Lindab **Premax**

Supply air beam

Supply air beam

Premax

Use

Lindab's supply air beam Premax can be used for cooling, heating and ventilation. Water valves, actuators, Regula Secura, Regula Combi and Regula Connect can all be built into the Premax beam.

Installation

Premax I-60 is installed into a false ceiling, and can be suspended by hangers or threaded rods.

As standard Premax is delivered for a 600 x 600 T24 false ceiling. Premax can also be delivered with a variety of different Clip-in options, making the beam suitable for other types of false ceilings.

Worth noting

Premax features the Lindab JetCone, an innovative way of regulating the air volume. The air volume can easily be adjusted without having to worry about pressure and noise issues.

The Angled Nozzle system secures a perfect air spread pattern, available in a number of factory preset angles.

As a plus feature the Lindab AirGuide system offers readjustable air spread pattern control.

The beam can be easily integrated/used in a Pascal water system to enable VAV/DCV.

Lindabs active chilled beams are Eurovent-certified and tested according to EN-15116.

Key figures

Length:	1200 - 3600 mm (steps of 600 mm)
Width:	600 mm (ceiling adaption available)
Height:	200 mm
Capacity:	2068 W

Calculation setup
Room temp: 25°C, Water temp: 14-17°C, Air temp: 18°C, Nozzle air pressure: 80 Pa, Air flow: 15 l/s/m

Supply air beam Premax

Optimal functions

Despite the product's small external dimensions, the construction makes it possible to achieve a high cooling capacity. Premax is Lindab's highest performing supply air beam designed to meet extra high cooling demands.

Premax is based on the induction principle. Ventilation air is released through the nozzles into a dispersal zone, thereby creating a low static pressure. The low pressure causes the warm air from the room to be induced into the ventilation air through the battery. The volume of the warm indoor air is two to seven times that of the ventilation air. The air is cooled as it passes through the battery, which consists of aluminium fins with copper pipes filled with cold, running water. The heat from the room is absorbed through the aluminium fins and then transferred through the copper pipe to the water circuit and goes further to a central cooling unit.

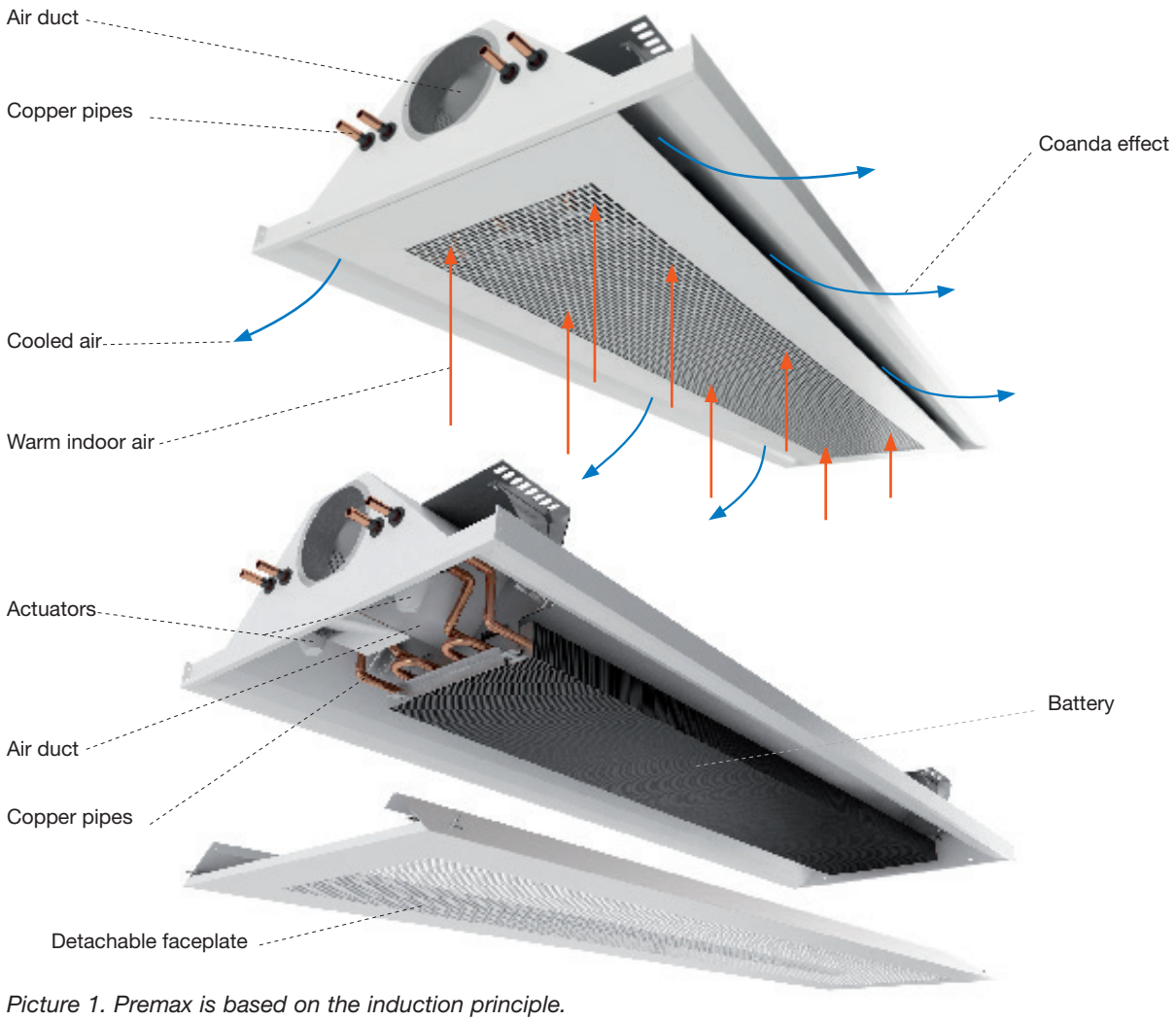
Premax can be delivered with an exhaust air valve, on request.

JetCone and Angled Nozzles

The opening size of the nozzles can be adjusted, by operating the adjustment pins in each corner of the beam. The air distribution can also be adjusted, to achieve different amounts of air on either side of the beam, or to achieve an asymmetrical air pattern along the side of the beam. All thanks to our patent pending JetCone system.

The Lindab Angled Nozzles system successfully combines the Jetcone air volume adjustment with a preset air spread pattern. The combination of the Jetcone and the Angled Nozzles systems results in reduced throw lengths and optimized air volume regulation.

The design is made to secure the coanda effect and a fan-shaped air pattern. The adherence of the air to the beam already occurs at the JetCone opening. Then, due to the coanda effect, the air follows the side of the beam towards the ceiling.



Picture 1. Premax is based on the induction principle.

Supply air beam Premax

Hygiene

Everything is accessible for service

The Premax faceplate is simple to lower or remove. The faceplate is kept in place by four cotter pins. If two of the cotter pins, on one of the long sides of the faceplate are removed, the faceplate will open and hang from the other two pins. For complete removal, please see the installation instruction. When the faceplate is lowered or removed, the battery is accessible from below (see picture 2).

Lindab Pascal Water Solution VAV/DCV combined with active chilled beams

For an extra energy- and cost saving and environmentally friendly ventilation and cooling system, the Lindab Pascal Water solution should be applied. The Pascal solution will optimize the ventilation, cooling, heating and even lighting for a perfect indoor climate at the lowest running cost by combining the active chilled beam with VAV (Variable Air Volume) or DCV (Demand Controlled Ventilation) technique.
Please refer to: Pascal Water Solutions

Construction

Premax is power

Premax is Lindab's high performing supply air beam, giving the highest cooling capacity to be used in rooms with substantial cooling requirements. In terms of appearence Premax looks like Premum and can therefore preferable be used in alternation with Premum beams and thus provide an architecturally uniform appearance in the room.

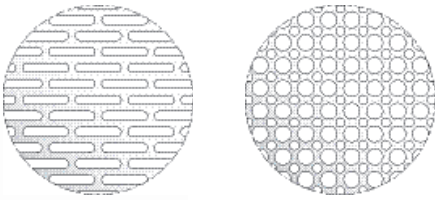
Premax is developed and designed to achieve a high degree of flexibility. The standard Premax with Angled Nozzles and JetCone allows the adjustment of air diffusion, air volume and air pressure.

The beam equipped with the plus feature Airguide, makes it possible to easily change the air spread pattern.

The water pipes are made of copper. Nevertheless, the water should be oxygen-free to prevent corrosion.

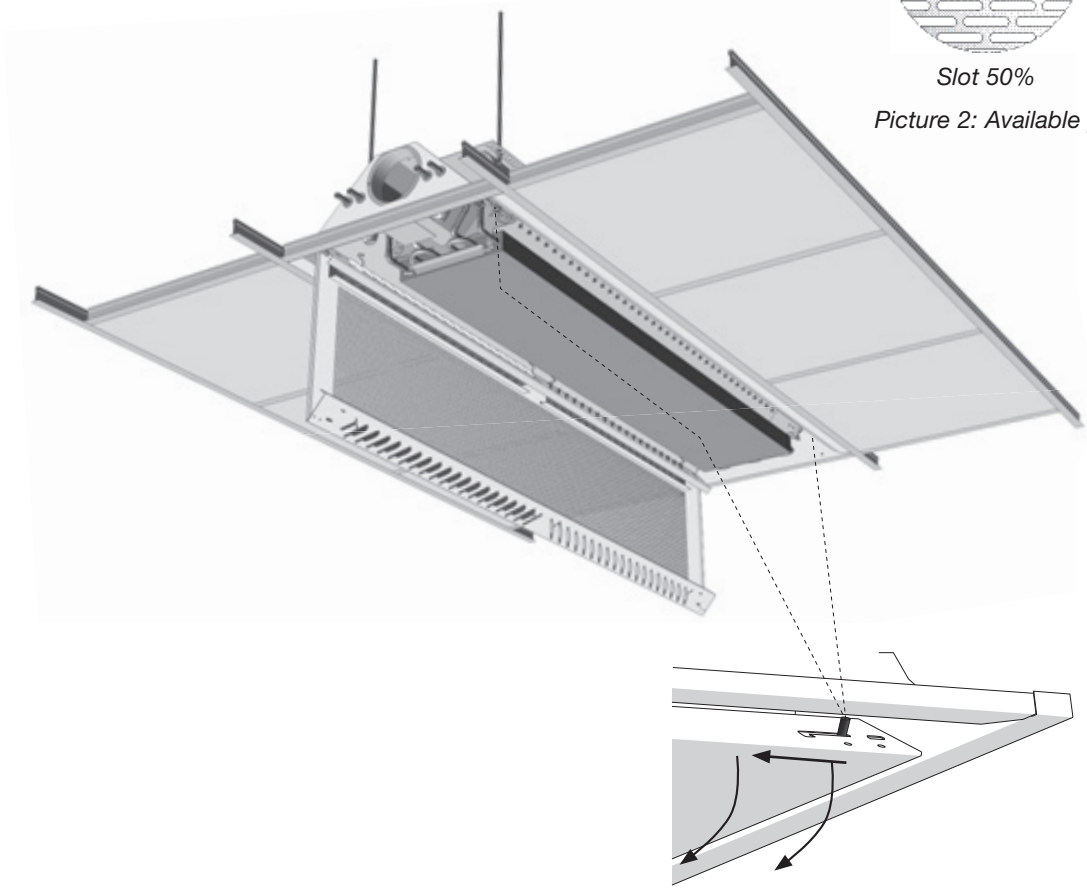
Perforation pattern

The beam is available in two perforation pattern Slot 50% (standard) and Dotx2 50% (plus feature).



Slot 50% *Dotx2 50%*

Picture 2: Available perforation



Picture 3. When the faceplate is lowered or removed, the battery are accessible from below. AirGuide system is shown in picture (plus feature).

Supply air beam Premax

Initial settings

Adjustment JetCone

Premax is delivered as standard with Lindab's JetCone air volume adjustment system. The JetCone System makes Premax a very flexible product with possibility of adjusting air diffusion, air volume and air pressure. Adjustment is made by setting the four adjustment pins into different positions. The adjustment pins can be set in any of the 10 steps, thereby offering a total of 40 different settings. The adjustment is done without any tools, which makes it very fast and easy to adjust the air pattern, air volume and air pressure. The fast adjustment system gives an opportunity within planning, since the product choice can be made in an early stage and the products can be drawn into the planning of the project even though the planner do not have all the data normally required to select a suitable beam.

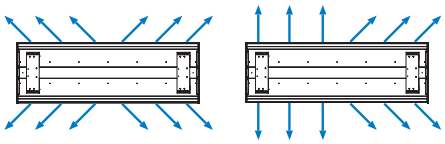
Presetting Angled Nozzles

To achieve a desired air spread pattern the Premax beam is delivered with the Angled Nozzles air distribution system. The Angled Nozzles are a simple yet effective way of creating a divergent air spread pattern without the capacity issues normally related to an air deflector system. The Angled Nozzles can be delivered preset in one of the following standard settings:

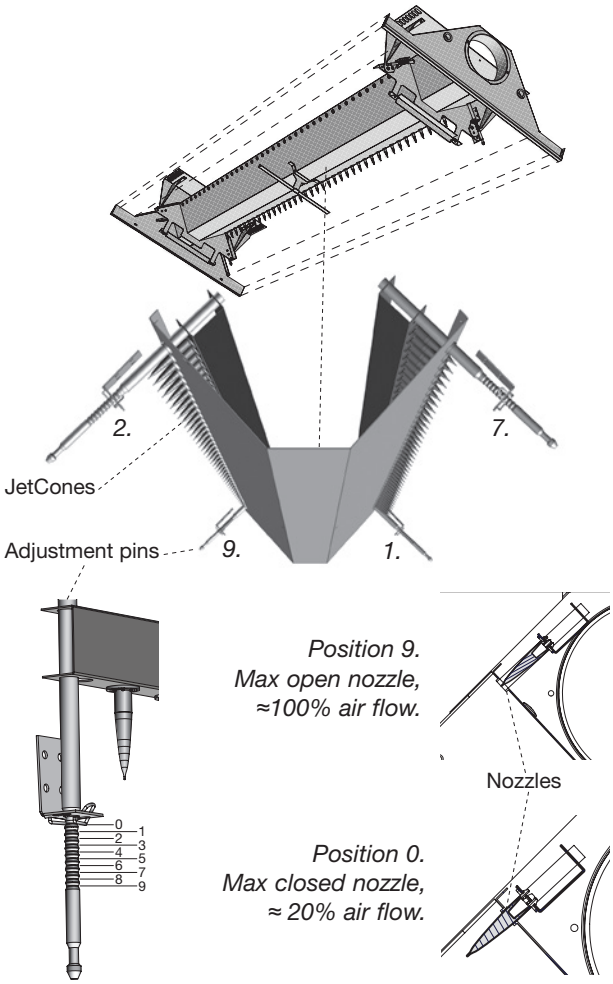
30° (default setting)
16°
0°

In order to meet special demands, the Angled Nozzles can be delivered in other configurations than the ones mentioned above (picture 3). For more information, please contact Lindab.

NB! Please note that the Angled Nozzles are manufactured in a fixed position (default 30°) and cannot be retrofitted or changed.



Picture 4. Different settings for AirGuide (plus feature).



Picture 5. Lindab's JetCone air volume adjustment system.

Example: A number of Premax beams are installed in an open-plan office. A separate office is to be fitted into the room. If the climate is to be optimal, the air volume and air distribution needs to be adjusted on the Premax beam that will be built into the new room (see picture 5). If the air has to be directed in a specific direction, it is also possible to adjust an asymmetrical distribution pattern (see picture 4). For more information please go to www.lindqst.com.

Picture 6. A separate office is to be fitted into the room. If the climate is to be optimal, the air quantity and air volume need to be adjusted for the Premax beam that will be built into the new room.

Supply air beam Premax

Data

Variants

The Premax beam is a 2-way actice chilled beam and is standardly prepared for ventilation and cooling (2-Pipe connection).

Lengths: Premax is available in lengths from:

I-60 and X-60: 1.2 m to 3.6 m (in steps of 0.1 m).
I-62: 1.2 m to 3.6 m (in steps of 0.6m).

Width: The beam is available in I-60 (592 mm), X-60 (599 mm) and I-62 (617 mm), according to different ceiling adaptions, see page 17.

Height: The heigth is 200 mm.

Water connection: The water connections for cooling are available in 12 mm or 15 mm.

Air connection: The air connection is horizontal or vertical, Ø125 mm.

JetCone: The JetCone is standard feature. The factory settings will be done according to desired pressure (Pa) and primary air flow (l/s) and can be changed easily on site.

Angled Nozzles: The Angled Nozzles are manufactured in a fixed position and cannot be retrofitted or changed (default is 30°). Other settings on request.

Design: Perforated with longitudinal slots (Slot 50%, see page 4 and 5).

Surface treatment: Premax is manufactured as standard from enamelled sheet metal.

Crosstalk protection: Crosstalk protection is build-in as standard.

Colour

The product is available as standard, in signal white RAL 9003 or in pure white RAL 9010, gloss value 30. Other RAL colours on request.

Pascal Water Solution

The beam can be easily integrated/used in a Pascal water system to enable VAV/DCV.
Please refer to: Pascal Water Solution documentation.

Plus features

Factory preinstalled.

AirGuide: The Lindab AirGuide system offers readjustable air spread pattern control. With a total of eight adjustment points (two points on each of the four deflector), and four different settings at each adjustment point, the AirGuide deflectors have 32 different settings (Picture 3). The adjustment is simply done by releasing a retaining clip in one end of the deflector. The deflector can then be adjusted to the desired setting and the retaining clip is refitted. These easy steps are then carried out for all the adjustment points that needs to be changed.

The AirGuide will be pres-set (default is 30°-10°) in the factory, If not any other setting is wanted and can be changed easily on side. Selection the AirGuide option will incur a capacity reduction of 6 % for cooling and heating compared to the Angled Nozzles system. The AirGuide system is an alternative to the Angled Nozzles.

Recommended settings are:
30°-10° (default, correspondend to 30° Angled Nozzles)
20°-10° (correspondend to 16° Angled Nozzles)
10°-10° (no corrosponded Angled Nozzles)
30°-30° (special setting)
NB! See page 29 for Air patterns

Heating: The product can be equipped with an additional water circuit , with 12mm connections, in the batteries to provide a heating function.

Integrated valve and actuator: A control valve, with variable Kv value, and an actuator can be pre-installed in the product.

Integrated Regula Secura: Lindab's Regula Secura condensation protection can be installed in the product.

Integrated Regula Connect: The product can be equipped with the Regula Connect connection card. Please see the Regula chapter for further information.

Adaptation for suspended ceilings: The product can be adapted to suspended ceiling types Y-60 and Z-60 on request.

Design: There is another perforation pattern available (Dotx2 50%, see page 6).

Exhaust air valve: The product can be delivered with build in exhaust valve.

Air connection: The beam is available with an aditional Ø125 mm connection on the opposite side (type A only!).

Integrated regulation unit: It is possible to have Lindab's room regulator, Regula Combi, pre-installed in the product. The control panel is fully accessible through the faceplate. Please see the Regula chapter.

Accessories

Delivered separately.

Control: Refer to the chapter Regula.

Hangers: For recommended installation principles (see: "Premax Installation Instruction").

All these different hangers are available at Lindab:
-pendulum hangers (in different sizes)
-threaded rods M8
-Lindab FH-system (Gripple®) - hang fast system

For additional accessories please refer to the "Accessories" document an www.lindQST.com.

Supply air beam Premax

Dimensioning

Cooling capacity air P_a

1. Start by calculating the capacity required for the room, to keep a certain temperature. Lindab's TEKNOsim is an excellent tool for this.
2. Calculate which cooling capacity, or read in diagram 1, that is supplied by the ventilation air.
3. Remaining heat load needs to be cooled by the water circuit in Premax.

The formula for calculating the capacity of the air:
$P_a = q_{ma} \times c_{pa} \times \Delta t_{ra}$

Size comparison by $t_r = 25°C$ with:
q_a = Primary air flow rate
P_a [W] = q_a [l/s] x 1.2 Δt_{ra} [K] and
P_a [W] = q_a [m³/h] x 0.33 Δt_{ra} [K]

Minimum flow

Please note that flows below the recommended minimum flow, can result in unwanted air in the water pipes. Exciding the nominal flows is not recommandable as the capacity gains will only be minimal.

Pipe diameter	q_{wmin}	q_{wnom}
12mm	0.025 l/s	0.038 l/s
15mm	0.050 l/s	0.076 l/s

Dimensioning

Cooling capacity water P_w

Follow the instructions below to read off the effect from the diagram.

1. Calculate Δt_{rw}.
2. Product length L minus 0.3 m, to obtain the active length L_{act}.
3. Divide the primary air flow rate q_a by the active length L_{act}. Enter the result on the lower axis of diagram 2.
4. Follow the flow line to the right pressure, and then read off the specific cooling capacity P_{Lt} per active metre.
5. Calculate the temperature difference in water circuit Δt_w and find the capacity correction factor $\varepsilon_{\Delta tw}$ in diagram 3.
6. Multiply the specific cooling capacity P_{Lt} that was read off by $\varepsilon_{\Delta tw}$, Δt_{rw} and active length L_{act}.

Definitions:

P_a	= Cooling capacity air [W]
P_w	= Cooling capacity water [W]
P_{tot}	= Cooling capacity total [W]
q_{ma}	= Air mass flow rate [kg/s]
q_a	= Primary air flow rate [l/s]
q_w	= Water flow rate [l/s]
q_{wmin}	= Minimal water flow rate [l/s]
q_{wnom}	= Nominal water flow rate [l/s]
c_{pa}	= Specific heat capacity air [1,004 kJ/kg K]
t_r	= Room air temperature [°C]
t_{wi}	= Water inlet temperature [°C]
t_{wo}	= Water outlet temperature [°C]
Δt_{ra}	= Temp. diff., room air and primary air temp. [K]
Δt_{rw}	= Temp. diff., room air and mean water temp. [K]
Δt_w	= Temp. diff. water circuit [K]
$\varepsilon_{\Delta tw}$	= Capacity correction for temperature
ε_{qw}	= Capacity correction for water flow
P_{Lt}	= Specific cooling capacity [W/(m K)]

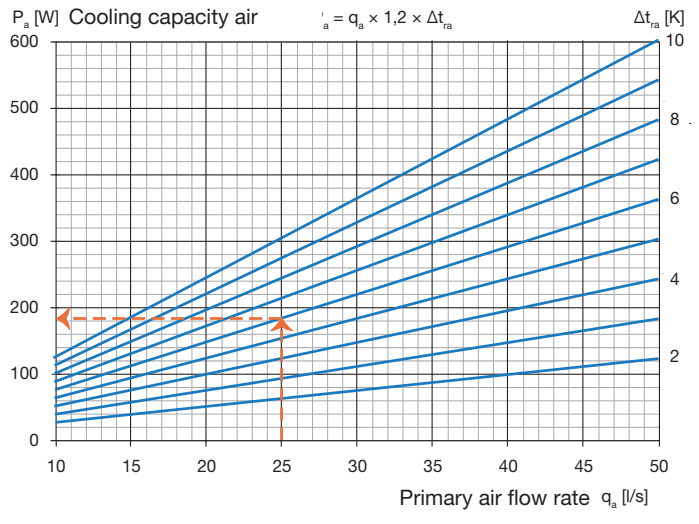


Diagram 1. Cooling capacity air P_a as function of the primary air flow rate q_a. If the air supply flow is 25 l/s and the temperature difference of the room air and the supply air is Δt_{ra} = 6 K, then the cooling capacity of the air is 180 W.

Supply air beam Premax

Example 1 Cooling:
What is the cooling capacity of a 2.4 m Premax with 40 l/s and pressure of 80 Pa?
The room's summer temperature is assumed to be t_r = 24.5°C. The cooling water temperature in/out of the Premax is 14/17°C.

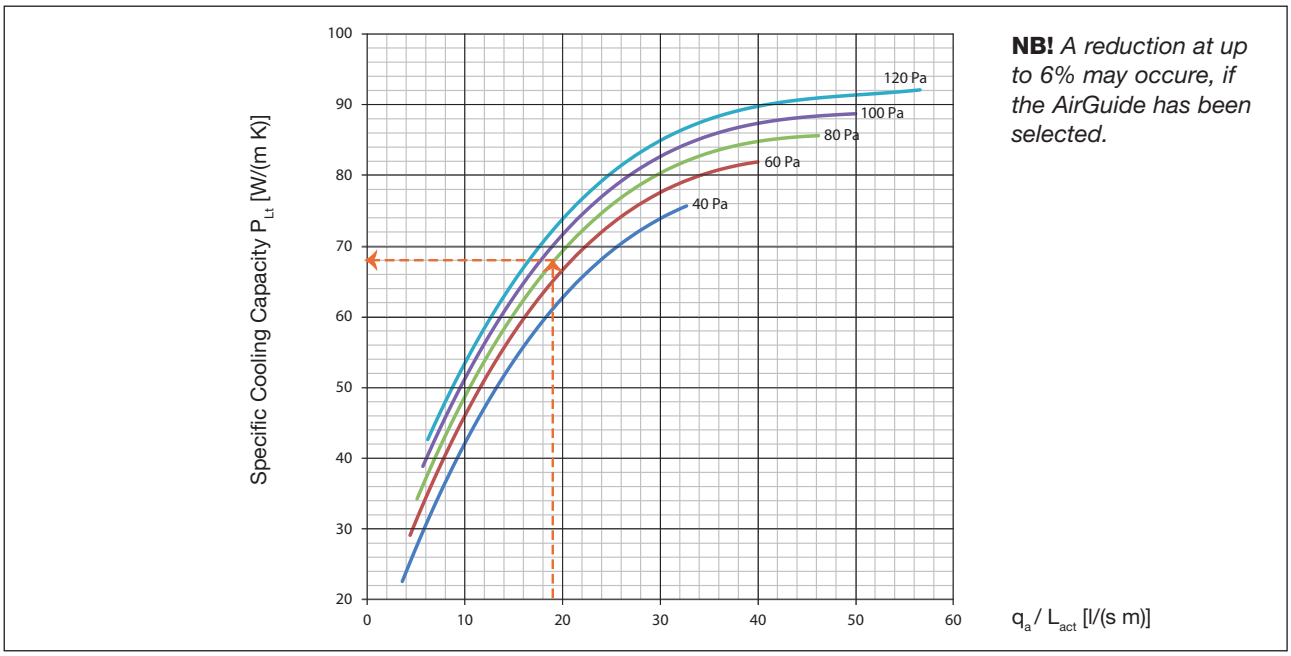
Answer:
Temperature difference: $\Delta t_{rw} = t_r - (t_{wi} + t_{wo})/2$
Δt_{rw} = 24.5°C - (14°C + 17°C) / 2 = 9 K

Active length: L_{act} = 2.4 m - 0.3 m = 2.1 m
q_a / L_{act} = 40 l/s / 2.1 m = 19 l/(s m)

Read off, from diagram 2: P_{Lt} = 68 W/(m K).
Diagram 3 shows a capacity correction factor $\varepsilon_{\Delta tw}$:
$\Delta t_w = t_{wi} - t_{wr}$ = 17°C - 14°C = 3 K
$\varepsilon_{\Delta tw}$ = 0.968

Cooling capacity:
P_w = 68 W/(m K) × 0.968 × 9 K × 2.1 m = 1244 W

NB! The capacity diagram applies for the nominal water flow of q_{wnom} = 0.038 l/s. To obtain the right cooling capacity P_w for other flows, read off the capacity correction factor ε_{qw} from diagram 4, and then multiply the calculated cooling capacity by this factor as shown in example 2 for heating.



***NB!** A reduction at up to 6% may occure, if the AirGuide has been selected.*

Diagram 2. Specific cooling capacity P_{Lt} as a function of primary air flow rate per active metre at nozzle pressures of 40, 60, 80, 100 and 120 Pa.

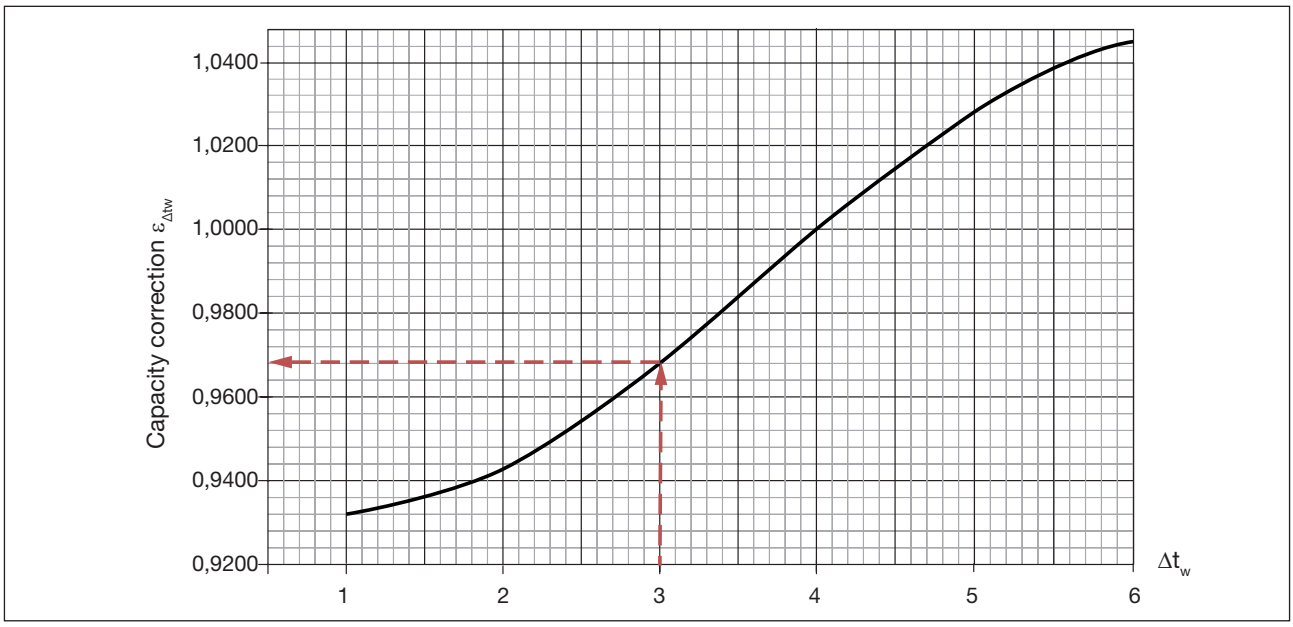


Diagram 3. Capacity correction $\varepsilon_{\Delta tw}$ as a function of Δt_w. Only applies for cooling.

Supply air beam Premax

Dimensioning

Capacity correction for water flow ε_{qw}

Example 2 Heating:
What is the heating capacity of a 2.4 m Premax with 40 l/s and pressure of 80 Pa?

The room winter temperature is assumed to be t_r = 21° C.
The hot water temperature in/out of Premax is 56/46° C.

Answer:
Temperature difference:
$\Delta t_{rw} = (t_{wi} + t_{wo})/2 - t_r$
Δt_{rw} = (56+46) / 2 - 21 = 30 K

Active length:
L_{act} = 2.4 m - 0.3 m = 2.1 m
q_a / L_{act} = 40 l/s / 2.1 m = 19 l/(s·m)

Read off, from diagram 2: P_{Lt} = 68 W/(m K).

Water capacity: P_w = 68 W/(m K) × 30 K × 2.1 m = 4284 W

Use the calculated water capacity and calculate the water flow: $q_w = P_w / (c_{pw} \times \Delta t_w)$
q_w = 4284 W / (4200 Ws/(kg K) × 10 K) = 0.102 l/s

The capacity correction ε_{qw} will then be 0.42 (see diagram 4) and the new capacity: P_w = 4284 W x 0.42 = 1799 W.

Using the new heating capacity, a new water flow is calculated: q_w = 1799 W / (4200 Ws/(kg K) × 10 K) = 0.043 l/s

Read off the capacity correction ε_{qw} at 0.41 and calculate the capacity: P_w = 4284 W x 0.41 = 1756 W

Using the new heating capacity, a new water flow is calculated: q_w = 1756 W / (4200 Ws/(kg K) × 10 K) = 0.042 l/s

Seeing that the flow is near stabile at this point in the calculation, the heating capacity is calculated to be 1756 W.

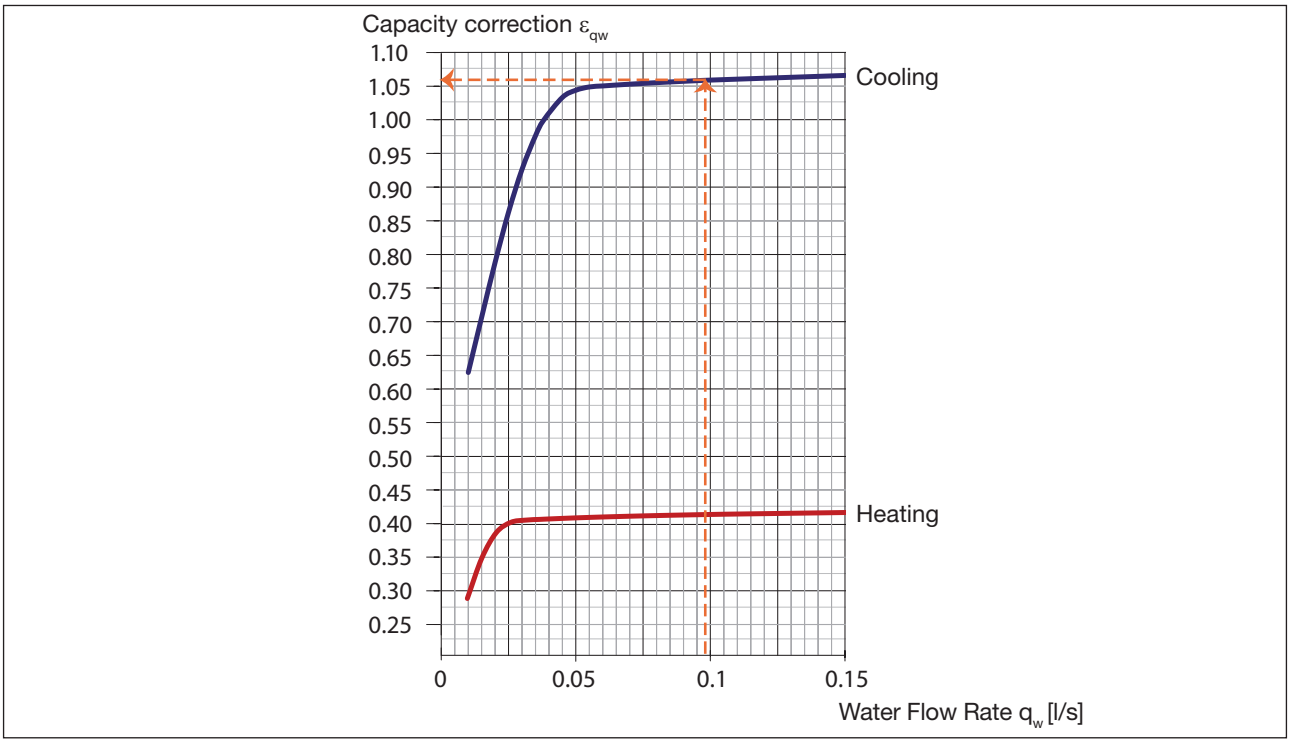
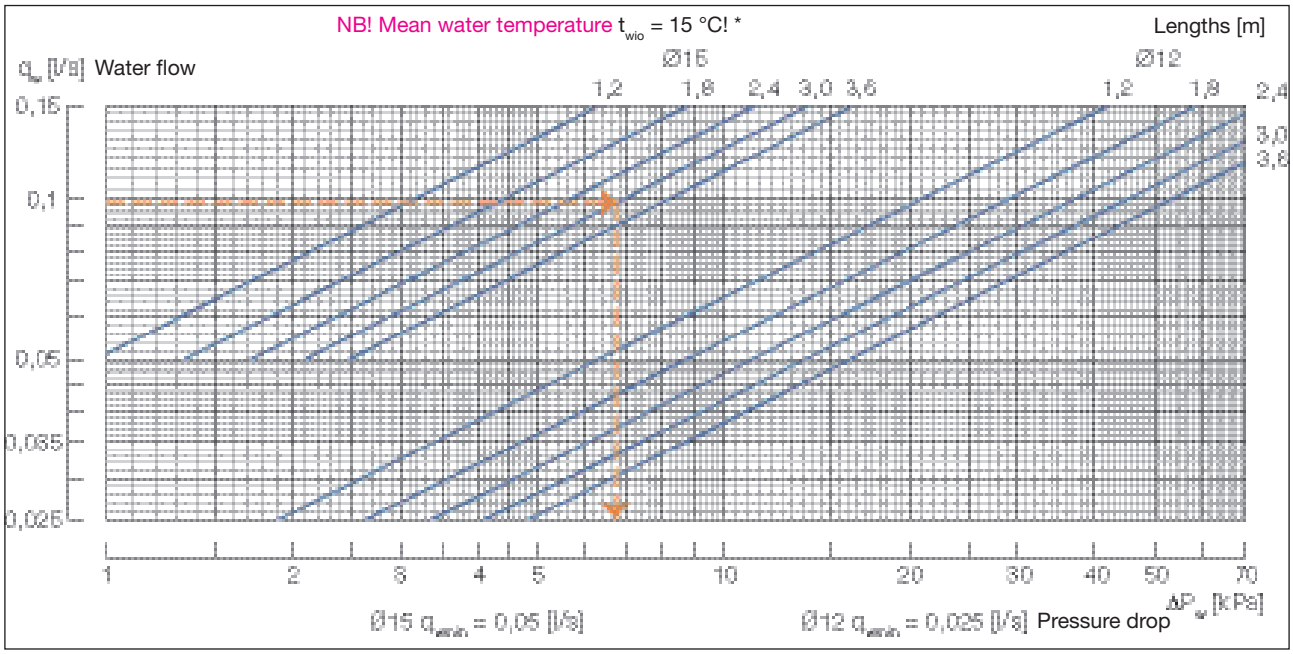


Diagram 4. Capacity correction ε_{qw} for water flow for both cooling and heating.

Supply air beam Premax

Pressure drop in water circuit, cooling/heating



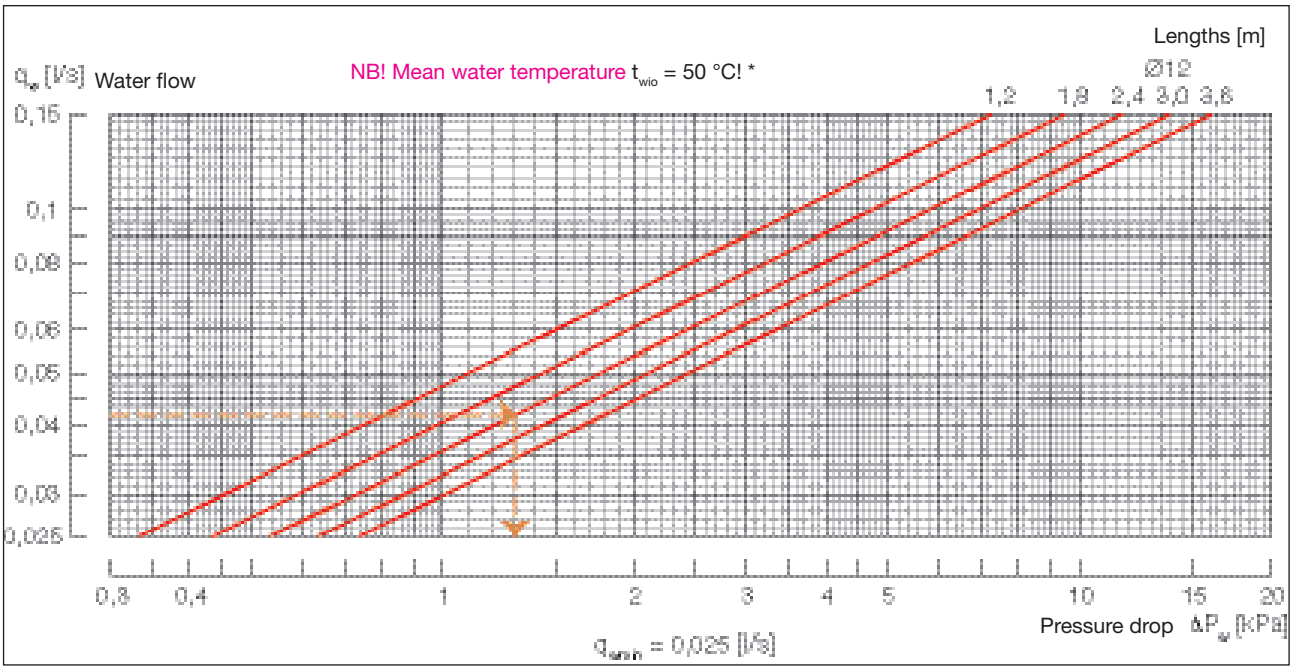


Diagram 5. Pressure drop in water circuit, cooling and heating.

Example 3 Cooling:
Premax 2.4 m, which provides on output of 1244 W, 15 mm pipes. Δt_w = 3 K, $q_w = P_w / (c_{pw} \times \Delta t_w)$
q_w = 1244 W/(4200 Ws/(kg K) × 3 K) = 0.099 l/s
The pressure drop in the water is read off as 5.67 kPa.

Example 4 Heating:
Premax 2.4 m, which provides on output of 1756 W, 12 mm pipes. Δt_w = 10 K, $q_w = P_w / (c_{pw} \times \Delta t_w)$
q_w = 1756 W/(4200 Ws/(kg K) × 10 K) = 0.042 l/s
The pressure drop in the water is read off as 1.3 kPa.

Definitions:
q_w = Water flow rate [l/s]
P_w = Cooling capacity water [W]
c_{pw} = Specific heat capacity water [4200 Ws/(kg K)]
Δt_w = Temperature difference water circuit [K]
t_{wio} = Mean water temperature [°C]

* Diagrams are for a certain mean water temperature t_{wio}. For other temperatures please do your calculations in our waterborne calculator in www.lindqst.com!

Supply air beam Premax

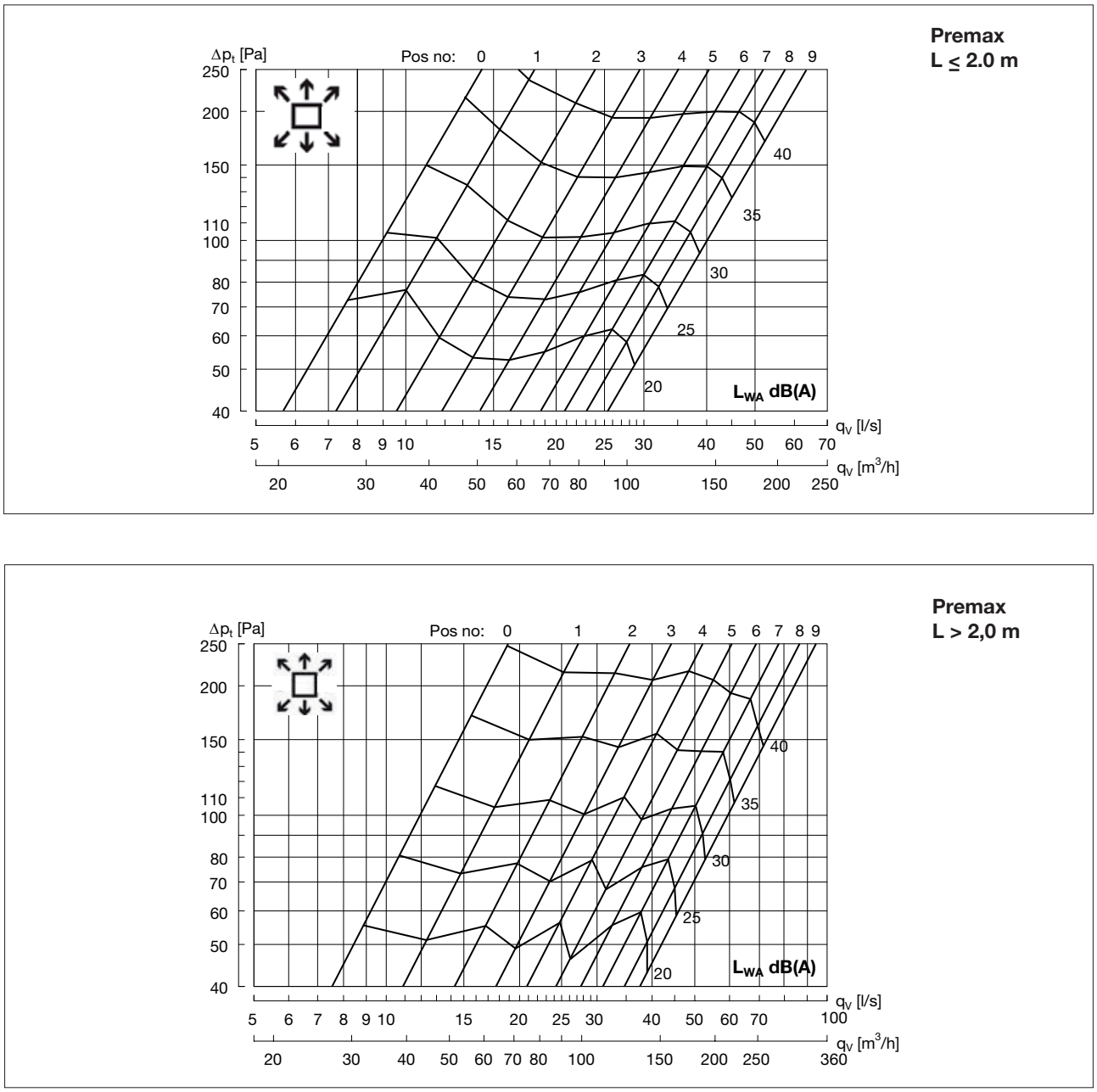


Diagram 6. Sound effect level L_{WA} and JetCone setting for Premax.

Supply air beam Premax

Dimensioning

Pressure drop in air connection

Table 1 shows the pressure drop in the connection. After calculating the necessary pressure for the supply air beam, add the connection pressure drop to the selected static pressure in the nozzles.

Example 5:
Premax I 60-15-125-A1-2.4 with 40 l/s and static nozzle pressure of 80 Pa. This provides the necessary total pressure in the duct of 80 Pa + 1 Pa = 81 Pa.

Premax							
Air flow [l/s]	20	25	30	40	50	60	70
Pressure drop [Pa]	0	1	1	1	2	3	4

Table 1. Air pressure drop in the connection to Premax I-60.

Sound data

Internal sound dampening ΔL									
Hz	**JetCone position**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
dB	4	24	15	8	5	8	13	11	16

Table 2. Premax's internal sound dampening.

Noise level L_{woct}

For calculation of the noise level

Correction C_{oct} (dB) Octave band, average frequency (Hz) – Premax L ≤ 1.8 m								
Hz	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
dB	7	-4	-6	-5	-5	-6	-9	-13

Correction C_{oct} (dB) Octave band, average frequency (Hz) – Premax L > 1.8 m								
Hz	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
dB	12	-2	-4	-3	-6	-8	-10	-14

Table 3a+3b. Premax's noise levels L_{woct} for each octave band in the beam, are calculated by adding the corrections C_{oct} from the table above to the sound power level L_{wa} dB(A). The noise levels are calculated using the following formula: $L_{woct} = L_{wa} + C_{oct}$

Weight and water volume

Premax	
Weight, kg/m	18
Water content, cooling, l/m	0.6
Water content, heating, l/m	0.25
Copper pipes, quality	EN 12735-2 CU-DHP
Pressure class	PN10

Table 4. Premax's weight and water volume.

Supply air beam Premax

Ventilation connections

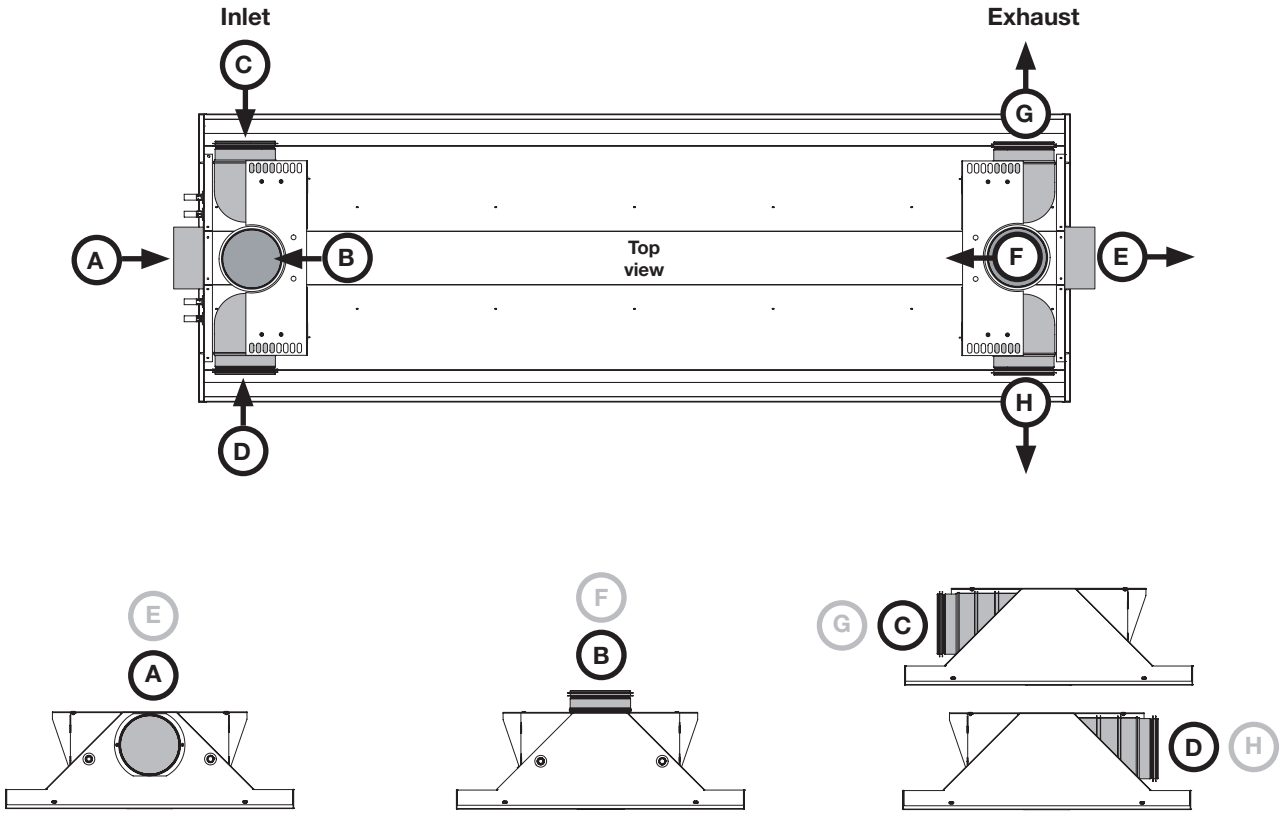


Figure 1. For A connection, Premax is delivered with Lindab's standard nipple (NPU-125). For B, C, and D connection, Lindab's elbow piece (BU 90°) is included.

Water connections

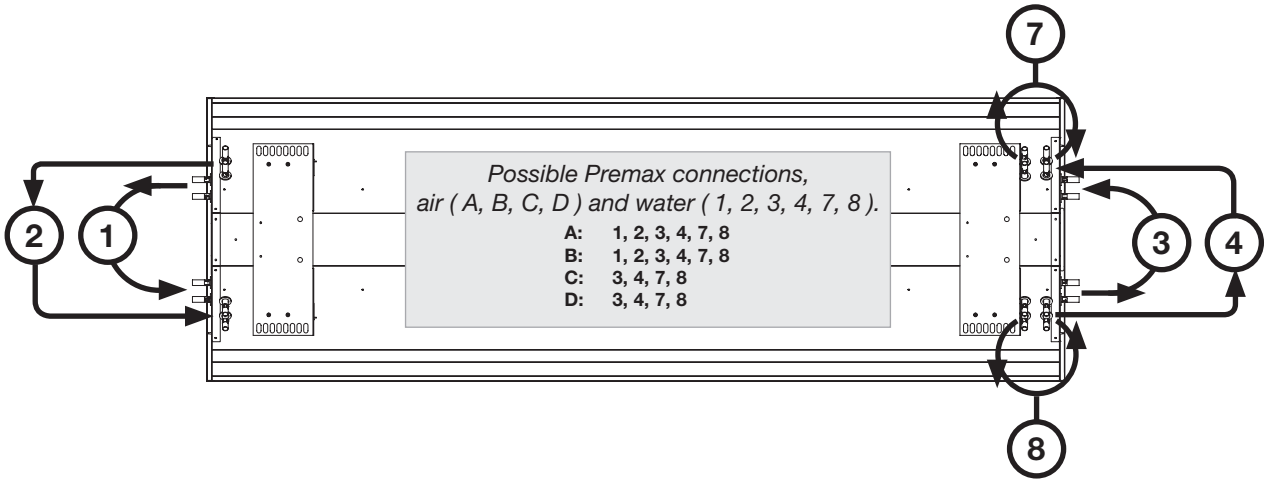


Figure 2. Possible connections, water cooling and heating.

Supply air beam Premax

Connection 1, 2, 3 or 4

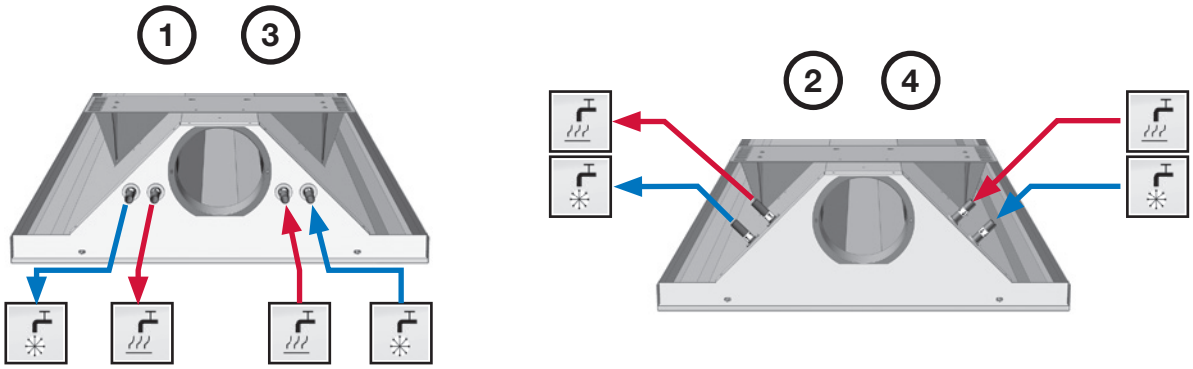
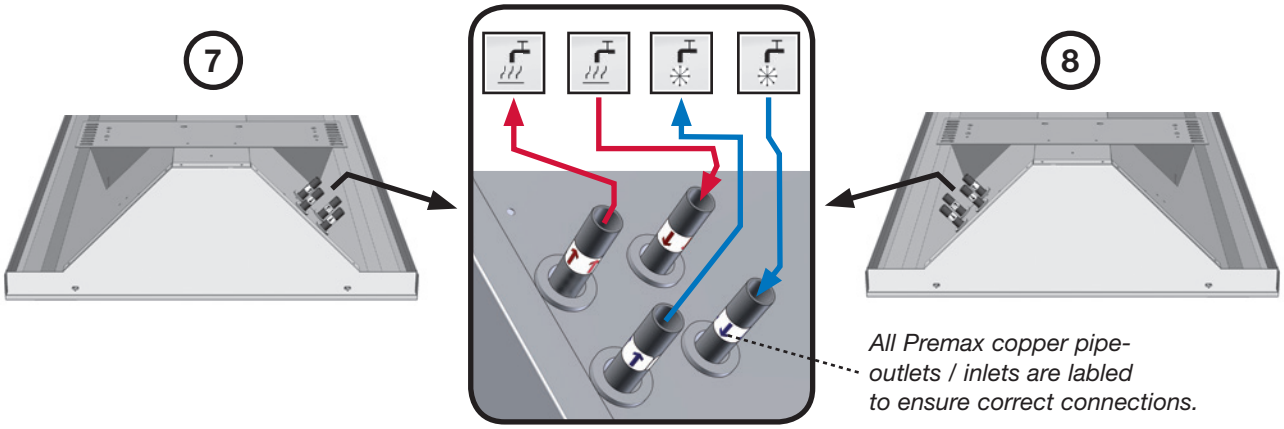


Figure 3. Placement of cooling and heating pipes (12 mm).
NB! When compression couplings are used, support sleeves must be applied.

Connection 7 or 8



Connection A **Connection B**

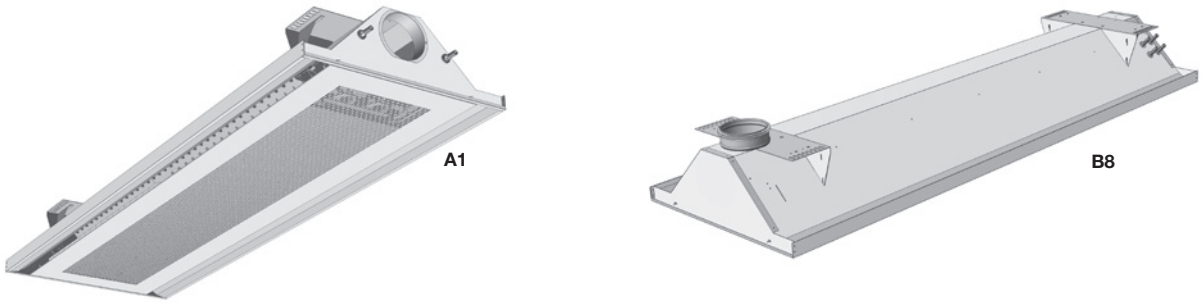


Figure 4. Examples of the most common Premax supply air A and B variants.
Go to next page to see overview of various water pipe connections.

Supply air beam Premax

Valves & actuators

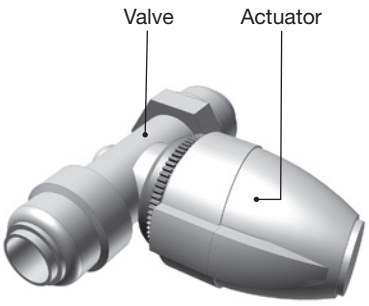


Figure 5. Valve with actuator mounted.

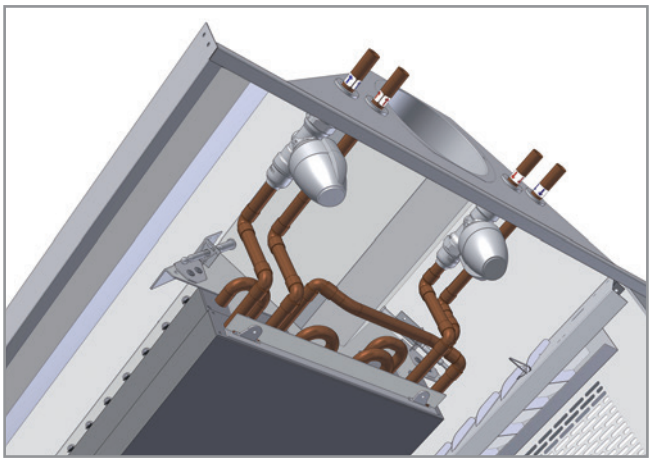
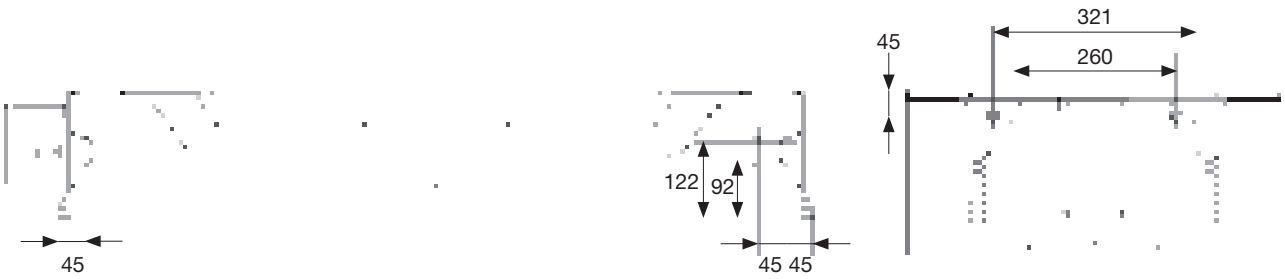


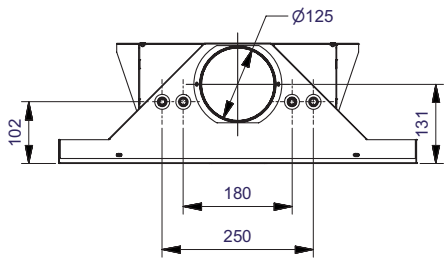
Figure 6. Illustration of how the valve and actuator is placed inside the chilled beam, A1 example, Premax.

Dimensions

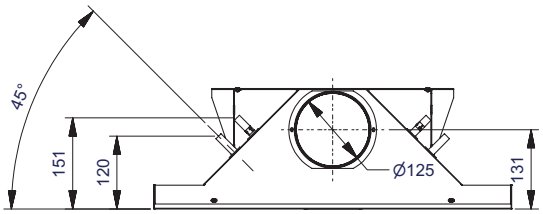
Examples below show Premax I-60 models with A air connection. For external dimensions, see next page.



Connection 1 or 3



Connection 2 or 4



Connection 7 or 8

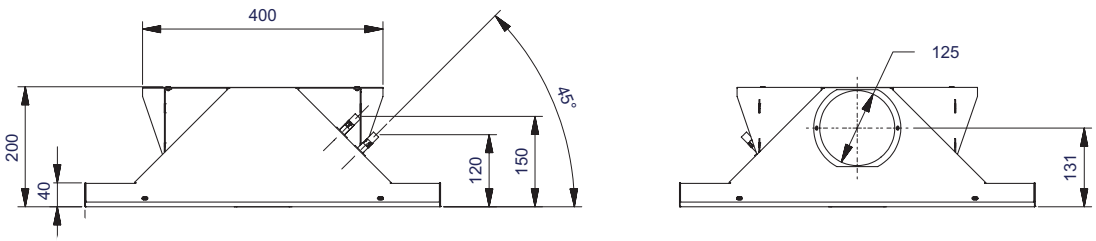
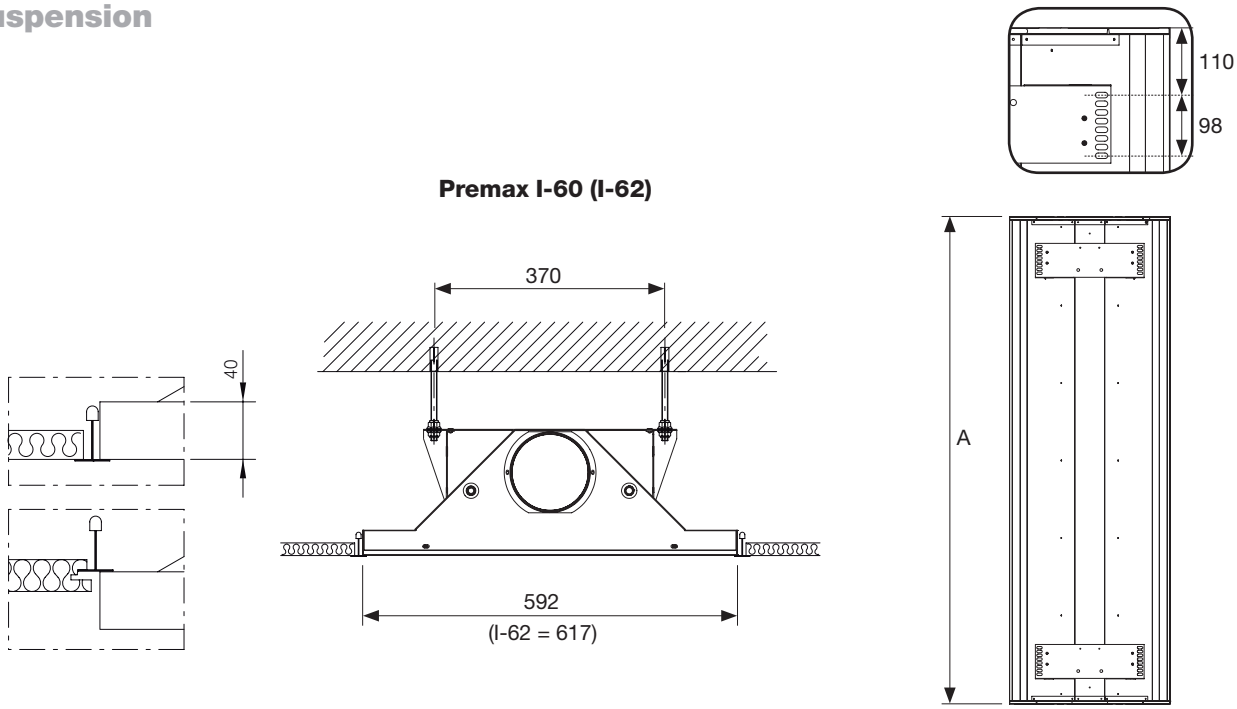


Figure 7. Premax I-60-A with possible water connections.

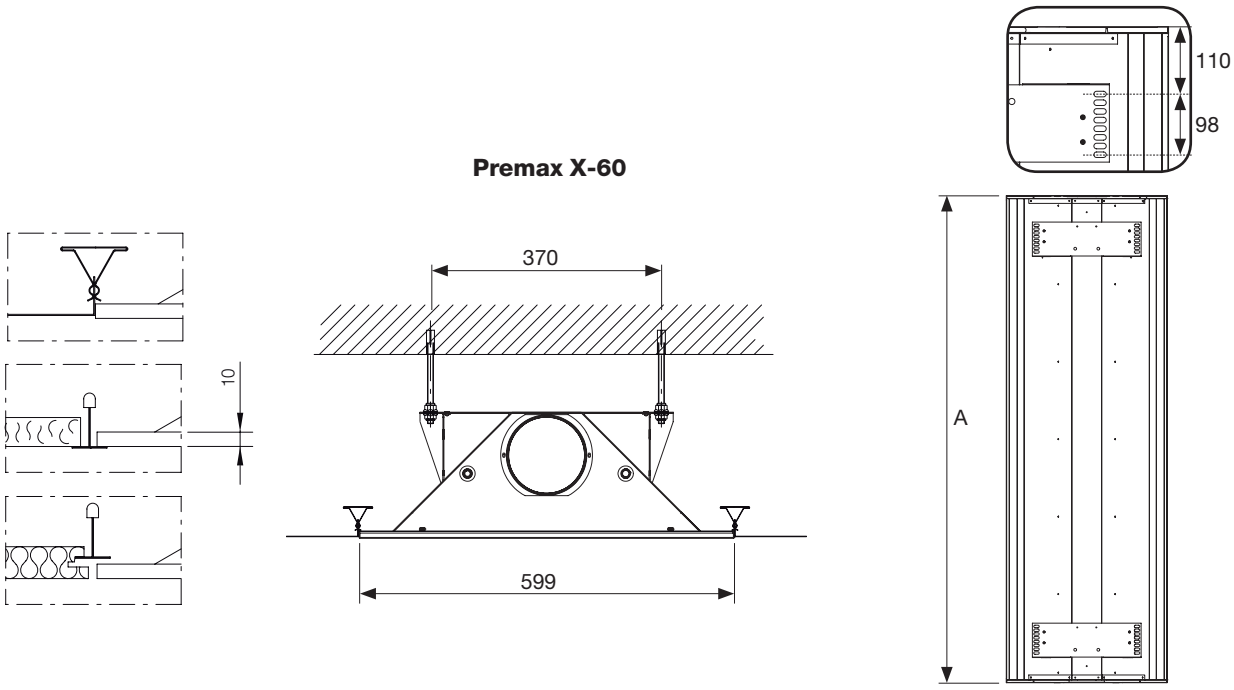
Supply air beam Premax

Suspension



I-60: L = 1200 – 3600 mm (in steps of 600 mm); A = 1192, 1792, 2392, 2992 and 3592 mm.
I-62: L = 1200 – 3600 mm (in steps of 600 mm); A = 1242, 1867, 2492, 3117 and 3742 mm.
L = Nominal length (order length)

Figure 8. Premax I-60 suspension, dimensions. Suspension components are not supplied as part of the standard package.



X-60: L = 1200 – 3600 mm (in steps of 600 mm); A = 1199, 1799, 2399, 2999 and 3599 mm.
L = Nominal length (order length)

Figure 9. Premax X-60 suspension, dimensions. Suspension components are not supplied as part of the standard package.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

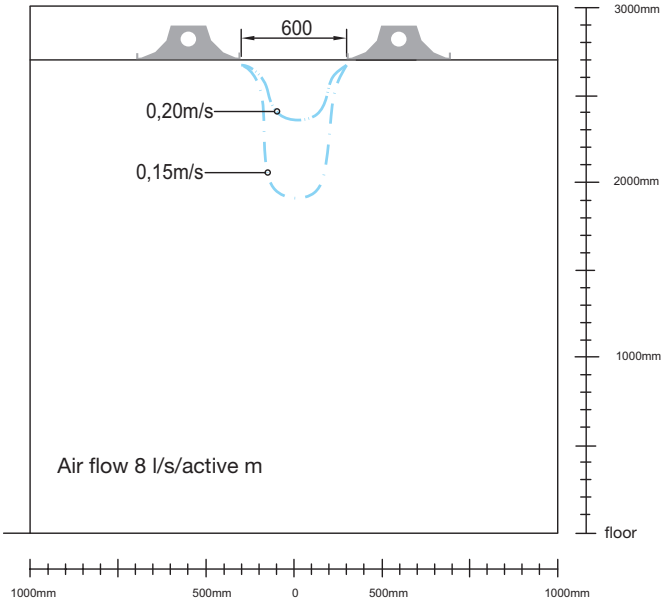


Figure 10.

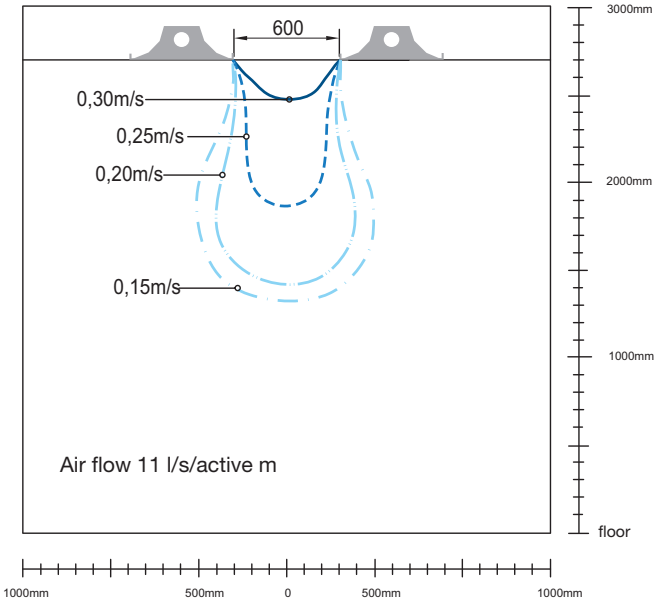


Figure 11.

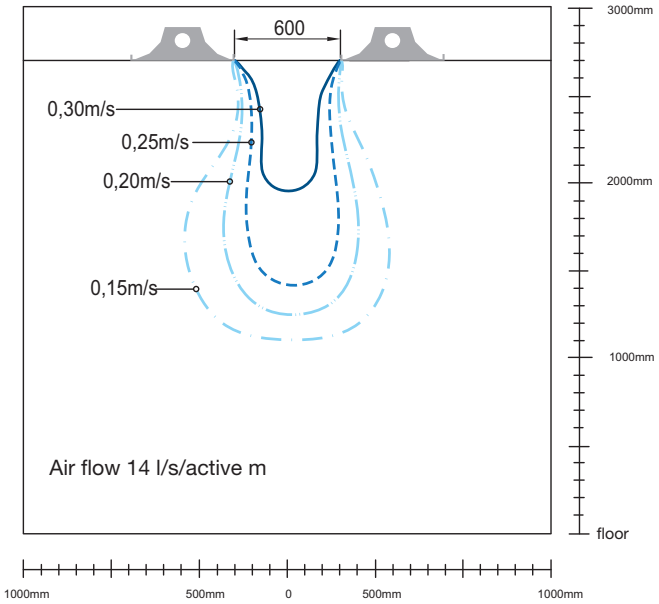


Figure 12.

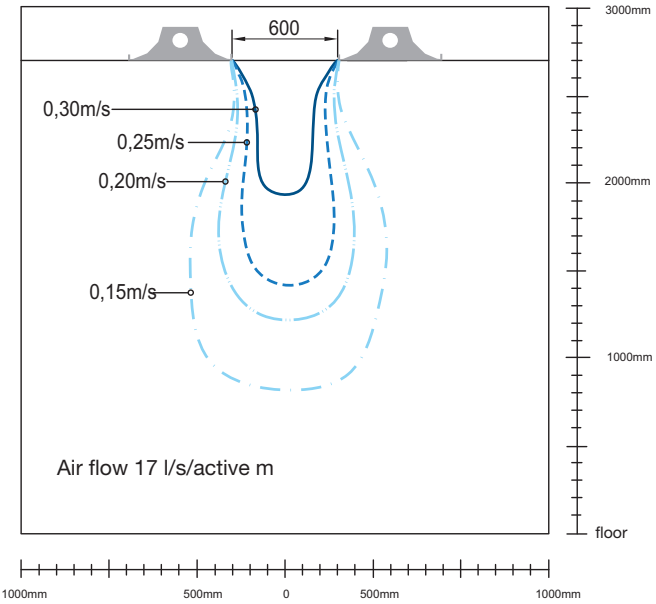


Figure 13.

Figure 10-13. Air velocities between supply air beams at a separation of 600 mm. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

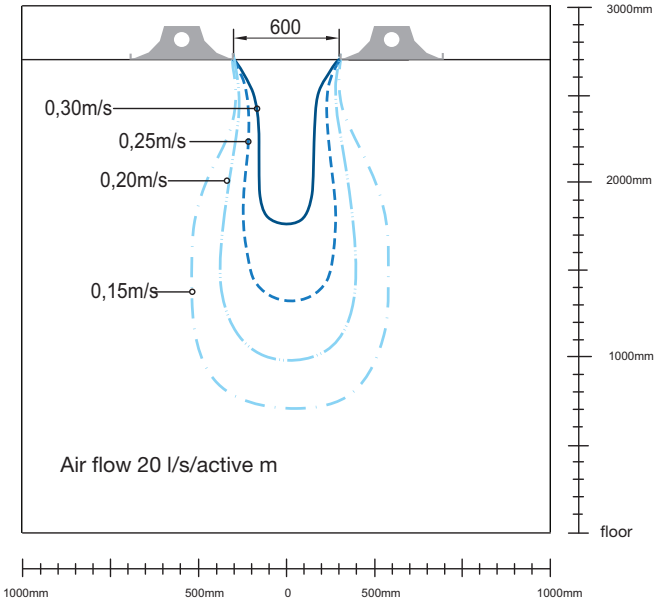


Figure 14.

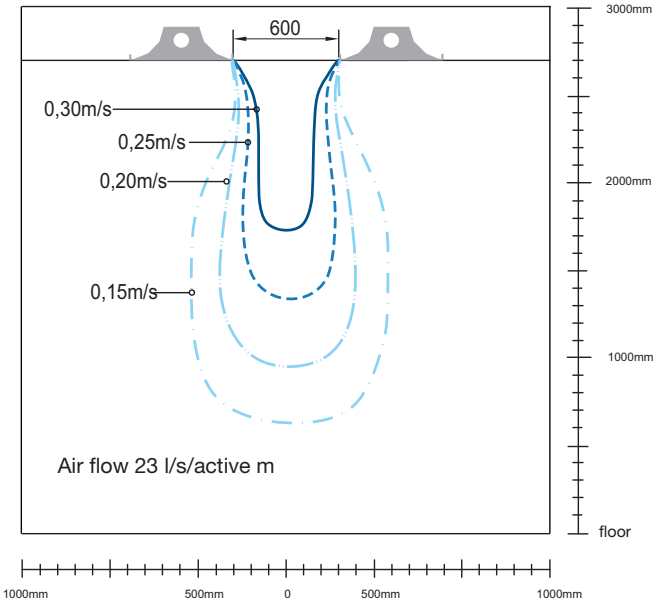


Figure 15.

Figure 14-15. Air velocities between supply air beams at a separation of 600 mm. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

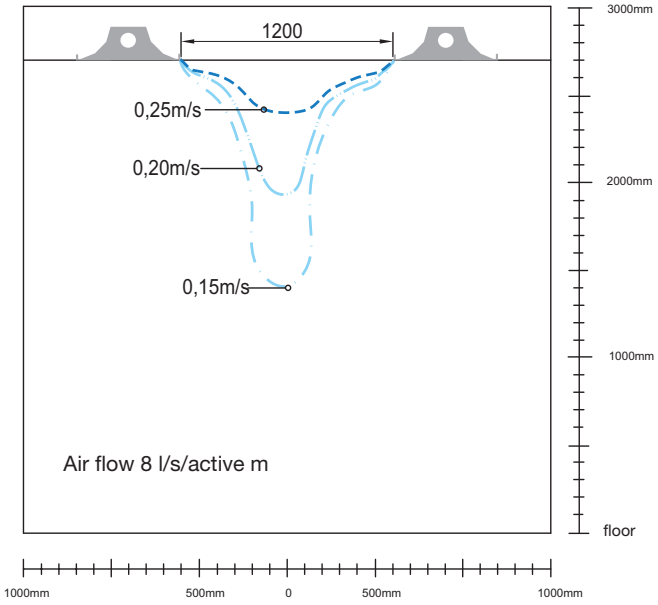


Figure 16.

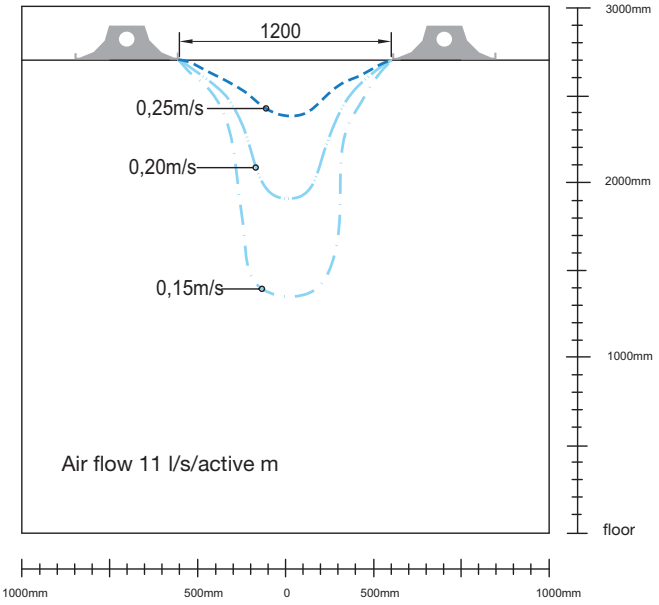


Figure 17.

Figure 16-17. Air velocities between supply air beams at a separation of 1200 mm. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

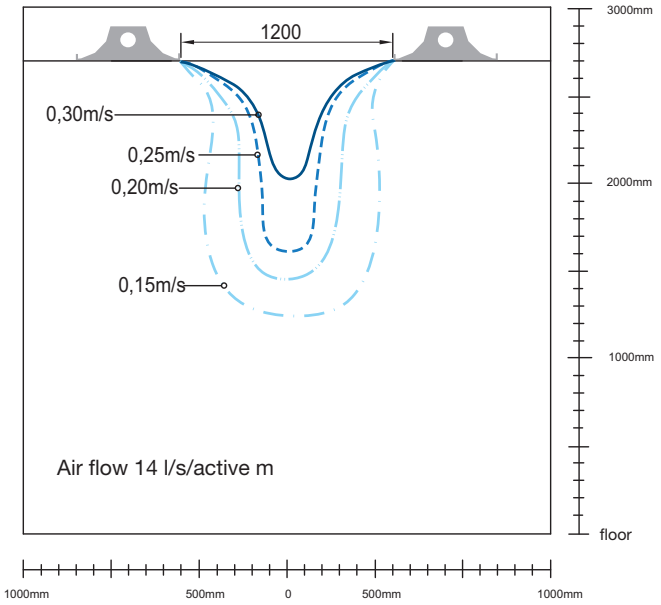


Figure 18.

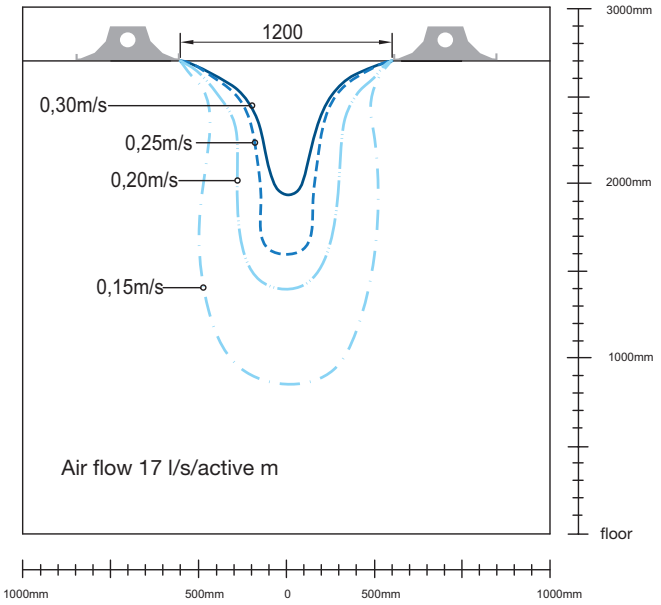


Figure 19.

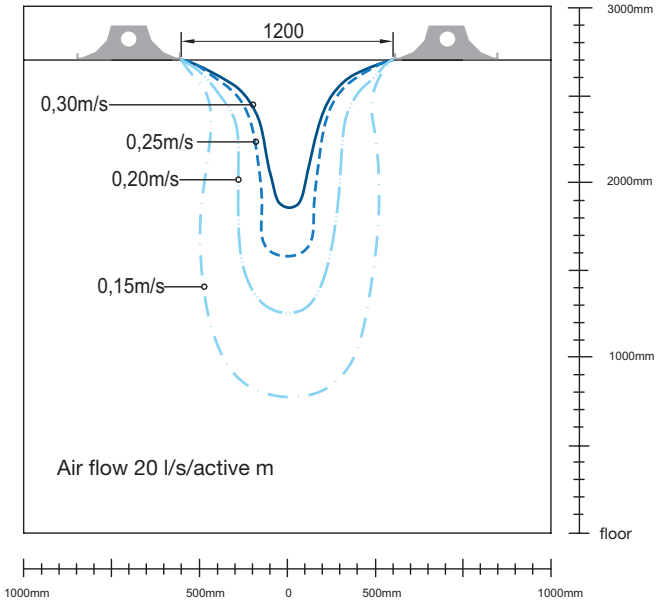


Figure 20.

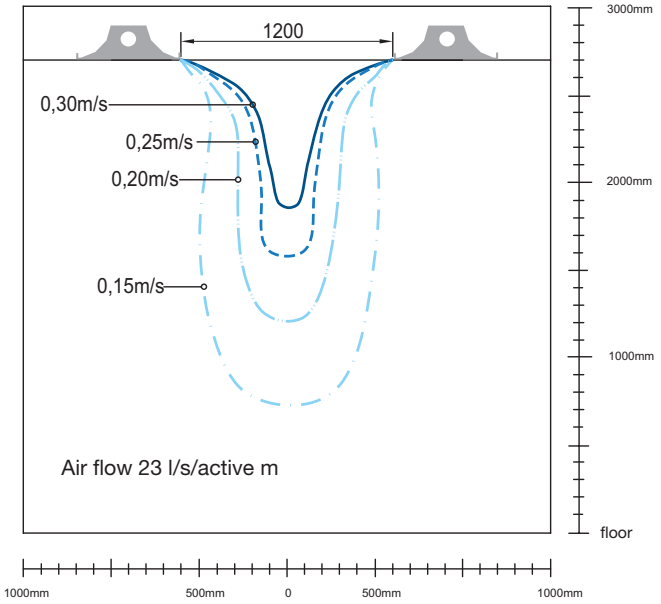


Figure 21.

Figure 18-21. Air velocities between supply air beams at a separation of 1200 mm. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

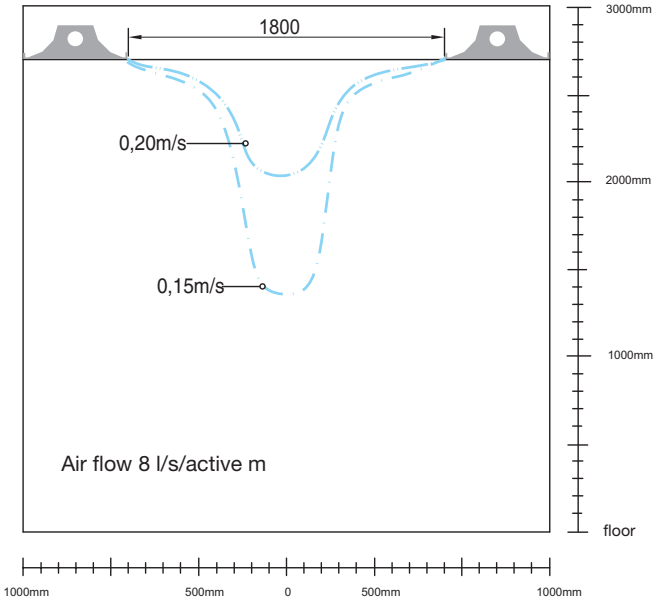


Figure 22.

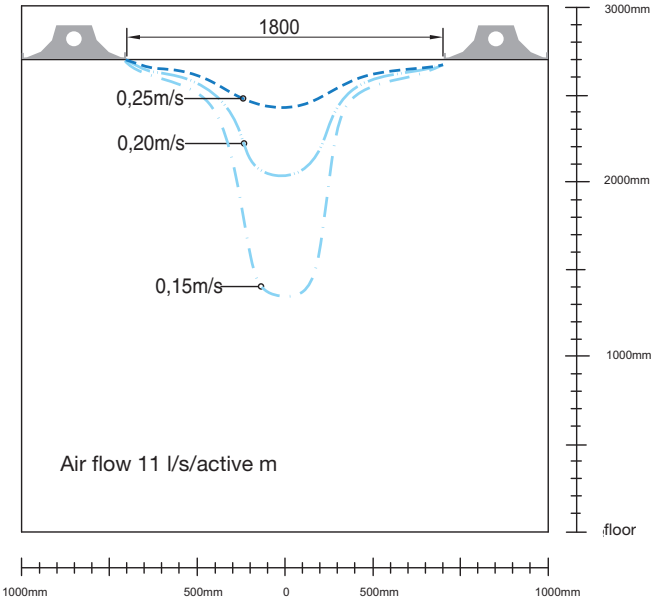


Figure 23.

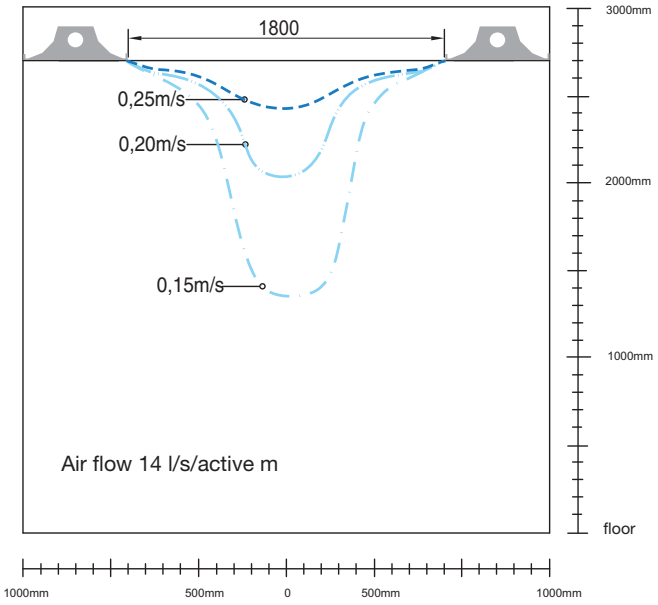


Figure 24.

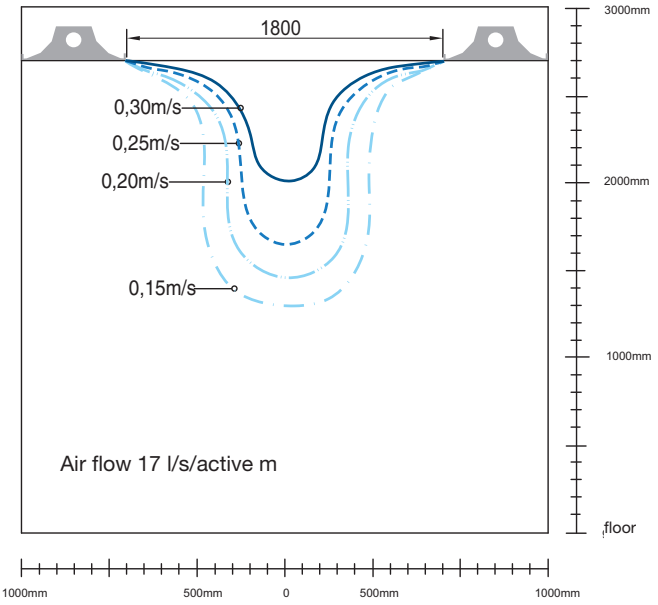


Figure 25.

Figure 22-25. Air velocities between supply air beams at a separation of 1800 mm. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

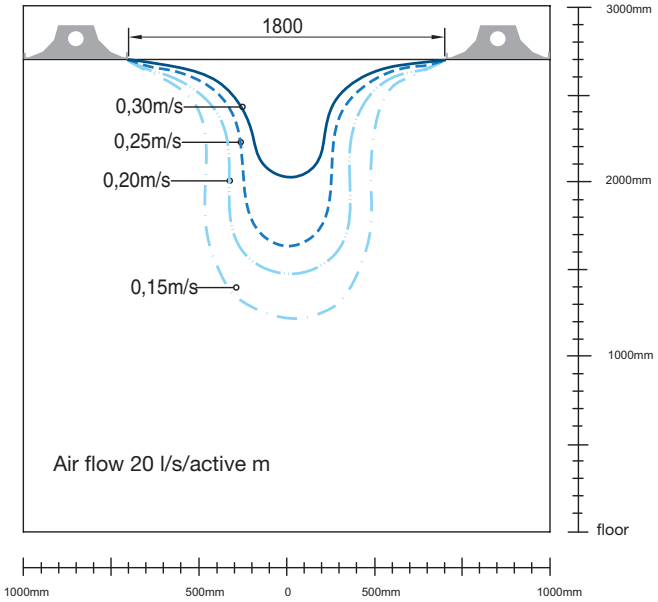


Figure 26.

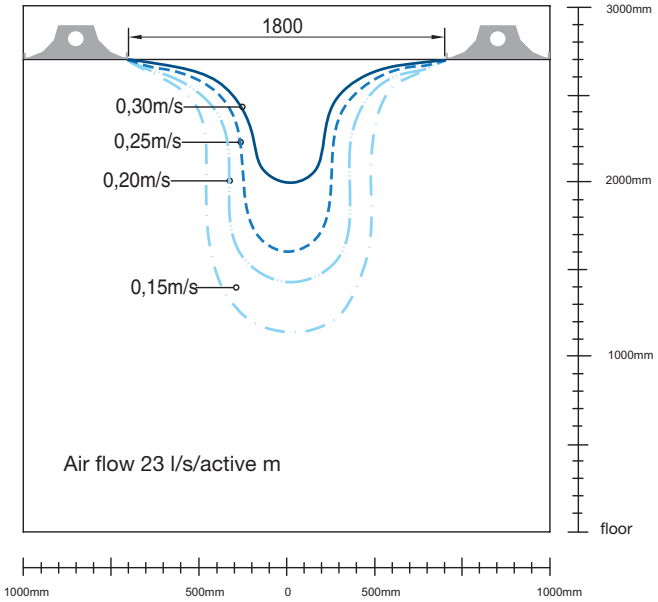


Figure 27.

Figure 26-27. Air velocities between supply air beams at a separation of 1800 mm. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

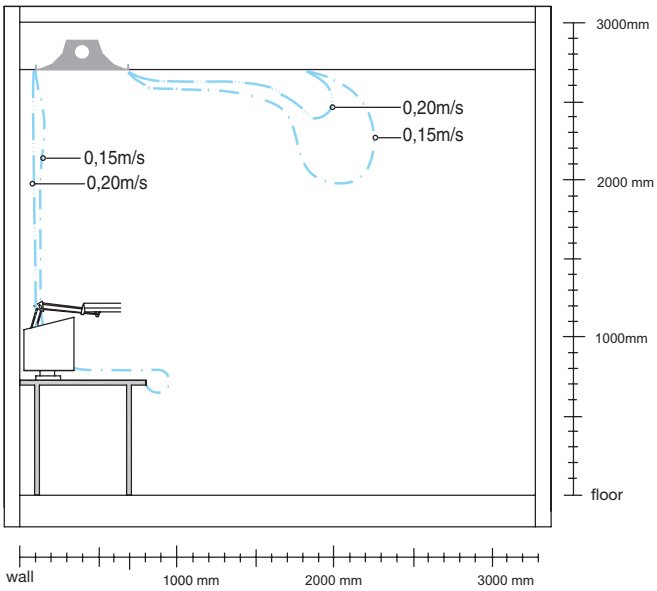


Figure 28.

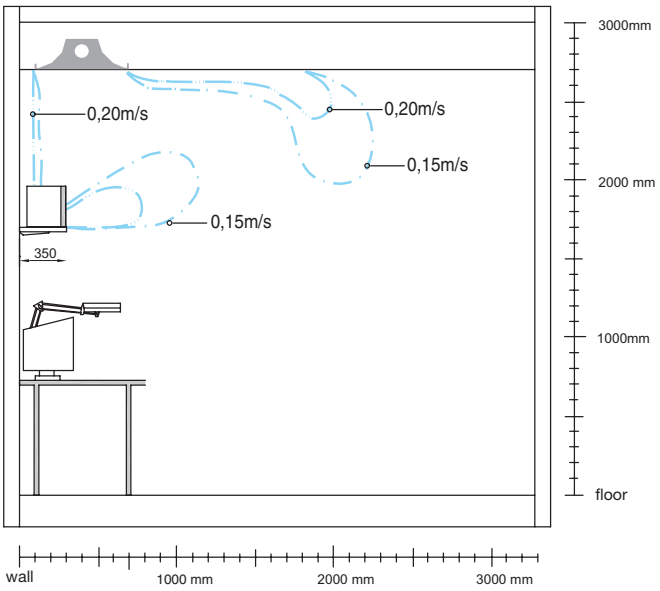


Figure 29.

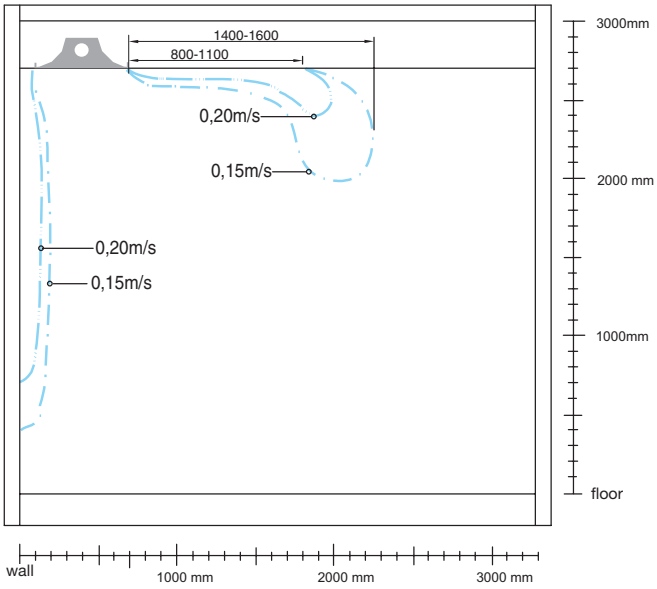


Figure 30.

Figure 28-30. Air velocities below s supply air beam, where the air flow is 8 l/s per active metre. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

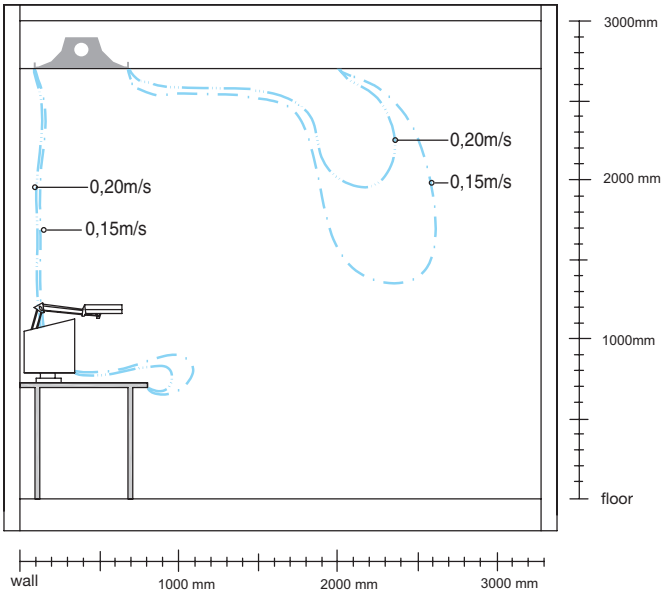


Figure 31.

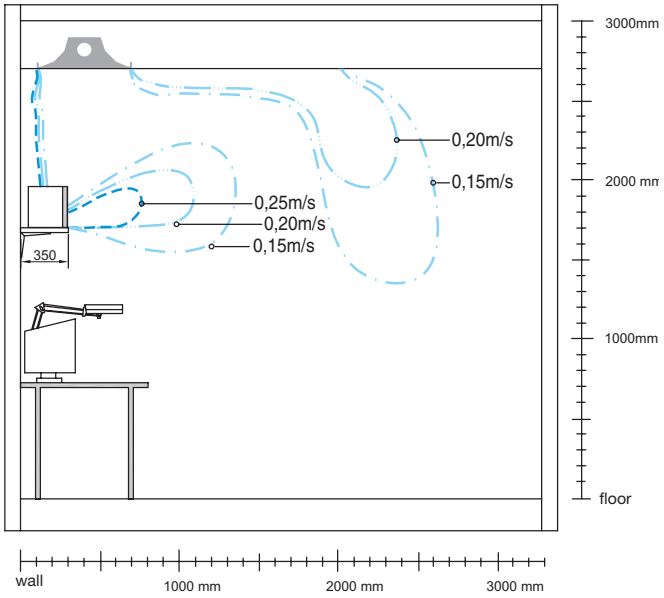


Figure 32.

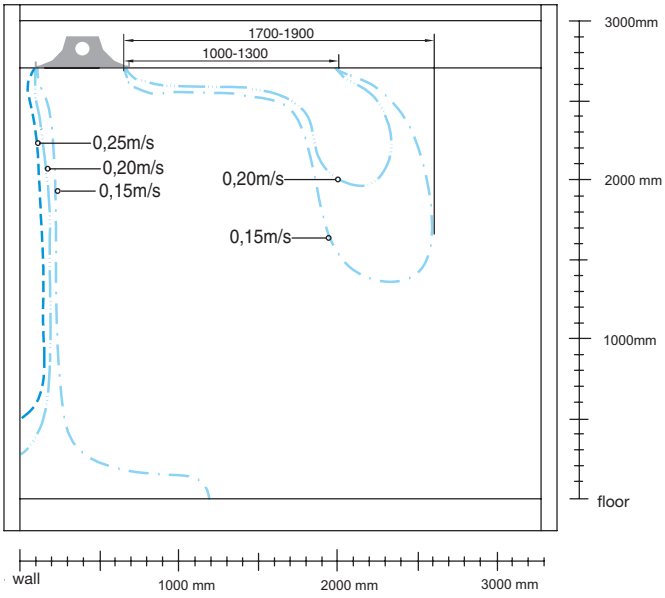


Figure 33.

Figure 31-33. Air velocities below s supply air beam, where the air flow is 11 l/s per active metre. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

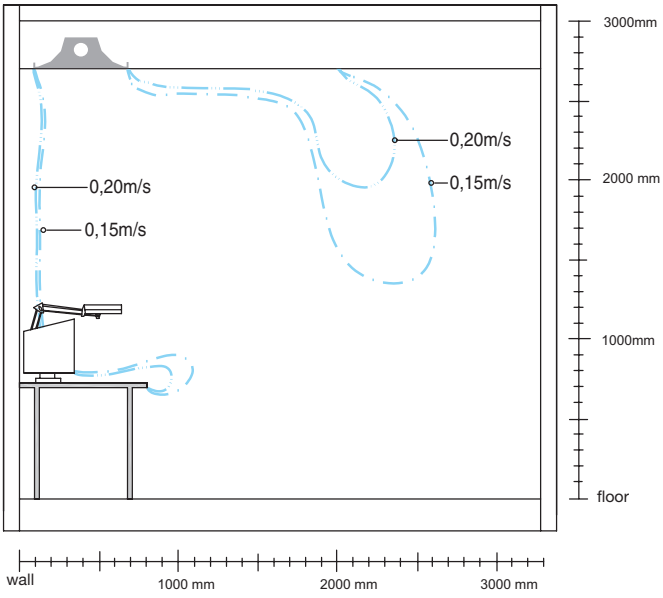


Figure 34.

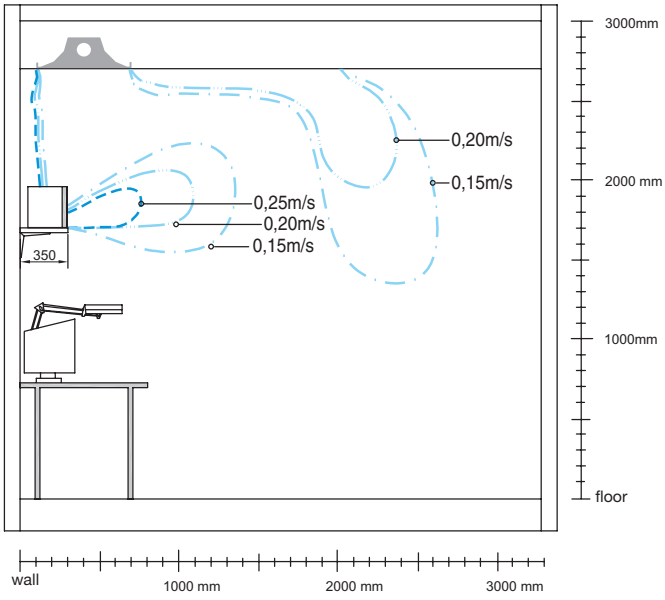


Figure 35.

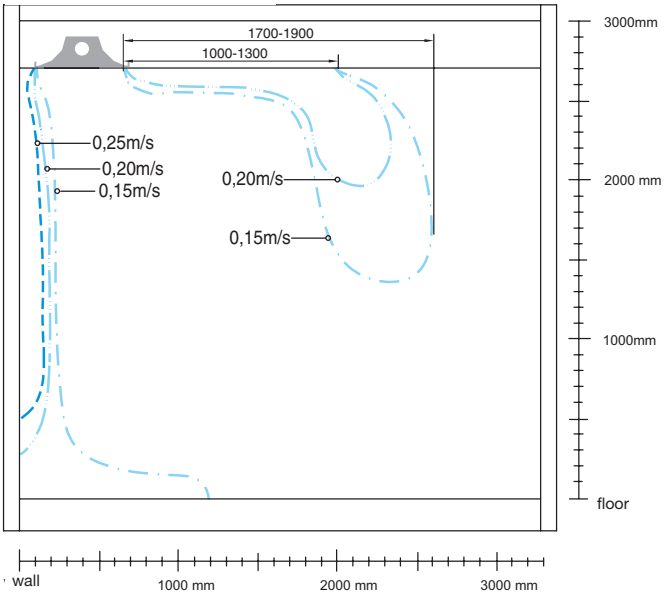


Figure 36.

Figure 34-36. Air velocities below s supply air beam, where the air flow is 14 l/s per active metre. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

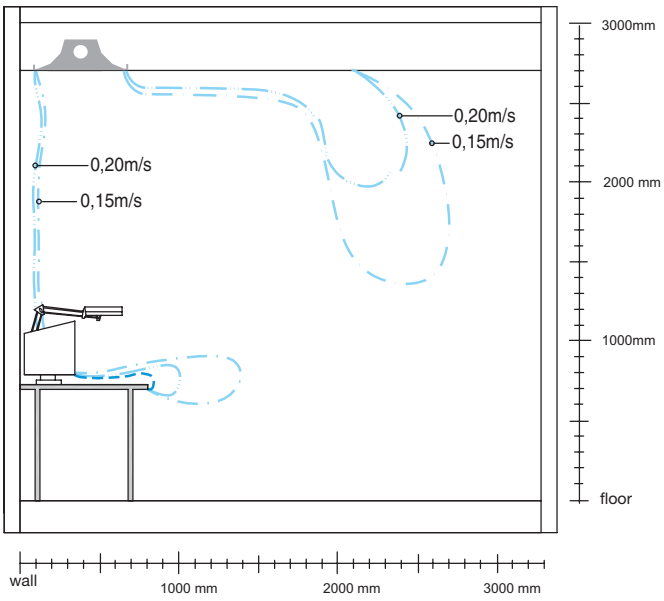


Figure 37.

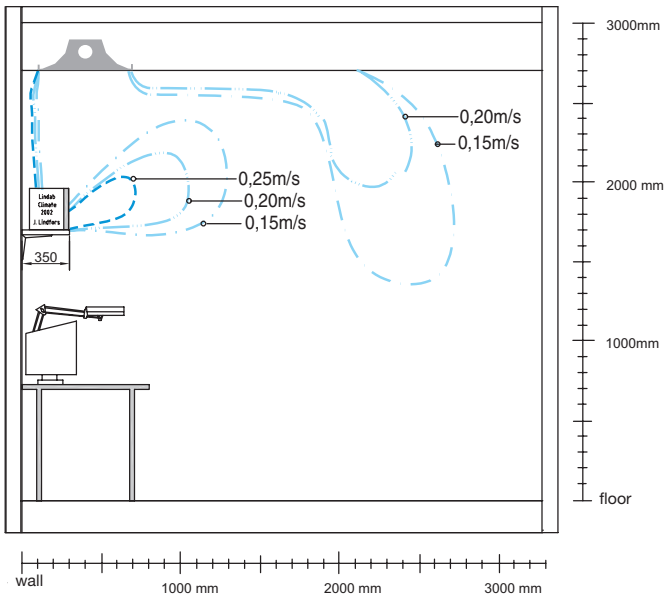


Figure 38.

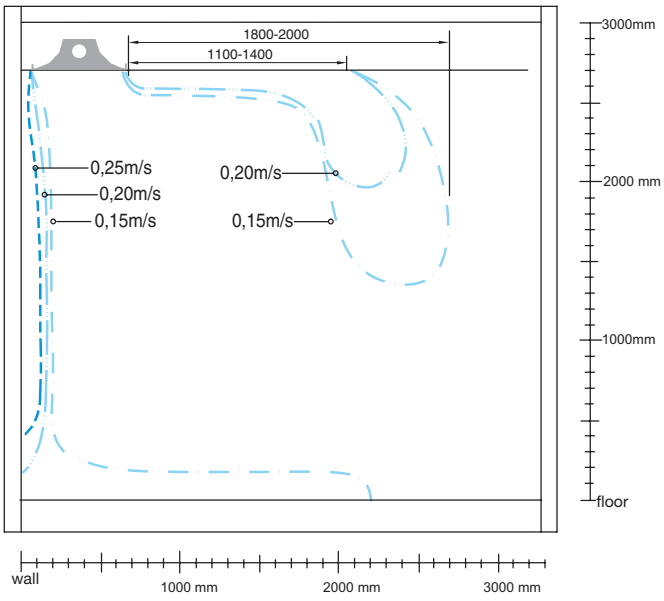


Figure 39.

Figure 37-39. Air velocities below s supply air beam, where the air flow is 17 l/s per active metre. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

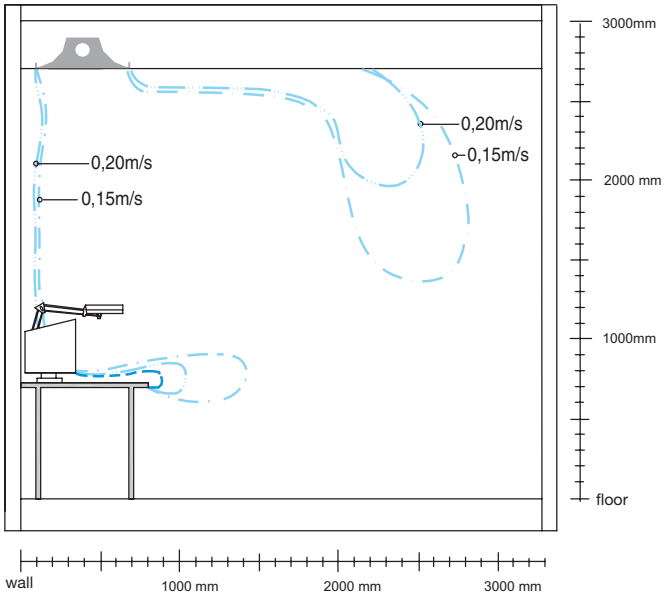


Figure 40.

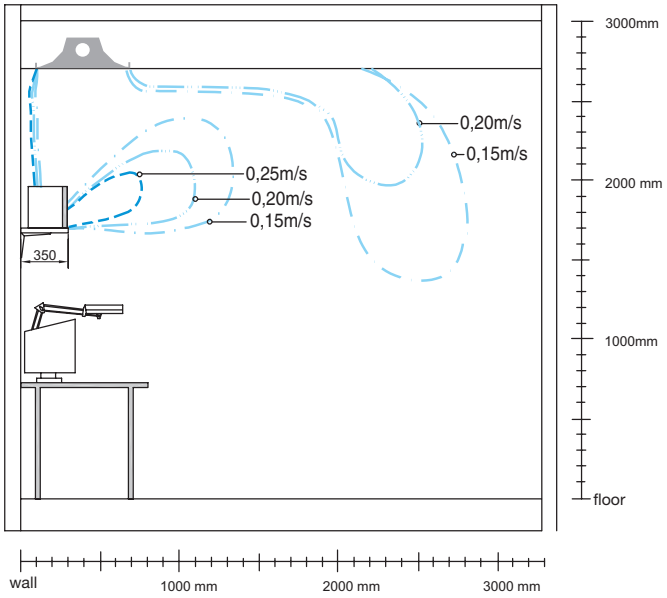


Figure 41.

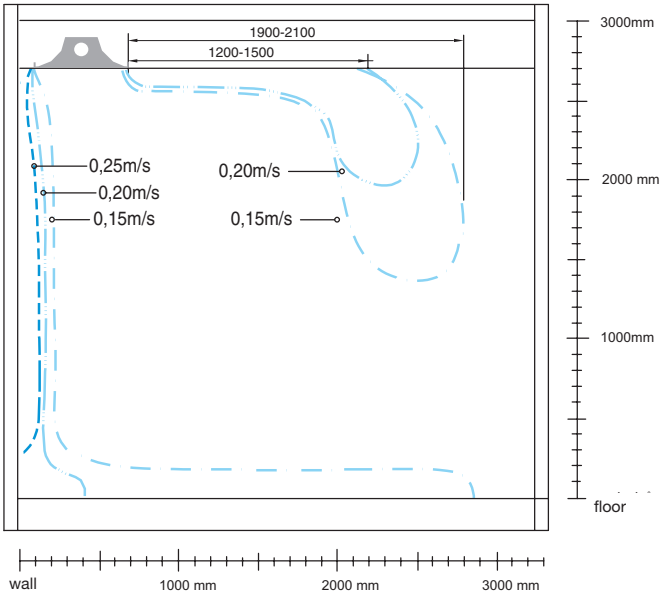


Figure 42.

Figure 40-42. Air velocities below s supply air beam, where the air flow is 20 l/s per active metre. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

The JetCone & Angled Nozzles systems used in Premax guarantees the Coanda effect and a fan-shaped air pattern in all cases. The fan-shaped air pattern ensures air velocities in the living area that are half those obtained with a linear air pattern. The measurements shown below were made with a cooled supply air (Δt room air – supply air) of 5° C and cooling in the water circuit (Δt – room air – average water temperature) of 8° C.

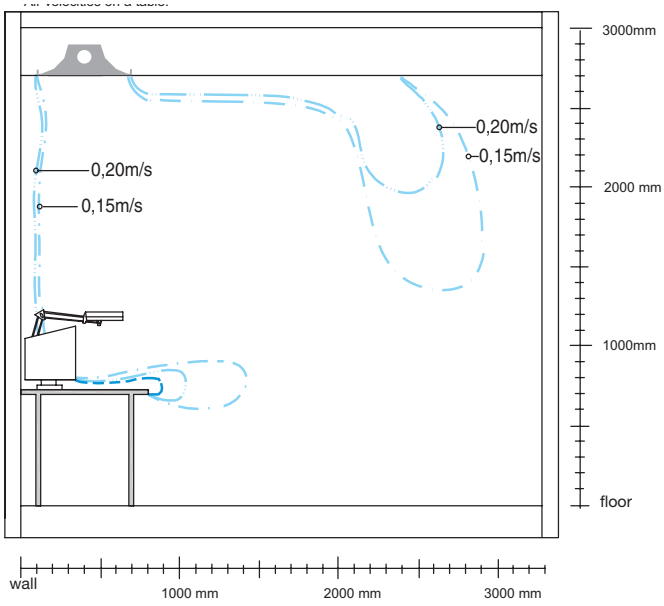


Figure 43.

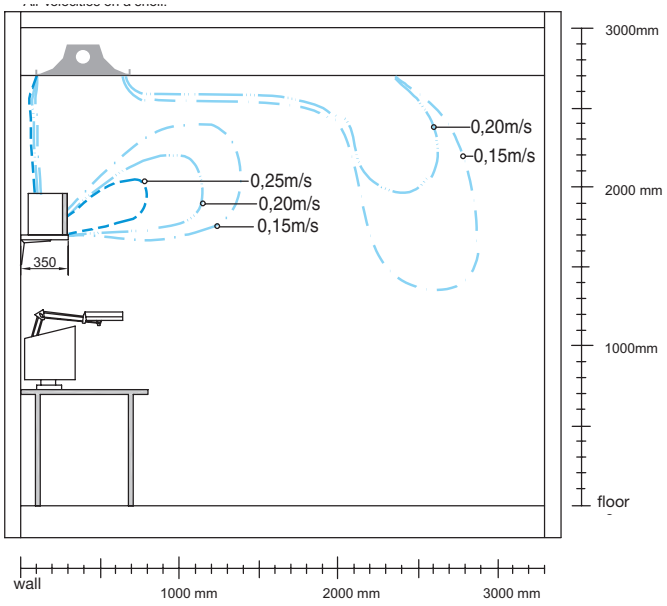


Figure 44.

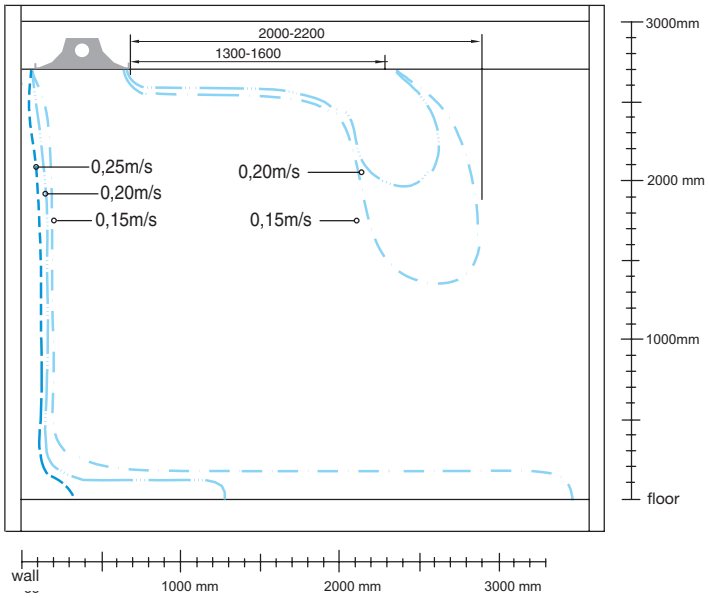


Figure 45.

Figure 43-45. Air velocities below s supply air beam, where the air flow is 23 l/s per active metre. Standard air pattern profile (nozzles at a 30° angle). Nozzle pressure of 60 Pa.

Supply air beam Premax

Air patterns, Premax

Throw and air patterns 300 mm under the ceiling.

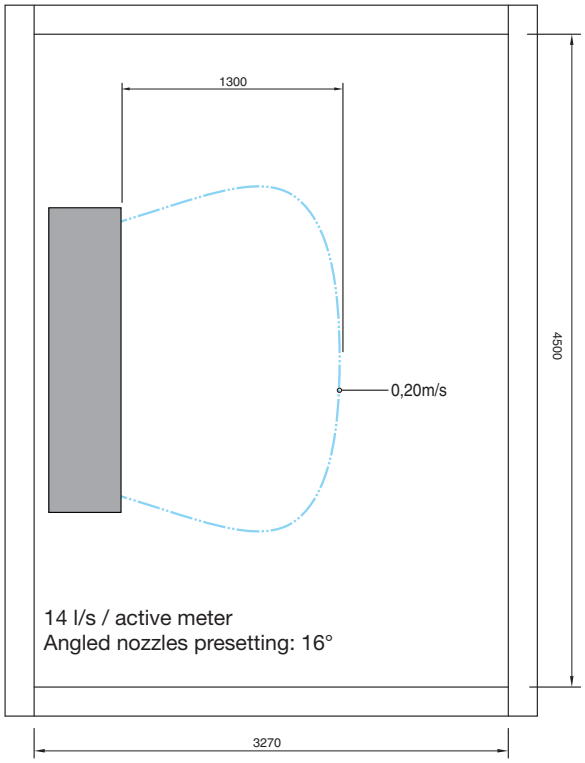


Figure 46.

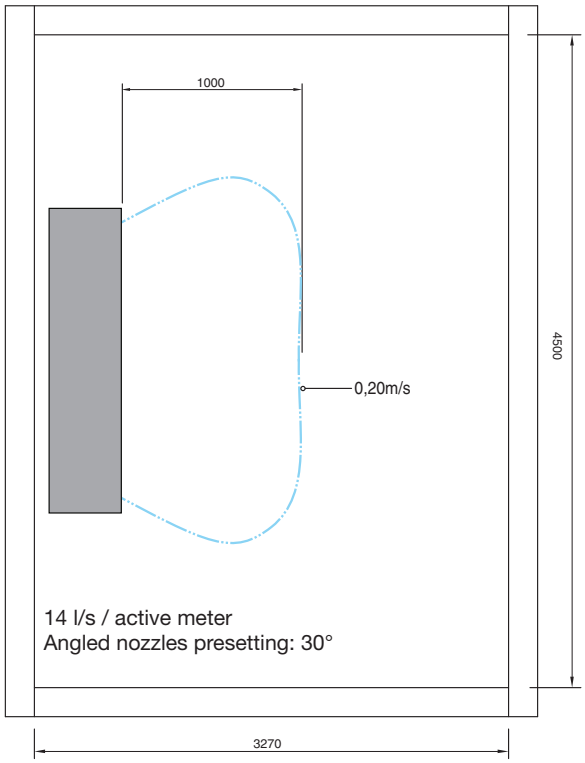


Figure 47. Default Setting Angled Nozzles (or AirGuide).

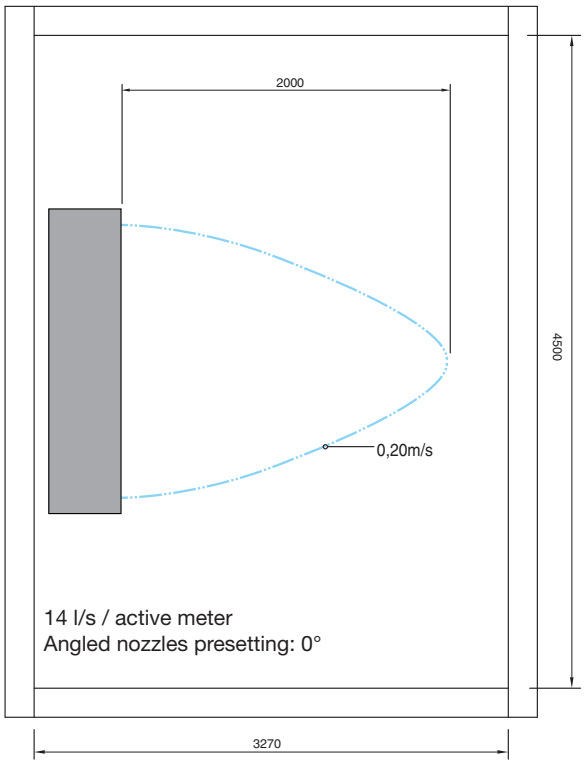


Figure 48.

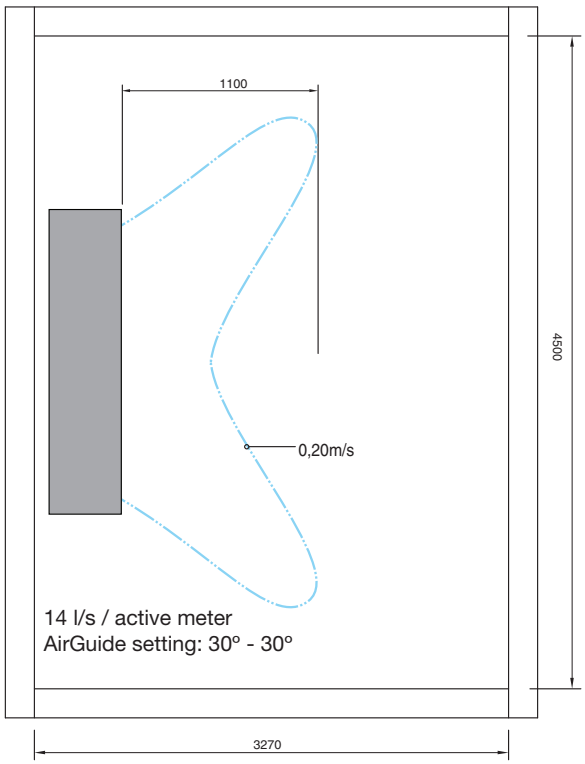


Figure 49.

Figure 46-49. Throw lengths with 14 l/s active meter at 60 Pa Δt_{rw} = 8K Δt

Supply air beam Premax

Control

Lindab offers control equipment that is very simple to use. To avoid the heating and cooling being activated at the same time, the system is controlled sequentially (Regula Combi). For the technical data, refer to the chapter Regula.

Designations

Product/Version:	Premax I or X
Type:	60, 62
Connection diam. water, [mm]:	12 or 15
Connection diam. air, [mm]:	125
Coupling options:	A, B, C, D
Coupling options, exhaust:	E, F, G, H
Water:	1, 2, 3, 4, 7, 8
Length, [m]:	1.2, 1.8, 2.4, 3.0, 3.6 m
Plus features:	See page 7
Angled Nozzles:	30° (default), 16°, 0°
AirGuide:	30°-10°

Order code

Product	**Premax**	**I-60**	**12**	**125**	**A1**	**1.8**	**80**	**20**
Type:								
I-60, I-62								
I = Integrated, lay-in								
X-60								
X = i.e. hidden T-bar, edge DS								
Water connection:								
12 mm, 15 mm								
Air connection:								
Ø125 mm								
Connection type:								
A1, A2, A3, A4, A7, A8, B1, B2, B3, B4, B7, B8, C3, C4, C7, C8, D3, D4, D7, D8								
Product length:								
1.2 m - 3.6 m (in steps of 0.6 m)								
Static nozzle pressure (Pa):								
Air volume (l/s):								

Programme text

Premax active chilled beam with adjustable airflow, for a given duct pressure. Air distribution must be adjustable between both sides of the beam and longitudinally, by a system like Lindab JetCone. The flow pattern must be fan-shaped through the use of angled nozzles. Water and air connections must be flexible and accessible from below.

Supply air beams from Lindab	**Qty**
Product:	
Premax I-60-12-125-A2-1.8 m	40
Air quantity:	15 l/s
Nozzle pressure:	60 Pa
Plus features:	
AirGuide	
Regula Secura	
Heating	
Cooling control valve	
Cooling actuator	
Heating control valve	
Heating actuator	
Accessories:	
Regula Combi:	40
Product:	
Premax I-60-12-125-A1-3.0 m	10
Plus features:	
AirGuide	
Regula Combi	
Regula Secura	
Cooling control valve	
Cooling actuator	
Accessories:	
Tectite tool:	1

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2017-06-07