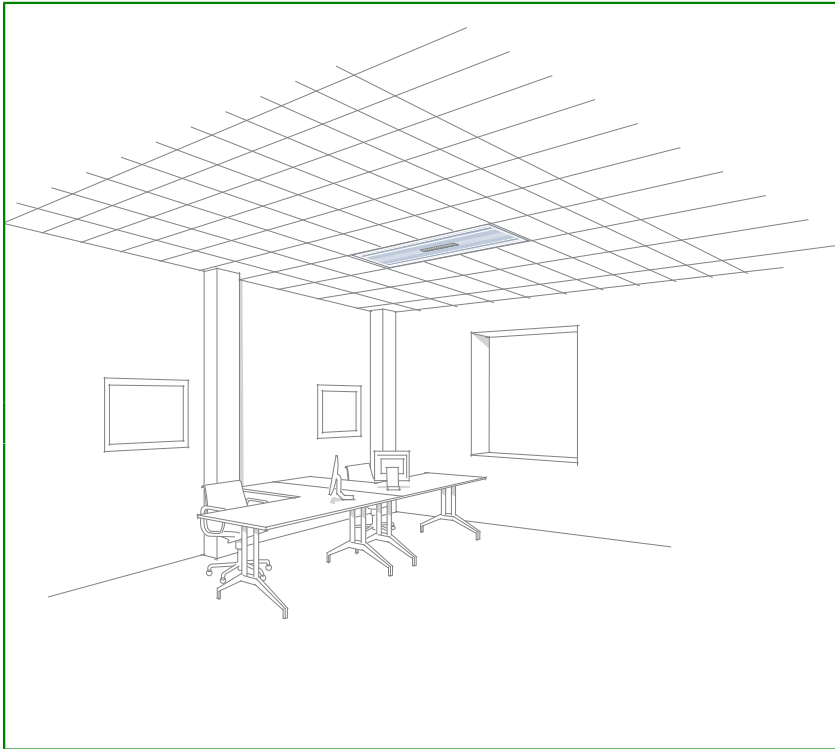# Chilled beam Flexicool® IQID

Functions

- FPC
- High air flow
- Controls
- Lighting
- Comfort control
- Heating
- Sprinkler

The chilled beam Flexicool® IQID is an integrated system for ventilation, cooling and heating, fulfilling most needs for indoor climate. The IQID chilled beam is a very flexible chilled beam that is available as a basic model, but can also be equipped with a number of functions to provide a multifunctional chilled beam. The following functions are available for IQID: heat, comfort setting, Flow Pattern Control (FPC air deflector), function for high air flow, control and regulation equipment, lighting and provision for a sprinkler system. These various functions are described in separate parts in the catalogue.

IQID has a covered upper side and is intended for flush-mounting in false ceilings and has dimensions adapted to a false ceiling module of 600 mm

Product Facts

- IQID chilled beam for flushmounting in false ceilings
- Very flexible - available in a wide range of executions from basic to multifunctional
- Adapted for standard 600 mm false ceiling module
- Fastening brackets for rapid and simple installation - lift up - snap in place
- Available with the following functions: heating, comfort control, Flow Pattern Control (FPC air deflector), function for high air flow, control equipment, lighting and provision for a sprinkler system

Product code example

Covered chilled beam IQID-240-1-1-01, standard.

Quick Selection

Cooling effect in W incl supply air
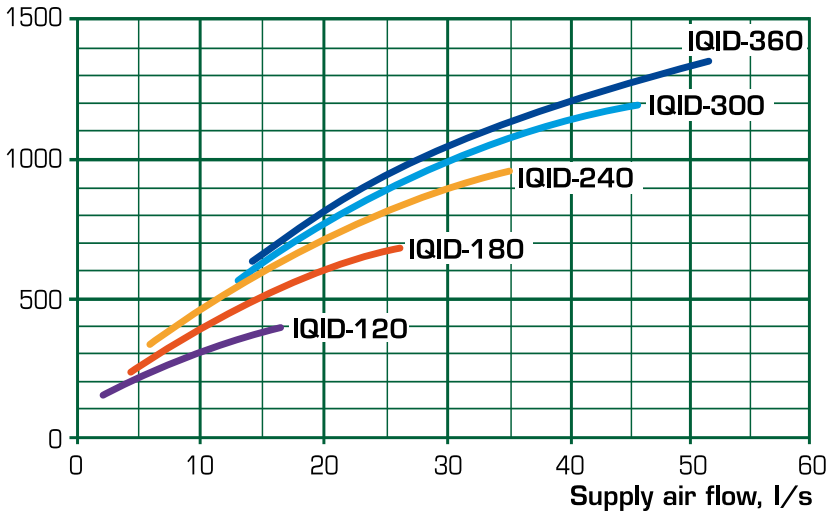
The diagram shows the approximate cooling effect P_{tot} in W with water flow qw = 0,05 l/s, temperature difference between room air and supply air Δt= 8 °C, pressure drop 70 Pa on the air side and max. sound pressure level L_{A10} = 30 dB(A).

Technical data for cooling and heating effect

Cooling effect for two-way chilled beam at static pressure drop 70 Pa on the air side

Beam length = 1.2 m (Coil length = 0.9 m)

Water flow, q_w = 0.05 l/s

Pressure drop water, Δp_w = 1.8 kPa

q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
	6	8	10	6	8	10	
5	167	207	247	119	159	199	<20
10	260	314	369	164	218	273	<20
15	339	404	469	195	260	325	<20

Beam length = 1,8 m (Coil length = 1,5 m)

Water flow, q_w = 0.05 l/s

Pressure drop water, Δp_w = 2.7 kPa

q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
	6	8	10	6	8	10	
5	192	240	288	144	192	240	<20
10	321	396	471	225	300	375	<20
15	421	513	605	277	369	461	<20
20	497	599	701	305	407	509	<20
25	563	671	779	323	431	539	21

Beam length = 2,4 m (Coil length = 2,1 m)

Water flow, q_w = 0.05 l/s

Pressure drop water, Δp_w = 3.3 kPa

q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
	6	8	10	6	8	10	
10	379	473	567	283	377	471	<20
15	501	620	739	357	476	595	<20
20	591	724	857	399	532	665	<20
25	673	817	961	433	577	721	21
30	737	887	1037	449	599	749	22

Beam length = 3.0 m (Coil length = 2.7 m)

Water flow, q_w = 0,.05 l/s

Pressure drop water, Δp_w = 4.1 kPa

q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
	6	8	10	6	8	10	
10	384	480	576	288	384	480	<20
15	534	664	794	390	520	650	<20
20	648	800	952	456	608	760	21
25	750	920	1090	510	680	850	24
30	821	998	1176	533	710	888	26
35	887	1071	1255	551	735	919	27
40	951	1140	1329	567	756	945	27

Beam length = 3.6 m (Coil length = 3.3 m)

Water flow, q_w = 0.05 l/s

Pressure drop water, Δp_w = 4.8 kPa

q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
	6	8	10	6	8	10	
15	444	544	644	300	400	500	<20
20	232	246	259	40	53,9	67	<20
25	717	876	1035	477	636	795	<20
30	821	998	1176	533	710	888	20
35	902	1091	1280	566	755	944	20
40	979	1177	1375	595	793	991	22
45	1042	1245	1448	610	813	1016	24
50	1100	1307	1514	620	827	1034	25

Conditions for cooling effect tables

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

The assumed pressure drop on the air side is 70 Pa.

The cooling effect of supply air is based on an undertemperature of 8 C for the supply air, when compared to the room temperature.

The effects for other water flows than 0.05 l/s can be found in the Fläkt Woods product selection program.

Note! The tables here are based on tests done according to the Nordtest method. The purpose of this method is to be able to compare different chilled beams on the same terms. The method requires a non-existing temperature difference between the air entering the beam coil and the air at 1,1 m above floor surface. To achieve this, the walls in the test room are cooled.

In actual conditions, the temperature difference is normally 1 - 2 C. This is why the temperature difference t should be increased by 1 - 2 C to avoid overdimensioning of the beam.

This means that the table value concerned can be increased by 10 - 20 %.

The chilled beam can be supplied with a special construction for higher air flows than listed in these tables.

Heating effect for two-way chilled beam IQID at static pressure drop 70 Pa on the air side

Heating effects can be found in separate catalogue section, Heating.

Definitions

q_l	Supply air flow, l/s
P_{tot}	Total cooling effect, W
P_{coil}	Cooling effect of the coil, W
P_{coil} heat	Heating effect of the coil, W
Δt	SDifference between room air temperature and average water temperature, °C
Δpw	Pressure drop water; kPa
Δtw	Temperature change in the coil, °C. Calculated with the formula: $\Delta tw = P_{coil} / 208$
L_{A10}	Sound pressure level in a room with 10 m2 room absorption, db(A)

Technical data for other flow patterns, sound data

Technical data for flow patterns other than two-way air distribution

Beams with two-way air distribution utilize the coil in full, which is not the case in one-way distribution or middle positions. This effect factor can be found in the table below

For a particular beam and supply air flow, the obtained effect factor is multiplied by the value given in the effect tables on the previous page.

Type of distribution	Beam length, m	Max. supply air flow, l/s	Effect factor
	1.2	5	0.8
	1.8	15	0.8
One-way	2.4	20	0.8
	3.0	30	0.8
	3.6	35	0.8
	1.2	10	0.9
	1.8	20	0.9
70% - 30%	2.4	30	0.9
	3.0	35	0.9
	3.6	45	0.9

One-way

Requirements:

Beam of length = 2,4 m with one-way air distribution, air flow = 20 l/s, pressure drop air = 70 Pa, difference between room air temperature and average water temperature = 8° C and water flow = 0,05 l/s.

Result:

The table on the previous page gives coil effect P_{coil} = 600 W. Effect factor = 0,8

Coil effect for one-way air distribution =

0,8 x 600 = 480 W

Sound power level

IQID	Correction K oct dB							
	Octave band, middle frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
-120	-4	0	3	3	-2	-4	-11	-18
-180	-4	0	3	3	-2	-4	-11	-18
-240	-4	0	3	3	-2	-4	-11	-18
-300	-4	0	3	3	-2	-4	-11	-18
-360	-4	0	3	3	-2	-4	-11	-18
Tolerance +/-	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:

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

The correction K_{oct} is the average in the area of application of the chilled beam IQID.

Sound attenuation

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

IQID	Sound attenuation in supply air duct of the beam ∆L, dB							
	Octave band, middle frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
-120	21	13	7	7	9	11	12	13
-180	21	13	7	7	9	11	12	13
-240	21	13	7	7	9	11	12	13
-300	21	13	7	7	9	11	12	13
-360	21	13	7	7	9	11	12	13
Tolerance +/-	6	3	2	2	2	2	2	3

Construction and function

The chilled beam IQID is designed for ceiling mounting, and it is suited for ceiling modules of size 600 mm both in length and width, which means that it is flush with the ceiling surface.

The IQID chilled beam is a very flexible chilled beam that is available as a basic model, but can also be equipped with a number of functions to provide a multifunctional chilled beam. The following functions are available for IQID: heating, comfort control, Flow Pattern Control (FPC air deflector), function for high air flow, control equipment, lighting and provision for a sprinkler system.

The air flow can be adjusted by means of the patented adjusting rails (Comfort control, optional function, read more in separate catalogue section) with which the length of the holes in the supply air duct is changed. This can easily be done with normal adjustments.

The adjustable hole lengths allow different air distribution (two-way, one-way and middle positions).

The simple adjustment of air distribution and capacity makes it possible to adapt to changing conditions in the future. Before delivery, the hole lengths of standard beams are preset at the longest possible position to provide a starting position for later adjustment (if the beam have comfort control).

The beam can be supplied with a coil for heating water, read more in separate catalogue section Heating.

The purging nipple is a choice in the product code.

Material and surface finish

The casing is mainly made of galvanized steel sheet. The frontplate is powder painted in white.The standard colour RAL 9010, which corresponds to NCS 0502-Y, gloss level 30. Coil made of copper pipe with connection, Øout = 15 mm, and aluminium fins. Maximum working pressure 1,6 MPa.

Instructions

Instructions for installation, balancing and care are described in detail in our technical instructions which are supplied with every product. The instructions are also available on the Internet at www.flaktwoods.com

Technical data and dimensioning

For complete dimensioning details, please see Fläkt Woods product selection program. Contact our nearest sales office for further information.

Dimensions and weights

Dimensions
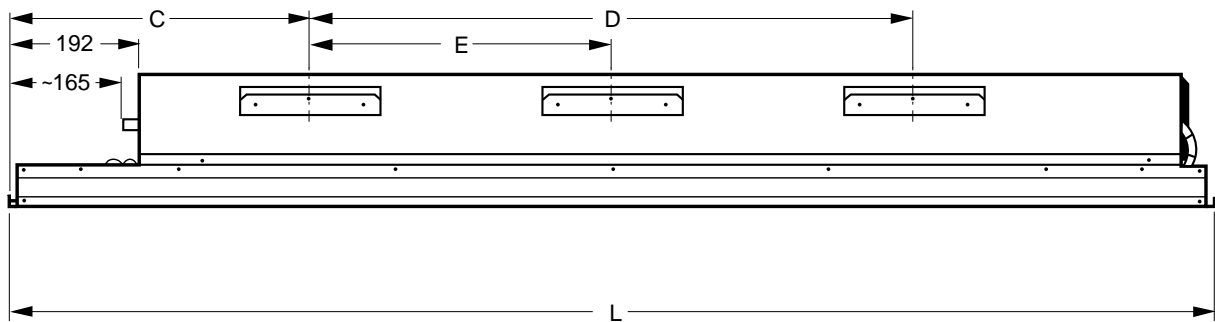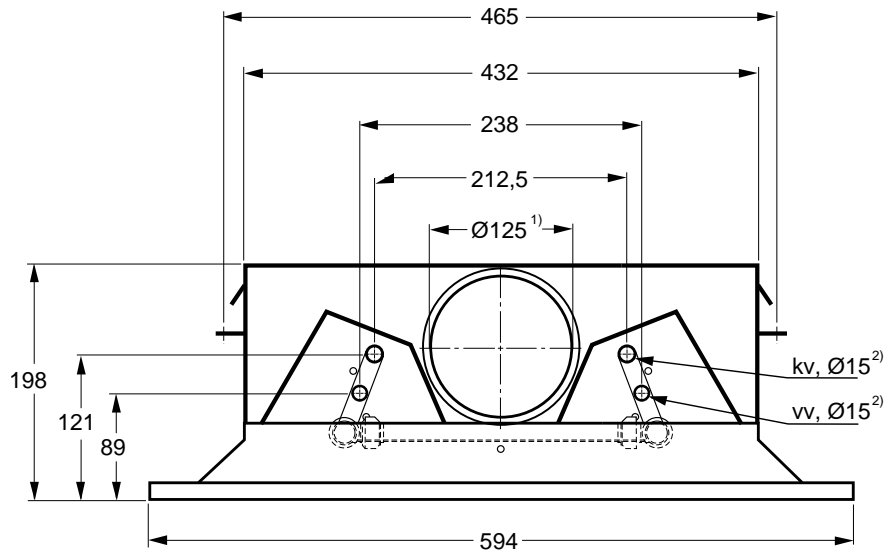
$^{1)}$ Female connection

$^{2)}$ Male connection

Size	L	C	D	E	Weight, [kg]
IQID-120-1-c-dd	1194	297	600		20
IQID-180-1-c-dd	1794	447	900		27
IQID-240-1-c-dd	2394	597	1200		36
IQID-300-1-c-dd	2994	747	1500		46
IQID-360-1-c-dd	3594$^{3)}$	797	2000	1000	55
IQID-180-2-c-dd	2394	1047	900		
IQID-240-2-c-dd	2994	1197	1200		
IQID-300-2-c-dd	3594	1347	1500		

$^{3)}$ Consists of 2 x 1797

Water volume cooling = 0.50 l/m coil

Water volume heating = 0.25 l/m coil

Description and product code

Product code

Main code

Covered supply air beam, standard   IQID-aaa-b-c-dd

Nominal length (aaa) cm
120, 180, 240, 300, 360

Connection alternative (b)
1 = Standard
2 = Extended casing, 600 mm, connection side (Not IQID-360)

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

Comfort control (dd) [1]
01 = With Comfort control, 1 hole row
02 = With Comfort control, 1 hole row and FPC
03 = With Comfort control, 2 hole rows [2]
04 = With Comfort control, 2 hole rows and FPC [2]
05 = Without Comfort control, 1 hole row
06 = Without Comfort control, 1 hole row, FPC
07 = Without Comfort control, 2 hole rows [2]
08 = Without Comfort control, 2 hole rows and FPC [2]

[1] 1 hole row = standard air flow
2 hole rows = high air flow

[2] Not a standard solution for IQID-360. Can be offered by request.

Product code for Function Lighting, Control equipment and Function Sprinkler can be found in separate section of this catalogue.

Fastening bracket, unpainted   QFAZ-18-3-1

Set with 2 pcs.
1 set QFAZ-18-3-1 per beam.

Delivery execution

Protective film over painted surfaces and plastic covers for duct and pipe openings are standard.

Order example:

Covered chilled beam IQID-aaa-1-1-01, standard.
Hole length = 18 + 18 mm.
Fastening bracket, unpainted QFAZ-18-3-1.

Special constructions

Describe the deviations from the standard model clearly and replace the product code letter standing for the construction part in question with an X.

Accessories

Suspension rods M8   QFAZ-12

Set with 2 pcs. Length 500 mm.
2 sets QFAZ-12 per beam

Corner unit   IQAZ-17-bb-cc-d

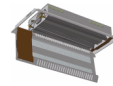Execution (bb)
01 = Standard
02 = Extended 600mm

Beam type (cc)
01 = IQID

Installation (d)
1 = Installed
2 = For post-installation

Heating, comfort control, Flow Pattern control (FPC), function for high air flow, control equipment, lighting and provision for a sprinkler system.

Descriptions included in a separate section of this catalogue.