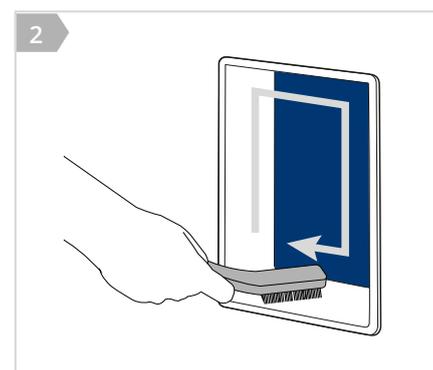


MCT E-INS-2025-Rev. A

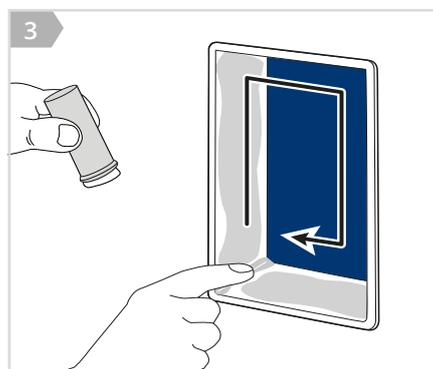
1

Size	H (mm)	W (mm)
1	101 ±1	60,25 ±0,5
2	101 ±1	120,5 ±1
3	159,5 ±1	60,25 ±0,5
4	159,5 ±1	120,5 ±1
5	218 ±1	60,25 ±0,
6	218 ±1	120,5 ±1
7	276,5 ±1	60,25 ±0,5
8	276,5 ±1	120,5 ±1

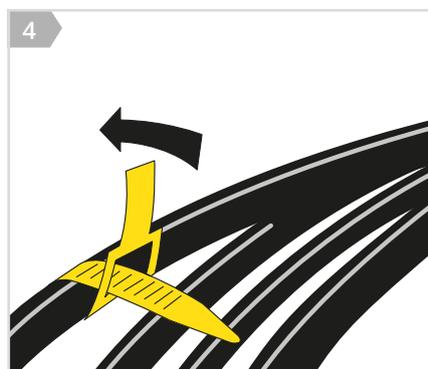
Measure the opening and check that the measurement is within the tolerance range in the table.



Clean the aperture.



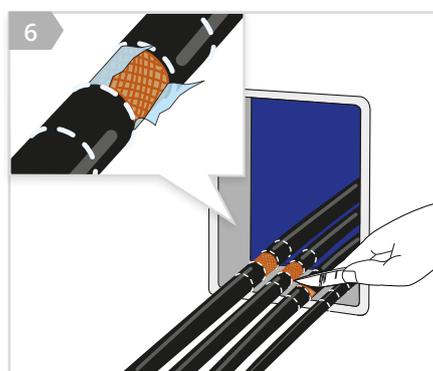
Lubricate the sealing surfaces of the frame. Lubricate the corners thoroughly.



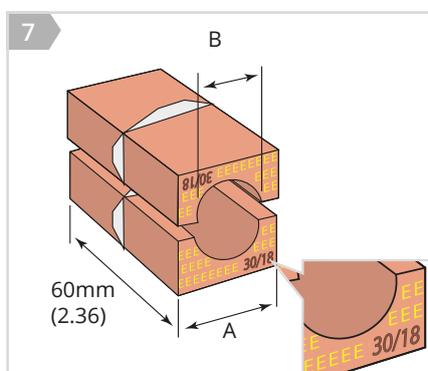
Measure the diameter of the cables and choose suitable blocks.



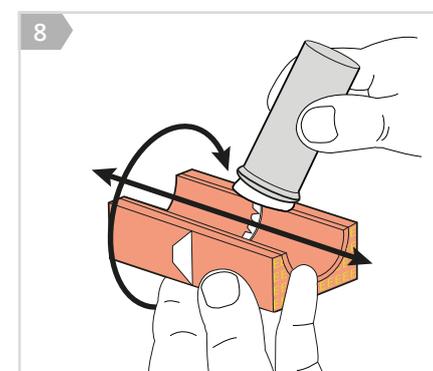
Pull the cables to final position. Put the EMC marking template in the frame with the yellow label facing you. Mark the cables.



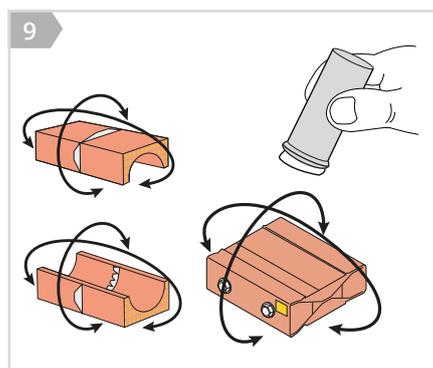
Remove the cable sheath between the two lines in the middle (10 mm). Remove any transparent plastic film.



Insert blocks are identified by their width (A) and hole diameter (B). A block that is 30 mm (1.18") wide and has a hole diameter of 18 mm (0.71") is marked 30/18. This marking is cast into the block.



Lubricate the sealing surfaces of any block.



Lubricate the indicated areas of sealing surfaces.

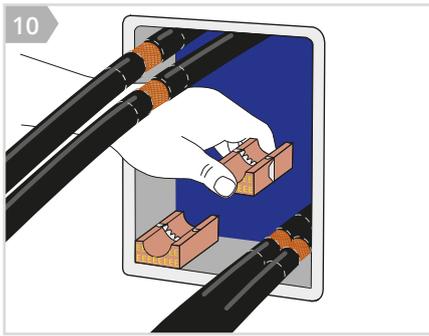
Disclaimer - pressure & watertight installation

- All contact surfaces inside the frame must be cleaned carefully prior to installation.
- Make sure the frame is clean and lubricate the inside of the frame thoroughly. Lubricate all Lycron parts carefully with the MCT Brattberg lubricant.
- Place the compression plate in the center so that the rubber can come up between the compression plate and the frame on both sides of the plate
- The penetration must not be subjected to pressure for at least 48 hours after installation. This is to allow the pressure to equalise throughout the penetration. It will take more time for the pressure to equalise at temperatures below 20°C.
- Installation/testing of transits should only be performed by MCT Brattberg trained installers.
- Note: If the installation is subjected to pressure, all components must be replaced after removal and refitting.

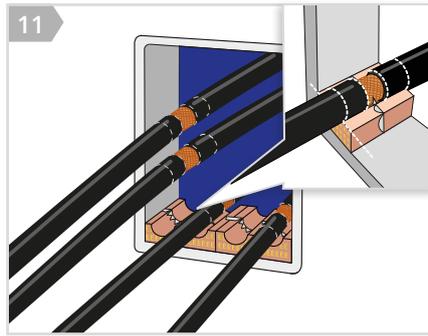
Note:

Please see page 9 for disclaimers and notes.

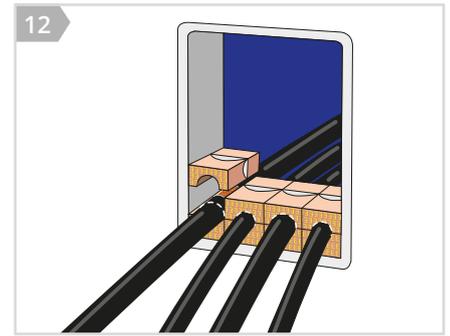
MCT rectangular transit



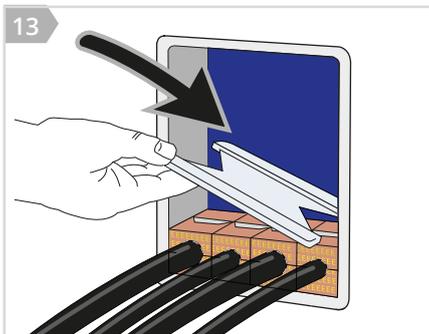
10 Start filling the frame. Insert a half insert block. Ensure all the insert blocks having the yellow markings facing you.



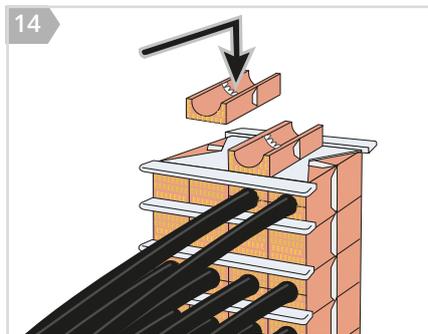
11 Place the cable with the unsheathed area centred in the block intended to seal the cable. Marking indicates that the cable is still centred in the block and has not been displaced during installation, ensuring continuity.



12 Continue to fill the transit considering your installation plan or RGPlan.



13 If possible, place a stayplate between each row of insert blocks. Repeat on the rest of the cables.

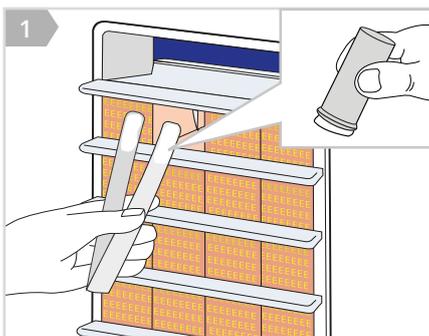


14 Continue to fill the transit considering your installation plan or RGPlan.

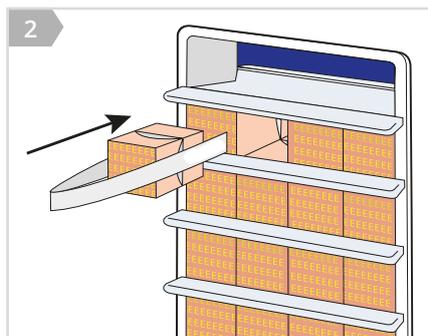
Proceed PTG

Proceed STG

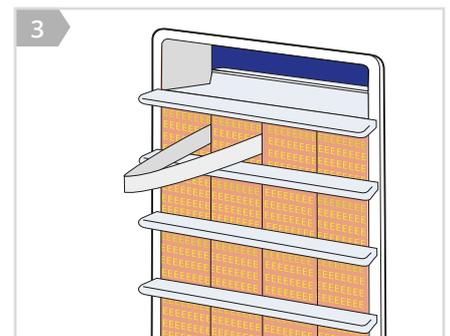
Assist insertion of last block in each row.



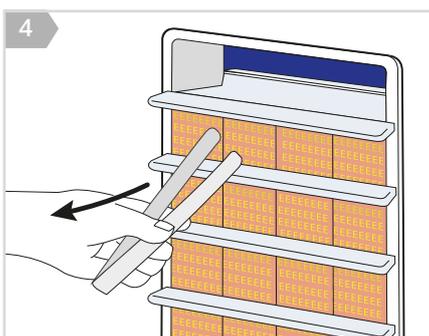
1 Put some lubricant on both of the tweezers blades and grab the block.



2 Ensure the tweezers blades protrude at least 35 mm outside the block. Insert the tweezers blades in the frame.

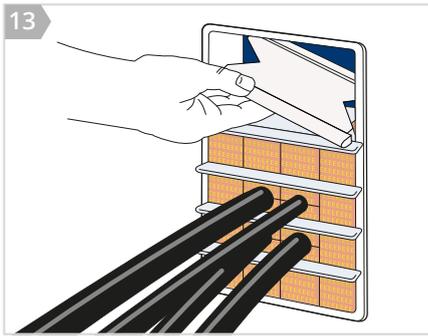


3 Press the block into the frame.

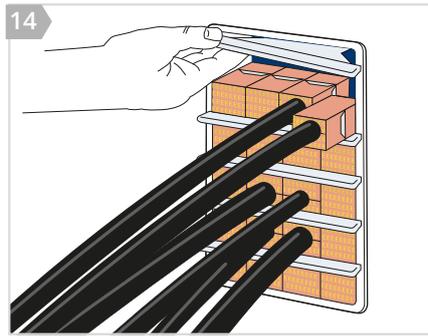


4 Pull out the tweezers.

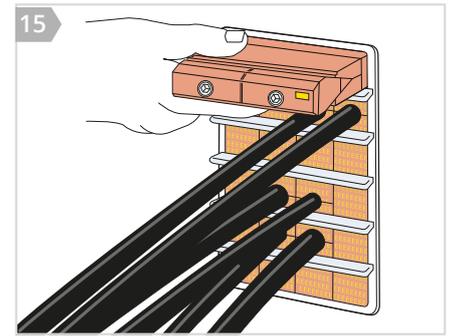
Proceed PTG



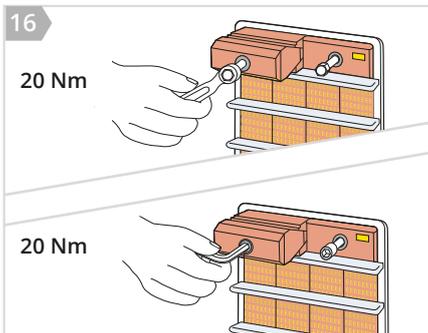
13 Before inserting the final row of blocks, insert two stayplates.



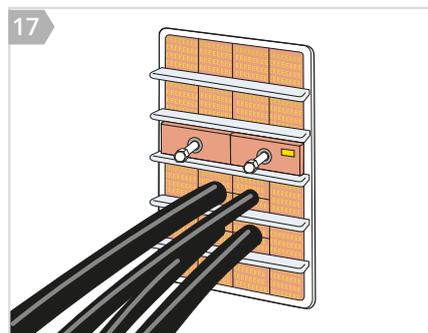
14 Separate the two stayplates and insert the final row of blocks between the stayplates.



15 Lubricate and insert PTG.

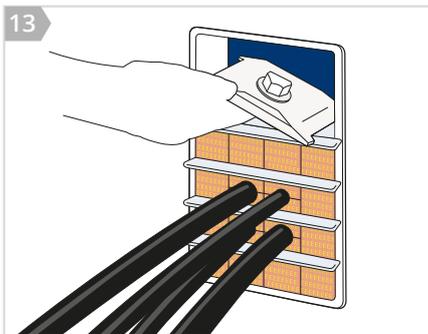


16 Tighten the screws alternately in small steps until full stop or 20 Nm.

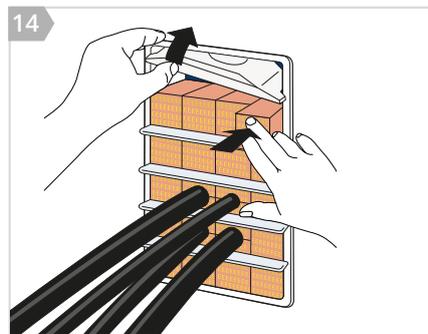


17 PTG can be inserted anywhere in the frame.

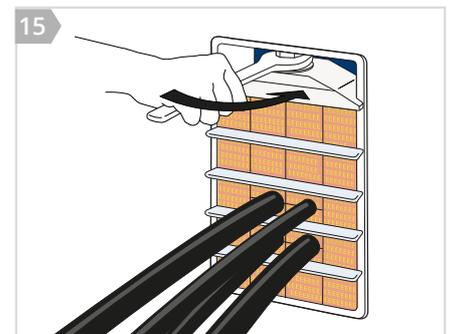
Proceed STG



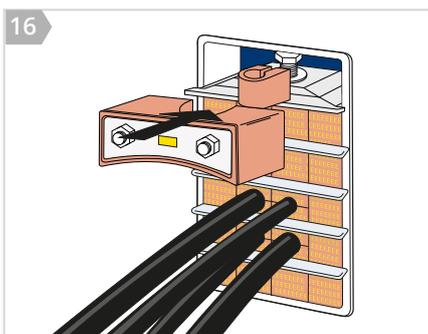
13 Before the final row of blocks, the compression plate is placed with stayplate.



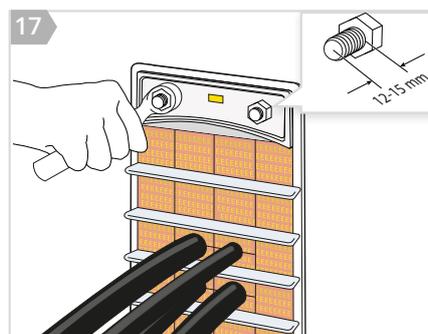
14 Insert the top row of blocks.



15 Tighten the bolt in the compression plate anticlockwise until there is a gap of 32-33 mm (1.26-1.30") between the bottom of the plate and the inside of the frame.



16 Insert the STG endpacking with the tongue around the compression bolt.



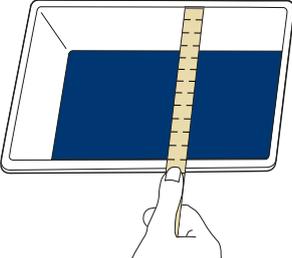
17 Tighten the nuts in the endpacking until 12-15 mm (0.47-0.59") of thread is visible.

After installation inspection

- Are the PTG screws tightened?
- Is the combined height of blocks correct according to the frame packing height?
- Are all blocks secured by stayplates?
- Is there visible protruding lubricant?

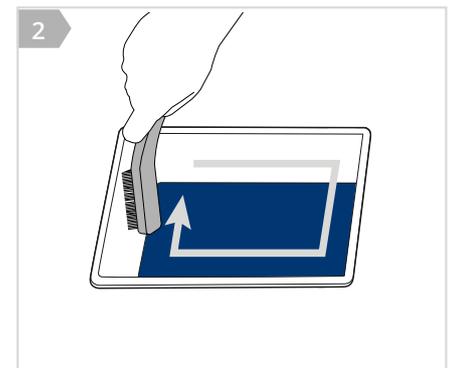
Horizontal Installation

1

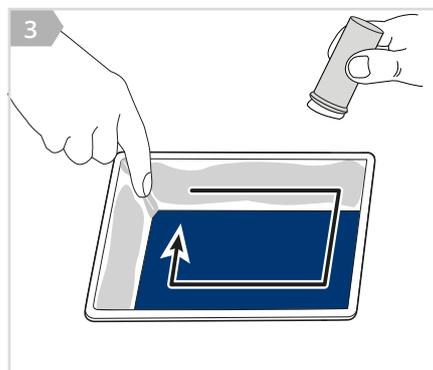


Size	H (mm)	W (mm)
1	101 ±1	60,25 ±0,5
2	101 ±1	120,5 ±1
3	159,5 ±1	60,25 ±0,5
4	159,5 ±1	120,5 ±1
5	218 ±1	60,25 ±0,
6	218 ±1	120,5 ±1
7	276,5 ±1	60,25 ±0,5
8	276,5 ±1	120,5 ±1

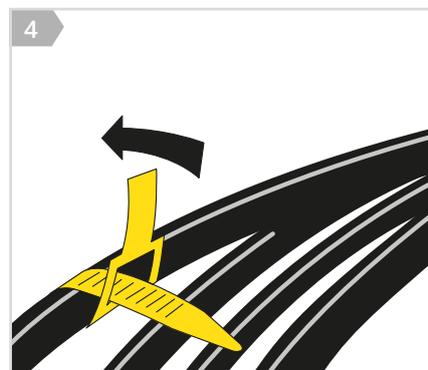
Measure the opening and check that the measurement is within the tolerance range in the table.



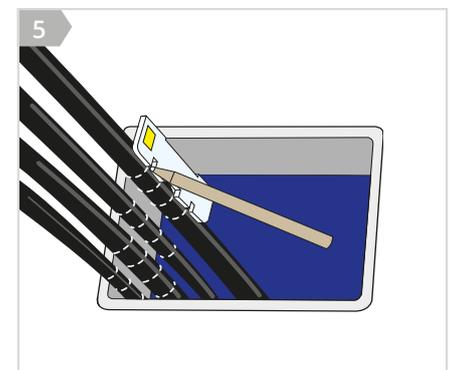
Clean the aperture.



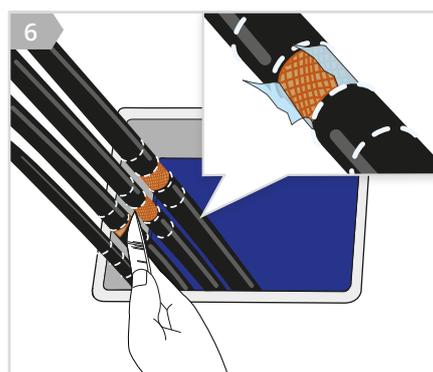
Lubricate the sealing surfaces of the frame. Lubricate the corners thoroughly.



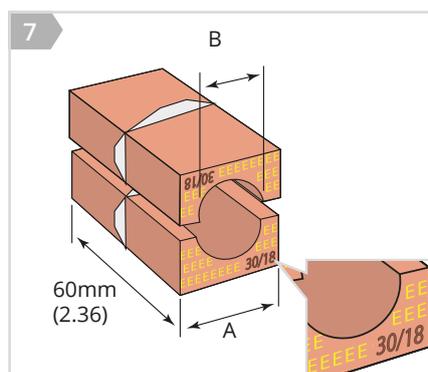
Measure the diameter of the cables and choose suitable blocks.



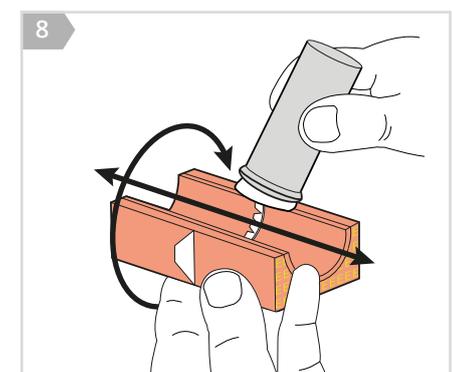
Pull the cables to final position. Put the EMC marking template in the frame with the yellow label facing you. Mark the cables.



Remove the cable sheath between the two lines in the middle (10 mm). Remove any transparent plastic film.

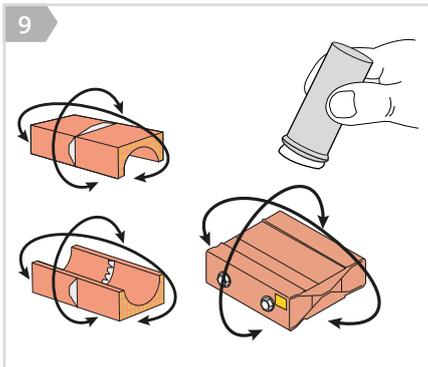


Insert blocks are identified by their width (A) and hole diameter (B). A block that is 30 mm (1.18") wide and has a hole diameter of 18 mm (0.71") is marked 30/18. This marking is cast into the block.

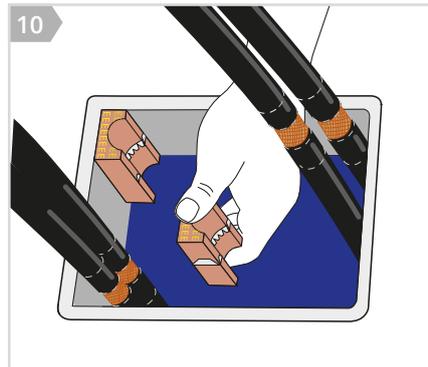


Lubricate the sealing surfaces of any block.

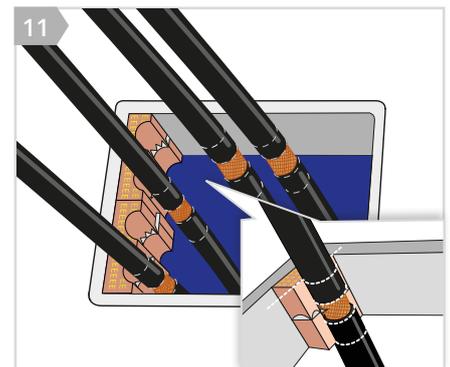
Horizontal Installation



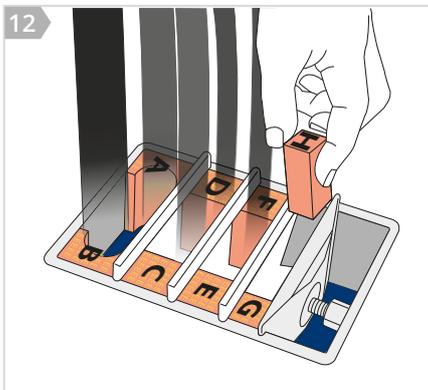
Lubricate the indicated areas of sealing surfaces.



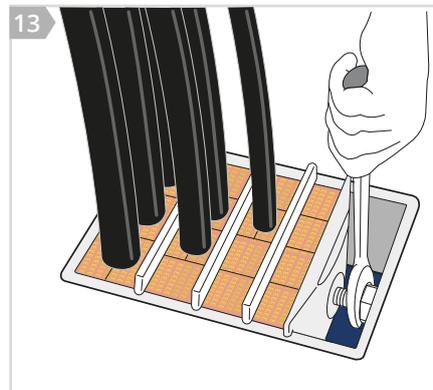
Start filling the frame. Insert a half insert block. Ensure all the insert blocks having the yellow markings facing you.



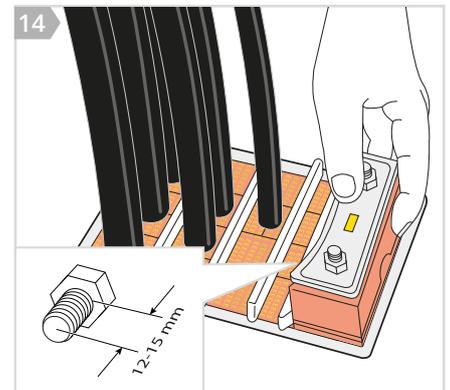
Place the cable with the unsheathed area centred in the block intended to seal the cable.



Insert the outer blocks first (A, B, C, etc). Then insert the rest of the blocks. Note: block A must be rotated 90°, see diagram.

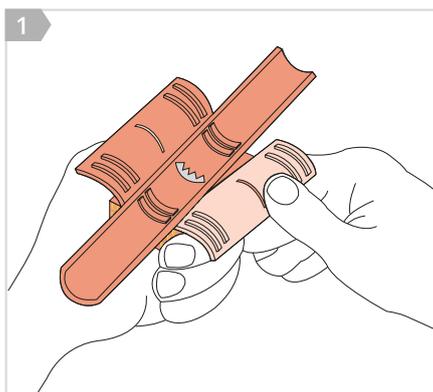


Pack the frame. Tighten the bolt in the compression plate anticlockwise until there is a gap of 32-33 mm (1.26"-1.30") between the top of the plate and the inside of the frame (0.54") of thread is visible.

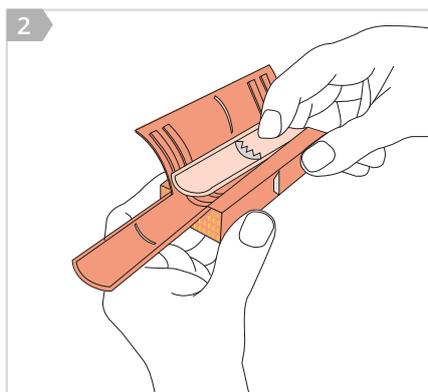


Insert the STG endpacking with the tongue around the compression bolt. Tighten the nuts in the endpacking until 12-15 mm (0.47"-0.54") of thread is visible.

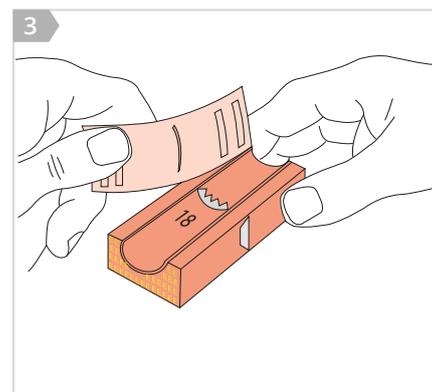
AddBlock



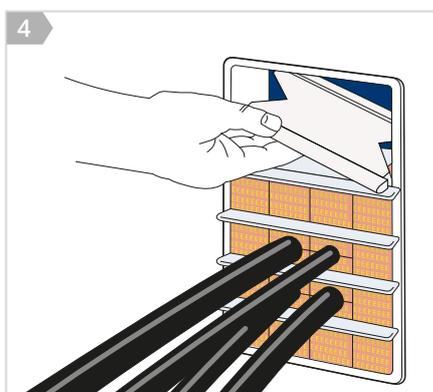
1 Tear off attached sheet to fit the dimension selected.



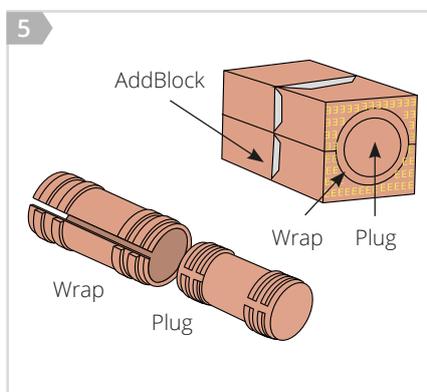
2 Place sheet into centre slot and affix it with the unique locking device.



3 Tear off superfluous sheets.

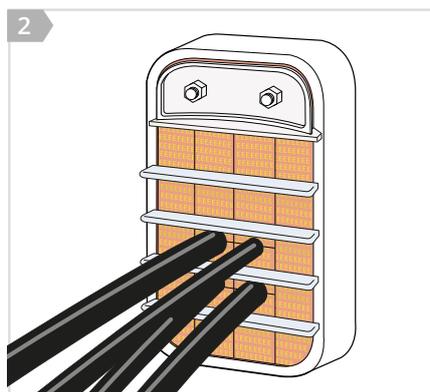
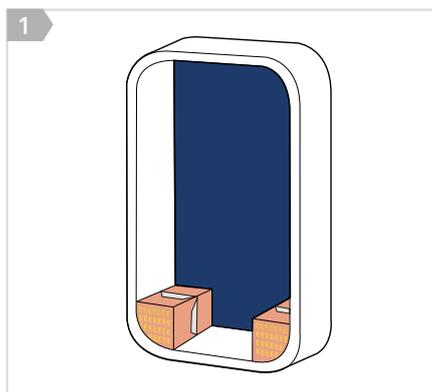


4 Pack the frame. Place stayplates between each row of blocks.



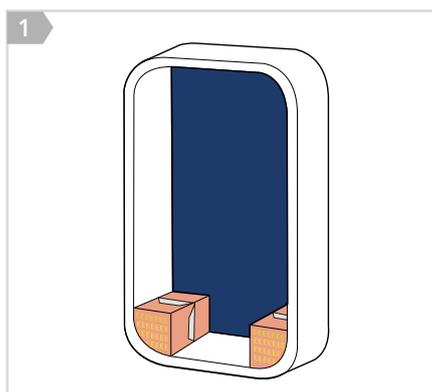
5 Plugs and Wraps are only for use in Grounding and Bonding applications, or when radiated EMI is not a threat.

RGSC with STG Endpacking

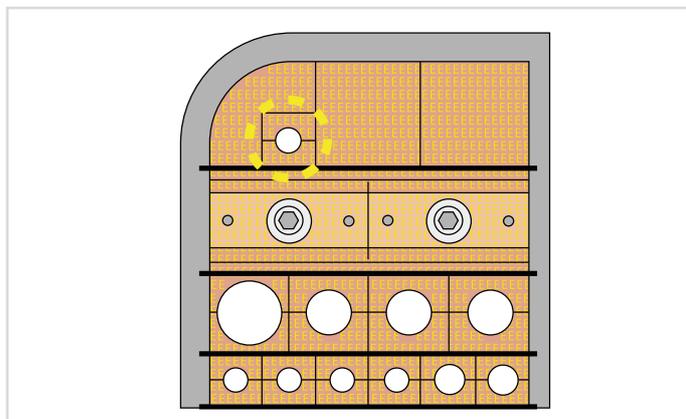


Begin packing with the special corner blocks. Proceed as shown in image 3 and then see STG Endpacking image 4-6. Insert endpacking C-STG (with special corner blocks). Tighten the nuts on the endpacking to compress and complete the seal. About 12 mm (0.47") of the thread should protrude on each bolt. (0.47") of the thread should protrude on each bolt.

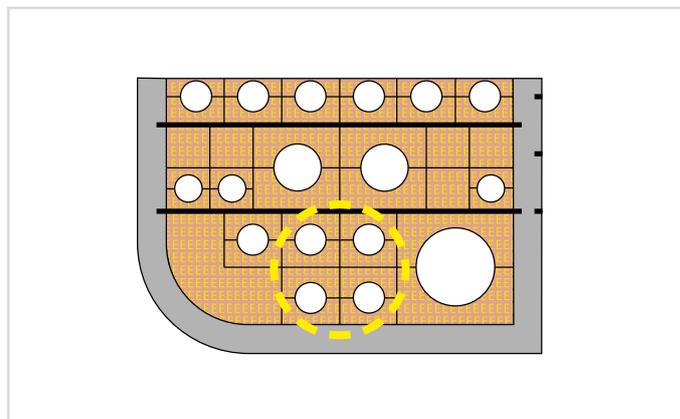
RGSC with Presswedge



Begin packing with the special corner blocks. Proceed as shown in image 3 and then see PTG Presswedge. The PTG presswedge can be placed anywhere except at the top or bottom. At the top row insert the special corner blocks and then the last row of blocks. Tighten the nuts in the PTG to the end or 20 Nm.

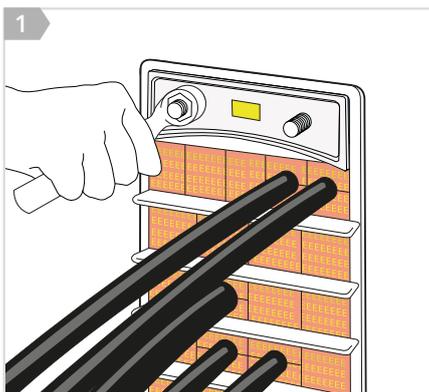


For some RGSC corner blocks, support is provided by only one stayplate instead of two – this is fully approved. In fact, in every transit the top and bottom rows of module blocks are always supported by a single stayplate. This is the standard and correct installation principle.

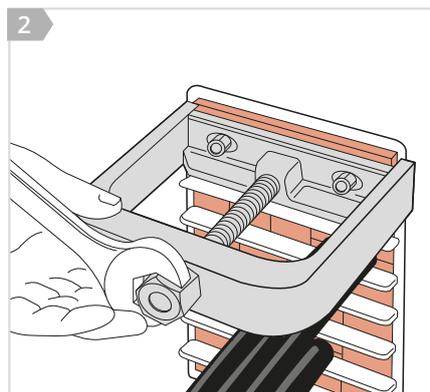


There are cases user is forced to mix modules with the condition of a pressure limitation of 3 Bar, a mix of different size modules beside a large module up to module size 90. This is for situations where it is not possible to use Stayplate due to packing space or design. Contact MCT Brattberg for more information.

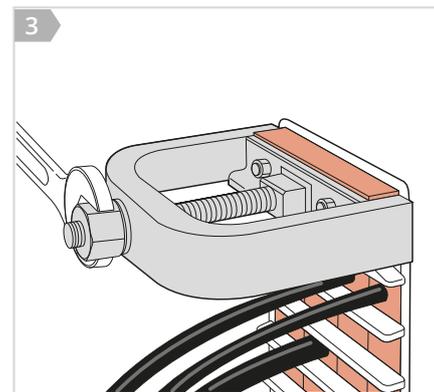
Disassembly STG



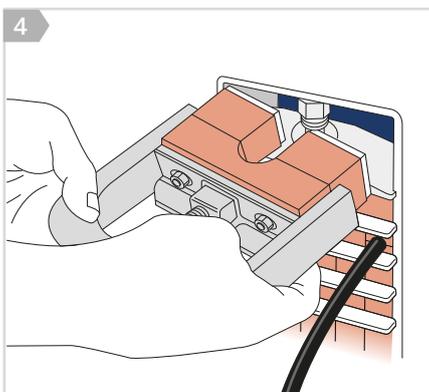
1 Remove the nuts and the hardware from the face of the endpacking.



2 Attach the endpacking puller to the bolts with the nuts from the endpacking.



3 Tighten the bolt on the puller and the endpacking slides out.



4 Remove the endpacking.

! MCT Brattberg shall not be held responsible for any errors or consequences resulting from the use of incorrect geometric dimensions or cut-outs. In case of any uncertainty, the customer is required to consult MCT Brattberg. All details must always be verified against the official information drawings provided by MCT Brattberg.

! Our products are type-approved, and when installed in accordance with our instructions, they are designed and tested to maintain fire- and pressure-tight integrity under catastrophic conditions. If verification after installation is required, the BTB arrangement may be used; otherwise, please contact MCT Brattberg for further guidance.

! MCT Brattberg offers training either on-site or at one of our facilities. We consider it important to provide training for installers to ensure safety. Depending on the arrangement, such training is usually provided free of charge.

! If the transit needs to be reinstalled, the insert blocks may be reused. However, this entirely depends on whether the blocks are in a condition that allows them to seal the transit correctly, considering their age or any environmental impact. The installer is responsible for making this assessment.

If the installer feels that a qualified assessment cannot be made, we recommend replacing all insert blocks in the rows above the modification, and all insert blocks in the affected row must also be replaced.

! For assistance regarding product adaptation and use, please contact MCT Brattberg via switchboard +46 455 37 52 00.

! MCT Brattberg is not responsible for the environment in which the transit is installed. RGSFB or RGG variants are not supplied with an EMC gasket. If a gasket for EMI protection is required, please consult MCT Brattberg.

! Never use unshielded cables with E-blocks. Unshielded cables must be EMC-protected using filters or scrubbers – do not mix shielded and unshielded cables. Pipes act as an outer shield – MCT Brattberg provides solutions for this when using fibre optics.

! This instruction guide may be subject to revision and changes due to development and changes of the material and products. The data is derived from tests and experience. If not stated as minimum values, the data is average data and should be treated as such. Calculations should be verified by actual tests. The data is furnished without liability for the company and does not constitute a warranty or representation in respect of the material or its use.

The company reserves the right to release new instruction guides in replacement.

! Some cables have a transparent plastic film layer between the shield and the outer shell. If the installer is not aware of this, it is very easy to forget the plastic film, which causes absolute 0 dB attenuation through the penetration, also affecting other cables in the same penetration.

! Installation limitations, such as maximum cable or pipe sizes and applicable configurations, are defined in the relevant Type Approval Certificate (TAC). These instructions and drawings shall be read in conjunction with the applicable certificate to ensure compliance with all applicable approval certificates, rules, and project-specific requirements.

Paint:

We do not have any official requirements.

Any suitable paint may be applied, and the thickness can vary. If applied too thickly, it may make the system harder to fit, but it will not compromise safety. We recommend no more than 100 Microns inside the frame / sleeve. For EMC we have earlier recommended to leave 30mm in the frame, as below.



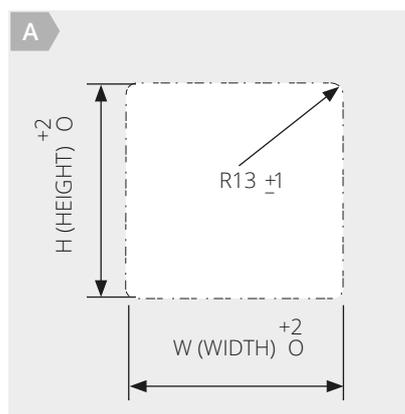
Note:

Some corner blocks for RGSC don't have support from a stayplate, and this is approved.

There are cases user is forced to mix modules with the condition of a pressure limitation of 3 Bar, a mix of different size modules beside a large module up to module size 90. This is for situations where it is not possible to use Stayplate due to packing space or design.

Contact MCT Brattberg for more information.

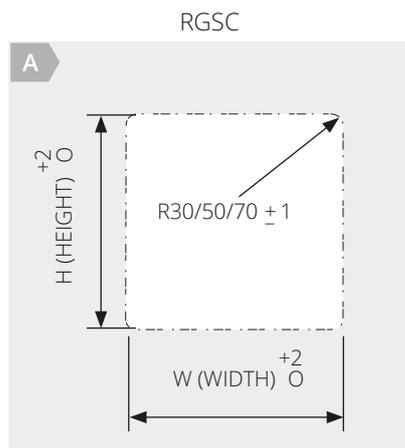
RGS Frames



Frame size	H (Height)	W (Width)							
		1x	2x	3x	4x	5x	6x	7x	8x
RGS-1 w60	122	82,25	152,5	152,5	293	363,25	433,5	503,75	574
RGS-1 w40	122	62,25	112,5	112,5	213	263,25	313,5	363,75	414
RGS-2	122	141,5	272	272	533	663,5	794	924,5	1055
RGS-3 w60	181,5	82,25	152,5	152,5	293	363,25	433,5	503,75	574
RGS-3 w40	181,5	62,25	112,5	112,5	213	263,25	313,5	363,75	414
RGS-4	180,5	141,5	272	272	533	663,5	794	924,5	1055
RGS-5 w60	239	82,25	152,5	152,5	293	363,25	433,5	503,75	574
RGS-5 w40	239	62,25	112,5	112,5	213	263,25	313,5	363,75	414
RGS-6	239	141,5	272	272	533	663,5	794	924,5	1055
RGS-7 w60	297,5	82,25	152,5	152,5	293	363,25	433,5	503,75	574
RGS-7 w40	297,5	62,25	112,5	112,5	213	263,25	313,5	363,75	414
RGS-8	297,5	141,5	272	272	533	663,5	794	924,5	1055
RGS-2+2	243		272	272	533	663,5	794	924,5	1055
RGS-2+4	301,5		272	272	533	663,5	794	924,5	1055
RGS-2+6	360		272	272	533	663,5	794	924,5	1055
RGS-2+8	418,5		272	272	533	663,5	794	924,5	1055
RGS-4+4	360		272	272	533	663,5	794	924,5	1055
RGS-4+6	418,5		272	272	533	663,5	794	924,5	1055
RGS-4+8	477		272	272	533	663,5	794	924,5	1055
RGS-6+6	477		272	272	533	663,5	794	924,5	1055
RGS-6+8	535,5		272	272	533	663,5	794	924,5	1055
RGS-8+8	594		272	272	533	663,5	794	924,5	1055

Frame size	H (Height)	1x
RGS-2+2	233	141,5
RGS-2+4	291,5	141,5
RGS-2+6	350	141,5
RGS-2+8	408,5	141,5
RGS-4+4	350	141,5
RGS-4+6	408,5	141,5
RGS-4+8	467	141,5
RGS-6+6	467	141,5
RGS-6+8	525,5	141,5
RGS-8+8	584	141,5

RGSC Frames

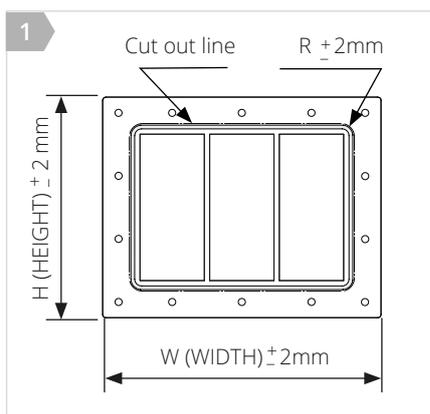
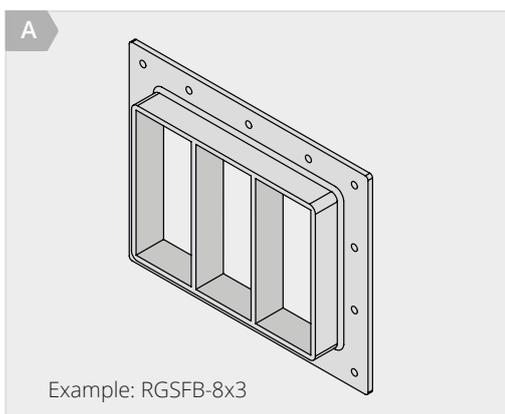


Example:
 RGSC 6x1 R20 = cutout R30
 RGSC 6x1 R40 = cutout R50
 RGSC 6x1 R60 = cutout R70

Frame size	H (Height)	W (Width)							
		1x	2x	3x	4x	5x	6x	7x	8x
RGSC-2	122	141,5	272	272	533	663,5	794	924,5	1055
RGSC-4	180,5	141,5	272	272	533	663,5	794	924,5	1055
RGSC-6	239	141,5	272	272	533	663,5	794	924,5	1055
RGSC-8	297,5	141,5	272	272	533	663,5	794	924,5	1055
RGSC-2+2	243		272	272	533	663,5	794	924,5	1055
RGSC-2+4	301,5		272	272	533	663,5	794	924,5	1055
RGSC-2+6	360		272	272	533	663,5	794	924,5	1055
RGSC-2+8	418,5		272	272	533	663,5	794	924,5	1055
RGSC-4+4	360		272	272	533	663,5	794	924,5	1055
RGSC-4+6	418,5		272	272	533	663,5	794	924,5	1055
RGSC-4+8	477		272	272	533	663,5	794	924,5	1055
RGSC-6+6	477		272	272	533	663,5	794	924,5	1055
RGSC-6+8	535,5		272	272	533	663,5	794	924,5	1055
RGSC-8+8	594		272	272	533	663,5	794	924,5	1055

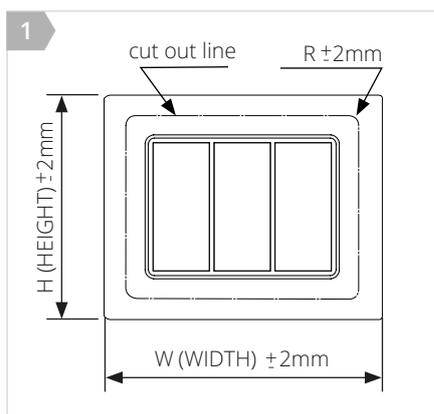
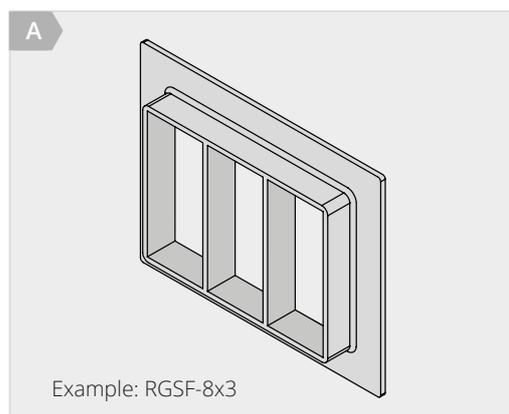
Frame size	H (Height)	1x
RGSC-2+2	233	141,5
RGSC-2+4	291,5	141,5
RGSC-2+6	350	141,5
RGSC-2+8	408,5	141,5
RGSC-4+4	350	141,5
RGSC-4+6	408,5	141,5
RGSC-4+8	467	141,5
RGSC-6+6	467	141,5
RGSC-6+8	525,5	141,5
RGSC-8+8	584	141,5

RGSFB Frames



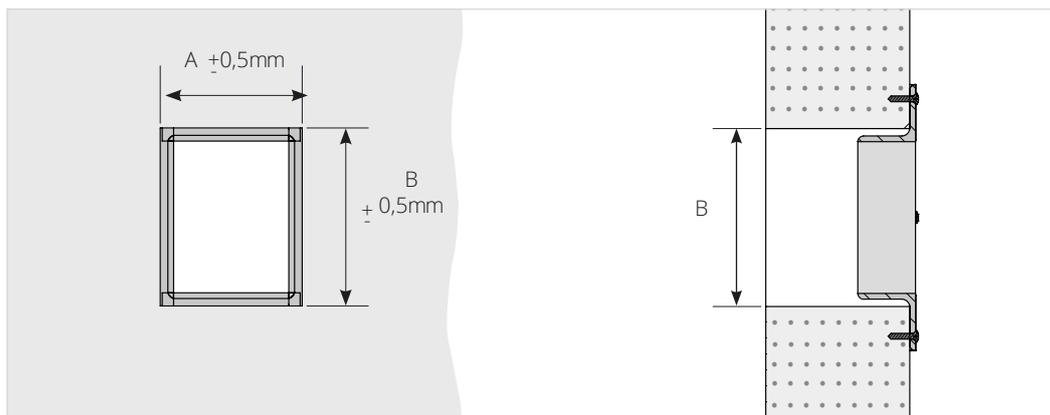
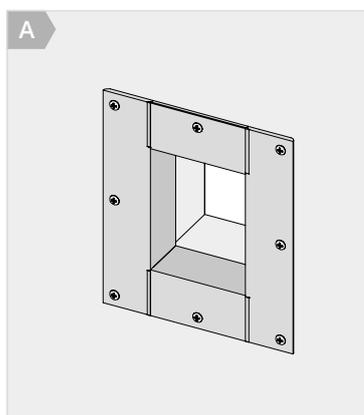
Frame size	H (Height)	W (Width)							
		1x	2x	3x	4x	5x	6x	7x	8x
RGSFB-2	141	160,5	291	421,5	552	682,5	813	943,5	1074
RGSFB-4	199,5	160,5	291	421,5	552	682,5	813	943,5	1074
RGSFB-6	258	160,5	291	421,5	552	682,5	813	943,5	1074
RGSFB-8	316,5	160,5	291	421,5	552	682,5	813	943,5	1074
RGSFB-2+2	262		291	421,5	552	682,5	813	943,5	1074
RGSFB-2+4	320,5		291	421,5	552	682,5	813	943,5	1074
RGSFB-2+6	379		291	421,5	552	682,5	813	943,5	1074
RGSFB-2+8	437,5		291	421,5	552	682,5	813	943,5	1074
RGSFB-4+4	379		291	421,5	552	682,5	813	943,5	1074
RGSFB-4+6	437,5		291	421,5	552	682,5	813	943,5	1074
RGSFB-4+8	496		291	421,5	552	682,5	813	943,5	1074
RGSFB-6+6	496		291	421,5	552	682,5	813	943,5	1074
RGSFB-6+8	554,5		291	421,5	552	682,5	813	943,5	1074
RGSFB-8+8	613		291	421,5	552	682,5	813	943,5	1074
RGSFB-2+2	252	160,5							
RGSFB-2+4	310,5	160,5							
RGSFB-2+6	369	160,5							
RGSFB-2+8	427,5	160,5							
RGSFB-4+4	369	160,5							
RGSFB-4+6	427,5	160,5							
RGSFB-4+8	486	160,5							
RGSFB-6+6	486	160,5							
RGSFB-6+8	544,5	160,5							
RGSFB-8+8	603	160,5							

RGSF Frames



Frame size	H (Height)	W (Width)							
		1x	2x	3x	4x	5x	6x	7x	8x
RGSF-2	181	200,5	331	461,5	592	722,5	853	983,5	1114
RGSF-4	239,5	200,5	331	461,5	592	722,5	853	983,5	1114
RGSF-6	298	200,5	331	461,5	592	722,5	853	983,5	1114
RGSF-8	356,5	200,5	331	461,5	592	722,5	853	983,5	1114
RGSF-2+2	302		331	461,5	592	722,5	853	983,5	1114
RGSF-2+4	360,5		331	461,5	592	722,5	853	983,5	1114
RGSF-2+6	419		331	461,5	592	722,5	853	983,5	1114
RGSF-2+8	477,5		331	461,5	592	722,5	853	983,5	1114
RGSF-4+4	419		331	461,5	592	722,5	853	983,5	1114
RGSF-4+6	477,5		331	461,5	592	722,5	853	983,5	1114
RGSF-4+8	536		331	461,5	592	722,5	853	983,5	1114
RGSF-6+6	536		331	461,5	592	722,5	853	983,5	1114
RGSF-6+8	594,5		331	461,5	592	722,5	853	983,5	1114
RGSF-8+8	653		331	461,5	592	722,5	853	983,5	1114
RGSF-2+2	292	200,5							
RGSF-2+4	350,5	200,5							
RGSF-2+6	409	200,5							
RGSF-2+8	467,5	200,5							
RGSF-4+4	409	200,5							
RGSF-4+6	467,5	200,5							
RGSF-4+8	526	200,5							
RGSF-6+6	526	200,5							
RGSF-6+8	584,5	200,5							
RGSF-8+8	643	200,5							

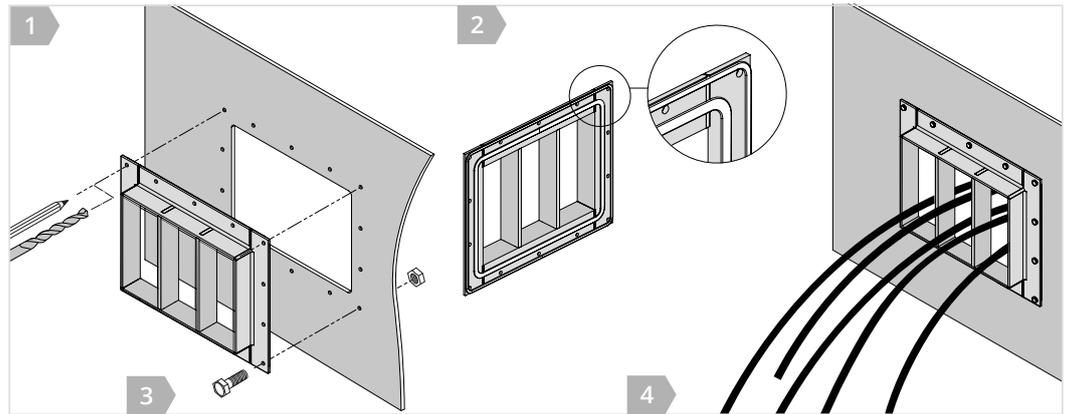
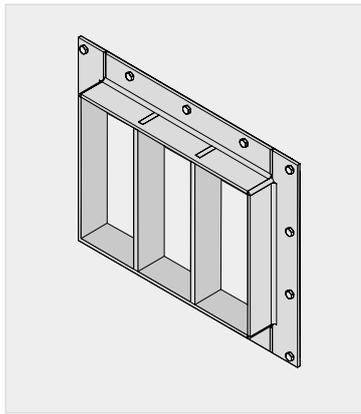
RGB/RGG Frames



These cutout dimensions are only valid for MCT Brattberg RGB/RGG frames manufactured in 60x60x6 mm anglebar.

Frame size	Cut out size								
	B (Height)	A (width Multiple Frames)							
		x1	x2	x3	x4	x5	x6	x7	x8
2	128	148	278	409	539	670	801	932	1063
4	187	148	278	409	539	670	801	932	1063
6	245	148	278	409	539	670	801	932	1063
8	304	148	278	409	539	670	801	932	1063
2+2	239	148	278	409	539	670	801	932	1063
2+4	298	148	278	409	539	670	801	932	1063
2+6	356	148	278	409	539	670	801	932	1063
2+8	415	148	278	409	539	670	801	932	1063
4+4	356	148	278	409	539	670	801	932	1063
4+6	415	148	278	409	539	670	801	932	1063
4+8	473	148	278	409	539	670	801	932	1063
6+6	473	148	278	409	539	670	801	932	1063
6+8	532	148	278	409	539	670	801	932	1063
8+8	590	148	278	409	539	670	801	932	1063

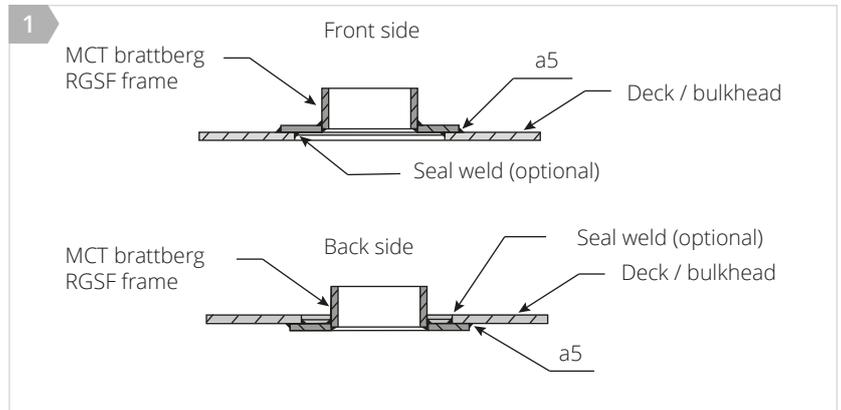
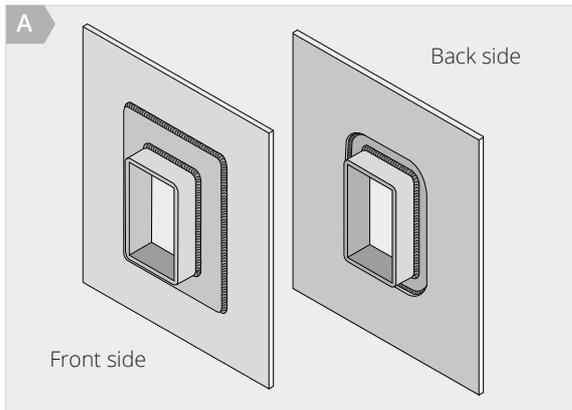
RGG



1. Position the frame to the steel plate, mark and drill hole pattern to match the frame.
2. Apply two strings of sealant to the frame.

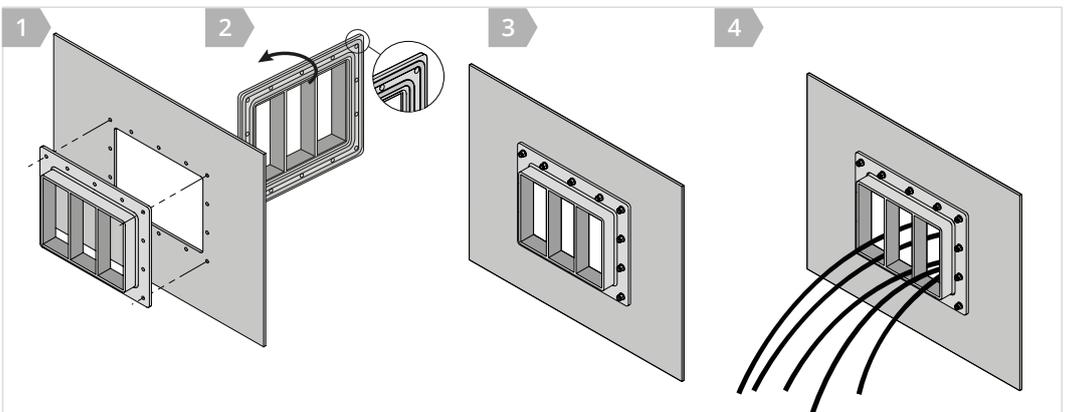
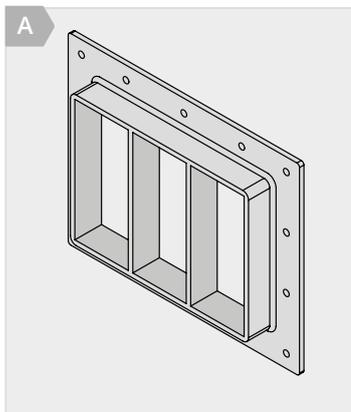
3. Install the frame to the steel plate with M8 bolts, tighten to 20 Nm.
4. Pull cables/pipes thru the frame and install the MCT Brattberg sealing.

RGSF



1. Position the RGSF frame flat to the bulkhead or deck.
2. Tack weld on the front side of the frame in each corner and then in every 200 mm between corners.
3. Continue welding around the front side of the frame in practical order.
4. Complete by seal welding around the rear side of the frame (optional).

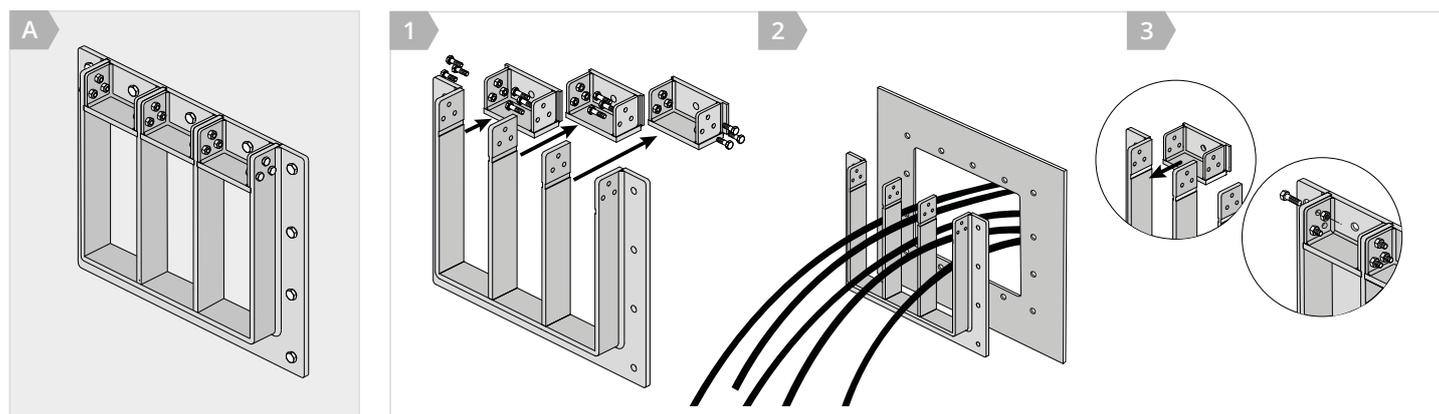
RGSFB



1. Position the frame to the bulkhead/deck, mark and drill hole pattern to match the frame.
2. Apply two strings of sealant to the frame, to all surfaces that will face each other.

3. Install the frame to the bulkhead/deck with M12 bolts, tighten to 75 Nm.
4. Pull cables/pipes thru the frame and install the MCT Brattberg sealing.

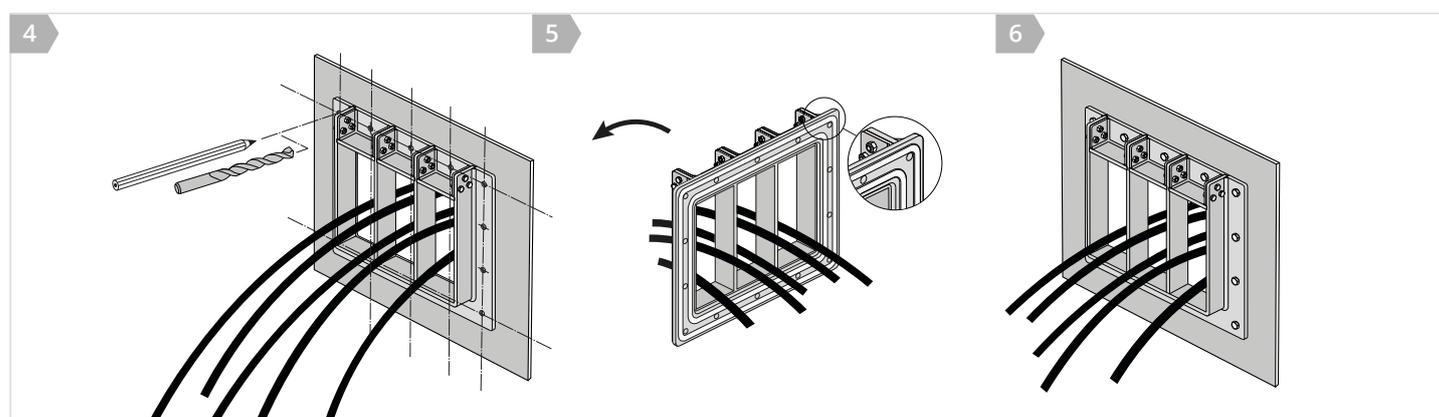
RGSFBO



1. Unscrew the M8 bolts and dismantle the removable frame parts, if necessary, use a plastic hammer.

2. Protect cables from sealant and mechanical damage. Fit the frame around existing cables.

3. Apply sealant to marked areas and reinstall the removable parts to the frame.

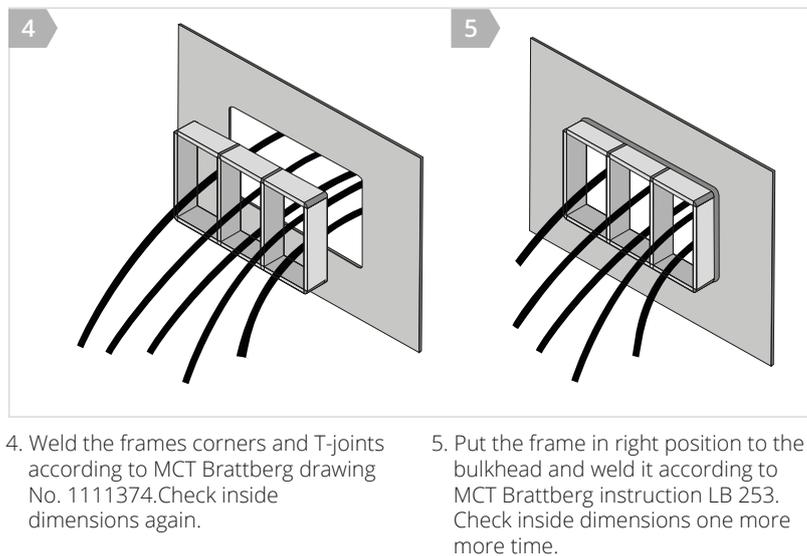
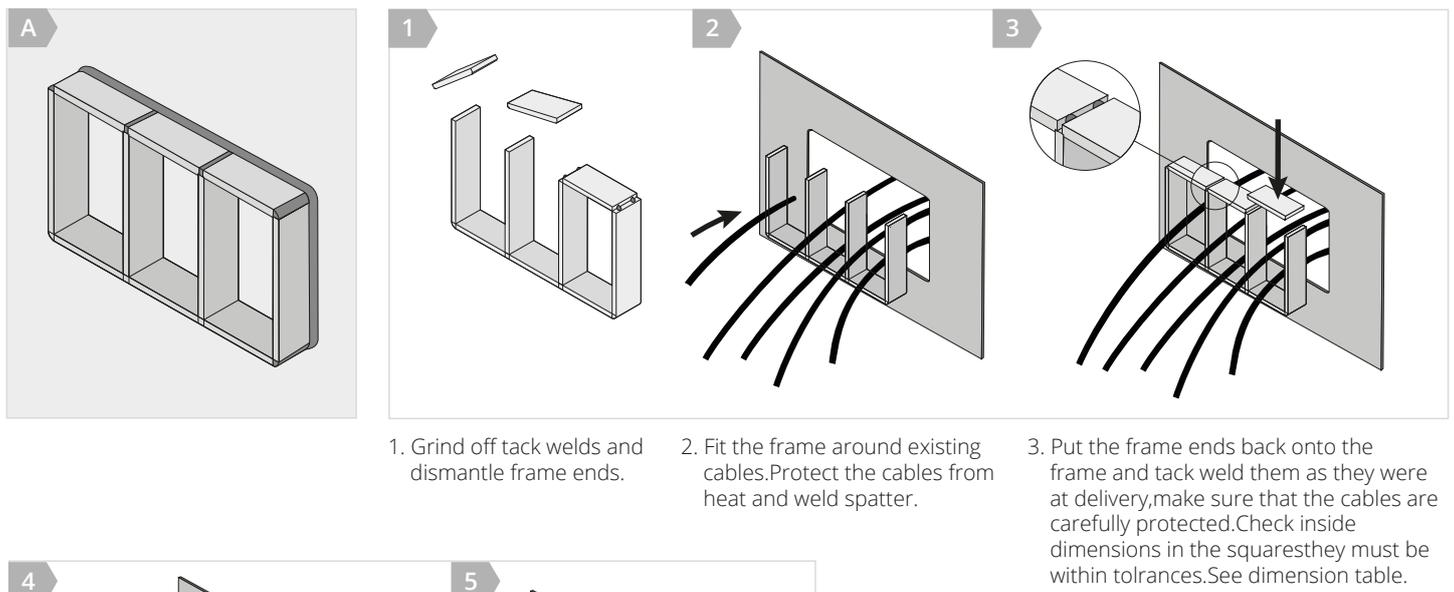


4. Position the frame to the bulkhead/deck, mark and drill the hole pattern to match the frame.

5. Apply two strings of sealant to the frame.

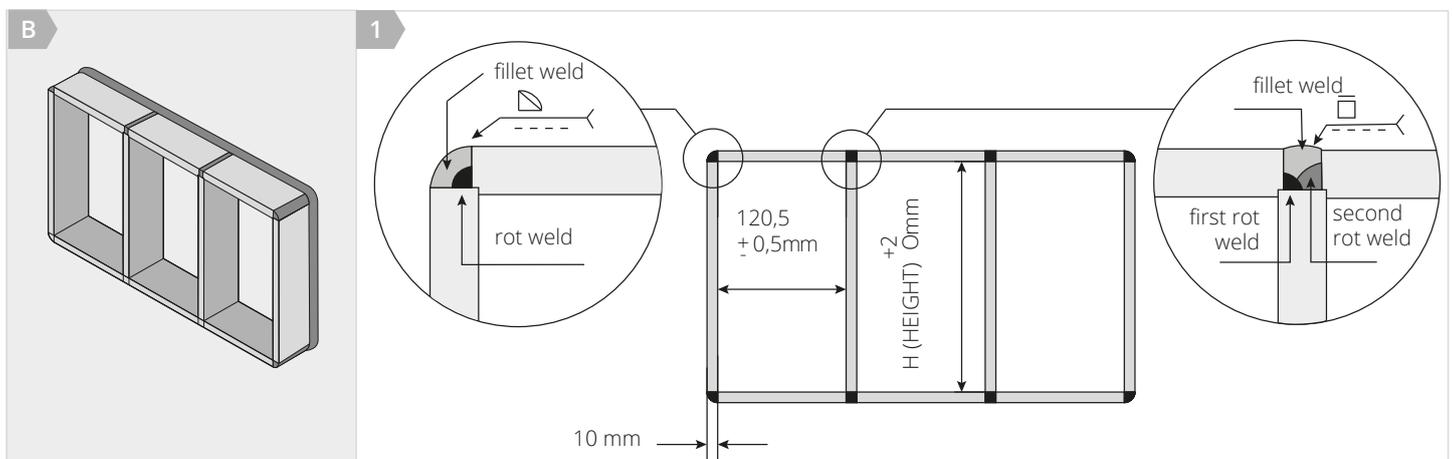
6. Install the frame to the bulkhead/deck with M12 bolts, tighten to 75 Nm.

RGSO

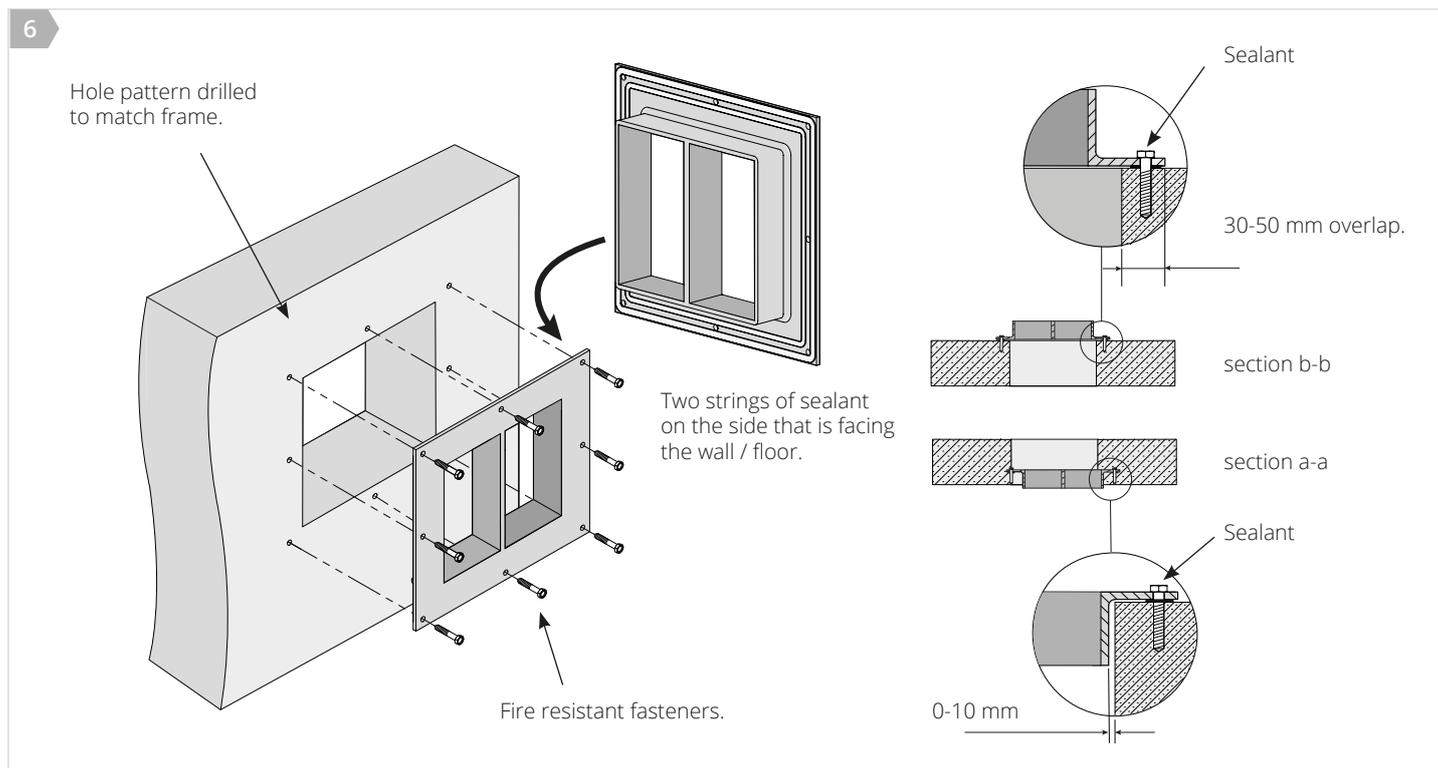


Dimension table RGSO frames	
RGSO Frame Width	120,0 - 121,0
RGSO-2 Height	100,5 - 101,5
RGSO-4 Height	159,0 - 160,0
RGSO-6 Height	217,5 - 218,5
RGSO-8 Height	276,0 - 277,0

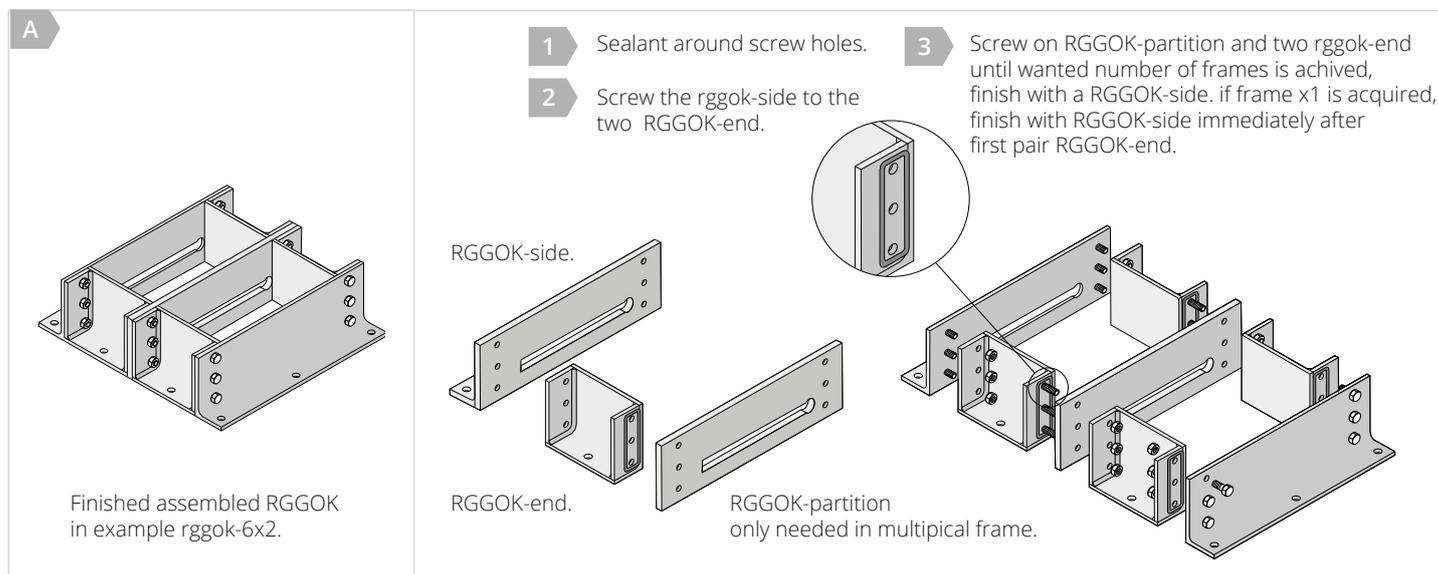
Welding Instruction RGSO



RGB, RGG, RGGO, RGGOK

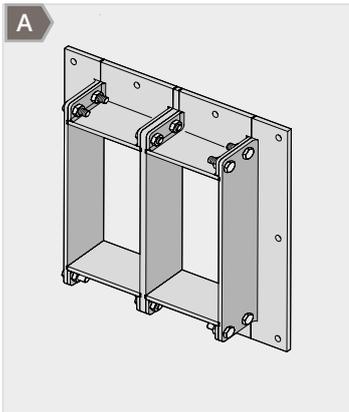


RGGOK



Follow these 3 steps to assemble RGGOK.

RGG-O



1 Cut the gasket with a sharp knife and attach the gasket on both sides of all the rgg-end that is going to be used in the wanted configuration the same way as in picture below.

2 Screw the rgg-side to the two rgg-end.

3 Screw on rgg-partition and two rgg-end until wanted number of frames is achieved.

4 Finish with a RGG-side.

5

RGG-side
RGG-end
RGG-partition

If a single frame is wanted do step 1: and 2: then jump to step 4:

Finished assembled RGG open in example x1 and x2 frames.

6

Hole pattern drilled to match frame.

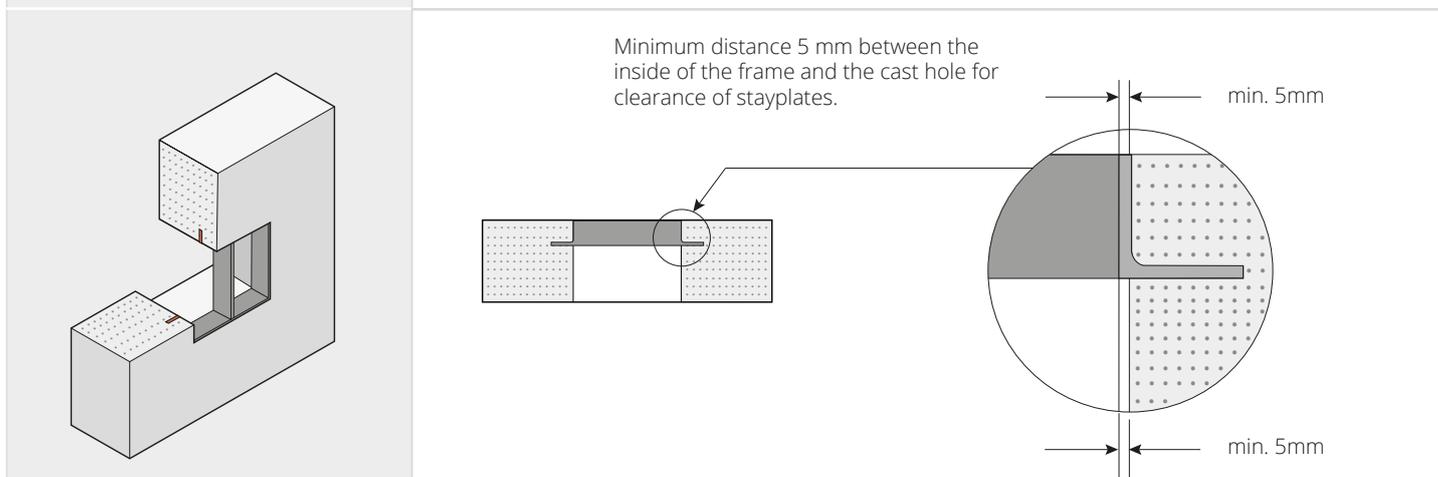
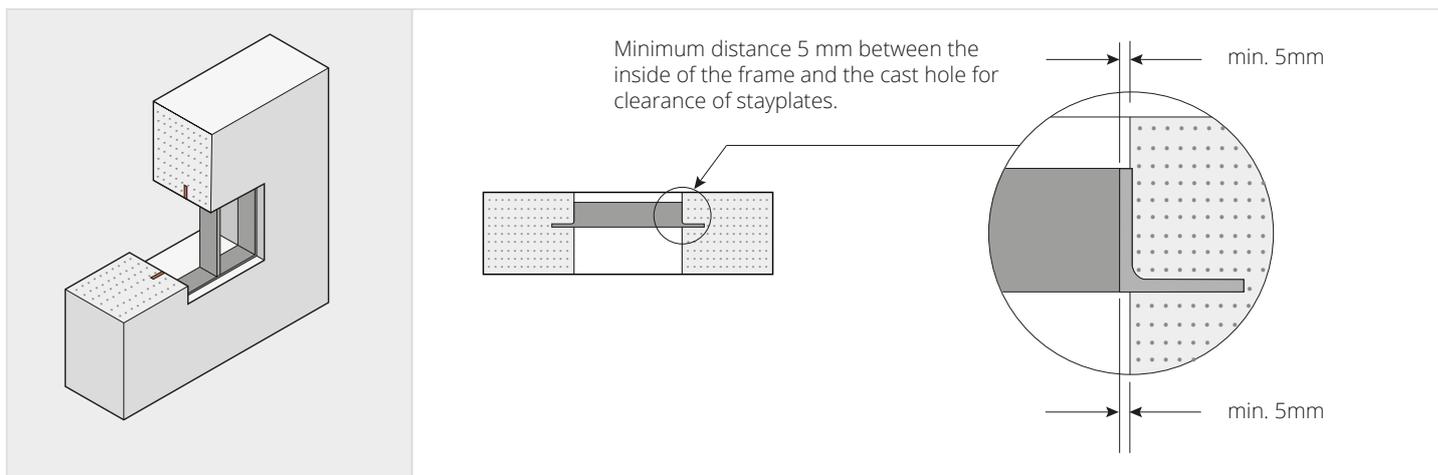
Two strings of sealant on the side that is facing the wall / floor.

Sealant
30-50 mm overlap.
section b-b
section a-a
0-5mm

Concrete screw *follow the screw manufacturer's instructions.

Ø9mm hole in frame.
Fire resistant fasteners.

Casted/embedded frames



Polystyrene casting form

