



SV

Anvisning för montering och underhåll

Ståldörrar med 1 resp 2 dörrblad (OD-dörrar, H3G, H16G, HS75, H16S1)

SVENSKA..... 3



..... **8**

Överlåtelse och mångfaldigande av detta dokument, utnyttjande och överföring av dess innehåll är ej tillåtet utan vårt tillstånd. Överträdelse leder till skadestånd. Med förbehåll för ändringar vad gäller patent, användning eller mönster. Vi förbehåller oss också rätten till ändringar.

Innehåll

1 Om denna bruksanvisning 3

1.1 Varningsanvisningar 3

1.2 Symboler 3

2 ⚠ Säkerhetsanvisningar 4

3 Information, dörregenskaper 4

3.1 Brand- och rökskyddsörrar 4

3.2 Ljuddämpade dörrar 4

3.3 Inbrottskyddade dörrar 6

3.4 Funktionsdörrar 6

3.5 Brandskydd och utomhusbruk 6

4 Montering 6

4.1 Före monteringen 6

4.2 Mått 6

4.3 Vid monteringen 6

4.4 Anvisningar till bilddelen 6

5 Skötsel och underhåll 7

5.1 Årligt underhåll 7

5.2 Nödvändig ytbehandling för element med standardgrundskydd 7

5.3 Rengöring 7

5.4 Skötselråd för komponenter av rostfritt stål 7

6 Etikettering och märkning 7

7 Allmänt 7

8 Prestandadeklaration 7



..... 8

Bästa kund,
tack för att du har valt en kvalitetsprodukt ur vårt sortiment.

1 Om denna bruksanvisning

Vi ber dig läsa och följa denna anvisning noga. Den innehåller viktig information om montering, underhåll och skötsel av din ståldörr och är dessutom ett viktigt dokument för bygghandlingarna.

Om du fortfarande har frågor efter att ha läst igenom denna anvisning, kontakta kundtjänst för ytterligare information.

1.1 Varningsanvisningar

⚠ Den allmänna varningssymbolen markerar en fara som kan leda till **skador** eller **dödsfall**. I textdelen beskrivs den allmänna varningssymbolen i kombination med nedanstående varningskategorier. I bilddelen hänvisar en ytterligare uppgift till förklaringarna i textdelen.

⚠ LIVSFARA

Markerar en fara som omedelbart leder till dödsfall eller svåra personskador.

1.2 Symboler



Brandskydd



Rökskydd



Säkerhetsdörr



Ljudskydd



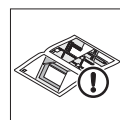
Funktionsdörr



Viktig anvisning



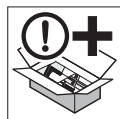
Se textdel



Se bilddel



Se monteringsanvisning för respektive tillbehör



Finns att beställa som tillbehör



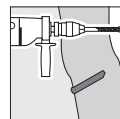
Korrekt montering eller funktion



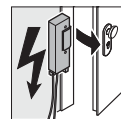
Felaktig montering eller funktion (tillvägagångssätt)



Svetsning



Borring



Elektrisk dörröppnare



Risk för inbrott, öppningssida



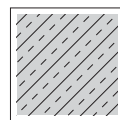
Risk för inbrott, stängningssida



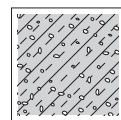
Nödut



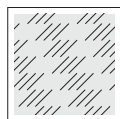
Trä



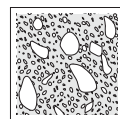
Murverk/betong



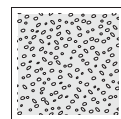
Lättbetong



Gips



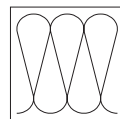
Betong



Murbruk



Kärrtätning CR
T60 / E₂ 60 / HBS60
T90 / E₂ 90 / HBS90
T120 / E₂ 120 / HBS120
T30 / E₂ 30 med mineralullsfyllning



Isolering A
(EN 13501-1)

2 Säkerhetsanvisningar

LIVSFARA

Livsfara vid inbyggnad av ståldörr

Vid inbyggnaden kan dörren eller dörramen falla, vilket kan leda till dödsfall.

- ▶ Säkra dörren och karmen före och under monteringsarbetet, så att de inte kan falla.

- Låt endast kvalificerad och utbildad personal utföra montering och underhåll.
- Alla elarbeten måste utföras av en utbildad fackman.
- Gör inga ändringar, såsom till- eller ombyggnader, som kan påverka säkerheten.
- Uteslut alla risker som uppstår på grund av lågor, gas, damm, rök, brand och explosion vid svets-, bränn- och sliparbeten.
- Se till att eventuella skummaterial inte skadas och förlorar sin verkan på grund av värmepåverkan vid svetsning.

3 Information, dörregenskaper

Observera att dörren kan uppfylla en eller flera av uppgifterna brandskydd, ljudskydd och inbrottskydd, samt att den även kan vara en funktionsdörr.

3.1 Brand- och rökskyddsdörrar

- Aktuellt tillstånd [www.hoermann.de/dokumentation/zulassungsbescheide-fuer-feuerschutzabschluss/](http://www.hoermann.de/dokumentation/zulassungsbescheide-fuer-feuerschutzabschluss) Tillståndet måste finnas till hands där porten används.
- Informationen som anges är minimikrav för montering i Tyskland. Vid montering i andra länder gäller respektive nationella krav. Materialparametrarna måste dock minst motsvara DIN.
- Följ DIN 18093 (montering av branddörrar) och DIN 18100 (väggöppningar för dörrar) resp. nationella föreskrifter.
- Tillverkaren kan i enstaka fall utfärda en konformitetsförklaring enligt § 22 och 23 i „Musterbauordnung“ (tyska byggnadsstandarderna).
- **Ändringar får endast utföras inom ramen för tillåtna åtgärder.**

- I Tyskland får fjädergångjärn **inte** användas på dörrar och luckor med följande egenskaper:
 - Portbladets vikt > 80 kg
 - Fönster
 - Inbyggnad i montagevägg (undantag: mått < 1000 × 1000 mm)
 - I kombination som rökskyddsdörr enligt DIN 18095
 - 2 dörrblad

Utanför Tyskland kan andra föreskrifter gälla.

Vi rekommenderar dock att man följer de tyska specifikationerna.

- Använd endast lås, stängningsmedel och elektroniska komponenter om de ingår i dörrtillståndet eller om godkännande från tillverkaren finns.
- Bygg in tresidigt falsade dörrar utan nedre schaktavslut i schakt på nedersta golvnivån.
- Gipskartongväggar och vägggjocklekar: se Tab. 1
- Tillåtna väggar och minsta vägggjocklek: se Tab. 2
- Karmen bakfylls med mineraliskt murbruk på cementbas, t.ex. LM21 från Sakret, om inget annat anges för inbyggnadssituationen för inbyggnadssituationen. U-profilskarmer och hörnkarmer (med eller utan motkarmer) måste kilas före bakfyllningen, så att de inte böjs av trycket från murbruket.

• Rökskydd:

- Använd golvtätningar och tätningskilar (se punkt 10.6 och 11 i bilddelen).
- Kantanslutningen till angränsande byggnadsdelar ska förseglas konstant elastiskt och utan glapp på båda sidor, om karmen inte har bakfyllts.
- Använd låscyliner.
- Utsätt inte fönster i brandskyddsdörrar för direkt solljus.

3.2 Ljuddämpade dörrar

- Den totala ljudisoleringsförmågan beror på de omgivande komponenterna. Det slutliga resultatet av kombinationen vägg och dörr måste mätas separat, eftersom det inte räcker att enbart dörren uppnår ljudisoleringsvärdet R_w resp R .
- Kontrollera att tätningen(arna) sluter helt tätt.
- Golvet måste vara helt slätt för att golvtätningen ska fungera maximalt.
- Separera golvmaterialet i tröskelområdet.
- Använd tätningskilar och golvtätning (se punkt 10.6 och 11 i bilddelen).

Tab. 1: Godkända F90A monteringsväggar med minimivägggjocklek för brandskydds- och rökskyddsdörrar, höjd ≤ 5000 mm

Kontrolldokument nr.	Vägg	H3 OD H_30 OD	H3-1G H_30 D1	¹⁾ H3-2 VM H_30 D2	H16 S1 H_90 E1
P-3310/563/07-MPA BS	Knauf W 112	≥ 100 mm	≥ 100 mm	≥ 100 mm	≥ 125 mm
P-3391/170/08-MPA BS	Knauf W 131	≥ 116 mm	—	—	≥ 177 mm
P-3310/563/07-MPA BS	Knauf W 132	≥ 100 mm	—	—	—
P-3202/2028-MPA BS	RiGips W 352/W 353	≥ 100 mm	≥ 100 mm	≥ 100 mm	≥ 150 mm
P-3956/1013-MPA BS	RiGips 3.40.01ff. / 3.41.01ff.	≥ 100 mm	≥ 100 mm	≥ 100 mm	—
P-3014/1393-MPA BS	RiGips 3.60.20	≥ 100 mm	≥ 100 mm	≥ 100 mm	≥ 125 mm
P-3020/0109-MPA BS	RiGips 6.70.10	≥ 165 mm	—	—	≥ 165 mm
P-SAC-02/III-681	LaFarge L11 – L14	≥ 100 mm	≥ 100 mm	≥ 100 mm	—
P-MPA-E-98-005	LaFarge L15	≥ 100 mm	—	—	≥ 125 mm
P-3515/0519-MPA BS	LaFarge L16	≥ 150 mm	—	—	≥ 150 mm
P-3391/0890-MPA BS	LaFarge L18	—	—	—	≥ 161 mm
P-MPA-E-99-047	Promat 450.81	≥ 140 mm	—	—	≥ 140 mm
P-11-003478-PR01	B + M W 50 / 100 – W 100 / 150	≥ 100 mm	—	—	—
P-3854/1372-MPA BS	Fermacell 1 S 31/3.1	≥ 95 mm	≥ 95 mm	≥ 95 mm	—

1) max. 2750 × 2750 mm

Tab. 2: Godkända väggar och minsta väggjocklek för brandskydds- och rökskyddsöbryn (mm) se 4.2

Vägg	H3-1 OD H_30-1 OD		H3-2 OD H_30-2 OD		H3-1 G H_30 D1	H3-2 VM H_30 D2	H16-1 G H_90 D1	H16-2 G H_90 F-2	H16-S1 H_90 E-1	H16-1 OD H_90-1 OD	H16-2 OD H_90-2 OD
	1) k ≤ 2500 2) k > 2500	1) k ≤ 2500 2) k > 2500	1) k ≤ 2500 2) k > 2500	1) k ≤ 2500 2) k > 2500							
Ståldörr											
Betong DIN 1045-1, hållfasthet ≥ C12/15	100 140	100 140	100 140	100 140	140	140	140	140	120	140	140
Murverk DIN 1053-1, hållfasthet ≥ 12, murbruksgrupp ≥ 2	115 175	115 175	115 175	115 175	175	175	240	240	175	115 175	175
Lättbetonblock eller plansten , DIN 4165-3, hållfasthetsklass ≥ 4, Plator av lättbetong enligt = allmänt byggtillstånd, hållfasthetskl.	k ≤ 2500	k ≤ 2500	k ≤ 2500	k ≤ 2500	—	—	—	—	—	—	—
Montagevägg F90-A enligt A/B, Se bild 9D maxhöjd 5000 mm	3)	3)	3)	3)	3)	3)	—	—	3)	—	—
Montagevägg F90-A DIN 4102-4/ Tab. 48, Se bild 9D maxhöjd 5000 mm	e ≤ 1320	e ≤ 2500	e ≤ 2500	e ≤ 2500	—	e ≤ 2750 och k ≤ 2750	—	—	—	—	—
Montagevägg F90-B DIN 4102-4/ Tab. 49, Se bild 9D maxhöjd 5000 mm	100 e ≤ 1250 och k ≤ 2500	100 e ≤ 2500 och k ≤ 2500	100 e ≤ 2500 och k ≤ 2500	100 e ≤ 2500 och k ≤ 2500	100	100	—	—	125	125	125
Montagevägg F30-B	4) 100 / 5) 130 e ≤ 1125 och k ≤ 2125	4) 100 / 5) 130	4) 100 / 5) 130	4) 100 / 5) 130	—	—	—	—	—	—	—
Gipsvägskivor VG Orth, P-SAC 02 / III-468. Se bild 9/A17	185	—	—	—	—	—	—	—	—	—	—
	100	100	100	100	—	—	—	—	—	—	—

1) utan överdel 2) med överdel 3) se Tab. 1 4) Tvåskalgig karm 5) Dryfix

- Använd låscylinder.
- Fyll murbruk bakom hela karmen.
- Limma de gerade hörnen på karmtätningen med t.ex. Köratan UC 41.

3.3 Inbrottskyddade dörrar

- Dörren är endast inbrottskyddad om låsregeln är helt och hållet låst och nyckeln är utdragen.
- Säkra dörrbladen på RC4/B-dörrar och alla RC-dörrar med 2 portblad med vardera två skruvar vid gångjärnen (se punkt 8.3b bilddelen).
- Använd endast hörnkarmar, hörnkarmar med motkarm och U-karmar.
- Vid RC2/N-dörrar: Karmen måste vara trycksäkert uppallad vid låspunkterna, gångjärnen och säkringsbultarna.
- Vid RC3/A- och RC4/B-dörrar: Palla upp trycksäkert runt hela karmen.
- På glasade dörrar ska man se till att glasinfastningsramen med säkerhetslisten monteras på angreppssidan.
- Om det övre fönstret byts, måste glasat pallas upp precis som före monteringen.
- Vid dörrar med 2 dörrblad mäter man det nedre spaltmättet från golvrännan.
- Vid antipanikdörrar ska man försvåra inbrott med ståltråd genom att t ex minska springan under dörren eller använda en flat, rund tröskel.
- Fyll ut karmen helt med murbruk vid RC2-dörrar, när dessa monteras in i F90A väggpaneler.

3.3.1 Minimikrav för säkerhetsdörrar

Motståndsklass enligt DIN EN V 1627 / DIN EN 1627 / VDS	RC2 / N	RC3 / A	RC4 / B
Murverk DIN 1053 del 1 (mm)	115	115	240
Stålbetong, min. C12 / 15 (mm)	100	120	140
Sten av lättbetong Kl. 4 (mm)	175, 115 ¹⁾	300	-
Plattor av lättbetong Kl. 4 (mm)	150	-	-
Montagevägg F90 A	✓	-	-
Proficylinder enligt DIN 18252 ³⁾	P2BS	P2BS	P3BS
Proficylinder ²⁾ 3) 4)	Klass A	Klass A	Klass B
Skyddsbeslag enligt DIN 18257 ³⁾	ES1 (ZA)	ES2 (ZA)	ES3 (ZA)
Skyddsbeslag ²⁾ 3)	Klass A	Klass A	Klass B
Glas EN 356 (brandskydd)	P4A	P6B / P7B	-

- 1) endast dörrar med 1 dörrblad, vi rekommenderar väggfjocklekar fr o m 150 mm
- 2) för VdS-godkända dörrar
- 3) Skyddsbeslag eller proficylinder måste ha dragskydd (ZA).
- 4) ingår inte i leveransen

3.4 Funktionsdörrar

Det är inte helt nödvändigt med fyllning bakom karmen.

3.5 Brandskydd och utomhusbruk

Brandskydd och utomhusbruk kräver ett eget tillstånd. Beakta den separata inbyggnadsanvisningen art.nr 479166.

4 Montering

4.1 Före monteringen

Frågor före monteringen:

- Vilka egenskaper har dörren?
- Håller väggens konstruktion för inbyggnad av dörr?
- Är golvhöjden känd (mättriniting)?
- I vilken riktning öppnas dörren?
- Finns det byggnormer som bör följas?
- Måste väggen huggas ur för täckplåtar?

4.2 Mått

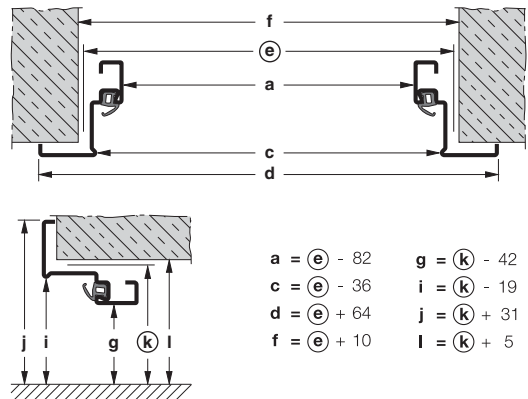


Bild 1: Mått

- a/g Fri öppningsbredd / -höjd
- c/i Fri falsbredd / -höjd
- d/j Karmyttermåttbredd / -höjd
- e/k Bredd / höjd på byggnadsriktningsmått
- f/l Fri byggstombsbredd / -höjd EN 12519

4.3 Vid monteringen

- Följ monteringsanvisningarna för respektive tillbehör.
- Använd det monteringsmaterial som ingår i leveransen, t ex skenor, pluggar och skruvar.
- Använd pluggarna som anges under punkt 8.
- Använd pluggarna FUR 10 x 80/100 mm i kopplingen mellan hörnkarm och håltegel eller gipssten och se punkt 8 i inbyggnadsanvisningen.
- Borra utan slag i håltegel och hålsten.
- Beakta minivståndet på 50 mm för horisontell resp. vertikal borrning och pluggens spridningsriktning.
- Observera att den nedre monteringsvinkeln måste tas bort före monteringen, om karmen saknar golvfeller.

4.4 Anvisningar till bilddelen

Se punkt	Beskrivning
7	Inbyggnadssituationer och karmformat
8.1a	Infällid
8.1b	Tunn fals
8.1c	Tjock fals
8.2a / 8.2b	Antal fästpunkter
8.2c	Montering
8.3a	Demontering av standarddörr
8.3b	Demontering av säkerhetsdörr
8.4	Ihopmontering av hörnkarm
8.5	Golvinfästning och monteringsvinklar

Se punkt	Beskrivning
8.6	Infästningar
8.7	Minimalt kantavstånd samt expansionsriktning för plugg
8.8	Montering av smygpanel
8.9	Tomrör i karmen
8.10	Elektrisk dörröppnare
8.11	Murskyddskåpa i GKF-väggar
8.12	Uppbyggnad väggar med brandgipsskivor
9.0	Monteringsmöjligheter
10.1a	Montering med standardgångjärn
10.1b	Montering med 3D-gångjärn
10.2	Montering av säkerhetsdörr
10.3	Inställning av luftspalt
10.4	Avlägsna golvvinkeln hos karmar utan tröskel
10.5	Montering av karmprofil
10.6	Fastsättning av tätningsskilar med silikon
10.7	Montage av karmtätning
10.8	Lyftning av dörr
10.9	Spänning av fjädergångjärn
10.10	Kontroll av låsbleck
10.11	Ändring av ventilationsgaller
10.12	Ändring av glasram
10.13	Grundering vid brand- och rökskydd
10.14	Grundering på låsstift
10.15	Markering av stora glasytor
10.16	Panikdörrar och RC3/A
10.17	Montering av blocklås vid 3-regellåsning
11	Golvtätningar
12	Dörrstängare
13.1	Dra ut nycklar ur panikdörrar
13.2	Undvika felmanövrering av låset

5 Skötsel och underhåll

5.1 Årligt underhåll

- ▶ Kontrollera dörrbladet, karmen och fastsättningen beträffande mekaniska skador och korrosion.
- ▶ Kontrollera att låset fungerar och smörj regeln med fett om så behövs.
- ▶ Smörj bultlåsen med teflonspray.
- ▶ Kontrollera att alla delar sitter fast, t ex handtag, lås, dörrstängare, gångjärn osv.
- ▶ Smörj gångjärnstappar och kullager med fett.
- ▶ Kontrollera spaltmåten.
- ▶ Kontrollera att märkningen syns.

LIVSFARA

Livsfara pga upplöst grundering

Vid upplöst grundering förlorar branddörren sin funktion

- ▶ Åtgärda upplöst grundering, se bilddelen, punkt 10.13.

- ▶ Byt ut defekta delar.
- ▶ Använd endast originalreservdelar från tillverkaren.

Om du hittar brister som du inte kan åtgärda själv, måste du anlita en fackfirma.

5.2 Nödvändig ytbehandling för element med standardgrundskydd

Ytbehandlingen på dörrbladet och karmen är utförd som pulvergrundbeläggning på polyesterbaserat epoxyharts.

1. Ta bort tätningen(arna).
2. Slipa ner ytan som ska lackeras ända till grunderingen.
3. Rengör ytan ordentligt.
4. Använd följande beläggningsprocedur för slutbehandlingen av dörrbladet, karmen och grunderingen:

- Grundbeläggningen 2K Epoxi häftgrund och slutbeläggning med vanligt, lämpligt bygglack eller
- Grund- och slutbeläggning med 2K PUR-lack.

Använd inte mörka färger på ytor som utsätts för starkt solljus. Observera BFS-specifikation nr 24 samt anvisningarna från lacktillverkaren och gör ett vidhäftningstest. Utför slutbehandlingen inom tre månader efter monteringen för att undvika korrosionsskador.

5. Montera tillbaka tätningen(arna) när färgen har torkat.

5.3 Rengöring

- ▶ Rengör ytan med rent vatten eller vanlig lackrengöring.

5.4 Skötselråd för komponenter av rostfritt stål

- ▶ Rengör och behandla regelbundet komponenter av rostfritt stål med det vårdande medlet Edel Glanz för rostfritt stål från Hörmann på en mjuk trasa.

6 Etikettering och märkning

Etiketten för dörrtyp **D65-1, D65-2, D65-1 OD, D65-2 OD** är på grund av förordning (EU) nr 305/2011 försedd med CE-märkning om överensstämmelse. Den relaterade och tillämpade harmoniserade europeiska produktnormen är EN 14351-1:2006 + A1:2010 „Fönster och dörrar – produkt-norm, prestandaegenskaper – del 1: Fönster och dörrar utan egenskaper avseende brandskydd och/eller röktäthet“.

Numret för tillhörande CE-märkning resp. prestandadeklaration finns angivet i dörrens falsområde på den ovanstående etiketten mellan tillverkarlogon och CE-märkningen om överensstämmelse.

Dörrar som inte är försedda med en etikett med CE-märkning om överensstämmelse hamnar inte inom användningsområdet för ovanstående harmoniserade europeiska produktnorm och får därför inte förfoga över en CE-märkning resp. prestandadeklaration.

7 Allmänt

Dörren får inte tas i drift innan man fastställt att den har monterats enligt våra specifikationer och kontrollerats avseende korrekt funktion. Om ändringar görs på upphör prestandadeklarationen att gälla.

8 Prestandadeklaration

Prestandadeklaration se punkt 8.3:

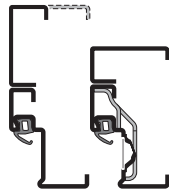
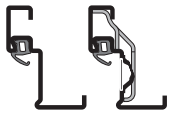
www.hoermann.com/dop



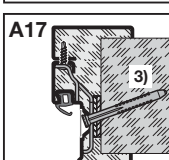
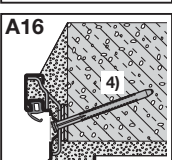
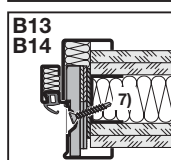
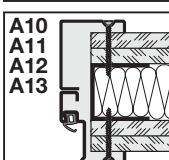
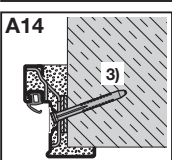
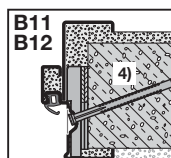
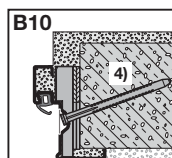
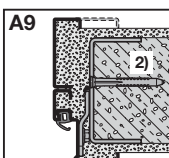
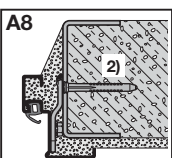
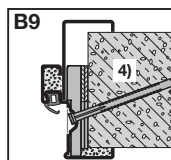
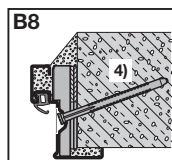
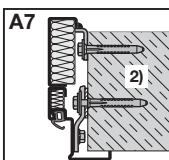
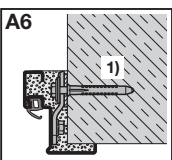
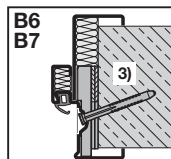
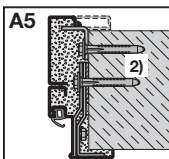
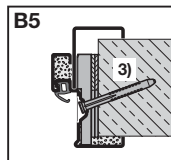
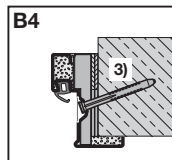
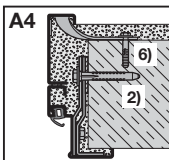
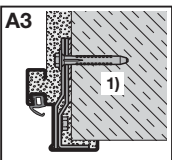
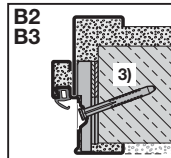
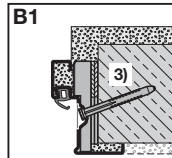
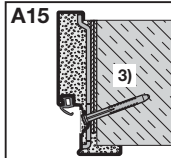
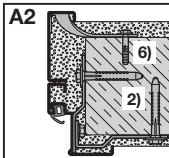
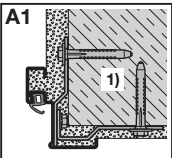
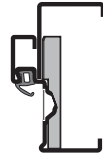
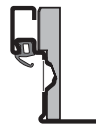
4.3/4.4



A



B



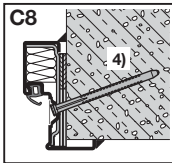
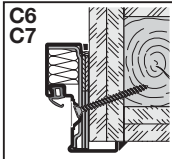
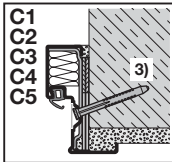
8

4.3/4.4

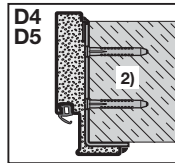
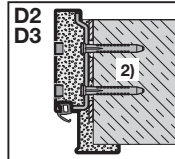
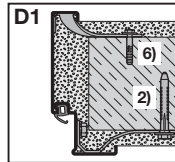
9



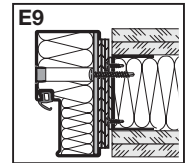
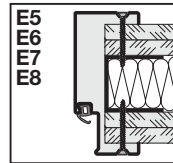
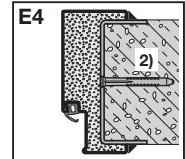
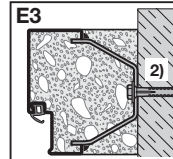
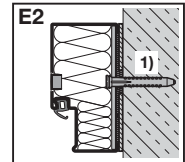
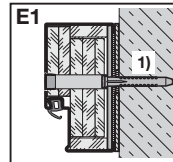
C



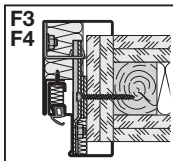
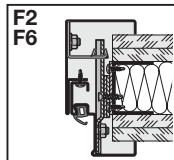
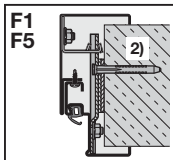
D



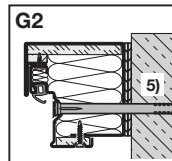
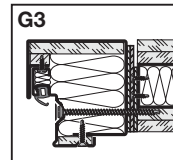
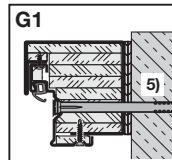
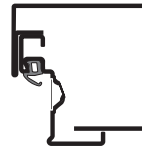
E



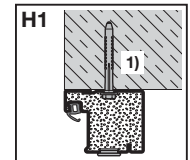
F



G



H



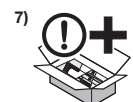
1) Fischer: FUR 10 x 80/100

Fischer: SXS 10 x 80/100 →
 Hilti: HRD 10 x 80/100 →
 MEA: MFR 10 x 80/100 →
 Würth: W-UR 10 x 80/100 →

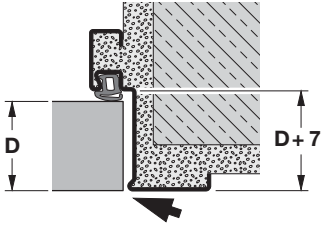


2) Fischer: FUR 10 x 80/100/115
 Fischer: SXS 10 x 80/100/120
 Hilti: HRD 10 x 80/100
 MEA: MFR 10 x 80/100/115
 Würth: W-UR 10 x 80/100/115

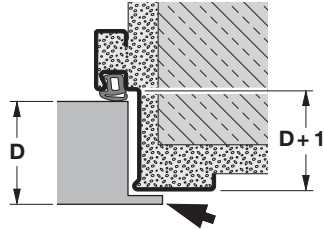
3) Fischer: FUR 10 x 100
 4) Fischer: FUR 10 x 160
 5) Fischer: FUR 10 x 200
 6) 8 x 40



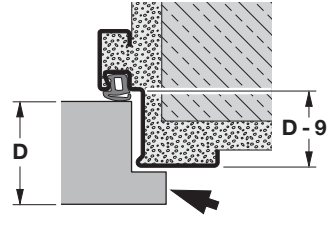
8.1a



8.1b

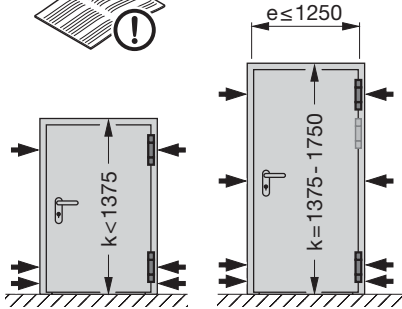


8.1c



8.2a

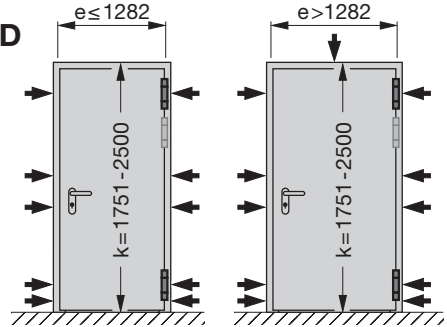
4.2/4.3



H16-S1

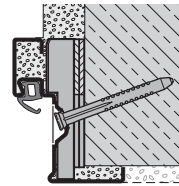
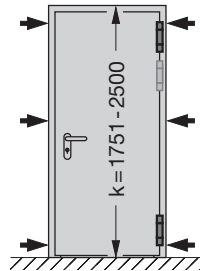
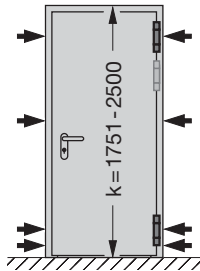
H16-1 OD

HS75



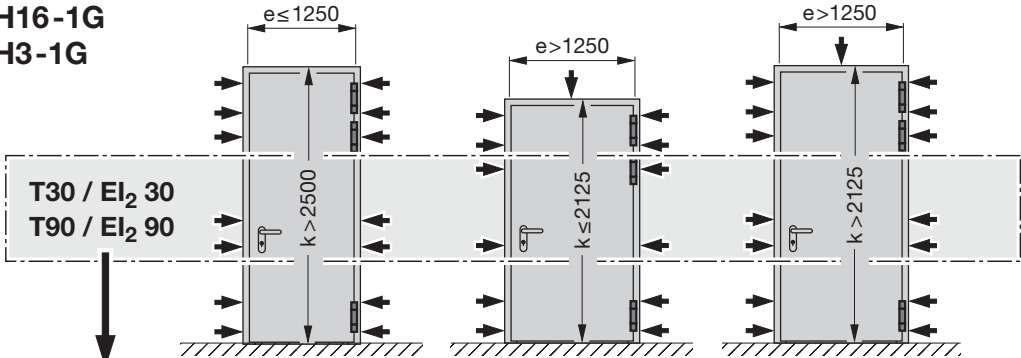
D65-1 OD

H3-1 OD

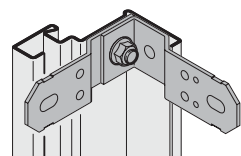


H16-1G

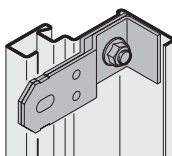
H3-1G



T30 / EI₂ 30

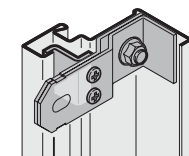
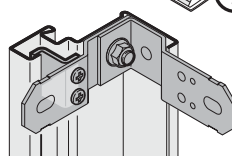


T90 / EI₂ 90



8.6a

8.6b

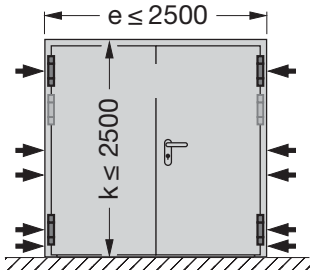


8.2b

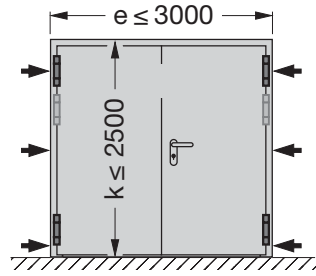


4.2/4.3

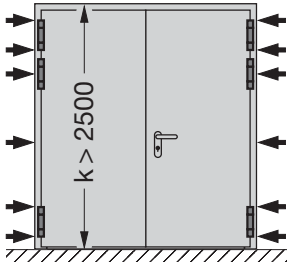
H16-2 OD
H3-2 OD



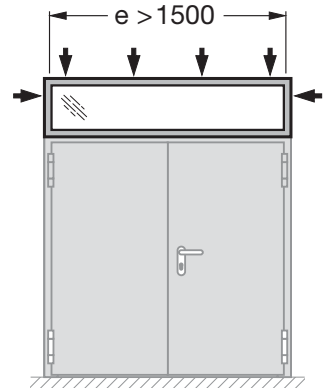
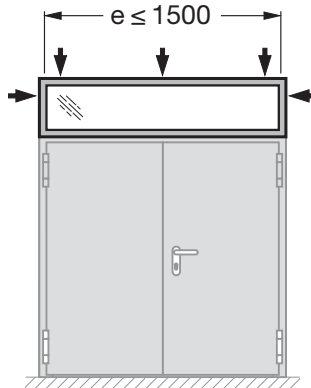
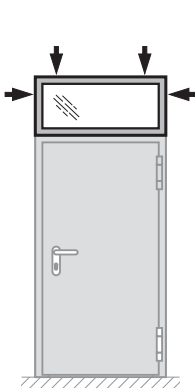
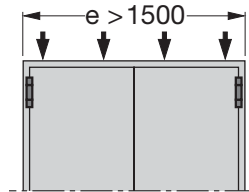
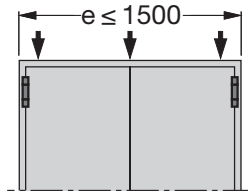
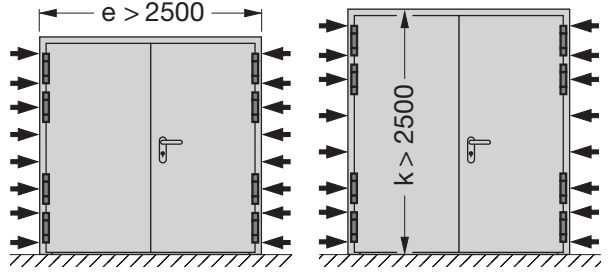
D65-2 OD



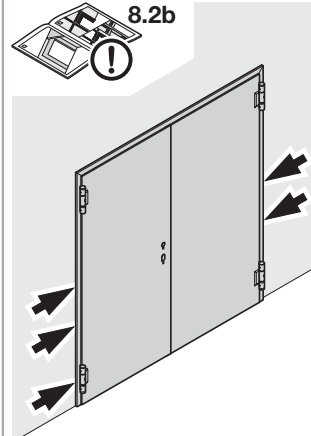
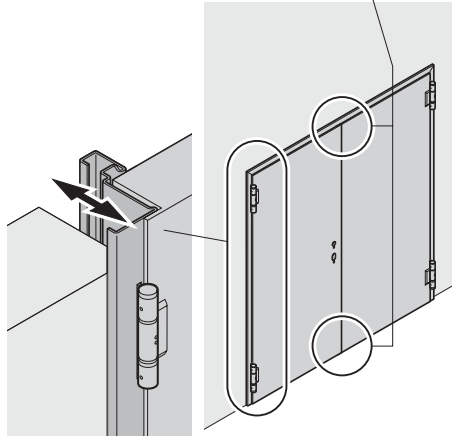
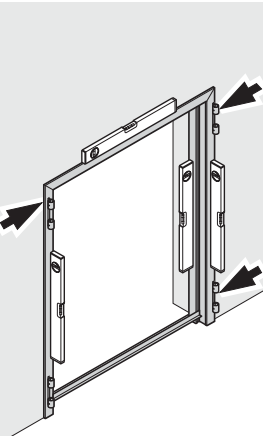
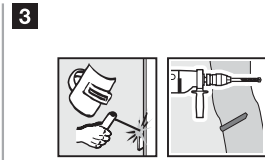
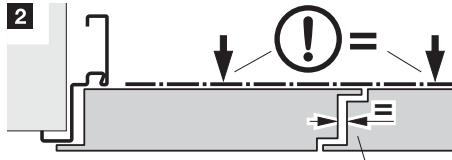
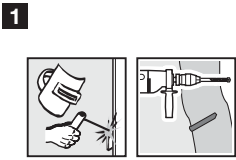
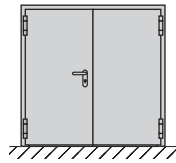
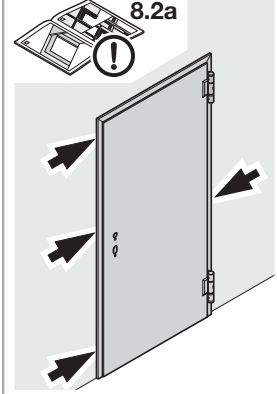
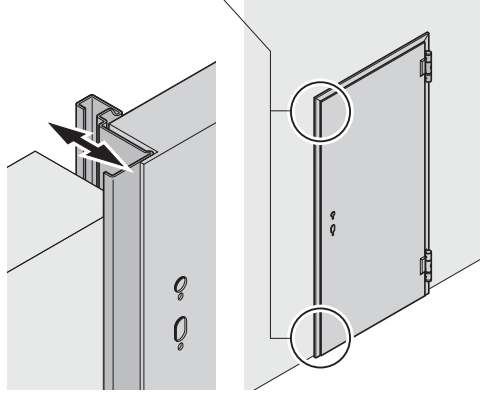
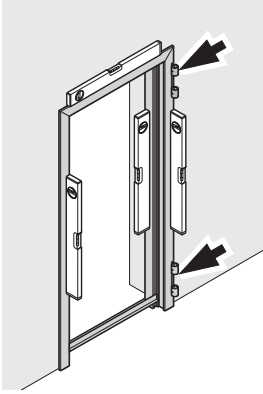
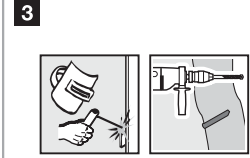
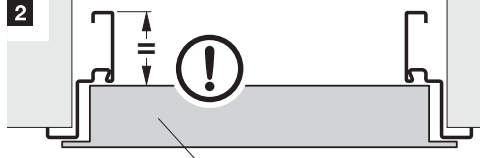
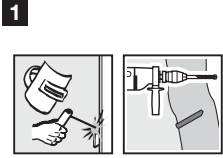
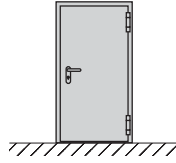
H3-2 VM



H16-2 G
H_90 F2



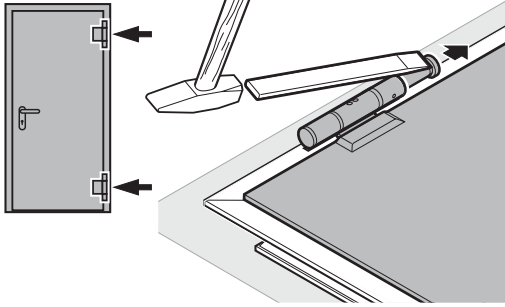
8.2c



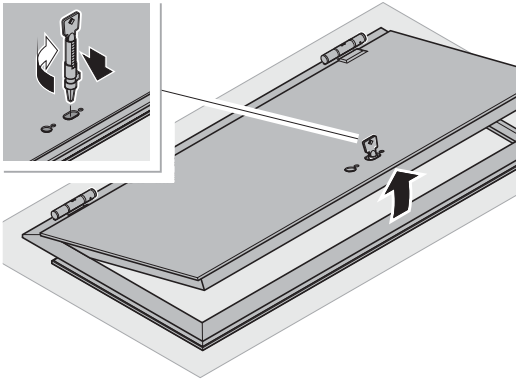
8.3a 4.3



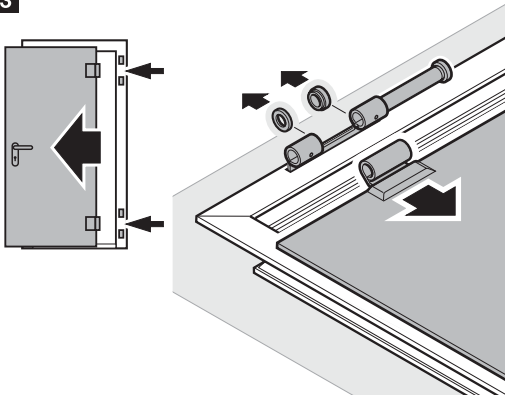
1



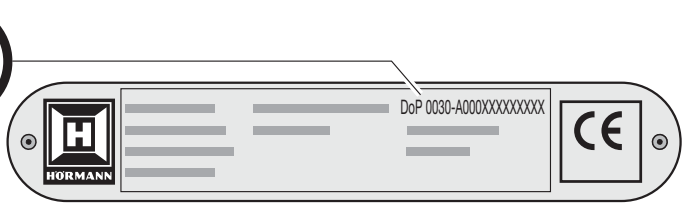
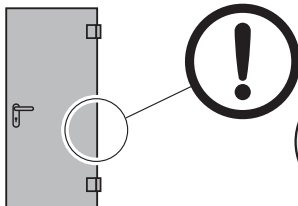
2



3



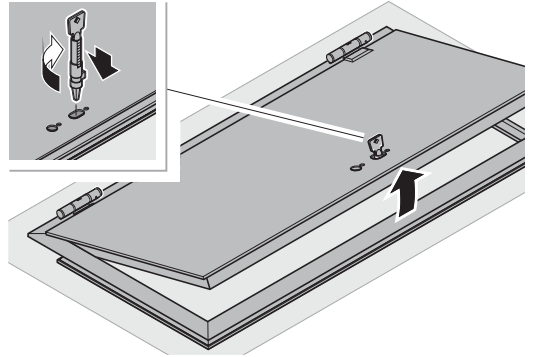
4



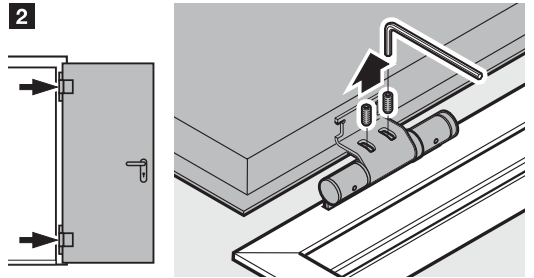
8.3b 3.3/4.3



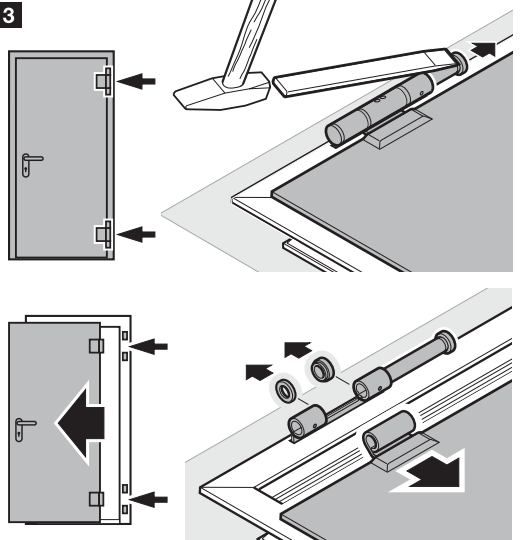
1



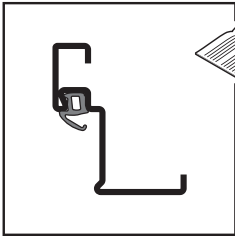
2



3



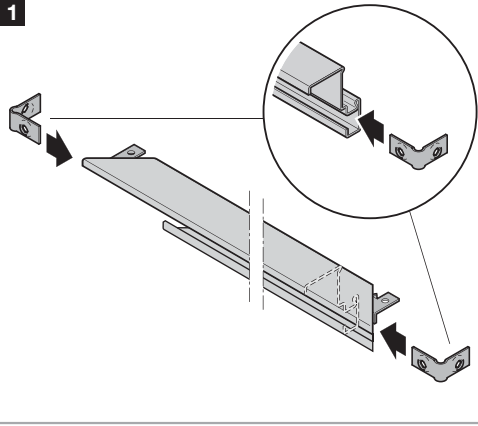
8.4



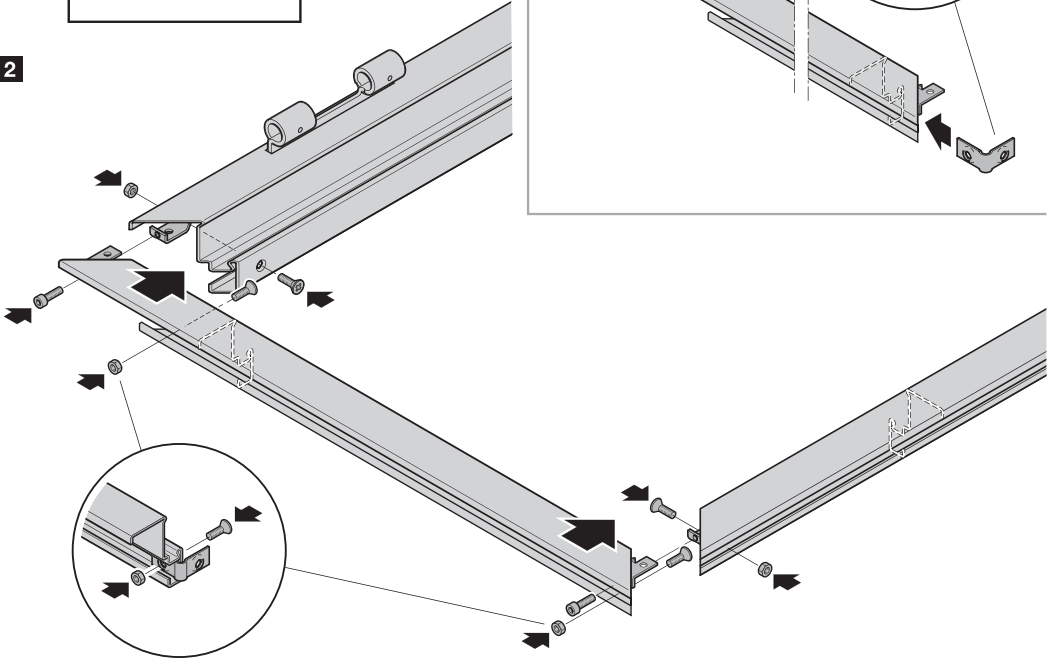
4.3



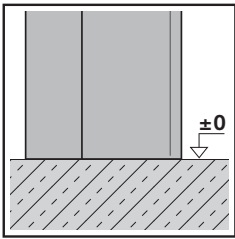
1



2

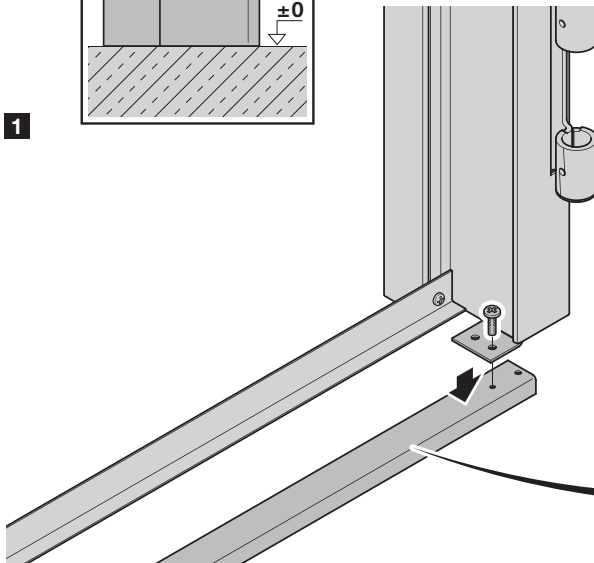


8.5a

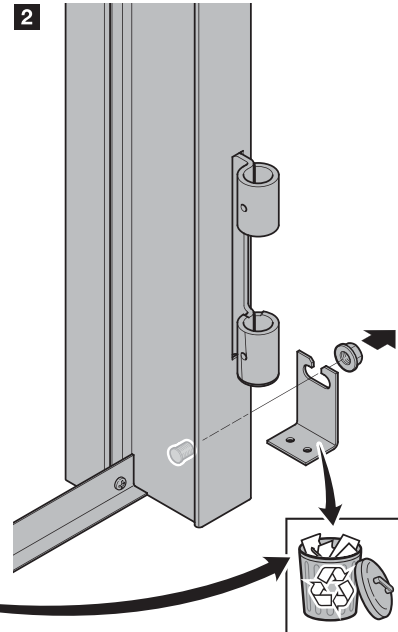


4.3

1

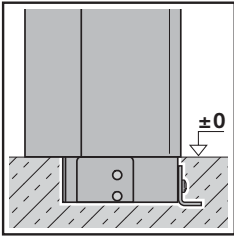


2

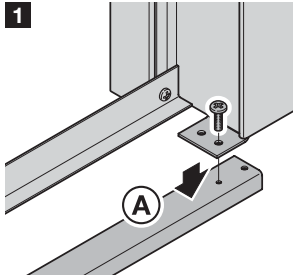


8.5b

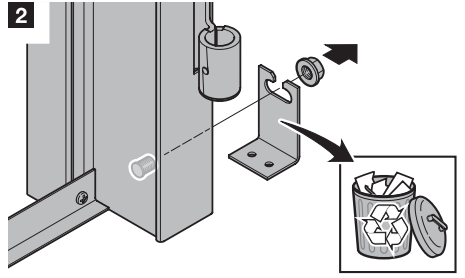
4.3



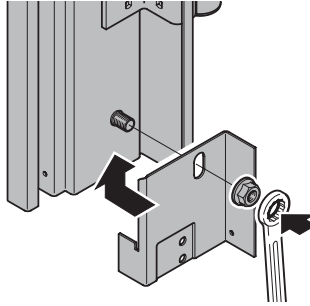
1



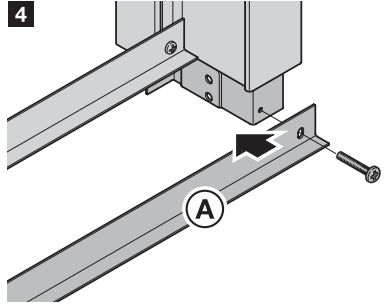
2



3

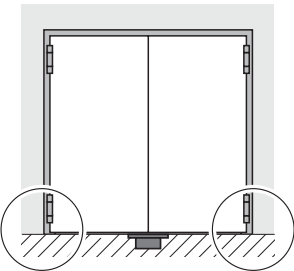
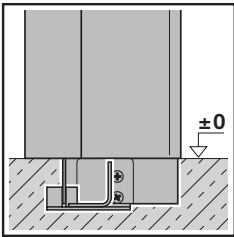


4

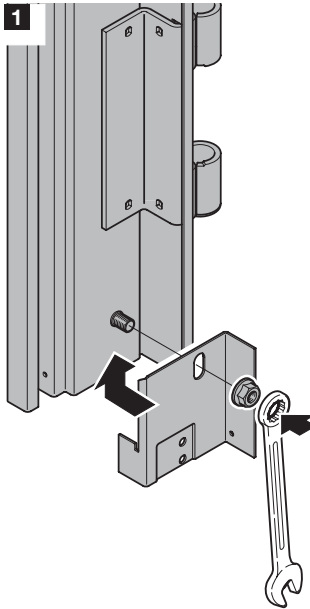


8.5c

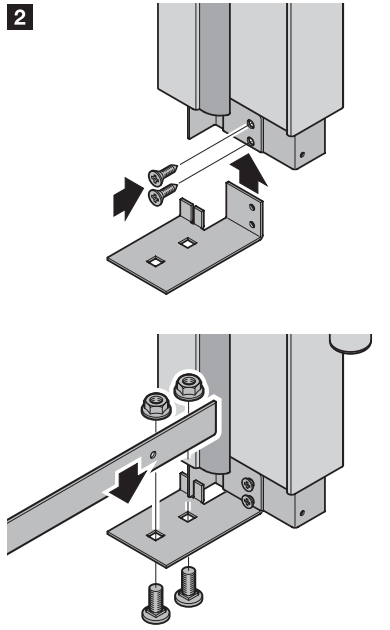
4.3



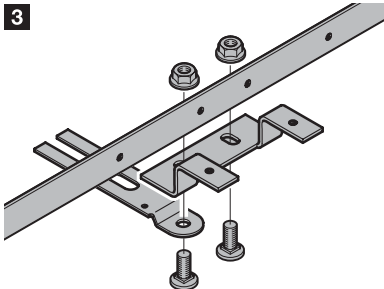
1



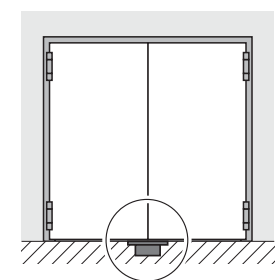
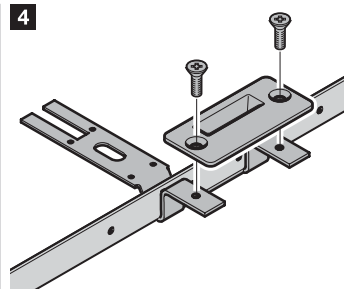
2



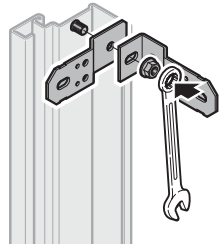
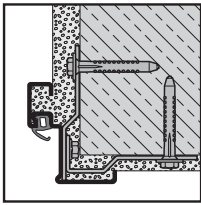
3



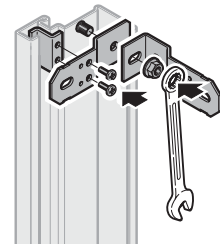
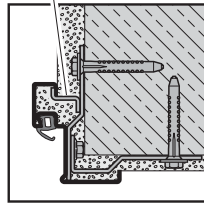
4



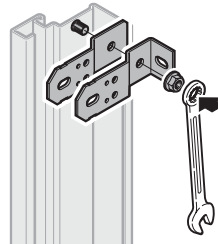
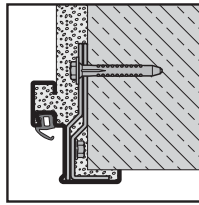
8.6a 4.3



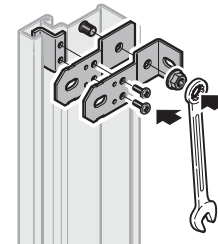
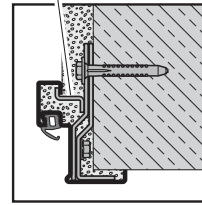
8.2a



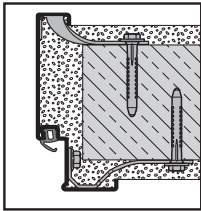
8.6b 4.3



8.2a



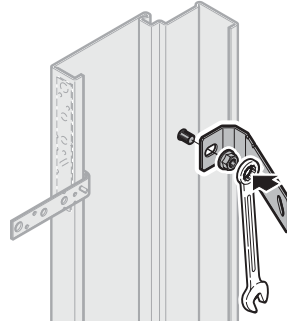
8.6c 4.3



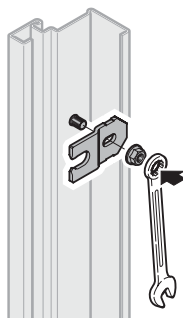
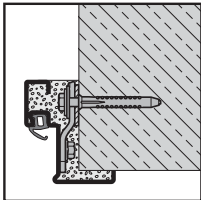
1



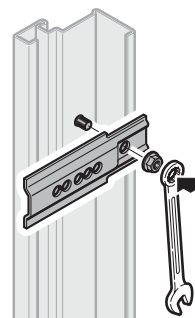
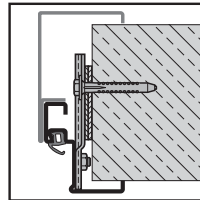
2



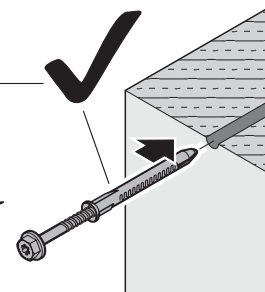
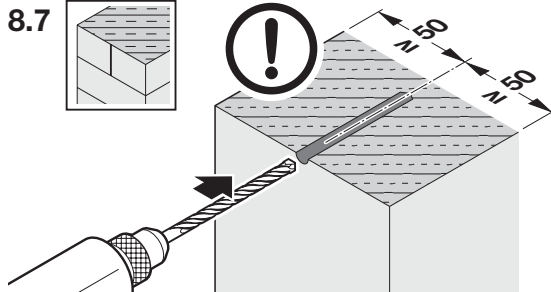
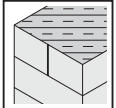
8.6d 4.3

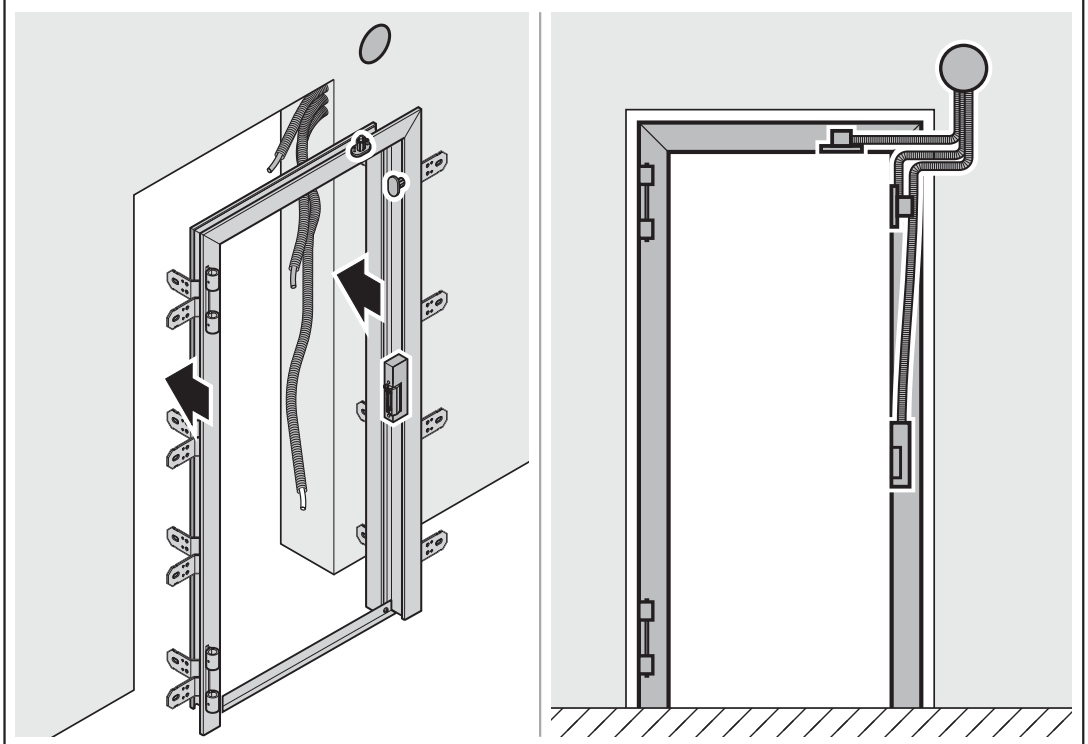
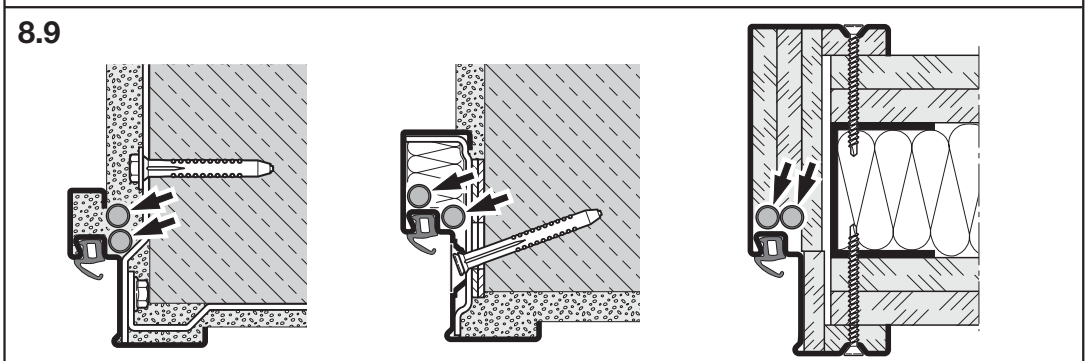
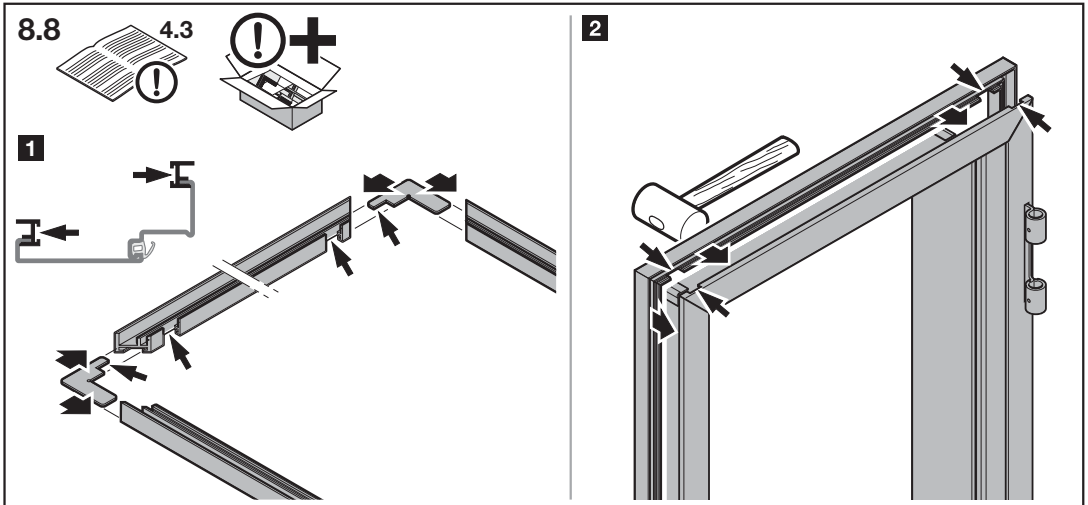


8.6e 4.3

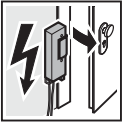


8.7





8.10



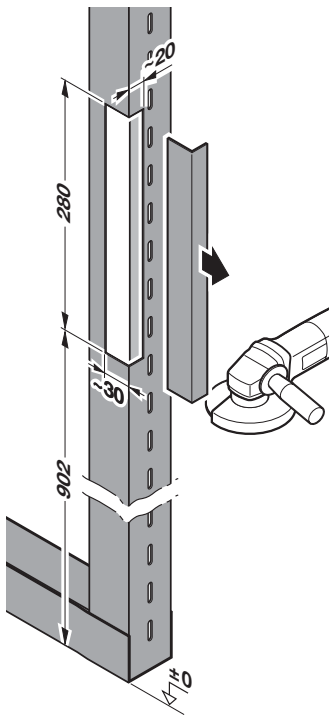
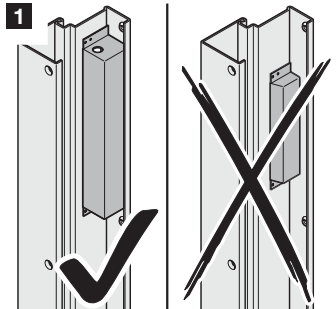
I.S.T. Systems

FT200/FT201

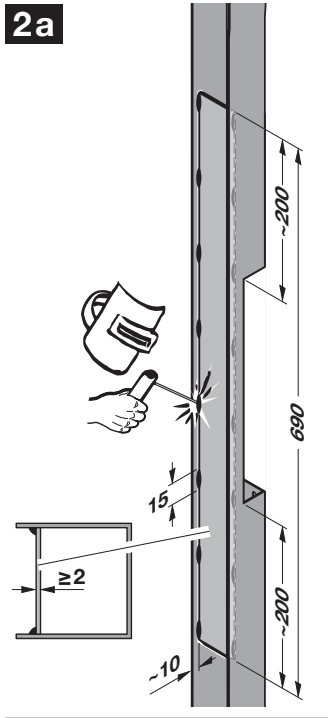
	AC ~	DC ≡					
I.S.T. Systems FT200/FT201	x				x	x	x
142 UF	x		x	x	x	x	x
effeff 143	x	x	x (T90/2)	x	x	x	x
14/34	x				x	x	x
Dorma 447/Basic	x				x	x	x
Lucky Basic		x			x	x	x

8.11

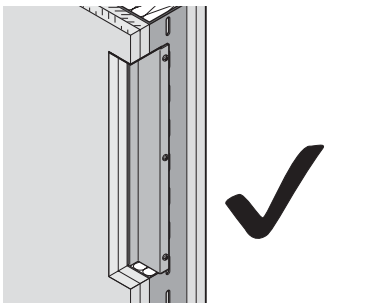
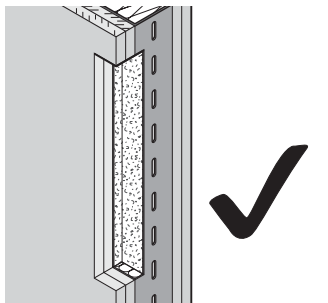
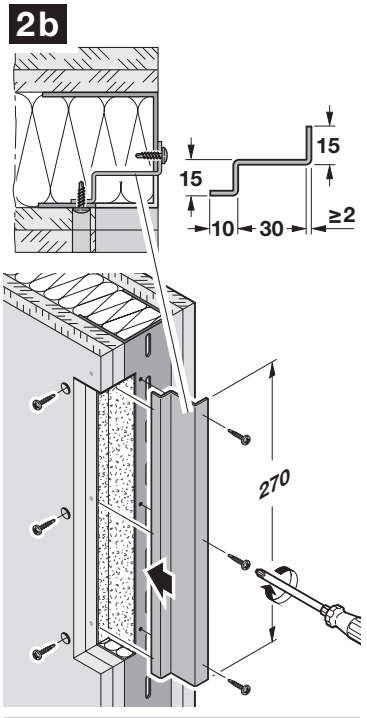
8.12



2a



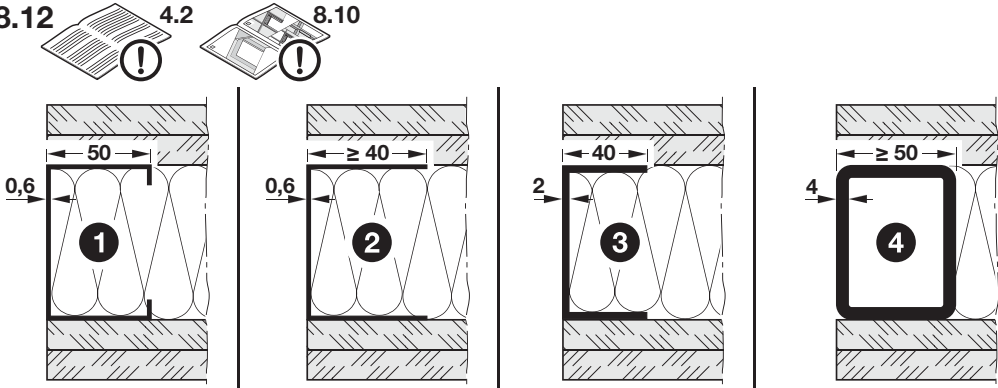
2b



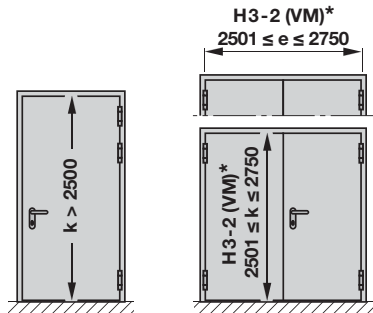
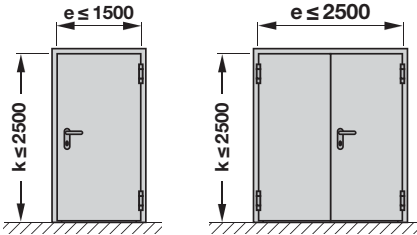
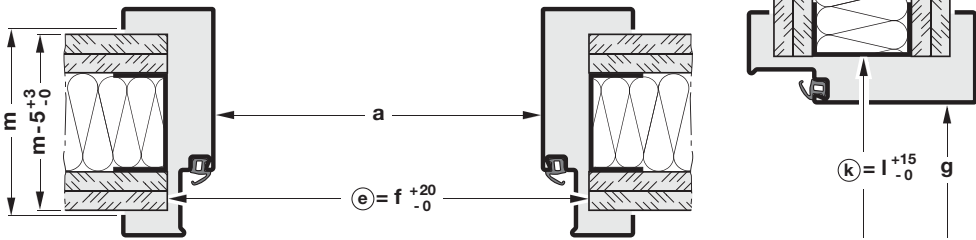
8.12

4.2

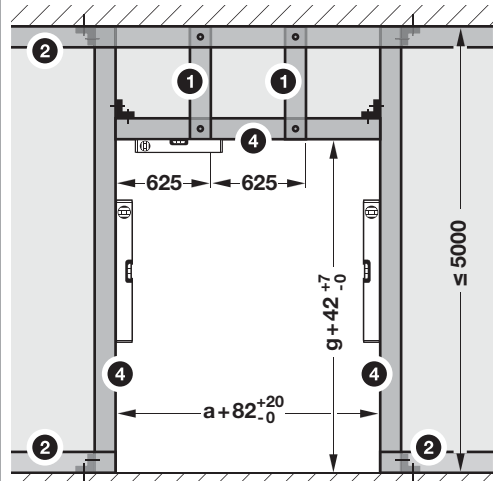
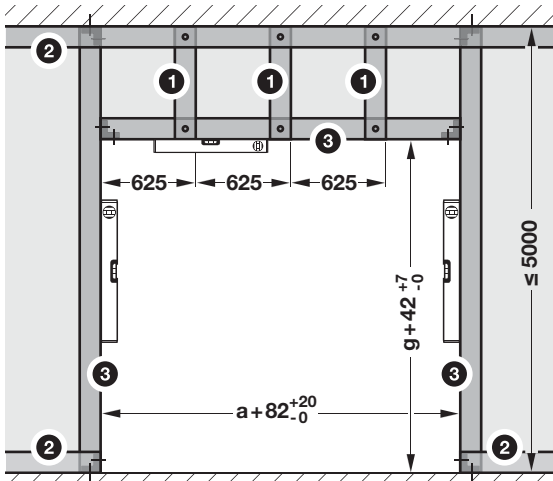
8.10



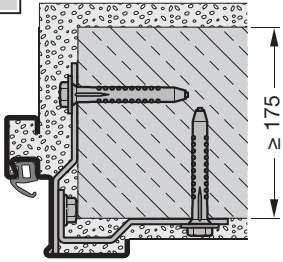
i www.felko-systeme.de/teleskopstuetzen.php



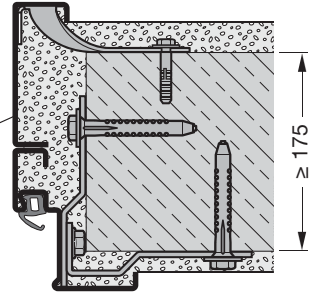
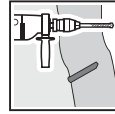
*www.felko-systeme.de/teleskopstuetzen.php



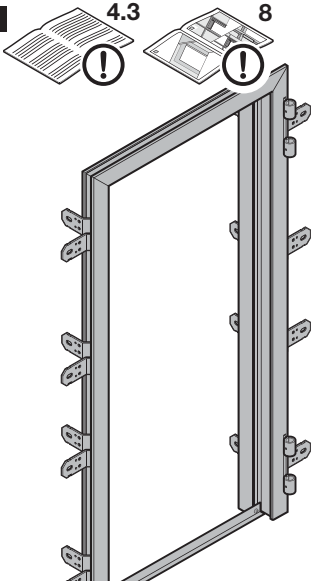
9/A1



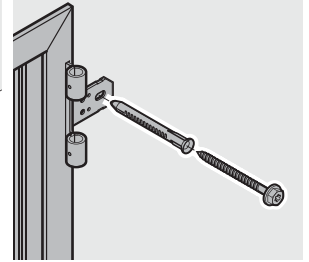
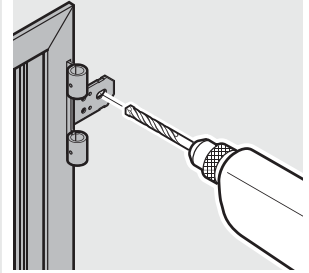
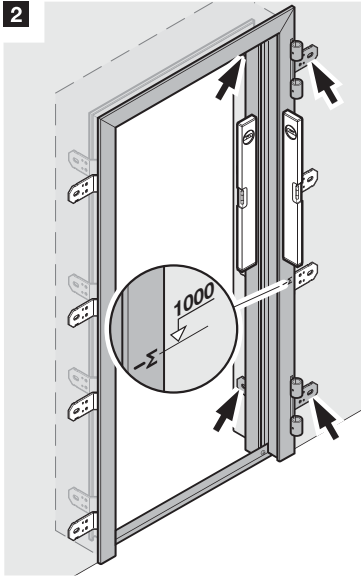
9/A2



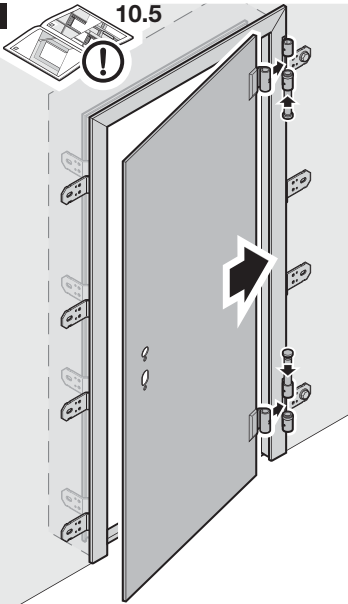
1



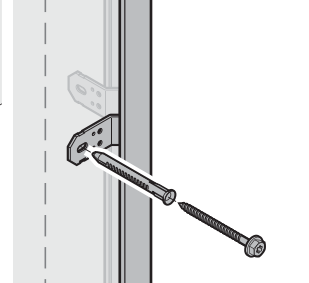
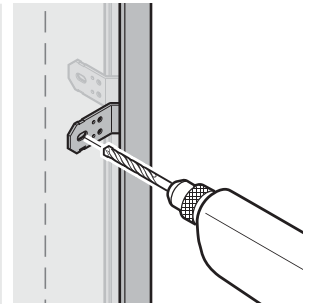
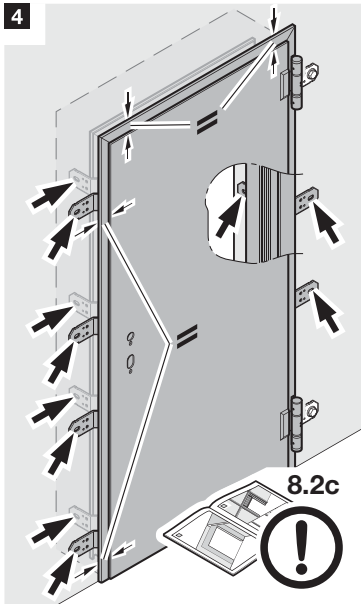
2

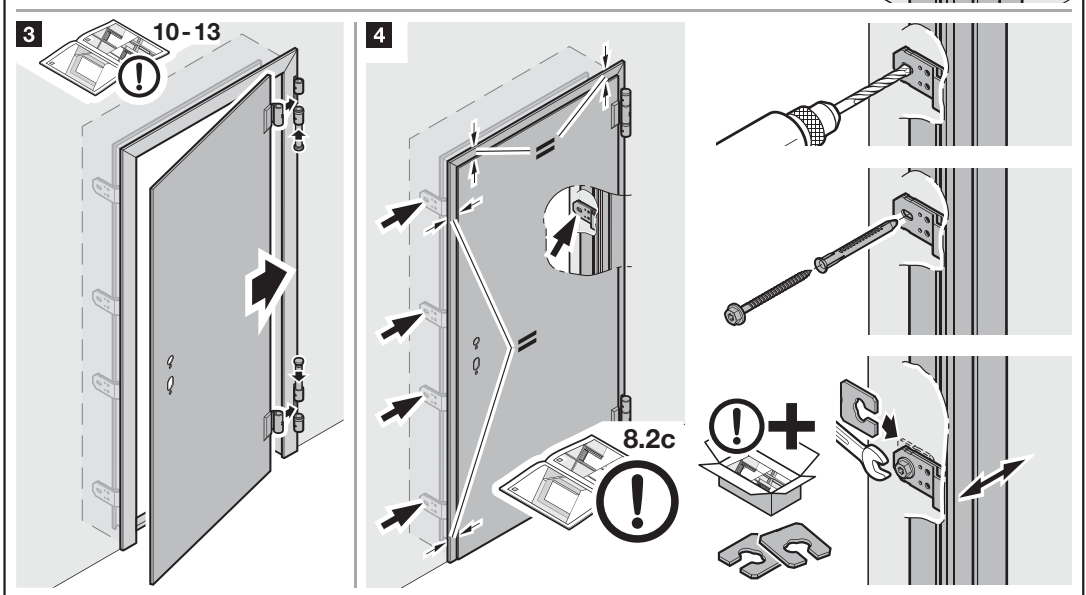
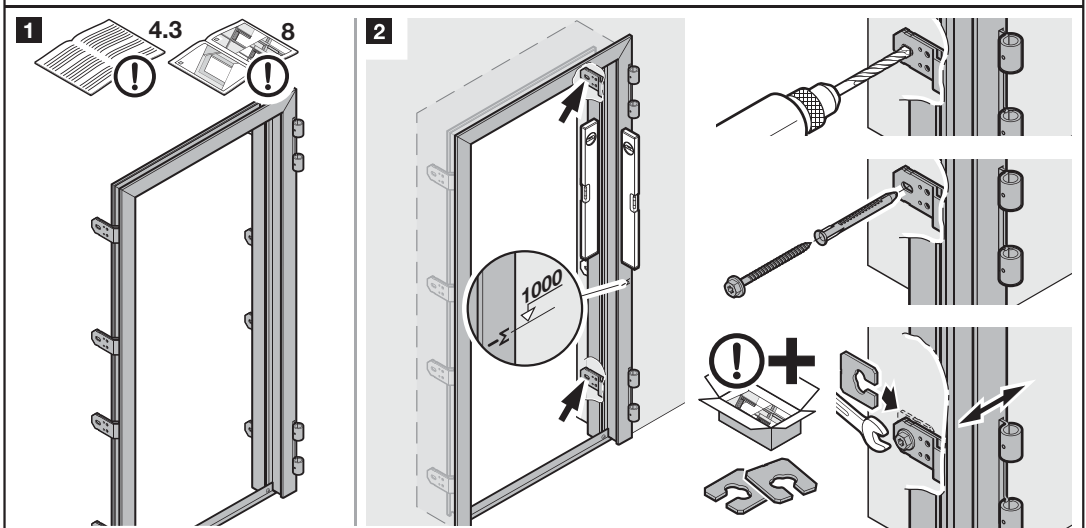
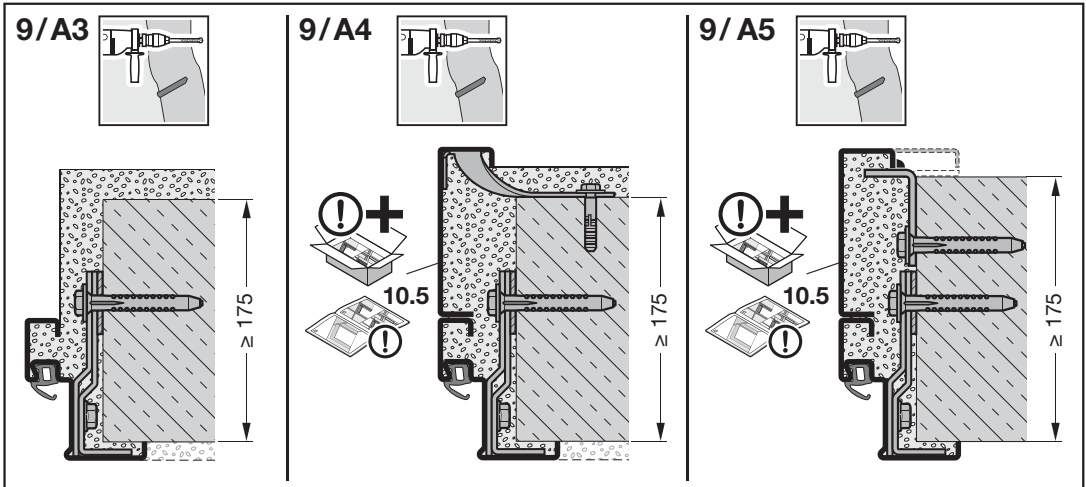


3



4

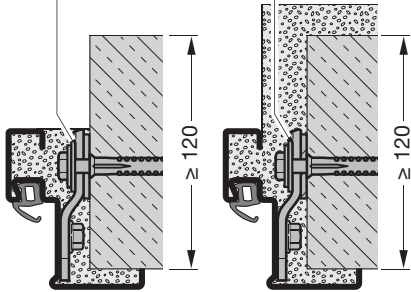




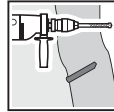
9/A6



DIN 9021-8.4-140 HV

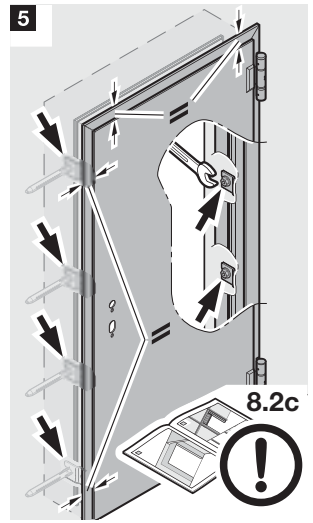
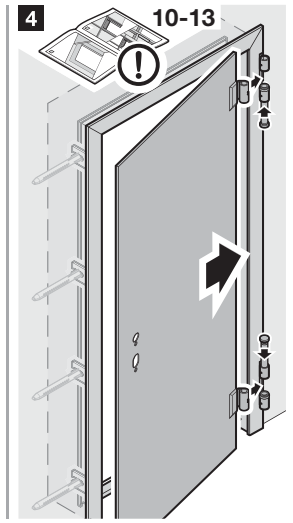
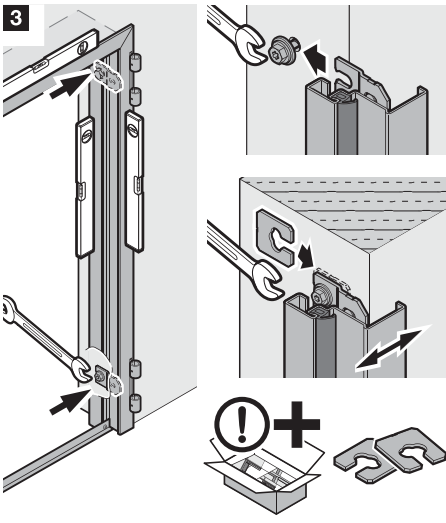
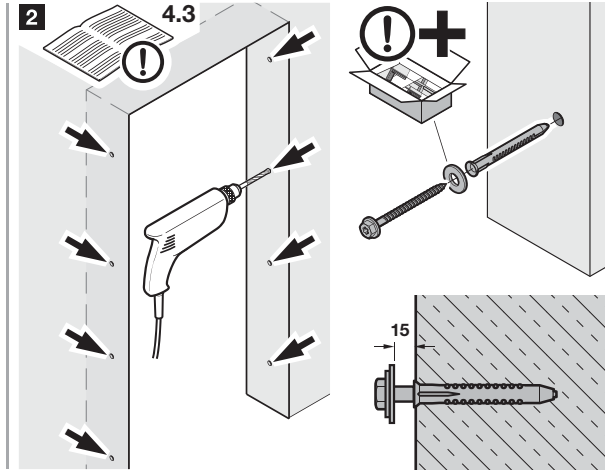
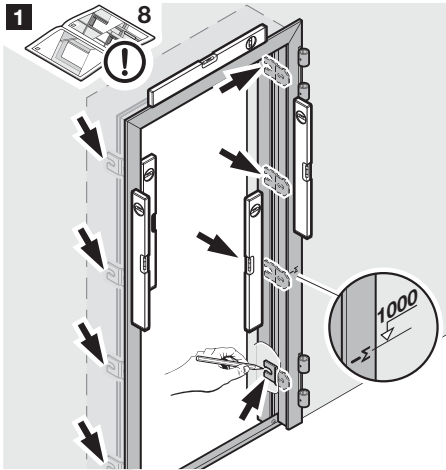
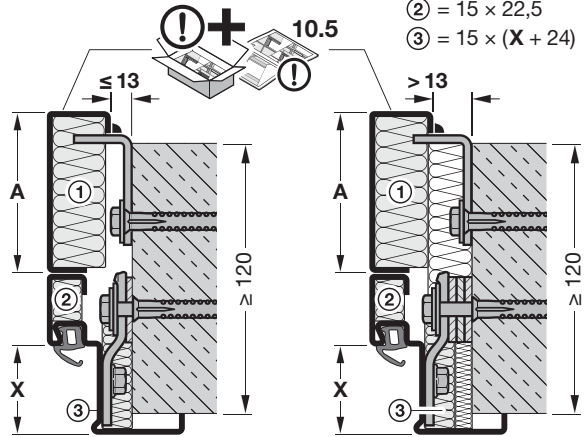


9/A7
max. T30

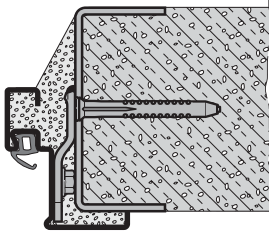


 $\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100

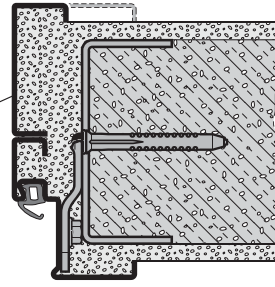
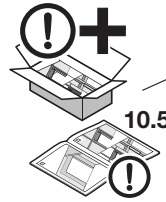
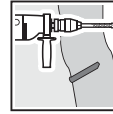
- ① = 30 x (A - 5)
- ② = 15 x 22,5
- ③ = 15 x (X + 24)



9/A8

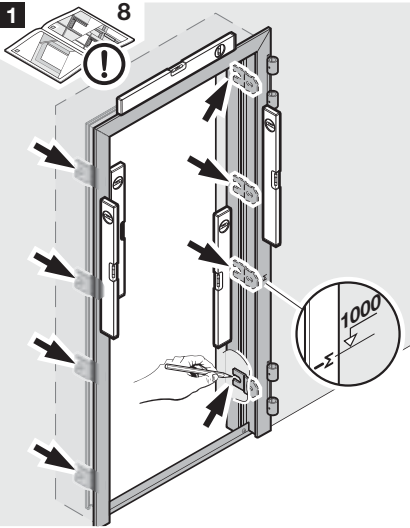


9/A9



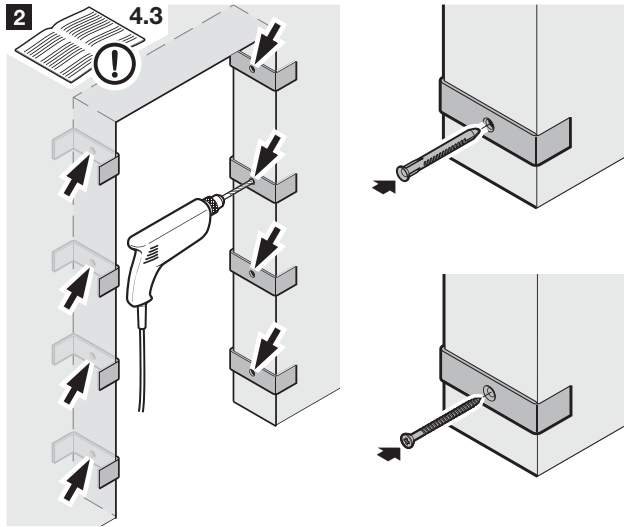
1

8

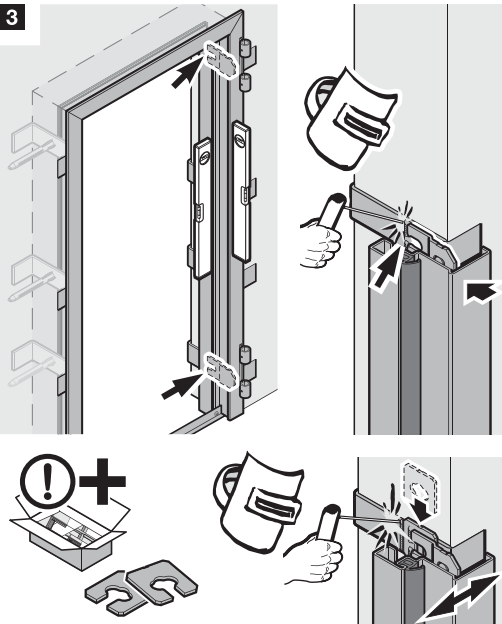


2

4.3

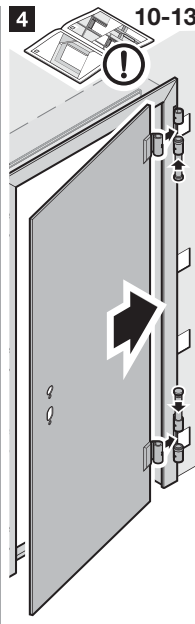


3

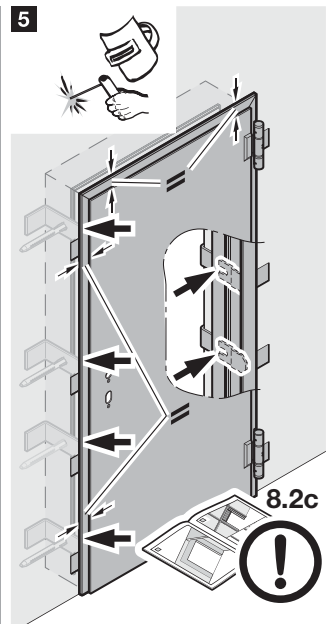


4

10-13

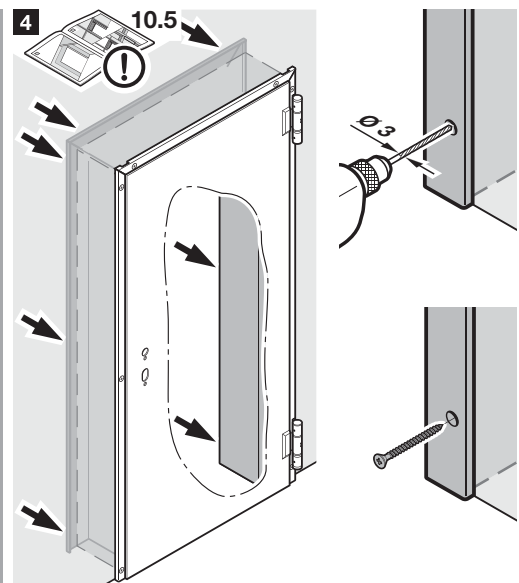
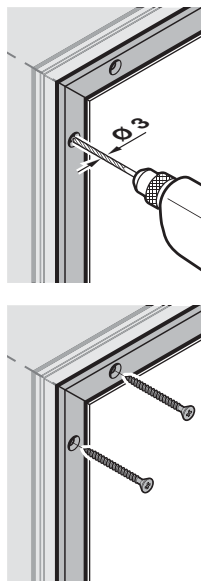
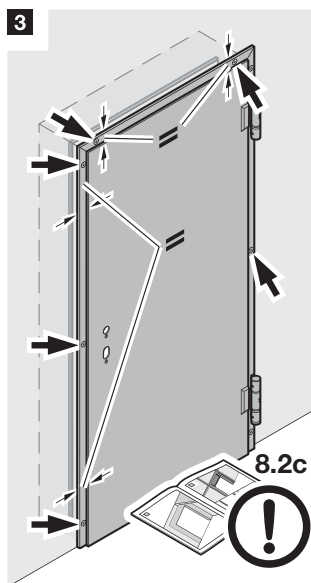
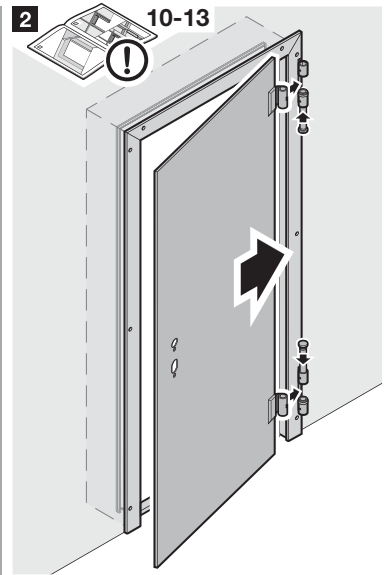
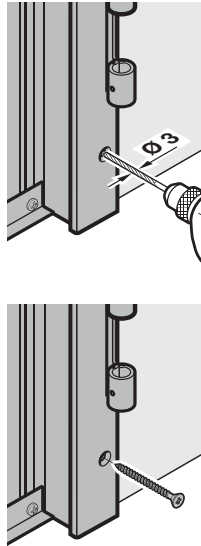
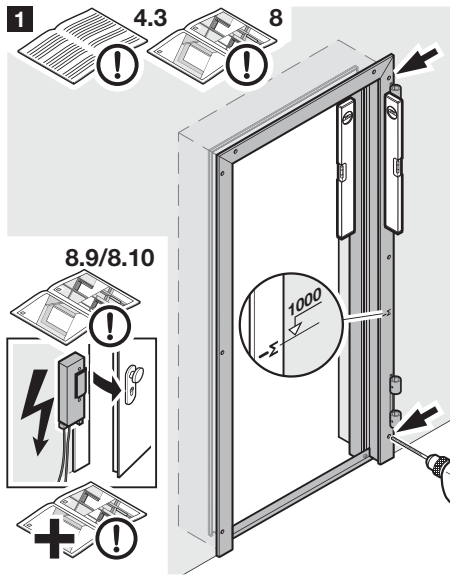
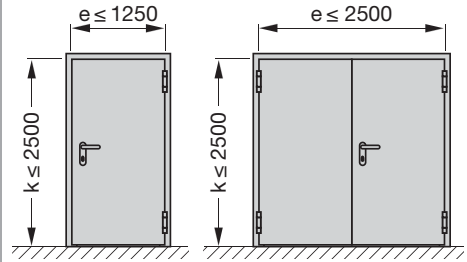
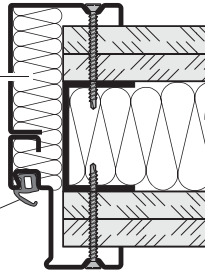
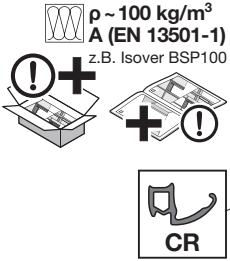
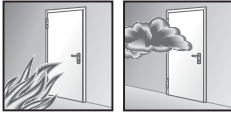


5

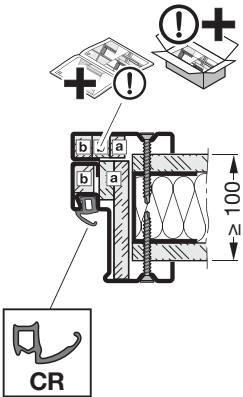


9/A10

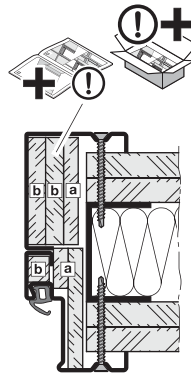
max. T30/
EI₂30



9/A11

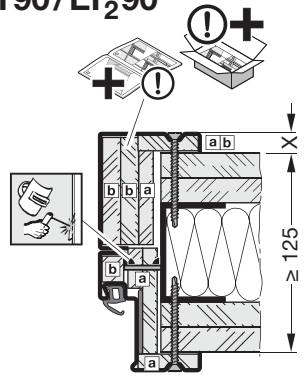


9/A12

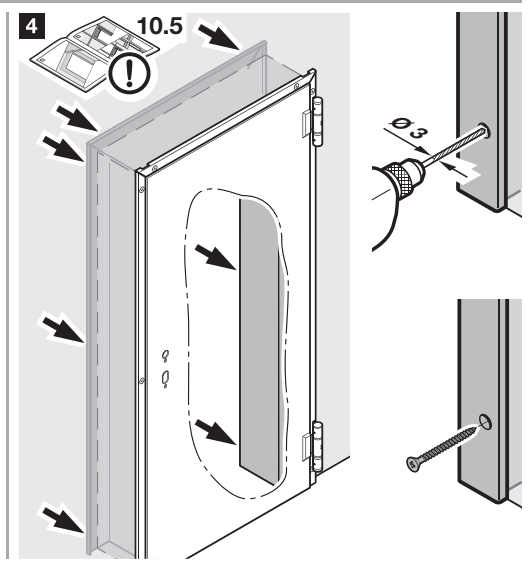
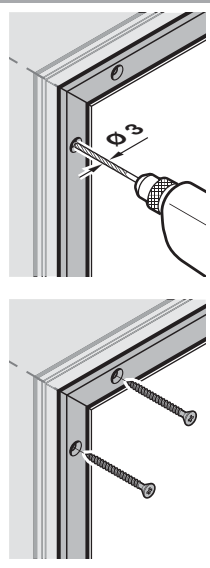
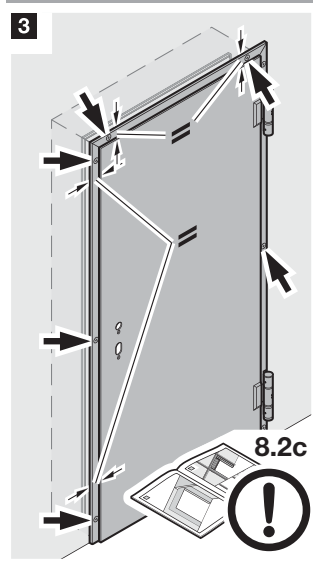
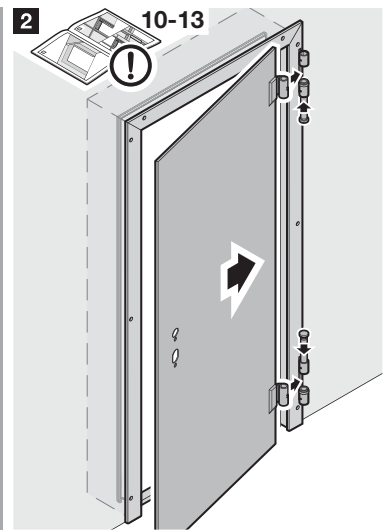
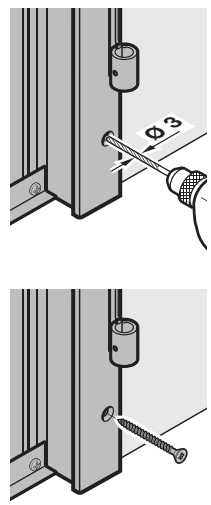
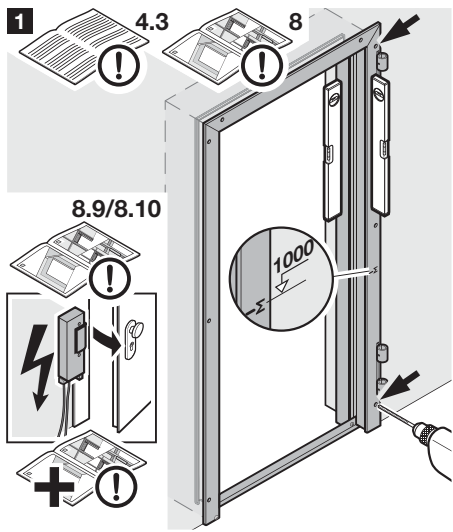


9/A13

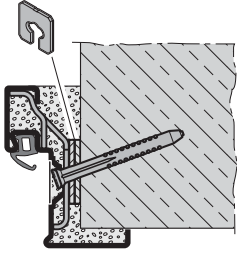
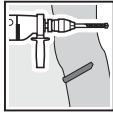
T90/EI₂90



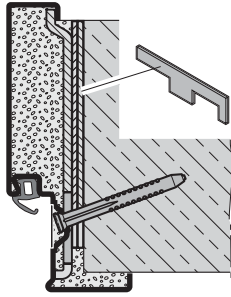
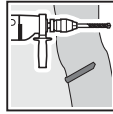
a A-9,5-EN 520 / b A-12,5-EN 520 / X = 10 → a / X = 15 → b



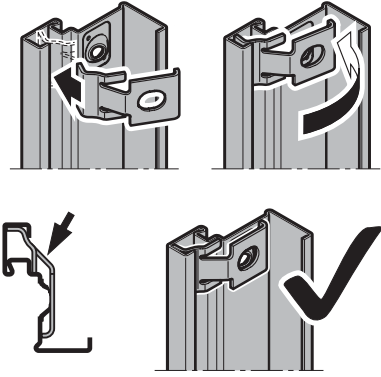
9/A14
max. T30/
EI₂30



9/A15
max. T90/
EI₂90



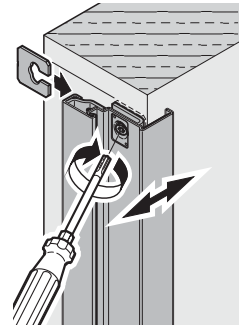
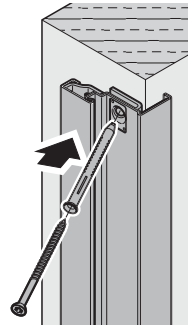
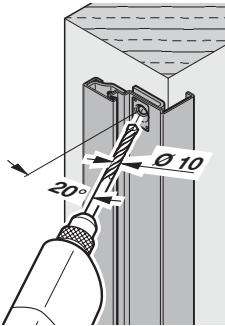
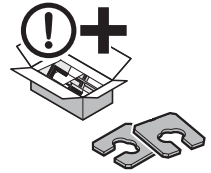
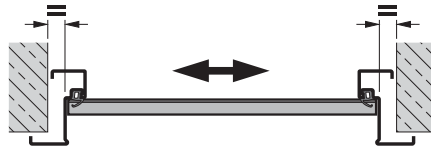
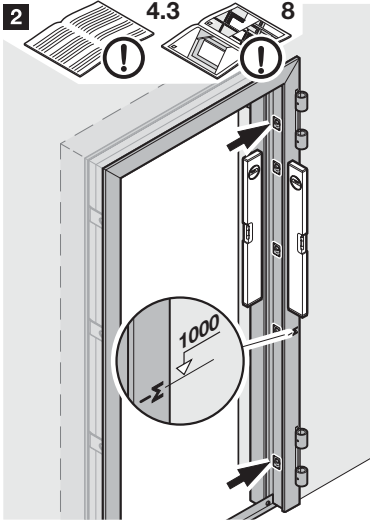
1



2

4.3

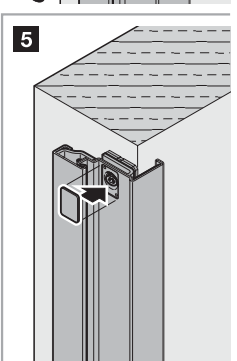
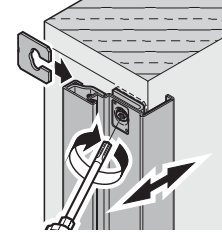
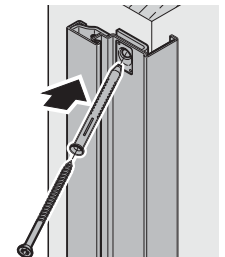
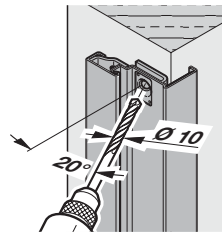
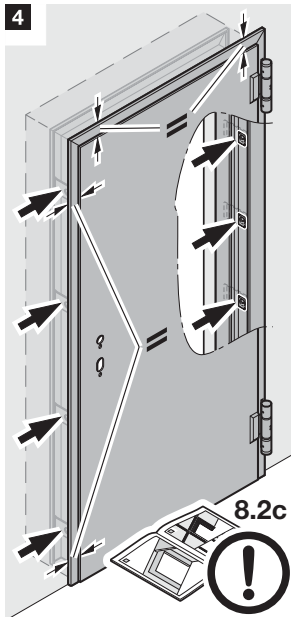
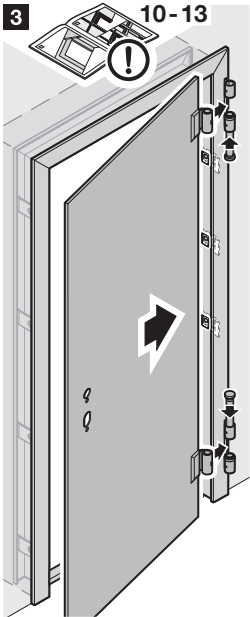
8



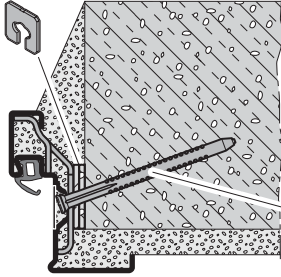
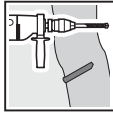
3

10-13

4

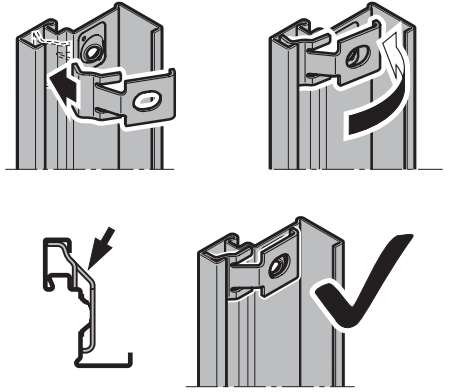


9/A16
max. T30



FUR 10 x 160

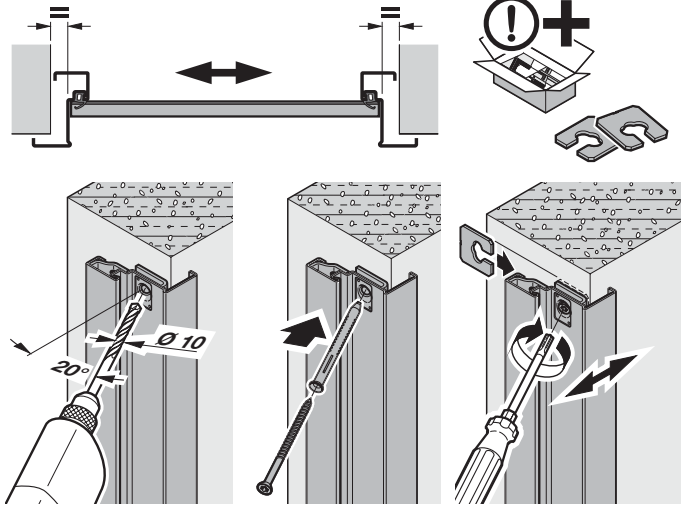
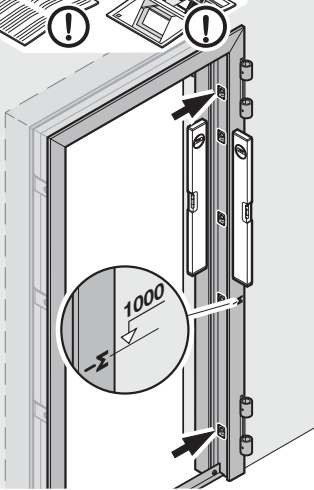
1



2

4.3

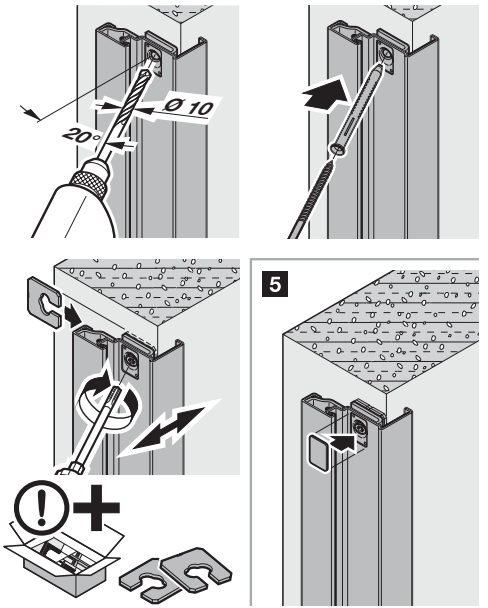
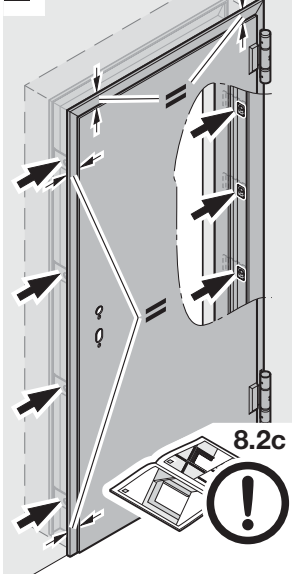
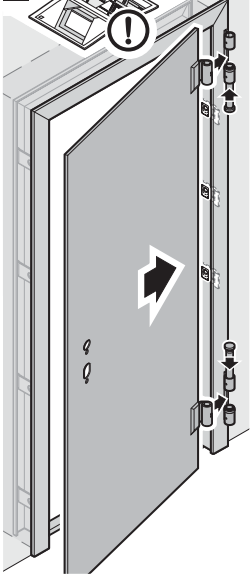
8



3

10-13

4



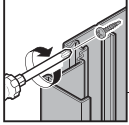
5

9/A17



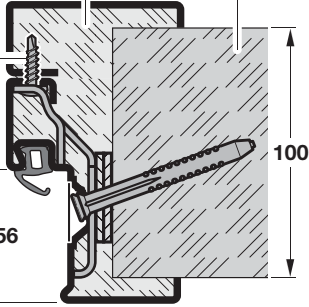
Multi Gips
FG 70

VG ORTH



DIN 7504 ST
4,8 x 19-N-H
DIN 7981
4,8 x 16

max. 56

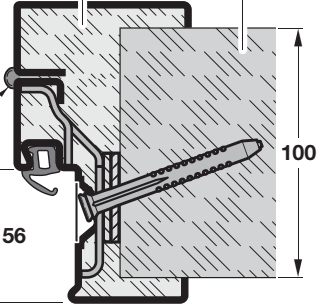


$2V_x > 10$

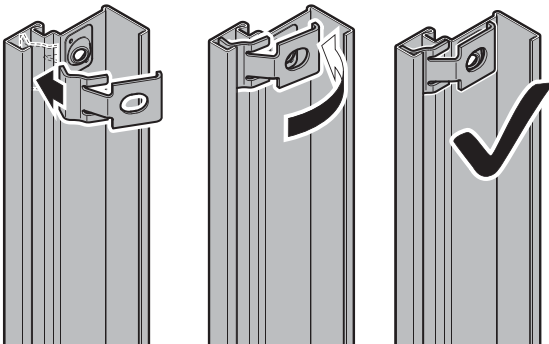
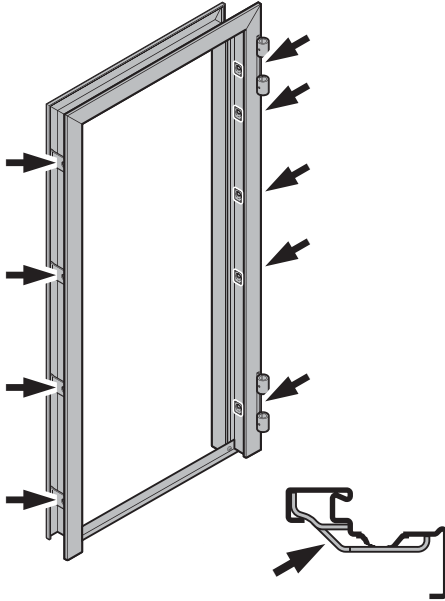
Multi Gips
FG 70

VG ORTH

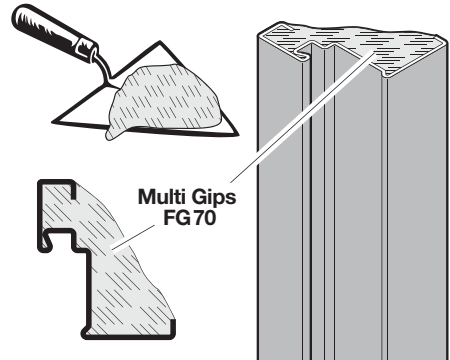
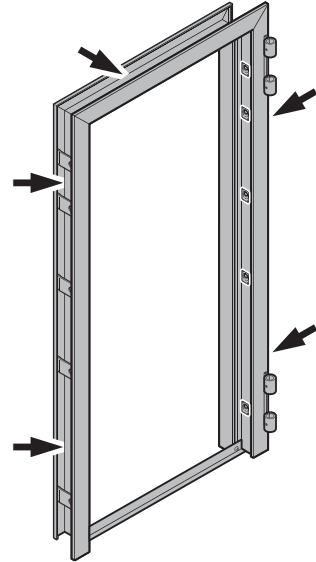
max. 56

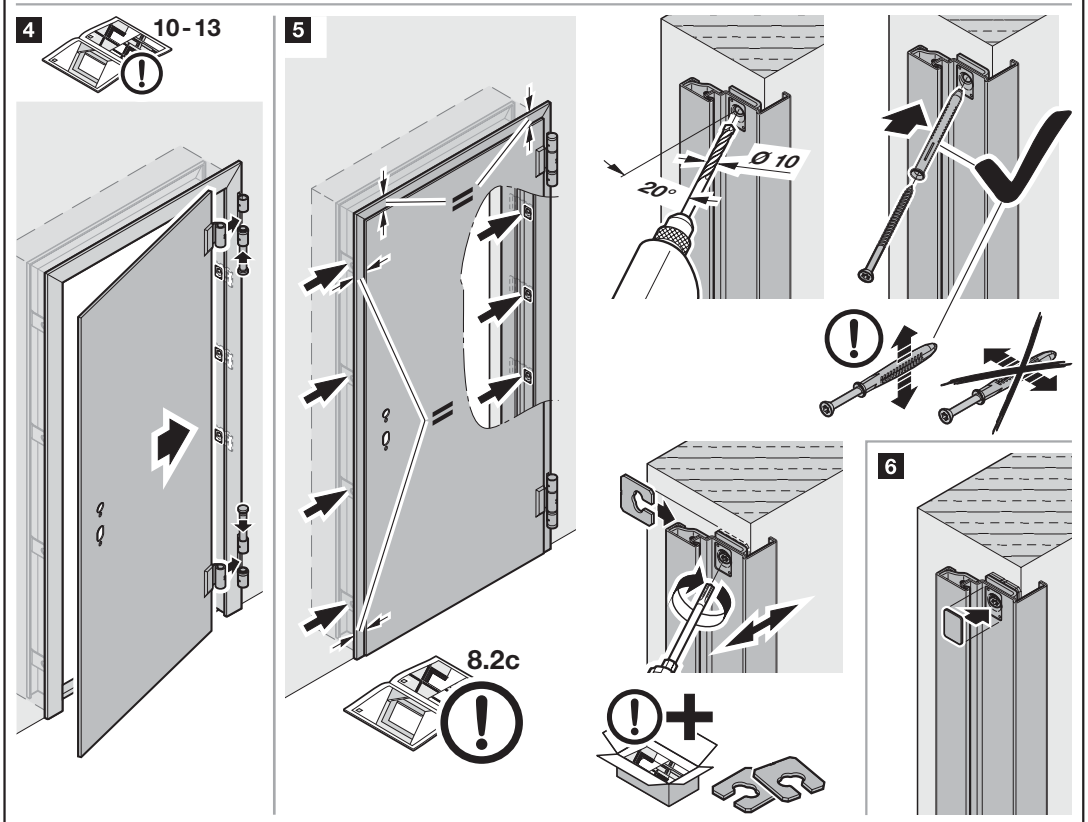
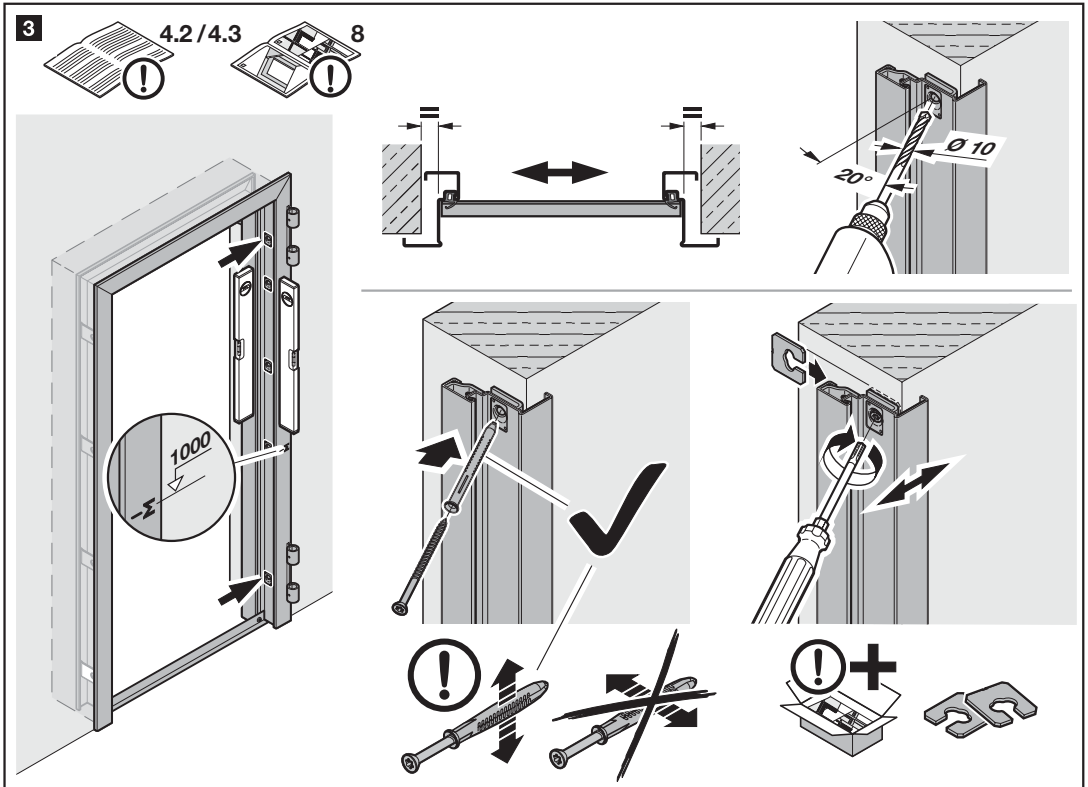


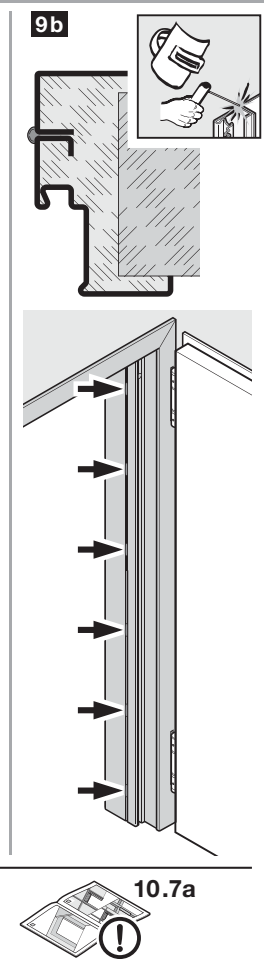
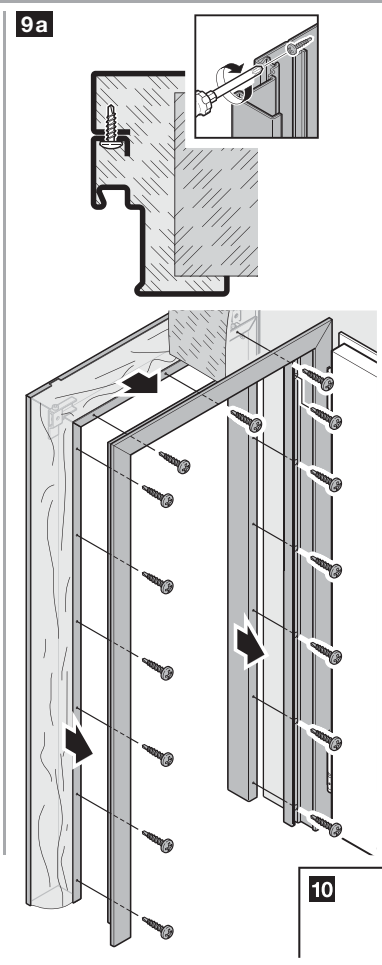
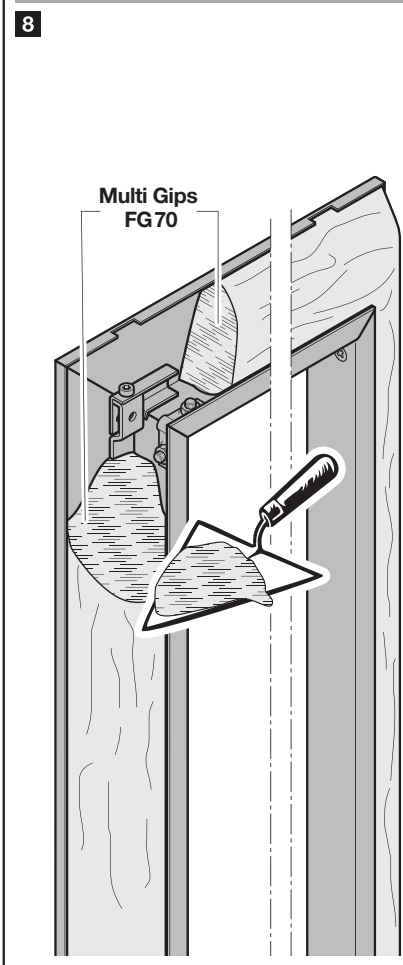
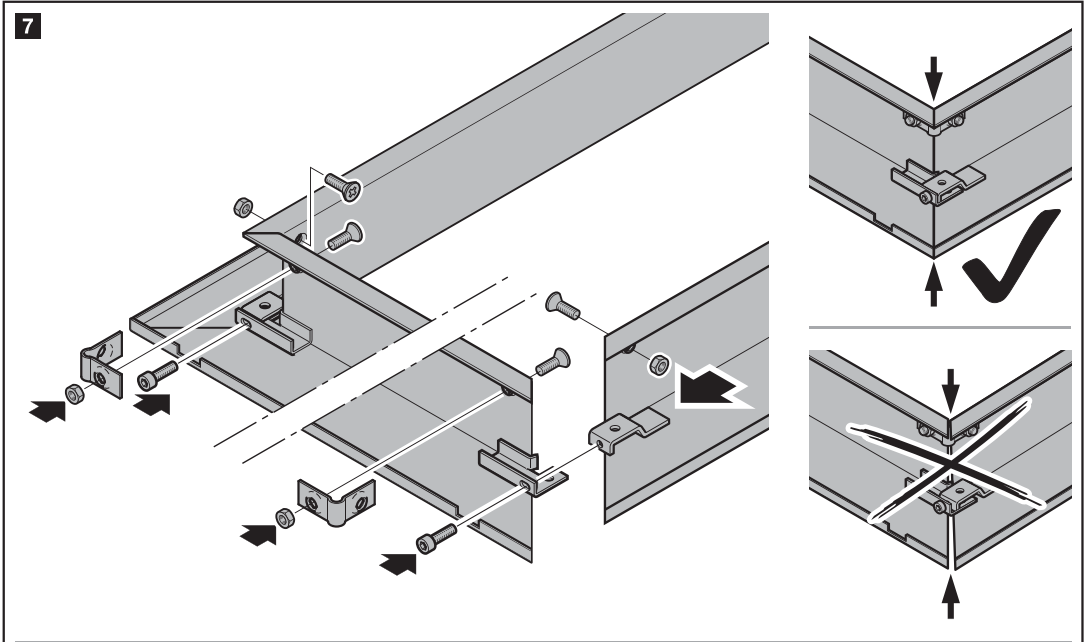
1



2

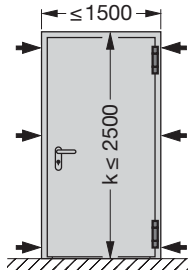




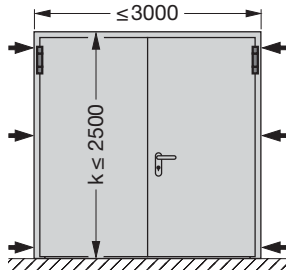


9/B1-B14

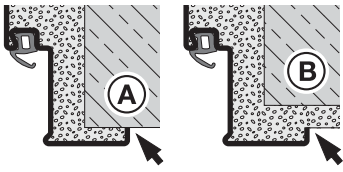
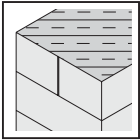
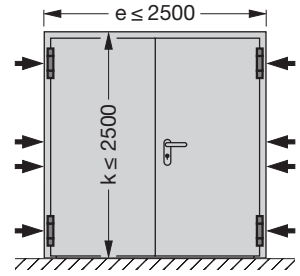
D65 - 1 OD



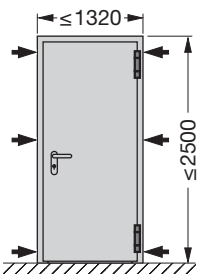
D65 - 2 OD



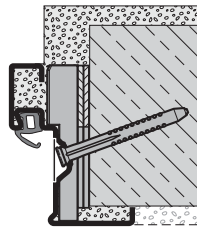
H3 - 2 OD



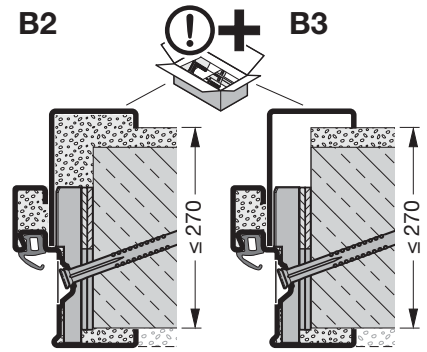
H3 - 1 OD



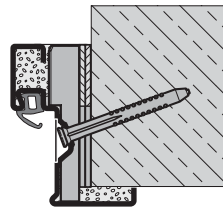
B1



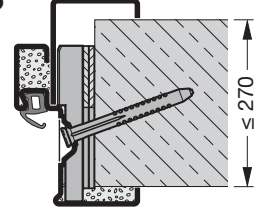
B2



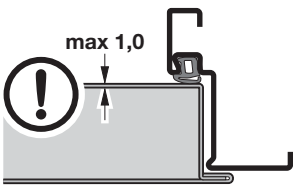
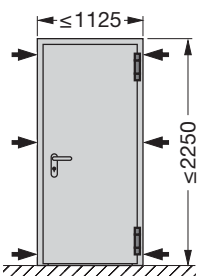
B4



B5



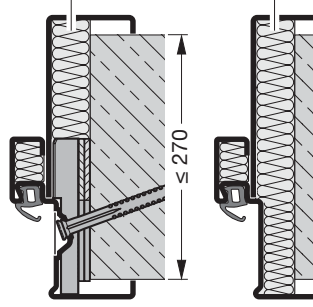
H3 - 1 OD



B6



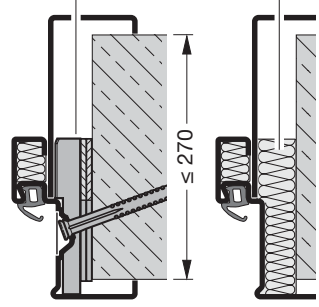
$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100

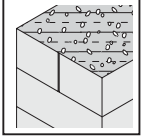


B7

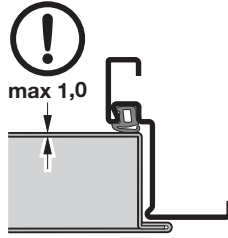
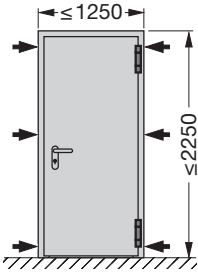


$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100

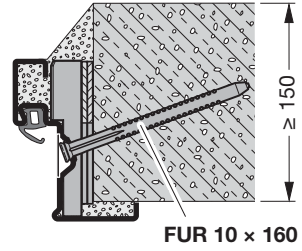




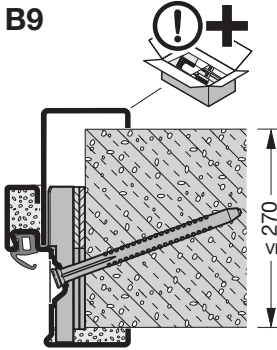
H3-1 OD



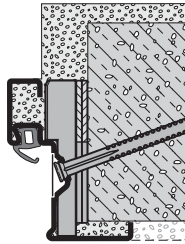
B8



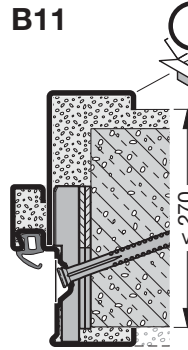
B9



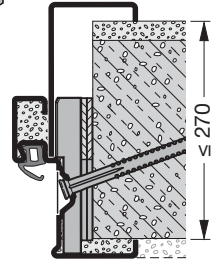
B10



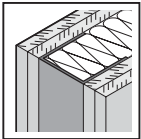
B11



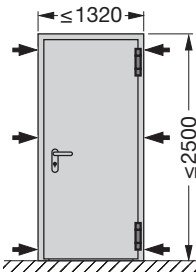
B12



➔ 1 2 3a 4 ...



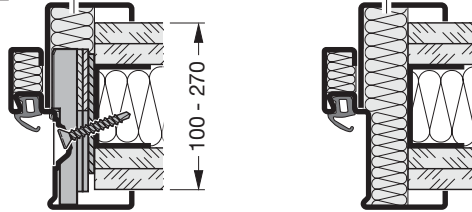
H3-1 OD



B13



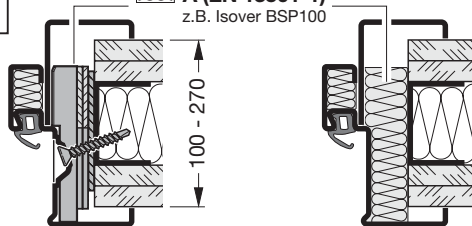
$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100



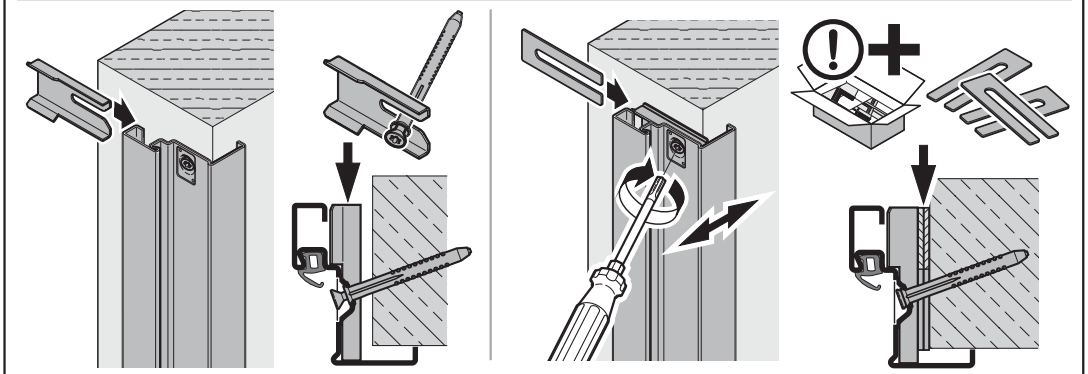
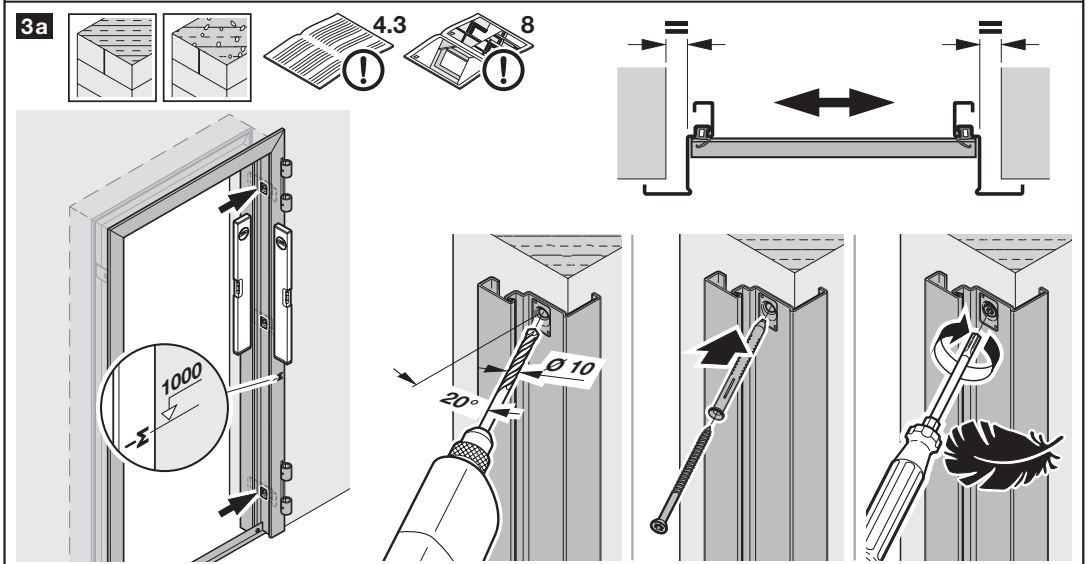
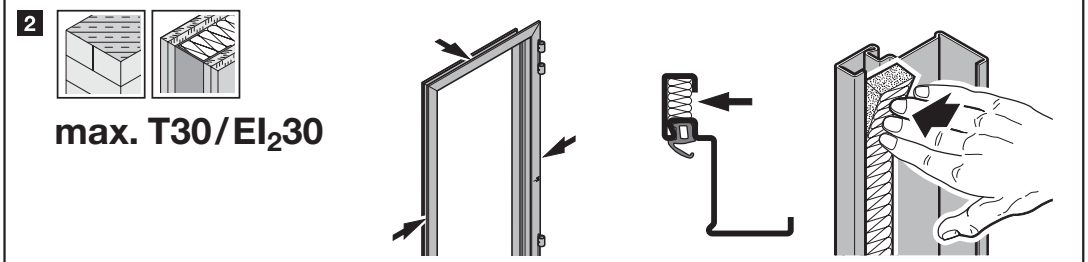
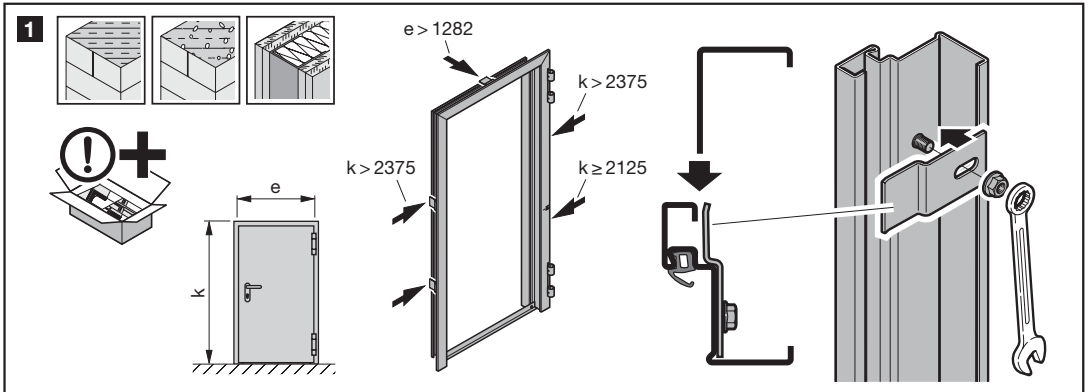
B14

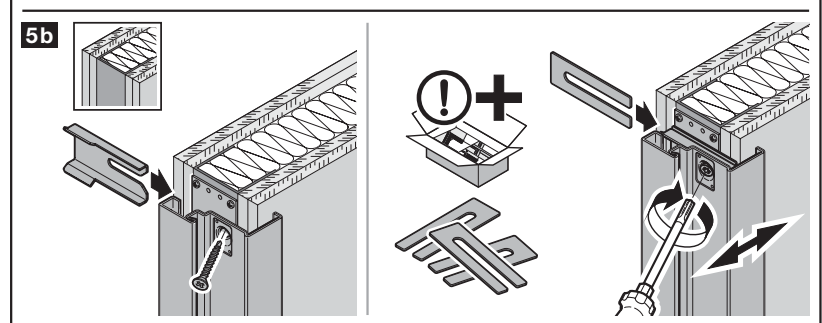
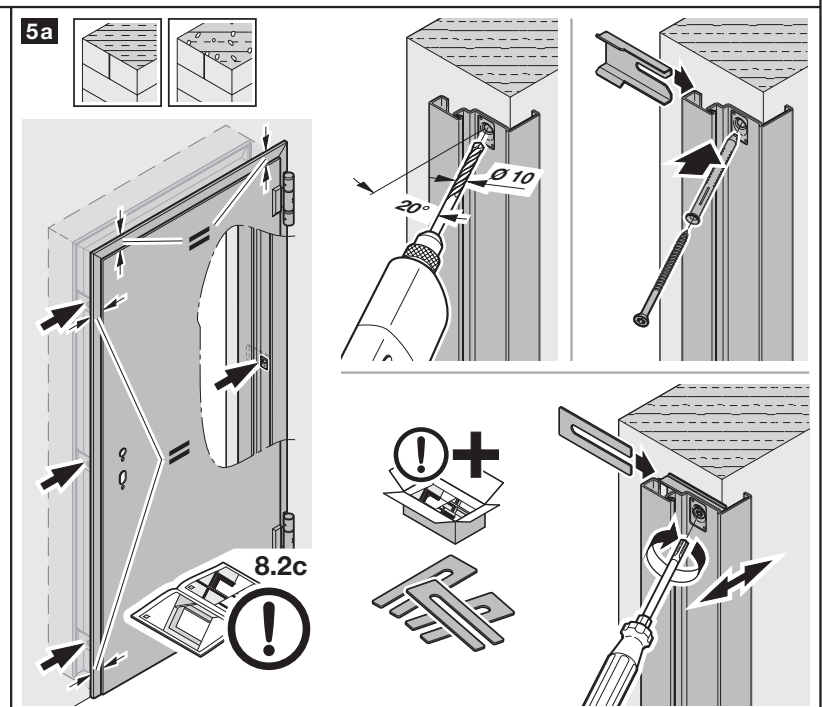
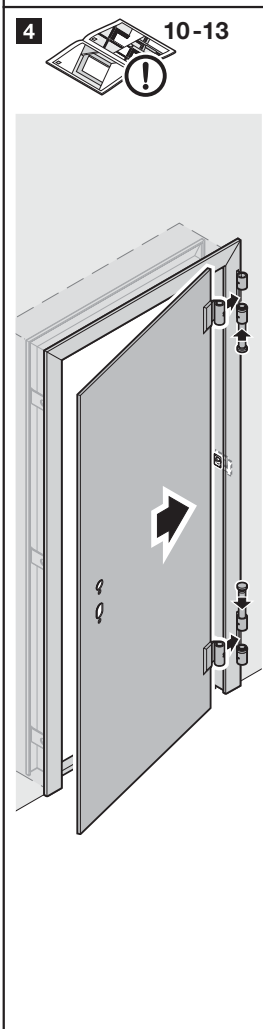
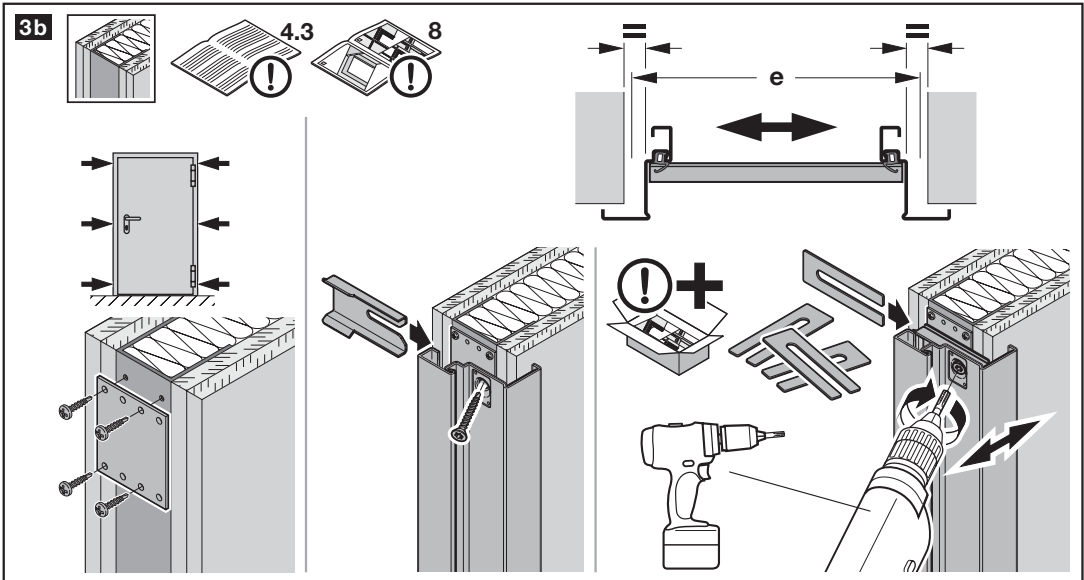


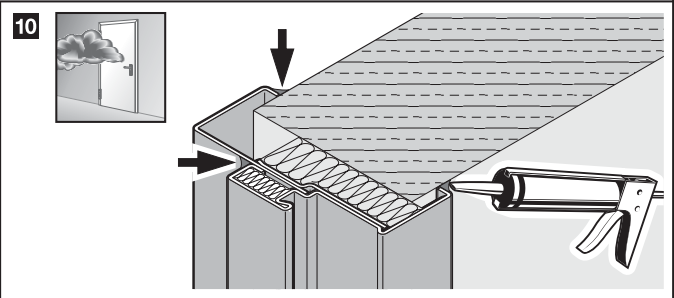
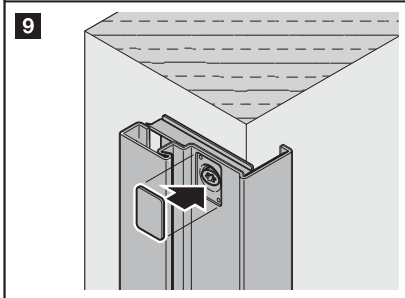
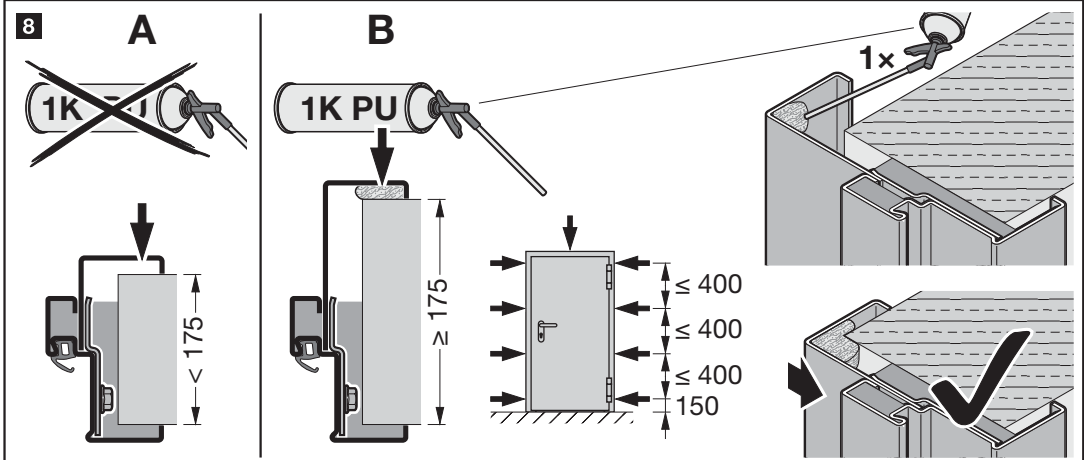
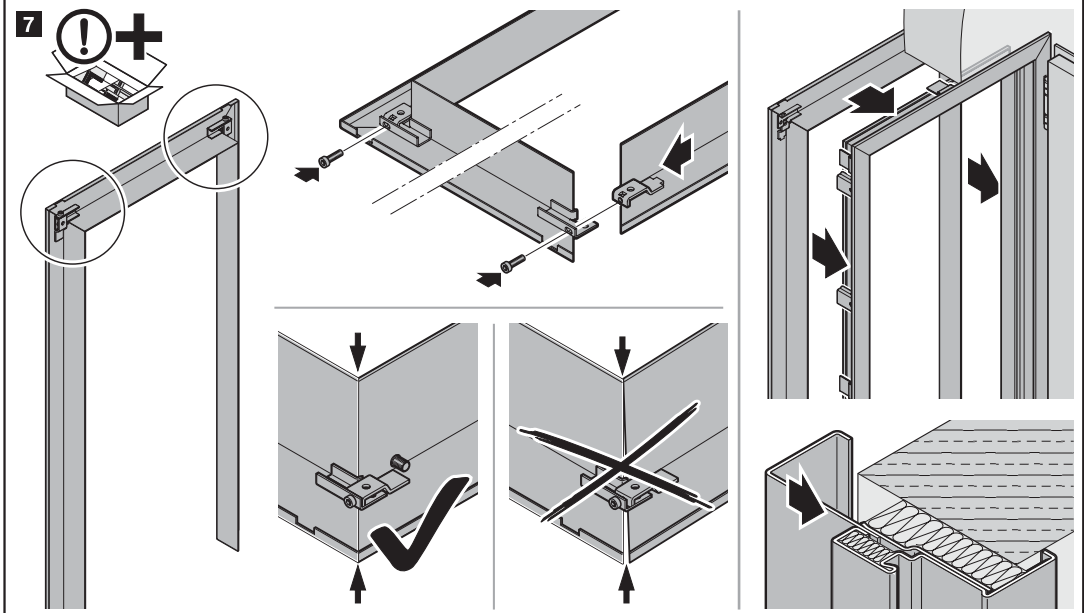
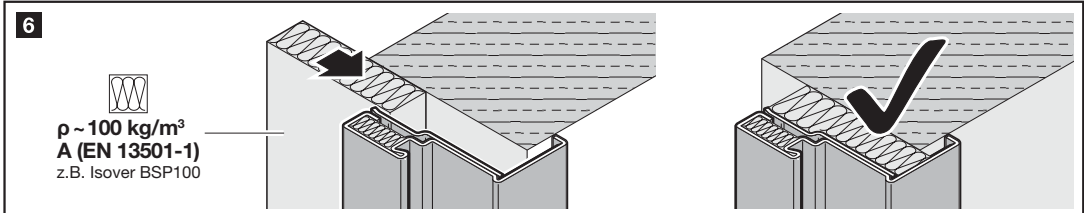
$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100



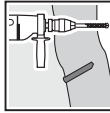
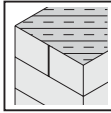
➔ 1 2 3b 4 ...



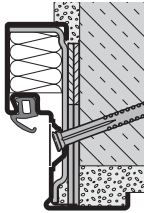




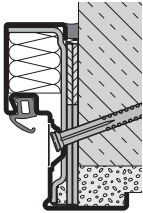
9/C1-C8
max. T30/
EI₂30



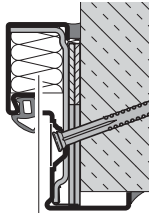
C1



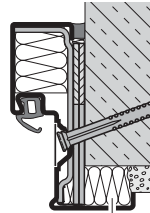
C2



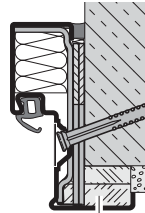
C3



C4

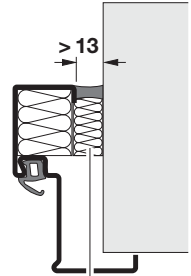


C5



 $\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100

A-EN 520

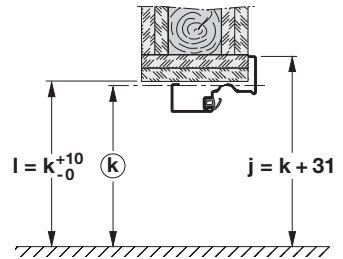
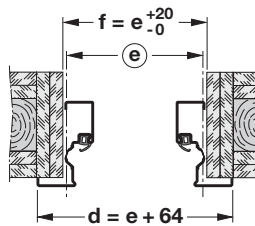


 $\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100

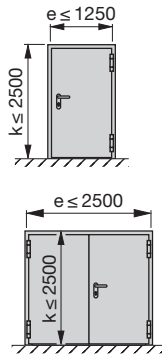
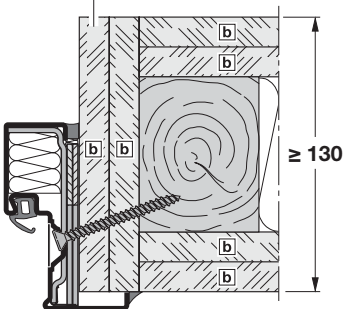
➔ 1a 2 ...


➔ 6

max. T30/
EI₂30

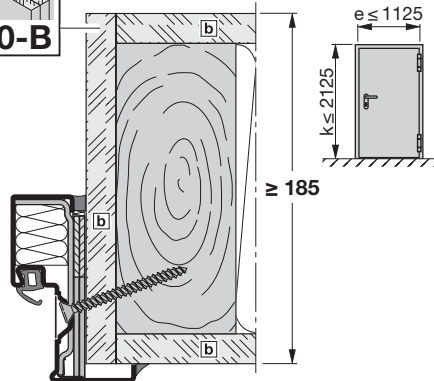


C6 F90B DIN 4102-4 Tab. 49



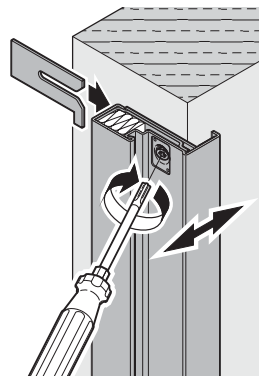
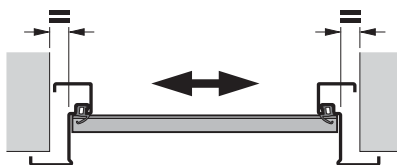
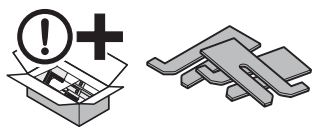
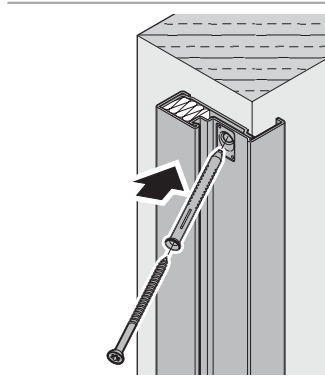
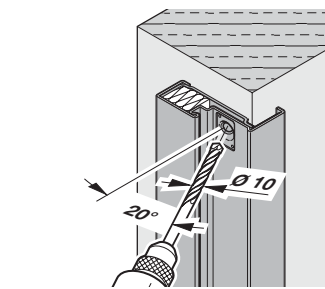
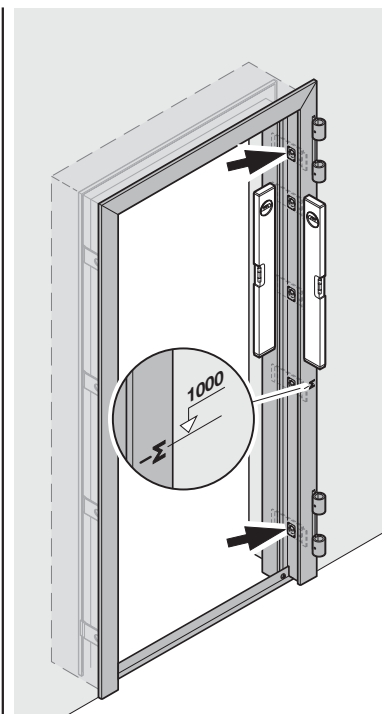
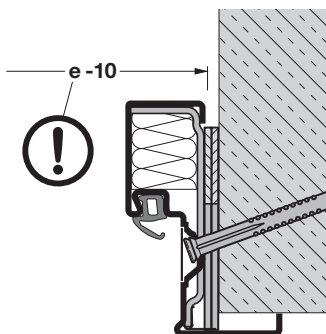
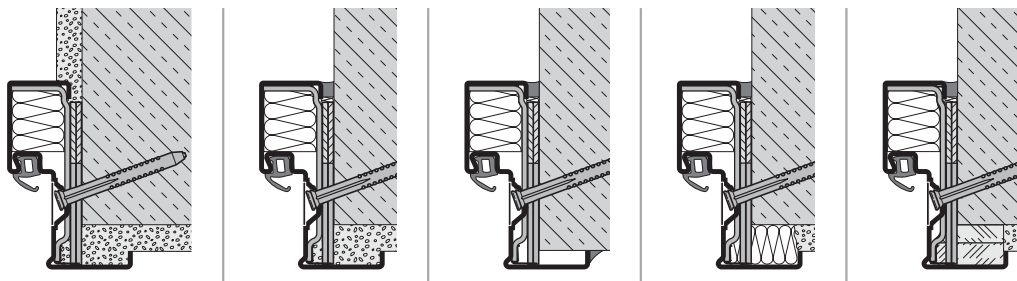
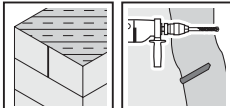
 A-12,5-EN 520

C7 F30B DIN 4102-4 Tab. 49



➔ 1b 2 ...

1a

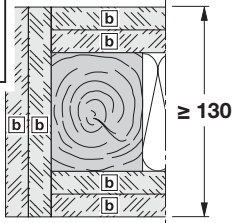


➔ 2

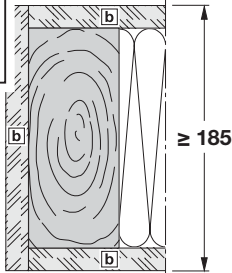
1b



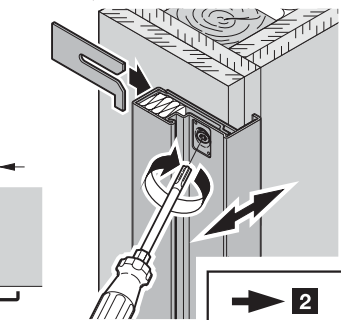
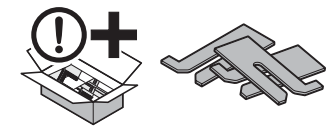
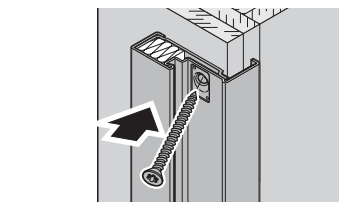
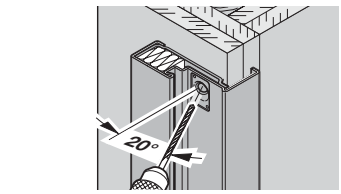
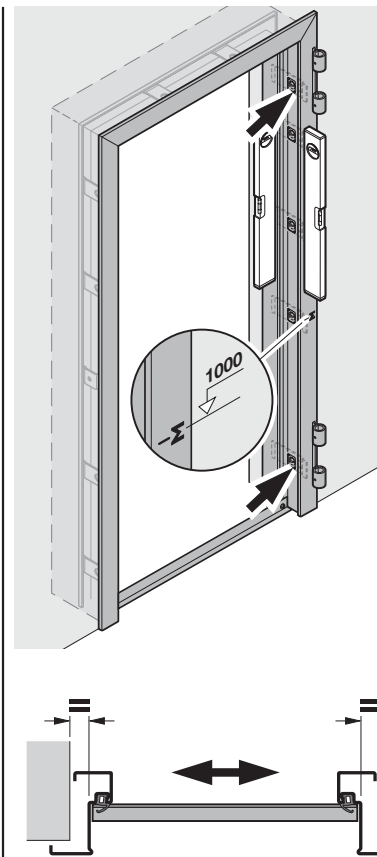
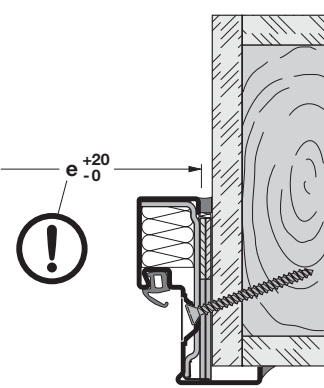
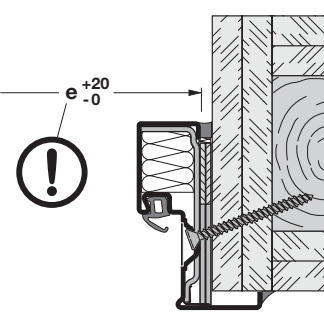
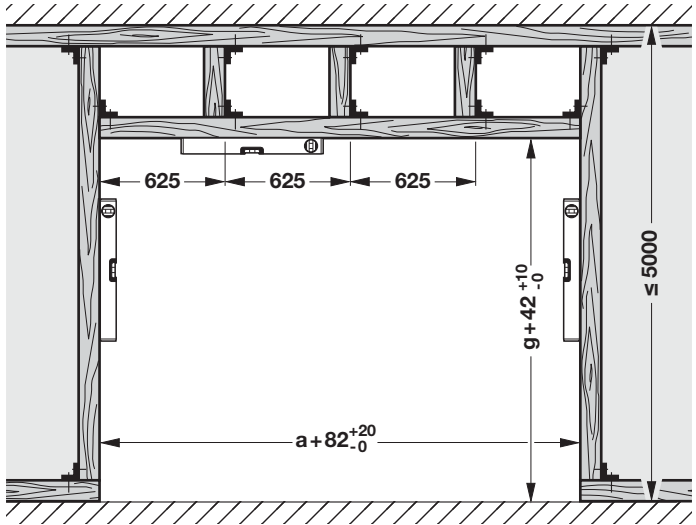
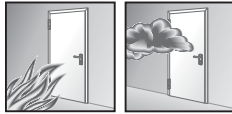
F90-B

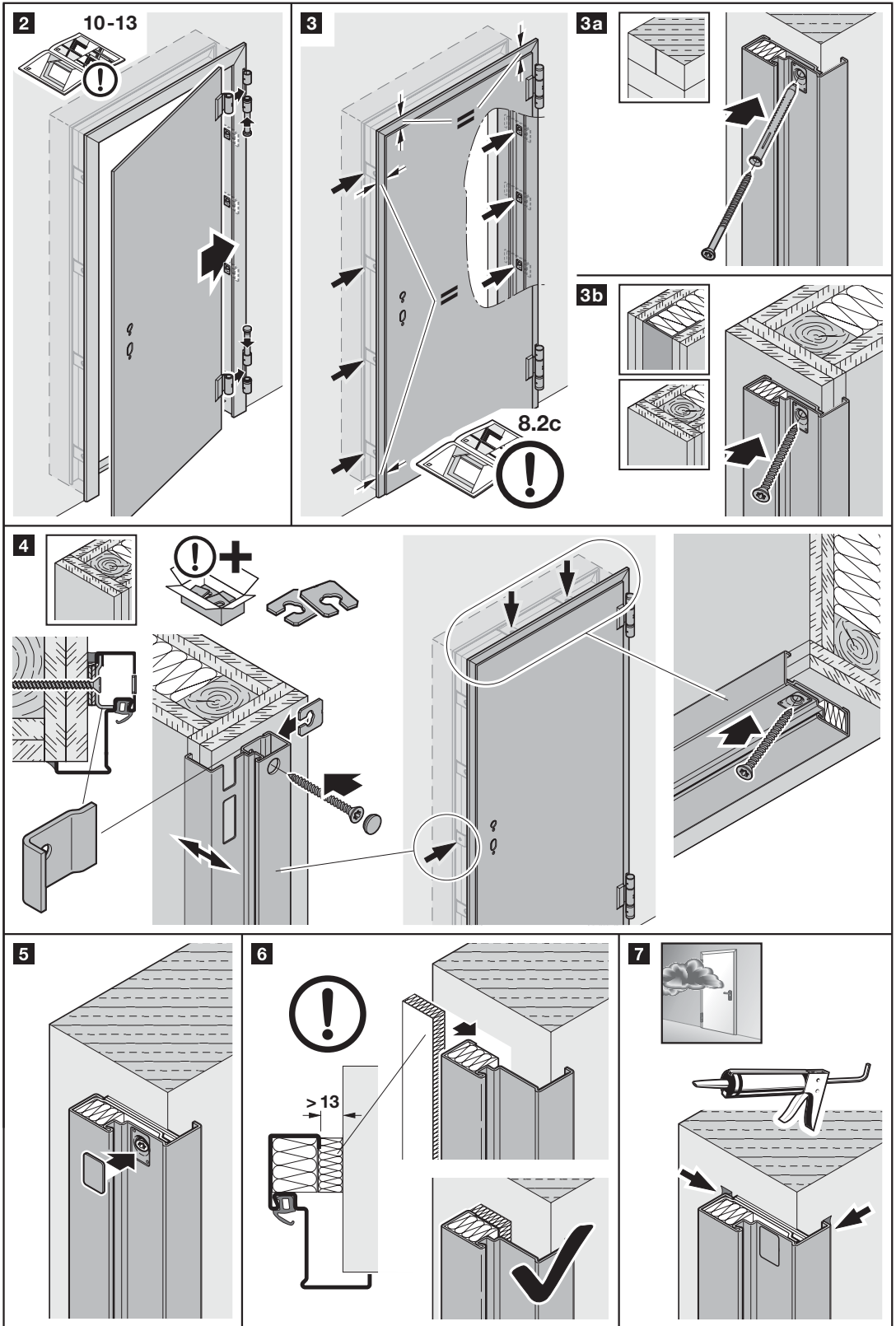


F30-B

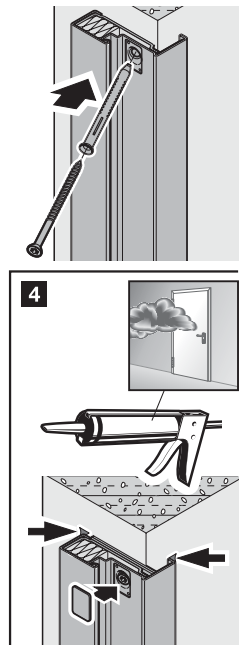
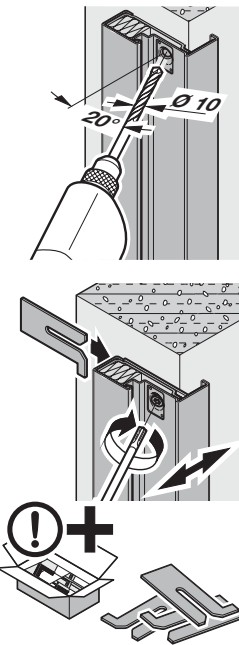
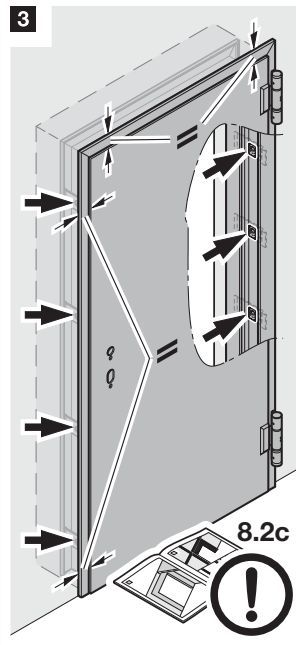
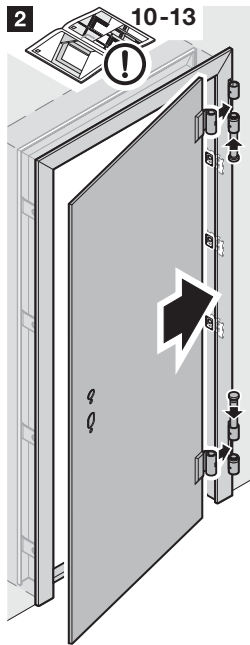
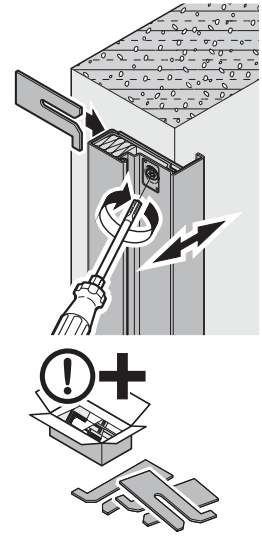
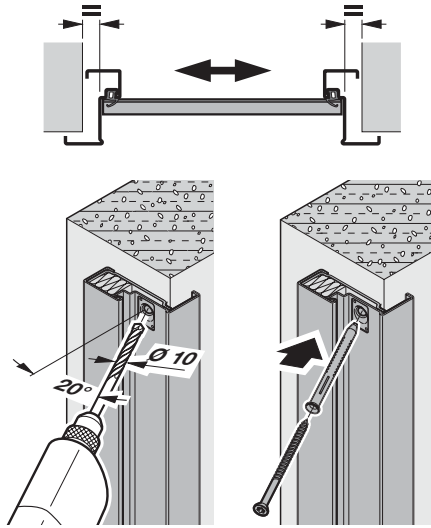
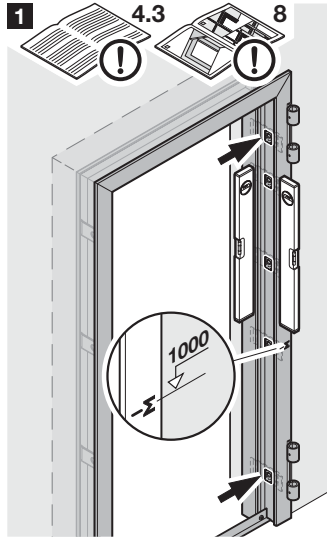
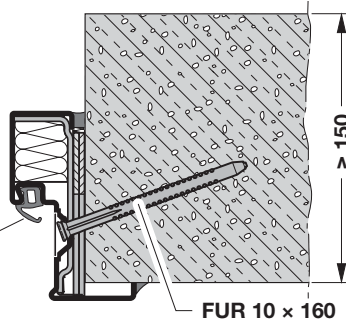


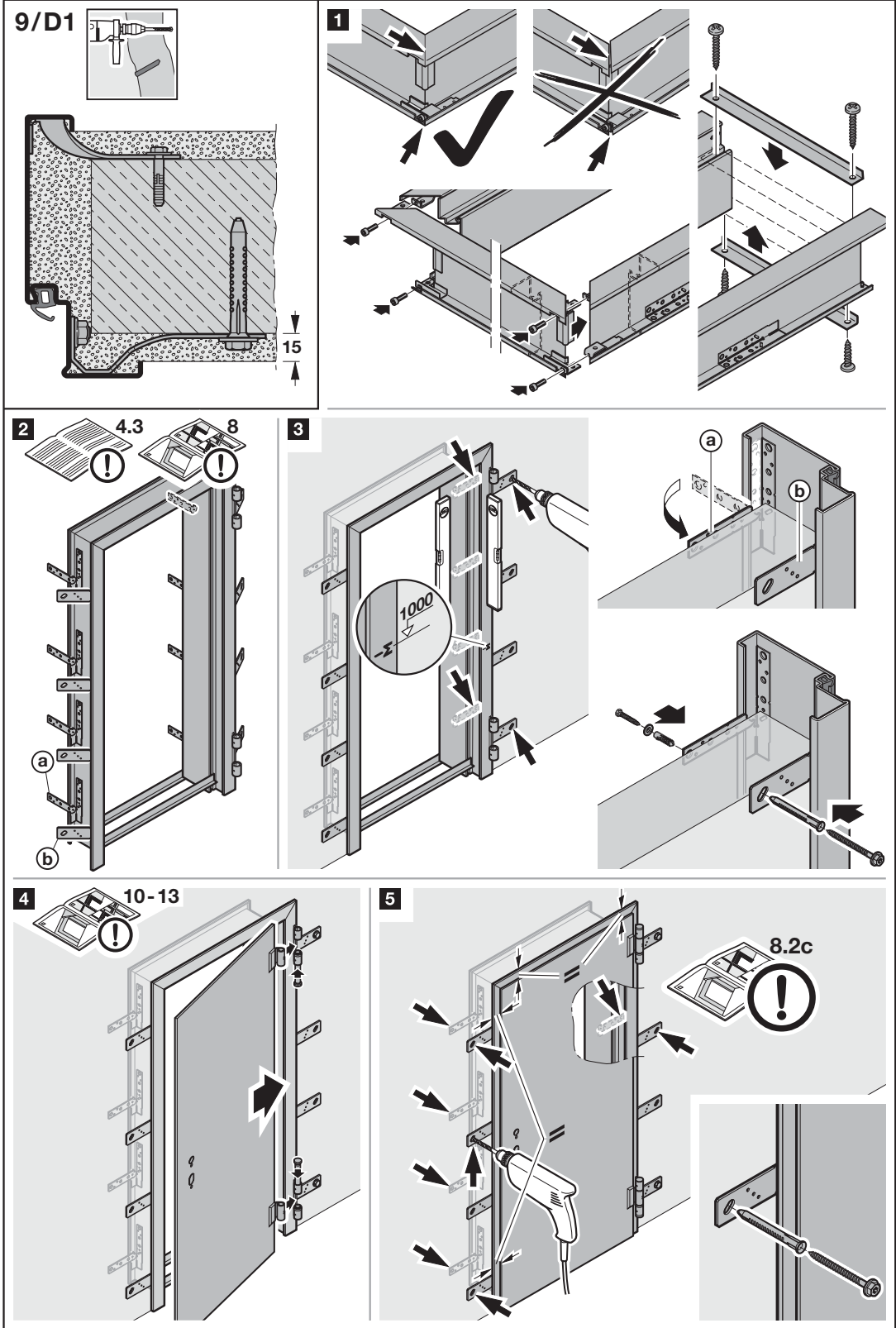
b) A-12,5-EN 520





9/C8
max. T30





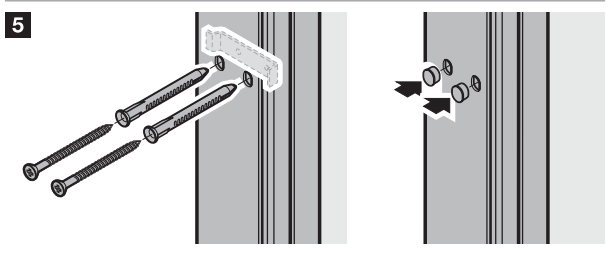
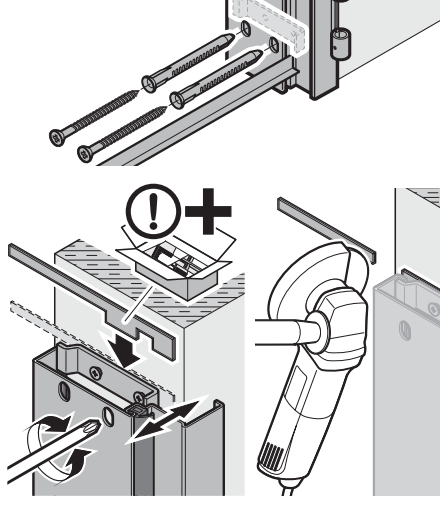
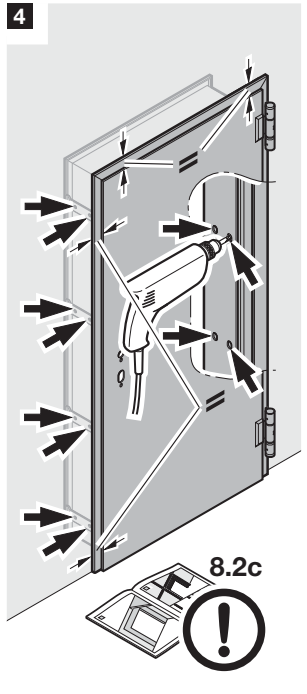
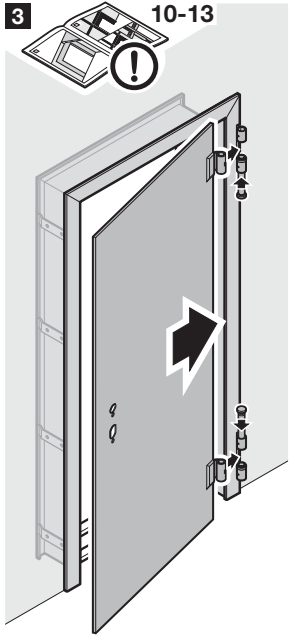
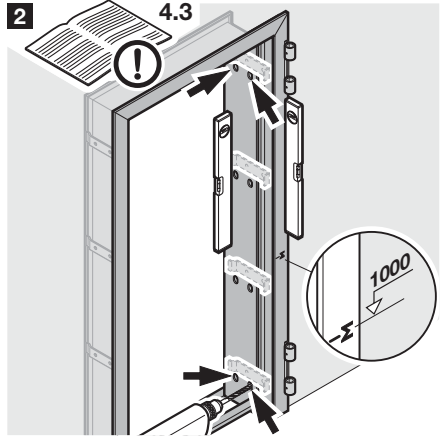
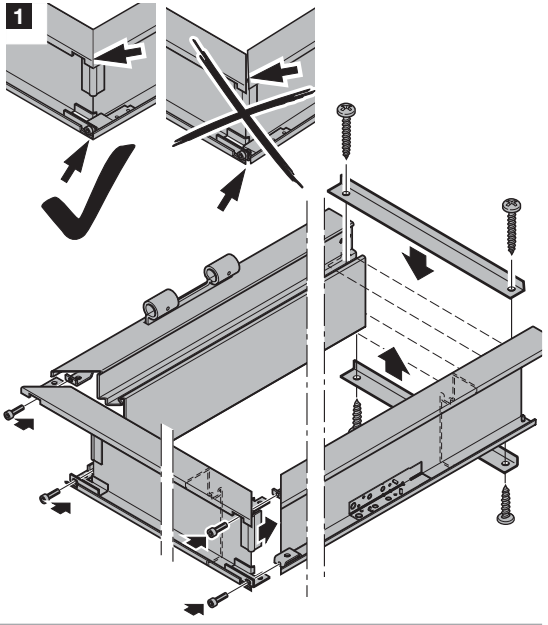
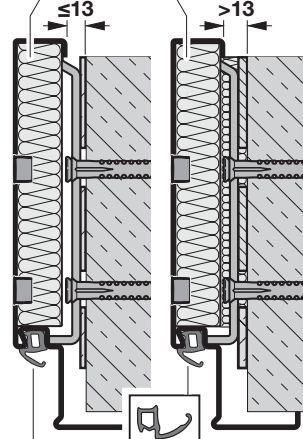
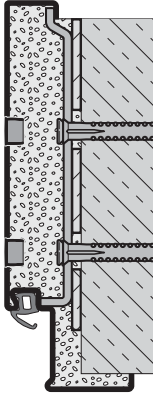
9/D2

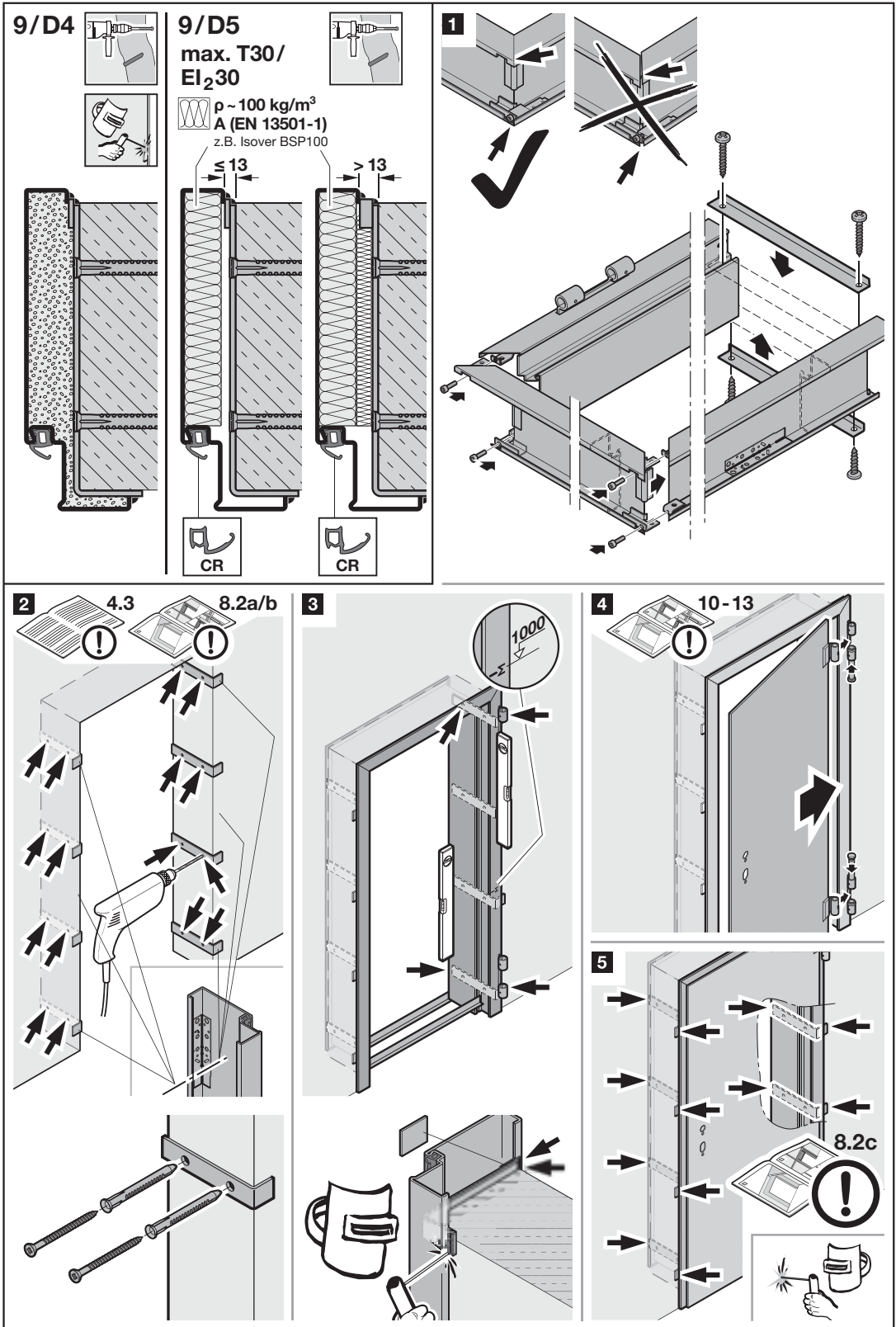


9/D3

max. T30/EI₂30

$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100





9/E1

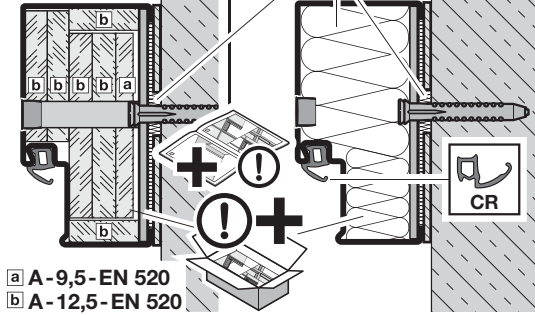
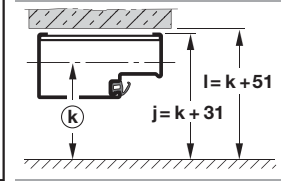
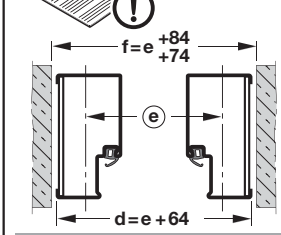


9/E2
max. T30/EI_{2,30}

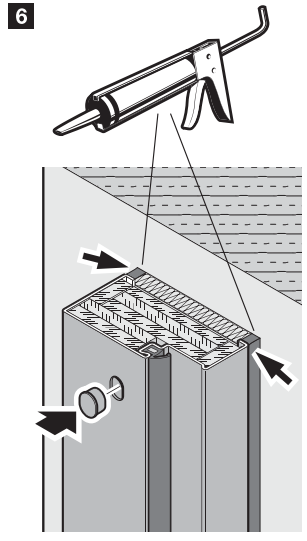
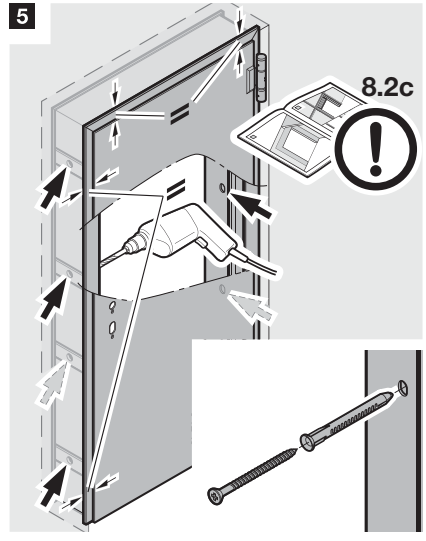
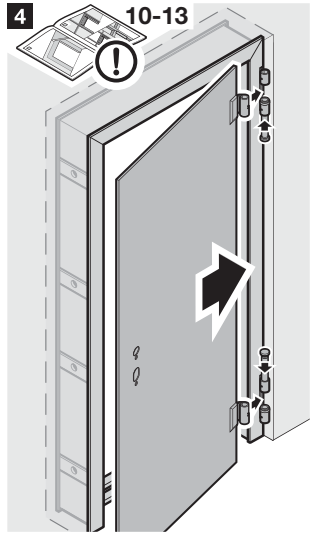
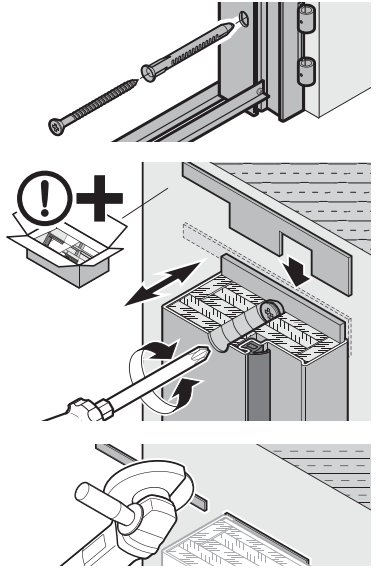
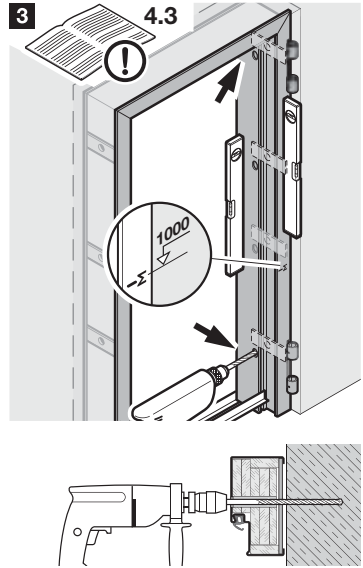
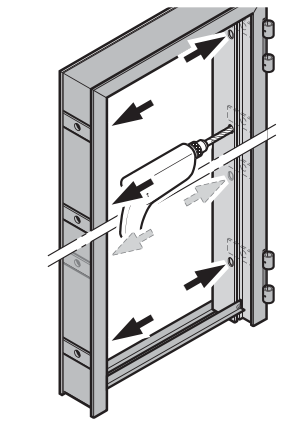
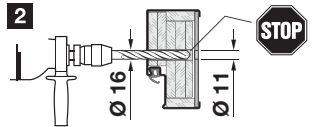
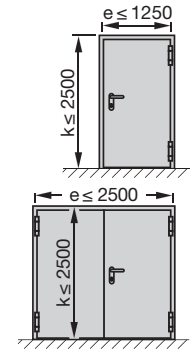
$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100



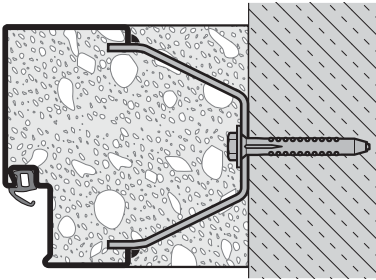
1 4.3



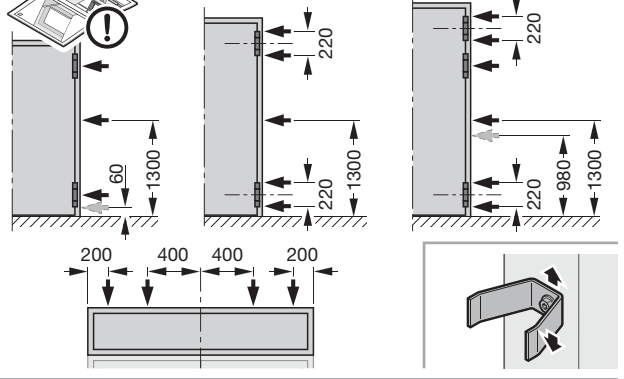
a A-9,5-EN 520
b A-12,5-EN 520



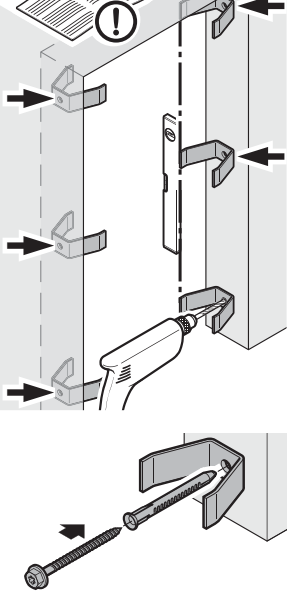
9/E3



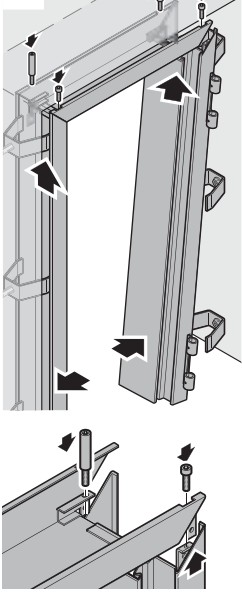
1 8.2a/b



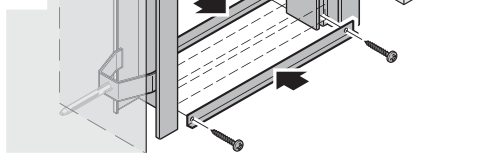
2 4.3



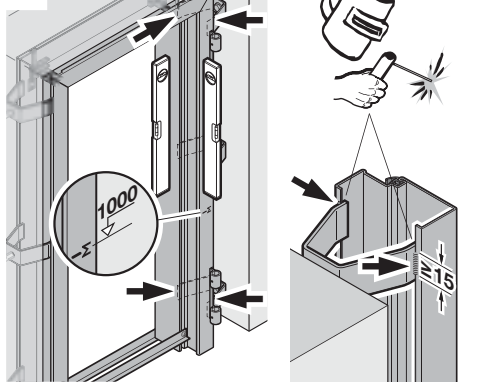
3



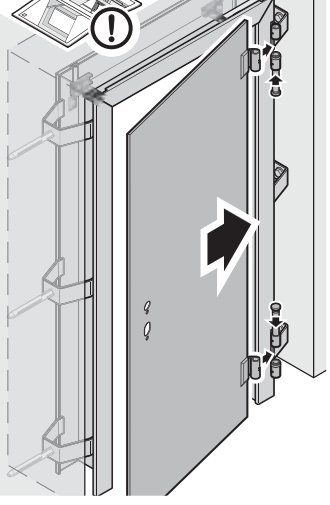
4



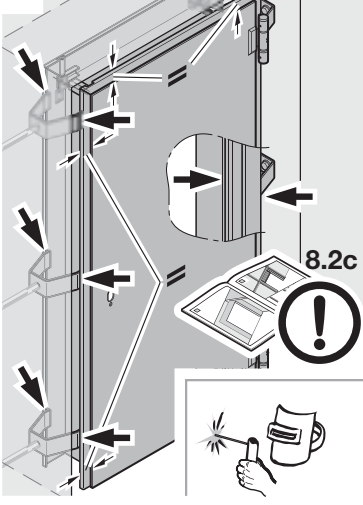
5



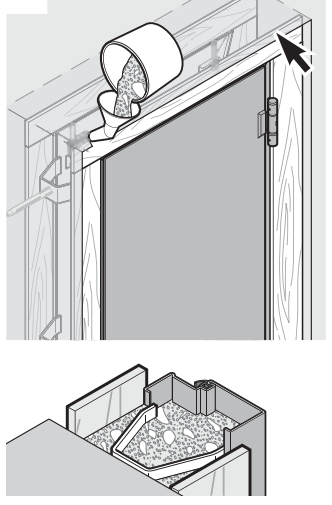
6 10-13



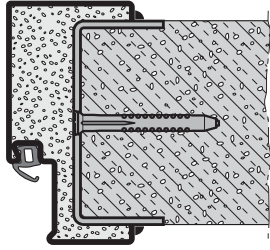
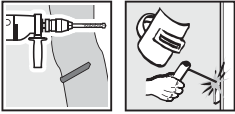
7



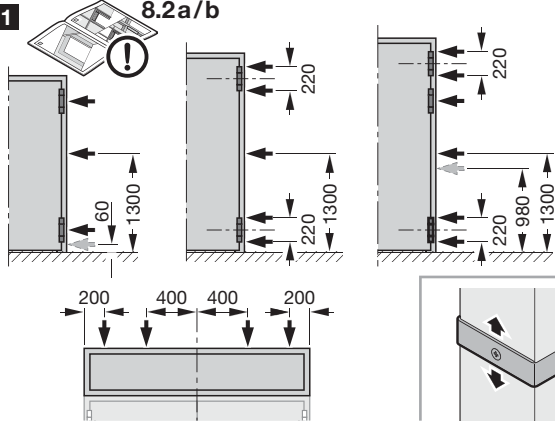
8



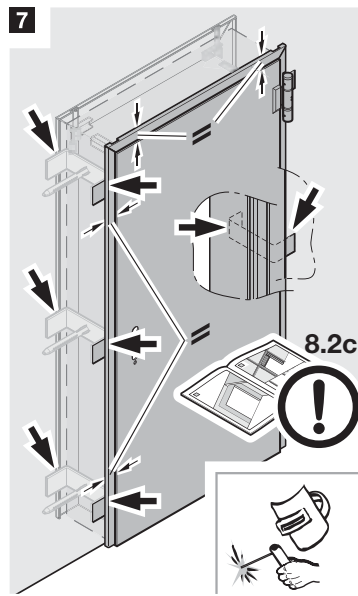
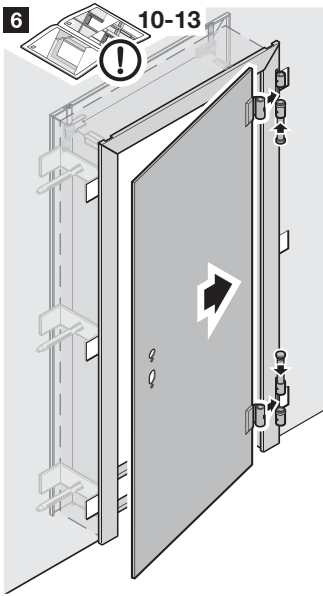
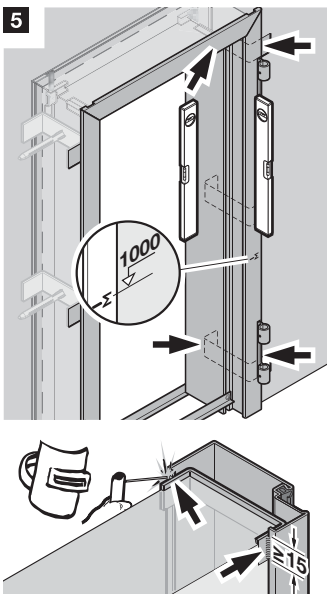
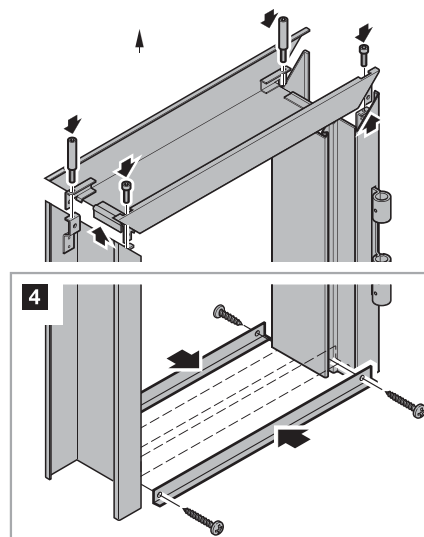
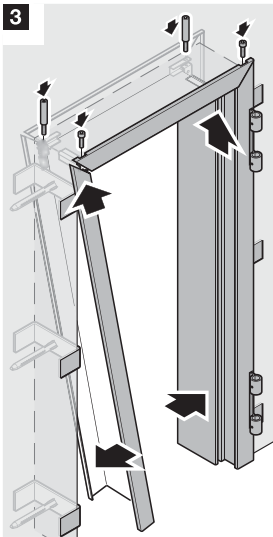
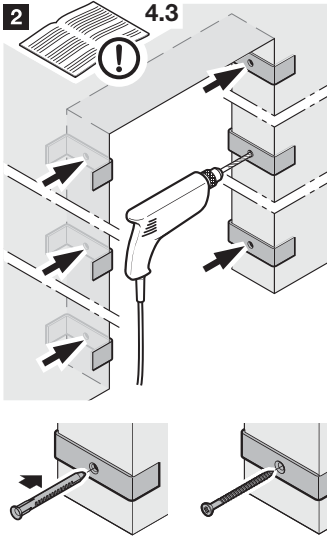
9/E4



1 8.2a/b



2 4.3

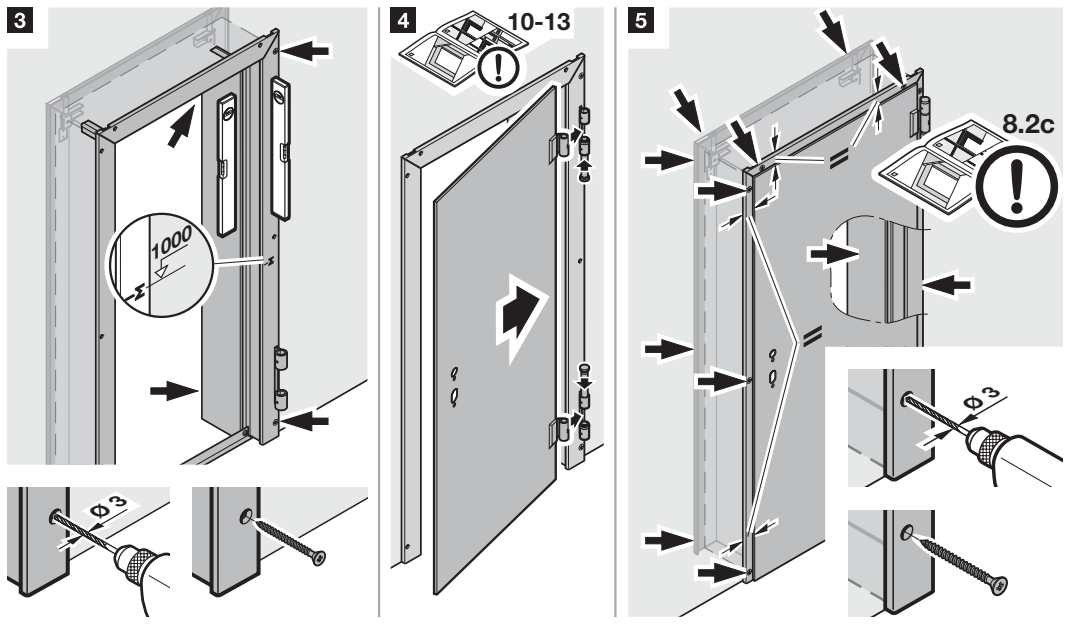
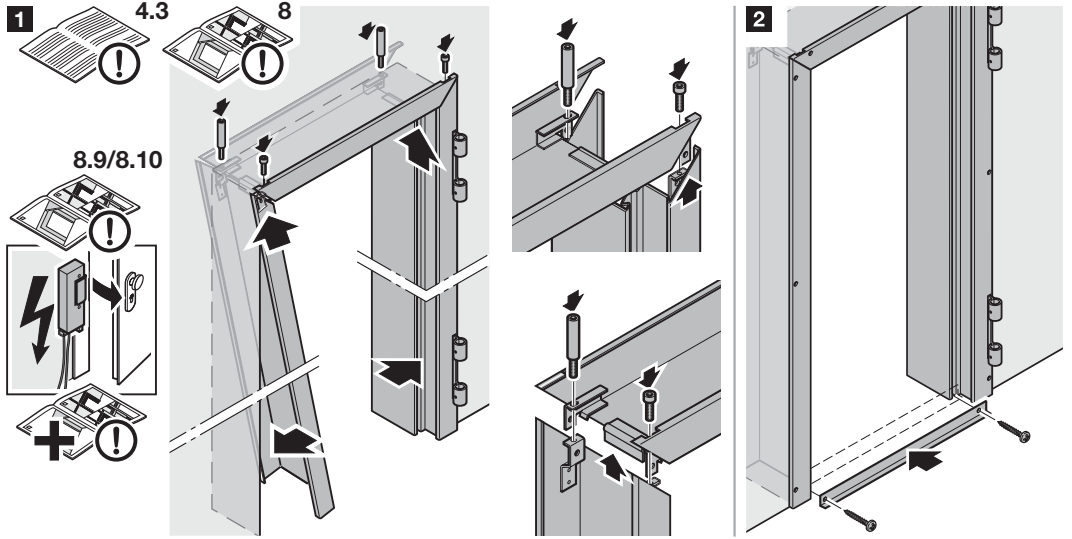
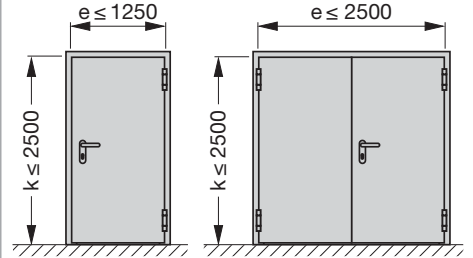
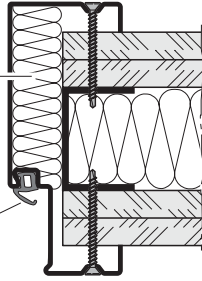
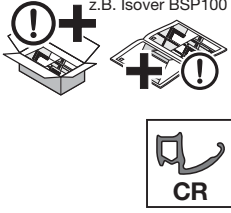


9/E5

max. T30/
EI₂30

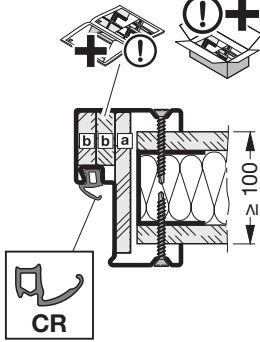


$\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
z.B. Isover BSP100



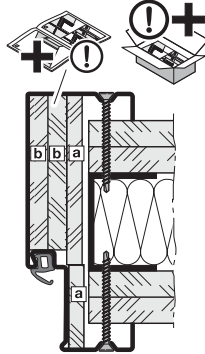
9/E6

max T30/EI₂30



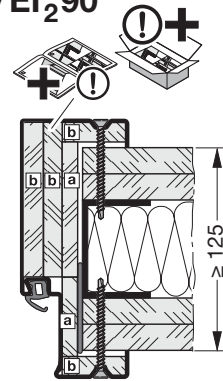
9/E7

max T30/EI₂30

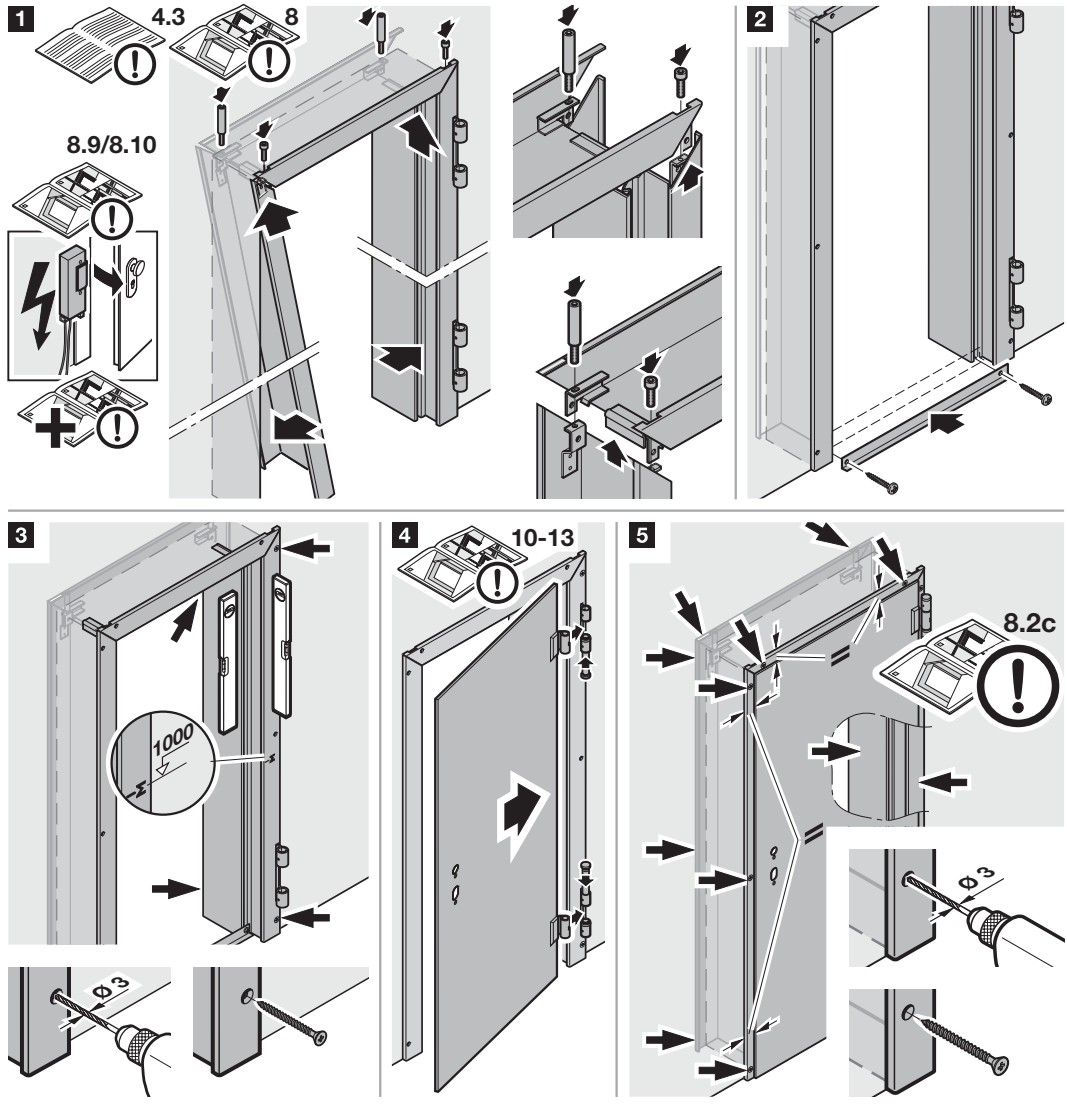


9/E8

T90/EI₂90

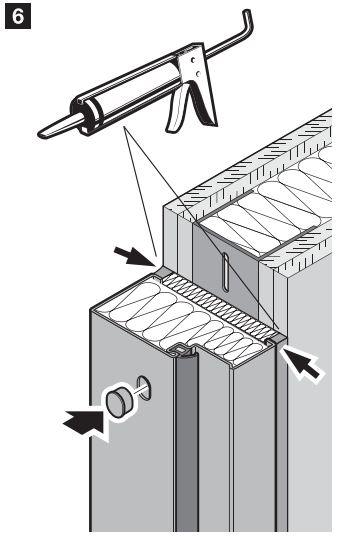
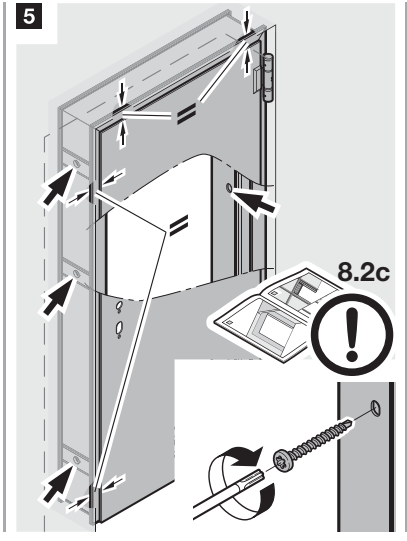
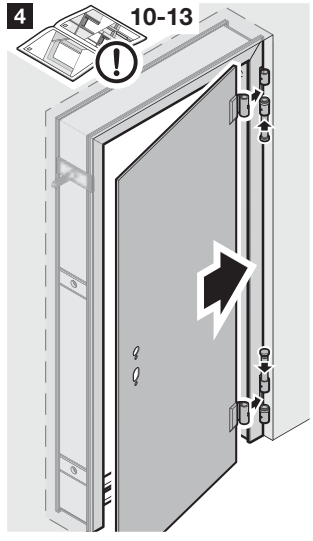
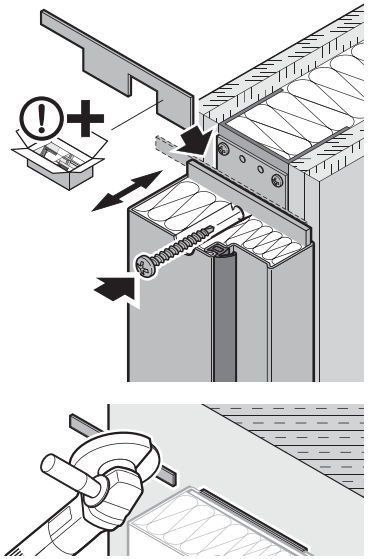
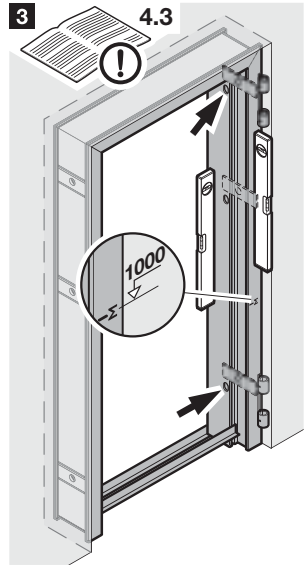
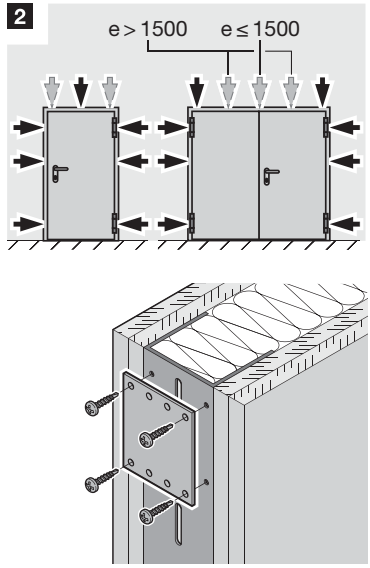
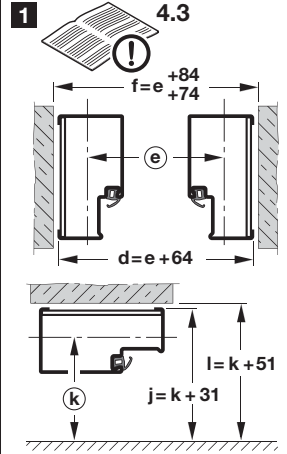
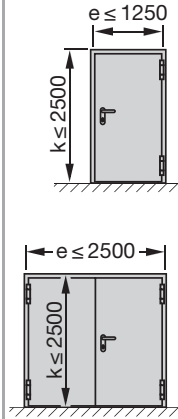
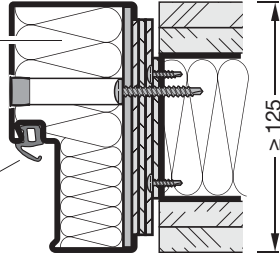
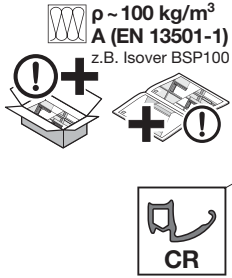
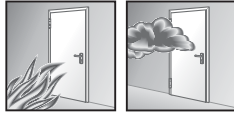


a A-9,5-EN 520 / b A-12,5-EN 520



9/E9

max. T30/
EI₂₃₀

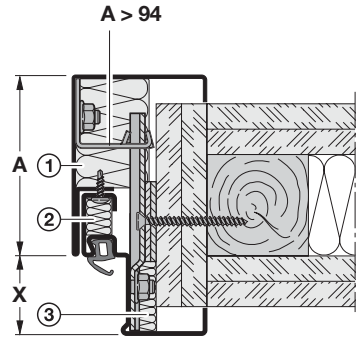
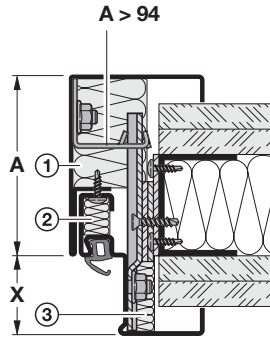
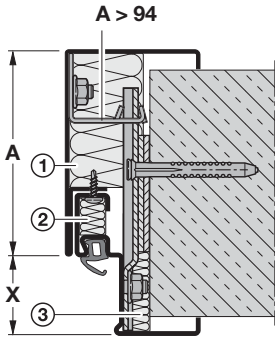
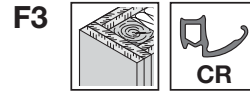
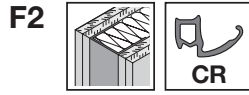
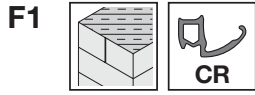
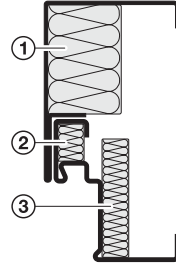


9/F1-F4

max. T30/ EI₂30

 $\rho \sim 100 \text{ kg/m}^3$
A (EN 13501-1)
 z.B. Isover BSP100

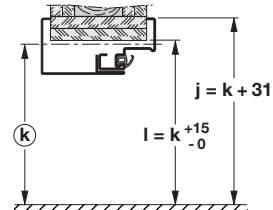
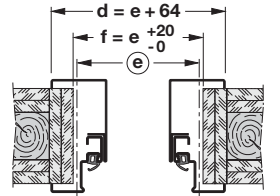
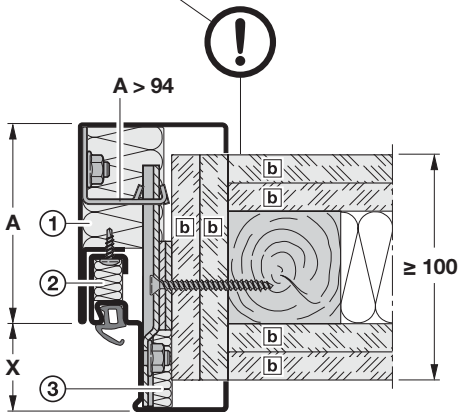
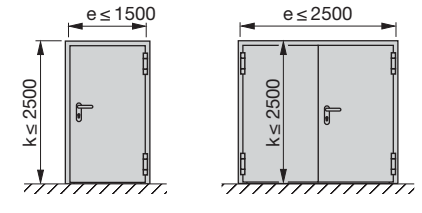
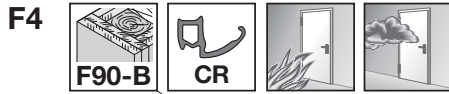
- ① = $40 \times (A - 42)$
- ② = $15 \times 22,5$
- ③ = $15 \times (X + 24)$



➔ **1 2a 2b 3 ...**

➔ **1 2c 3 ...**

➔ **1 2d 3 ...**



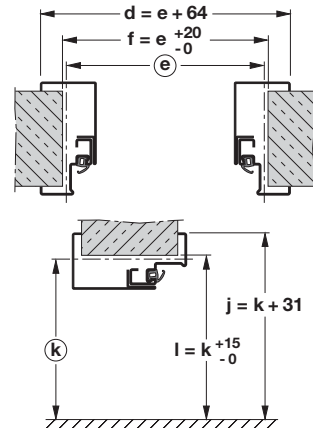
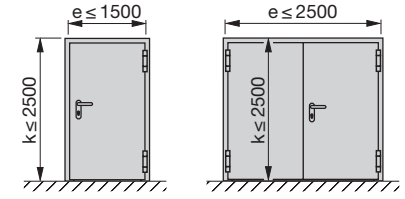
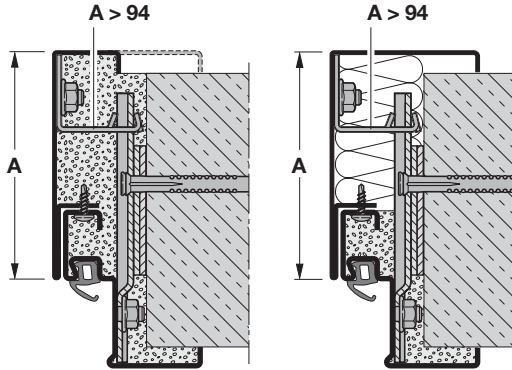
F90B DIN 4102-4 Tab. 49 **b** A-12,5-EN 520

➔ **1 2e 3 ...**

9/F5-F6

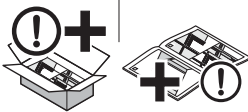
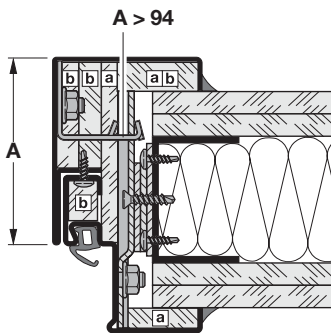
max. T90/ EI₂90

F5

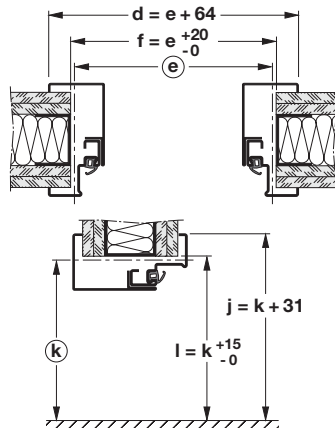
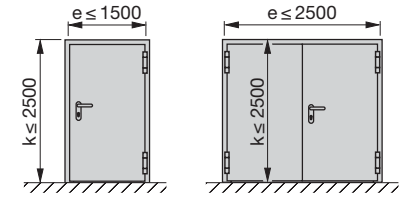


➔ 2a 2b 3 ...

F6



[a] A-9,5-EN 520 / [b] A-12,5-EN 520

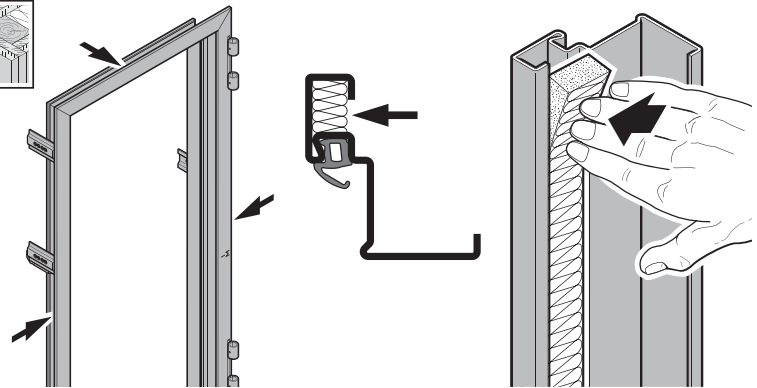


➔ 2c 3 ...

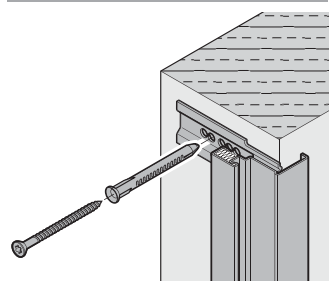
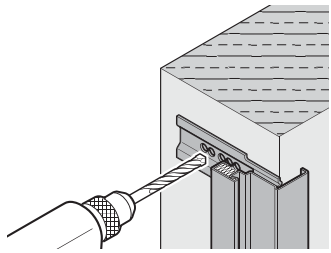
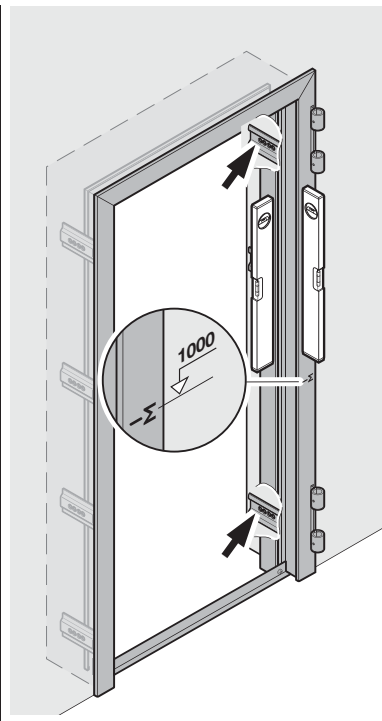
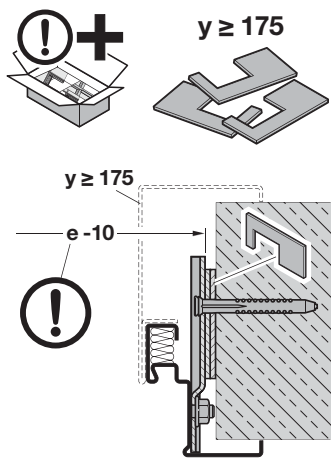
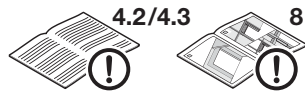
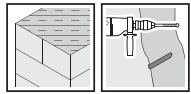
1



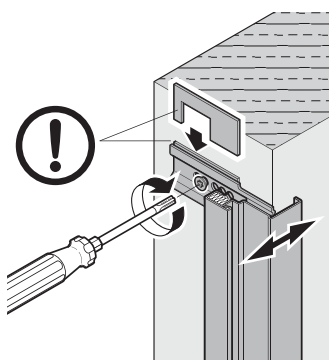
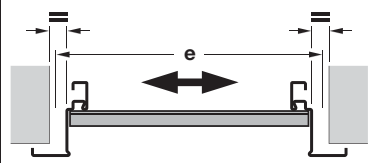
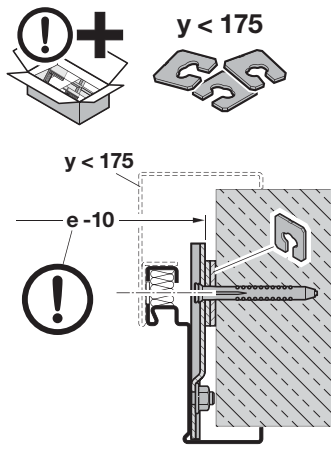
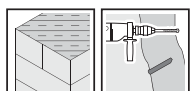
max. T30/EI₂30



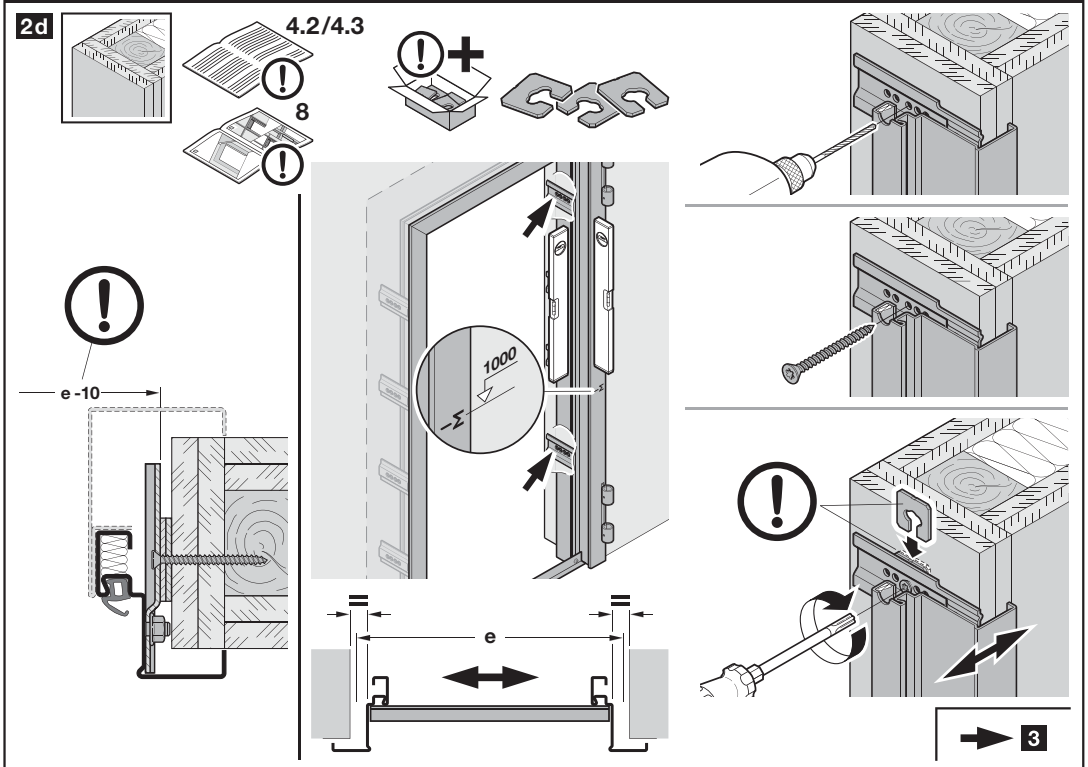
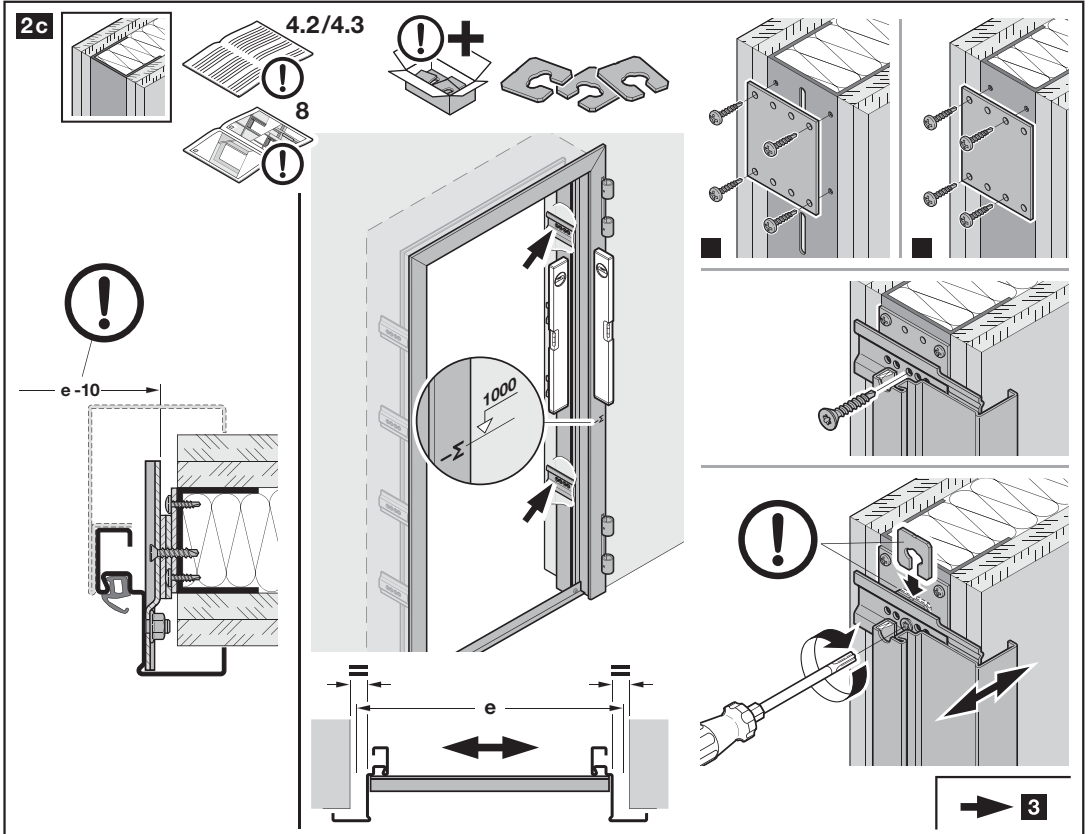
2a



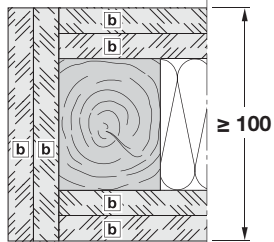
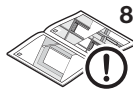
2b



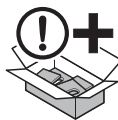
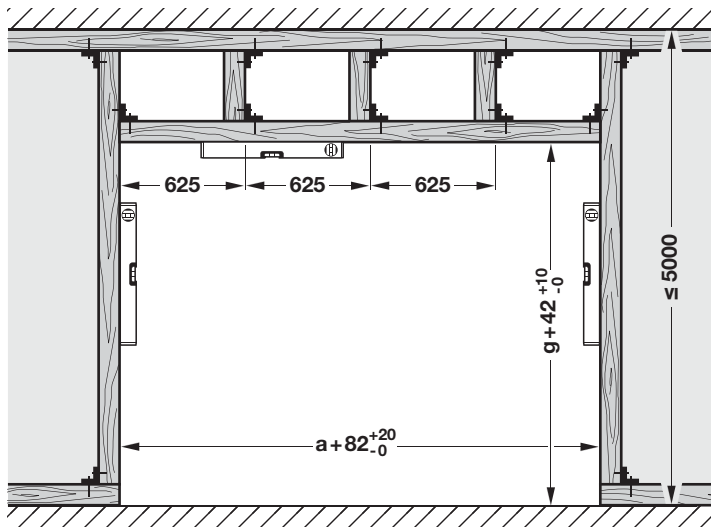
➔ 3



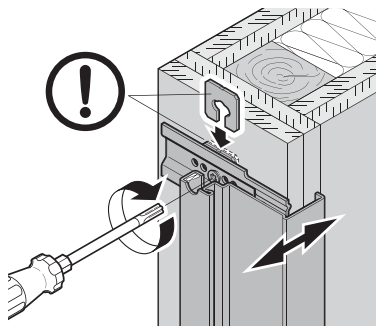
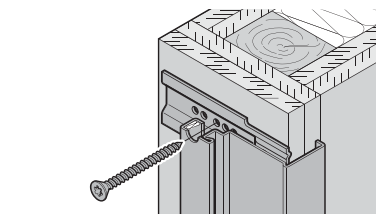
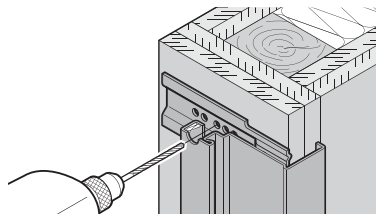
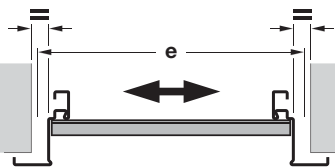
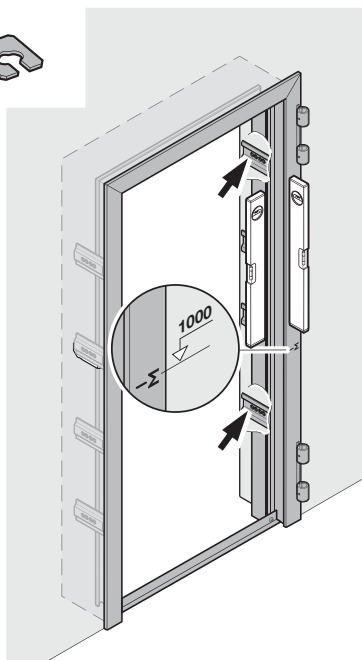
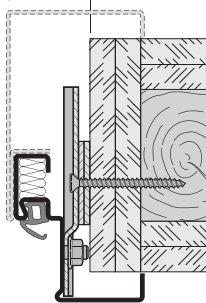
2e



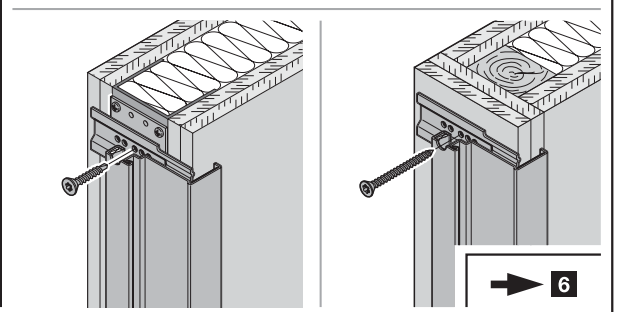
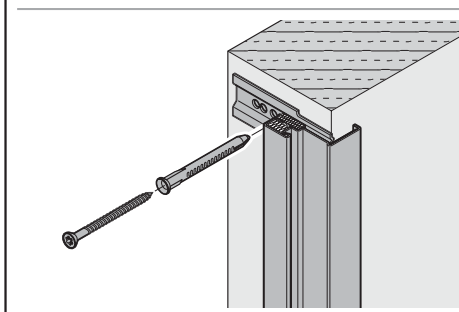
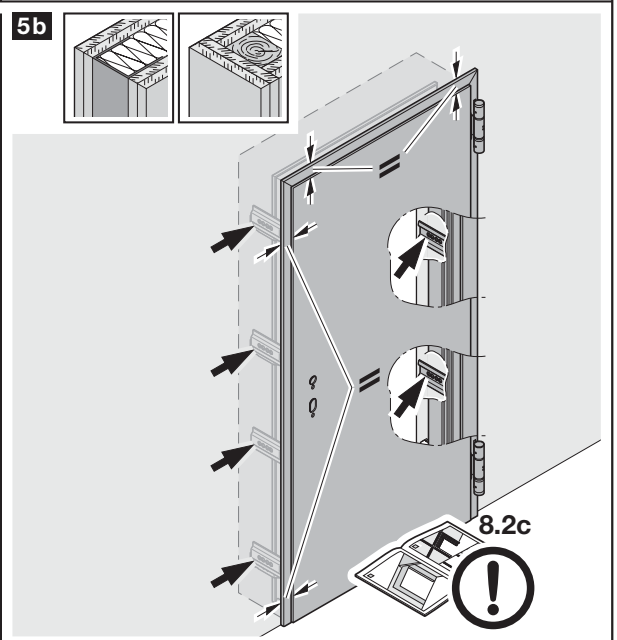
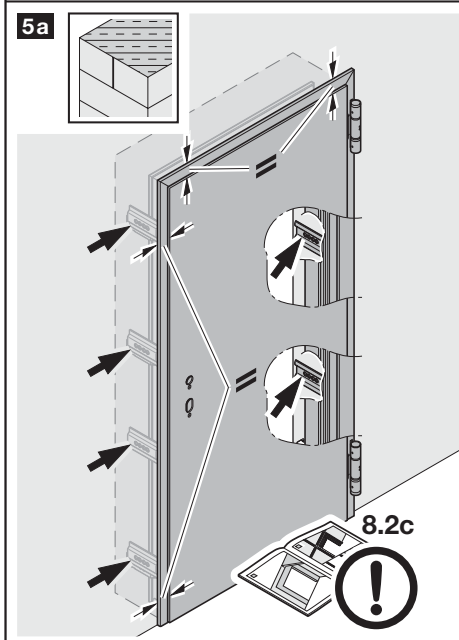
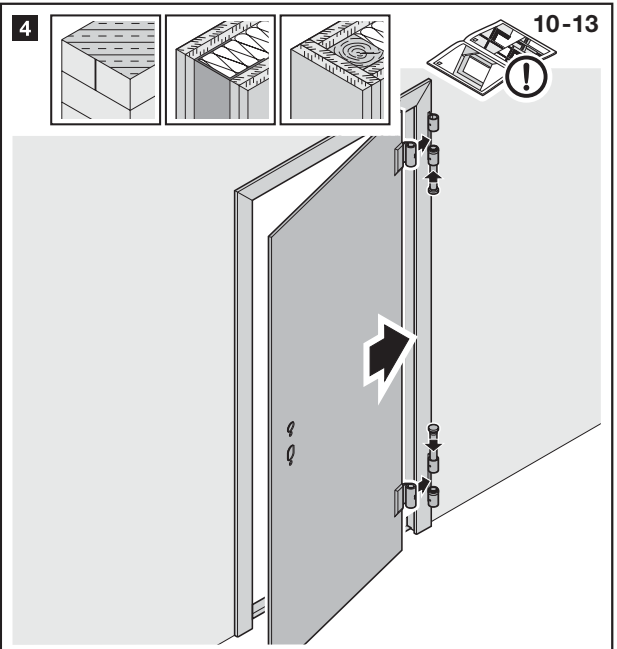
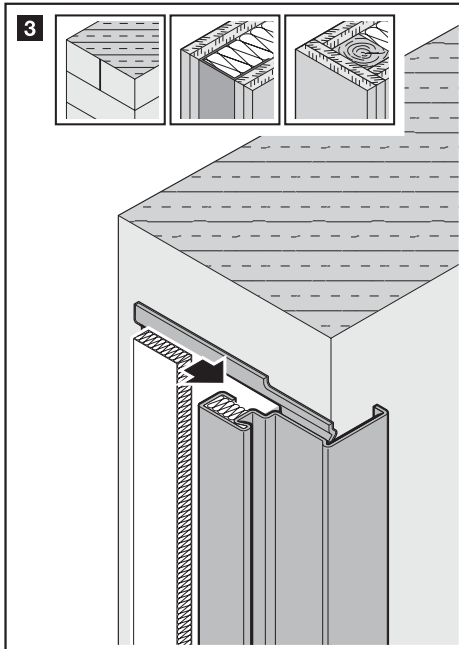
b A-12,5-EN 520

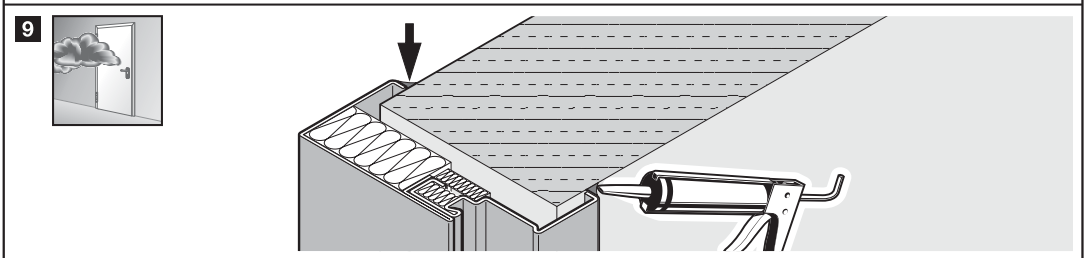
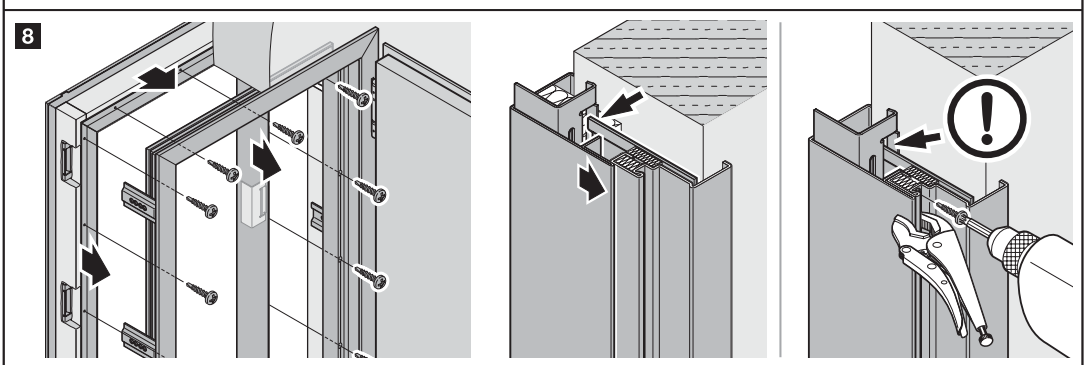
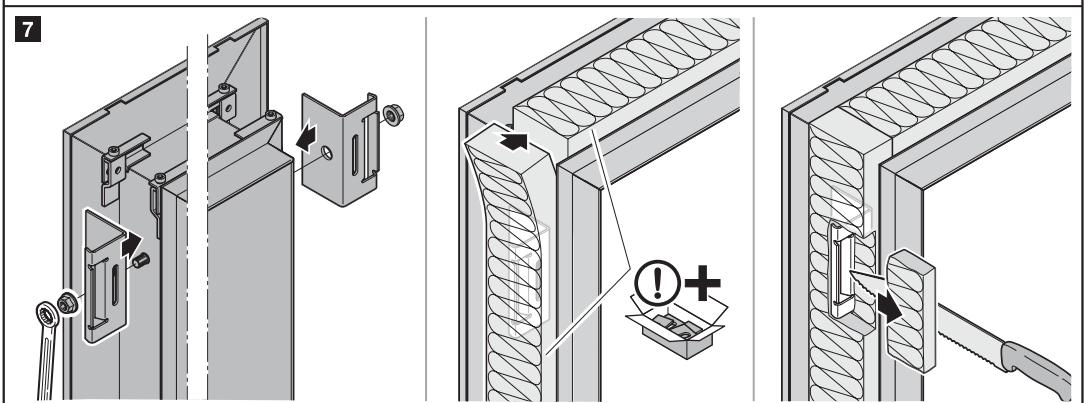
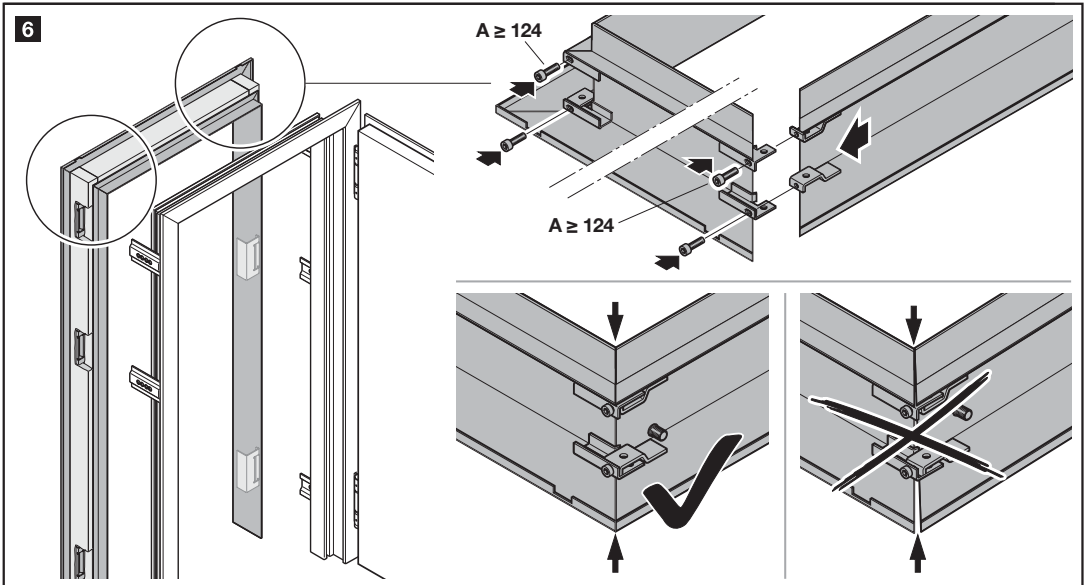


e^{+20}_{-0}



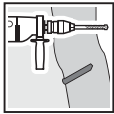
➔ 3





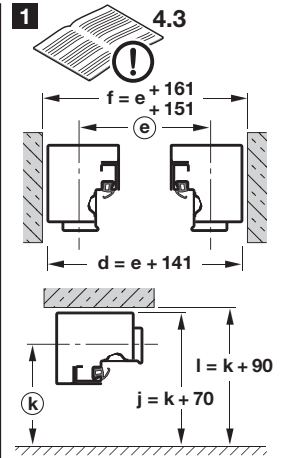
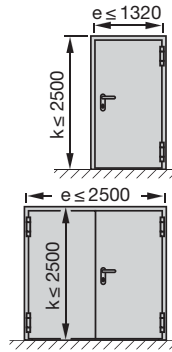
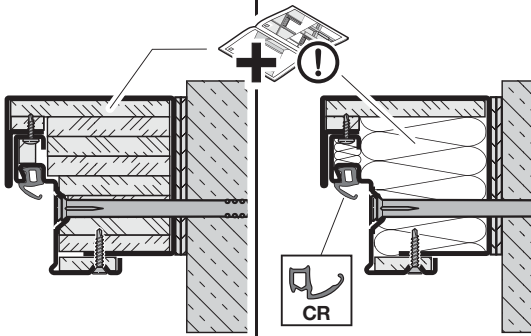
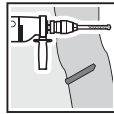
9/G1

max. T90/
EI₂90

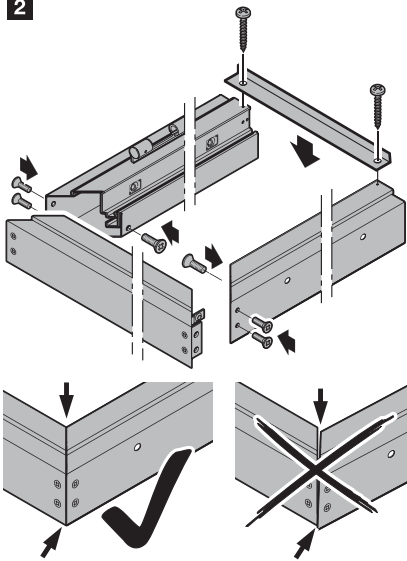


9/G2

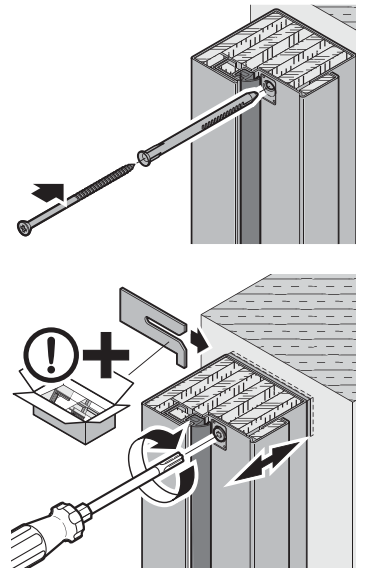
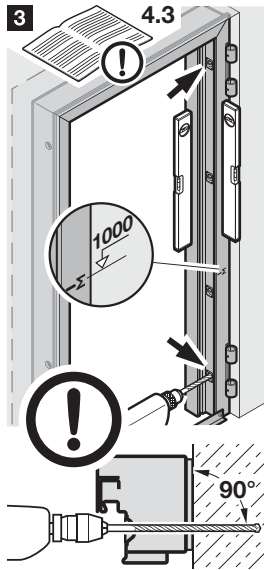
max. T30/
EI₂30



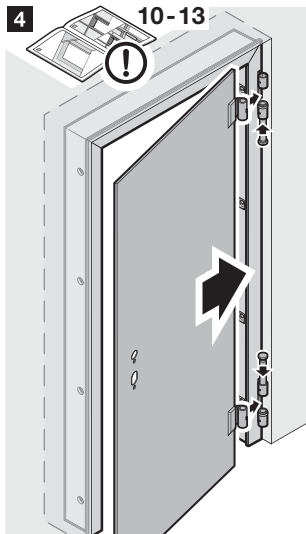
2



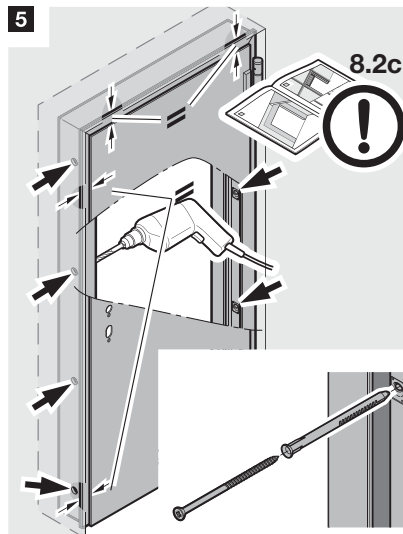
3



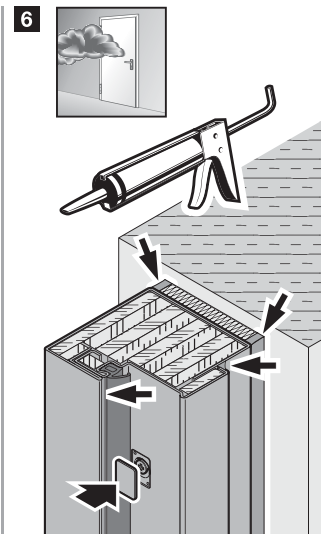
4



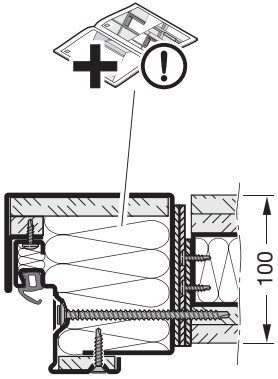
5



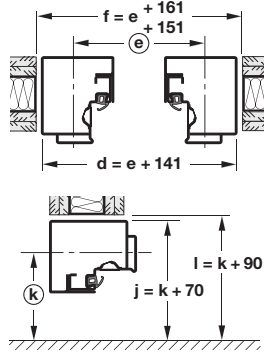
6



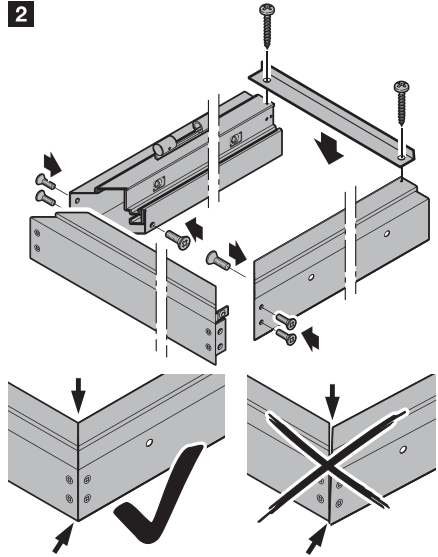
9/G3



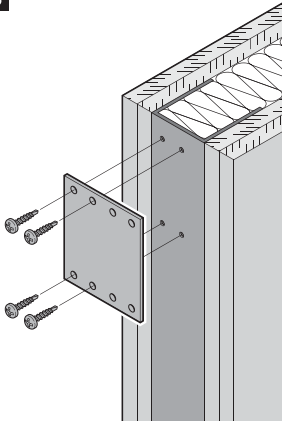
1 4.3



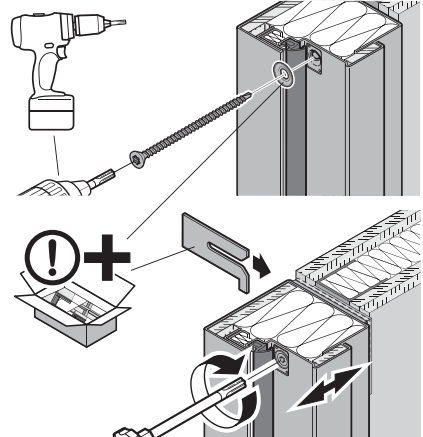
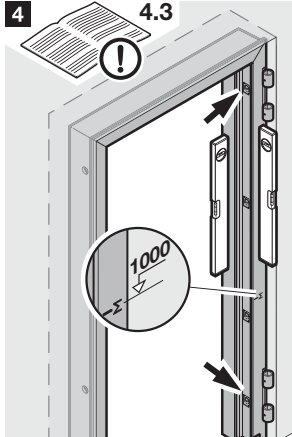
2



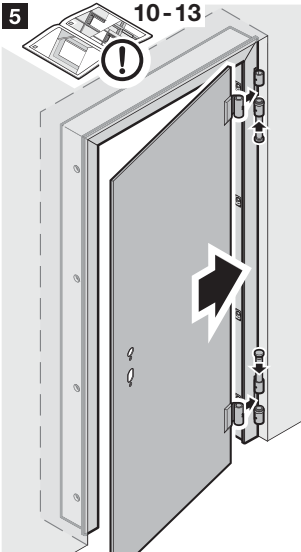
3



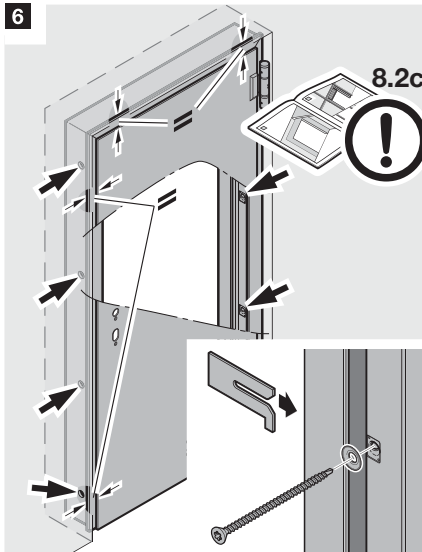
4 4.3



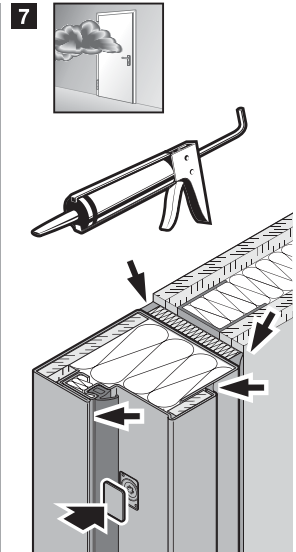
5 10-13



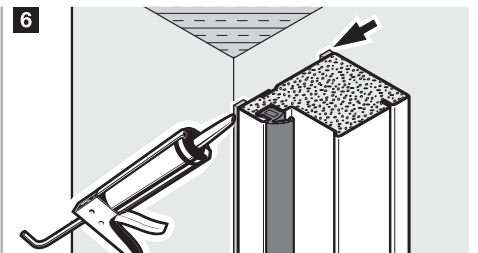
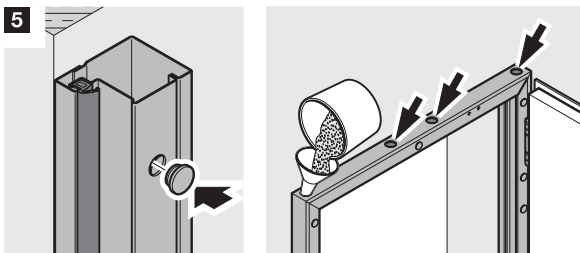
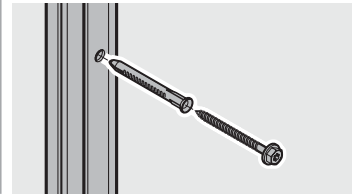
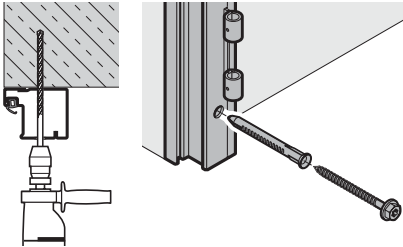
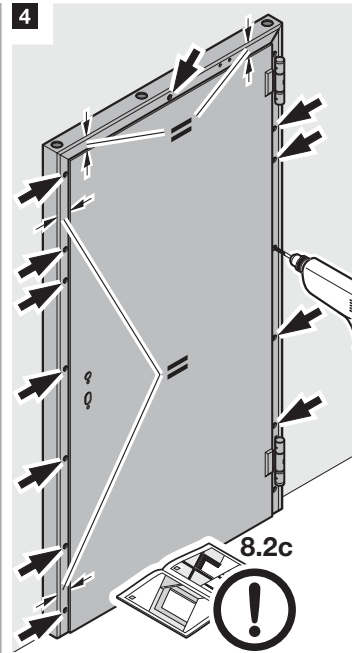
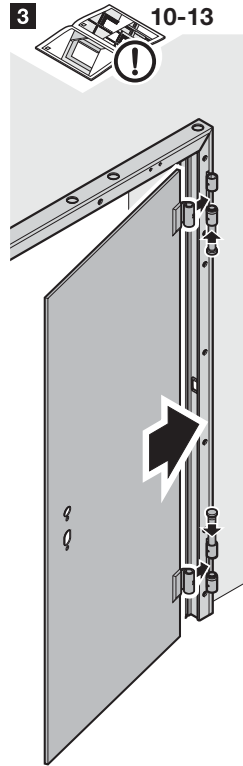
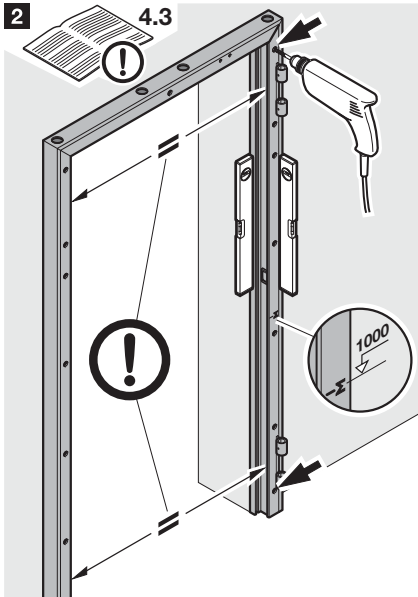
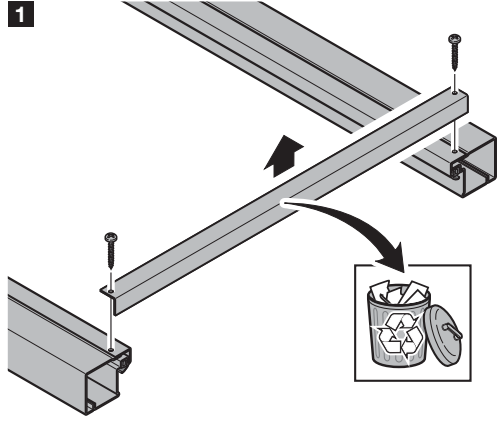
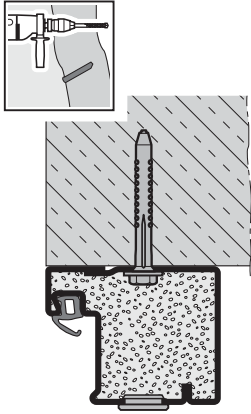
6 8.2c



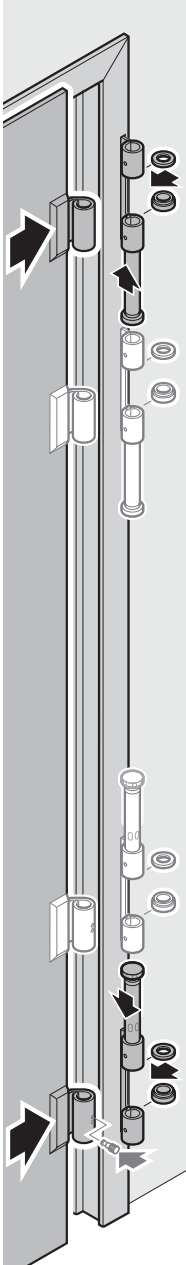
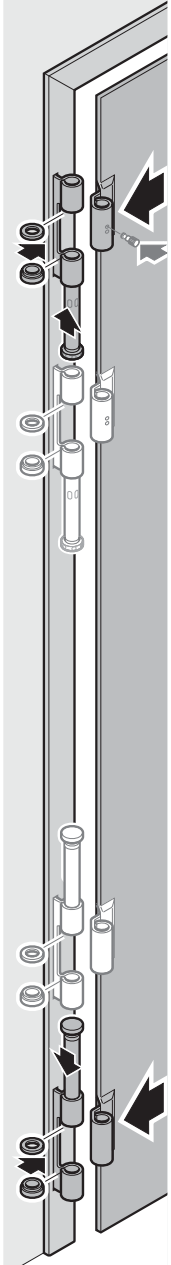
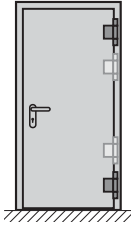
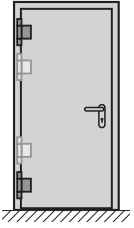
7



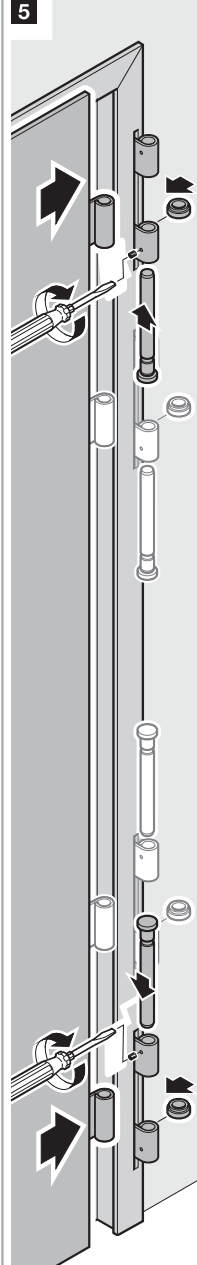
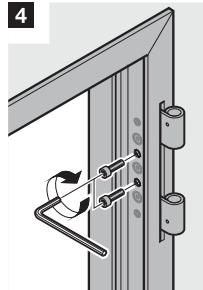
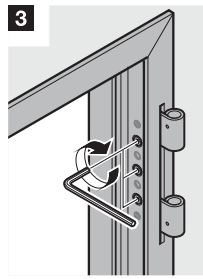
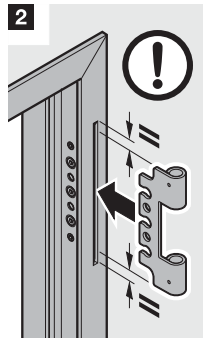
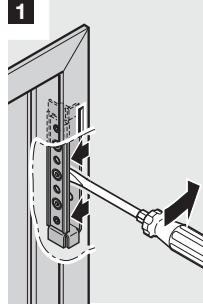
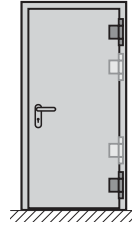
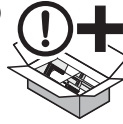
9/H1
max. T30/
EI₂30



10.1a



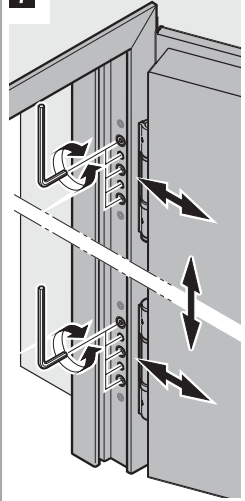
10.1b



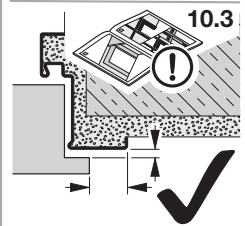
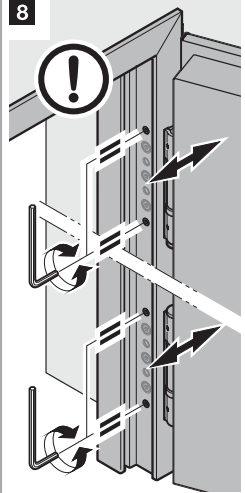
6



7



8

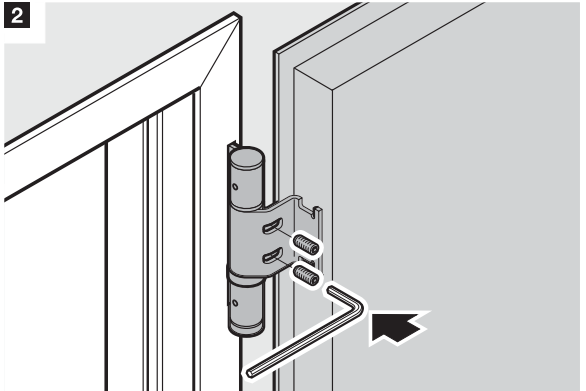
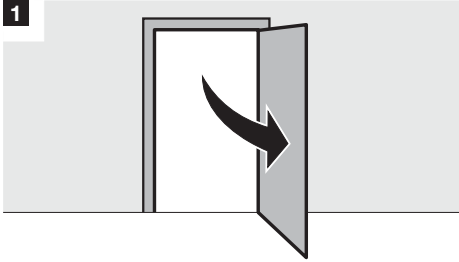


10.2



2

1

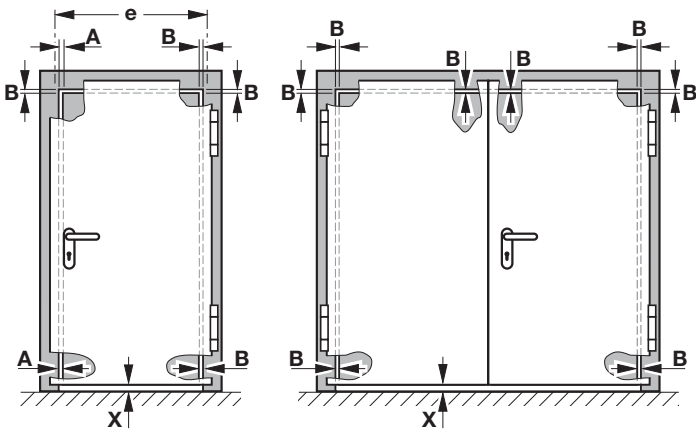


10.3



e	A	B	C max. T30	C T60, T90, T120
≤ 749	6 ⁺¹ ₋₂	4 ± 2	4 ± 2	10 ± 2
750 - 874	6 ⁺¹ ₋₂			
≥ 875	5 ⁺¹ ₋₂			

1



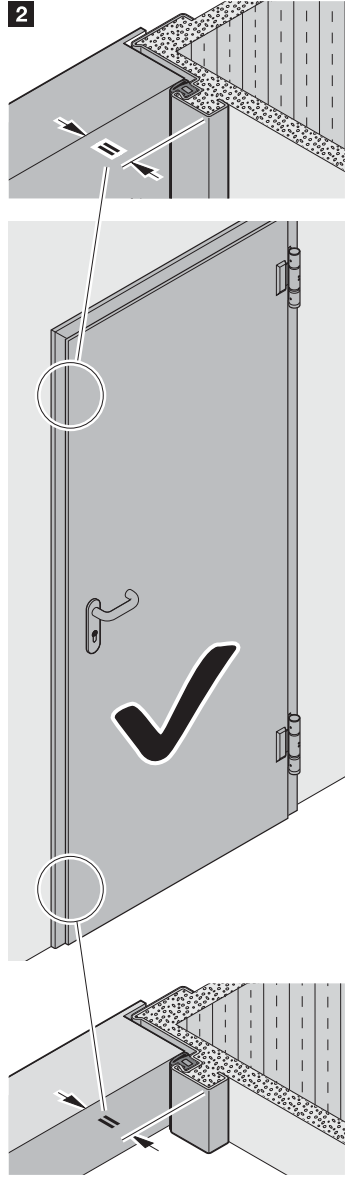
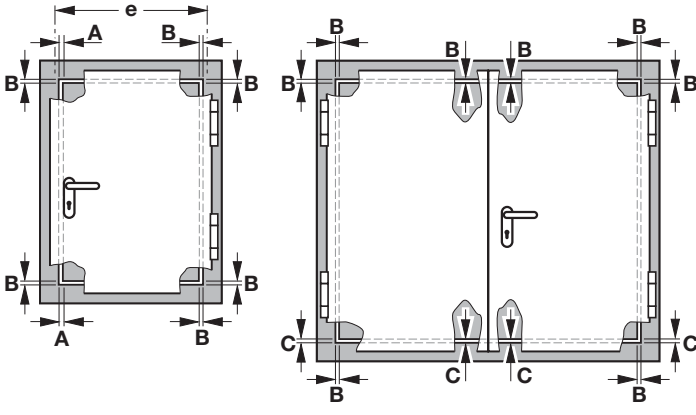
X = 10 ± 5

X = 10⁺²₋₅

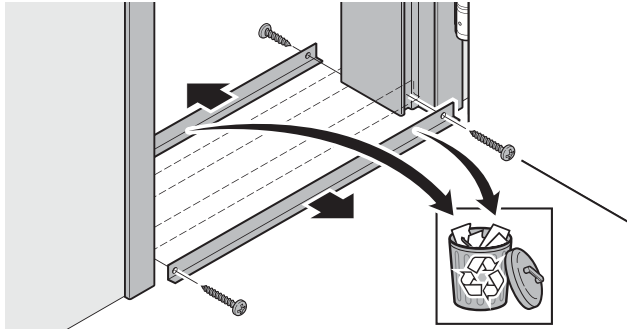
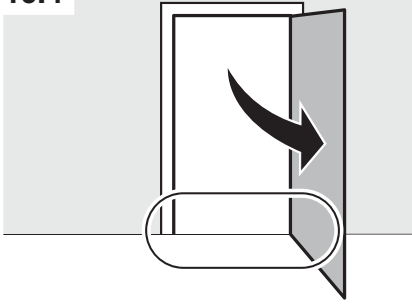
X = 10 - 5



≤ 48 dB

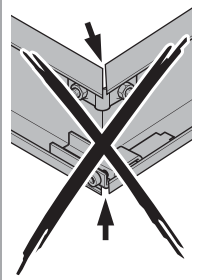
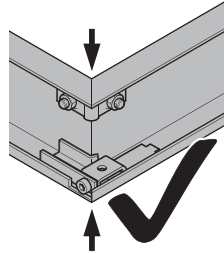
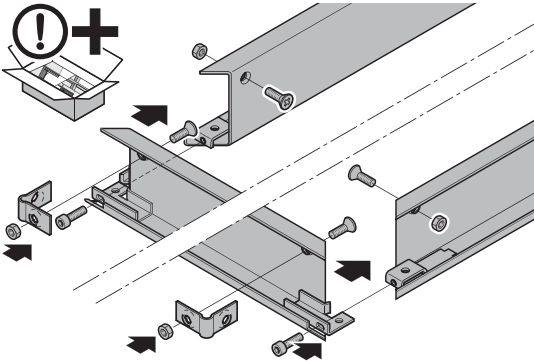


10.4

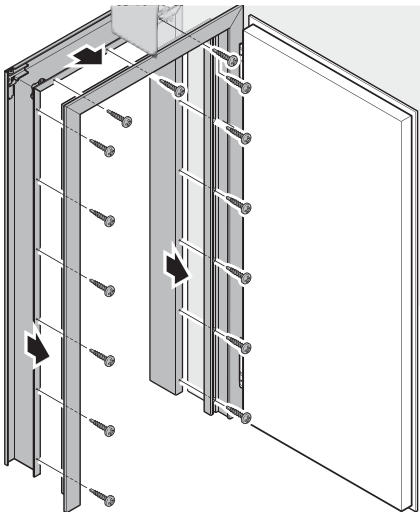


10.5

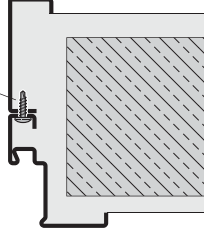
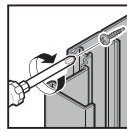
1



2a



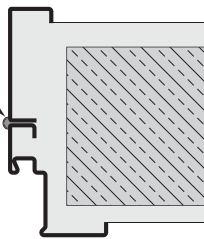
DIN 7504 ST 4,8 x 19-N-H
DIN 7981 4,8 x 16



2b



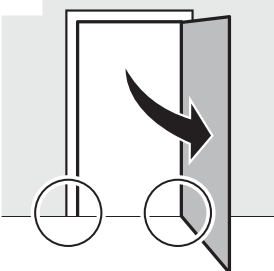
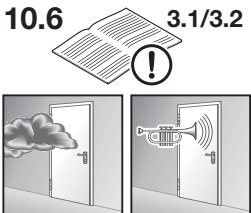
$2\sqrt{x} > 10$



10.6

3.1/3.2

1

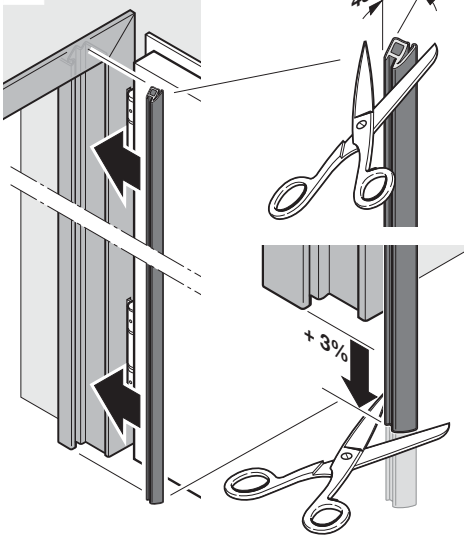


2

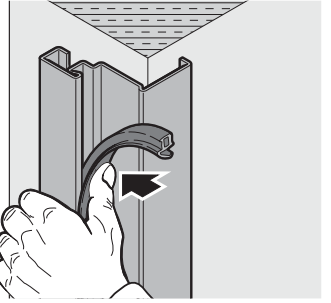


10.7a

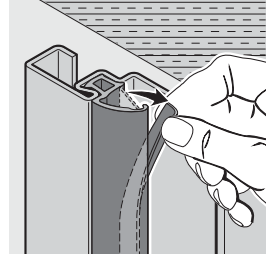
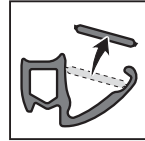
1



2



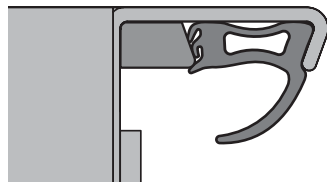
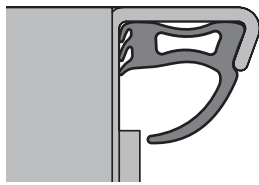
3



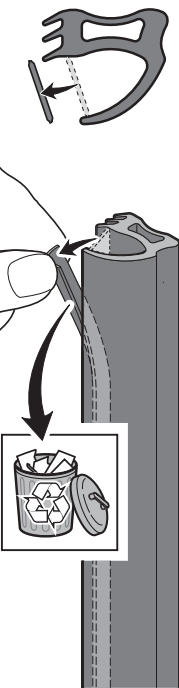
10.7b

A

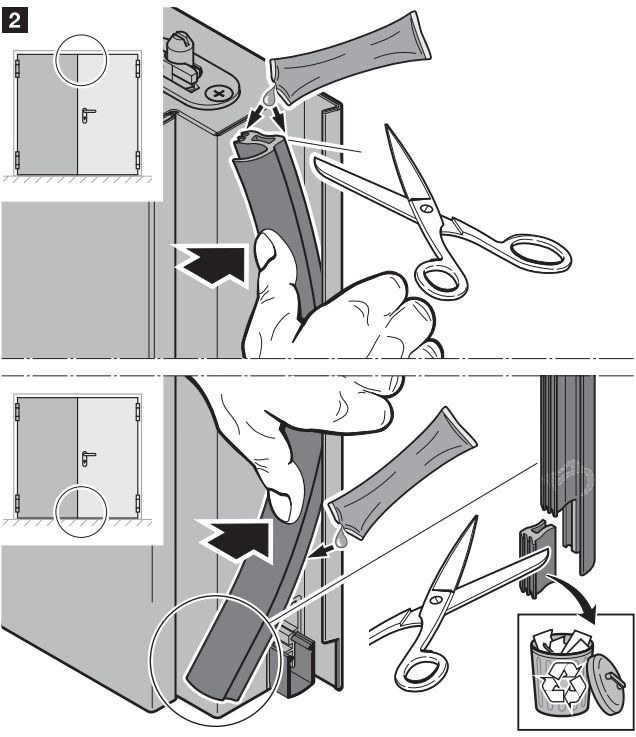
B



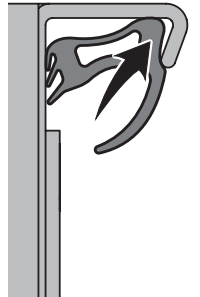
1



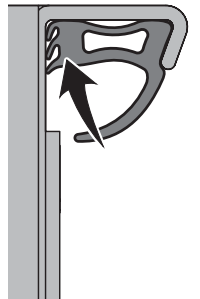
2



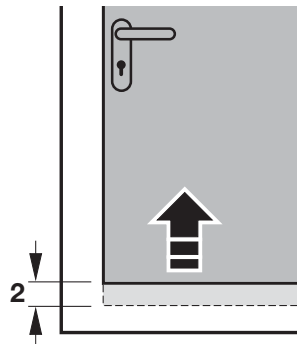
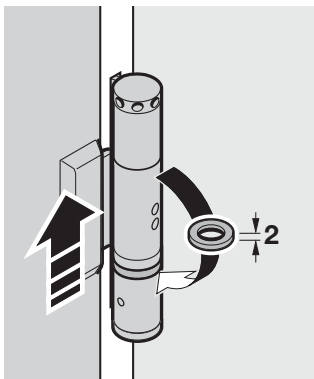
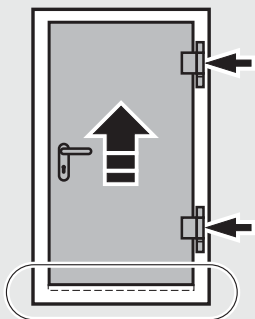
1.



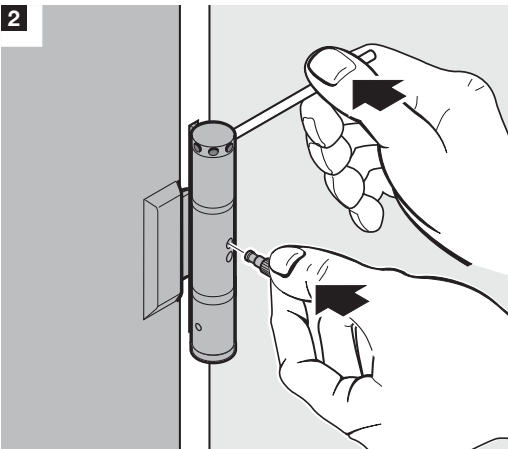
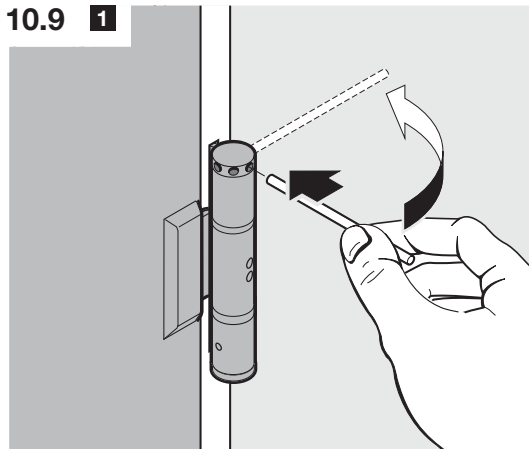
2.



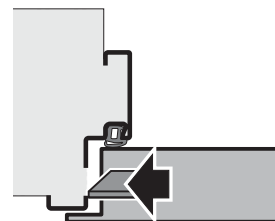
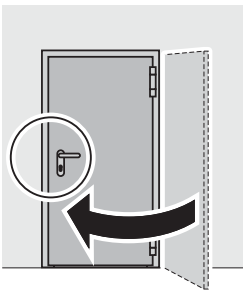
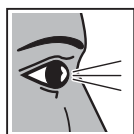
10.8



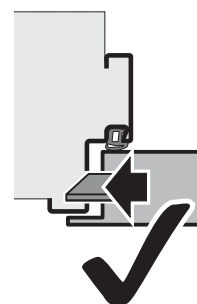
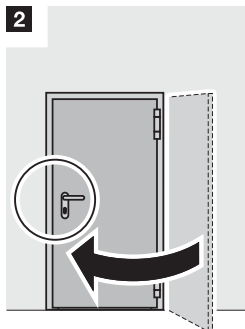
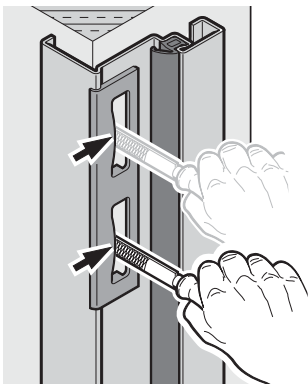
10.9 1



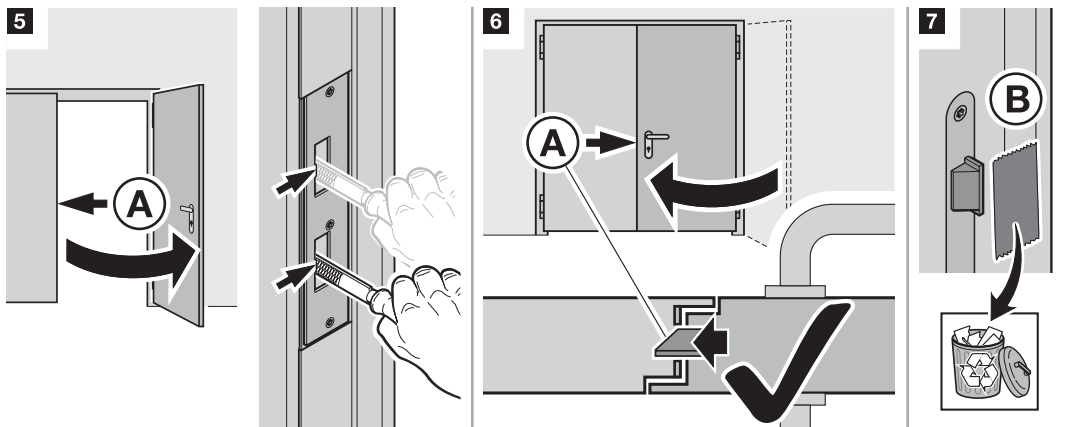
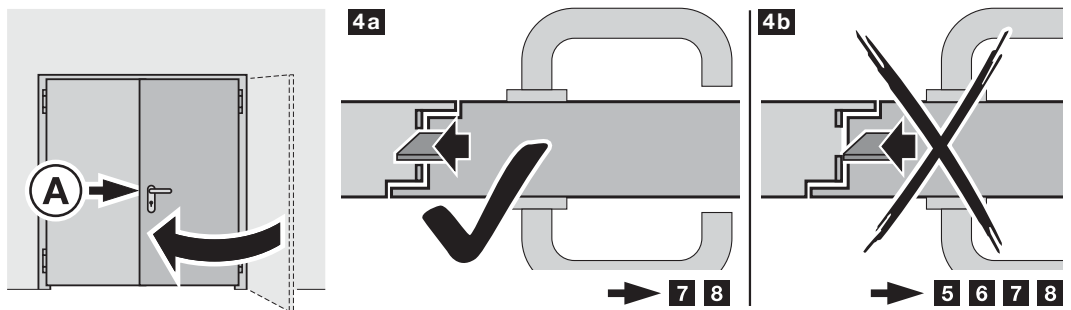
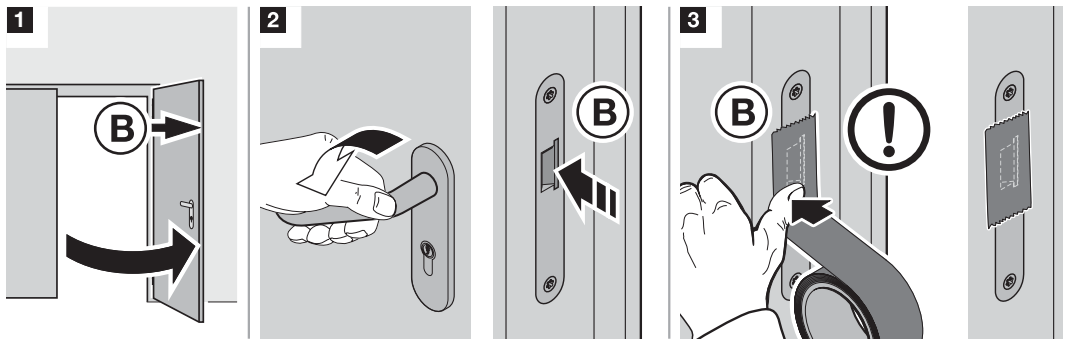
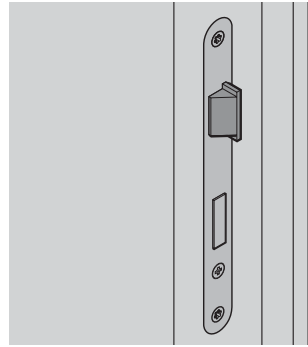
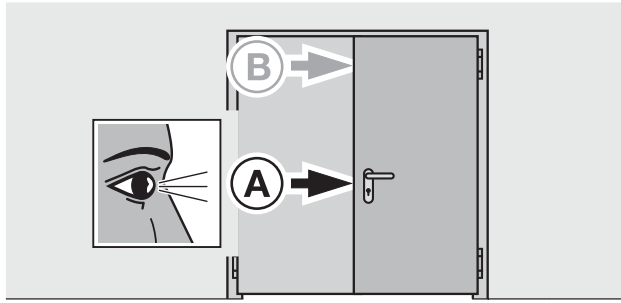
10.10a



→ 1 2

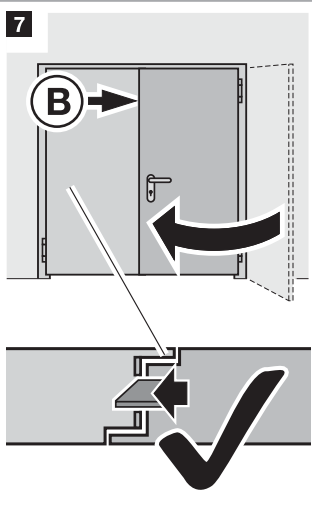
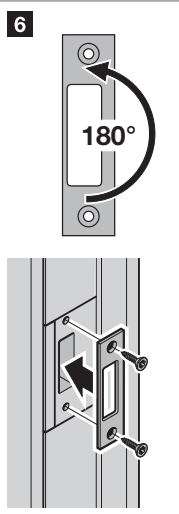
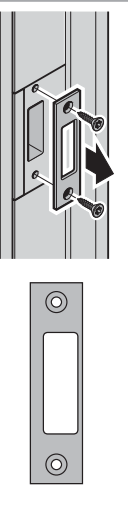
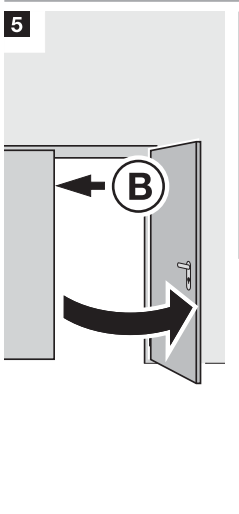
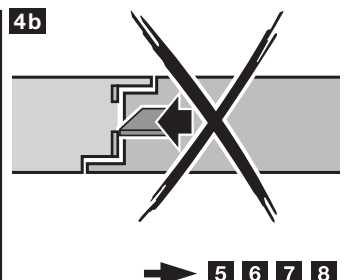
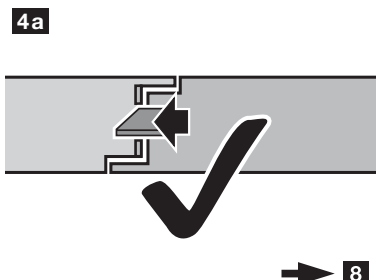
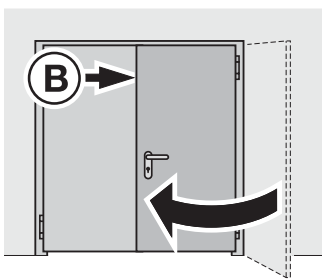
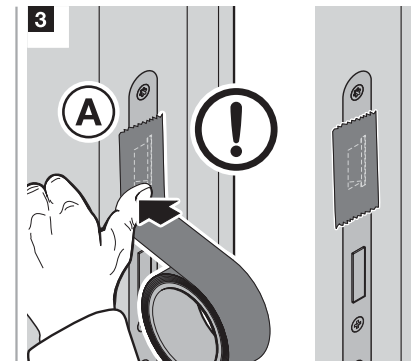
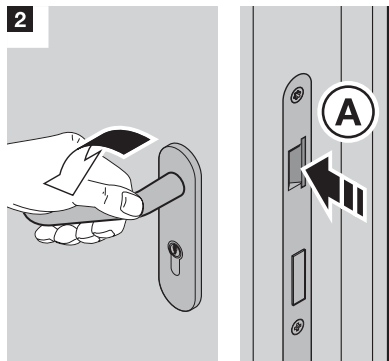
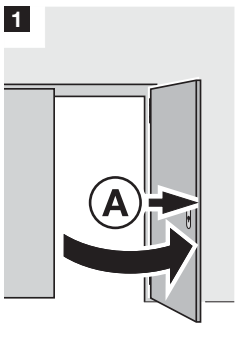
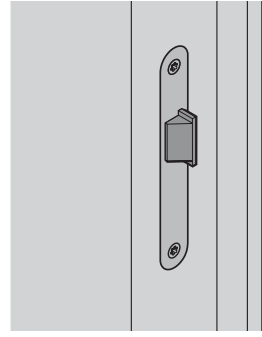
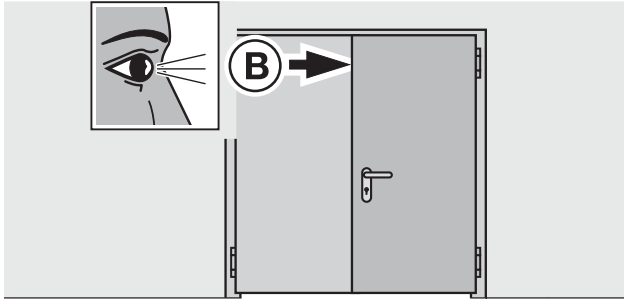


10.10b H16-2 G / H_90 F-2

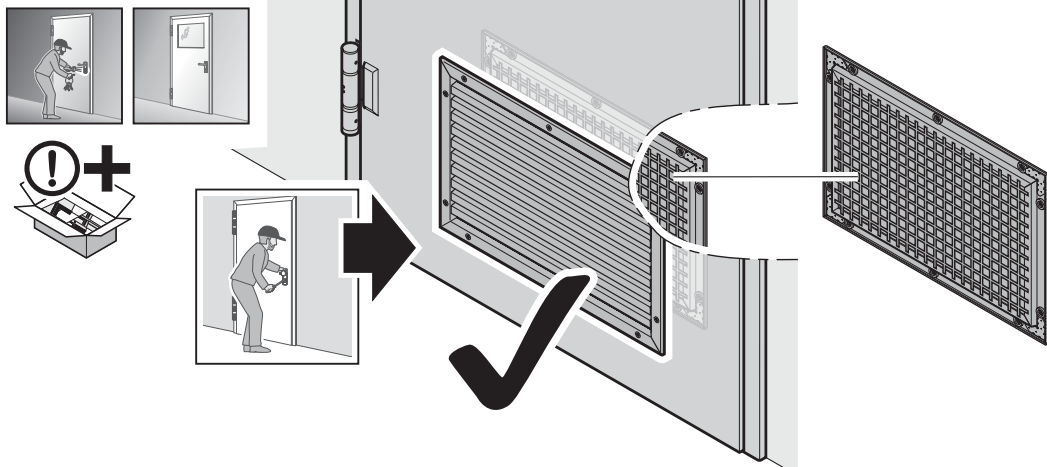


8 → 10.10c

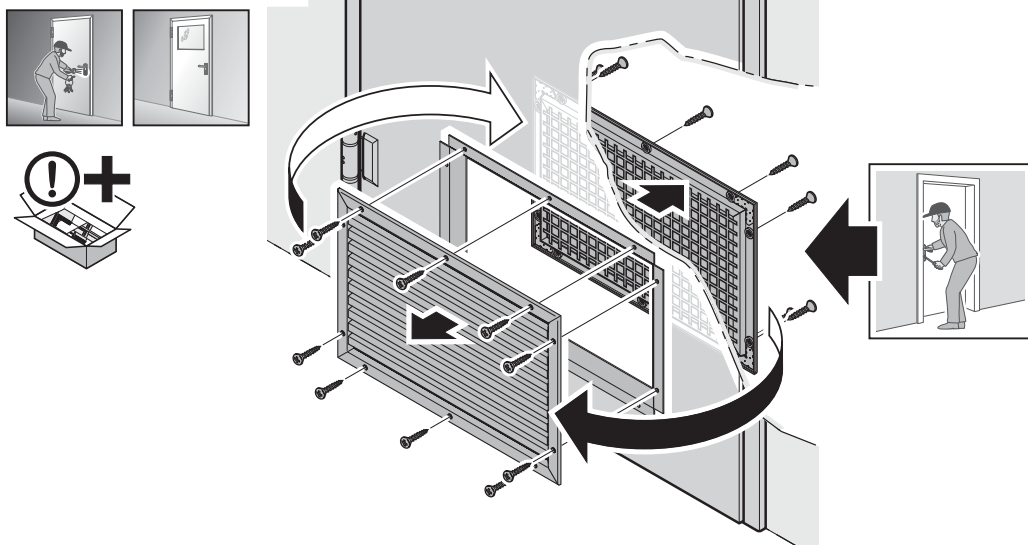
10.10c H16-2 G / H_90 F-2



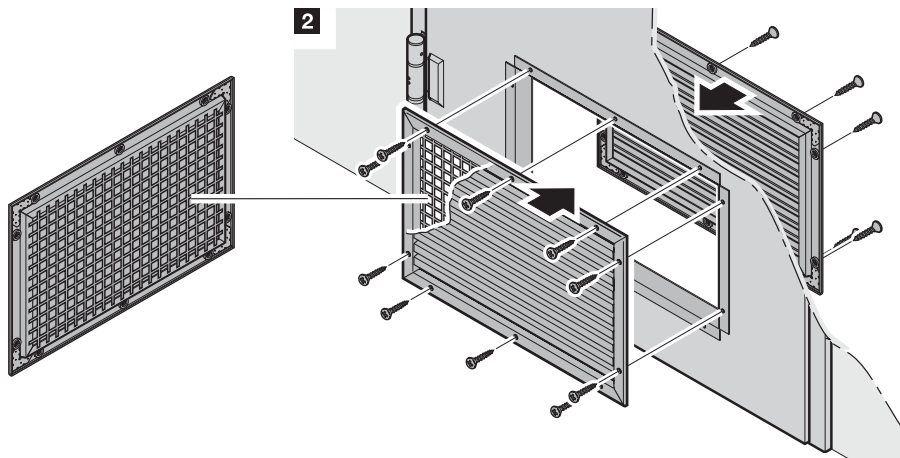
10.11a



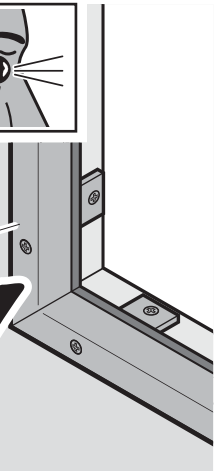
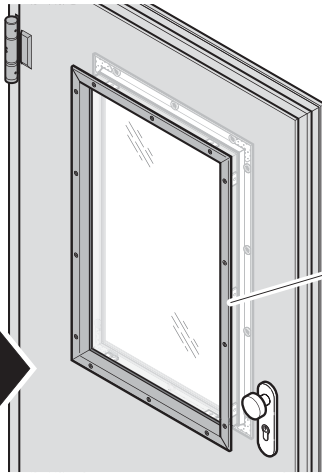
10.11b



2

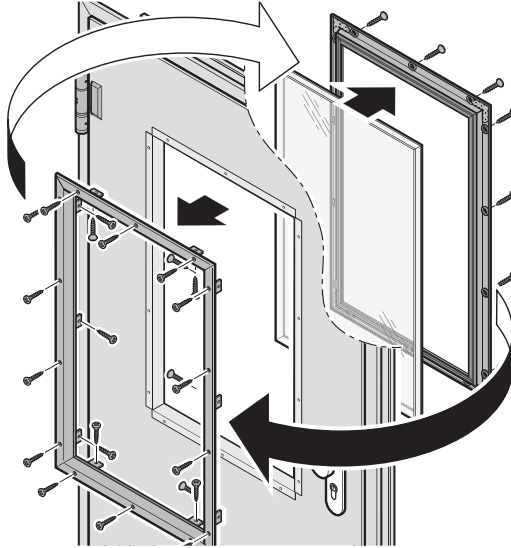


10.12a

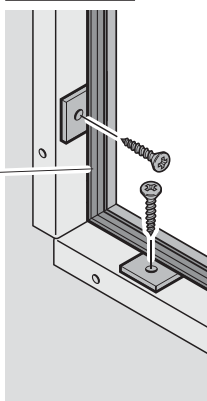
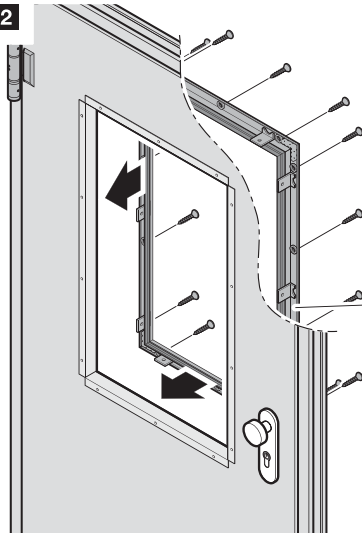


10.12b

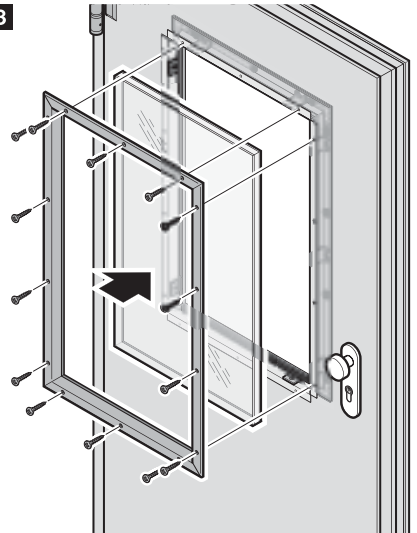
1

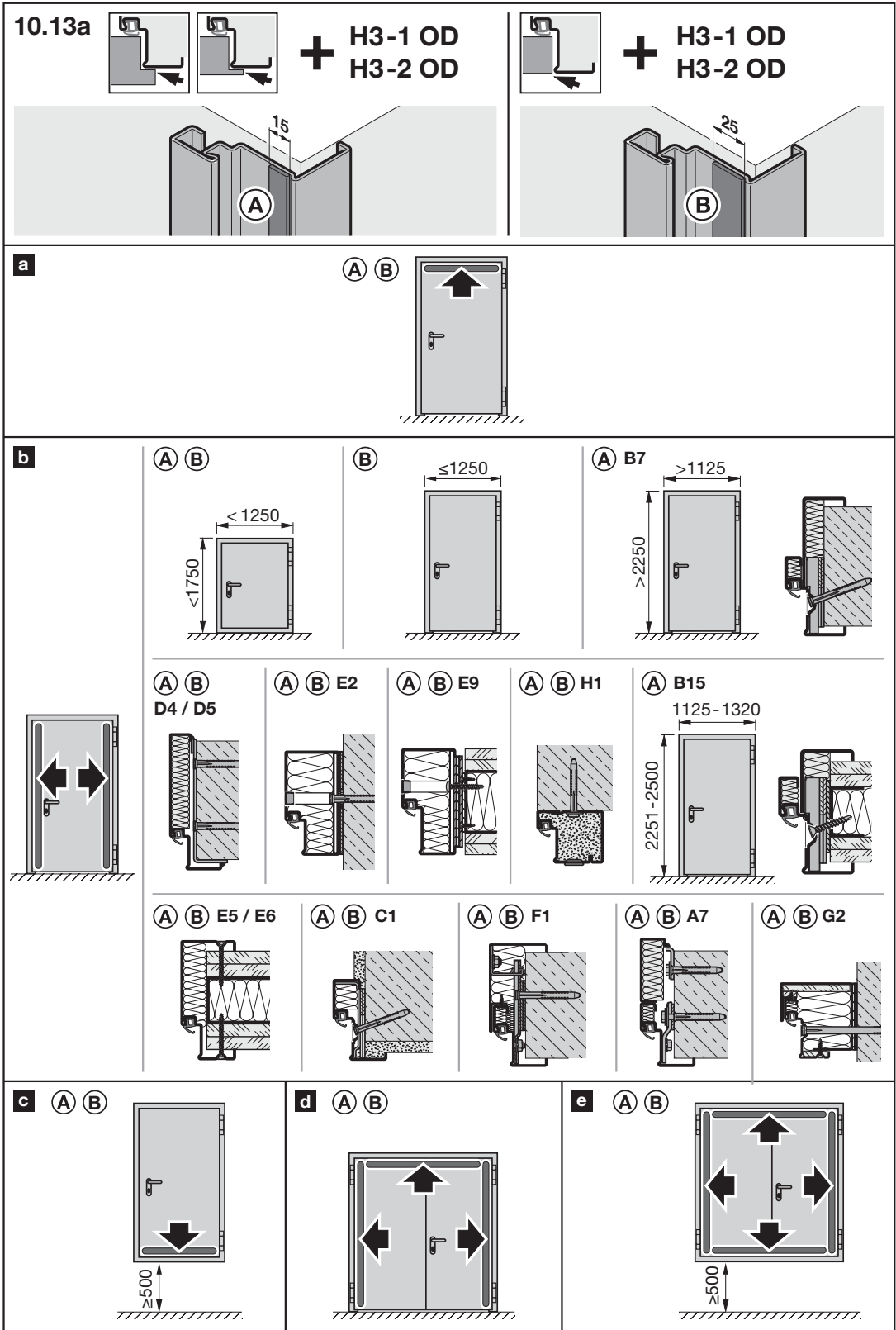


2

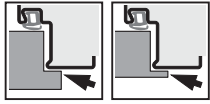


3

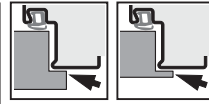




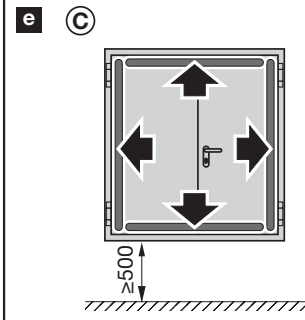
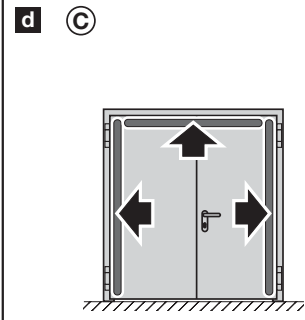
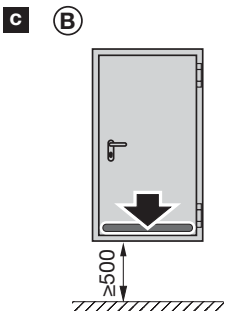
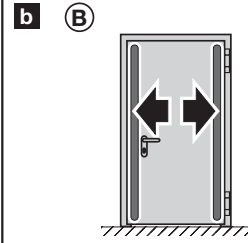
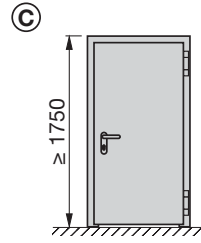
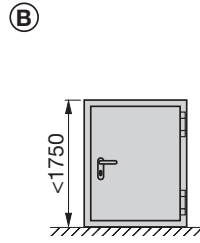
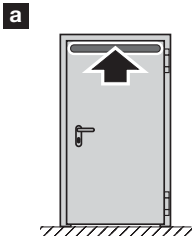
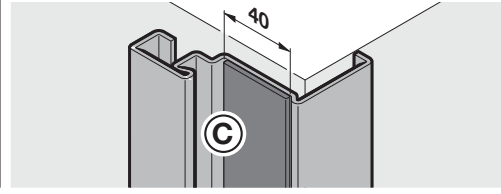
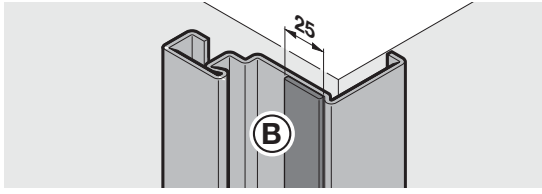
10.13b



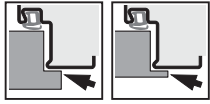
+ H16-1 OD



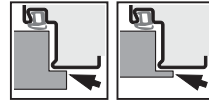
+ H16-1 OD
+ H16-2 OD



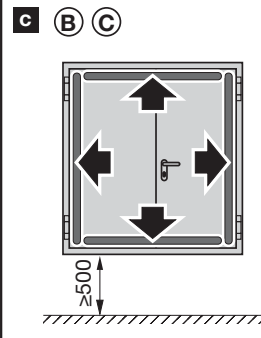
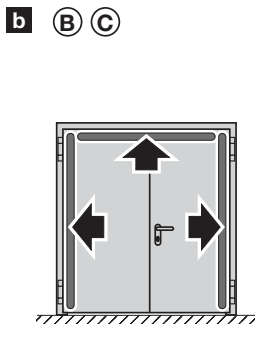
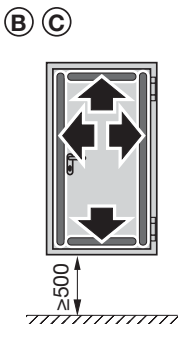
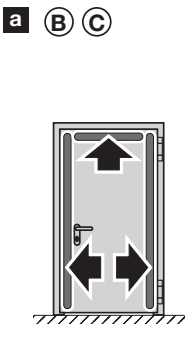
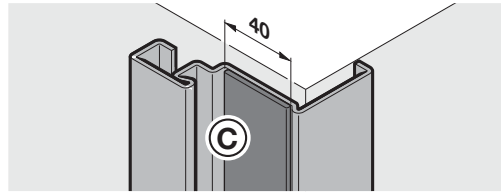
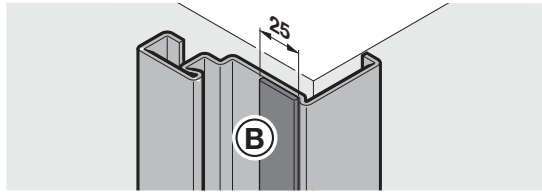
10.13c



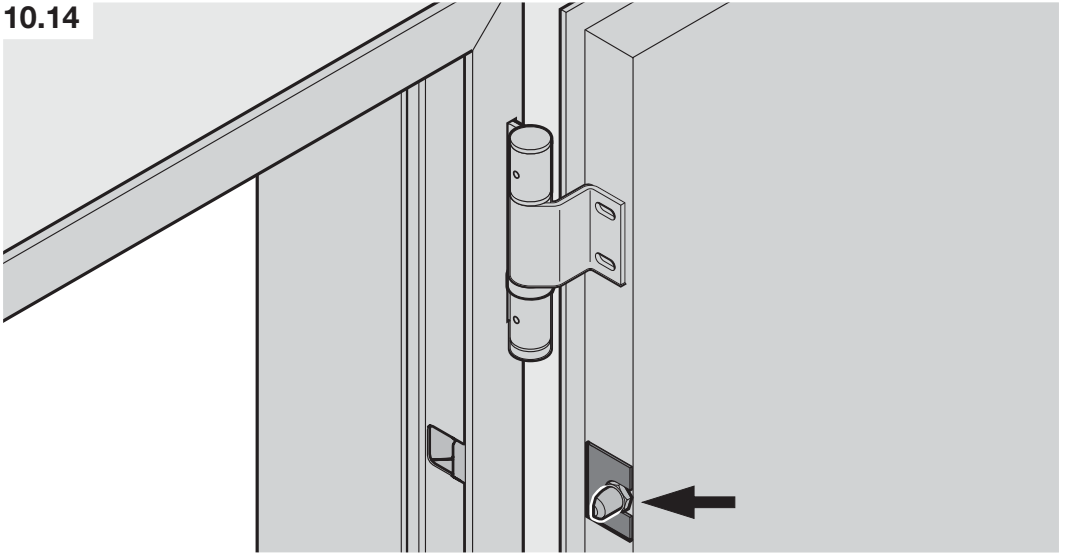
+ H3-1
+ H3-2 G



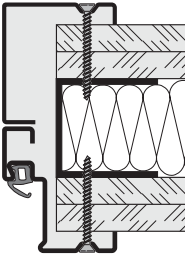
+ H16-1
+ H16-2 G
+ H16S-1



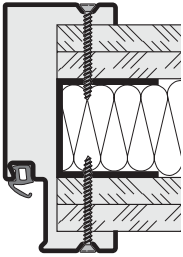
10.14



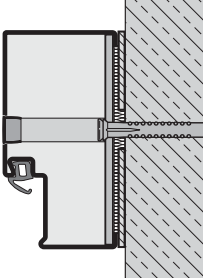
A10-A13



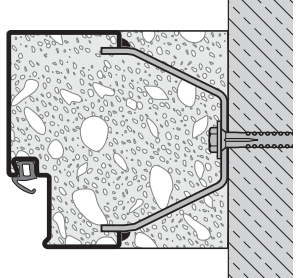
E5-E8



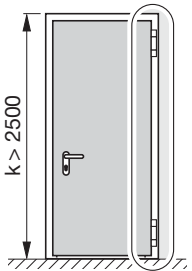
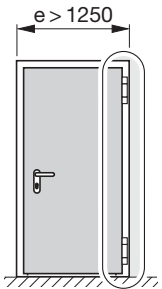
E1, E2



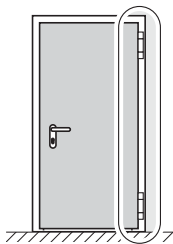
E3



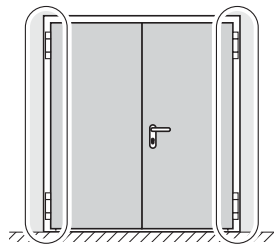
T30-1 / H_30-1



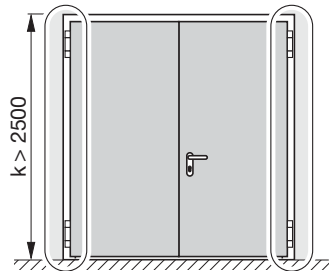
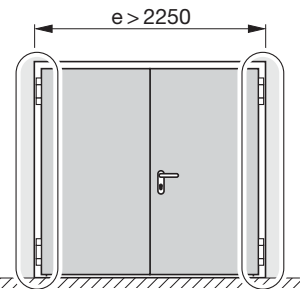
T90-1 / H_90-1



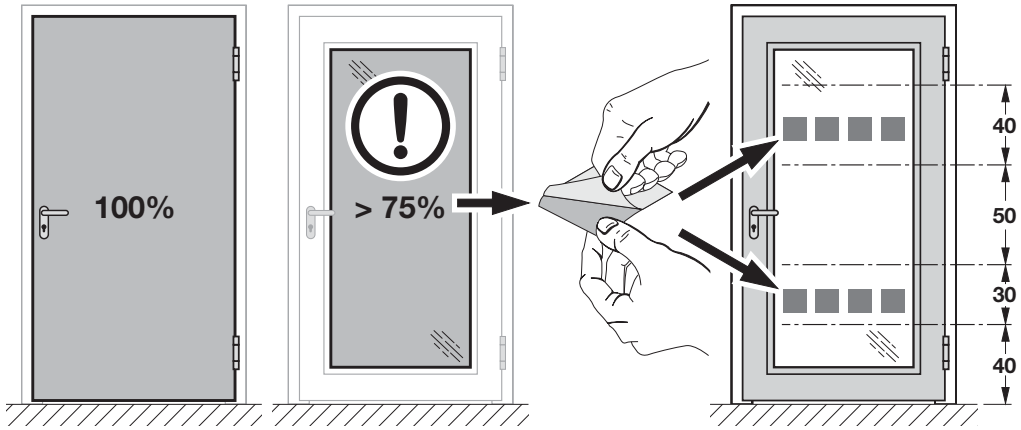
T30-2 RC3 / H_30-2 RC3



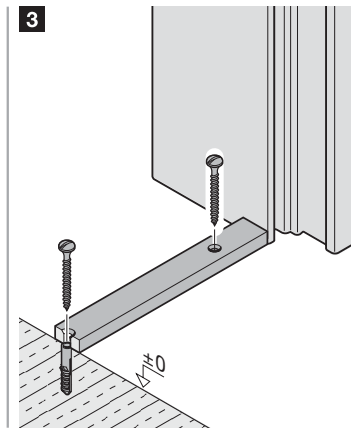
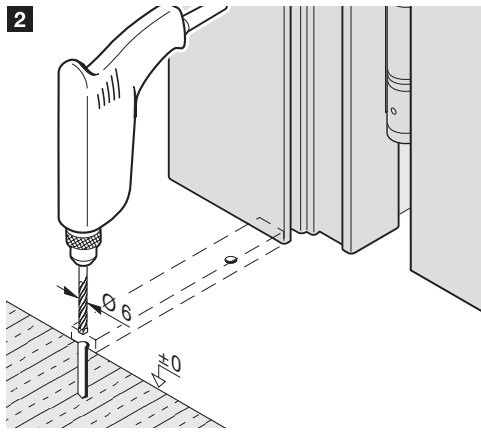
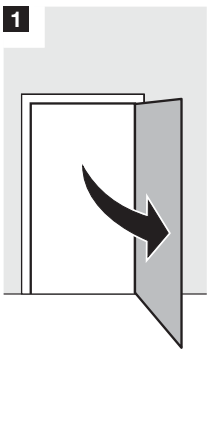
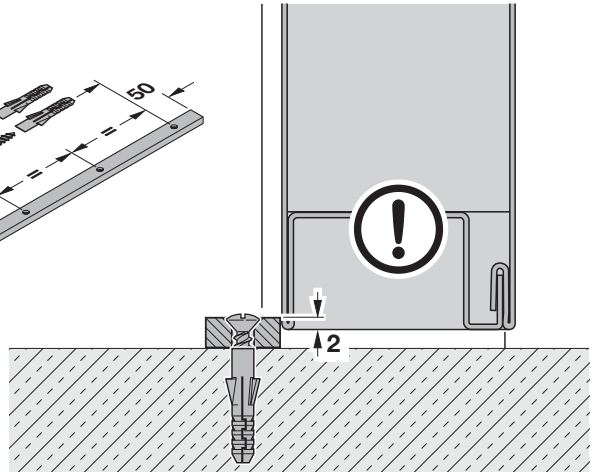
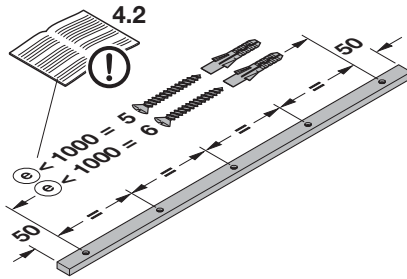
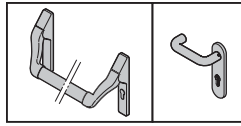
T90-2 / H_90-2



10.15

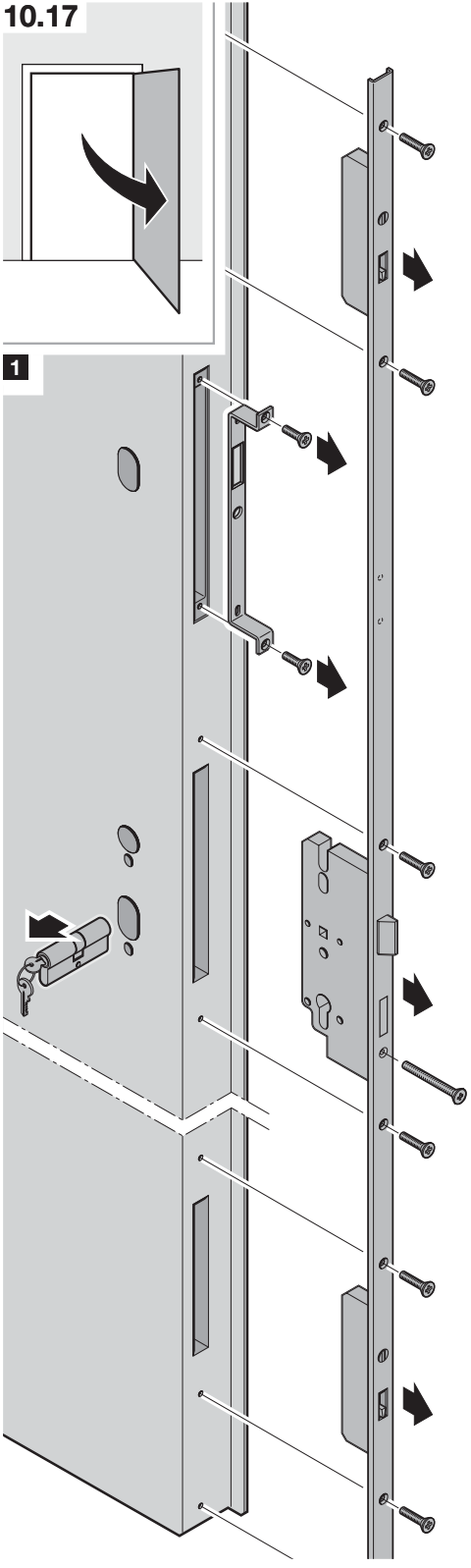


10.16

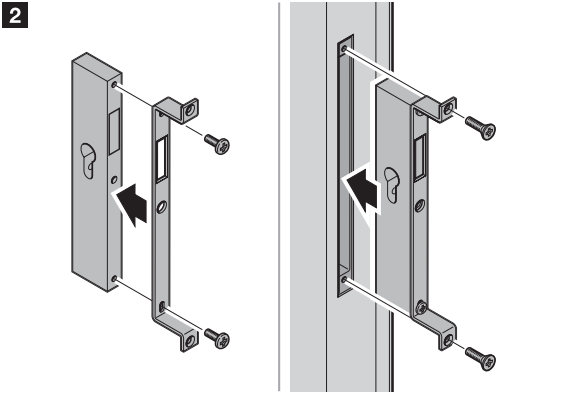


10.17

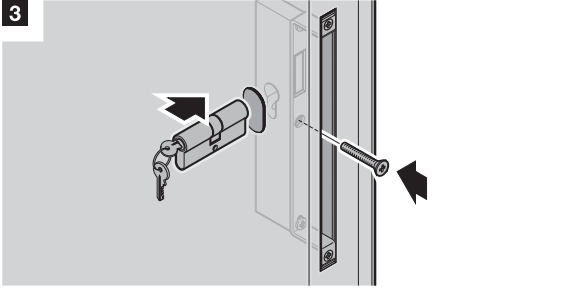
1



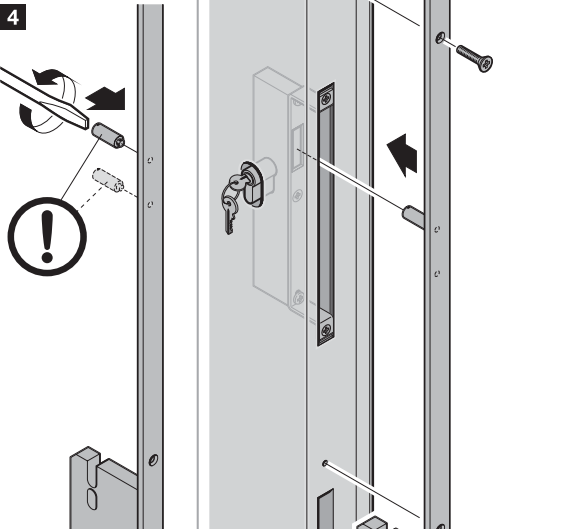
2



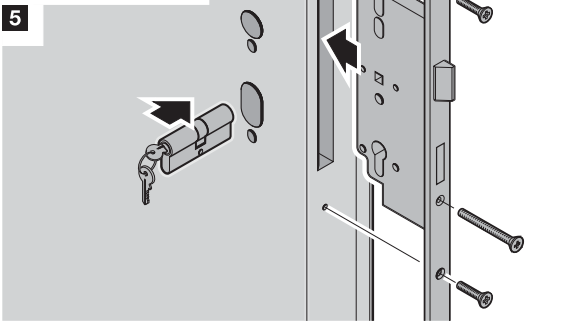
3



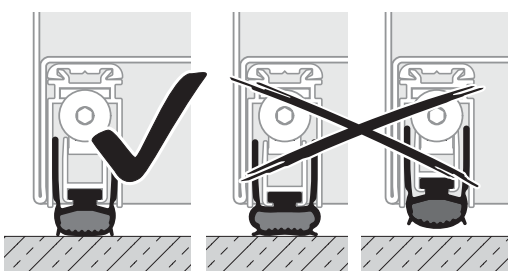
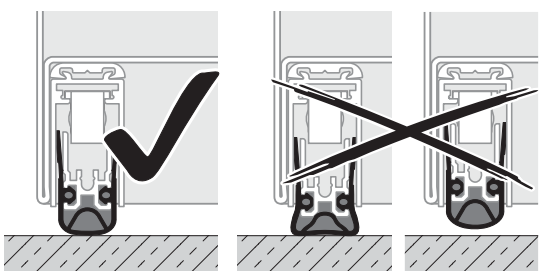
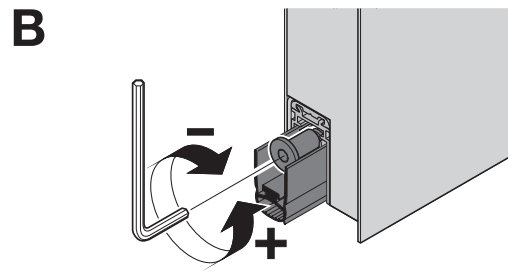
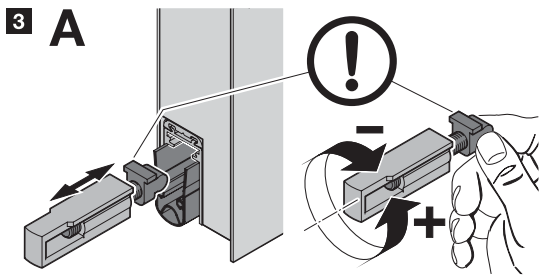
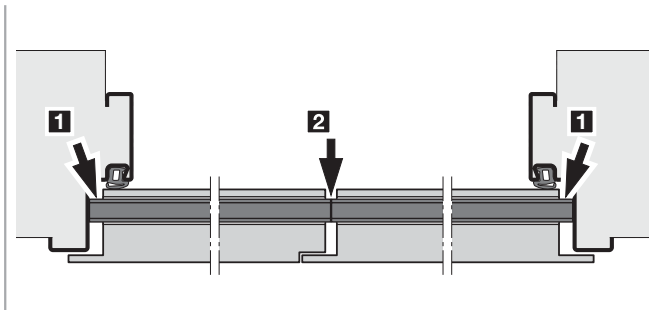
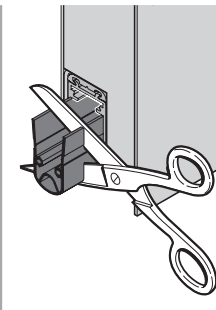
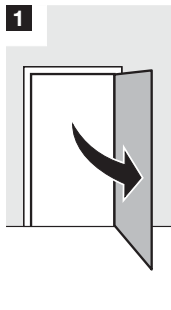
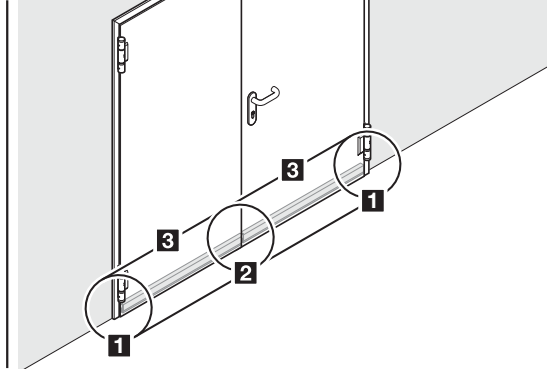
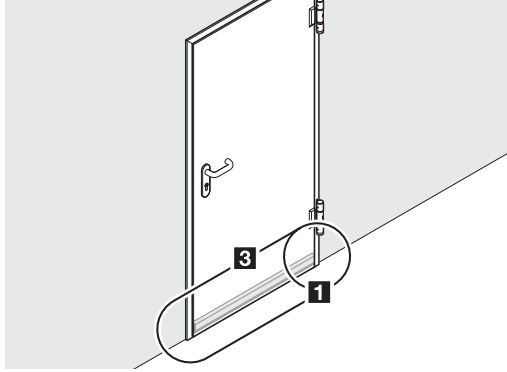
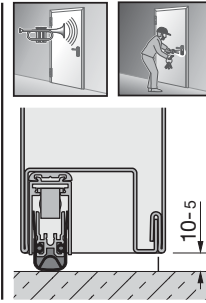
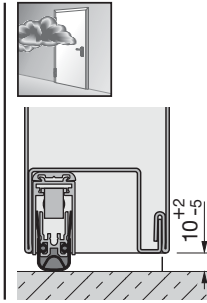
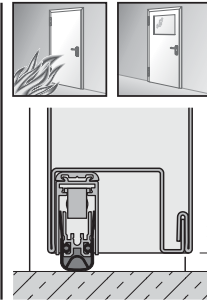
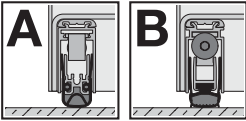
4

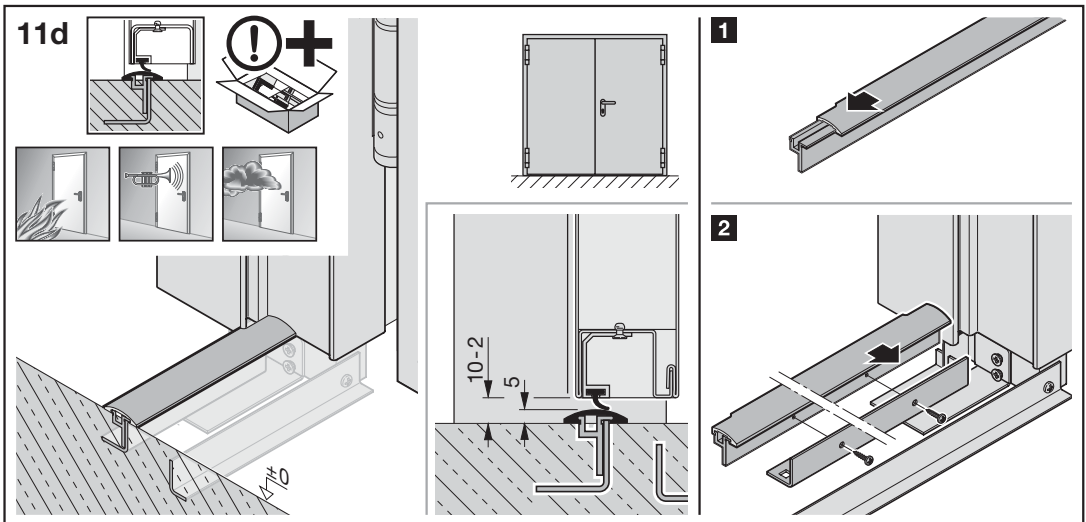
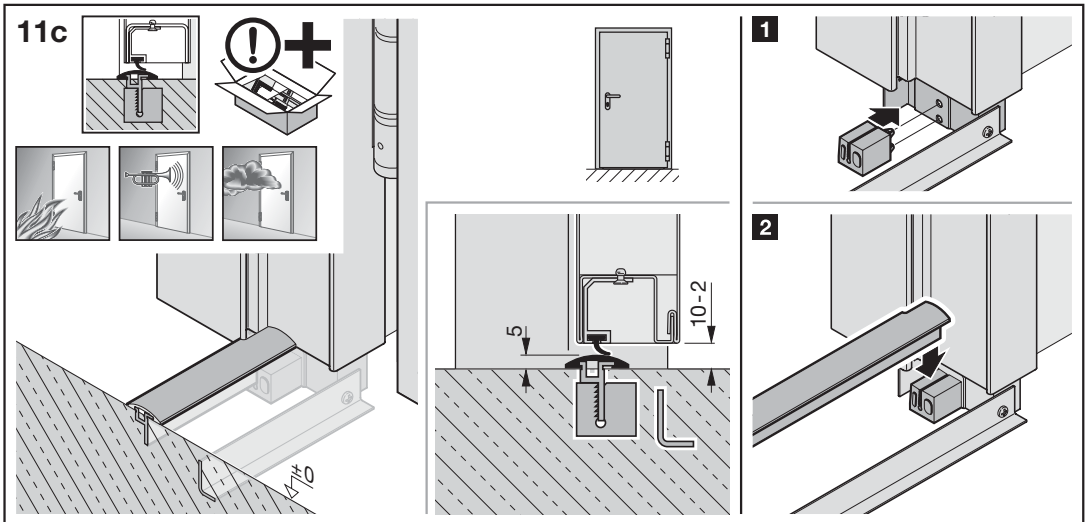
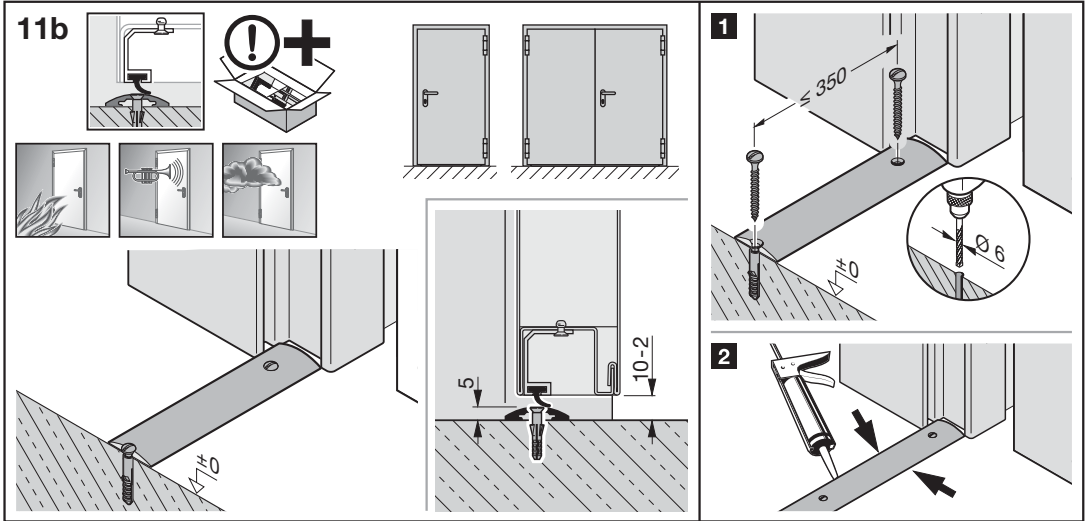


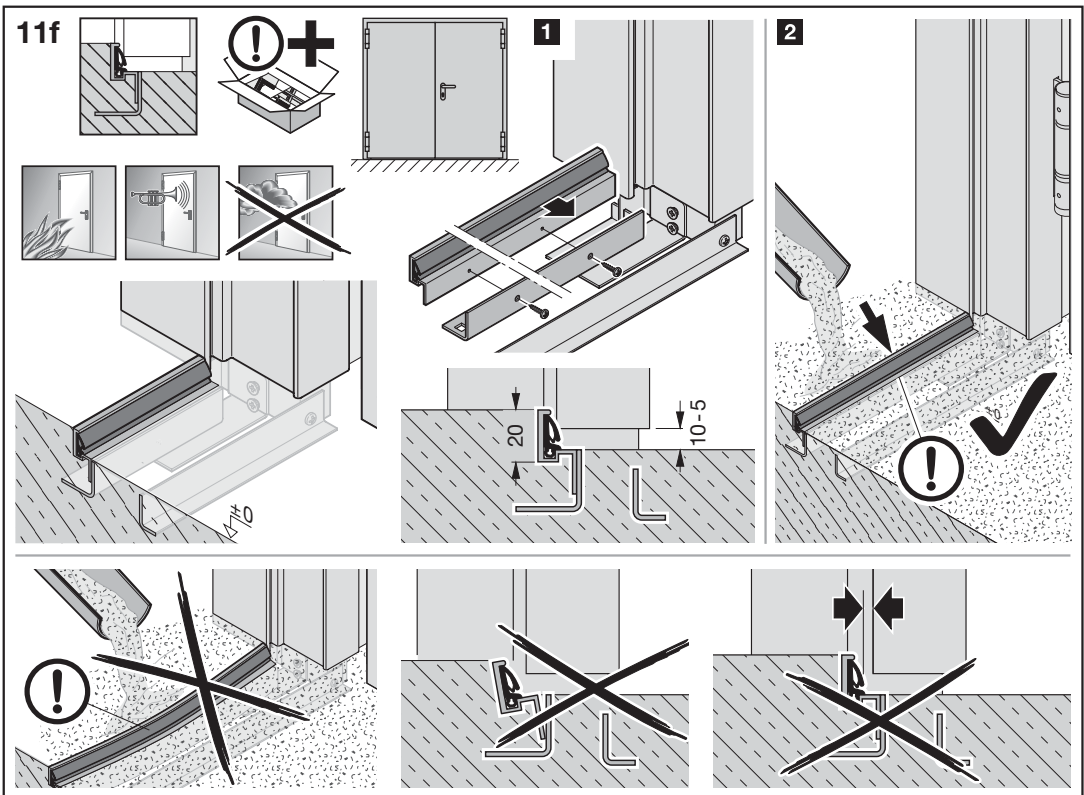
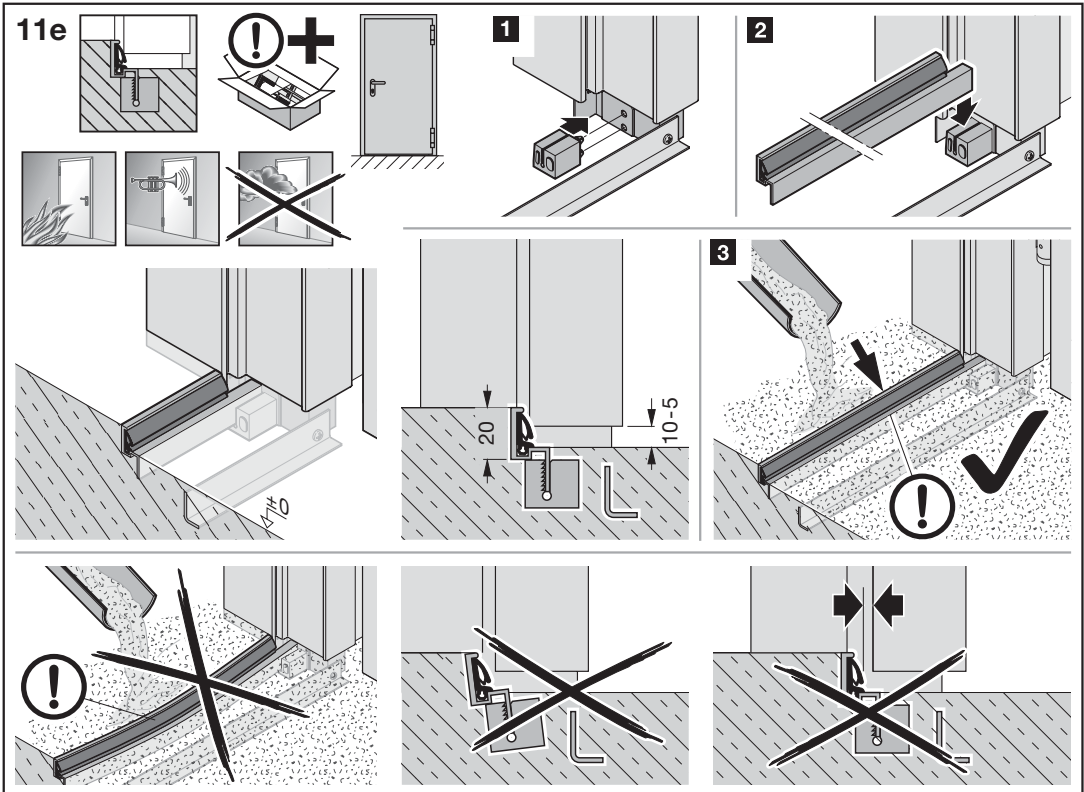
5



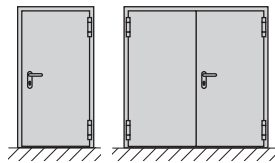
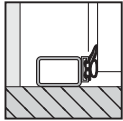
11a



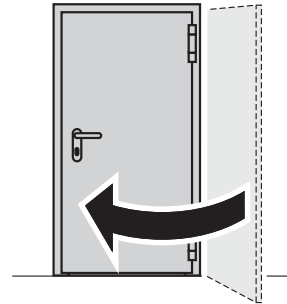
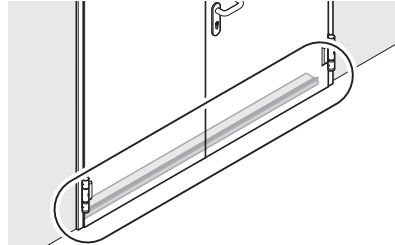
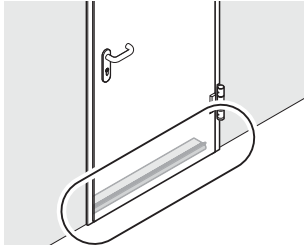




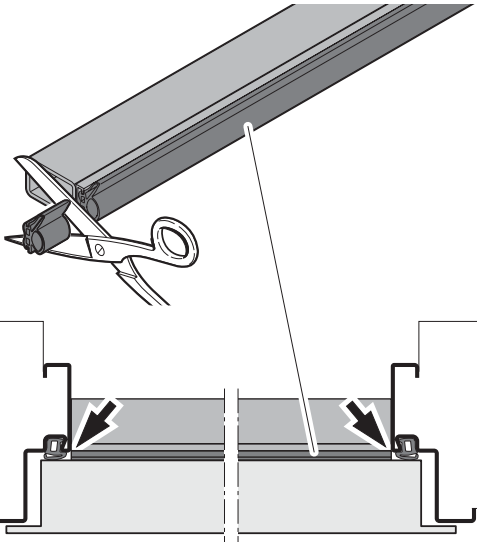
11g



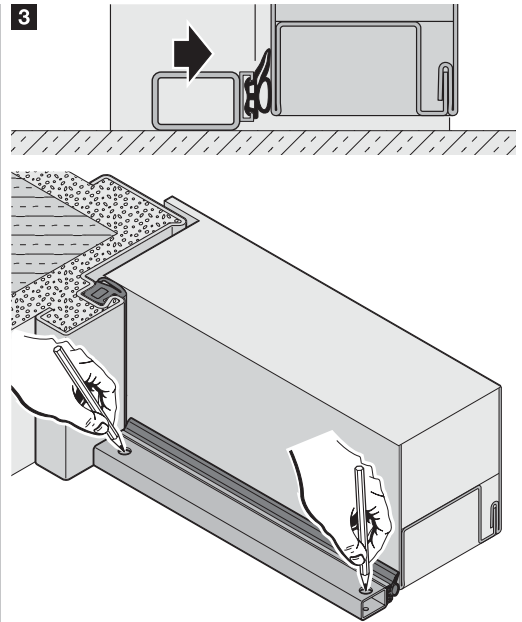
1



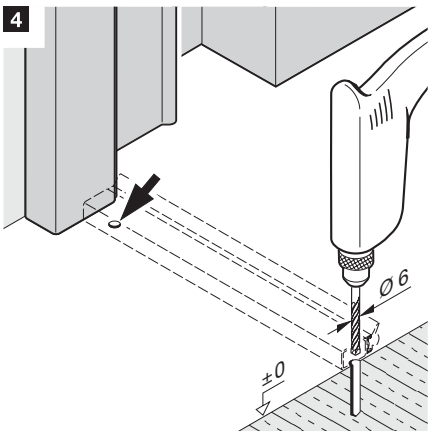
2



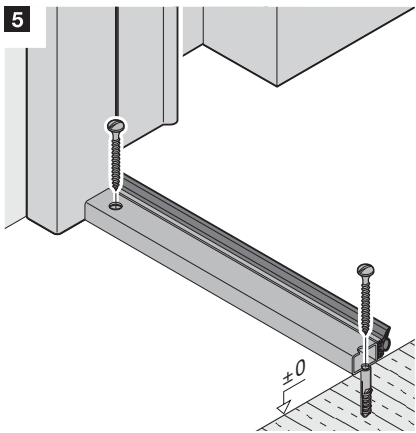
3



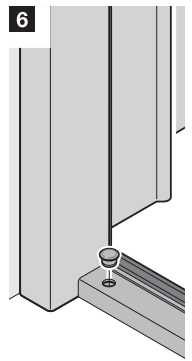
4



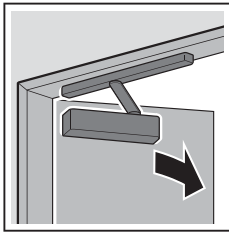
5



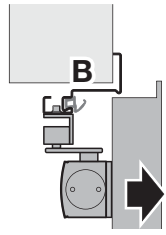
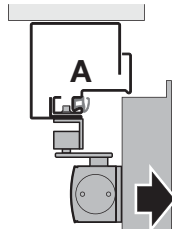
6



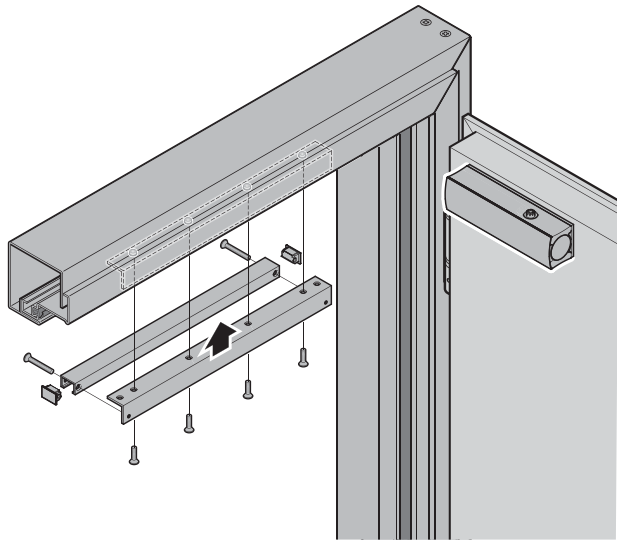
12a



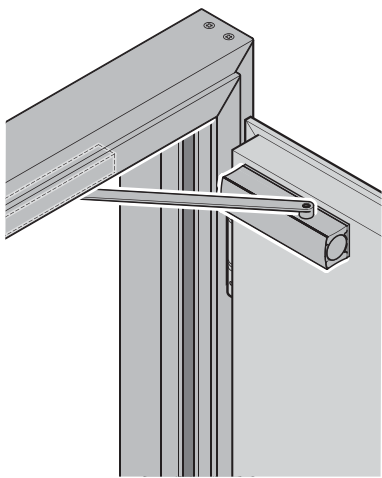
HDC 35 BG



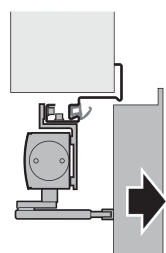
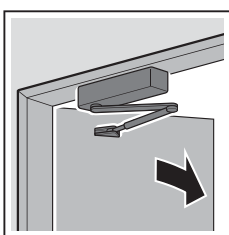
1



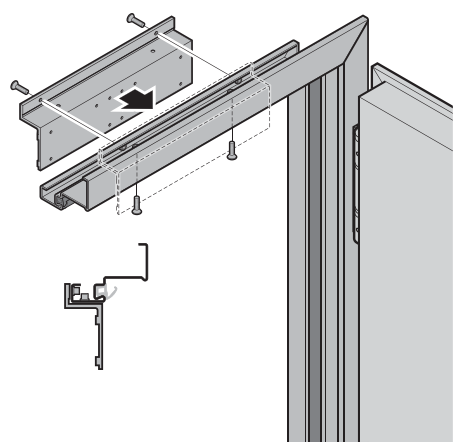
2



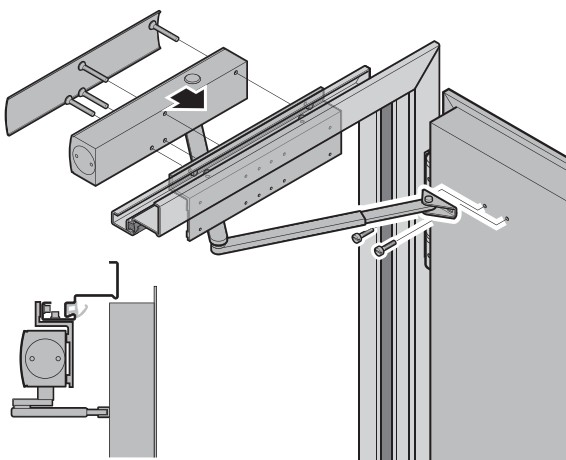
12b

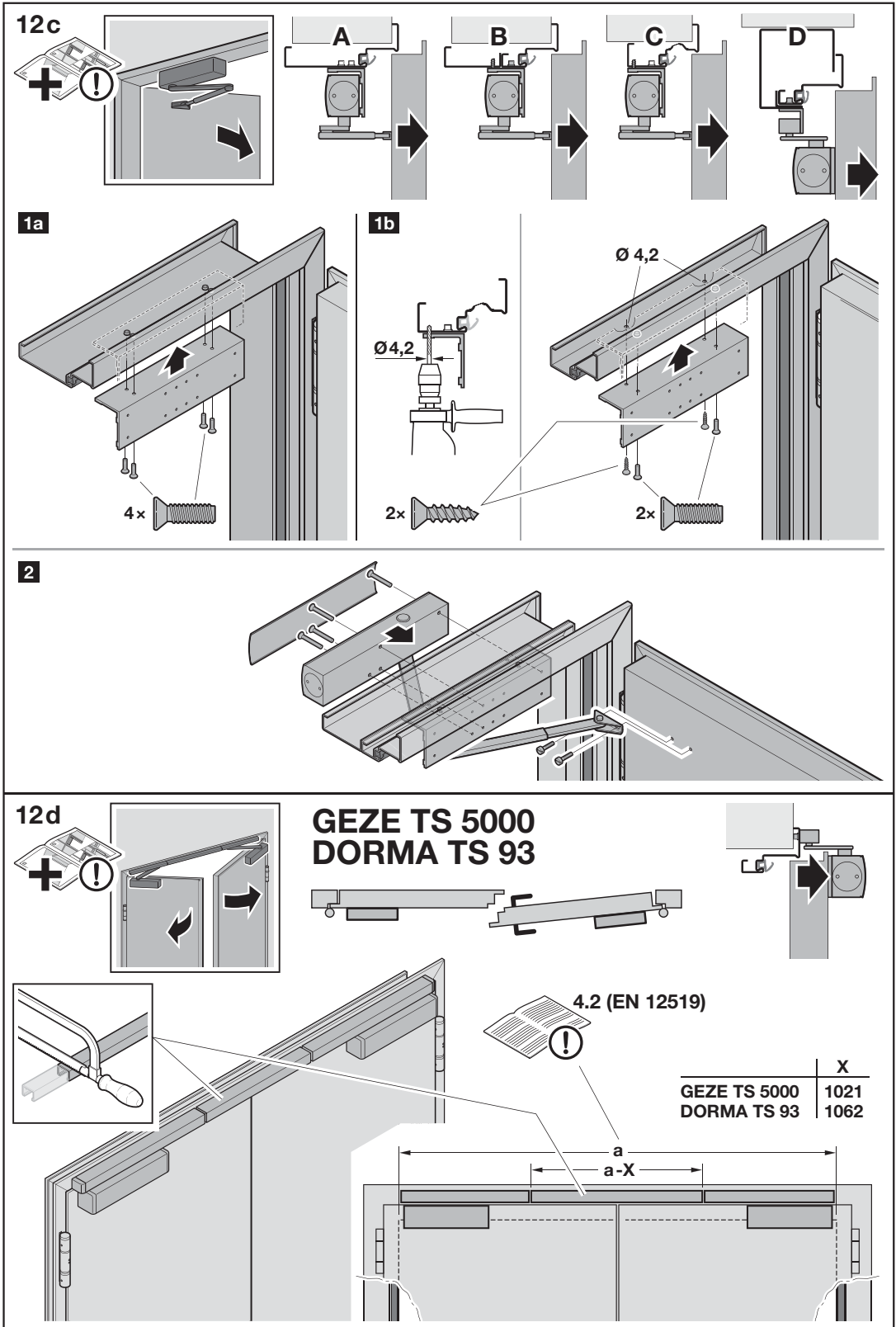


1

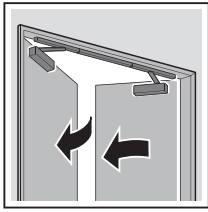


2

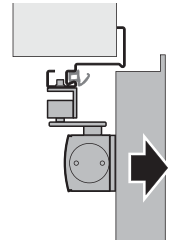
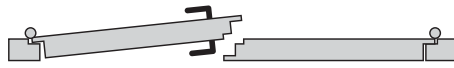




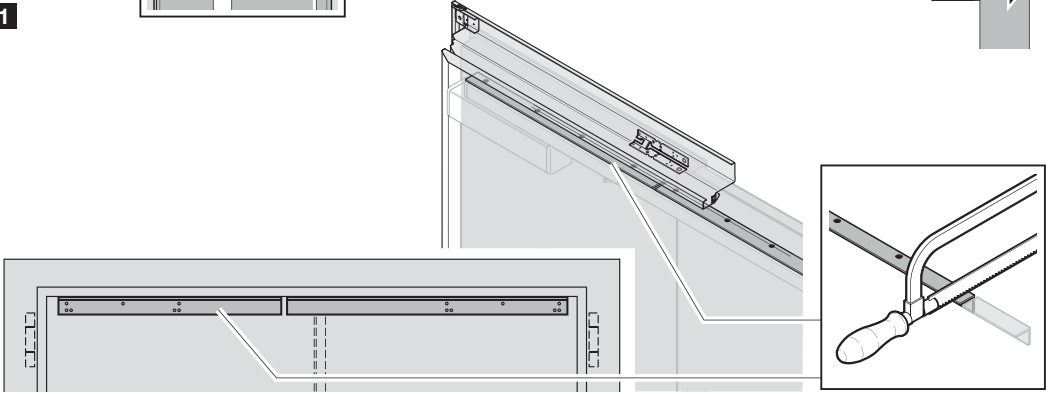
12e



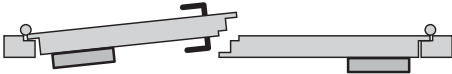
**GEZE TS 5000
DORMA TS 93**



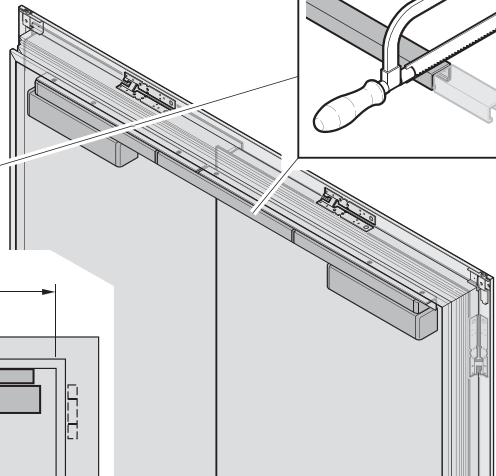
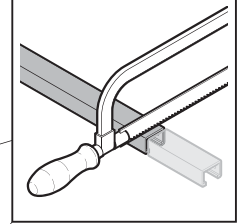
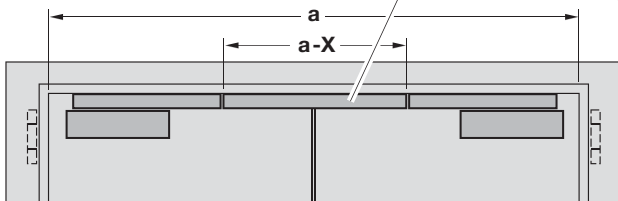
1



2

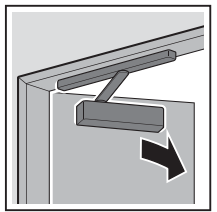


	X
GEZE TS 5000	1130
DORMA TS 93	1179

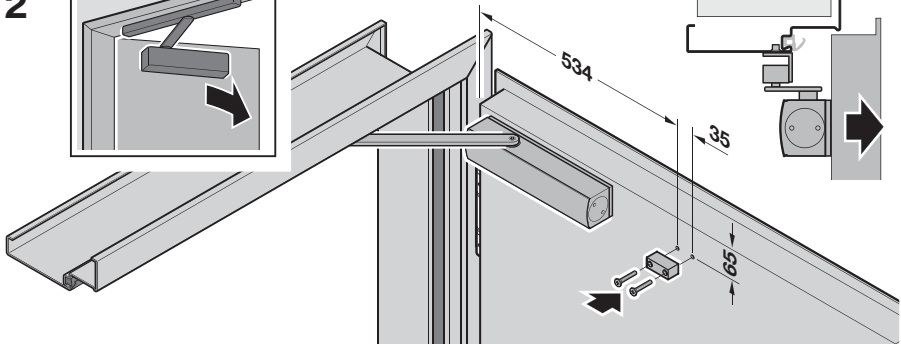


12f

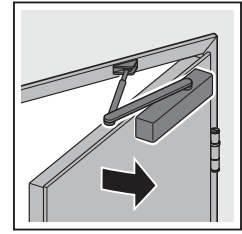
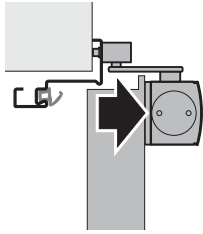
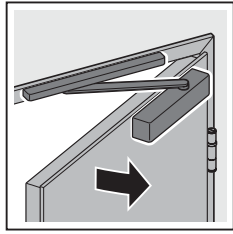
**H16-2
H3-2**



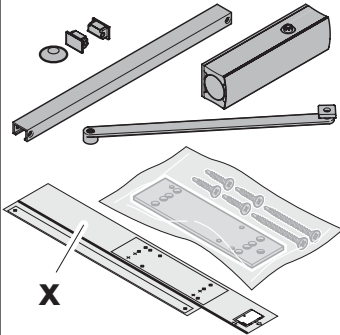
TS 93 GSR BG



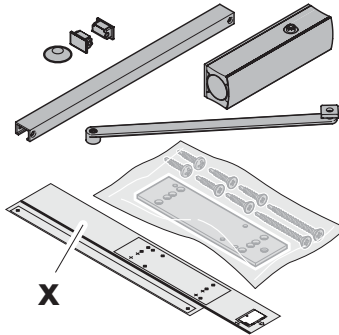
12g



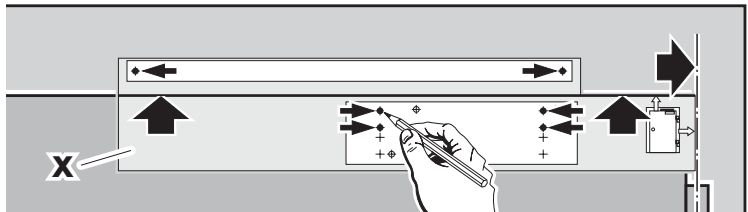
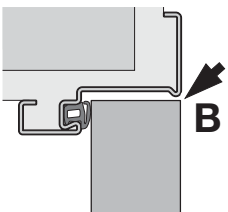
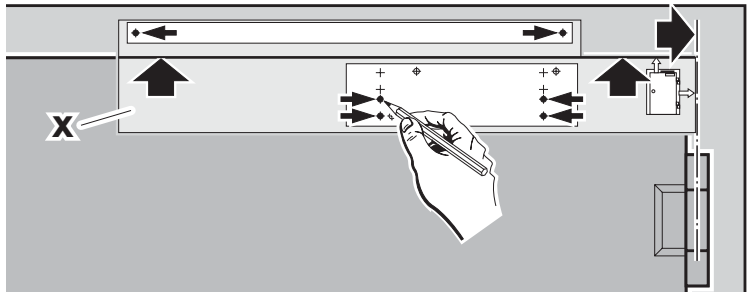
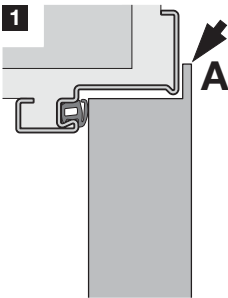
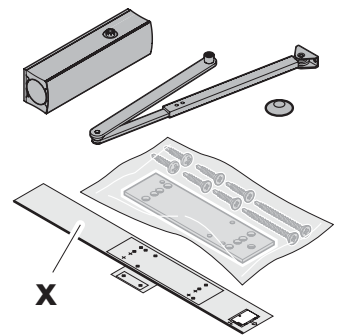
HDC 35



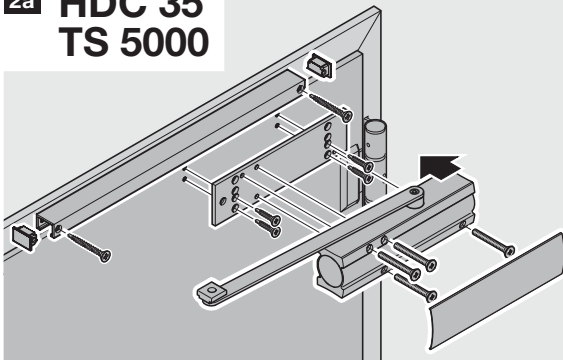
TS 5000



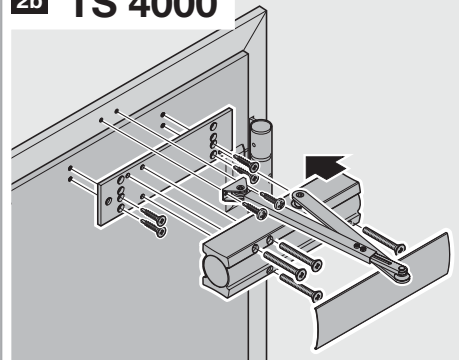
TS 4000



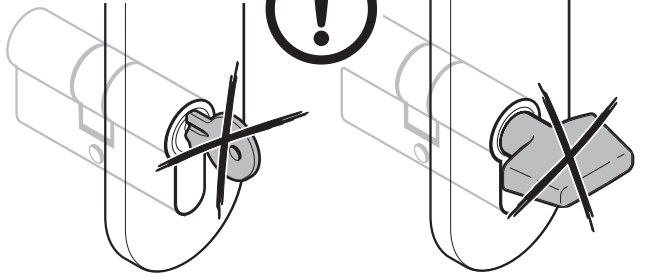
2a HDC 35 TS 5000



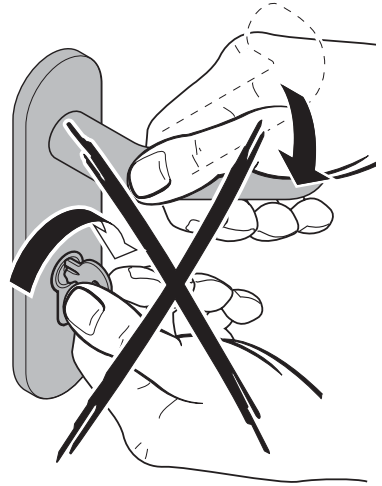
2b TS 4000



13.1a



13.1b



1

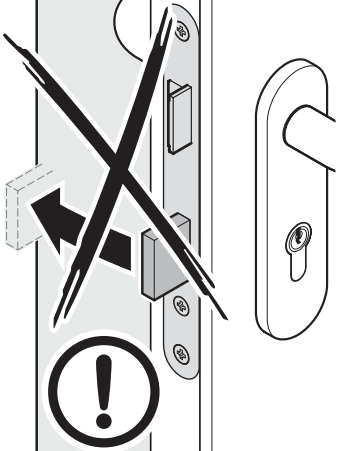
2

3



13.2

1



2



3

