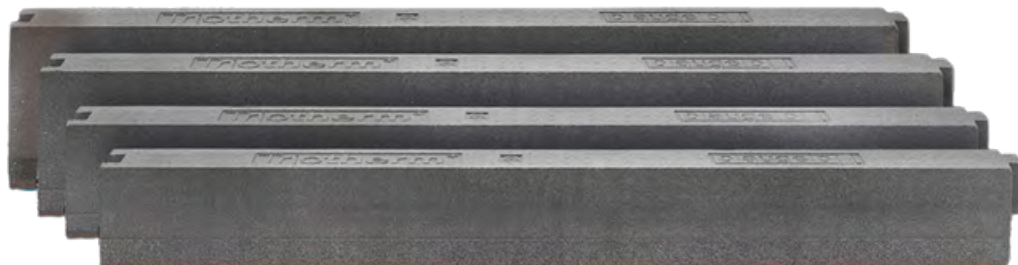


Installation instructions for blaugelb Trio**therm**⁺ pre-wall installation system

How to achieve perfect insulation.



The relevant standards and guidelines are covered by the following system tests*:

Component test (attachment)	ift guideline MO-02/1	✓
Component test (sealing)	ift guideline MO-01/1	✓
ETB dynamic (connection of a fall-arresting system to the structure, pendulum impact)	requirement from the ETB guideline "Components providing fall arrest protection"	✓
ETB static (connection of a fall-arresting system to the structure, compression test)	requirement from the ETB guideline "Components providing fall arrest protection"	✓
Concentrated load tests (static rated values for resistance, rated vertical/horizontal values)	ift guideline MO-02/1	✓
Burglary resistance for RC 2 and RC 3	pursuant to DIN EN 1627 to EN 1630 requirements	✓
Sound insulation	DIN EN ISO 10140-1 and EN ISO 717-1	✓
Passive house certified	Passive House Institute, window fitting system	✓
Fire protection	GAS MPA Braunschweig	✓

*Tests are available to download from www.blaugelb.de or on enquiry

Notes:

Keep a record of how to process a specimen of the blaugelb Trio**therm**⁺ system.

Use the installation instructions to train the personnel performing the work. Our staff would be happy to assist you in a specimen installation.

Keep a record of the work performed using the appropriate installation report.

RC 2 and RC 3 according to DIN 1628-30: Installation instructions see **Appendix IV**

ETB guideline "Components providing fall arrest protection" installation instructions see **Appendix V**

Installation instructions for blaugelb Trio**therm**+ pre-wall installation system

How to achieve perfect insulation.

Please read these installation instructions carefully before commencing installation!

Please note that you should fit a "specimen" of the blaugelb Trio**therm**+ profiles on the structure before starting installation work. This is so that you can verify whether the blaugelb Hybrid Polymer Power Fix establishes a connection between the profile and the anchor base. The anchor base must be firm and stable. The client, architect, site manager or structural engineer is responsible for ensuring that the anchor base is firm and stable.

The anchor base must be free of loose parts and bituminous or greasy separating layers (e.g. bituminous seals, oil released on concrete structures, tiles, foils, etc.)

If there is a separating layer on the anchor base, this can be removed using a diamond cup wheel (e.g. Forum diamond cup wheel 125 mm, item no. 6602027196).



Time:

At least 24 hours before actually starting to install the blaugelb Trio**therm**+ system

Specimen size:

At least 200 mm of the blaugelb Trio**therm**+ profile to be used

Procedure:

Apply two beads of sealant (blaugelb Hybrid Polymers Power Fix) to the specimen of blaugelb Trio**therm**+ profile and position it on the anchor base.

Warning: Do not screw it to the anchor base.

Evaluation:

After at least 24 hours (at least 48 hours if under +5°C), load the test specimen with approx. 800 N (81.5 kg).



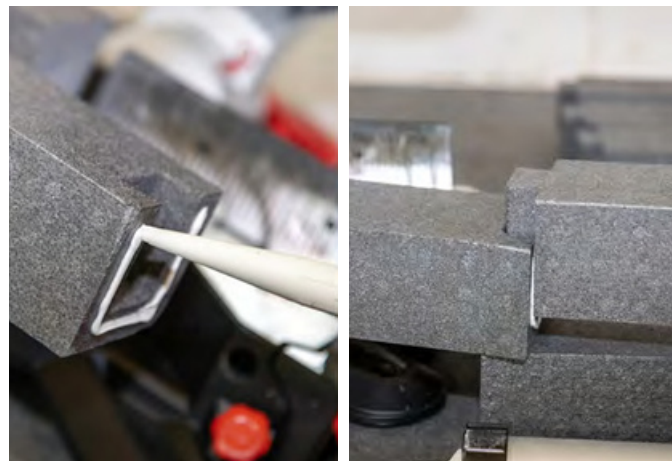
Documentation:

This must be done using the report provided. The report must be filed in the relevant construction records.

Safety note: While creating and loading the test specimen, please observe all accident prevention and essential health and safety measures. It is imperative to avoid injuries to the person carrying out the work or to bystanders.

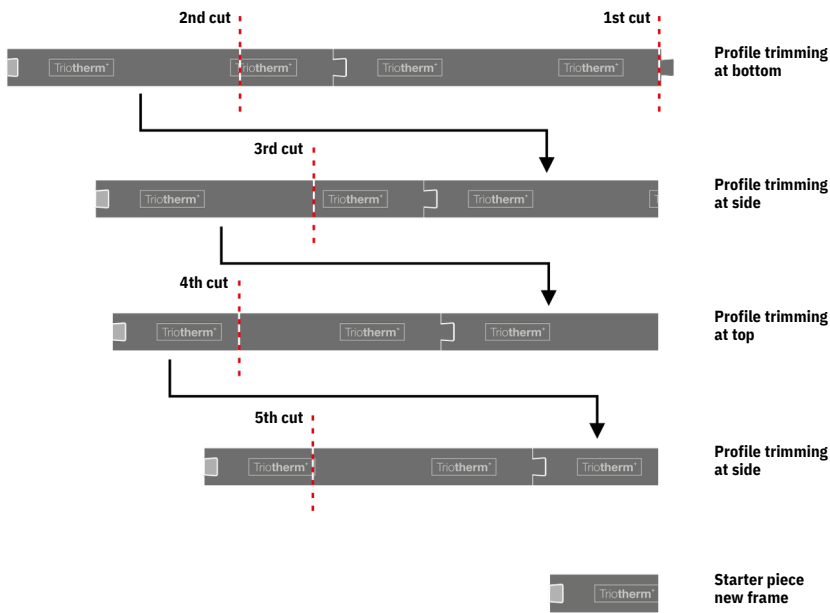
Note on dovetail joints:

To seal before joining, apply a little blaugelb Hybrid Polymer Power Fix in a U shape.



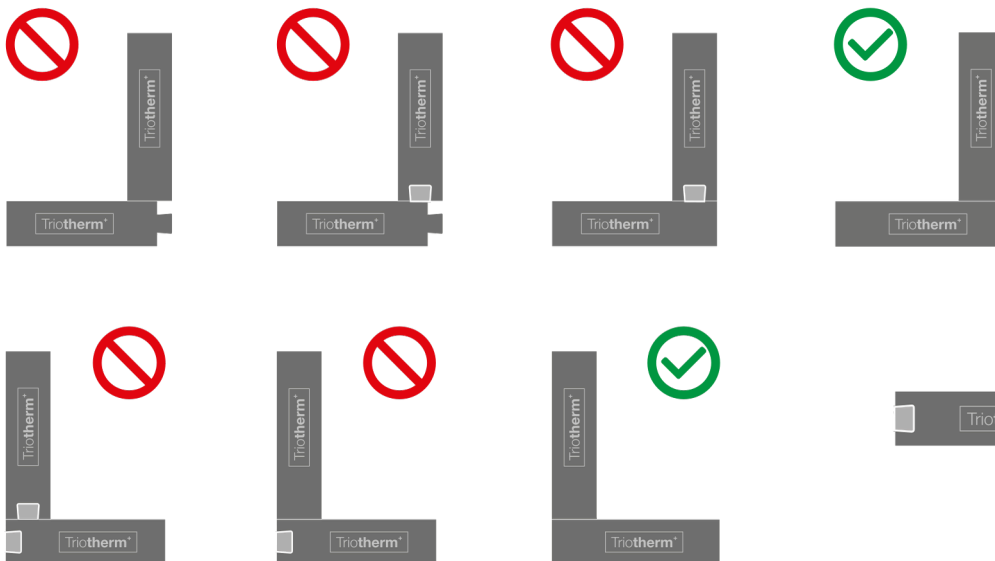
In the area of the dovetail joint a screw connection (to the profile above) must be made at a distance of 100 mm from the joint, regardless of the usual fixing spacings.

>>> Direction of cutting >>>



Can be extended infinitely by dovetail joint

The socket is positioned on the wall side (at bottom). The tail is pressed into the socket from above.



Corner constructions and butt joints

The minimum length of the blaugelb Triotherm+ profiles for extending is 250 mm.

Note on screwing blaugelb Triotherm+ profiles: Set the torque of the cordless screwdriver to the required level. Note that you should start screwing the blaugelb Frame screw Fix FK-T30 onto the blaugelb Triotherm+ profile slowly.

Installation instructions for blaugelb Trio**therm** + pre-wall installation system

How to achieve perfect insulation.

Preparing for installation:

Inspecting the anchor base



The surfaces of the anchor base must be checked for flatness and vertical and horizontal alignment. Make allowance for centre line tolerances and masonry tolerances.

1. Check the supporting anchor base for loose parts, bituminous and/or separating coatings. If there are any separating layers on the anchor base, these must be removed, e.g. using a diamond cup wheel.



2. Bind/remove normal construction dust on the anchor base (at the desired position for the profile) with the aid of a damp brush.



Fabricating the profiles:

1a. Required length of the **lower and upper** profile:

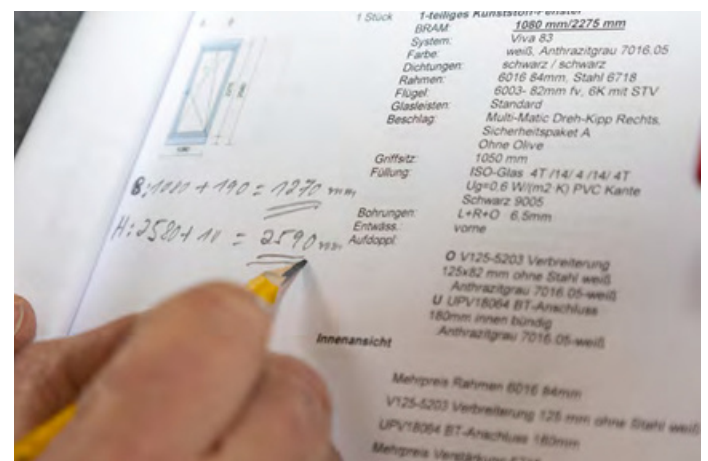
Complete element width
+ planned connecting joint dimension (2x 10 mm)
+ cross-section of the side profile (2x 85 mm)

= **final dimension of the horizontal profiles**

1b. Required length of the **side** profiles:

Complete element height
+ planned connecting joint dimension (1x 10 mm)

= **final dimension of the vertical profiles**



2. Cut off the "socket" on the outer blaugelb Trio**therm+** profile.



3. Join the blaugelb Trio**therm+** profiles together by dovetailing. Always start with the offcut from the piece previously cut to size. The offcut should be no shorter than 250 mm. To join together, apply a little blaugelb Hybrid Polymer Power Fix in a U shape to create the seal.



Transfer the length dimension to the assembled profiles.



4. Saw the blaugelb Trio**therm+** profiles to the correct length



Recommended tool: Mitre saw with coarse longitudinal-cut blade (e.g. blaugelb HW Saw Blade 250x3.2/2.2x30 mm Z24 W item no. 0399564).

Applying the sealant:

1. Open the tubular bag containing the blaugelb Hybrid Polymer Power Fix and insert it into a sealant gun for tubular bags.

2. Use the supplied 6 mm triangular nozzle to apply the sealant. There is a marking on the nozzle to facilitate precise application.



3. Apply the blaugelb Hybrid Polymers Power Fix on the side facing the wall. The two beads must be applied at a sufficient distance from the edge. We recommend applying the adhesive promptly onto all profiles for an opening in the structure.

Recommended tool:

Cordless gun for 600 ml tubular bag (item no. 9066040) for uniform application of the sealant requiring less physical effort.

Installation instructions for blaugelb Trio**therm**+ pre-wall installation system

How to achieve perfect insulation.



Note: Under normal conditions (23°C and 50% relative humidity) the sealant will start to form a skin after approx. 5 minutes.

Fitting the profiles on the anchor base:

1. The specific position of the horizontal base should be marked on the anchor base according to the planned position of the element (central or axial installation). The centre markings on the profile and anchor base indicate the precise position for vertical alignment. For horizontal alignment, use the breast edge of the element opening as a guide or a height previously clearly marked using the reference marker. We recommend always aligning using the reference marker.



2. Press the prepared blaugelb Trio**therm**+ profile firmly against the anchor base, making sure it remains in the marked position. The profile can be pressed on firmly using a hammer with rubber attachment.



The applied blaugelb Hybrid Polymer Power Fix works immediately as an ancillary fixative. Its high initial adhesion means that the profile adheres immediately at the intended position. Slight adjustments to its alignment will be possible for up to about 20 minutes after applying to the anchor base.

3. Bring the blaugelb Trio**therm**+ profile into the desired horizontal position and align it using a long spirit level or a laser.



4. Seal the butt joint between the horizontal and vertical profiles on one side using blaugelb Hybrid Polymer Power Fix. Bring the prepared side blaugelb Trio**therm**+ profiles into the correct position and press them firmly onto the anchor base.



5. Fit the upper blaugelb Trio**therm**+ profile. Seal the butt joints of the side profiles using blaugelb Hybrid Polymer Power Fix.



6. Position the blaugelb Trio**therm**+ profile and press it firmly onto the anchor base and the side profiles.



Drilling the holes:

1. Mark the attachment points on the blaugelb Trio**therm**+ profiles as specified. For optimal load transfer, the defined corner distance for the lower blaugelb Trio**therm**+ profile as seen from outside is 150 mm (65 mm from the inside edges). Depending on the element width, further fixing screws may need to be screwed in so that the maximum spacing between the screws is not exceeded.



Always work on the basis of 200 mm from the inside corners, except in the case of the lower profile.



Installation instructions for blaugelb Trio**therm**+ pre-wall installation system

How to achieve perfect insulation.

2. Drill the attachment points on the masonry. To do so, drill directly through the blaugelb Trio**therm**+ profiles at the marked points as far as the specified screw-in depth.



Screwing the profiles on:

1. Attach the blaugelb Trio**therm**+ profiles using the blaugelb Frame screw Fix FK-T30 of the appropriate length for the anchor base and necessary screw-in depth.



Fitting the window element:

The sealing method shown here using multifunctional tape and blaugelb Hybrid Polymer Power Fix is provided solely by way of illustration. The sealing method can be freely selected in accordance with the guidelines for proper window fitting.

1. Select the blaugelb Multifunctional Tape Trio**SDL600** according to the planned joint width and contact area between the blaugelb Trio**therm**+ system and the element profile.

Please note that it is not the construction depth of the element that is critical for the choice of multifunctional tape, but the actual contact area. If the multifunctional tape expands because it is too wide, its functions will be impaired.

2. Fix the blaugelb Multifunctional Tape Trio**SDL600** on the inside of the blaugelb Trio**therm**+ profiles on three sides (top and both sides) in accordance with the guidelines for proper window fitting.



Once the upper tape has been fixed in position, use the blaugelb 40x60x10 mm Spacer Block (item no. 0416311) to mark the space that the upper tape needs in order to expand.



The side multifunctional tapes can then be fitted.



3. Apply a trace of blaugelb Hybrid Polymer Power Fix to the lower blaugelb Trio**therm**+ profile as a sealant.



4. The window frame is then fitted into the frame aperture using the blaugelb Sill Connection Profile EPS.



2. Note the fixing specifications / fixing spacings (**Appendix III**) when screwing the window frame into the blaugelb Trio**therm**+. It is essential that you observe these. Use **only** the blaugelb Frame screws FK/ZK-T30 7.5 mm to fix the window elements directly in the blaugelb Trio**therm**+ profile. Do not pre-drill the blaugelb Trio**therm**+ profiles.

Recommendations for installation:

- plastic window: blaugelb Frame screw Fix FK-T30 7.5 mm
- wooden window: blaugelb Frame screw Fix ZK-T30 7.5 mm
- wood/aluminium window: blaugelb Frame screw Fix ZK-T30 7.5 mm
- aluminium window: blaugelb Frame screw Fix ZK-T30 7.5 mm



Determine the length of screw required:

Window frame width (view from inside)

+ planned joint width

+ screw-in depth in blaugelb Trio**therm**+ profile (min. 60 mm)

= **minimum screw length**

Fixing the window element:

1. Align the window element vertically and horizontally and fix it in the correct position using window fixing pads.

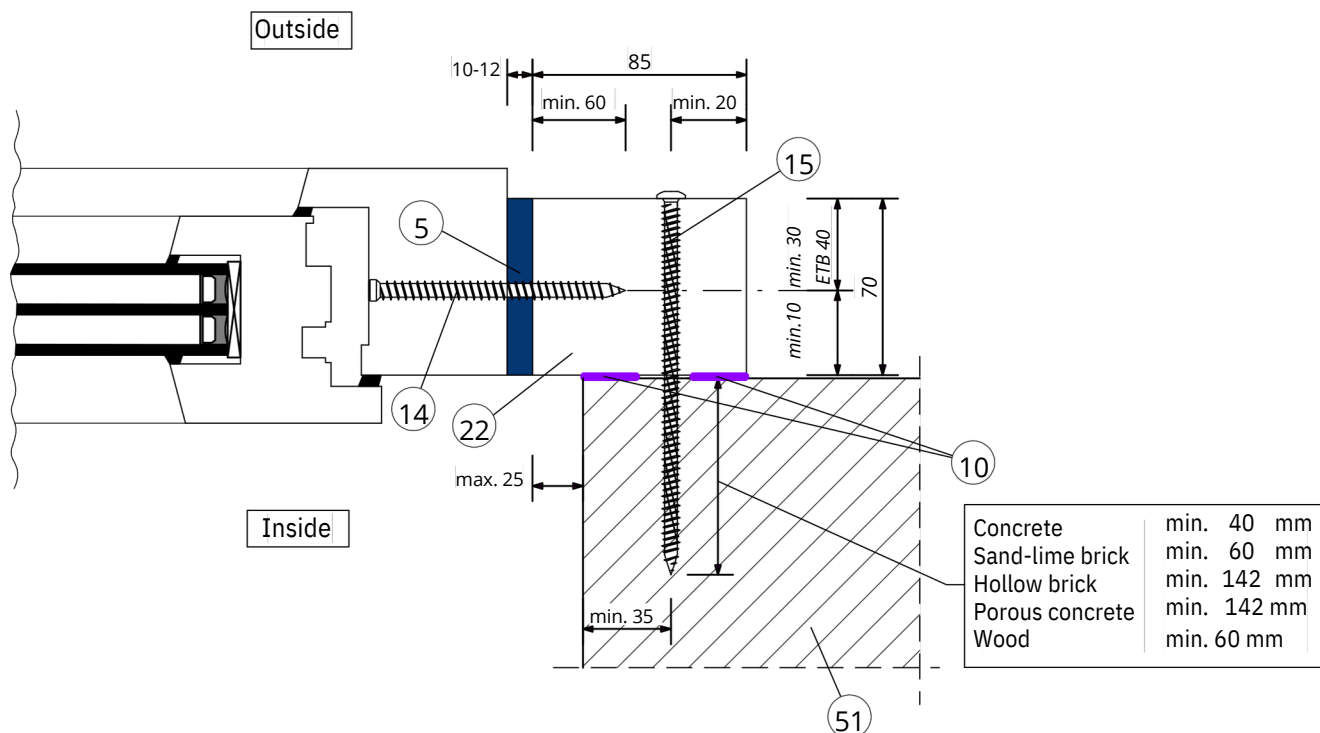


Installation instructions for blaugelb Trio**therm** + pre-wall installation system

How to achieve perfect insulation.

Appendix I:

Edge distances for the blaugelb Trio**therm**+ pre-wall installation system



- ⑤ | blaugelb Multifunctional Tape Trio**SDL600**
- ⑩ | blaugelb Hybrid Polymer Power Fix
- ⑭ | blaugelb Frame screw Fix ZK-T30 7.5 x L
- ⑮ | blaugelb Frame screw Fix FK-T30 7.5 x L
- ②② | blaugelb Trio**therm**+ profile 70x85 mm
- ⑤① | Supporting wall structure

Appendix II:

Rated resistances of the blaugelb Trio**therm**+ pre-wall installation system

$F_{v, Rd}$ vertical load (rated value of the resistance in the window plane)

$F_{H, Rd}$ horizontal load (rated value of the resistance in the window plane)

Figure	blaugelb Trio therm + profiles	$F_{v, Rd}$ $F_{H, Rd}$ in N	Wall material quality					
			Concrete C25 in N	Sand-lime brick Comp. strength class 12 in N	Hollow brick Comp. strength class 8 in N	Hollow brick Comp. strength class 12 in N	Porous concrete PP4 in N	Porous concrete PP2 in N
1	70 x 85 mm without support 1 screw	Values in N	2.560	1.571	1.571	1.571	1.571	1.571
		Values in kg	260	160	160	160	160	160
2	70 x 85 mm without support 2 screws	Values in N	2.730	1.840	1.600	1.600	x	x
		Values in kg	278	187	163	163	x	x
3	70 x 85 mm with support 3 screws	Values in N	4.940	4.260	x	x	x	x
		Values in kg	503	434	x	x	x	x
4	100 x 85 mm without support 1 screw	Values in N	1.270	914	x	x	x	x
		Values in kg	130	93	x	x	x	x
5	100 x 85 mm without support 2 screws	Values in N	1.730	1.250	x	x	x	x
		Values in kg	176	127	x	x	x	x
6	100 x 85 mm with support 150x100x85 mm 3 screws	Values in N	4.250	3.060	2.754	2.754	2.754	2.754
		Values in kg	433	312	280	280	280	280
7	120 x 85 mm without support 1 screw	Values in N	1.270	914	914	914	914	x
		Values in kg	130	93	93	93	93	x
8	120 x 85 mm without support 2 screws	Values in N	1.710	1.275	1.275	1.275	1.275	1.275
		Values in kg	174	130	130	130	130	130
9	120 x 85 mm with support 150x120x85 mm 3 screws	Values in N	4.150	2.990	2.754	2.754	2.754	2.754
		Values in kg	423	304	280	280	280	280
10	140 x 85 mm without support 2 screws	Values in N	1.710	1.231	x	x	x	x
		Values in kg	174	125	x	x	x	x
11	140 x 85 mm with support 150x140x85 mm 3 screws	Values in N	4.600	3.312	2.754	2.754	2.754	2.754
		Values in kg	468	337	280	280	280	280
12	160 x 85 mm with support 150x160x85 mm 3 screws	Values in N	2.400	2.650	1.805	1.805	1.805	1.805
		Values in kg	244	270	184	184	184	184
13	180 x 85 mm with support 150x180x85 mm 4 screws	Values in N	3.360	2.648	1.805	1.805	1.805	1.805
		Values in kg	342	270	184	184	184	184
14	200 x 85 mm with support 150x200x85 mm 4 screws	Values in N	3.360	2.648	1.805	1.805	1.805	1.805
		Values in kg	342	270	184	184	184	184
15	230 x 85 mm with support 200x230x85 mm 4 screws	Values in N	3.826	2.755	1.710	1.710	1.710	1.710
		Values in kg	390	280	174	174	174	174

Installation instructions for blaugelb Trio**therm** + pre-wall installation system

How to achieve perfect insulation.

Appendix II:

Screw-in depths of the blaugelb Trio**therm**+ pre-wall installation system

Screw-in depths in base

blaugelb Trio therm + profiles	Screw information	Base material				
		Quality				
		Concrete C25	Sand-lime brick Compressive strength class 12	Hollow brick Compressive strength class 8	Porous concrete pp4 / pp2	Wood ≥ 450 kg/m³
70 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 112 Ø 6 mm	min. 60 132 Ø 6 mm	min. 142 212 Ø 5 mm	min. 142 212 no	min. 60 132 Ø 6 mm
100 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 132* Ø 6 mm	min. 60 152* Ø 6 mm	min. 142 252 Ø 5 mm	min. 142 252 no	min. 60 152* Ø 6 mm
120 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 182 Ø 6 mm	min. 60 182 Ø 6 mm	min. 142 252* Ø 5 mm	min. 142 252* no	min. 60 182 Ø 6 mm
140 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 182 Ø 6 mm	min. 60 212 Ø 6 mm	min. 142 300 Ø 5 mm	min. 142 300 no	min. 60 212 Ø 6 mm
160 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 212 Ø 6 mm	min. 60 212* Ø 6 mm	min. 142 300 Ø 5 mm	min. 142 300 no	min. 60 212* Ø 6 mm
180 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 212* Ø 6 mm	min. 60 252 Ø 6 mm	min. 142 300** Ø 5 mm	min. 142 300** no	min. 60 252 Ø 6 mm
200 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 252 Ø 6 mm	min. 60 252* Ø 6 mm	min. 142 350 Ø 5 mm	min. 142 350 no	min. 60 252* Ø 6 mm
230 x 85 mm	Screw-in depth in mm Screw length in mm Pre-drilling in base	min. 40 300 Ø 6 mm	min. 60 300 Ø 6 mm	min. 142 350** Ø 5 mm	min. 142 350** no	min. 60 300 Ø 6 mm

*: Countersink screws for securing profile 10 mm in blaugelb Trio**therm**+ profile

*: Countersink screws for securing profile 20 mm in blaugelb Trio**therm**+ profile

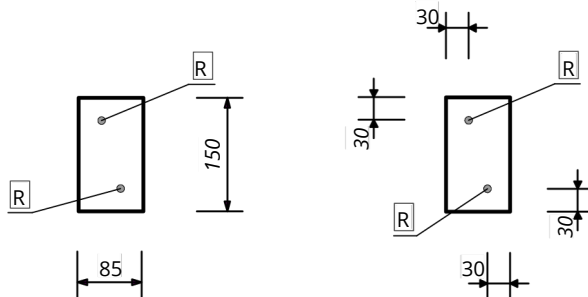
Appendix III:

Legend for the following installation drawings



Optional support

Depending on wall structure and forces exerted,
see Appendix II: Rated resistances and screw-in depths



B

blaugelb Frame screw Fix FK-T30 7.5 x L / ZK-T30 7.5 x L

Fixing the window frame into the blaugelb Trio**therm**+ system

L = screw-in depth in the blaugelb Trio**therm**+ system min. 60 mm, for RC 2 / RC 3 min. 70 mm

P

blaugelb Protect

Fixing the window frame into the anchor base
using the blaugelb Frame screw Fix FK-T30 7.5 x L

L = screw length of the blaugelb Frame screw Fix FK-T30 7.5 x L and length of the adjusting screw,
see blaugelb Protect installation instructions

R

blaugelb Frame screw Fix FK-T30 7.5 x L

Fixing the Trio**therm**+ profile in the anchor base

L = screw length depending on wall structure and forces exerted,
see Appendix II: Rated resistances and screw-in depths

S

blaugelb Plinth Thermal Insulation Profile EPS

blaugelb Plinth Thermal Insulation Profile IHP/EPS

blaugelb Plinth Thermal Insulation Profile PVC/EPS

W

blaugelb Assembly bracket

Fixing the blaugelb Plinth Thermal Insulation Profile into the anchor base
using the blaugelb Frame screw Fix FK-T30 7.5 x L

L = screw length depending on the anchor base;
dimensioning depending on the height of the blaugelb Plinth Thermal Insulation Profile

X

blaugelb Sill Connection Profile

Placed directly on the blaugelb Trio**therm**+ profile with blaugelb Hybrid Polymer Power Fix

Y

Structure heights

(floor structure, roller shutter structure)

#

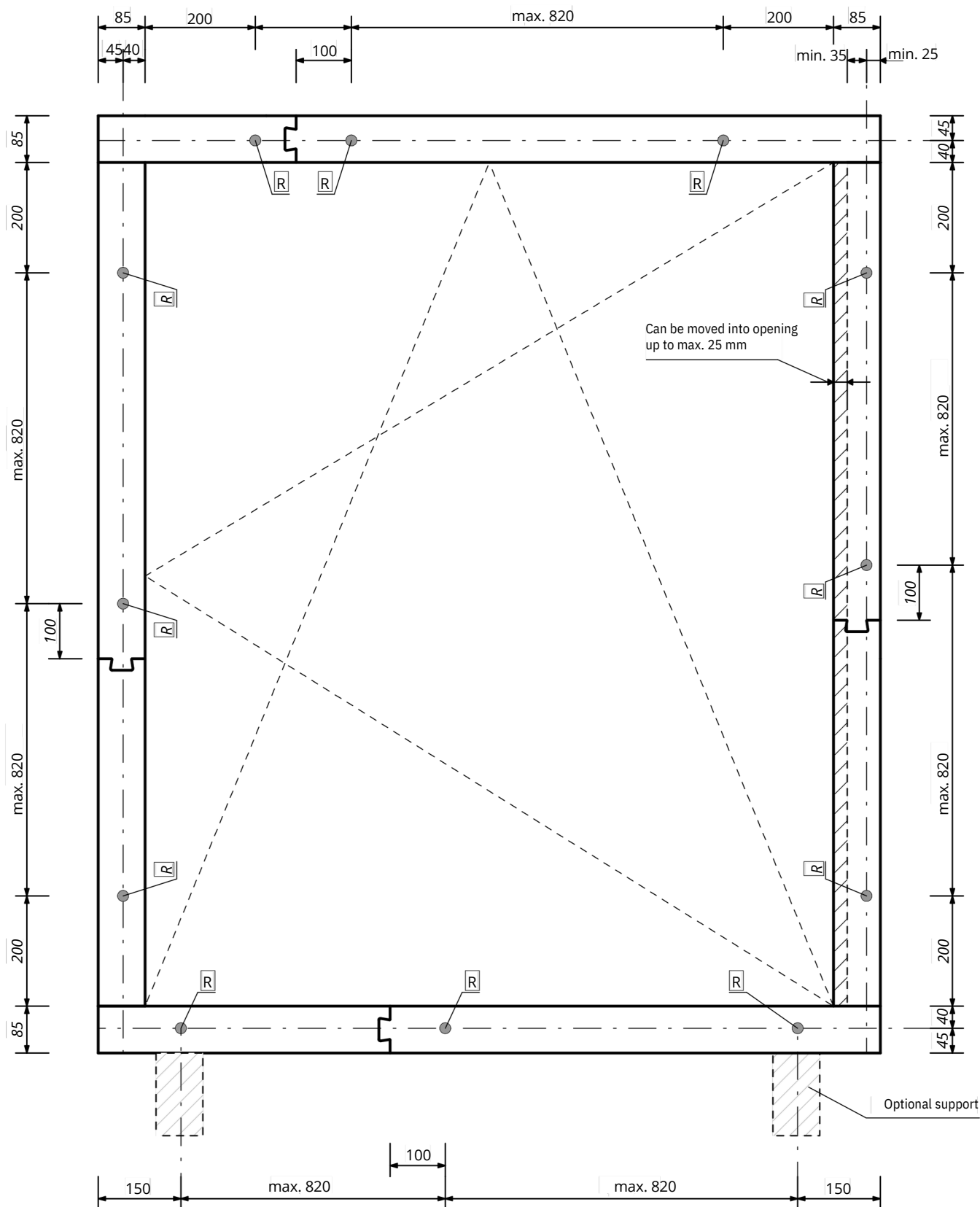
Joint dimension

According to the elongation (ΔT) of the frame material

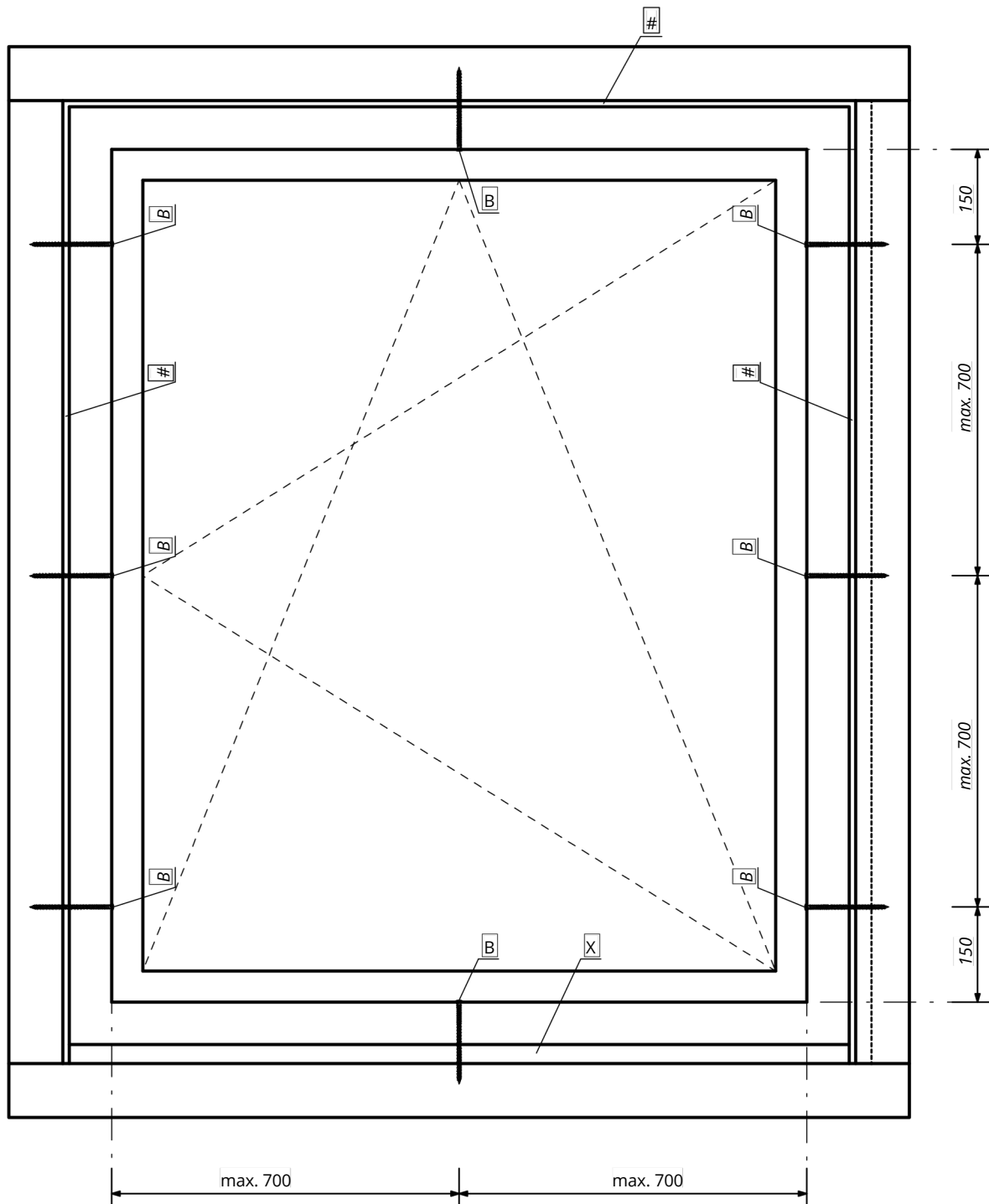
Installation instructions for blaugelb Trio**therm** + pre-wall installation system

How to achieve perfect insulation.

Attachment points of the blaugelb Trio**therm**+ pre-wall installation system on the anchor base



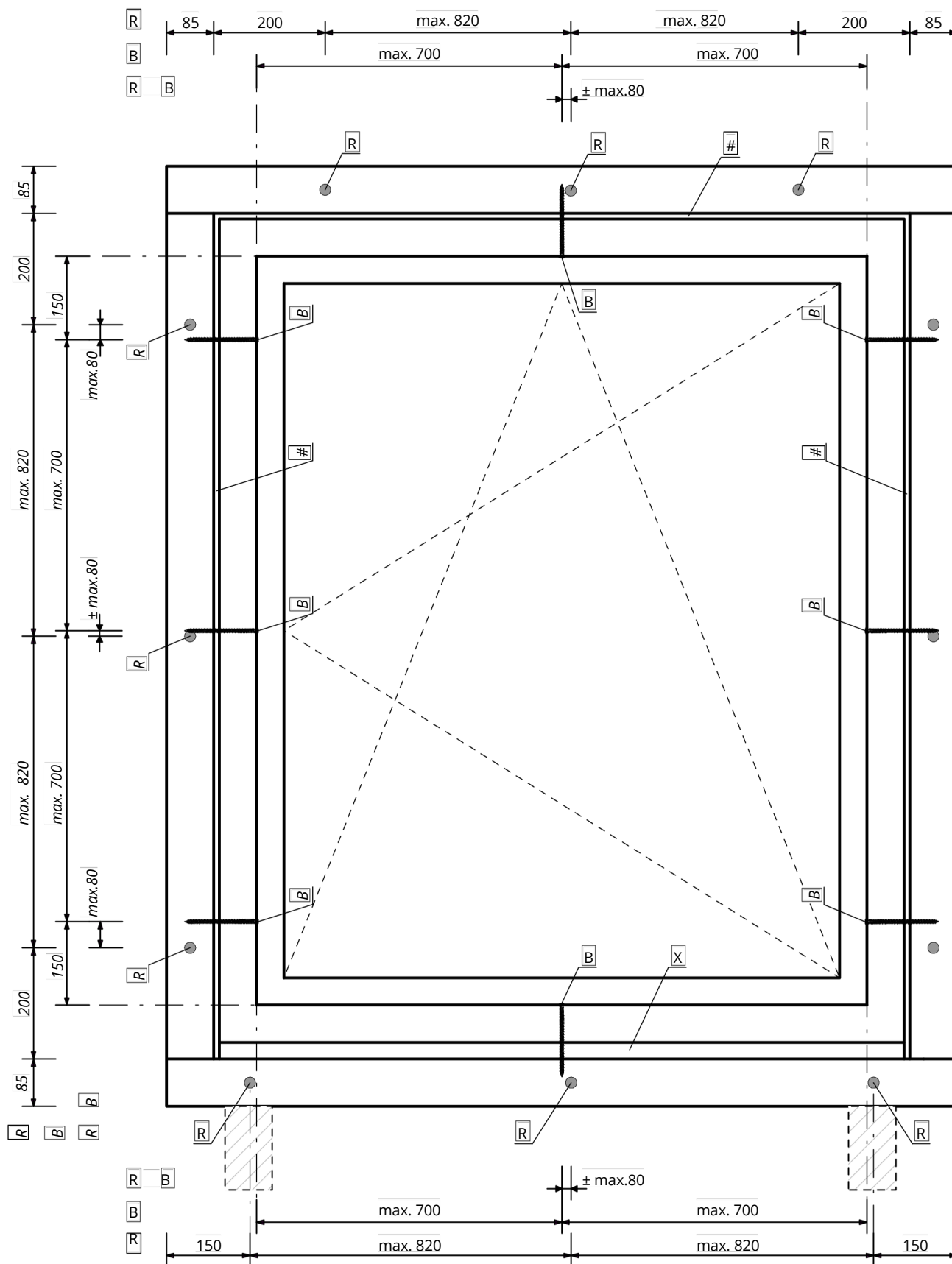
Attachment points of the element on the blaugelb Trio**therm**+ pre-wall installation system



Installation instructions for blaugelb Trio**therm** + pre-wall installation system

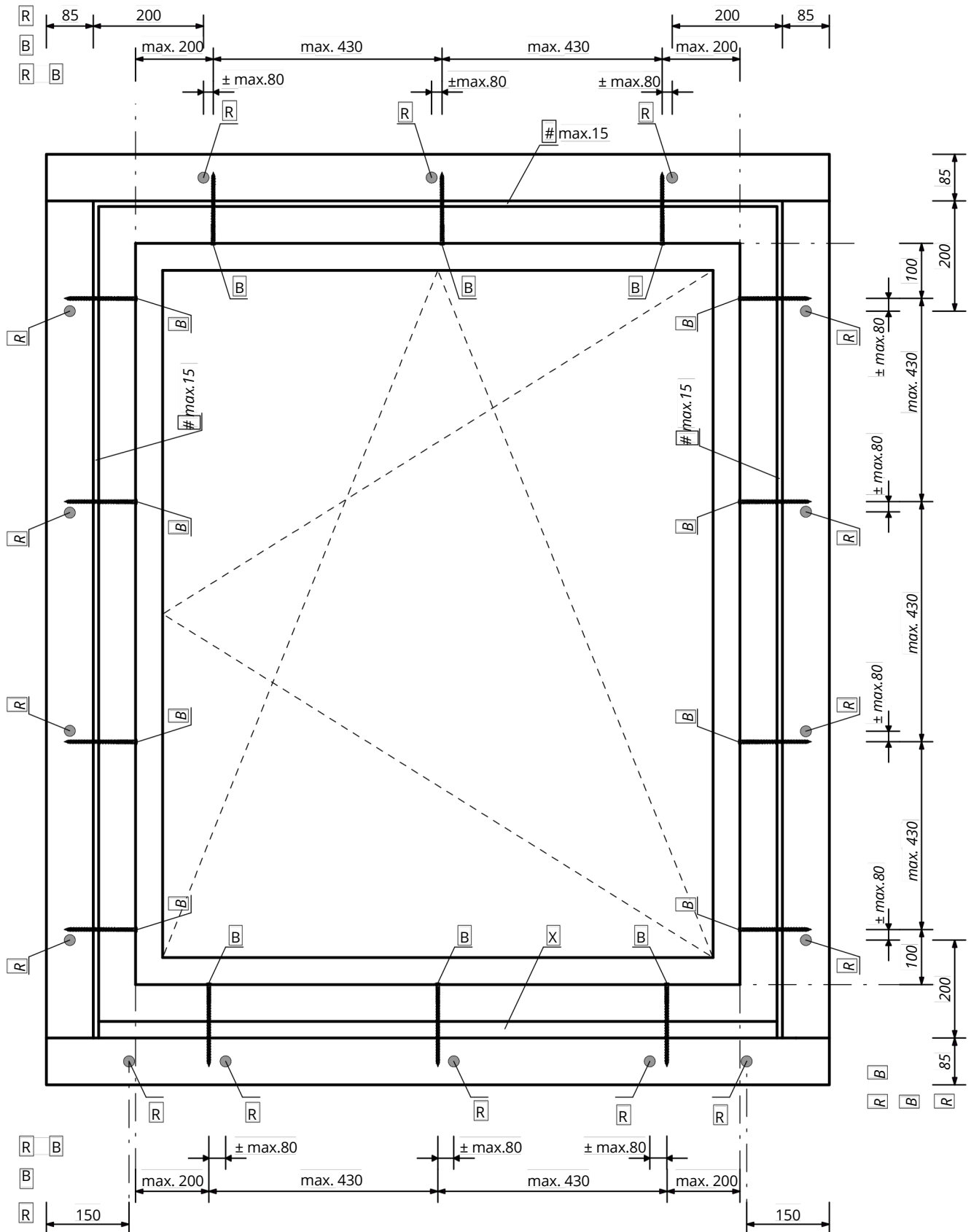
How to achieve perfect insulation.

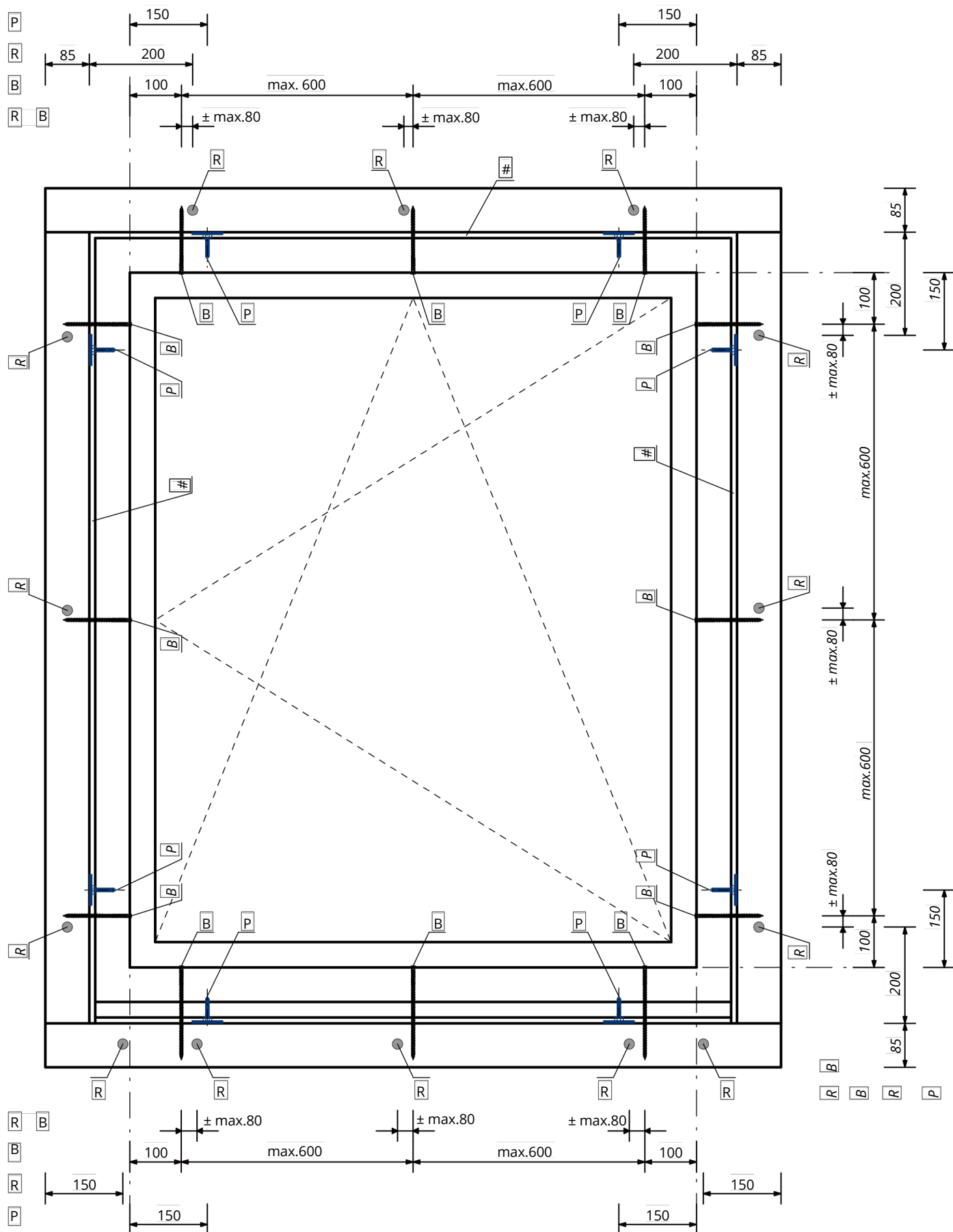
Attachment points of the blaugelb Trio**therm**+ pre-wall installation system – combined diagram



Appendix IV:

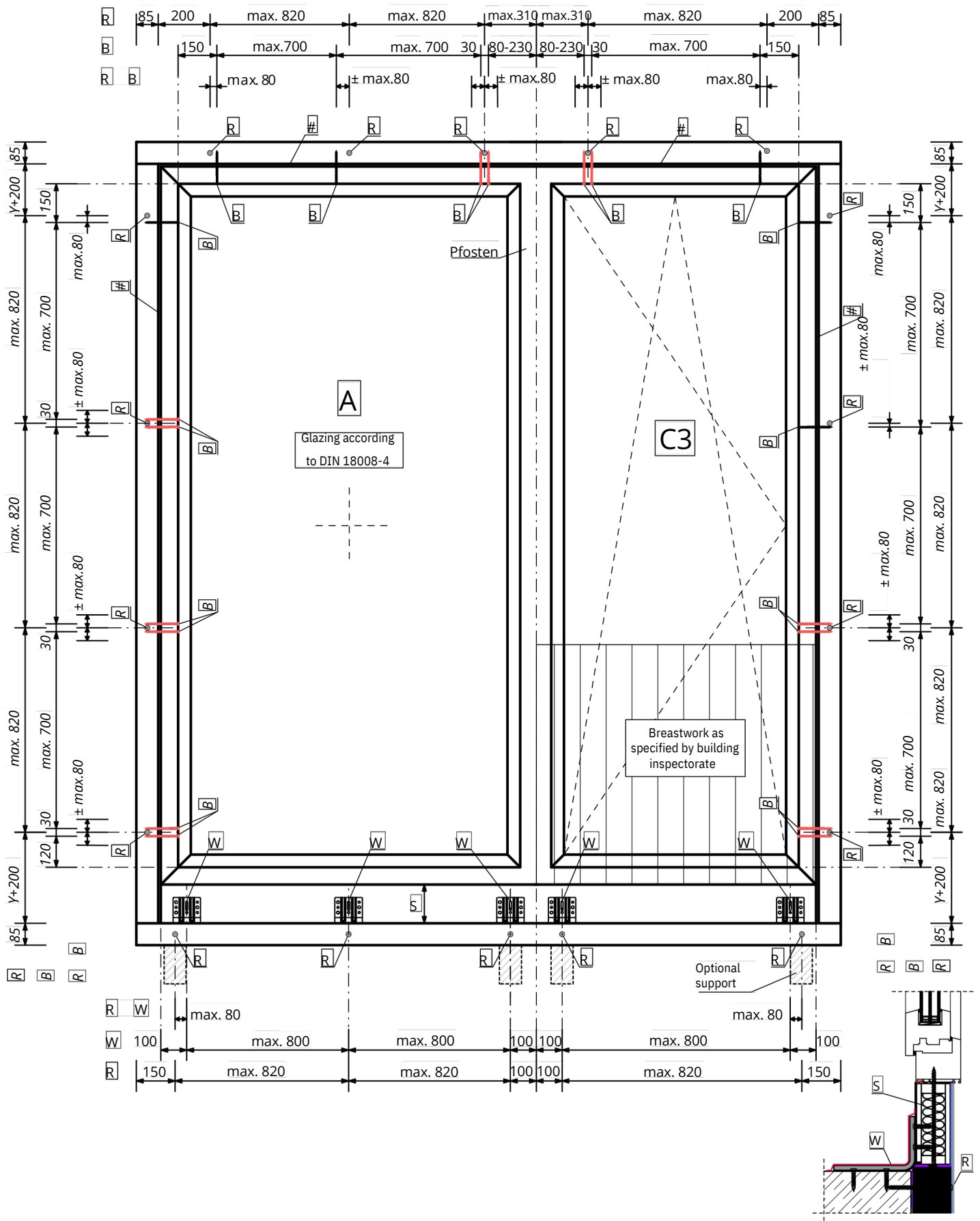
Attachment points of the element on the blaugelb Trio**therm**+ pre-wall installation system – RC 2



Attachment points of the element on the blaugelb Trio**therm+** pre-wall installation system – RC 3

Appendix V:

Attachment points of the element on the blaugelb Trio**therm**+ pre-wall installation system – ETB



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