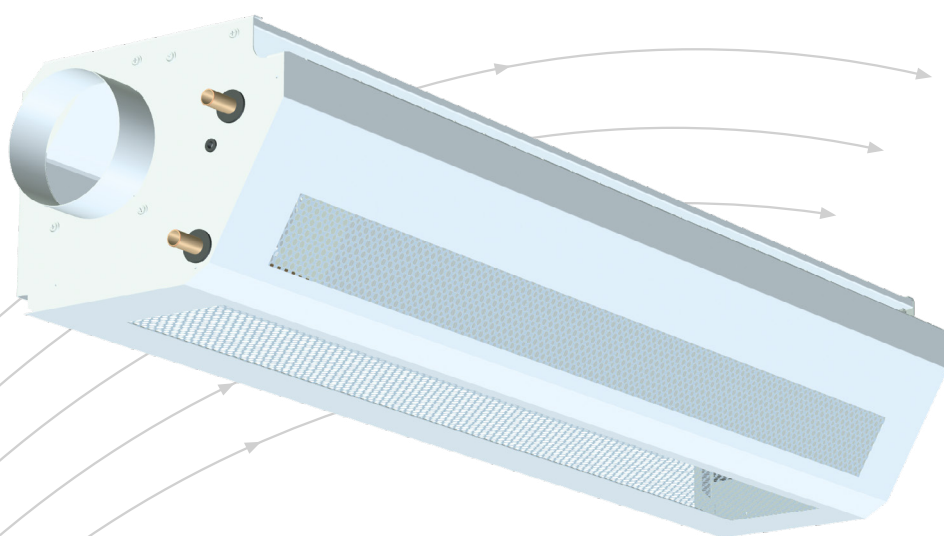


# Svalbard-H

Chilled beam for corner installation between wall and ceiling



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

## TROX<sup>®</sup> TECHNIK

 **Auranor**

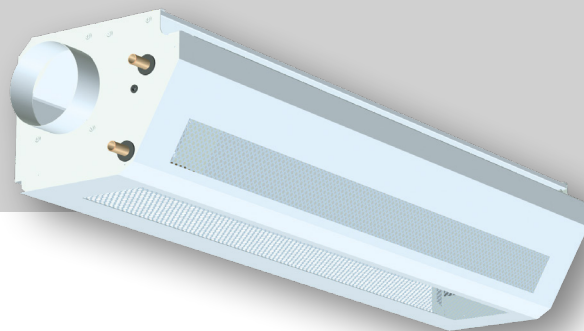
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# Svalbard-H



## 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

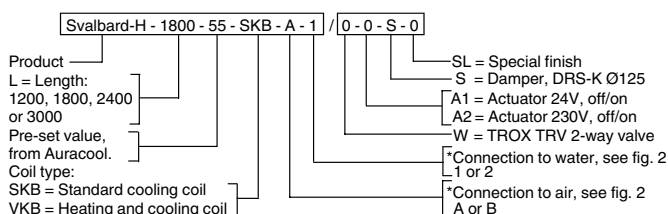
Frame and casing in galvanised steel. Delivered in a powdered painted finish (white RAL 9003 - gloss 30) as standard. Copper tube coils with aluminium lamellae. Adjustable lamellae are in a plastic design.

## DIMENSIONS AND WEIGHT, Svalbard-H

Length	L	Weight*	Weight: water in cooling coil [kg]	
[mm]	[mm]	[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)

## 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).

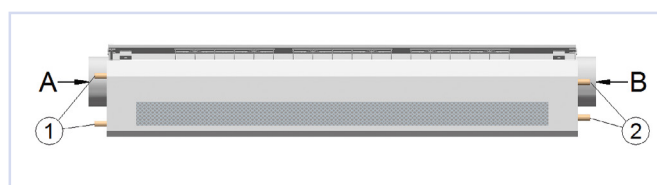


Fig. 2

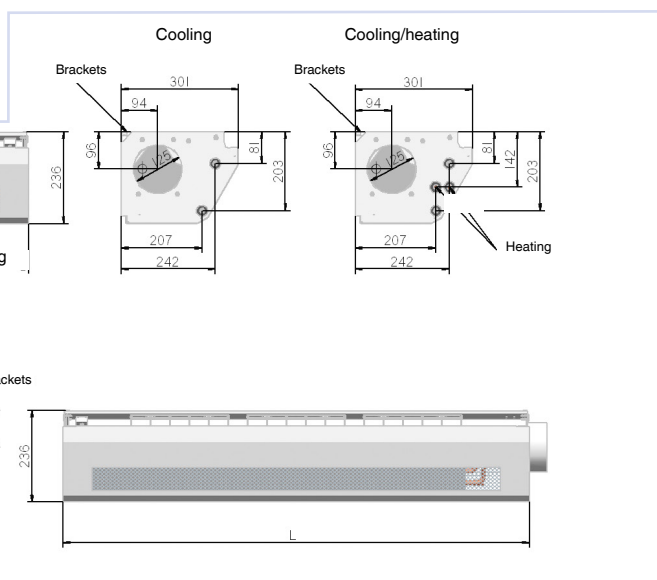
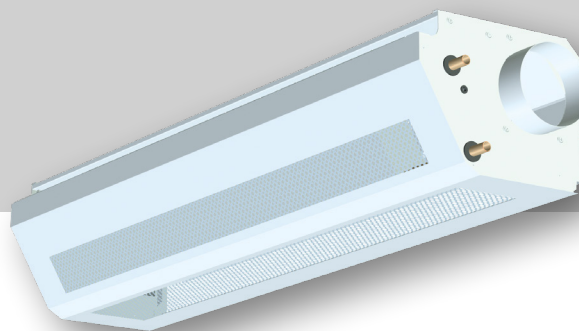


Fig. 1, Svalbard-H

# 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 <sup>3</sup> /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	<b>Total cooling effect =</b>	<b>470 W</b>

### Svalbard-H-1200 mm

$\Delta t_k$ [°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 <sup>3</sup> /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

$\Delta t_k$ [°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 <sup>3</sup> /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

$\Delta t_k$ [°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 <sup>3</sup> /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

$\Delta t_k$ [°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 <sup>3</sup> /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

For accurate dimensioning, please use the Aurasim software available for download at our website [www.trox.no](http://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](http://aurasim.no)

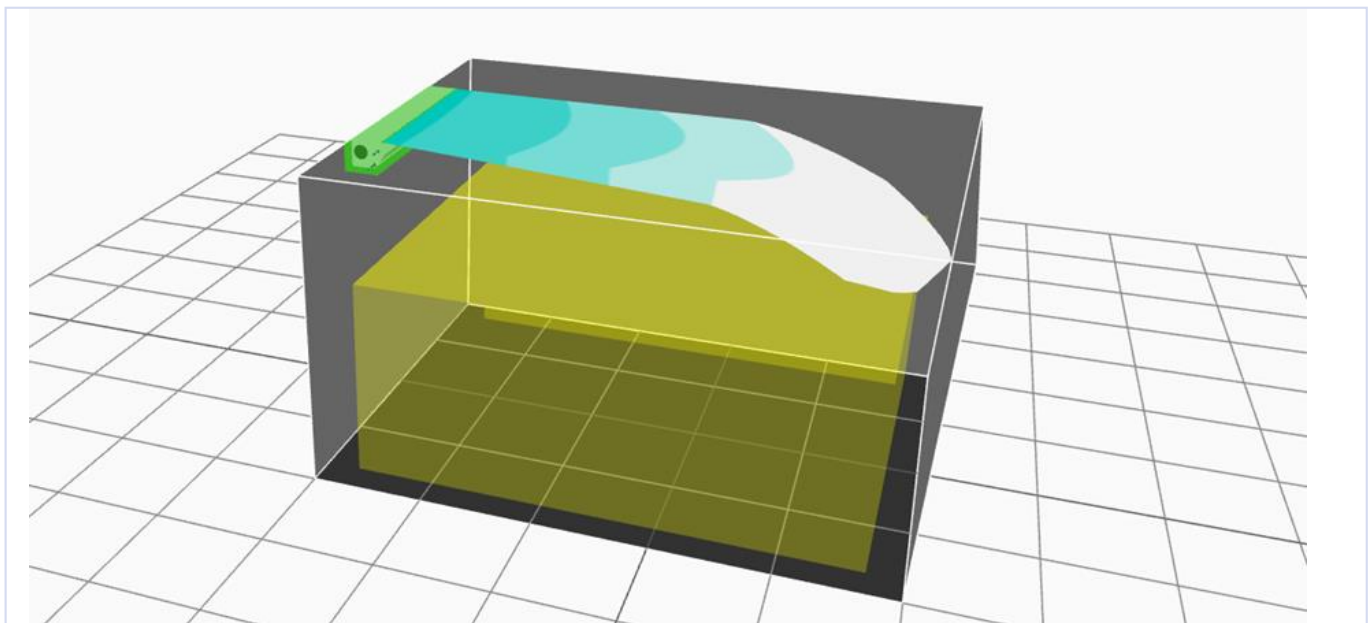


Fig. 3.

## 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:  $L_{W_{\text{okt}}} = L_{W_A} + KO$  where  $L_{W_A}$  is sound pressure level obtained from diagram 1.

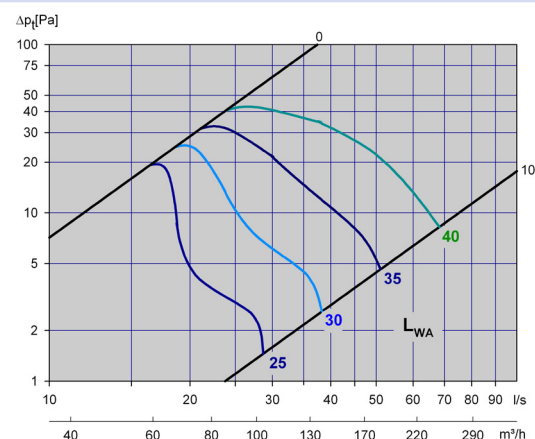


Diagram 1  
 Pressure drop and sound power level for commissioning damper DRS-K Ø125

# 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



## 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](http://www.trox.no)

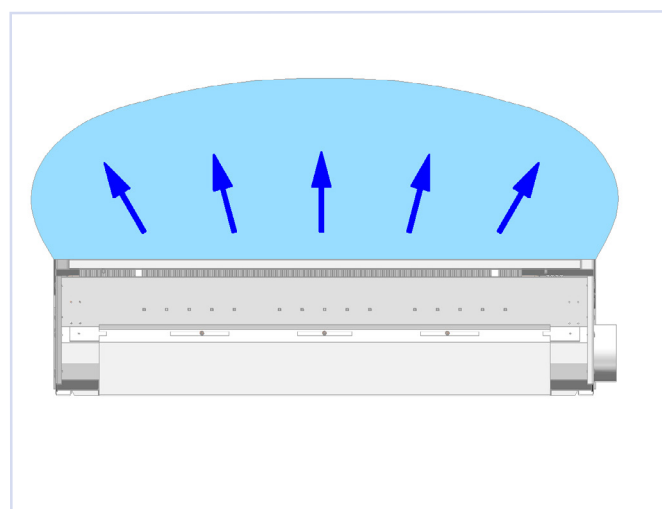


Fig. 5: Flow pattern



## 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](http://www.trox.no)

## 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](http://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).

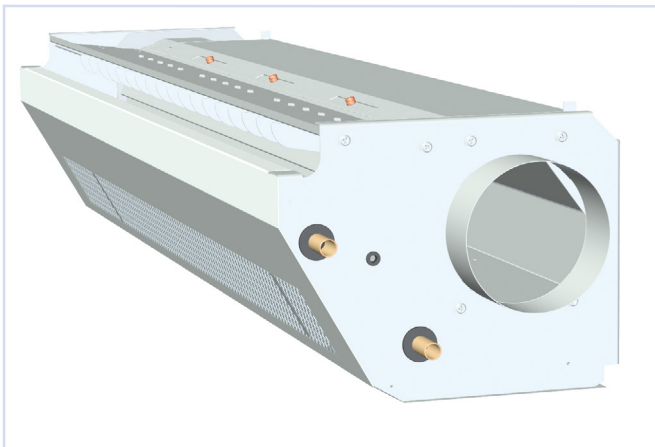


Fig. 6: Svalbard-H, installation

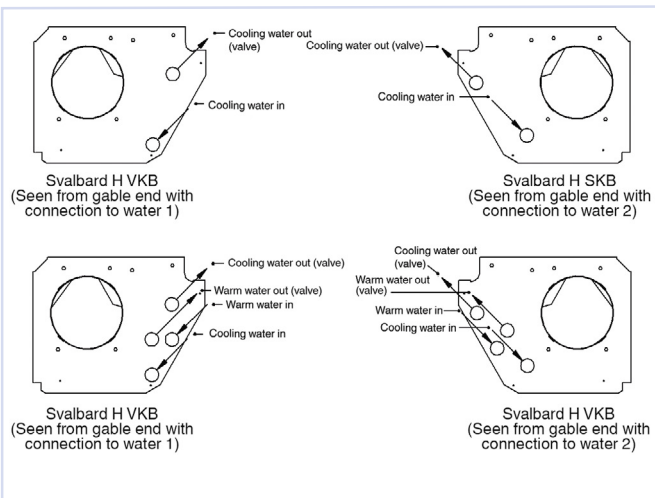


Fig. 8 Svalbard-H, water valve installation

Svalbard-H is developed and manufactured by:

## 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](http://www.trox.no)

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](http://www.trox.no)

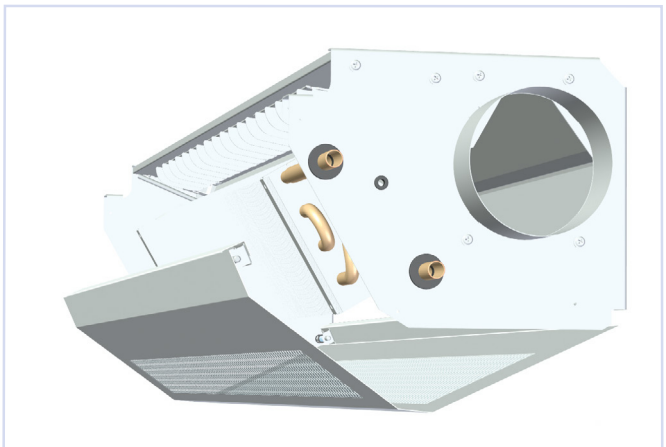


Fig. 7: Svalbard-H, installation

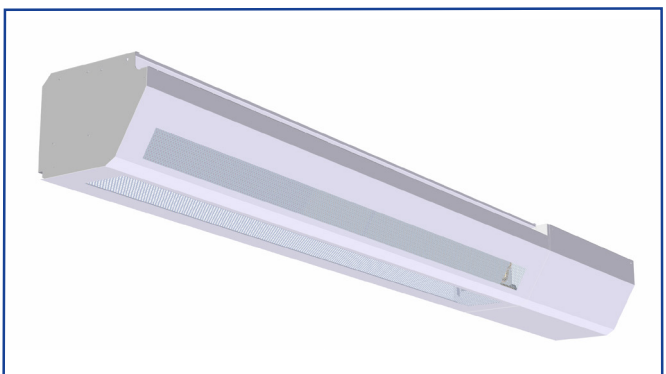


Fig. 9: Svalbard-H, blind cover.