

GS insPIRE[®] CH / GS insPIRE[®] CH MAX

COLDSTORE CATALOGUE



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▷ INTRODUCTION

This publication is intended to present an assortment and technical properties of sandwich panels to our customers. With over a decade of experience and extensive knowledge we perfectly know the needs of the market. As a result, we create products and solutions that give our customers real benefits.

▷ ABOUT THE COMPANY

Gór-Stal[®] is a Polish company founded in 2003. It had originally produced and sold finished steel construction elements. The increase in demand for building materials for light industrial facilities forced co-owners to buy the line for the production of sandwich panels with a polyurethane core. It is one of the most modern and technologically advanced production lines in Europe. Gór-Stal[®] manufactures **sandwich panels** and **termPIR[®] insulating boards**. Sandwich panels are commonly used building materials for light cladding of industrial halls, warehouses, production halls and commercial buildings, offices, administrative buildings, freezers and cold storages. Since the beginning of the company's operation it has rapidly developed and extensively expanded its operations both geographically and in terms of product offerings. Gór-Stal[®] is recognized by customers in Poland, Czech Republic, Austria, Romania, Belgium, the Netherlands, Luxembourg, Great Britain, France, Germany, Estonia and the Nordic countries, Slovakia, Hungary, Ukraine, Lithuania and Latvia. We currently have two factories, one in Gorlice and the other in Bochnia, where we manufacture termPIR[®] insulation boards.

▷ PRODUCTS

Gór-Stal[®] offers a wide range of modern wall, roof and coldstore sandwich panels **with polyisocyanurate (PIR) core**. Sandwich panels consist of two steel claddings and a structural insulation core of rigid, HCFC-free self-extinguishing PIR foam with very good thermal insulation. When building with sandwich panels, you can create a building with excellent insulation parameters, with a significant reduction in the thickness and weight. Speed and ease of assembly, possibility of carrying out the work even in difficult weather conditions, low cost of implementation and ease of wall cleaning, modernity and versatility of the system make sandwich panels the best building material. A wide range of colors and varied shape of panels profiles allow for the implementation of ambitious architectural projects. Gór-Stal[®] owes its leader position in the production of sandwich panels to high technological advancement of production lines, well-qualified team of employees and special attention to the quality of the products.

▷ STRUCTURE OF PANELS

Sandwich panels have one type of core ie. **polyisocyanurate (PIR) foam** with a density of **37,5 kg/m³ (+/-10%)** and thermal conduction coefficient **λ=0,022 W/m·K**. (for 2020 new panels will be available ie. MAX with a core and a coefficient of **λ=0,019 W/m·K**). Isocyanurate structures of PIR foams decompose at temperatures above **300 °C**. The carbonized layer protects against heat transition through the panel, which in turn provides an effective protection against fire. Sheet metal grade **S220-S280GD DIN EN 10346** galvanized on both sides with the organic polyester lacquer with a film thickness of **25 microns** is used as cladding of sandwich panels. Due to the increased anticorrosion requirements, it is possible to make panels with metal plate dedicated for environments **C4** and **C5**, and the prevailing aggressive environments inside the buildings. It is possible to use stainless steel **1.4301** coating. Panels are protected against mechanical damage that may occur during transport or installation with a protective foil.

▷ CERTIFICATES

Sandwich panel have the following certificates and technical approvals:

- Quality Management System certificate,
- CE declaration of conformity in accordance with **EN 14509**,
- Certificate of Constancy of Performance **EN 14509**, according to Regulation (EU) No **305/2011**,
- Classifications: fire resistance rating, reaction to fire, fire retardancy,
- **Hygienic Approval** - allows for use in, commercial, industrial, food processing, refrigeration facilities, residential and public buildings, including health services.

Current versions of the documents are available at: www.gor-stal.pl

▷ PRODUCTION PROGRAM

The production program for sandwich panel systems includes the following items:

Wall sandwich panels:

GS insPIRe® S (standard cam-lock) - thickness: 40, 60, 80, 100 i 120 mm

GS insPIRe® U (hidden cam-lock) - thickness: 60, 80, 100, 120 i 140 mm

Roof sandwich panels:

GS PIR D (roof cam-lock) - thickness: 40/80, 60/100, 80/120, 100/140, 120/160 i 160/200 mm

Coldstore panels:

GS insPIRe® CH (cold storage cam-lock) - thickness: 100, 120, 160 i 200 mm

Flashings: typical and custom made according to the client's design with a maximum length of 6m.

This publication provides detailed characteristics of sandwich panels.

▷ GUIDELINES FOR TRANSPORTATION

Sandwich panels are packed in batches. Loading and unloading of the batches may be done by means of forklift trucks or a lift equipped with an appropriate bar lifting sling, however:

- a single forklift truck may be used to move a package of panels with maximum length of **8 metres**,
- panels with length exceeding **8 m** need to be unloaded using a lift with a hoisting beam,
- if unloading panels using a lift with rope slings, use spacers to prevent panels from being crushed.

The transportation of sandwich panels shall be carried out by vehicles adapted for that purpose, while maintaining the following conditions:

- ensure unobstructed access on both sides of the trailer along its entire length,
- never stack panels more than two packages high
- complete support for a panel package must be provided along the entire length of the open load-carrying body,
- ensure there is sufficient clear space between panel packages, the load-carrying body and the cargo straps,
- the truck must be equipped with cargo straps. Place flexible separators underneath the cargo straps.
- When tightened, the straps must not deform the panels.

▷ GUIDELINES FOR MOUNTING

The sandwich panel manufacturer recommends that you use flashings and cam-locks delivered with the panels as part of the light sandwich panel system. When mounting the panels, follow the guidelines provided below:

- only cut plates and flashings with a fine-toothed circular saw machine or metal cutting scissors. **Never use grinding wheels.**
- cut the panels and flashings at a properly prepared station in order not to damage the lacquer and thin coatings,
- remove the protection foil after the panels have been installed,
- after installation thoroughly clean the surface of the panels, particularly off steel filings,

Typical panel mounting solutions are presented farther in this publication.

▷ TECHNICAL SUPPORT

We strive to deliver friendly and professional customer service. Our technical department and sales representatives assist designers, engineers and contractors in designing, ordering and selecting our products as well as installation thereof. Our customers are thus provided with active support from the design stage to the installation stage as well as prompt technical advisory service and cost calculation. The ordering and delivery process is coordinated by the **Customer Service Department (DOK)**.

For more information visit our website www.gor-stal.pl

▷ APPLICATION

GS insPIRe® CH / GS insPIRe® CH MAX coldstore panel is intended to build the walls and ceilings in rooms with low temperature or in cold storage ($t > 0^{\circ}\text{C}$) and freezers ($t < 0^{\circ}\text{C}$), and other facilities with controlled temperature and humidity. Panels can be used to erect freestanding objects and cold rooms or freezers inside existing buildings. Panels can be assembled both vertical and horizontal, as single and multi-span elements.

▷ PHYSICAL PROPERTIES

GS insPIRe® CH / GS insPIRe® CH MAX coldstore panel is produced in the four thicknesses of the core **100, 120, 160 and 200 mm**. Panel facings are made of sheet metal galvanised on both sides according to **EN 10346** with organic polyester coating **25 μm** thick. Thermal insulation core of the panels is a rigid polyisocyanurate (PIR) foam with a density of **37,5 kg/m³ (+/-1%)**. The heat conductivity calculation value of the foam is: $\lambda = 0,022 \text{ W/m}\cdot\text{K}$ (for 2020 new panels will be available **MAX** with a core and a coefficient of $\lambda = 0,019 \text{ W/m}\cdot\text{K}$). **Modular width** of plates is **1000 mm or 1140 mm**. The standard panel length is between **2.0 to 12 m**. On special request we deliver panels shorter than **2 m** and longer than **12 m**, with a maximum length of **16.5 meters**. Water and air tightness of panel joints is assured by impregnated polyurethane seals (**PUS**) applied in the manufacturing process.

Thickness [mm]	Weight [kg/m ²]		Modular width [mm]	Length: typical/available [m]	Lining standard RAL colours	
	facings 0,5/0,5 mm**	facings 0,5/0,4 mm**			external linings*	internal linings*
100	12,6	11,8	1000 1140 - for profilation L, M, F i P.	2,0 - 12,0/16,5	7016, 9002, 9006, 9007, 9010	9002, 9010
120	13,4	12,6				
160	15,0	14,2				
200	16,6	15,8				

* available colors depending on the thickness of the cladding, panels thicknesses and modular widths (details from the Sales Representative)

** typical lining thicknesses; also available 0.6 and 0.7 mm (details from our Sales Representative)

Thermal performance of panels depends on the thickness of the core and is expressed as a coefficient of heat transfer through a space dividing element (shown in the table below). Acoustic parameters were determined on the basis of **EN ISO 10140-3** and **EN-ISO 354**. Coldstore plates can be used as partitions of the requirements of sound insulation no greater than those specified below. Resistance to chemical corrosion - sandwich panels can be used in environments with atmosphere corrosiveness category C1, C2, C3 according to **EN ISO 12944-2**.

▷ TECHNICAL PARAMETERS OF PIR CORE

Thickness [mm]	Heat-transfer coefficient $U_{d,s}$ [W/m ² ·K]	Acoustic insulation	Reaction to fire	Fire resistance	NRO
	EN 14509	EN ISO 717-1	EN 13501-1	EN 13501-2	PN-B-02867
100	0,22*/ 0,19**	$R_w = 23 \text{ dB}$ $R_{a1} = 21 \text{ dB}$ $R_{a2} = 20 \text{ dB}$	B-s1, d0	Ei30 (Conditions according to classification)	„NRO“
120	0,18*/ 0,16**		B-s2, d0 (with gasket EPDM)		
160	0,14*/ 0,12**				
200	0,11*/ 0,10**				

* U-factor for panels with conventional cores with coefficient $\lambda = 0,022 \text{ W/m}\cdot\text{K}$

** U-factor for panels with conventional PIR MAX cores with coefficient $\lambda = 0,019 \text{ W/m}\cdot\text{K}$

▷ PANEL THICKNESS SELECTION

Panel thickness suitable for the facility is chosen by the designer depending on the temperature difference inside and outside the room.

The following table shows the values of heat flux for each sandwich panel. The recommended maximum heat flux density value for cold storage is **10 W/m²**.

An example of panel selection:

Internal temperature: **-15 °C**

External temperature: **+35 °C**

$$\Delta t = 50\text{ °C}$$

Panel suitable for covering an object with an internal temperature of **-15 °C** is **GS insPIRe® CH / GS insPIRe® CH MAX** with a thickness of **120 mm**, for which the heat flux density is **9,24 W/m²**

Temperature difference Δt [°C]	Panel type and thickness [mm]					
	GS insPIRe S / GSinsPIRe S MAX			GS insPIRe CH / GSinsPIRe CH MAX		
	60	80	100	120	160	200
Heat flux density [W/m²]						
10	3,73	2,78	2,22	1,85	1,38	1,11
15	5,59	4,18	3,33	2,77	2,08	1,66
20	7,46	5,57	4,44	3,70	2,77	2,21
25	9,32	6,96	5,56	4,62	3,46	2,76
30	11,19	8,35	6,67	5,55	4,15	3,32
35	13,05	9,75	7,78	6,47	4,84	3,87
40	14,92	11,14	8,89	7,39	5,53	4,42
45	16,78	12,53	10,00	8,32	6,23	4,97
50	18,64	13,92	11,11	9,24	6,92	5,53
55	20,51	15,32	12,22	10,17	7,61	6,08
60	22,37	16,71	13,33	11,09	8,30	6,63
65	24,24	18,10	14,44	12,02	8,99	7,19
70	26,10	19,49	15,56	12,94	9,69	7,74
75	27,97	20,89	16,67	13,87	10,38	8,29
80	29,83	22,28	17,78	14,79	11,07	8,84
85	31,69	23,67	18,89	15,71	11,76	9,40
90	33,56	25,06	20,00	16,64	12,45	9,95
95	35,42	26,46	21,11	17,56	13,14	10,50

▷ PACKING

Sandwich panels are packed in packages on pallets to allow their transport. A typical height of such package is **1000 mm to 1120 mm**. The number of panels in each package depends on their thickness. Details in the table below.

Panel thickness [mm]	100	120	160	200
Maximum number of panels in one pack	11	9	7	5

▷ TABLE OF ALLOWED LOADS FOR GS insPIRe® CH / GS insPIRe® CH MAX SANDWICH PANEL

The load capacity tables have been prepared in accordance with EN 14509 for PIR core panels with facings of thickness 0.5 mm in light colors for an indoor temperature of 20 °C. The adopted deflection limit is L/100. In the case of a different sheet thickness, limit deflections, temperatures, fastening or dark colors of the cladding, separate calculations must be made. The minimum width of the supports is 40 mm and 60 mm (intermediate). Number of fasteners necessary for intermediate supports - 4, for extreme supports - 3. Detailed tables of permissible loads are available on the website.

Table of maximum permissible loads for **GS insPIRe® CH / GS insPIRe® CH MAX** in a single span, in support direction (pressure)

Panel thickness	Internal temperature [st. C]	The load due to:	The maximum load [kN/m ²] on the span length [m]:									
			1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
100	20	SGN (q _d)	7,617	5,673	4,520	3,756	3,125	2,385	1,880	1,520	1,254	1,052
		SGU (q _k)	9,695	7,222	5,754	4,728	3,551	2,711	2,137	1,728	1,426	1,195
120	0	SGN (q _d)	7,631	5,684	4,528	3,763	3,219	2,812	2,258	1,825	1,506	1,264
		SGU (q _k)	9,713	7,235	5,764	4,790	4,098	3,256	2,567	2,075	1,712	1,437
160	-15	SGN (q _d)	7,631	5,684	4,528	3,763	3,219	2,812	2,497	2,245	1,882	1,579
		SGU (q _k)	9,713	7,235	5,764	4,790	4,098	3,580	3,179	2,592	2,139	1,795
200	-25	SGN (q _d)	7,631	5,684	4,528	3,763	3,219	2,812	2,497	2,245	2,039	1,868
		SGU (q _k)	9,713	7,235	5,764	4,790	4,098	3,580	3,179	2,858	2,596	2,245

Table of maximum permissible loads for **GS insPIRe® CH / GS insPIRe® CH MAX** in a single span, in non-support direction (suction)

Panel thickness	Internal temperature [st. C]	The load due to:	The maximum load [kN/m ²] on the span length [m]:									
			1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
100	20	SGN (q _d)	4,232	3,152	2,511	2,086	1,785	1,559	1,384	1,245	1,130	1,035
		SGU (q _k)	3,369	2,509	1,999	1,661	1,421	1,241	1,102	0,991	0,900	1,195
120 160 200	5 -25	SGN (q _d)	4,232	3,152	2,511	2,086	1,785	1,559	1,384	1,245	1,130	1,035
		SGU (q _k)	3,369	2,509	1,999	1,661	1,421	1,241	1,102	0,991	0,900	0,825

Table of maximum permissible loads for **GS insPIRe® CH / GS insPIRe® CH MAX** in a single span, in non-support direction (suction)

Panel thickness	Internal temperature [st. C]	The load due to:	The maximum load [kN/m ²] on the span length [m]:									
			1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
100	20	SGN (q _d)	5,872	4,319	3,422	2,837	2,338	1,696	1,288	1,014	0,820	0,677
		SGU (q _k)	7,654	5,623	4,446	3,679	3,139	2,311	1,767	1,397	1,133	0,939
120	0	SGN (q _d)	6,028	4,436	3,504	2,898	2,472	2,156	1,912	1,497	1,204	0,989
		SGU (q _k)	7,794	5,718	4,513	3,728	3,177	2,768	2,427	1,917	1,554	1,286
160	-15	SGN (q _d)	4,546	3,380	3,030	2,814	2,516	1,669	1,129	0,795	0,580	0,435
		SGU (q _k)	7,926	5,811	4,578	3,775	3,212	2,795	2,475	2,220	1,973	1,629
200	-25	SGN (q _d)	2,420	1,742	1,560	1,454	1,373	1,235	0,770	0,422	0,216	0,091
		SGU (q _k)	7,788	5,872	4,638	3,821	2,823	2,817	2,496	2,238	2,028	1,854

Table of maximum permissible loads for **GS insPIRe® CH / GS insPIRe® CH MAX** in a multiple span, in support direction (pressure)

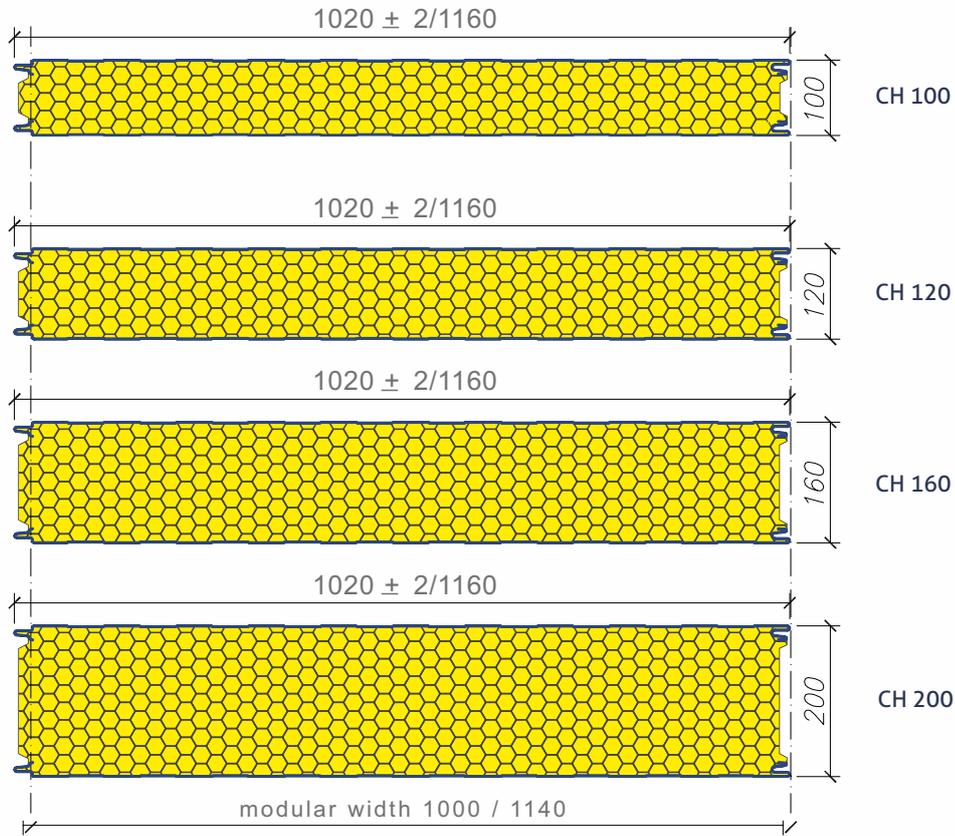
Panel thickness	Internal temperature [st. C]	The load due to:	The maximum load [kN/m ²] on the span length [m]:									
			1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
100	20	SGN (q _d)	2,426	1,792	1,430	1,194	1,028	0,903	0,806	0,728	0,664	0,603
		SGU (q _k)	2,006	1,480	1,178	0,843	0,843	0,740	0,659	0,595	0,542	0,498
120	0	SGN (q _d)	2,241	1,654	1,325	1,114	0,964	0,715	0,450	0,299	0,207	0,148
		SGU (q _k)	1,885	1,389	1,109	0,929	0,802	0,706	0,632	0,572	0,523	0,481
160	-15	SGN (q _d)	2,044	1,490	1,194	-	-	-	-	-	-	-
		SGU (q _k)	1,756	1,282	1,023	0,859	0,745	0,660	0,593	0,540	0,495	0,458
200	-25	SGN (q _d)	1,887	1,351	1,004	-	-	-	-	-	-	-
		SGU (q _k)	1,653	1,190	0,945	0,794	0,715	0,630	0,556	0,508	0,468	0,434

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

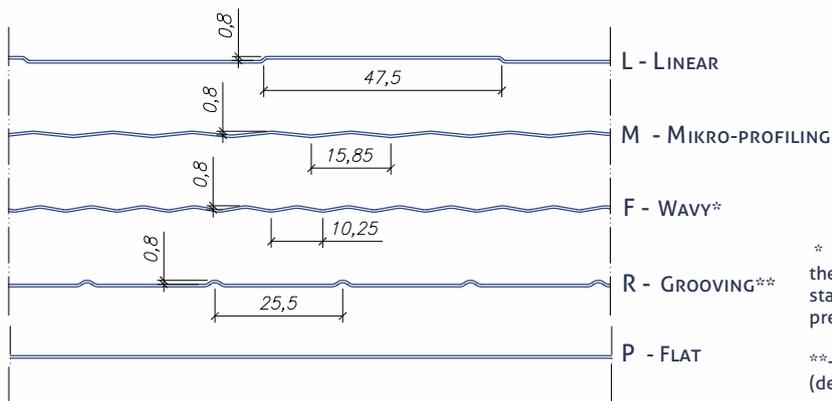
- ▷ GS insPIRe® CH / GS insPIRe® CH MAX panel manufacturing program:
 - ▷ panel thicknesses
 - ▷ profiles of outer and inner facing



▷ PANEL THICKNESS



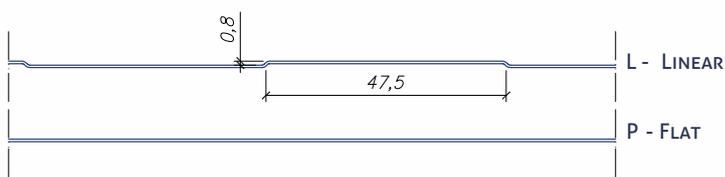
External lining profiles



* - Profiling used for new orders as of February 2020. In the case when ordering panels for existing casings, please state this fact when placing the order and provide the previous order number as a reference.

** - for module 1140 performed after prior arrangement (details from Sales Representative)

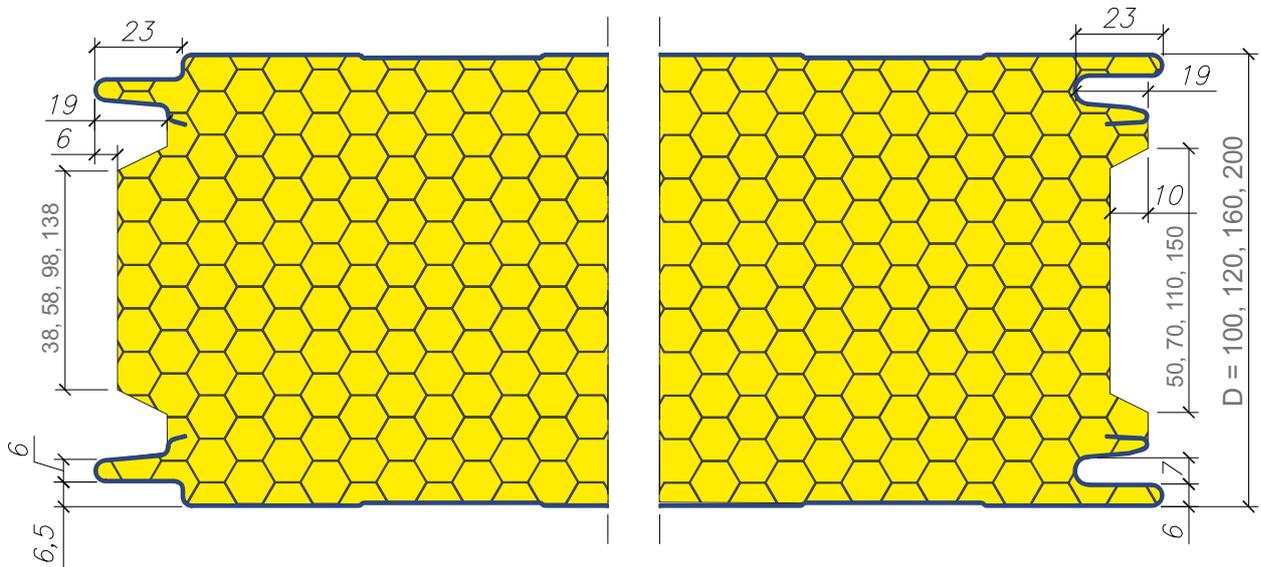
Internal lining profiles



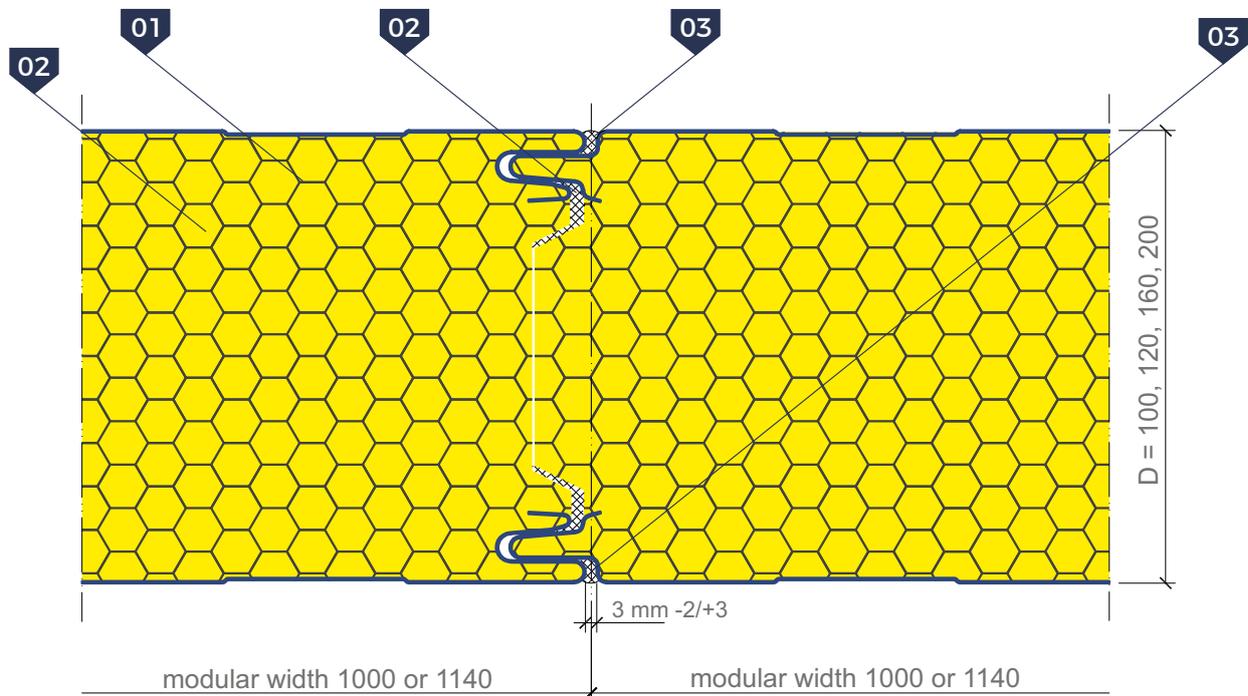
Example details of cooling and production rooms constructed with sandwich panels GS insPIRe® CH / GS insPIRe® CH MAX

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Shape of the coldstore panel lock



Joining the coldstore panels

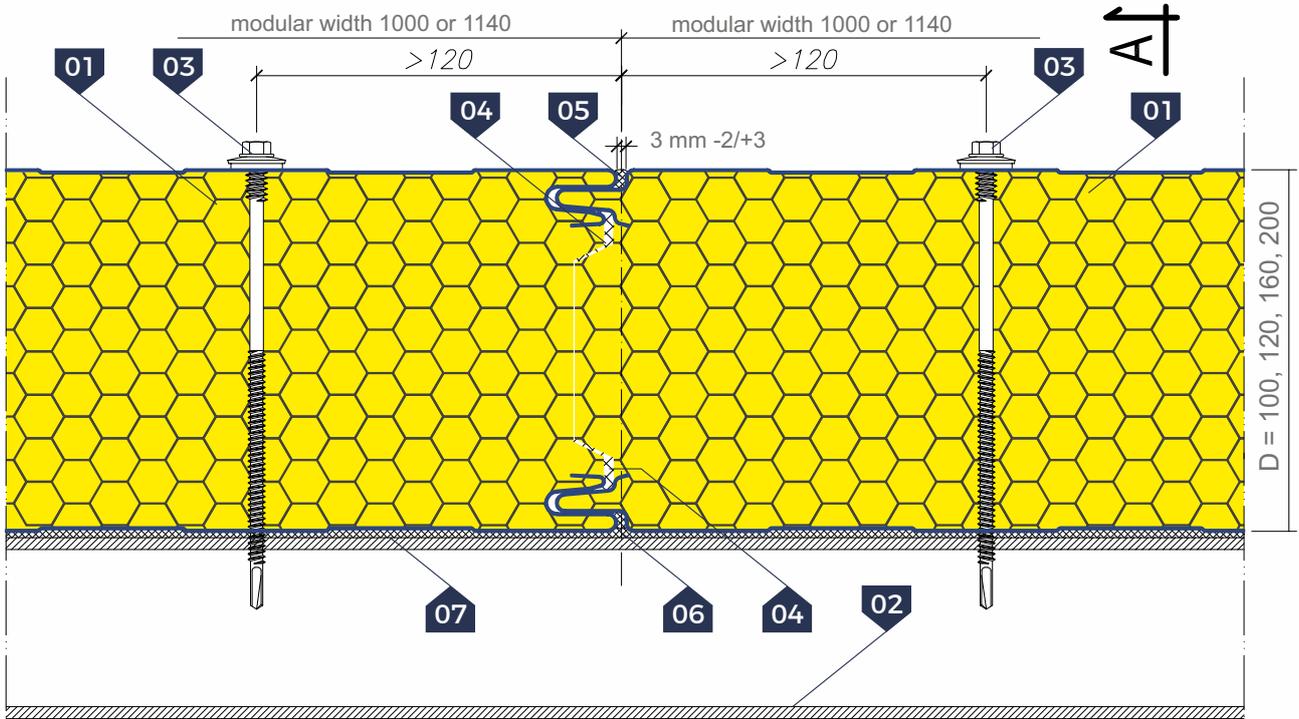


▷ **LEGEND:**

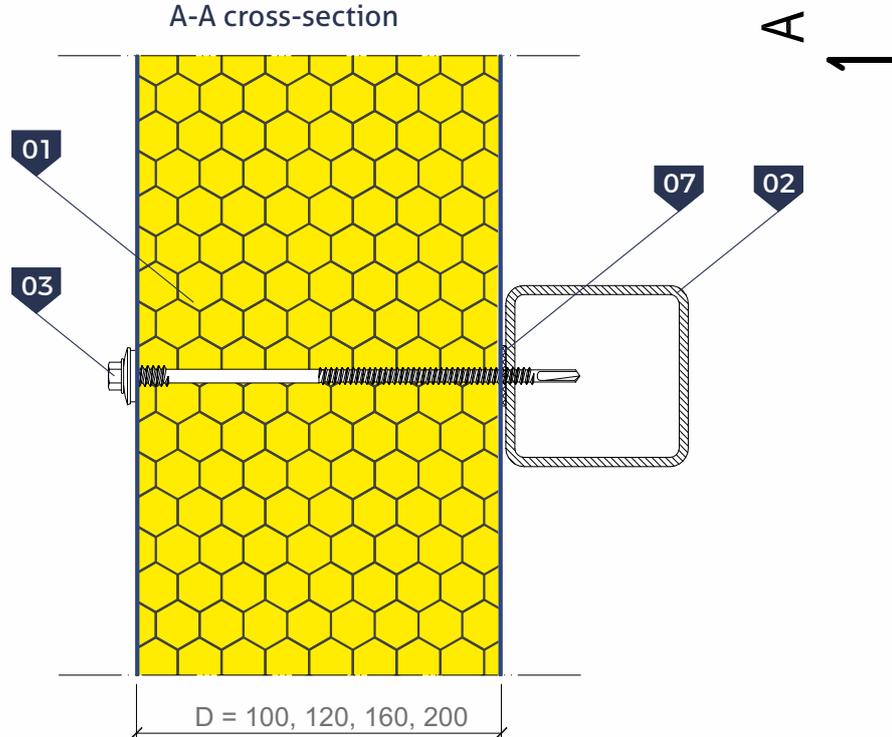
- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Polyurethane mounting foam (applied on assembly)
- 03. Permanently plastic mass (applied during assembly)

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Mounting the coldstore panels
Rooms with positive temperature



A-A cross-section



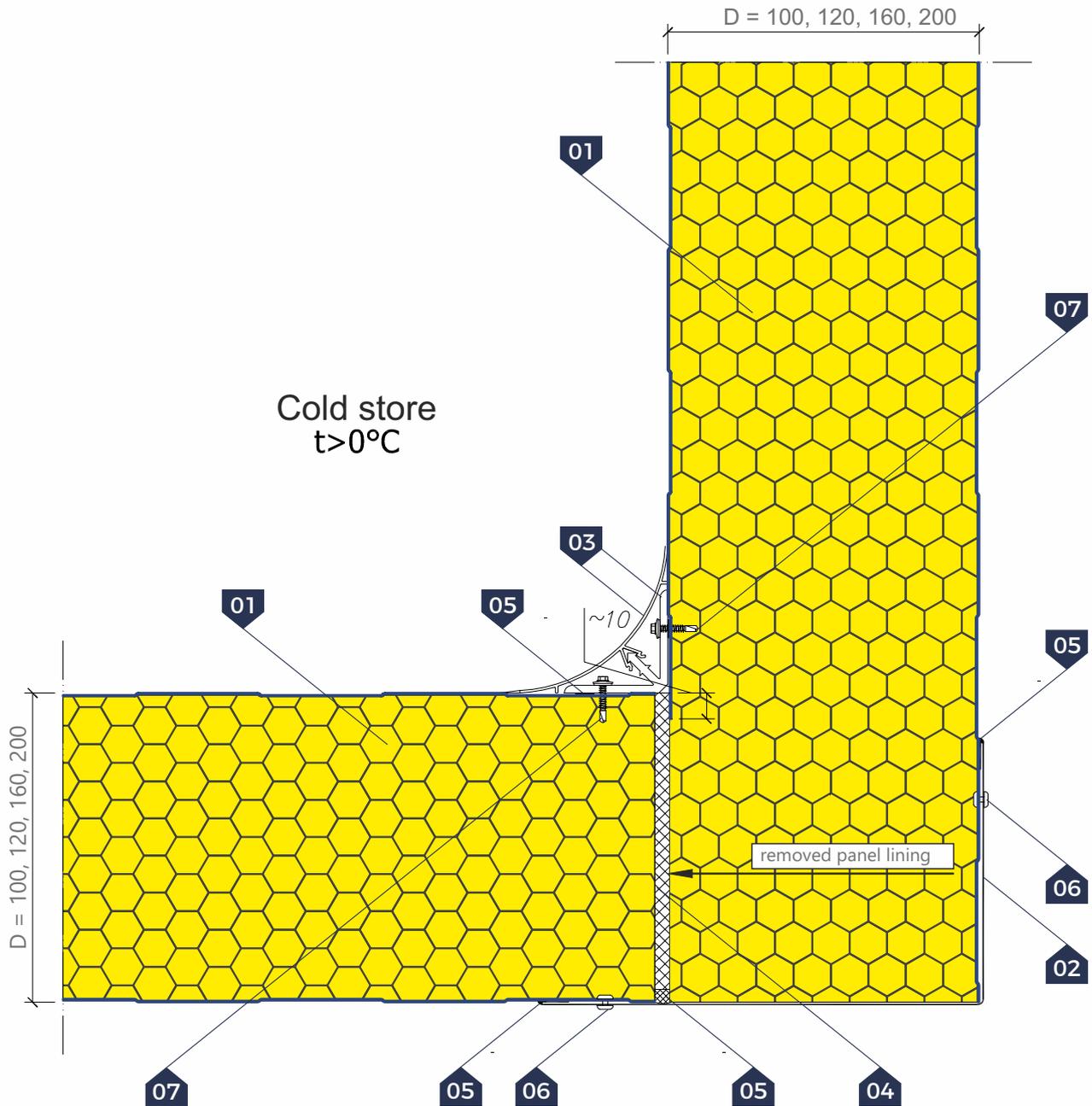
▷ **LEGEND:**

- | | |
|---|--|
| 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX | 04. Polyurethane mounting foam |
| 02. Supporting structure | 05. Permanently plastic sealing compound |
| 03. Stainless steel self-drilling fastener for mounting sandwich panels | 06. Permanently plastic sealing compound |
| | 07. Polyethylene, self-adhesive sealing tape (PES) |

▷ **NOTE:** fasten each panel along its length to a structure with a minimum of three cam-locks (this applies to full-width panels).

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Corner of the cold store wall
Option I

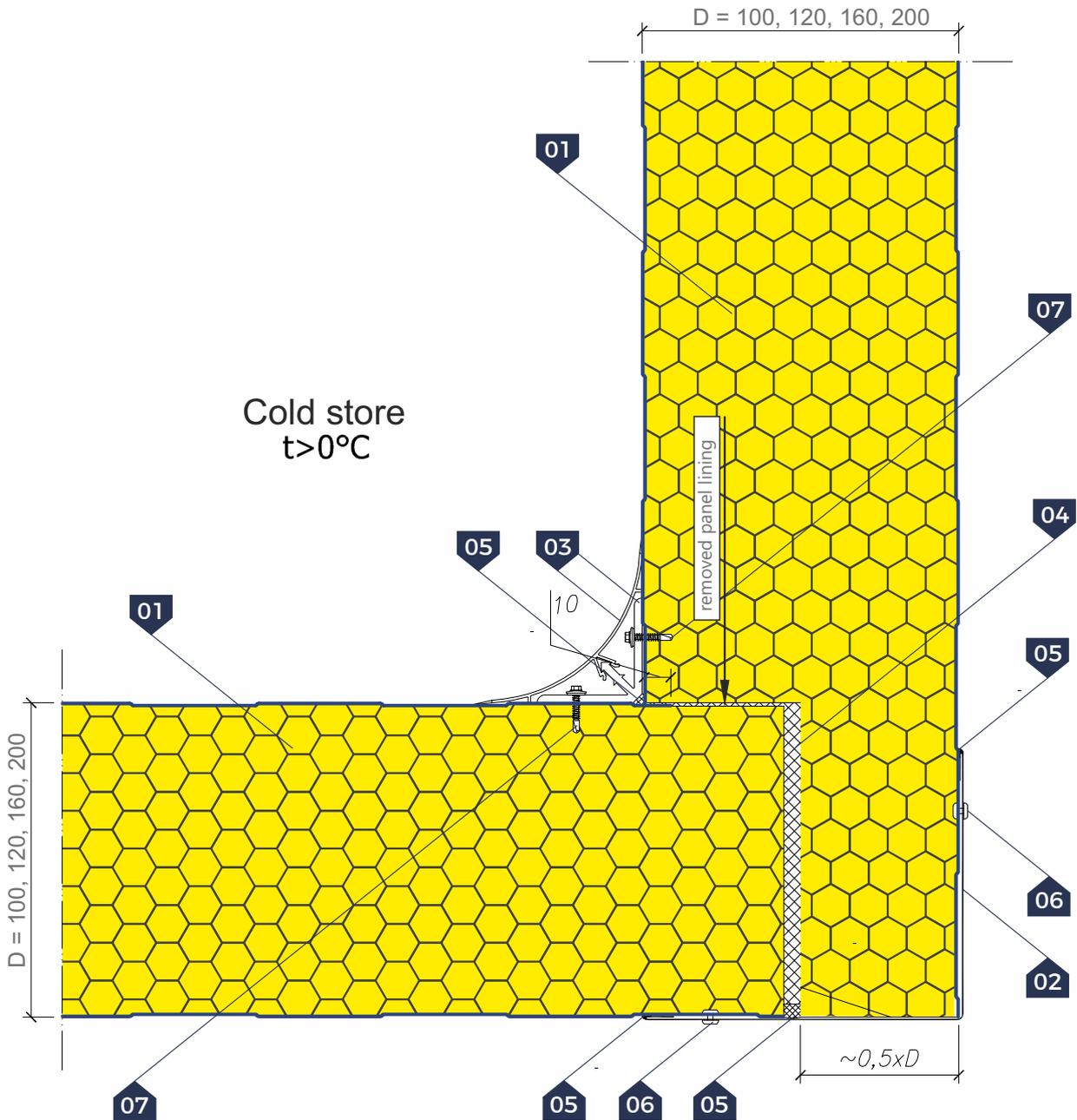


▷ **LEGEND:**

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Masking flashing
- 03. PVC corner profile
- 04. Polyurethane mounting foam
- 05. Permanently plastic sealing compound
- 06. Self-drilling connector for steel sheets or rivet 4.0 x 8.0
- 07. Self-drilling stainless fastener with seal

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Corner of the cold store wall
Option II

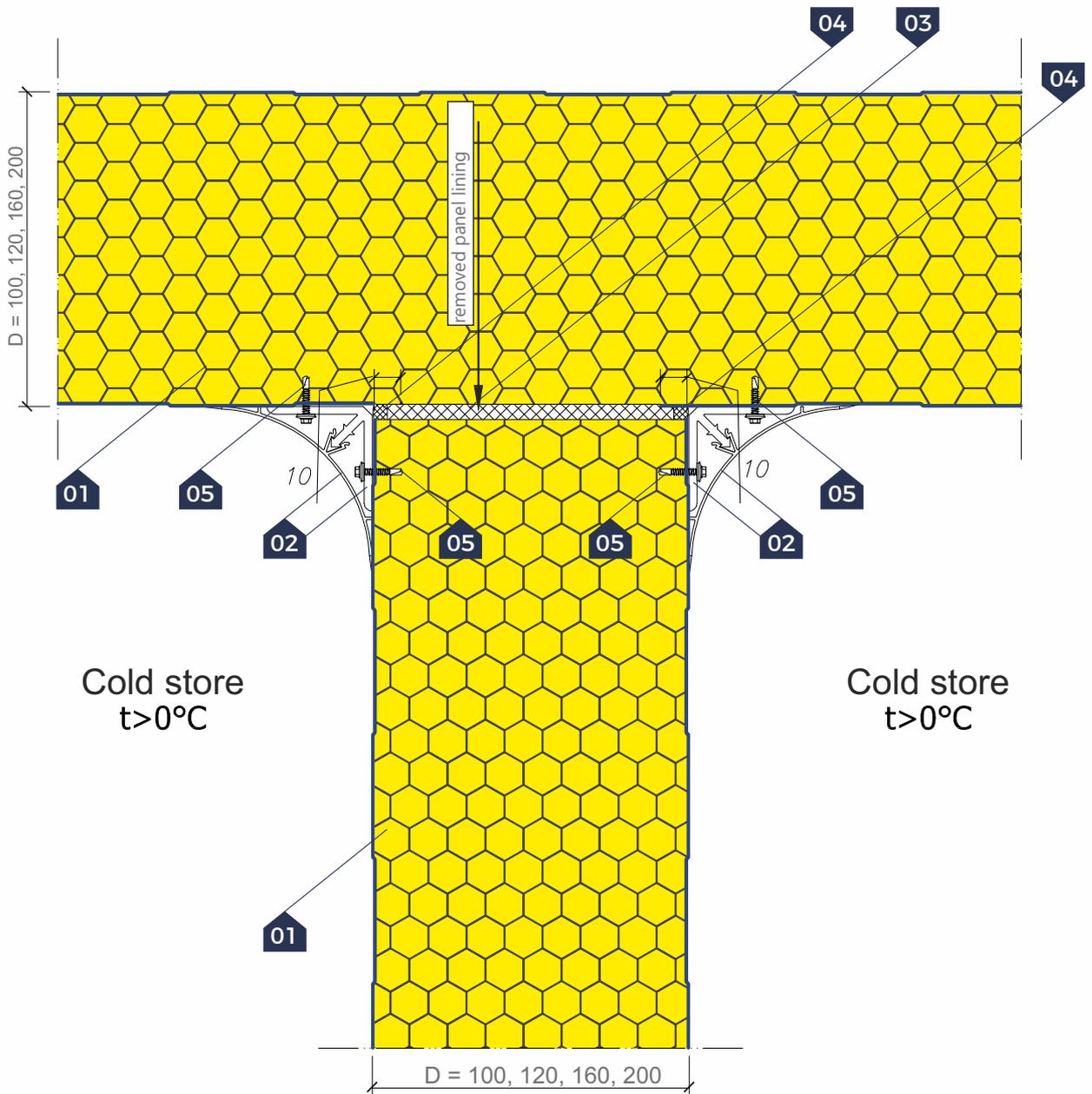


▷ **LEGEND:**

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Masking flashing
- 03. PVC corner profile
- 04. Polyurethane mounting foam
- 05. Permanently plastic sealing compound
- 06. Self-drilling connector for steel sheets or rivet 4.0 x 8.0
- 07. Self-drilling stainless fastener with seal

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Joining the partition wall with the external wall

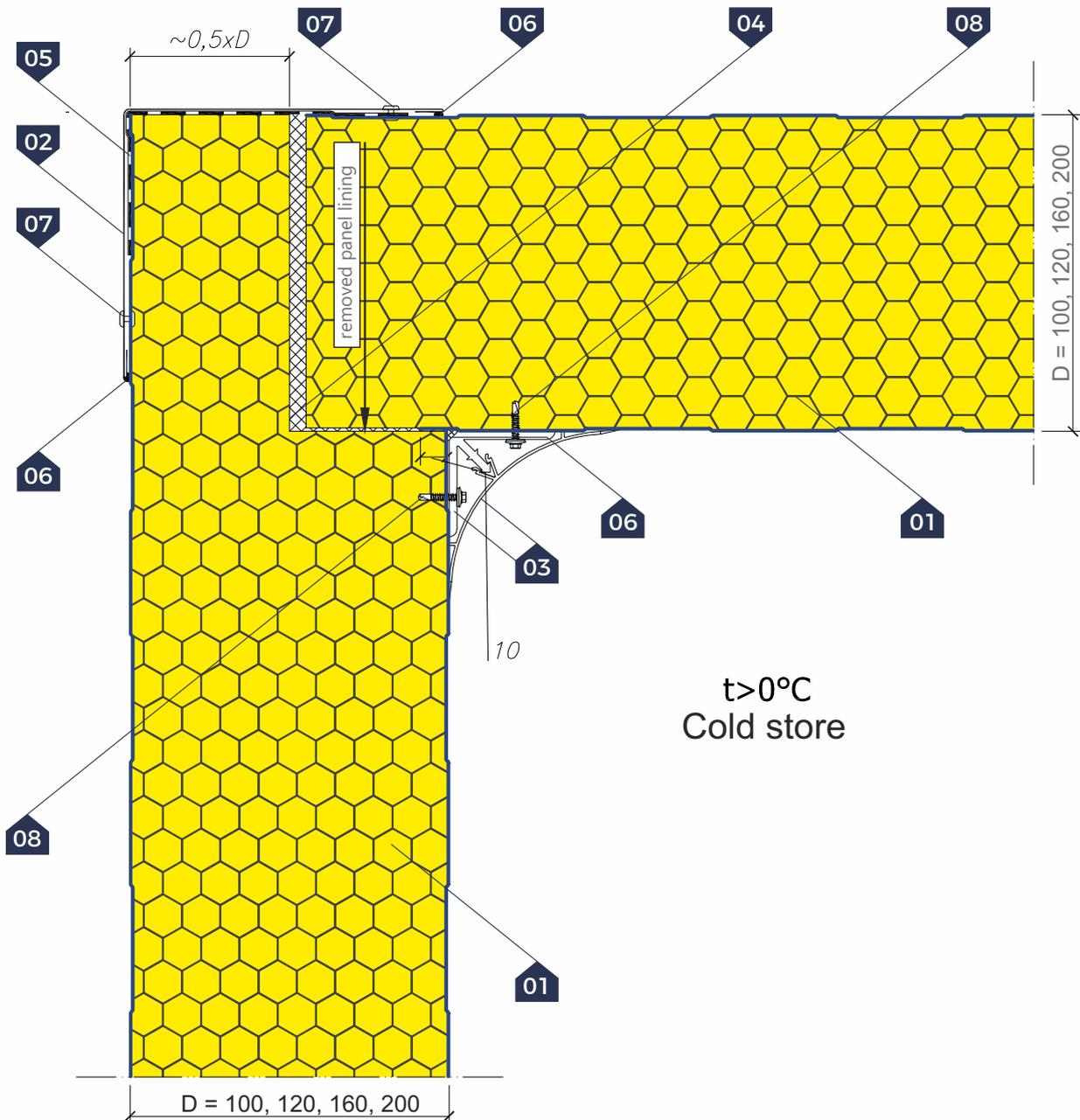


▷ **LEGEND:**

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. PVC corner profile
- 03. Polyurethane mounting foam (applied on assembly)
- 04. Permanently plastic sealing compound
- 05. Self-drilling stainless fastener with seal

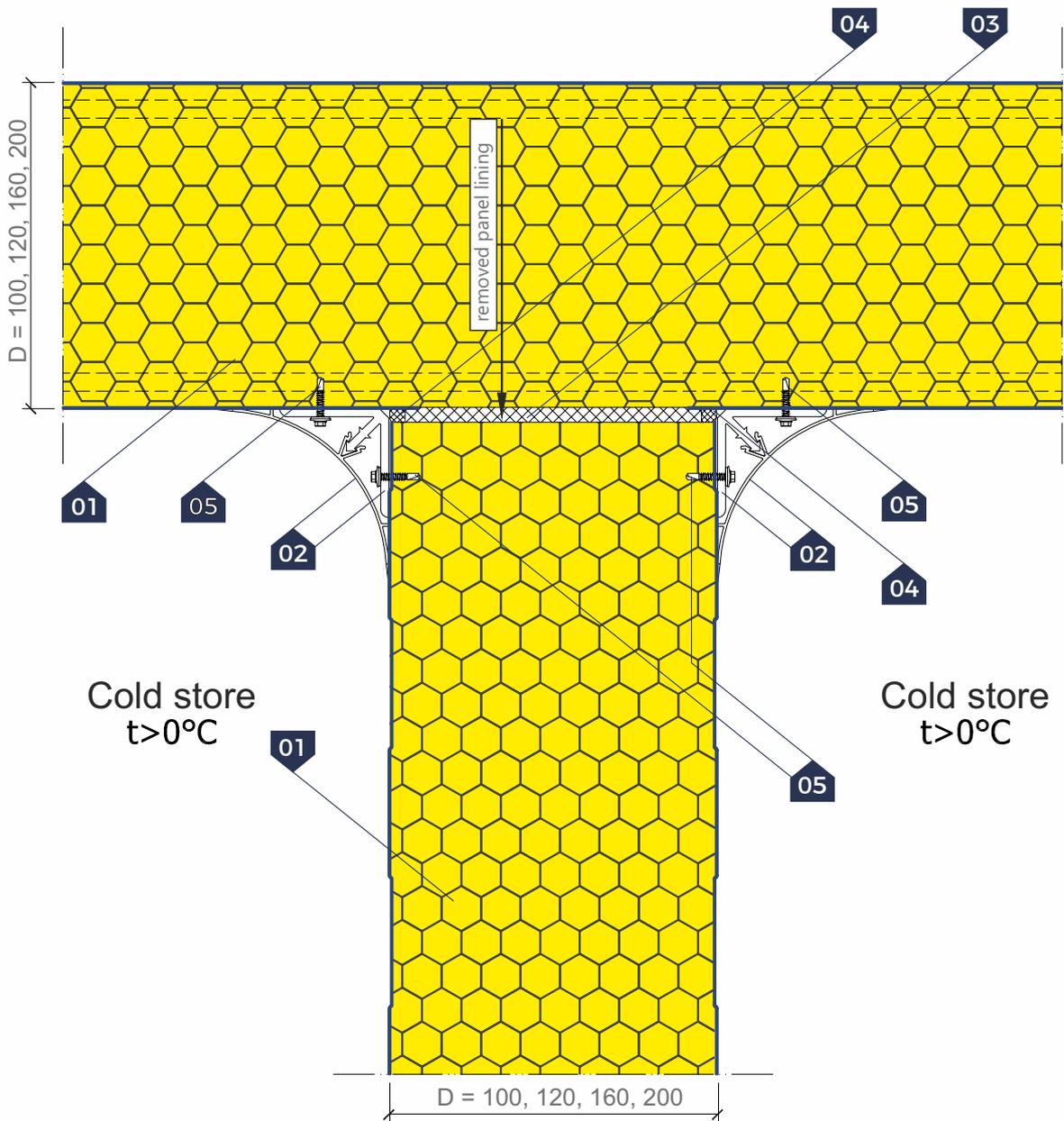
Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Corner of the wall panel and the roof panel



▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Masking flashing
- 03. PVC corner profile
- 04. Polyurethane mounting foam
- 05. Vapour control layer – bitumen tape or polyethylene foil
- 06. Permanently plastic sealing compound
- 07. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**
- 08. Self-drilling stainless fastener with seal



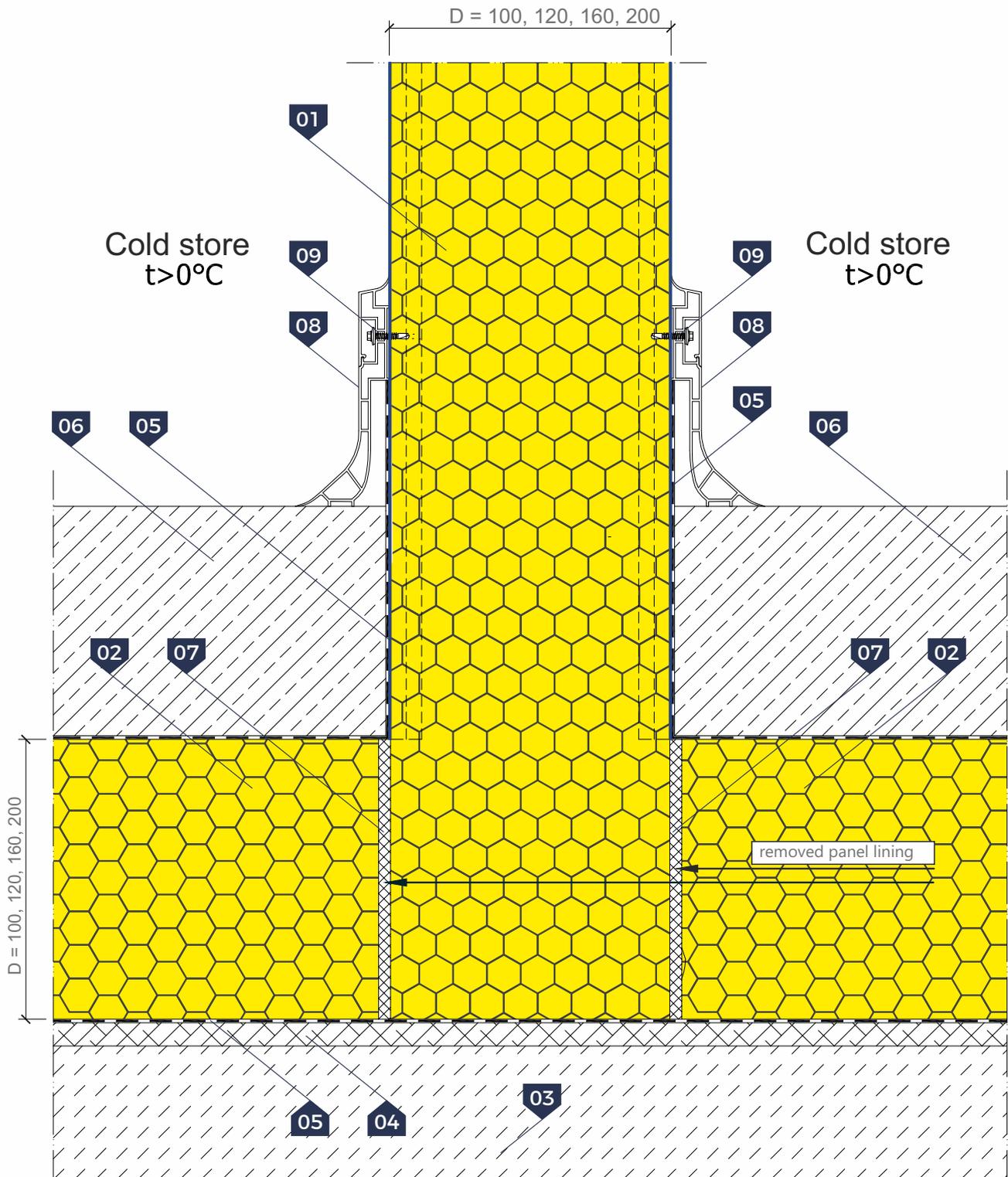
▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. PVC corner profile
- 03. Polyurethane mounting foam
- 04. Permanently plastic sealing compound
- 05. Self-drilling stainless fastener with seal

▷ **NOTE:** The cladding is removed only when the wall runs perpendicular to the locks of the floor slab

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Partition wall at the floor



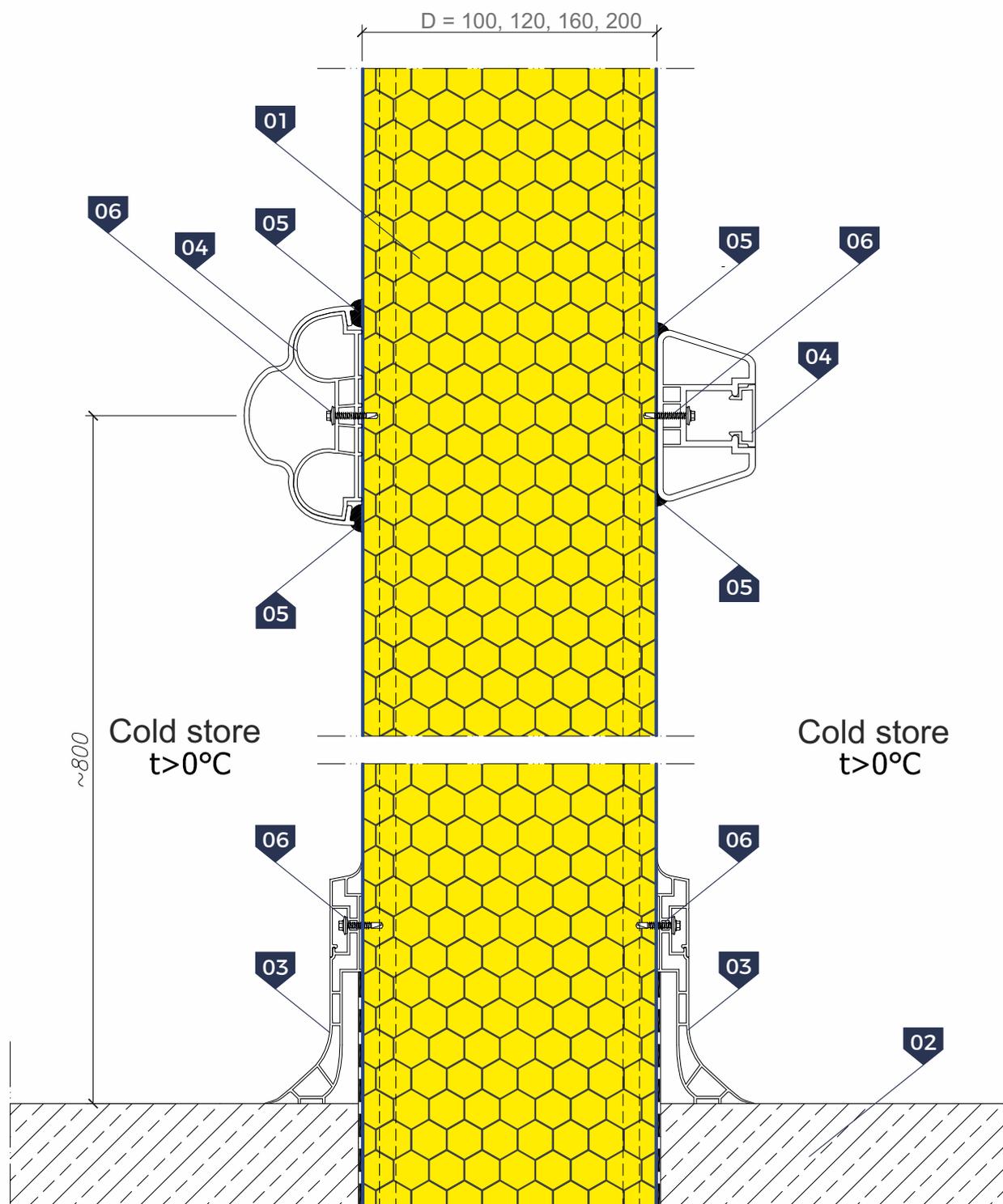
▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. **termPIR** insulation boards
- 03. Concrete floor plate
- 04. Cement levelling layer
- 05. Vapour control layer – felt or PE foil

- 06. Concrete floor acc. to architectural design
- 07. Polyurethane mounting foam
- 08. **PVC** baseboard
- 09. Self-drilling stainless fastener with seal

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Profiles securing the wall panel

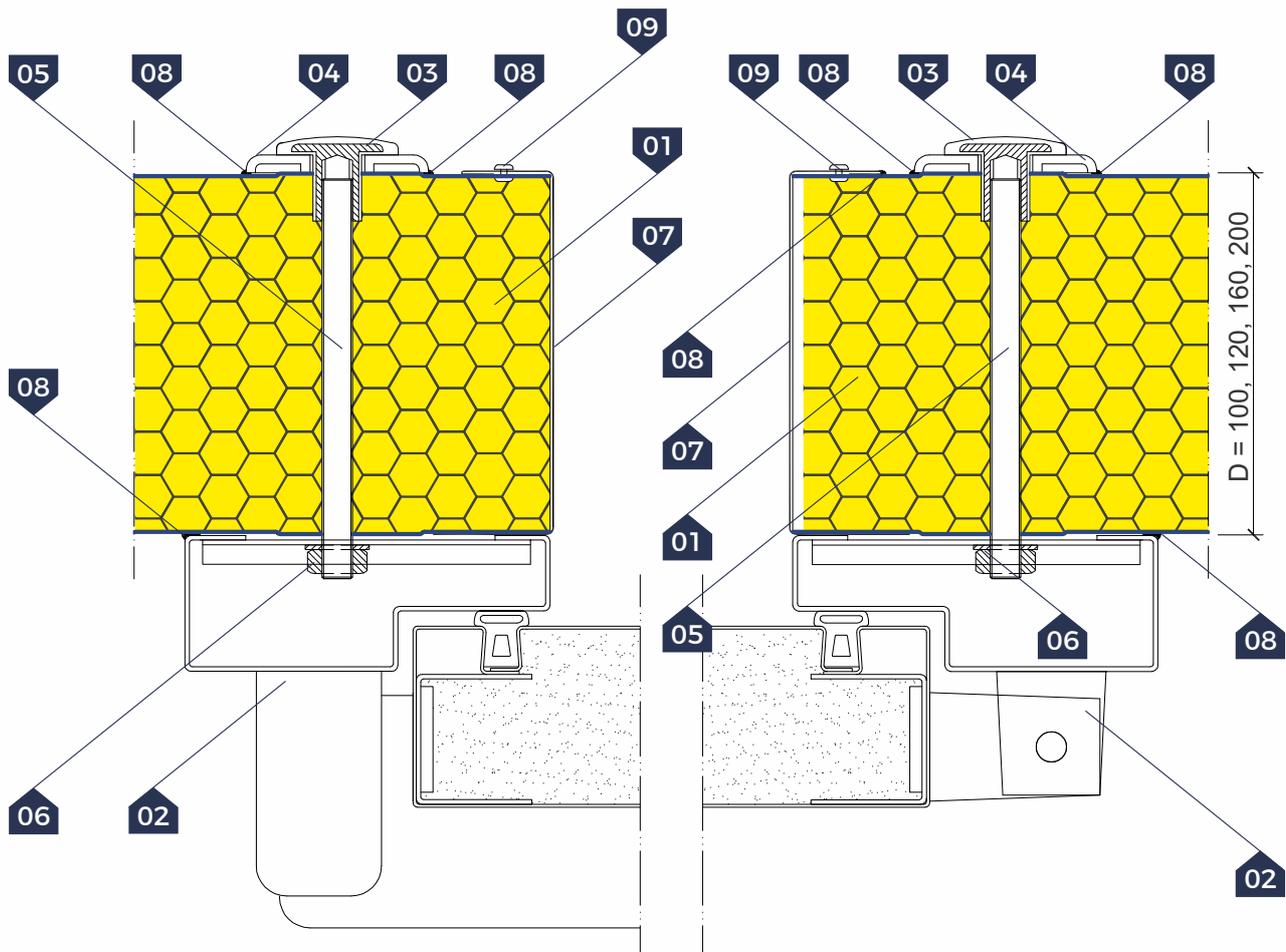


▷ LEGEND:

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Concrete floor acc. to architectural design
- 03. PVC baseboard
- 04. PCW bumper strip
- 05. Permanently plastic sealing compound
- 06. Self-drilling stainless fastener with seal

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Mounting of the cold store door
Horizontal cross-section

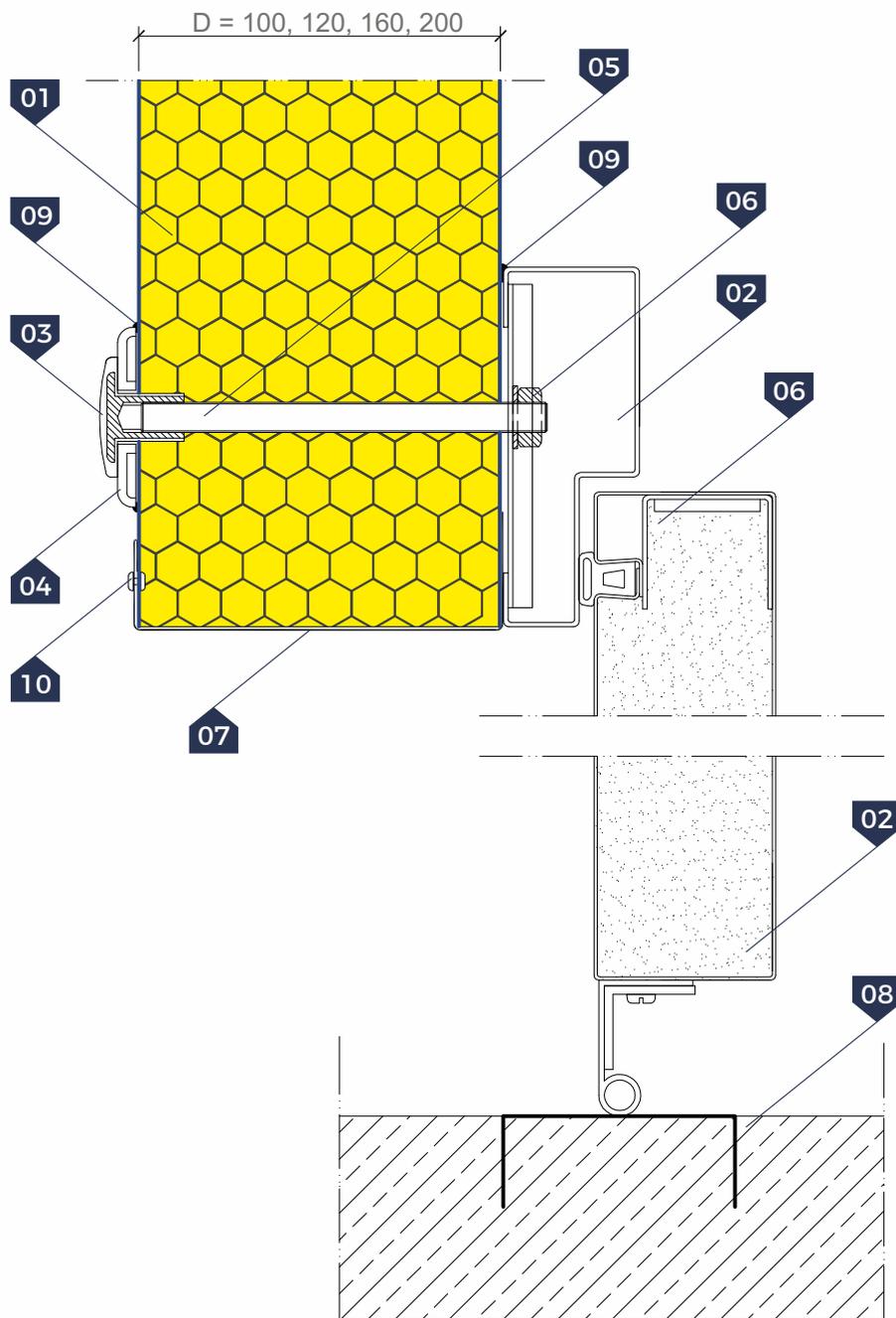


▷ LEGEND:

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Cold store door
- 03. **PVC** insulation ring with steel insert
- 04. **PVC** mounting washer
- 05. Steel galvanized threaded bar $\varnothing 10$
- 06. Steel galvanized nut **M10** with washer $\varnothing 21 / \varnothing 10.5$
- 07. Closing flashing
- 08. Permanently plastic sealing compound
- 09. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Mounting of the cold store door
Vertical cross-section



▷ LEGEND:

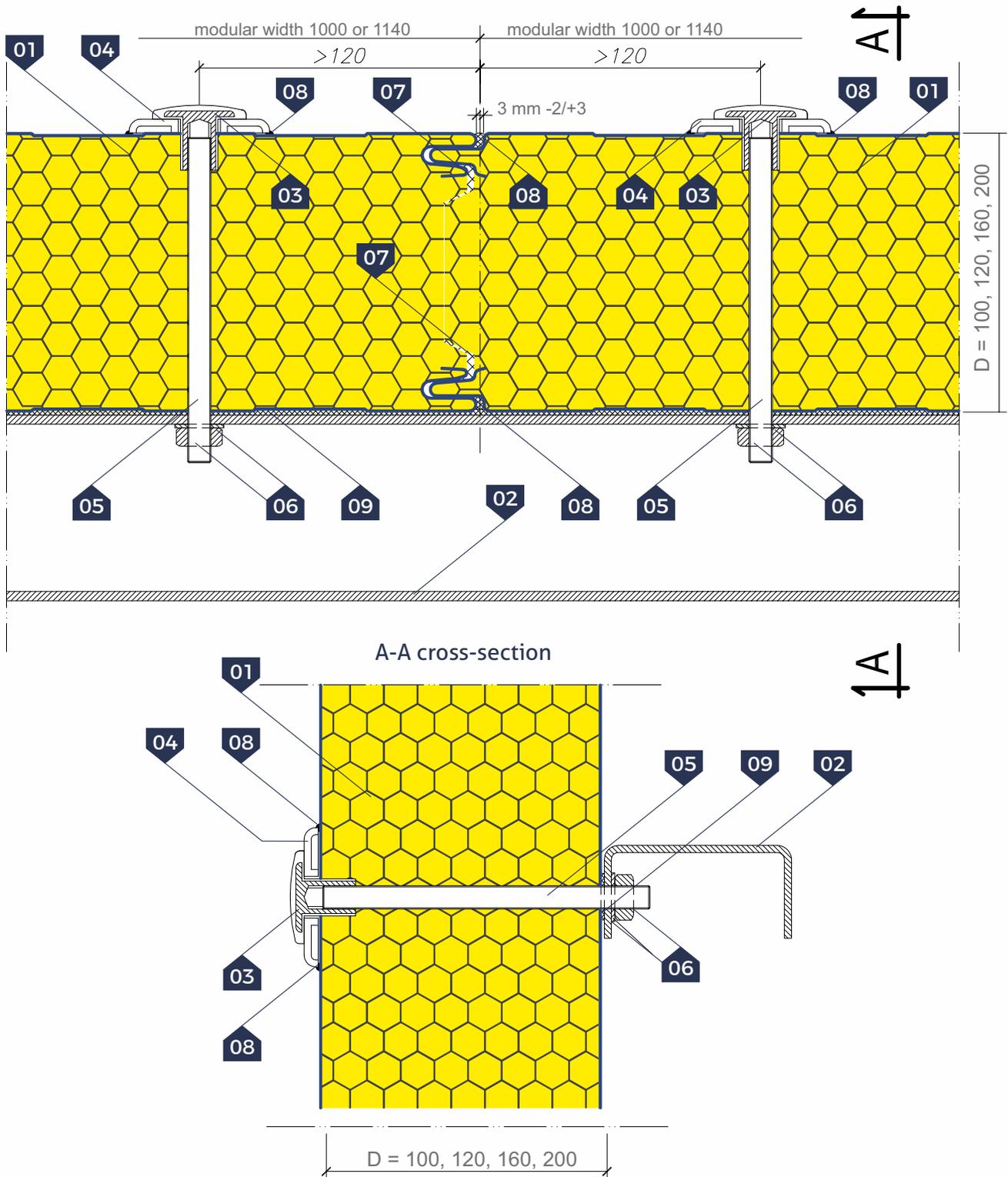
01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
02. Cold store door
03. PVC insulation ring with steel insert
04. PVC mounting washer
05. Steel galvanized threaded bar $\varnothing 10$
06. Steel galvanized nut **M10** with washer $\varnothing 21 / \varnothing 10.5$
07. Closing flashing
08. Concrete floor acc. to architectural design
09. Permanently plastic sealing compound
10. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**

Example details of freezers and warehouse rooms constructed with sandwich panels **GS insPIRe® CH / GS insPIRe® CH MAX**

Mounting the coldstore panels. Rooms with negative temperature	021
Corner of the freezer wall. Option I	022
Corner of the freezer wall. Option II	023
Joining chambers with different temperatures	024
Corner of the wall panel and the roof panel	025
Mounting the coldstore panels to the roof support	016
Suspension of coldstore panels. Option I	027
Suspension of coldstore panels. Option II	028
Joining the partition wall with the roof	029
Freezer at the socle of the external wall. Option I	030
Freezer at the socle of the external wall. Option II	031
Partition wall at the floor. Option I	032
Partition wall at the floor. Option II	033
Mounting the freezer door. Horizontal cross-section	034
Mounting the freezer door. Vertical cross-section	035

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Mounting the coldstore panels
Rooms with negative temperature

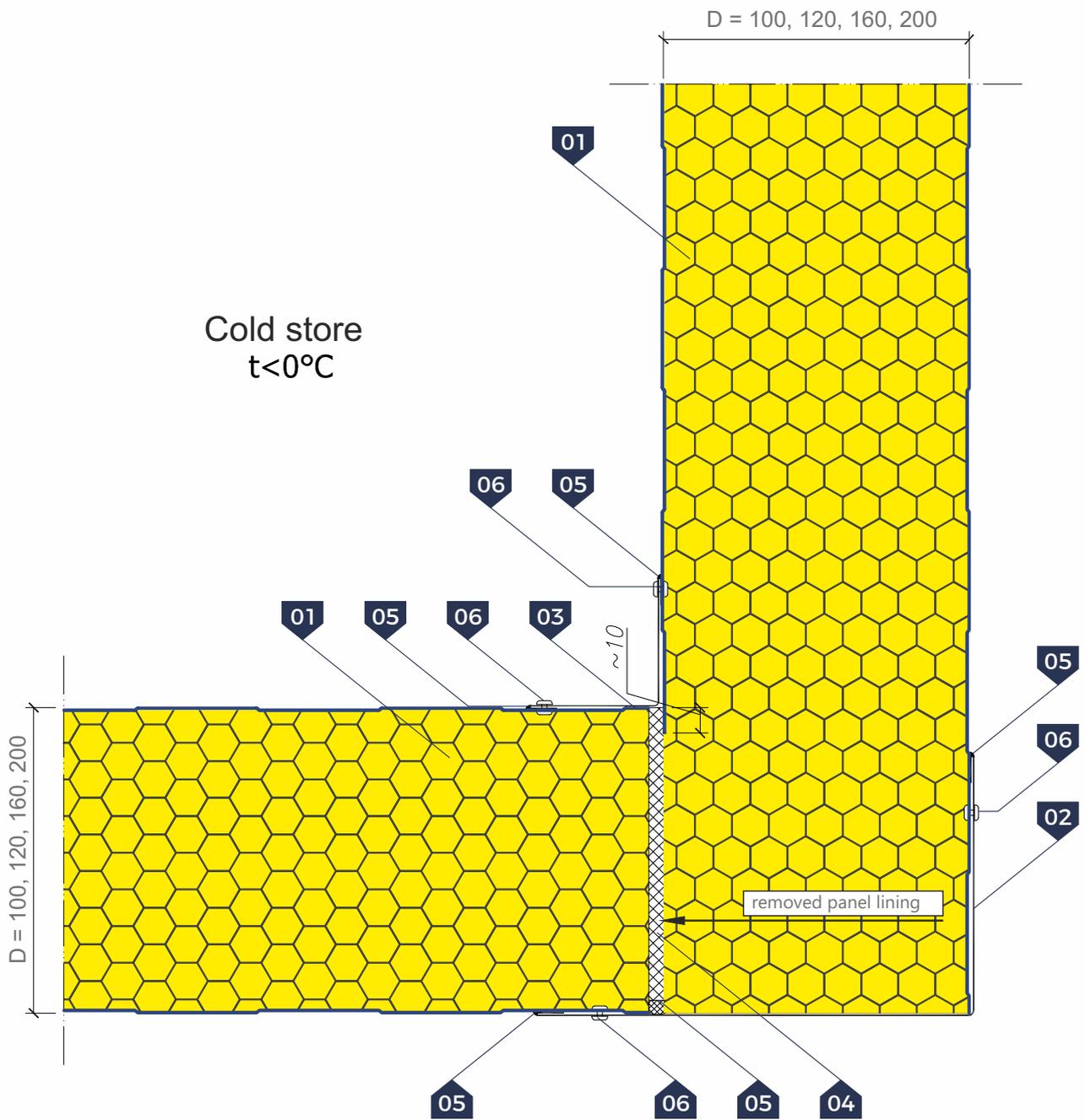


▷ **LEGEND:**

- | | |
|--|---|
| 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX | 06. Steel galvanized nut M10 with washer $\varnothing 21 / \varnothing 10.5$ |
| 02. Supporting structure | 07. Polyurethane mounting foam |
| 03. PVC insulation ring with steel insert | 08. Permanently plastic sealing compound |
| 04. PVC mounting washer | 09. Polyethylene, self-adhesive sealing tape (PES) |
| 05. Steel galvanized threaded bar $\varnothing 10$ | |

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

Corner of the freezer wall
Option I

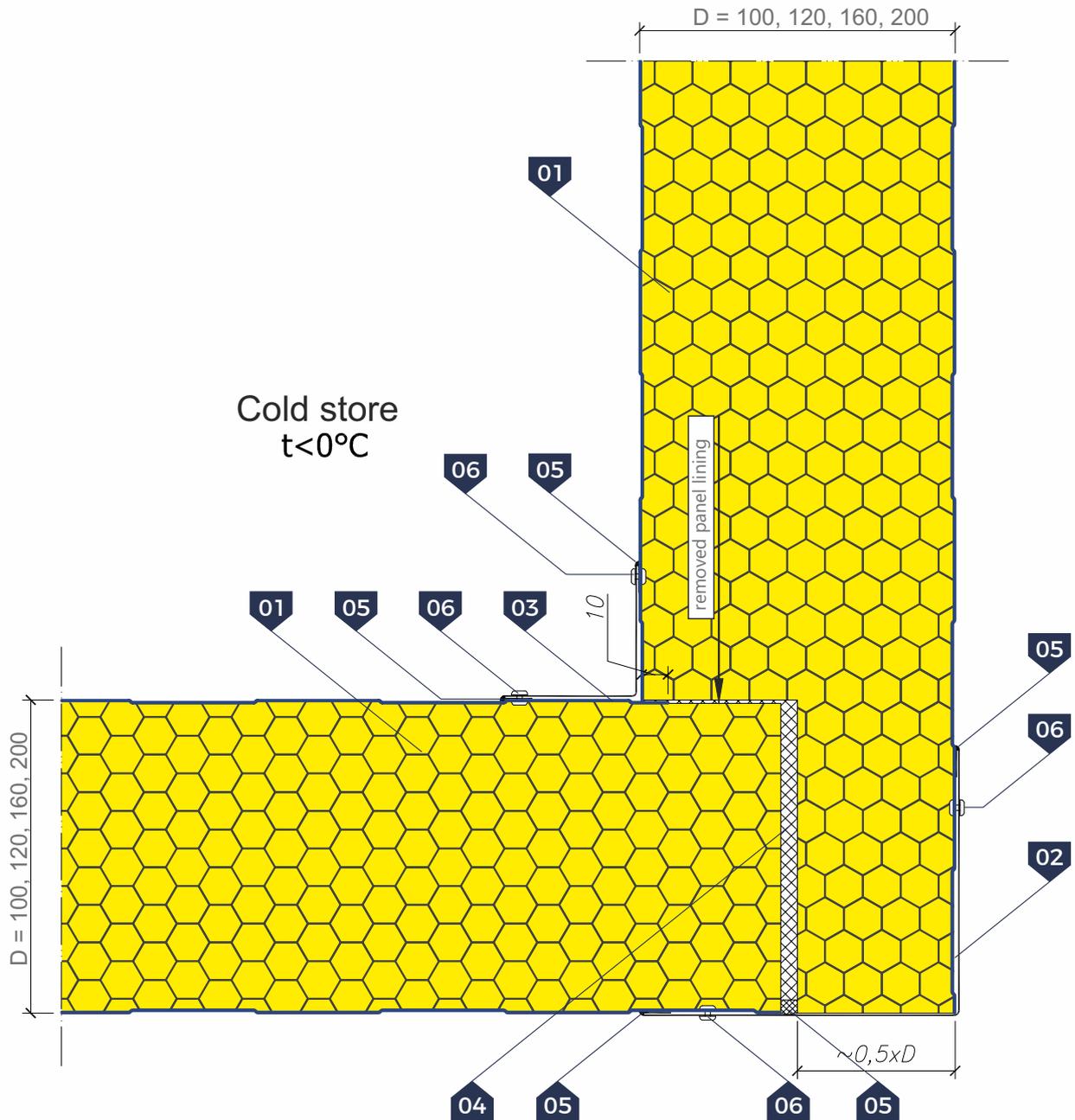


LEGEND:

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Flashing – external corner
- 03. Flashing – internal corner
- 04. Polyurethane mounting foam
- 05. Permanently plastic sealing compound
- 06. Self-drilling connector for steel sheets or rivet 4.0 x 8.0

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Corner of the freezer wall
Option II

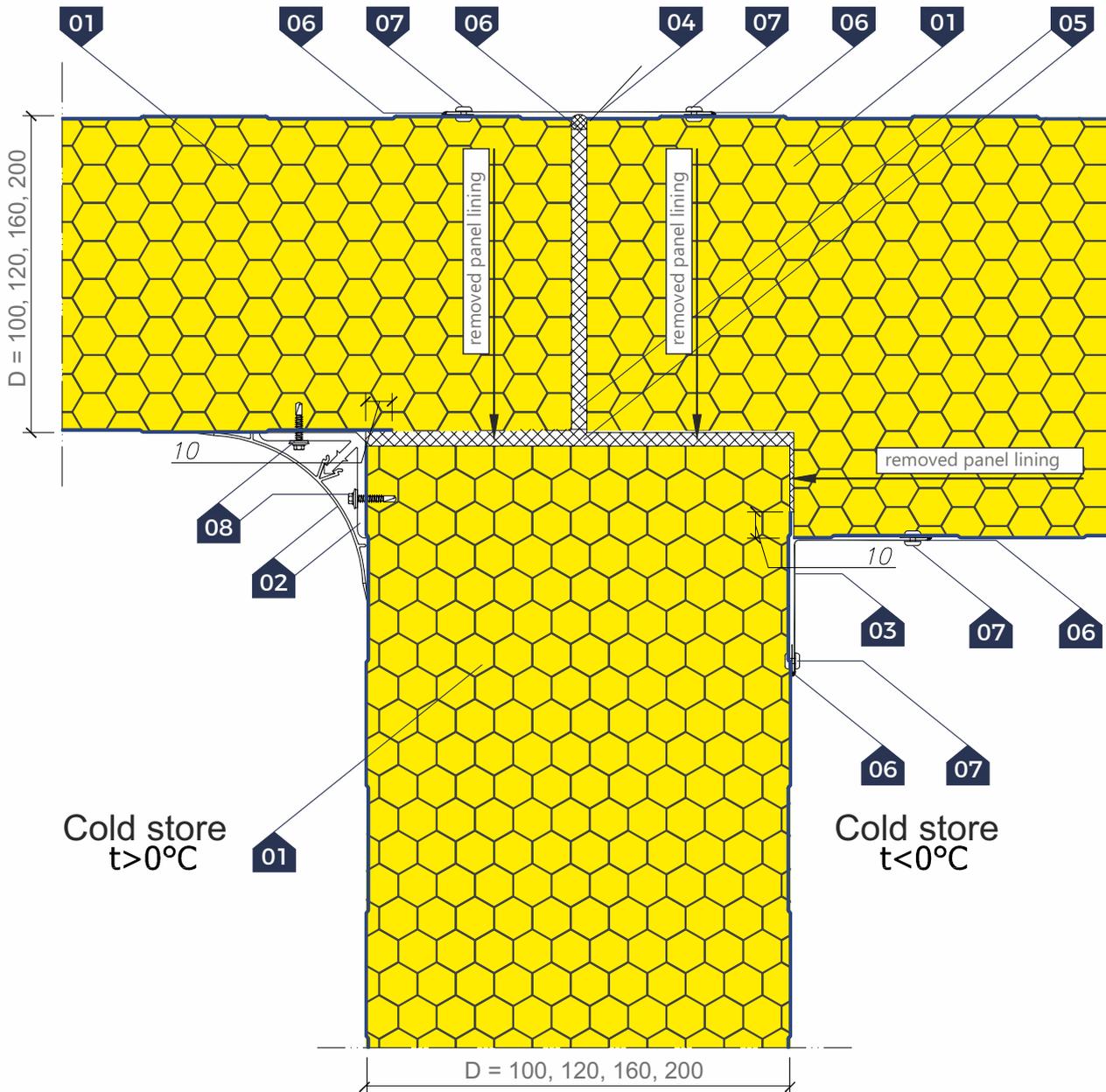


▷ LEGEND:

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Flashing – external corner
- 03. Flashing – internal corner
- 04. Polyurethane mounting foam
- 05. Permanently plastic sealing compound
- 06. Self-drilling connector for steel sheets or rivet 4.0 x 8.0

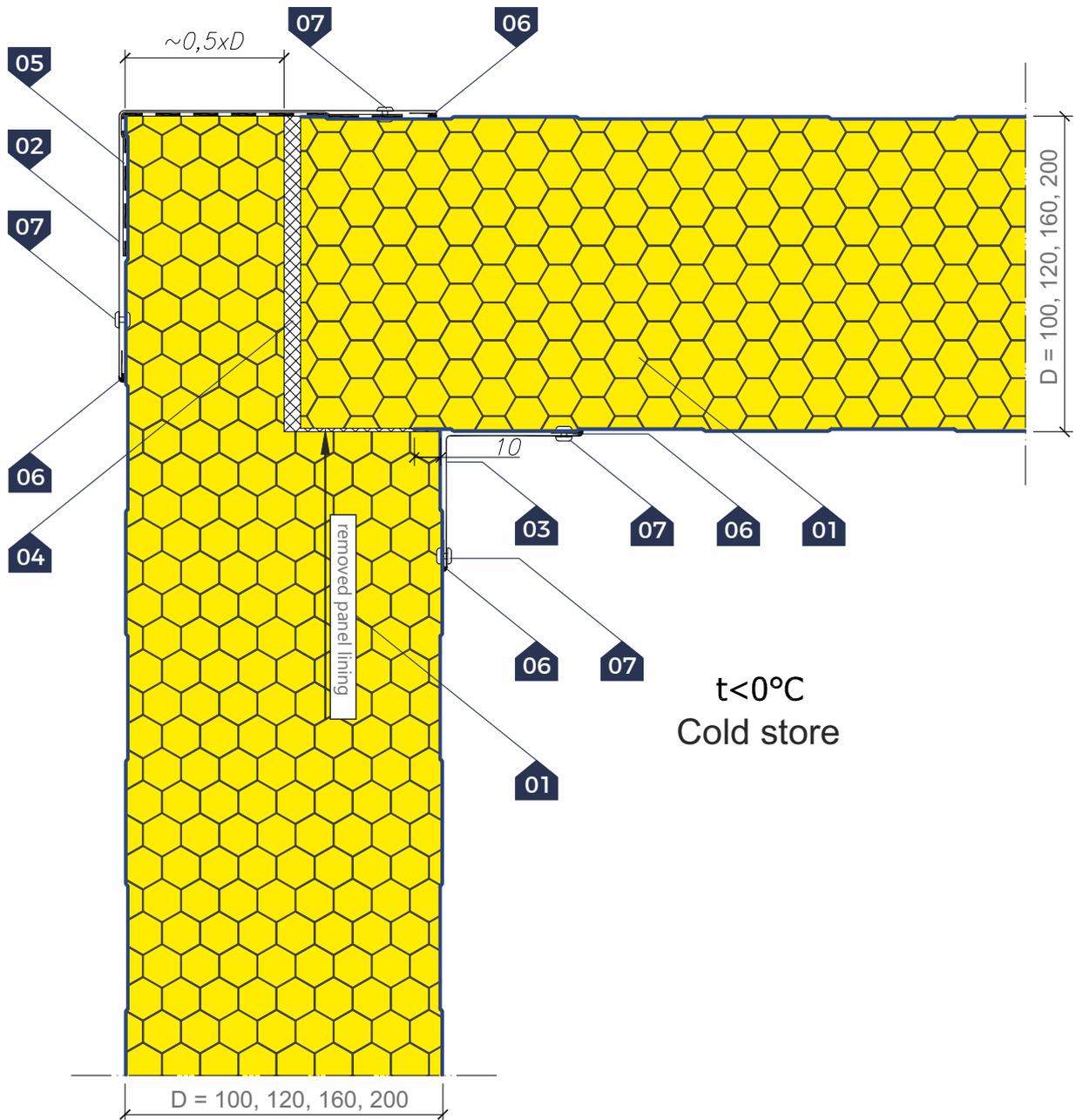
Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

Joining chambers with different temperatures



LEGEND:

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. PVC corner profile
- 03. Flashing – internal corner
- 04. Masking flashing
- 05. Polyurethane mounting foam
- 06. Permanently plastic sealing compound
- 07. Self-drilling connector for steel sheets or rivet 4.0 x 8.0
- 08. Self-drilling stainless fastener with seal

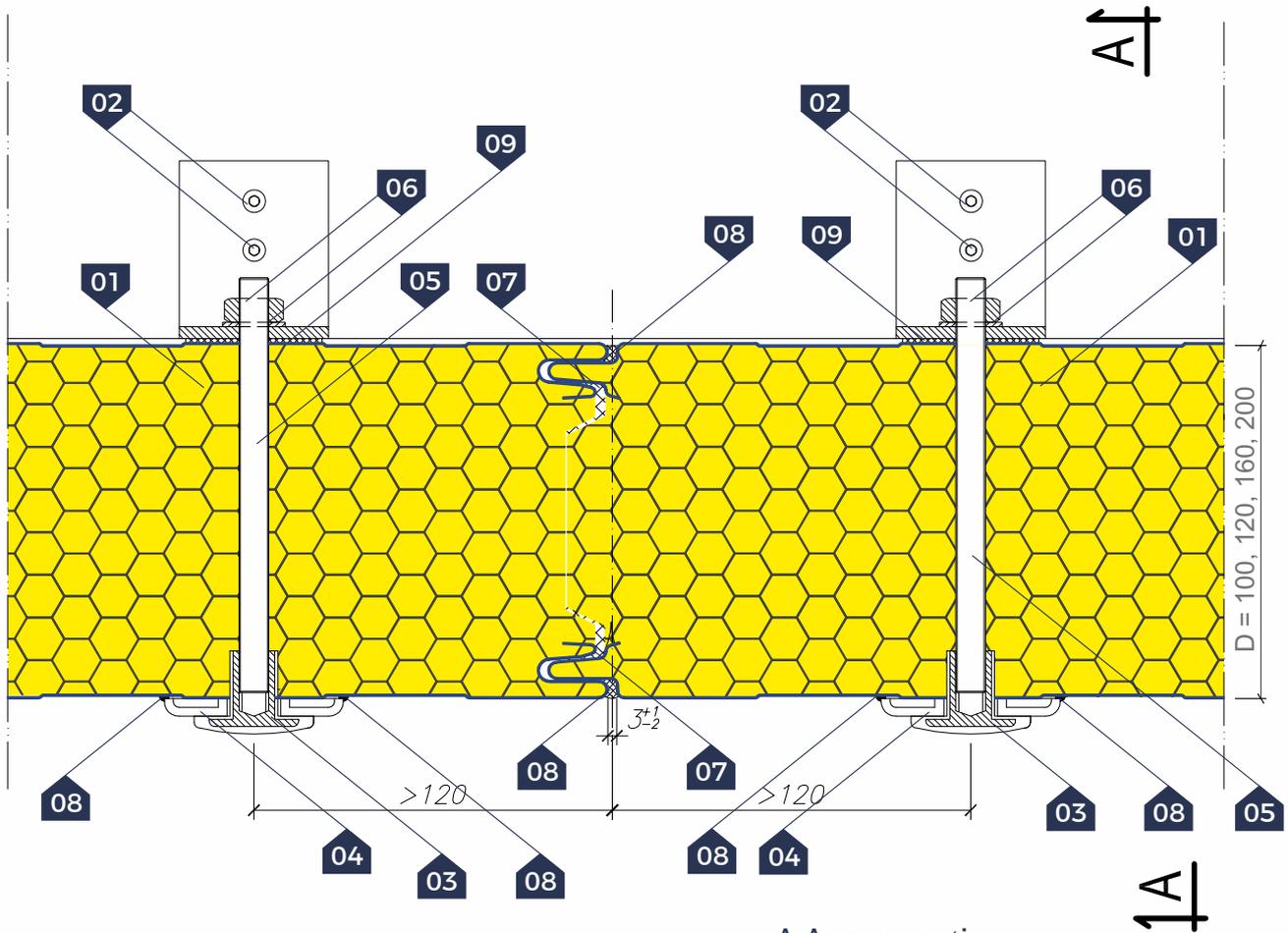


▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Flashing – external corner
- 03. Flashing – internal corner
- 04. Polyurethane mounting foam
- 05. Vapour control layer – bitumen tape or polyethylene foil
- 06. Permanently plastic sealing compound
- 07. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

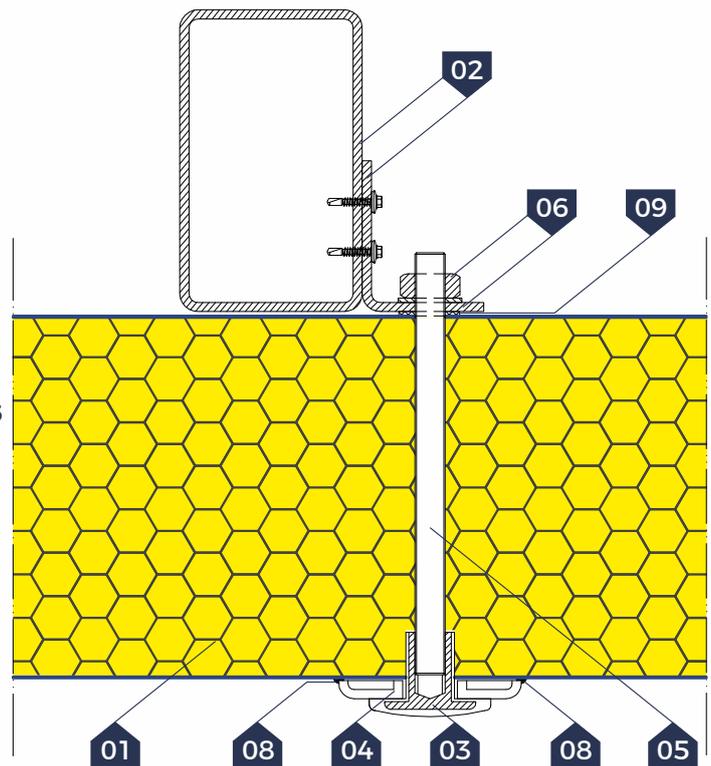
▷ Mounting the coldstore panels to the roof support



A-A cross-section

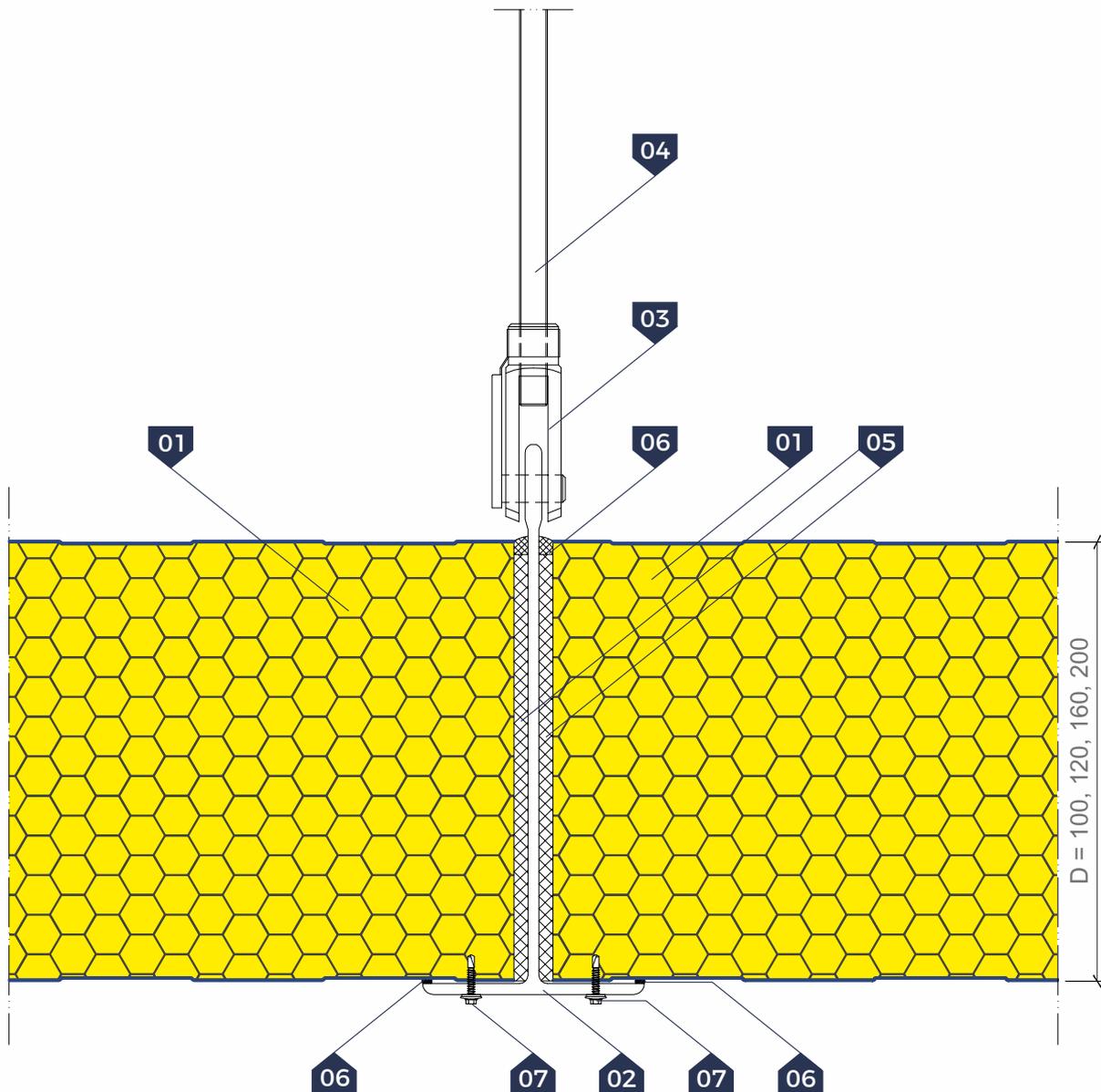
▷ **LEGEND:**

- 01. Coldstore panel
GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Supporting structure
- 03. PVC insulation ring with steel insert
- 04. PVC mounting washer
- 05. Steel galvanized threaded bar $\varnothing 10$
- 06. Steel galvanized nut **M10** with washer $\varnothing 21 / \varnothing 10.5$
- 07. Polyurethane mounting foam
- 08. Permanently plastic sealing compound
- 09. Polyethylene, self-adhesive sealing tape (**PES**)



Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Suspension of coldstore panels
Option I

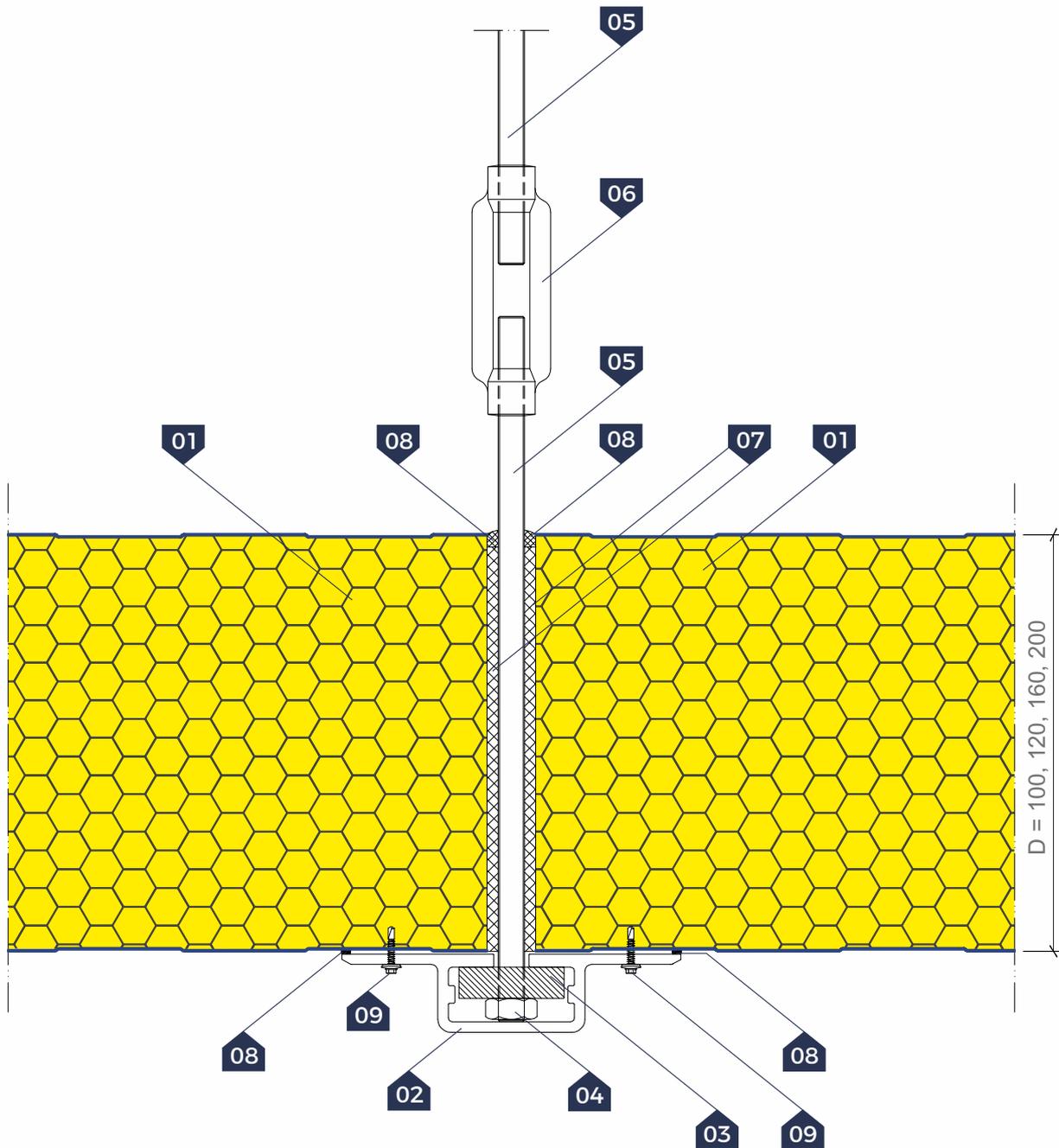


▷ **LEGEND:**

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Polyester T-profile of the roof suspension
- 03. Steel mounting slings for T-profiles
- 04. Sling – steel threaded bar Ø10
- 05. Polyurethane mounting foam
- 06. Permanently plastic sealing compound
- 07. Self-drilling stainless fastener with seal

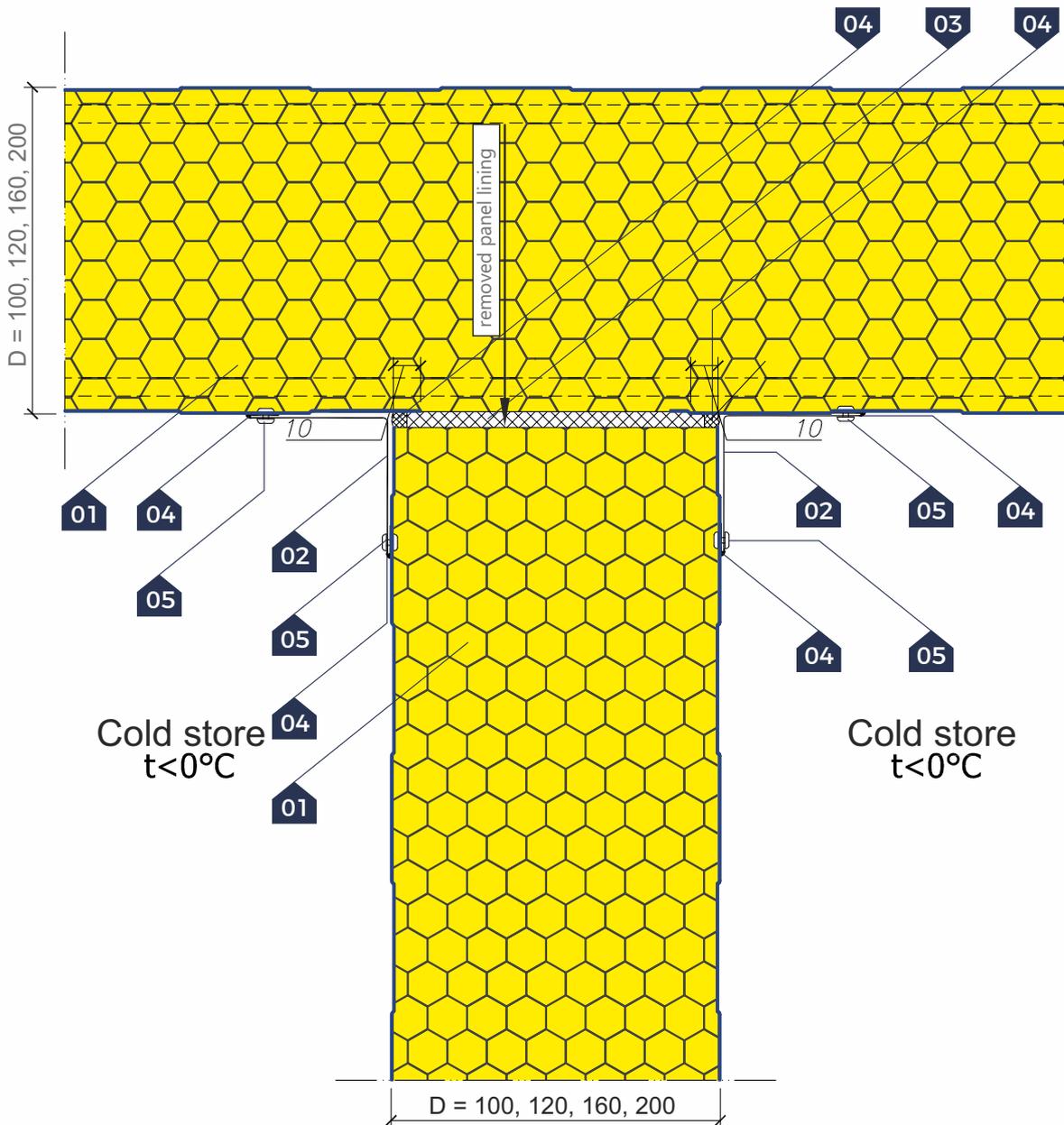
Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Suspension of coldstore panels
Option II



▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Polyester Ω-profile of the roof suspension
- 03. Steel spacer washer
- 04. Steel galvanized nut M10
- 05. Sling – steel threaded bar Ø10
- 06. Steel tension nut
- 07. Polyurethane mounting foam
- 08. Permanently plastic sealing compound
- 09. Self-drilling stainless fastener with seal



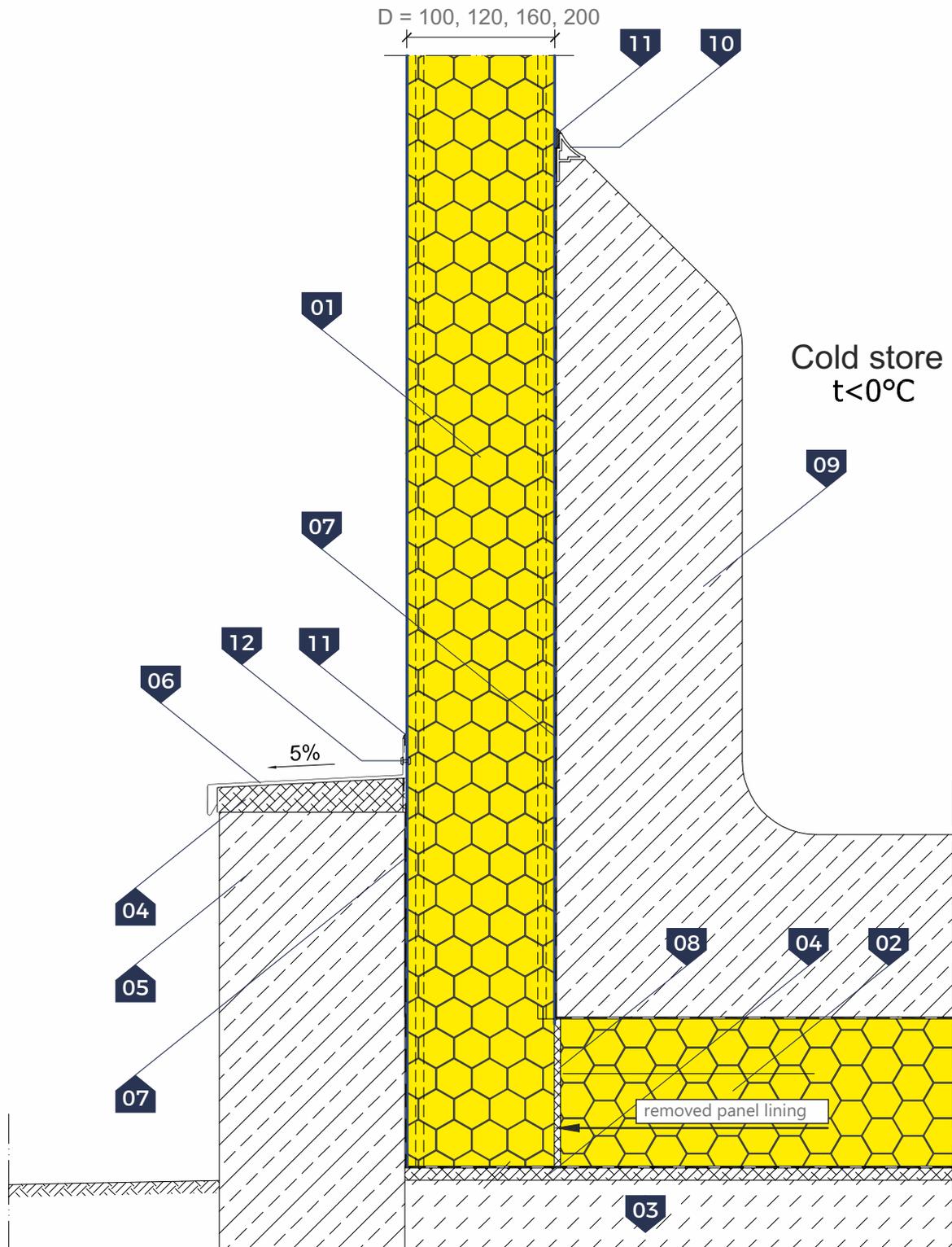
▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Flashing – internal corner
- 03. Polyurethane mounting foam
- 04. Permanently plastic sealing compound
- 05. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**

▷ **NOTE:** The lining is removed only if the wall is perpendicular to the locks of the roof panel

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

Freezer at the socle of the external wall
Option I



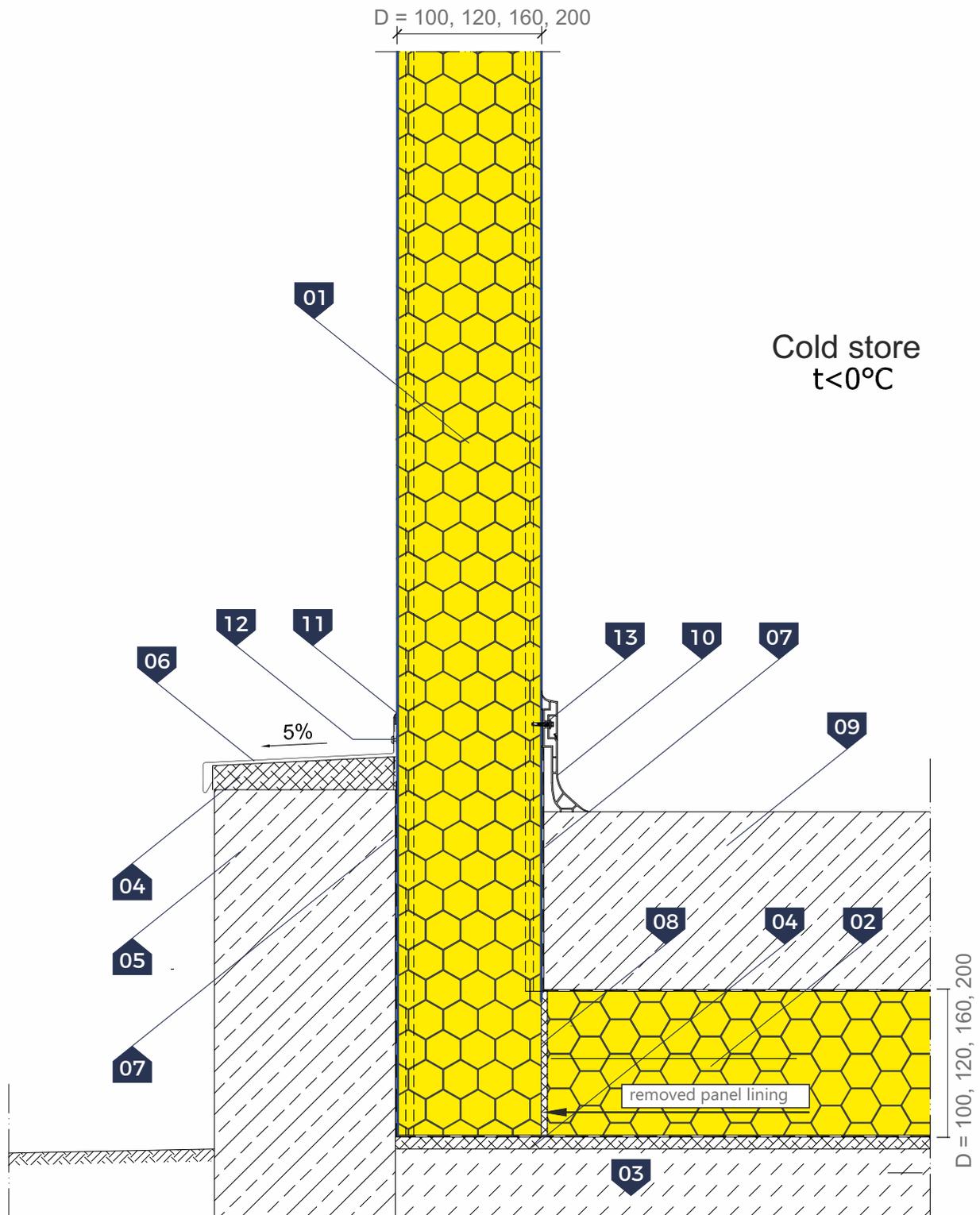
LEGEND:

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. **termPIR** insulation boards
- 03. Concrete floor plate
- 04. Cement levelling layer
- 05. Socle acc. to architectural design
- 06. Socle flashing

- 07. Vapour control layer – felt or PE foil
- 08. Polyurethane mounting foam
- 09. Concrete floor with socle
- 10. Concrete socle PVC profile
- 11. Permanently plastic sealing compound
- 12. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

Freezer at the socle of the external wall
Option II



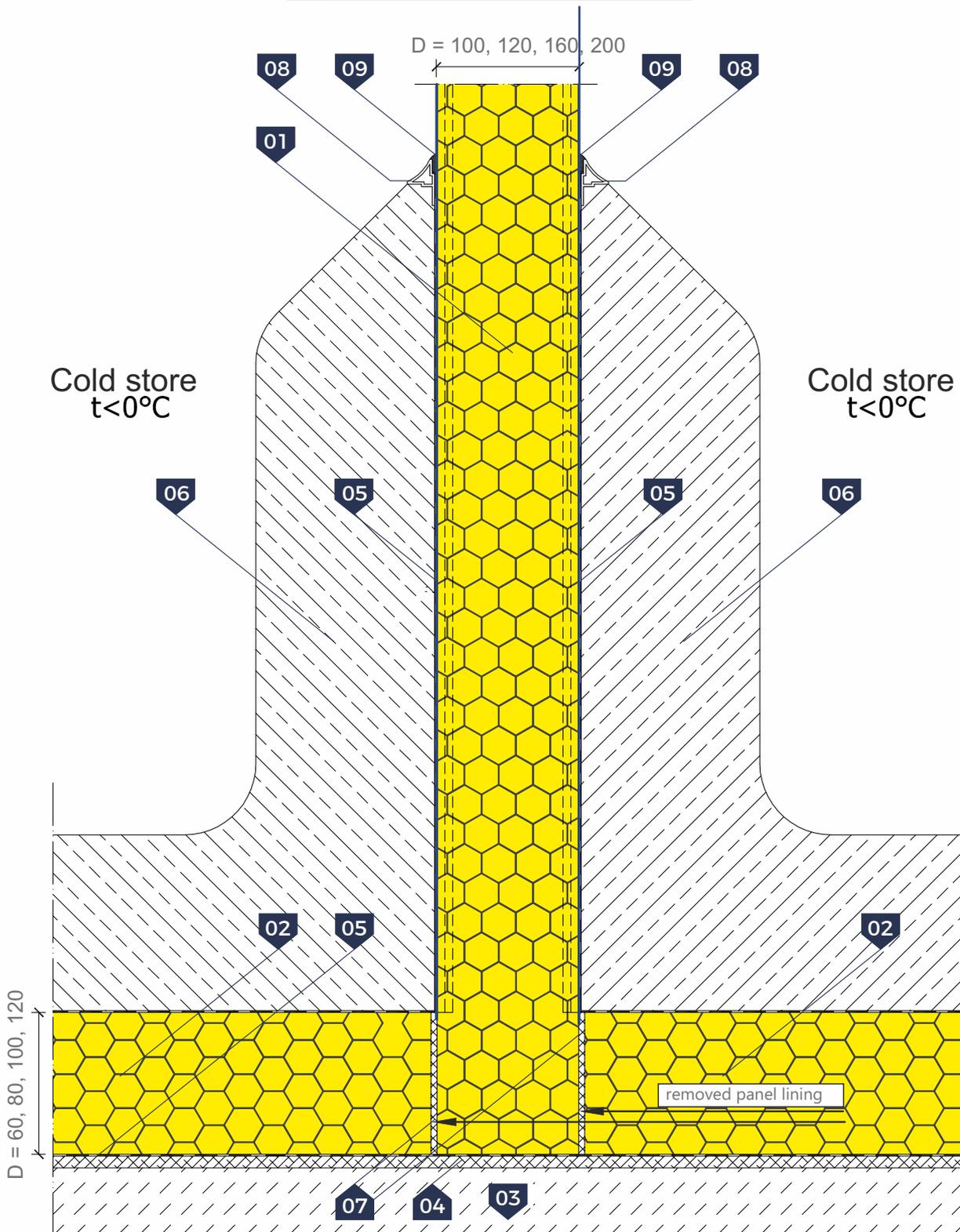
LEGEND:

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. **termPIR** insulation boards
- 03. Concrete floor plate
- 04. Cement levelling layer
- 05. Socle acc. to architectural design
- 06. Socle flashing

- 07. Vapour control layer – felt or PE foil
- 08. Polyurethane mounting foam
- 09. Concrete floor
- 10. **PVC** baseboard
- 11. Permanently plastic sealing compound
- 12. One-side rivet **4.8 x 9.5**
- 13. Self-drilling stainless fastener with seal

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Partition wall at the floor
Option I



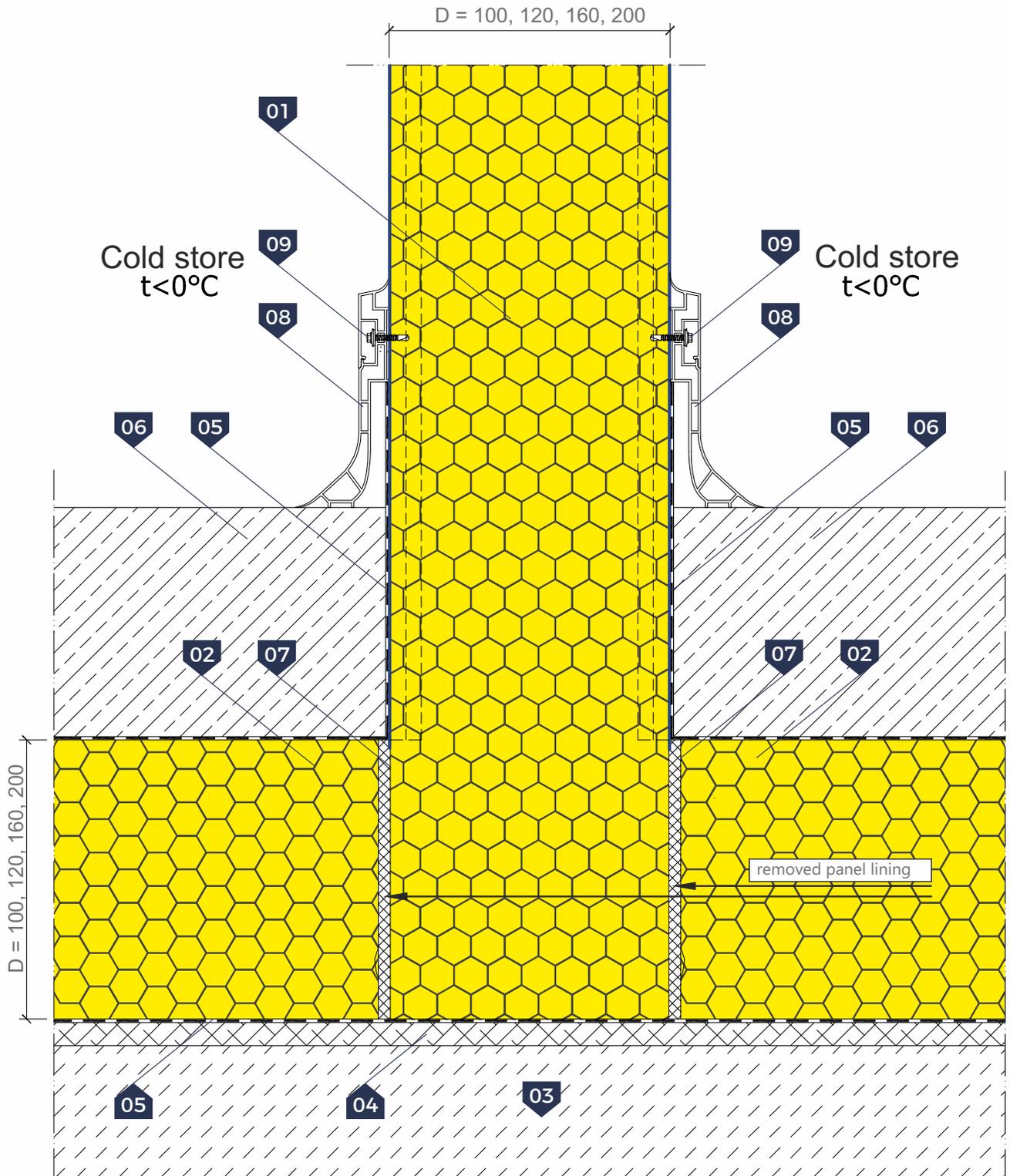
▷ **LEGEND:**

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. **termPIR** insulation boards
- 03. Concrete floor plate
- 04. Cement levelling layer
- 05. Vapour control layer – felt or PE foil

- 06. Concrete floor with socle
- 07. Polyurethane mounting foam
- 08. Concrete socle PVC profile
- 09. Permanently plastic sealing compound

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Partition wall at the floor
Option II

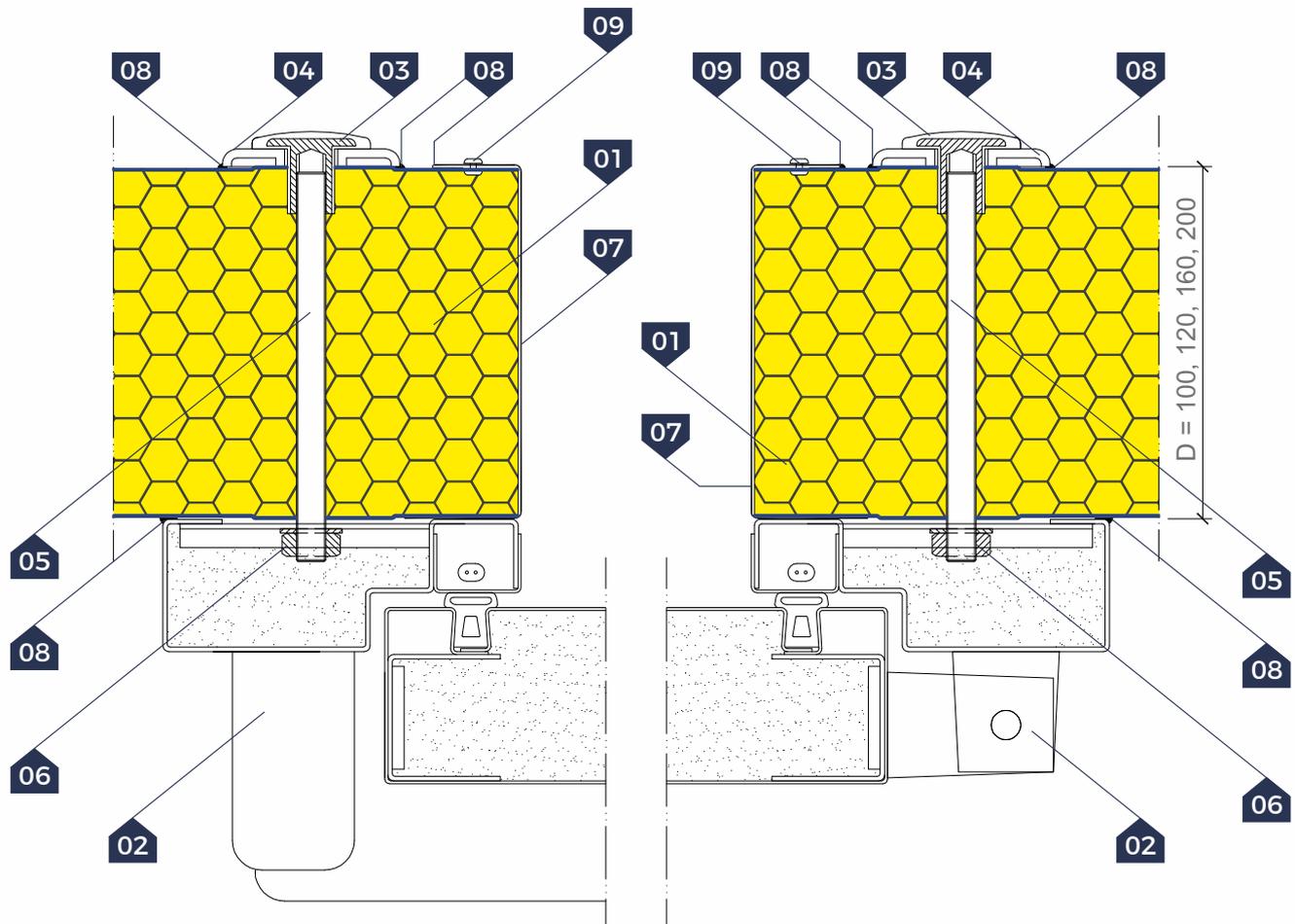


▷ **LEGEND:**

- | | |
|--|---|
| 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX | 06. Concrete floor acc. to architectural design |
| 02. termPIR insulation boards | 07. Polyurethane mounting foam |
| 03. Concrete floor plate | 08. PVC baseboard |
| 04. Cement levelling layer | 09. Self-drilling stainless fastener with seal |
| 05. Vapour control layer – felt or PE foil | |

Coldstore sandwich panel **GS insPIRe® CH / GS insPIRe® CH MAX**

▷ Mounting the freezer door
Horizontal cross-section

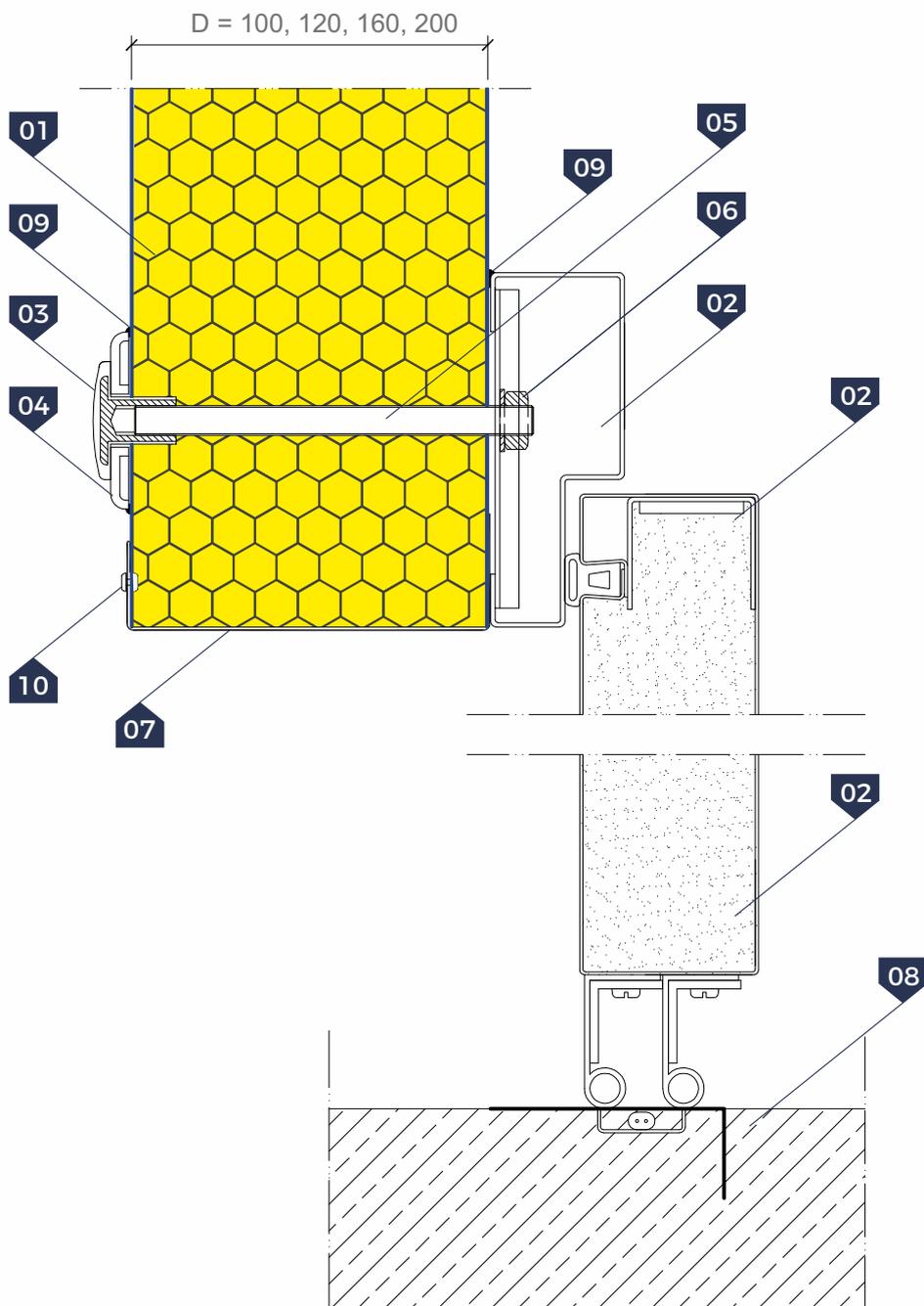


▷ LEGEND:

- 01. Coldstore panel **GS insPIRe® CH / GS insPIRe® CH MAX**
- 02. Freezer door
- 03. PVC insulation ring with steel insert
- 04. PVC mounting washer
- 05. Steel galvanized threaded bar $\varnothing 10$
- 06. Steel galvanized nut **M10** with washer $\varnothing 21 / \varnothing 10.5$
- 07. Closing flashing
- 08. Permanently plastic sealing compound
- 09. Self-drilling connector for steel sheets or rivet **4.0 x 8.0**

Coldstore sandwich panel GS insPIRe® CH / GS insPIRe® CH MAX

▷ Mounting the freezer door
Vertical cross-section



▷ **LEGEND:**

- 01. Coldstore panel GS insPIRe® CH / GS insPIRe® CH MAX
- 02. Freezer door
- 03. PVC insulation ring with steel insert
- 04. PVC mounting washer
- 05. Steel galvanized threaded bar $\varnothing 10$
- 06. Steel galvanized nut M10 with washer $\varnothing 21 / \varnothing 10.5$
- 07. Closing flashing
- 08. Floor acc. to architectural design
- 09. Permanently plastic sealing compound
- 10. Self-drilling connector for steel sheets or rivet 4.0 x 8.0

Sandwich panel installation

- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters

▷ NOTE!

The following figures are illustrative and only show examples of machine configurations. Maximum load capacity of machines **Viavac = 1000 kg**. The machines have no restrictions on the length of the panel being lifted.

Use: for mounting roof and wall panels in vertical and horizontal layout.

The selection of a particular device from the **VIAVAC** offer depends on the type and extent of the material being lifted and the specificity of a specific installation. To eliminate the risk of damaging the panel during its transfer, always follow the instructions given by the appropriately trained technical department of the company dealing with the rental of **VIAVAC** machines. Therefore, please contact **VIAVAC** for detailed information on the selection of machines and instructions for specific installation.

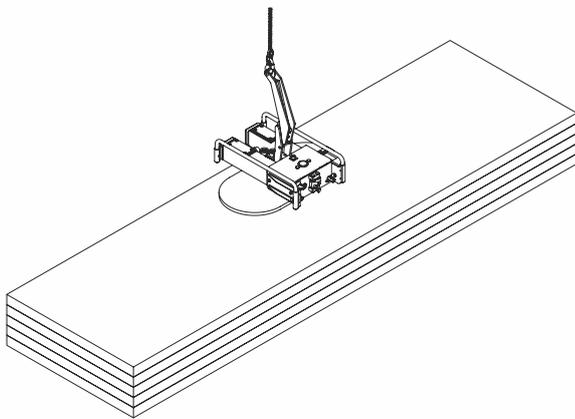
▷ Contact:

tel. **+48 68 384 39 08**

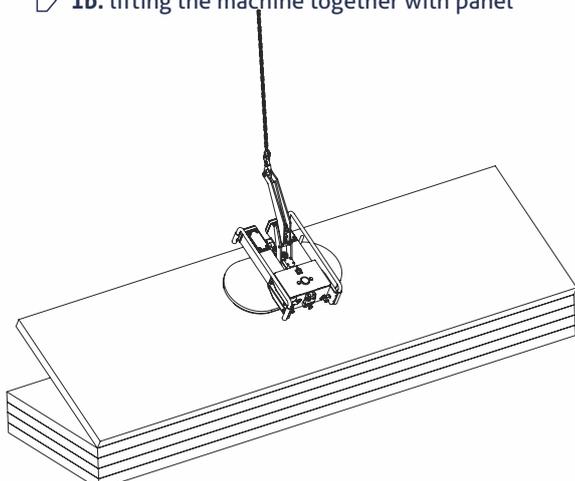
http: www.viavac.pl

▷ Scheme No. 1. Horizontal installation of a wall panel using the **GlassBoy** machine

- ▷ **1a.** situating the machine and its attachment to the panel



- ▷ **1b.** lifting the machine together with panel

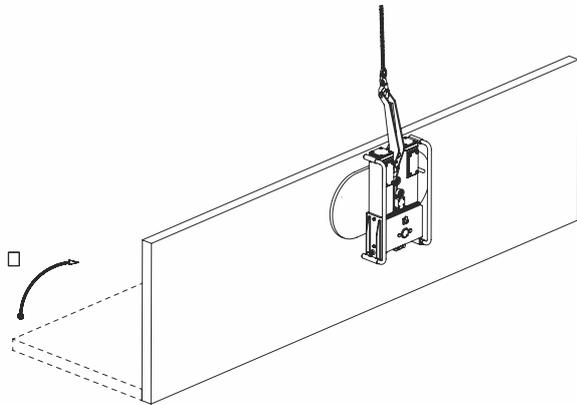


Sandwich panel installation

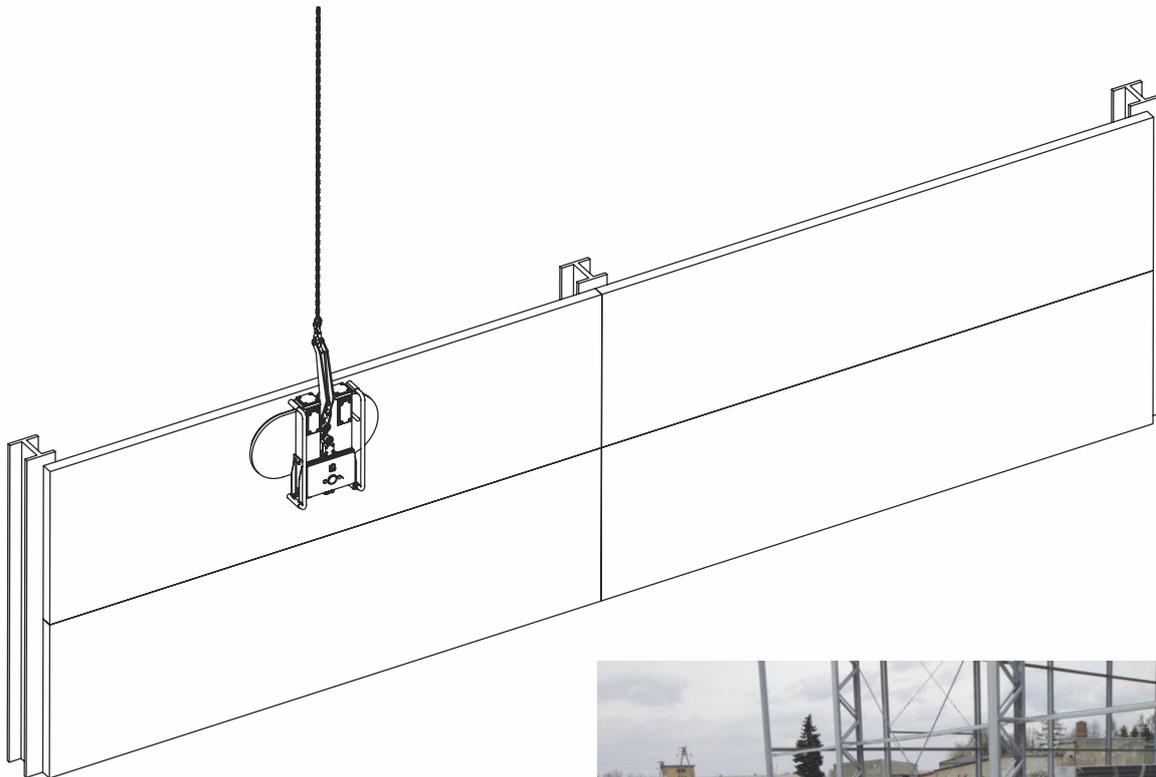
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters



- ▷ 1c. changing the angle of the machine and transporting the plate to the place of installation



- ▷ 1d. installation of panel on the wall and detachment of the machine

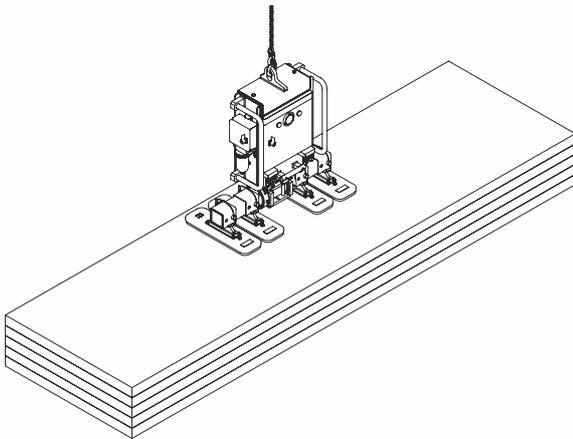


Sandwich panel installation

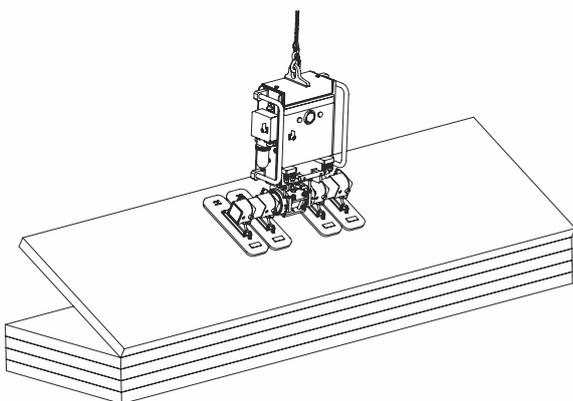
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters

- ▷ **Scheme No. 2.** Horizontal installation of a wall panel using the **CladBoy** machine

- ▷ **2a.** situating the machine and its attachment to the panel



- ▷ **2b.** lifting the machine together with panel

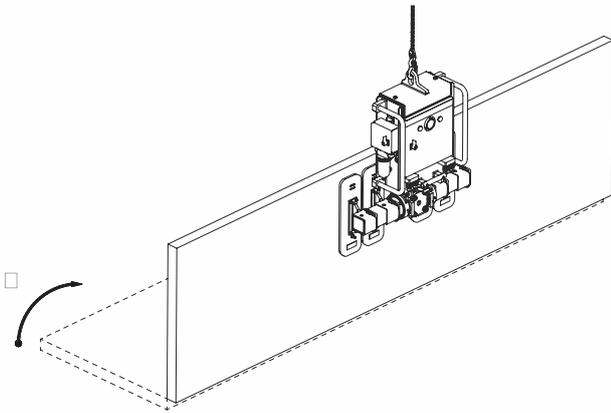


Sandwich panel installation

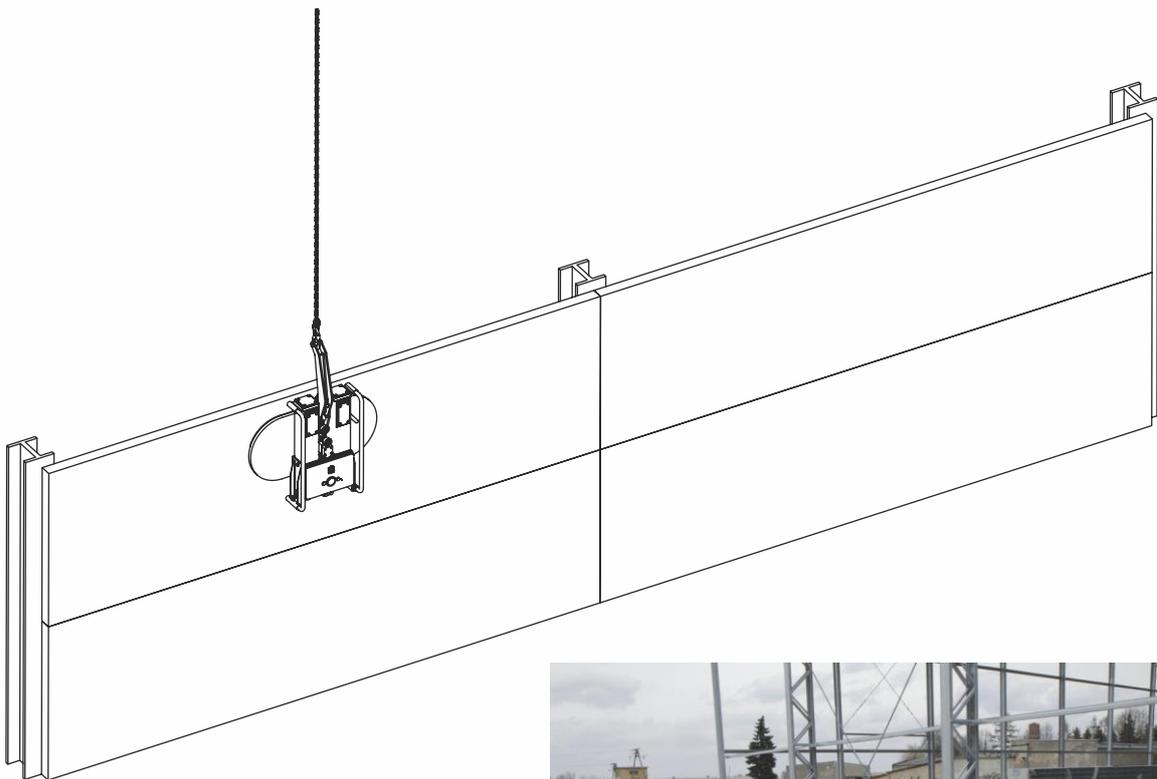
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters



- ▷ 2c. change of the angle of the machine and transporting the panel to the place of installation



- ▷ 2d. installation of panel on the wall and detachment of the machine

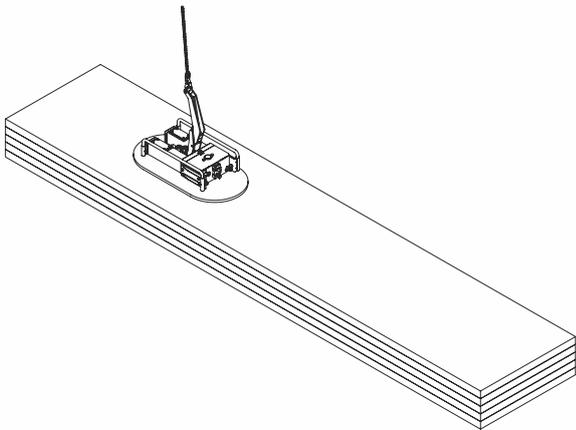


Sandwich panel installation

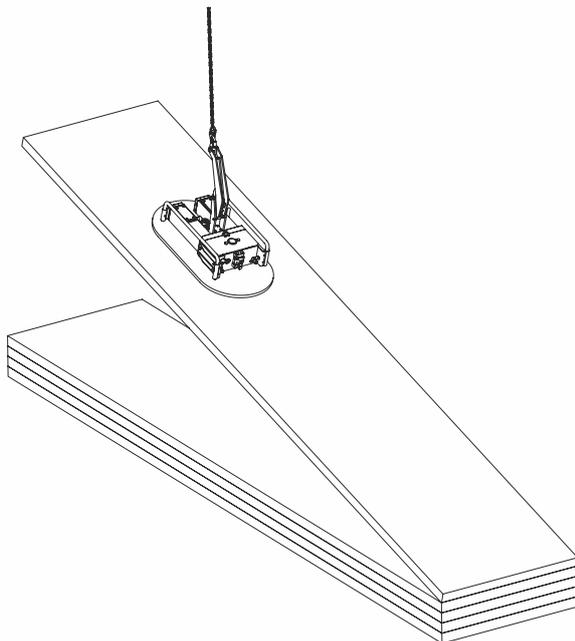
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters

▷ **Scheme No. 3.** Vertical installation of a wall panel using the **GlassBoy** machine

- ▷ **3a.** situating the machine and its attachment to the panel



- ▷ **3b.** lifting the machine together with panel

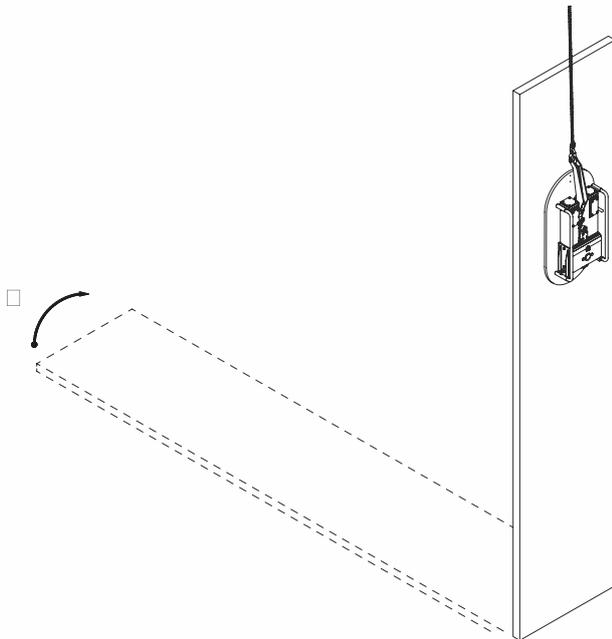


Sandwich panel installation

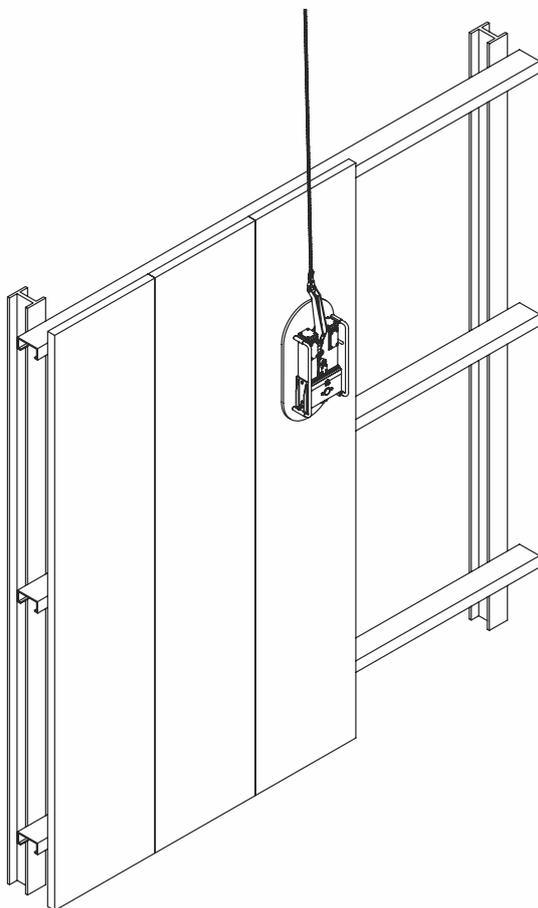
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters



- ▷ **Scheme No. 3.** Vertical installation of a wall panel using the **GlassBoy** machine



- ▷ **3a.** situating the machine and its attachment to the panel

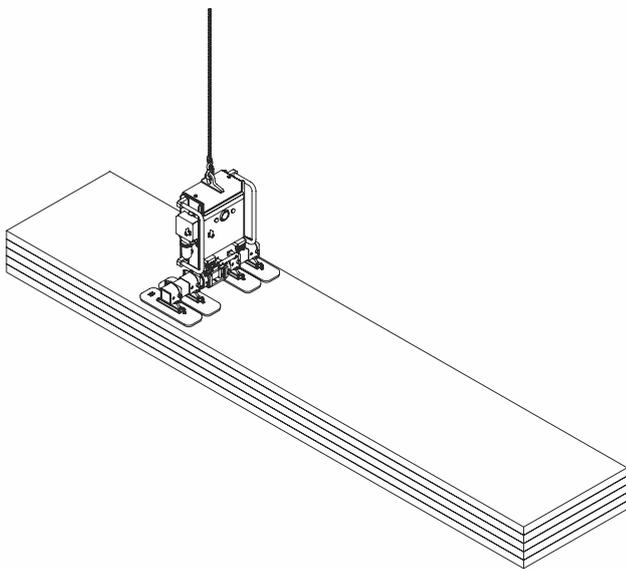


Sandwich panel installation

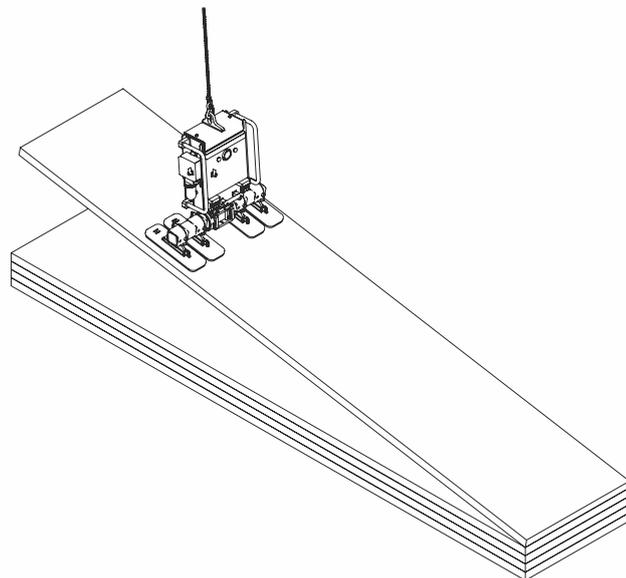
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters

▷ **Scheme No. 4.** Vertical installation of a wall panel using the **CladBoy** machine

▷ **4a.** situating the machine and its attachment to the panel



▷ **4b.** lifting the machine together with panel

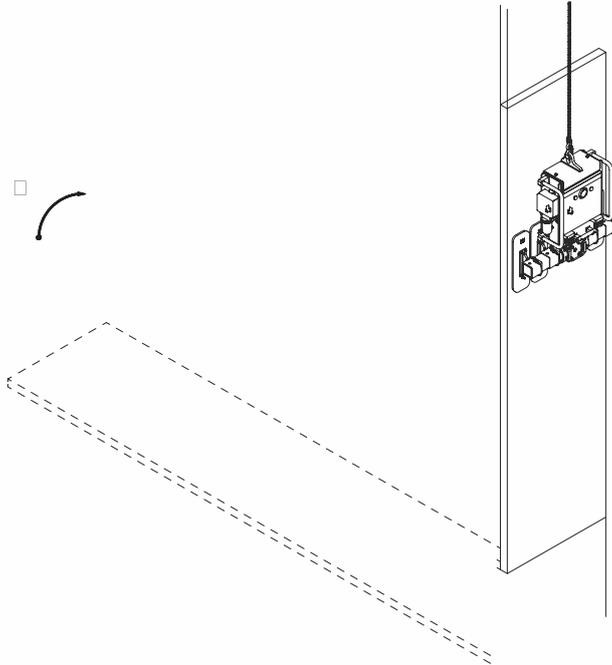


Sandwich panel installation

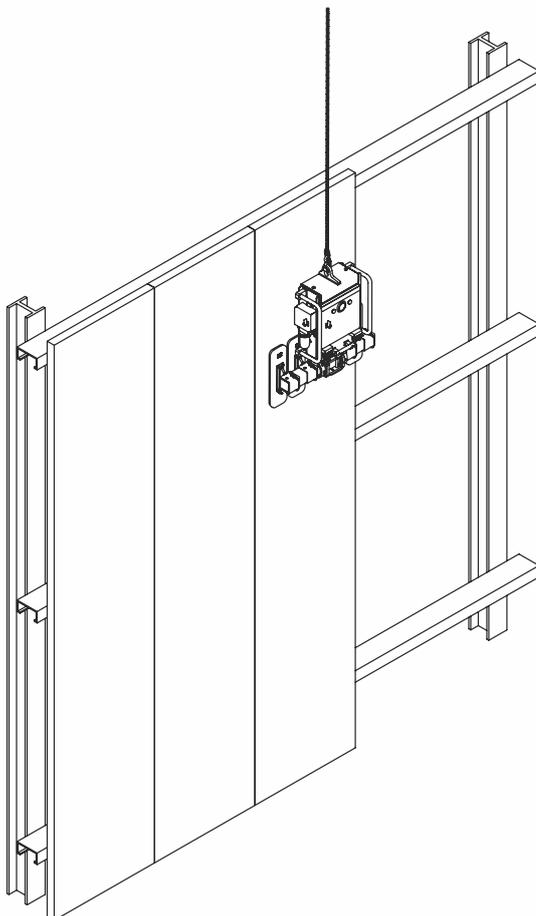
- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters



- ▷ 4c. change of the angle of the machine and transporting the panel to the place of installation



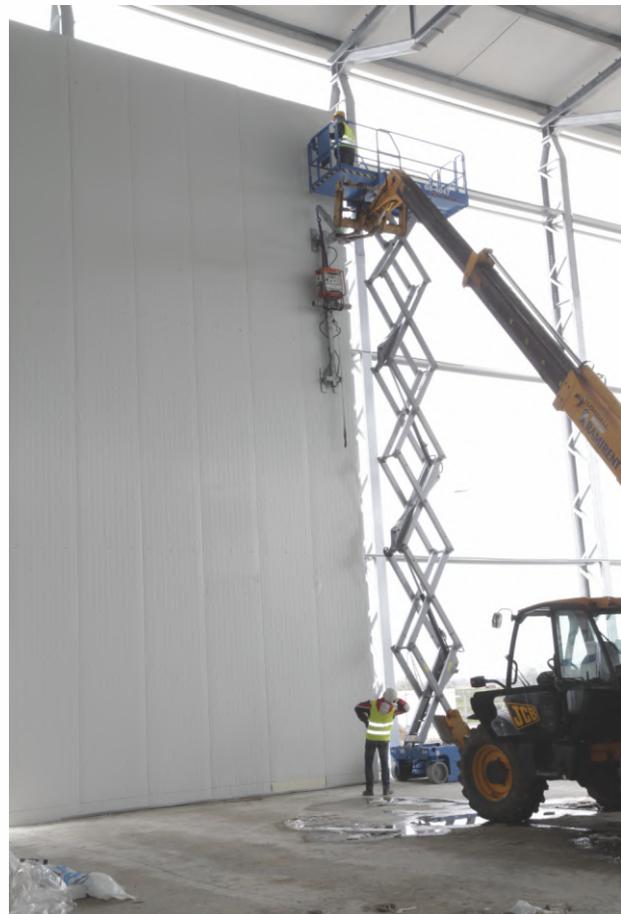
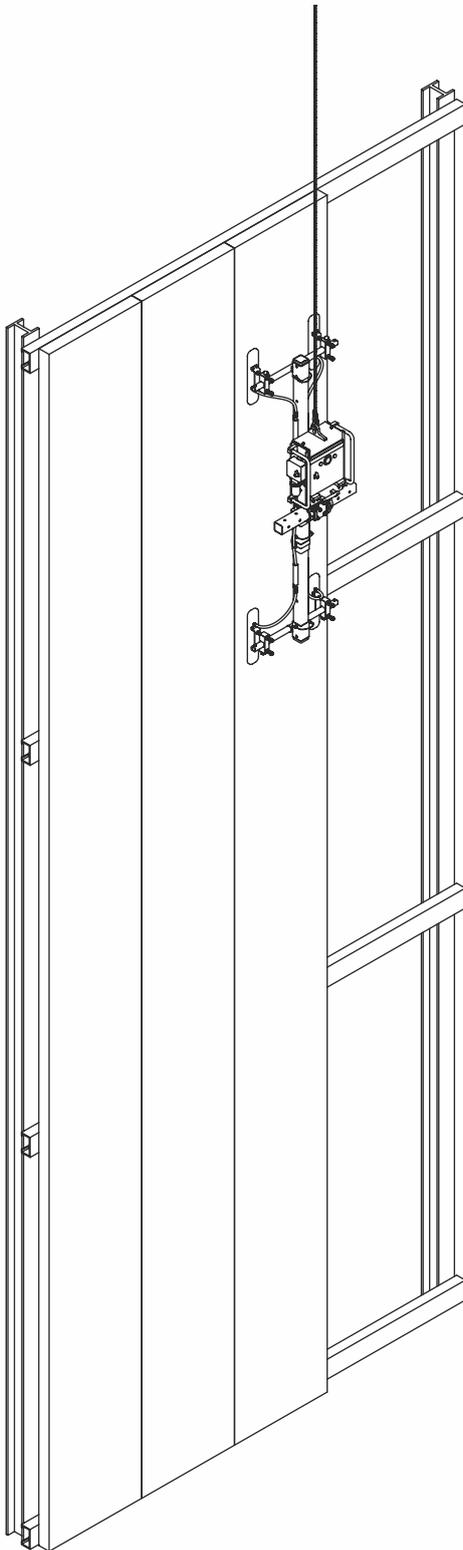
- ▷ 4d. installation of panel on the wall and detachment of the machine



Sandwich panel installation

- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters

- ▷ **Scheme No. 5.** Sample configuration of **CladBoy** machine for vertical installation of long panels

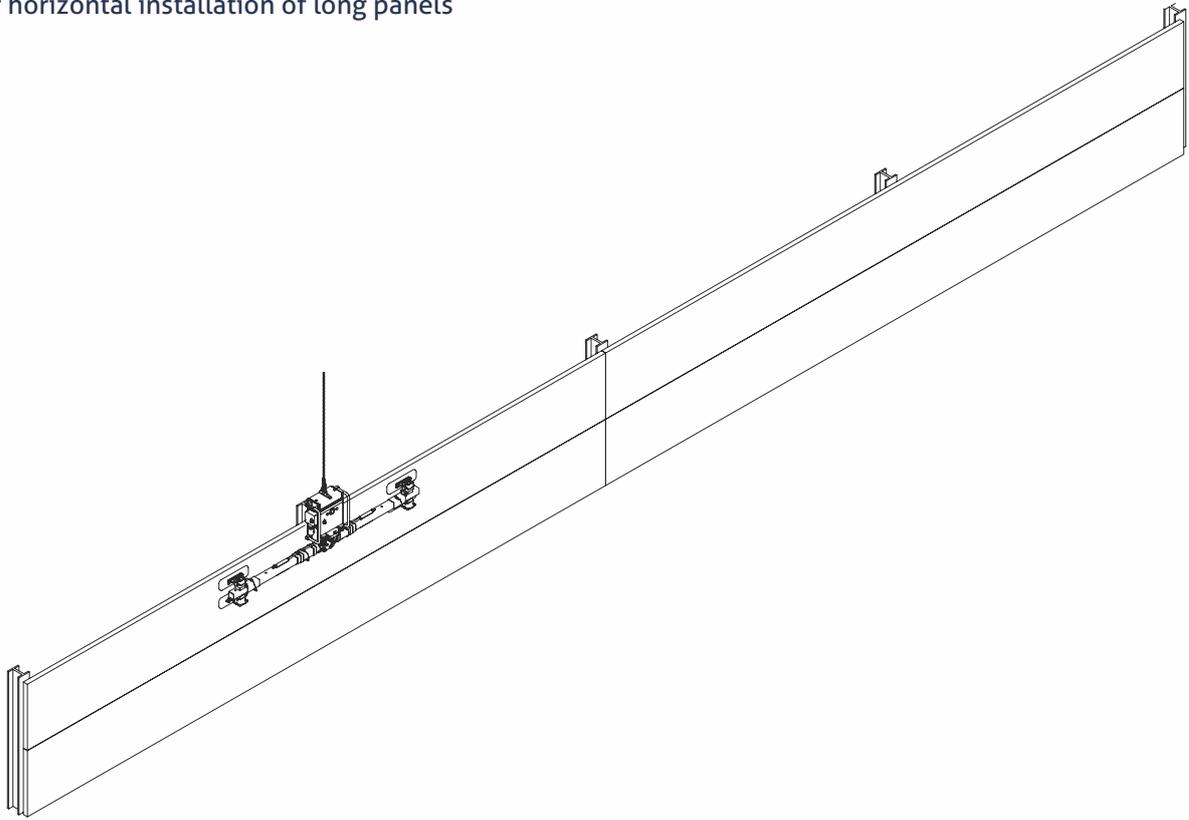


Sandwich panel installation

- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters



- ▷ **Scheme No. 6.** Sample configuration of CladBoy machine for horizontal installation of long panels

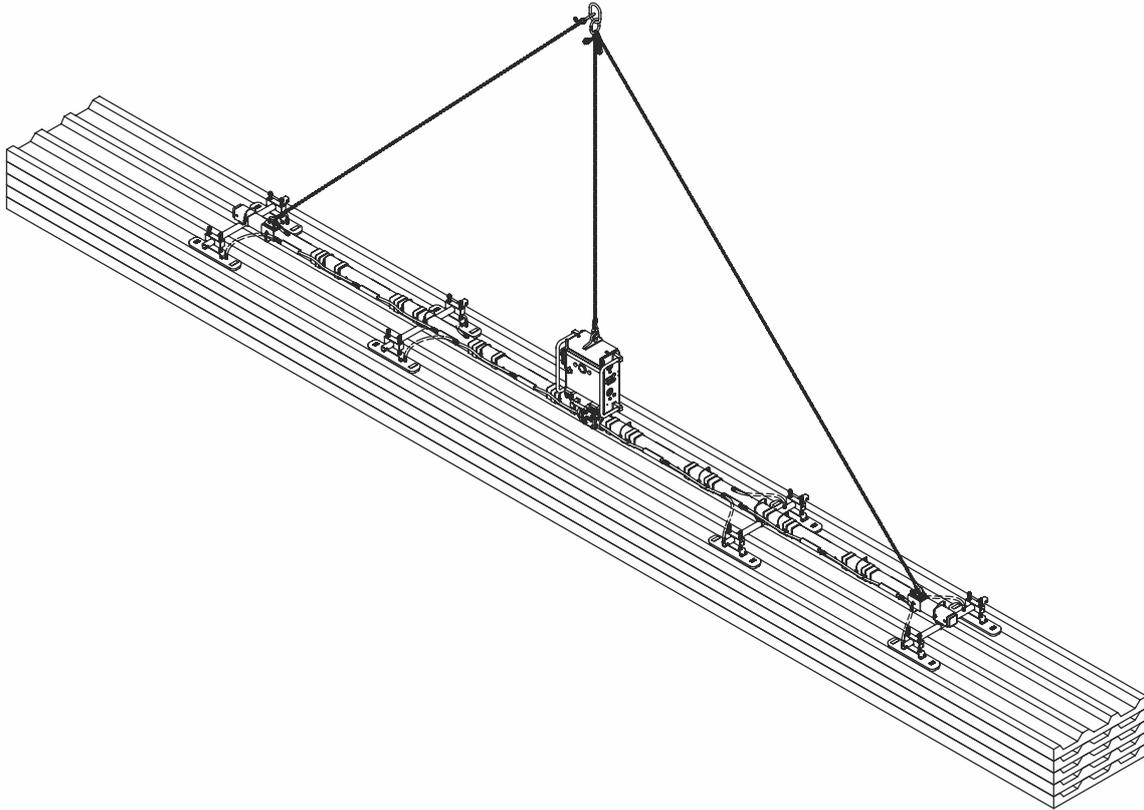


Sandwich panel installation

- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters

▷ Scheme No. 7. Installation of a roof panel using CladBoy machine

- ▷ 7a. situating the machine and its attachment to the panel

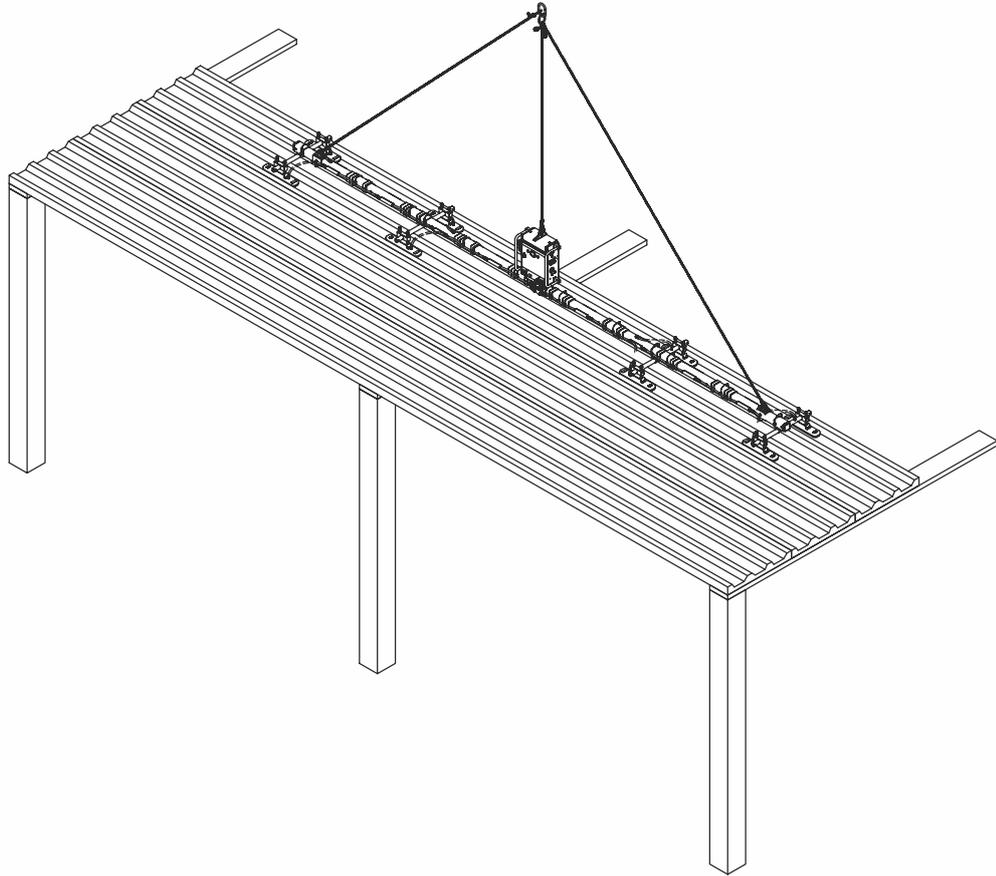


Sandwich panel installation

- ▷ Damage free installation of sandwich panels with VIAVAC vacuum lifters



- ▷ **7b.** installation of panel on the roof and detachment of the machine



▷ ACCESSORIES

The supplementation of the lightweight housing system from sandwich panels is made of flashings, fasteners and sealing tapes.

▷ FLASHINGS

Gór-Stal is equipped with a profiler able to produce steel sheet flashings up to **1,0 mm** thick and **6,0 m** long, in catalogue-typical or custom-made shapes. Available thicknesses and standard colours of the sheets are provided in the table below. The flashings are secured for transportation by means of foiling the external layer.

ATTENTION:

- it is recommended that the flashing be fastened every 30 cm with self-drilling screws to steel sheets or rivets

Sheet thickness [mm]	Sheet weight [kg/m ²]	Length of standard flashings [m]	Available length of flashings [m]	Sheet standard RAL colours
0,50	4,00	3,0 and 6,0	2,0 - 6,0	3000, 5010, 6011, 7016, 7035, 8017, 9002, 9006, 9007, 9010
0,70	6,00			
1,00	8,00			zinc coating

▷ SEALS

We supply sealing tapes presented in technical solutions in this catalog and in other dimensions at the customer's special request: self-adhesive polyurethane (**PUS, PURS**), polyethylene (**PES**) and butyl. As the freezing chambers are made as sealed rooms, it is necessary to prevent negative pressure during freezing and defrosting by installing pressure equalizing valves.

▷ FASTENERS

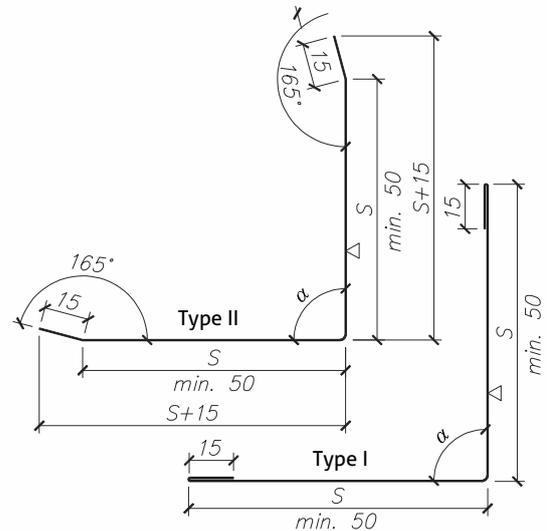
GS insPIRe[®] CH / GS insPIRe[®] CH MAX sandwich panels can be attached to steel, reinforced concrete and wooden structures with the use of dedicated fasteners. In the case of cold rooms (**t > 0 ° C**), stainless steel self-drilling screws can be used. In freezing chambers, it is necessary to use connectors to prevent freezing and condensation. **PVC** nuts with steel bolts, polyamide bolts or screws and the plastic suspension system are suitable for this purpose.

System connectors are presented in the tables below.

Sandwich panel type and thickness [mm]	Fastener	
stainless steel self-drilling screws		
Coldstore panel GS insPIRe CH / GS insPIRe CH MAX	100	stainless screw 5,5/6,3x150
	120	stainless screw 5,5/6,3x170- 175
	160	stainless screw 5,5/6,3x 195-210
	200	stainless screw 5,5/6,3x225-250
thermo-insulating mounting elements		
Coldstore panel GS insPIRe CH / GS insPIRe CH MAX	PVC mounting nut with washer - M8, M10, M12	
	PVC mounting nut with steel insert and washer - M8, M10, M12	
	polyamide mounting screw - M10, M12	

▢ Flashing OB-01
outer corner

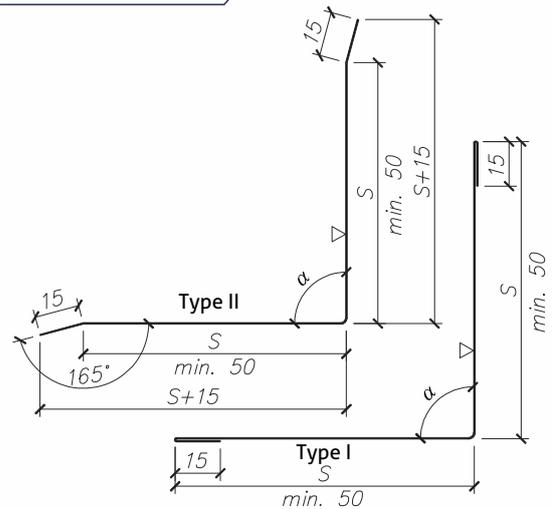
No.	Symbol	S [mm]	α [°]	L [mm]	Weight [kg]
Standard – steel sheet 0,5 mm thick					
01	OB-01/50	50	90	6000	3,12
02	OB-01/75	75			4,32
03	OB-01/100	100			5,52
04	OB-01/150	150			7,92
05	OB-01/200	200			10,32
06	OB-01/250	250			12,72
Unusual from sheet metal with a thickness of 0.5 or 0.7 mm					
07	OB-01/ S=..... / α =..... / L=.....				
08	OB-01/ S1=..... / S2=..... / α =..... / L=.....				



The use is described in detail on page -

▢ Flashing OB-02
inner corner

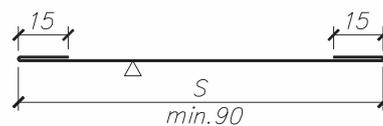
No.	Symbol	S [mm]	α [°]	L [mm]	Weight [kg]
Standard – steel sheet 0,5 mm thick					
01	OB-02/50	50	90	6000	3,12
02	OB-02/75	75			4,32
03	OB-02/100	100			5,52
04	OB-02/150	150			7,92
05	OB-02/200	200			10,32
06	OB-02/250	250			12,72
Unusual from sheet metal with a thickness of 0.5 or 0.7 mm					
07	OB-02/ S=..... / α =..... / L=.....				
08	OB-02/ S1=..... / S2=..... / α =..... / L=.....				



The use is described in detail on page -

▢ Flashing OB-18
covering

No.	Symbol	S [mm]	α [°]	L [mm]	Weight [kg]
Standard – steel sheet 0,5 mm thick					
01	OB-18/90	90	-	6000	2,88
02	OB-18/100	100			3,12
03	OB-18/120	120			3,60
Unusual from sheet metal with a thickness of 0.5 or 0.7 mm					
04	OB-18/ S=..... / L=.....				



The use is described in detail on page -

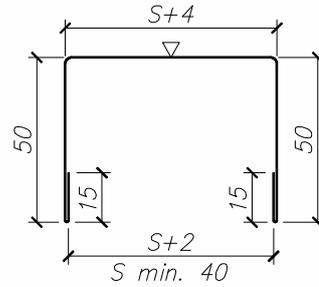
Additional elements

▢ Catalogue of flashings

▢ Flashing OB-36

U channel section

No.	symbol	S [mm]	α [°]	L [mm]	Weight [kg]
Standard – steel sheet 0,5 mm thick					
01	OB-36/40	40	-	6000	4,18
02	OB-36/60	60			4,66
03	OB-36/80	80			5,14
04	OB-36/100	100			5,62
05	OB-36/120	120			6,10
06	OB-36/160	160			7,06
07	OB-36/200	200			8,02
Unusual from sheet metal with a thickness of 0.5 or 0.7 mm					
08	OB-36/ S=..... / L=				



NOTE:

Not described angles should be made as a right angle.

The use is described in detail on page -

▢ Flat metal sheets

width [mm]	available thicknesses [mm]	typical lengths [mm]	panel used **		available colours
			external facing	internal facing	
1073	0,5 i 0,7*	3000 i 6000	GS insPIRe® S thickness 40 mm module 1000	GS insPIRe® S thickness 40 mm module 1000, GS PIR D	compatible with plate tables
1108			GS insPIRe® S (apart from a thickness of 40 mm) module 1000, GS insPIRe® CH module 1000	GS insPIRe® S (apart from a thickness of 40 mm) module 1000, GS insPIRe® U, GS insPIRe® CH module 1000	
1183			GS insPIRe® U, GS PIR D	-	
1250			GS insPIRe® S module 1140, GS insPIRe® CH module 1140	GS insPIRe® S module 1140, GS insPIRe® CH module 1140	

*- offered upon special order

** - to avoid the difference in colour, it is recommended to choose metal sheet width appropriate to the kind of panel used

Documentation

Order form of
SANDWICH PANELS



Order: No _____ of _____

Supplier: (name, company address, phone/fax, TIN)

Gór-Stal sp. z o.o.

No. 11 Przemysłowa st.
38-300 Gorlice, Poland
Tel./Fax: + 48 18 353 98 00
Account No: 79 1140 1081 0000 5859 5500 1001

Agent: _____

Commercial Terms:	
Payment method:	
Advance (%): _____	payable until: _____
Full payment:	
Credit limit:	
Remarks:	

Ordering party: (name, company address, phone/fax, TIN)

Agent:
Remarks:

Delivery place: (recipient, address, city, post code, phone/fax)

No.	Plate type: GS insPIRe® S GS insPIRe® S MAX GS insPIRe® U GS insPIRe® U MAX GS PIR D GS PIR D MAX GS insPIRe® CH GS insPIRe® CH MAX	Plate width [mm]:		Colour RAL:		Quantity:		Net price Unit/value:	
		ext.	int.	ext.	int.	L. [m]	pcs.	EUR/m ²	EUR
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									
12									
13									
14									
15									
In total:							[m²]:	[EUR]:	

Party's Signature Ordering:

Documentation

Order form of

INDIVIDUAL FLASHING



Order: No _____ of _____

Agent: _____

Supplier: (name, company address, phone/fax, TIN)

Gór-Stal sp. z o.o.

No. 11 Przemysłowa st.

38-300 Gorlice

Tel./Fax: + 48 18 353 98 00

Account No: 79 1140 1081 0000 5859 5500 1001

Ordering party: (name, company address, phone/fax, TIN)

Delivery place: (recipient, address, city, post code, phone/fax)

No.	Sheet thickness [mm]:	Colour RAL:	Length [m]:	Quantity:

Nr.	Sheet thickness [mm]:	Colour RAL:	Length [m]:	Quantity:

Remark:

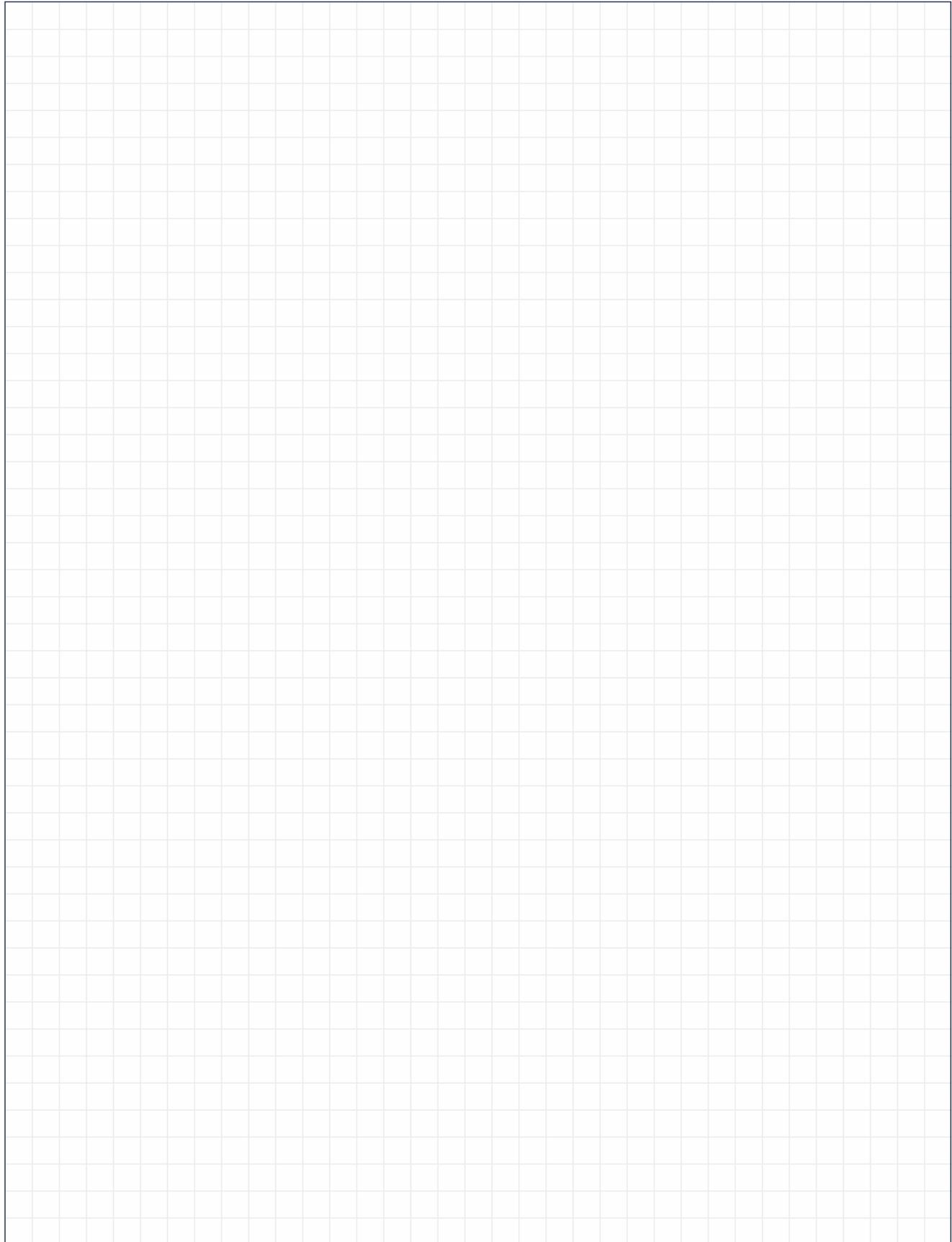
01. Boundary conditions:

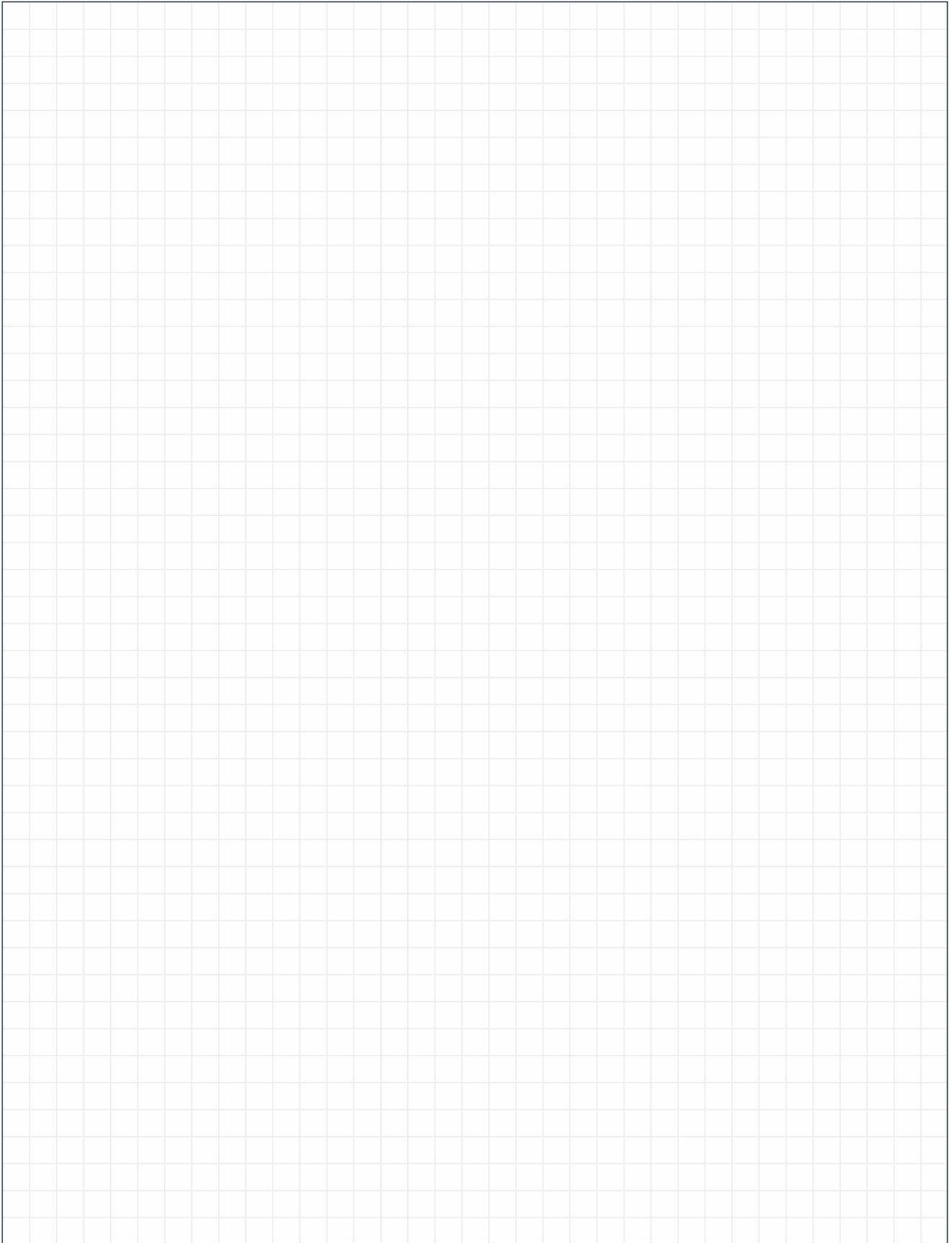
- unfolding -> min 114 mm
- shelf width -> min 25 mm
- width of the notching/bend -> min 15 mm
- bending angle -> min 45°
- with an unfolding of above 350 mm, it is recommended to shorten the processing to 3.0 mb.

02. The flashings will be made in accordance with the above drawings and their dimensions.

Remark:

Ordering Party's signature:

A large rectangular area filled with a light gray grid pattern, intended for taking notes or drawing technical diagrams. The grid consists of small, uniform squares.



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Developed by: Szymon Jamro Msc. Eng., Second Edition, Gorlice 03.2008

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