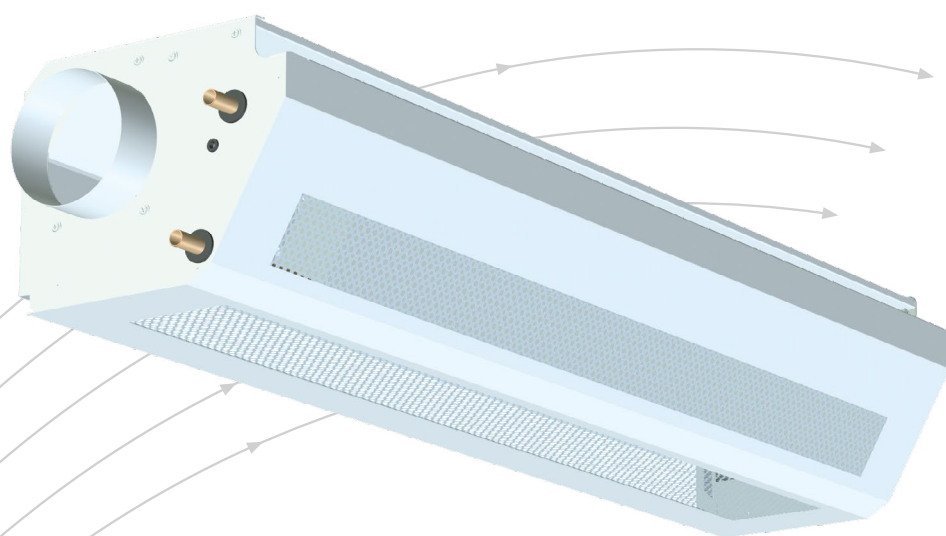


Svalbard-H

Chilled beam for corner installation between wall and ceiling



epd

NEPD-6315-5573

- Available in 1200mm to 3000mm lengths
- Adjustable pressure/air flow rate
- Adjustable flow pattern
- Dimensioning and simulation in AURASIM.

TROX

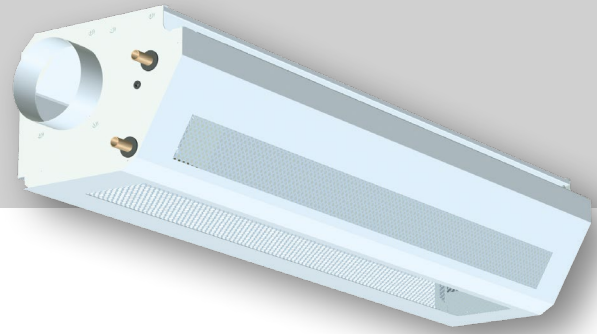
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Svalbard-H



APPLICATION

Svalbard-H is a hydronic cooling, heating and ventilation system for use in offices, shops, schools etc. The system is designed to provide excellent cooling effect, and a high induction level ensures a draft-free environment in the occupied zone. Svalbard-H is made for corner installation, i.e. between wall and ceiling.

FUNCTION

Air is supplied via nozzles, and indoor air is extracted and fed through the coil. Effective mixing of indoor air and supply air, i.e. induction, minimises the risk of draft in the occupied zone. When Svalbard is utilised for heating, the same technique is used for dispersion of heat along the ceiling. The indoor air is extracted through the perforated area on the unit's front-panel in order to avoid dirt accumulation on the ceiling.

DESIGN

- Nozzle configuration for the chilled beam, i.e. desired air supply and pressure, is specified at time of order.
- Svalbard-H comes with integrated air flow rate measuring point.
- The front panel can be folded down for inspection and cleaning.
- Svalbard-H is available in installation lengths of 1200, 1800, 2400 and 3000 mm.
- Coil types: SKB = standard cooling coil or VKB heating and cooling coil.
- Dispersion type: unidirectional
- Connection to air: Ø125 mm (spigot dimension).
- Connection to air and water on same side
- Connection to water, cooling and heating: Cu Ø15x1.0 mm
- Changeable flowpattern via Jet Split lamellae in the beams outlet.
- Blind cover can be provided for adaptation to the wall. See Figure 9.

MATERIAL AND SURFACE COATING

Frame and casing in galvanised steel. Delivered in a powdered painted finish (white RAL 9003 - gloss 30) as standard. Copper tube coils with aluminium lamellae. Adjustable lamellae are in a plastic design.

DIMENSIONS AND WEIGHT, Svalbard-H

| Length [mm] | L [mm] | Weight* [kg] | Weight: water in cooling coil [kg] | |
|----------------|-----------|-----------------|------------------------------------|-----|
| | | | SKB | VKB |
| 1200 | 1200 | 17,0 | 1,0 | 0,8 |
| 1800 | 1800 | 24,5 | 1,5 | 1,2 |
| 2400 | 2400 | 33,5 | 2,1 | 1,5 |
| 3000 | 3000 | 40,0 | 2,6 | 2,0 |

Table 1 (* No water in cooling coil)

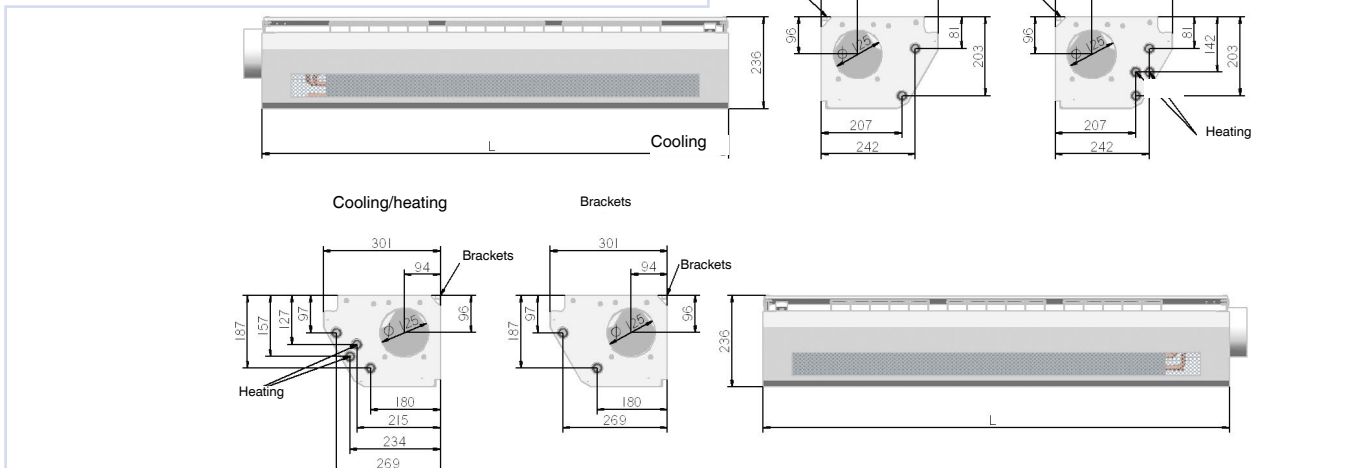
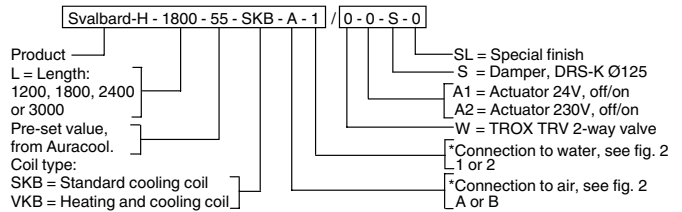


Fig. 1, Svalbard-H

ORDER CODE, Svalbard-H



Example:
Svalbard-H-1800-55-SKB-A-1/0-0-S-0
Explanation:
Svalbard-H, corner beam, length 1800 w/ pre-set value 55 and standard cooling coil
Connection to air A and water 1.
Commissioning damper DRS-K Ø125 supplied separately.
Connection to air and water on same side as standard, A-1 or B-2.

ACCESSORIES

See order code, pre-installed in chilled beam.
W = TROX TRV 2-way valve, Broen (see separate data sheet).
A1 = Actuator 24V on/off, Broen (see separate data sheet).
A2 = Actuator 230V on/off, Broen (see separate data sheet).

ACCESSORIES

Ordered and supplied separately.
Ballorex Dynamic valve (see separate data sheet).
Actuator: 24V, 230V or 24V modulating 0 - 10V signal.
Transformer, EasyTrafo 75 VA (see separate data sheet).
Transformer, EasyTrafo 105 VA (see separate data sheet).
Room controller, EasyReg (see separate data sheet).

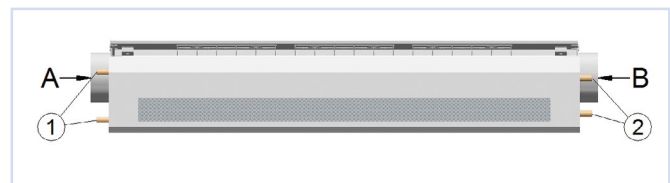
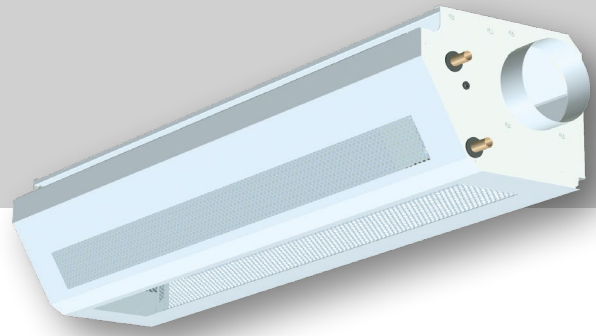


Fig. 2

Svalbard-H



QUICK SELECTION, Svalbard-H

The tables state the cooling effect from the chilled beam's water circuit and the emitted sound power level from the beam.

In order to calculate total cooling effect, the cooling effect of the supply air must be added as shown in the example below.

| Example | | | |
|---------------------------------------|----------------------|--|-------|
| Product: | Svalbard-H1800 | | |
| Battery type: | Standard | Water-side cooling effect at 40 Pa as per table 3 = | 310 W |
| Air flow rate: | 80 m ³ /h | Supply-air cooling effect: $q/3600 \times 1,2 \times c_p \times \Delta t_{\text{room-supply air}}$ = | |
| $\Delta t_{\text{room-water}}$: | 10°C | $80/3600 \times 1,2 \times 1010 \times 6$ = | 160 W |
| $\Delta t_{\text{room-supply air}}$: | 6°C | Total cooling effect = | 470 W |

Svalbard-H-1200 mm

| Δt_k [°C] | 6 | | 8 | | 10 | | L_w dB(A) | | |
|-----------------------------------|----|-----|-----|-----|-----|-----|-------------|-------|----|
| Total pressure in duct [Pa] | 40 | 80 | 40 | 80 | 40 | 80 | 40Pa | 80 Pa | |
| Air flow rate [m ³ /h] | 40 | 110 | 130 | 150 | 170 | 180 | 210 | 23 | 32 |
| | 50 | 120 | 140 | 160 | 190 | 200 | 230 | 27 | 33 |
| | 60 | 120 | 150 | 170 | 200 | 210 | 240 | 30 | 35 |
| | 70 | 130 | 150 | 180 | 200 | 220 | 250 | 32 | 36 |
| | 80 | 140 | 160 | 190 | 210 | 230 | 260 | 34 | 38 |

Table 2: Cooling effects at 0.06 litres of water per sec

Svalbard-H-1800 mm

| Δt_k [°C] | 6 | | 8 | | 10 | | L_w dB(A) | | |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-------------|-------|----|
| Total pressure in duct [Pa] | 40 | 80 | 40 | 80 | 40 | 80 | 40Pa | 80 Pa | |
| Air flow rate [m ³ /h] | 40 | 150 | 160 | 200 | 220 | 240 | 270 | 21 | 29 |
| | 60 | 170 | 190 | 220 | 250 | 270 | 310 | 26 | 32 |
| | 80 | 180 | 210 | 250 | 290 | 310 | 360 | 29 | 34 |
| | 100 | 200 | 230 | 270 | 310 | 330 | 380 | 32 | 37 |
| | 120 | 210 | 240 | 280 | 320 | 350 | 400 | 34 | 40 |

Table 3: Cooling effects at 0.06 litres of water per sec

Svalbard-H-2400 mm

| Δt_k [°C] | 6 | | 8 | | 10 | | L_w dB(A) | | |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-------------|-------|----|
| Total pressure in duct [Pa] | 40 | 80 | 40 | 80 | 40 | 80 | 40Pa | 80 Pa | |
| Air flow rate [m ³ /h] | 60 | 200 | 230 | 270 | 300 | 340 | 370 | 22 | 29 |
| | 80 | 220 | 250 | 295 | 330 | 370 | 410 | 26 | 32 |
| | 100 | 240 | 270 | 320 | 360 | 400 | 450 | 29 | 35 |
| | 120 | 250 | 290 | 335 | 385 | 420 | 480 | 31 | 37 |
| | 140 | 260 | 300 | 350 | 400 | 440 | 500 | 33 | 39 |

Table 4: Cooling effects at 0.06 litres of water per sec

Svalbard-H-3000 mm

| Δt_k [°C] | 6 | | 8 | | 10 | | L_w dB(A) | | |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-------------|-------|----|
| Total pressure in duct [Pa] | 40 | 80 | 40 | 80 | 40 | 80 | 40Pa | 80 Pa | |
| Air flow rate [m ³ /h] | 60 | 230 | 240 | 310 | 330 | 390 | 420 | 21 | 29 |
| | 80 | 250 | 270 | 340 | 380 | 430 | 480 | 23 | 31 |
| | 100 | 270 | 310 | 370 | 420 | 460 | 520 | 26 | 34 |
| | 130 | 300 | 340 | 400 | 450 | 500 | 560 | 30 | 37 |
| | 160 | 320 | 360 | 430 | 480 | 530 | 600 | 33 | 39 |

Table 5: Cooling effects at 0.06 litres of water per sec

Svalbard-H

For accurate dimensioning, please use the Aurasim software available for download at our website www.trox.no. The software enables selection of the optimum chilled beam for the prevailing conditions. Among the factors calculated in Aurasim are:

- Cooling effect
- Heating effect
- Sound power level
- Sound attenuation
- Pressure drop air/water
- Appropriate positioning

Calculate the cooling and heating effect in the simulation program Aurasim is available at: aurasim.no

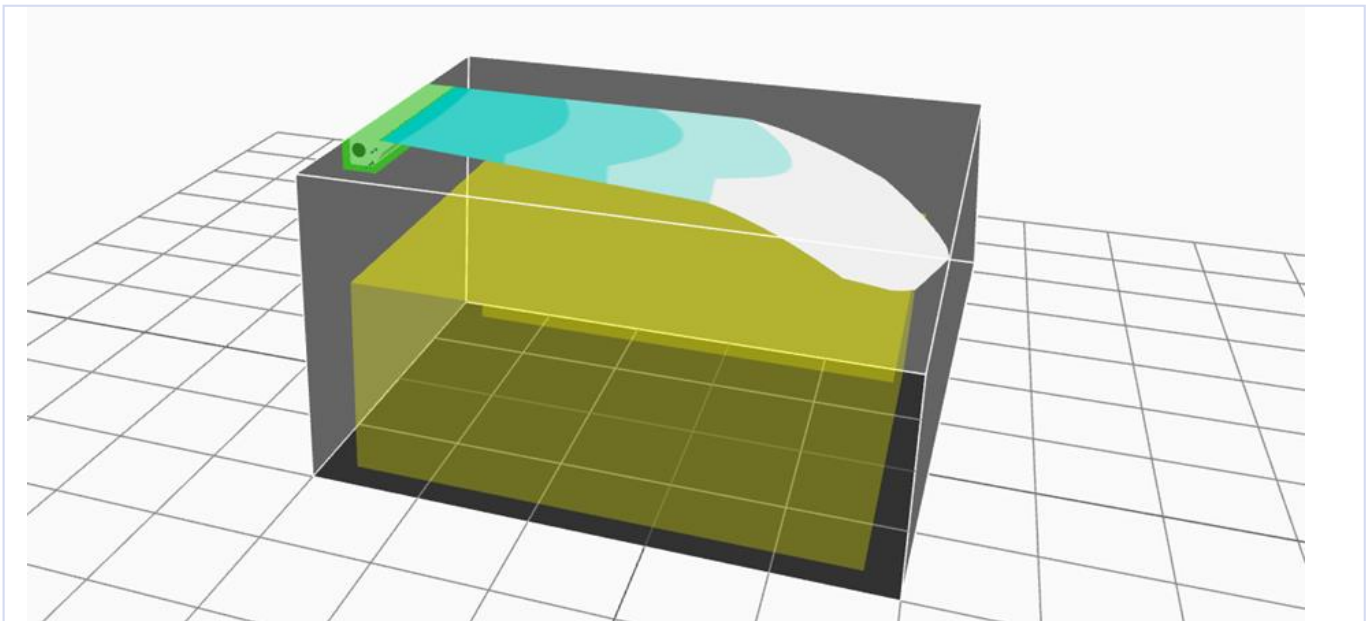


Fig. 3.

TECHNICAL DATA FOR COMMISSIONING DAMPER DRS-K, Ø125.

Diagram 1 shows total pressure drop over the damper alone as a function of air flow rate.

The graphs represent A-weighted sound pressure level. Table 6 provides the correction factor [KO] for conversion to various frequency levels.

Correction factors shown in the diagram are for open damper (right/lower line) and closed damper (left/upper line). Open is equivalent to a damper angle of 0°.

The correction factors for intermediate points are interpolated between these. Sound power level for each frequency is calculated using the formula: $L_{W_{okt}} = L_{WA} + KO$ where L_{WA} is sound pressure level obtained from diagram 1.

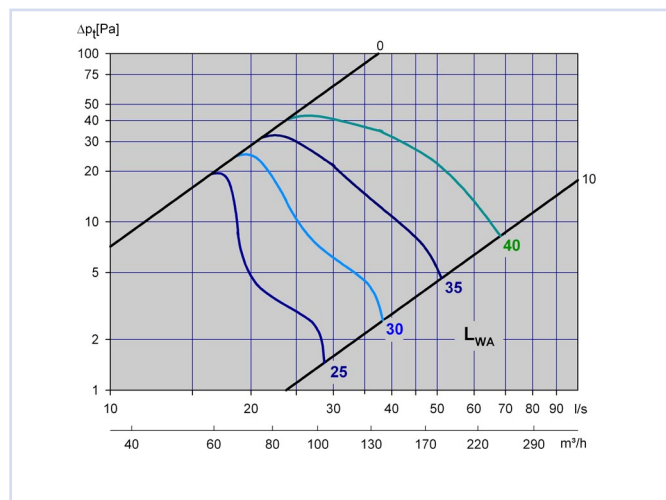


Diagram 1
Pressure drop and sound power level for commissioning damper DRS-K Ø125

Svalbard-H

Correction factor [KO], DRS-K Ø125

| DRS-K | Octave band (Hz) | | | | | | | |
|------------------|------------------|-----|-----|-----|-----|-----|-----|-----|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Damper open(10) | 19 | 5 | 1 | -3 | -9 | -12 | -16 | -1 |
| Damper closed(0) | 17 | 0 | -5 | -10 | -14 | -9 | -8 | -19 |

Table 6: Correction factors for conversion to sound power level at the respective frequencies



Fig. 4, DRS-K Ø125

THROW LENGTH

Appropriate positioning in order to prevent high velocities in the occupied zone is calculated by using the product selection software Aurasim available for download via our website: www.trox.no

FLOW PATTERN

The direction and angle of the flow pattern can be adjusted via Jet Split lamellae. This can be visualised in the Aurasim software available for download at our website: www.trox.no

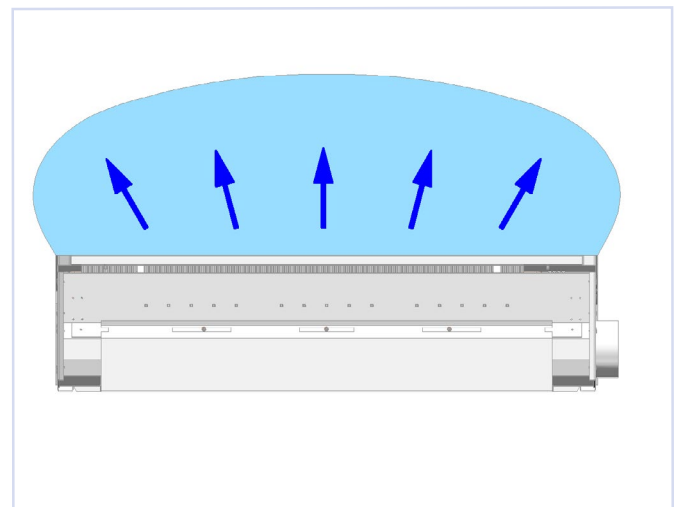


Fig. 5: Flow pattern

Svalbard-H

INSTALLATION, Svalbard-H

Svalbard-H is supplied with a mounting bar for attachment to wall, and to which the chilled beam is then attached.

Detailed installation instructions is to be found on our website:

www.trox.no

INSTALLATION, water valve

The water valve is to be installed on the return (chilled water out), and with the water-valve arrow pointing away from the cooling coil (the various connection options are shown in fig. 8).

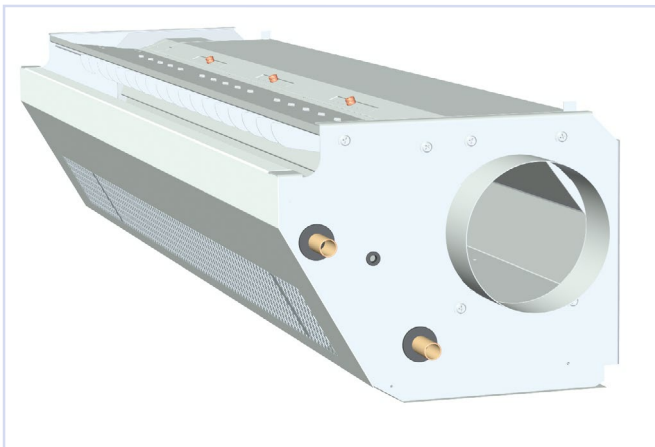


Fig. 6: Svalbard-H, installation

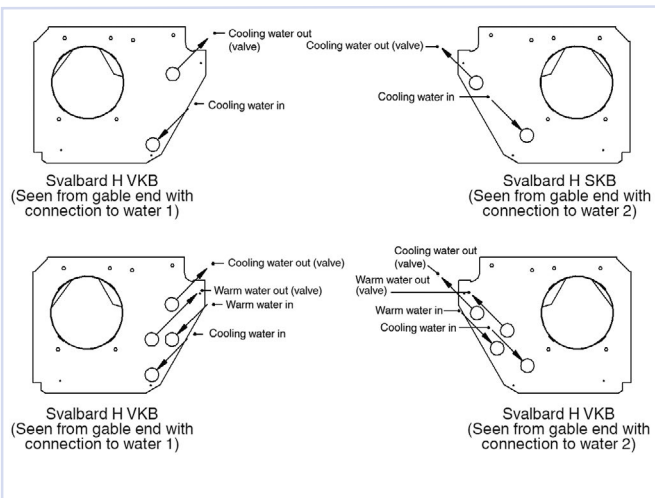


Fig. 8 Svalbard-H, water valve installation

Svalbard-H is developed and manufactured by:

TROX

COMMISSIONING

Svalbard-H will have a pre-set air flow rate and pressure in accordance with the details specified. The pre-set value and correction factor will be specified on an appropriately positioned label which is visible when the front is folded down. If required, the air flow rate can be adjusted on site. New nozzle positions can be obtained from the factory or in Aurasim which can be downloaded from our website: www.trox.no

The water valve is regulated by turning the disc, which is numbered 1-10, with the current value against the groove in the threads. KVS/KV can be found in data sheet Trox TRV-2veis ventil_KV-values, which can be found under Accessories cooling baffle.KVS is the amount of water (here stated in l/h) that flows through the valve at a pressure drop of 1 bar and with the valve fully open in the various positions. The KVS values apply without a mounted actuator. When the actuator is fitted, the values below KV (BP2) apply.

Max. working pressure waterside 10 bars.

Max. test pressure waterside 15 bars.

MAINTENANCE

Full access to the coil is achieved by folding down the front panel as shown in fig. 7. Vacuuming and, if required, using a damp cloth to clean the unit is recommended.

ENVIRONMENT

Enquiries regarding product declaration can be directed to our sales team, or information can be found at our website: www.trox.no

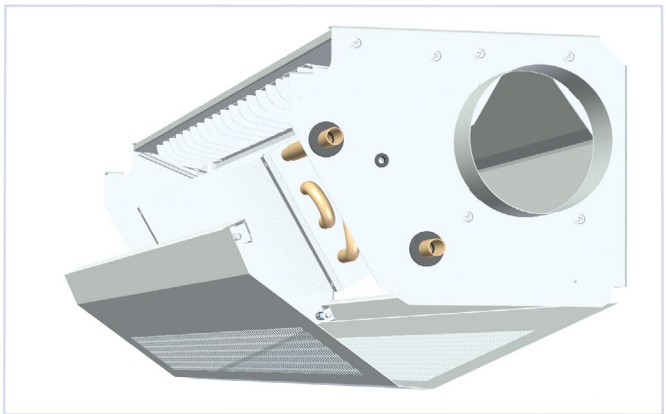


Fig. 7: Svalbard-H, installation



Fig. 9: Svalbard-H, blind cover.

The company reserves the right to make amendments without prior notice.

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