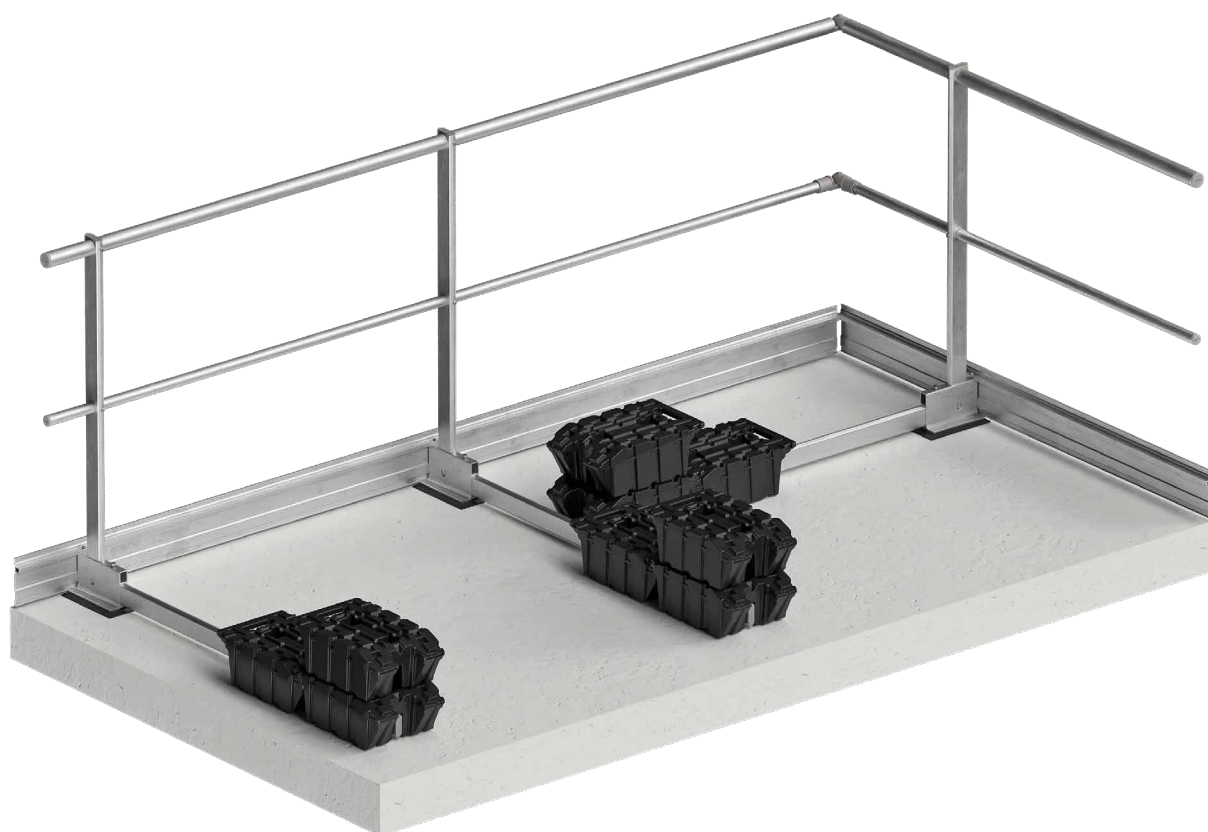
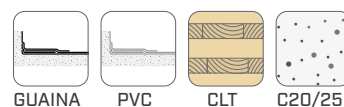


BORDER W

SAFETY REGULATIONS, INSTRUCTIONS FOR
INSTALLATION AND USE



I INDEX

IT	4
DE	22
EN	36
ES	50
FR	64
PT	78

NORME DI SICUREZZA, ISTRUZIONI DI UTILIZZO E INSTALLAZIONE

INTRODUZIONE

DEFINIZIONE

Il parapetto autoportante **BORDER W** è un sistema di protezione collettiva anticaduta, ideale per la sicurezza dei tetti, realizzato in lega di alluminio (**EN AW 6005A-T6 e EN AW 6063-T6**).

NORME

Il parapetto a fissaggio orizzontale **BORDER W** è conforme alle seguenti normative:

- **EN 14122-3:2016**
- **EN 13374:2025 Cl. A (eccetto punto 9)**
- **EN 13374:2013+A1:2018 Cl. A (eccetto punto 9)**
- **NF E 85-015:2019 (Francia)**

La tabella riporta i principali parametri geometrici previsti dalle normative di riferimento:

	EN 14122-3: 2016	EN 13374:2025 ClA EN 13374:2013 +A1:2018 ClA	NF E85-015: 2019
Min. altezza dal piano di calpestio	1,1 m	1 m	1 - 1,1 m
Max. interasse tra i correnti	500 mm	470 mm	500 mm
Max. interasse tra i montanti	1,5 m (suggerito)	-	1,5 m (suggerito)
Min. altezza tavola fermapiède	10 cm	15 cm	10 cm

USO - MANUTENZIONE

L'installazione del parapetto **BORDER** deve essere eseguita da personale qualificato, nel rispetto delle normative vigenti relative ai lavori in quota. Prima dell'uso, l'operatore deve garantire la propria sicurezza utilizzando una linea vita temporanea, DPI e una piattaforma di lavoro idonea.

- Prima dell'uso, l'utente deve verificare, tramite ispezione visiva, che il parapetto **BORDER** non presenti anomalie, danni o deformazioni (urti, piegature, ecc.).
- Il parapetto **BORDER** non richiede interventi di manutenzione specifici. È tuttavia necessario eseguire almeno un controllo visivo annuale da parte di personale qualificato.
- Se il parapetto **BORDER** non è installato in modo corretto, risulta danneggiato o ha arrestato una caduta, il suo utilizzo deve essere immediatamente sospeso. Non deve essere riutilizzato fino a quando un tecnico qualificato non abbia eseguito l'ispezione e la verifica, rilasciando autorizzazione scritta.
- Se il prodotto è rivenduto al di fuori del Paese di destinazione, è essenziale per la sicurezza dell'utente che il rivenditore fornisca il manuale di istruzioni nella lingua del Paese in cui il prodotto viene utilizzato. I documenti possono essere forniti su richiesta contattando il produttore.
- Il parapetto **BORDER** è un dispositivo di protezione collettiva permanente, destinato esclusivamente a professionisti operanti su coperture non accessibili al pubblico.
- Se installato in ambienti industriali inquinati, petrolchimici, navali o costieri, il parapetto **BORDER** deve essere sottoposto a un trattamento superficiale adeguato, come verniciatura a polvere o anodizzazione.
- Se è stata fornita una planimetria, deve essere utilizzata come riferimento durante l'installazione.
- Se il parapetto **BORDER** è esposto a velocità di picco del vento superiori a 31 m/s (ca. 110 km/h), Rothoblaas raccomanda l'applicazione di una zavorra aggiuntiva sul retro di ciascuna gamba. Tale velocità corrisponde a una pressione dinamica del vento di 600 N/m².
- Se necessario, si consiglia di collegare il parapetto ad un sistema di protezione anti-fulmini secondo le normative locali. Non utilizzare come linea di messa a terra del parafulmine.

STOCCAGGIO

I componenti in alluminio grezzo sono imballati a contatto tra loro. L'esposizione alla pioggia della confezione chiusa può favorire l'ossidazione dei componenti, con la possibile formazione di macchie superficiali. Queste non compromettono la qualità dell'alluminio, ma possono danneggiare l'aspetto estetico del parapetto. Si consiglia di disimballare il pacco e mantenere i componenti separati, evitando il contatto diretto tra loro, oppure di conservare le confezioni imballate in un luogo asciutto.

ATTREZZATURA



SPECIFICHE DI INSTALLAZIONE

VALORI MASSIMI DI INTERASSE

Tabella 1

		EN 14122-3: 2016		EN 13374:2013 +A1:2018 CIA		EN 13374:2025 CIA		NF E85-015: 2019	
montante	H _{montanti}	interasse [cm]	correnti e BORWT	interasse [cm]	correnti e BORWT	interasse [cm]	correnti e BORWT	interasse [cm]	correnti e BORWT
dritto + ribaltabile	 100 cm	N/A	BORBAR45 BORBAR32 2 centrali + 3 laterali	250 ⁽¹⁾	BORBAR45R BORBAR45R 2 centrali + 5 laterali	150 ⁽¹⁾	BORBAR45 BORBAR32 3 centrali + 4 laterali	150 ⁽¹⁾	
	 110 cm	150		250		150			
curvo	 113 cm	150 ⁽¹⁾	BORBAR45 BORBAR45 2 centrali + 3 laterali	250 ⁽¹⁾		150 ⁽¹⁾	BORBAR45 BORBAR45 3 centrali + 4 laterali		

⁽¹⁾Interassi ottenuti per interpolazione rispetto al caso più critico testato in laboratorio.

 È necessario rispettare le altezze minime dal piano di calpestio prescritte da normativa.

SOTTOSTRUTTURE COMPATIBILI



C20/25



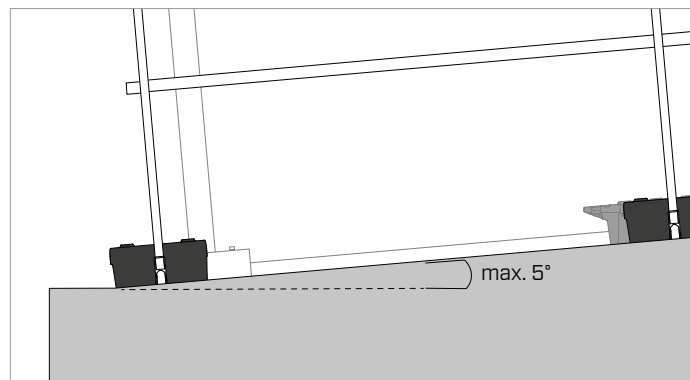
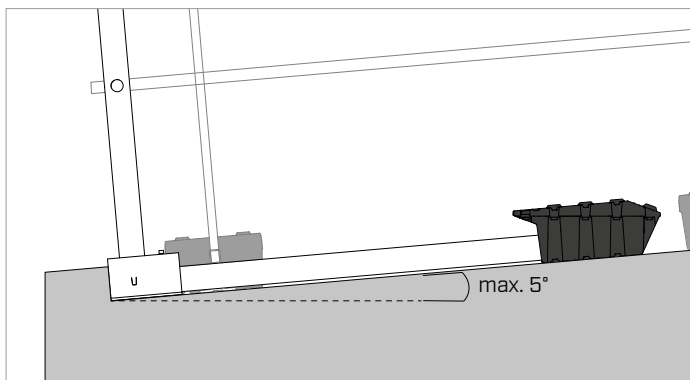
X-LAM



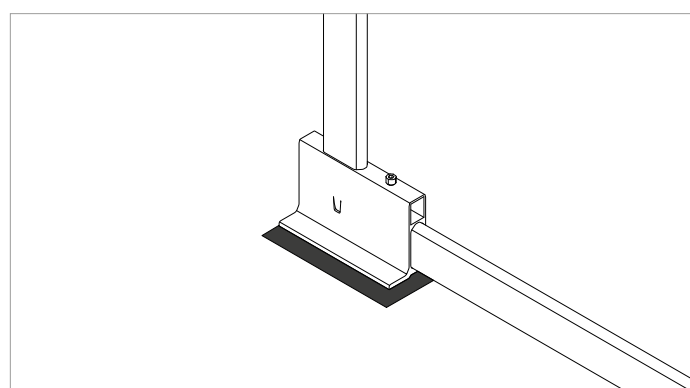
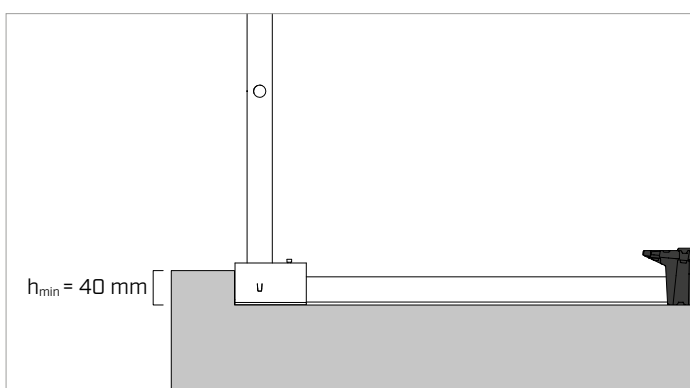
GUAINA



PVC



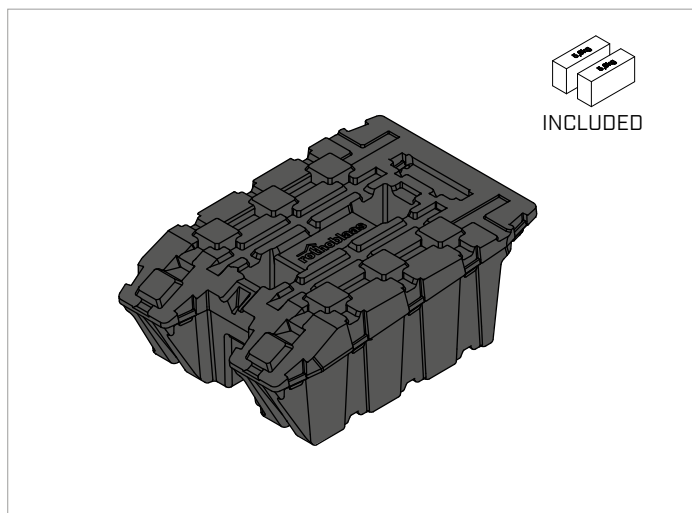
In caso di pendenza, l'inclinazione non deve superare i 5°.



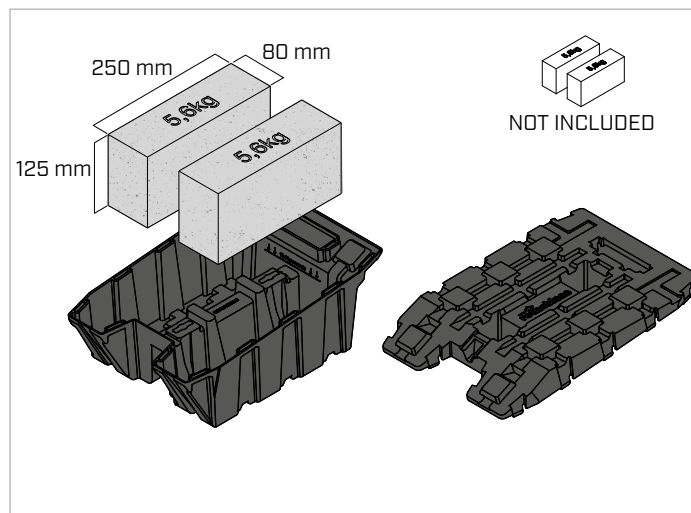
Il **BORDER W** deve appoggiare contro un cordolo di $h_{\min} = 40 \text{ mm}$.
Il cordolo deve essere in grado di resistere a una forza longitudinale minima di 150 kg/ml.

Su richiesta: tappetino antitaglio aggiuntivo **BORBASEWMAT**.

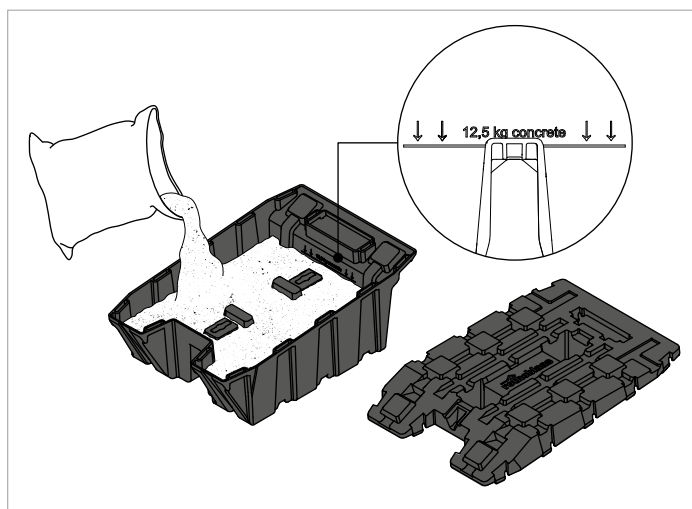
SPECIFICHE DELLE ZAVORRE



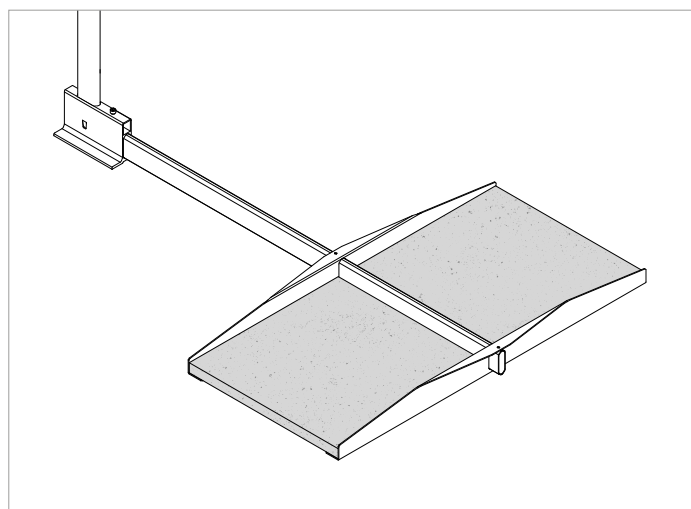
BORWT: Zavorra piena 12,5 kg con mattoni 250 x 125 x 80 mm.



BORWTBOX opzione 1: zavorra vuota da riempire con 2 mattoni 250 x 125 x 80 mm (peso finale 12,5 kg).



BORWTBOX opzione 2: Zavorra vuota, riempibile con cemento fino al limite prestabilito (peso finale 12,5 kg).



BORWTFRAME: telaio in alluminio per il contenimento di lastre in cemento 50 x 50 cm, 45 x 45 cm, 40 x 40 cm.

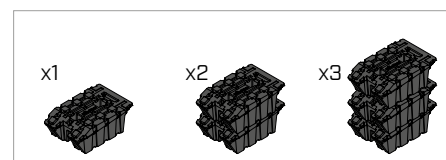
NOTA: il rapporto di peso k tra la zavorra **BORWT** e la piastra in cemento 50 x 50 cm per **BORWTFRAME** è indicativamente:

$$k = \frac{P_{50x50}}{P_{BORWT}} = \frac{21 \text{ kg}}{12,5 \text{ kg}} = 1,68$$

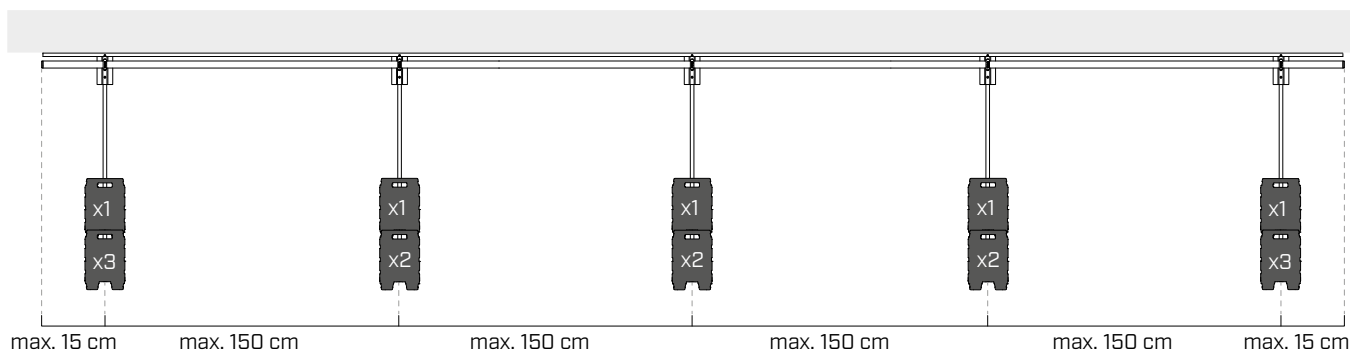
I seguenti schemi di montaggio sono validi per entrambe le configurazioni di zavorra (BORWT e BORWTFRAME). Tenere conto del diverso rapporto di peso k tra le due soluzioni.

SCHEMI DI MONTAGGIO

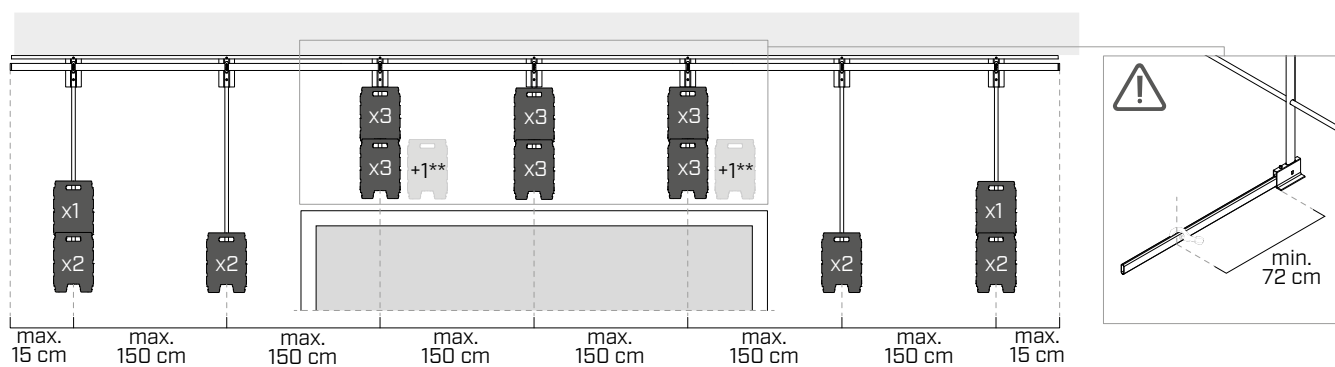
MONTAGGIO BORDER W IN LINEA DITTA



NF
E85-015:
2019



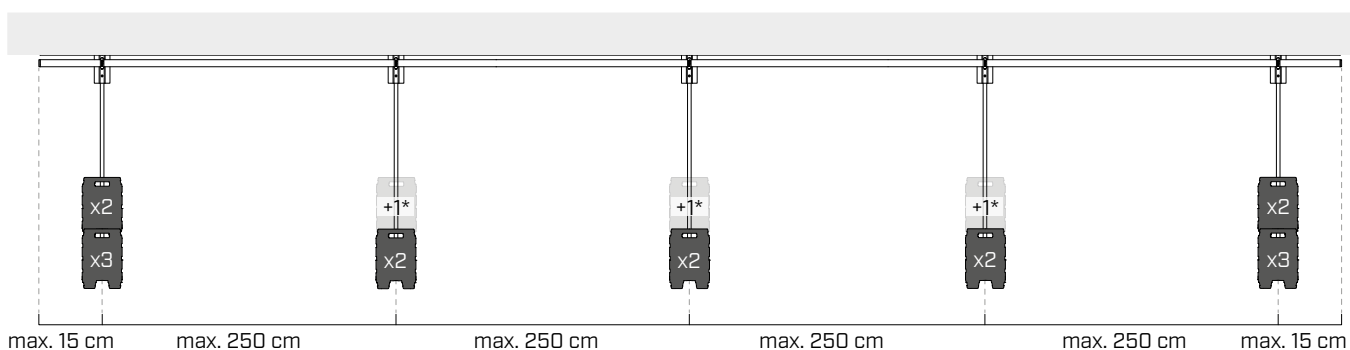
EN
14122-3:
2016



Nota: in presenza di un ostacolo (es. lucernario), è possibile accorciare la gamba di supporto, mantenendo una lunghezza minima di 72 cm. In questa configurazione, installare 6 zavorre (3 + 3) sulle gambe interne e 7 (3 + 4) su quelle di estremità.**

EN
13374:2025
CIA

EN
13374:2013
+A1:2018
CIA



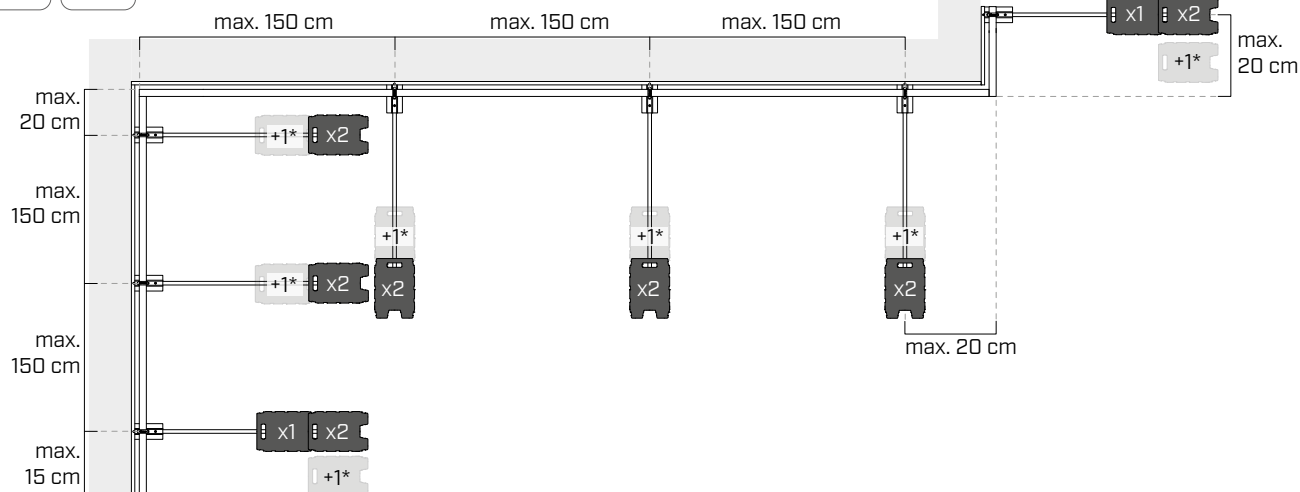
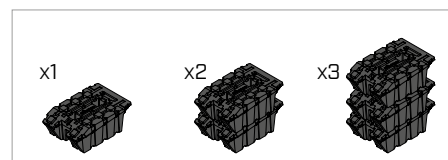
* In aree soggette a forti venti (velocità di picco > 31 m/s) si raccomanda l'integrazione di una zavorra aggiuntiva.

SCHEMI DI MONTAGGIO

MONTAGGIO BORDER W DITTO - ANGOLO

EN
14122-3:
2016

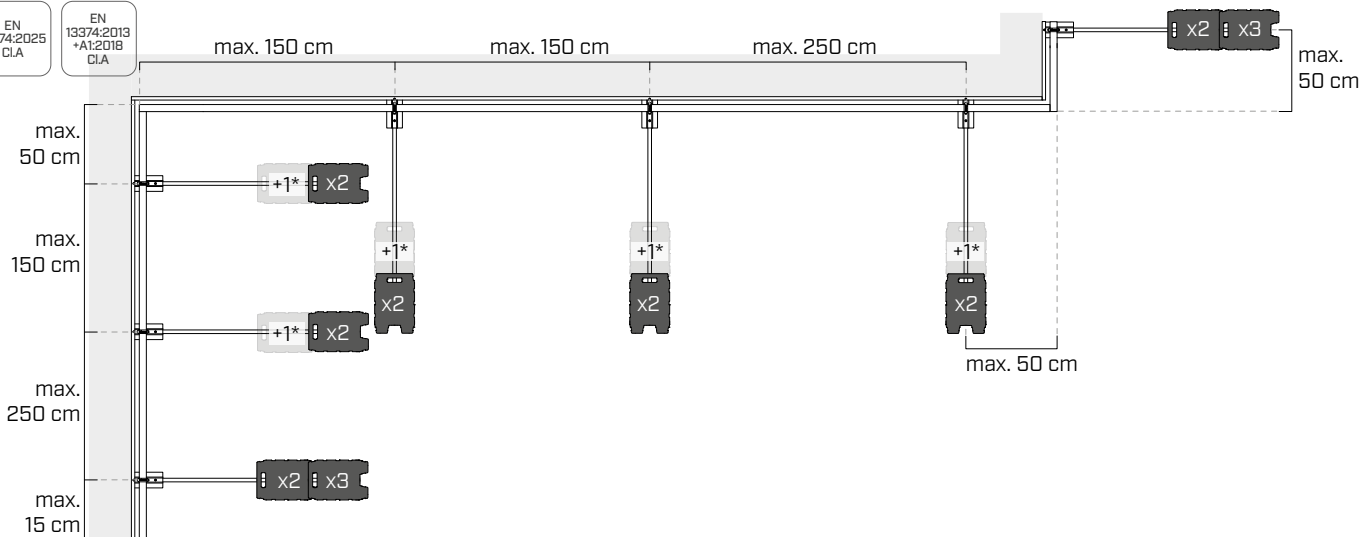
NF
E85-015:
2019



* Per la normativa NF E85-015, è necessario aggiungere una zavorra a ciascuna gamba, nella configurazione 1+3 (alle estremità) e 1+2 (all'interno).

EN
13374:2025
CIA

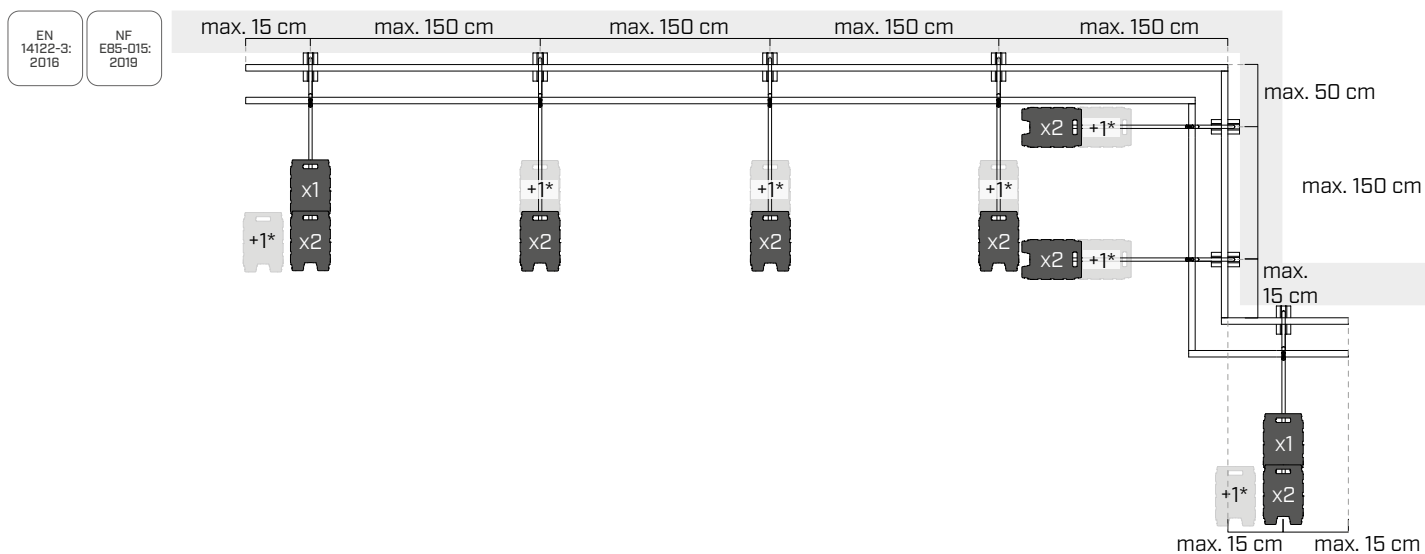
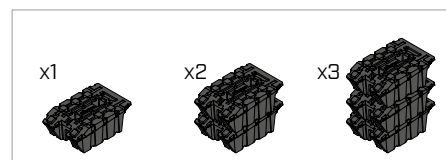
EN
13374:2013
+A1:2018
CIA



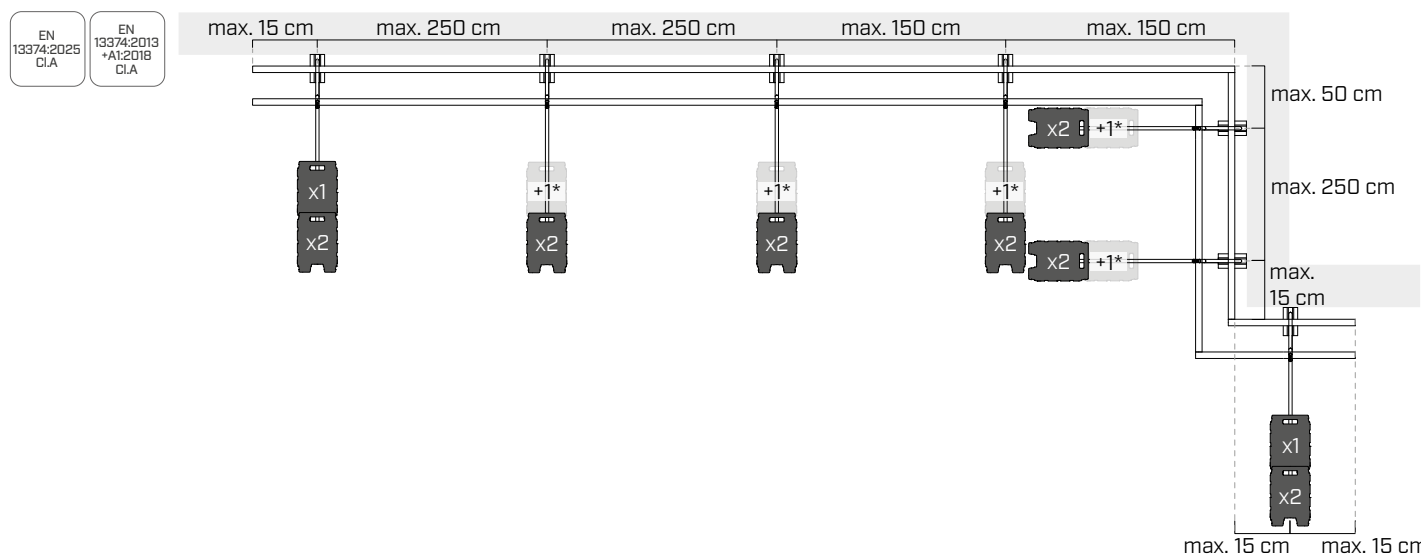
* In aree soggette a forti venti (velocità di picco > 31 m/s), si raccomanda l'integrazione di una zavorra aggiuntiva (solo per le gambe interne al sistema, nella configurazione 1+2).

SCHEMI DI MONTAGGIO

MONTAGGIO BORDER W CURVATO - ANGOLO



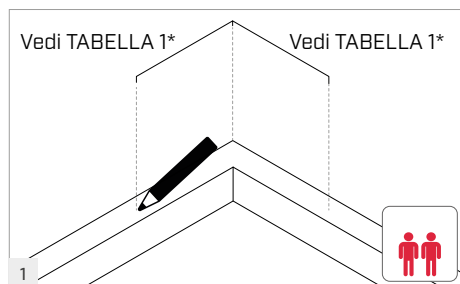
* Per la normativa NF E85-015, è necessario aggiungere una zavorra a ciascuna gamba, nella configurazione 1+3 (alle estremità) e 1+2 (all'interno).



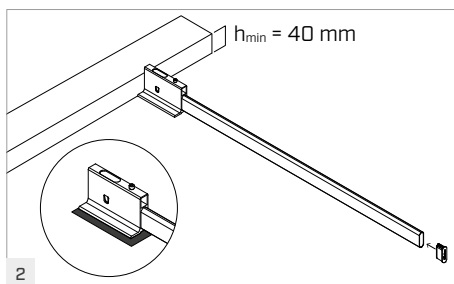
* In aree soggette a forti venti (velocità di picco > 31 m/s), si raccomanda l'integrazione di una zavorra aggiuntiva (solo per le gambe interne al sistema, nella configurazione 1+2).

INSTALLAZIONE

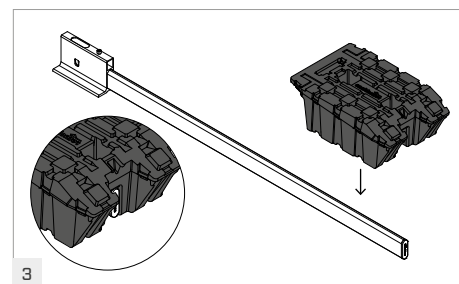
BORDER W



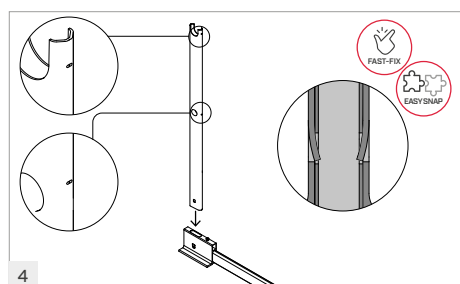
È necessaria la presenza di almeno due operatori qualificati. Per garantire una migliore riuscita, è consigliabile iniziare l'installazione da un angolo.



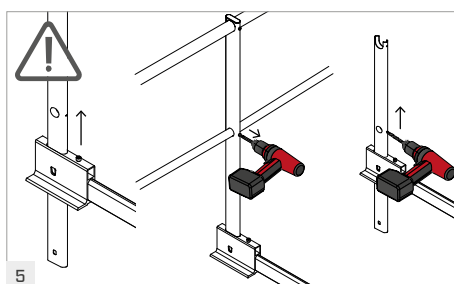
Inserire l'apposito tappo **BORBASEWCAP** nella parte terminale della gamba. Aggiungere eventuale tappeto epdm antitaglio opzionale **BORBASEWMAT**, sotto la base. Il sistema **BORDER W** può essere montato e poggiato soltanto a ridosso di una veletta di altezza minima 40 mm.



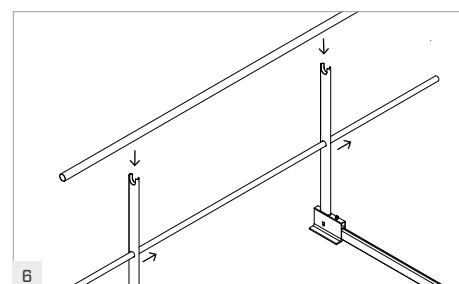
Posizionare e regolare le zavorre sulla gamba di sostegno affinché la parte terminale della zavorra corrisponda esattamente alla parte terminale della gamba di sostegno.



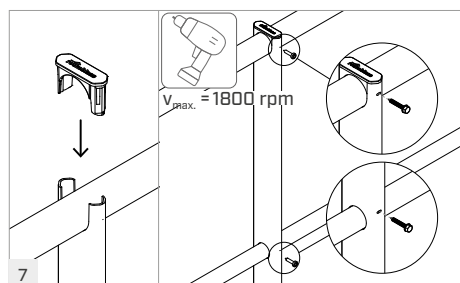
Inserire i montanti nelle basi **BORBASEW** con i segni rivolti verso l'operatore. Verificare il corretto incastro tra alette e finestre. Non servono viti per il fissaggio.



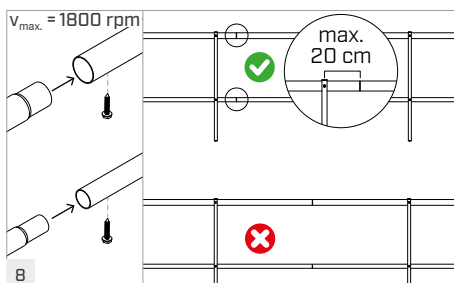
Il sistema base-montante si rimuove spingendo la base verso l'alto. Se sono presenti viti (punto 7), rimuoverle e forare Ø6 mm nel punto del foro a cono.



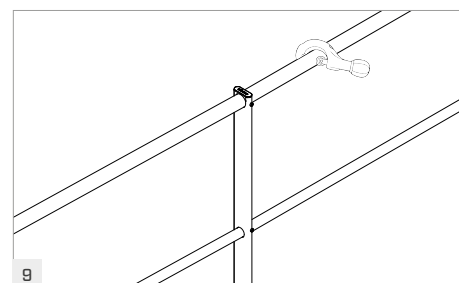
Inserire il corrente intermedio **BORBAR32** e successivamente il corrente superiore **BORBAR45**. In conformità alla norma EN 13374, è necessario installare i correnti maggiorati **BORBAR45R**.



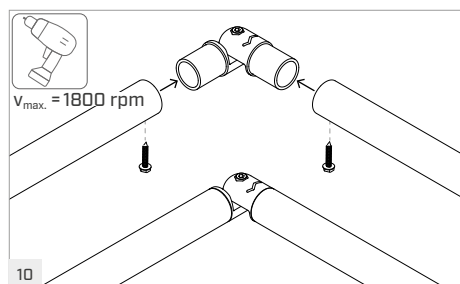
Inserire il tappo **BORCAP** sulla sommità del montante. Fissare i correnti ai montanti con viti **MM-S5525A2** in corrispondenza dei due segni laterali.



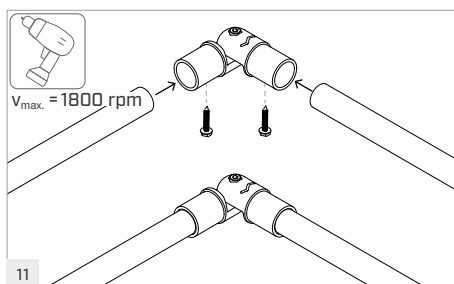
Collegare le estremità maschio/femmina di corrimano e correnti, fissandole con viti **MM-S5525A2**. Secondo EN 14122, il corrimano deve terminare a non più di 20 cm dal montante più vicino. Posizionare le viti sotto i correnti.



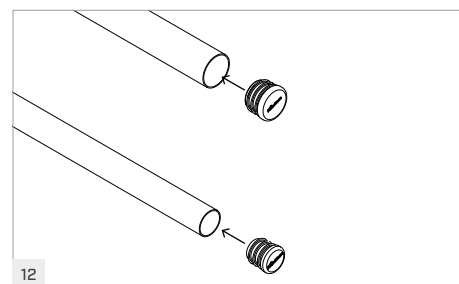
Adattare l'ultima sezione del parapetto, tagliando la parte in eccesso dei correnti, usando il tagliatubi.



Inserire lo snodo angolare **BORCOR** nel corrimano e fissare con viti autofilettanti **MM-S5525A2**.



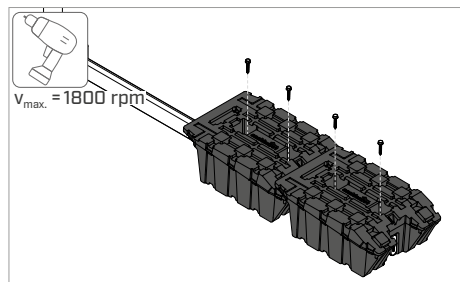
Inserire lo snodo angolare **BORCOR** nel corrente intermedio e fissare con viti autofilettanti **MMS5525A2**.



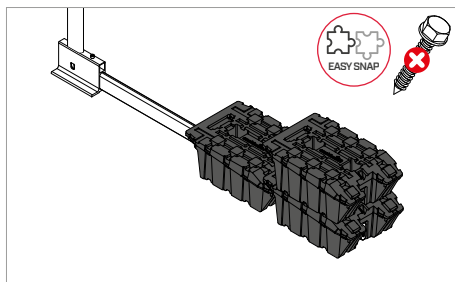
Inserire i tappi **BORCAP45** e **BORCAP32** nei corrimani o correnti intermedi.

INSTALLAZIONE

BORWT

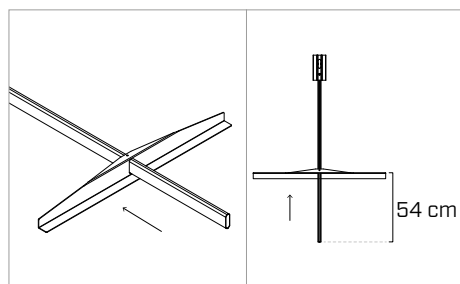


Una volta montato l'insieme del parapetto, stringere le viti autofilettanti **MMS5525A2** sulle rispettive zavorre.

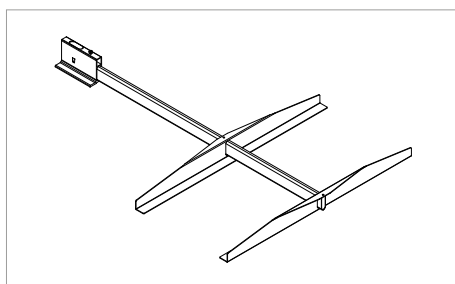


Le zavorre impilate verticalmente non necessitano di un fissaggio specifico, in quanto sono ancorate tra loro ad incastro.

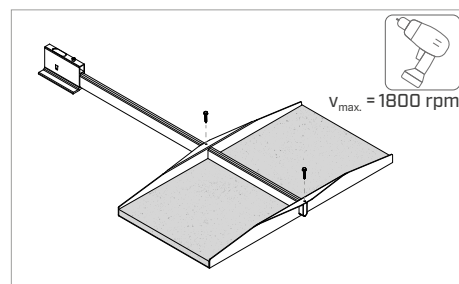
BORWTFRAME



Inserire la prima parte del porta-zavorra nella gamba W, posizionandola a una distanza dal bordo di 54 cm.



Inserire la seconda parte del porta-zavorra nella gamba W, con il lembo superiore in posizione tangente al terminale della gamba.

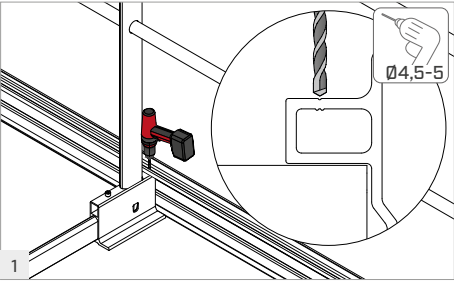


Posare le piastre nelle apposite sedi (in accordo alla normativa di riferimento) e fissare il telaio alla gamba con 2 viti autofilettanti **MMS5525A2**.

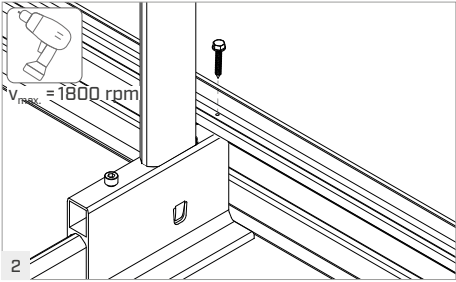
IT

INSTALLAZIONE

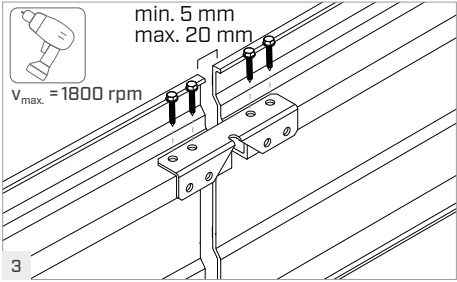
BORTB



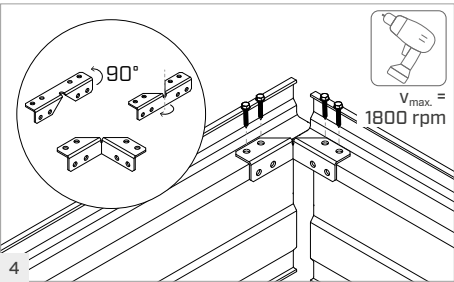
La tavola fermapiEDE **BORTB** deve essere posizionaDa adagiando il rispettivo appoggio contro lo spallamento della base **BORBASEW**. Una volta posizionaDa, è raccomandabile eseguire un preforo passante con un diametro massimo di Ø4.5 mm o Ø5 mm.



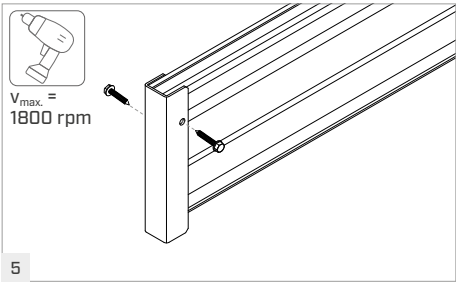
Una volta eseguito il preforo, è possibile fissare la tavola fermapiEDE alla base con una vite **MMS5525A2**.



Unire le estremità di **BORTB** con il connettore **BORTBJUN**. Fissare con 4 viti **MMS5525A2**, lasciando almeno 5 mm tra le tavole per evitare deformazioni termiche.

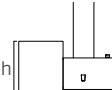


Negli angoli, ruotare e piegare a mano il connettore **BORTBJUN** fino a raggiungere l'angolo desiderato. Fissare con 4 viti autofilettanti **MMS5525A2**.



Fissare i tappi terminali della tavola fermapiEDE con 2 viti autofilettanti **MMS5525A2**.

SPECIFICHE DI UTILIZZO BORTB

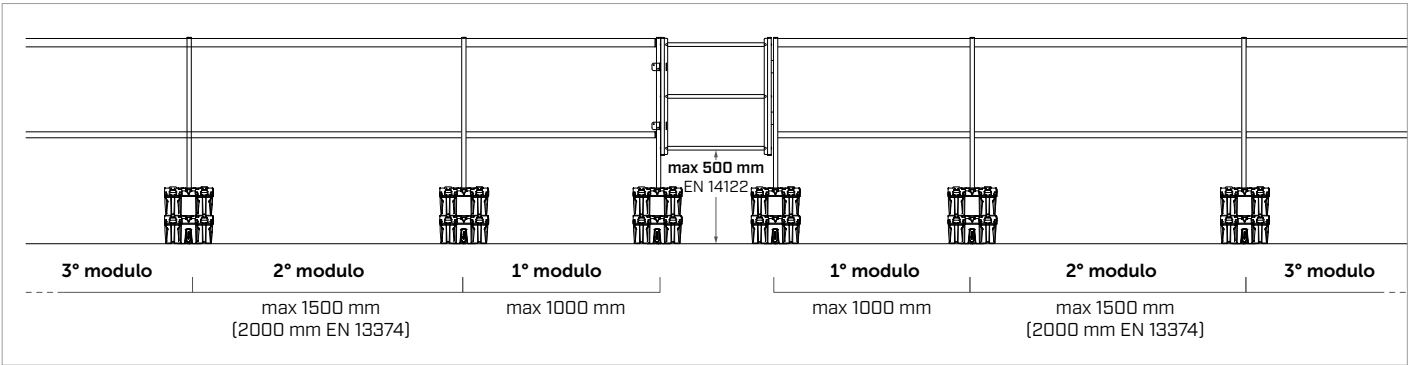
			EN 14122-3: 2016	EN 13374:2013 +A1:2018 CLA	EN 13374:2025 CLA	NF E85-015: 2019
H _{montanti}	veletta	BORTB	h [mm]			
 110 cm		✓	40 mm ≤ h ≤ 100 mm	40 mm ≤ h ≤ 150 mm	40 mm ≤ h ≤ 100 mm	
 110 cm		✗	≥ 100 mm	≥ 150 mm	≥ 100 mm	
 100 cm		✗	N/A	h ≥ 40 mm	h ≥ 40 mm	

Nota: nello schema, il sistema deve comunque rispettare i requisiti minimi di altezza della veletta, ovvero h_{min} = 40 mm.

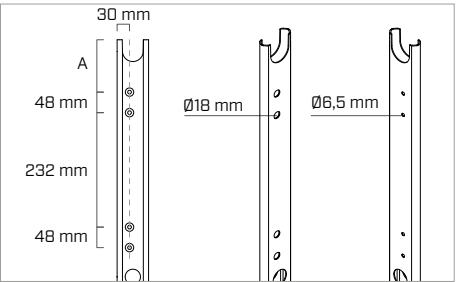
BORGATE600

L'installazione del cancelletto BORGATE600 deve essere eseguita rispettando i requisiti minimi di stabilità del sistema. È quindi necessario installare almeno tre montanti per lato, seguendo questa distribuzione massima degli interassi:

- **1° modulo:** 1000 mm max
- **2° modulo:**
 - 2000 mm max (per EN 13374)
 - secondo quanto riportato in Tabella 1 – Interassi (per EN 14122-3)
- **3° modulo:** secondo quanto riportato in Tabella 1 – Interassi



⚠ Il bordo inferiore del cancelletto deve trovarsi a una distanza inferiore a **500 mm** dal piano di calpestio, come definito secondo la EN 14122-3. Verificare la distanza massima consentita dalla normativa applicabile (es. EN 13374: spazio massimo 470 mm).

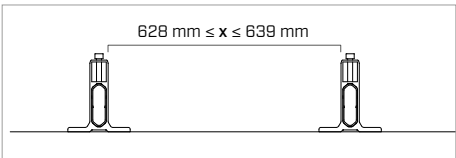


Riportare sul montante le misure indicate a disegno⁽¹⁾ e realizzare:

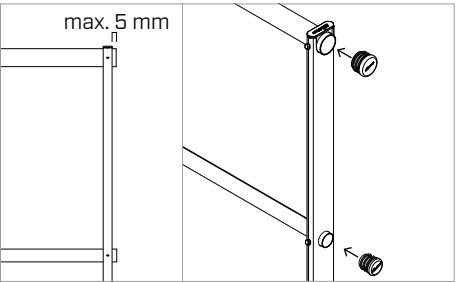
- **n. 4 fori Ø 6,5 mm** su un lato;
- **n. 4 fori Ø 18 mm (min.)** sull'altro lato.

⁽¹⁾ Il valore A è definito in funzione delle altezze di progetto richieste:

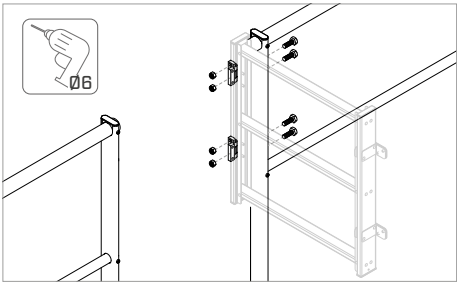
		EN 14122-3: 2016	EN 13374:2013 +A1:2018 CIA	EN 13374:2025 CIA	NF E85-015: 2019
	H _{montanti}	A [cm]	A [cm]	A [cm]	A [cm]
dritto + ribaltabile	100 cm	130	130	N/A	N/A
	110 cm	130	160	N/A	N/A
curvo	113 cm	N/A	N/A	N/A	N/A



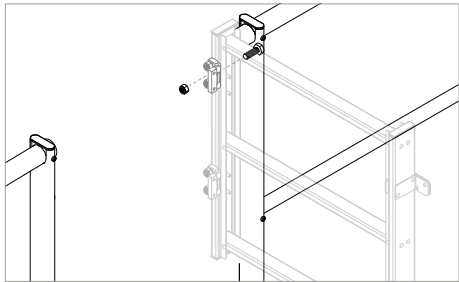
Fissare le piastre **BORBASEW** a terra assicurando una distanza x compresa tra 628 mm e 639 mm.



Per una corretta posa, posizionare i correnti in modo che non sporgano oltre **5 mm** rispetto al fianco del montante. Se necessario, tagliare la parte eccedente. Successivamente montare il tappo previsto per il tipo di **tubo** utilizzato.



Montare il cancelletto utilizzando le **viti M6** e i **dadi autobloccanti** forniti nel sacchetto in dotazione.

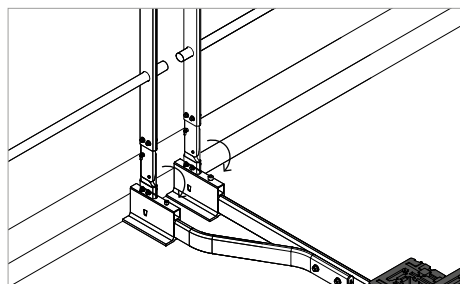


Per limitare l'**effetto vela** del cancelletto in presenza di vento o durante i periodi di non utilizzo, è possibile prevedere l'installazione di una **vite M10 aggiuntiva** (non inclusa in dotazione) al fine di bloccarne la chiusura in modo permanente.

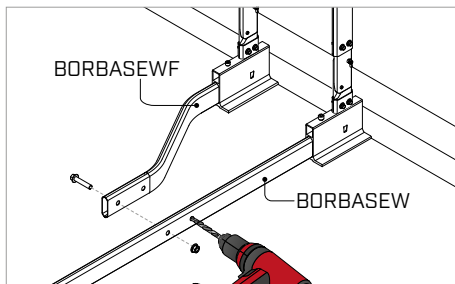
IT INSTALLAZIONE DEL PARAPETTO RIBALTABILE

BORUP100F - BORUP110F

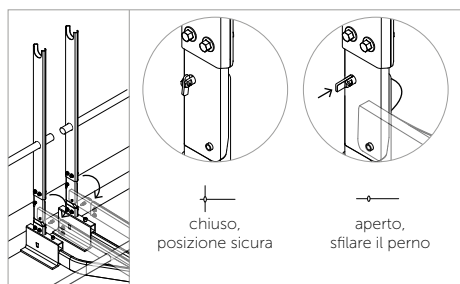
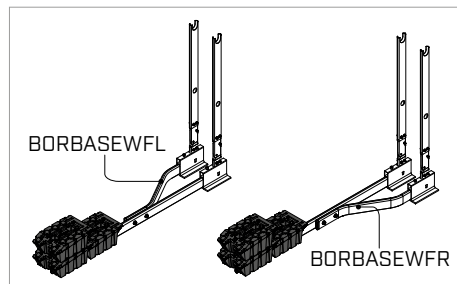
Per l'installazione dei parapetti ribaltabili, la procedura delineata fin qui rimane valida. Tuttavia, è necessario prestare attenzione ad alcune istruzioni aggiuntive:



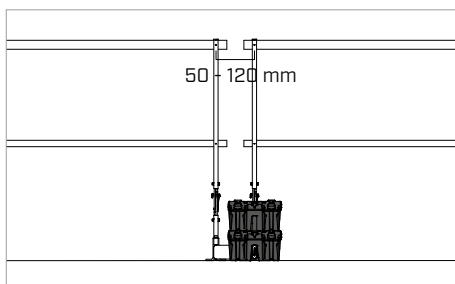
Installare i montanti ribaltabili **BORUP100F/BORUP110F** dal lato giunto (non perno), assicurando il ribaltamento verso l'interno della copertura e mai verso l'esterno.



Collegare le due gambe terminali, **BORBASEWFL/BORBASEWFR** con **BORBASEW**. Effettuare 2 fori Ø13 su **BORBASEW** e collegare con bullone M12.



Per il ribaltamento dell'intero modulo parapetto, è opportuno sfilare i perni dalle rispettive sedi.



I parapetti ribaltabili **BORDER W** sono installati in moduli di 9 m (cioè, 7 montanti collegati) o 12 m (cioè, 9 montanti collegati). Montare due montanti terminali di 2 moduli adiacenti con distanza minima 50 mm e massima 120 mm tra loro, come raffigurato

MONTAGGIO RIBALTABILE DRITTO-ANGOLO

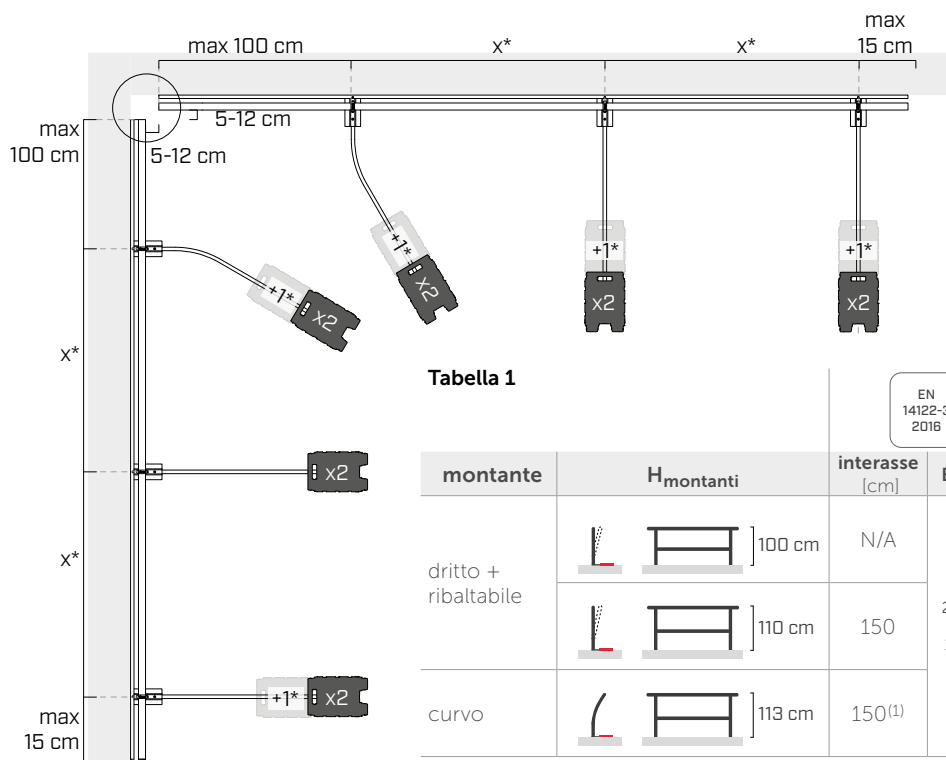
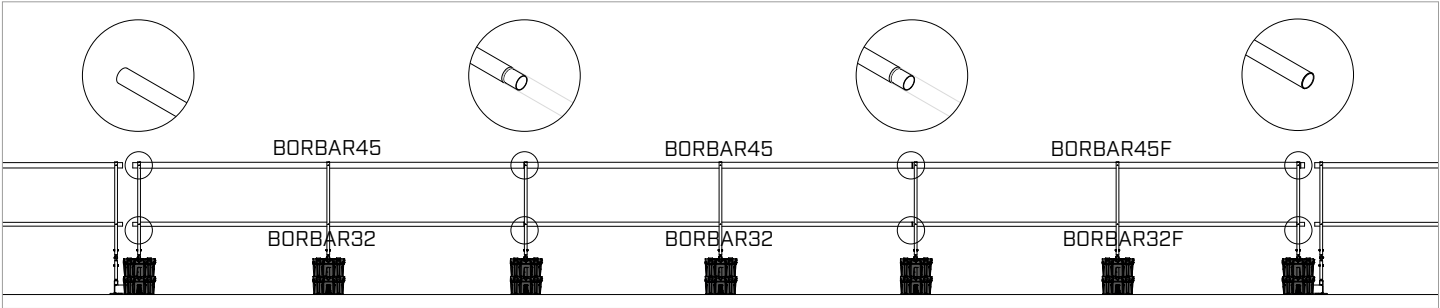


Tabella 1

montante	H _{montanti}	interasse [cm]	BORWT	interasse [cm]	BORWT	interasse [cm]	BORWT
dritto + ribaltabile	 100 cm	N/A	2 centrali + 3 laterali	250 ⁽¹⁾	2 centrali + 5 laterali	150 ⁽¹⁾	3 centrali + 4 laterali
	 110 cm	150		250		150	
curvo	 113 cm	150 ⁽¹⁾		250 ⁽¹⁾		150 ⁽¹⁾	

⁽¹⁾Interassi ottenuti per interpolazione rispetto al caso più critico testato in laboratorio.

Negli angoli del parapetto installare il corrente terminale **BORBARENDF**, assicurando una distanza tra i due correnti adiacenti compresa tra 50 e 120 mm dal bordo, in modo da consentire il ribaltamento in entrambe le direzioni. Rispettare gli interassi e il numero di zavorre indicati in tabella, in funzione della normativa di riferimento.



I correnti principali da utilizzare sono il **BORBAR45** e il **BORBAR32**, tuttavia ciascun modulo deve terminare con il corrente specifico senza riduzione **BORBAR45F** e **BORBAR32F**.

 110 cm	EN 14122-3: 2016	EN 13374:2013 +A1:2018 CLA	EN 13374:2025 CLA	NF E85-015: 2019
	BORUP110F	BORUP110FR		BORUP110F
corrente superiore	BORBAR45/F	BORBAR45R*		BORBAR45/F
corrente intermedio	BORBAR32/F	BORBAR45R*		BORBAR32/F
 100 cm	N/A	N/A		BORUP100F
	N/A	N/A		BORBAR45/F
corrente superiore	N/A	N/A		BORBAR45/F
corrente intermedio	N/A	N/A		BORBAR32/F

* Per correnti terminali in applicazione EN 13374 è necessario tagliare la parte con riduzione eccedente.

AVVERTENZE GENERALI PER L'USO

- Prima di procedere con il ribaltamento del parapetto, è obbligatorio assicurarsi che l'operatore sia posto in condizioni di sicurezza. L'utente deve essere ancorato a un dispositivo anticaduta, come una linea vita **PATROL** o un punto di ancoraggio **KITE**. Inoltre, è necessario verificare che tutti gli strumenti e le attrezzature siano in buone condizioni di funzionamento e che l'area di installazione sia libera da ostacoli.
- I moduli (9 m, 12 m, 15 m, 18 m) devono essere sempre maneggiati da due operatori per consentire il corretto ribaltamento.

CODICI E DIMENSIONI

CORRENTI

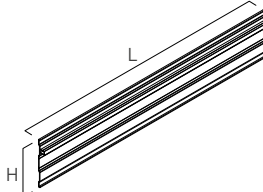
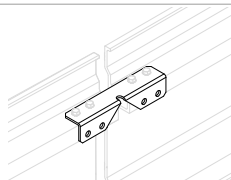
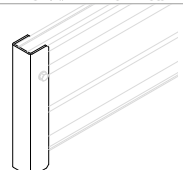
CODICE		d [mm]	L [mm]	
BORBAR45		45	3000	
BORBAR32		32	3000	
BORBAR45F	EN AW 6063-T6	45	3000	
BORBAR32F		32	3000	
BORBAR45R		45	3000	
BORBARENDF	EN AW 6063-T6	45	417	

MONTANTI

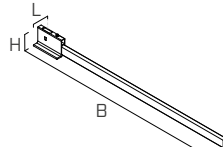
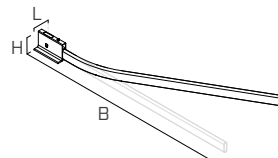
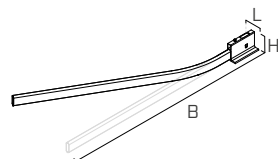
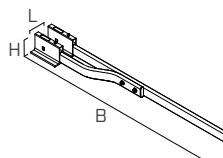
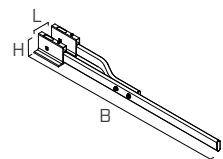
CODICE BORBAREND		H [mm]	
BORUP530WH	EN AW 6005A-T6	535	
BORUP760WH		765	
BORUP100	EN AW 6005A-T6	1005	
BORUP110		1105	
BORUP118		1185	
BORUP130		1305	
BORUP100F	EN AW 6005A-T6	1005	
BORUP110F		1105	
BORUP110FR		1105	
BORUP113C	EN AW 6005A-T6	1120	
BORUP100R	EN AW 6005A-T6	1005	
BORUP110R		1105	
BORUP100AS		1005	
BORUP107US		1075	

CODICI E DIMENSIONI

TAVOLA FERMAPIEDE

CODICE		H [mm]	L [mm]	
BORTB	EN AW 6063-T6	150	3000	
BORTBJUN	EN AW 6063 H111	-	-	
BORTBCAP	EN AW 6063 H111	-	-	

BASI

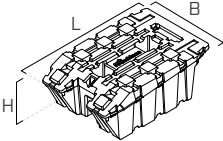
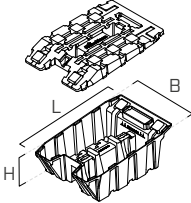
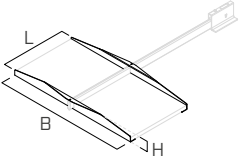
CODICE		B [mm]	H [mm]	L [mm]	
BORBASEW		1400	115	100	
BORBASEWFCL		1400	115	100	
BORBASEWFCR	EN AW 6005A-T6	1400	115	100	
BORBASEWFL		750	115	100	
BORBASEWFR		750	115	100	

FISSAGGIO

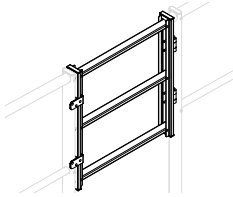
CODICE		d [mm]	H [mm]	
MMS5525A2	1.4301 AISI304 INOX	5,5	25	

CODICI E DIMENSIONI

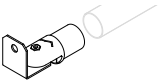
ZAVORRE

CODICE		B [mm]	H [mm]	L [mm]	
BORWT		265	155	400	
BORWTBOX	PP RECYCLED	265	140	400	
BORWTFRAME	EN AW 5083 H111	1030	81	530	

CANCELLETTO DI SICUREZZA

CODICE		L [mm]	H [mm]	
BORGATE600	EN AW 5083 H111	600	640	

ACCESSORI

CODICE			
BORCAP45			
BORCAP32	LDPE		
BORCAP	PP RECYCLED		
BORCOR			
BORWALL	PP RECYCLED	1.4301 AISI304 INOX	

SICHERHEITSHINWEISE, GEBRAUCHS- UND MONTAGEANLEITUNG

EINFÜHRUNG

DEFINITION

Das selbsttragende Geländer **BORDER W** ist ein kollektives Absturzsicherungssystem. Es eignet sich hervorragend für die Dachsicherheit und ist aus Aluminiumlegierung hergestellt (**EN AW 6005A-T6** und **EN AW 6063-T6**).

NORMEN

Das Geländer mit horizontaler Befestigung **BORDER W** entspricht den folgenden Vorschriften:

- **EN 14122-3:2016**
- **EN 13374:2025 Kl. A (außer Punkt 9)**
- **EN 13374:2013+A1:2018 Kl. A (außer Punkt 9)**
- **NTC (Tab. 3.1.II - Kat. A,B,C1,E1,F,G,H) und D. GvD 81/08 (Italien)**
- **NF E 85-015:2019 (Frankreich)**

Die Tabelle enthält die wichtigsten geometrischen Parameter, die in den Bezugsnormen gefordert werden:

	EN 14122-3: 2016	EN 13374:2025 Kl. A	EN 13374:2013 +A1:2018 Kl. A	NTC 2018	GvD 81/08	NF E85-015: 2019
Min. Höhe der begehbaren Fläche	1,1 m	1 m		1 m	1 m	1 - 1,1 m
Max. Achsabstand zwischen den Mittelläufen	500 mm	470 mm		-	500 mm	500 mm
Max. Achsabstand zwischen den Pfosten	1,5 m (empfohlen)	-		-	-	1,5 m (empfohlen)
Min. Höhe Fußleiste	10 cm	15 cm		-	15 cm	10 cm

VERWENDUNG - WARTUNG

Das Schutzgeländer **BORDER** muss von qualifiziertem Personal unter Einhaltung der geltenden Vorschriften für Höhenarbeiten montiert werden. Vor der Nutzung muss der Anwender seine eigene Sicherheit gewährleisten. Hierzu verwendet er ein temporäres Seilsystem, PSA und eine geeignete Hubarbeitsbühne.

- Vor der Nutzung muss der Anwender per Sichtprüfung sicherstellen, dass das Schutzgeländer **BORDER** keine Mängel, Schäden oder Verformungen aufweist (Stöße, Verbiegungen usw.).
- Für das Geländer **BORDER** sind keine spezifischen Wartungseingriffe erforderlich. Jedoch muss mindestens einmal pro Jahr eine Sichtprüfung durch Fachpersonal vorgenommen werden.
- Wenn das Geländer **BORDER** nicht korrekt installiert wird, beschädigt ist oder einen Sturz abgefangen hat, muss die Verwendung sofort eingestellt werden. Erst nachdem ein qualifizierter Techniker die Inspektion und Überprüfung vorgenommen und eine schriftliche Genehmigung erteilt hat, darf es erneut eingesetzt werden.
- Wenn das Produkt außerhalb des Bestimmungslandes weiterverkauft wird, ist es für die Sicherheit des Anwenders unerlässlich, dass der Händler die Betriebsanleitung in der Sprache des Landes bereitstellt, in dem das Produkt verwendet wird. Die Unterlagen können auf Anfrage durch den Hersteller zur Verfügung gestellt werden.
- Das Geländer **BORDER** ist eine permanente kollektive Schutteinrichtung, die ausschließlich von Fachleuten auf Dächern verwendet werden darf, die für die Öffentlichkeit nicht zugänglich sind.
- Bei der Montage in einer verschmutzten Industrie-, Petrochemie-, Marine- oder Meeresumgebung muss die Oberfläche des Geländers **BORDER** entsprechend behandelt, d. h. einer Pulverlackierung oder Eloxierung unterzogen werden.
- Wenn ein Grundriss vorhanden ist, muss er bei der Montage als Anhaltspunkt verwendet werden.
- Wenn das Geländer **BORDER** Spitzenwindgeschwindigkeiten über 31 m/s (ca. 110 km/h) ausgesetzt ist, empfiehlt Rothoblaas die Anwendung einer zusätzlichen Auflast an der Rückseite jedes Beins. Diese Geschwindigkeit entspricht einem dynamischen Winddruck von 600 N/m².

LAGERUNG

Die unbehandelten Aluminiumteile sind in der Verpackung nicht voneinander getrennt. Wenn die ungeöffnete Packung Regen ausgesetzt ist, kann dies eine Oxidation der Bestandteile begünstigen, wodurch Flecken auf der Oberfläche entstehen könnten. Sie beeinträchtigen zwar nicht die Qualität des Aluminiums, evtl. aber das Erscheinungsbild des Geländers. Es empfiehlt sich, die Verpackung zu öffnen und die Komponenten getrennt voneinander zu lagern (ohne dass sie sich berühren) oder die Verpackungen verschlossen an einem trockenen Ort aufzubewahren.

WERKZEUGE



MONTAGEANWEISUNGEN

ACHSABSTAND-HÖCHSTWERTE

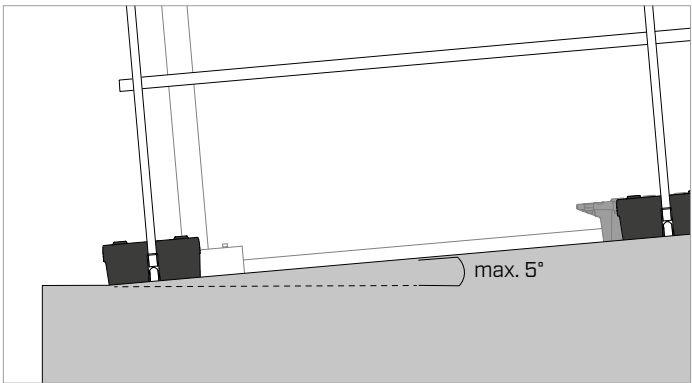
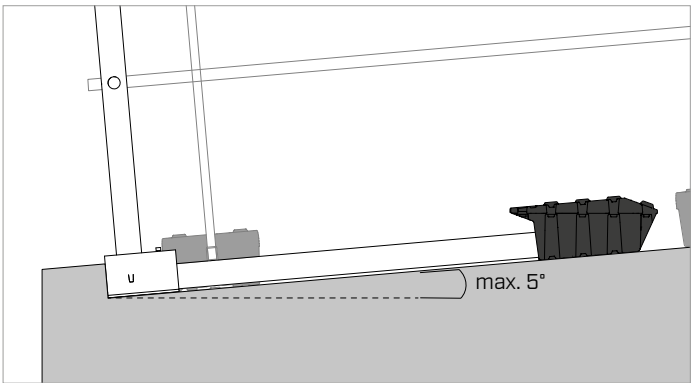
Tabelle 1

Pfosten	H _{Pfosten}	Achsabstand für Pfosten [cm]			
		EN 14122-3: 2016	EN 13374:2025 Kl. A	EN 13374:2013 +A1:2018 Kl. A	NTC 2018 + GvD 81/08
gerade + klappbar	 100 cm	N/A	250	100	150
	 110 cm	150	250	100	150
gebogen	 110 cm	150	250	100	150

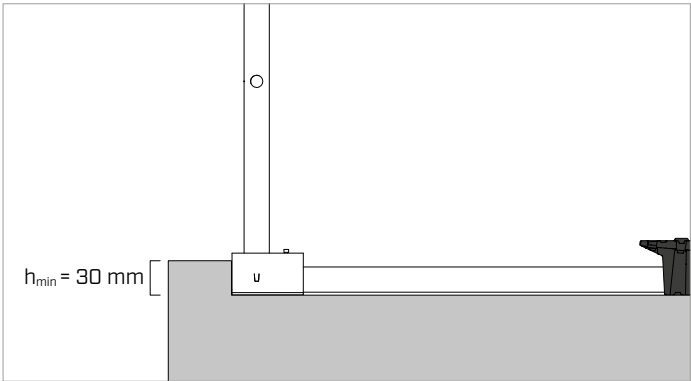
*Das Kippsystem ist derzeit nicht verfügbar.

KOMPATIBLE UNTERKONSTRUKTIONEN

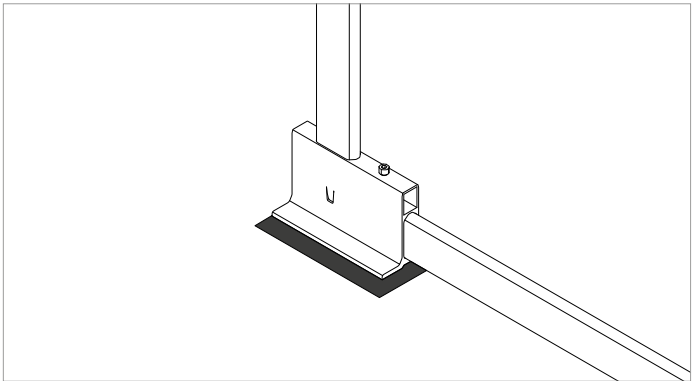
			
C20/25	BSP	BITUMENBAHN	PVC



Bei einem Gefälle darf die Neigung 5° nicht überschreiten.

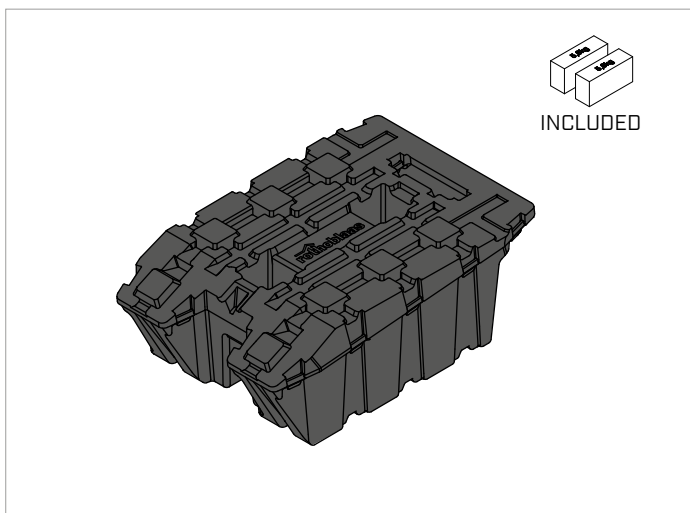


BORDER W muss auf einer Aufkantung $h_{min} = 30\text{ mm}$ ruhen. Die Aufkantung muss einer Längskraft von mindestens 150 kg/ml standhalten können.

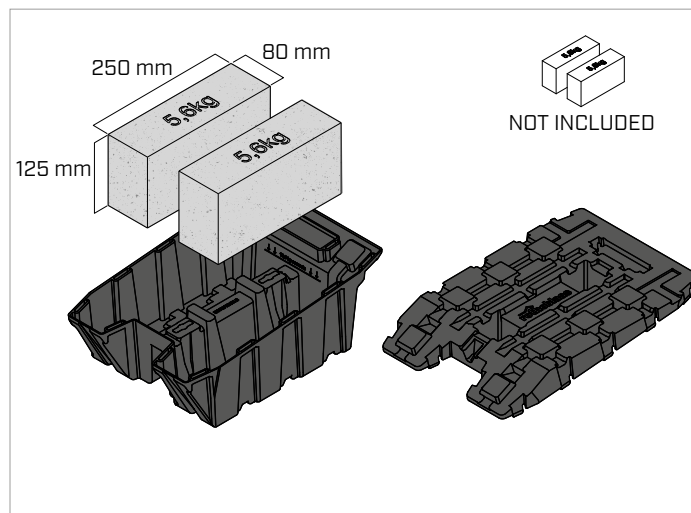


Auf Anfrage: zusätzliche Schnittschutzunterlage **BORBASEWMAT**.

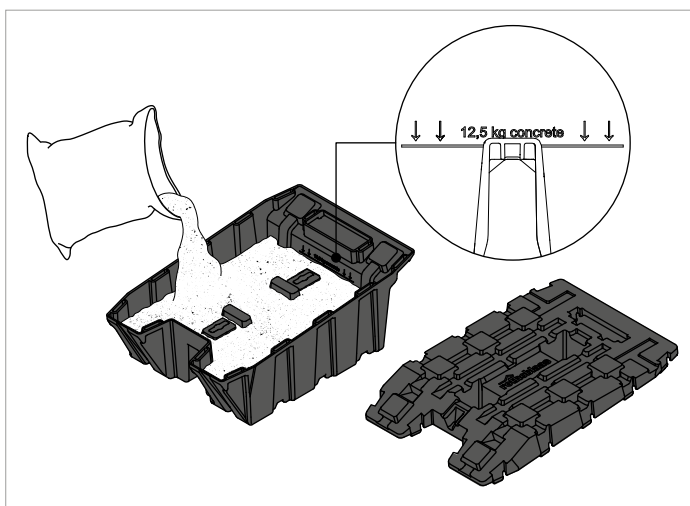
AUFLASTBESCHREIBUNGEN



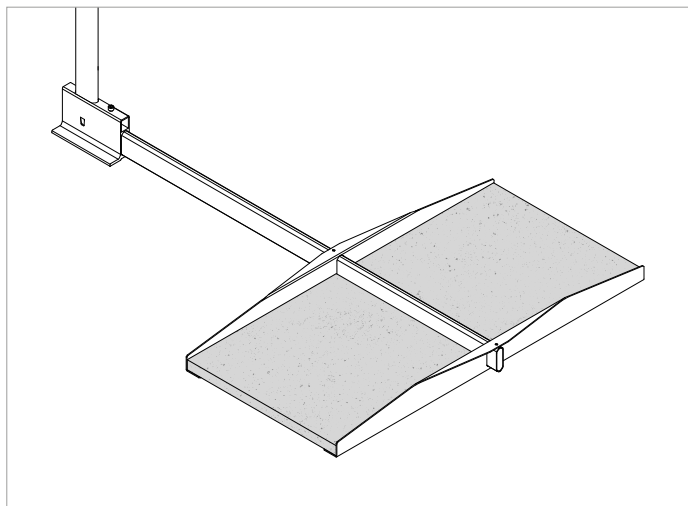
BORWT: gefüllte Auflast 12,5 kg mit Ziegeln 250 x 125 x 80 mm.



BORWTBOX Option 1: leere Auflast zum Befüllen mit 2 Ziegeln 250 x 125 x 80 mm (Endgewicht 12,5 kg).



BORWTBOX Option 2: leere Auflast, befüllbar mit Zement bis zur vorgegebenen Grenze (Endgewicht 12,5 kg).



BORWTFRAME: Aluminiumrahmen zur Aufnahme der Zementplatten 50 x 50 cm, 45 x 45 cm, 40 x 40 cm (Mindestgewicht pro Auflast 20 kg).

HINWEIS: Das Gewichtsverhältnis k zwischen der Auflast **BORWT** und der Zementplatte 50 x 50 cm für **BORWTFRAME** beträgt ungefähr:

$$k = \frac{P_{\text{BORTWT}}}{P_{50 \times 50}} = \frac{12,5 \text{ kg}}{20 \text{ kg}} = 1,6$$

In den Montageplänen ist das Gewichtsverhältnis für die Konfiguration mit **BORWTFRAME** zu berücksichtigen.

MONTAGEPLÄNE

MONTAGE BORDER W IN GERADER LINIE

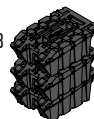
x1



x2



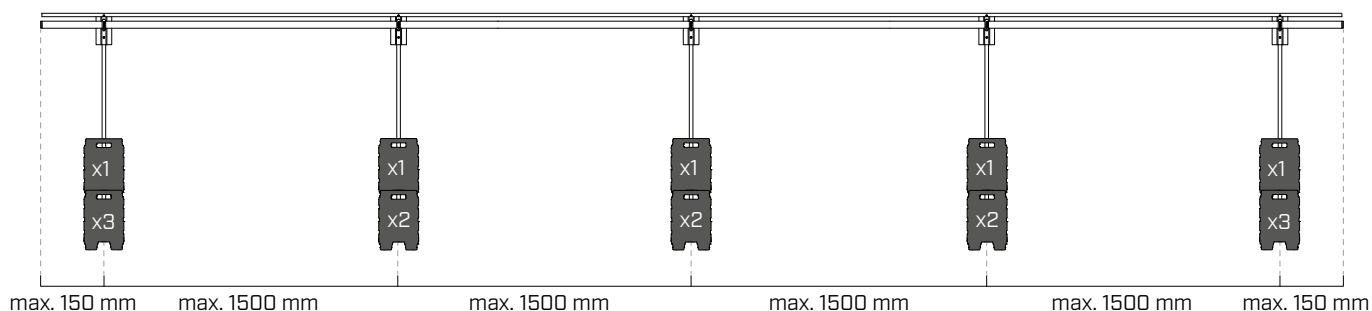
x3



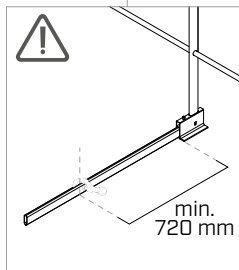
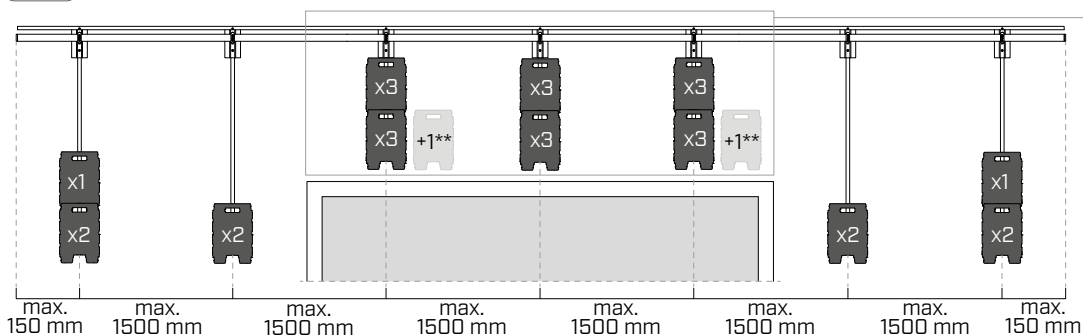
x4



NF
E85-015:
2019



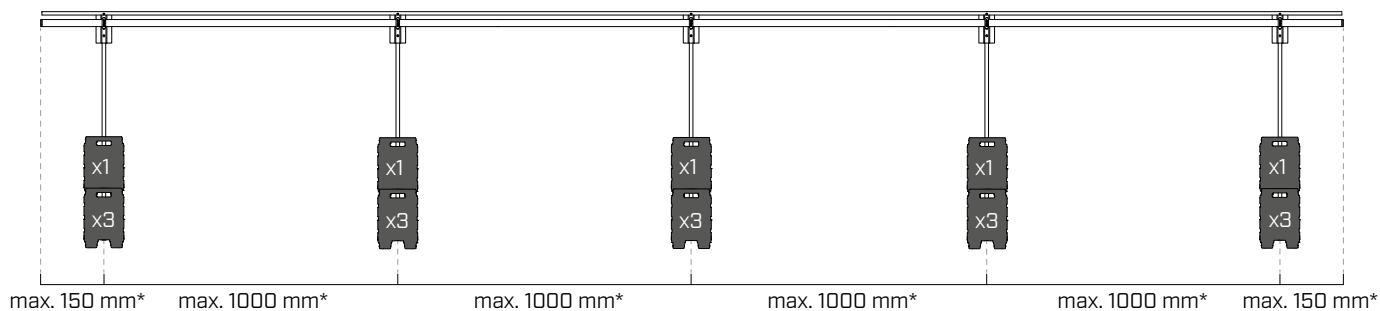
EN
14122-3:
2016



Hinweis: Bei einem vorhandenen Hindernis (z. B. ein Oberlicht) kann das Stützbein gekürzt werden, wobei eine Mindestlänge von 72 cm einzuhalten ist.

In dieser Konfiguration 6 Auflasten (3 + 3) an den internen Beinen und 7 (3 + 4) Auflasten an den Endbeinen montieren.**

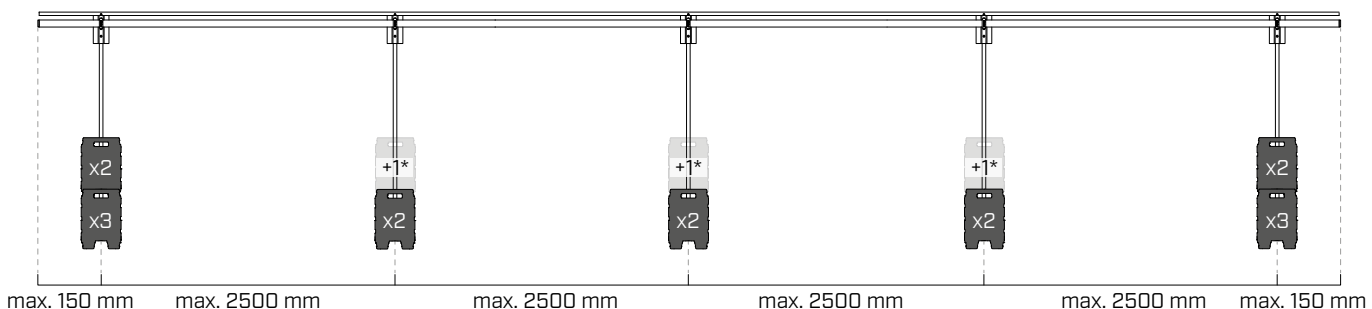
NTC
2018
+ D.Lgs.
81/08



* BORWTFRAME: Durch die Positionierung von 4 Platten 50 x 50 x 35 cm kann ein Achsabstand von max. 1500 mm erreicht werden.

EN
13374:2025
CLA

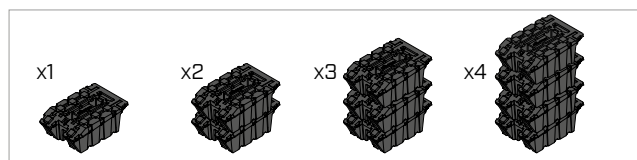
EN
13374:2013
+A1:2018
CLA



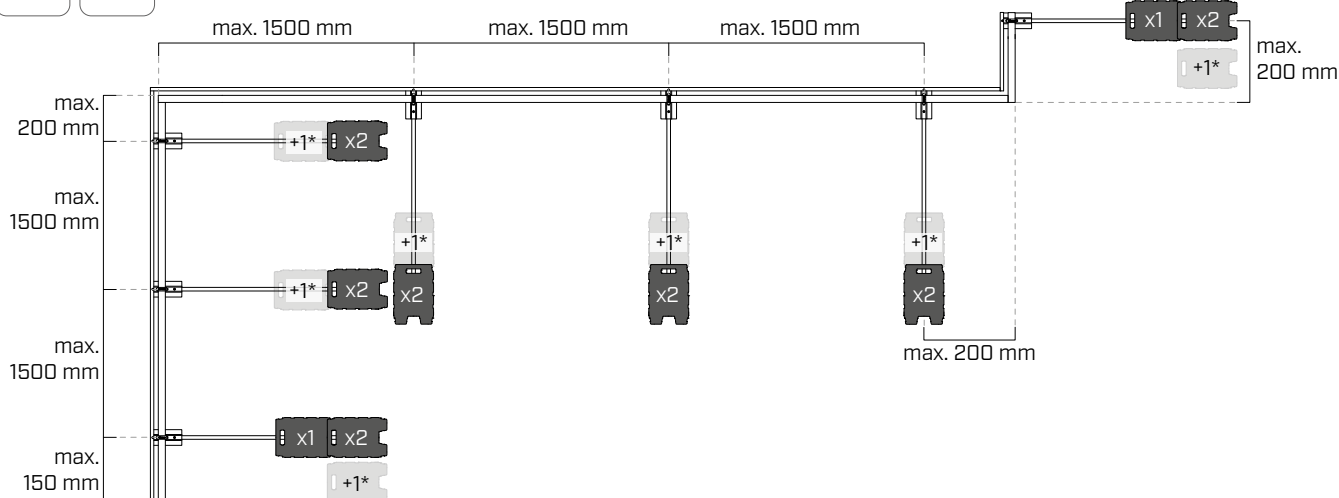
* In Gebieten mit starkem Wind (Spitzengeschwindigkeit > 31 m/s) wird der Einbau einer zusätzlichen Auflast empfohlen.

MONTAGEPLÄNE

GERADE MONTAGE BORDER W - ECKE

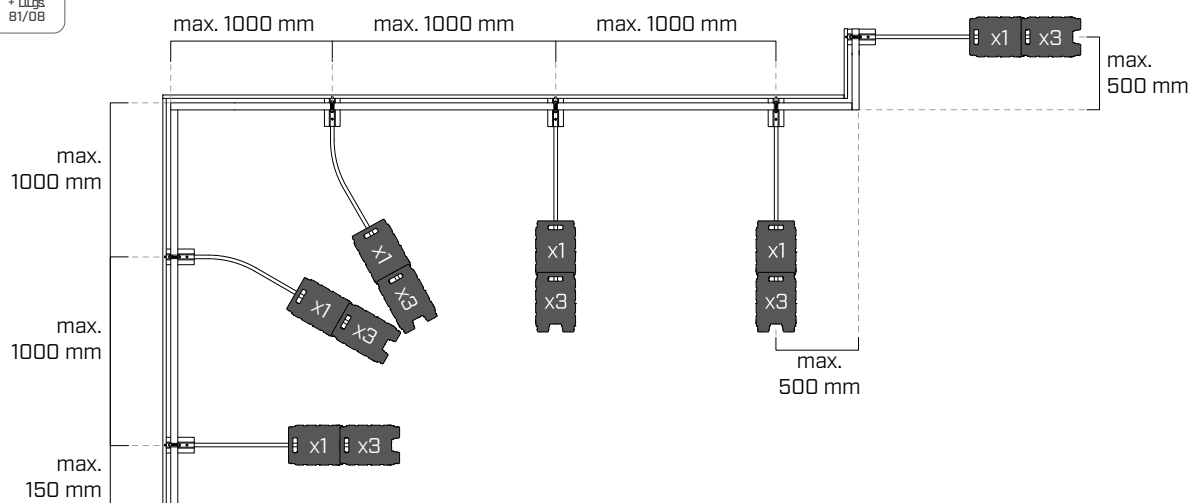


EN 14122-3: 2016
NF E85-015: 2019



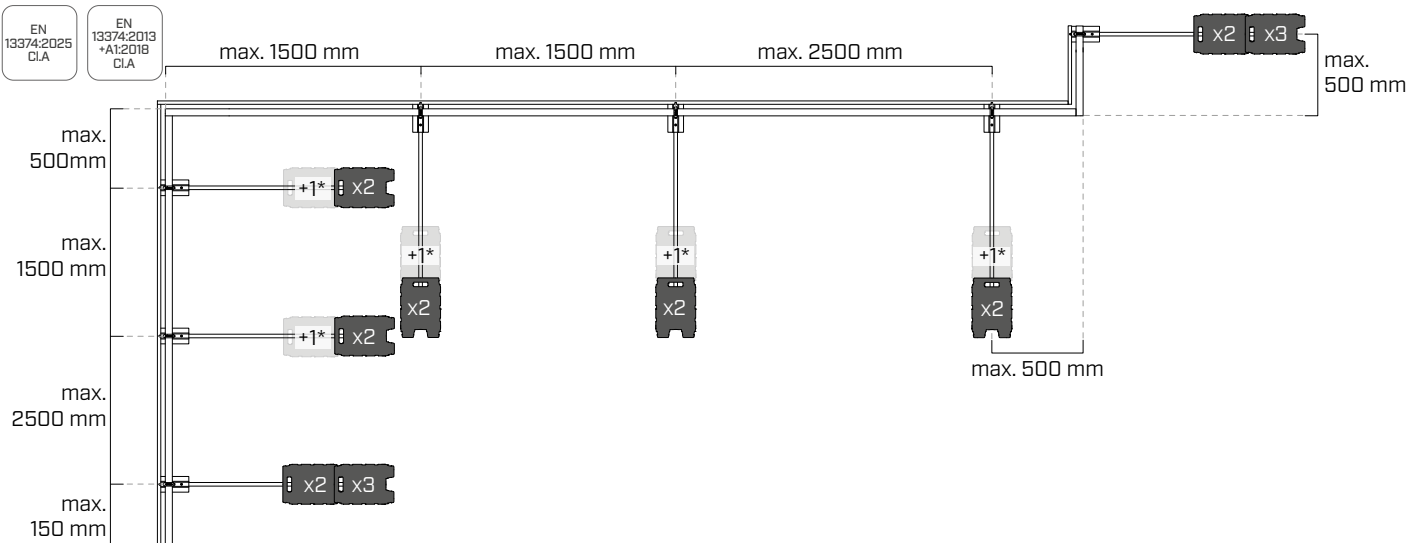
* Gemäß Norm NF E85-015 muss pro Bein eine Auflast in der Konfiguration 1+3 (an den Enden) und 1+2 (innen) angebracht werden.

NTC 2018
+ DLG 81/08



EN 13374:2025
CIA

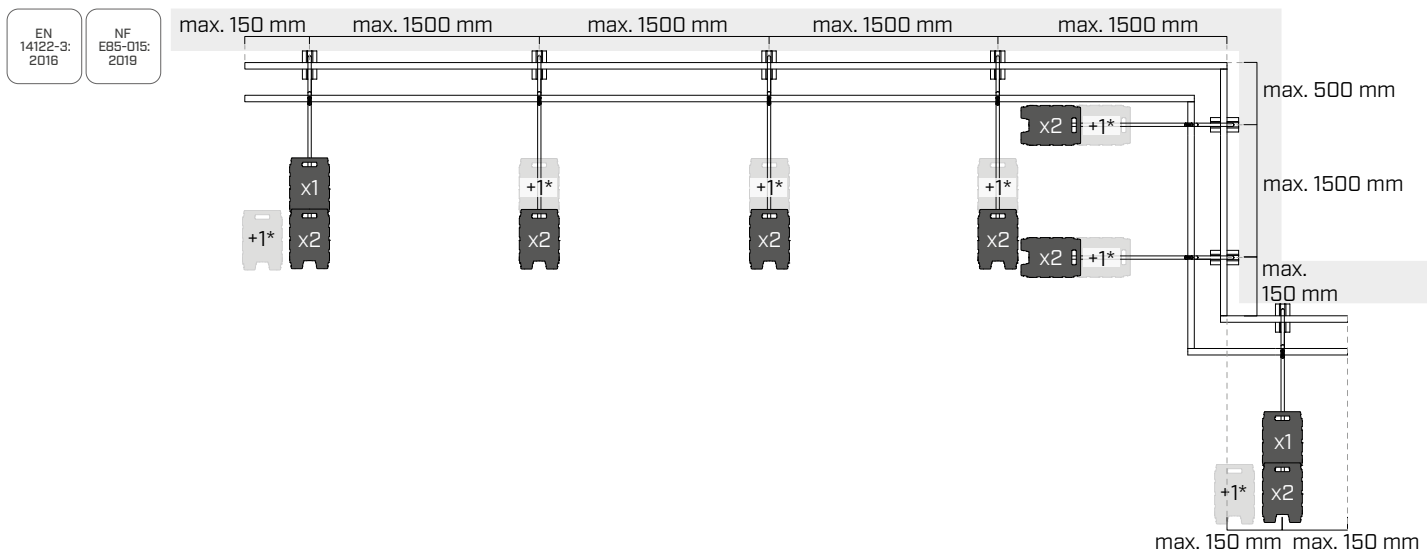
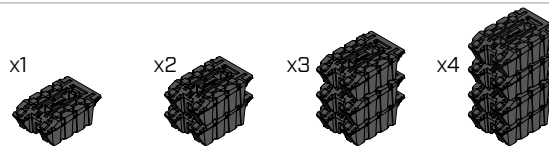
EN 13374:2013
+ A1:2018
CIA



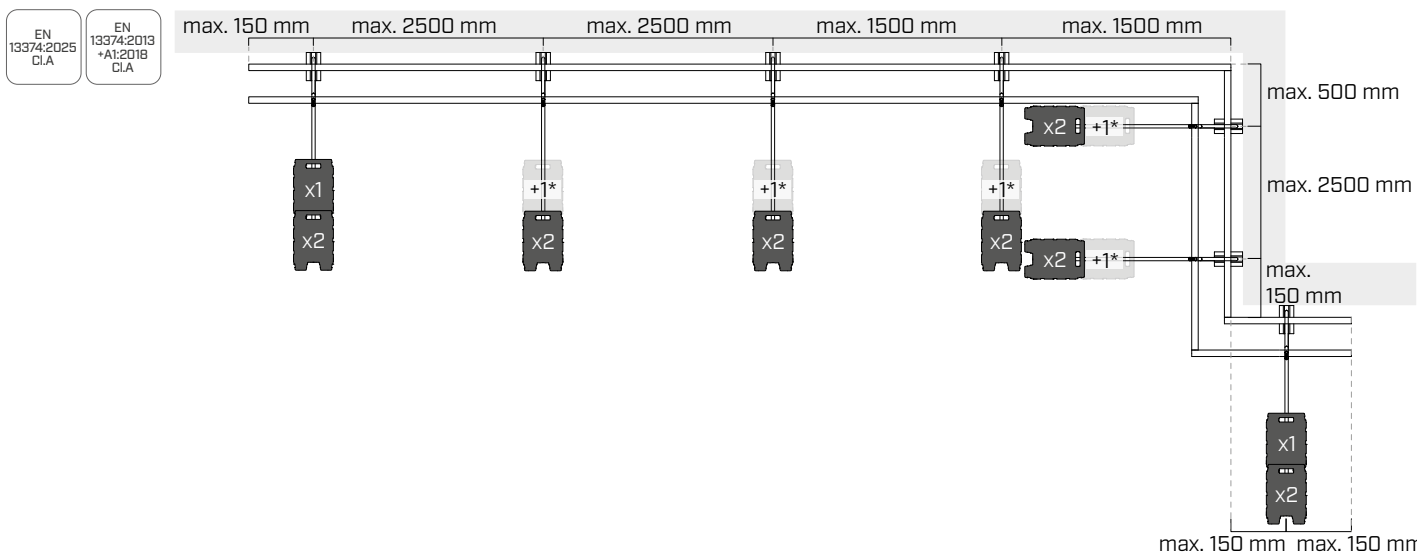
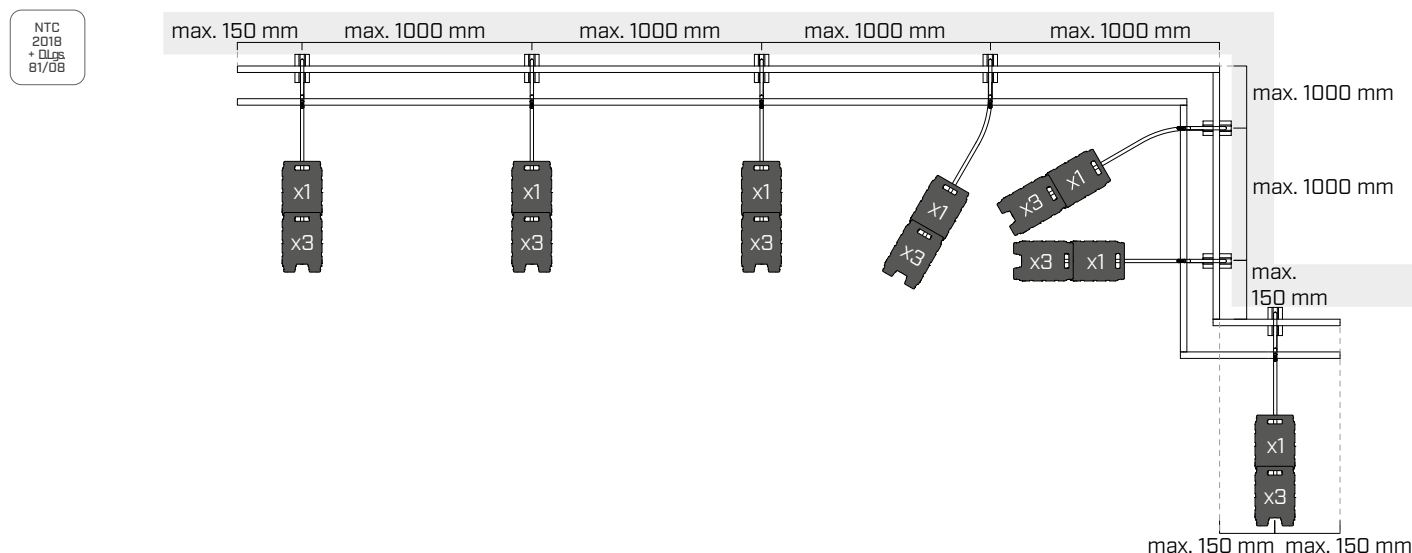
* In Gebieten mit starkem Wind (Spitzengeschwindigkeit > 31 m/s) wird der Einbau einer zusätzlichen Auflast empfohlen (nur für die internen Beine des Systems, in der Konfiguration 1+2)..

MONTAGEPLÄNE

GEBOGENE MONTAGE BORDER W - ECKE

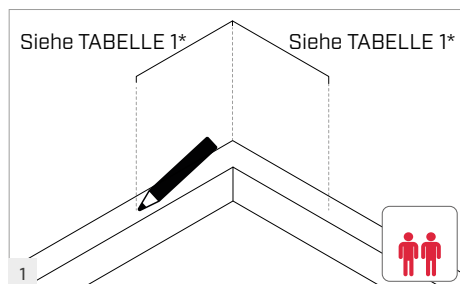


* Gemäß Norm NF E85-015 muss pro Bein eine Auflast in der Konfiguration 1+3 (an den Enden) und 1+2 (innen) angebracht werden.

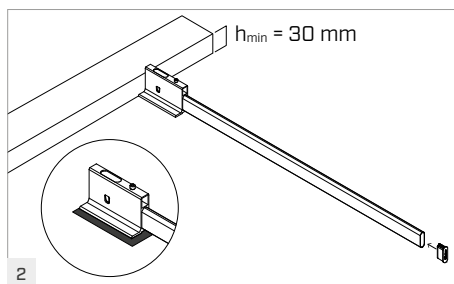


* In Gebieten mit starkem Wind (Spitzengeschwindigkeit > 31 m/s) wird der Einbau einer zusätzlichen Auflast empfohlen (nur für die internen Beine des Systems, in der Konfiguration 1+2)..

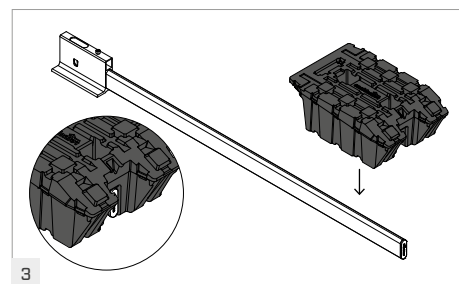
BORDER W



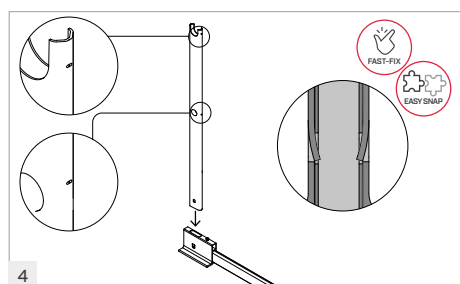
Mindestens zwei qualifizierte Anwender müssen anwesend sein. Für ein besseres Ergebnis sollte die Montage in einer Ecke beginnen.



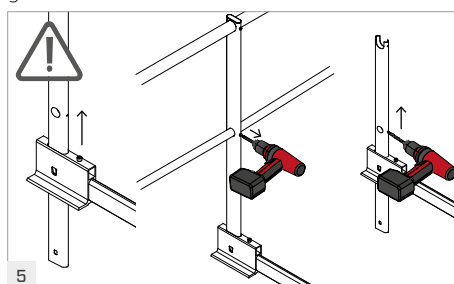
Die entsprechende Kappe **BORBASEWCAP** am Abschluss des Beins einsetzen. Evtl. eine optionale EPDM-Schnittschutzmatte **BORBASEWMAT** unter der Grundplatte hinzufügen. Das System **BORDER W** kann nur in der Nähe einer Schutzmauer mit Mindesthöhe 30 mm montiert und abgestellt werden.



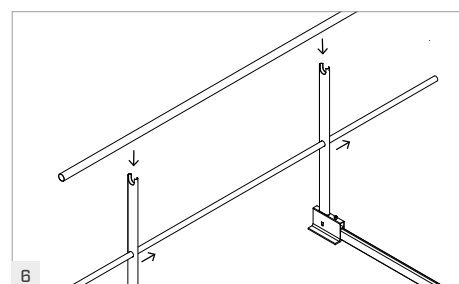
Die Auflasten am Stützbein so positionieren und einstellen, dass der Abschluss der Auflast genau mit dem Abschluss des Stützbeins übereinstimmt.



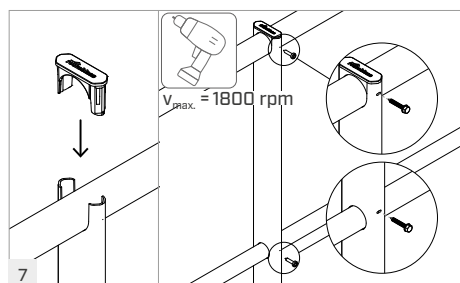
Die Pfosten mit den Markierungen zum Anwender in die Grundplatten **BORBASEW** einsetzen. Die korrekt eingespannte Verbindung zwischen Laschen und Fenstern überprüfen. Zur Befestigung werden keine Schrauben benötigt.



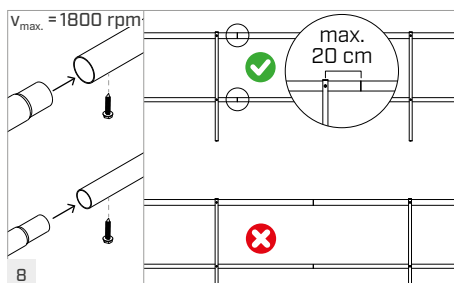
Das Grundplatte-Pfosten-System wird entfernt, indem die Grundplatte nach oben gedrückt wird. Falls Schrauben vorhanden sind (Punkt 7), diese entfernen und an der Stelle der Konusbohrung ein Ø6 mm Loch bohren.



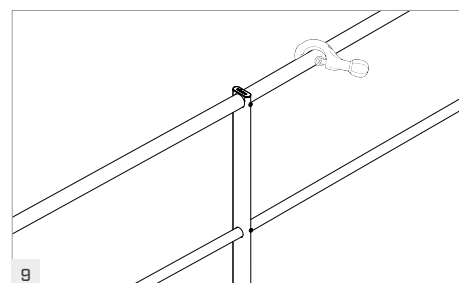
Den Mittellauf **BORBAR32** und daraufhin den oberen Handlauf **BORBAR45** einsetzen. Gemäß Norm EN 13374 müssen die verstärkten Handläufe **BORBAR45R** montiert werden.



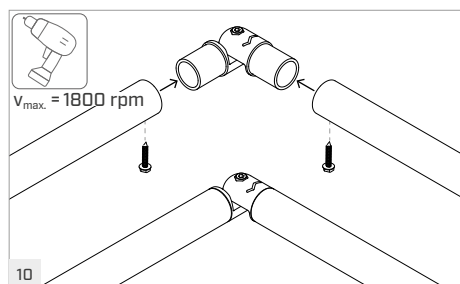
Die Klappe **BORCAP** oben am Pfosten einsetzen. Die Handläufe mit den Schrauben **MMS5525A2** auf der Höhe der beiden seitlichen Markierungen befestigen.



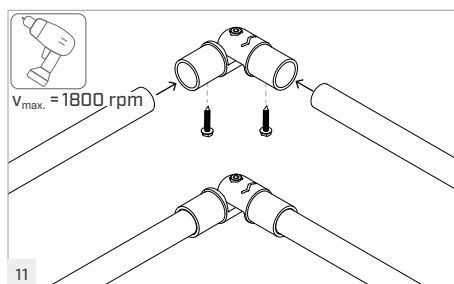
Die Außengewinde-/Innengewinde-Enden des Handlaufs und der Mittelläufe verbinden und mit Schrauben **MMS5525A2** befestigen. Gemäß EN 14122 darf der Handlauf nicht weiter als 20 cm vom nächsten Pfosten entfernt enden. Die Schrauben unter den Mittelläufen positionieren.



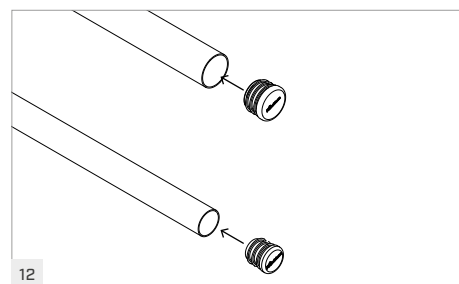
Den letzten Abschnitt des Schutzgeländers anpassen, indem der überstehende Teil der Läufe mit dem Rohrschneider abgetrennt wird.



Das Winkelgelenk **BORCOR** in den Handlauf einsetzen und mit gewindeschneidenden Schrauben **MMS5525A2** befestigen.



Das Winkelgelenk **BORCOR** in den Mittellauf einsetzen und mit gewindeschneidenden Schrauben **MMS5525A2** befestigen.



Die Kappen **BORCAP45** und **BORCAP32** in die Handläufe oder Mittelläufe einsetzen.

MONTAGE

IT

DE

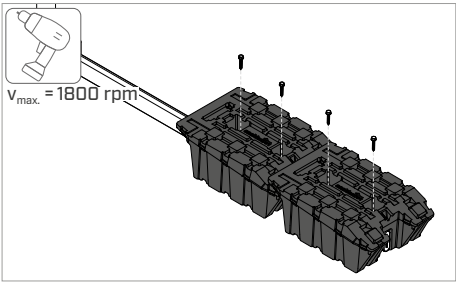
EN

ES

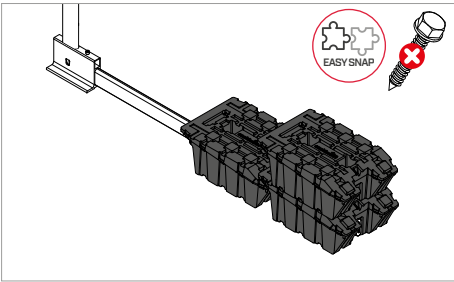
FR

PT

BORWT

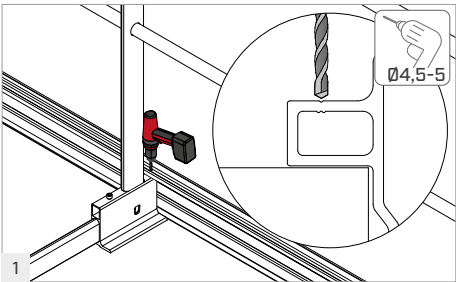


Sobald die Geländerbaugruppe montiert ist, die gewindeschneidenden Schrauben **MMS5525A2** an den jeweiligen Auflasten anziehen.

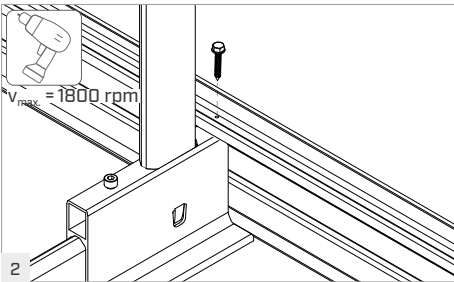


Vertikal gestapelte Auflasten benötigen keine spezifische Befestigung, da sie untereinander eingespannt sind.

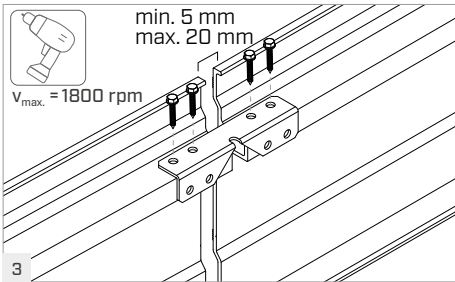
BORTB



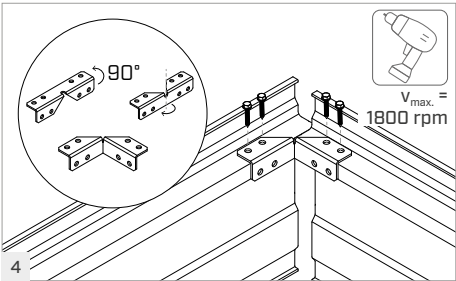
Die Fußleiste **BORTB** muss so positioniert werden, dass die jeweilige Auflage an die Schulter der Grundplatte **BORBASEW** angelegt wird. Nach der Positionierung sollte eine durchgehende Vorbohrung mit maximalem Durchmesser von Ø4,5 mm oder Ø5 mm ausgeführt werden.



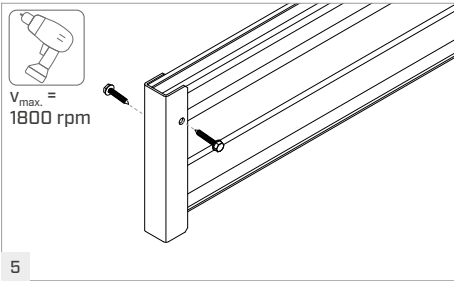
Nach dem Vorbohren kann die Fußleiste mit einer Schraube **MMS5525A2** an der Grundplatte befestigt werden.



Die Enden von **BORTB** mit dem Verbinder **BORTBJUN** verbinden. Mit 4 Schrauben **MMS5525A2** befestigen, wobei mindestens 5 mm zwischen den Platten liegen müssen, um eine thermische Verformung zu vermeiden.

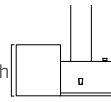


Den Verbinder **BORTBJUN** in den Ecken bis zum gewünschten Winkel von Hand drehen und biegen. Mit 4 gewindeschneidenden Schrauben **MMS5525A2** befestigen.



Die Endkappen der Fußleiste mit 2 gewindeschneidenden Schrauben **MMS5525A2** befestigen.

NUTZUNGSVORSCHRIFTEN BORTB

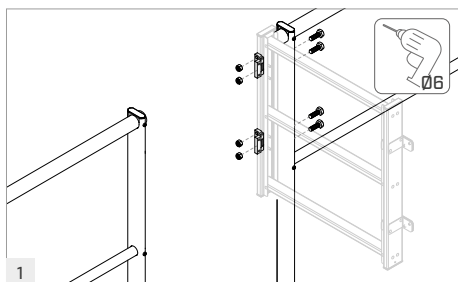
H _P posten	Schutzmauer	BORTB	h [mm]			
			EN 14122-3: 2018	EN 13374:2013 +A1:2018 Kl. A	EN 13374:2025 Kl. A	NTC 2018 + GvD 81/08
 110 cm		✓	30 mm ≤ h ≤ 100 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 100 mm
 110 cm		✗	≥ 100 mm	≥ 150 mm	≥ 150 mm	≥ 150 mm
 100 cm		✗	N/A	h ≥ 30 mm	h ≥ 30 mm	h ≥ 30 mm

Hinweis: Im Plan muss das System in jedem Fall die Mindestanforderungen an die Höhe der Schutzmauer erfüllen, d. h. h_{min} = 30 mm.

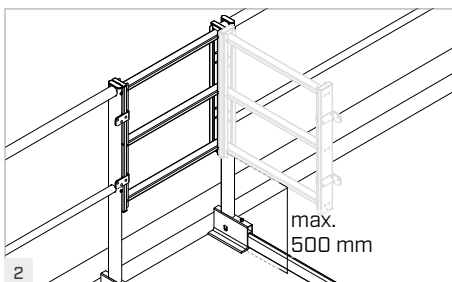
MONTAGE

BORGATE600

EN
14122-3:
2016



Die 2 Scharniere an der Seite des Tors mit 4 Schrauben **Ø6x35 ISO 4762** und den entsprechenden **selbstsichernden Muttern M6** im Lieferumfang des Tors befestigen.



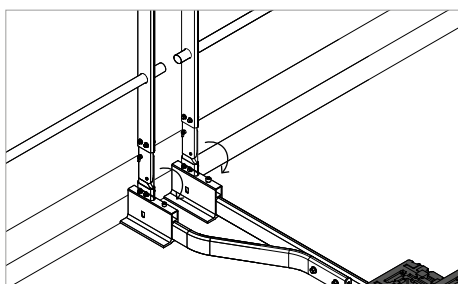
Sicherstellen, dass das Tor auf einer maximalen Höhe von **500 mm** zur begehbaren Fläche montiert ist und in geschlossener Position bleibt.

BORUP100F - BORUP110F

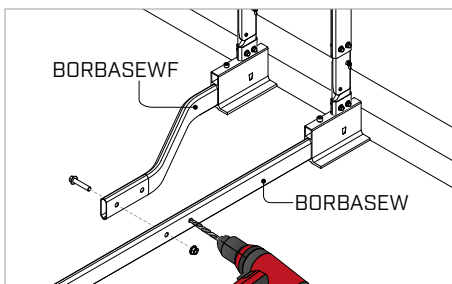
EN
14122-3:
2016

NTC
2018
+ D.Lgs.
81/08

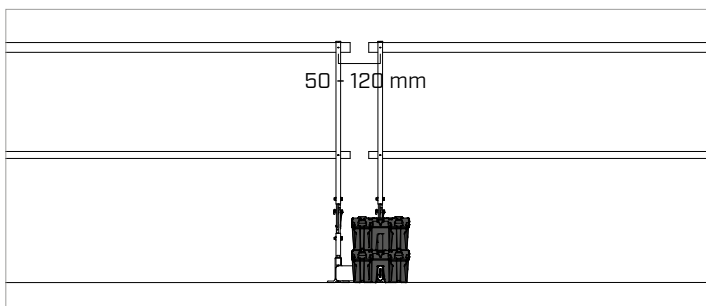
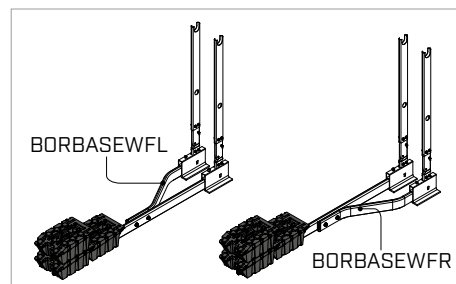
NF
E85-015:
2019



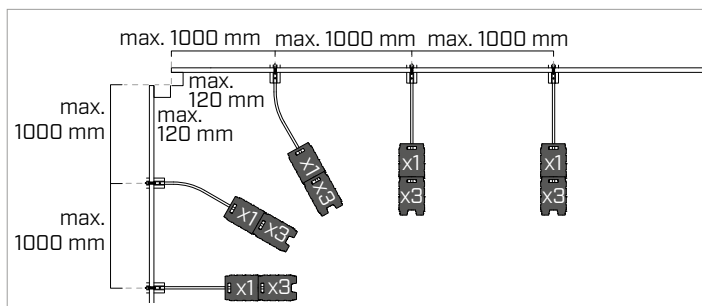
Die Klapppfosten **BORUP100F/BORUP110F** von der Verbindungsseite (nicht Zapfenseite) montieren und sicherstellen, dass der Pfosten zum Dach hin und niemals nach außen aufgeklappt wird.



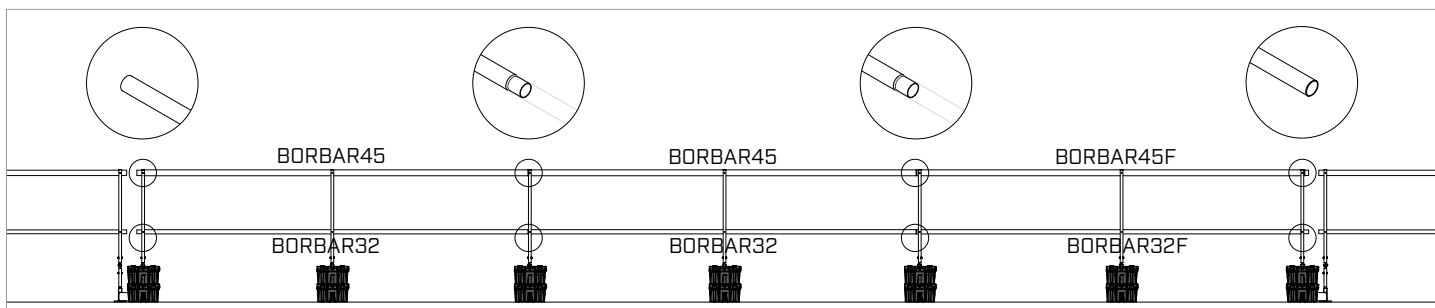
Die beiden Endbeine **BORBASEWFL/BORBASEWFR** mit **BORBASEW** verbinden. 2 Löcher Ø13 an **BORBASEW** bohren und mit einem Bolzen M12 verbinden.



Die Klappgeländer **BORDER WIE** werden in Modulen zu 9 m (7 Pfosten), 12 m (9 Pfosten), 15 m (11 Pfosten) oder 18 m (13 Pfosten) montiert. Zwei Endpfosten mit maximalem Abstand von **120 mm** zueinander montieren; siehe Abb.



Die Ecken der Klappgeländer dürfen nicht verbunden sein, damit ein Kippen in beide Richtungen möglich ist. Der Abstand zwischen zwei Endposten darf nicht mehr als **1000 mm** vom Rand betragen.



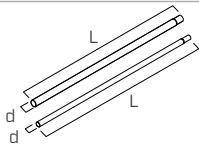
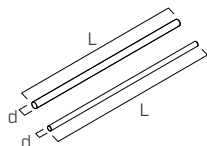
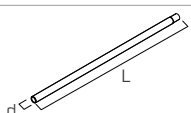
Hauptsächlich werden die Handläufe **BORBAR45** und **BORBAR32** verwendet, jedoch muss jedes Modul mit dem spezifischen, nicht verjüngten Mittel-
lauf **BORBAR45F** und **BORBAR32F** abschließen.

ALLGEMEINE VERWENDUNGSHINWEISE

- Vor dem Kippen des Schutzgeländers ist sicherzustellen, dass der Arbeiter gesichert ist. Der Anwender muss an einem Höhensicherungsgerät wie dem Seilsystem **PATROL** oder an einem Anschlagpunkt **KITE** verankert sein. Außerdem ist zu prüfen, ob alle Werkzeuge und Ausrüstungen in einwandfreiem Betriebszustand sind und der Montagebereich frei von Hindernissen ist.
- Die Module (9 m, 12 m, 15 m, 18 m) müssen immer von zwei Anwendern gehandhabt werden, um ein korrektes Kippen zu ermöglichen.

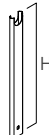
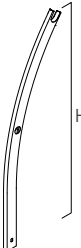
ARTIKELNUMMERN UND ABMESSUNGEN

HAND- UND MITTELLÄUFE

ART.-NR.	d [mm]	L [mm]	
BORBAR45	45	3000	
BORBAR32	32	3000	
BORBAR45F	45	3000	
BORBAR32F	32	3000	
BORBAR45R	45	3000	

EN AW
6063-T6

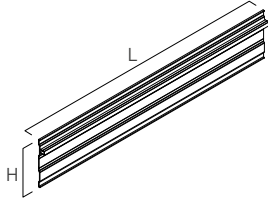
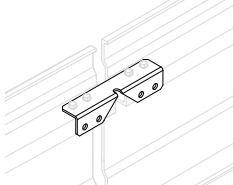
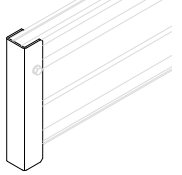
PFOSTEN

ART.-NR.	H [mm]	
BORUP530WH	535	
BORUP760WH	765	
BORUP100	1005	
BORUP110	1105	
BORUP118	1185	
BORUP130	1305	
BORUP100F	1005	
BORUP110F	1105	
BORUP113C	1120	
BORUP100R	1005	
BORUP110R	1105	
BORUP100AS	1005	
BORUP107US	1075	

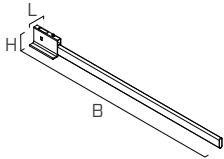
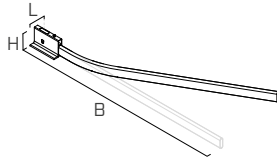
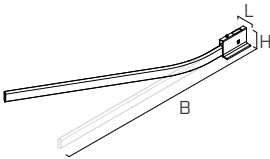
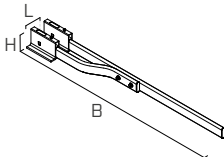
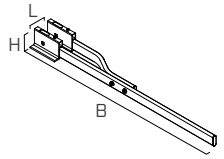
EN AW
6005A-T6

ARTIKELNUMMERN UND ABMESSUNGEN

FUSSLEISTE

ART.-NR.		H [mm]	L [mm]	
BORTB	EN AW 6063-T6	150	3000	
BORTBJUN	EN AW 6063 H111	-	-	
BORTBCAP	EN AW 6063 H111	-	-	

BASIS

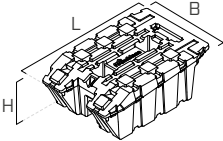
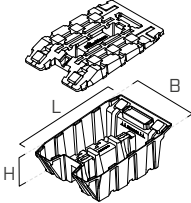
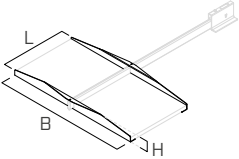
ART.-NR.		B [mm]	H [mm]	L [mm]	
BORBASEW		1400	115	100	
BORBASEWFCL		1400	115	100	
BORBASEWFCR	EN AW 6005A-T6	1400	115	100	
BORBASEWFL		750	115	100	
BORBASEWFR		750	115	100	

BEFESTIGUNG

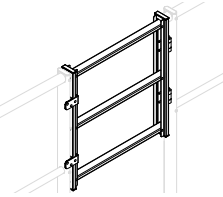
ART.-NR.		d [mm]	H [mm]	
MMS5525A2	1.4301 AISI304 INOX	5,5	25	

ARTIKELNUMMERN UND ABMESSUNGEN

AUFLASTEN

ART.-NR.		B [mm]	H [mm]	L [mm]	
BORWT		265	155	400	
	PP RECYCLED				
BORWTBOX		265	140	400	
BORWTFRAME	EN AW 5083 H111	1030	81	530	

SICHERHEITSTOR

ART.-NR.		L [mm]	H [mm]	
BORGATE600	EN AW 5083 H111	600	640	

ZUBEHÖR

ART.-NR.			
BORCAP45			
	LDPE		
BORCAP32			
BORCAP			
	PP RECYCLED		
BORCOR			
BORWALL	PP RECYCLED	1.4301 AISI304 INOX	

SAFETY REGULATIONS, INSTRUCTIONS FOR INSTALLATION AND USE

INTRODUCTION

DEFINITION

The freestanding **BORDER W** railing is a collective fall protection system designed for roof safety, made of aluminium alloy (**EN AW 6005A-T6 and EN AW 6063-T6**).

REGULATIONS

The **BORDER W** railing with horizontal fastening complies with the following regulations:

- **EN 14122-3:2016**
- **EN 13374:2025 Cl. A (except point 9)**
- **EN 13374:2013+A1:2018 Cl. A (except point 9)**
- **NTC (Tab.3.1.II - cat. A,B,C1,E1,F,G,H) and Legislative Decree 81/08 (Italy)**
- **NF E 85-015:2019 (France)**

The table shows the main geometric parameters required by the applicable regulations:

	EN 14122-3: 2016	EN 13374:2025 Cl.A EN 13374:2013 +A1:2018 Cl.A	NTC 2018	Leg. Decree 81/08	NF E85-015: 2019
Min. height above walking surface	1,1 m	1 m	1 m	1 m	1 - 1,1 m
Max. spacing between rails	500 mm	470 mm	-	500 mm	500 mm
Max. spacing between uprights	1,5 m (suggested)	-	-	-	1,5 m (suggested)
Min. height of toe board	10 cm	15 cm	-	15 cm	10 cm

USE - MAINTENANCE

The **BORDER** railing must be installed by qualified personnel, in compliance with current regulations concerning work at height. Before use, the operator must ensure their own safety by using a temporary lifeline, PPE and a suitable work platform.

- Before use, the user must perform a visual inspection of the **BORDER** railing to ensure the absence of irregularities, damage or deformations (knocks, bending, etc.).
- The **BORDER** railing does not require any specific maintenance. However, it must be visually inspected at least once per year by qualified personnel.
- If the **BORDER** railing is incorrectly installed, damaged or has arrested a fall, its use must be immediately suspended. It must not be reused until it has been inspected and tested by a qualified technician, who must provide written authorisation.
- If the product is resold outside the country of destination, it is essential for the user's safety that the reseller provides the instruction manual in the language of the country where the product will be used. The documents can be provided to you on request by contacting the manufacturer.
- The **BORDER** railing is a permanent collective protective device intended exclusively for professionals working on roofs that are not accessible to the public.
- If installed in polluted industrial, petrochemical, marine or coastal environments, the **BORDER** railing must undergo an appropriate surface treatment, such as powder coating or anodizing.
- If a site plan has been provided, it must be used as a reference during installation.
- If the **BORDER** railing is exposed to peak wind speeds exceeding 31 m/s (approx. 110 km/h), Rothoblaas recommends applying an additional ballast to the rear of each leg. This wind speed corresponds to a dynamic wind pressure of 600 N/m².

STORAGE

The raw aluminium components are packed in contact with each other. Exposure of the unopened package to rain may cause oxidation of the components, resulting in possible surface stains. These do not compromise the quality of the aluminium but can damage the aesthetic appearance of the railing. We recommend unpacking the packages and storing the components separately from each other (no contact between them), or storing the packages still packed in a dry place.

TOOLS



IT

DE

EN

ES

FR

PT

INSTALLATION VIDEO

MAXIMUM SPACING VALUES

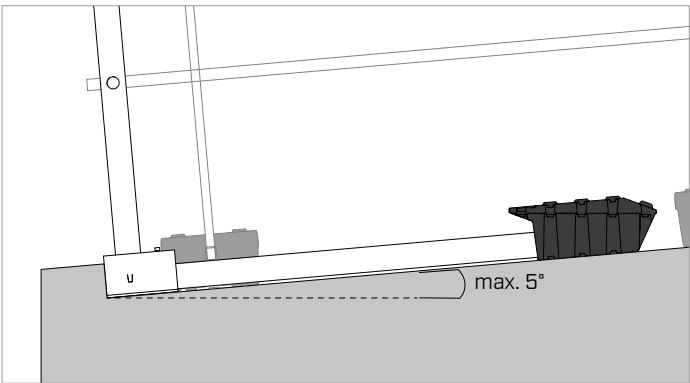
Table 1

upright	H _{uprights}	spacing between uprights [cm]			
		EN 14122-3: 2016	EN 13374:2025 Cl.A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018 + Leg. Decree 81/08
straight + folding	 100 cm	N/A	250	100	150
	 110 cm	150	250	100	150
curved	 110 cm	150	250	100	150

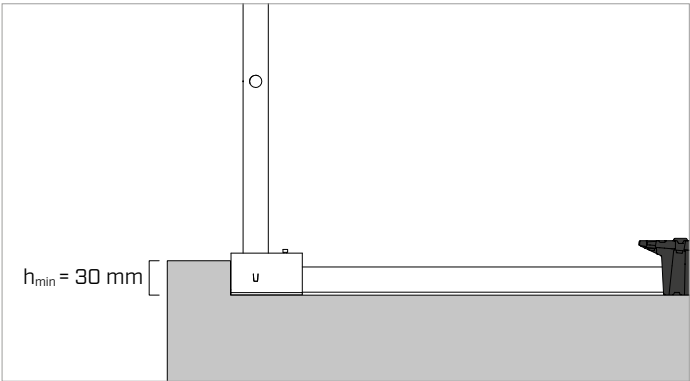
*The folding system is not currently available.

COMPATIBLE SUBSTRUCTURES

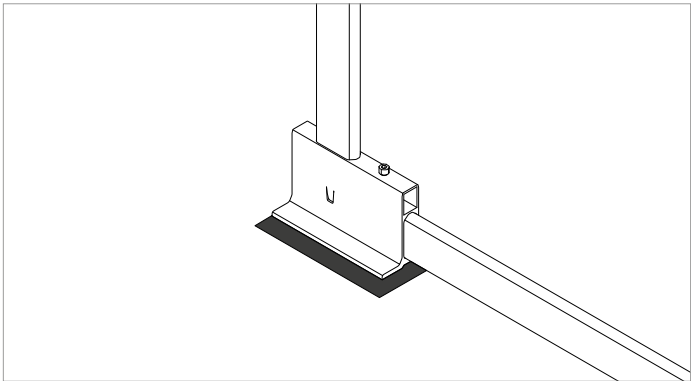
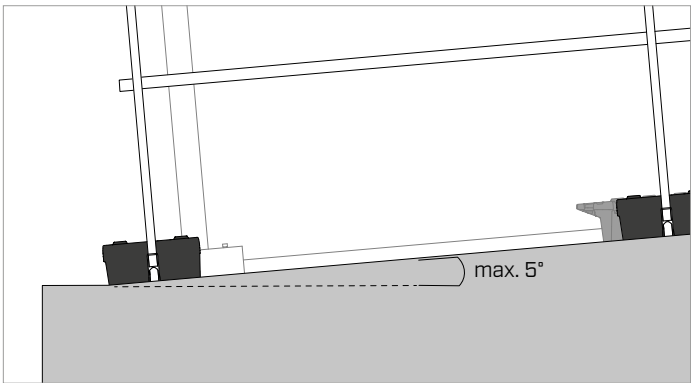
			
C20/25	CLT	SHEATH	PVC



In the case of a slope, the inclination must not exceed 5°.

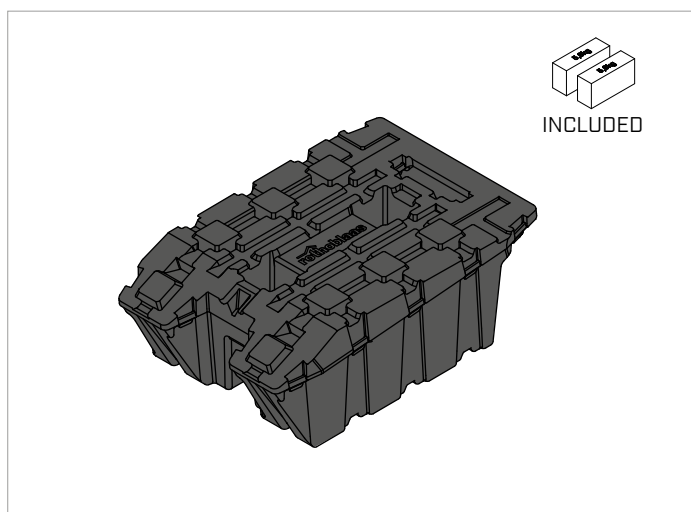


The **BORDER W** must rest against a kerb with min. h = 30 mm.
The kerb must be capable of withstanding a minimum longitudinal load of 150 kg/ml.

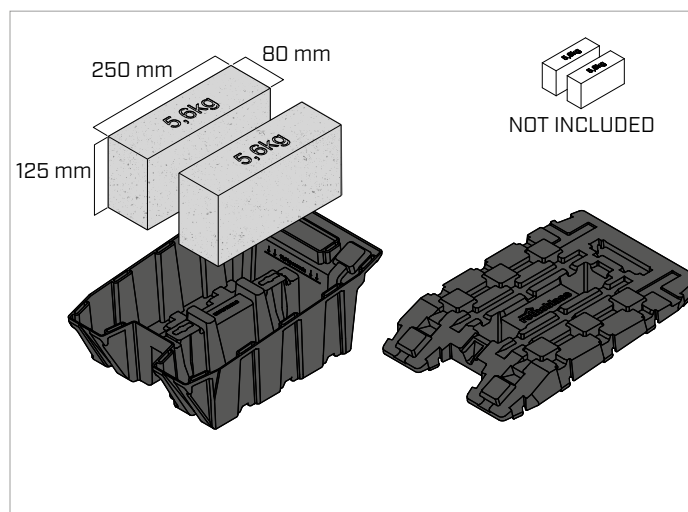


On request: **BORBASEWMAT** additional self-healing cutting mat.

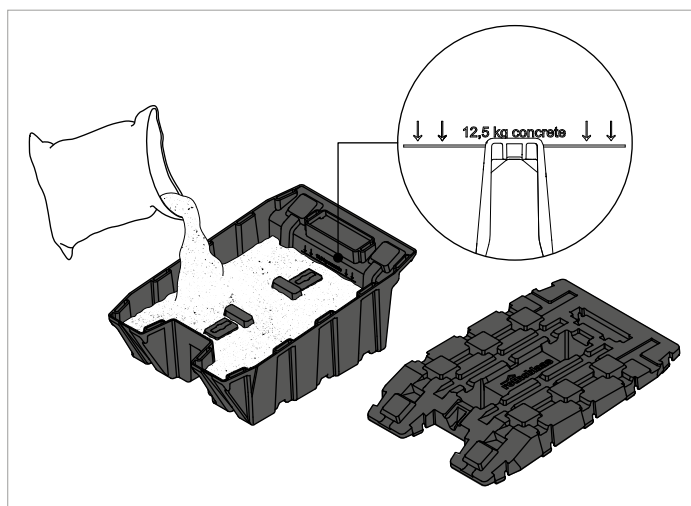
BALLAST SPECIFICATIONS



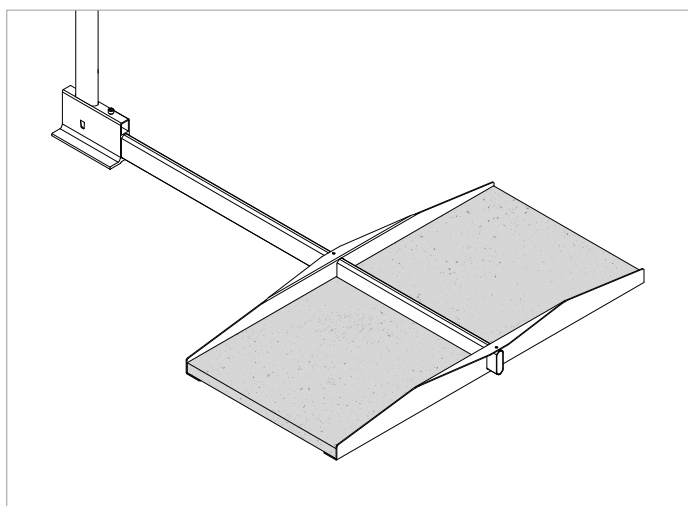
BORWT: Solid ballast 12.5 kg using bricks measuring 250 x 125 x 80 mm.



BORWTBOX option 1: empty ballast, fillable with 2 bricks measuring 250 x 125 x 80 mm (final weight 12.5 kg).



BORWTBOX option 2: Empty ballast, fillable with concrete up to the designated limit (final weight 12.5 kg).



BORWTFRAME: aluminium frame for holding concrete slabs measuring 50 x 50 cm, 45 x 45 cm, 40 x 40 cm (minimum weight per ballast 20 kg).

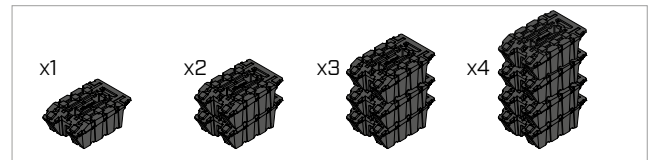
NOTE: the weight ratio k between the **BORWT** ballast and the 50 x 50 cm concrete slab for **BORWTFRAME** is indicatively:

$$k = \frac{P_{BORWT}}{P_{50 \times 50}} = \frac{12,5 \text{ kg}}{20 \text{ kg}} = 1,6$$

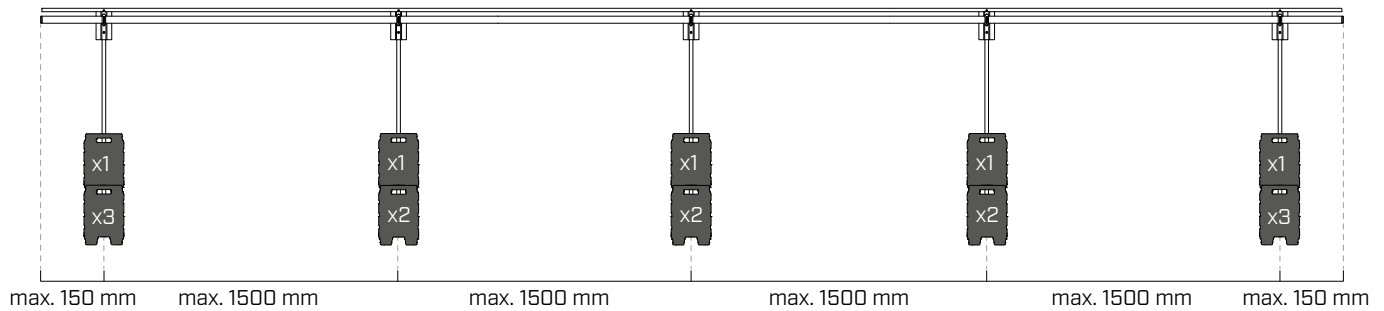
In installation diagrams, the weight ratio should be considered for the configuration using **BORWTFRAME**.

INSTALLATION DIAGRAMS

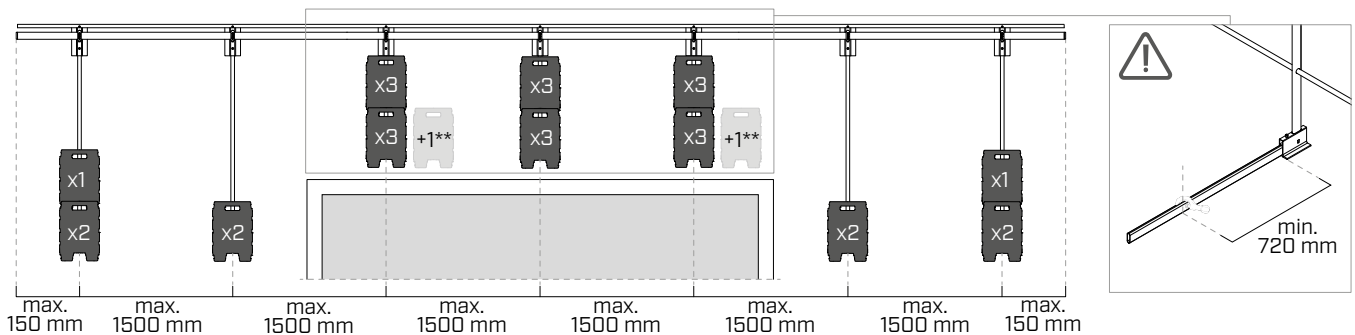
STRAIGHT LINE BORDER W INSTALLATION



NF
E85-015:
2019

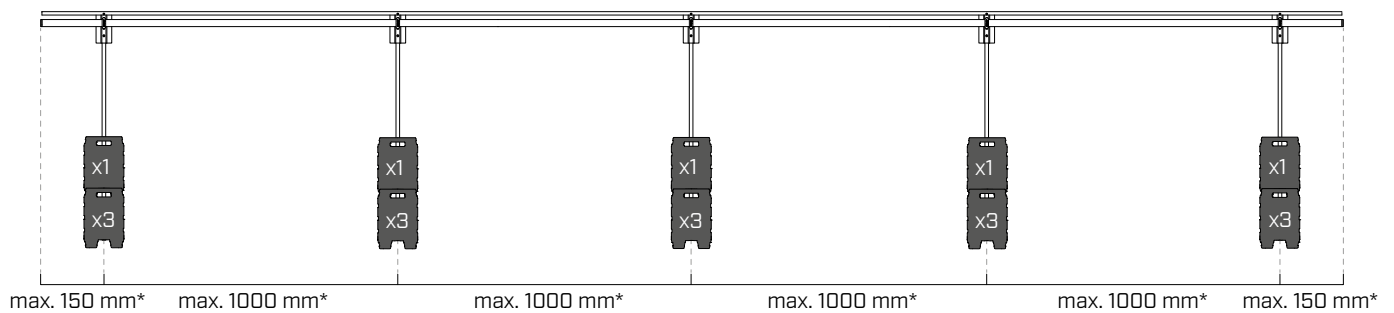


EN
14122-3:
2016



Note: in the presence of obstacles (e.g. skylight), the support leg can be shortened, maintaining a minimum length of 72 cm. In this configuration, install 6 ballasts (3 + 3) on the inner legs and 7 (3 + 4) on the end legs.**

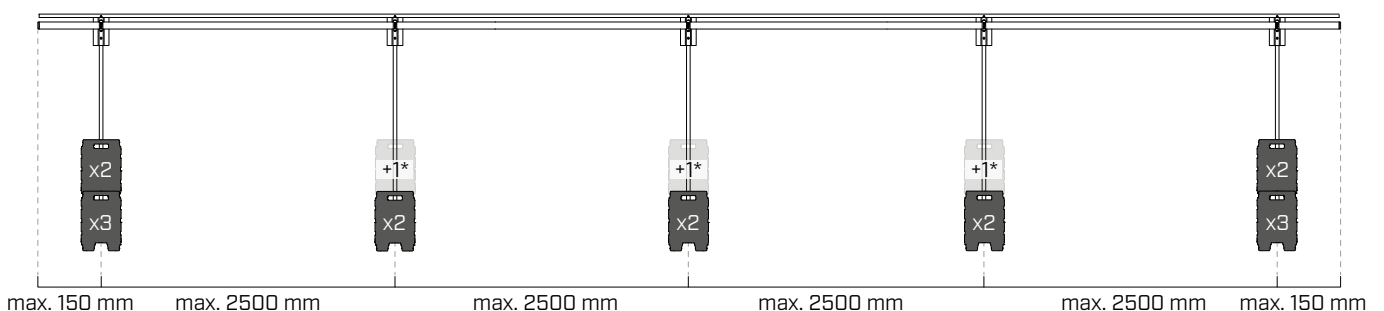
NTC
2018
+ D.Lgs.
81/08



* BORWTFRAME: a maximum spacing of 1500 mm can be achieved by positioning no. 4 slabs measuring 50 x 50 x 35 cm.

EN
13374:2025
CLA

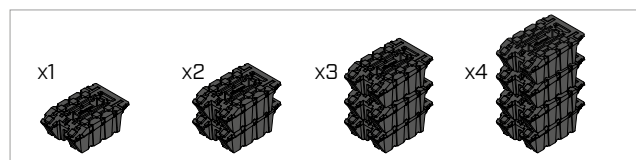
EN
13374:2013
+A1:2018
CLA



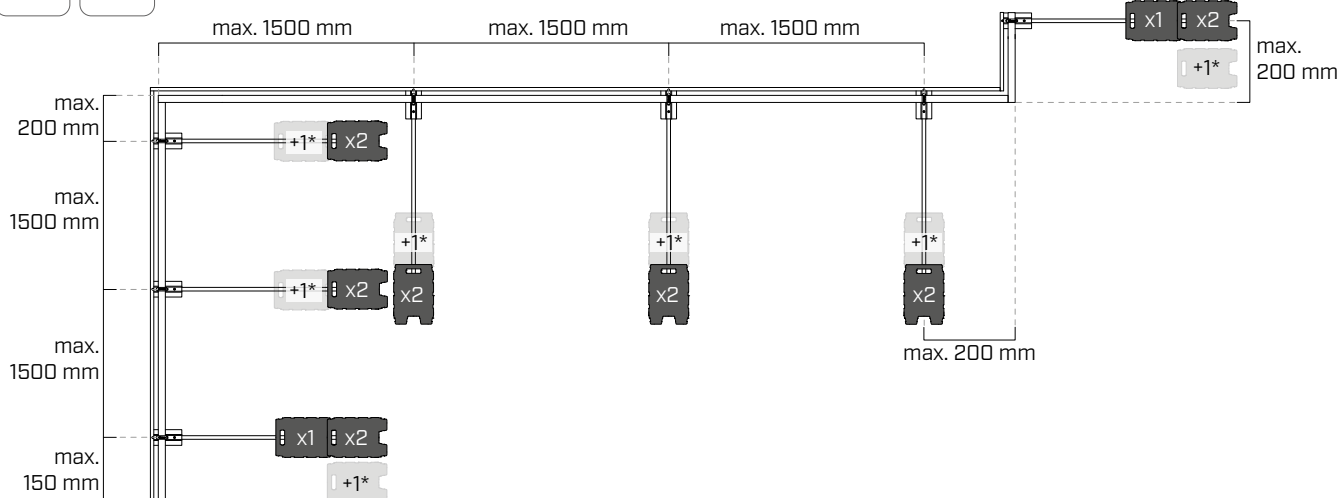
* In areas exposed to strong winds (peak speed > 31 m/s), it is recommended to add an extra ballast.

INSTALLATION DIAGRAMS

STRAIGHT BORDER W INSTALLATION - CORNER

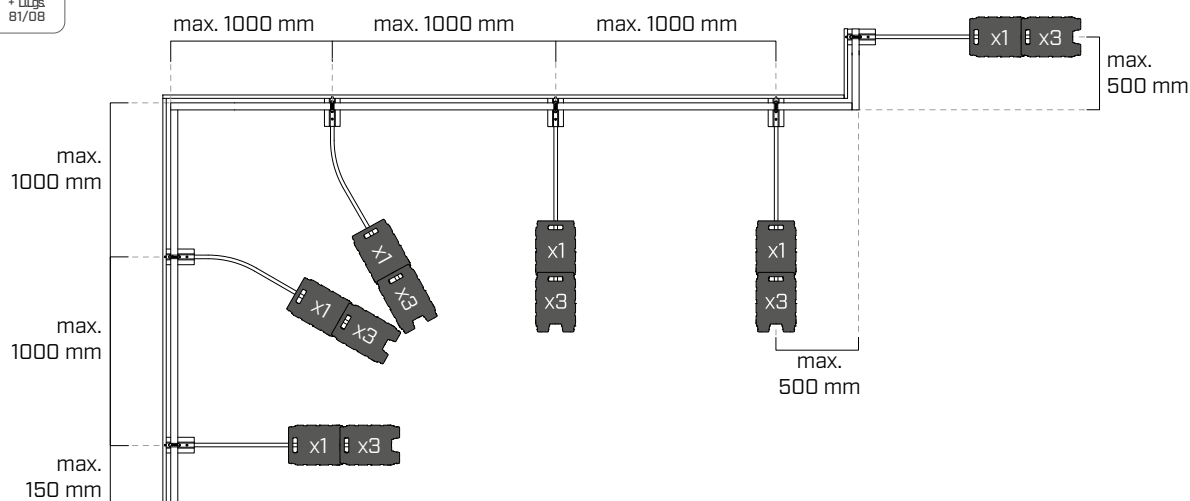


EN 14122-3: 2016
NF E85-015: 2019



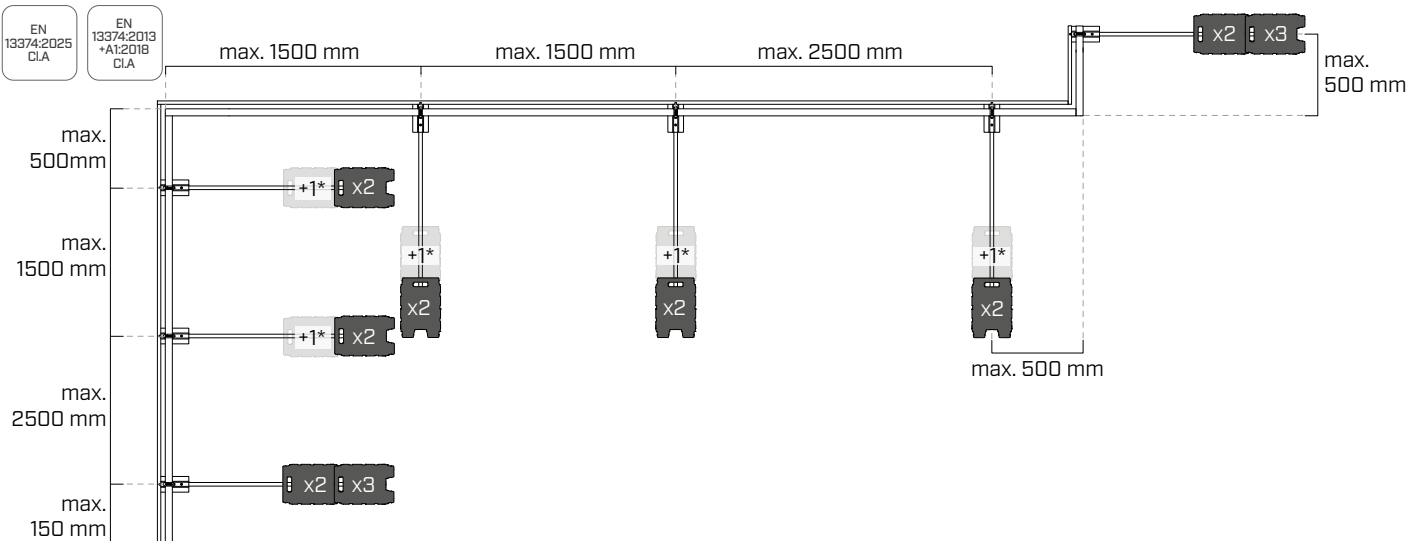
* According to regulation NF E85-015, an additional ballast must be added to each leg in the 1+3 configuration (at the ends) and 1+2 configuration (inner legs).

NTC 2018
+ DLgs 81/08



EN 13374:2025
CIA

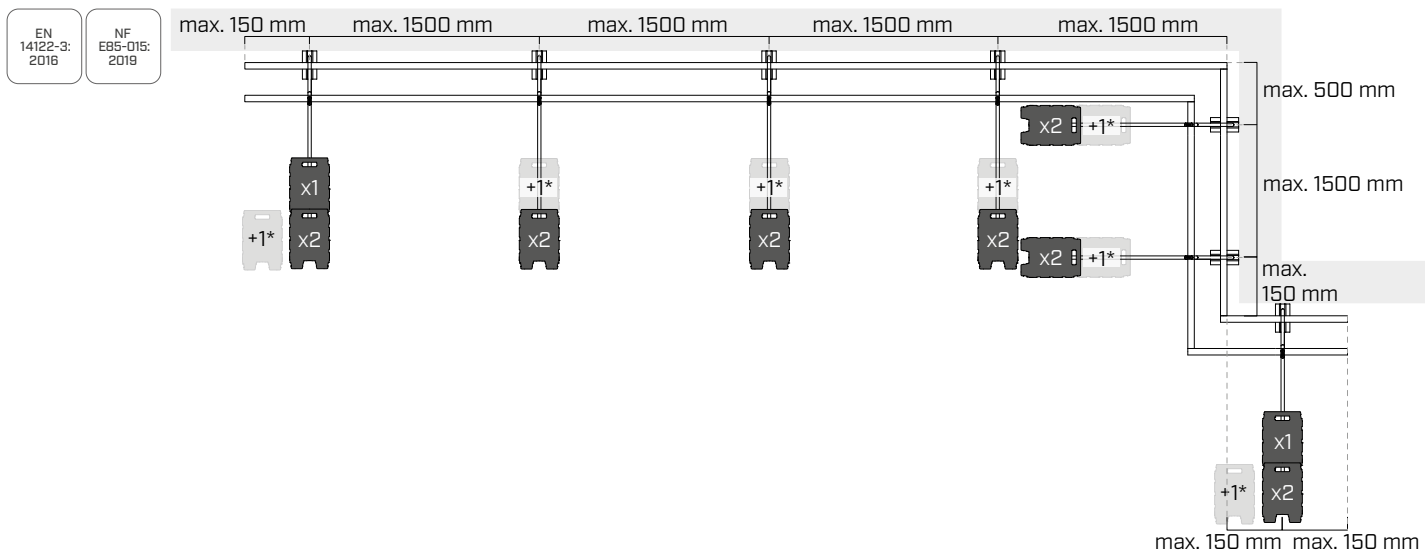
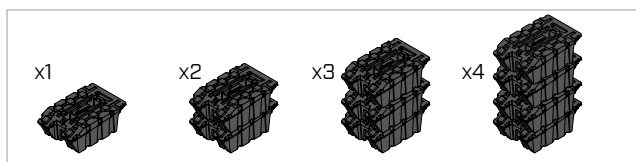
EN 13374:2013
+A1:2018
CIA



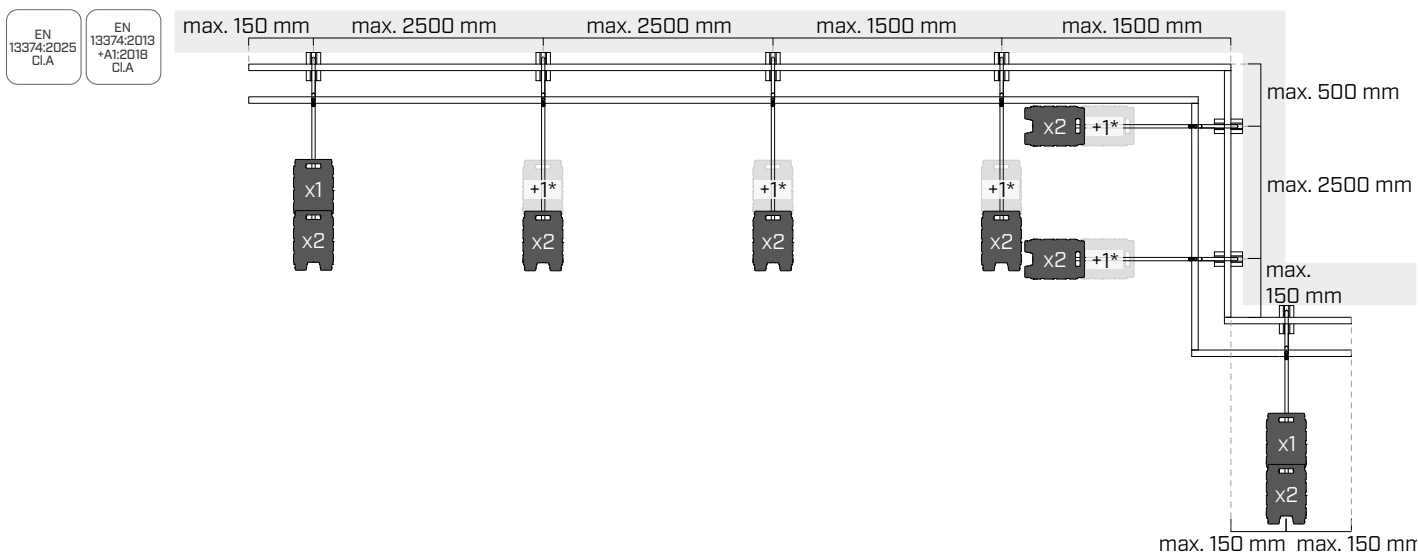
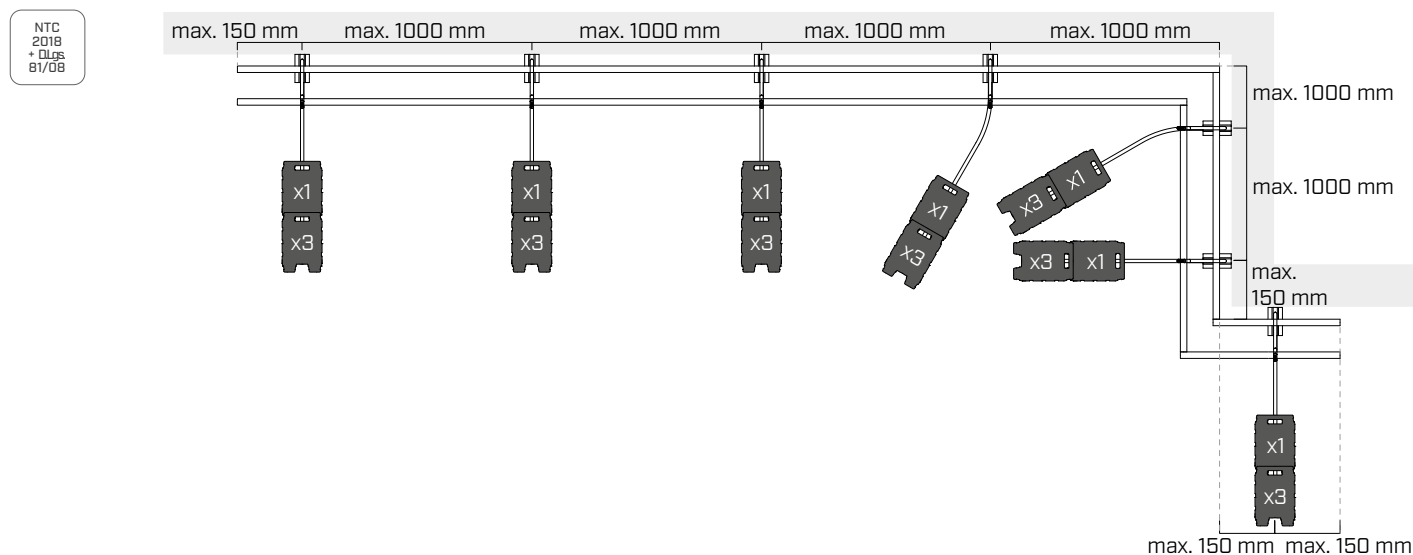
* In areas exposed to strong winds (peak speed > 31 m/s), it is recommended to add an extra ballast (only for the inner legs, in the 1+2 configuration).

INSTALLATION DIAGRAMS

CURVED BORDER W INSTALLATION - CORNER

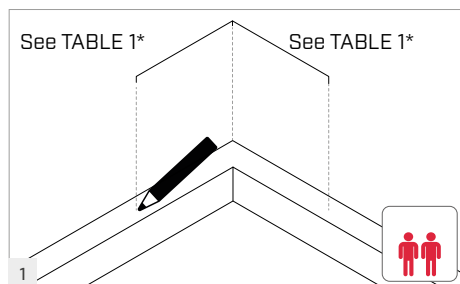


* According to regulation NF E85-015, an additional ballast must be added to each leg in the 1+3 configuration (at the ends) and 1+2 configuration (inner legs).

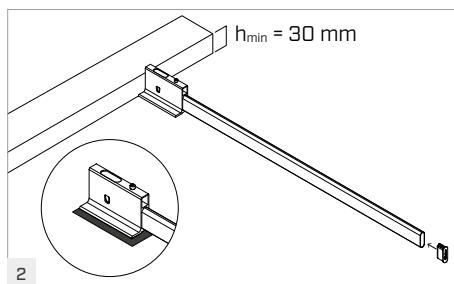


* In areas exposed to strong winds (peak speed > 31 m/s), it is recommended to add an extra ballast (only for the inner legs, in the 1+2 configuration).

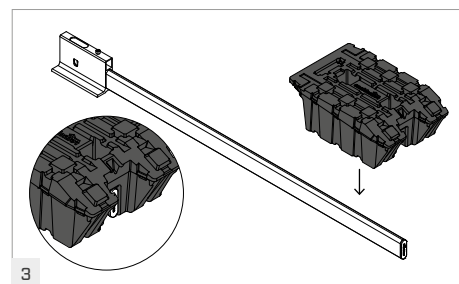
BORDER W



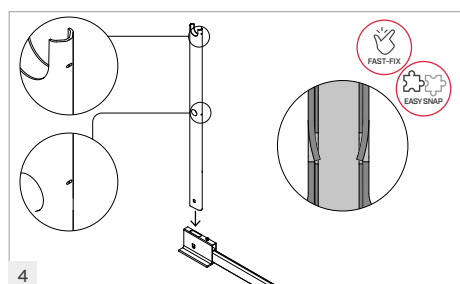
At least two qualified operators are required. For best results, it is advisable to start the installation from a corner.



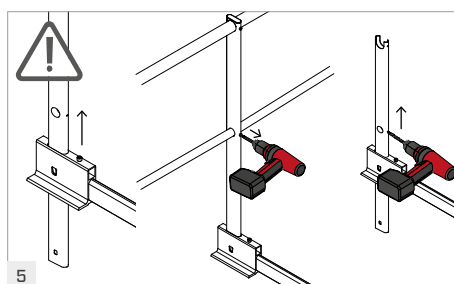
Insert the dedicated **BORBASEWCAP** cap in the end part of the leg. Add the optional **BOR-BASEWMAT** self-healing cutting mat under the base, if required. The **BORDER W** system may only be installed and supported on a parapet having a minimum height of 30 mm.



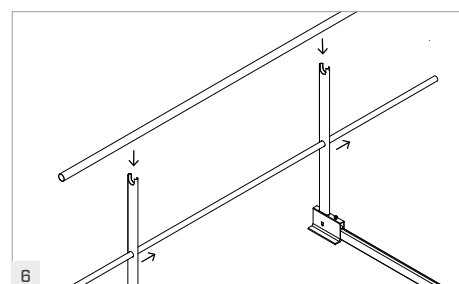
Position and adjust the ballasts on the support leg so that the end part of each ballast is perfectly aligned with the end part of the support leg.



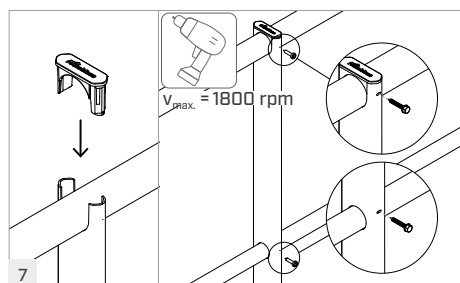
Insert the uprights into the **BORBASEW** bases with the markings facing the operator. Check that the tabs and slots are properly interconnected. No screws are required for fastening.



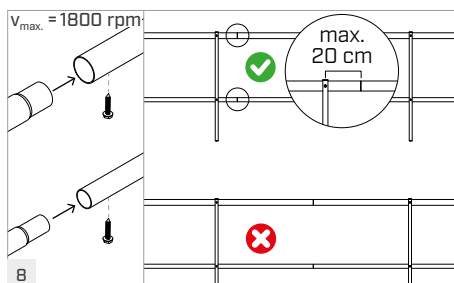
To remove the base-upright assembly, push the base upwards. If there are screws (point 7), remove them and drill Ø6 mm at the countersunk hole.



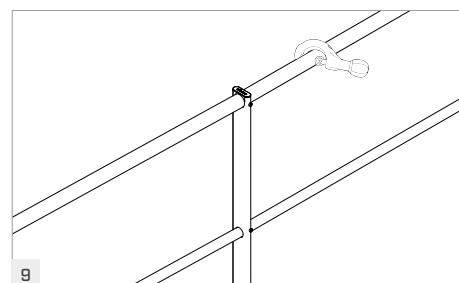
Insert the **BORBAR32** intermediate rail followed by the **BORBAR45** top rail. In compliance with EN 13374, the **BORBAR45R** reinforced rails must be installed.



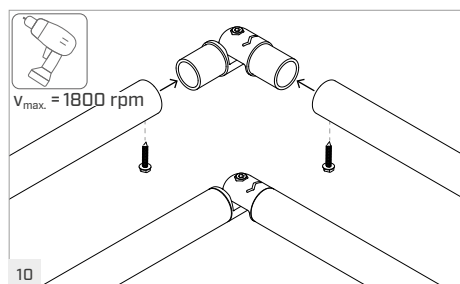
Insert the **BORCAP** cap on the top of each upright. Secure the rails to the uprights using screws **MMS5525A2** at the two side markings.



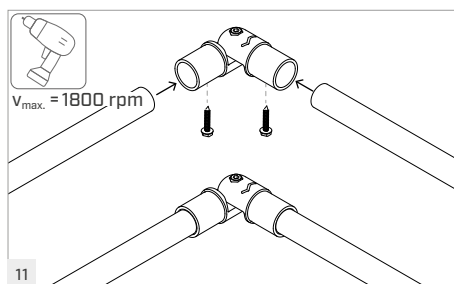
Connect the male/female ends of the handrail and rails, fastening them with screws **MMS5525A2**. In compliance with EN 14122, the handrail must end no more than 20 cm from the nearest upright. Position the screws under the rails.



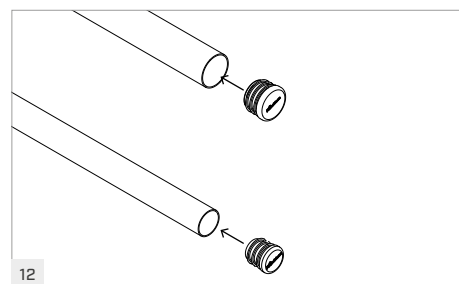
Adapt the final section of the railing by cutting off the excess length of the rails using the pipe cutter.



Insert the **BORCOR** corner joint into the handrail and fasten with self-tapping screws **MMS5525A2**.



Insert the **BORCOR** corner joint into the intermediate rail and fasten with self-tapping screws **MMS5525A2**.



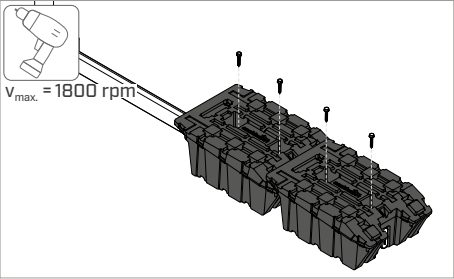
Insert the **BORCAP45** and **BORCAP32** caps into the handrails or intermediate rails.

IT

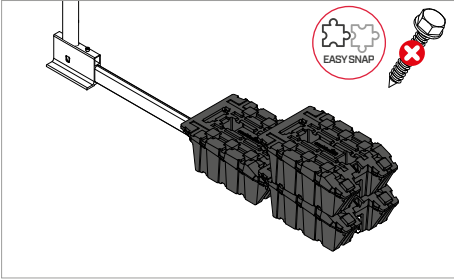
INSTALLATION

DE

BORWT



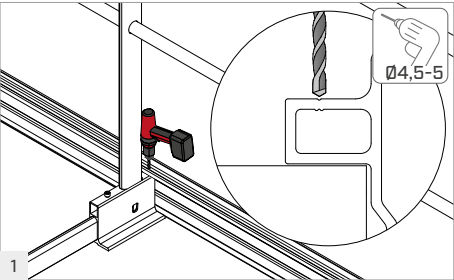
Once the railing assembly is in place, tighten the self-tapping screws **MMS5525A2** on the corresponding ballasts.



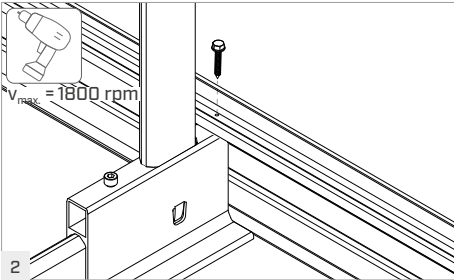
Vertically stacked ballasts do not require any specific fastening as they are interlocked with one another.

EN

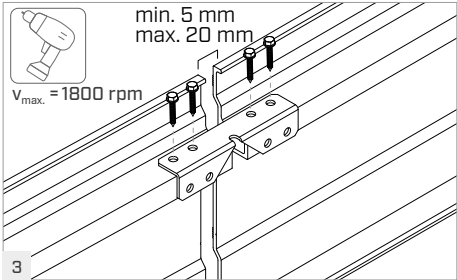
BORTB



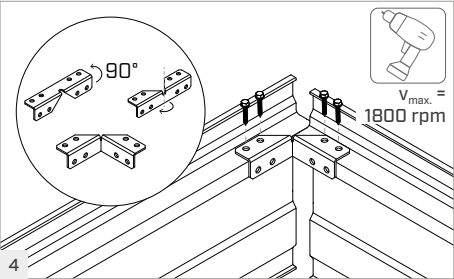
The **BORTB** toe board must be positioned so that its support is resting against the shoulder of the **BORBASEW** base. Once positioned, a pilot through-hole should be drilled with maximum diameter Ø4.5 mm or Ø5 mm.



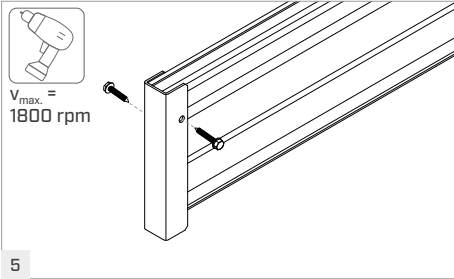
Once the pilot hole has been drilled, the toe board can be secured to the base with a screw **MMS5525A2**.



Join the ends of **BORTB** with the **BORTBJUN** connector. Fasten with 4 screws **MMS5525A2**, leaving at least 5 mm between boards to prevent thermal deformation.



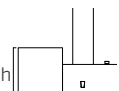
At the corners, manually rotate and bend the **BORTBJUN** connector until the desired angle is achieved. Fasten with 4 self-tapping screws **MMS5525A2**.



Fasten the end caps of the toe board with 2 self-tapping screws **MMS5525A2**.

FR

BORTB USE SPECIFICATIONS

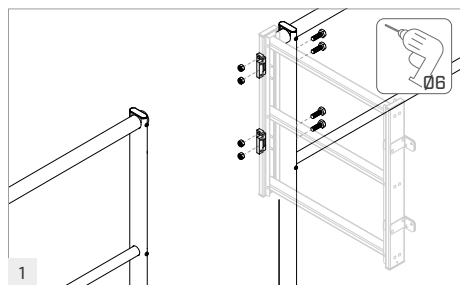
			EN 14122-3: 2016	EN 13374:2013 +A1:2018 Cl.A	EN 13374:2025 Cl.A	NTC 2018 + Leg. Decree 81/08	NF E85-015: 2019
H _{uprights}	parapet	BORTB	h [mm]				
  110 cm		✓	30 mm ≤ h ≤ 100 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 100 mm	
  110 cm		✗	≥ 100 mm	≥ 150 mm	≥ 150 mm	≥ 150 mm	
  100 cm		✗	N/A	h ≥ 30 mm	h ≥ 30 mm	h ≥ 30 mm	

Note: in the installation diagram, the system must in all cases comply with the minimum parapet height, that is, h_{min} = 30 mm.

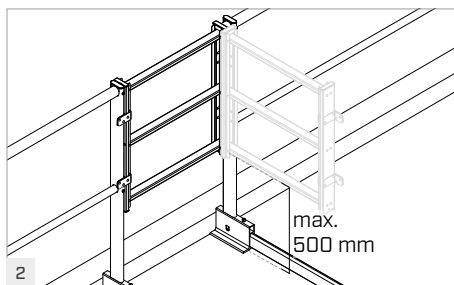
INSTALLATION

BORGATE600

EN
14122-3:
2016



Fasten the 2 hinges to the gate using 4 **Ø6x35 ISO 4762** screws and their respective **M6 self-locking nuts** supplied with the gate.



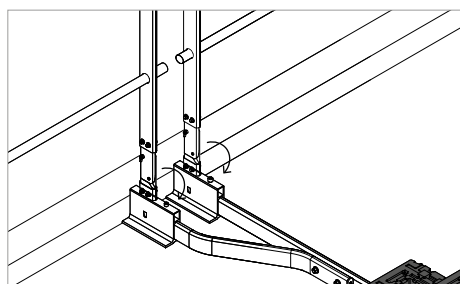
Check that the gate is installed at a maximum height of **500 mm** above the walking surface, keeping it in the closed position.

BORUP100F - BORUP110F

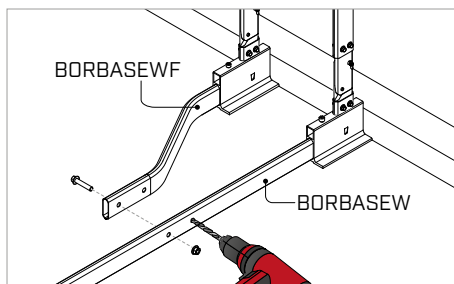
EN
14122-3:
2016

NTC
2018
+ D.Lgs.
81/08

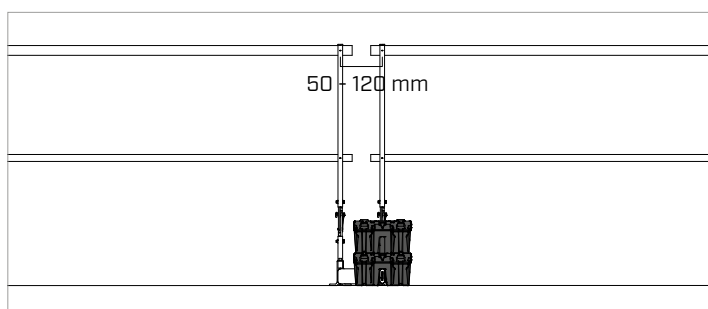
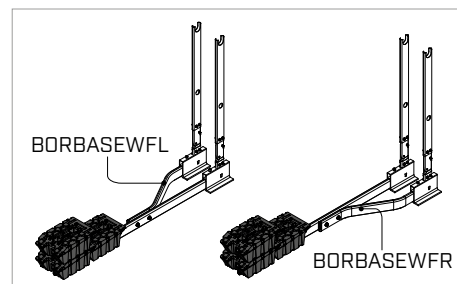
NF
E85-015:
2019



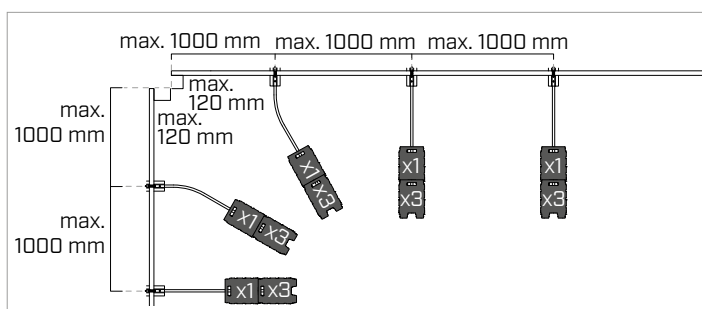
Install the **BORUP100F/BORUP110F** folding uprights on the joint side (not the hinge side), ensuring the upright folds towards the roof, never outwards.



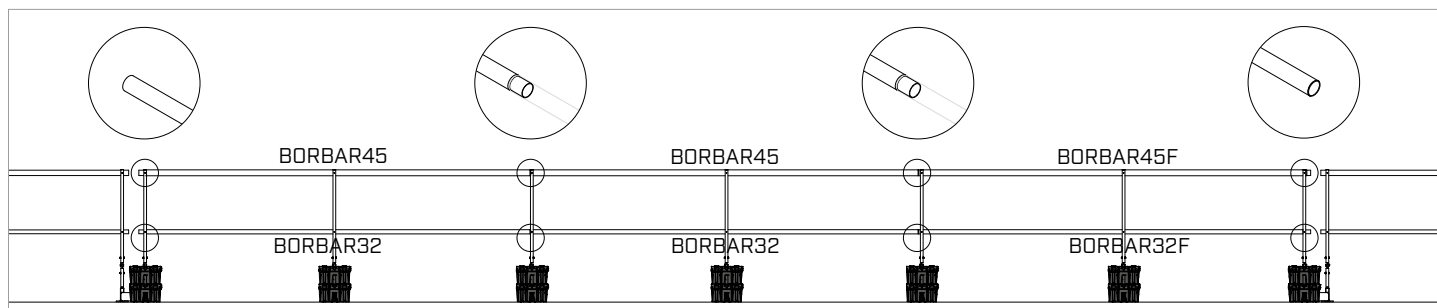
Connect the two end legs, **BORBASEWFL/BORBASEWFR** with **BORBASEW**. Drill two **Ø13** holes in the **BORBASEW** and connect using an **M12** bolt.



The **BORDER W** folding railings are installed in modules of 9 m (7 uprights), 12 m (9 uprights), 15 m (11 uprights) or 18 m (13 uprights). Install the two end uprights with a maximum spacing of **120 mm**, as shown.



The corners of the folding railings must not be connected to allow folding in either direction. The distance between two end uprights must never exceed **1000 mm** from the edge.



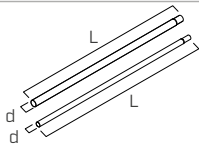
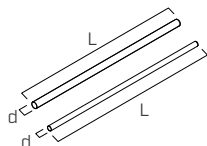
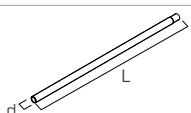
The main rails to be used are the **BORBAR45** and the **BORBAR32**; regardless, each module must end with the specific **BORBAR45F** and **BORBAR32F** rail with no reduction.

GENERAL WARNINGS FOR USE

- Before folding the railing, it is mandatory to ensure that the operator is working in safe conditions. The user must be secured to a fall arrester, such as a **PATROL** lifeline or a **KITE** anchor point. It is also necessary to check that all tools and equipment are in proper working order and that the installation area is clear of obstacles.
- The modules (9 m, 12 m, 15 m, 18 m) must always be handled by two operators to ensure proper folding.

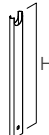
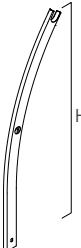
CODES AND DIMENSIONS

RAILS

CODE	d [mm]	L [mm]	
BORBAR45	45	3000	
BORBAR32	32	3000	
BORBAR45F	45	3000	
BORBAR32F	32	3000	
BORBAR45R	45	3000	

EN AW
6063-T6

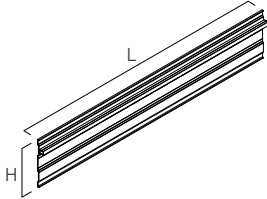
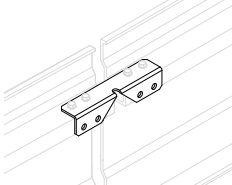
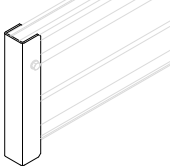
UPRIGHTS

CODE	H [mm]	
BORUP530WH	535	
BORUP760WH	765	
BORUP100	1005	
BORUP110	1105	
BORUP118	1185	
BORUP130	1305	
BORUP100F	1005	
BORUP110F	1105	
BORUP113C	1120	
BORUP100R	1005	
BORUP110R	1105	
BORUP100AS	1005	
BORUP107US	1075	

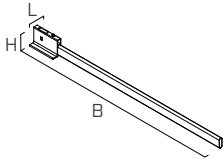
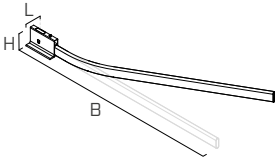
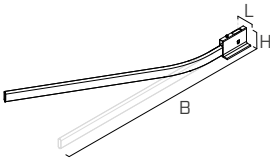
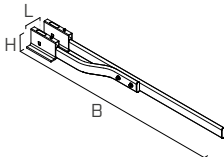
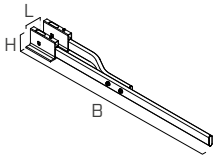
EN AW
6005A-T6

CODES AND DIMENSIONS

TOE BOARD

CODE		H [mm]	L [mm]	
BORTB	EN AW 6063-T6	150	3000	
BORTBJUN	EN AW 6063 H111	-	-	
BORTBCAP	EN AW 6063 H111	-	-	

BASES

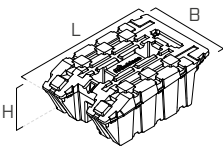
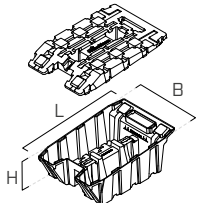
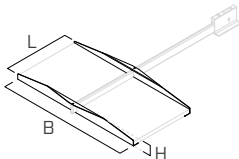
CODE		B [mm]	H [mm]	L [mm]	
BORBASEW		1400	115	100	
BORBASEWFCL		1400	115	100	
BORBASEWFCR	EN AW 6005A-T6	1400	115	100	
BORBASEWFL		750	115	100	
BORBASEWFR		750	115	100	

FASTENING

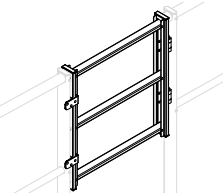
CODE		d [mm]	H [mm]	
MMS5525A2	1.4301 AISI304 INOX	5,5	25	

CODES AND DIMENSIONS

BALLAST

CODE		B [mm]	H [mm]	L [mm]	
BORWT		265	155	400	
	PP RECYCLED				
BORWTBOX		265	140	400	
BORWTFRAME	EN AW 5083 H111	1030	81	530	

SAFETY GATE

CODE		L [mm]	H [mm]	
BORGATE600	EN AW 5083 H111	600	640	

ACCESSORIES

CODE			
BORCAP45			
	LDPE		
BORCAP32			
BORCAP			
	PP RECYCLED		
BORCOR			
BORWALL	PP RECYCLED	1.4301 AISI304 INOX	

NORMAS DE SEGURIDAD, INSTRUCCIONES DE USO E INSTALACIÓN

INTRODUCCIÓN

DEFINICIÓN

La baranda autoportante **BORDER W** es un sistema de protección colectiva anticaída, ideal para garantizar la seguridad en las cubiertas, realizada en aleación de aluminio (**EN AW 6005A-T6 y EN AW 6063-T6**).

NORMAS

La baranda de fijación horizontal **BORDER W** es conforme a las siguientes normativas:

- **EN 14122-3:2016**
- **EN 13374:2025 Cl. A (salvo punto 9)**
- **EN 13374:2013+A1:2018 Cl. A (salvo punto 9)**
- **NTC (Tabla 3.1.II - cat. A, B, C1, E1, F, G y H) y D. Leg. 81/08 (Italia)**
- **NF E 85-015:2019 (Francia)**

En la siguiente tabla se indican los principales parámetros geométricos previstos por las normativas de referencia:

	EN 14122-3: 2016	EN 13374:2025 Cl.A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018	D. Leg. 81/08	NF E85-015: 2019
Altura mínima desde la superficie de pisoteo	1,1 m	1 m	1 m	1 m	1 m	1 - 1,1 m
Intereje máximo entre barras	500 mm	470 mm	-	500 mm	500 mm	500 mm
Intereje máximo entre montantes	1,5 m (recomendado)	-	-	-	1,5 m (recomendado)	-
Altura mínima del rodapié	10 cm	15 cm	-	15 cm	10 cm	-

USO - MANTENIMIENTO

La baranda **BORDER** debe ser instalada por personal cualificado, respetando las normativas vigentes relativas a los trabajos en altura. Antes del uso, el operario debe garantizar su propia seguridad utilizando una línea de vida temporal, equipos de protección individual y una plataforma de trabajo adecuada.

- Antes de empezar a usar la baranda **BORDER**, el usuario debe inspeccionarla visualmente para asegurarse de que no presente anomalías, daños o deformaciones (golpes, dobleces, etc.).
- La baranda **BORDER** no requiere intervenciones de mantenimiento específicas. Sin embargo, es necesario que, al menos una vez al año, personal cualificado realice un control visual.
- Si la baranda **BORDER** no está bien instalada, está dañada o se ha utilizado para detener una caída, se debe dejar de usar de inmediato. No se puede volver a utilizarla hasta que un técnico cualificado haya realizado las debidas inspecciones y comprobaciones y haya autorizado su uso por escrito.
- Si el producto se revende fuera del país de destino, para garantizar la seguridad del usuario es esencial que el distribuidor suministre el manual de instrucciones en el idioma del país donde vaya a usarse el producto. Si se solicita, estos documentos los puede proporcionar el fabricante.
- La baranda **BORDER** es un equipo de protección colectiva permanente, destinado exclusivamente a profesionales que trabajen en cubiertas no accesibles al público.
- Si se instala en ambientes industriales contaminados, petroquímicos, navales o costeros, la baranda **BORDER** debe someterse a un tratamiento superficial adecuado, como pintado con pintura en polvo o anodizado.
- Si se proporciona un esquema de montaje, se debe utilizar como referencia durante la instalación.
- Si la baranda **BORDER** está expuesta a velocidades de pico del viento superiores a 31 m/s (aprox. 110 km/h), Rothoblaas recomienda aplicar un lastre adicional en la parte posterior de cada pata. Esta velocidad corresponde a una presión dinámica del viento de 600 N/m².

ALMACENAMIENTO

Los componentes de aluminio bruto se empaquetan en contacto entre sí. Si el paquete cerrado queda expuesto a la lluvia, es posible que los componentes se oxiden y, por lo tanto, se formen manchas superficiales. Estas manchas no afectan la calidad del aluminio, pero pueden perjudicar el aspecto estético de la baranda. Se aconseja desembalar los productos y mantener los componentes separados, sin contacto entre sí, o bien guardar los componentes empaquetados en un lugar seco.

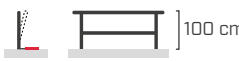
HERRAMIENTAS



ESPECIFICACIONES DE INSTALACIÓN

VALORES MÁXIMOS DE INTEREJE

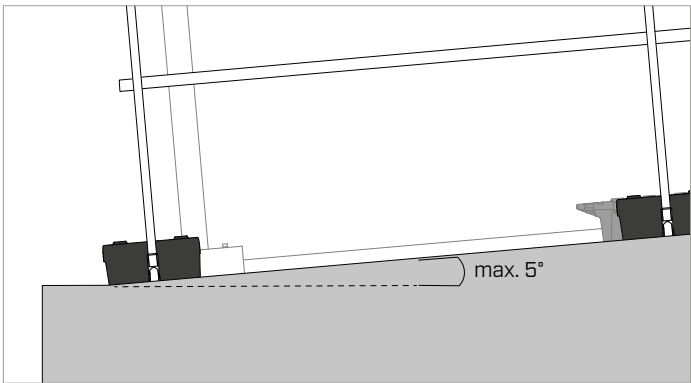
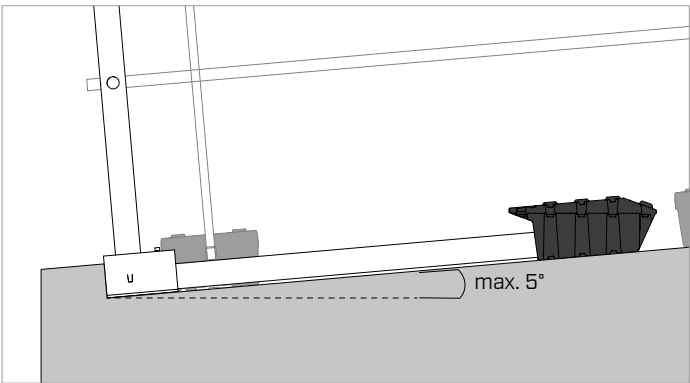
Tabla 1

Tabla 1		EN 14122-3: 2016	EN 13374:2025 Cl.A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018 + D.Leg. 81/08	NF E85-015: 2019
larguero	H _{montantes}	intereje para montantes [cm]				
recto + abatible	 100 cm	N/A	250	100	150	
	 110 cm	150	250	100	150	
curvado	 110 cm	150	250	100	150	

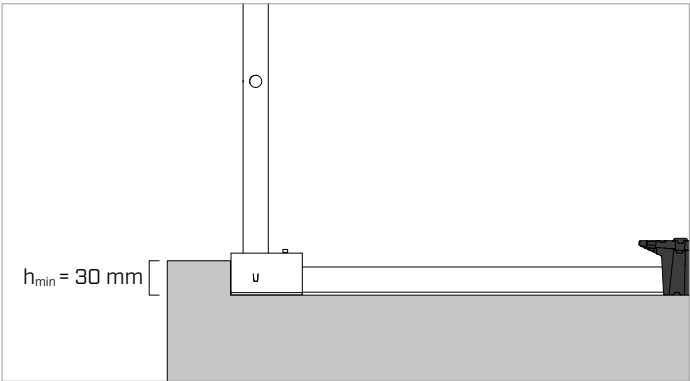
*El sistema abatible todavía no está disponible.

SUBESTRUCTURAS COMPATIBLES

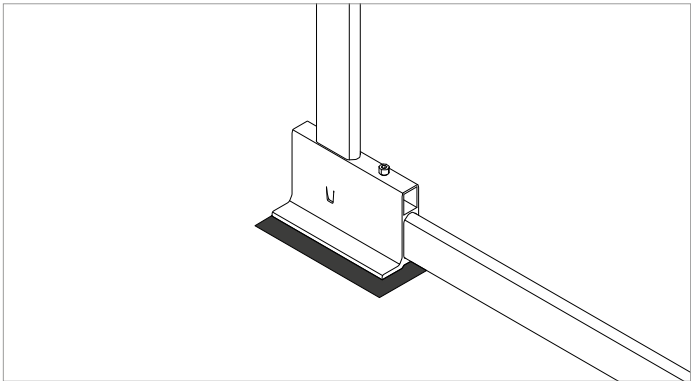
			
C20/25	CLT	BANDA	PVC



En caso de pendiente, la inclinación no debe ser superior a 5°.

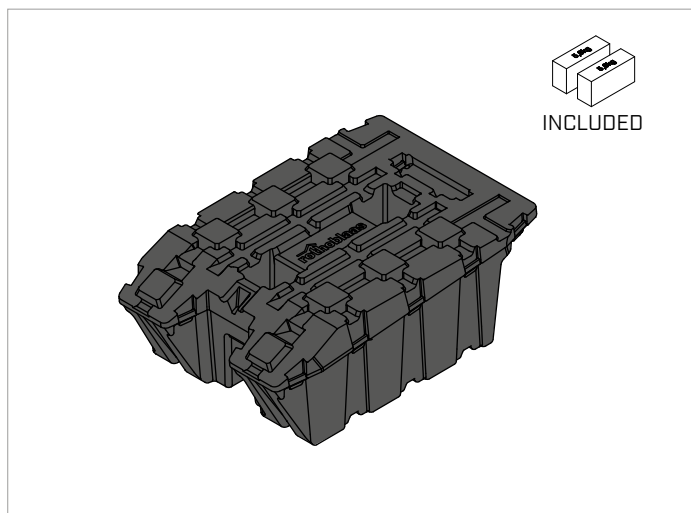


El **BORDER W** se debe apoyar contra un durmiente de $h_{min.} = 30\text{ mm}$. El durmiente ha de poder resistir una fuerza longitudinal mínima de 150 kg/ml.

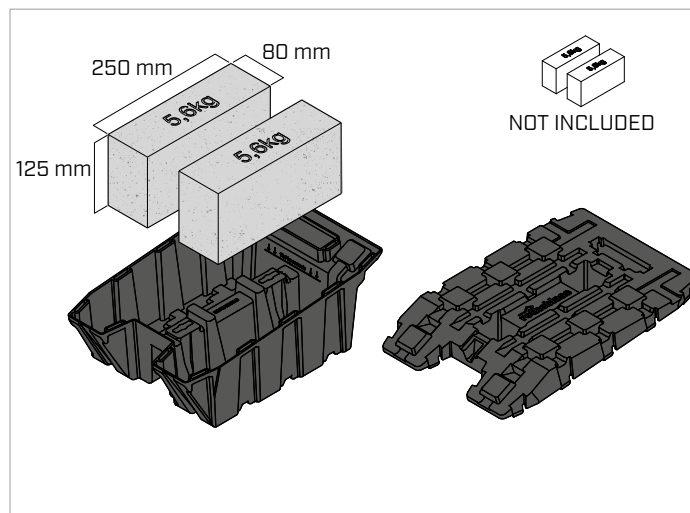


Bajo pedido: alfombrilla anticorte adicional **BORBASEWMAT**.

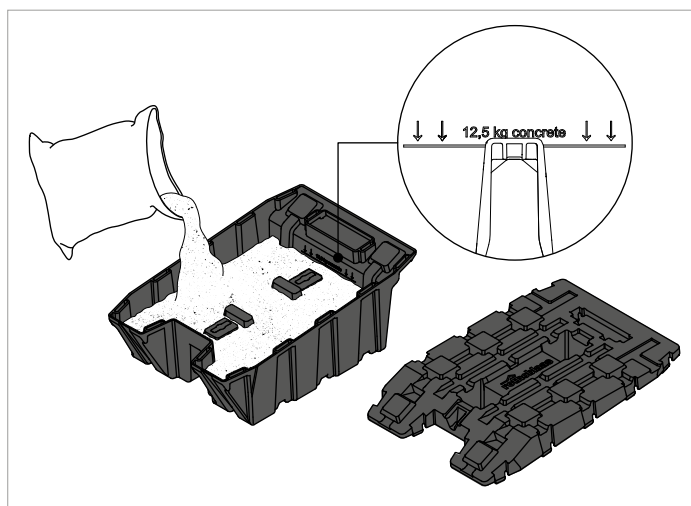
ESPECIFICACIONES DE LOS LASTRES



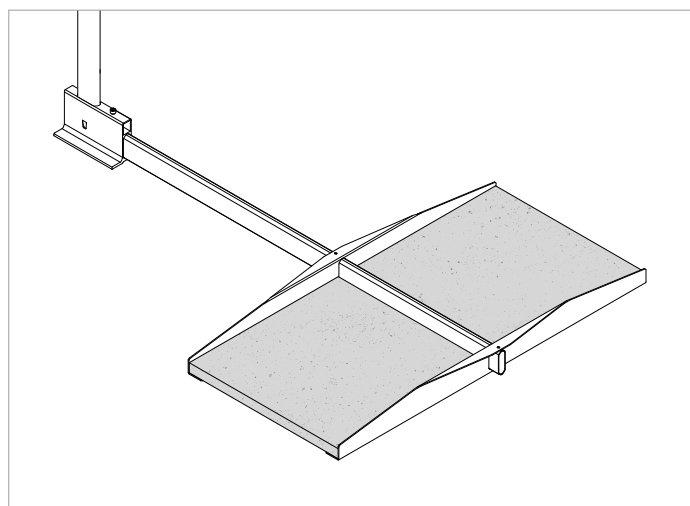
BORWT: lastre lleno de 12,5 kg con baldosas de 250 x 125 x 80 mm.



BORWTBOX opción 1: lastre vacío que se debe llenar con 2 baldosas de 250 x 125 x 80 mm (peso final 12,5 kg).



BORWTBOX opción 2: lastre vacío, que se puede llenar con hormigón hasta el límite establecido (peso final 12,5 kg).



BORWTFRAME: bastidor de aluminio para alojar placas de hormigón de 50 x 50 cm, 45 x 45 cm o 40 x 40 cm (peso mínimo de cada lastre 20 kg).

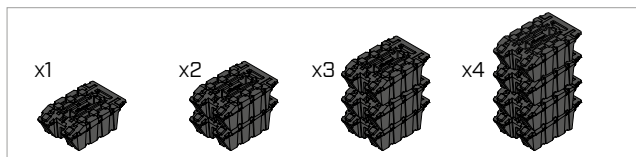
NOTA: la relación de peso k entre el lastre **BORWT** y la placa de hormigón de 50 x 50 cm para **BORWTFRAME** es indicativamente:

$$k = \frac{P_{BORWT}}{P_{50x50}} = \frac{12,5 \text{ kg}}{20 \text{ kg}} = 1,6$$

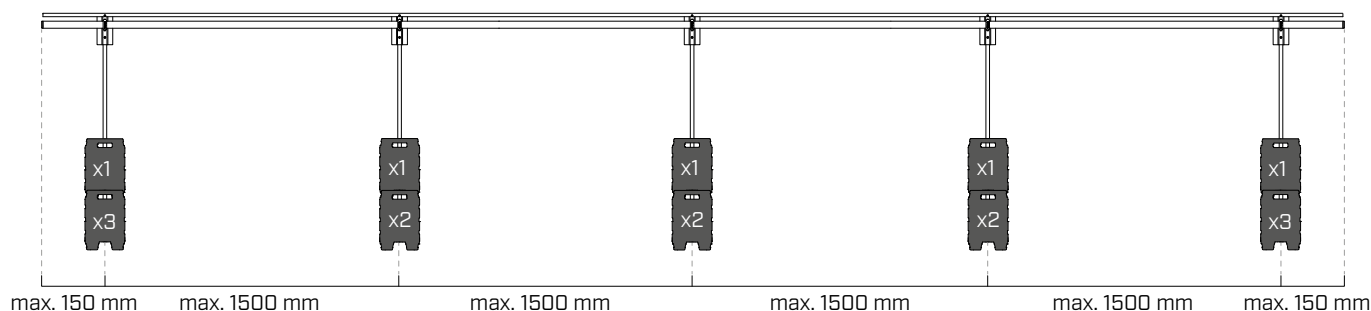
En los esquemas de montaje, la relación de peso debe considerarse para la configuración con **BORWTFRAME**.

ESQUEMAS DE MONTAJE

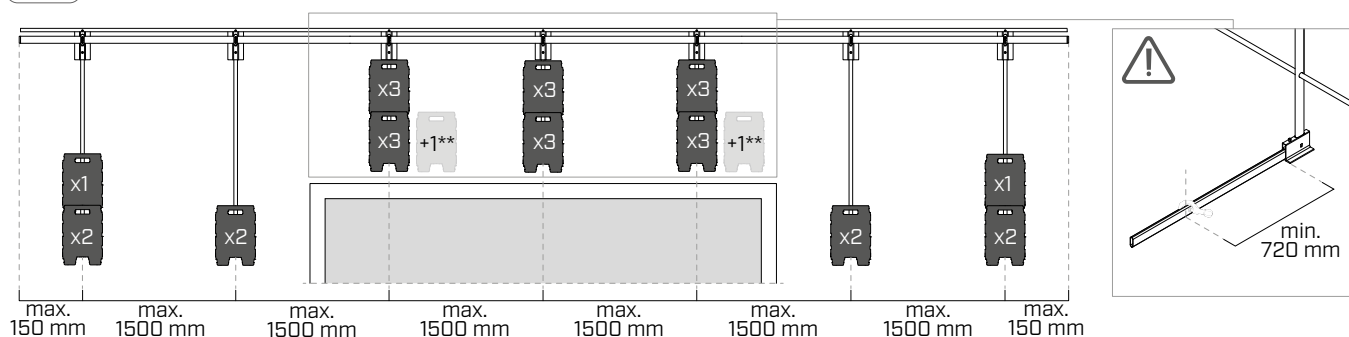
MONTAJE DE BORDER W EN LÍNEA RECTA



NF
E85-015:
2019



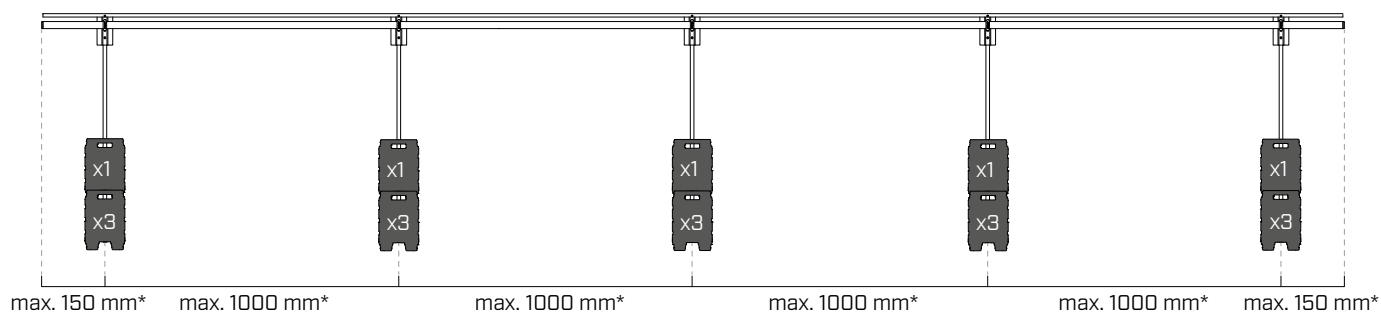
EN
14122-3:
2016



Nota: si hay un obstáculo (por ejemplo, un lucernario), es posible acortar la pata de soporte con la condición de que se mantenga una longitud mínima de 72 cm.

En esta configuración, hay que instalar 6 lastres (3 + 3) en las patas interiores y 7 (3 + 4) en las patas de los extremos.**

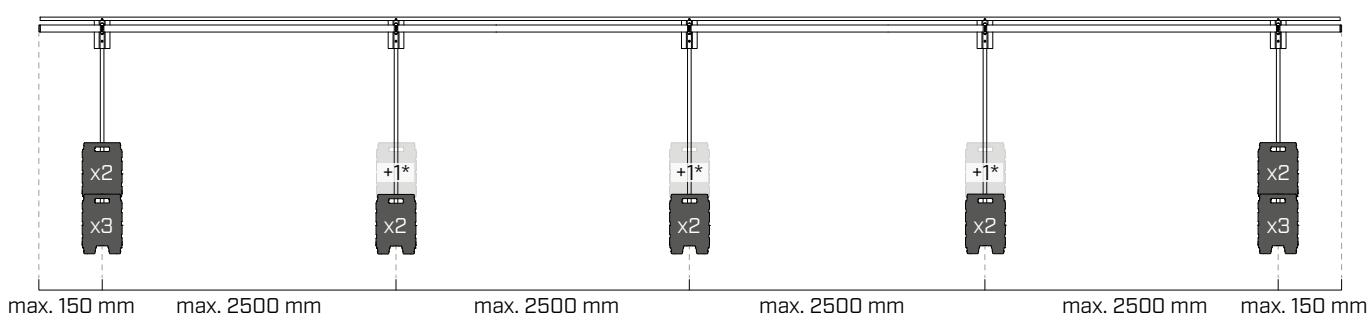
NTC
2018
+ D.Lgs.
81/08



*BORWTFRAME: es posible lograr un interjeje de 1500 mm como máximo colocando 4 placas de 50 x 50 x 35 cm.

EN
13374:2025
CLA

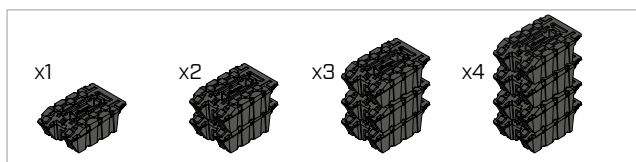
EN
13374:2013
+A1:2018
CLA



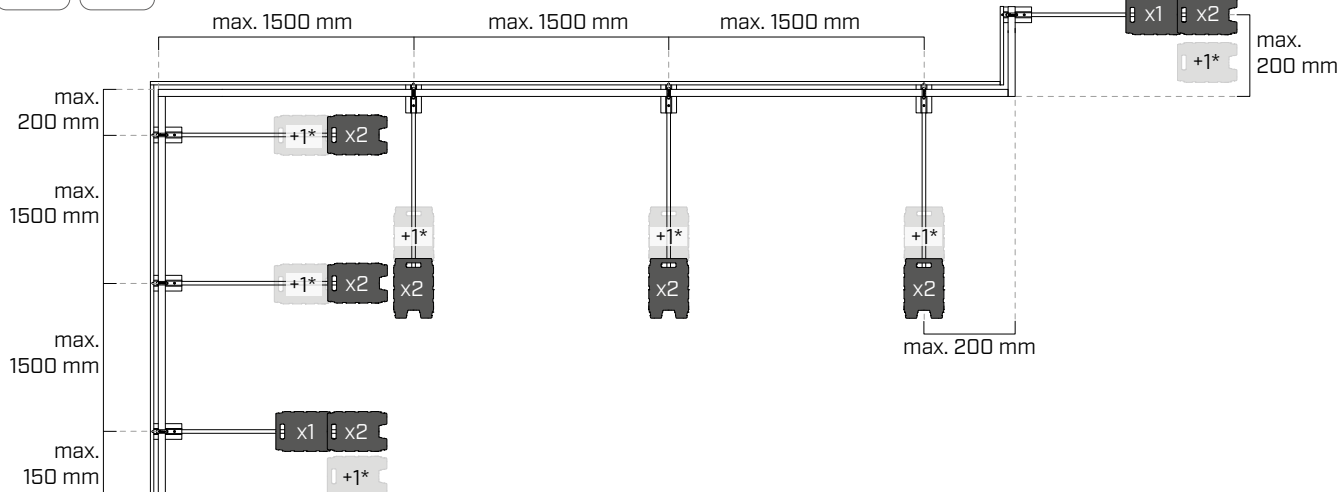
*En zonas con vientos fuertes (velocidad de pico > 31 m/s), se recomienda añadir un lastre adicional.

ESQUEMAS DE MONTAJE

MONTAJE DE BORDER W RECTO - ESQUINA

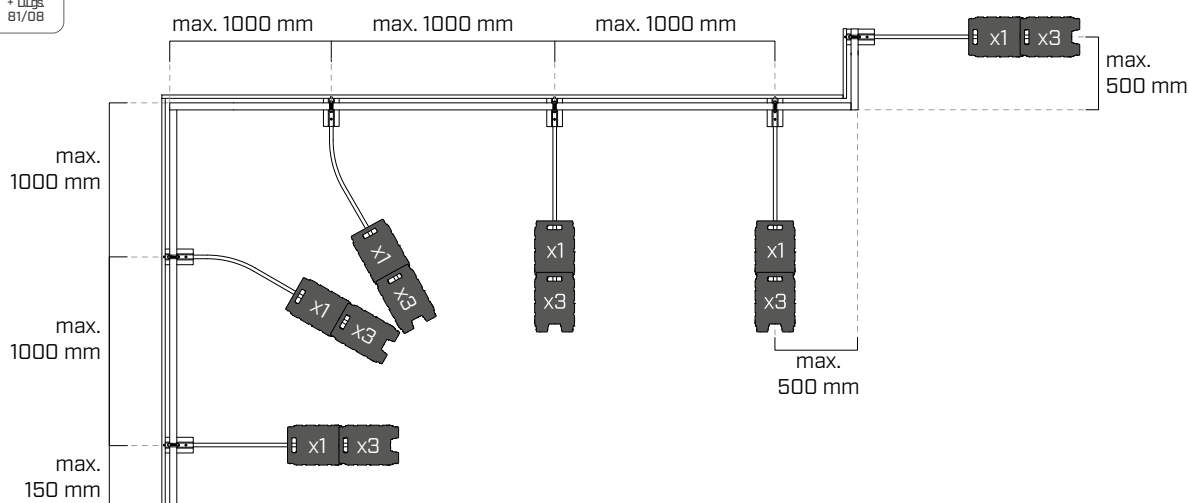


EN 14122-3: 2016
NF E85-015: 2019



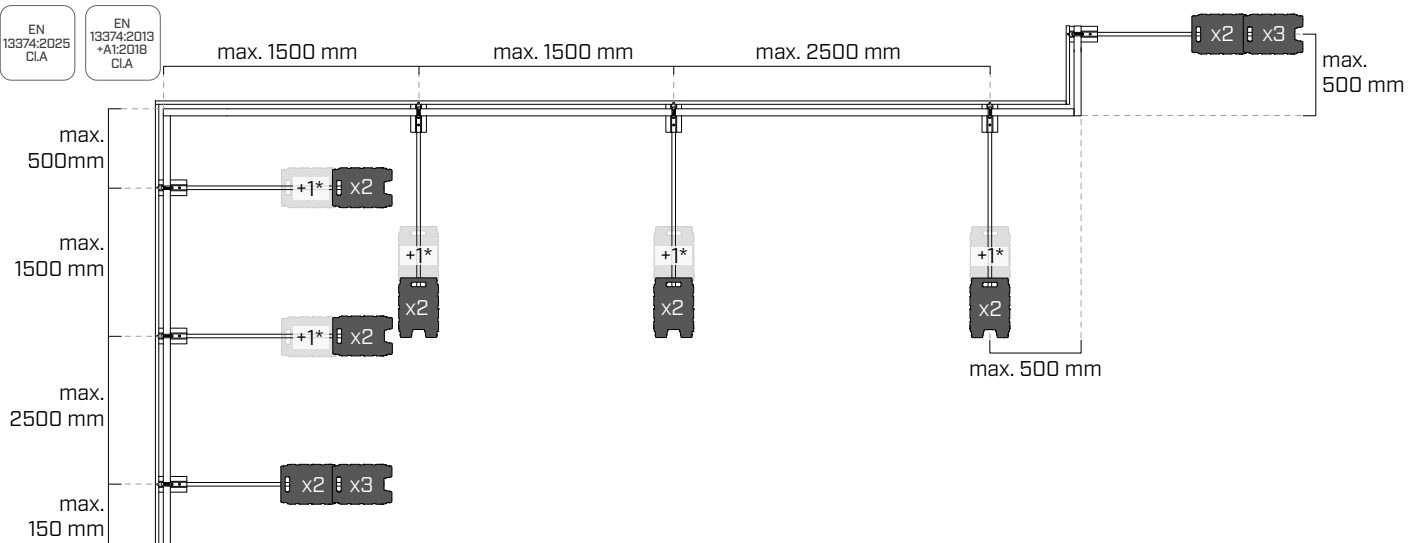
*Según la norma NF E85-015, es necesario añadir un lastre a cada pata, tanto en la configuración 1+3 (en los extremos) como en la 1+2 (en el interior).

NTC 2018
+ DLgs 81/08



EN 13374:2025
CIA

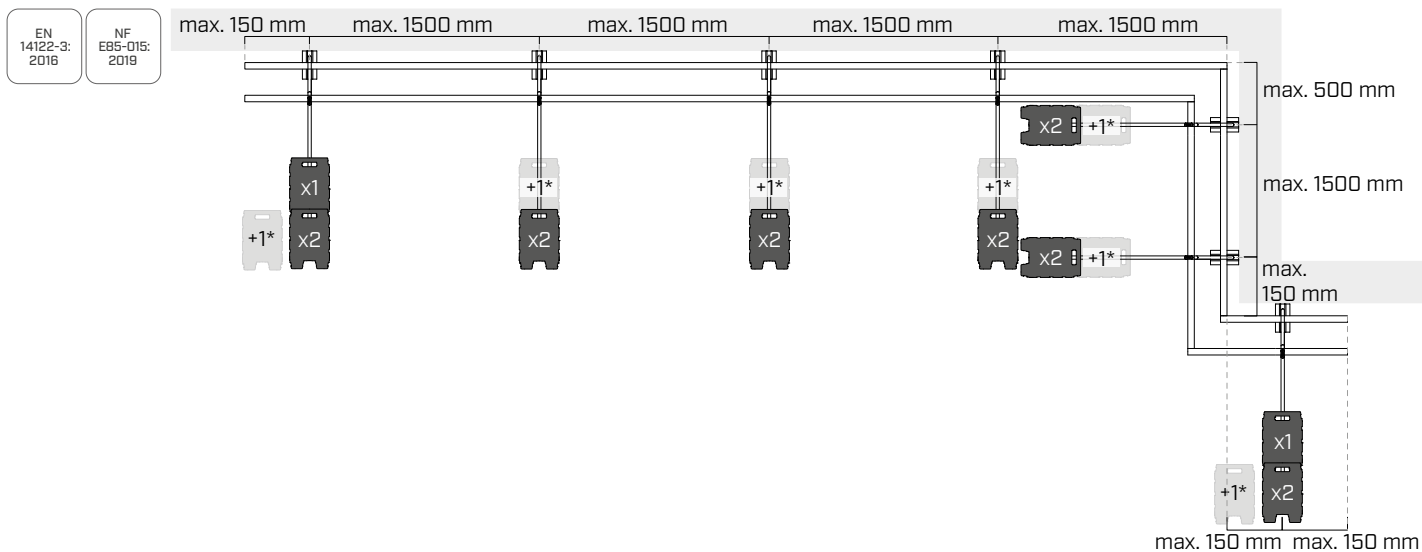
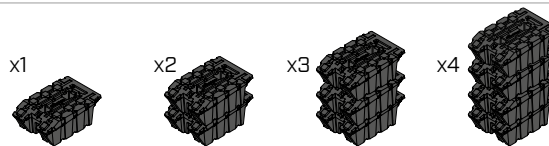
EN 13374:2013
+ A1:2018
CIA



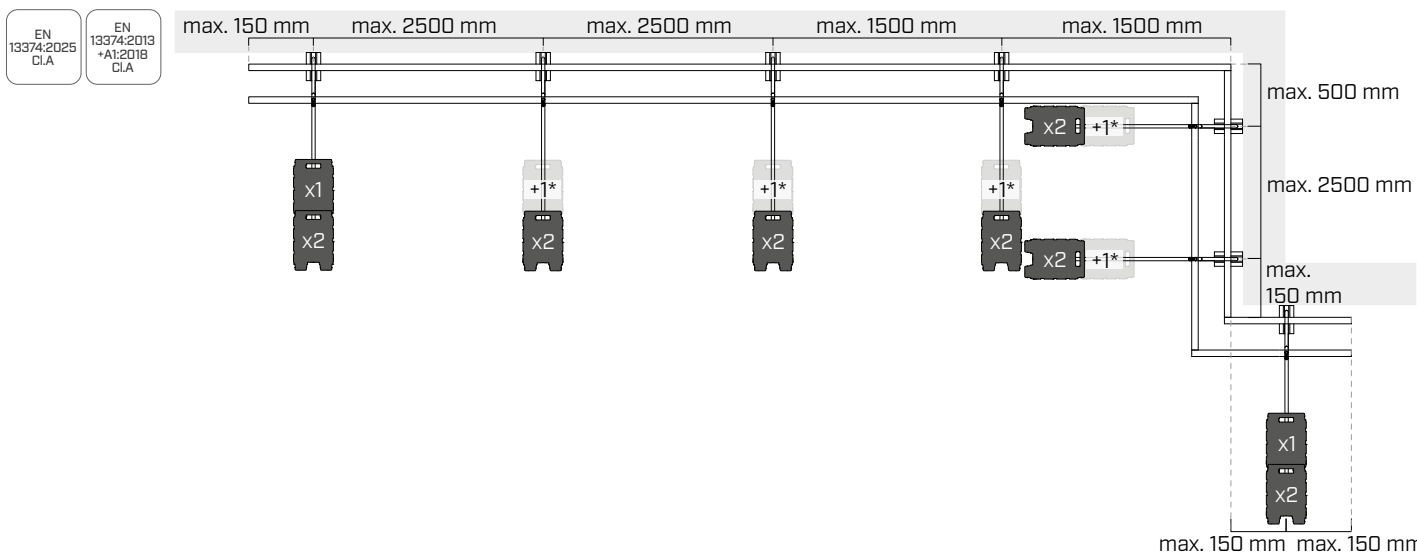
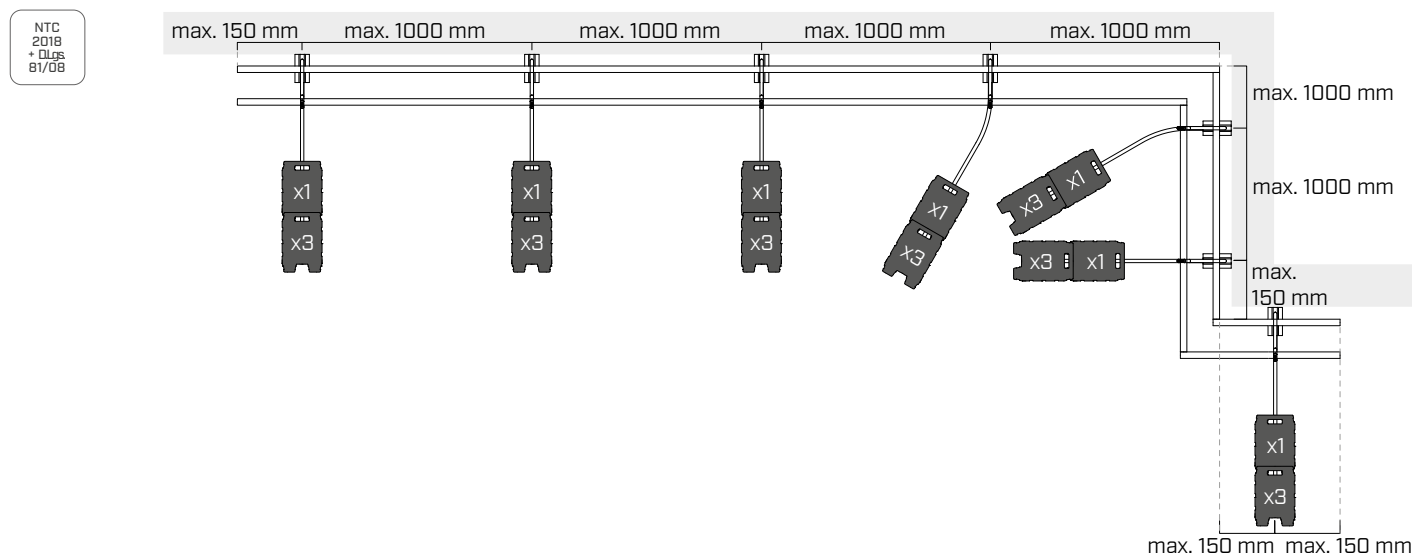
*En zonas con vientos fuertes (velocidad de pico > 31 m/s), se recomienda añadir un lastre adicional (solo para las patas del interior del sistema, en la configuración 1+2).

ESQUEMAS DE MONTAJE

MONTAJE DE BORDER W CURVADO - ESQUINA

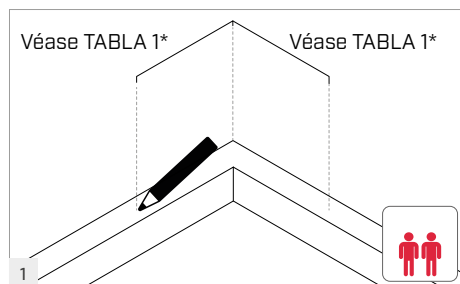


*Según la norma NF E85-015, es necesario añadir un lastre a cada pata, tanto en la configuración 1+3 (en los extremos) como en la 1+2 (en el interior).

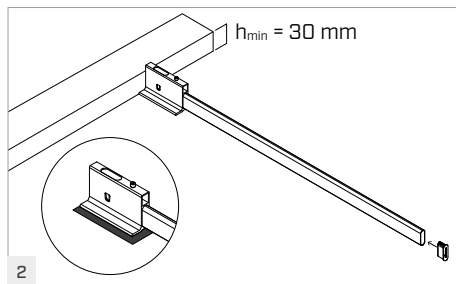


*En zonas con vientos fuertes (velocidad de pico > 31 m/s), se recomienda añadir un lastre adicional (solo para las patas del interior del sistema, en la configuración 1+2).

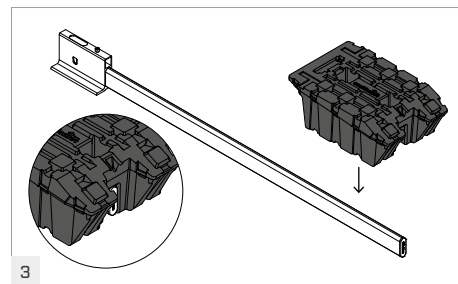
BORDER W



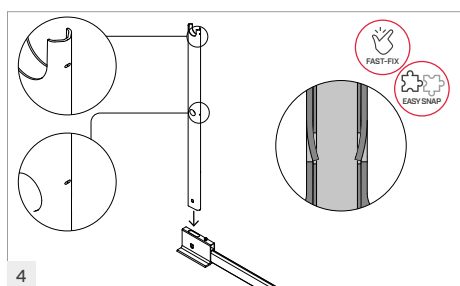
Se requiere la presencia de al menos dos operarios cualificados. Para garantizar un buen resultado, se recomienda empezar la instalación por una esquina.



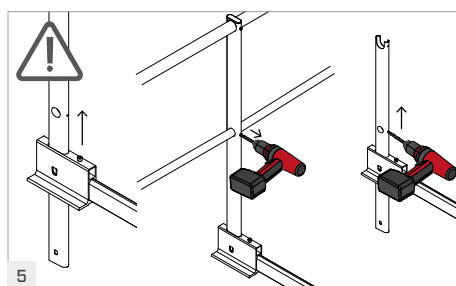
Introducir el tapón **BORBASEWCAP** en el extremo de la pata. Si es necesario, añadir una alfombrilla de EPDM anticorte opcional **BORBASEWMAT**, debajo de la base. El murete perimetral en el que se monte y apoye el sistema **BORDER W** debe tener obligatoriamente una altura mínima de 30 mm.



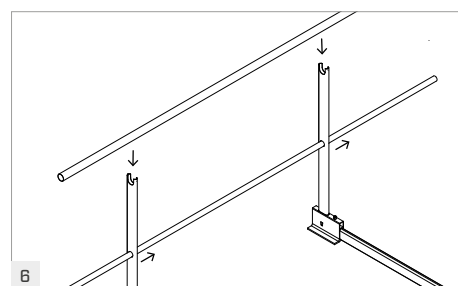
Colocar los lastres en la pata de soporte y ajustarlos de manera que el extremo del lastre coincida exactamente con el extremo de la pata de soporte.



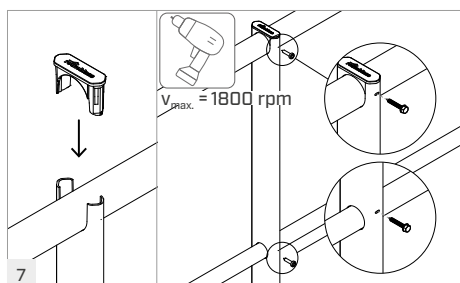
Introducir los montantes en las bases **BORBASEW** con las marcas orientadas hacia el operario. Comprobar que las aletas queden bien encastradas en las correspondientes aberturas. No se necesitan tornillos de fijación.



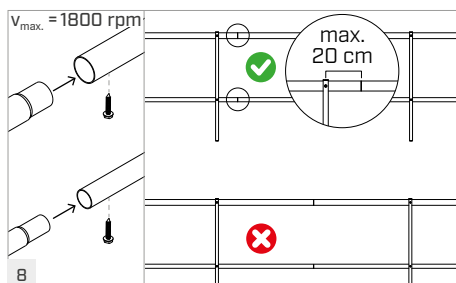
El sistema base-montante se quita empujando la base hacia arriba. Si hay tornillos (punto 7), quitarlos y realizar un agujero Ø6 mm en el punto del agujero cónico.



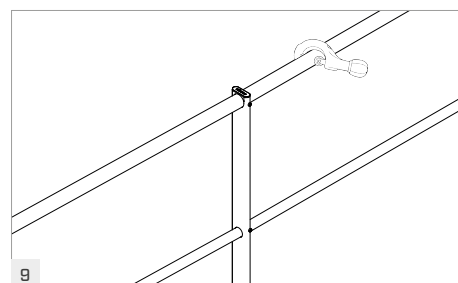
Introducir la barra intermedia **BORBAR32** y, luego, el pasamanos **BORBAR45**. Según la norma EN 13374, es necesario instalar los pasamanos reforzados **BORBAR45R**.



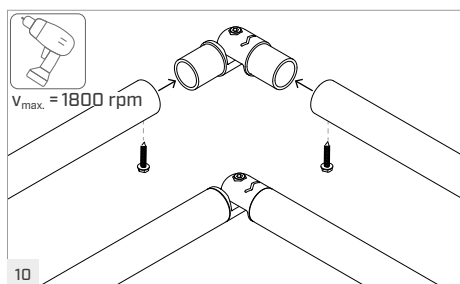
Introducir el tapón **BORCAP** en el extremo superior del montante. Fijar las barras a los montantes con los tornillos **MMS5525A2** en correspondencia de las dos marcas laterales.



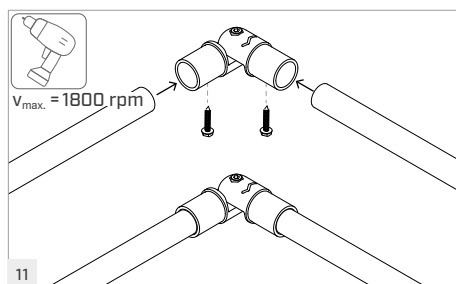
Conectar los extremos macho/hembra de los pasamanos y de las barras y fijarlos con los tornillos **MMS5525A2**. Según la norma EN 14122, la conexión del pasamanos debe quedar a no más de 20 cm del montante más cercano. Colocar los tornillos debajo de las barras.



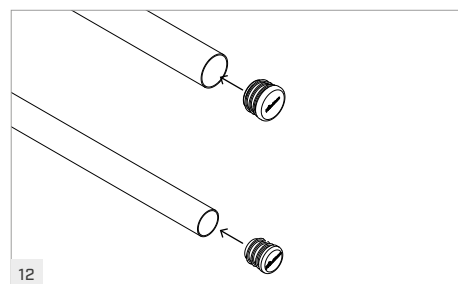
Adaptar la última sección de la baranda, cortando la parte sobrante de las barras con un cortador de tubos.



Introducir la articulación angular **BORCOR** en el pasamanos y fijarla con los tornillos autorroscantes **MMS5525A2**.



Introducir la articulación angular **BORCOR** en la barra intermedia y fijarla con los tornillos autorroscantes **MMS5525A2**.

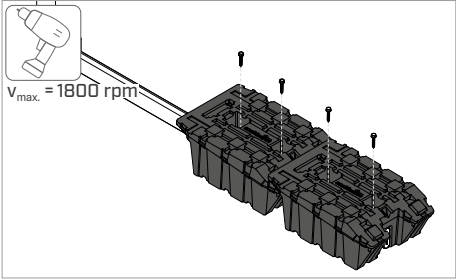


Poner los tapones **BORCAP45** y **BORCAP32** en los pasamanos y las barras intermedias.

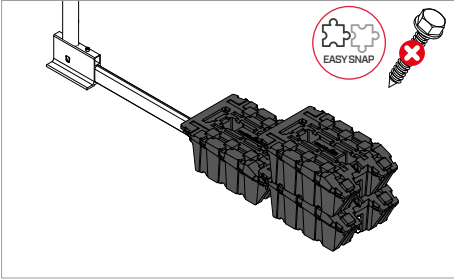
IT

INSTALACIÓN

BORWT

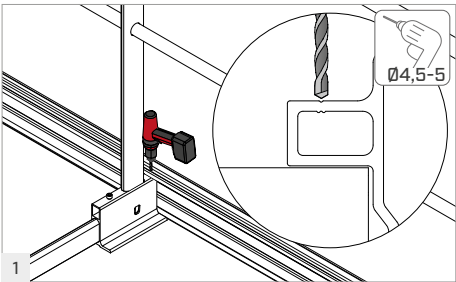


Una vez ensamblado el conjunto de la baranda, apretar los tornillos autorroscantes **MM-S5525A2** en los correspondientes lastres.

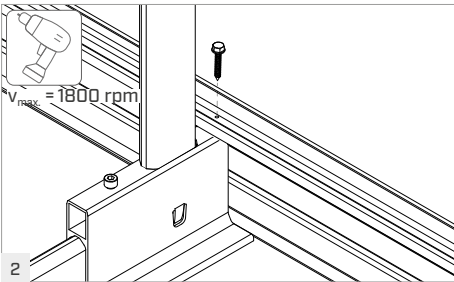


Los lastres apilados verticalmente no requieren una fijación específica, ya que quedan bloqueados entre sí gracias a un sistema de encastre.

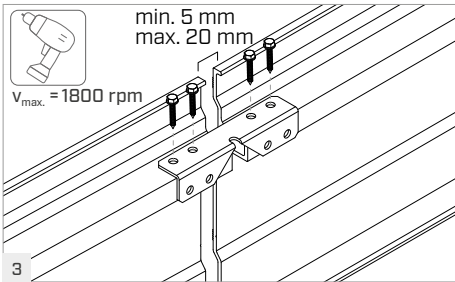
BORTB



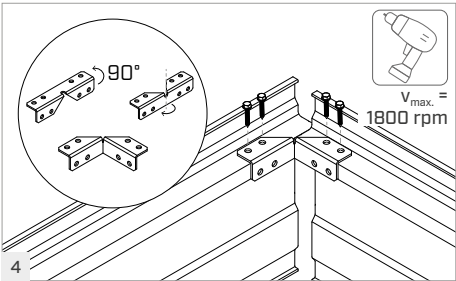
El rodapié **BORTB** debe colocarse de manera que su apoyo quede contra el resalte de la base **BORBASEW**. Una vez colocado, se recomienda realizar un pre-agujero pasante con un diámetro máximo de Ø4,5 mm o 5 mm.



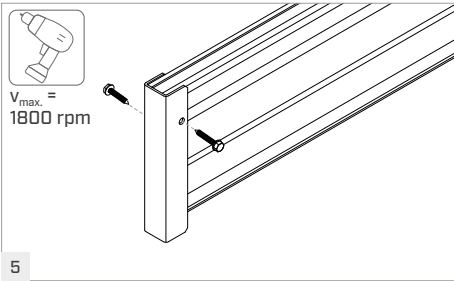
Una vez realizado el pre-agujero, es posible fijar el rodapié a la base con un tornillo **MM-S5525A2**.



Unir los extremos de **BORTB** con el conector **BORTBJUN**. Fijarlo con 4 tornillos **MMS5525A2**, dejando al menos 5 mm entre los rodapiés para evitar deformaciones térmicas.

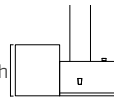


En las esquinas, girar y doblar manualmente el conector **BORTBJUN** hasta alcanzar el ángulo deseado. Fijarlo con 4 tornillos autorroscantes **MMS5525A2**.



Fijar los tapones terminales del rodapié con 2 tornillos autorroscantes **MMS5525A2**.

ESPECIFICACIONES DE USO DE BORTB

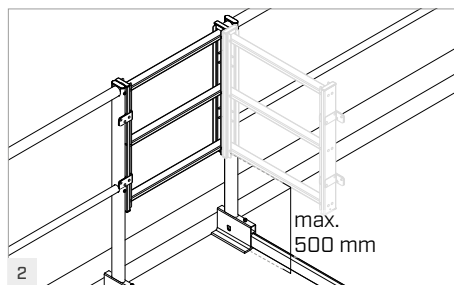
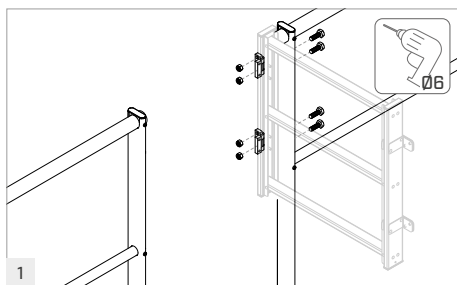
			EN 14122-3: 2018	EN 13374:2013 +A1:2018 CL.A	EN 13374:2025 CL.A	NTC 2018 + D.Leg. 81/08
H _{montantes}	murete perimetral	BORTB	h [mm]			
 110 cm		✓	30 mm ≤ h ≤ 100 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 100 mm
 110 cm		✗	≥ 100 mm	≥ 150 mm	≥ 150 mm	≥ 150 mm
 100 cm		✗	N/A	h ≥ 30 mm	h ≥ 30 mm	h ≥ 30 mm

Nota: en el esquema, el sistema debe cumplir siempre con los requisitos mínimos de altura del murete perimetral, es decir, h_{min.} = 30 mm.

INSTALACIÓN

BORGATE600

EN
14122-3:
2016



Fijar las 2 bisagras en el lado de la cancela con los 4 tornillos **Ø6x35 ISO 4762** y las correspondientes **tuercas autoblocantes M6** suministradas con la cancela.

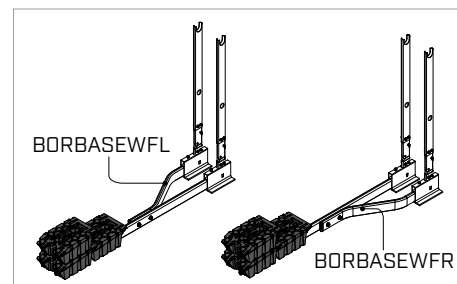
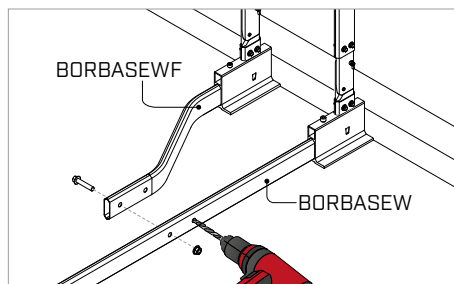
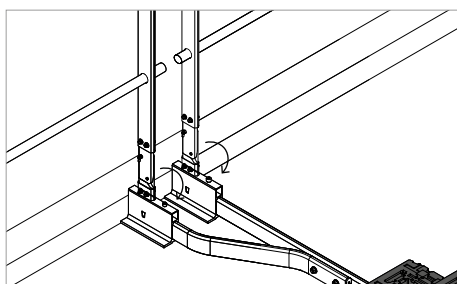
Asegurarse de que la cancela esté instalada a una altura máxima de **500 mm** de la superficie de pisoteo, manteniéndola cerrada.

BORUP100F - BORUP110F

EN
14122-3:
2016

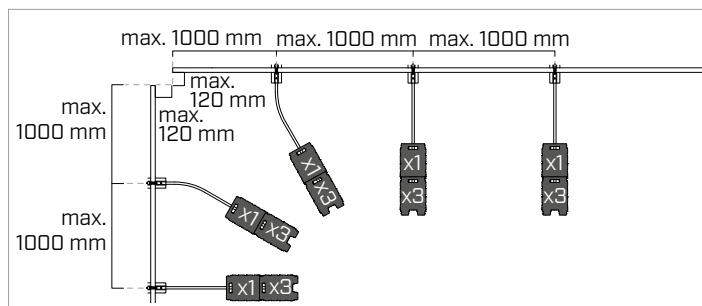
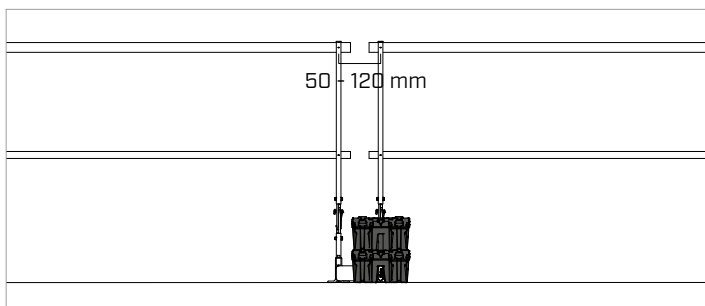
NTC
2018
+ D.Lgs.
81/08

NF
E85-015:
2019



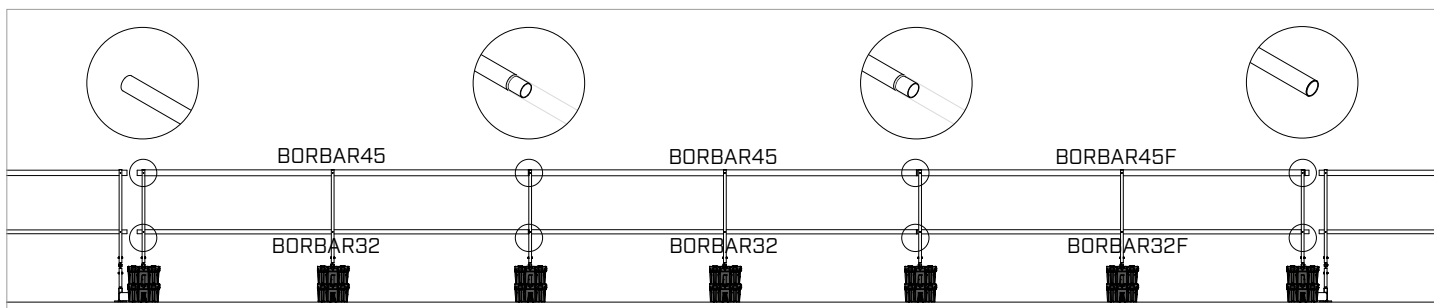
Instalar los montantes abatibles **BORUP100F/BORUP110F** por el lado de la junta (no por el lado del perno), asegurándose de que el montante se incline hacia la cubierta, nunca hacia el exterior.

Conectar las dos patas terminales **BORBASEWFL/BORBASEWFR** con **BORBASEW**. Realizar 2 agujeros Ø13 en **BORBASEW** y conectar con el perno M12.



Las barandas abatibles **BORDER W** se instalan en módulos de 9 m (7 montantes), 12 m (9 montantes), 15 m (11 montantes) o 18 m (13 montantes). Montar los dos montantes terminales con una distancia máxima de **120 mm** entre sí, tal como se ilustra en la figura.

Las esquinas de las barandas abatibles no deben estar unidas para poder abatirse en ambos sentidos. La distancia entre dos montantes terminales no debe ser superior a **1000 mm** desde el borde.



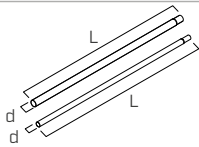
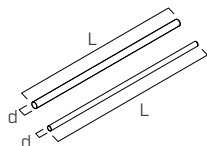
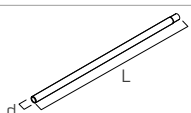
Las barras principales que se deben usar son la **BORBAR45** y la **BORBAR32**, sin embargo, cada módulo debe terminar con la barra específica sin reducción **BORBAR45F** y **BORBAR32F**.

ADVERTENCIAS GENERALES DE USO

- Antes de abatir la baranda, es obligatorio asegurarse de que el operario se encuentre en una posición segura. El usuario debe estar sujeto a un dispositivo anticaída, como una línea de vida **PATROL** o un punto de anclaje **KITE**. Además, es necesario comprobar que todas las herramientas y equipos estén en buenas condiciones de funcionamiento y que en la zona de instalación no haya obstáculos.
- Los módulos (9 m, 12 m, 15 m y 18 m) deben ser manipulados siempre por dos operarios para garantizar un correcto abatimiento.

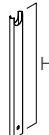
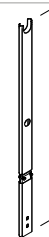
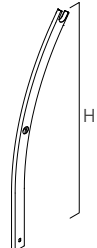
CÓDIGOS Y DIMENSIONES

LARGUEROS

CÓDIGO	d [mm]	L [mm]	
BORBAR45	45	3000	
BORBAR32	32	3000	
BORBAR45F	45	3000	
BORBAR32F	32	3000	
BORBAR45R	45	3000	

EN AW
6063-T6

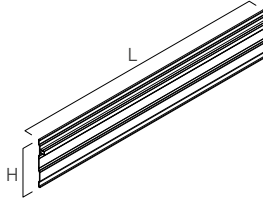
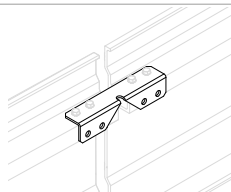
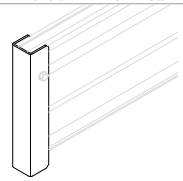
MONTANTES

CÓDIGO	H [mm]	
BORUP530WH	535	
BORUP760WH	765	
BORUP100	1005	
BORUP110	1105	
BORUP118	1185	
BORUP130	1305	
BORUP100F	1005	
BORUP110F	1105	
BORUP113C	1120	
BORUP100R	1005	
BORUP110R	1105	
BORUP100AS	1005	
BORUP107US	1075	

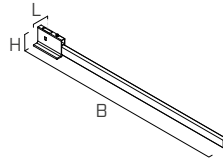
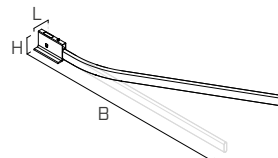
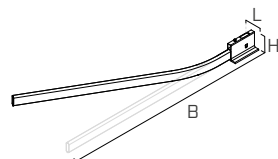
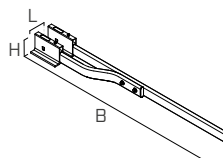
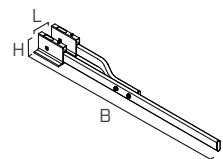
EN AW
6005A-T6

CÓDIGOS Y DIMENSIONES

RODAPIÉ

CÓDIGO		H [mm]	L [mm]	
BORTB	EN AW 6063-T6	150	3000	
BORTBJUN	EN AW 6063 H111	-	-	
BORTBCAP	EN AW 6063 H111	-	-	

BASES

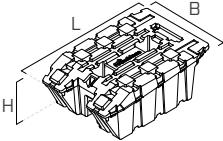
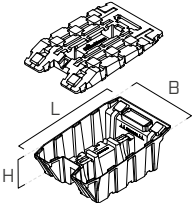
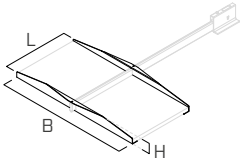
CÓDIGO		B [mm]	H [mm]	L [mm]	
BORBASEW		1400	115	100	
BORBASEWFCL		1400	115	100	
BORBASEWFCR	EN AW 6005A-T6	1400	115	100	
BORBASEWFL		750	115	100	
BORBASEWFR		750	115	100	

FIJACIÓN

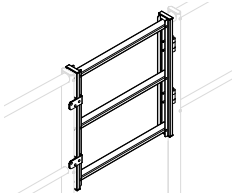
CÓDIGO		d [mm]	H [mm]	
MMS5525A2	1.4301 AISI304 INOX	5,5	25	

CÓDIGOS Y DIMENSIONES

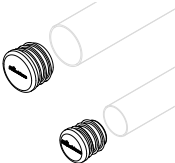
LASTRES

CÓDIGO		B [mm]	H [mm]	L [mm]	
BORWT		265	155	400	
BORWTBOX	PP RECYCLED	265	140	400	
BORWTFRAME	EN AW 5083 H111	1030	81	530	

CANCELA DE SEGURIDAD

CÓDIGO		L [mm]	H [mm]	
BORGATE600	EN AW 5083 H111	600	640	

ACCESORIOS

CÓDIGO			
BORCAP45			
BORCAP32	LDPE		
BORCAP			
BORCOR	PP RECYCLED		
BORWALL	PP RECYCLED 1.4301 AISI304 INOX		

CONSIGNES DE SÉCURITÉ, MODE D'EMPLOI ET INSTALLATION

INTRODUCTION

DÉFINITION

Le garde-corps autoportant **BORDER W** est un système de protection collective anti-chute, idéal pour la sécurité des toitures, réalisé en alliage d'aluminium (**EN AW 6005A-T6** et **EN AW 6063-T6**).

NORMES

Le garde-corps à fixation horizontal **BORDER W** est conforme aux normes suivantes :

- **EN 14122-3:2016**
- **EN 13374:2025 Cl. A (sauf le point 9)**
- **EN 13374:2013+A1:2018 Cl. A (sauf le point 9)**
- **NTC (Tab.3.1.II - cat. A,B,C1,E1,F,G,H) et D. Lgs 81/08 (Italie)**
- **NF E 85-015:2019 (France)**

Le tableau présente les principaux paramètres géométriques requis par les normes de référence :

	EN 14122-3: 2016	EN 13374:2025 Cl. A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018	Décret-loi 81/08	NF E85-015: 2019
Hauteur min. par rapport au niveau du sol	1,1 m	1 m	1 m	1 m	1 m	1 - 1,1 m
Entraxe max. entre les sous-lisses	500 mm	470 mm	-	-	500 mm	500 mm
Entraxe max. entre les montants	1,5 m (conseillé)	-	-	-	-	1,5 m (conseillé)
Hauteur min. plinthe garde-pieds	10 cm	15 cm	-	-	15 cm	10 cm

UTILISATION - ENTRETIEN

Le garde-corps **BORDER** doit être installé par du personnel qualifié, conformément aux réglementations en vigueur relatives aux travaux en hauteur. Avant l'utilisation, l'opérateur doit s'assurer de sa propre sécurité en utilisant une ligne de vie temporaire, des EPI et une plateforme de travail adaptée.

- Avant l'utilisation, l'utilisateur doit inspecter visuellement que le garde-corps **BORDER** ne présente pas d'anomalie, de dommage ou de déformation (impacts, pliures, etc.).
- Le garde-corps **BORDER** ne nécessite aucun entretien particulier. Toutefois, une inspection visuelle annuelle par un personnel qualifié est indispensable.
- Si le garde-corps **BORDER** est mal installé, endommagé ou a déjà permis d'arrêter une chute, son utilisation doit être immédiatement suspendue. Il ne doit pas être réutilisé avant qu'un technicien qualifié n'ait procédé à une inspection et à une vérification, en délivrant une autorisation écrite.
- Si le produit est revendu hors du pays de destination, il est essentiel, pour la sécurité de l'utilisateur que le revendeur fournisse le manuel d'instruction dans la langue du pays d'utilisation du produit. Les documents pourront être fournis sur demande en contactant le fabricant.
- Le garde-corps **BORDER** est un dispositif de protection collective permanent, destiné exclusivement aux professionnels travaillant sur des toitures non accessibles au public.
- Si le garde-corps **BORDER** est installé dans un milieu industriel pollué, pétrochimique, naval, ou en bord de mer, il devra nécessairement être soumis à un traitement de surface approprié comme le revêtement par poudre ou l'anodisation.
- Si un plan est fourni, il doit servir de référence lors de l'installation.
- Si le garde-corps **BORDER** est exposé à des vents de pointe dépassant 31 m/s (environ 110 km/h), Rothoblaas recommande l'ajout d'un ballast supplémentaire à l'arrière de chaque montant. Cette vitesse correspond à une pression dynamique du vent de 600 N/m².

STOCKAGE

Les composants en aluminium brut sont conditionnés en contact les uns avec les autres. L'exposition de l'emballage fermé à la pluie peut favoriser l'oxydation des composants, avec la possibilité de formation de taches à la surface. Celles-ci ne compromettent pas la qualité de l'aluminium mais peuvent nuire à l'aspect esthétique du garde-corps. Il est conseillé de déballer le paquet et de conserver les composants séparés, en évitant le contact direct les uns avec les autres ou de conserver les paquets encore emballés dans un endroit sec.

ÉQUIPEMENT



INDICATIONS D'INSTALLATION

VALEURS MAXIMALES D'ENTRAXE

Tableau 1

		EN 14122-3: 2016	EN 13374:2025 Cl. A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018 + Décret-loi 81/08	NF E85-015: 2019
montant	H _{montants}	entraxe pour montants [cm]				
droit + rabattable	 100 cm	N/A	250	100	150	
	 110 cm	150	250	100	150	
courbé	 110 cm	150	250	100	150	

*Le système rabattable n'est pas actuellement disponible.

SOUS-STRUCTURES COMPATIBLES



C20/25



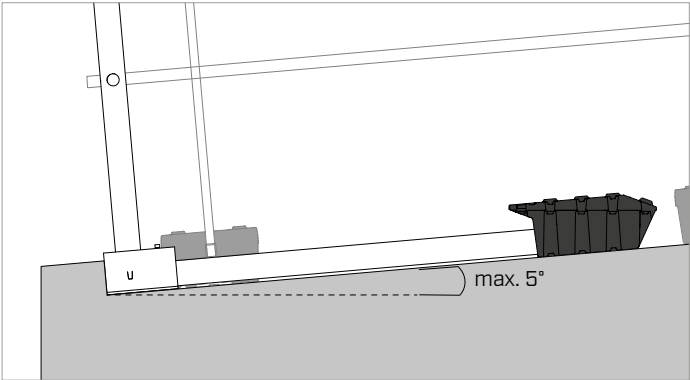
CLT

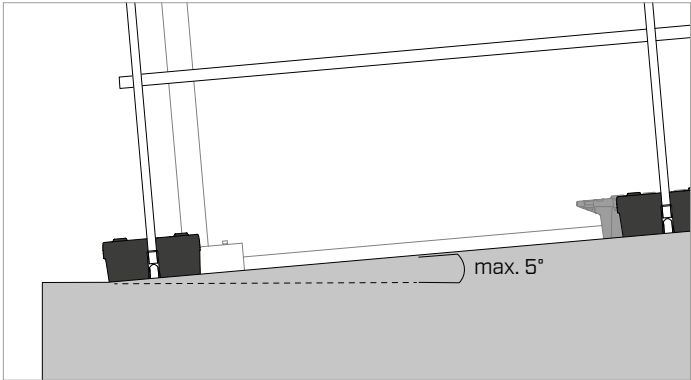


GAINE

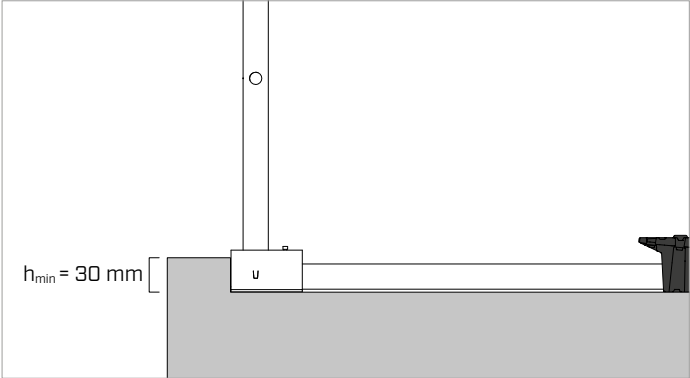


PVC

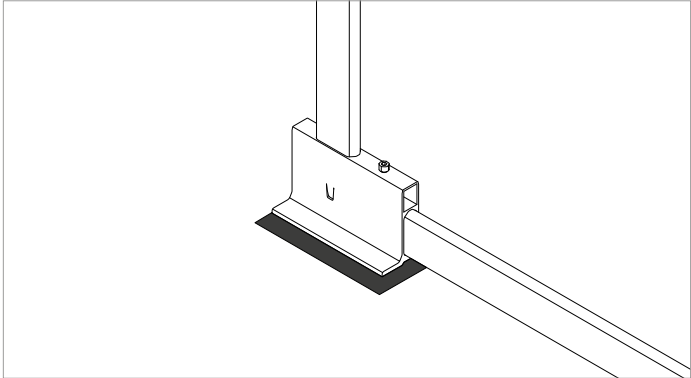




En cas de pente, l'inclinaison ne doit pas dépasser les 5 °.



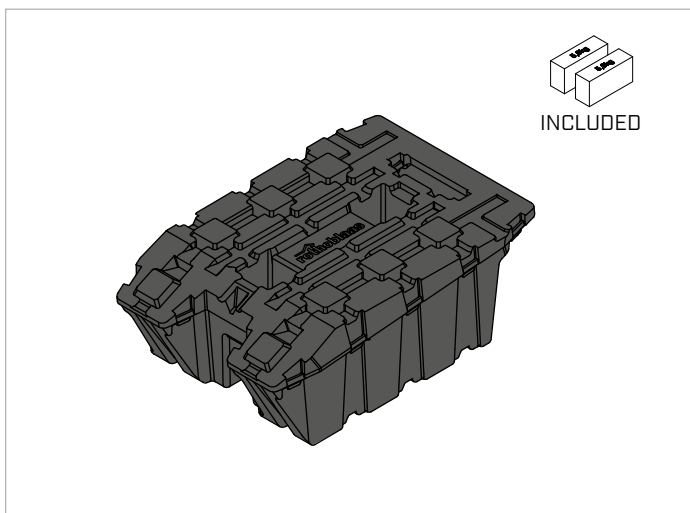
$h_{min} = 30\text{ mm}$



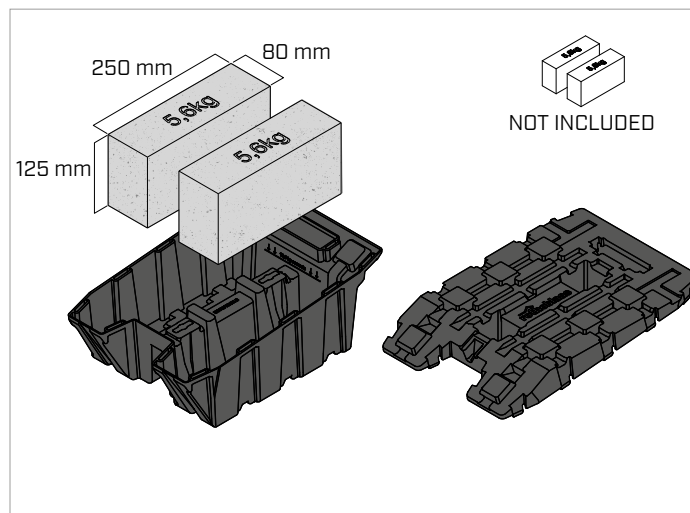
BORDER W doit être posé contre une bordure de $h_{min} = 30\text{ mm}$.
La bordure doit pouvoir résister à une force longitudinale minimale de 150 kg/ml.

Sur demande : tapis anti-coupure supplémentaire **BORBASEWMAT**.

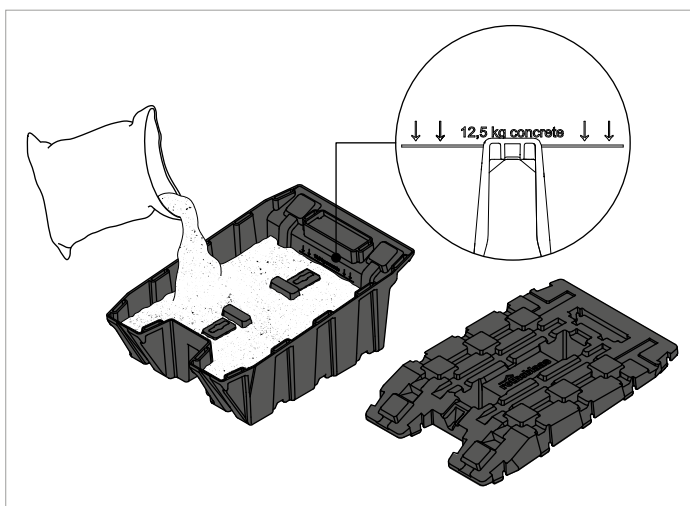
INDICATIONS POUR LES BALLASTS



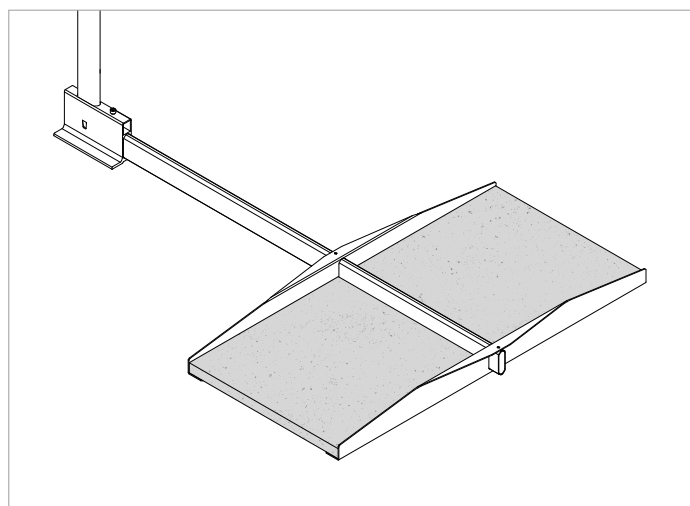
BORWT : Ballast plein 12,5 kg avec briques 250 x 125 x 80 mm.



BORWTBOX option 1 : ballast vide à remplir avec 2 briques 250 x 125 x 80 mm (poids final 12,5 kg).



BORWTBOX option 2 : Ballast vide, à remplir avec du ciment jusqu'à la limite prédéfinie (poids final 12,5 kg).



BORWTFRAME: cadre en aluminium pour le maintien de plaques de ciment 50 x 50 cm, 45 x 45 cm, 40 x 40 cm (poids minimum de chaque ballast 20 kg).

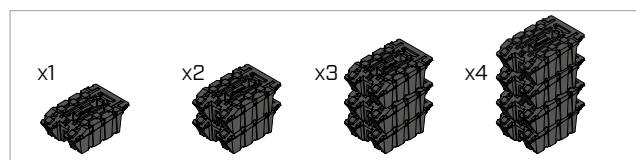
NOTE : le rapport de poids k entre le ballast **BORWT** et la plaque de ciment 50 x 50 cm pour **BORWTFRAME** est approximativement de :

$$k = \frac{P_{BORWT}}{P_{50 \times 50}} = \frac{12,5 \text{ kg}}{20 \text{ kg}} = 1,6$$

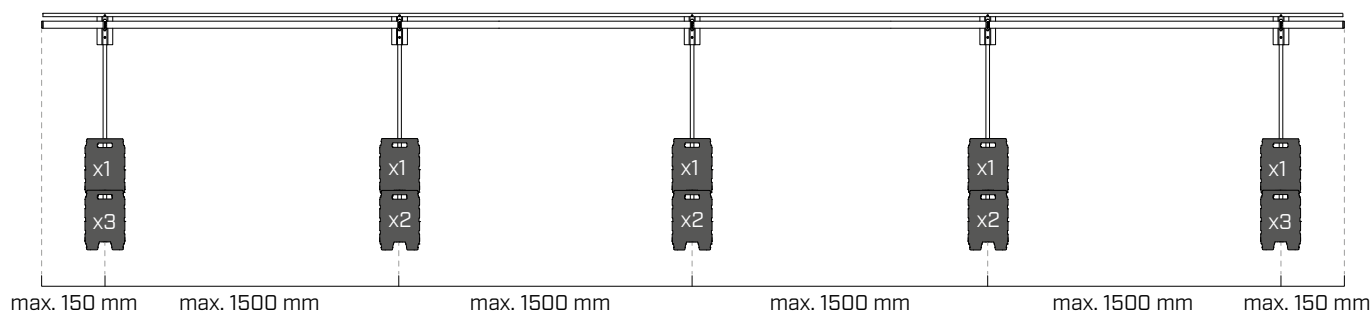
Dans les schémas de montage, le rapport de poids doit être pris en compte pour la configuration avec **BORWTFRAME**.

SCHÉMAS DE MONTAGE

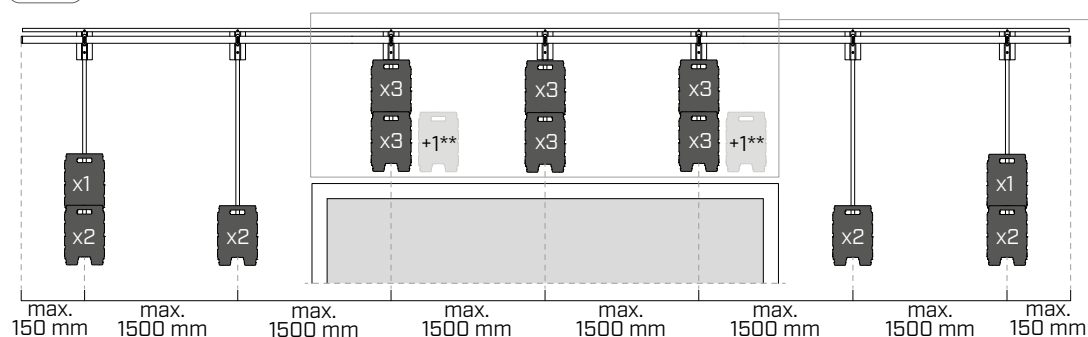
MONTAGE BORDER W EN LIGNE DROITE



NF
E85-015:
2019



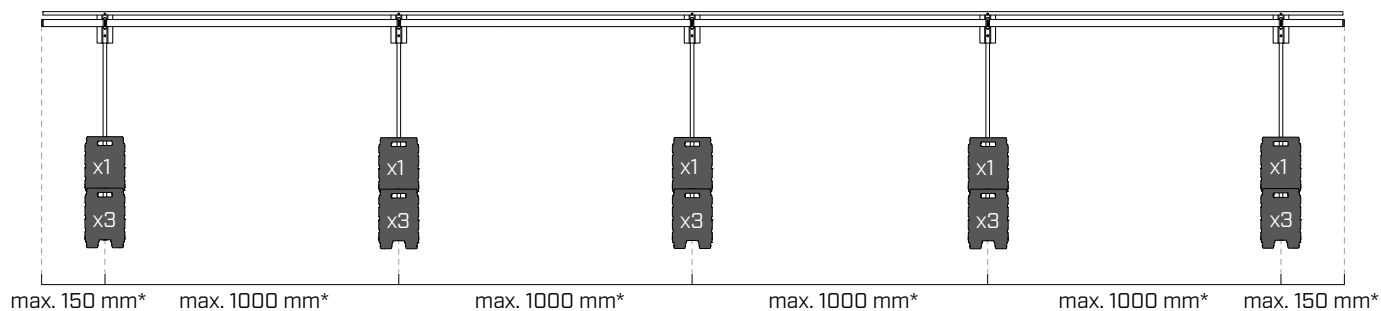
EN
14122-3:
2016



Note : en présence d'un obstacle (par exemple une lucarne), il est possible de raccourcir le pied de support, en conservant une longueur minimale de 72 cm.

Dans cette configuration, installer 6 ballasts (3 + 3) sur les pieds internes et 7 (3 + 4) sur ceux aux extrémités.**

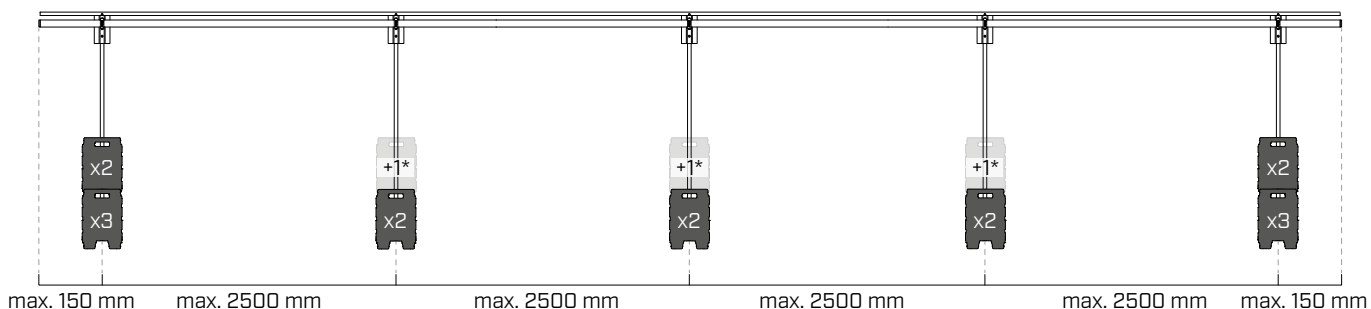
NTC
2018
+ D.Lgs.
81/08



* BORWTFRAME : il est possible d'obtenir un entraxe de 1500 mm max. en positionnant 4 plaques de 50 x 50 x 35 cm.

EN
13374:2025
CIA

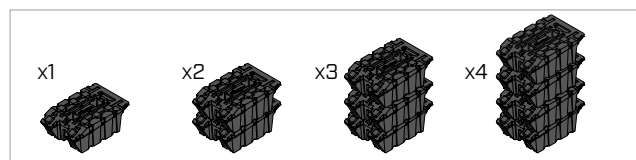
EN
13374:2013
+A1:2018
CIA



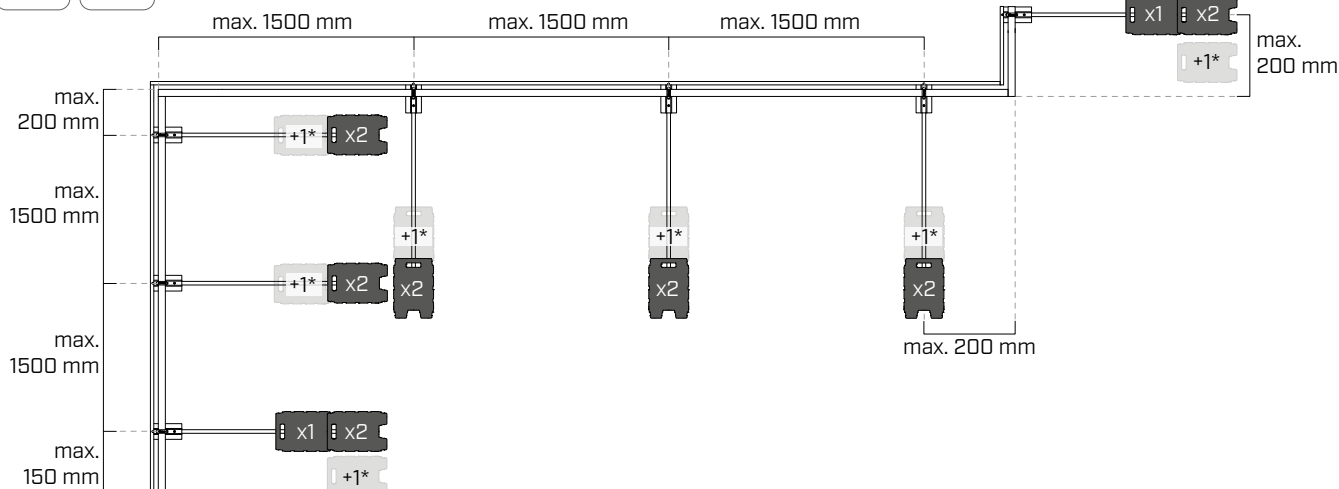
* Dans les zones exposées à des vents forts (vitesse de pointe > 31 m/s), l'intégration d'un ballast supplémentaire est recommandée.

SCHÉMAS DE MONTAGE

MONTAGE BORDER W DROIT - ANGLE

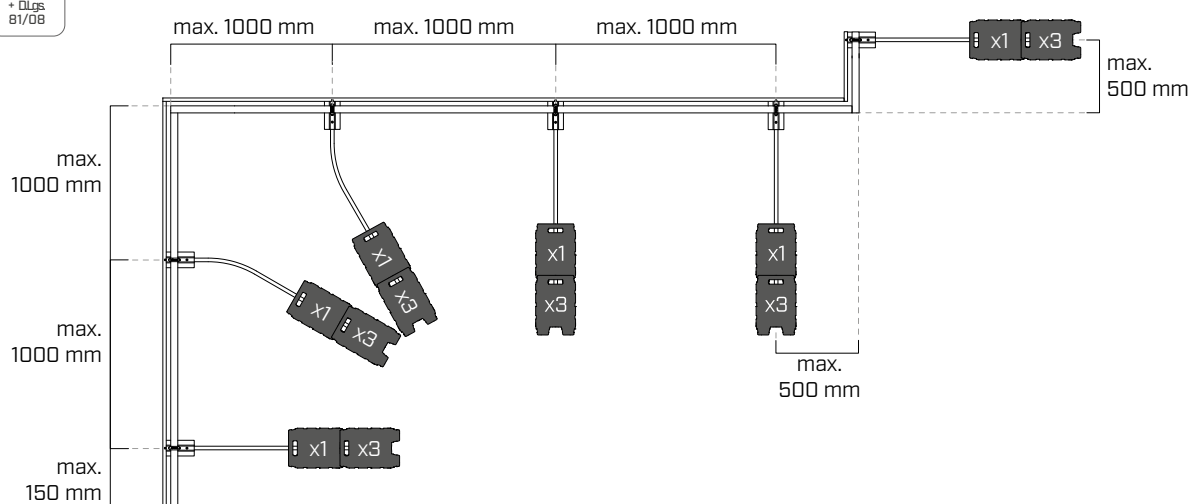


EN 14122-3: 2016
NF E85-015: 2019



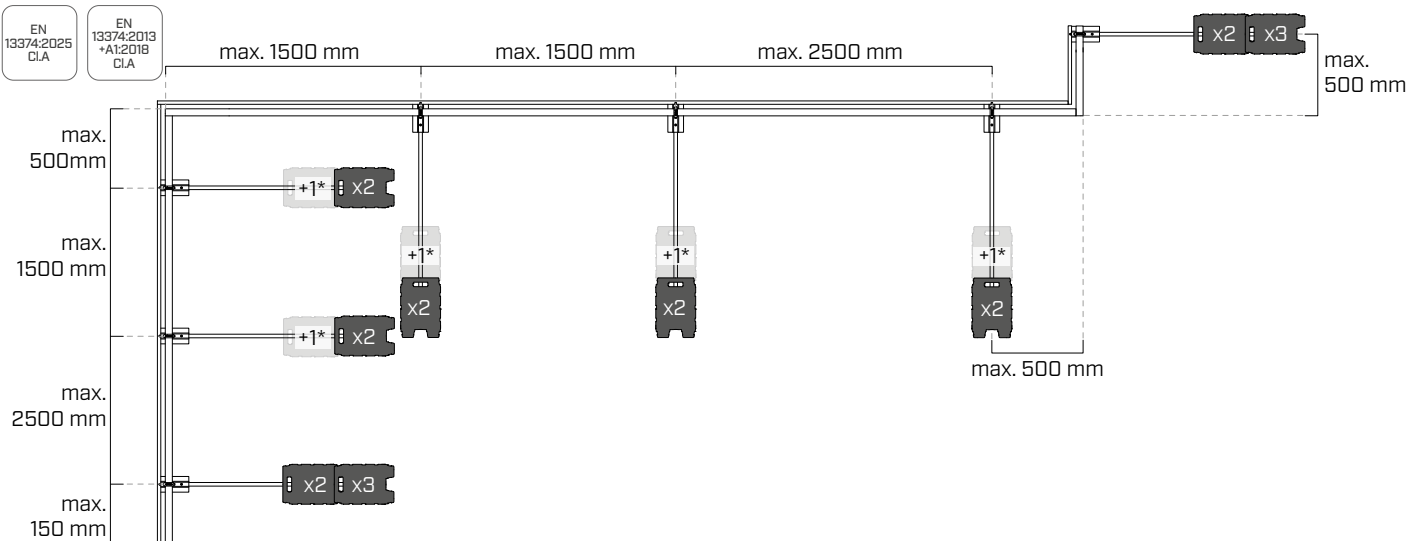
* Conformément à la norme NF E85-015, il est nécessaire d'ajouter un ballast à chaque pied, dans la configuration 1+3 (aux extrémités) et 1+2 (à l'intérieur).

NTC 2018
+ D.Lgs 81/08



EN 13374:2025
CIA

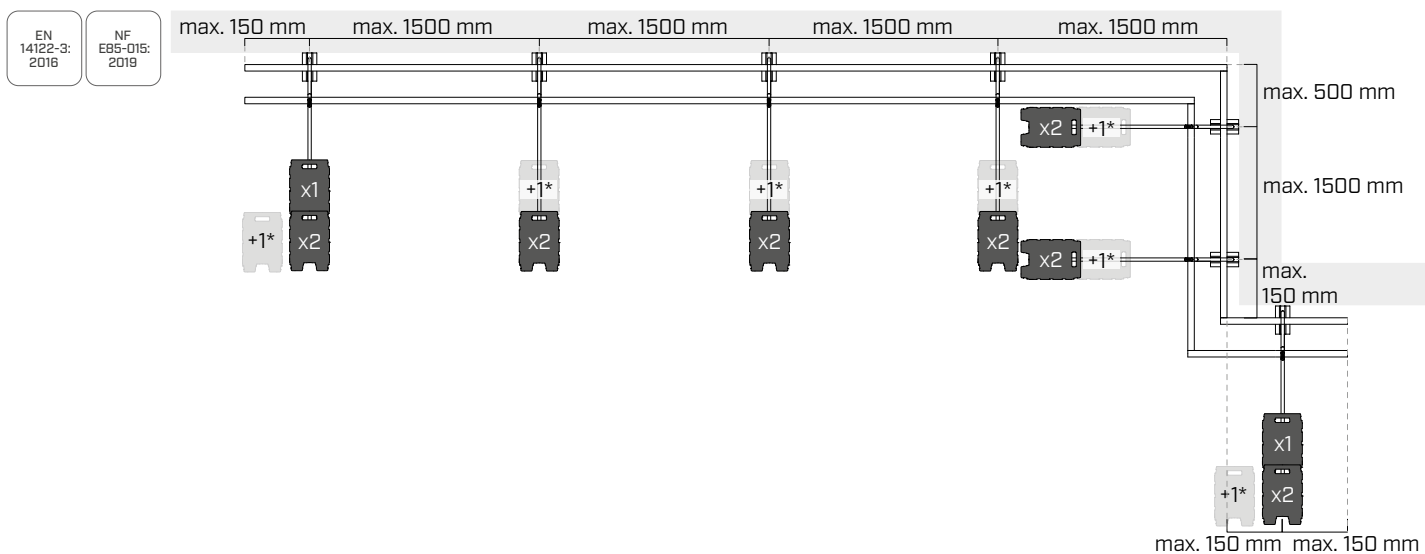
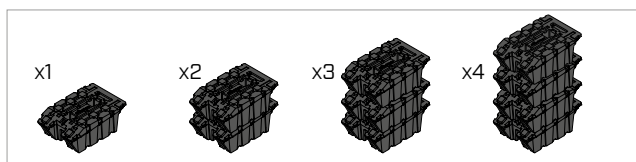
EN 13374:2013
+ A1:2018
CIA



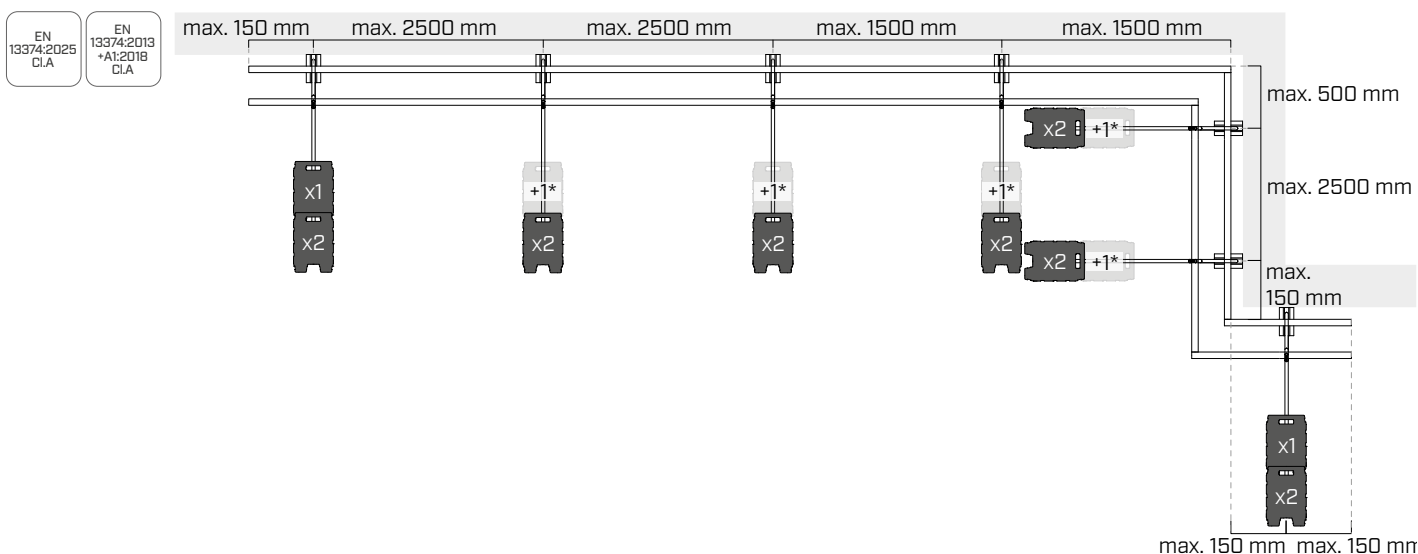
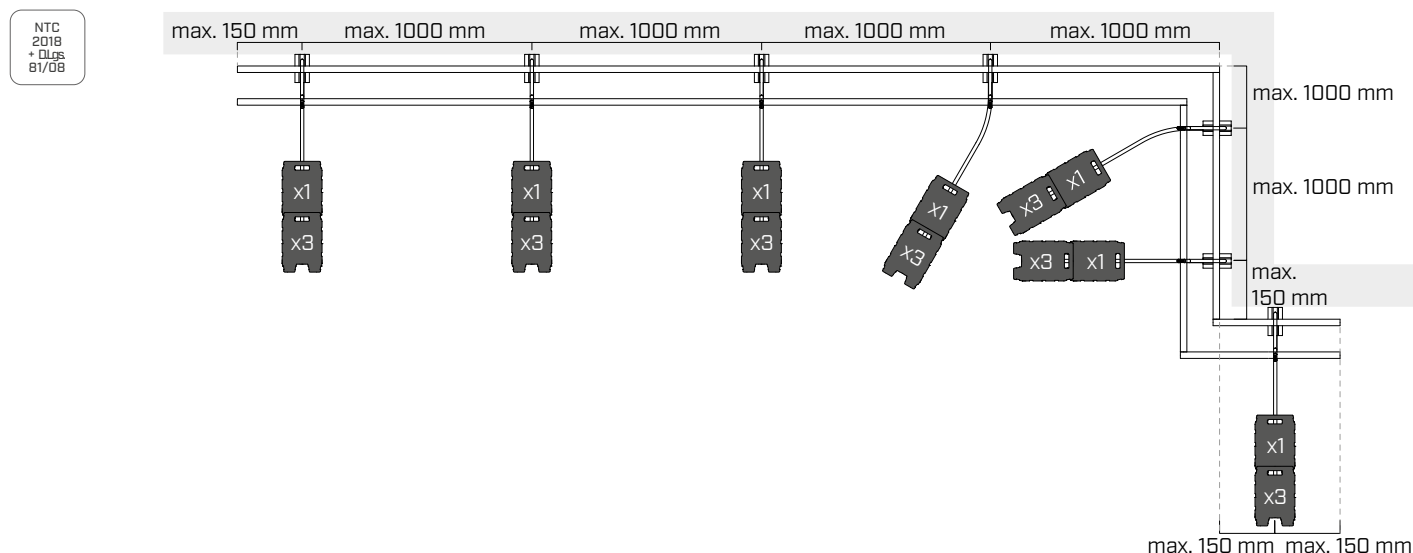
* Dans les zones exposées à des vents forts (vitesse de pointe > 31 m/s), l'intégration d'un ballast supplémentaire est recommandé (seulement pour les pieds internes du système, dans la configuration 1+2).

SCHÉMAS DE MONTAGE

ASSEMBLAGE BORDER W COURBÉ - ANGLE



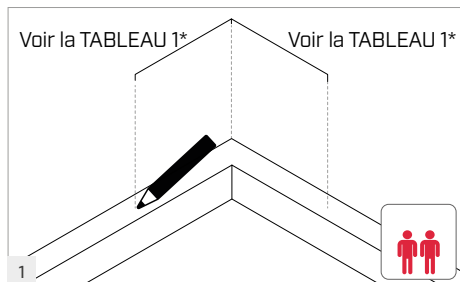
* Conformément à la norme NF E85-015, il est nécessaire d'ajouter un ballast à chaque pied, dans la configuration 1+3 (aux extrémités) et 1+2 (à l'intérieur).



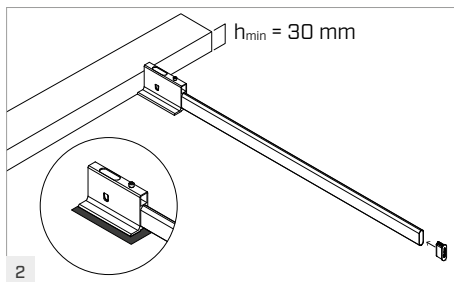
* Dans les zones exposées à des vents forts (vitesse de pointe > 31 m/s), l'intégration d'un ballast supplémentaire est recommandé (seulement pour les pieds internes du système, dans la configuration 1+2).

INSTALLATION

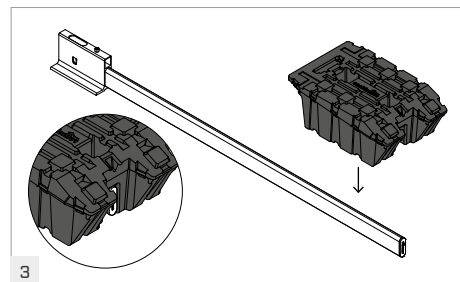
BORDER W



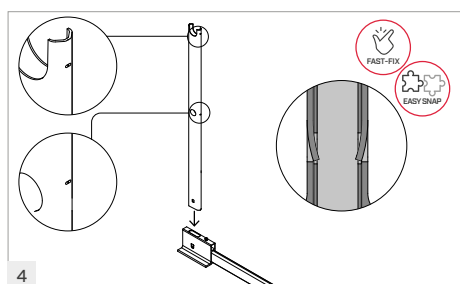
La présence d'au moins deux opérateurs qualifiés est requise. Pour un résultat optimal, il est conseillé de commencer l'installation par un angle.



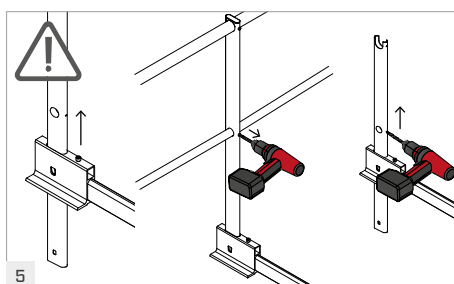
Insérer le bouchon spécifique **BORBASEWCAP** à l'extrémité du pied. Ajouter un éventuel tapis epdm anti-coupure en option **BORBASEWMAT**, sous la base. Le système **BORDER W** peut être monté et placé seulement contre un rebord d'une hauteur minimale de 30 mm.



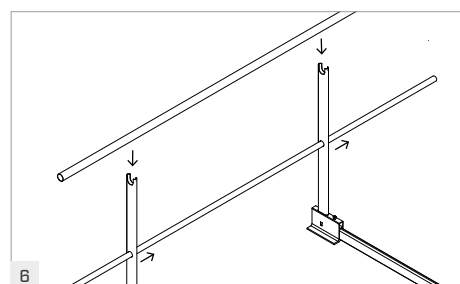
Positionner et ajuster les ballasts sur le pied de support de manière à ce que l'extrémité du ballast corresponde exactement à l'extrémité du pied de support.



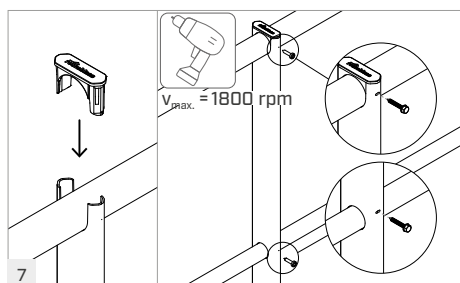
Insérer les montants dans les bases **BORBASEW** en orientant les marques vers l'opérateur. Vérifier que les ailettes et les fenêtres s'encastrent correctement. Aucune vis de fixation n'est nécessaire.



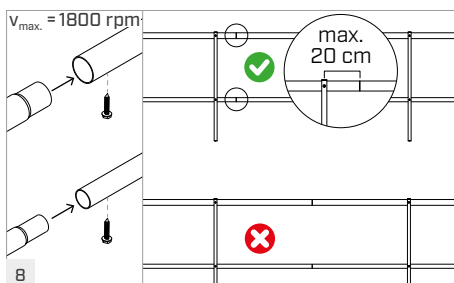
Le système base-montant se retire en poussant la base vers le haut. Si des vis sont présentes (point 7), il faut les retirer et percer un trou de Ø6 mm de diamètre à l'emplacement du trou conique.



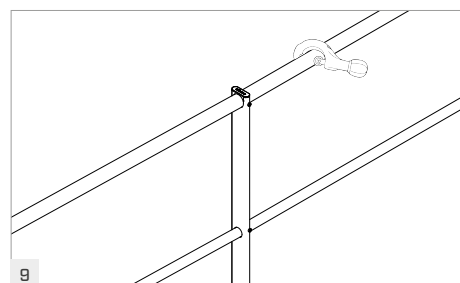
Insérer la sous-lisse intermédiaire **BORBAR32** puis la sous-lisse supérieure **BORBAR45**. Conformément à la norme EN 13374, il est nécessaire d'installer des sous-lisses plus grandes **BORBAR45R**.



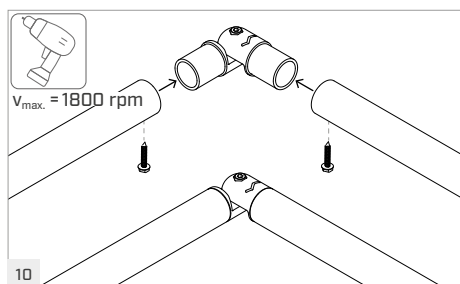
Insérer le capuchon **BORCAP** au sommet du montant. Fixer les sous-lisses aux montants avec des vis **MMS5525A2** au niveau des deux marques latérales.



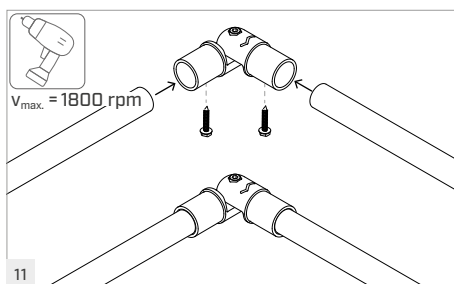
Raccorder les extrémités mâle/femelle de la lisse et sous-lisses, en les fixant avec des vis **MMS5525A2**. Conformément à la norme EN 14122, la sous-lisse doit s'arrêter à moins de 20 cm du montant le plus proche. Placer les vis sous les sous-lisses.



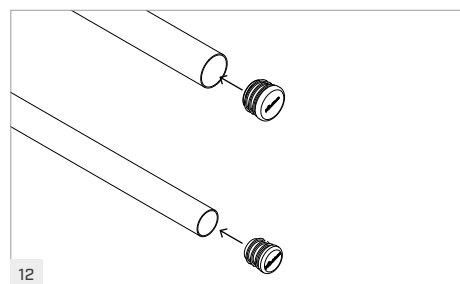
Adapter la dernière section du garde-corps en coupant la partie excédentaire des sous-lisses à l'aide du coupe-tube.



Insérer l'articulation angulaire **BORCOR** dans la sous-lisse et fixer avec des vis autotaraudeuses **MMS5525A2**.



Insérer l'articulation angulaire **BORCOR** dans la sous-lisse intermédiaire et fixer avec des vis autotaraudeuses **MMS5525A2**.



Insérer les capuchons **BORCAP45** et **BORCAP32** dans les lisses ou sous-lisses intermédiaires.

 min. 5 mm
max. 20 mm

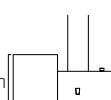
$v_{max.} = 1800 \text{ rpm}$

3

4

 $v_{\text{max}} = 1800 \text{ rpm}$

INDICATIONS POUR L'UTILISATION DE BORTB

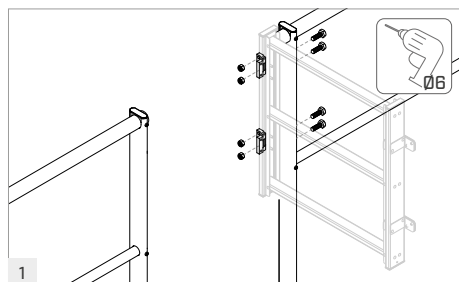
			EN 14122-3: 2016	EN 13374:2013 +A1:2018 CLA	EN 13374:2025 Cl. A	NTC 2018 + Décret-Iol 81/08	NF E85-015: 2019
H _{montants}	rebord	BORTB	h [mm]				
 110 cm		✓	30 mm ≤ h ≤ 100 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 100 mm	
 110 cm		✗	≥ 100 mm	≥ 150 mm	≥ 150 mm	≥ 150 mm	
 100 cm		✗	N/A	h ≥ 30 mm	h ≥ 30 mm	h ≥ 30 mm	

72 | **BORDER W** | CONSIGNES DE SÉCURITÉ, MODE D'EMPLOI ET INSTALLATION

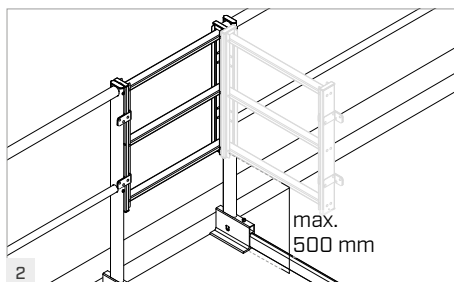
INSTALLATION

BORGATE600

EN
14122-3:
2016



Fixer les 2 charnières sur le côté du portail à l'aide de 4 vis **Ø6x35 ISO 4762** et des **écrous autobloquants M6** respectifs fournis avec le portail.



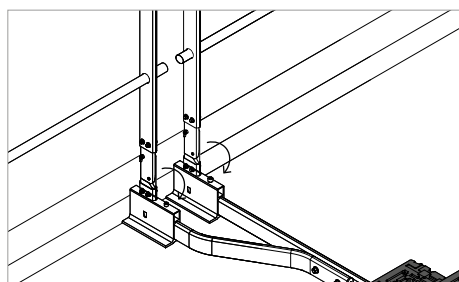
S'assurer que le portail soit installé à une hauteur maximale de **500 mm** du sol, en le maintenant en position fermée.

BORUP100F - BORUP110F

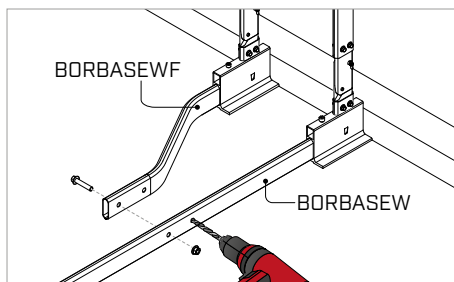
EN
14122-3:
2016

NTC
2018
+ D.Lgs.
81/08

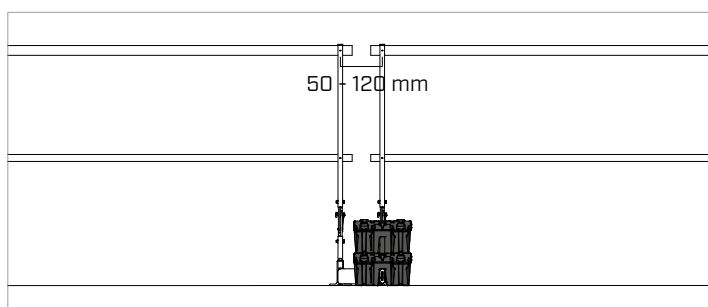
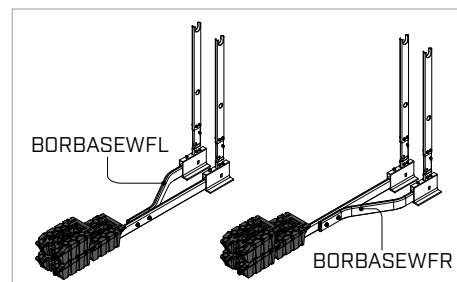
NF
E85-015:
2019



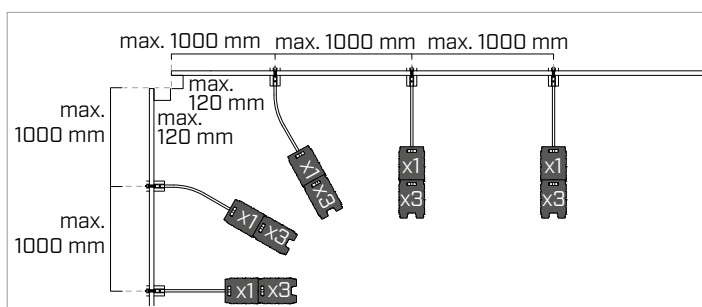
Installer les montants rabattables **BORUP100F/BORUP110F** du côté de l'articulation (et non du pivot), en veillant à ce que le montant s'incline vers la toiture, et jamais vers l'extérieur.



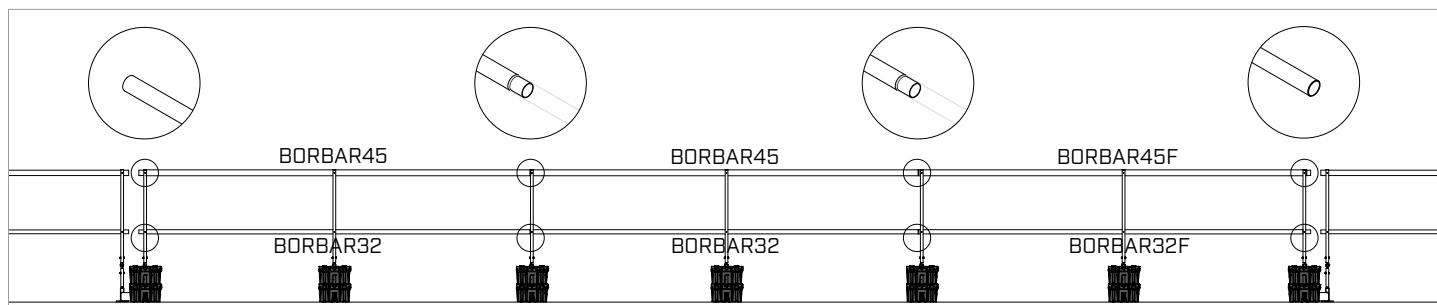
Relier les deux pieds d'extrémité, **BORBASEWFL/BORBASEWFR** avec **BORBASEW**. Effectuer 2 trous Ø13 sur **BORBASEW** et raccorder avec un boulon M12.



Les garde-corps rabattables **BORDER W** s'installent dans des modules de 9 m (7 montants), 12 m (9 montants), 15 m (11 montants) ou 18 m (13 montants). Monter deux montants d'extrémité à une distance maximale de **120 mm** l'un de l'autre, comme illustré.



Les angles des garde-corps rabattables ne doivent pas être reliés, afin de permettre une inclinaison dans les deux sens. La distance entre deux montants d'extrémité ne doit pas dépasser **1000 mm** par rapport au bord.



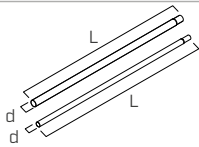
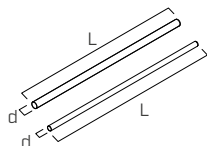
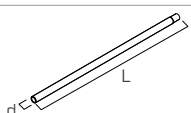
Les sous-lisses principales à utiliser sont **BORBAR45** et **BORBAR32**, toutefois chaque module doit se terminer avec la sous-lisse spécifique sans réduction **BORBAR45F** et **BORBAR32F**.

AVERTISSEMENTS GÉNÉRAUX POUR L'UTILISATION

- Avant de basculer le garde-corps, il est impératif de s'assurer que l'opérateur se trouve en conditions de sécurité. L'utilisateur doit être relié à un dispositif anti-chute, tel qu'une ligne de vie **PATROL** ou un point d'ancrage **KITE**. De plus, il est nécessaire de s'assurer que tous les outils et équipements soient en bon état de fonctionnement et que la zone d'installation soit parfaitement dégagée.
- Les modules (9 m, 12 m, 15 m, 18 m) doivent toujours être manipulés par deux opérateurs afin de garantir un basculement correct.

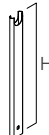
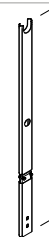
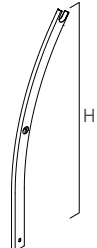
CODES ET DIMENSIONS

SOUS-LISSES

CODE	d [mm]	L [mm]	
BORBAR45	45	3000	
BORBAR32	32	3000	
BORBAR45F	45	3000	
BORBAR32F	32	3000	
BORBAR45R	45	3000	

EN AW
6063-T6

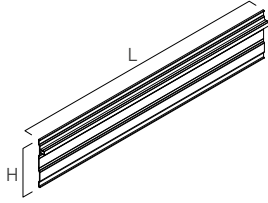
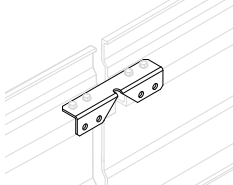
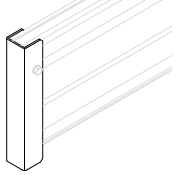
MONTANTS

CODE	H [mm]	
BORUP530WH	535	
BORUP760WH	765	
BORUP100	1005	
BORUP110	1105	
BORUP118	1185	
BORUP130	1305	
BORUP100F	1005	
BORUP110F	1105	
BORUP113C	1120	
BORUP100R	1005	
BORUP110R	1105	
BORUP100AS	1005	
BORUP107US	1075	

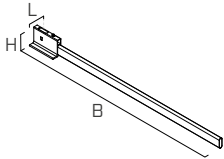
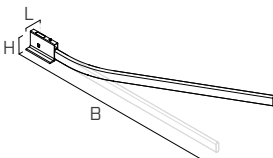
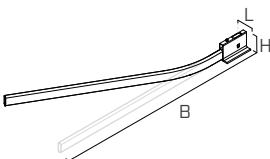
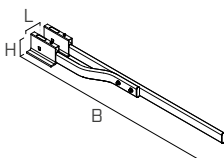
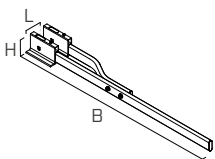
EN AW
6005A-T6

CODES ET DIMENSIONS

PLINTHE GARDE-PIEDS

CODE		H [mm]	L [mm]	
BORTB	EN AW 6063-T6	150	3000	
BORTBJUN	EN AW 6063 H111	-	-	
BORTBCAP	EN AW 6063 H111	-	-	

BASES

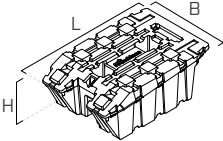
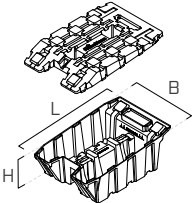
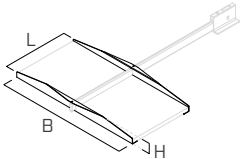
CODE		B [mm]	H [mm]	L [mm]	
BORBASEW		1400	115	100	
BORBASEWFCL		1400	115	100	
BORBASEWFCR	EN AW 6005A-T6	1400	115	100	
BORBASEWFL		750	115	100	
BORBASEWFR		750	115	100	

FIXATION

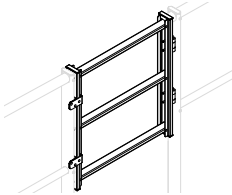
CODE		d [mm]	H [mm]	
MMS5525A2	1.4301 AISI304 INOX	5,5	25	

CODES ET DIMENSIONS

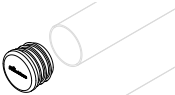
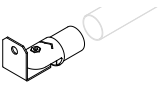
BALLASTS

CODE		B [mm]	H [mm]	L [mm]	
BORWT		265	155	400	
BORWTBOX	PP RECYCLED	265	140	400	
BORWTFRAME	EN AW 5083 H111	1030	81	530	

PORTILLON DE SÉCURITÉ

CODE		L [mm]	H [mm]	
BORGATE600	EN AW 5083 H111	600	640	

ACCESSOIRES

CODE			
BORCAP45			
BORCAP32	LDPE		
BORCAP			
BORCOR	PP RECYCLED		
BORWALL	PP RECYCLED 1.4301 AISI304 INOX		

NORMAS DE SEGURANÇA, INSTRUÇÕES DE UTILIZAÇÃO E INSTALAÇÃO

INTRODUÇÃO

DEFINIÇÕES

O parapeito autoportante **BORDER W** é um sistema de proteção coletiva antiqueda, ideal para a segurança em coberturas, realizado em liga de alumínio (**EN AW 6005A-T6** e **EN AW 6063-T6**).

NORMAS

O parapeito de fixação horizontal **BORDER W** cumpre as seguintes normas:

- **EN 14122-3:2016**
- **EN 13374:2025 Cl. A (exceto ponto 9)**
- **EN 13374:2013+A1:2018 Cl. A (exceto ponto 9)**
- **NTC (Tab.3.1.II - cat. A,B,C1,E1,F,G,H) e Decreto Legislativo 81/08 (Itália)**
- **NF E 85-015:2019 (França)**

A tabela mostra os principais parâmetros geométricos exigidos pelas normas de referência:

	EN 14122-3: 2016	EN 13374:2025 Cl.A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018	D.Lgs. 81/08	NF E85-015: 2019
Altura mín. da superfície de passagem	1,1 m	1 m	1 m	1 m	1 m	1 - 1,1 m
Entre-eixo máx. entre as correntes	500 mm	470 mm	-	-	500 mm	500 mm
Entre-eixo máx. entre os montantes	1,5 m (recomendado)	-	-	-	-	1,5 m (recomendado)
Altura mín. do rodapé	10 cm	15 cm	-	-	15 cm	10 cm

USO - MANUTENÇÃO

A instalação do parapeito **BORDER** deve ser efetuada por pessoal qualificado, em conformidade com as normas em vigor relativas a trabalhos em altura. Antes da utilização, o operador deve garantir a sua própria segurança, utilizando uma linha de vida temporária, EPI e uma plataforma de trabalho adequada.

- Antes da utilização, o utilizador deve verificar, por inspeção visual, se o parapeito **BORDER** apresenta anomalias, danos ou deformações (choques, dobras, etc.).
- O parapeito **BORDER** não requer intervenções de manutenção específicas. No entanto, é necessária, pelo menos, uma inspeção visual anual por pessoal qualificado.
- Se o parapeito **BORDER** não estiver corretamente instalado, estiver danificado ou tiver travado uma queda, a sua utilização deve ser imediatamente interrompida. A sua utilização só deve ser retomada depois de um técnico qualificado ter efetuado a inspeção e a verificação e ter emitido uma autorização por escrito.
- Se o produto for revendido fora do país de destino, é essencial para a segurança do utilizador que o revendedor forneça o manual de instruções na língua do país em que o produto é utilizado. Os documentos podem ser fornecidos a pedido, contactando o fabricante.
- O parapeito **BORDER** é um dispositivo de proteção coletiva permanente, destinado exclusivamente aos profissionais que trabalham em coberturas não acessíveis ao público.
- Se for instalado em ambientes industriais poluídos, petroquímicos, navais ou costeiros, o parapeito **BORDER** deve ser submetido a um tratamento de superfície adequado, como a pintura a pó ou a anodização.
- Se tiver sido fornecida uma planimetria, esta deve ser utilizada como referência durante a instalação.
- Se o parapeito **BORDER** estiver exposto a velocidades de pico do vento superiores a 31 m/s (aprox. 110 km/h), a Rothoblaas recomenda a aplicação de lastro adicional na parte de trás de cada perna. Esta velocidade corresponde a uma pressão dinâmica do vento de 600 N/m².

ARMAZENAMENTO

Os componentes de alumínio em bruto são embalados em contacto uns com os outros. A exposição da embalagem fechada à chuva pode provocar a oxidação dos componentes, podendo resultar em manchas na superfície. Estas manchas não comprometem a qualidade do alumínio, mas podem prejudicar o aspeto estético do parapeito. É aconselhável desembalar a embalagem e manter os componentes separados, evitando o contacto direto entre si, ou armazenar as embalagens num local seco.

EQUIPAMENTO

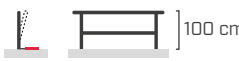


ESPECIFICAÇÕES DE INSTALAÇÃO

VALORES MÁXIMOS DO ENTRE-EIXO

Tabela 1

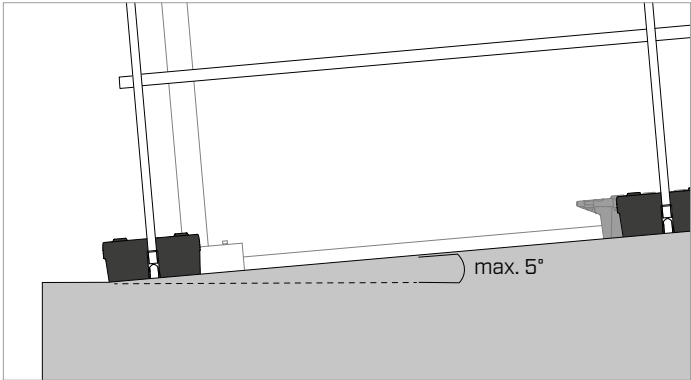
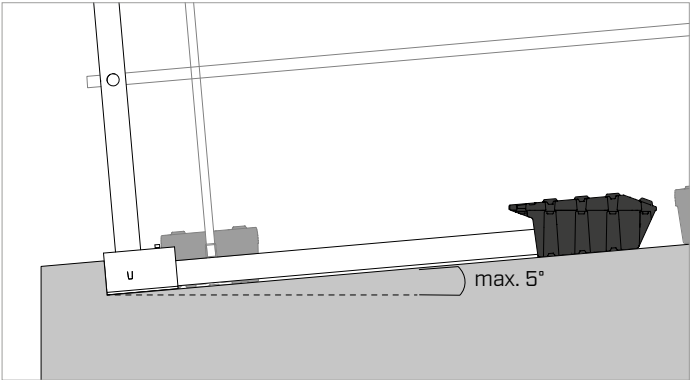
Tabela 1

		EN 14122-3: 2016	EN 13374:2025 Cl.A	EN 13374:2013 +A1:2018 Cl.A	NTC 2018 + Dec. Legislativo 81/08	NF E85-015: 2019
montante	H _{montantes}	entre-eixo para montantes [cm]				
reto + rebatível	 100 cm	N/A	250	100	150	
	 110 cm	150	250	100	150	
curvo	 110 cm	150	250	100	150	

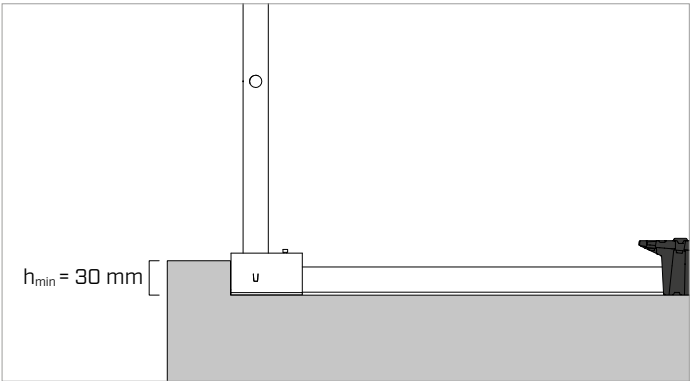
*O sistema rebatível não se encontra atualmente disponível.

SUBESTRUTURAS COMPATÍVEIS

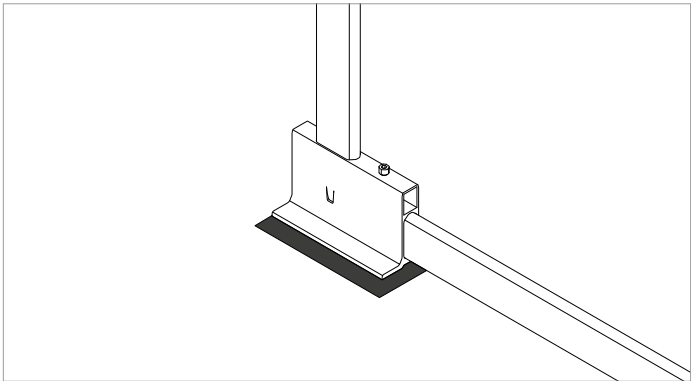
			
C20/25	CLT	BAINHA	PVC



Em caso de declive, a inclinação não deve exceder 5°.

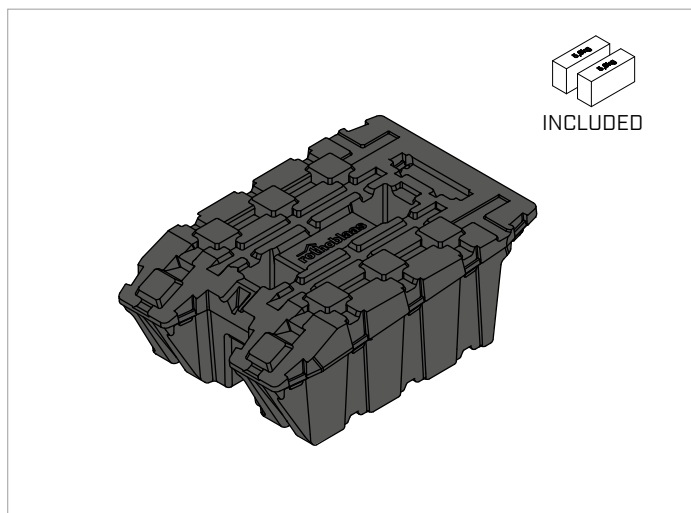


- **BORDER W** deve assentar num lancil de $h_{min} = 30\text{ mm}$.
- O lancil deve poder resistir a uma força longitudinal mínima de 150 kg/ml.

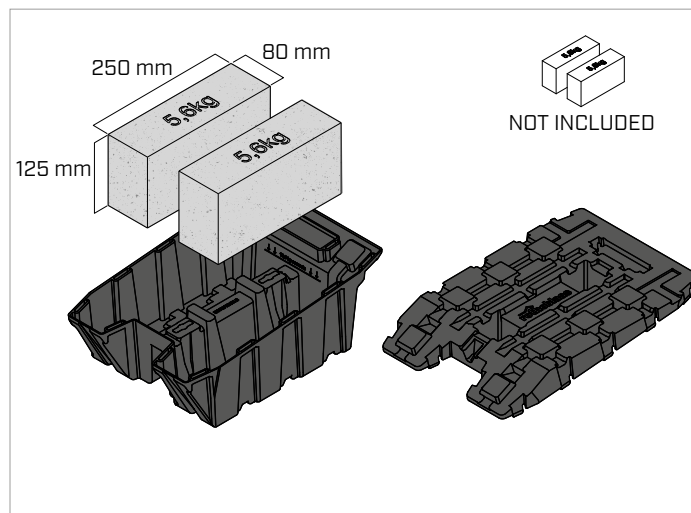


Mediante pedido: tapete anticorte adicional **BORBSEWMAT**.

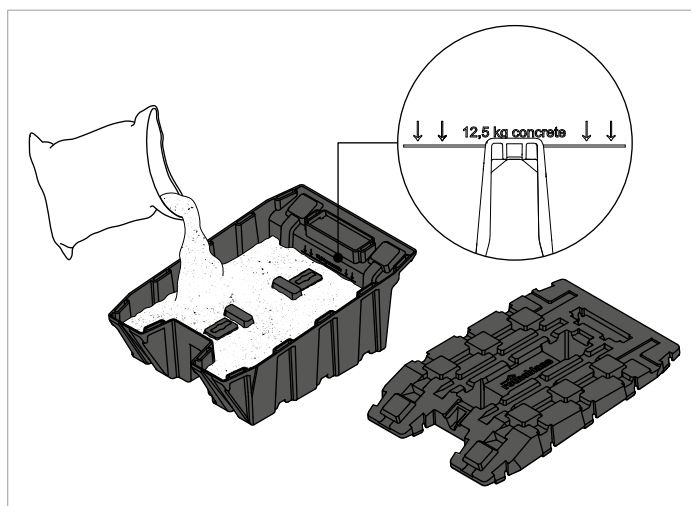
ESPECIFICAÇÕES DOS LASTROS



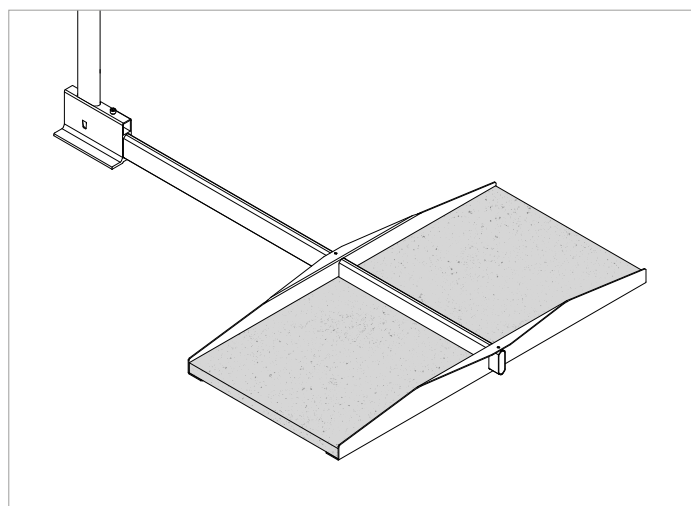
BORWT: lastro cheio 12,5 kg com tijolos 250 x 125 x 80 mm.



BORWTBOX opção 1: lastro vazio para encher com 2 tijolos 250 x 125 x 80 mm (peso final 12,5 kg).



BORWTBOX opção 2: lastro vazio, que pode ser enchido com cimento até ao limite pré-determinado (peso final 12,5 kg).



BORWTFRAME: armação de alumínio para conter lajes de betão de 50 x 50 cm, 45 x 45 cm, 40 x 40 cm (peso mínimo do lastro individual de 20 kg).

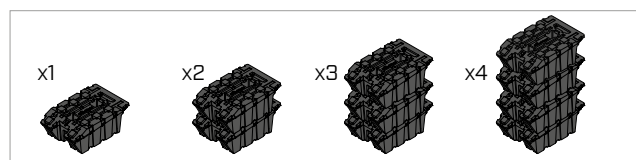
NOTA: a relação de peso k entre o lastro **BORWT** e a laje de betão 50 x 50 cm para **BORWTFRAME** é, a título indicativo:

$$k = \frac{P_{BORWT}}{P_{50 \times 50}} = \frac{12,5 \text{ kg}}{20 \text{ kg}} = 1,6$$

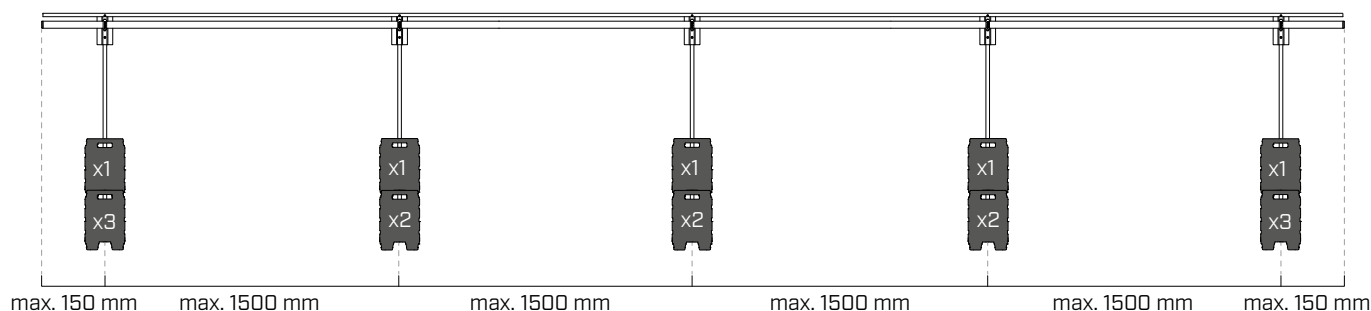
Nos esquemas de montagem, a relação de peso deve ser considerada para a configuração com **BORWTFRAME**.

ESQUEMAS DE MONTAGEM

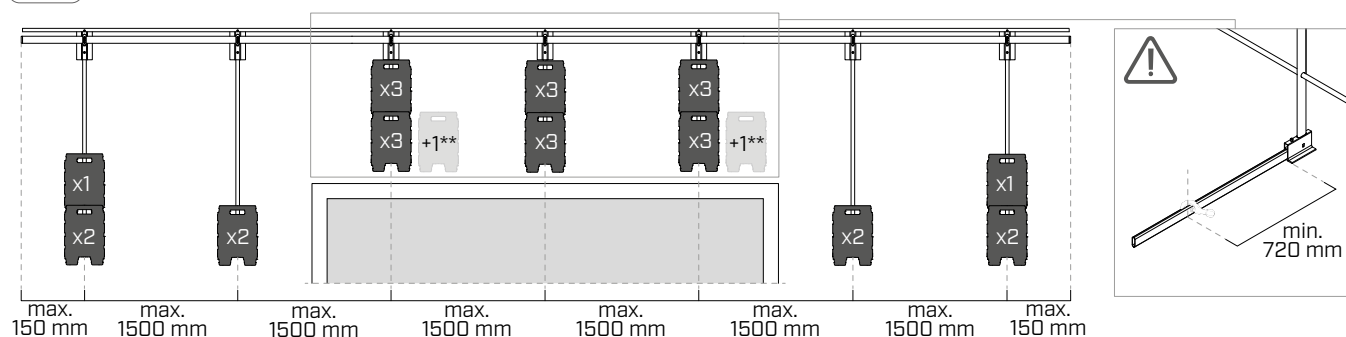
MONTAGEM BORDER W EM LINHA RETA



NF
EBS-015:
2019

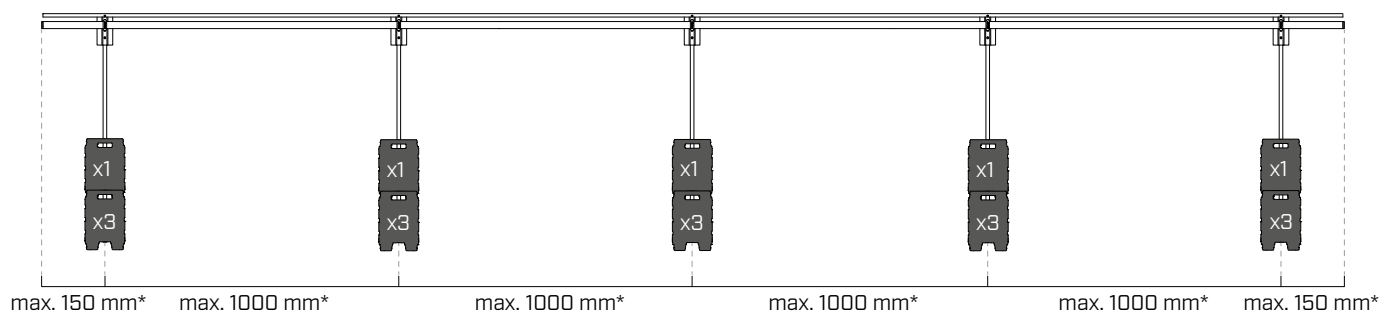


EN
14122-3:
2016



Nota: se existir um obstáculo (por exemplo, uma claraboia), a perna de apoio pode ser encurtada, mantendo um comprimento mínimo de 72 cm. Nesta configuração, instalar 6 lastros (3 + 3) nas pernas internas e 7 (3 + 4) nas pernas de extremidade.**

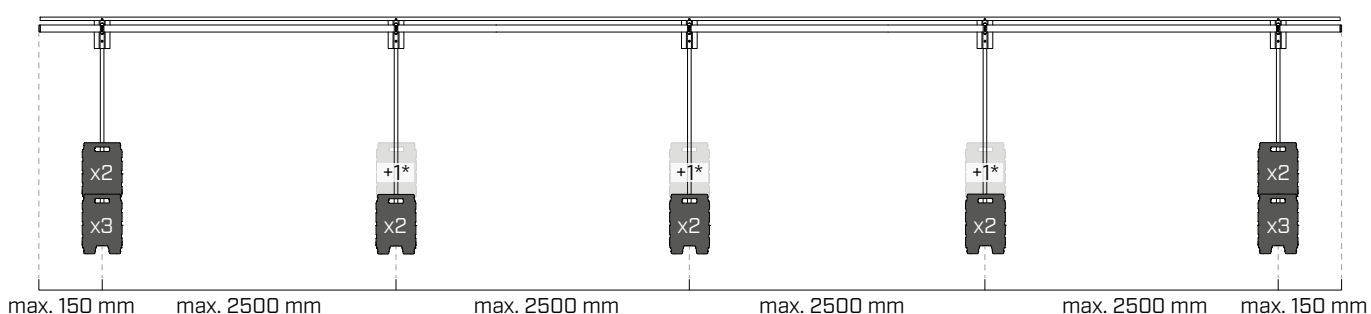
NTC
2018
+ DLgs
81/08



* BORWTFRAME: é possível respeitar um entre-eixo máx. de 1500 mm, colocando 4 chapas 50 x 50 x 35 cm.

EN
13374:2025
CIA

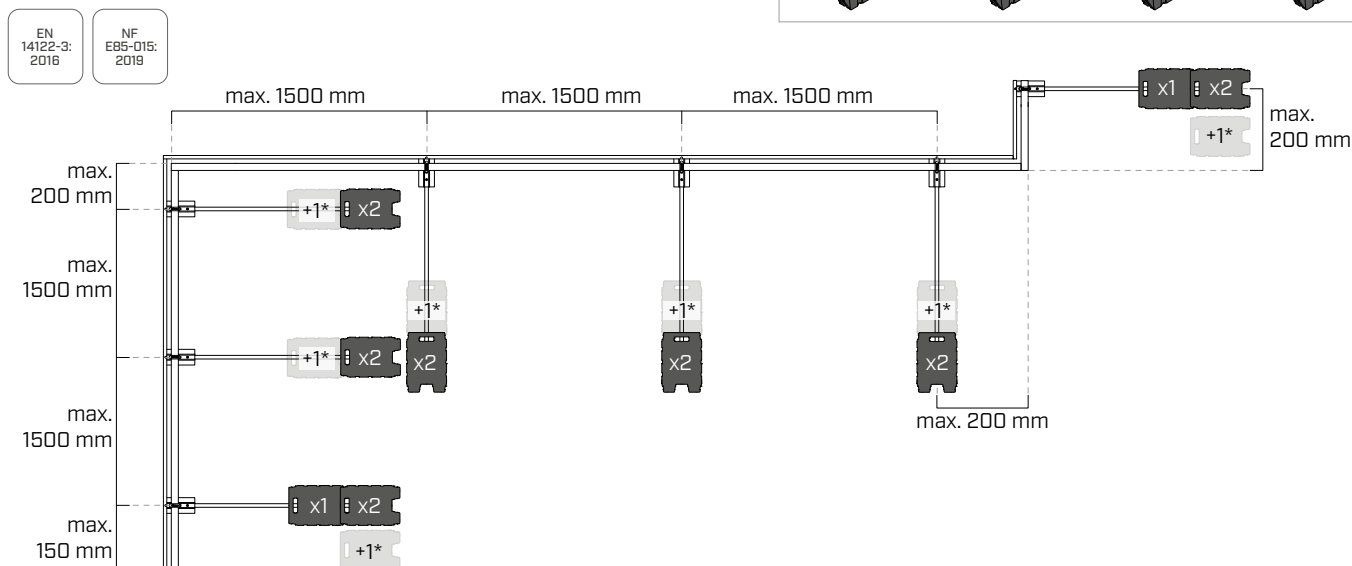
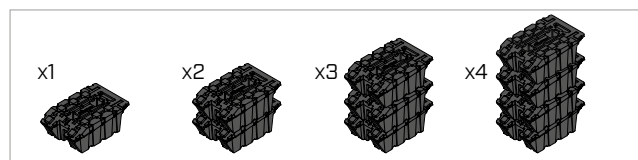
EN
13374:2013
+A1:2018
CIA



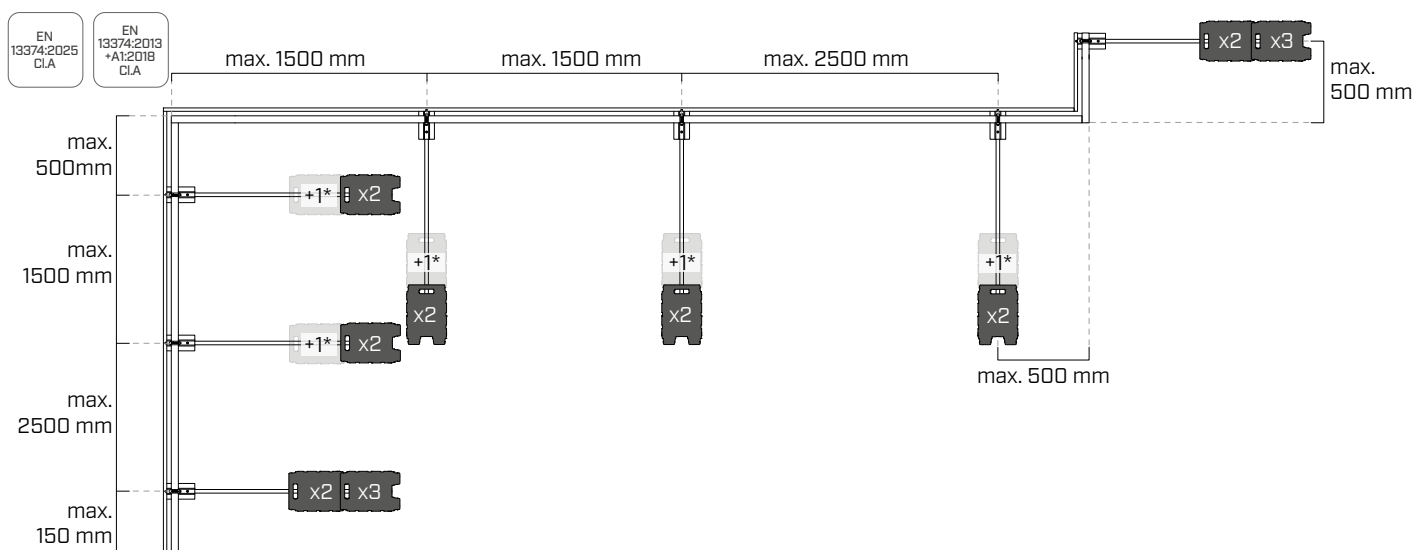
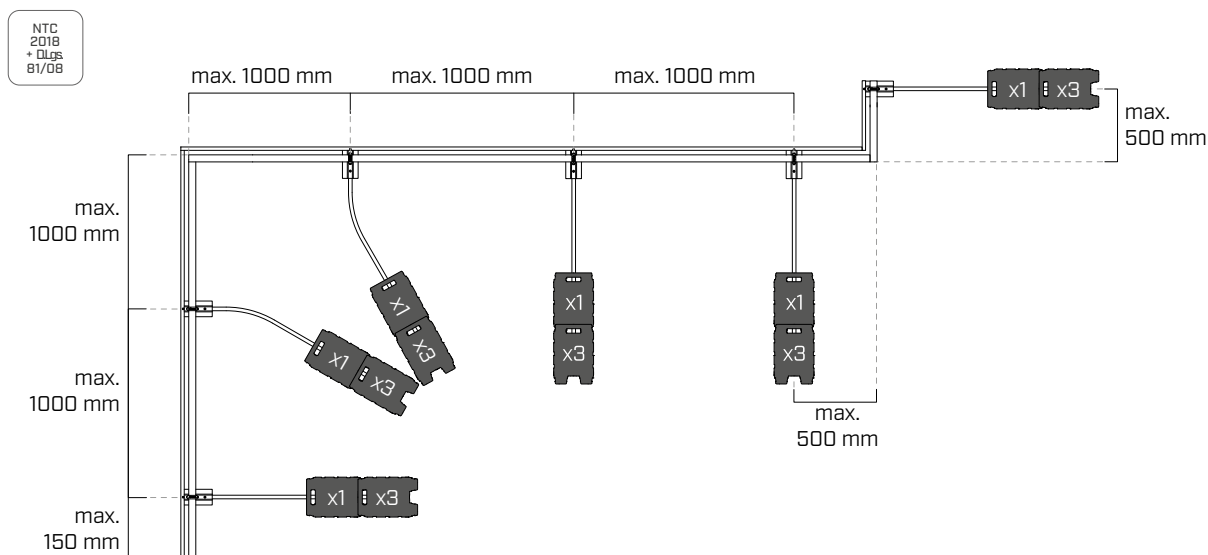
* Em zonas sujeitas a ventos fortes (velocidade de pico > 31 m/s), recomenda-se a integração de um lastro adicional.

ESQUEMAS DE MONTAGEM

MONTAGEM BORDER W RETO - ÂNGULO



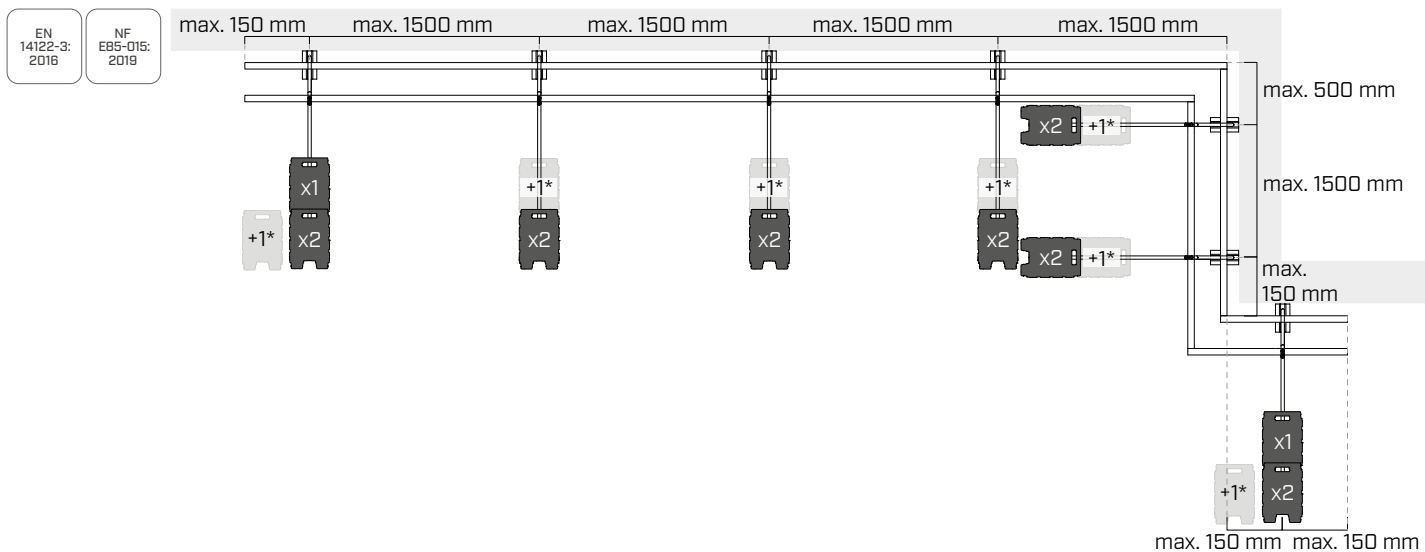
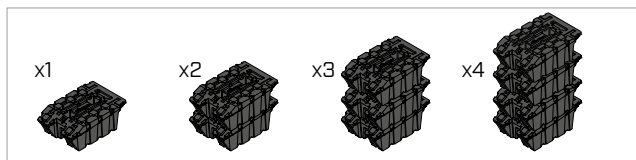
* De acordo com a norma NF E85-015, deve ser adicionado um lastro a cada perna, na configuração 1+3 (nas extremidades) e 1+2 (no interior).



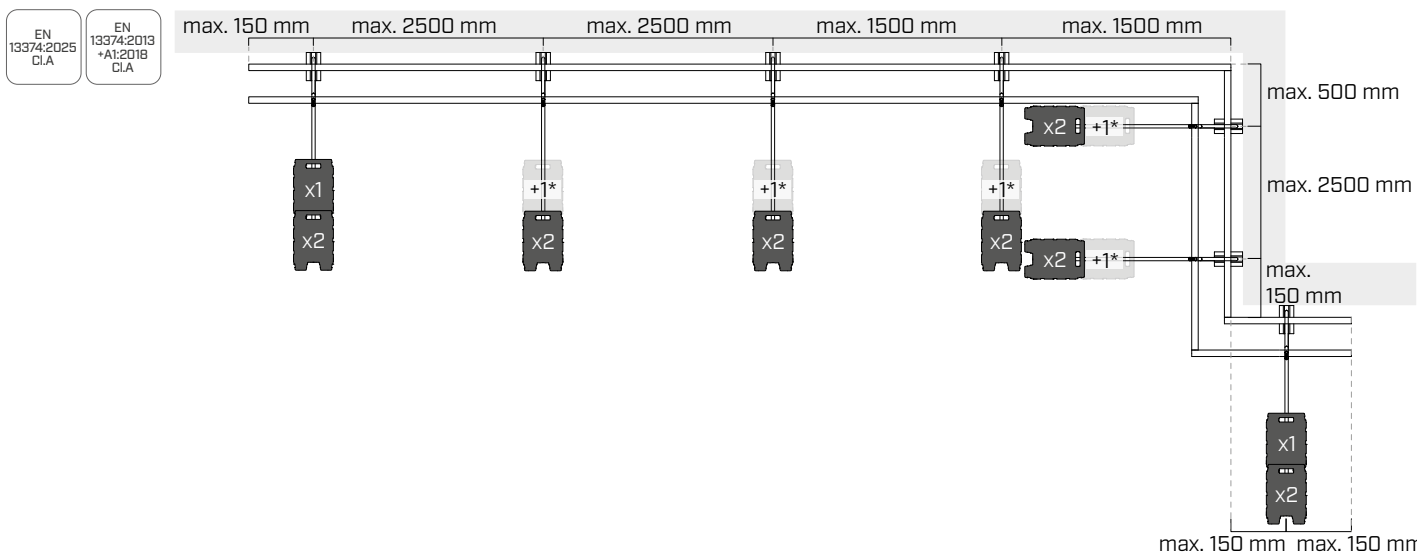
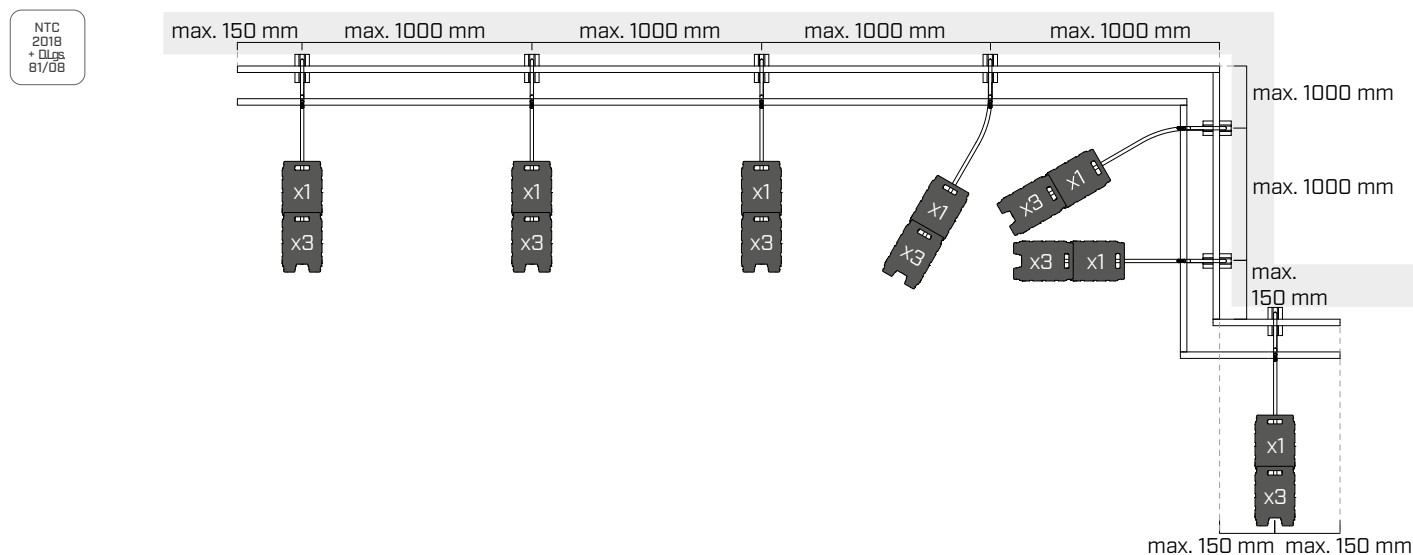
* Em zonas sujeitas a ventos fortes (velocidade de pico > 31 m/s), recomenda-se a integração de um lastro adicional (apenas para as pernas internas do sistema, na configuração 1+2).

ESQUEMAS DE MONTAGEM

MONTAGEM BORDER W CURVO - ÂNGULO

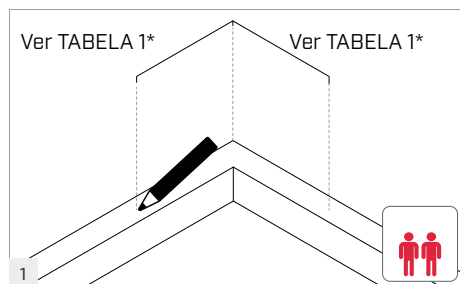


* De acordo com a norma NF E85-015, deve ser adicionado um lastro a cada perna, na configuração 1+3 (nas extremidades) e 1+2 (no interior).

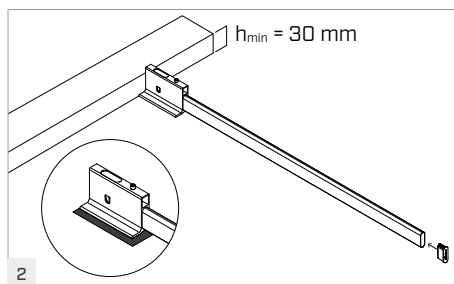


* Em zonas sujeitas a ventos fortes (velocidade de pico > 31 m/s), recomenda-se a integração de um lastro adicional (apenas para as pernas internas do sistema, na configuração 1+2).

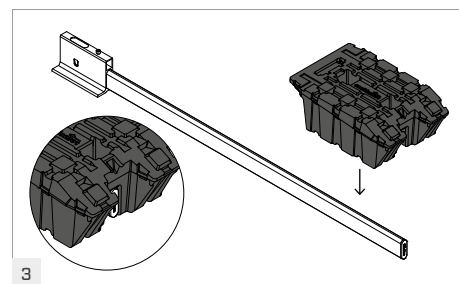
BORDER W



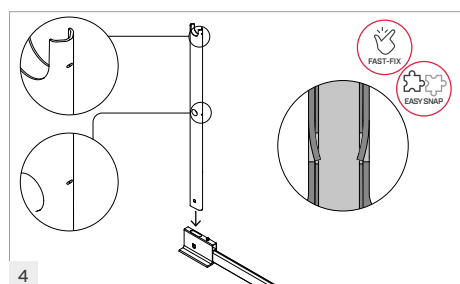
É necessária a presença de, pelo menos, dois operadores qualificados. Para obter melhores resultados, é recomendável começar a instalação a partir de um canto.



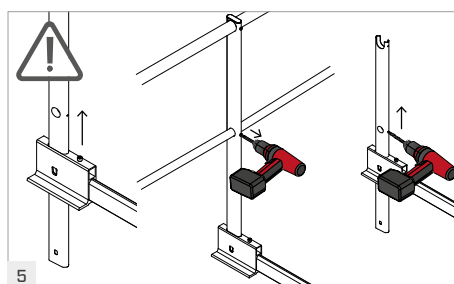
Inserir a respetiva tampa **BORBASEWCAP** na parte terminal da perna. Adicionar o eventual tapete EPDM anticorte opcional **BORBASEWMAT**, sob a base. O sistema **BORDER W** só pode ser montado e apoiado junto de um véu a uma altura mínima de 30 mm.



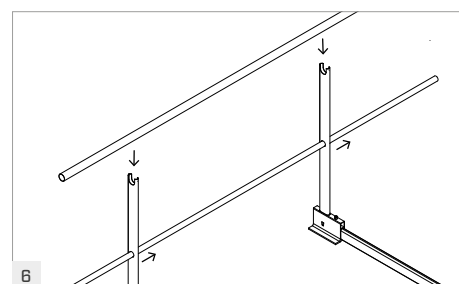
Colocar e regular os lastros na perna de suporte de modo a que a parte terminal do lastro coincida exatamente com a parte terminal da perna de suporte.



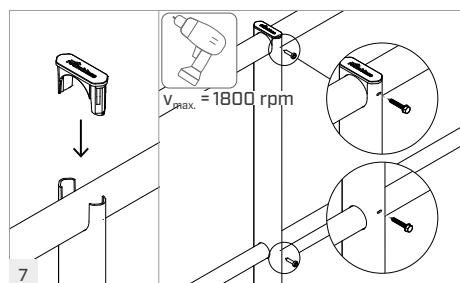
Inserir os montantes nas bases **BORBASEW** com as marcas viradas para o operador. Verificar o encaixe correto entre as aletas e as janelas. Não são necessários parafusos para a fixação.



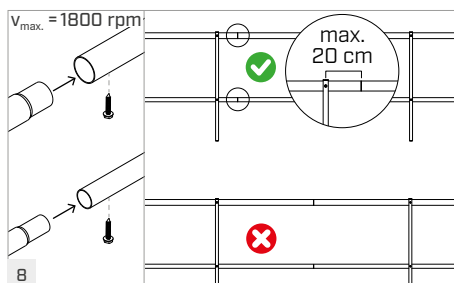
O sistema base-montante é removido empurrando a base para cima. Se existirem parafusos (ponto 7), retirá-los e furar Ø6 mm no ponto do furo cônico.



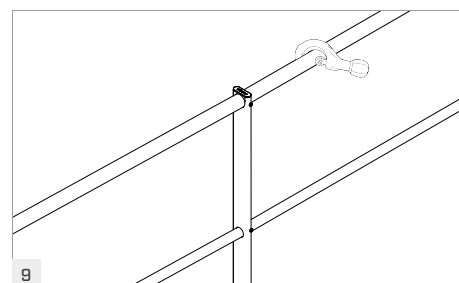
Inserir a corrente intermédia **BORBAR32** e, em seguida, a corrente superior **BORBAR45**. Em conformidade com a norma EN 13374, é necessário instalar as correntes aumentadas **BORBAR45R**.



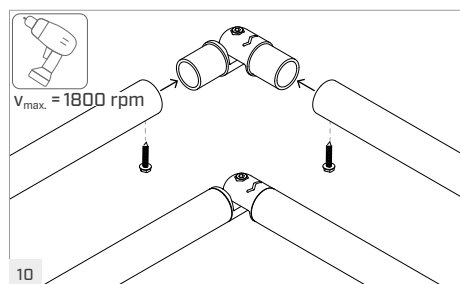
Inserir a tampa **BORCAP** no topo do montante. Fixar as correntes aos montantes com o parafuso **MMS5525A2** nas duas marcas laterais.



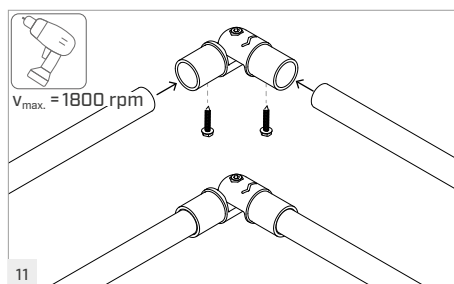
Ligar as extremidades macho/fêmea do corrimão e das correntes, fixando-as com parafusos **MMS5525A2**. De acordo com a EN 14122, o corrimão não deve terminar a mais de 20 cm do montante mais próximo. Colocar os parafusos sob as correntes.



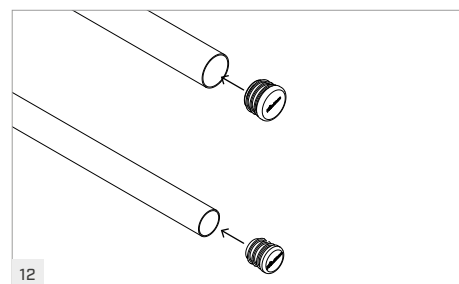
Adaptar a última secção do parapeito cortando a parte excedente das correntes com o corta-tubos.



Inserir a articulação angular **BORCOR** no corrimão e fixar com parafusos autorroscantes **MM-S5525A2**.



Inserir a articulação angular **BORCOR** na corrente intermédia e fixar com os parafusos autorroscantes **MMS5525A2**.

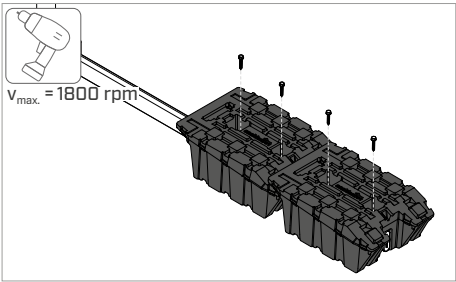


Inserir as tampas **BORCAP45** e **BORCAP32** nos corrimãos ou correntes intermédias.

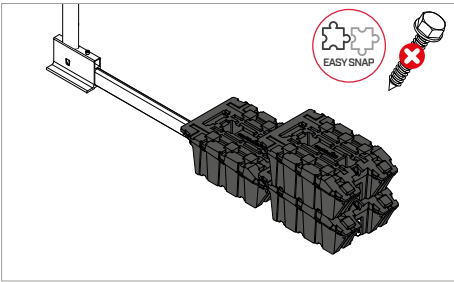
IT

INSTALAÇÃO

BORWT

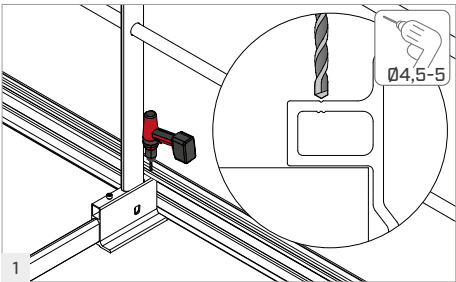


Após a montagem do conjunto do parapeito, apertar os parafusos autorroscantes **MM-S5525A2** nos respectivos lastros.

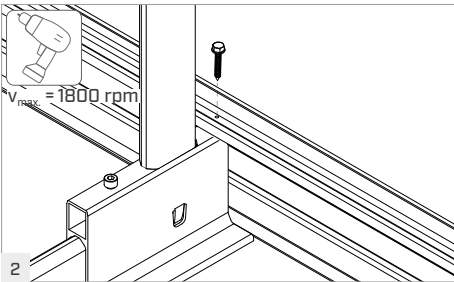


Os lastros empilhados verticalmente não necessitam de uma fixação específica, uma vez que estão ancorados entre si por encaixe.

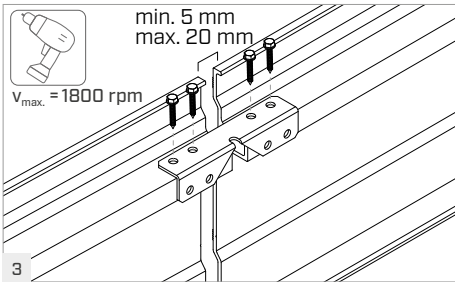
BORTB



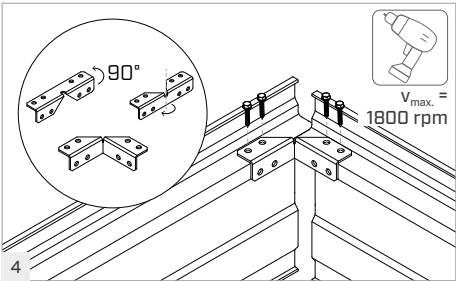
O rodapé **BORTB** deve ser colocado assentando o respetivo suporte contra o encosto da base **BORBASEW**. Uma vez posicionado, recomenda-se a realização de um furo passante com um diâmetro máximo de Ø4,5 mm ou Ø5 mm.



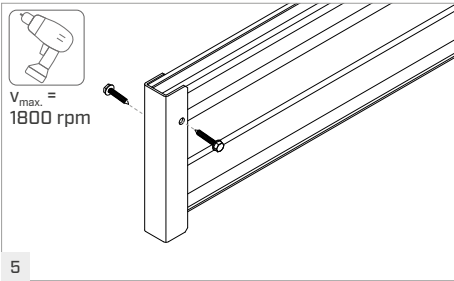
Após fazer o pré-furo, é possível fixar o rodapé à base com um parafuso **MMS5525A2**.



Unir as extremidades do **BORTB** com o conector **BORTBJUN**. Fixar com 4 parafusos **MMS5525A2**, deixando, pelo menos, 5 mm entre as tábuas para evitar deformações térmicas.

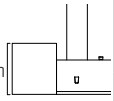


Nos cantos, rodar e dobrar o conector **BORTBJUN** com a mão até atingir o ângulo desejado. Fixar com 4 parafusos autorroscantes **MMS5525A2**.



Fixar as tampas terminais do rodapé com 2 parafusos autorroscantes **MMS5525A2**.

ESPECIFICAÇÕES DE UTILIZAÇÃO BORTB

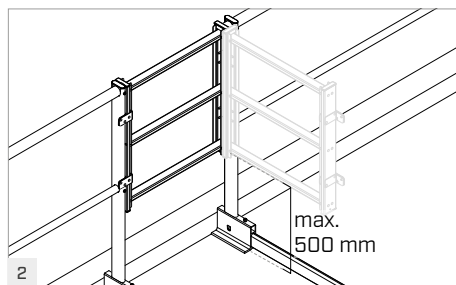
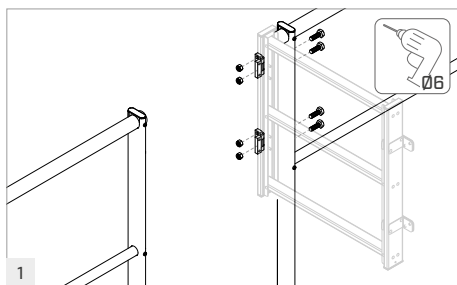
			EN 14122-3: 2016	EN 13374:2013 + A1:2018 Cl.A	EN 13374:2025 Cl.A	NTC 2018 + Dec. Legislativo 81/08	NF E85-015: 2019
H _{montantes}	véu	BORTB	h [mm]				
 110 cm		✓	30 mm ≤ h ≤ 100 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 150 mm	30 mm ≤ h ≤ 100 mm	
 110 cm		✗	≥ 100 mm	≥ 150 mm	≥ 150 mm	≥ 150 mm	
 100 cm		✗	N/A	h ≥ 30 mm	h ≥ 30 mm	h ≥ 30 mm	

Nota: no esquema, o sistema deve ainda cumprir os requisitos mínimos de altura do véu, ou seja h_{min} = 30 mm.

INSTALAÇÃO

BORGATE600

EN
14122-3:
2016



Fixar as 2 dobradiças na parte lateral do portão utilizando os 4 parafusos **Ø6x35 ISO 4762** e as respetivas **porcas autoblocantes M6** fornecidas com o portão.

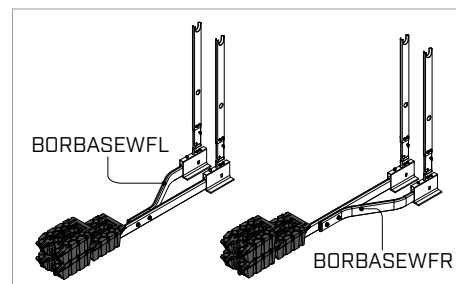
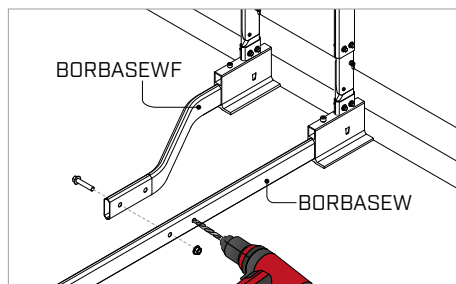
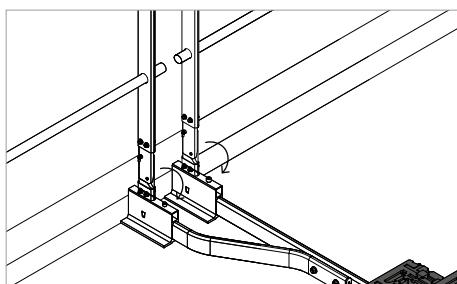
Certificar-se de que o portão é instalado a uma altura máxima de **500 mm** da superfície de passagem, mantendo-o na posição fechada.

BORUP100F - BORUP110F

EN
14122-3:
2016

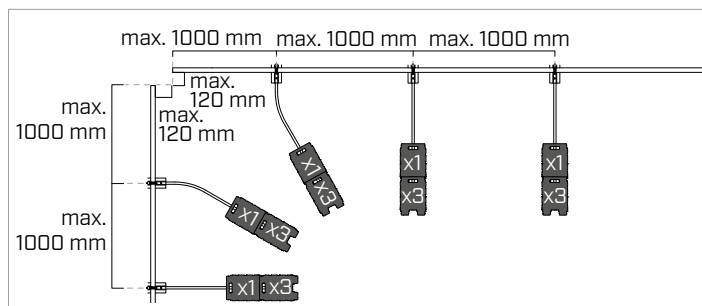
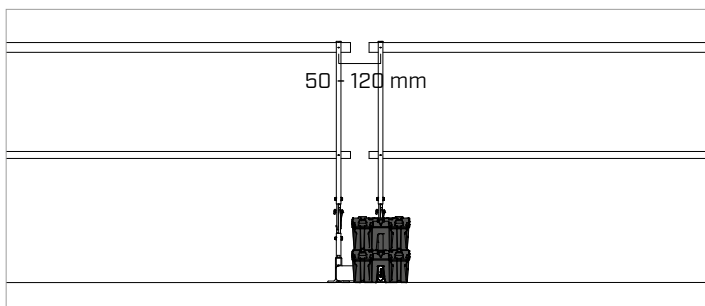
NTC
2018
+ D.Lgs.
81/08

NF
E85-015:
2019



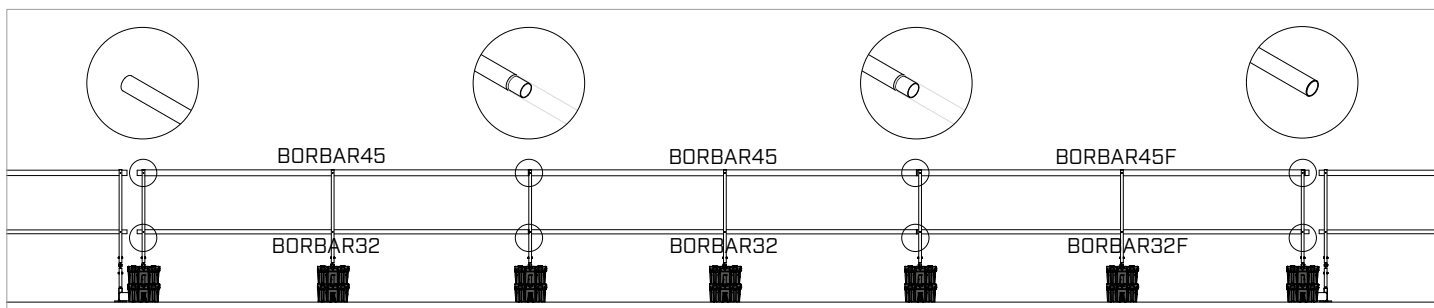
Instalar os montantes rebatíveis **BORUP100F/BORUP110F** do lado da junta (não do perno), certificando-se de que o montante é rebatido na direção da cobertura, nunca para fora.

Ligar as duas pernas terminais, **BORBASEWFL/BORBASEWFR** com **BORBASEW**. Fazer 2 furos Ø13 em **BORBASEW** e ligar com o parafuso M12.



Os parapeitos rebatíveis **BORDER W** são instalados em módulos de 9 m (7 montantes), 12 m (9 montantes), 15 m (11 montantes) ou 18 m (13 montantes). Montar os dois montantes terminais com uma distância máxima de **120 mm** entre eles, como mostrado.

Os cantos dos parapeitos rebatíveis não devem ser ligados para permitir o rebatimento em ambas as direções. A distância entre os dois montantes terminais não deve exceder **1000 mm** do bordo.



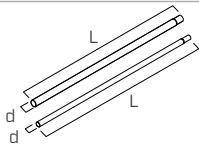
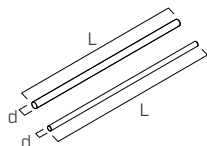
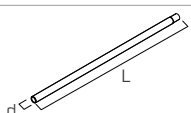
As correntes principais a utilizar são **BORBAR45** e **BORBAR32**, no entanto, cada módulo deve terminar com a corrente específica sem redução **BORBAR45F** e **BORBAR32F**.

AVISOS GERAIS DE UTILIZAÇÃO

- Antes de rebater o parapeito, é obrigatório garantir que o operador se encontra em condições de segurança. O utilizador deve estar ancorado a um dispositivo antequeda, como uma linha de vida **PATROL** ou um ponto de ancoragem **KITE**. Além disso, é necessário garantir que todas as ferramentas e equipamentos estão em boas condições de funcionamento e que a área de instalação está desimpedida.
- Os módulos (9 m, 12 m, 15 m, 18 m) devem ser sempre manuseados por dois operadores, de modo a permitir um rebatimento correto.

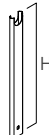
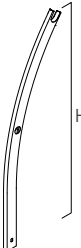
CÓDIGOS E DIMENSÕES

CORRENTES

CÓDIGO	d [mm]	L [mm]	
BORBAR45	45	3000	
BORBAR32	32	3000	
BORBAR45F	45	3000	
BORBAR32F	32	3000	
BORBAR45R	45	3000	

EN AW
6063-T6

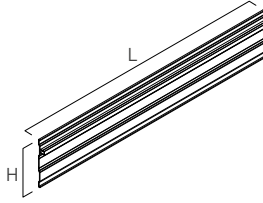
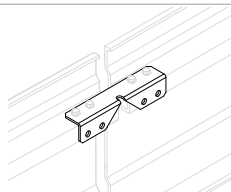
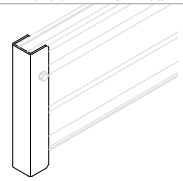
MONTANTES

CÓDIGO	H [mm]	
BORUP530WH	535	
BORUP760WH	765	
BORUP100	1005	
BORUP110	1105	
BORUP118	1185	
BORUP130	1305	
BORUP100F	1005	
BORUP110F	1105	
BORUP113C	1120	
BORUP100R	1005	
BORUP110R	1105	
BORUP100AS	1005	
BORUP107US	1075	

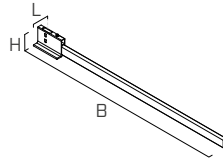
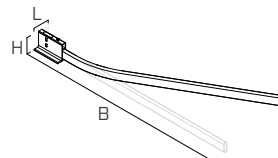
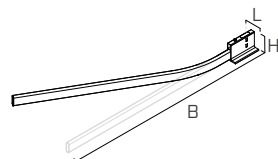
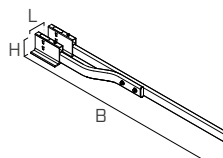
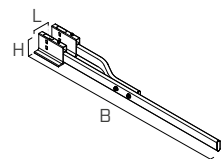
EN AW
6005A-T6

CÓDIGOS E DIMENSÕES

RODAPE

CÓDIGO		H [mm]	L [mm]	
BORTB	EN AW 6063-T6	150	3000	
BORTBJUN	EN AW 6063 H111	-	-	
BORTBCAP	EN AW 6063 H111	-	-	

BASES

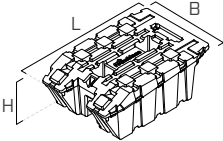
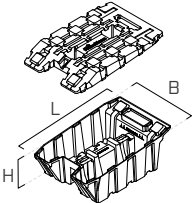
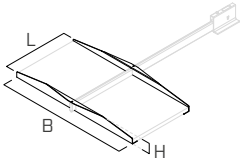
CÓDIGO		B [mm]	H [mm]	L [mm]	
BORBASEW		1400	115	100	
BORBASEWFCL		1400	115	100	
BORBASEWFCR	EN AW 6005A-T6	1400	115	100	
BORBASEWFL		750	115	100	
BORBASEWFR		750	115	100	

FIXAÇÃO

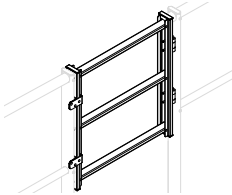
CÓDIGO		d [mm]	H [mm]	
MMS5525A2	1.4301 AISI304 INOX	5,5	25	

CÓDIGOS E DIMENSÕES

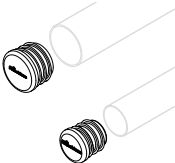
LASTROS

CÓDIGO		B [mm]	H [mm]	L [mm]	
BORWT		265	155	400	
BORWTBOX	PP RECYCLED	265	140	400	
BORWTFRAME	EN AW 5083 H111	1030	81	530	

PORTÃO DE SEGURANÇA

CÓDIGO		L [mm]	H [mm]	
BORGATE600	EN AW 5083 H111	600	640	

ACESSÓRIOS

CÓDIGO			
BORCAP45			
BORCAP32	LDPE		
BORCAP	PP RECYCLED		
BORCOR			
BORWALL	PP RECYCLED	1.4301 AISI304 INOX	



ROTHO BLAAS SRL

07-26

Via dell'Adige N.2/1 | 39040, Cortaccia (BZ) | Italia
Tel: +39 0471 81 84 00 | Fax: +39 0471 81 84 84
info@rothoblaas.com | www.rothoblaas.com

