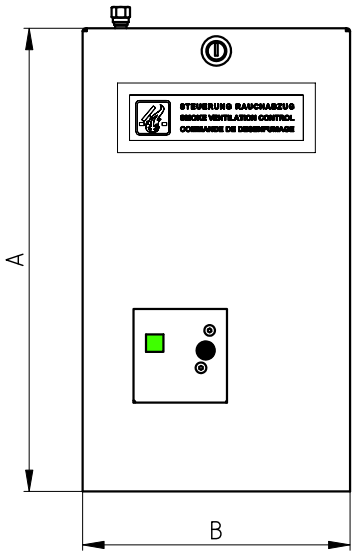
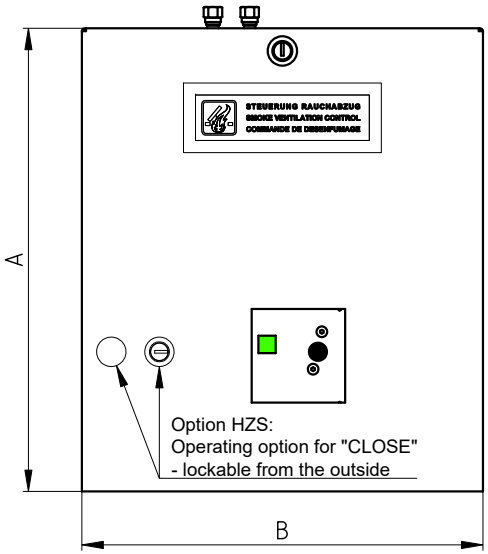
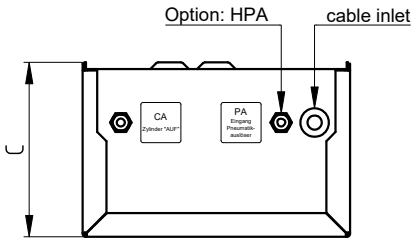
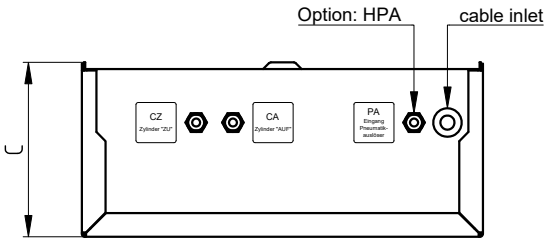
AK x0.y- ... -R



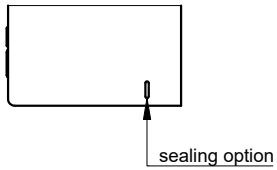
AK xx.y- ... -HZ-R



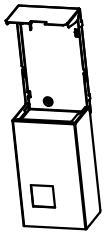




Securing function:



Holding position of cover:



Technical data:

max. operating pressure	80bar
control pressure for HPA	6bar - 30bar
nominal width of the valve / piercing needle	4mm / 2mm
rated voltage of the electrical release	24VDC +30/-20%
rated current of the electrical release	0,29ADC
duty cycle of the electrical release	100%
can be used in the temperature range	-5°C - +55°C
environmental class	I

The expected output pressure strongly depends on the connected device and the amount of CO2. The CO2 bottle must be selected in the way that the output pressure does not exceed 80bar.

Connections:

CA ... cylinder OPEN, CZ ... cylinder CLOSE, PA ... pneumatic external control connection

Order designation:

AK xx.y - aa - ... - R

- spare bottle bracket
- HA ... manual OPEN
- HA-HZ ... manual OPEN - manual CLOSE
- HEA ... manual, electrical OPEN
- HEA-HZ ... manual, electrical OPEN - manual CLOSE
- HPA ... manual, pneumatic OPEN
- HPA-HZ ... manual, pneumatic OPEN - manual CLOSE

aa: colour (OR=RAL 2011, optional: RT=RAL 3000)

xx: alarm box size

y: number of CO2 bottles CLOSE

y: number of CO2 bottles OPEN

Tolerance | Scale 1:4 | Material

Created: Simetzberger	Sheet: 1/3	Format: A3	Title: Alarm box AK xx.y- ... -R	Document Style: Data sheet
Approved: HA	Issue Date: 07.08.2023			Document State: Valid
Grasl Pneumatic Mechanik Gmbh QM FO 05.24.0				Document Number: 06.003.DAT.00.04-E

type	A [mm]	B [mm]	C [mm]	max. CO2-amount for		min. CO2-amount in RTC [g]	min. external pipe [m]	VdS *)
				open [g]	close [g]			
AK 10.3-OR- ... -R	350	200	130	1x150	---	---	---	G507003
AK 10.5-OR- ... -R	500	200	130	1x500	---	---	---	G507003
AK 10.7-OR- ... -R	650	200	130	1x750	---	---	---	---
AK 10.9-OR- ... -R	700	220	170	1x1500	---	---	---	---
AK 11.3-OR- ... -R	350	300	130	1x150	1x150	---	---	G507003
AK 11.5-OR- ... -R	500	300	130	1x500	1x500	---	---	G507003
AK 11.7-OR- ... -R	650	300	130	1x750	1x750	---	---	---
AK 11.9-OR- ... -R	700	320	170	1x1500	1x1500	---	---	---
AK 20.5-OR- ... -R	500	490	210	2x500	---	500	10	---
AK 20.9-OR- ... -R	700	490	170	2x1500	---	500	10	---
AK 21.5-OR- ... -R	500	490	210	2x500	1x500	500	10	---
AK 21.9-OR- ... -R	700	490	170	2x1500	1x1500	500	10	---
AK 22.5-OR- ... -R	500	490	210	2x500	2x500	500	10	---
AK 22.9-OR- ... -R	700	490	170	2x1500	2x1500	500	10	---
AK 30.5-OR- ... -R	500	490	210	3x500	---	500	10	---
AK 30.9-OR- ... -R	700	490	170	3x1500	---	500	10	---
AK 31.5-OR- ... -R	500	490	210	3x500	1x500	500	10	---
AK 31.9-OR- ... -R	700	490	170	3x1500	1x1500	500	10	---
AK 32.5-OR- ... -R	500	490	210	3x500	2x500	500	10	---
AK 32.9-OR- ... -R	700	670	170	3x1500	2x1500	500	10	---
AK 33.5-OR- ... -R	500	490	210	3x500	3x500	500	10	---
AK 33.9-OR- ... -R	700	670	170	3x1500	3x1500	500	10	---
AK 40.5-OR- ... -R	500	490	210	4x500	---	500	10	---
AK 40.9-OR- ... -R	700	670	170	4x1500	---	500	10	---
AK 41.5-OR- ... -R	500	490	210	4x500	1x500	500	10	---
AK 41.9-OR- ... -R	700	670	170	4x1500	1x1500	500	10	---
AK 42.5-OR- ... -R	500	490	210	4x500	2x500	500	10	---
AK 42.9-OR- ... -R	700	670	170	4x1500	2x1500	500	10	---
AK 43.5-OR- ... -R	500	490	210	4x500	3x500	500	10	---
AK 44.5-OR- ... -R	500	490	210	4x500	4x500	500	10	---
AK 50.5-OR- ... -R	500	670	210	5x500	---	500	10	---
AK 50.9-OR- ... -R	700	670	170	5x1500	---	500	10	---
AK 51.5-OR- ... -R	500	670	210	5x500	1x500	500	10	---
AK 52.5-OR- ... -R	500	670	210	5x500	2x500	500	10	---
AK 53.5-OR- ... -R	500	670	210	5x500	3x500	500	10	---
AK 54.5-OR- ... -R	500	670	210	5x500	4x500	500	10	---
AK 55.5-OR- ... -R	500	670	210	5x500	5x500	500	10	---
AK 60.5-OR- ... -R	500	670	210	6x500	---	500	10	---
AK 61.5-OR- ... -R	500	670	210	6x500	1x500	500	10	---
AK 62.5-OR- ... -R	500	670	210	6x500	2x500	500	10	---
AK 63.5-OR- ... -R	500	670	210	6x500	3x500	500	10	---
AK 64.5-OR- ... -R	500	670	210	6x500	4x500	500	10	---
AK 65.5-OR- ... -R	500	670	210	6x500	5x500	500	10	---
AK 66.5-OR- ... -R	500	670	210	6x500	6x500	500	10	---

*) VdS approval only valid with colour RAL 2011 and for variants HA, HA-HZ, HEA, HEA-HZ

Tolerance Scale 1:1 Material

Created	Sheet	Format	Title	Document Style
Simetzberger	2/3	A4	Alarm box	Data sheet
Approved	Issue Date		AK xx.y- ... -R	Document State
HA	07.08.2023			Valid
Grasl				Document Number
Pneumatic Mechanik Gmbh QM FO 05.24.0				06.003.DAT.00.04-E

Technical Instructions

Alarm box type AK

Please read these „Technical Instructions“ carefully and completely. Only technically qualified personnel may work on this device.

Meaning of symbols

Safety instructions must be observed!
Failure to observe these notes may result in personal injury and property damage.

Advice, the non-compliance with these instructions or the technical data shall lead to the loss of rights under guarantee.

Correct,
this is how it should be done.

Incorrect,
this is not how it should be done.

Correct and proper use

The alarm box is used as control (emergency control board) of smoke and heat exhaust vent system (SHEVS). By input command using a push-button or by electrical/pneumatic signal, the energy of a CO_2 bottle suited for SHEVS systems is released.

When installing SHEVS devices controlled by the alarm box below an installation height of 2,5m from the floor, or from the next access level, suitable devices must be provided to prevent danger to people (crushing and pinching hazard). Follow the corresponding guidelines, rules and norms, e.g. EN 14351 and ASR A1.6. Do not allow children to play with the device or its regulation and/or control devices, including window controls.

General notes

When using multiple alarm box release stations in one group, suitable shuttle and vent valves for the connection must be installed.

The alarm box must be freely accessible and may not be obstructed by other objects.

The alarm box is not suited for use in highly corrosive environments (e.g.: thermal spas, waste management industry, etc.).

Always close the threaded connection of the bottle and protect it against dirt and humidity.

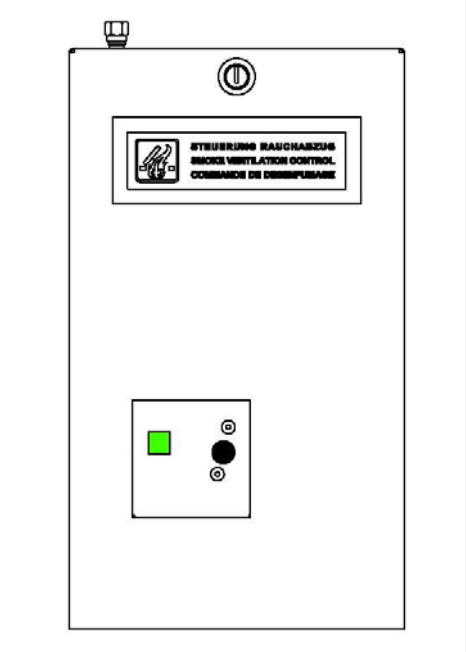


Figure 1: Alarm box (symbolically)

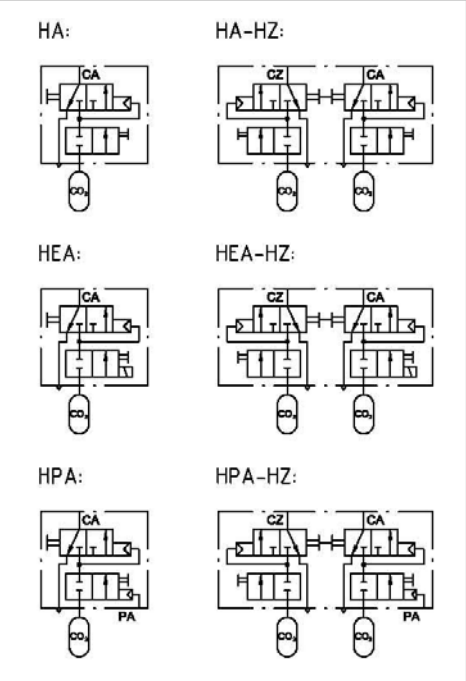


Figure 2: RTC circuit diagrams

When handling this product, always use suitable PPE – personal protective equipment (e.g. protective gloves, safety boots) as protection against sharp and pointed edges, pointed piercing needle, falling objects, and as protection against cold burns.

Pipe connection

Possible pipe connections: Ø6 and Ø8

The pipe connection at the alarm box must be >= the external pipe.
pipe connection Ø6 –> external pipe Ø6
pipe connection Ø8 –> external pipe Ø6, or Ø8

Glass plate

Only our glass plates may be used.

We can supply a hammer for breaking the glass as optional accessory part.

Installation

Observe the following before the installation:

Check that all parts of the delivery scope have been received and inspect the box for any transport damage. If any damage is visible, a complaint must be lodged immediately.

When installing the alarm box, observe the national standards and regulations. If the conditions at the installation site permit, we recommend installing the alarm box in a secure access area of the corresponding fire compartment, as the provided flaps/windows, where it will be protected from fire and smoke.
The glass cut-out (push-button) should be installed at a height of 1,4-1,6m within the area of the fire department access (normally EMERGENCY-exit), where easy access is ensured.
The alarm box may not be exposed to extreme temperatures and weather and it is not suited for outdoor storage and assembly.
The alarm box must be mounted to all provided mounting points (refer to Figure 4) using fasteners suited for the respective underground, on a level, vertical surface.
Next, interconnect the respective connections.
Ensure stress-free installation when mounting the pipes.
Once the installation is complete, mount the CO_2 bottles in the provided devices. They must not be stored outside the provided devices.

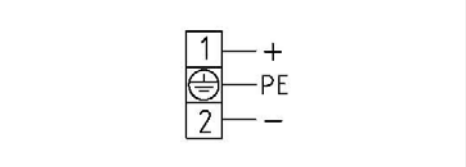


Figure 3: RTC solenoid connection

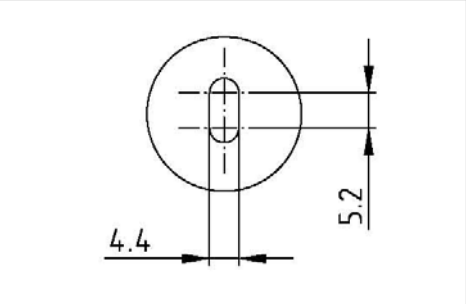


Figure 4: Attachment point

The connections must face upward.

For the installation, store the cover in a safe position away from the alarm box.

Only install the alarm box in sufficiently dimensioned and well-ventilated rooms.

Commisioning

If the CO_2 bottles are not securely fastened, there is a risk that they might catapult during piercing.

Only operate the alarm box once the SHEVS has been fully installed and is ready for operation.

Commisioning of the release lever

Before inserting the CO_2 bottle, check the position of the piercing needle (refer to number *4* in *Commisioning of the release lever*). There is a risk that the CO_2 bottle might be triggered unintentionally and, as a result, the SHEVS unit might move by accident.

1. Hook the clamping device in the provided recess (refer to Figure 5).
2. Place the clamping bolt on the piercing bolt in the valve.
3. Press the clamping device fully in clamping direction until the piercing bolt locks.
4. Make sure that the piercing needle is positioned behind the piercing face of the bottle screw-in thread!
5. Lightly grease the O-ring inside the bottle screw-in thread (consult the company Grasl regarding the type of grease to be used, which is not included in the delivery scope) and check it for possible damage (if damaged, it must be replaced).
6. Check the position of the visual indicator. The visual indicator must be positioned at „green“; if not, press the visual indicator angle towards the valve until the visual indicator is at „green“ (refer to Figure 6)!
7. Check the position of the priority slider. Both sliders must be in home position (refer to Figure 7)!
8. Fully screw in the full CO_2 bottle.
   Screw-in depth: Standard 1/2” UNF –> min. 10mm
   Optional rising pipe M18x1,5 –> min. 11mm
9. Insert glass plate and lock the box with the cover.

CO_2-bottle

Only verified CO_2 bottles authorised by us and meeting the requirements of the standards „EN 12205“ or „ADR 2003“ may be used.

Only the clamping device specified by us may be used for initial operation of the release valve.

The alarm box is not equipped with devices that provide protection against crushing at the SHEVS unit.

1) ... standard 1/2” UNF
2) ... option rising pipe M18x1,5
a ... recess for clamping device
b ... clamping bolt
c ... release button ”OPEN”
d ... clamping device
e ... clamping direction

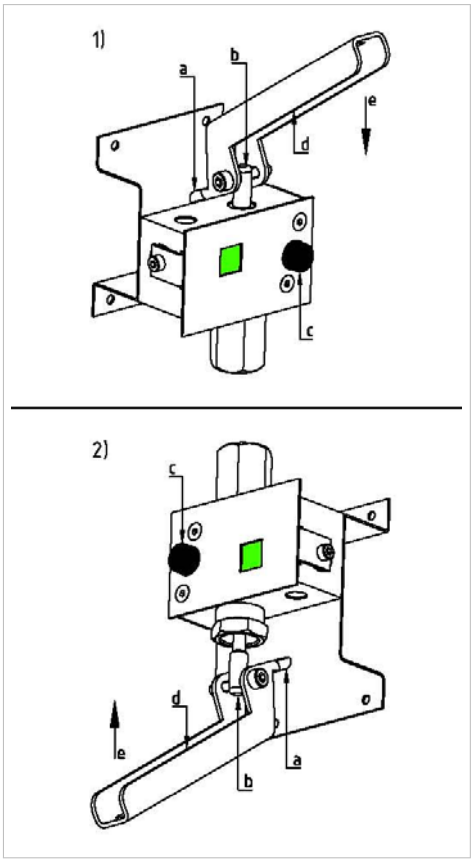


Figure 5: OPEN release RTC

Normal operation

The alarm box is ready for operation when the „green“ visual indicator is fully visible, a glass plate has been inserted, and the cover has been locked.

SHEVS release

- AK xx.y-HA (manual release): After breaking the glass plate, press the release button fully down to release the alarm box.

- AK xx.y-HEA (electric release): In addition to the manual release, remote release by applying the rated voltage is possible (refer to Technical Data).
- AK xx.y-HPA (pneumatic release): In addition to the manual release, remote release by applying the min. release pressure is also possible (refer to Technical Data).

Pressing the release button ”OPEN” will pierce the screwed-in CO_2 bottle and the CO_2 will be connected to the output. The „red“ visual indicator indicating the state „fire“ will then be visible.

SHEVS resetting (AK xx.y-...-HZ)

The alarm box is in the state „fire“ (red visual indicator). Pressing the release button ”CLOSE” will pierce the screwed-in CO_2 bottle and the CO_2 will be connected to the „CZ“ output. During this, the output „CA“ will be vented and the visual indicator will switch to an intermediate position, to the state “Malfunction” („red/green“ indicator).

Activation of the reset function

- AK xx.y-...-HZ: Use the included key to unlock the cover and arrange it in hold position. Fully press the black release push-button ”CLOSE” to release the reset function.
- AK xx.y-...-HZS (optional): Use the included key to fold away the round hole cover plate. Fully press the black release push-button ”CLOSE” arranged underneath it to release the reset function.

Restarting operation/reset

Always wear suitable PPE (protective gloves, safety boots) when handling this product.

Piercing the CO_2 bottles will significantly cool down the CO_2 bottles and all pipes and components in the nearness through which the CO_2 flows. Touching these components for extended periods might cause cold burns.

1. Unlock the alarm box cover and arrange it in hold position (refer to data sheet).
2. Slowly screw out the bottle up to the vent hole (venting noise can be heard).
3. Wait until all pressure has been released from the bottle (priority slider can be moved again).
4. Fully turn out the bottle.
5. For additional points, refer to *Commisioning of the release lever*.

Once released, the alarm box must be restarted by authorised personnel.

1) ... standard 1/2” UNF
2) ... option rising pipe M18x1,5
a ... visual indicator angle
b ... visual indicator - green (OK) / red (fire)

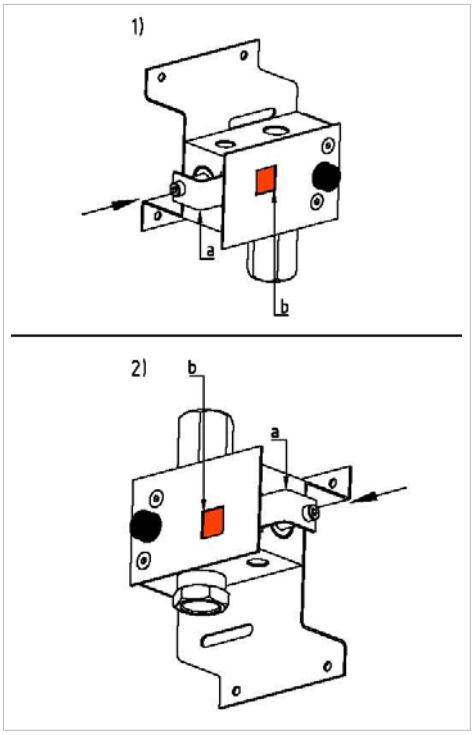


Figure 6: Position of RTC visual indicator

1) ... standard 1/2” UNF
2) ... option rising pipe M18x1,5
a ... priority slider
b ... release button ”OPEN”
c ... release button ”CLOSE”

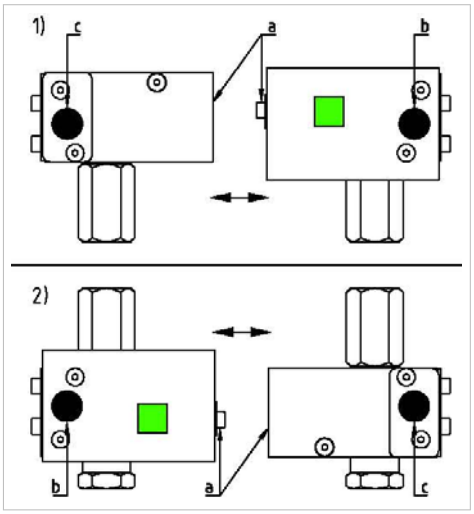


Figure 7: RTC slider position

Malfunction

A malfunction is present if:

- the alarm box cover has not been mounted or is not locked
- no glass plate has been inserted
- not all CO_2 bottles have been inserted
- the visual indicator is in intermediate position („red/green“ display)
- there is a lack of spare consumables

In the event of a malfunction, arrange for a service by a qualified company immediately.

Maintenance

If the alarm box is no longer functional, it must be replaced completely. It is not permitted to modify or remove any components of the alarm box. This would impair the safe operation of the alarm box in which case it may no longer be used.
Possible consequences may include failure to function, release of CO_2, risk of explosion of the CO_2 bottles.

Disconnect the power supply when carrying out maintenance work/troubleshooting on the SHEVS system to prevent unintended operation. This can be achieved by turning out the CO_2 bottle.

If the visual indicator is no longer in „green“ position, or if the slider is activated at the RTC-CLOSE valve (Figure 6), CO_2 might have been released into the system and all connected components might be under high pressure. Remove the CO_2 bottle as described under *Restarting operation/reset*.

Check the following as part of the annual maintenance:

- piercing needle for damage
- connection cable for damage
- function of the strain relief in the connecting plug
- secure attachment of the alarm box
- pipes and CO_2 bottles for corrosion or damage
- CO_2 bottles for falling below the engraved total weight

Disassembly

Disassembly sequence:

1. Remove CO_2 bottles.
2. Remove lines from the alarm box.
3. Remove alarm box from the wall.

1) ... standard 1/2” UNF
2) ... option rising pipe M18x1,5
a ... CO_2 bottle
b ... screw-in thread for CO_2 bottles
standard: 1/2” UNF
option rising pipe: M18x1,5

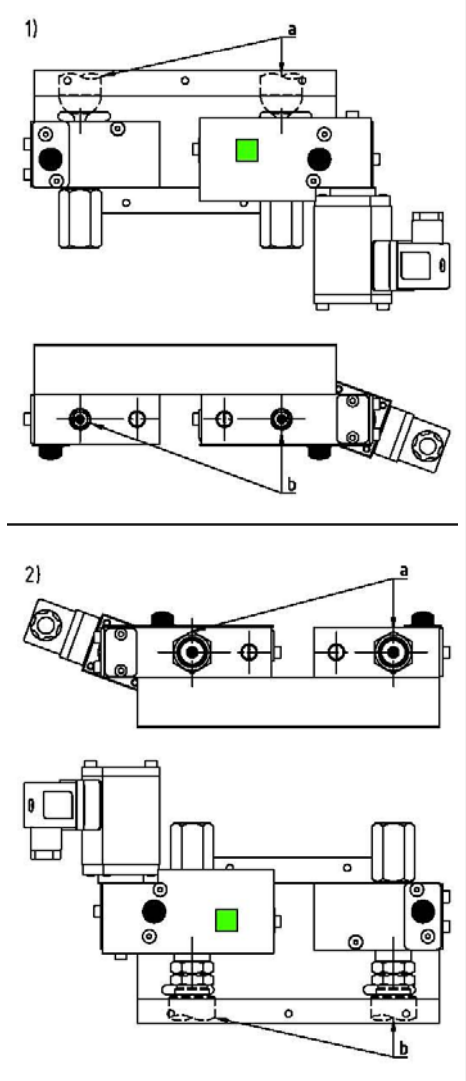


Figure 8: CO_2 screw-in thread

Disposal

This product is made of steel, aluminium, non-ferrous metals, plastic and electronic components.

Dispose of this product in observance of the national regulations.