



## SVALBARD-F

### CHILLED BEAM FOR OPEN INSTALLATION IN CEILING OR COVERING

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

### APPLICATION



Svalbard-F 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-F is designed for open installation in ceiling or covering.

### DESIGN

- • Nozzle configuration for the chilled beam, i.e. desired air supply and pressure, is specified at time of order.
- Svalbard-F is delivered with integrated pressure outlet for air flow rate measurements.
- The front panel can be folded down for inspection and cleaning.
- Svalbard-F is available in installation lengths of 1200, 1800, 2400 and 3000 mm.
- Dispersion options: symmetrical 50/50 or asymmetrical 75/25 (25/75) – can be adjusted on site.
- Connection to air: gable end Ø125 mm (spigot dimension).
- Connection to water: Cu Ø15 x 1, 0 mm.
- Changeable flowpattern via Jet Split lamellae in the beams outlet.
- Blind cover can be provided for adaptation to the wall. See Figure 8.

DESCRIPTION

**MATERIALS AND SURFACE COATING**

Frame and casing in a galvanised, steel-plated finish. 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.

INSTALLATION

SVALBARD-F

Svalbard-F is supplied with a mounting bar for attachment to ceiling or covering (fig. 7). Detailed installation instructions is to be found on our website: trox.no

WATER VALVE

The water valve should be placed on the return, that is, with arrow on the valve away from the cooling battery.

The cooling batteries in Svalbard-I are not directional, so the return can be connected at your own request. The water valve is directional.

TECHNICAL INFORMATION

Svalbard-F-1800-104-SKB-A-50/50-1-W-A1-S-0											
1 2 3 4 5 6 7 8 9 10 11											
1 Type/variant Svalbard F, suspended installation						7 Water connection* 1 eller 2					
2 Length 1200, 1800, 2400 eller 3000						8 Water valve 0 without water valve W TRV-2-way valve, delivered loose/unassembled**					
3. Adjustment factor Auracoolfactor						9 Actuator 0 uten aktuator A1 aktuator 24V, delivered loose/unassembled** A2 aktuator 230V, delivered loose/unassembled**					
4. Coil type SKB standard cooling coil HKB high-capacity coil VKB heating and cooling coil						10 Damper 0 without damper S with damper DRS-K 125**					
5. Air connection* A eller B						11 Exposed surface 0 RAL 9003 SL-RAL special finish RAL SL-NCS special finish NCS					
6.Flow pattern 0 standard 50/50 25/75 asymmetrical, x=25/ y=75 75/25 asymmetrical, x=75/ y=25											

\* The standard air and water connections are at the same gable end: A1 or B2, see Figure 1.  
\*\* accessories supplied loose/unassembled.

Exempel: Svalbard-F-1800-104-SKB-A-50/50-1-W-A1-S-0

Type/variant	Svalbard-F
Length	1800
Adjustment factor	104
Coil type	SKB
Air connection*	A
Flow pattern	50/50
Water connection*	1
Water valve	W
Actuator	A1
Damper	S
Exposed surface	0 RAL 9003

**QUICK SELECTION, Svalbard-F**  
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-F 1800		
Battery type:	Standard	Water-side cooling effect at 40 Pa as per table 3 =	580 W
Air flow rate:	75 m <sup>3</sup> /h	Supply-air cooling effect: $q \cdot 3600 \times 1,2 \times c_p \times \Delta t_{\text{supply air}}$ =	
$\Delta t_{\text{room-water}}$	10°K	75/3600 x 1,2 x 1010 x 6 =	152 W
$\Delta t_{\text{supply-air}}$	6°K	Total cooling effect =	732 W

Svalbard-F-1200 mm													
$\Delta t_{\text{r}} [^{\circ}\text{C}]$		6				8				10			
Total pressure in duct [Pa]		40		80		40		80		40		80	
Coil type		SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB
Air flow rate [m <sup>3</sup> /h]	40	210	250	240	280	280	330	320	370	350	410	410	470
	60	240	290	270	320	320	380	380	440	410	470	470	550
	80	280	300	300	340	340	390	400	460	420	510	510	600
	100	270	320	320	360	360	420	430	490	450	550	550	650
	120	280	340	330	380	380	440	450	520	470	570	570	680
		40 Pa		80 Pa		40 Pa		80 Pa		40 Pa		80 Pa	
		<20		27		<20		28		27		32	
		31		35		31		35		31		35	

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

Svalbard-F-1800 mm													
$\Delta t_{\text{r}} [^{\circ}\text{C}]$		6				8				10			
Total pressure in duct [Pa]		40		80		40		80		40		80	
Coil type		SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB
Air flow rate [m <sup>3</sup> /h]	50	300	350	340	400	400	460	440	520	500	580	580	640
	75	340	400	380	460	460	520	500	600	580	660	640	740
	100	380	450	420	500	500	580	560	680	620	700	680	820
	125	400	480	460	550	550	640	620	740	700	780	760	880
	150	420	500	480	580	580	680	660	780	740	840	820	940
		40 Pa		80 Pa		40 Pa		80 Pa		40 Pa		80 Pa	
		<20		24		<20		26		22		26	
		29		34		29		34		29		34	

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

Svalbard-F-2400 mm													
$\Delta t_{\text{r}} [^{\circ}\text{C}]$		6				8				10			
Total pressure in duct [Pa]		40		80		40		80		40		80	
Coil type		SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB
Air flow rate [m <sup>3</sup> /h]	60	400	440	440	500	500	580	540	640	620	720	680	800
	90	440	500	480	600	600	680	640	740	700	800	760	900
	120	480	560	540	640	640	740	720	840	800	920	900	1060
	150	520	620	580	680	680	780	760	880	840	960	940	1100
	180	550	660	620	740	720	840	820	960	900	1040	1040	1200
		40 Pa		80 Pa		40 Pa		80 Pa		40 Pa		80 Pa	
		<20		24		<20		26		23		29	
		30		35		30		35		30		35	

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

Svalbard-F-3000 mm													
$\Delta t_{\text{r}} [^{\circ}\text{C}]$		6				8				10			
Total pressure in duct [Pa]		40		80		40		80		40		80	
Coil type		SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB	SKB	HKB
Air flow rate [m <sup>3</sup> /h]	80	496	556	536	620	658	763	714	818	815	947	898	1038
	110	538	622	718	819	724	822	813	927	907	1044	1001	1175
	140	574	677	657	782	784	823	902	1025	967	1141	1088	1304
	170	616	723	698	835	824	955	959	1096	1039	1234	1173	1421
	200	638	749	740	860	864	1000	975	1125	1089	1263	1259	1514
		40 Pa		80 Pa		40 Pa		80 Pa		40 Pa		80 Pa	
		<20		26		<20		29		28		34	
		32		37		32		37		32		37	

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

The primary air is supplied to the room through adjustable nozzles that cover a wide airflow range. The nozzles are calibrated at the factory to the desired ratio between the unit's pressure drop and the amount of primary air supplied to achieve the desired operating point. Svalbard-F has two-way air distribution in the room, it draws in room air through the battery for cooling or heating depending on the selected battery type. The baffle has good induction of supplied air to the room, ensuring a draught-free occupied zone. Svalbard-F is equipped with the Jet-Split system in the side slits of the unit, which gives the possibility to change the distribution pattern.