



DE

Anleitung für Montage, Betrieb und Wartung

Aluminium-Haustür

EN

Instructions for Fitting, Operating and Maintenance

Aluminium entrance door

FR

Instructions de montage, d'utilisation et d'entretien

Porte d'entrée en aluminium

IT

Istruzioni per il montaggio, l'uso e la manutenzione

Porta d'ingresso in alluminio

DEUTSCH **3**
ENGLISH **10**
FRANÇAIS **17**
ITALIANO **24**



..... **31**

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Sehr geehrte Kundin, sehr geehrter Kunde, wir freuen uns, dass Sie sich für ein Qualitätsprodukt aus unserem Haus entschieden haben.

1 Zu dieser Anleitung

Diese Anleitung gliedert sich in einen Bild- und einen Textteil. Den Bildteil finden Sie im Anschluss an den Textteil.

Diese Anleitung ist eine **Originalbetriebsanleitung** im Sinn der EU-BpVO 305/2011. Lesen Sie die Anleitung sorgfältig und vollständig durch. Die Anleitung enthält wichtige Informationen für den Einbau, den Betrieb und die korrekte Pflege bzw. Wartung der Aluminium-Haustür.

Beachten Sie insbesondere alle Sicherheitshinweise und Warnhinweise.

Bewahren Sie diese Anleitung sorgfältig auf!

Sachkundige Montage und sorgfältige Wartung erhöhen Leistung, Verfügbarkeit und Sicherheit.

Texte und Zeichnungen dieser Anleitung entstanden mit größtmöglicher Sorgfalt. Aus Gründen der Übersicht enthält die Anleitung nicht alle Detailinformationen zu allen Varianten und denkbaren Montagen. Die in dieser Anleitung veröffentlichten Texte und Zeichnungen haben lediglich Beispielcharakter.


Jede Gewähr auf Vollständigkeit wird ausgeschlossen und berechtigt nicht zur Reklamation.

Wenn Sie weitere Informationen wünschen oder Probleme auftreten, die diese Anleitung nicht ausföhrlich behandelt, kontaktieren Sie das Herstellwerk.






Unterstützung finden Sie auch beim Montageplaner des ift Rosenheim. www.ift-montageplaner.de.

Diese Anleitung ist ein wichtiges Dokument für die Bauakte.

1.1 Verwendete Warnhinweise

 GEFAHR
Kennzeichnet eine Gefahr, die unmittelbar zum Tod oder zu schweren Verletzungen föhrt.
ACHTUNG
Kennzeichnet eine Gefahr, die zur Beschädigung oder Zerstörung des Produkts föhren kann.

1.2 Verwendete Symbole

	wichtiger Hinweis zur Vermeidung von Sachschäden
	zulässige Anordnung oder Tätigkeit
	unzulässige Anordnung oder Tätigkeit
	siehe Textteil
	siehe Bildteil

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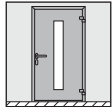
siehe gesonderte Montageanleitung der Steuerung bzw. der zusätzlichen elektrischen Bedienelemente



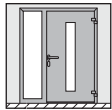
elektrische Spannung



optionale Bauteile als Zubehör bestellbar



Tür 1-flüglig



Tür mit Seitenteil



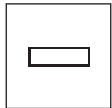
Tür nach innen öffnend



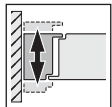
Tür nach außen öffnend



Tragklötze



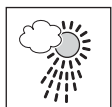
Distanzklötze



Rahmen nach Flügel ausrichten



Hausinnenbereich



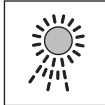
Hausaußenbereich



unzulässig nach DIN 4108



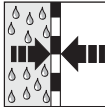
Winter



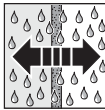
Sommer



Tauwasserbildung



dampfdiffusionsdicht



dampfdiffusionsoffen



Verschraubung handfest anziehen



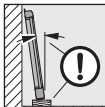
Verschraubung fest anziehen



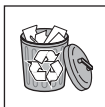
prüfen



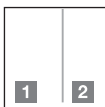
wartungsfrei



Türflügel abstellen



Bauteil oder Verpackung entfernen und entsorgen



kennzeichnet im Bildteil Arbeitsschritte, die nacheinander ausgeführt werden müssen



einbruchhemmendes Bauteil **RC 3** nach DIN EN 1627:2011



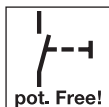
einbruchhemmendes Bauteil **RC 4**
nach DIN EN 1627:2011



Angriffsseite



Daueroffen



potentialfreier Taster



Schalter



Automattür



bauseits anzuschließen, bauseits zu montieren



werkseitig angeschlossen, werkseitig montiert

- Befolgen Sie gültige Normen, Richtlinien, Vorschriften und Verordnungen. Befolgen Sie die anerkannten Regeln der Technik.
- Schützen Sie Ihre Aluminium-Haustür bis zur Baufertigstellung vor Beschädigungen. Decken Sie die Aluminium-Haustür mit Folie und Klebeband ab. Beachten Sie, dass Klebestreifen, bei längerer Sonneneinstrahlung Rückstände hinterlassen können.
- Ermitteln Sie die geeigneten Befestigungen entsprechend den örtlichen Gegebenheiten. Halten Sie die Befestigungen bauseits bereit.
- Verankern Sie die Aluminium-Haustür an allen vorgesehenen Befestigungspunkten in der Wand.
- Halten Sie die erforderlichen Achs- und Randabstände der Dübel ein, abhängig von der Wandart. Beachten Sie die Montagehinweise und Verarbeitungsrichtlinien des Dübelherstellers.
- Reinigen Sie vorher alle Kontaktflächen, die mit Silikon und Dichtstoffen versiegelt werden, z. B.:
 - Profilloberflächen
 - Randverbund der Scheibe.
- Verwenden Sie nur Dicht- und Klebstoffe, die für die Anwendung geeignet und für die Werkstoffe verträglich sind. Beachten Sie die Verarbeitungsrichtlinien des jeweiligen Herstellers.
- Beauftragen Sie nur ausgebildete Fachkräfte mit den Elektroarbeiten.
- Bei Aluminium-Haustüren mit automatischen Türantrieben müssen Sie die EG-Richtlinie 2006/42/EG einhalten.

2.1 Qualifikation des Monteurs

Beauftragen Sie für den fachgerechten Einbau der Aluminium-Haustür ausschließlich ausgebildete Monteure.

ACHTUNG
<p>Funktionsbeeinträchtigung</p> <p>Fehlende oder geänderte Bauteile beeinträchtigen die Funktion der Haustür.</p> <ul style="list-style-type: none"> ▶ Ändern oder entfernen Sie keine Bauteile. ▶ Befestigen Sie alle in der Anleitung aufgeführten Bauteile.

1.3 Verwendete Abkürzungen

OFF Oberkante Fertigfußboden

1.4 Farbcode für Leitungen, Einzeladern und Bauteile

Die Abkürzungen der Farben für Ader- und Leitungskennzeichnung sowie Bauteile folgt dem internationalen Farbcode nach IEC 757:

BK	Schwarz	YE	Gelb
BN	Braun	WH	Weiß
GN	Grün	GN / YE	Grün, Gelb
GY	Grau		

2 **Sicherheitshinweise**

GEFAHR
<p>Lebensgefahr beim Einbau der Haustür</p> <p>Beim Einbau kann die Tür oder der Türrahmen umfallen und dabei Personen erschlagen.</p> <ul style="list-style-type: none"> ▶ Sichern Sie Tür und Türrahmen vor und während der Montagearbeit gegen Umfallen.

- Befolgen Sie beim Einbau der Aluminium-Haustür die Grundregeln der DIN 4108 *Wärmeschutz und Energieeinsparung in Gebäuden*.

3 Montage

- ▶ Befolgen Sie für eine einfache und fachgerechte Montage die im Bildteil dargestellten Arbeitsschritte sorgfältig.
- ▶ Prüfen Sie vor dem Türereinbau, ob Anbauteile montiert werden müssen (siehe **Bild 3**).
- ▶ Entfernen Sie vor der Montage die Transportsicherungen (siehe **Bild 2.3**).
- ▶ Befestigungsmaterialien und Abdichtungsmaterialien gehören nicht zum Lieferumfang.

HINWEIS:

Verwenden Sie vorrangig die werkseitig vorgerichteten Befestigungspunkte.

Die in der Bauanleitung angegebenen Befestigungspunkte sind allgemeingültig. Sie können von den werkseitig vorgerichteten Befestigungspunkten abweichen.

3.1 Zubehör

- K3 Kopplung Tür, Seitenteil, Oberlicht (siehe **Bilder 3.1 / 3.2**)
 - VP25 / VP50 Verbreiterung (siehe **Bild 3.3a**)
 - VP100 / VP150 Verbreiterung (siehe **Bild 3.3b**)
 - VPE20 / VPE50 Verbreiterung einteilig (siehe **Bild 3.4**)
 - KE135 / KE90 Eckprofile 135° / 90° (siehe **Bilder 3.5a / 3.5b**)
 - KS3 Statikprofil (siehe **Bild 3.6**)
- Befestigungsmaterial für Zubehör gehört zum Lieferumfang.

3.2 Türposition ermitteln

- ▶ Legen Sie die Türposition für die Dübel fest. Die Türposition hängt ab von den örtlichen Befestigungsmöglichkeiten, der Wandart und den erforderlichen Achs- und Randabständen.
- ▶ Positionieren Sie die Tür in der Dämmebene der Wand. Positionieren Sie bei monolithischem oder einschaligem Mauerwerk die Tür möglichst weit Richtung Gebäudeinnenseite. Beachten Sie den Isothermenverlauf (siehe **Bild 1**).

3.3 Montagearten

- Ankermontage (siehe **Bilder 10 – 12**)
- Dübelmontage (siehe **Bilder 10 – 12**)
- Rahmenschraubenmontage (siehe **Bilder 10 – 12**)

HINWEIS:

- Hinterklotzen Sie jeden Befestigungspunkt druckfest.
- Türflügel aushängen (siehe **Bilder 2.5 / 15a / 15b**).

ACHTUNG
<p>Funktionsbeeinträchtigung</p> <p>Das Nichtbeachten der Verarbeitungsrichtlinien beeinträchtigt die Funktion der Haustür.</p> <ul style="list-style-type: none"> ▶ Beachten Sie beim Befestigungsmaterial und beim Abdichtungsmaterial die Verarbeitungsrichtlinien des jeweiligen Herstellers.

3.4 Baukörperanschluss

Die fachgerechte Befestigung, Lastabtragung und Abdichtung der Anschlussfuge zum Baukörper ist eine wesentliche Voraussetzung für die dauerhafte Gebrauchstauglichkeit der Tür. Die Anschlussfuge ist abhängig vom jeweiligen Außenwandssystem und der Einbausituation. Befolgen Sie die Anforderungen der aktuellen EnEV, die Vorgaben der *RAL-Gütegemeinschaft Fenster und Haustüren e.V.* und die *Verarbeitungsrichtlinien der Hersteller*.

Grundsätzlich gilt:	
Raumseite	dampf- und luftdiffusionsdichte Abdichtung
mittlerer Bereich	feuchtigkeitsunempfindliche Wärmedämmung
Außenseite	dampfdiffusionsoffene Regen- und Windsperre

(siehe **Bild 11.1 / 17**)

3.5 Beschlag einstellen

- Türflügelverstellung horizontal und vertikal, Anpressdruckeinstellung (siehe **Bilder 15a – 15b**).

ACHTUNG
<p>Türöffnungswinkel begrenzen (siehe Bild 15b.1)</p> <p>Sie müssen den Türöffnungswinkel bauseits auf 105° begrenzen.</p> <ul style="list-style-type: none"> ▶ Begrenzen Sie bei verdecktliegenden Bändern den Türöffnungswinkel auf 105°. Beachten Sie, dass sonst Beschädigungen an Bändern bzw. Türrahmen zu erwarten sind.

3.6 Verglasen

- Einsetzen und Austauschen der Glasscheiben oder Füllungen (siehe **Bild 14**)
- Klotzungsvorschläge (siehe **Bild 14**)
- Sichern der Verklotzungen gegen Herunterfallen (z. B. Pattex-Kleber)

3.7 Elektrische Anschlüsse

GEFAHR
<p>Netzspannung!</p> <p>Beim Kontakt mit Netzspannung besteht die Gefahr eines tödlichen Stromschlags. Beachten Sie folgende Hinweise:</p> <ul style="list-style-type: none"> ▶ Nur Elektrofachkräfte dürfen Elektroanschlüsse legen. ▶ Die bauseitige Elektroinstallation muss den jeweiligen Schutzbestimmungen entsprechen! ▶ Die Elektrofachkraft muss darauf achten, dass die nationalen Vorschriften für den Betrieb von elektrischen Geräten eingehalten werden!

Der Querschnitt ist abhängig von der Länge der Spannungsversorgungsleitung:

10 m	0,50 mm ²	75 m	1,50 mm ²
40 m	0,75 mm ²	125 m	2,50 mm ²
50 m	1,00 mm ²		

3.8 Montage einbruchhemmender Türelemente

Die Montageanweisungen dieses Abschnitts enthalten zusätzliche Hinweise zur Montage einbruchhemmender Türelemente der Widerstandsklasse RC 3 / RC 4 nach DIN EN 1627: 2011 (siehe **Bild 18 – 22**).

Nur durch den fachgerechten Einbau gemäß dieser Anleitung verfügen die Türelemente über einbruchhemmende Eigenschaften.

3.8.1 Zulässige Wände

Die geforderte Einbruchhemmung wird nur erzielt, wenn die angrenzenden Wände den Anforderungen gemäß **Tab. 1 – Tab. 3** entsprechen.

3.8.2 Zulässige Wandanschlüsse

Die unter **Bild 10.2 a – 10.2 n** definierten Wandanschlüsse sind zulässig. Die fachgerechte Montage wird durch die Montagebescheinigung belegt.

3.8.3 Sicherheitsrelevante Bauteile

Die geforderte Einbruchhemmung wird nur erzielt, wenn die verwendeten Ausfachungen den unten folgenden Anforderungen entsprechen.

Mindestanforderung an die Füllungen der Seitenteile, Oberlichter:

Widerstandsklasse	RC 3
Widerstandsklasse der Verglasung gemäß EN 356	P5 A
Positionierung der Sicherheitsscheibe	Angriffsseite
Paneel mit oder ohne Glas	Aluminiumpaneel

Der Austausch sicherheitsrelevanter Bauteile (z. B. Beschläge, Schlösser und Ausfachungen) kann zum Verlust der Widerstandsfähigkeit des Türelements führen.

Mindestanforderungen an Beschläge:

Widerstandsklasse	RC 3	RC 4
EN 1303 (siehe Bild 19)		
Schließzylinder (Stelle 7)	4	6
Schließzylinder (Stelle 8)	1	2

Beachten Sie unbedingt folgende Einbauvorschriften:

- Die sichtbare Fuge zwischen Rahmen und Flügel von 5 ± 1 mm muss eingehalten werden (siehe **Bild 20**), sodass die Riegel des Schlosses voll in die Schließöffnungen eingreifen.

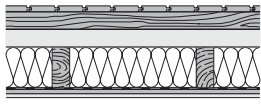
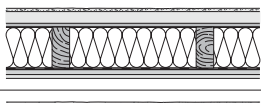
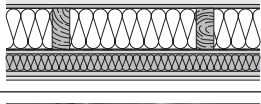
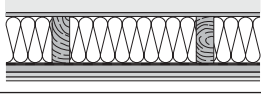
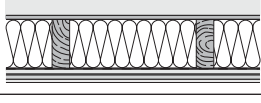
Tab. 1: Zuordnung der Widerstandsklassen von einbruchhemmender Bauteile zu Massivwänden

Widerstandsklasse des Bauteils nach DIN EN 1627	Umgebende Wände					
	aus Mauerwerk nach DIN 1053-1				aus Stahlbeton nach DIN 1045	
	Wanddicke (ohne Putz)	Druckfestigkeitsklasse der Steine (DFK)	Rohdichteklasse der Steine (RDK)	Mörtelgruppe [min.]	Nenndicke [min.]	Festigkeitsklasse [min.]
RC 3	≥ 115 mm	≥ 12	-	MG II/DM	≥ 120 mm	B 15
RC 4	≥ 240 mm				≥ 140 mm	

Tab. 2: Zuordnung der Widerstandsklassen von einbruchhemmender Bauteile zu Porenbetonwänden

Wand aus Porenbeton			
Widerstandsklasse	Druckfestigkeitsklasse der Steine	Nenndicke	Ausführung
RC 3	≥ 4	≥ 240 mm	verklebt

Tab. 3: Zuordnung der Widerstandsklassen von einbruchhemmender Bauteile zu Holztafelwänden

Widerstandsklasse	Geeigneter Wandaufbau	
RC 3		N + F Holzschalung 19 × 120 mm, Lattung 40 × 60 mm, SB.W 60 mm, Holzstiel 60 × 140 mm, MF 140 mm, PE-Folie, OSB 15 mm, GKB 12,5 mm
		Putz mit Gewebe, SB.W 40 mm, DWD 15 mm, Holzstiel 60 × 140 mm, MF 140 mm, Kraftpapier, BFU 15 mm, GKB 12,5 mm
		Putz mit Gewebe ca. 4 mm, PS 30 mm, FP 13 mm V100E1, Holzstiel 60 × 140 mm, MF 140 mm, PE-Folie 0,2 mm, FP 13 mm V20E1, Lattung 40 × 60 mm, Dämmung MF 40 mm, BFU 15,0 mm, GKB 9,5 mm
RC 4		Putz mit Gewebe ca. 4 mm, SB.W 60 mm, DWD 15 mm, Holzstiel 60 × 160 mm, SB.W 160 mm, Natronkraftpapier, OSB 22 mm, BFU 15 mm, GKB 12,5 mm
		Putz mit Gewebe ca. 4 mm, SB.W 60 mm, DWD 15 mm, Holzstiel 60 × 160 mm, Mineralfaser 160 mm, Natronkraftpapier, FP 13 mm V20, Blech 0,75 mm, FP 13 mm V20, GKB 9,5 mm

Montagewände und Holzständerwände mit Nachweis des Herstellers bzgl. Eignung der entsprechenden Widerstandsklasse. Abweichende Wände sind möglich in Übereinstimmung mit EN 1627.

3.8.4 Zusätzliche Hinweise zum Einbau

- ▶ Bauen Sie den Rahmen lotrecht und fluchtgerecht ein (siehe Bild 11).
- ▶ Hinterfütern Sie die Freiräume zwischen Rahmen und Wänden druckfest mit verrottungsfreiem Material in den folgenden Bereichen:
 - Bänder
 - Füllung
 - Verriegelung
 - Befestigungspunkte
 - an den oberen und unteren Ecken

Sorgen Sie durch geeignete Maßnahmen (z. B. Silikon) dafür, dass die druckfeste Hinterfüterung nicht verrutschen kann (siehe Bild 10.2).

3.8.5 Hinweise für den Benutzer

- Einbruchhemmende Bauteile bieten Widerstand gegen Einbruch nur in geschlossenem, verriegeltem und verschlossenem Zustand und nur mit abgezogenem Schlüssel.
- Antipanikschlösser sind in Verbindung mit einbruchhemmenden Türen, nicht zulässig!

- Knauf- und Rundzylinder sind bei einbruchhemmenden Türen (RC 3/RC 4) niemals zulässig.

3.8.6 Gewährleistung

Zur Gewährleistung der Leistungseigenschaft „Einbruchhemmung nach DIN EN 1627“ mit der Klassifizierung RC 3/RC 4, muss das Montageunternehmen die fachgerechte Montage gemäß dieser Anleitung bestätigen. Dazu müssen Sie das mit der Auftragsbestätigung übergebene Dokument „Montagebescheinigung für einbruchhemmende Türen“ ausgefüllt an den Hersteller zurücksenden.

4 Beschreibung von S5 Smart, Comfort, Code, Scan

Potentialfreie Ansteuerung der Schlösser (siehe Bild 7b/7c/7d)

Wenn die Schlösser mit Sprechanlagen oder Tastern angesteuert werden sollen, deren Ausgang unter Spannung steht, muss diese Leitung potentialfrei sein. Dies erfolgt durch den Einbau eines Koppelrelais. Das Koppelrelais für den Standardfall (12 V AC) finden Sie im Zubehör.

Bei Inbetriebnahme des Fingerlesers müssen Sie den Werkscode ändern. Beachten Sie hierzu die mitgelieferte Bedienungsanleitung.

4.1 LED-Anzeige

Blau (BU)

Zustand	Funktion
leuchtet kurz	ein gültiger Funkcode wird erkannt für Kanal 1
leuchtet 1 x lang	ein gültiger Funkcode wird erkannt, der auf beiden Kanälen gespeichert wurde
blinkt langsam	Empfänger ist im Modus Lernen für Kanal 1
blinkt schnell nach langsamem Blinken	beim Lernen wurde ein gültiger Funkcode erkannt
blinkt 5 Sek. langsam, blinkt 2 Sek. schnell	Geräte-Reset wird durchgeführt bzw. abgeschlossen
aus	Betriebsmodus

Programmiertaste P (P-Taste)

4.2 Einlernen eines Funkcodes

Um einen Kanal zu aktivieren, zu wechseln:

- ▶ Drücken Sie die **P-Taste** 1 x, um Kanal 1 zu aktivieren.

Um den Modus Lernen abzubrechen:

- ▶ Drücken Sie die **P-Taste** 3 x oder warten Sie auf das Timeout.

Timeout:

Wenn innerhalb von 25 Sekunden kein gültiger Funkcode erkannt wird, wechselt der Empfänger automatisch zurück in den Betriebsmodus.

4.3 Funkcodes einlernen

(siehe **Bild 7e**)

- Aktivieren Sie den gewünschten Kanal durch Drücken der **P-Taste**.
 - Die blaue LED blinkt langsam für Kanal 1
- Bringen Sie den Handsender zum Vererber seines Funkcodes in den Modus **Vererber, Senden**.
Wenn ein gültiger Funkcode erkannt wird, blinkt die LED schnell blau und erlischt.
Der Empfänger ist im Betriebsmodus.

4.4 Betrieb

Der Empfänger signalisiert im Betriebsmodus das Erkennen eines gültigen Funkcodes durch das Aufleuchten der blauen LED.

HINWEIS:

Wenn der Funkcode der eingelernten Handsendertaste zuvor von einem anderen Handsender kopiert wurde, müssen Sie die Handsendertaste zum **ersten** Betrieb ein zweites Mal drücken.

ein gültiger Funkcode
Kanal 1 wird erkannt = die LED leuchtet 1 x kurz

4.5 Geräte-Reset

So können Sie alle Funkcodes löschen:

- Drücken Sie die **P-Taste**. **Halten** Sie die P-Taste gedrückt.
 - Die LED blinkt 5 Sekunden langsam blau.
 - Die LED blinkt 2 Sekunden schnell blau.
- Lassen Sie die **P-Taste** los.
Alle Funkcodes sind gelöscht.

HINWEIS:

Wenn Sie die **P-Taste** vorzeitig loslassen, bricht der Geräte-Reset ab. Die Funkcodes sind nicht gelöscht.

5 Prüfung und Wartung

5.1 Sitz und Abdichtung prüfen

Kontrollieren Sie vor dem Abschluss der Montage den korrekten Einbau der Aluminium-Haustür.

- ▶ Prüfen Sie folgende Punkte:
 - Sitz der Befestigungsschrauben zum Baukörper
 - Abdichtung der Aluminium-Haustür zum Baukörper

6 Reinigung und Pflege

6.1 Oberfläche

Sie haben ein hochwertiges Produkt aus Aluminium erworben. Schützen Sie es durch regelmäßige Reinigung und Pflege. Nur so vermeiden Sie Korrosion durch Umwelteinflüsse und nutzungsbedingte Verunreinigungen.

Reinigen Sie Klebeflächen vorher mit einem Alkohol-Wasser-Gemisch.

ACHTUNG
<p>Ungeeignete Pflegemittel Aggressive, ätzende oder schmirgelnde Stoffe wie z. B. Säuren oder Stahlbürsten können die Oberfläche der Tür oder angrenzender Bauteile beschädigen.</p> <ul style="list-style-type: none"> ▶ Verwenden Sie zur Pflege der Aluminium-Haustür nur handelsübliche Pflegemittel und Microfasertücher. ▶ Spülen Sie bei hochglänzenden Oberflächen den Schmutz mit Wasser ab. ▶ Verwenden Sie bei matten Oberflächen keinesfalls Politur. ▶ Beachten Sie beim Pflegemittel die Herstellerhinweise.

HINWEIS:

Herstellerempfehlung: Reinigungsmittel proWIN „Seidenglanz“ in Kombination mit Microfasertuch proWIN „Hochglanzzauber“. www.prowin.net

6.2 Bewegliche Beschlagteile

- ▶ **Ölen oder fetten** Sie bewegliche Beschlagteile **einmal im Jahr**. Verwenden Sie nur säurefreies Öl oder Vaseline.

6.3 Türbänder

ACHTUNG
<p>Schmieren der Türbänder Schmieren Sie verdecktliegende Türbänder spätestens nach 50.000 Schließungen.</p> <ul style="list-style-type: none"> ▶ Aufliegende Türbänder sind wartungsfrei. ▶ Schmieren Sie aufliegende Türbänder niemals.

6.4 Zylinder

Zur Pflege des Schließzylinders sind ausschließlich spezielle Zylinderpflegesprays zulässig. Verwenden Sie keinesfalls graphithaltige Mittel.

7 Demontage und Entsorgung

Die Demontage der Aluminium-Haustür erfolgt in umgekehrter Aufbaureihenfolge.

Zerlegen Sie zur ordnungsgemäßen Entsorgung die Aluminium-Haustür nach der Demontage in einzelne Komponenten. Entsorgen Sie alles unter Beachtung der örtlichen, behördlichen Vorschriften.

8 Ersatzteile

Wir weisen ausdrücklich darauf hin, dass nur Originalersatzteile geprüft und freigegeben sind.

Sie können in Verbindung mit unseren Schlössern H5, S5 folgende Zylinder verwenden:

- Knaufzylinder
- Zylinder mit und ohne Freilauffunktion
- Zylinder mit und ohne Gefahren- und Notfunktion

Vor dem Einsatz anderer Schlösser wie z.B. Getriebeschlösser mit Antipanikfunktion müssen Sie die Funktion in Verbindung mit dem gewünschten Zylinder prüfen und sicherstellen.

9 Unternehmererklärung

.....
 Fachunternehmen bzw. Ersteller

.....
 Straße

.....
 PLZ, Ort

.....
 Bauherrschaft bzw. Auftraggeber

.....
 Straße

.....
 PLZ, Ort

.....
 Standort des Gebäudes

.....
 Straße

.....
 PLZ, Ort

Die Haustür mit den Abmessungen:

Breite mm und Höhe mm

hat einen berechneten UD Wert W/m²K.

Wir bestätigen den Einbau der Tür nach den anerkannten Regeln der Technik und den Anforderungen der aktuellen EnEV.

.....
 Ort, Datum

.....
 Unterschrift Auftragnehmer bzw. Fachunternehmen

Hiermit bestätige ich Erhalt und Kenntnisnahme der Unternehmererklärung.

.....
 Ort, Datum

.....
 Unterschrift

Diese Unternehmererklärung ist laut § 26a der Energieeinsparverordnung (EnEV) Pflicht. Die Unternehmererklärung dient als Nachweis und muss mindestens 5 Jahre aufbewahrt werden.

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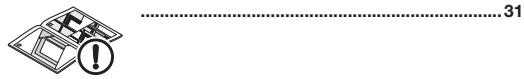
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Dear customer,
 We are delighted that you have chosen a high-quality product from our company.

1 About These Instructions

These instructions are divided into a text section and an illustrated section. The illustrated section can be found after the text section.

These instructions are **original instructions** as outlined in the EU-BpVO 305/2011. Please read and follow these instructions. They contain important information on the installation, operation and proper care and maintenance of the aluminium entrance door so that you can enjoy the use of this product for many years.

Please pay particular attention to all safety and warning notices.

Keep these instructions in a safe place for later reference!

Skilled fitting and thorough maintenance increase performance, availability and safety.

The texts and diagrams in this manual have been created with the greatest care possible. In order to provide a concise overview, not all detailed information on all variants and possible assemblies can be described. The texts and diagrams published in this manual are merely intended as examples.

Any guarantee for its completeness is excluded and does not justify a complaint.

Should you desire more information, or if special problems occur which are not described in detail in the manual, you may request information from the manufacturing plant.

The ift Rosenheim installation tool also provides further support. www.ift-rosenheim.de/ift-installation-tool




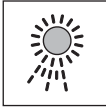


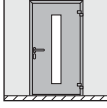
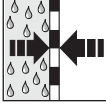
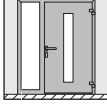
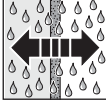






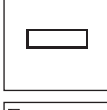
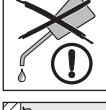
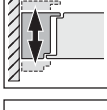
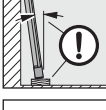

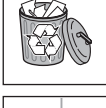
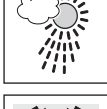
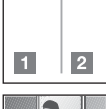


These instructions are an important document for the construction file.

1.1 Warnings used

DANGER
Indicates a danger that leads directly to death or serious injuries.
ATTENTION
Indicates a danger that can lead to damage or destruction of the product .

1.2 Symbols used

- Important note for avoiding damage to property
- Permissible arrangement or activity
- Non-permissible arrangement or activity
- See text section
- See illustrated section

	See separate Fitting Instructions for the control or for the additional electrical control elements		Winter
	Electrical voltage		Summer
	Optional components, to be ordered as accessories		Condensation
	Single - leaf door		Vapour diffusion proof
	Door with side element		Open to vapour diffusion
	Door opening inwards		Tighten the screws by hand
	Door opening outwards		Tighten the screws firmly
	Support blocks		Inspect
	Spacing blocks		Maintenance-free
	Position the frame to the leaf		Placing door leaf on the floor
	House interior		Remove and dispose of component or packaging
	House exterior		In the illustrated section, this indicates work steps that must be performed in succession
	Not permissible according to DIN 4108		Break-in-resistant component RC 3 acc. to DIN EN 1627:2011



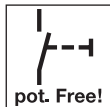
Break-in-resistant component **RC 4**
acc. to DIN EN 1627:2011



Attack side



Permanently open



Volt-free contact



Switch



Automatic door



To be connected, fitted on-site



To be connected, fitted at the factory

1.3 Abbreviations used

OFF (FFL) Finished floor level

1.4 Colour code for leads, single wires and components

The colour abbreviations for lead, wire and component identification follows the international colour code in accordance with IEC 757:

BK	black	YE	yellow
BN	brown	WH	white
GN	green	GN / YE	green / yellow
GY	grey		

2 Safety Instructions

DANGER

Danger to life while fitting the entrance door

During fitting, the door or door frame can fall and kill persons.

- ▶ Prior to and during fitting, secure the door and frame against falling over.

- Comply with the basic rules in DIN 4108 *Thermal insulation and energy economy in buildings* when fitting the aluminium entrance door.

- Make sure to comply with the applicable standards, directives, regulations, ordinances and the generally accepted rules of technology.
- Protect your door until construction is completed by covering it with foil and tape to avoid damages. But keep in mind that tape can leave residue or damage to the coating, especially under prolonged exposure to the sun.
- Identify suitable fastenings according to the local conditions and have them on hand.
- Anchor the aluminium entrance door at all of the provided fixing points in the wall.
- Always maintain the required edge and centre line spacing of the plugs depending on wall type, as well as the fitting information and handling guidelines of the plug manufacturer!
- Contact surfaces to be sealed with silicon and sealant material must first be cleaned, such as
 - Profile surfaces
 - Edge compound of the pane
- Only use adhesive and sealant materials that are suitable for this application and compatible with the product materials. Follow the handling guidelines of the respective manufacturer.
- Electrical work may only be carried out by qualified electricians.
- EC Directive 2006/42/EC is to be complied with for aluminium entrance doors with automatic door operators.

2.1 Fitter qualification

In order to ensure proper installation of the aluminium entry door, only assembly technicians with commensurate training may be charged with the task.

ATTENTION

Impaired function

Missing or modified components will impair the function of the entrance door.

- ▶ Do not alter or remove any components.
- ▶ Fasten all components described in the manual.

3 Fitting

- ▶ To ensure simple and professional fitting, carefully go through all the work steps shown in the illustrated section.
- ▶ Before fitting the door, check whether any attached parts have to be fitted (see **Figure 3**).
- ▶ Remove the transport protection before fitting (see **Figure 2.3**).
- ▶ Fastening and sealing materials are not included in the scope of delivery.

NOTE:

It is important that you use the fixing points prepared at the factory.

The fixing points indicated in the fitting instructions are only general and may deviate from the fixing points prepared at the factory.

3.1 Accessories

- K3 door, side element, transom light (see **Figures 3.1 / 3.2**)
 - VP25 / VP50 extension (see **Figure 3.3a**)
 - VP100 / VP150 extension (see **Figure 3.3b**)
 - VPE20 / VPE50 one-piece extension (see **Figure 3.4**)
 - KE135 / KE90 corner profiles 135° / 90° (see **Figures 3.5a / 3.5b**)
 - KS3 static profile (see **Figure 3.6**)
- Fixing material for accessories is part of the scope of delivery.

3.2 Determining the door position

- ▶ Determine the door position depending on the on-site fastening options, type of wall and the required edge and centre line spacing for the plug.
- ▶ If possible, position the door so that it is within the insulation layer of the wall. With monolithic or single-shell brickwork, position the door as close as possible towards the building interior side. Observe the isothermal lines (see **Figure 1**).

3.3 Fitting types

- Anchor fitting (see **Figures 10 – 12**)
- Plug-and-screw fitting (see **Figures 10 – 12**)
- Frame screw fitting (see **Figures 10 – 12**)

NOTE:

Each fixing point must be back-blocked resistant to pressure.

- Unhinge the door leaf (see **Figures 2.5 / 15a / 15b**).

ATTENTION
<p>Impaired function Non-compliance with the handling guidelines will impair the function of the entrance door.</p> <ul style="list-style-type: none"> ▶ With fixing and sealant material, follow the handling guidelines of the respective manufacturer.

3.4 Connection to building structure

Proper fastening, load transfer and sealing of the connection joint to the building structure is a fundamental prerequisite for permanent usability of the door. It depends on the respective exterior wall system and fitting situation. Comply with the requirements of the current EnEV, the specifications of the *RAL quality monitoring association for windows and doors e.V.* and the manufacturer's processing guidelines.

The following generally applies:	
Room side	Air and vapour diffusion-tight seal
Average range	Thermal insulation unsusceptible to moisture
Exterior side	Vapour diffusion-open wind and rain barrier

(see **Figure 11.1 / 17**).

3.5 Adjusting the fitting

- Horizontal and vertical door leaf adjustment, contact pressure adjustment (see **Figures 15a – 15b**).

ATTENTION
<p>Limiting the door opening angle (see Figure 15b.1) The door opening angle must be limited to 105° on site.</p> <ul style="list-style-type: none"> ▶ Note that for concealed hinges, the door opening angle must be limited to 105°, as otherwise damage to the hinge or door frame can be expected.

3.6 Glazing

- Insertion and replacement of the glass panes or infills (see **Figure 14**).
- Blocking suggestions (see **Figure 14**)
- Secure blocking against falling (e.g. with Pattex adhesive).

3.7 Electrical connections

DANGER
<p>Mains voltage! Contact with the mains voltage presents the danger of a deadly electric shock. For that reason, observe the following warnings under all circumstances:</p> <ul style="list-style-type: none"> ▶ Electrical connections may only be performed by a qualified electrician! ▶ The on - site electrical installation must conform to the applicable protective regulations! ▶ Qualified electricians must ensure compliance with the national directives for the operation of electrical devices!

Depending on the length of the power supply cable, it must have at least the following cross-section:

10 m	0,50 mm ²	75 m	1,50 mm ²
40 m	0,75 mm ²	125 m	2,50 mm ²
50 m	1,00 mm ²		

3.8 Fitting break-in-resistant door sets

The fitting instructions in this section give additional tips on fitting break-in-resistant door sets with resistance classes RC 3 / RC 4 acc. to DIN EN 1627: 2011 (see **Figures 18 - 22**).

Only by a professional fitting in accordance with these instructions will the door sets be equipped with break-in-resistant features.

3.8.1 Permissible walls

The required break-in-resistance can only be obtained if the adjacent walls meet the requirements according to **Tab. 1 – Tab. 3**.

3.8.2 Permissible wall connections

The wall connections defined in **Image 10.2 a – 10.2 n** are permissible. Expert fitting must be verified with a fitting certificate.

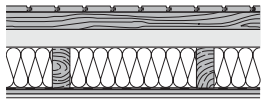
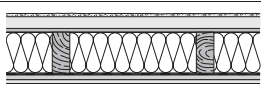
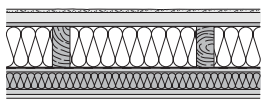
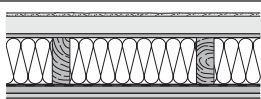
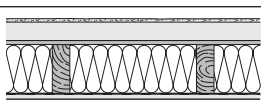
Tab. 1: Classification of the resistance classes of break-in-resistant components for solid walls

Resistance class of the component acc. to DIN EN 1627	Surrounding walls					
	In brickwork according to DIN 1053-1				Reinforced concrete walls acc. to DIN 1045	
	Wall thickness (unplastered)	Compression strength class of the bricks (DFK)	Apparent density class of the bricks (RDK)	Mortar group [min.]	Nominal thickness [min.]	Strength class [min.]
RC 3	≥ 115 mm	≥ 12	–	MG II / DM	≥ 120 mm	B 15
RC 4	≥ 240 mm				≥ 140 mm	

Tab. 2: Classification of the resistance classes of break-in-resistant components for gas concrete walls

Gas concrete wall			
Resistance class	Compression strength class of the bricks	Nominal thickness	Version
RC 3	≥ 4	≥ 240 mm	Bonded

Tab. 3: Classification of the resistance classes of break-in-resistant components for timber panel walls

Resistance class	Suitable wall construction
RC 3	 <p>Tongue + groove timber cladding 19 x 120 mm, batten 40 x 60 mm, SB.W 60 mm, timber post 60 x 140, MF 140 mm, PE plastic film, OSB 15.0 mm, GKB 12.5 mm</p>
	 <p>Plaster with fabric, SB W 40 mm, DWD 15.0 mm, timber post 60 x 140, MF 140 mm, kraft paper, BFU 15.0 mm, GKB 12.5 mm</p>
	 <p>Plaster with fabric, approx. 4 mm, PS 30 mm, FP 13 mm V100E1, timber post 60 x 140, MF 140 mm, PE plastic film 0.2 mm, FP 13 mm V20E1, batten 40 x 60 mm, insulation MF 40 mm, BFU 15.0 mm, GKB 9.5 mm</p>
RC 4	 <p>Plaster with fabric, approx. 4 mm, SB.W 60 mm, DWD 15 mm, timber post 60 x 160 mm, SB.W 160 mm, sodium kraft paper, OSB 22 mm, BFU 15 mm, GKB 12,5 mm</p>
	 <p>Plaster with fabric, approx. 4 mm, SB.W 60 mm, DWD 15 mm, timber post 60 x 160 mm, mineral fibre 160 mm, sodium kraft paper, FP 13 mm V20, sheet metal 0,75 mm, FP 13 mm V20, GKB 9,5 mm</p>

Prefabricated and timber partition walls with respective resistance class suitability certification from the manufacturer. Deviating walls possible in accordance with EN 1627.

3.8.3 Safety relevant components

The required break-in-resistance can only be obtained if the used infills meet the following requirements.

Minimum requirement for the side element, transom light infills:

Resistance class	RC 3
Glazing resistance class according to EN 356	P5 A
Placement of the safety pane	Attack side
Panel with or without glass	Aluminium panel

The exchange of safety-relevant components (e.g. fittings, locks and infills) can lead to a loss of door set resistance.

Minimum requirements for the fittings :

Resistance class	RC 3	RC 4
EN 1303 (see Figure 19)		
Locking cylinder (position 7)	4	6
Locking cylinder (position 8)	1	2

Be sure to observe the following fitting instructions:

- The visible gap of 5 ± 1 mm between frame and leaf must be observed (see **Figure 20**) so that the lock bolts fully extend into the lock plate openings.

3.8.4 Additional instructions for fitting

- ▶ Install the frames vertically and properly aligned (see **Figure 11**).
- ▶ In the areas described below, back-fill the spaces between frame and walls with a rot-free material to withstand pressure:
 - Hinges
 - Infill

- Locking
- Fixing points
- On the upper and lower corners

By taking suitable precautions (e.g. silicone), make sure that the pressure-resistant back-packing is not able to shift (see **Figure 10.2**).

3.8.5 Instructions for the user

- Break-in-resistant components only provide burglar resistance in a closed, locked, and secured state and when the key has been removed!
- Anti-panic locks are not permissible in combination with break-in-resistant doors!
- Knob and round cylinders are not generally permitted in break-in resistant doors (RC 3 / RC 4).

3.8.6 Guarantee

To ensure the performance criterion “break-in resistance in accordance with DIN EN 1627” with classification RC 3 / RC 4 the fitting company must confirm expert fitting in accordance with these instructions by means of the document “Fitting certificate for break-in-resistant doors” provided with the order confirmation and return this document filled out to the manufacturer.

4 Description of S5 Smart, Comfort, Code, Scan

Volt-free control of the locks (see **Image 7b / 7c / 7d**)

If the locks are to be controlled via intercom/buttons to which voltage is applied at the output, this cable must be switched to volt-free by fitting a coupling relay. Coupling relay for standard cases (12 V AC) in accessories.

The factory code must be changed for the initial start-up of the finger scanner! For this, see the included operating instructions.

4.1 LED display

Blue (BU)

Condition	Function
Illuminated briefly	A valid radio code was discovered for channel 1
Illuminated long once	A valid radio code is discovered that has been stored on both channels
Flashes slowly	Receiver is in the learn mode for channel 1
Flashes quickly after slow flashing	A valid radio code was discovered during the learning
Flashes slowly for 5 seconds Flashes quickly for 2 seconds	Device reset is being implemented or completed
Off	Operation mode

Programming button **P** (P button)

4.2 Teaching in a radio code

To activate, switch a channel:

- ▶ Press the **P** button once to activate channel 1.

To abort the learn mode:

- ▶ Press the **P** button 3 times, or wait for the timeout.

Timeout

If no valid radio code is recognised within 25 seconds, the receiver automatically returns to the operation mode.

4.3 Teaching in a radio code

(see **Figure 7e**)

1. Press the **P** button to activate the desired channel.
 - The blue LED will flash slowly for channel 1.
2. Put the hand transmitter, whose radio code is to be inherited, into the **Inheriting, Transmitting** mode.
 - If a valid radio code is recognised, the LED flashes quickly in blue then goes out.

The receiver is in the operation mode.

4.4 Operation

In the operation mode, the receiver signals the recognition of a valid radio code by illuminating the blue LED.

NOTE:

If the radio code for the taught-in hand transmitter was copied from another hand transmitter, the hand transmitter button must be pressed a second time during **initial** start-up.

A valid radio code
channel 1 is discovered = The LED is illuminated briefly once

4.5 Reset

All radio codes are deleted by the following steps:

1. Press and hold the **P** button.
 - The LED slowly flashes in blue for 5 seconds.
 - The LED flashes rapidly in blue for 2 seconds.

2. Release the **P** button.

All radio codes have been deleted.

NOTE:

If the **P** button is released prematurely, the device reset will be aborted and the radio codes are not deleted.

5 Inspection and Maintenance

5.1 Checking the seating and sealing

Before finishing the fitting process, check that the aluminium entrance door has been fitted correctly.

- ▶ Inspect the following points:
 - Seating of the fastening screws to the building structure
 - Sealing of the aluminium entrance door to the building structure

6 Cleaning and Care

6.1 Surface

You have purchased a high - grade aluminium product. Protect it by performing cleaning and upkeep regularly. This is the only way to prevent undesired corrosion caused by environmental conditions and contamination related to use.

Wash surfaces with a mixture of alcohol and water before bonding.

ATTENTION

Unsuitable care products

The door surface and adjacent components can be damaged by aggressive, corrosive or abrasive materials such as acids or steel brushes.

- ▶ Only use conventional care products and microfibre cloths to maintain the aluminium entrance door.
- ▶ Use water to rinse any dirt off high-gloss surfaces.
- ▶ Never use polish on matt surfaces.
- ▶ Always take note of the manufacturer information for the care products.

NOTE:

Manufacturer's recommendation: proWIN "Seidenglanz" detergent in conjunction with the proWIN "Hochglanzzauber" microfiber cloth. www.prowin.net

6.2 Movable fitting parts

- ▶ **Oil or lubricate** moveable fitting parts **once per year**. Only use acid-free oil or vaseline.

6.3 Door hinges

ATTENTION

Lubricating the door hinges

Lubricate concealed door hinges after 50,000 locks at the latest.

- ▶ Surface-mounted door hinges are maintenance-free.
- ▶ Never lubricate the these door hinges.

6.4 Cylinder

To maintain the closing cylinder, only special cylinder care spray is approved. Do not use products that contain graphite under any circumstances.

7 Dismantling and Disposal

Dismantling of the aluminium entrance door is conducted in the reverse order of the assembly.

To dispose of it properly after dismantling, the aluminium door must be disassembled into its individual components and disposed of according to local official regulations.

8 Spare Parts


We advise explicitly that only genuine spare parts are tested and approved.

The following cylinders may be used in conjunction with our locks H5/S5:

- Knob cylinders
- Cylinders with/without compensator function
- Cylinders with/without emergency and hazard function

If using other locks, such as gear locks with anti-panic function, proper function in conjunction with the desired cylinder must be checked and ensured in advance.

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Cher client,
Nous vous remercions d'avoir opté pour un produit de qualité de notre société.

1 A propos de ce mode d'emploi

Les présentes instructions se composent d'une partie texte et d'une partie illustrée. Vous trouverez cette dernière à la fin de la partie texte.

Ces instructions correspondent à une **notice originale** au sens de la directive EU-BpVO 305/2011. Lisez attentivement et suivez les présentes instructions. Elles vous fournissent des informations importantes pour une installation et une utilisation ainsi qu'un entretien et une maintenance appropriés de votre porte d'entrée en aluminium, qui vous permettront de profiter de ce produit durant des années.

Veillez en particulier respecter toutes les consignes de sécurité et de danger.

Veillez conserver soigneusement les présentes instructions !

Un montage approprié et une maintenance soignée améliorent les prestations, la disponibilité et la sécurité de l'installation.

Les textes et les illustrations de ces instructions ont fait l'objet du plus grand soin. Pour des raisons de clarté, les détails concernant chaque variante ou montage envisageable ne peuvent tous être décrits. Les textes et schémas imprimés dans les présentes instructions ne sont donnés qu'à titre d'exemple.

Nous déclinons toute responsabilité quant à l'exhaustivité des présentes instructions, qui ne donne droit à aucune réclamation.

Si toutefois vous souhaitez obtenir de plus amples informations ou si vous rencontrez certains problèmes n'étant pas traités de manière détaillée dans ces instructions, veuillez vous adresser au fabricant.


Vous trouverez également de l'aide auprès de l'assistant de montage de l'ift Rosenheim sur www.ift-montageplaner.de

Les présentes instructions constituent un document important pour le dossier de construction.






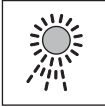


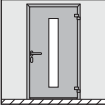
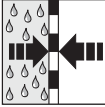
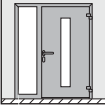






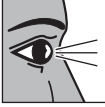
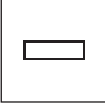

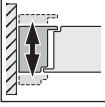
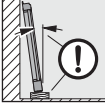

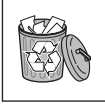
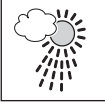
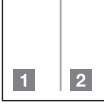
1.1 Consignes de sécurité utilisées

⚠️ DANGER
Désigne un danger provoquant inmanquablement la mort ou des blessures graves.
ATTENTION
Désigne un danger susceptible d' endommager ou de détruire le produit .

1.2 Symboles utilisés

	Remarques importantes pour éviter les dommages matériels
	Disposition ou procédure autorisée
	Disposition ou procédure interdite
	Voir partie texte

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	Voir partie illustrée		Non conforme à la norme DIN 4108
	Voir instructions de montage séparées de la commande ou des éléments de commande électriques additionnels		Hiver
	Tension électrique		Eté
	Eléments de construction optionnels, à commander en tant qu'accessoires		Formation de condensation
	Porte à 1 vantail		Imperméable à la diffusion de vapeur
	Porte avec partie latérale		Perméable à la diffusion de vapeur
	Porte ouvrant vers l'intérieur		Serrage des vis à la main
	Porte ouvrant vers l'extérieur		Serrage des vis à fond
	Cales de support		Vérification
	Cales d'écartement		Sans entretien
	Ajuster le cadre par rapport au vantail		Réglage du vantail de porte
	Intérieur		Retrait de l'élément de construction ou du conditionnement et élimination
	Extérieur		Désignation des étapes de travail de la partie illustrée devant être exécutées consécutivement



Équipement pour anti-effraction classe **RC 3**
(CR 3) selon la norme DIN EN 1627:2011



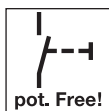
Équipement pour anti-effraction classe **RC 4**
(CR 3) selon la norme DIN EN 1627:2011



Côté d'attaque



Ouverture permanente



Bouton-poussoir en contact sec



Commutateur



Porte motorisée



A brancher par l'utilisateur, à monter par l'utilisateur



Branchement fait en usine, montage fait en usine

1.3 Abréviations utilisées

OFF sol fini

1.4 Code de couleurs pour câbles, conducteurs et composants

Les abréviations des couleurs pour l'identification des câbles, des conducteurs et des composants sont conformes au code couleur international, selon IEC 757 :

BK	noir	YE	jaune
BN	marron	WH	blanc
GN	vert	GN/YE	vert / jaune
GY	gris		

2

Consignes de sécurité

DANGER

Danger mortel lors du montage de la porte d'entrée

Durant le montage, la porte ou l'encadrement de porte sont susceptibles de choir sur une personne.

- ▶ Avant et pendant les travaux de montage, protégez la porte et l'encadrement de porte de toute chute.

- Lors du montage de la porte d'entrée en aluminium, respectez les règles fondamentales de la norme DIN 4108 « *Protection thermique et économie d'énergie dans les bâtiments* ».
- Veillez au respect des normes, directives, prescriptions et réglementations en vigueur ainsi qu'à celui des règles techniques communément admises.
- Afin d'éviter toute dégradation, protégez la porte d'entrée en aluminium jusqu'à la fin des travaux à l'aide de feuil et de bandes adhésives. Veuillez toutefois noter que ces bandes adhésives sont susceptibles de laisser des traces, en particulier après une longue exposition aux rayons solaires.
- Déterminez les fixations appropriées selon les impératifs locaux et conservez-les à portée de main.
- Fixez la porte d'entrée en aluminium au mur à tous les points de fixation prévus.
- Respectez les écarts nécessaires par rapport aux bords et aux axes des chevilles – dépendant du type de mur, des consignes de montage, des directives de mise en œuvre et de pose publiées par le fabricant des chevilles !
- Nettoyez au préalable toutes les surfaces de contact devant être scellées à l'aide de silicone ou de matériaux d'étanchéité, telles que
 - Surfaces profilées
 - Liaison périphérique de la vitre
- Employez uniquement des colles et des matériaux d'étanchéité adaptés à cette utilisation et compatibles avec le matériel. Respectez les directives de mise en œuvre publiées par le fabricant.
- Ne confiez les travaux électriques qu'aux seuls professionnels formés.
- Pour les portes d'entrée en aluminium dotées d'un automatisme, respectez la directive européenne 2006/42/CE.

2.1 Qualification du monteur

Pour assurer une installation appropriée de la porte d'entrée en aluminium, seuls des monteurs disposant d'une qualification adaptée sont autorisés à effectuer ces travaux.

ATTENTION

Dysfonctionnement

La suppression ou la modification d'éléments de construction est susceptible d'altérer le fonctionnement de la porte.

- ▶ Ne supprimez ou n'enlevez aucun des éléments de construction.
- ▶ Fixez tous les éléments de construction mentionnés dans les présentes instructions.

3

Montage

- ▶ Pour un montage simple et professionnel, suivez minutieusement les étapes de travail présentées dans la partie illustrée.
- ▶ Vérifiez qu'aucune pièce ne doit être montée avant l'installation de la porte (voir **figure 3**).
- ▶ Avant de procéder au montage, retirez les sécurités de transport (voir **figure 2.3**).
- ▶ Les matériaux de fixation et d'étanchéité ne sont pas compris dans la fourniture.

REMARQUE :

Utilisez en priorité les points de fixation préparés en usine.

Les points de fixation indiqués dans la notice de montage ont un caractère de validité générale et peuvent différer des points préparés en usine.

3.1 Accessoires

- Couplage K3 de porte, partie latérale, imposte vitrée (voir **figures 3.1 / 3.2**)
 - VP25 / VP50 Elargissement (voir **figure 3.3a**)
 - VP100 / VP150 Elargissement (voir **figure 3.3b**)
 - VPE20 / VPE50 Elargissement en une pièce (voir **figure 3.4**)
 - KE135 / KE90 Profils d'angle 135° / 90° (voir **figures 3.5a / 3.5b**)
 - KS3 Profil statique (voir **figure 3.6**)
- Le matériel de fixation pour les accessoires est compris dans la fourniture.

3.2 Détermination de la position de la porte

- ▶ La position de la porte doit être déterminée en fonction des possibilités de fixation locales, du type de mur et des écarts nécessaires par rapport aux bords des chevilles et des axes de celles-ci.
- ▶ Positionnez la porte, dans la mesure du possible, de telle manière qu'elle affleure le mur au niveau de l'isolation. En cas de maçonnerie monolithique ou à simple paroi, positionnez la porte le plus proche possible de la paroi intérieure du bâtiment. Respectez le processus isotherme (voir **figure 1**).

3.3 Types de montage

- Montage par pattes de fixation (voir **figures 10 – 12**)
- Montage par chevilles (voir **figures 10 – 12**)
- Montage à vis dans l'encadrement (voir **figures 10 – 12**)

REMARQUE :

Chaque point de fixation doit être calé de façon à pouvoir résister à la pression.

- Décrochage du vantail de porte (voir **figures 2.5 / 15a / 15b**).

ATTENTION	
Dysfonctionnement	
Le non respect des directives de mise en œuvre est susceptible d'altérer le fonctionnement de la porte d'entrée.	
▶ Lors de l'utilisation du matériel de fixation et d'étanchéité, veuillez respecter les directives de mise en œuvre du fabricant respectif.	

3.4 Fixation à la construction

La pose, la transmission de charge et l'étanchéité correctes des joints de raccordement au corps de bâtiment sont une condition essentielle garantissant l'utilisabilité durable de la porte. Elles dépendent du système de murs extérieurs et de la situation de montage. Respectez les exigences de la réglementation EnEv en vigueur, les prescriptions de la RAL- *Gütegemeinschaft Fenster und Haustüren e.V.* et les directives du fabricant.

En règle générale	
Côté pièce	Etanchéité à l'air et à la diffusion de vapeur
Zone médiane	Isolation thermique insensible à l'humidité
Extérieur	Barrière contre le vent et la pluie perméable à la diffusion de vapeur

(voir **figure 11.1 / 17**).

3.5 Réglage de la ferrure

- Décalage horizontal et vertical du vantail de porte, réglage de la pression d'appui (voir **figures 15a – 15b**).

ATTENTION	
Limitation de l'angle d'ouverture de la porte (voir figure 15b.1). L'angle d'ouverture de la porte doit être limité par l'utilisateur à 105°.	
▶ Pour les paumelles masquées, l'angle d'ouverture de la porte doit être limité à 105°. Veuillez noter que dans le cas contraire, des dommages de la paumelle ou de l'encadrement de porte sont à prévoir.	

3.6 Vitrification

- Mise en place et remplacement des vitrages ou des remplissages (voir **figure 14**)
- Suggestions de calage (voir **figure 14**)
- Les calages doivent être protégés de toute chute (par ex. avec de la colle Pattex)

3.7 Raccordements électriques

⚠ DANGER	
Tension secteur !	
Tout contact avec la tension secteur peut entraîner une décharge électrique mortelle. Par conséquent, veuillez impérativement respecter les consignes suivantes :	
▶ Les raccordements électriques doivent uniquement être effectués par un électricien professionnel !	
▶ L'installation électrique par l'utilisateur doit satisfaire à toutes les dispositions de protection !	
▶ Les électriciens doivent s'assurer que les consignes nationales en matière d'utilisation des appareils électriques sont respectées !	

En fonction de la longueur du câble d'alimentation en tension, ce dernier doit présenter la coupe transversale minimale suivante :

10 m	0,50 mm ²	75 m	1,50 mm ²
40 m	0,75 mm ²	125 m	2,50 mm ²
50 m	1,00 mm ²		

3.8 Montage d'éléments de porte anti-effraction

Les instructions de montage de ce paragraphe donnent des conseils supplémentaires pour le montage d'éléments de porte anti-effraction appartenant à la classe de résistance RC 3 / RC 4, conformes à la norme DIN EN 1627: 2011 (voir **figure 18–22**).

Ce n'est qu'avec une pose appropriée, conforme à ces instructions, que le fonctionnement des propriétés anti-effraction sur les éléments de porte est garanti.

3.8.1 Parois autorisées

La sécurité anti-intrusion exigée n'est atteinte que si les parois attenantes satisfont aux exigences conformément au **Tab 1 à Tab 3**.

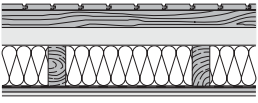
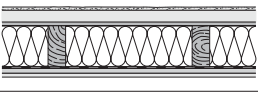
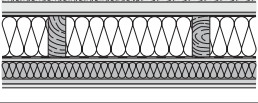
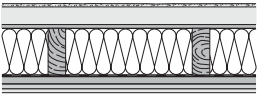
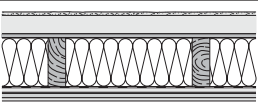
Tab. 1: affectation des classes de résistance des composants anti-effraction en contact avec les gros murs

Classe de résistance du composant conforme à la norme DIN EN 1627	Parois enveloppantes					
	En maçonnerie selon la norme DIN 1053-1				Parois en béton armé selon la norme DIN 1045	
	Epaisseur de paroi (sans crépi)	Classe de résistance à la compression des pierres	Classe de densité apparente des pierres	Groupe de mortier [min.]	Epaisseur nominale [min.]	Classe de résistance [min.]
RC 3	≥ 115 mm	≥ 12	-	MG II/DM	≥ 120 mm	B 15
RC 4	≥ 240 mm				≥ 140 mm	

Tab. 2: affectation des classes de résistance des composants anti-effraction en contact avec les parois en béton cellulaire

Pari en béton cellulaire			
Classe de résistance	Classe de résistance à la compression des pierres	Epaisseur nominale	Exécution
RC 3	≥ 4	≥ 240 mm	Collée

Tab. 3: affectation des classes de résistance des composants anti-effraction en contact avec les parois en panneau en bois

Classe de résistance	Structure de parois adaptée	
RC 3		Lambris à rainure et languette 19 x 120 mm, lattis 40 x 60 mm, panneau SB.W 60 mm, baguette bois 60 x 140, MDF 140 mm, film PE, OSB 15,0 mm, panneau en plaque de plâtre cartoné (GKB) 12,5 mm
		Enduit avec toile de fibre, panneau SB W 40 mm, plaque sans barrière de diffusion pour paroi et toit (DWD) 15,0 mm, baguette bois 60 x 140 mm, MDF 140 mm, papier kraft, plaque de contreplaqué affiné (BFU) 15,0 mm, panneau en plaque de plâtre cartoné (GKB) 12,5 mm
		Enduit avec toile de fibre env. 4 mm, PS 30 mm, FP 13 mm V100E1, baguette bois 60 x 140 mm, MDF 140 mm, film PE 0,2 mm, FP 13 mm V20E1, lattis 40 x 60 mm/isolation phonique MDF 40 mm, plaque de contreplaqué affiné (BFU) 15 mm, panneau en plaque de plâtre cartoné (GKB) 9,5 mm
RC 4		Enduit avec toile de fibre env. 4 mm, SB.W 60 mm, plaque sans barrière de diffusion pour paroi et toit (DWD) 15,0 mm, lattis 60 x 160 mm, SB.W 160 mm, papier kraft à la soude, OSB 22 mm, plaque de contreplaqué affiné (BFU) 15,0 mm, panneau en plaque de plâtre cartoné (GKB) 12,5 mm
		Enduit avec toile de fibre env. 4 mm, SB.W 60 mm, plaque sans barrière de diffusion pour paroi et toit (DWD) 15,0 mm, lattis 60 x 160 mm, fibre minérale 160 mm, papier kraft à la soude, FP 13 mm V20, tôle 0,75 mm, FP 13 mm V20, panneau en plaque de plâtre cartoné (GKB) 12,5 mm

Cloisons préfabriquées et colombages avec preuve fournie par le fabricant de la conformité à la classe de résistance correspondante. Autres parois conformes à EN 1627 possibles.

3.8.2 Raccords muraux autorisés

Les raccords muraux indiqués sur la **figure 10.2 a – 10.2 n** sont permis. La conformité du montage doit être attestée par un certificat de montage.

3.8.3 Composants importants pour la sécurité

La sécurité anti-intrusion exigée n'est atteinte que si les remplissages utilisés satisfont aux exigences suivantes.

Condition minimale pour les panneaux des parties latérales / impostes vitrées :

Classe de résistance	RC 3
Classe de résistance du vitrage selon la norme EN 356	P5 A
Positionnement de la vitre de sécurité	Côté d'attaque
Panneau avec ou sans vitre	Panneau en aluminium

Le remplacement de composants importants pour la sécurité (par ex. ferrures, serrures et remplissages) peut entraîner une perte de résistance du bloc-porte.

Exigences minimales pour les ferrures :

Classe de résistance	RC 3	RC 4
EN 1303 (voir figure 19)		
Cylindre de fermeture (caractère 7)	4	6
Cylindre de fermeture (caractère 8)	1	2

Respectez impérativement les prescriptions de montage suivantes :

- Le joint visible entre le cadre et le vantail de 5 ± 1 mm doit être respecté (voir **figure 20**), de sorte que le verrou de la serrure s'insère totalement dans l'ouverture de la serrure.

3.8.4 Remarques supplémentaires concernant la pose

- ▶ Posez le cadre d'aplomb et dans l'alignement (voir **figure 11**).
- ▶ Remplissez les espaces libres entre le cadre et les parois aux emplacements cités ci-après à l'aide d'un produit anti-décomposition de sorte à résister à la pression :
 - Paumelles
 - Remplissage
 - Verrouillage
 - Points de fixation
 - Coins supérieurs et inférieurs

A l'aide de mesures appropriées (par exemple avec du silicone), assurez-vous que le remplissage résistant à la pression ne puisse pas glisser (voir **figure 10.2**).

3.8.5 Remarques à l'attention de l'utilisateur

- Les composants anti-intrusion ne résistent aux effractions qu'à l'état fermé et verrouillé et que si la clé est retirée !
- Les serrures antipaniques ne sont pas autorisées en association avec des portes anti-intrusion !
- Les cylindres ronds et à bouton ne sont généralement pas autorisés pour les portes anti-effraction (RC 3 / RC 4).

3.8.6 Garantie légale

Pour la garantie des caractéristiques de performance « Sécurité anti-effraction selon la norme DIN EN 1627 » selon les classes RC 3 / RC 4, la société de montage doit attester de la conformité du montage effectué aux présentes instructions par le biais du document « Certificat de montage pour portes anti-effraction » remis conjointement à la confirmation de commande et renvoyer ce document dûment rempli au fabricant.

4 Description du dispositif S5 Smart, Comfort, Code, Scan

Commande en contact sec des serrures (voir **fig. 7b / 7c / 7d**)

Si les serrures doivent être commandées au moyen d'interphones, de contacteurs dont la sortie est sous tension, cette ligne doit être isolée par la pose d'un relais de couplage. Un relais de couplage pour le cas de figure standard (12 V CA) est compris dans les accessoires.

Lors de la mise en service du scanner digital, le code affecté en usine doit être modifié ! A ce sujet, reportez-vous aux instructions d'utilisation fournies.

4.1 Affichage à LED

Bleu (BU)

Etat	Fonction
S'allume brièvement	Reconnaissance d'un code radio valide pour le canal 1
S'allume 1 x longtemps	Reconnaissance d'un code radio valide enregistré sur les deux canaux
Clignote lentement	Récepteur en mode Apprentissage pour canal 1
Clignote rapidement après clignotement lent	Reconnaissance d'un code radio valide lors de l'apprentissage
Clignote 5 s lentement, puis 2 s rapidement	Réinitialisation de l'appareil en cours ou achevée
Eteint	Mode de fonctionnement

Touche de programmation **P** (touche **P**)

4.2 Apprentissage d'un code radio

Pour activer ou changer de canal :

- ▶ Pour activer le canal 1, appuyez 1 x sur la touche **P**.

Pour quitter le mode Apprentissage :

- ▶ Appuyez 3 x sur la touche **P** ou attendez la fin de la temporisation.

Temporisation :

Si aucun code radio valide n'est reconnu dans un intervalle de 25 secondes, le récepteur repasse automatiquement en mode de fonctionnement.

4.3 Apprentissage de codes radio

(voir **figure 7e**)

1. Activez le canal souhaité en appuyant sur la touche **P**.
 - La DEL bleue clignote lentement pour le canal 1
2. Mettez l'émetteur devant transmettre le code radio en mode **Transmission / Envoi**.
Lorsqu'un code radio valide est reconnu, la DEL clignote rapidement au bleu, puis s'éteint.
Le récepteur se trouve en mode de fonctionnement.

4.4 Fonctionnement

En mode de fonctionnement, le récepteur signale la reconnaissance d'un code radio valide par un allumage de la DEL bleue.

REMARQUE :

Si le code radio de la touche d'émetteur apprise a été préalablement copié depuis un autre émetteur, la touche d'émetteur doit être actionnée une seconde fois pour le **premier** fonctionnement.

Reconnaissance d'un code

radio valide pour le canal 1 = la DEL s'allume 1 x brièvement

4.5 Réinitialisation de l'appareil

Tous les codes radio peuvent être supprimés par les étapes suivantes :

1. Appuyez sur la touche **P** et maintenez-la enfoncée.
 - La DEL clignote lentement au bleu pendant 5 secondes.
 - La DEL clignote rapidement au bleu pendant 2 secondes.
2. Relâchez la touche **P**.
Tous les codes radio sont supprimés.

REMARQUE :

Si vous relâchez la touche **P** prématurément, la réinitialisation de l'appareil est interrompue et les codes radio ne sont pas supprimés.

5 Inspection et maintenance

5.1 Vérification du positionnement et de l'étanchéité

Avant la fin du montage, assurez-vous que le montage de la porte d'entrée en aluminium est correctement effectué.

- ▶ Vérifiez les points suivants :
 - Positionnement des vis de fixation sur la construction
 - Etanchéité de la porte en aluminium par rapport à la construction

6 Nettoyage et entretien

6.1 Surface

Vous venez de faire l'acquisition d'un produit de grande qualité en aluminium. Protégez-le par un nettoyage et un entretien réguliers. De cette manière, vous préviendrez l'apparition de traces de corrosion non souhaitées dues aux intempéries et aux impuretés liées à son utilisation.

Les surfaces de collage doivent auparavant être nettoyées avec un mélange d'eau et d'alcool.

ATTENTION**Produits d'entretien inappropriés**

La surface de la porte ou les éléments de constructions voisins peuvent être endommagés par des brosses métalliques ou des substances agressives, caustiques ou décapantes telles que des acides.

- ▶ Pour l'entretien de votre porte d'entrée en aluminium, utilisez uniquement des produits d'entretien courants et des chiffons en microfibrés.
- ▶ Nettoyez les surfaces brillantes à l'eau claire.
- ▶ N'utilisez jamais de poli sur les surfaces mates.
- ▶ Pour chaque produit d'entretien, veuillez toujours vous conformer aux instructions du fabricant.

REMARQUE :

Recommandation du fabricant : détergent proWin Seidenglanz» en combinaison avec le chiffon en microfibrés proWin «Hochglanzzauber». www.prowin.net

6.2 Pièces de ferrure mobiles

- ▶ **Huilez et graissez** les pièces de ferrure mobiles **une fois par an**. Utilisez exclusivement des huiles désacidifiées ou de la vaseline.

6.3 Paumelles de porte**ATTENTION****Graissage des paumelles de porte**

Graissez les paumelles de porte masquées au plus tard au bout de 50 000 fermetures

- ▶ Les paumelles de porte en applique sont sans entretien.
- ▶ Ne les graissez jamais.

6.4 Cylindre

Pour l'entretien du cylindre de fermeture, seuls les sprays spéciaux pour entretien de cylindres sont autorisés. N'utilisez jamais de produits à base de graphite.

7 Démontage et élimination des déchets

Le démontage de la porte d'entrée en aluminium se fait dans l'ordre inverse du montage.

Pour une élimination des déchets réglementaire, la porte d'entrée en aluminium doit être désassemblée après le démontage et éliminée conformément aux directives des autorités locales.

8 Pièces détachées


Nous insistons expressément sur le fait que seules les pièces détachées d'origine sont contrôlées et autorisées.

En combinaison avec nos serrures H5 / S5, les cylindres suivants peuvent être utilisés :

- Cylindre à bouton
- Cylindre avec ou sans fonction de course libre
- Cylindre avec ou sans fonction de secours et de danger

En cas d'utilisation d'autres serrures, par exemple des serrures de transmission avec fonction antipanique, la fonctionnalité en combinaison avec le cylindre souhaité doit être au préalable contrôlée et assurée.

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Gentile cliente, siamo lieti che Lei abbia scelto un prodotto di qualità di nostra produzione.

1 Su queste istruzioni

Queste istruzioni si suddividono in testo e parte illustrata. La parte illustrata si trova al termine del testo.

Queste istruzioni sono **istruzioni originali** ai sensi della Direttiva EU-BpVO 305/2011. Legga attentamente le seguenti istruzioni che Le forniranno importanti informazioni sull'installazione, sull'uso e la corretta manutenzione della porta d'ingresso in alluminio. Siamo certi che questo prodotto Le procurerà grande soddisfazione per molti anni.

Osservi in particolare modo le indicazioni e le avvertenze di sicurezza.

La preghiamo di conservare queste istruzioni con cura!

Il montaggio corretto e l'accurata manutenzione aumentano la prestazione, funzionalità e sicurezza della porta.

I testi e i disegni contenuti nelle presenti istruzioni sono stati redatti con estrema cura. Per motivi di spazio non è possibile fornire una descrizione dettagliata di tutte le varianti e di tutti i possibili montaggi. I testi e i disegni pubblicati nelle presenti istruzioni assumono il solo carattere esemplificativo.

Viene esclusa qualunque garanzia relativa alla completezza senza autorizzazione al reclamo.

Se desidera ulteriori informazioni o se dovessero verificarsi dei problemi particolari non sufficientemente trattati nelle presenti istruzioni, si può rivolgere direttamente allo stabilimento di produzione per le informazioni.

Potete ricevere supporto anche dallo strumento di pianificazione del montaggio dell'ift Rosenheim. www.ift-montageplaner.de

Le presenti informazioni sono un importante documento per gli atti di carattere edile.

1.1 Avvertenze utilizzate

PERICOLO

Indica un rischio sicuro di lesioni gravi o di morte.

ATTENZIONE

Indica il rischio di **danneggiamento** o **distruzione del prodotto**.

1.2 Simboli utilizzati



Avvertenza importante per evitare danni alle cose



Disposizione o attività consentita






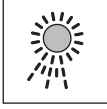
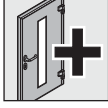

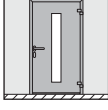
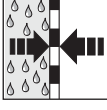
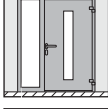
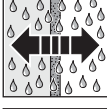




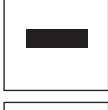
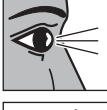
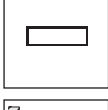

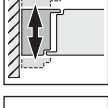
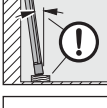

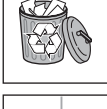
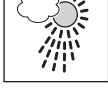
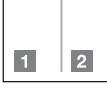


Disposizione o attività non consentita



Vedere testo

Il trasferimento di dati a terzi e la copia del documento stesso, utilizzando il contenuto per scopi diversi da quelli preposti, è vietato, salvo diversamente accordato per iscritto dalla società. La mancanza di piena adesione a queste condizioni farà scaturire azione legale contro la persona o la società recante l'offesa. Tutti i diritti, riferiti a Certificazioni, già esistenti o in via di applicazione, sono riservati. La Ditta si riserva la facoltà di apportare modifiche al prodotto.

	Vedere sezione illustrata		Non consentito ai sensi della norma DIN 4108
	Vedere istruzioni di montaggio separate del comando o di ulteriori elementi di controllo elettrici		Inverno
	Tensione elettrica		Estate
	Componenti opzionali, da ordinare come accessori		Formazione di acqua di condensa
	Porta ad un battente		A tenuta di vapore
	Porta con elemento laterale		A diffusione di vapore
	Porta con apertura verso l'interno		Stringere manualmente le viti
	Porta con apertura verso l'esterno		Stringere saldamente le viti
	Blocchi portanti		Controllare
	Distanziali		Non necessita di manutenzione
	Allineare il telaio al battente		Posizionare battente
	Interni abitazione		Rimuovere e smaltire componente o imballo
	Esterni abitazione		Contraddistingue nella parte illustrata le fasi di lavoro che devono essere eseguite in sequenza



Elemento antieffrazione **RC 3**
secondo DIN EN 1627:2011



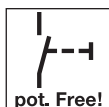
Elemento antieffrazione **RC 4**
secondo DIN EN 1627:2011



Lato di attacco



Sempre aperto



Pulsante a potenziale zero



Interruttore



Porta automatica



Collegamento, montaggio a cura del cliente



Collegamento, montaggio effettuato in stabilimento

1.3 Abbreviazioni utilizzate

OFF (P.P.F.) = Piano pavimento finito

1.4 Codice colori per cavi, conduttori singoli e componenti

Le abbreviazioni dei colori per cavi, conduttori e componenti seguono il codice colori internazionale secondo l'IEC 757:

BK	Nero	YE	Giallo
BN	Marrone	WH	Bianco
GN	Verde	GN / YE	Verde / giallo
GY	Grigio		

2 Indicazioni di sicurezza

PERICOLO

Pericolo di morte durante il montaggio della porta d'ingresso

Durante il montaggio la porta o il suo telaio possono cadere e uccidere persone.

- ▶ Assicurare la porta ed il telaio contro incidenti prima e durante il montaggio.

- In fase di montaggio della porta d'ingresso in alluminio osservare le regole di base della norma DIN 4108 *Isolamento termico e risparmio energetico negli edifici*.
- Assicurarsi che vengano rispettate le norme, le direttive, le disposizioni, le prescrizioni e le regole riconosciute della tecnica.
- Proteggere la porta d'ingresso in alluminio fino alla conclusione dei lavori di montaggio, coprendola con una pellicola in polietilene e con nastro adesivo di modo da evitare danneggiamenti. Considerare tuttavia che le strisce adesive lasciano residui soprattutto in caso di esposizione prolungata ai raggi del sole.
- Determinare i fissaggi adatti in relazione alle condizioni della struttura e tenerli pronti sul cantiere.
- Ancorare la porta d'ingresso in alluminio a tutti i punti di fissaggio previsti sulla parete.
- Osservare attentamente le distanze necessarie dal bordo e dall'asse del tassello ad espansione in relazione al tipo di parete nonché le istruzioni di montaggio e le direttive di lavorazione del produttore dei tasselli ad espansione!
- Pulire tutte le superfici di contatto prima che vengano sigillate con silicone e sigillanti, p. es.
 - superfici profilate
 - bordo della lastra
- Utilizzare esclusivamente sigillante e sostanze adesive adatte all'impiego e compatibili con i materiali. Osservare le direttive per la lavorazione del produttore corrispondente.
- Fare eseguire il lavoro sull'impianto elettrico solo da specialisti qualificati.
- Per le porte d'ingresso in alluminio con motorizzazioni automatiche deve essere rispettata la direttiva CE 2006/42/CE.

2.1 Qualifica dell'installatore

Per garantire un montaggio corretto della porta d'ingresso in alluminio devono essere incaricati esclusivamente installatori con una qualifica comprovata.

ATTENZIONE

Anomalie funzionali

I componenti mancanti o modificati pregiudicano il funzionamento della porta d'ingresso.

- ▶ Non modificare o rimuovere nessun componente.
- ▶ Fissare tutti i componenti indicati nelle istruzioni.

3 Montaggio

- ▶ Per un montaggio semplice e corretto eseguire accuratamente i passi raffigurati nella parte illustrata.
- ▶ Prima di installare la porta controllare se devono essere montati dei componenti (vedere **Fig. 3**).
- ▶ Prima del montaggio rimuovere i dispositivi di sicurezza per il trasporto (vedere **Fig. 2.3**).
- ▶ I materiali di fissaggio e sigillanti non sono compresi nella fornitura.

NOTA:

Usare in primo luogo i punti di fissaggio predisposti di fabbrica.

I punti di fissaggio indicati nelle istruzioni per il montaggio sono di carattere generale e possono deviare da quelli predisposti di fabbrica.

3.1 Accessori

- Accoppiamento K3 porta, elemento laterale, sopraluce (vedere Fig. 3.1 / 3.2)
 - Ampliamento VP25 / VP50 (vedere Fig. 3.3a)
 - Ampliamento VP100 / VP150 (vedere Fig. 3.3b)
 - Ampliamento monopezzo VPE20 / VPE50 (vedere Fig. 3.4)
 - Profili angolari KE135 / KE90 135° / 90° (vedere Fig. 3.5a / 3.5b)
 - Profilo statico KS3 (vedere Fig. 3.6)
- Il materiale di fissaggio per gli accessori non è compreso nella fornitura.

3.2 Rilevamento della posizione della porta

- ▶ Stabilire la posizione della porta in base alle opzioni di fissaggio locali, al tipo di parete e alla distanza necessaria dal bordo e dall'asse per il tassello ad espansione.
- ▶ Se possibile posizionare la porta in modo che si trovi al livello dell'isolamento della parete. In caso di muratura monolitica o ad uno strato posizionare la porta il più vicino possibile al lato interno dell'edificio. Rispettare l'andamento delle isoterme (vedere Fig. 1).

3.3 Tipi di montaggio

- Montaggio ad ancora (vedere Fig. 10 – 12)
- Montaggio a tasselli (vedere Fig. 10 – 12)
- Montaggio a viti nel telaio (vedere Fig. 10 – 12)

NOTA:

Ogni punto di fissaggio deve essere bloccato posteriormente e a prova di pressione.

- Scardinare il battente della porta (vedere Fig. 2.5 / 15a / 15b).

ATTENZIONE

Anomalie funzionali

L'inosservanza delle direttive di lavorazione pregiudica il funzionamento della porta d'ingresso.

- ▶ Per il materiale di fissaggio e di tenuta osservare sempre le direttive di lavorazione del produttore corrispondente.

3.4 Collegamento con la struttura dell'edificio

Il fissaggio, la distribuzione del carico e la sigillatura a regola d'arte delle fughe di collegamento verso il corpo dell'edificio è un presupposto essenziale per l'idoneità all'uso della porta. La porta dipende dal rispettivo sistema della parete esterna e dalla situazione di montaggio. Rispettare i requisiti dell'EnEV attuale, le disposizioni della RAL-Gütegemeinschaft Fenster und Haustüren e.V. (Associazione per il controllo qualità di serrature e ferramenta) e le direttive di lavorazione del produttore.

In linea di principio	
Lato interno	Sigillatura ermetica e a tenuta di vapore
Zona centrale	Coibentazione termica resistente all'umidità
Lato esterno	Barriera antivento e antipioggia permeabile al vapore

(vedere Fig. 11.1 / 17).

3.5 Regolazione dell'applicazione

- Posizionamento orizzontale e verticale del battente della porta, regolazione della pressione di contatto (vedere Fig. 15a – 15b).

ATTENZIONE

Delimitare l'angolare di apertura della porta (vedere Fig. 15b.1)

Delimitare l'angolare di apertura della porta a 105°.

- ▶ In presenza di cerniere nascoste l'angolo di apertura della porta deve essere limitato a 105°. In caso contrario si possono verificare danni alla cerniera e al telaio della porta.

3.6 Finestratura

- Inserimento e sostituzione delle lastre di vetro o dei riempimenti (vedere Fig. 14)
- Opzioni di bloccaggio (vedere Fig. 14)
- Gli spessoramenti devono essere fissati contro la caduta (p. es. colla Pattex)

3.7 Collegamenti elettrici

⚠ PERICOLO

Tensione di rete!

In caso di contatto con la tensione di rete sussiste il pericolo di folgorazione. Osservare assolutamente le seguenti indicazioni:

- ▶ I collegamenti elettrici devono essere eseguiti esclusivamente da un elettricista!
- ▶ L'installazione elettrica, a carico del cliente, deve essere conforme alle relative norme di protezione!
- ▶ L'elettricista deve rispettare le norme nazionali per il funzionamento di apparecchiature elettriche!

In base alla sua lunghezza, il cavo di alimentazione di tensione deve presentare almeno la seguente sezione trasversale:

10 m	0,50 mm ²	75 m	1,50 mm ²
40 m	0,75 mm ²	125 m	2,50 mm ²
50 m	1,00 mm ²		

3.8 Montaggio di kit di porta completa antieffrazione

Le istruzioni di montaggio in questo paragrafo forniscono indicazioni supplementari per il montaggio di kit di porta completa antieffrazione della classe di resistenza da RC 3 / RC 4 secondo la norma DIN EN 1627: 2011 (vedere Fig. 18 – 22).

I kit di porta completa possiedono proprietà antieffrazione solo se montati a regola d'arte in base alle presenti istruzioni.

3.8.1 Pareti consentite

La resistenza antieffrazione richiesta si consegue solo se le pareti adiacenti soddisfano i requisiti come da Tab. 1 – Tab. 3.

3.8.2 Collegamenti parete consentiti

I collegamenti parete definiti nella fig. 10.2a – 10.2n sono consentiti. Il montaggio a regola d'arte deve essere attestato dal certificato di montaggio.

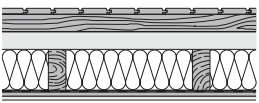
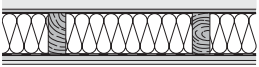
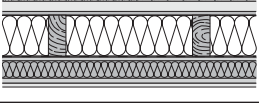
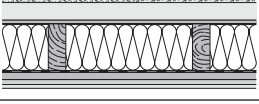
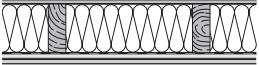
Tab. 1: Assegnazione delle classi di resistenza di componenti antieffrazione alle pareti massicce

Classe di resistenza del componente secondo norma DIN EN 1627	Pareti circostanti					
	In muratura secondo la norma DIN 1053-1				Pareti in cemento armato secondo DIN 1045	
	Spessore parete (senza intonaco)	Classe di resistenza a compressione dei mattoni (DFK)	Classe di massa specifica apparente (RDK)	Classe di malta [min.]	Spessore nominale [min.]	Classe di resistenza [min.]
RC 3	≥ 115 mm	≥ 12	-	MG II/DM	≥ 120 mm	B 15
RC 4	≥ 240 mm				≥ 140 mm	

Tab. 2: Assegnazione delle classi di resistenza di componenti antieffrazione alle pareti in calcestruzzo cellulare

Parete in calcestruzzo cellulare			
Classe di resistenza	Classe di resistenza a compressione dei mattoni	Spessore nominale	Esecuzione
RC 3	≥ 4	≥ 240 mm	Incollata

Tab. 3: Assegnazione delle classi di resistenza di componenti antieffrazione alle pareti in pannelli di legno

Classe di resistenza	Montaggio a parete adatto	
RC 3		Assito N + F 19 x 120 mm, tavolato 40 x 60 mm, pannello di fibra morbida di legno 60 mm, listello di legno 60 x 140, pannello di fibra a media densità 140 mm, pellicola in polietilene, OSB 15,0 mm, calcestruzzo con fibre di vetro 12,5 mm
		Intonaco con tessuto, pannello di fibra morbida di legno 40 mm, pannello DWD 15,0 mm, listello di legno 60 x 140, pannello di fibra a media densità 140 mm, carta kraft, pannello BFU 15,0 mm, calcestruzzo con fibre di vetro 12,5 mm
		Intonaco con tessuto ca. 4 mm, PS 30 mm, FP 13 mm V100E1, listello di legno 60 x 140, pannello di fibra a media densità 140 mm, pellicola in polietilene 0,2 mm, FP 13 mm V20E1, tavolato 40 x 60 mm, isolamento pannello di fibra a media densità 40 mm, pannello BFU 15,0 mm, calcestruzzo con fibre di vetro 9,5 mm
RC 4		Intonaco con tessuto ca. 4 mm, pannello di fibra morbida di legno 60 mm, pannello DWD 15 mm, listello di legno 60 x 160 mm, pannello di fibra morbida di legno 60 mm, carta kraft soda, OSB 22 mm, pannello BFU 15 mm, calcestruzzo con fibre di vetro 12,5 mm
		Intonaco con tessuto ca. 4 mm, pannello di fibra morbida di legno 60 mm, pannello DWD 15 mm, listello di legno 60 x 160 mm, fibra minerale 160 mm, carta kraft soda, FP 13 mm V20, lamiera 0,75 mm, FP 13 mm V20, calcestruzzo con fibre di vetro 9,5 mm

Pareti prefabbricate e pareti montanti di legno con documento del costruttore attestante l'adeguatezza della classe di resistenza corrispondente. Sono possibili pareti differenti in conformità alla norma EN 1627.

3.8.3 Componenti rilevanti per la sicurezza

La capacità antieffrazione viene raggiunta solo se i tamponamenti utilizzati soddisfano i seguenti requisiti.

Requisiti minimi per i riempimenti degli elementi laterali / sopra-luce:

Classe di resistenza	RC 3
Classe di resistenza della finestratura secondo EN 356	P5 A
Posizionamento del vetro di sicurezza	Lato di chiusura
Pannello con o senza vetratura	Pannello in alluminio

La sostituzione di componenti rilevanti per la sicurezza (ad es. applicazioni, serrature e riempimenti) può pregiudicare la resistenza del kit di porta completa.

Requisiti minimi delle applicazioni:

Classe di resistenza	RC 3	RC 4
EN 1303 (vedere Fig. 19))		
Cilindro della serratura (posizione 7)	4	6
Cilindro della serratura (posizione 8)	1	2

Rispettare assolutamente le seguenti norme di montaggio:

- Rispettare la fuga visibile tra telaio e battente pari a 5 ± 1 mm (vedere Fig. 21), in modo che i chiovistelli serratura si inseriscano completamente nei riscontri.

3.8.4 Ulteriori indicazioni di montaggio

- ▶ Montare i telai a piombo e allineati (vedere Fig. 20).
- ▶ Riempire gli spazi liberi fra telai e pareti con materiale antiputrefazione pressurizzato nei seguenti settori:
 - Cerniere
 - Riempimento

- Bloccaggio
- Punti di fissaggio
- Negli angoli superiori ed inferiori

Garantire mediante misure adeguate (p. es. silicone) che il riempimento posteriore pressurizzato non scivoli (vedere Fig. 10.2).

3.8.5 Indicazioni per l'utente

- I componenti antieffrazione sono efficaci solo se chiusi, bloccati e serrati a chiave e se questa è stata estratta!
- Non è consentito l'uso di maniglioni antipanico con le porte antieffrazione!
- I cilindri a pomolo e rotondi in genere non sono consentiti per porte antieffrazione (RC 3/RC 4).

3.8.6 Garanzia

Per garantire la caratteristica prestazionale "antieffrazione secondo DIN EN 1627" con la classificazione RC 3/RC 4 la ditta installatrice deve confermare di avere eseguito il montaggio a regola d'arte in base a queste istruzioni compilando il documento "certificato di installazione per porte antieffrazione" ricevuto alla conferma dell'ordine e rispedito al produttore.

4 Descrizione di S5 Smart, Comfort, Code, Scan

Comando delle serrature a potenziale zero (ved. fig. 7b / 7c / 7d)

Se le serrature devono essere comandate con citofoni, pulsanti sulla cui uscita è presente tensione, questo cavo deve essere portato a potenziale zero, montando un relè di accoppiamento. Relè di accoppiamento per caso standard (12 V AC) negli accessori.

Per la messa in funzione dello scanner digitale deve essere modificato il codice di fabbrica! Vedere in proposito le istruzioni per l'uso in dotazione.

4.1 Indicatore LED

Blu (BU)

Condizione	Funzione
Lampeggia brevemente	Viene riconosciuto un codice radio valido per il canale 1
Si accende 1 volta a lungo	Viene riconosciuto un codice radio valido, che viene salvato su entrambi i canali
Lampeggia lentamente	Il ricevitore si trova in modalità di apprendimento per il canale 1
Lampeggia rapidamente dopo un lento lampeggiamento	Durante l'apprendimento è stato riconosciuto un codice radio valido
Lampeggia lentamente per 5 sec., Lampeggia rapidamente per 2 sec.	Viene effettuato e portato a termine il reset del dispositivo
Spento	Modalità operativa

Tasto di programmazione **P** (tasto **P**)

4.2 Apprendimento di un codice radio

Per attivare / cambiare un canale:

- ▶ Premere 1 volta il tasto **P** per attivare il canale 1.

Per interrompere la modalità di apprendimento:

- ▶ Premere 3 volte il tasto **P** oppure attendere il timeout.

Timeout:

Se entro 25 secondi non viene riconosciuto un codice radio valido, il ricevitore ritorna automaticamente alla modalità operativa.

4.3 Apprendimento di codici radio

(vedere Fig. 7e)

1. Attivare il canale desiderato premendo il tasto **P**.
 - Il LED blu lampeggia lentamente per il canale 1
2. Portare il telecomando che deve trasmettere il suo codice radio in modalità **Trasmissione / Invio**. Se viene riconosciuto un codice radio valido, il LED lampeggia velocemente di blu e si spegne.
Il ricevitore è in modalità operativa.

4.4 Funzionamento

In modalità operativa il ricevitore segnala il riconoscimento di un codice radio valido tramite illuminazione del LED blu.

NOTA:

Se il codice radio del tasto del telecomando appreso è stato copiato in precedenza da un altro telecomando, il tasto deve essere premuto una seconda volta al **primo** azionamento.

Viene riconosciuto un codice radio valido per il canale 1 = il LED si accende 1 volta brevemente

4.5 Reset del dispositivo

Con i seguenti passi si cancellano tutti i codici radio.

1. Premere il tasto **P** e tenerlo premuto.
 - Il LED lampeggia lentamente di blu per 5 secondi.
 - Il LED lampeggia velocemente di blu per 2 secondi.
2. Rilasciare il tasto **P**.
Tutti i codici radio sono cancellati.

NOTA:

Se il tasto **P** viene rilasciato troppo presto, il reset dell'apparecchio viene interrotto e i codici radio non vengono cancellati.

5 Controllo e manutenzione

5.1 Controllo sede e chiusura a tenuta

Prima di terminare il montaggio controllare che la porta d'ingresso in alluminio sia montata correttamente.

- ▶ Verificare i seguenti punti:
 - Sede delle viti di fissaggio sulla struttura dell'edificio
 - Chiusura a tenuta della porta d'ingresso in alluminio sulla struttura dell'edificio

6 Pulizia

6.1 Superficie

Ha acquistato un prodotto in alluminio di alta qualità. Lo protegga con una pulizia regolare. Solo così eviterà l'insorgere di effetti corrosivi causati da fattori ambientali e da impurità dovute all'uso del prodotto.

Le superfici da incollare devono essere prima pulite con una soluzione di alcool e acqua.

ATTENZIONE

Prodotti per la manutenzione non adatti

La superficie della porta o i componenti circostanti possono venire danneggiati da sostanze aggressive, corrosive o abrasive come per esempio gli acidi o da spazzole d'acciaio.

- ▶ Per la cura della porta d'ingresso in alluminio utilizzare solo prodotti commerciali per la manutenzione e panni in microfibra.
- ▶ Rimuovere lo sporco dalle superfici lucide con acqua.
- ▶ Per le superfici opache non utilizzare un lucidante.
- ▶ Nell'uso del detergente osservare sempre le istruzioni del produttore.

NOTA:

Raccomandazione del costruttore: detergente proWIN
 “Seidenglanz” in combinazione con panno in microfibra proWIN
 “Hochglanzzauber”. www.prowin.net

6.2 Parti di applicazione mobili

▶ **Lubrificare o ingrassare** gli elementi costruttivi mobili **una volta all'anno**. Utilizzare esclusivamente olio privo di acidi o vaselina.

6.3 Cerniere della porta**ATTENZIONE****Lubrificazione delle cerniere della porta**

Lubrificare le cerniere nascoste delle porte al più tardi dopo 50.000 chiusure

- ▶ Le cerniere della porta riportate non necessitano di manutenzione
- ▶ Non lubrificarle mai.

6.4 Cilindro

Per la cura del cilindro della serratura utilizzare esclusivamente gli appositi spray. Non utilizzare mai prodotti contenenti grafite.

7 Smontaggio e smaltimento

Lo smontaggio della porta d'ingresso in alluminio avviene in sequenza inverso alla procedura di montaggio.

Per uno smaltimento corretto, suddividere la porta d'ingresso in alluminio nei suoi singoli componenti dopo lo smontaggio e smaltirla nel rispetto delle norme locali vigenti.

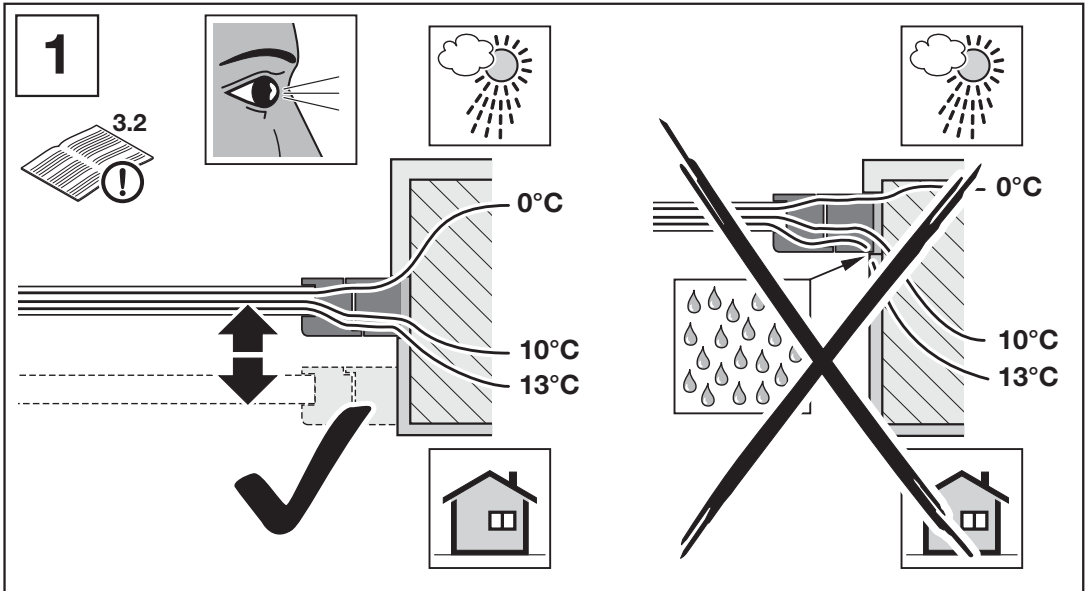
8 Ricambi

La avvertiamo espressamente che sono collaudati e autorizzati esclusivamente i ricambi originali.

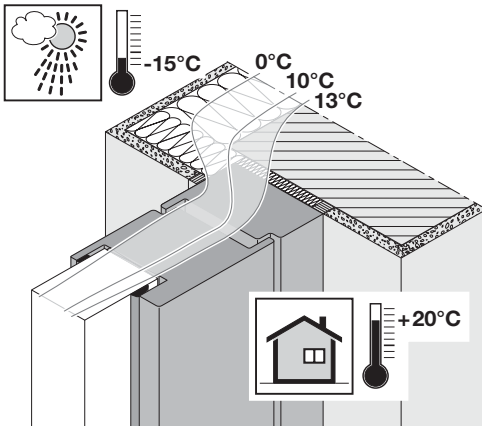
In combinazione con le nostre serrature H5 / S5 possono essere utilizzati i seguenti cilindri:

- Cilindro con pomolo
- Cilindro con / senza funzione a rotazione libera
- Cilindro con / senza funzione di emergenza e di apertura

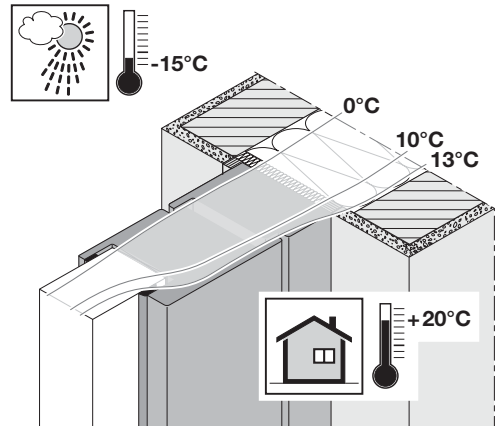
Se si utilizzano altre serrature, come ad es. serrature ad ingranaggi con funzione antipanico, deve esserne prima testata e garantita la funzionalità congiuntamente al cilindro desiderato.



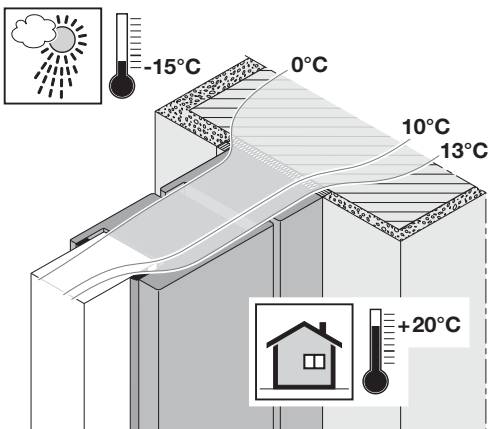
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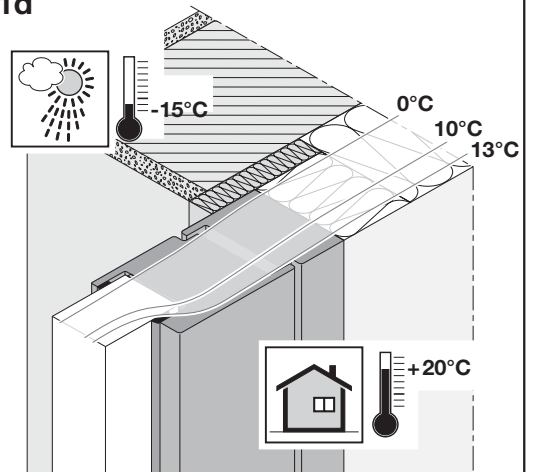
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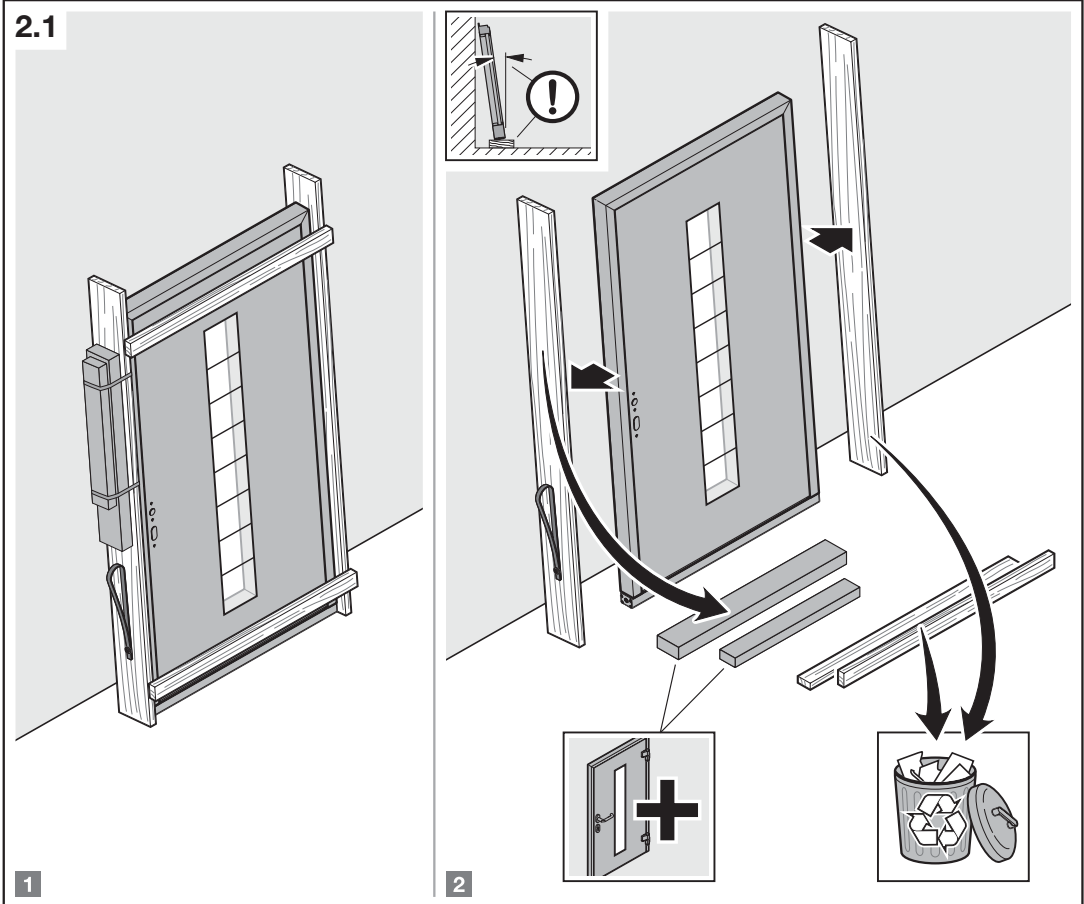
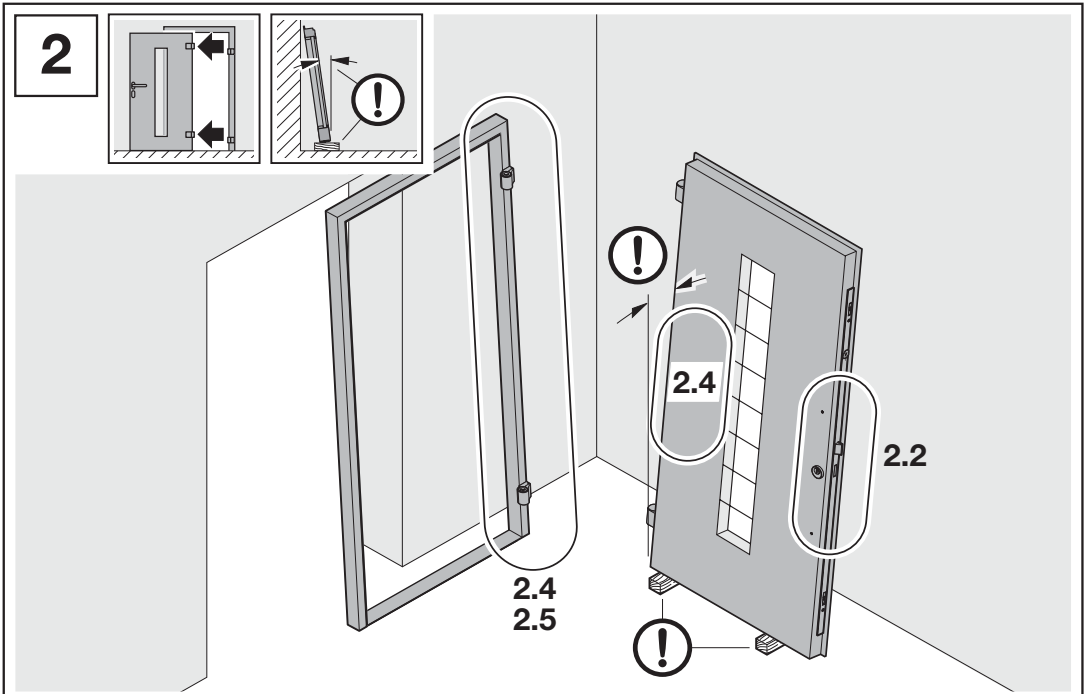


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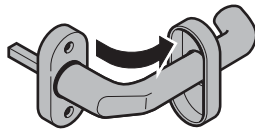
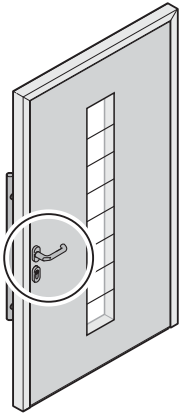


1d

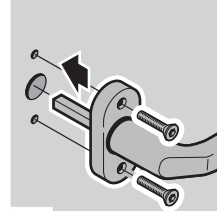
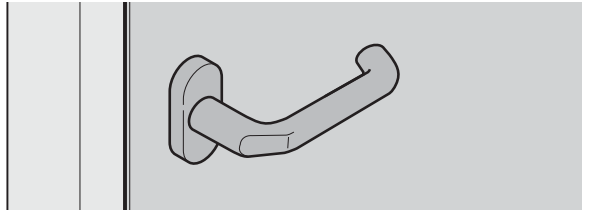




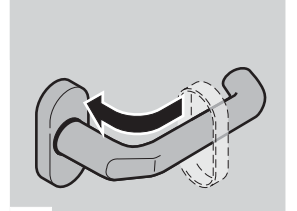
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1

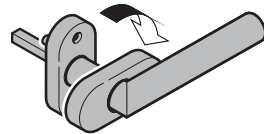
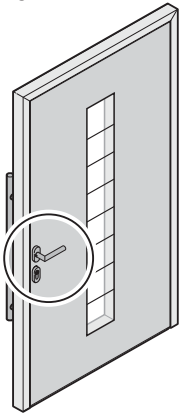


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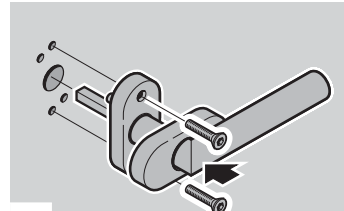
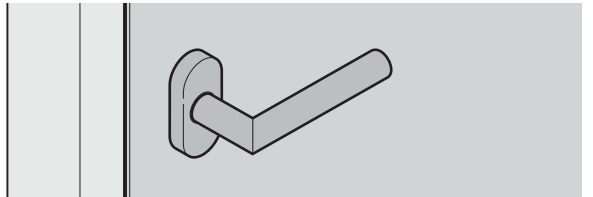


3

2.2b



1

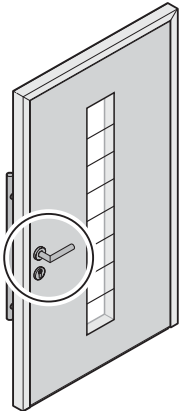


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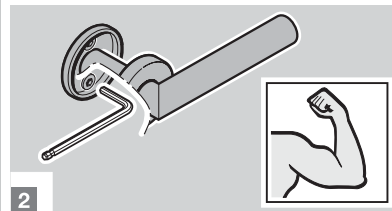
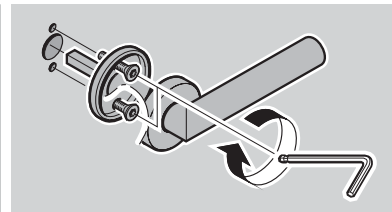
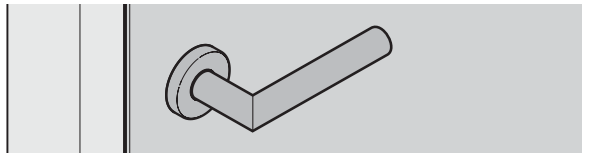


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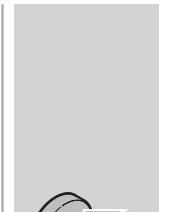
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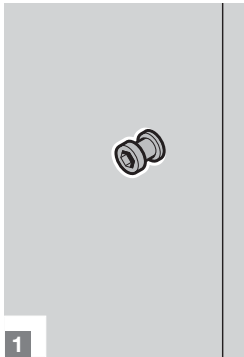
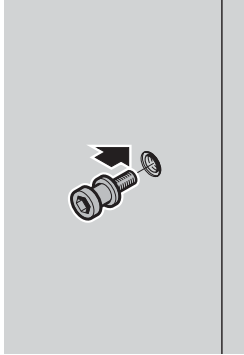
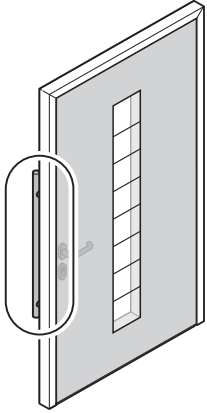
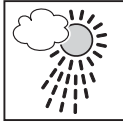


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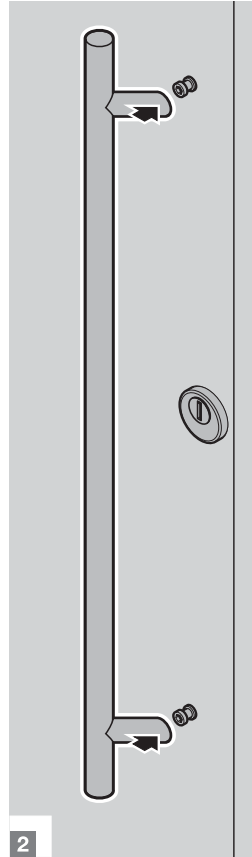


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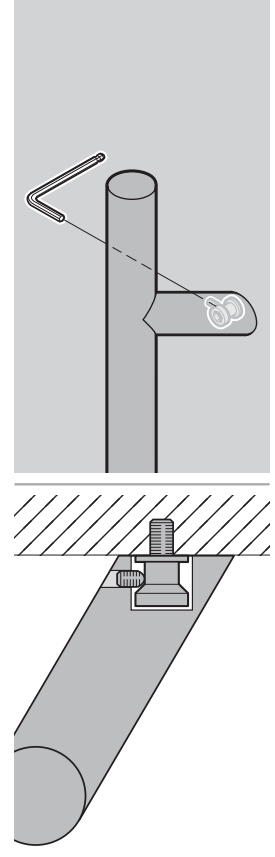
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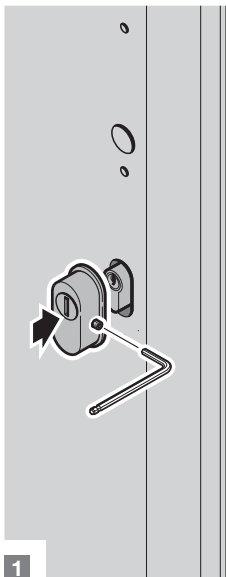
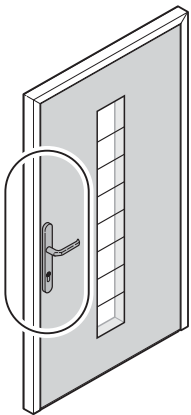
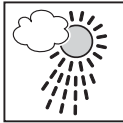
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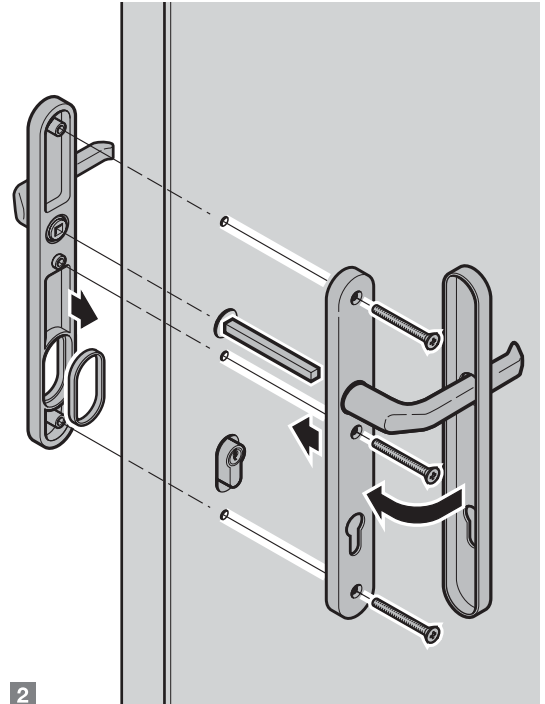
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2.2e

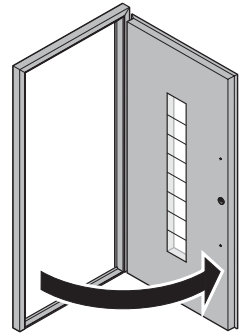
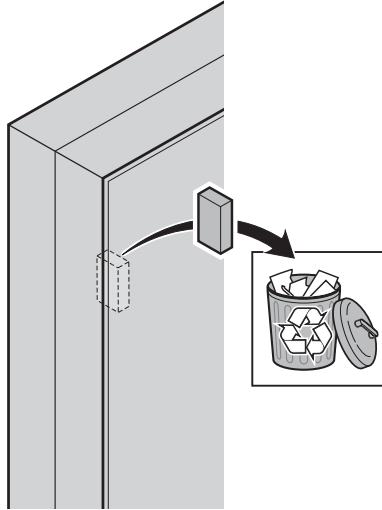
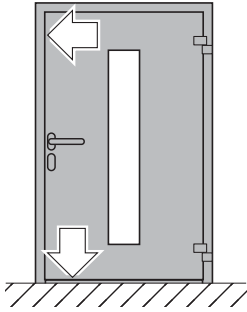


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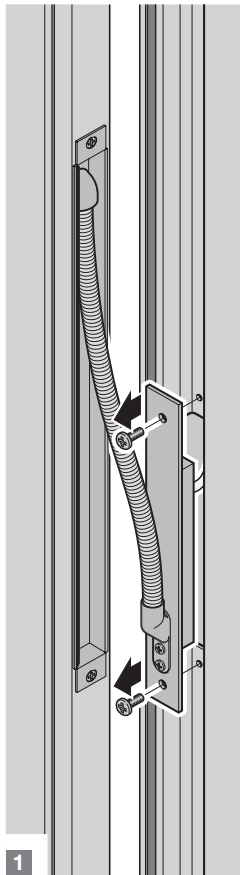
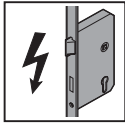


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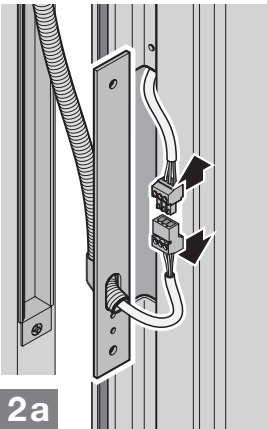
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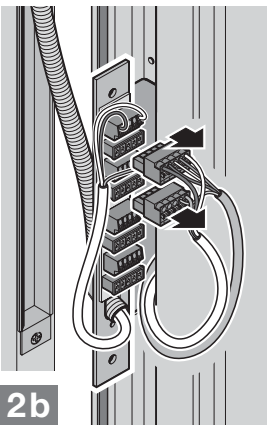
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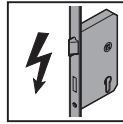
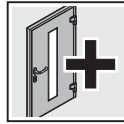


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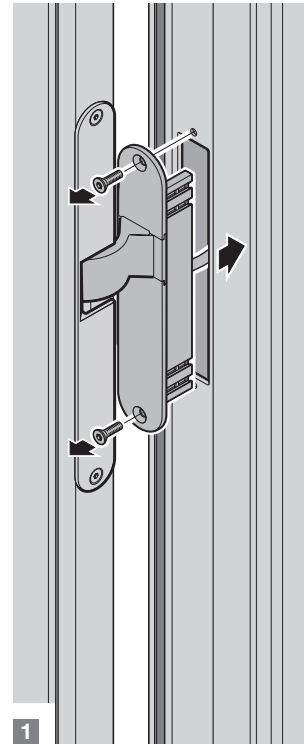


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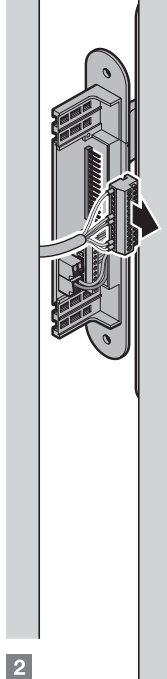
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2.5b
15b.2

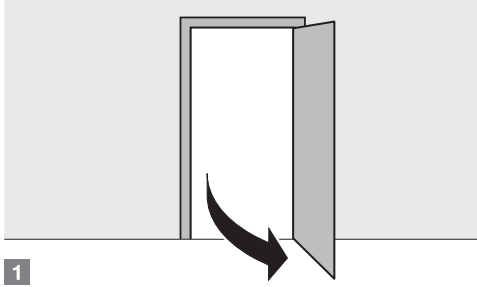
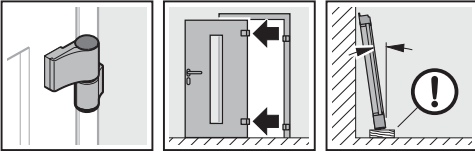


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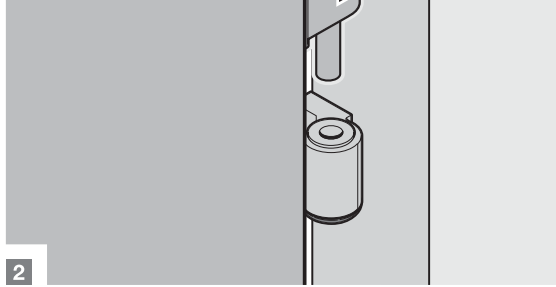


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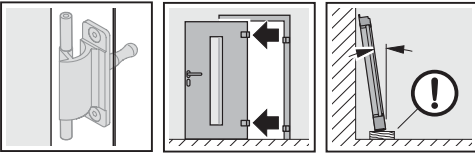


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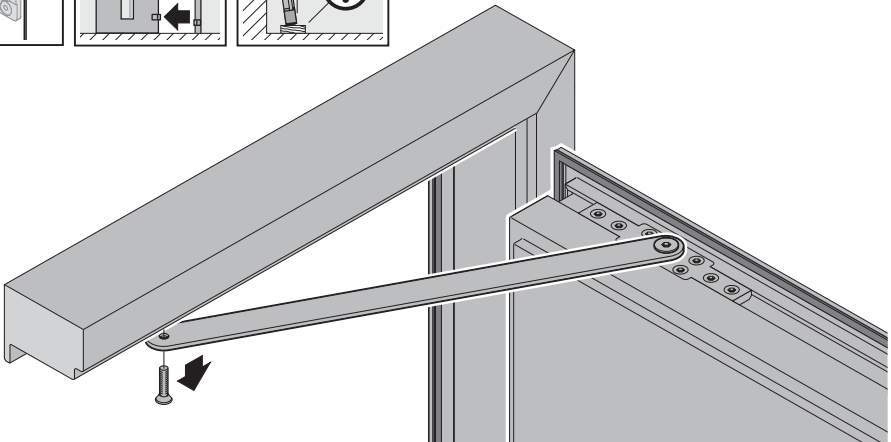


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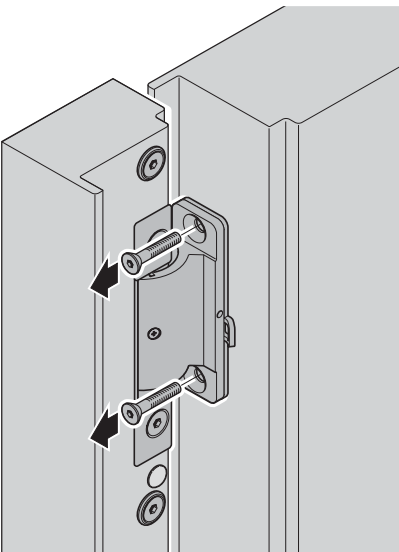
2.5b



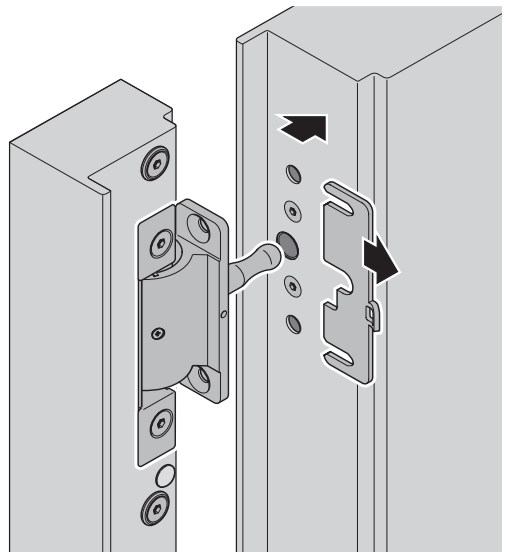
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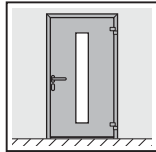
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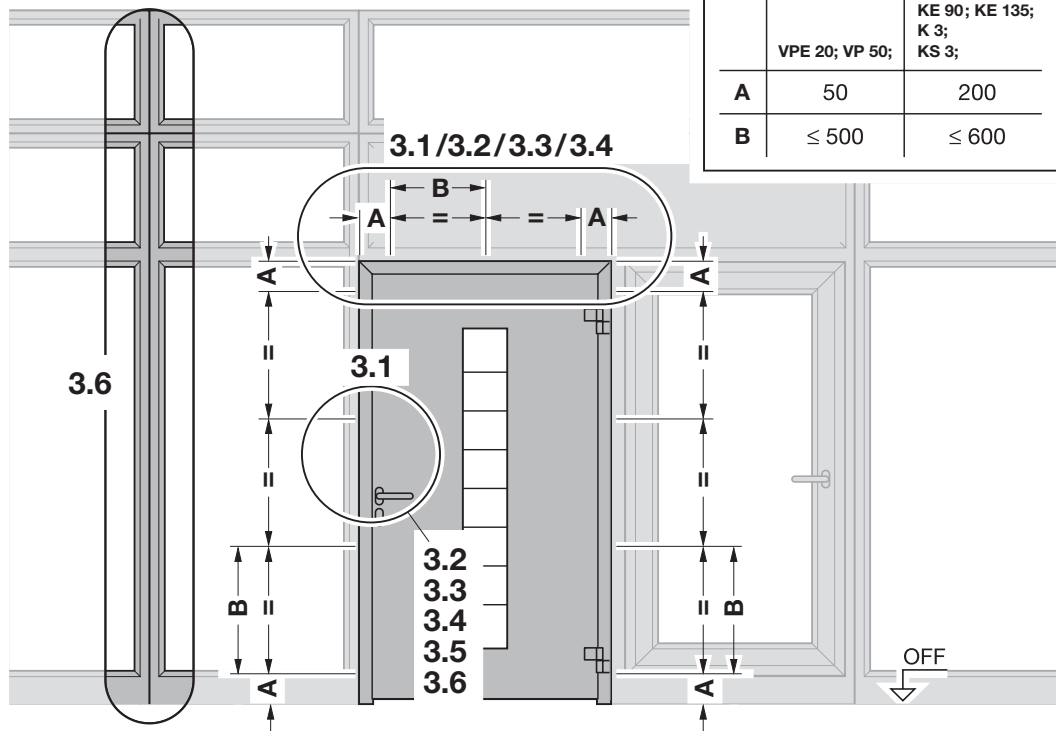
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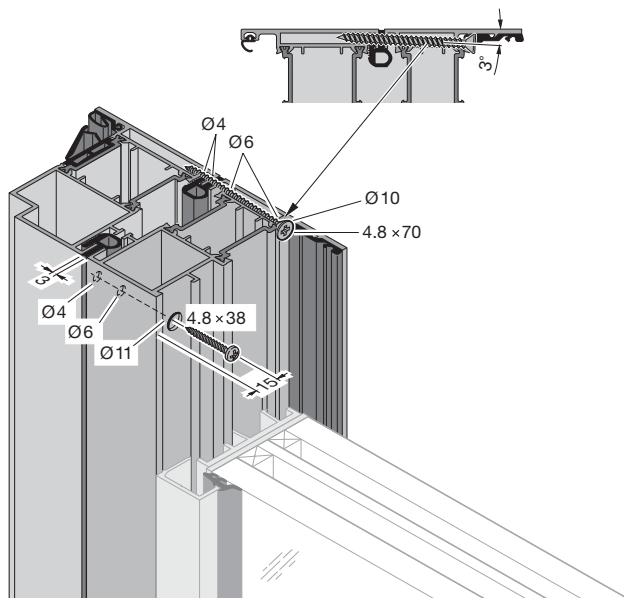
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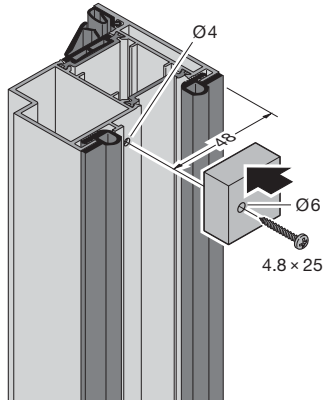
	VP 25; VP 50; VP 10; VP 150; KE 90; KE 135; K 3; KS 3;
	VPE 20; VP 50;
A	50 200
B	≤ 500 ≤ 600



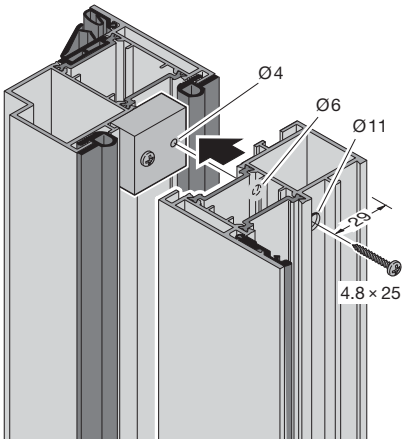
3.1



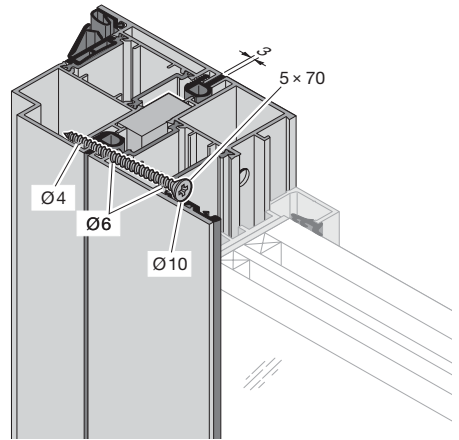
3.2



1



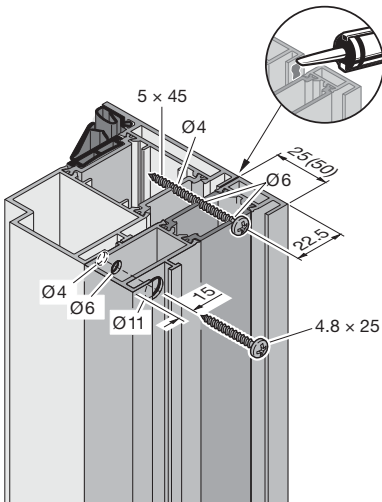
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3

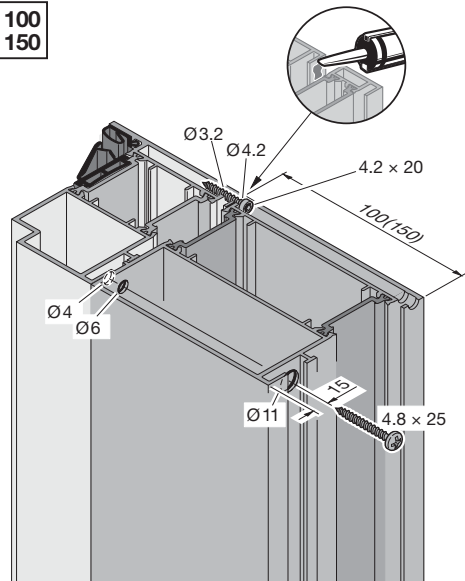
3.3a

VP 25
VP 50



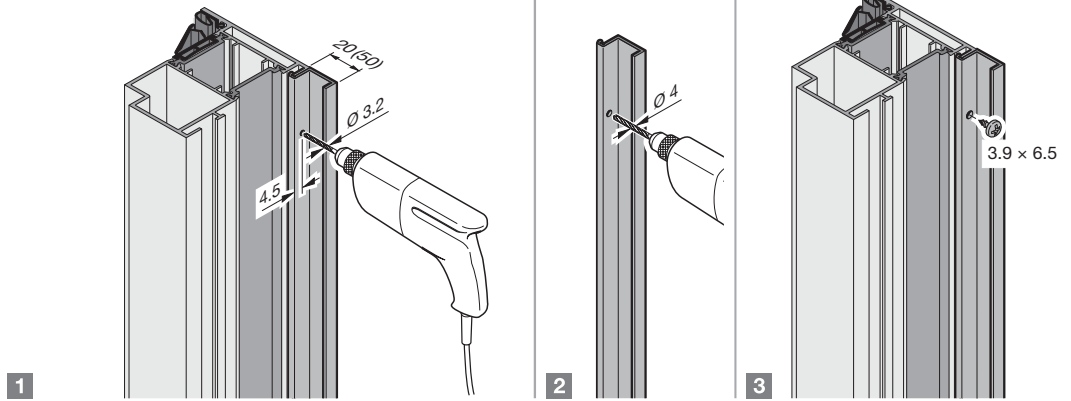
3.3b

VP 100
VP 150



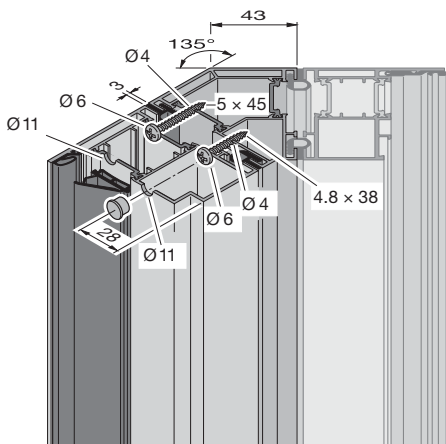
3.4

VPE 20
VPE 50



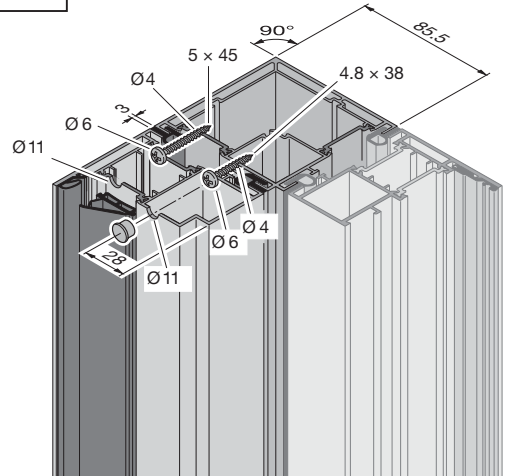
3.5a

KE 135



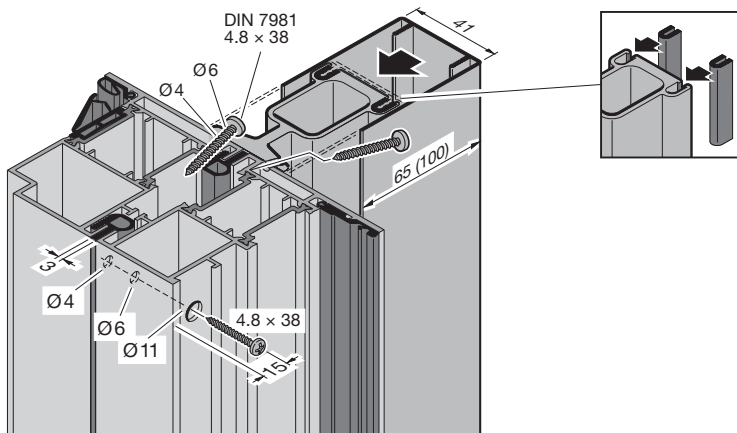
3.5b

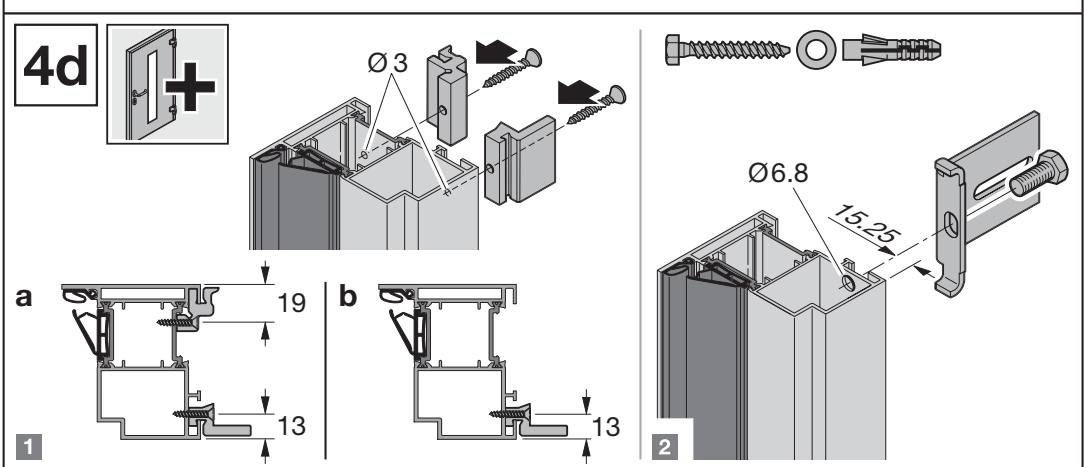
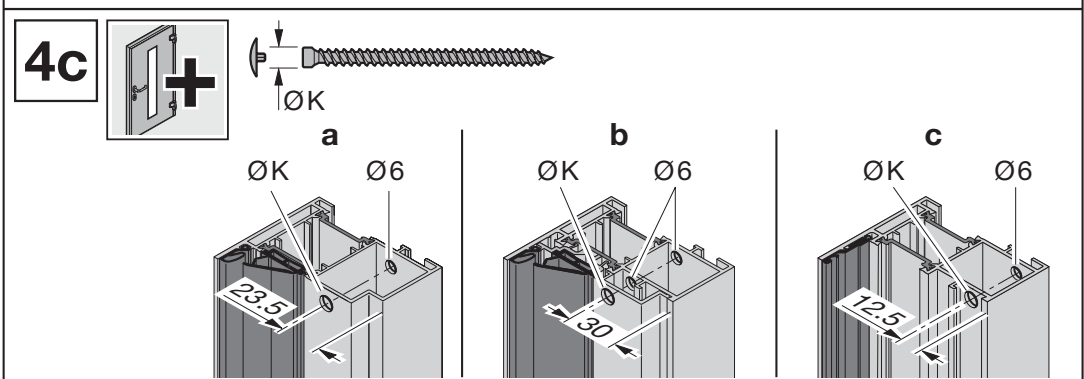
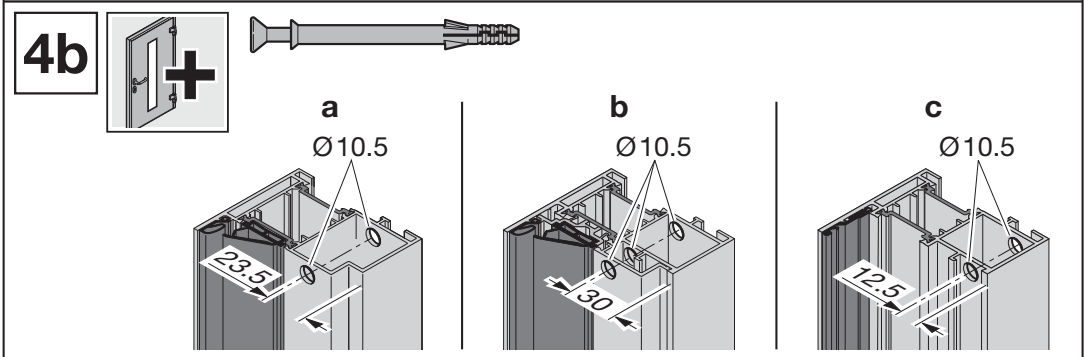
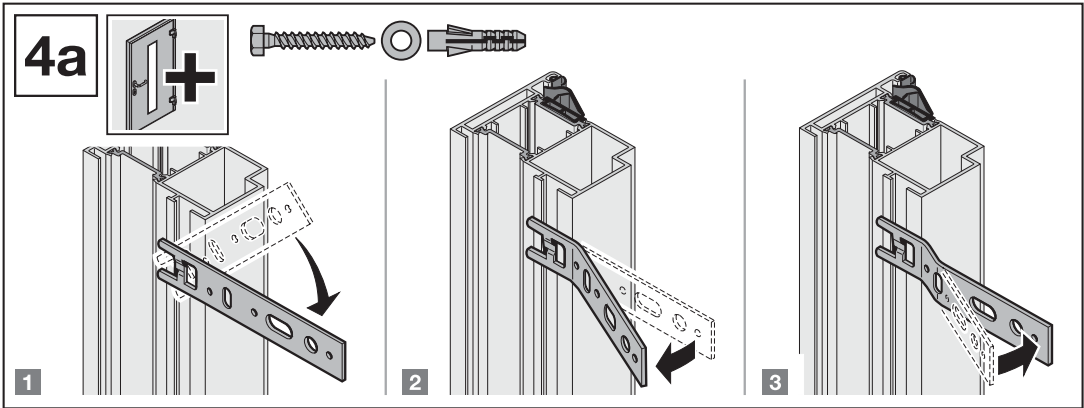
KE 90



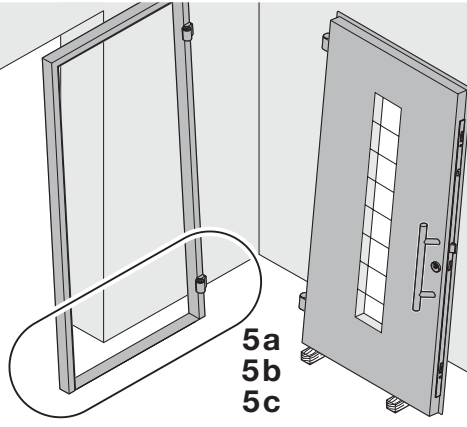
3.6

KS 3



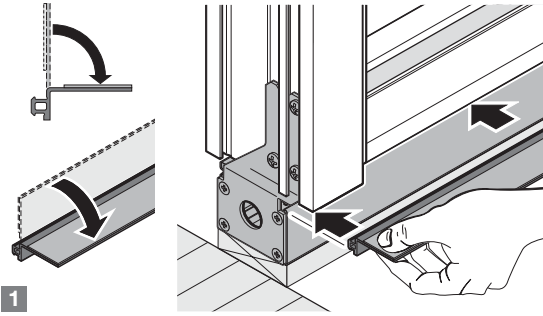
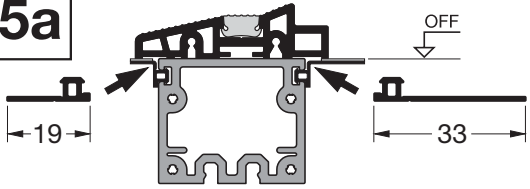


5



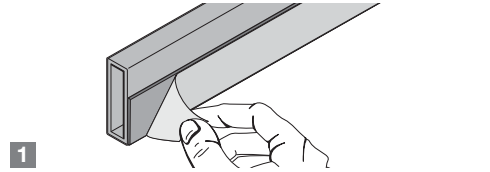
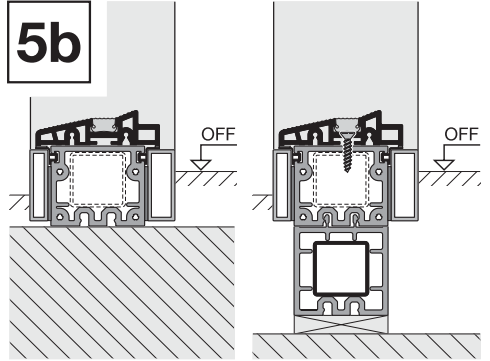
5a
5b
5c

5a

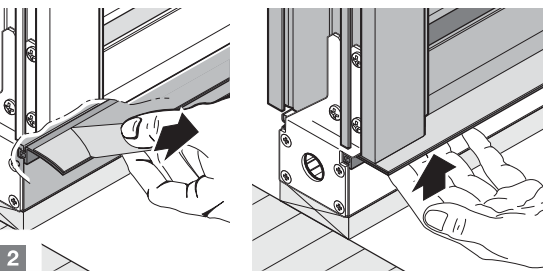


1

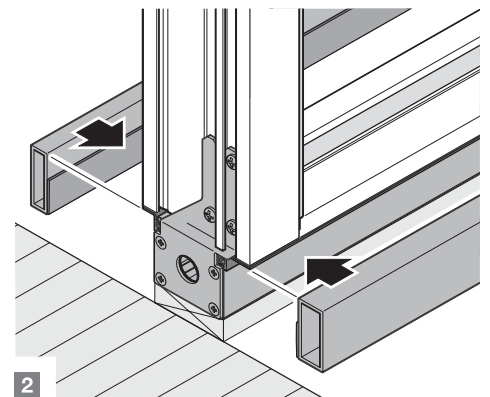
5b



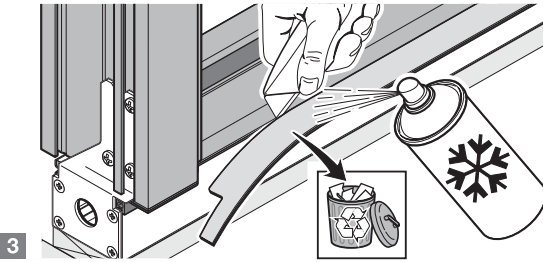
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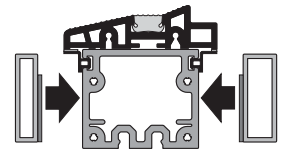
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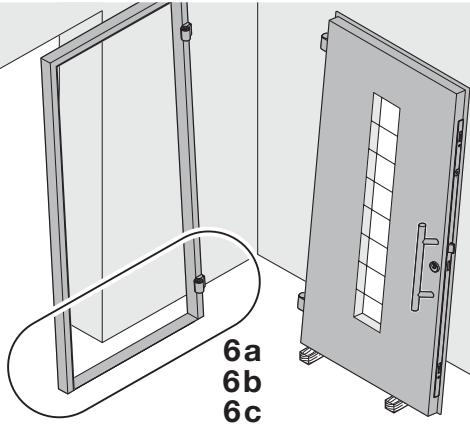
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3

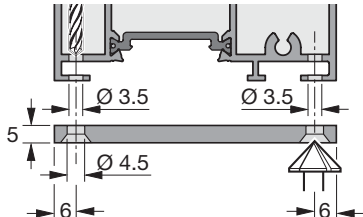
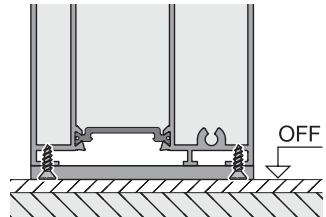
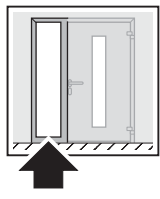
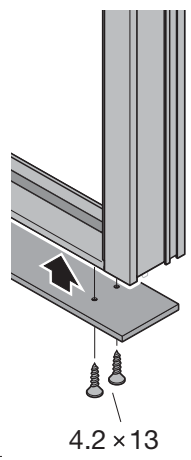
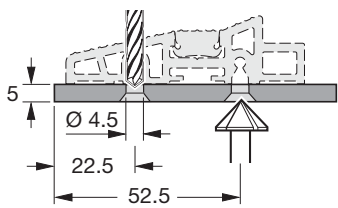
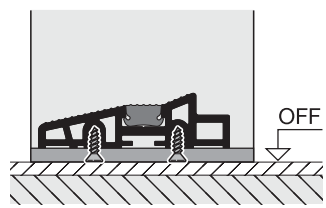
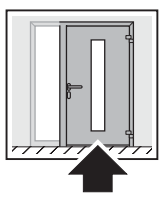
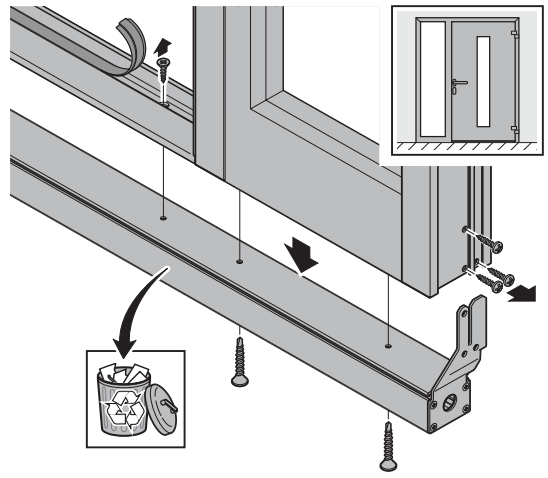
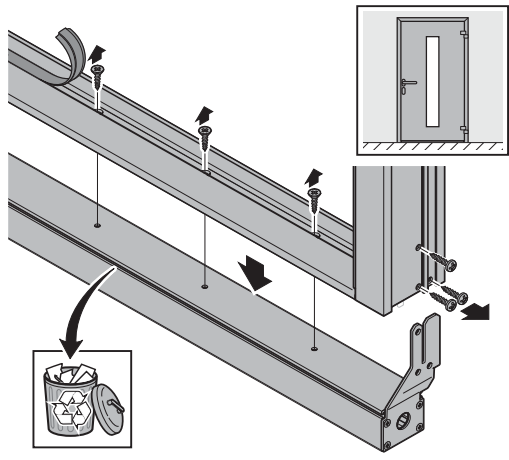
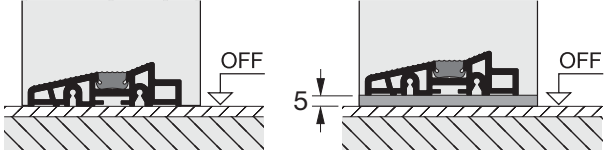


6

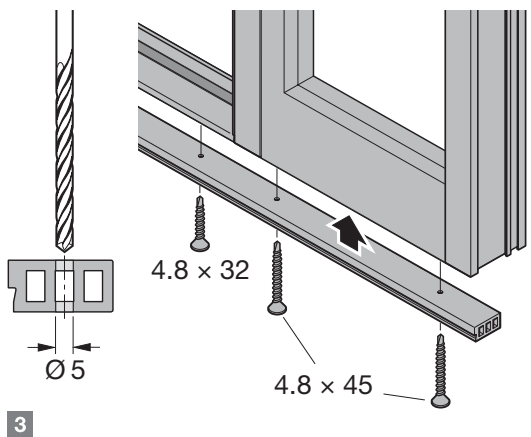
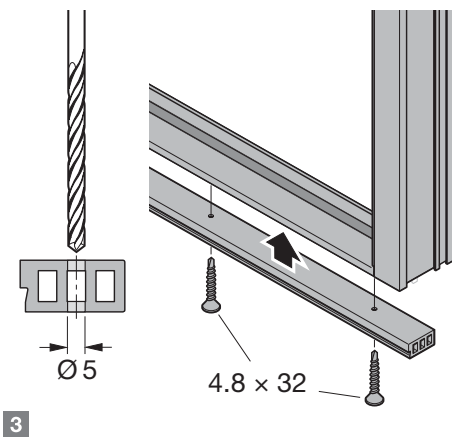
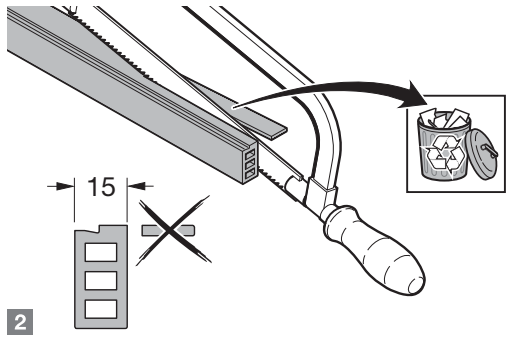
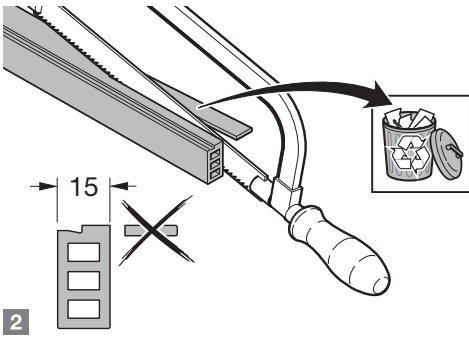
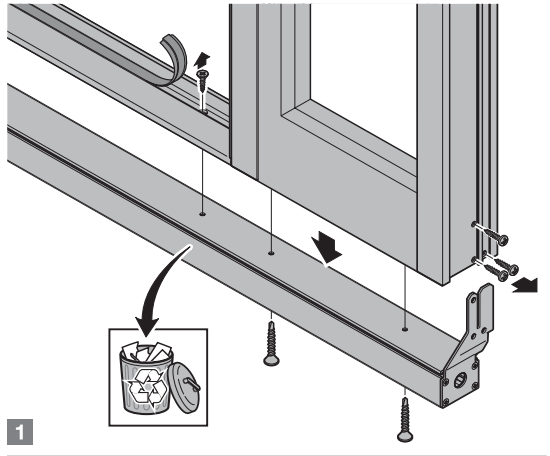
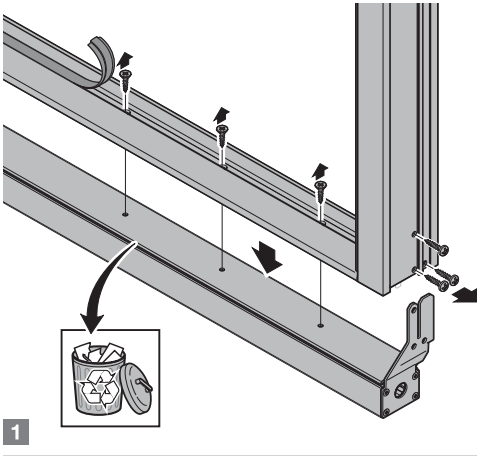
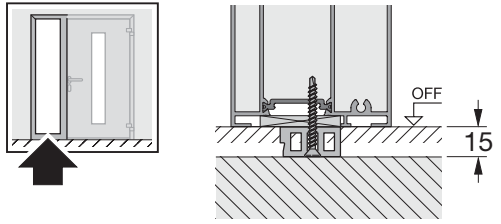
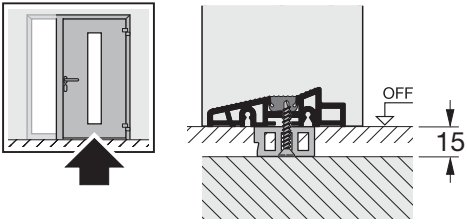


6a
6b
6c

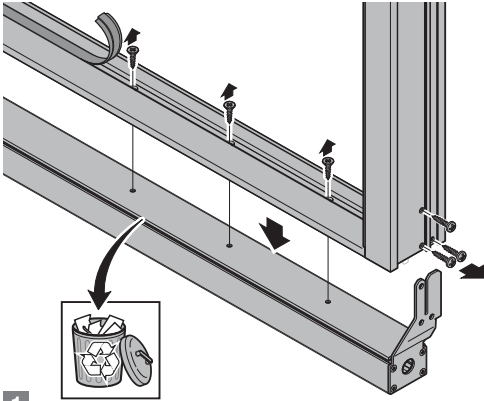
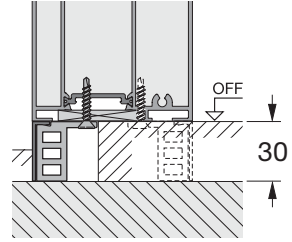
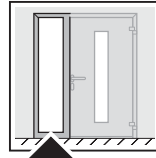
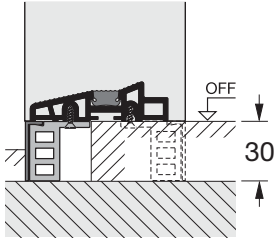
6a



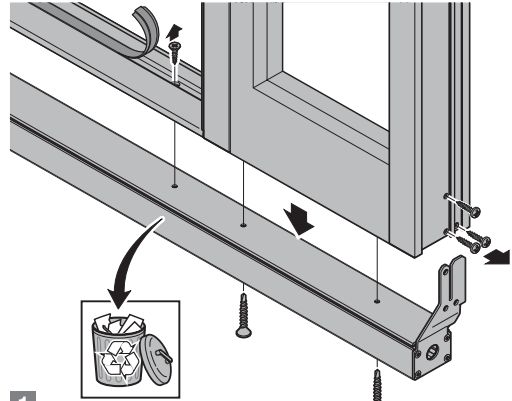
6b



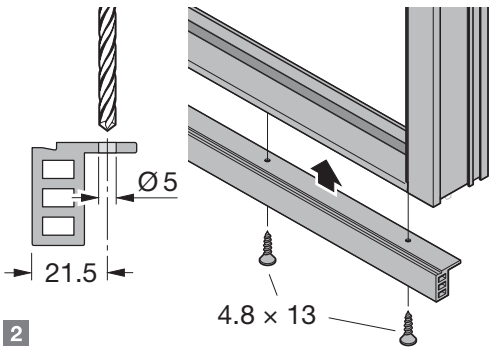
6c



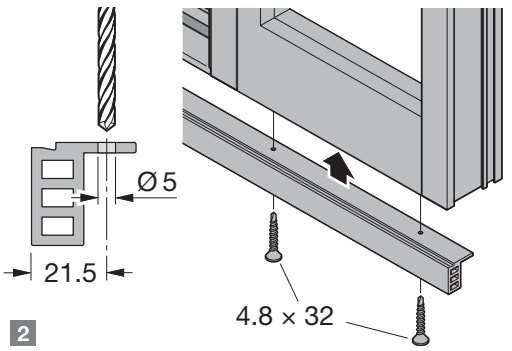
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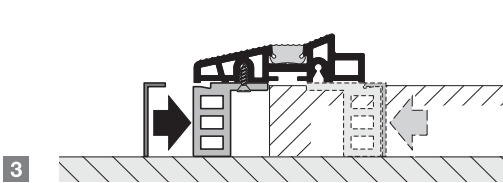
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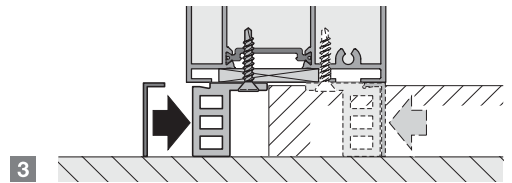
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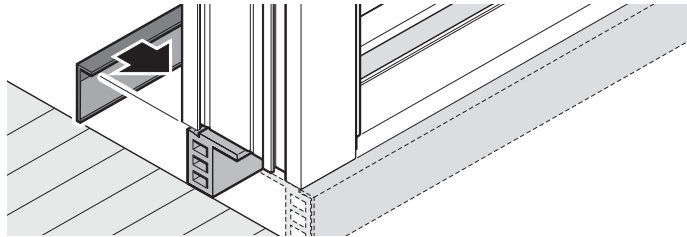
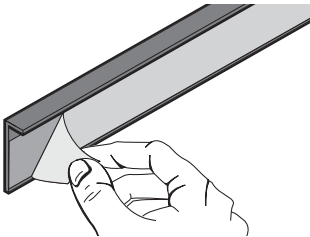
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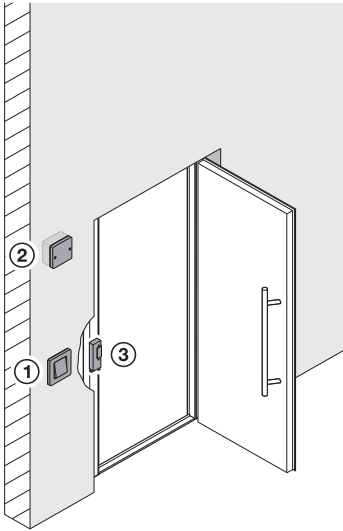
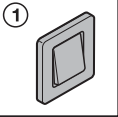
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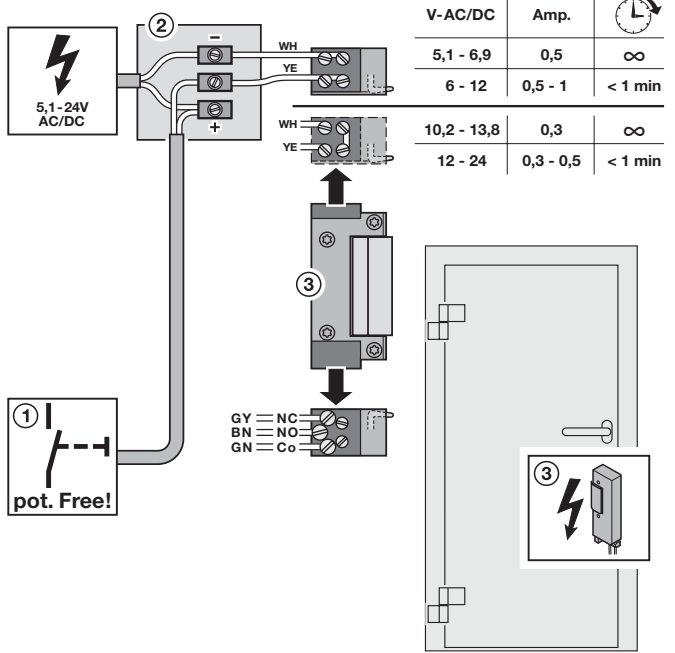
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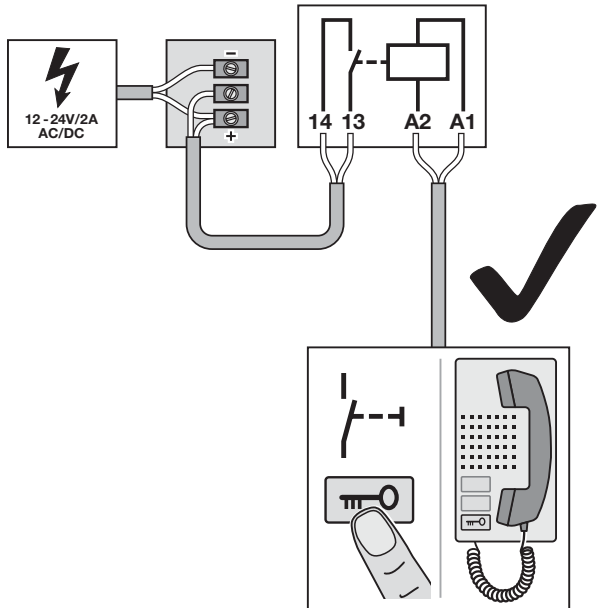
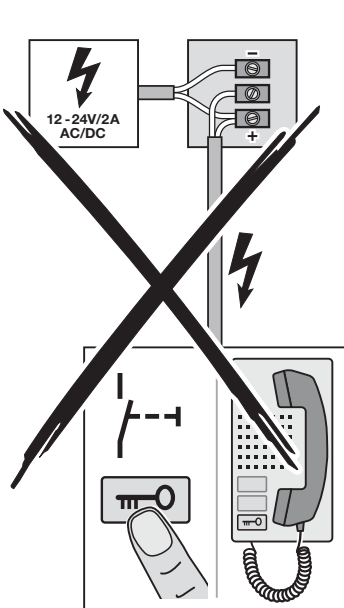
7a



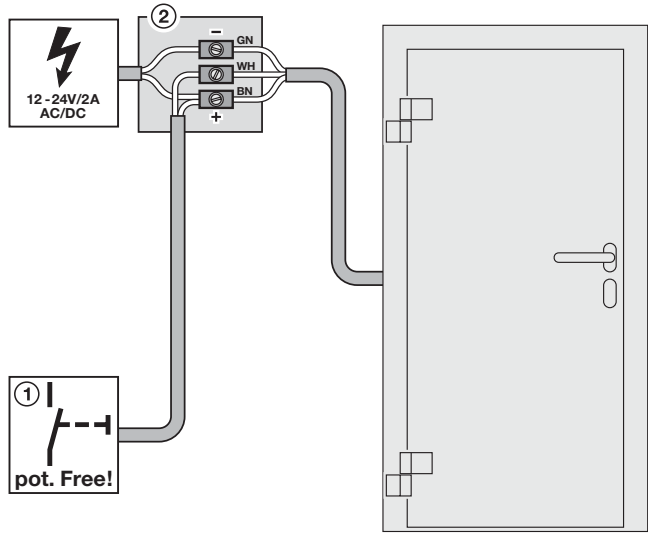
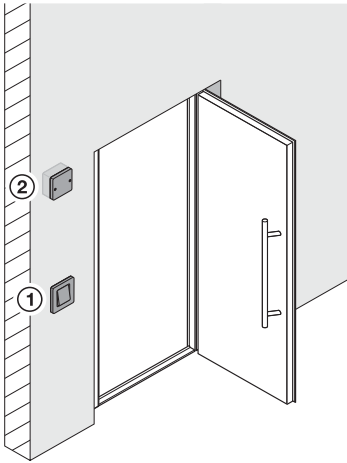
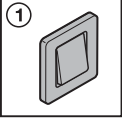
E-Öffner



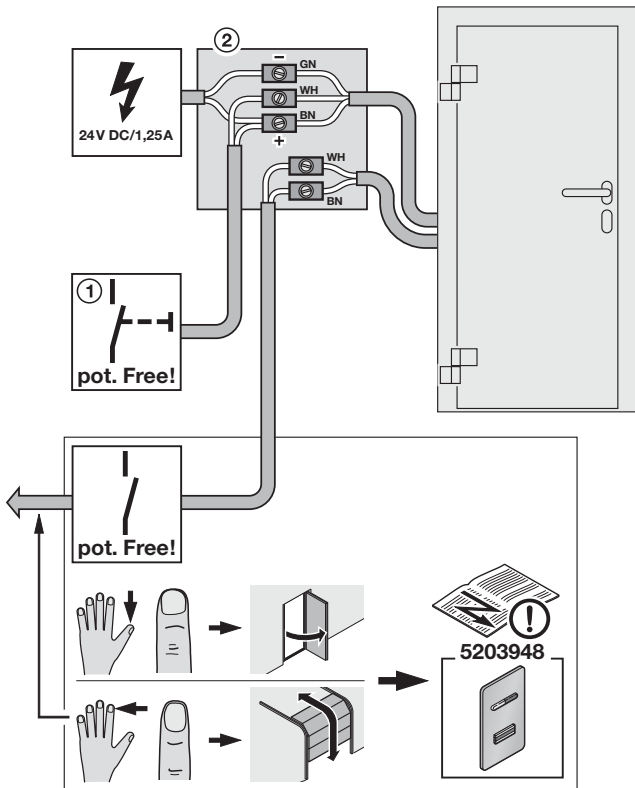
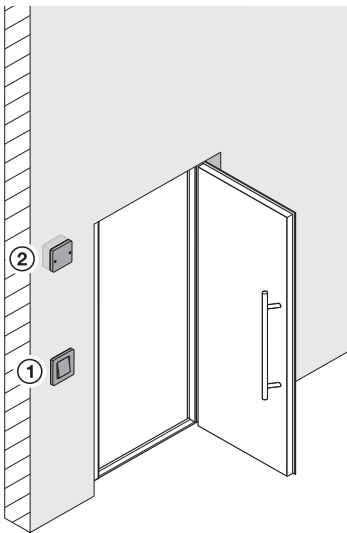
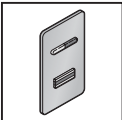
→ 7b 7c 7d 7e 8a 8b 8e



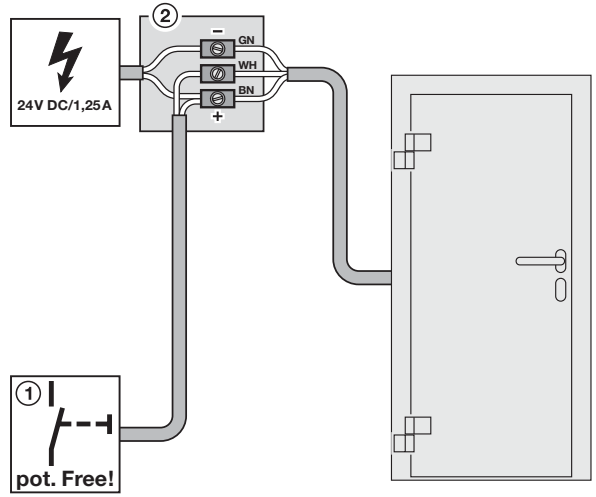
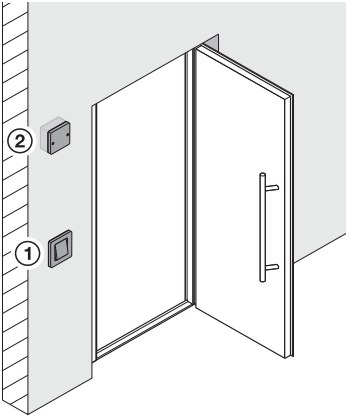
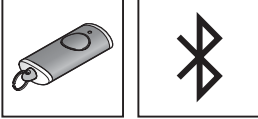
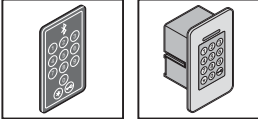
7b



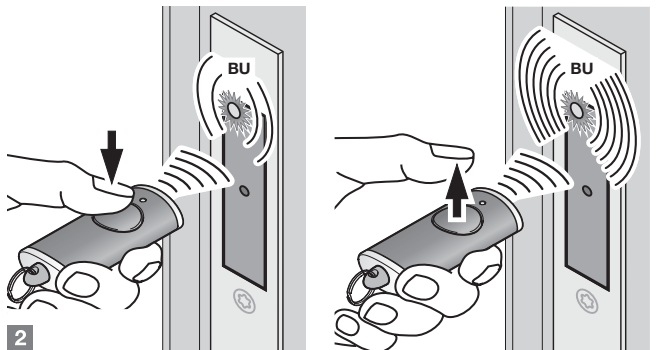
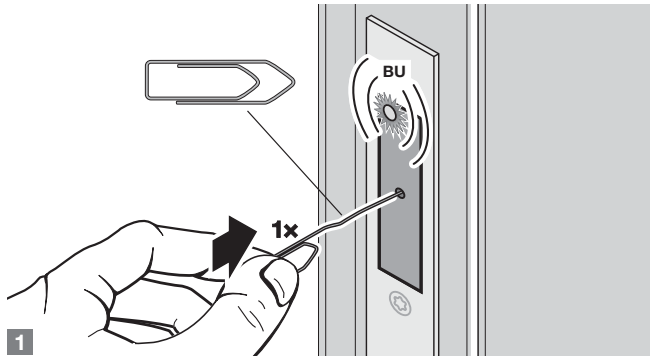
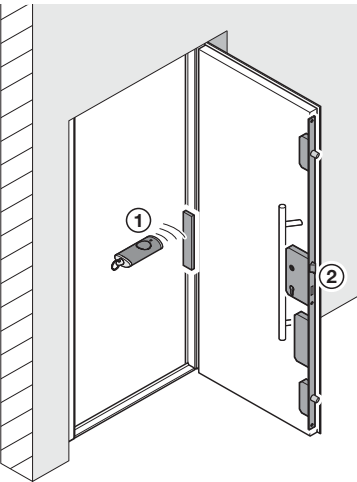
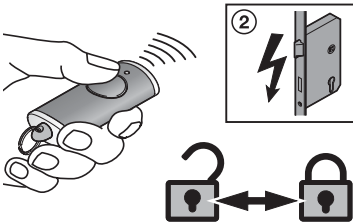
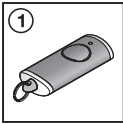
7c



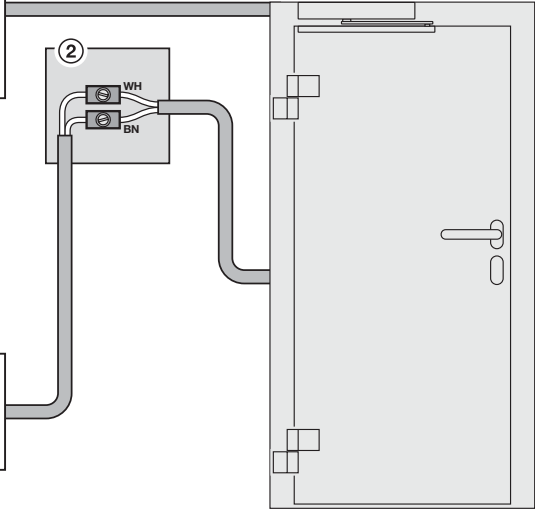
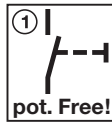
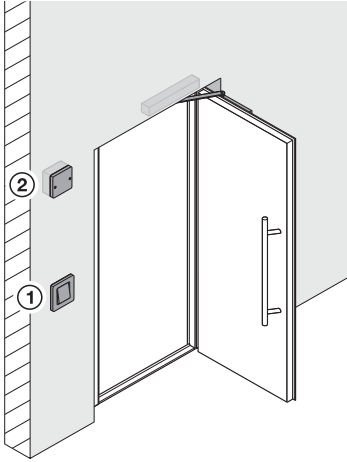
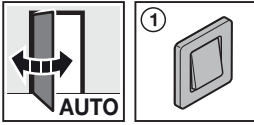
7d



7e

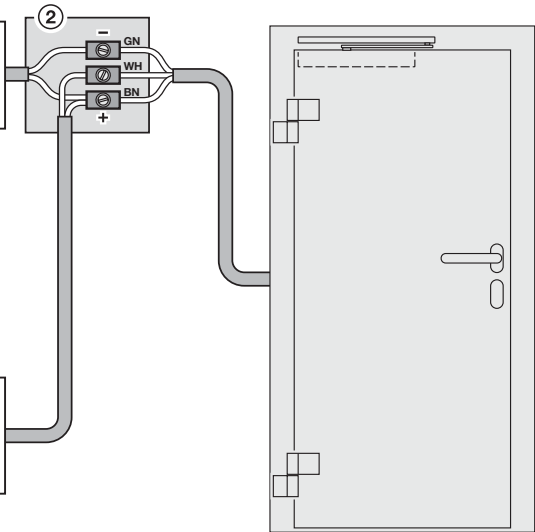
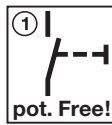
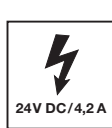
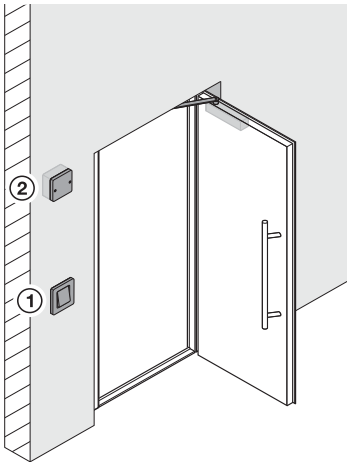
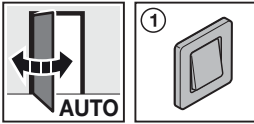


8a

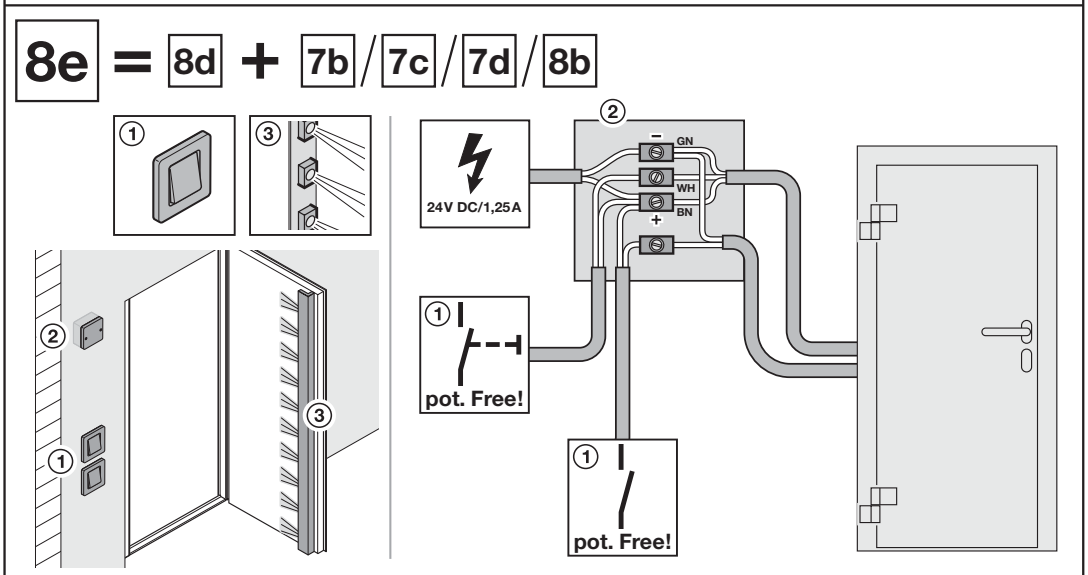
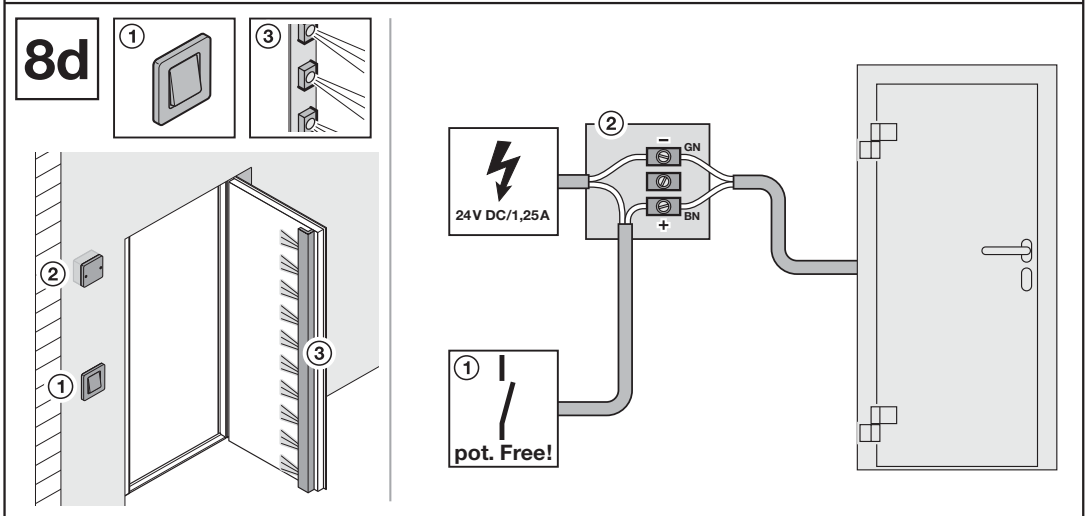
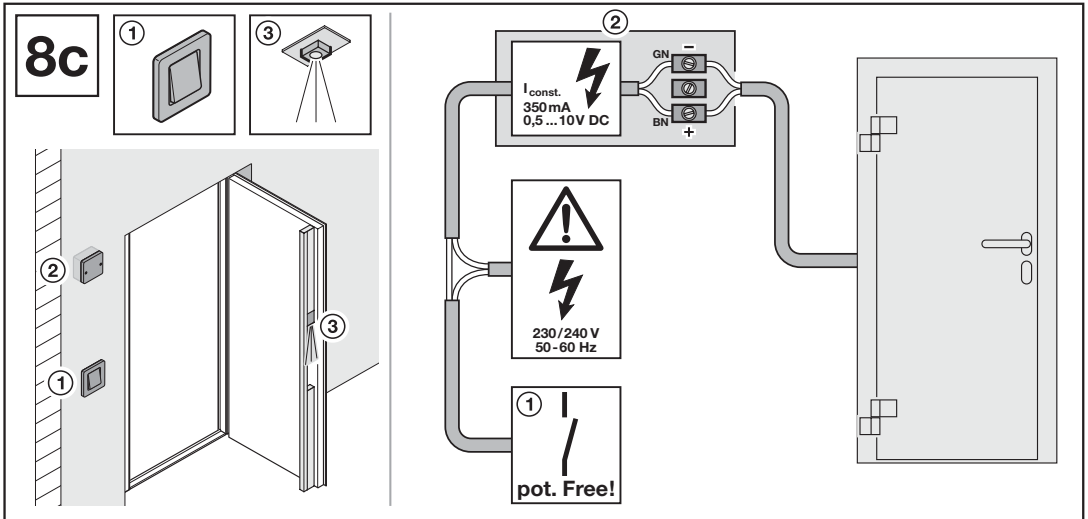


ECturn

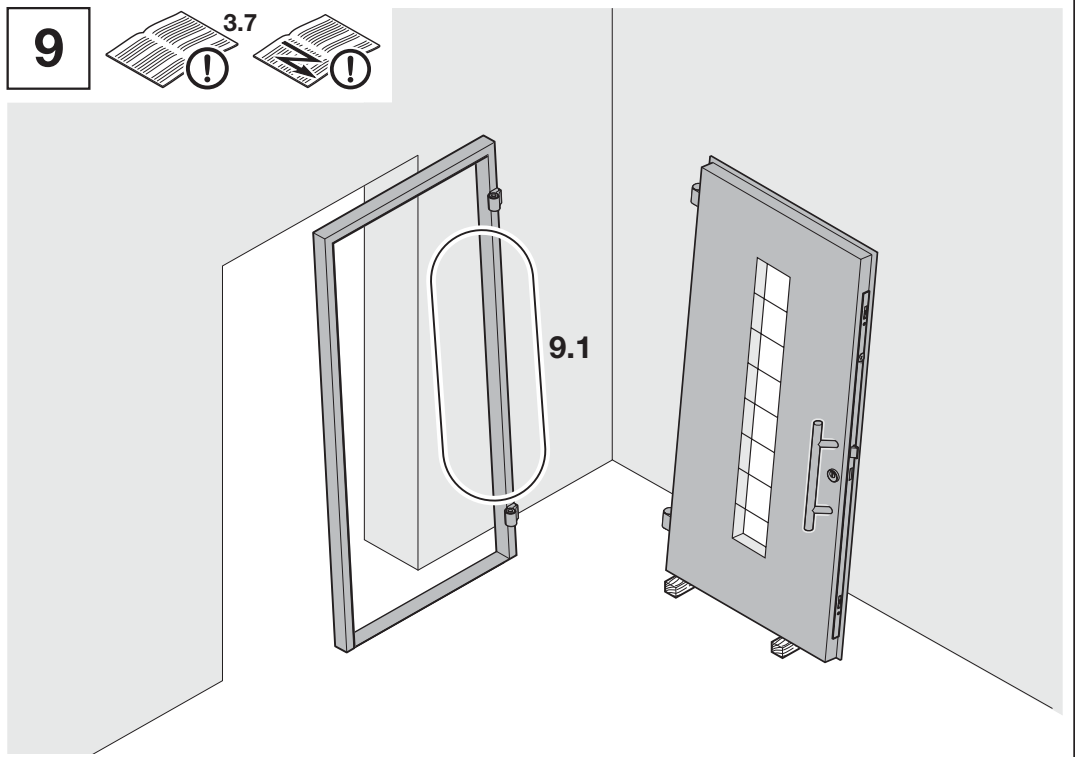
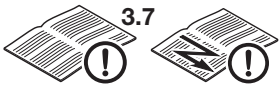
8b



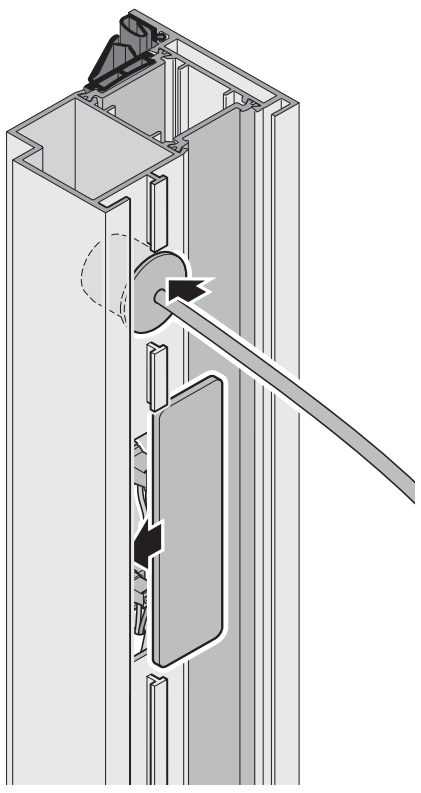
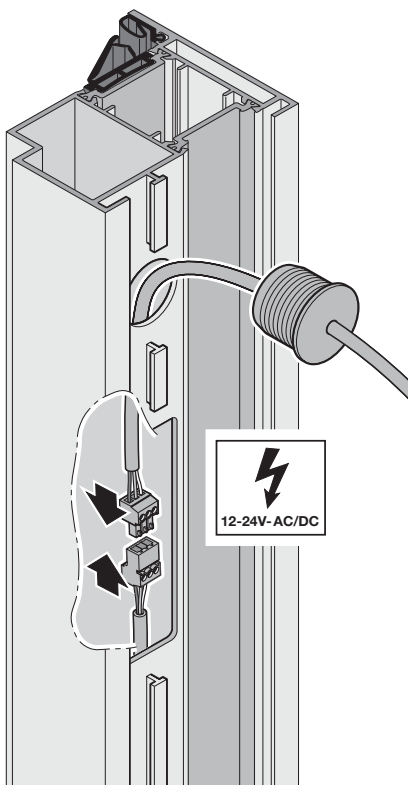
ECturn inside



9



9.1



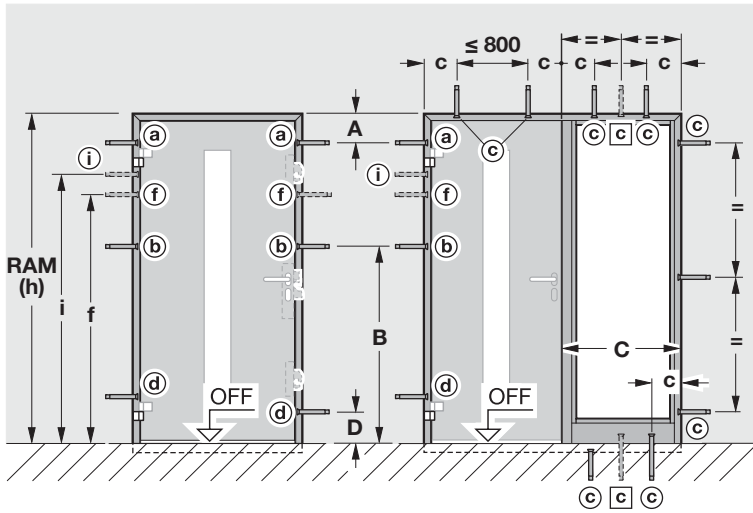
10



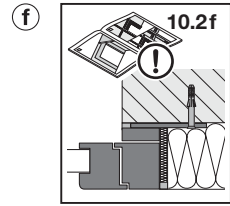
3.2/3.3



11/12

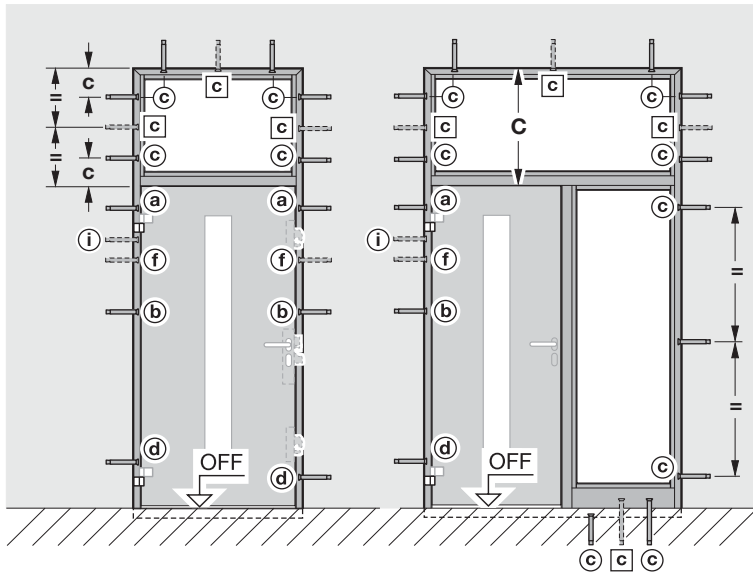


- (a) $A \approx 150 \pm 50$
- (b) $B \approx 1200 \pm 50$
- (c) $C > 500 \rightarrow$
 $c \approx 200 \pm 50$
- (c) $C \leq 500 \rightarrow$
 $c \approx 0.5 \times C$
- (d) $D \approx 115$



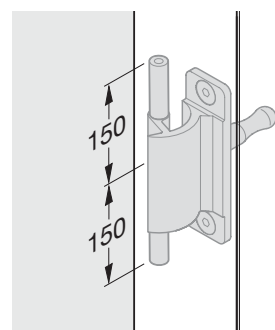
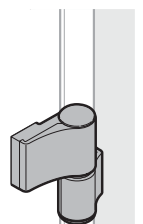
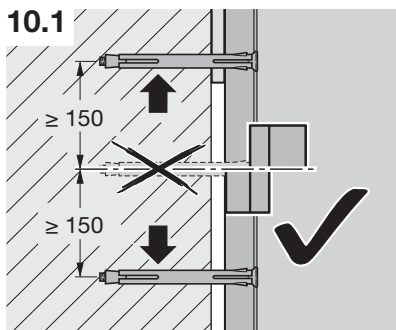
$RAM(h) \geq 2300 \rightarrow$
 $f \approx 1650 \pm 50$

$RAM(h) \geq 2450 \rightarrow$
 $f \approx 1920 \pm 50$



$RAM(h) \geq 2300 \rightarrow$
 $i = 1650$

$RAM(h) \geq 2450 \rightarrow$
 $i = 1920$

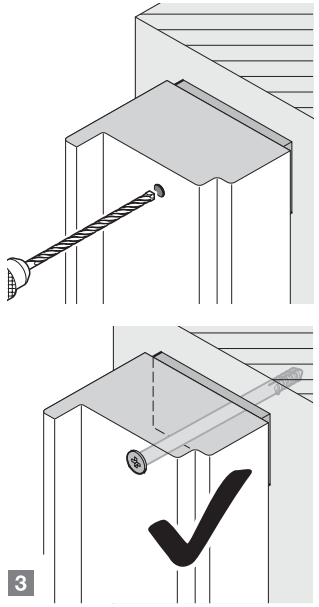
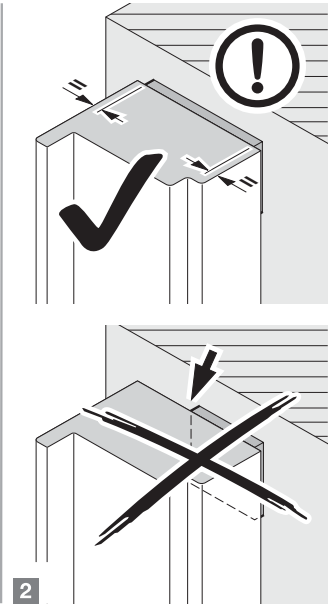
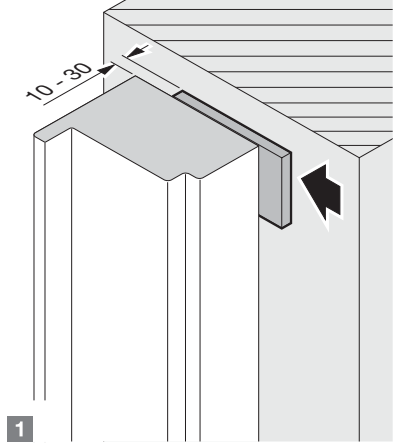


10.2

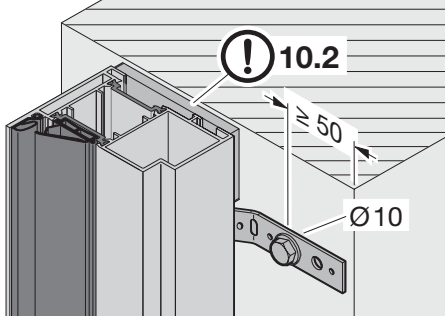
2/3.8.4

10.2a

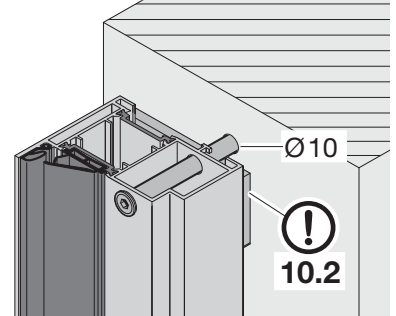
10.2n



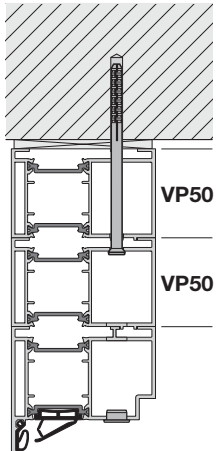
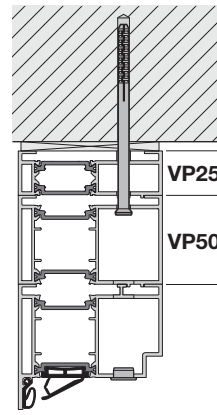
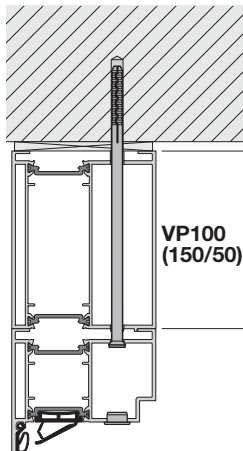
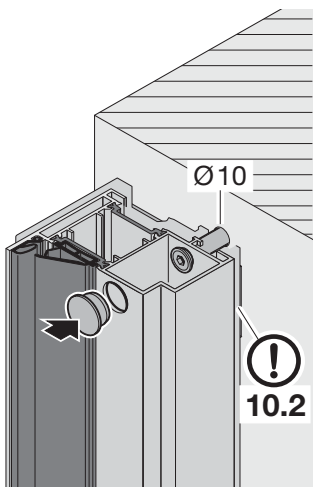
10.2a

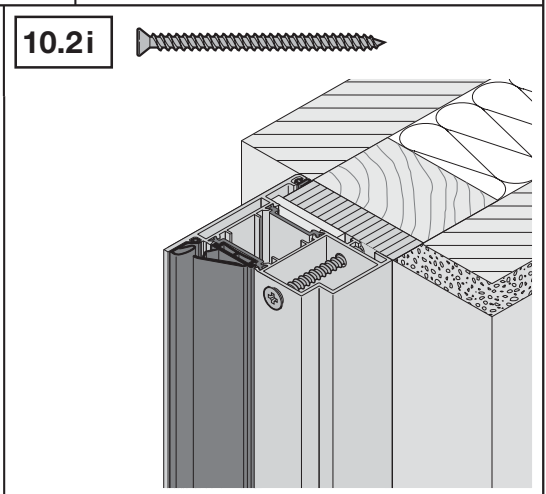
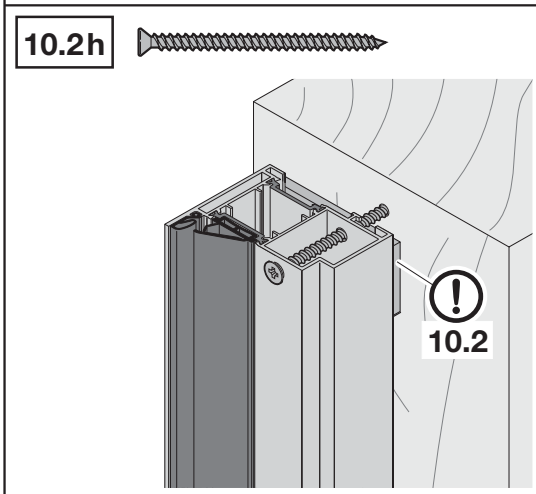
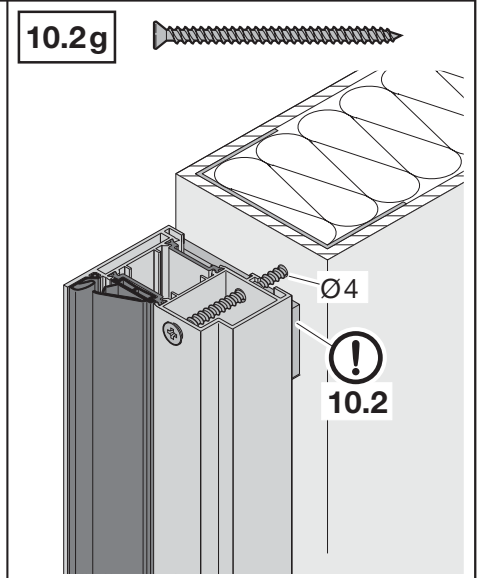
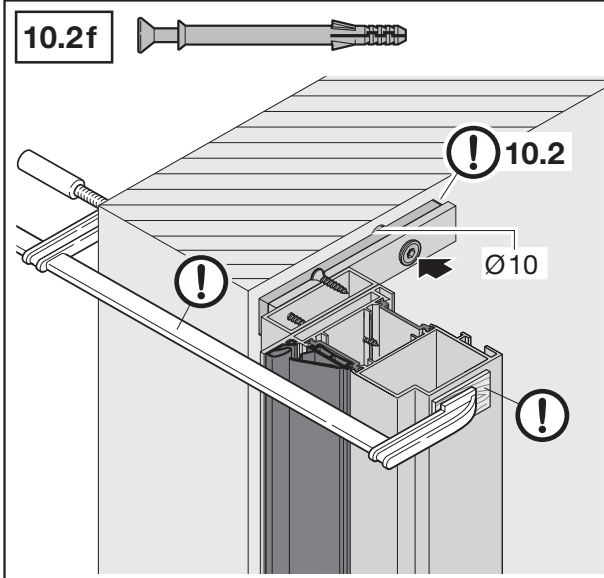
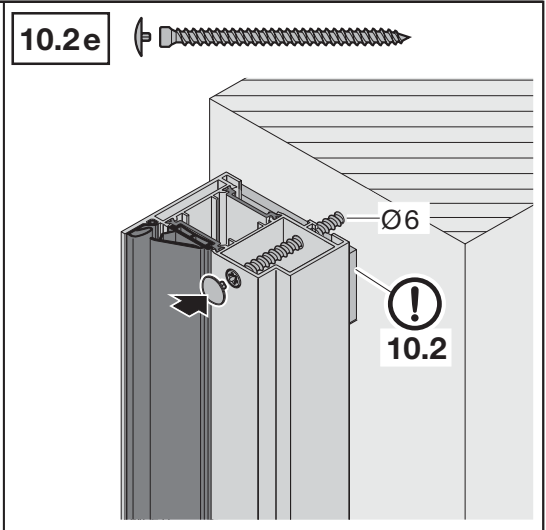
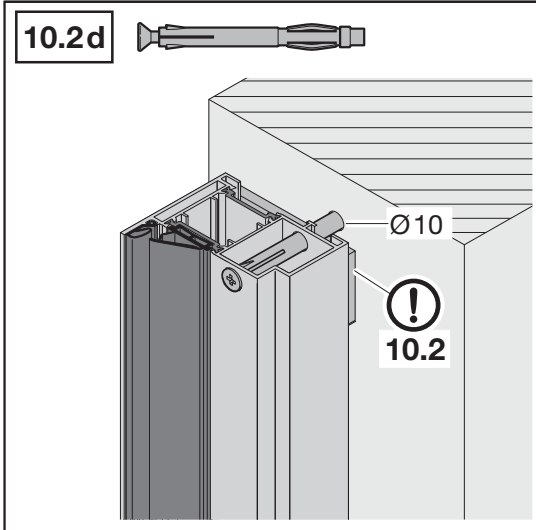


10.2b

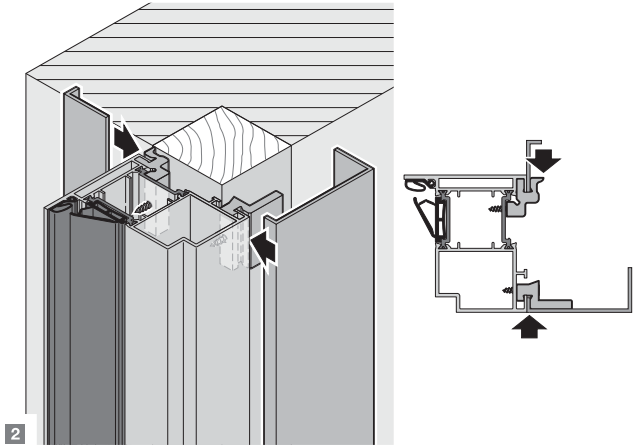
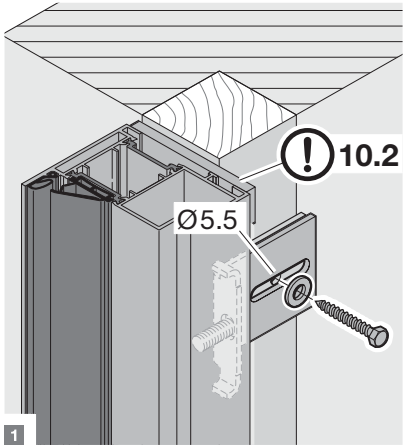


10.2c

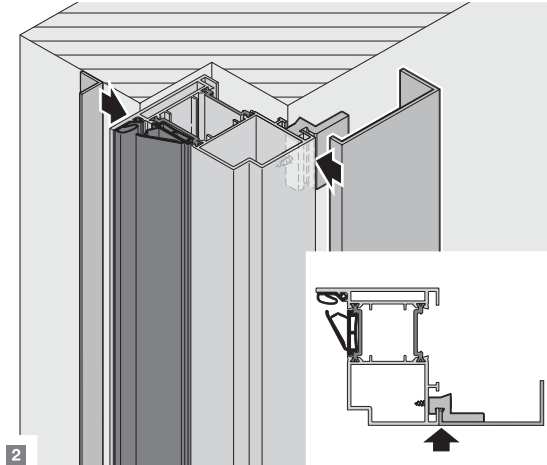
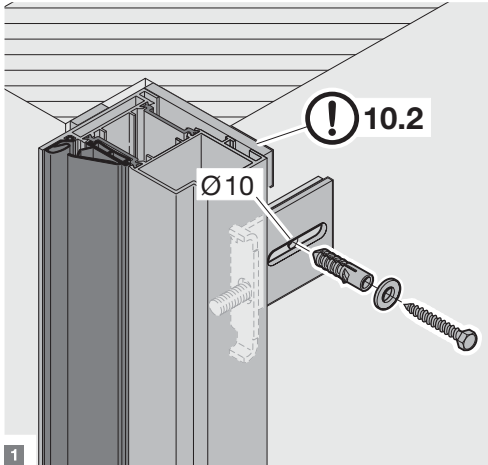




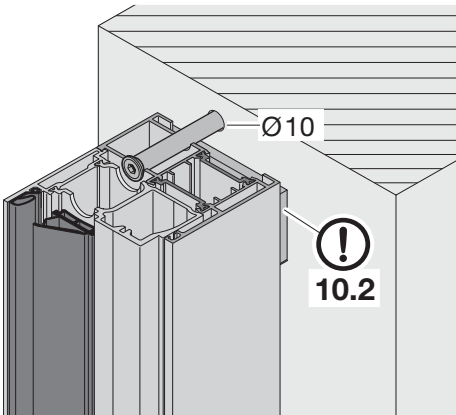
10.2j



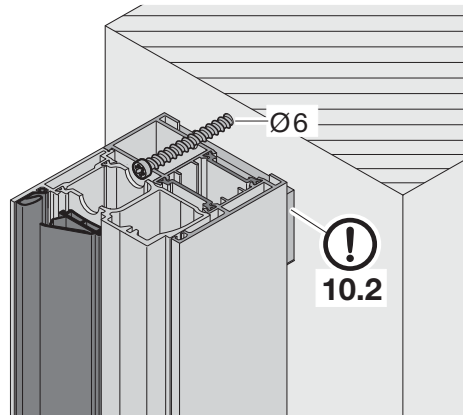
10.2k



10.2m



10.2n

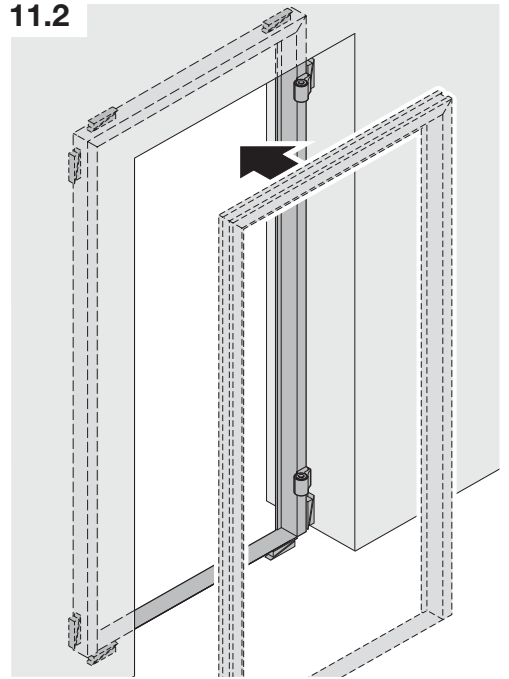
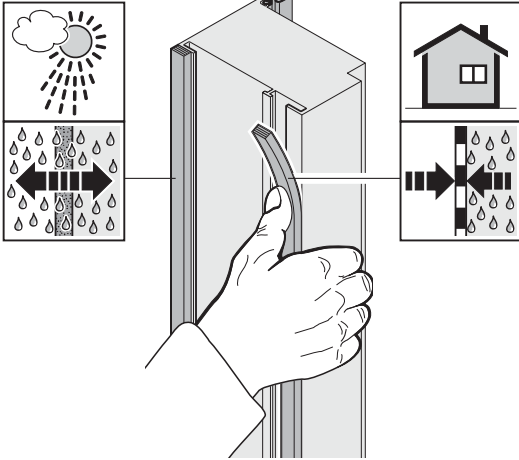


11

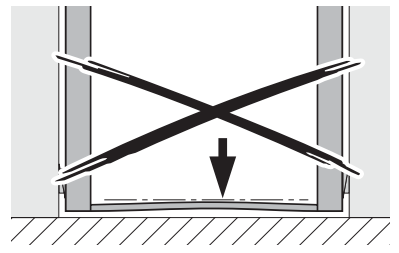
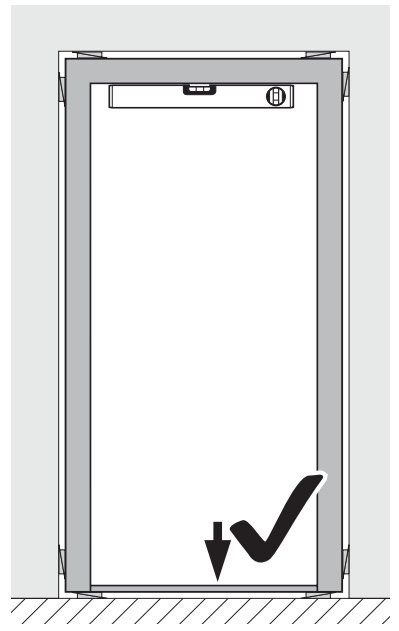
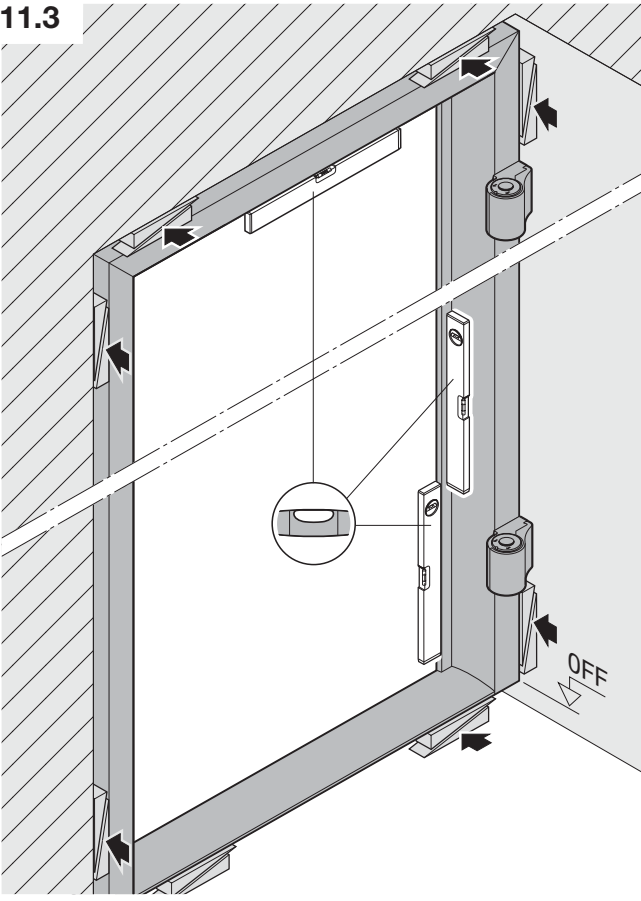


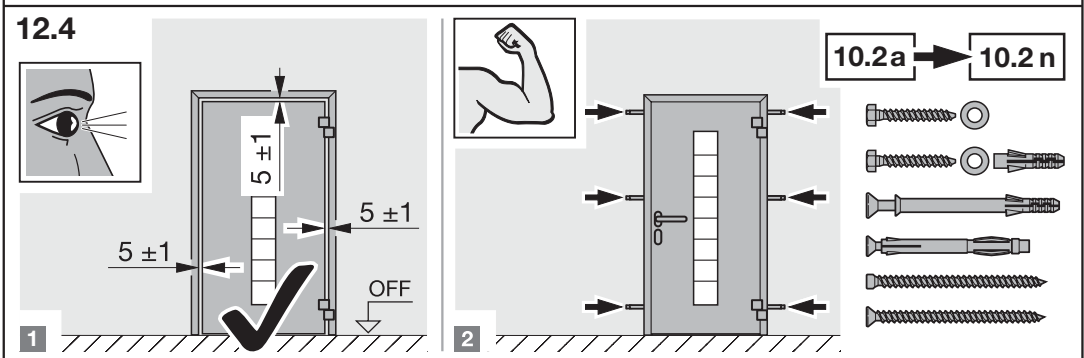
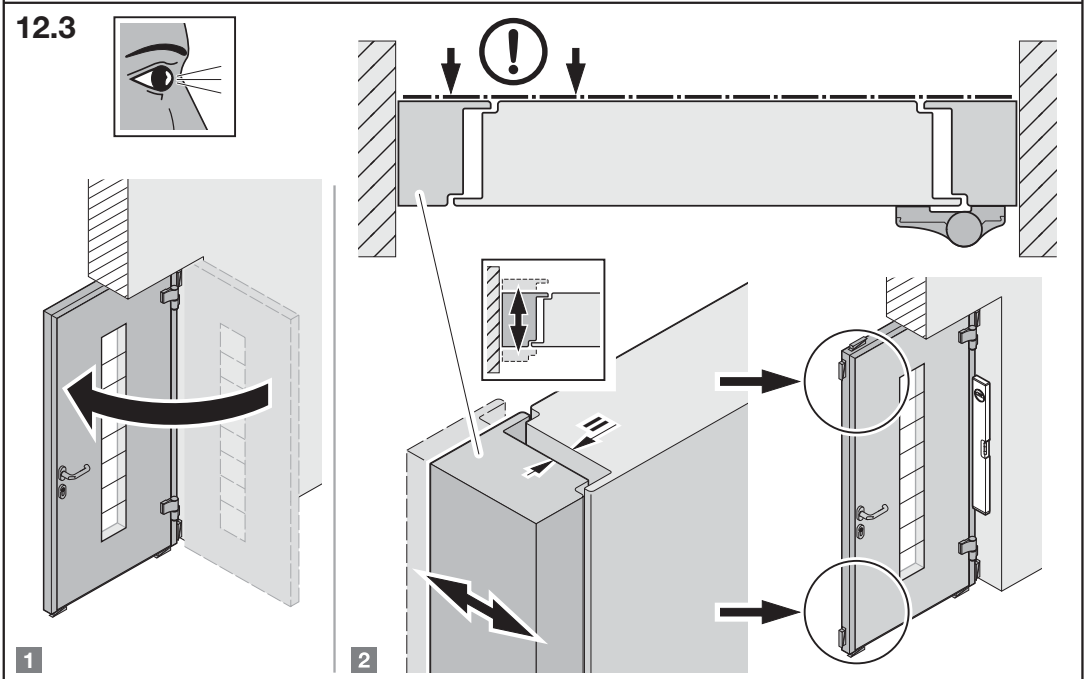
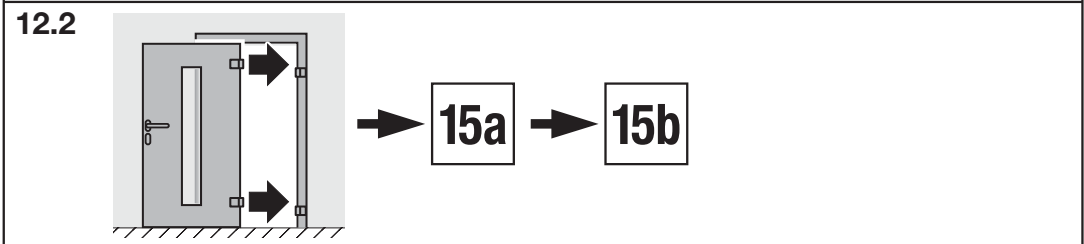
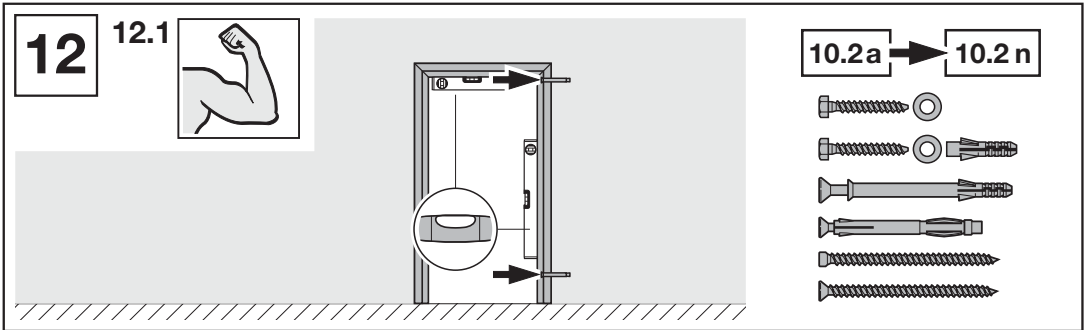
11.2

11.1

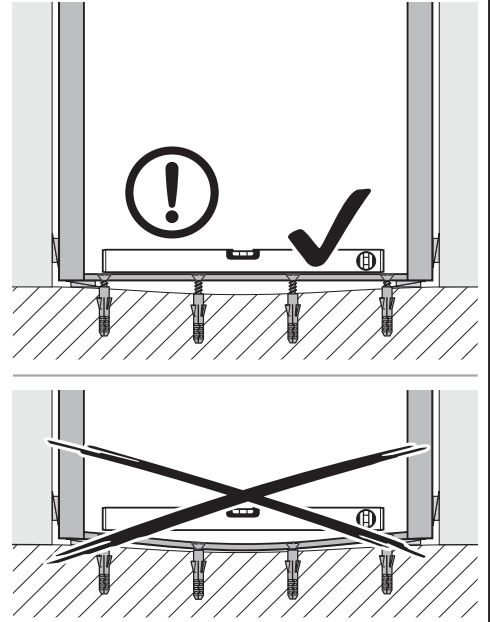
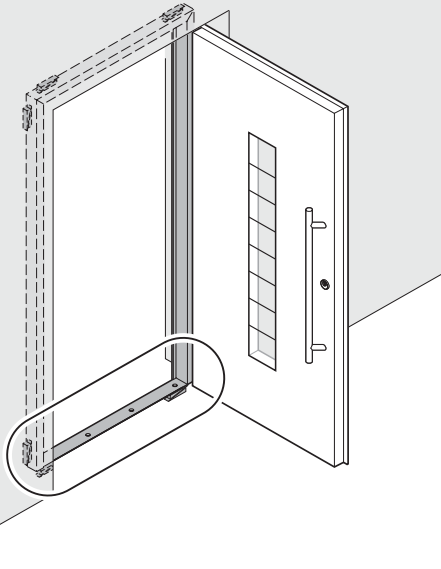


11.3

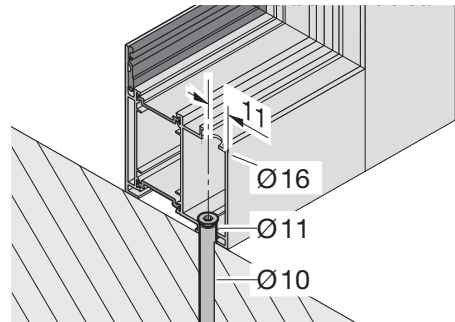
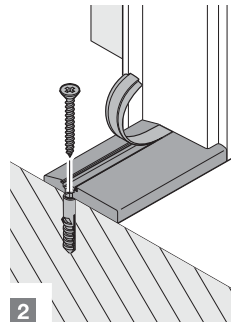
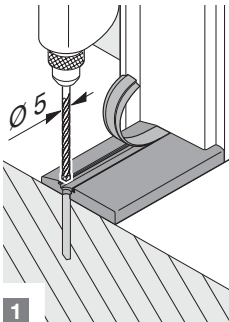
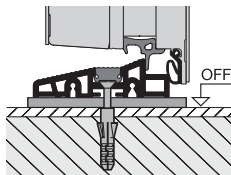
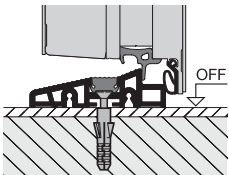
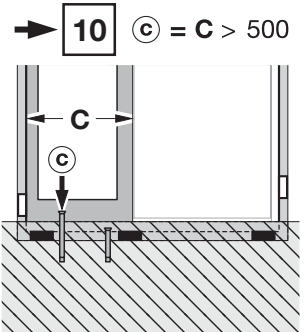
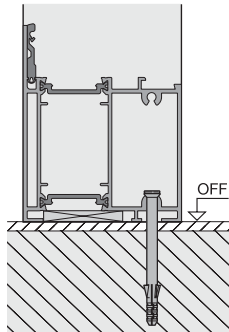
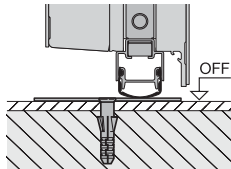
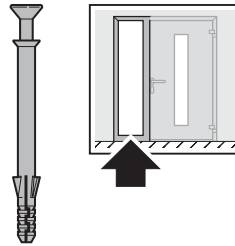
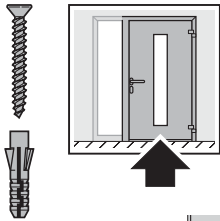




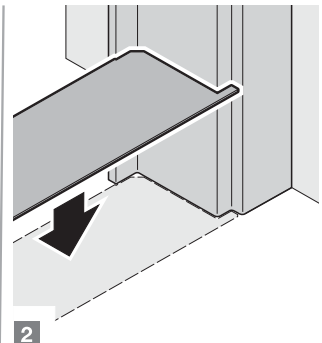
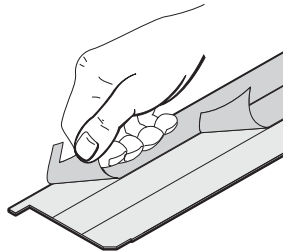
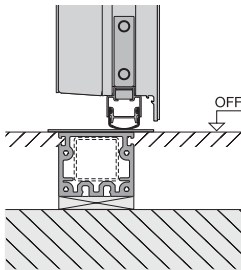
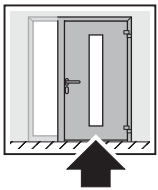
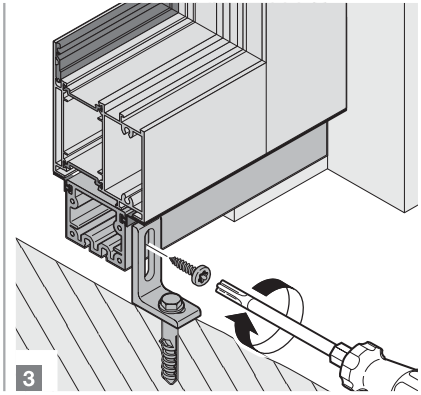
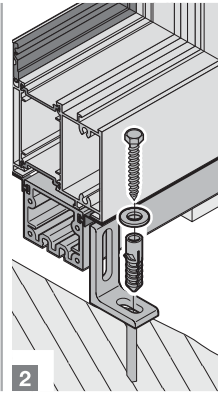
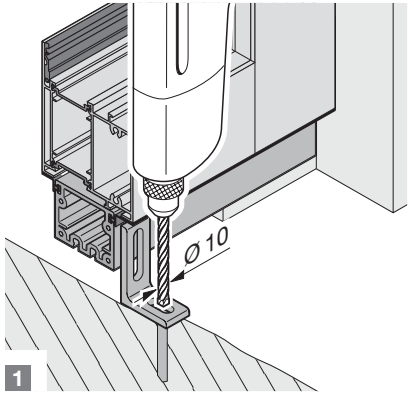
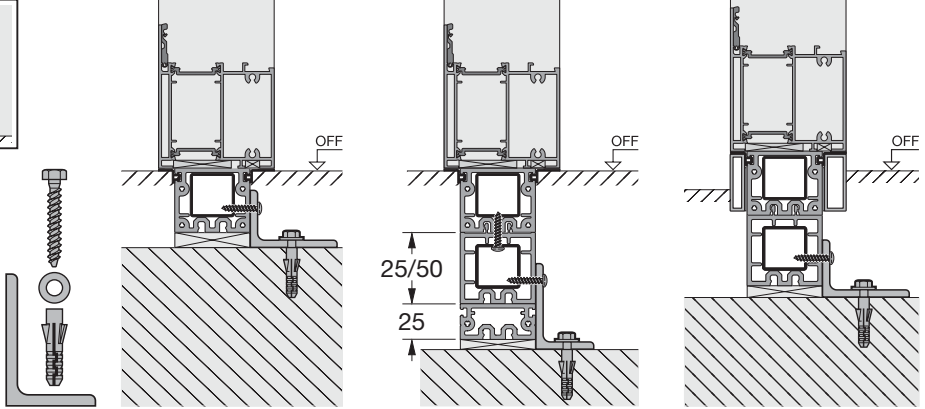
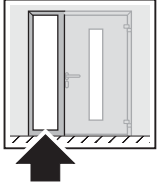
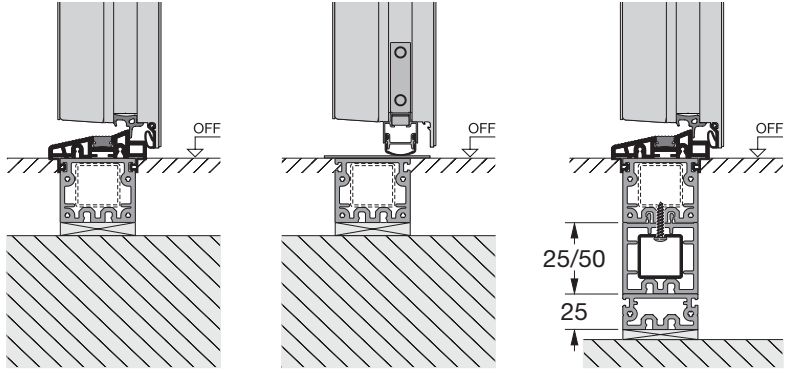
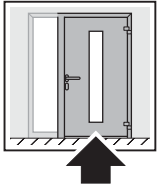
13



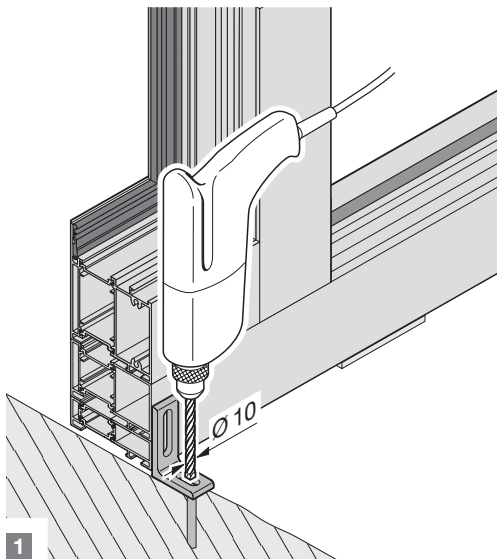
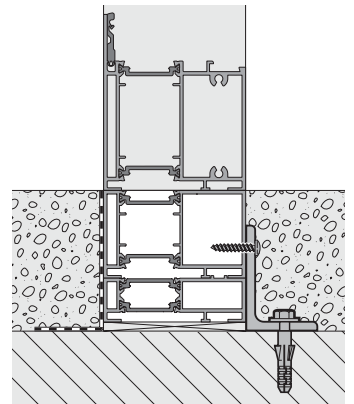
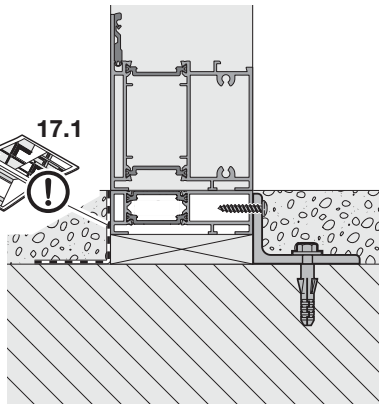
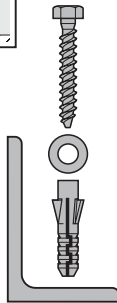
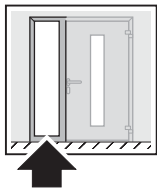
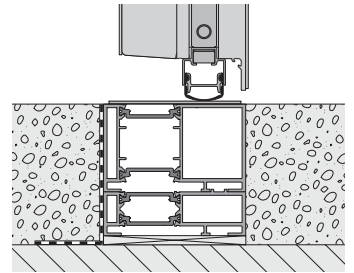
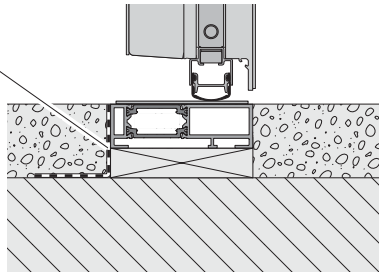
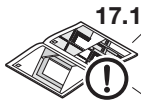
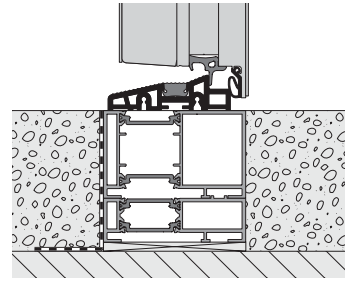
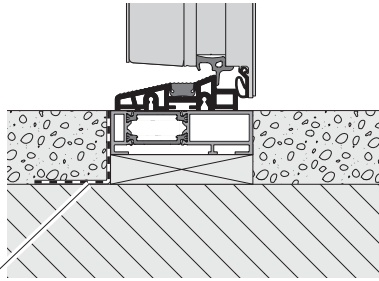
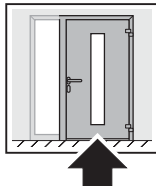
13a



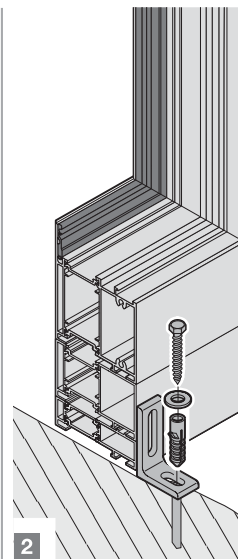
13b



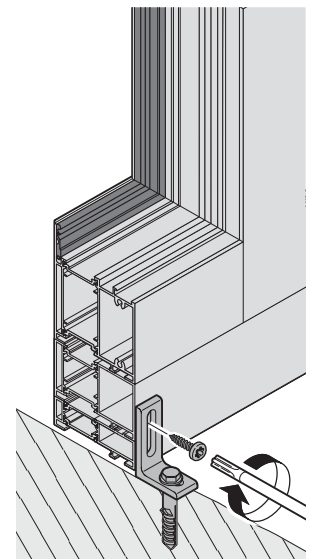
13c



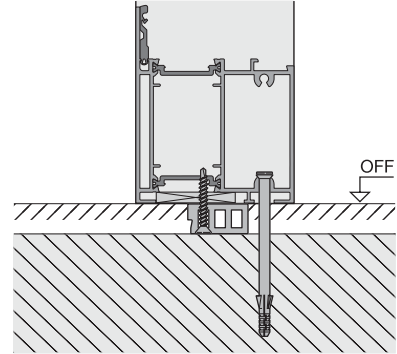
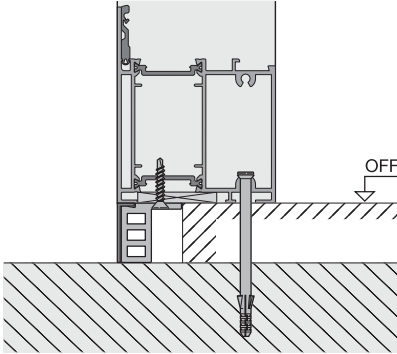
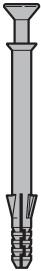
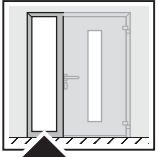
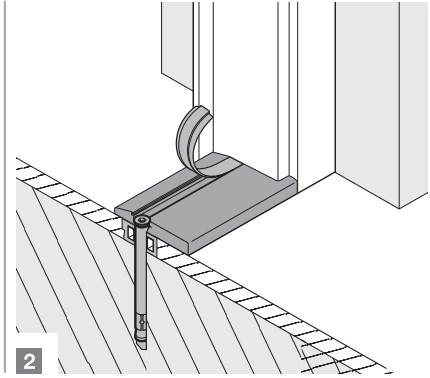
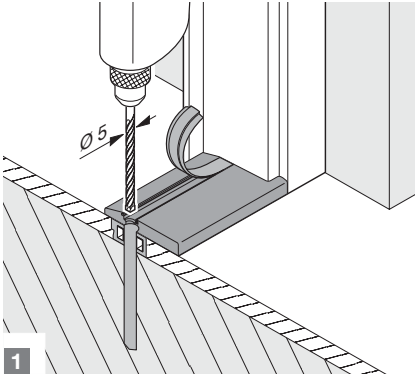
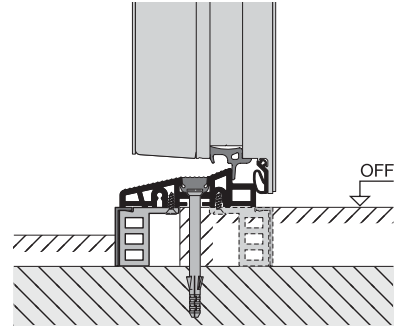
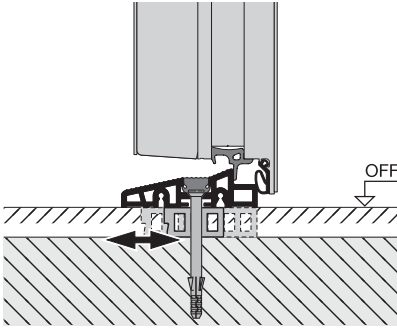
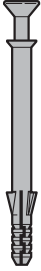
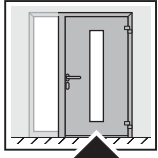
1



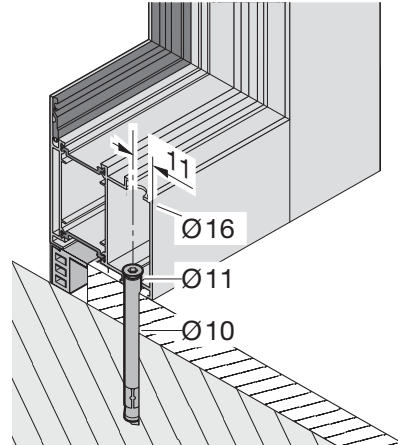
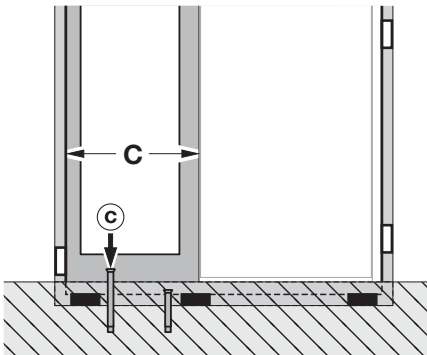
2

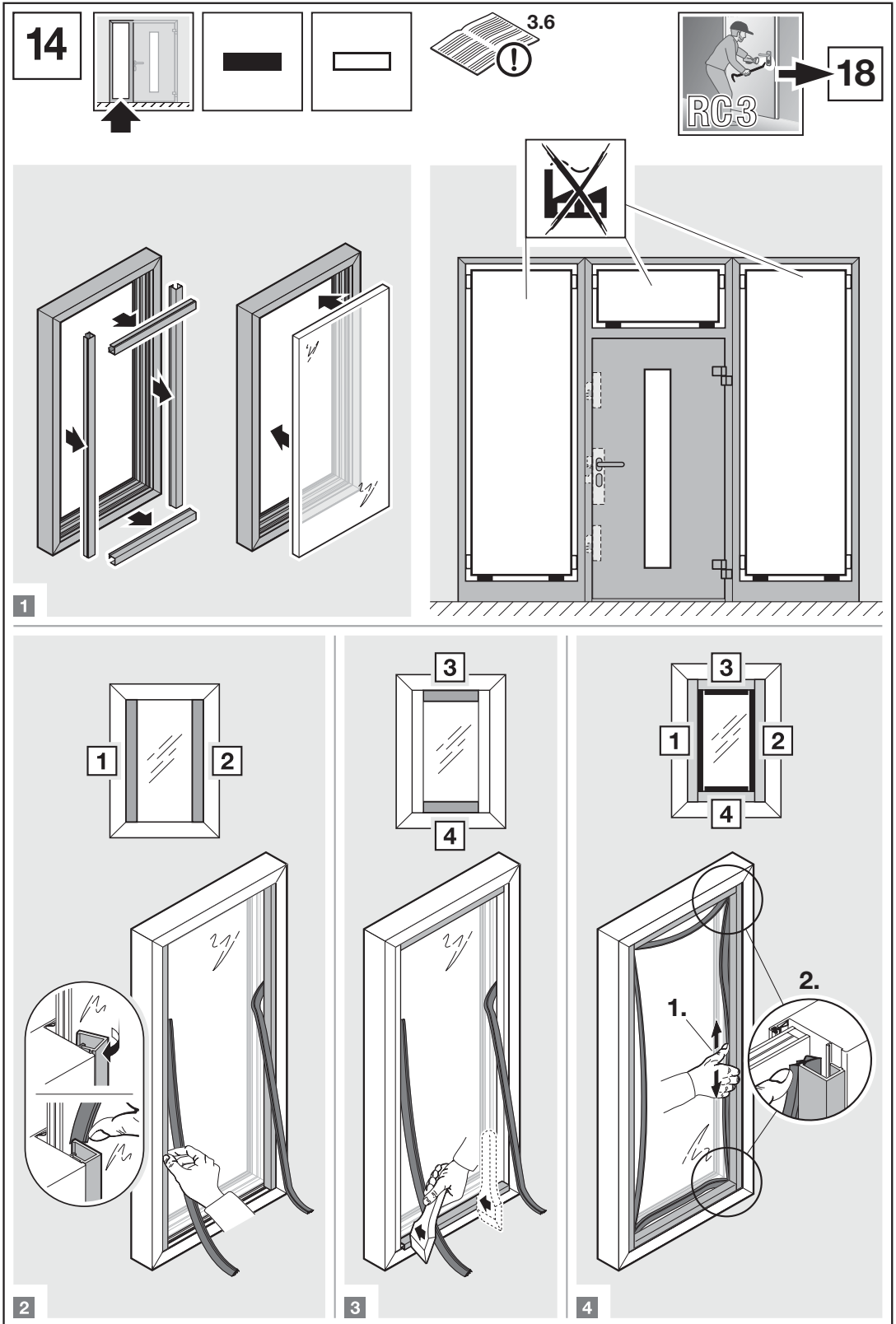


13d

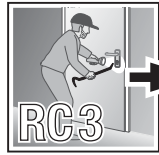
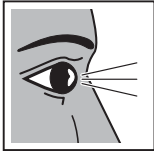


→ 10 © = C > 500





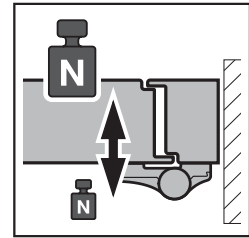
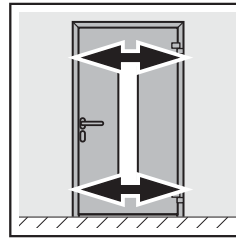
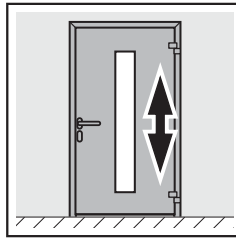
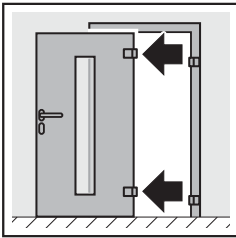
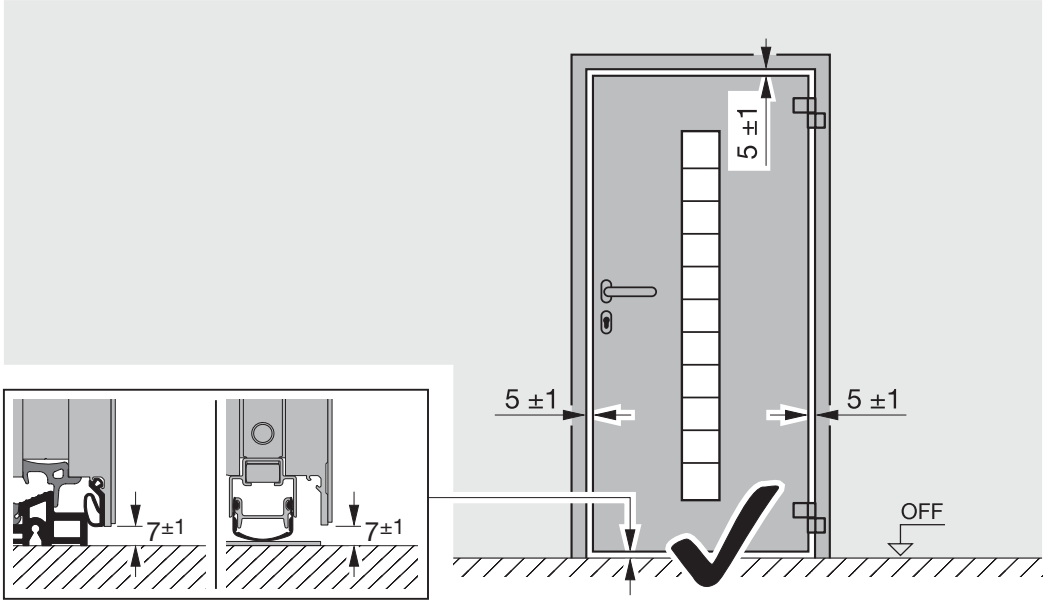
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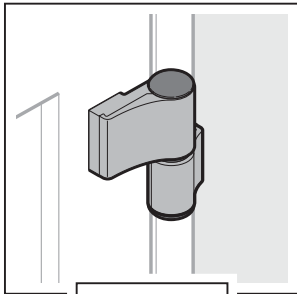
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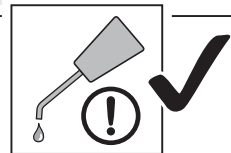
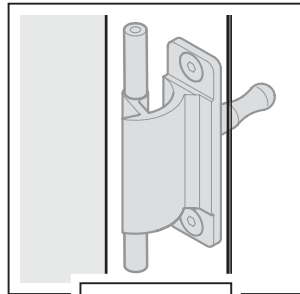
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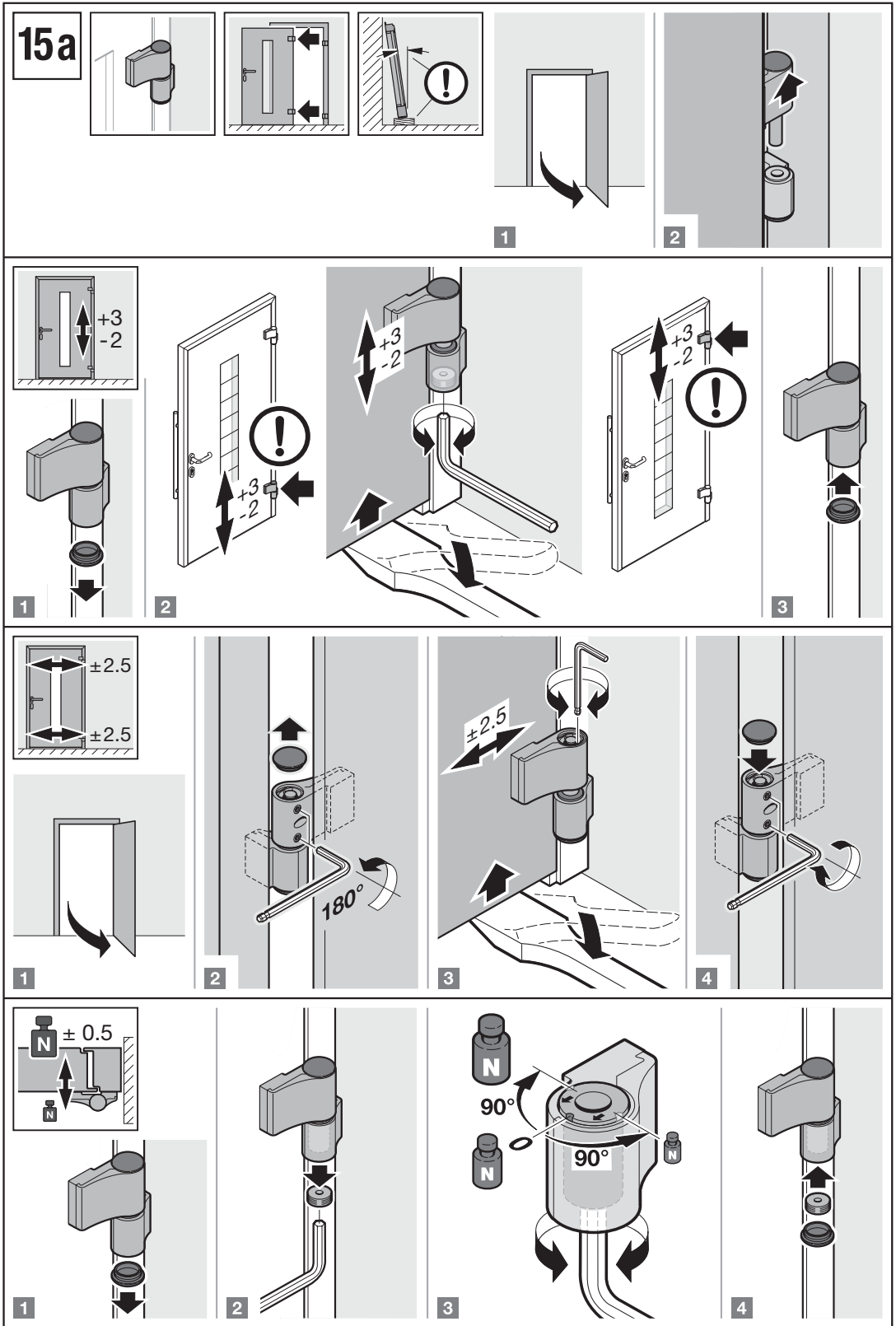


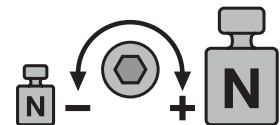
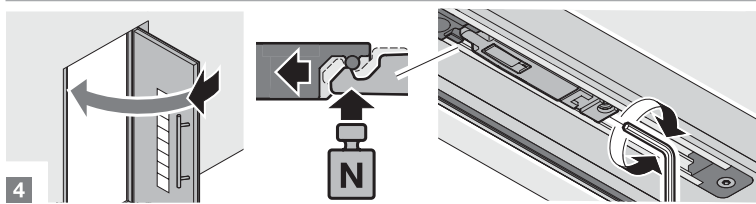
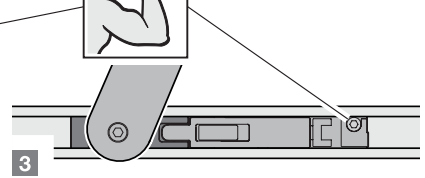
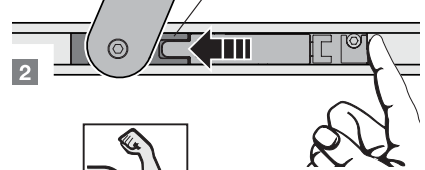
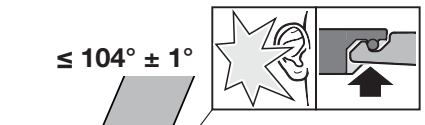
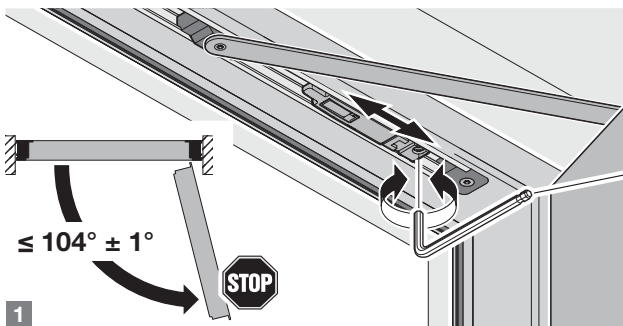
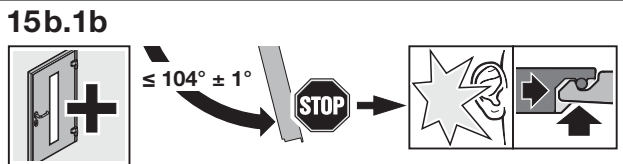
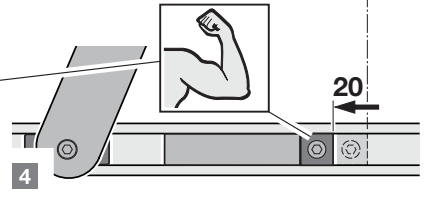
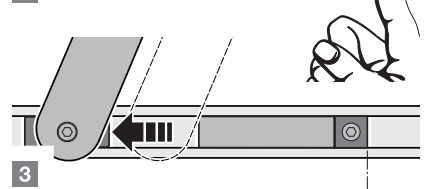
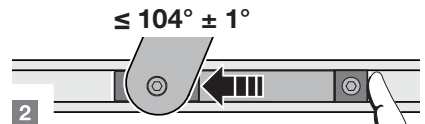
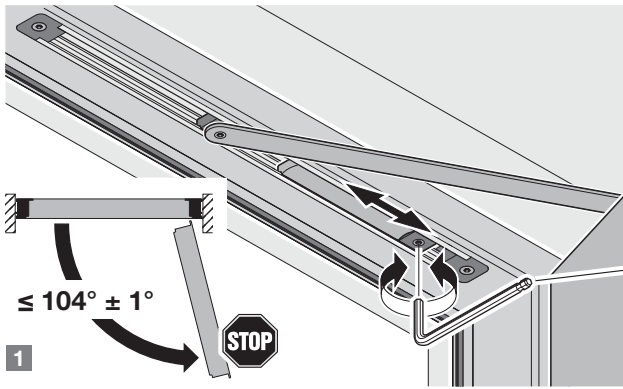
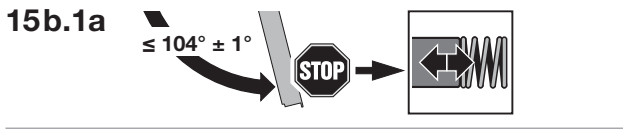
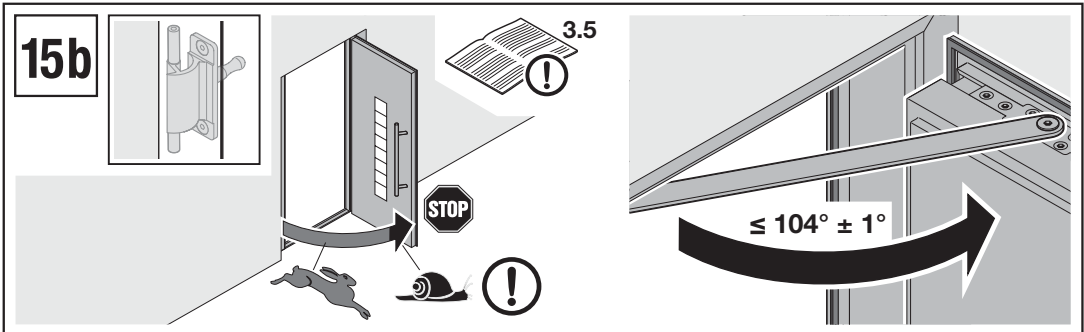
15a



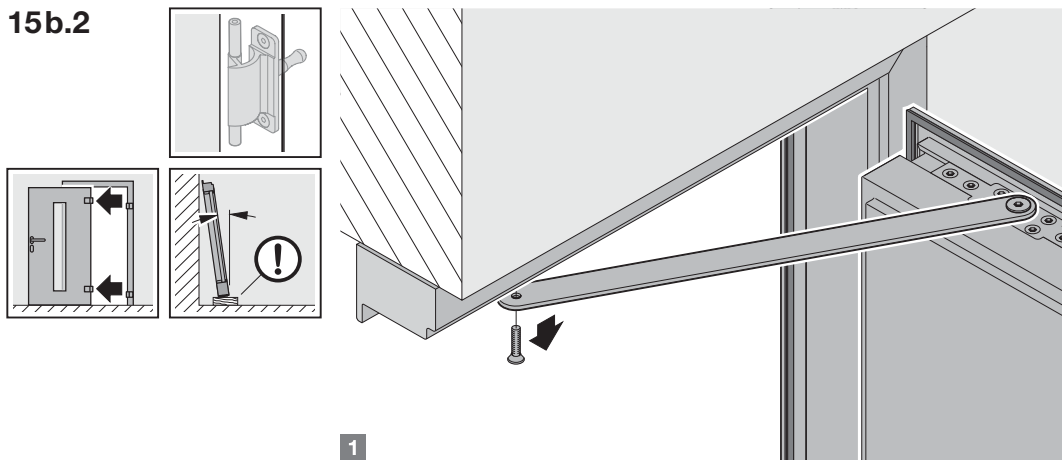
15b



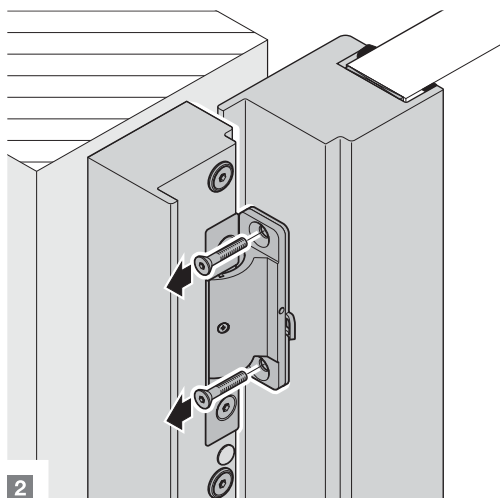




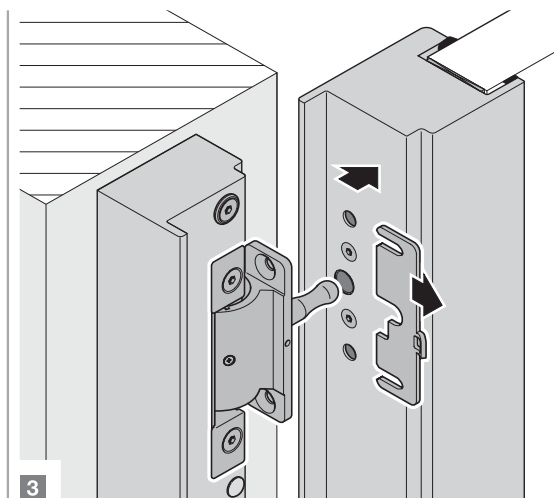
15b.2



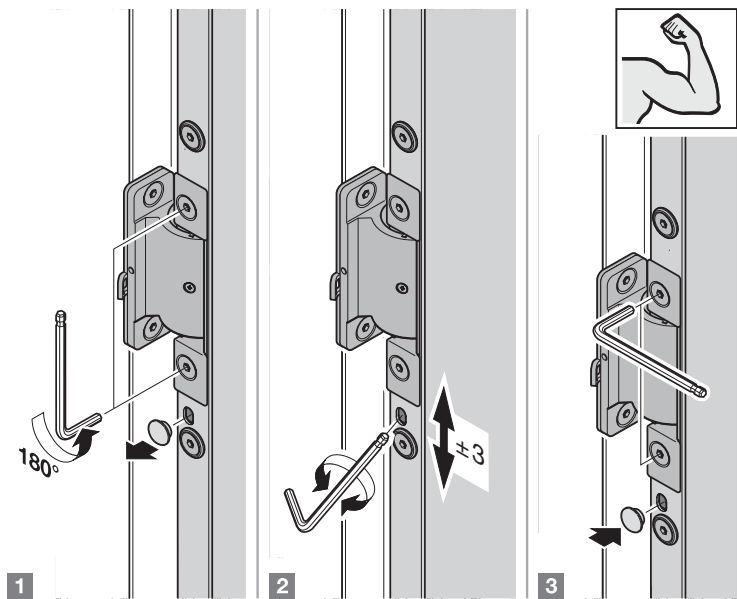
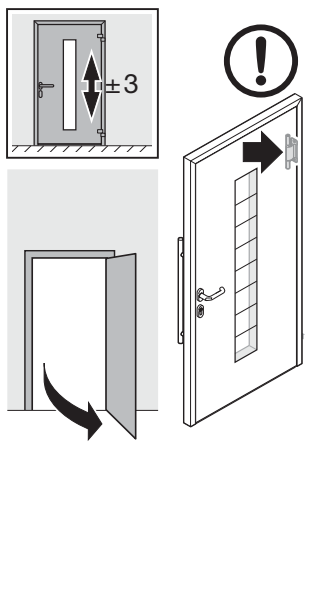
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2



3

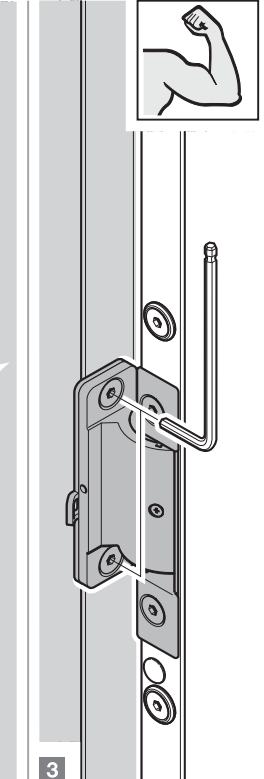
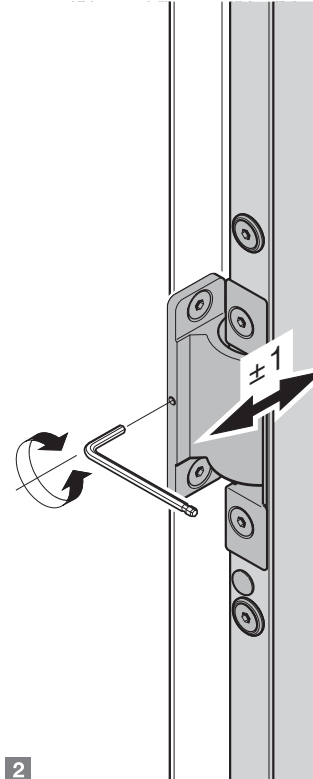
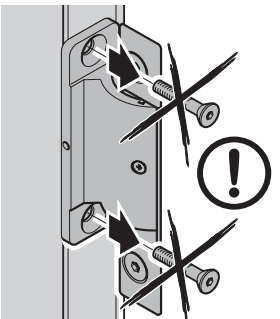
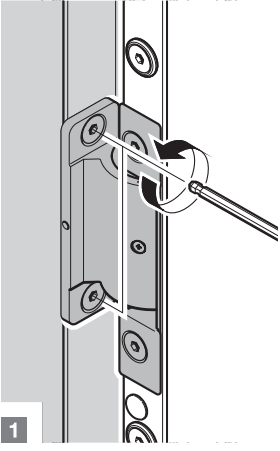
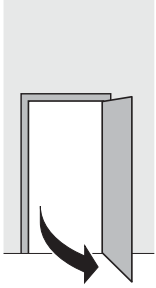
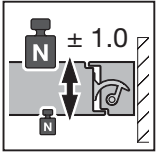
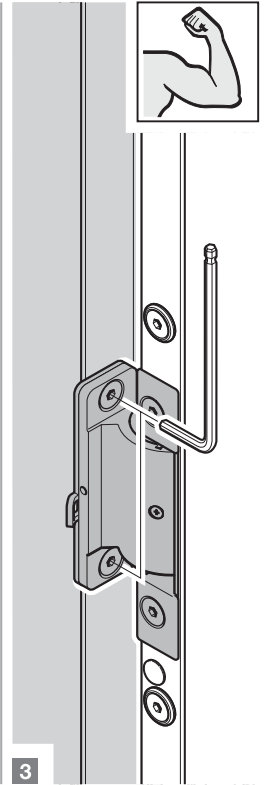
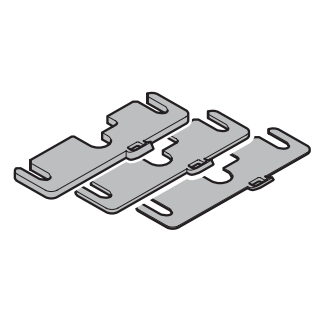
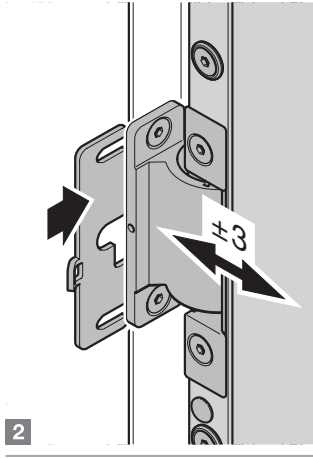
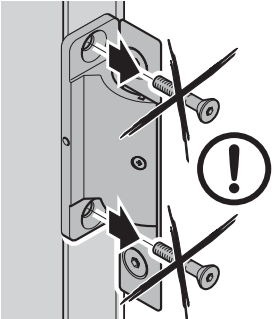
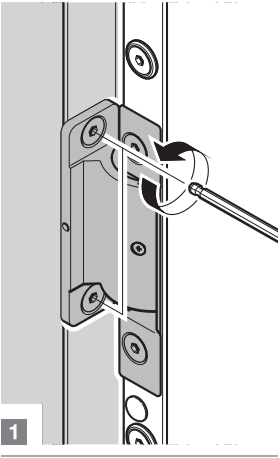
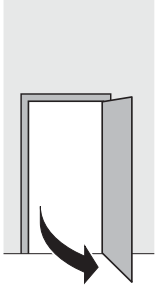
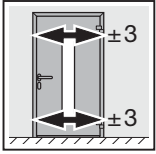


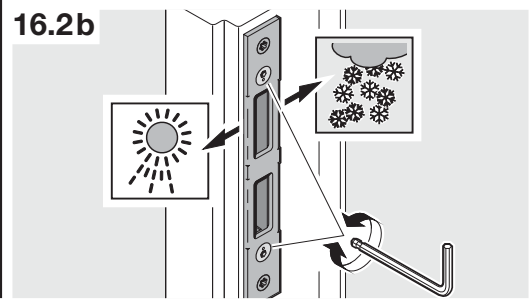
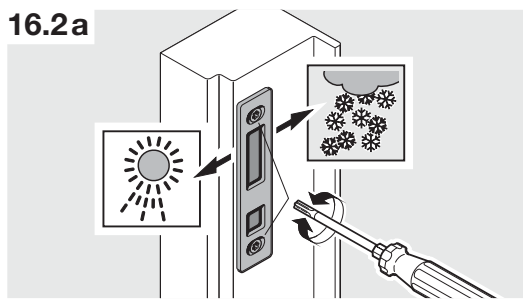
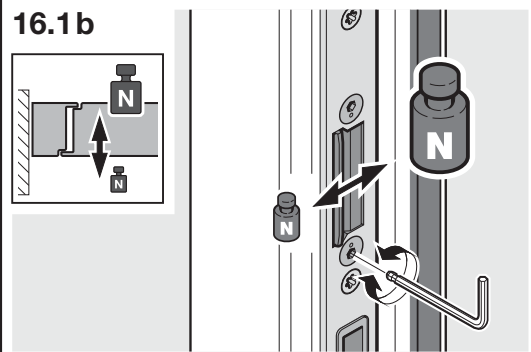
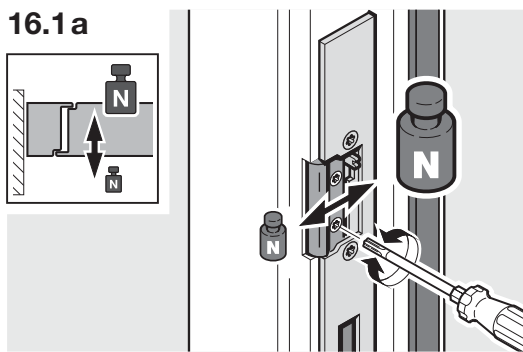
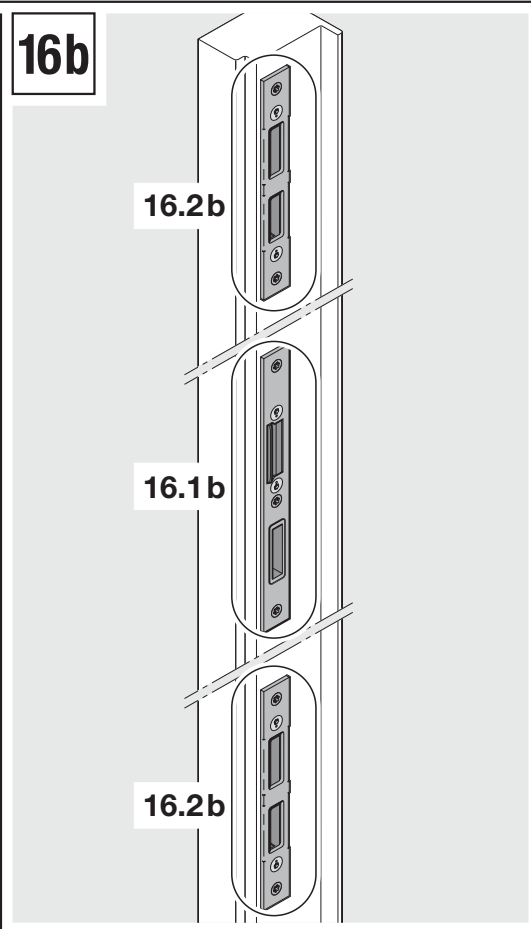
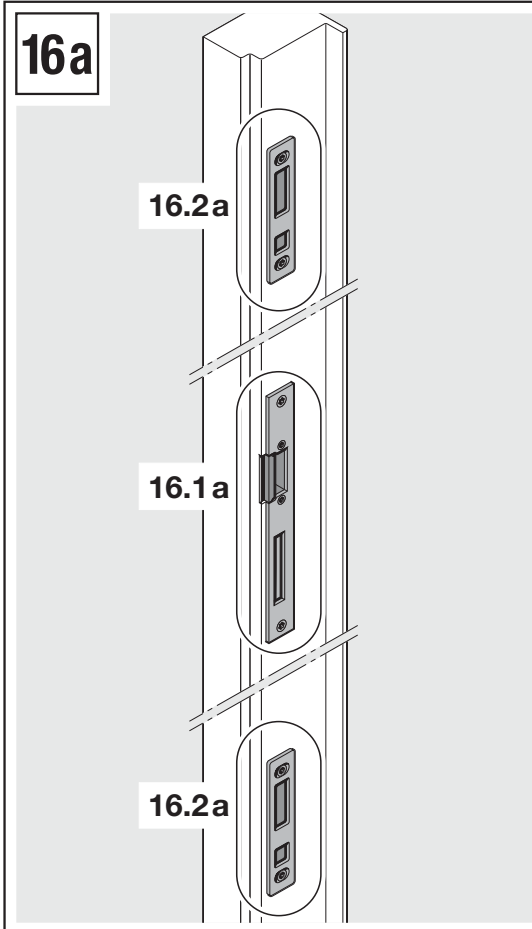
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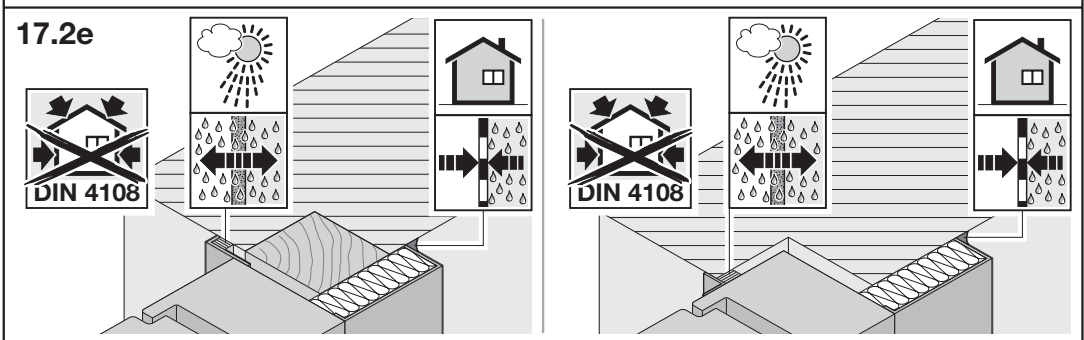
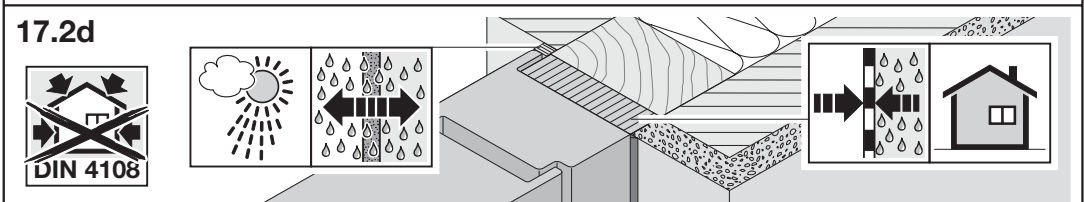
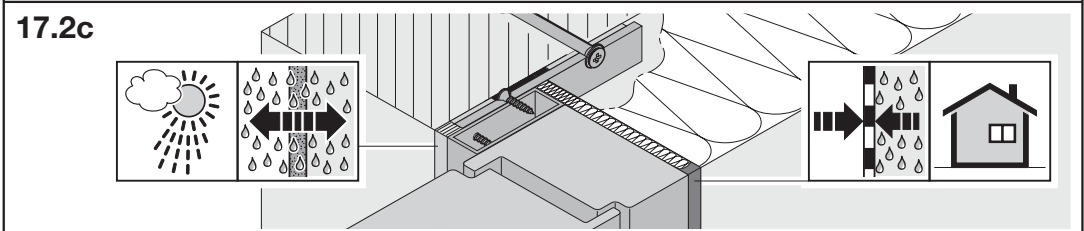
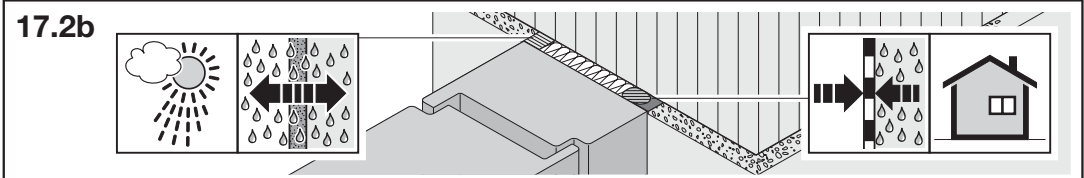
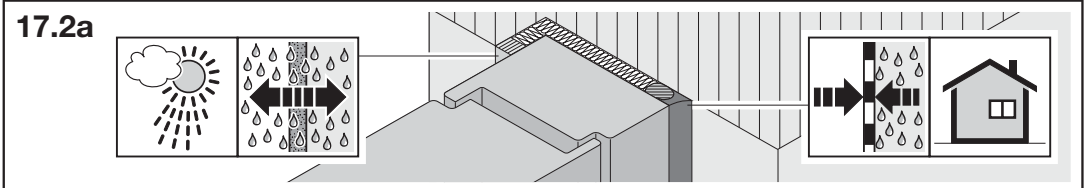
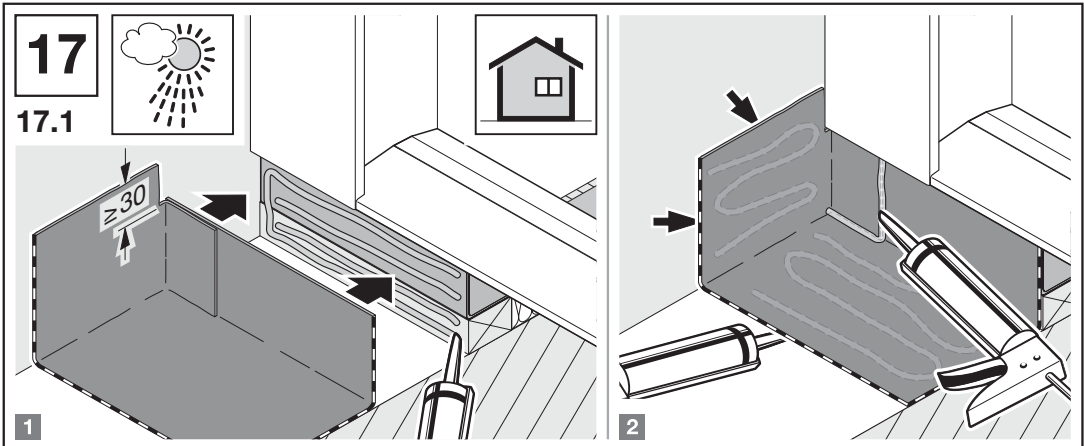
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3

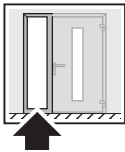
15b.2



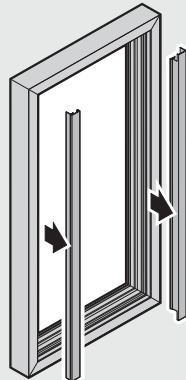
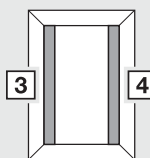
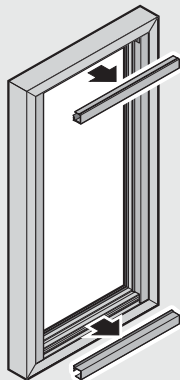
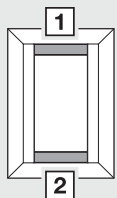




18



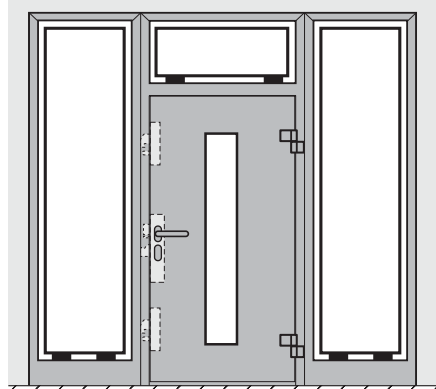
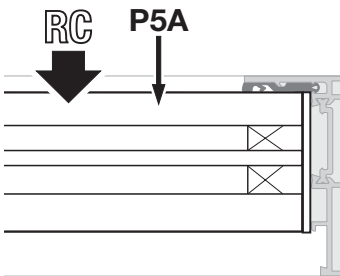
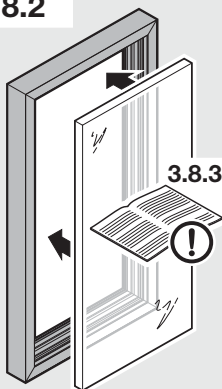
18.1



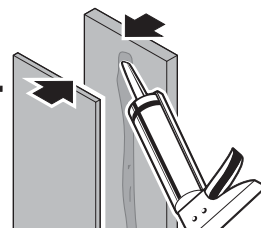
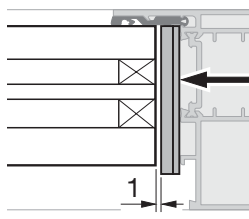
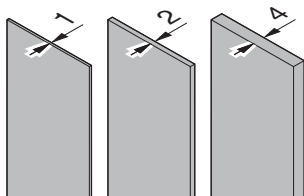
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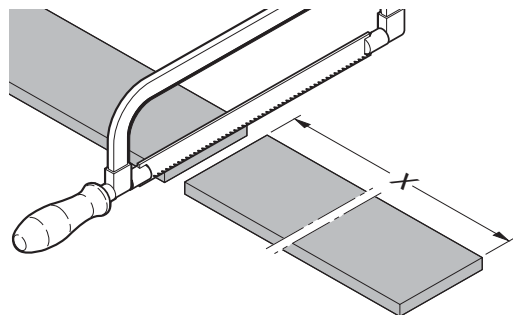
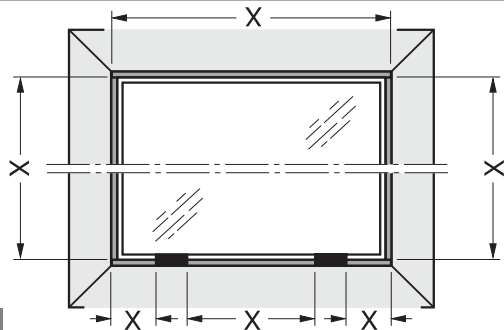
18.2



18.3

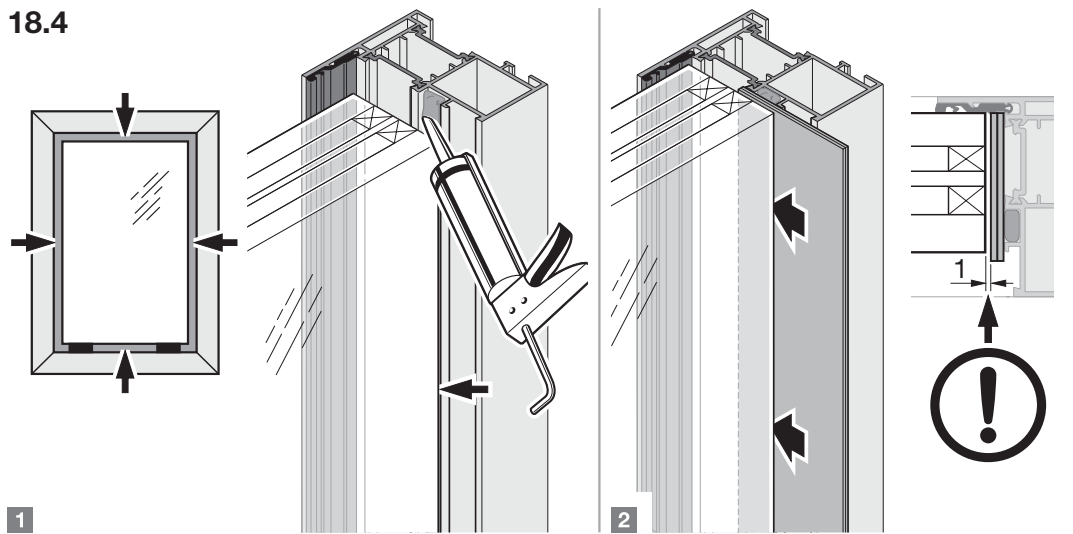


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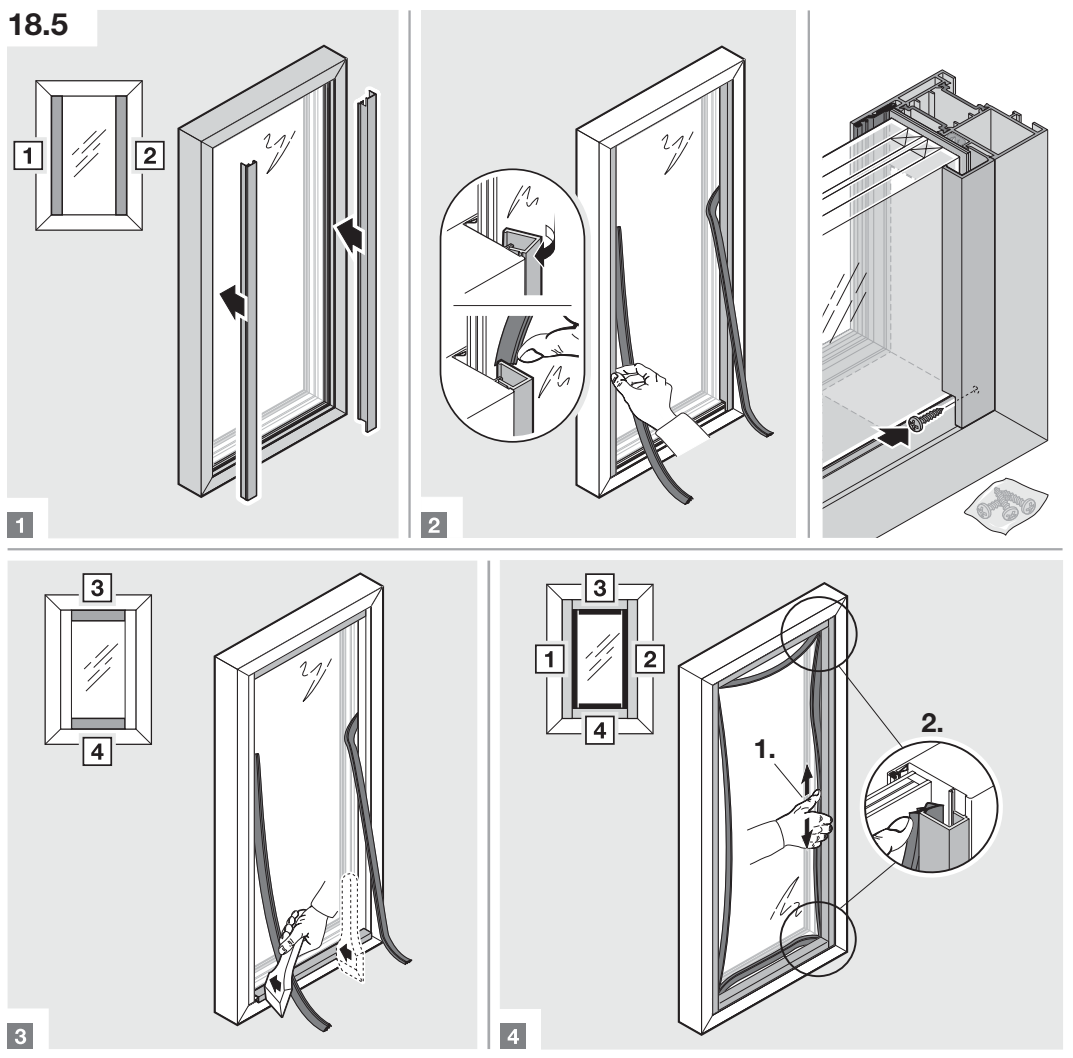


2

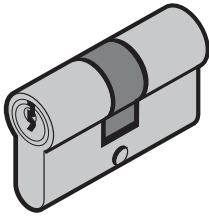
18.4



18.5



19



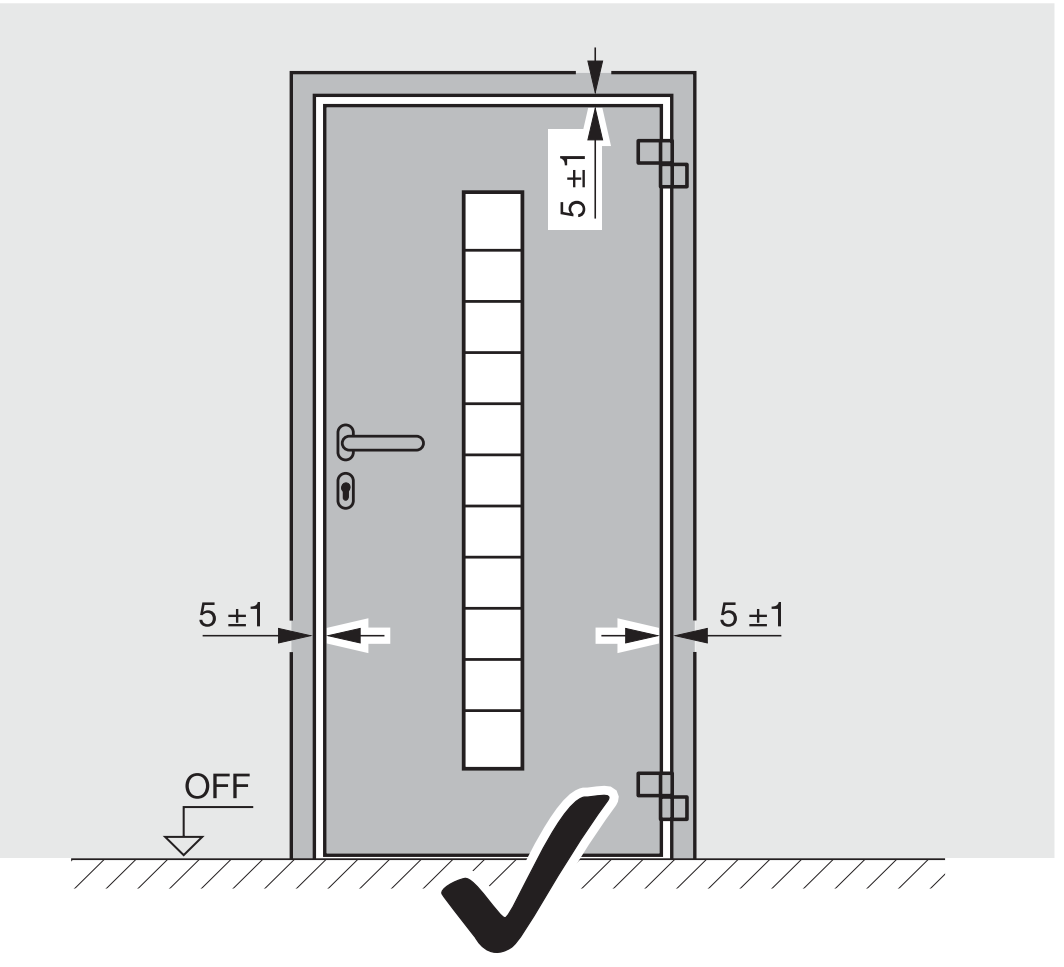
DIN EN 1303



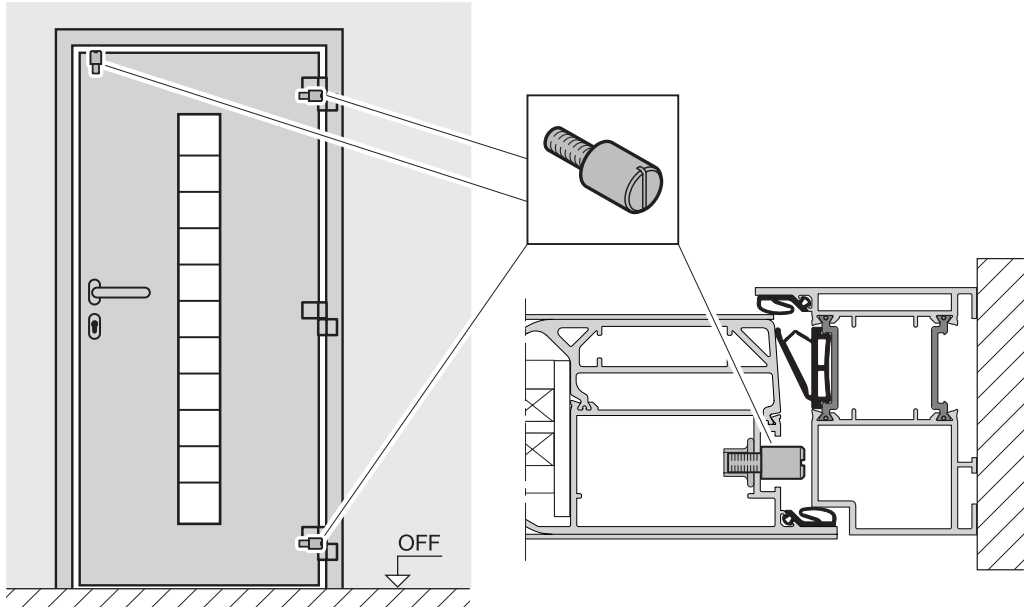
DIN EN 1303



20



21



22

