



# Passive chilled beams

## Type PKV

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### Product overview

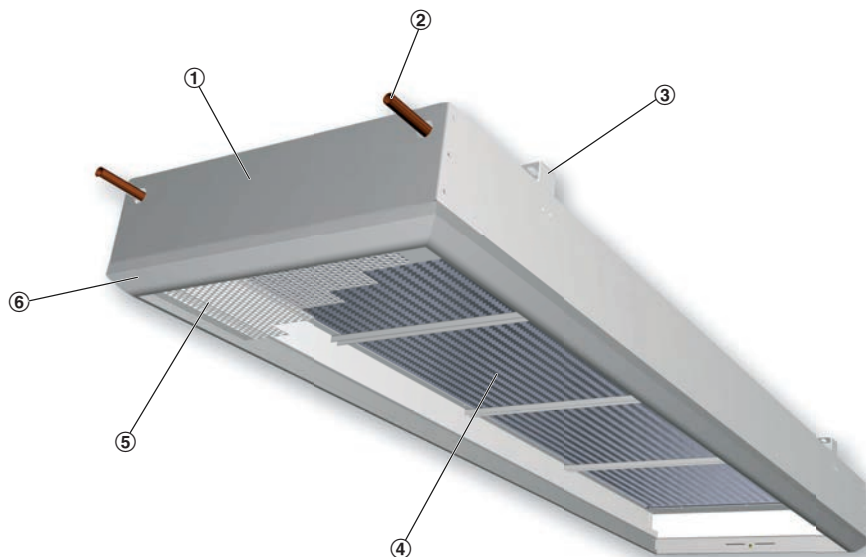


Fig. 1: Schematic illustration of the PKV

- |   |   |   |                                    |
|---|---|---|------------------------------------|
| ① | Casing  | ④ | Heat exchanger                     |
| ② | Water connections, Ø12 mm, straight (90° bent upwards as an option) | ⑤ | Perforated metal facing (optional) |
| ③ | Hanging bracket   | ⑥ | Aluminium frame (optional)         |

## Important notes

### Information on the installation manual

This manual enables operating or service personnel to correctly install the product described below and to use it safely and efficiently.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and general safety regulations also apply.

### Qualified staff

#### Specialist personnel

Specialist personnel are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to carry out their assigned duties, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

#### Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The manufacturer does not accept any liability for damages resulting from:

- Non-compliance with this manual
- Incorrect use
- Operation or handling by untrained individuals
- Unauthorised modifications

The actual scope of delivery may differ from the information in this manual for special constructions, additional order options or as a result of recent technical changes.

### Personal protective equipment

Personal protective equipment must be worn for all work in order to reduce health or safety hazards to the minimum.

The appropriate protective equipment for a job must be worn for as long as the job takes.

### Industrial safety helmet



Industrial safety helmets protect the head from falling objects, suspended loads, and the effects of striking the head against stationary objects.

### Protective gloves



Protective gloves protect hands from friction, abrasions, punctures, deep cuts, and direct contact with hot surfaces.

### Safety shoes



Safety shoes protect the feet against crushing, falling parts, and slipping on slippery ground.

### Correct use

Passive chilled beams are used to dissipate high heat loads. Warm room air rises due to thermal buoyancy, is cooled by the heat exchanger, then slowly flows downwards again to the occupied zone. Heating operation is possible, but not recommended because of the unfavourable thermal conditions.

**Incorrect use**



**WARNING!**

**Danger due to incorrect use!**

Incorrect use of the unit can lead to dangerous situations.

Never use the unit:

- in areas with potentially explosive atmospheres
- in humid rooms
- in rooms with aggressive or dust-laden air

**Technical data**

Designation	Value
Cooling capacity	Up to approx. 1000 W
Max. operating pressure, water side	6 bar
Max. operating temperature	75 °C (55 °C when using flexible connecting hoses)
Minimum operating temperature	6 °C

**Dimensions**

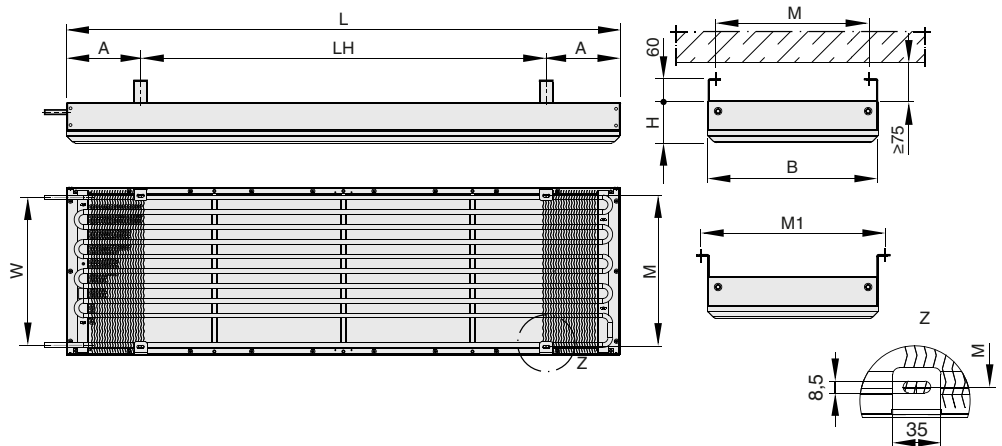


Fig. 2: PKV dimensions

Weight [kg]																
Variant	B [mm]	L [mm]														
		1000			1500			2000			2500			3000		
		H			H			H			H			H		
		110	200	300	110	200	300	110	200	300	110	200	300	110	200	300
PKV-0	295	9	11	13	12	15	18	15	19	23	18	23	28	22	27	33
	455	11	14	16	14	18	21	18	23	26	22	27	32	26	32	37
	575	12	15	17	17	21	24	22	27	31	26	32	36	31	37	43
PKV-L	295	10	12	14	14	17	20	18	22	26	21	26	31	26	31	37
	455	12	15	17	17	21	24	22	27	30	27	32	37	32	38	43
	575	14	17	19	21	25	28	26	31	35	32	38	42	38	44	50
PKV-R-L	295	12	14	16	17	20	23	21	25	29	26	31	36	31	36	42
	455	14	17	19	20	24	27	26	31	34	32	37	42	37	43	48
	575	16	19	21	24	28	31	31	36	40	37	43	47	44	50	56
Contained water	295	0.5			0.8			1.0			1.3			1.5		
	455	0.8			1.2			1.5			1.9			2.3		
	575	1.0			1.5			2.0			2.5			3.0		

Dimensions [mm]		
L	A	LH
1000	150	700
1500	200	1100
2000	300	1400
2500	400	1700
3000	600	1800

Dimensions [mm]
H
110
200
300

Dimensions [mm]			
B	M	M1	W
295	250	330	240
455	410	490	400
575	530	610	520

## Transport and storage

### Transport

#### CAUTION!

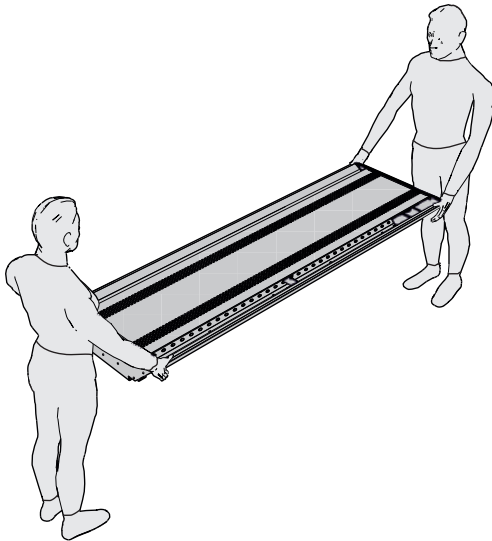
#### **Danger of injury from sharp edges, sharp corners and thin sheet metal parts!**

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes and a hard hat.

#### NOTICE!

Carry the unit in pairs in order to prevent any damage.



*Fig. 3: Carrying the unit in pairs*

Use only lifting and transport gear designed for the required load. Always secure the load against tipping and falling.

Upon delivery, carefully remove the packaging and check the unit for transport damage and completeness.

### Storage

Please note:

- Store the unit only in its original packaging
- Protect the unit from the effects of weather
- Protect the unit from humidity, dust and contamination
- Storage temperature: –10 to 50 °C
- Relative humidity: 95 % max., non-condensing

## Ceiling installation

### Personnel:

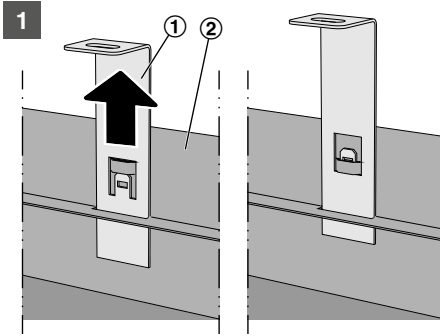
- Specialist personnel

### Protective equipment:

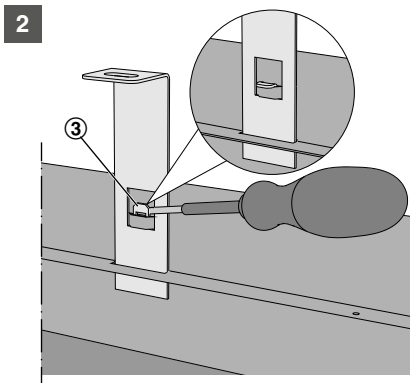
- Industrial safety helmet
- Safety shoes
- Protective gloves

The PKV passive chilled beam can be installed freely suspended or above an open cell ceiling.

Only work in pairs; preferably use a lift.



- ① Bracket
- ② PKV casing



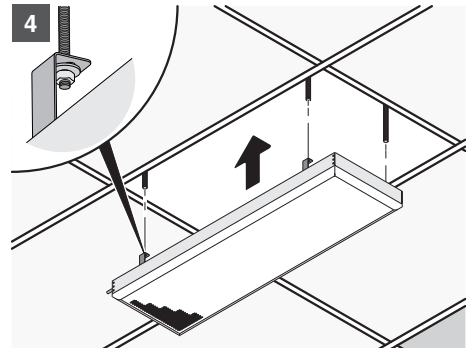
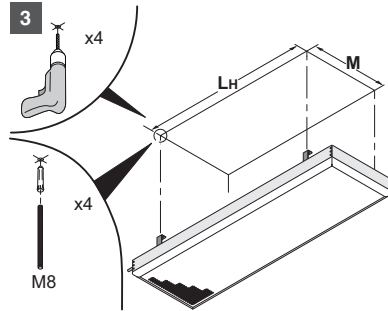
- ③ Bend the lug



### DANGER!

#### Danger of death from the fall of suspended loads!

- Only use fixing materials designed for the required load.
- Stand clear of suspended loads, unless properly secured.
- Check secure fixing after installation.



**Connecting the water pipes**

**⚠ CAUTION!**

**Hot surface!**

Danger of burn or scald injuries when working on the hot water system.

Before working on the water-side connections, shut down the system, depressurise it and let it cool down.

The heat exchanger is fitted with water flow and water return connections (one each):

Make sure that the water temperature does not fall below the dew point.

Water connection	Spanner	Type of connection
Copper tubes 12 × 1 mm	–	Soldered (rigid)
		Flexible hoses (accessory)
G 1/2" external thread and flat seal	SW22	Screw connection (rigid)
		Flexible hoses (accessory)
G 1/2" union nut and flat seal	SW24	Screw connection (rigid)
		Flexible hoses (accessory)

**Connecting the unit – screw connection**

**Personnel:**

- Specialist personnel

**Protective equipment:**

- Industrial safety helmet
- Safety shoes
- Protective gloves

Ensure that the surfaces are clean

1. ▶ Insert seal and tighten screw connection by hand.

**! NOTICE!**

Heat exchanger and pipes may easily become damaged.

Always use a suitable tool to counter the tightening force in order to prevent any damage.

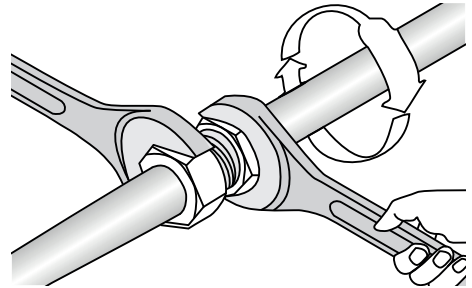


Fig. 4: Tightened screw connection

2. ▶ Tighten screw connections with a spanner.

**! NOTICE!**

**Subzero temperatures will damage the heat exchanger.**

Only fill the heat exchanger if there is no danger of freezing.

3. ▶ Fill the heat exchanger and vent it. To fill the system, use clean tap water (pH value 6.5 to 9) or a water glycol mixture (max. 30% glycol).
4. ▶ Check the system for leaks immediately after installation and then in regular intervals.

## Commissioning

Before you start commissioning:

- Remove protective films, if any
- Ensure that all connections are correct
- Ensure that all passive chilled beams are clean and free from residues and foreign matter
- Ensure that the water system including the heat exchanger has been filled and vented
- Ensure that the transport securing devices for the perforated metal facing have been removed ( Fig. 5/1)

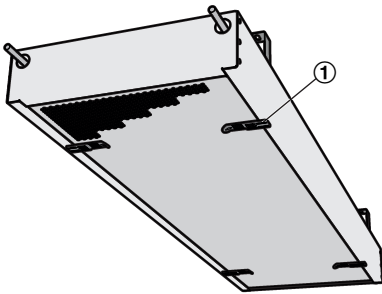


Fig. 5: Transport securing devices

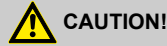
- ① Press down the lug of the transport securing devices and remove the devices from below.

## Cleaning

### Cleaning the casing

The casing may be cleaned with a damp cloth. Sticky dirt or contamination may be removed with a commercial, non-aggressive cleaning agent. Cleaning agents that contain chlorine must not be used.

## Cleaning the heat exchanger



### Hot surface!

Danger of burn injuries when working on the hot water system.

Before working on the water-side connections, shut down the system and let it cool down.

1. ▶ Push the perforated metal facing ( Fig. 1/5) slightly up, tilt it slightly, then remove it from below; if necessary, unhook the safety cables and completely remove the perforated sheet.
2. ▶ Carefully clean the heat exchanger with an industrial vacuum cleaner. Be careful to not damage the fins. We recommend using a soft brush on the suction inlet.



*Contamination tends to deposit mainly above the heat exchanger. We therefore recommend cleaning both the top and the bottom of the heat exchanger.*

3. ▶ After cleaning, attach the safety cables again, and insert the perforated metal facing.



### CAUTION!

**Danger of head injuries from the fall of the perforated metal facing!**

Check that the perforated metal facing and safety cables are securely fixed!