och önskad höjd på tröskel placeras eventuella klossar i botten på öppningen. Placering vid varje infästningspunkt, max c/c 300 mm. Tröskel måste vara i våg och får inte svikta. Vid montering utan drevmån mot underlag, tätas mot vatten- och luftläckage med lämplig metod och lämpligt material (t.ex. fogmassa, tätningsband av butyl, plastad drev). Förbered denna tätning innan partiet placeras i öppningen.

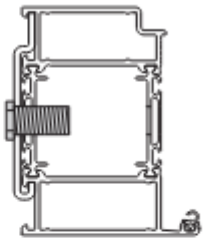


Fig 3

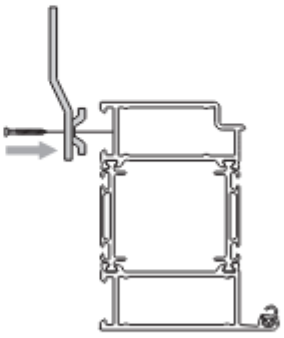


Fig 4

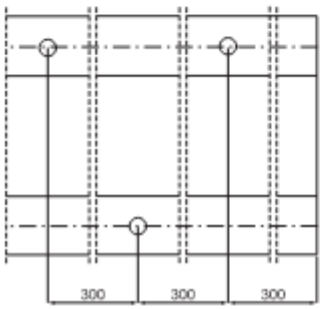


Fig 5

Observera vid pardörr:

Avstånd till kantregelstyrning i tröskel max 100 mm från infästningspunkt.

4

Montage av dörrparti

1. Passa in karmen i väggöppningen.
Fig 6.

2. Fäst karmen tillfälligt

Fixera karmen tillfälligt genom att justera ut en karmhylsa i varje hörn. Justera med de fyra karmhylsorna så att sidostyckena är i lod och överstycket är i våg. Kontrollera att diagonalmåtten avviker max 2 mm. Fig 6 och 7.

Montera skruv i dessa fyra karmhylsor. Ställ ut gångjärnssidans resterande karmhylsor, justera och fixera dessa. För pardörr skruvas båda karmsidorna i detta skede. Fig 8.

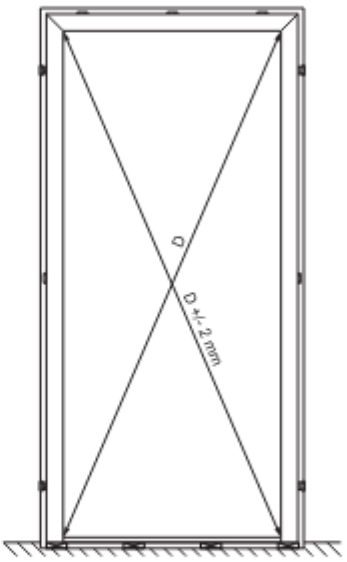


Fig 6

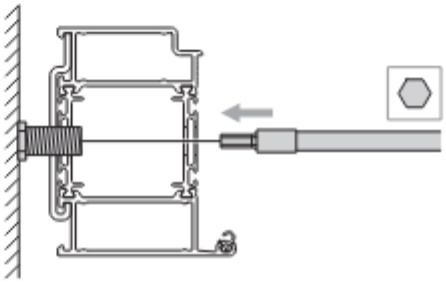


Fig 7

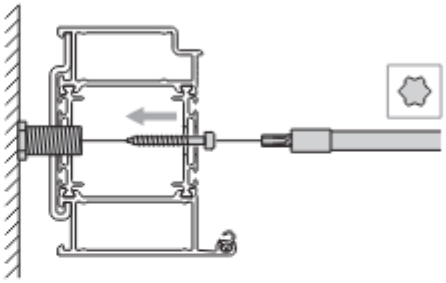


Fig 8

5

Montage av dörrparti

3 . Kontrollera dörrblad och karm

Kontrollera att dörrbladet och karm livar i väggplanet, justera karmens låssida vid behov.

Spelen runt dörrbladet skall vara 5+1/-2 mm. Avstånd mot golv varierar beroende på tröskellösning. Se tillverkningsritning för det aktuella projektet. Fig 9.

Vid montage med vridankarjärn böjs dessa i en vinkel som passar väggen.

Observera för Dörr 2086 Plus och Extreme:

För att erhålla rätt listtryck bör slutbleck justeras så att dörrbladets utböjning begränsas till:

max 2,5 mm för Dörr 2086 Plus

max 1,5 mm för Dörr 2086 Extreme

Fig 9.

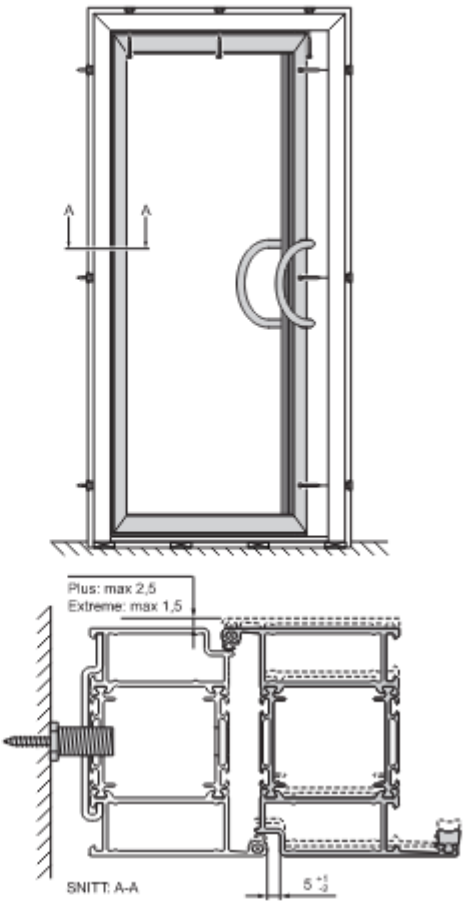


Fig 9

4. Fixera karmen

Ställ ut samtliga karmhylsor mot vägg öppningen. Kontrollera spalten en sista gång. Montera skruvar och dra åt ordentligt. Täck karmens montagehål med täckplugg, täta med foglim 12220. Fig 10..

Vid montage med vridjärn klossas varje infästningspunkt.

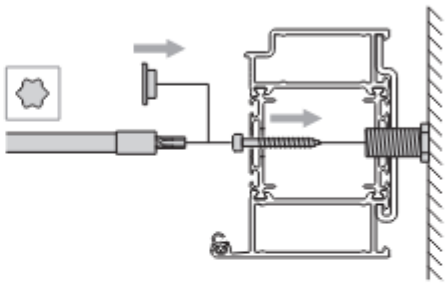


Fig 10

5. Fixera tröskel

Kontrollera att tröskeln är plan. Om tröskeln inte ligger an mot golvet skall den shimsas/klossas stabilt undertill innan den skruvas. Täta mellan tröskel och golv med fog eller annan typ av tätning/isolering. Tröskel monteras med genomgående skruv. Vid exteriöra dörrar, täta mellan skruv och tröskel med foglim 12220. Fig 11.

Observera: För eventuell efterjustering av gångjärn, kontakta din leverantör/tillverkare.

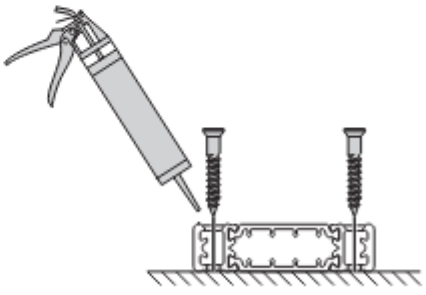


Fig 11

Montage av isolerglas

I de fall glas levereras separat, utförs glasning enligt anvisning.

1. Montering av glaskloss

Klossar skall placeras 50–100 mm från hörn. Dörrblad måste diagonalklossas för att eliminera nedhängning. Fig 12. Se även P86-7901.
Klossar skall vara av homogent och formbeständigt material. Klossar av plast skall ha en hårdhet av 70-90°Shore A.

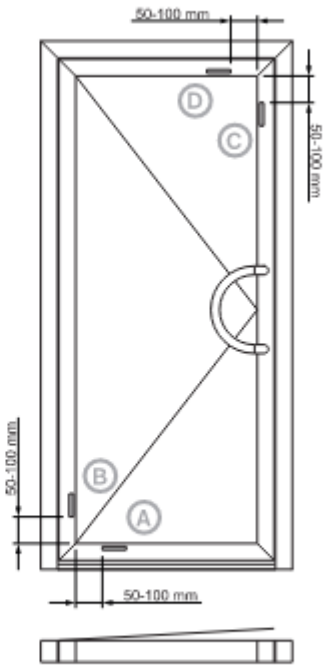


Fig 12

Sapa glasklossar finns i två storlekar:

Glaskloss tjocklek 3 mm 12465, svart
Glaskloss tjocklek 5 mm 12464, röd

Glaskloss klipps till rätt bredd efter aktuell glastjocklek.

Tabell anger justering av glaskloss till rätt bredd.
Ex: 41–43 (4) anger intervall för glastjocklek och antal stripps som klipps bort. Fig 13.

Glas och kloss ska vara placerad i liv med varandra. Fogbandets tryck mot botten utgör luft- och vattentätning mot insidan.

Glasklossen snäppes fast i profilspåret. Fig 14.

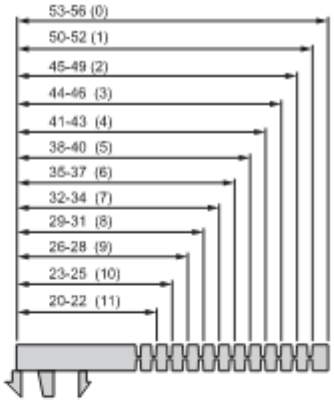


Fig 13

2. Montering av glaskloss

Placera klossar enligt Fig 12 .
Röd 5 mm kloss 12464: i läge A och B.
Svart 3 mm kloss 12465: i läge C och D.
Glasklossen snäppes fast i profilspåret. Fig 14.

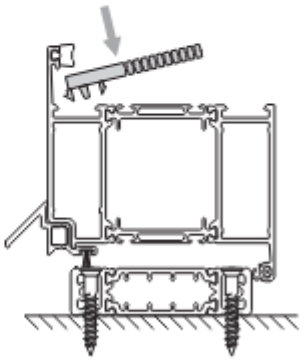


Fig 14

7

Montage av isolerglas

3. Montering av glas.

Glaset monteras med stöd mot utplacerade klossar. Fig 12. Därefter kompletteras klossning i läge C och D med slät kloss i lämplig tjocklek, för att förhindra nedhängning.

4. Montering av glaslist.

Montera först horisontella glaslister. Fig 16.
Fogband monteras vid de horisontella glaslisterna. Fig 15.
Montera därefter vertikala glaslister. Fogband monteras vid de vertikala glaslisterna.

Viktigt för luft. och vattentäthetsprestanda:
Gäller 2086 Plus och 2086 Extreme:
Se till att fogbandet har distinkt raka snitt i ändytorna och pressa sedan in fogbandsändarna i hörnen med tryck i anslutningen mellan fogband och stomprofiler. **Dra/sträck inte i fogbanden.**

Fogband. Använd fogband art. nr. 18351, 18358, 18363 beroende på glastjocklek.

Klippet utförs i 90 med fogbandssax.

Klipplängd fogband:

Horisontella fogband = horisontal glaslistlängd + 5 %

Vertikala fogband = vertikal glaslistlängd + 5 %

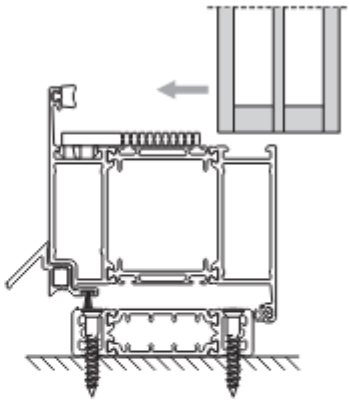


Fig 15

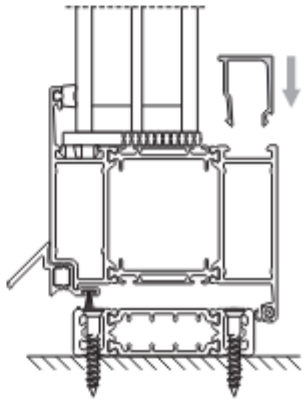


Fig 16

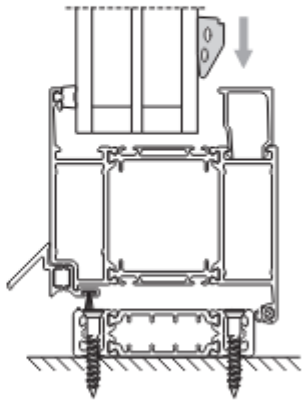


Fig 17

Täta montaget mot vägg och golv

Drevning

Drevning av karmar i ytterväggar skall på insidan utföras med utrymme för ångspärr och på utsidan med en 10 mm djup luftspalt mot list eller annan regntätning. Spalt avsedd för luftning och dränering får inte fyllas med diktningsmaterial.

Dreva mot vägg med fönsterdrev av mineralull.

Insida: Vid placering i yttervägg tätas insidan med mjukfog (diffusionsspärr).

Utsida: Mot utsida lämnas en min. 10 mm djup spalt för luftning bakom foder alternativt täcklist. Alternativt kan, istället för foder eller täcklist, ett diffusionsöppet tätningsband (typ Illmod eller likvärdigt) monteras mellan karm och stomme.

Fig 18:
t min = 0,5 x b

t = fogtjocklek

b = fogbredd

Insida: Bottningslist och mjukfog

Utsida: Tätningsband alternativt täcklist/foder och luftspalt

Viktigt:
Dörrstopp ska finnas både upptill och nedtill!

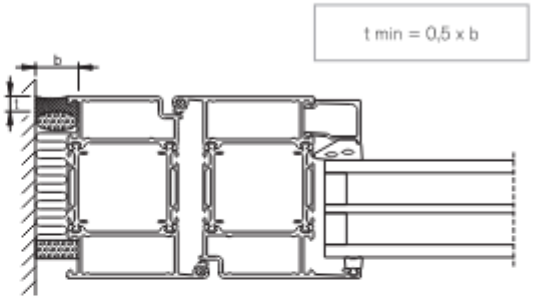


Fig. 18

Efterkontroll

Kontrollera

- att dörren går lätt att stänga och låsa utan problem.
- att lås fungerar och går lätt.
- att beslag och lås är ordentligt fastskruvade.
- att glasningsgummit har tät anslutning i hörnen.
- att dränerings-/ventilationshål för isolerglas inte är igentäppta.
- att anlagstätningar av gummi är hela och rena.
- att all eventuell märkning och skyddstejpning är bortagen.
- att arbetsplatsen städad och ren efter arbetet.

9

sapa:

Auktoriserad tillverkare

Hydro Building Systems Sweden AB

Metallvägen
S-574 81 Vetlanda
T +46 (0)383 942 00
E sapa.se@hydro.com
www.sapa.se

By Hydro

Annex D: Operation and Maintenance

INSTRUCTION

Operation and Maintenance

Products should be cleaned regularly to maintain their attractive appearance.

Clean products look more attractive, last longer and perform better.

Cleaning

The best cleaning method is to use a sponge and clean water. A mild detergent may however be used.

Important

Do not use alkaline detergents! Aluminium profiles and glass can be damaged by alkalis and should therefore never be exposed to them. If, for example, concrete or mortar are splashed on to anodised or painted aluminium profiles and/or glass, it is important to wash the splashes off immediately with clean water and a sponge or cloth.

Do not use detergents or materials such as Scotch-Brite that contain abrasives! These are likely to damage the surface.

Maintenance

Products should be checked and adjusted regularly to ensure good performance and a long life. Keep moving components of fittings and sliding mechanisms lightly lubricated to prevent them from seizing. Make sure that aluminium tracks are clean and lightly lubricated with acid-free white Vaseline on outward-opening, sliding horizontal/vertical reversible windows.

Check screws in fittings to make sure they are tight and that the fittings are correctly positioned.

Check facades, windows, doors and roof glazing to make sure that drainage holes are not blocked, that glazing and gasket seals are well sealed at corners, that opening elements are supported by sliding blocks and that covers are secure.

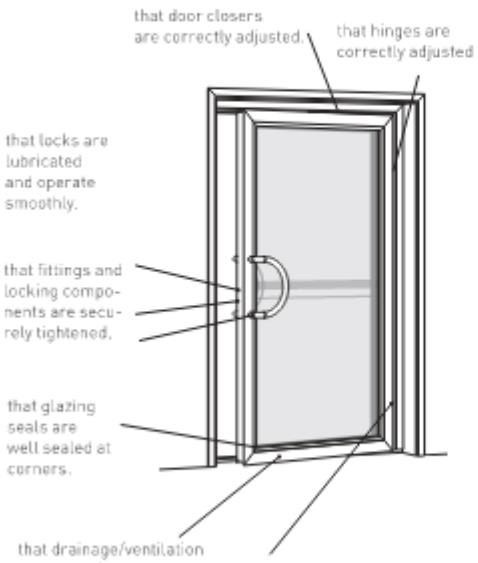
Galvanic corrosion

Avoid using materials that could initiate galvanic corrosion in aluminium profiles. Avoid using fasteners that could cause galvanic corrosion when installing solar shading, signs, etc.

2

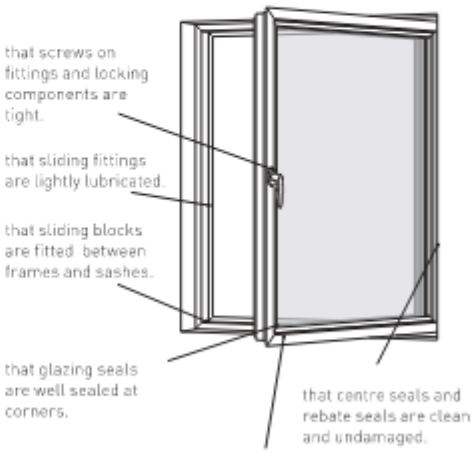
Doors, please check:

that doors can be closed and locked without problem and that the door stop is mounted



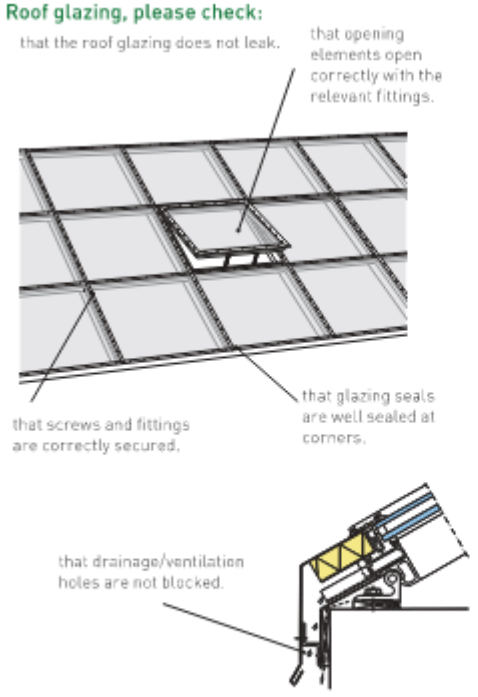
Windows, please check:

that windows can be closed without problem.



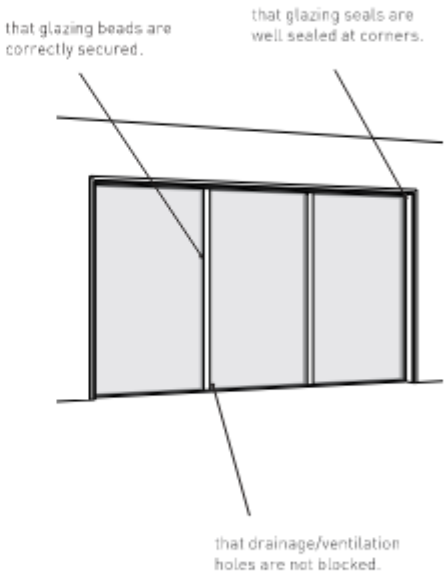
Roof glazing, please check:

that the roof glazing does not leak.



Glazed elements and fixed windows, please check:

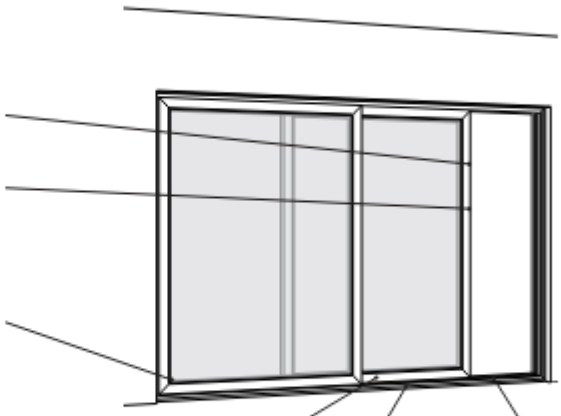
that the glazed elements are undamaged and does not leak.



3

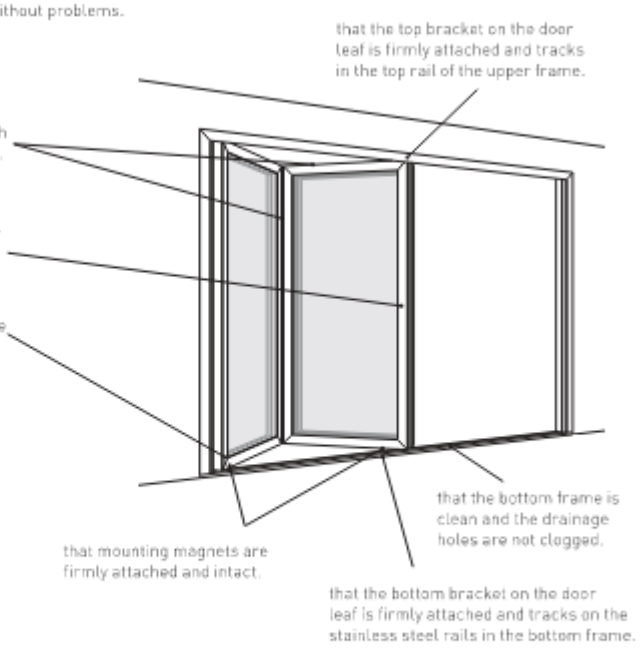
Sliding doors, check:

that the door can be closed and locked without any problems.



Folding window doors, check

that the door can be closed and locked without problems.



4

Time interval maintenance

Check and maintain our products regularly for function and long life.

Interval	Maintenance
Private housing: Annually Public buildings: 6 months	Carry out the inspection accordingly to the points. Lubricate the locking points and moving parts of the metal components. Clean and ensure that all drainage works correctly.

In case of problems with for example attachment or function - contact your SAPA dealer.

5


sapa:
By Hydro
Hydro Building Systems, Region Nordic, Baltic & Poland
Sweden
SE-574 81 Vetlanda
T +46 (0)383 942 00
E sapa.se@hydro.com
www.sapa.se
Norway
NO-2027 Kjeller
T +47 63 89 21 00
E sapa.no@hydro.com
www.sapa.no
Denmark
DK-8240 Risskov
T +45 86 16 00 19
E sapa.dk@hydro.com
www.sapa.dk
Finland
FI-02180 Espoo
T +358 (0)9 867 82 80
E system.fi@hydro.com
www.sapabuildingsystem.fi
Lithuania/Estonia/Latvia
LT-02244 Vilnius
T +370 (0)5 210 25 87
E sapa.lt@hydro.com
www.sapa.lt
Poland
92-620 Łódź, Polska
T +48 (0)42 683 63 73
E sapa.pl@hydro.com
www.sapabuildingsystem.pl


Låsespray
Guide til vedligeholdelse
ASSA ABLOY
Opening Solutions
Sådan vedligeholder du dine ASSA ABLOY produkter
The global leader in
access solutions

Så let sikrer du, at din lås bliver ved med at være i topform

Låsespray

Sprayen bruges til at smøre og renholde låsecylindre. Sprayen rystes let inden brug. Placér sprayens lille plasticrør i nøglehullet og hold spray-knappen nede i ét sekund. Stik derefter nøglen i låsen og drej et par gange. ASSA ABLOY låsespray tørrer hurtigt, er lugt- og farvefri og binder ikke støv og snavs. Kan også anvendes til CLIQ® cylindre.

Låsefedt

Stiften bruges til at smøre låsefaller og -rigler. Tryk på flasken og smør med puden. Låsefedtet trænger ind i stålets mikroskopiske ujævnheder og giver fallen en glat og hård overflade. Ved at smøre låsefallen sikrer du, at døren lukker lettere og mere lydløst. ASSA ABLOY låsefedt er fugtgivende, mindsker metallets kemiske nedbrydning og binder ikke salt. Låsefedt kan også bruges til smøring af hængsler m.m.

Låsecylindre

Inden du anvender låsen første gang, skal den smøres med låsespray. ASSA ABLOY anbefaler, at du herefter smører låsen mindst hvert halve år, for at sikre at cylinderen altid fungerer optimalt. I vinterperioden skal du være særlig opmærksom, især udsatte cylindre på fx gitterporte og udendørs stålskabe, kan have brug for en ekstra gang låsespray. Hvis en lås fryser til, kan du anvende Lock Cleaner De-Icer.
Brug aldrig olie, grafit eller fedtstof i cylinderen.

Lock Cleaner De-Icer

Sprayen bruges til at rense og afrime låsecylindre. Sprayen rystes let inden brug. Placér sprayens lille plasticrør i nøglehullet og hold sprayknappen nede i et par sekunder. Gentag hvis nødvendigt. Stik derefter nøglen i låsen og drej et par gange. Fjern nøglen og tør den af. Afslut evt. med at bruge låsespray. Kan også anvendes til CLIQ® cylindre.

Nøgler

Du sikrer din lås bedst ved at holde nøglerne rene, så de ikke fører snavs med ind i cylinderen. Almindelige nøgler kan rengøres med vand og sæbe. Vær dog opmærksom på, at CLIQ® nøgler indeholder elektronik og ikke er vandtætte. Hvis din CLIQ® nøgle bliver våd, skal du fjerne batteriet og lade nøglen tørre ved stuetemperatur.

Hængelåse

Du vedligeholder din hængelås ved at sprøjte nøglehullet med låsespray. Desuden skal hullet, som bøjlen sættes i, samt spidsen af bøjlen, smøres med låsefedt.


Kortlæsere og tastaturer
Kortlæsere og tastaturer kan rengøres med en fugtig klud.
Dette bør gøres som minimum 4 gange årligt.
Dørlukkere
En dørlukker skal være korrekt dimensioneret, monteret og justeret.
Herefter skal montageskruer efterspændes en gang årligt.
Dørlukkere kræver ikke smøring, men den optimale funktion kan
kun bevares, hvis dørens lås og hængsler vedligeholdes med
smøring og efterspænding.
Dørgreb
På dørgreb er det en god idé ca. en gang om året at efterspænde de gennem-
gående skruer og pinolskruen på undersiden af dørgrebet. De resterende dele
er smurt fra fabrikken og har ikke behov for mere smøring. Rengøring af dørgreb
foretages med en fugtig klud. Pas på med at anvende rengøringsmidler med
slibende effekt eller indeholdende opløsningsmiddel.
El-slutblik
For el-slutblik anbefales det, at smøre de bevægelige dele med
låsefedt mindst en gang hvert halve år.
Låsekasser, motorlåse og låsekasser med magnetkontakt
Disse låsetyper er klar til brug, og de indvendige dele skal ikke smøres. Det anbefales dog,
at falle og rigler smøres med låsefedt mindst én gang hvert halve år. Bemærk,
at du ikke skal anvende låsespray i låsekasser og motor- og magnetlåse.
Karmoverføring beskytter kabler til motorlåse m.m. Kontrollér gerne jævnligt, at
karmoverføringen er hel, at den er forsvarligt fastgjort, og at den ikke har skarpe knæk.
Derudover skal karmoverføringen hænge frit.
Rengøring af overflader
Produkter af lakeret messing kan aftørres med en fugtig klud uden sæbe.
Produkter med overflader af krom, rustfrit stål eller rustfrit look kan aftørres
med en fugtig klud (evt. med sæbe). Poleret messing skal du pudse
med pudsecreme uden slibemiddel. Ved messingcylindre
skal du huske at sætte nøglen i,mens du pudser, så
pudsecremen ikke trænger ind i cylinderen.
Aftør derefter nøglen grundigt. Undlad at
overmale produkter med bevægelige mekanismer.

ASSA ABLOY

ASSA ABLOY-koncernen er førende på globalt plan indenfor indgangsløsninger. Koncernen opererer på verdensplan med 48.500 medarbejdere og en omsætning på 8,2 milliarder euro. Koncernen er førende indenfor områder for effektive indgangs-løsninger, sikre identiteter og indgangs-automatisering. ASSA ABLOY's innovative løsninger garantere sikker, tryg og praktisk adgang til fysiske og digitale lokationer. Hver dag hjælper vi milliarder af mennesker med at opleve en mere åben verden.

ASSA ABLOY Opening Solutions
Denmark A/S

Borupvang 5D
2750 Ballerup
Tel. +45 44544454

info.dk.openingsolutions@assaabloy.com
www.assaabloyopeningsolutions.dk

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