



TECHNISCHE HANDLEIDING

IQCC INDUCTIE-UNITS



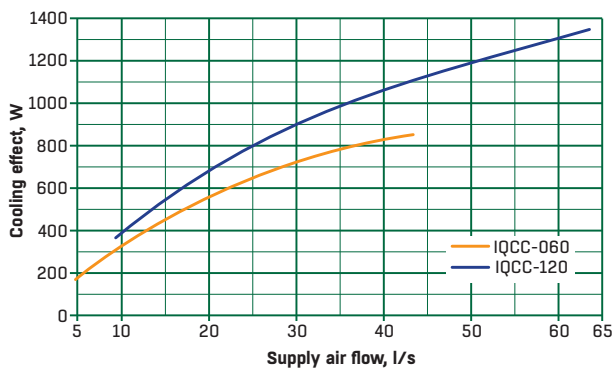
IQ STAR LYRA II CHILLED BEAM CASSETTE



The LYRA II cassette is an active chilled beam for ventilation, cooling and heating. This diffusion system offers high flexibility thanks to the combination of Flow Pattern Control, Coanda Safety Control & adjustable induction for the best comfort. It can be used as a traditional CAV chilled beam or equipped with Pi a very flexible VAV-chilled beam.

With the introduction of the Pi advanced function it gives the LYRA II even more flexibility making it pressure independent and adding a Demand Controlled Ventilation function allowing the air diffusion to follow the building occupancy making the HVAC system highly efficient. It can also be supplied with integrated control to offer a plug and play solution.

QUICK SELECTION



The diagram shows the approximate cooling power P_{tot} in W with water flow $q_w = 0.05$ l/s, temperature difference between room air and supply air $\Delta t = 8^\circ\text{C}$. Temperature difference between mean water temperature and room temperature, $\Delta t = 8^\circ\text{C}$. Total air pressure drop 70 Pa.

KEY FEATURES

- Ventilation
- Heating and cooling
- Compact chilled beam
- Adjustable induction
- Flow Pattern Control
- Integrated control
- In option: Demand Controlled Ventilation, Pressure independent (PI)

SPECIFICATIONS

- A compact chilled beam for flush mounting or exposed installation
- Ensures comfort with low temperature gradient and no draught
- Gives flexibility to the diffusion enabling lay out modification
- Has in option a Demand Controlled Ventilation function, available as retrofit, pressure independant
- Includes fastening brackets for rapid and simple installation
- Available in two sizes:
 - 600×600 mm
 - 600×1200 mm
- Integrated control for plug and play installation

PRODUCT CODE EXAMPLE

Cassette chilled beam IQCC-060-12-1-01-0.

CONSTRUCTION AND FUNCTIONS

CONSTRUCTION

This chilled beam cassette is available in two sizes: 600×600 mm and 600×1200 mm for integration into T-24 suspended ceiling system with options available for integration into other ceiling systems. If the chilled beam is equipped with a casing accessory, it can be freely suspended from the ceiling. Size 600×600 mm has Ø125 mm spigot connection and size 600×1200 mm is available with Ø125 mm and Ø160 mm spigot connections.

MATERIAL AND SURFACE FINISH

The chilled beam casing is mainly made of galvanized steel sheet. The front plate is powder coated standard RAL 9003 white, 30% gloss which corresponds to NCS 0500-N. Heat exchanger coil made of aluminium fins mechanically bonded to copper pipes with Øout15 mm end connections and 1.6 MPa maximum working pressure.

FUNCTIONS

The LYRA II chilled beam cassette is equipped with comfort control and has control equipment as an accessory. This combination provides high flexibility for dimensioning the indoor climate. The airflow can be adjusted with levers (Energy Control) by changing the number of open nozzles in the air duct. This is easily done during commissioning.

This easy adjustment of air distribution and capacity makes it easy to adapt the system to changing conditions. On delivery, the standard beam has the maximum number of nozzles open as default (nozzle 36). The LYRA II chilled beam cassette is equipped with Coanda Safety

Control (CSC). It can be varied between high effect mode (front in lowest position) and normal effect mode (front in highest position). CSC should be used with low airflows to ensure that the air stream adheres to the ceiling. High effect mode is obtained when the front is in the lowest position. This mode should not be used below 50 Pa.

This chilled beam is designed for flexibility with a number of features optional to the basic standard model. Pi Function, Flow Pattern Control (FPC air deflector), control and regulation equipment are the additional features available.

ENERGY CONTROL

Airflow for the chilled beam is easily adjustable with the patented Energy Control comprising variable nozzle settings mounted on rails that can be set for symmetrical 4-way air distribution by adjustment of the nozzle in alignment with indicator on the chilled beam. Nozzle adjustment is made using the 2 levers found on either longside.

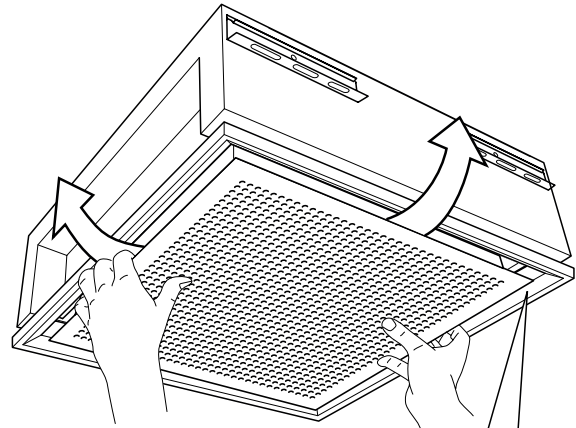
COANDA SAFETY CONTROL (CSC)

Coanda Safety Control (CSC) is a function that maintains the Coanda effect (adhesion of the air to the ceiling) while simultaneously ensuring the highest possible cooling power. This is done by adjusting the position of the front panel.

At low flows and pressures, it may be necessary to adjust the front panel to its highest position to keep the coanda effect.

At high flows and pressure, the Coanda effect is easily maintained, so the front panel can be set in its lowest position, which increases the cooling and heating power by approximately 5-10%.

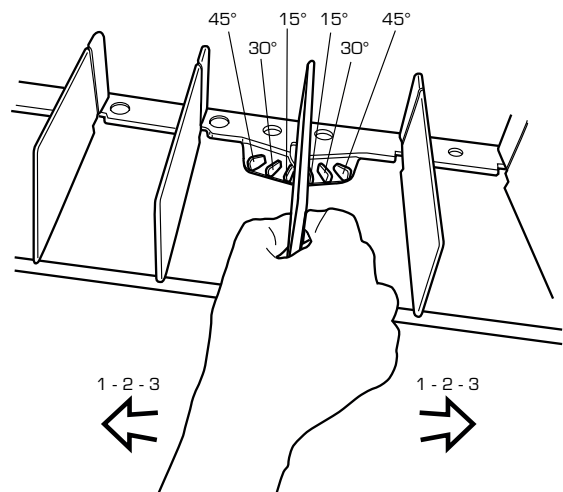
To adjust the front panel, pull or push it so that it snaps into position.



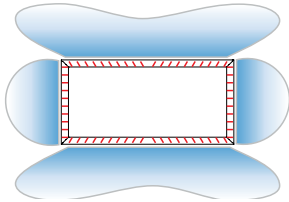
FLOW PATTERN CONTROL (FPC)

The FPC (Flow Pattern Control) function provides high flexibility. The combination of Flow Pattern Control (FPC) and the patented Energy Control gives unique characteristics to this chilled beam.

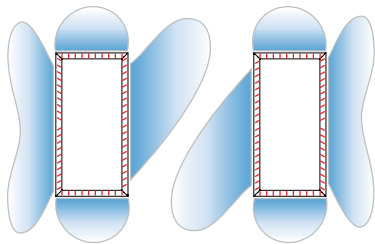
FläktGroup FPC air deflector enables easy adjustment of the air direction simply by repositioning the plastic blades as shown in illustration below.



The image below shows an installation where air direction is set to 30° in two directions and the airflow is set with Energy Control to the same nozzle on each side of a size 120. This installation options provide an efficient and comfortable air throughout the room.



For high airflow applications as illustrated below, Energy Control is in symmetrical setting, while FPC blades set at 30° angle settings on opposing units to avoid colliding air streams.



CONNECTION

The LYRA II chilled beam offers two types of connection alternatives. Single air connection located to the right of the water connection when looking in the air direction See figure 1 below. Double air connections, one on each long side, with a removable lid giving you the option on site to choose which air spigot to use and which to cover. See figure 2 below.

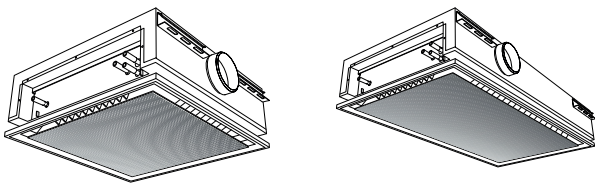


Figure 1: Single airconnection

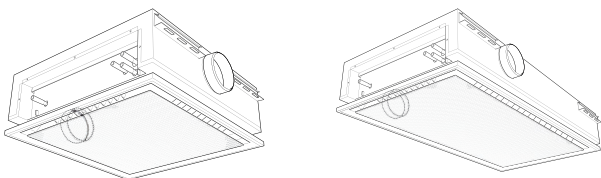


Figure 2: Double airconnection

PI FUNCTION (OPTION)

For Demand Controlled Ventilation operation, the Pi Function accessory must be mounted on the chilled beam. Thanks to this function, an actuator will then change automatically the nozzle position in order to change primary airflow.

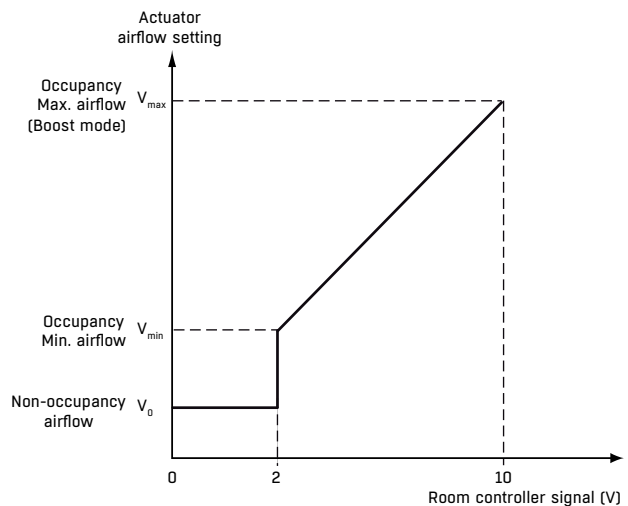
The chilled beam system will be able to follow different operation sequences depending on the controller chosen. It is possible to set different airflows according to occupancy level or to manage air quality thanks to a CO₂ sensor connected to the controller. Three parameters can be set in the actuator : V₀ for non-occupancy, V_{min} for standard occupancy and V_{max} (boost) for high occupancy level.

Combined with the STRA-24 room controller, different modes are offered : OFF, Standby, unoccupied, occupied and boost. For each modes, different sequences between water and air are possible: cooling without free cooling, cooling with free cooling and airflow depending on CO₂.

The Pi function keeps airflow at set point value despite pressure fluctuations in the duct. The Pi Function is easy to retrofit and applicable to any ductwork system owing to its pressure independent functionality.

Using a chilled beam with PI-function means that you can create stable ventilation whilst in heating mode. This is achieved by increasing the airflow when the demand for heating grows along with the level of occupancy inside the room. The level of increased airflow in heating mode is an adjustable parameter in STRA-24 (parameter 49).

Note when using Pi Function, induction is always symmetrical and a room controller is required to operate Pi Function with link to occupancy sensor. Duct pressure has to be maintained between 40 and 140 Pa.



CAUTION! If Pi Function is installed as a retrofit, there is no need for a damper before the chilled beam. Any previously installed damper, should be set to fully open position or removed.

INSTRUCTIONS

For installation, maintenance and commissioning instructions, please refer to specific manuals available on the Internet at www.flaktgroup.com.

TECHNICAL DATA FOR COOLING/HEATING

COOLING

LYRA II-060 - NORMAL AIRFLOW, Ø125 MM

Table 1: - Pressure drop, $\Delta p_w = 5,2$ kPa

| Nozzle mm | q_{air} l/s | P_{tot} in W for $\Delta t, ^\circ C$ | | | P_{coil} in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|--|-----|-----|-----------------|
| | | 6 | 8 | 10 | 6 | 8 | 10 | |
| 06 | 5,3 | 167 | 206 | 245 | 116 | 155 | 194 | <20 |
| 12 | 10,3 | 288 | 351 | 414 | 189 | 252 | 315 | <20 |
| 18 | 14,9 | 374 | 451 | 528 | 231 | 308 | 385 | <20 |
| 24 | 19,2 | 440 | 525 | 611 | 256 | 341 | 426 | <20 |
| 30 | 23,3 | 497 | 588 | 679 | 273 | 364 | 455 | <20 |
| 36 | 26,7 | 540 | 634 | 729 | 284 | 378 | 473 | <20 |

LYRA II-060 - HIGH AIRFLOW, Ø125 MM

Table 2: - Pressure drop, $\Delta p_w = 5,2$ kPa

| Nozzle mm | q_{air} l/s | P_{tot} in W for $\Delta t, ^\circ C$ | | | P_{coil} in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|--|-----|-----|-----------------|
| | | 6 | 8 | 10 | 6 | 8 | 10 | |
| 06 | 8,7 | 237 | 289 | 340 | 154 | 205 | 256 | <20 |
| 12 | 16,1 | 395 | 475 | 555 | 240 | 320 | 400 | <20 |
| 18 | 23,6 | 513 | 609 | 704 | 287 | 382 | 478 | <20 |
| 24 | 30,8 | 604 | 707 | 809 | 308 | 411 | 514 | 23 |
| 30 | 37,1 | 669 | 773 | 877 | 313 | 417 | 521 | 26 |
| 36 | 42,2 | 718 | 822 | 926 | 313 | 417 | 521 | 29 |

LYRA II-120 - NORMAL AIRFLOW, Ø125 MM

Table 3: Pressure drop, $\Delta p_w = 9,1$ kPa

| Nozzle mm | q_{air} l/s | P_{tot} in W for $\Delta t, ^\circ C$ | | | P_{coil} in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|------|------|--|-----|-----|-----------------|
| | | 6 | 8 | 10 | 6 | 8 | 10 | |
| 06 | 10,1 | 343 | 425 | 507 | 246 | 328 | 410 | <20 |
| 12 | 17,4 | 528 | 648 | 768 | 361 | 481 | 601 | <20 |
| 18 | 24,9 | 673 | 818 | 963 | 434 | 579 | 724 | <20 |
| 24 | 31,7 | 768 | 922 | 1077 | 464 | 618 | 773 | <20 |
| 30 | 38,4 | 846 | 1005 | 1164 | 477 | 636 | 795 | 22 |
| 36 | 43,8 | 913 | 1077 | 1242 | 493 | 657 | 821 | 26 |

LYRA II-120 - HIGH AIRFLOW, Ø125 MM

Table 4: Pressure drop, $\Delta p_w = 9,1$ kPa

| Nozzle mm | q_{air} l/s | P_{tot} in W for $\Delta t, ^\circ C$ | | | P_{coil} in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|------|------|--|-----|-----|-----------------|
| | | 6 | 8 | 10 | 6 | 8 | 10 | |
| 06 | 15,1 | 449 | 551 | 652 | 305 | 406 | 508 | <20 |
| 12 | 26,7 | 691 | 835 | 980 | 434 | 579 | 724 | <20 |
| 18 | 37,9 | 864 | 1031 | 1198 | 500 | 667 | 834 | 23 |
| 24 | 47,7 | 983 | 1158 | 1333 | 525 | 700 | 875 | 31 |
| 30 | 56,8 | 1076 | 1252 | 1429 | 530 | 707 | 884 | 34 |
| 36 | 63,0 | 1138 | 1316 | 1494 | 533 | 711 | 889 | 36 |

LYRA II-120 - HIGH AIRFLOW, Ø160 MM

Table 5: - Pressure drop, $\Delta p_w = 9,1$ kPa

| Nozzle mm | q_{air} l/s | P_{tot} in W for $\Delta t, ^\circ C$ | | | P_{coil} in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|------|------|--|-----|-----|-----------------|
| | | 6 | 8 | 10 | 6 | 8 | 10 | |
| 06 | 15,5 | 459 | 562 | 665 | 310 | 413 | 516 | <20 |
| 12 | 27,2 | 702 | 849 | 996 | 441 | 588 | 735 | <20 |
| 18 | 38,9 | 884 | 1054 | 1225 | 511 | 681 | 851 | <20 |
| 24 | 50,6 | 1030 | 1211 | 1392 | 544 | 725 | 906 | 24 |
| 30 | 61,4 | 1150 | 1336 | 1523 | 560 | 747 | 934 | 28 |
| 36 | 70,6 | 1249 | 1440 | 1630 | 572 | 762 | 953 | 31 |

HEATING

LYRA II-060 - NORMAL AIRFLOW,, Ø125 MM

Table 6: Pressure drop, $\Delta p_w = 6$ kPa

| Nozzle mm | q_{air} l/s | $P_{coil heat}$ in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|-----------------|
| | | 10 | 15 | 20 | |
| 06 | 5,3 | 83 | 110 | 138 | <20 |
| 12 | 10,3 | 125 | 167 | 209 | <20 |
| 18 | 14,9 | 154 | 205 | 256 | <20 |
| 24 | 19,2 | 171 | 228 | 285 | <20 |
| 30 | 23,3 | 183 | 244 | 305 | <20 |
| 36 | 26,7 | 188 | 251 | 314 | <20 |

LYRA II-060 - HIGH AIRFLOW, Ø125 MM

Table 7: Pressure drop, $\Delta p_w = 6$ kPa

| Nozzle mm | q_{air} l/s | $P_{coil heat}$ in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|-----------------|
| | | 10 | 15 | 20 | |
| 06 | 8,7 | 113 | 151 | 189 | <20 |
| 12 | 16,1 | 159 | 212 | 265 | <20 |
| 18 | 23,6 | 184 | 245 | 306 | <20 |
| 24 | 30,8 | 192 | 256 | 320 | 23 |
| 30 | 37,1 | 194 | 259 | 324 | 26 |
| 36 | 42,2 | 197 | 263 | 329 | 29 |

LYRA II-120 - NORMAL AIRFLOW, Ø125 MM

Table 8: Pressure drop, $\Delta p_w = 10$ kPa

| Nozzle mm | q_{air} l/s | $P_{coil heat}$ in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|-----------------|
| | | 10 | 15 | 20 | |
| 06 | 10,1 | 184 | 245 | 306 | <20 |
| 12 | 17,4 | 254 | 339 | 424 | <20 |
| 18 | 24,9 | 310 | 413 | 516 | <20 |
| 24 | 31,7 | 345 | 460 | 575 | <20 |
| 30 | 38,4 | 369 | 492 | 615 | 22 |
| 36 | 43,8 | 380 | 506 | 633 | 26 |

LYRA II-120 - HIGH AIRFLOW, Ø125 MM

Table 9: Pressure drop, $\Delta p_w = 10$ kPa

| Nozzle mm | q_{air} l/s | $P_{coil heat}$ in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|-----------------|
| | | 10 | 15 | 20 | |
| 06 | 15,1 | 236 | 314 | 393 | <20 |
| 12 | 26,7 | 320 | 426 | 533 | <20 |
| 18 | 37,9 | 373 | 498 | 621 | 23 |
| 24 | 47,7 | 384 | 512 | 640 | 31 |
| 30 | 56,8 | 389 | 519 | 649 | 34 |
| 36 | 63,0 | 391 | 521 | 651 | 36 |

LYRA II-120 - HIGH AIRFLOW, Ø160 MM

Table 10: Pressure drop, $\Delta p_w = 10$ kPa

| Nozzle mm | q_{air} l/s | $P_{coil heat}$ in W for $\Delta t, ^\circ C$ | | | L_{A10} dB(A) |
|-----------|---------------|---|-----|-----|-----------------|
| | | 10 | 15 | 20 | |
| 06 | 15,5 | 239 | 319 | 399 | <20 |
| 12 | 27,2 | 323 | 431 | 539 | <20 |
| 18 | 37,9 | 374 | 499 | 624 | <20 |
| 24 | 50,6 | 401 | 534 | 668 | 24 |
| 30 | 61,4 | 410 | 546 | 683 | 28 |
| 36 | 70,6 | 417 | 556 | 695 | 31 |

Note: Pressure drop listed are with a water flow, $q_w = 0.05$ l/s

TECHNICAL AND SOUND DATA

CONDITIONS FOR COOLING PERFORMANCE TABLES

Total cooling effect of beam , P_{tot} = cooling effect of coil, P_{coil} + cooling effect of supply air, P_{air} .

- Air side total pressure drop of 70 Pa.
- Water flow rate of 0.05 l/s per circuit.
- $\Delta t = 8^\circ \text{C}$ between room temperature and mean water temperature.
- $\Delta t = 8^\circ \text{C}$ between room temperature and supply air temperature.

Performance for water flows other than 0.05 l/s can be found in the FläktGroup product selection tool, SELECT (select.flaktgroup.com).

The tables here are based on tests done according to the EN 15116 standard. The purpose of this standard is to be able to compare performances of different chilled beams on the same terms. The external heat supply method has been used where heating has been supplied evenly over the floors and walls such that the on-coil temperature is the same as the temperature at 1.1 m above floor level (seated head height).

In actual conditions, the temperature difference is normally 1 °C. This is why the temperature t should be increased by 1 °C to avoid over dimensioning of the beam.

This means that the table value concerned can be increased by 10%. As such it is not uncommon for selections in SELECT to have 1 °C increase between ceiling temperature and room temperature.

DEFINITIONS

- q_l Supply airflow, l/s
- P_{tot} Total cooling effect, W
- P_{coil} Cooling effect of the coil, W
- $P_{coil \text{ heat}}$ Heating effect of the coil, W
- Δt Difference between room air temperature and average water temperature, °C
- Δp_w Pressure drop water, kPa
- Δt_w (°C) = $P_{batt} \text{ (W)} / 208$
- Δt_w (US imperial) - $\Delta t_w \text{ (°F)} = P \text{ batt (BTU/tim)} / 81177$
- LA10 Sound pressure level in a room with 10 m² room absorption, dB(A)

SOUND POWER LEVEL

| LYRA II | Correction K_{oct} dB Octave band, mid-frequency, Hz | | | | | | | |
|---------|--|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 60 | 4 | -6 | -2 | -1 | 1 | -3 | -10 | -16 |
| 120 | 4 | -3 | -3 | -1 | 1 | -3 | -10 | -17 |
| Tol +/- | 6 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |

The sound power levels for every octave band are obtained by adding together the sound pressure level L_{A10} , dB(A), and the corrections K_{oct} given in the table above, according to the following formula:

$$L_w = L_{A10} + K_{oct}$$

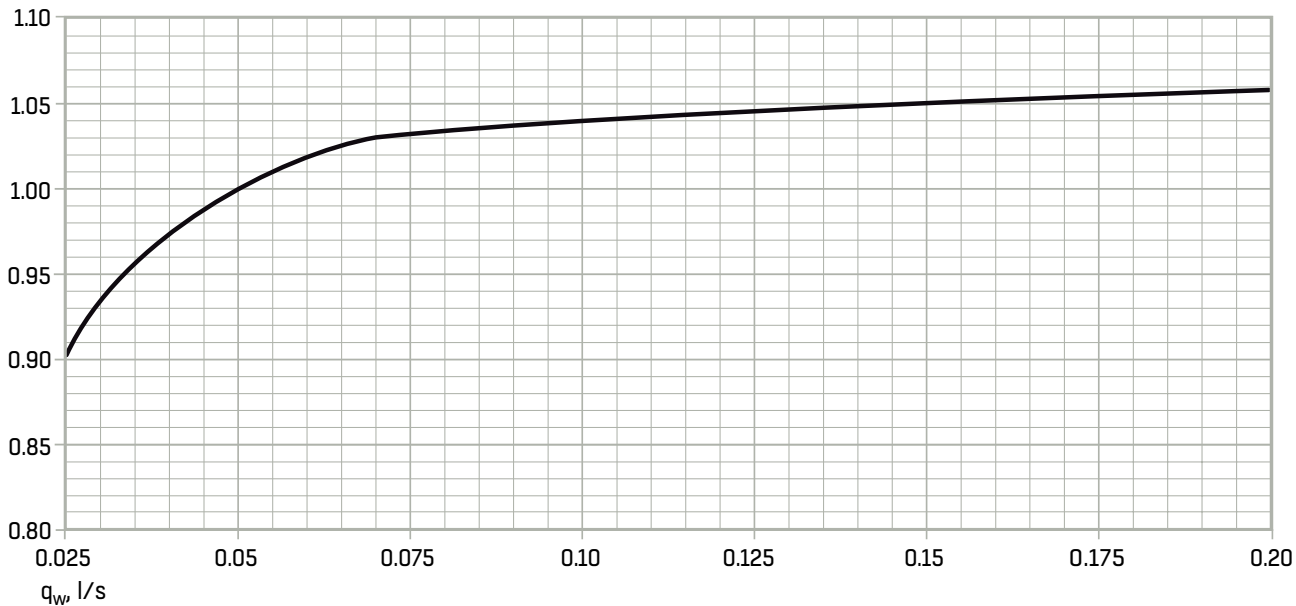
Correction K_{oct} äis the average in the area of application of the chilled beam.

SOUND ATTENUATION

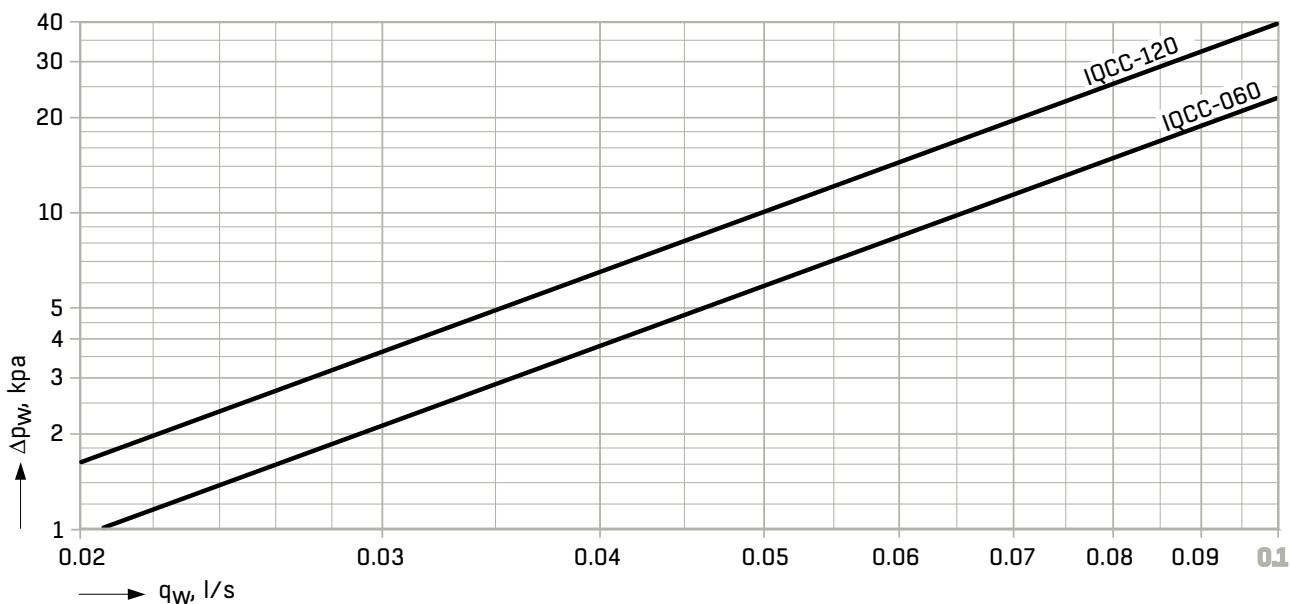
The average sound attenuation ΔL of the chilled beam from duct to room includes the end reflection of the connecting duct.

| LYRA II | Sound attenuation in supply duct for the beam ΔL , dB Octave band, mid-frequency, Hz | | | | | | | |
|---------|--|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 60 | 19 | 7 | 6 | 8 | 4 | 10 | 12 | 4 |
| 120 | 19 | 7 | 6 | 7 | 9 | 11 | 13 | 5 |
| Tol +/- | 6 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |

CORRECTION OF COOLING CAPACITY FOR OTHER WATER FLOW THAN 0.05 L/S



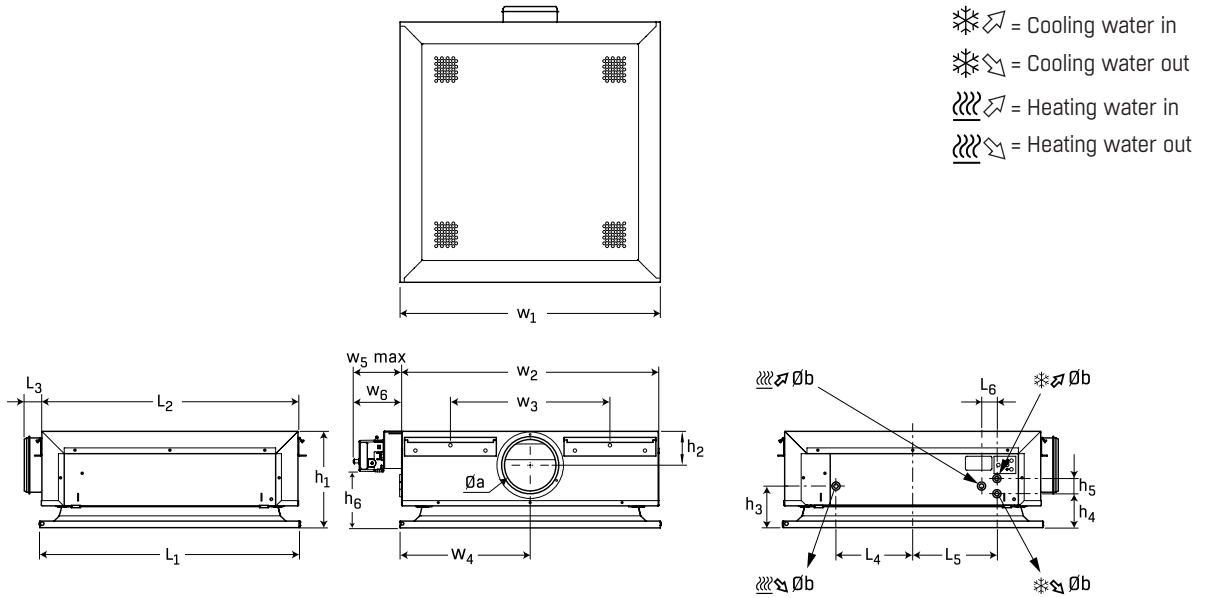
PRESSURE DROP Δp – WATER COOLING



P_{tot} = cooling power air + coil
 P_{coil} = cooling power coil

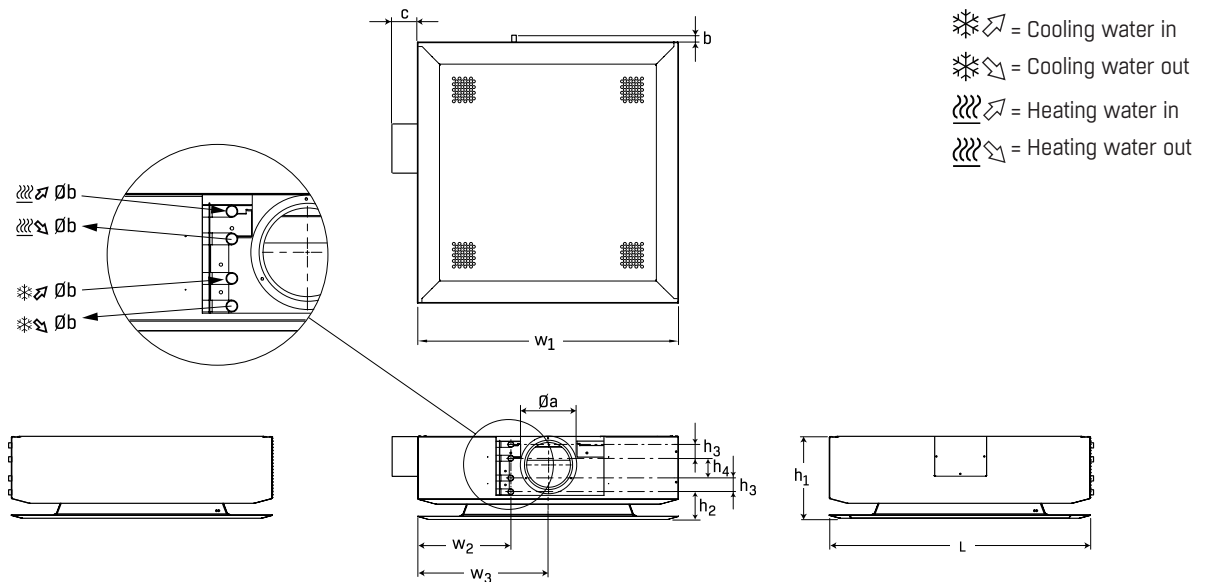
DIMENSIONS AND WEIGHTS

LYRA II-060, RECESSED VERSION



| Øa | Øb | h1 | h2 | h3 | h4 | h5 | h6 | L1 | L2 | L3 | L4 | L5 | L6 | w1 | w2 | w3 | w4 | w5 | w6 |
|-----|----|-----|----|----|------|----|-----|-----|-----|----|-----|-----|----|-----|-----|-----|-----|-----|----|
| 125 | 15 | 220 | 77 | 95 | 77,5 | 35 | 126 | 594 | 585 | 40 | 175 | 195 | 35 | 594 | 587 | 364 | 297 | 139 | 95 |

LYRA II-060 FREELY SUSPENDED

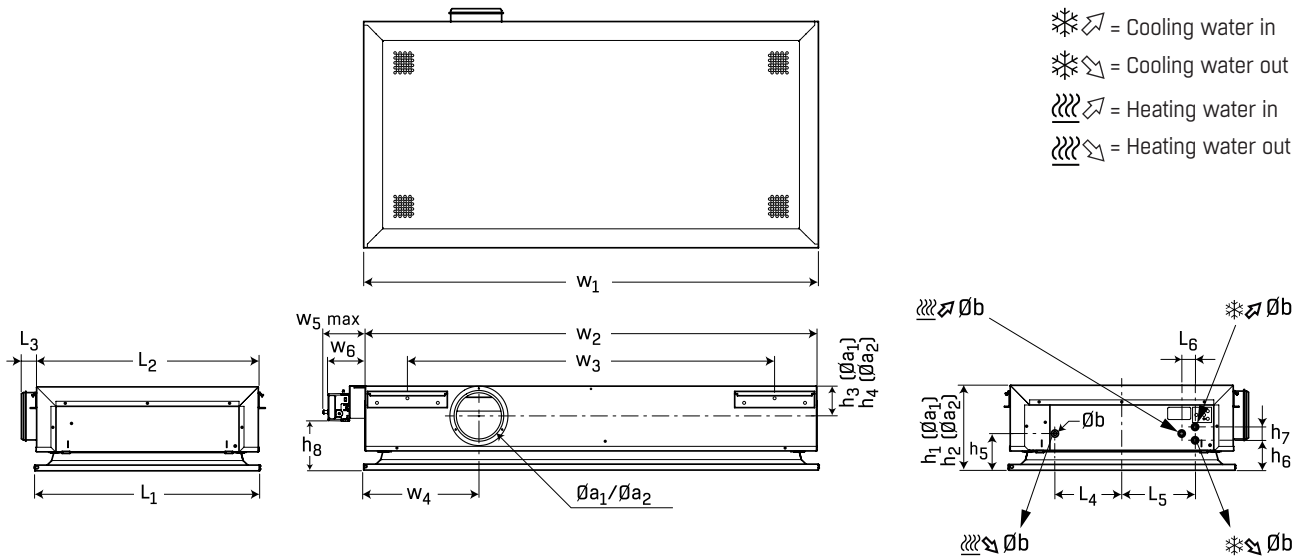


| Øa | Øb | b | c | h1 | h2 | h3 | h4 | L | w1 | w2 | w3 |
|-----|----|----|----|-----|------|----|----|-----|-----|-----|-------|
| 125 | 15 | 20 | 79 | 220 | 77,5 | 35 | 50 | 725 | 725 | 260 | 362,5 |

Air connection is male.
Water connections are male.

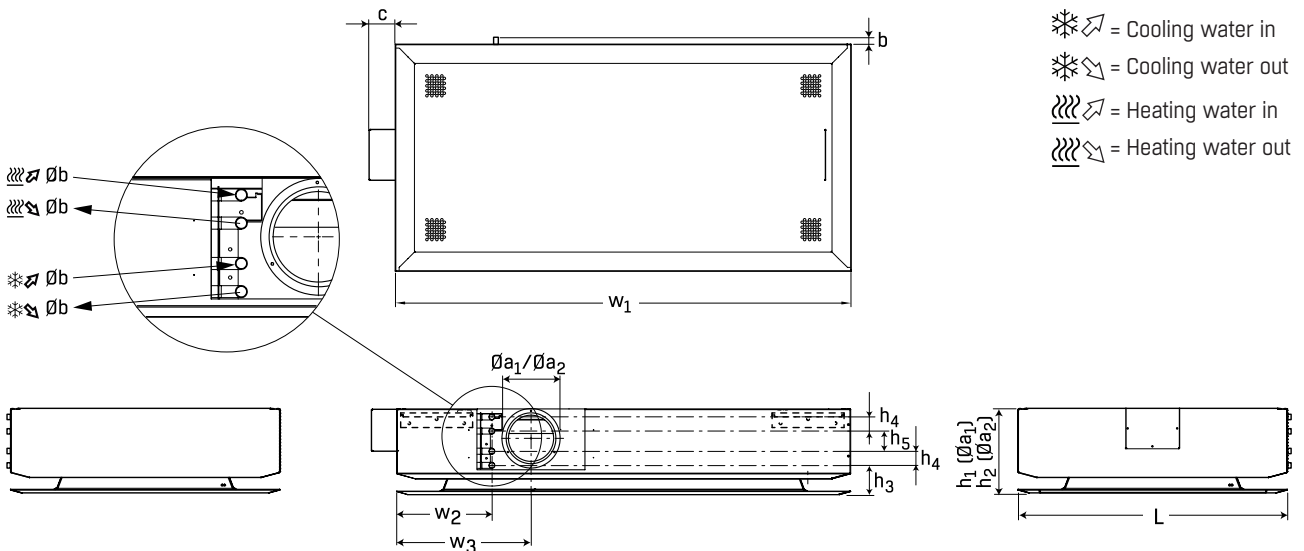
| Version | Delivery weight | Operating weight (incl. water) | |
|-------------------------------|-----------------|--------------------------------|---------------------|
| | | Cooling | Cooling and heating |
| LYRA II-060, Recessed version | 16 kg | 17 kg | 18 kg |
| LYRA II-060, Exposed version | 18 kg | 19 kg | 20 kg |

LYRA II-120, RECESSED VERSION



| Øa1 | Øa2 | Øb | h1 | h2 | h3 | h4 | h5 | h6 | h7 | h8 | L1 | L2 | L3 | L4 | L5 | L6 | w1 | w2 | w3 | w4 | w5 | w6 |
|-----|-----|----|-----|-----|----|----|----|----|----|-----|-----|-----|----|-----|-----|----|------|------|-----|-----|-----|----|
| 125 | 160 | 15 | 220 | 255 | 77 | 97 | 95 | 78 | 35 | 126 | 594 | 585 | 40 | 175 | 195 | 35 | 1194 | 1187 | 964 | 297 | 139 | 95 |

LYRA II-120 FREELY SUSPENDED



| Øa1 | Øa2 | b | Øb | c | h1 | h2 | h3 | h4 | h5 | L | w1 | w2 | w3 |
|-----|-----|----|----|----|-----|-----|------|----|----|-----|------|-----|-------|
| 125 | 160 | 20 | 15 | 79 | 220 | 255 | 77,5 | 35 | 50 | 725 | 1325 | 260 | 362,5 |

Air connection is male.
 Water connections are male.

| Version | Delivery weight | Operating weight (incl. water) | |
|-------------------------------|-----------------|--------------------------------|---------------------|
| | | Cooling | Cooling and heating |
| LYRA II-120, Recessed version | 29 kg | 31 kg | 32 kg |
| LYRA II-120, Exposed version | 31 kg | 33 kg | 34 kg |

ACCESSORIES

INSTALLATION OF CHILLED BEAM WITH WIRE

QFAZ-23-01-01

The chilled beam cassette can also be suspended with wires. In this case, the beam's height is easily adjusted with a stepless fastening device. This type of installation is suitable for metal or concrete ceilings. Alternately, a wire can simply be wound round a bar in the ceiling. A special concrete fastener for concrete ceilings is included in every kit.

With the lock system it is easy to adjust the height installation of the chilled beam.

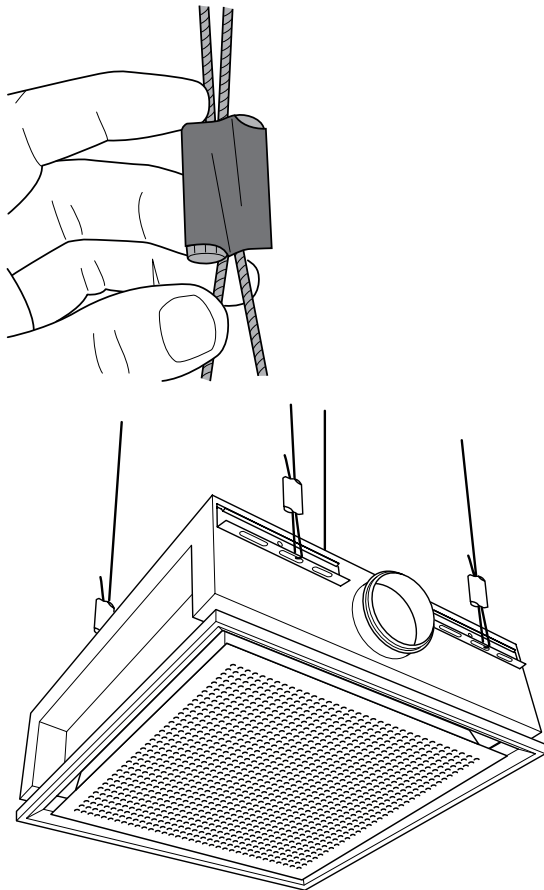


Figure 3: QFAZ-23-01-01

INSTALLATION WITH FASTENING BRACKET QFAZ-18

A suspension bracket facilitates the suspension of chilled beams from the ceiling. Two brackets are used for each beam. The brackets can be ordered in advance or along with the chilled beam. The suspension brackets can be fitted directly to the ceiling or onto channel support bars. The chilled beam is simply attached by pressing it against the bracket until it clicks into place. No tools are needed. After this, the chilled beam can be adjusted lengthwise by sliding the bracket along the beam's fastening points. To adjust it sideways, slide the threaded bars along the grooves in the bracket.

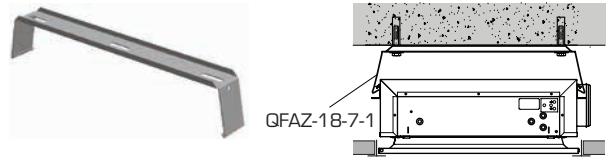


Figure 4: QFAZ-18

If there is a need for adjusting the installation height, suspension brackets and suspension rods M8 (QFAZ-12) can be ordered as well.

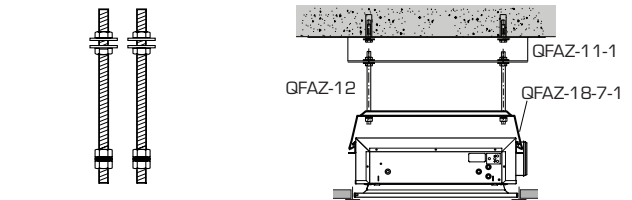


Figure 5: QFAZ-12

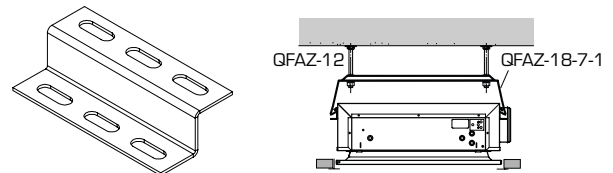


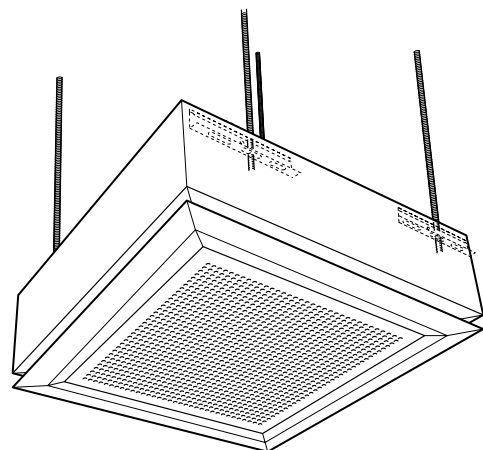
Figure 6: Suspension bracket QFAZ-11

FREELY SUSPENDED

The chilled beam can be adapted for exposed installation. This is done by ordering the accessory IQAZ-33, which consists of a casing and a front plate adapter. This accessory is fitted on the cassette while the cassette is suspended from the ceiling.

In the freely suspended version, the air outlet is specially designed to direct the airflow slightly upwards. This reduces the air velocity in the occupied zone and ensures that air from the room mixes with the chilled air before it reaches the occupied zone.

Directing the air upwards also creates the Coanda effect without needing to rely on nearby surfaces.



DUCT ENCLOSURE

Duct enclosure (IQAZ-33) is available in three size ranges for concealing water pipes and air ducts :

- 30 to 50 cm
- 50 to 90 cm
- 90 to 170 cm

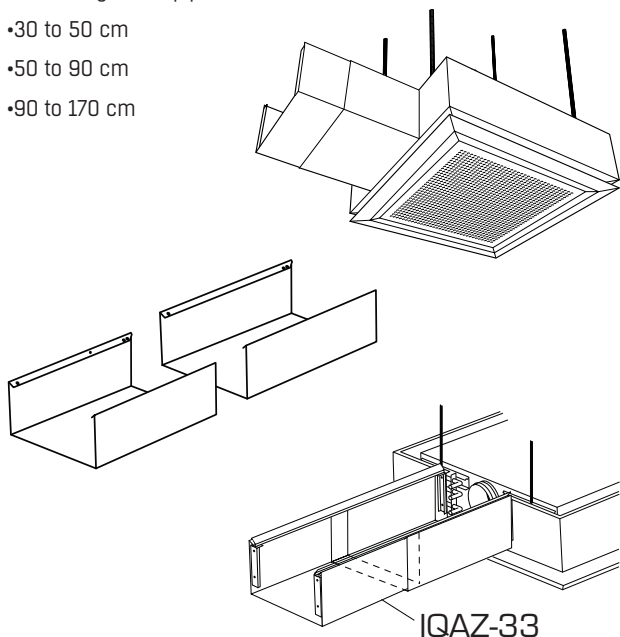


Figure 7: IQAZ-33

PURGING NIPPLE (IQAZ-32)

Purging nipple is available on demand.

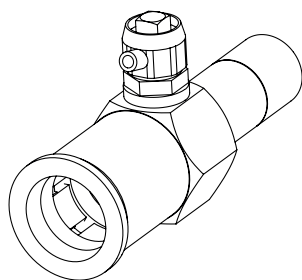


Figure 8: Purging nipple

FLEXIBLE HOSES (IQAZ-19)

Flexible hoses are available with push-on connection for easy installation.

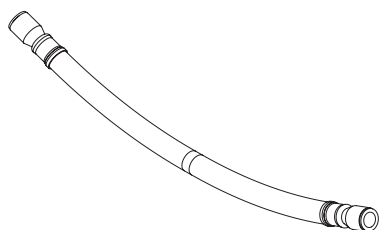


Figure 9: IQAZ-19 flexible hose with push-on connection.

ROOM CONTROLLER STRA-24

STRA-24 is a pre-programmed room controller intended to control the temperature and the CO2 level in rooms. It manages the water coil actuator and the actuator of the PI function. It is pre-programmed with communication and is intended for use in premises with high comfort and low energy demands.

The STRA-24 is able to optimise energy consumption in rooms depending on different parameters: occupancy, CO₂ level, outside conditions (free cooling feature) and timetable.

Different modes are offered : OFF, Standby, occupied and boost. For each modes, different sequences between water and air are possible : cooling without free cooling, cooling with free cooling and airflow depending on CO₂.

For more information regarding this product, valves, actuators and related accessories, please see the **STRA-24 technical catalogue**.



Figure 10: STRA-24 Room Controller



Figure 12: STRZ-70 Actuator & valve

NOZZLE ACTUATOR FOR PI FUNCTION

This chilled beam can be ordered with pressure independent air-flow control function which requires installation of IQAZ-35 nozzle actuator. The actuator also can be supplied loose for post installation.



Figure 11: IQAZ-35

For more information regarding the installation procedures, please see the installation manual for this chilled beam.

CONTROLS

INTEGRATED CONTROL

LYRA II is available with integrated control by ordering the accessory STRZ-76. The room controller can be positioned in three different locations depending on the desired level of accessibility.

Actuators and valves are fixed on LYRA II in factory. It is delivered with Compression fittings. A very simple operation allows the installer to connect it with no risk of leakage. The valves, optional condensate sensor and optional PIR are factory wired to a terminal block which is mounted on the side of the cassette unit. The PIR is mounted and integrated in the frontplate. If the Pi-actuator (IQAZ-35) is chosen it can also be wired to the terminal block. The integrated control offers Modbus or Bacnet communication as standard and it allows you to connect directly to the IPSUM system without using the IPSUM Connection unit.

From the room controller, it is possible to make the commissioning, increase and decrease temperature and display main information. For more information regarding this product and related accessories, please see the **STRA-24 technical catalogue and STRA Accessories catalogue**.

SLAVE



For parallel control. On site the installer needs to connect the room controller from the master beam to the terminal block placed on the side of the LYRA II.

| | |
|--|--------------------|
| Code: | STRZ-76-00-cc-1-ee |
| Connection Socket: | YES |
| Cooling/Heating: | Cooling/Heating |
| External temperature sensor included: | NO |

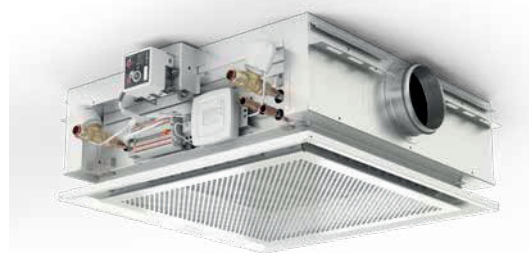
CONTROLLER SUPPLIED LOOSE



The room controller is supplied loose. On site the installer needs to connect the room controller to the terminal block placed on the side of LYRA II. This configuration uses the integrated temperature sensor in the room controller.

| | |
|--|--------------------|
| Code: | STRZ-76-01-cc-1-ee |
| Connection Socket: | YES |
| Cooling/Heating: | Cooling/Heating |
| External temperature sensor included: | NO |

MOUNTED ON SIDE



The room controller is factory mounted on the short side of LYRA II and wired. This configuration uses an external temperature sensor installed below the coil. Temperature and condensation (in option) sensor are factory wired.

| | |
|--|-----------------------|
| Code: | STRZ-76-02-cc-1-ee |
| Connection Socket: | YES |
| Cooling/Heating: | Cooling ¹⁾ |
| External temperature sensor included: | YES |

¹⁾ Heating extra. Wall mounted temperature sensor needed.

INTEGRATED IN FRONT PLATE



The room controller is factory mounted integrated in the front plate of LYRA II and wired. This configuration uses the temperature sensor built into the room controller. Condensation sensor (in option) is factory wired.

The controller has 2 positions to be always flush with the front plate (when coanda safety control function is used).

| | |
|--|-----------------------|
| Code: | STRZ-76-03-cc-1-ee |
| Connection Socket: | YES |
| Cooling/Heating: | Cooling ¹⁾ |
| External temperature sensor included: | NO |

¹⁾ Heating extra. Wall mounted temperature sensor needed.

PRODUCT CODE AND ACCESSORIES

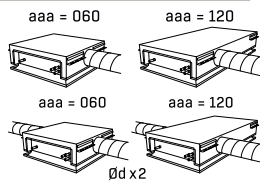
PRODUCT CODE

Cassette chilled beam

IQCC-aaa-bb-c-dd-e

Nominal length (aaa) _____
 060 = 60 cm
 120 = 120 cm

Connections (bb) _____
 12 = Water to the left of air
 16 = 2 spigots (alt. connection)
 Water near air connections



Coil (c) _____
 1 = Cooling
 2 = Cooling and heating
 3 = Cooling with purging nipple
 4 = Cooling and heating with purging nipple

Energy Control (dd) _____
 01 = Standard airflow, without FPC, Ø125
 02 = Standard airflow, with FPC, Ø125
 03 = High airflow, without FPC, Ø125
 04 = High airflow, with FPC, Ø125
 05 = High airflow, without FPC, Ø160 (only aaa=120)
 06 = High airflow, with FPC, Ø160 (only aaa=120)

Suspension alternatives (e) _____
 0 = For installation in false ceiling
 1 = For exposed installation (IQAZ-33 should be ordered separately)

ACCESSORIES

Pi Function actuator

IQAZ-35-bb-c-1-e

With Modbus Communication)

Chilled Beam (bb) _____
 03 = IQCC, Ø125
 04 = IQCC, Ø160

Cable execution (c) _____
 1 = Cabel 1 m without contact
 2 = Cabel 80mm with RJ45-contact (female) for use with IPSUM Connection unit and is not compatible in combination with STRZ-76¹⁾

¹⁾ Please note that RJ45-contact has a extended delivery time

Installation (e) _____
 1 = Installed on chilled beam
 2 = Supplied loose

Pre-set Pi actuator

IQAZ-36-bbb-cccccc

k100% (bbb) _____
 335 = IQCC-060-bb-c-01/02-e
 570 = IQCC-060-bb-c-03/04-e
 585 = IQCC-120-bb-c-01/02-e
 940 = IQCC-120-bb-c-03/04-e
 960 = IQCC-120-bb-c-05/06-e

Airflow V_0, V_{min}, V_{max} in l/s (cccccc)²⁾ _____
 cc---- = V_0
 --cc-- = V_{min}
 ----cc = V_{max}

²⁾ Ordering example below:

Eg: IQAZ-36-335-020420

- k100% = 3.35
- V0 = 2 l/s
- Vmin = 4 l/s
- Vmax = 20 l/s

00= without sensor, valve and actuator cooling

ACCESSORIES CODES

Actuator and valve Siemens

STRZ-70-bb-cc-0-1

Valve (bb) _____
 00 = Without
 01 = DN15 (kvs 0.25-1.9) female 1/2" valve inlet
 02 = DN20 (kvs 0.25-2.6) female 3/4" valve inlet
 03 = DN25 (kvs 0.25-2.6) female 1" valve inlet
 11 = DN15 (kvs 0.25-1.9) Compression ring valve inlet
 21 = DN15 (kvs 0.25-1.9) Push on valve inlet
 41 = DN15 Pressure independent (100-575 l/h) female 1/2" valve inlet
 42 = DN20 Pressure independent (220-1330 l/h) female 3/4" valve inlet
 43 = DN25 Pressure independent (280-1800 l/h) female 1" valve inlet
 51 = DN15 Pressure independent (100-575 l/h) Compression ring valve inlet
 61 = DN15 Pressure independent (100-575 l/h) Push on valve inlet

Valve actuator(cc) _____
 00 = Without
 01 = 24 V NC cable 1 m
 11 = 24 V NO cable 1 m
 21 = 230 V NC cable 1 m
 31 = 230 V NO cable 1 m

Casing freely suspended

IQAZ-33-bbb-c-ddd

(only for IQCC-aaa-12-c-dd-1)

Size (bbb) _____
 060 = 60 cm
 120 = 120 cm

Execution (c) _____
 1 = Cooling, Ø125
 2 = Cooling and heating, Ø125
 3 = Cooling, Ø160 (only IQCC-120)
 4 = Cooling and heating, Ø160 (only IQCC-120)
 5 = Cooling, Ø125 with IQAZ-35
 6 = Cooling and heating, Ø125 with IQAZ-35
 7 = Cooling, Ø160 with IQAZ-35 (only IQCC-120)
 8 = Cooling and heating, Ø160 with IQAZ-35 (only IQCC-120)

Duct enclosure (ddd) _____
 000 = without
 050 = 30-50 cm
 090 = 50-90 cm
 170 = 90-170 cm

Integrated control

STRZ-76-bb-cc-d-ee

Placement of controller (bb) _____
 00 = Without room control (slave)
 01 = Supplied loose
 02 = Mounted on short side (only for e = 0 in IQCC)
 03 = Integrated in front plate

Sensors, valvekit (valve and actuator) (cc) _____
 00 = without sensor, valve and actuator cooling
 01 = Cooling valvekit
 02 = Cooling valvekit and condensate sensor
 03 = Cooling valvekit and PIR
 04 = Cooling valvekit, condensate sensor and PIR

Options only for bb=00 & 01
 05 = Cooling and heating valvekit
 06 = Cooling and heating valvekit, condensate sensor
 07 = Cooling and heating valvekit, PIR
 08 = Cooling and heating valvekit, condensate sensor, PIR
 09 = without sensor, valve and actuator cooling/heating

Connection (d) _____
 1 = Terminal block

Chilled beam (ee) _____
 03 = IQCC-060
 04 = IQCC-120

Fastening brackets

QFAZ-18-7-1

Set with 2 pieces, unpainted, 1 set per beam

Suspension rods M8

QFAZ-12

Set with 2 pieces. Length 500 mm, 2 sets per beam

Gripple

QFAZ-23-01-01

(suspension system with wire)
 Complete set for one chilled beam cassette
 4 wires, 4 concrete fasteners

Flexible hose

IQAZ-19-550-010010

Length = 550 mm

Purging nipple

IQAZ-32-15-0

ORDER EXAMPLE

Here is an example to demonstrate an order complete with typical accessories. For more information about orders or specific requirements for special units, please contact your nearest FläktGroup sales office.

An order example for a room with 5 chilled beams. The beams are calculated as 120 cm length for required airflow and cooling capacity in product selection tool SELECT (<http://select.flaktgroup.com>).

CHILLED BEAMS CASSETTES (CAV)

| Product codes | Description | Quantity |
|-------------------|--|----------|
| IQCC-120-12-2-4-0 | LYRA II chilled beam, water cooling and heating, with FPC, for T24 ceiling | 5 |
| QFAZ-18-6-1 | Fastning bracket, set of 2 for inst. | 5 |

CHILLED BEAM CASSETTE - VAV DEMAND CONTROLLED VENTILATION

| Product codes | Description | Quantity |
|------------------|---|----------|
| IQAZ-35-03-1-1-1 | Pi Function, Nozzle actuator, 1 piece per chilledbeam as required | 5 |

VALVES, ACTUATORS AND FLEXIBLE HOSES

| Product codes | Description | Quantity |
|----------------------------------|------------------------|----------|
| STRAZ-70-11-01-0-1 ¹⁾ | Valve + valve actuator | 10 |
| IQAZ-19-550-010010 | Flexible hose push-on | 10 |

CONTROLS

| Product codes ¹⁾ | Description | Quantity |
|-----------------------------|-----------------------------|----------|
| STRA-24-00-0-00 | Room Controller | 1 |
| STRZ-05-02 | External temperature sensor | 1 |
| STRZ-16-1 | Condensation sensor | 1 |
| STRZ-24-1 | Transformer | 1 |

CONTROLS OPTIONS FOR DEMAND CONTROLLED VENTILATION

| Product codes ¹⁾ | Description | Quantity |
|-----------------------------|--|----------|
| STRZ-09-2 | Occupancy detector (for single office application) | 1 |
| STRZ-18-1-2 | sensor (for meeting room) | 1 |

INTEGRATED CONTROLS

| Product codes | Description | Quantity |
|--------------------|---|----------|
| IQCC-060-12-1-02-0 | LYRA II chilled beam, water cooling with FPC and for installation in T24 ceiling | 1 |
| STRZ-76-03-04-1-06 | Integrated controls in frontplate, incl valvekit (valve and actuator), - condensate sensor and PIR. | 1 |

¹⁾ For more information, please see the STRA-24 technical manual.

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