Chilled beam iQ Star NOVA II

Key features

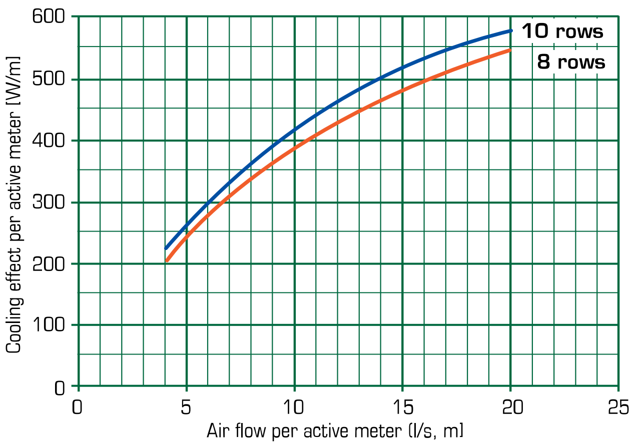
- Ventilation
- Water Heating and cooling
- Adjustable induction
- Flow Pattern Control
- In option: Demand Controlled Ventilation, Pressure independent, Lighting and Controls

The NOVA II chilled beam is an active chilled beam system for ventilation, cooling and heating. This diffusion system offers comfort and flexibility thanks to the Flow Pattern Control combined with adjustable induction.

The Pi advanced function gives even more flexibility adding a Demand Controlled Ventilation function to the system. The air diffusion follows building occupancy and makes the HVAC system highly efficient.

NOVA II with Pi function is pressure independent and makes the system suitable for many duct work system types.

Quick Selection



The diagram shows the total cooling effect per active metre at a total pressure of 70 Pa, water flow q_w=0.05 l/s , temperature difference between room air and supply air Δt=8 °C and temperature difference between mean water temperature and room temperature Δt=8 °C.

Specifications

- An active chilled beam for exposed installation
- Ensures comfort with low temperature gradient and no draught - FPC + EC
- Gives flexibility to the diffusion enabling lay out modification - FPC + EC
- Has in option a Demand Controlled Ventilation function, available as retrofit, independent from system pressure - Pi
- Available in two different executions: squared shape and rounded shape
- Includes fastening brackets for rapid and simple installation
- Openable front plate in one piece (Swing down)

Product code example

Exposed chilled beam
IQFI-180-01-01-1

Construction and functions

Construction

This chilled beam is available in 120 cm, 150 cm, 180 cm, 210 cm, 240 cm, 270 cm, 300 cm and 330 cm standard lengths, is designed for exposed installation.

NOVA II is available in two different design; round and sharp corners. The standard air connection on NOVA II is $Ø_{Air}$=125 mm.

Material and surface finish

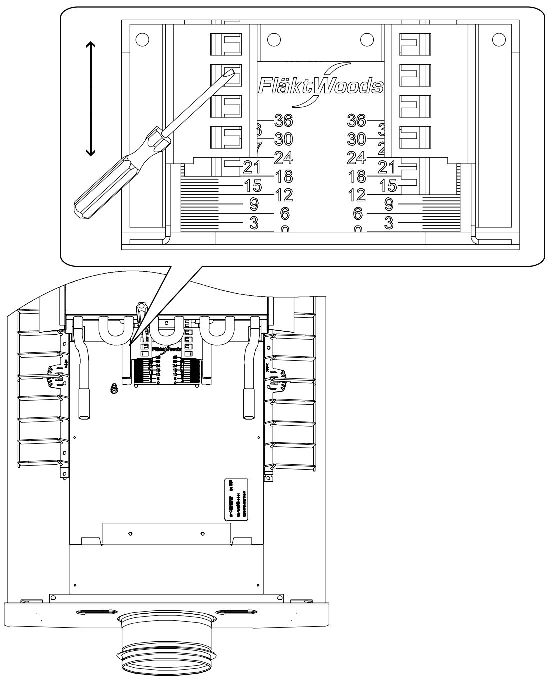
The chilled beam casing is mainly made of galvanized steel sheet. The front plate is powder coated standard RAL 9010 white, 30% gloss which corresponds to NCS 0502-Y. Heat exchanger coil made of aluminium fins mechanically bonded to copper pipes with $Ø_{out}$=15 mm end connections and 1.6 MPa maximum working pressure.

Functions

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

Energy Control (Standard)

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 or asymmetrical throw by adjustment of the nozzle in alignment with indicator on each side. 36 nozzle positions are available providing a wide choice of airflow settings for immediate and future requirements. Nozzle adjustment requires only a screwdriver to push the rails forward or backward to the desired position as shown below.



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.

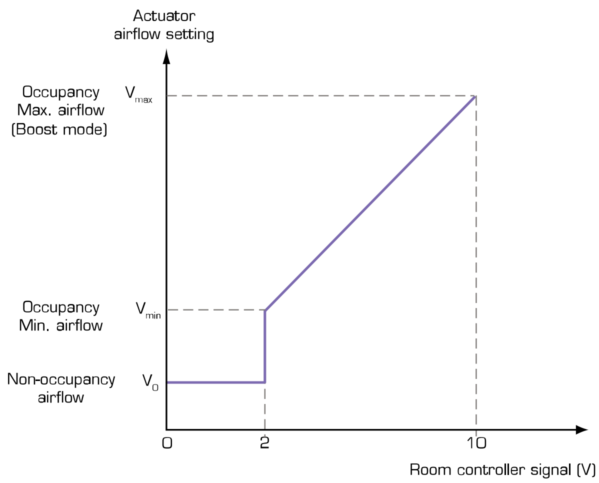
The chilled beam system will be able to follow different operation sequences depending on the controller chosen. It is possible to set different airflows according to occupancy level or to manage air quality thanks to a CO_2 sensor connected to the controller. Three parameters can be set in the actuator : V_0 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 CO_2.

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.

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.

Figure 1: Pi Function actuator



Heating function with Pi

Naturally, warm air rises and remains at ceiling level when the heating function of a chilled beam is used and can therefore result in an unbalanced temperature gradient within the room. However, 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. When there is an demand for more heating the airflow is increased causing it collide with walls or other airstreams in the room and is then directed downwards to the occupied zone. The level of increased airflow in heating mode is an adjustable parameter in STRA-24 (parameter 49).

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.

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.

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

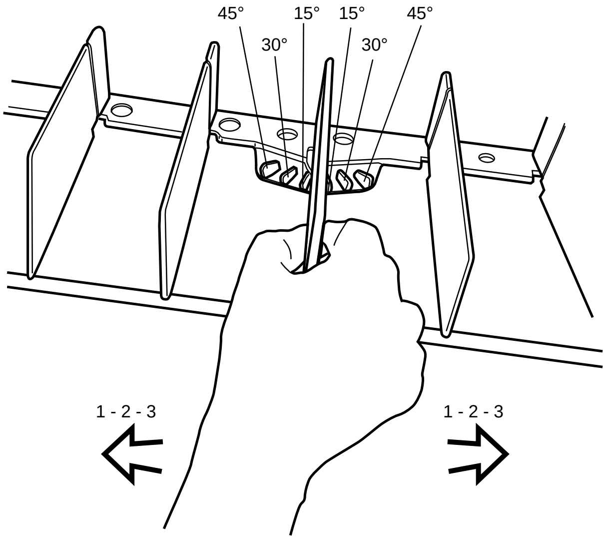
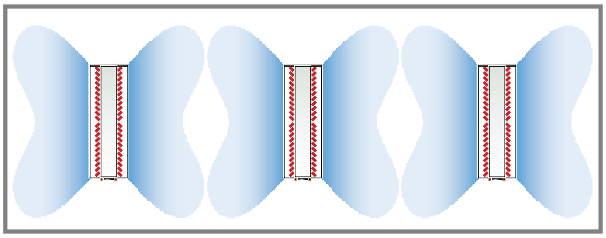
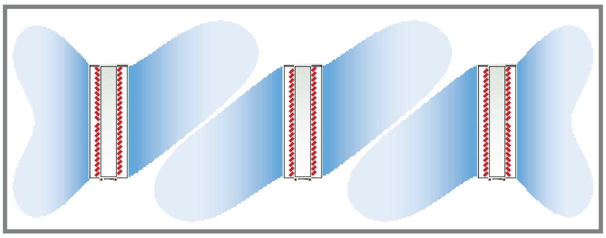


Illustration below shows FPC blades set at opposing 30° angle settings and with Energy Control in symmetrical setting.



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.



Instructions

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

Technical Data for cooling effect

Two-way chilled beam 10 rows (2-pipe system) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 1: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	4.0	173	217	262	134	179	224	< 20
12	7.4	274	341	409	203	270	338	< 20
18	10.6	348	430	512	246	328	410	< 20
24	13.7	402	493	583	271	361	451	< 20
30	16.9	444	538	632	282	376	470	20
36	20.0	480	576	672	288	384	480	23

Beam length=1.50 m (Coil length=1.04 m)

Table 2: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.7 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	5.6	247	311	375	193	257	321	< 20
12	10.1	382	477	572	285	380	475	< 20
18	14.7	485	600	715	344	459	574	< 20
24	19.3	563	689	815	378	504	630	< 20
30	23.7	624	756	888	396	528	660	< 20
36	28.1	673	808	942	404	538	673	22

Beam length=1.80 m (Coil length=1.34 m)

Table 3: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4.3 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	7.4	319	402	485	248	331	414	< 20
12	13.2	497	621	744	371	494	618	< 20
18	19.0	626	773	921	443	591	739	< 20
24	24.7	724	886	1048	487	649	811	20
30	30.5	796	964	1132	503	671	839	25
36	35.9	856	1027	1197	512	682	853	32

Beam length=2.10 m (Coil length=1.64 m)

Table 4: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4.9 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	8.7	388	490	591	305	406	508	< 20
12	15.7	598	748	897	448	597	746	< 20
18	22.5	754	933	1112	538	717	896	< 20
24	29.7	875	1072	1269	590	787	984	< 20
30	36.5	964	1168	1373	614	818	1023	28
36	43.2	1035	1242	1448	620	827	1034	30

Beam length=2.40 m (Coil length=1.94 m)

Table 5: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	10.5	451	568	685	350	467	584	< 20
12	18.9	713	890	1068	532	709	886	< 20
18	27.3	897	1108	1320	635	846	1058	< 20
24	35.8	1034	1265	1495	691	921	1151	22
30	43.9	1135	1373	1611	714	952	1190	27
36	51.4	1214	1454	1695	721	961	1201	32

Beam length=2.70 m (Coil length=2.24 m)

Table 6: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=6 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	11.6	525	662	800	413	551	689	< 20
12	21.4	820	1025	1230	615	820	1025	< 20
18	30.7	1021	1264	1506	727	969	1211	21
24	40.1	1181	1446	1711	796	1061	1326	22
30	49.2	1285	1555	1826	812	1083	1354	25
36	58.2	1372	1643	1914	813	1084	1355	28

Beam length=2.70 m (Coil length=2.24 m) (Parallel flow - 2 circuits)

Table 7: Water flow, q_w=0.1 l/s, Pressure drop, Δp_w=4.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	11.6	503	633	764	392	522	653	< 20
12	21.4	827	1034	1242	622	829	1036	< 20
18	30.7	1048	1299	1550	753	1004	1255	21
24	40.1	1206	1480	1754	821	1095	1369	22
30	49.2	1314	1594	1875	842	1122	1403	25
36	58.2	1402	1683	1964	843	1124	1405	28

Beam length=3 m (Coil length=2.54 m)

Table 8: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=6.7 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	12.6	588	744	900	467	623	779	< 20
12	23.1	912	1142	1372	690	920	1150	< 20
18	33.8	1146	1420	1694	822	1096	1370	21
24	44.5	1313	1608	1903	886	1181	1476	24
30	54.6	1431	1733	2035	907	1209	1511	29
36	64.0	1522	1824	2127	908	1210	1513	31

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Beam length=3 m (Coil length=2.54 m) (Parallel flow - 2 circuits)

Table 9: Water flow, q_w=0.1 l/s, Pressure drop, Δp_w=5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	12.6	574	725	876	453	604	755	< 20
12	23.1	925	1159	1393	703	937	1171	< 20
18	33.8	1184	1470	1757	860	1146	1433	21
24	44.5	1358	1668	1978	931	1241	1551	24
30	54.6	1471	1786	2102	947	1262	1578	29
36	64.0	1561	1876	2192	947	1262	1578	31

Beam length=3.30 m (Coil length=2.84 m)

Table 10: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=7.3 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	15.5	673	848	1023	524	699	874	< 20
12	26.7	1017	1270	1524	761	1014	1268	< 20
18	38.6	1284	1589	1893	914	1218	1523	22
24	50.0	1459	1785	2111	979	1305	1631	24
30	61.3	1572	1899	2227	983	1311	1639	28
36	71.2	1671	2001	2330	988	1317	1646	32

Beam length=3.30 m (Coil length=2.84 m) (Parallel flow - 2 circuits)

Table 11: Water flow, q_w=0.1 l/s, Pressure drop, Δp_w=5.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	15.5	657	826	995	508	677	846	< 20
12	26.7	1032	1290	1549	776	1034	1293	< 20
18	38.6	1319	1635	1951	948	1264	1580	22
24	50.0	1499	1839	2179	1019	1359	1699	24
30	61.3	1617	1960	2303	1029	1372	1715	28
36	71.2	1713	2056	2399	1029	1372	1715	32

Two-way chilled beam 8 rows (2-pipe system) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 12: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.8 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	4.0	163	204	246	125	166	208	< 20
12	7.4	260	323	386	189	252	315	< 20
18	10.6	328	403	478	226	301	376	< 20
24	13.7	379	462	544	248	330	413	< 20
30	16.9	419	505	591	257	343	429	20
36	20.0	455	543	631	263	351	439	23

Beam length=1.50 m (Coil length=1.04 m)

Table 13: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	5.6	233	293	353	179	239	299	< 20
12	10.1	364	453	542	267	356	445	< 20
18	14.7	459	565	671	318	424	530	< 20
24	19.3	532	647	763	347	462	578	< 20
30	23.7	590	711	831	362	483	604	< 20
36	28.1	640	764	887	371	494	618	22

Beam length=1.80 m (Coil length=1.34 m)

Table 14: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	7.4	299	375	451	228	304	380	< 20
12	13.2	470	585	699	344	458	573	< 20
18	19	592	728	865	410	546	683	< 20
24	24.7	681	829	977	444	592	740	20
30	30.5	756	910	1064	463	617	771	25
36	65.9	816	974	1131	472	629	786	32

Beam length=2.10 m (Coil length=1.64 m)

Table 15: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	8.7	364	458	551	281	374	468	< 20
12	15.7	567	706	844	416	555	694	< 20
18	22.5	715	881	1047	499	665	831	< 20
24	29.7	825	1005	1185	540	720	900	< 20
30	36.5	911	1097	1284	560	747	934	28
36	43.2	984	1174	1363	569	759	949	30

Beam length=2.40 m (Coil length=1.94 m)

Table 16: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	10.5	434	545	656	333	444	555	< 20
12	18.9	676	841	1006	495	660	825	< 20
18	27.3	852	1048	1245	590	786	983	< 20
24	35.8	977	1188	1399	633	844	1055	22
30	43.9	1075	1293	1511	654	872	1090	27
36	51.4	1156	1376	1597	662	883	1104	32

Beam length=2.70 m (Coil length=2.24 m)

Table 17: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	11.6	492	619	746	381	508	635	< 20
12	21.4	773	962	1152	568	757	946	< 20
18	30.7	971	1197	1422	677	902	1128	21
24	40.1	1109	1351	1592	725	966	1208	22
30	49.2	1219	1467	1716	746	995	1244	25
36	58.2	1310	1561	1811	752	1002	1253	28

Beam length=2.70 m (Coil length=2.24 m) (Parallel flow - 2 circuits)

Table 18: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.9 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	11.6	523	660	798	412	549	686	< 20
12	21.4	806	1006	1207	601	801	1001	< 20
18	30.7	998	1233	1467	704	938	1173	21
24	40.1	1145	1399	1652	761	1014	1268	22
30	49.2	1258	1520	1782	786	1048	1310	25
36	58.2	1345	1607	1869	786	1048	1310	28

Beam length=3 m (Coil length=2.54 m)

Table 19: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=6.1 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	12.6	553	697	841	432	576	720	< 20
12	23.1	860	1073	1286	638	851	1064	< 20
18	33.8	1085	1338	1592	761	1014	1268	21
24	44.5	1245	1517	1790	818	1090	1363	24
30	54.6	1362	1641	1920	838	1117	1396	29
36	64.0	1455	1735	2016	841	1121	1401	31

Beam length=3 m (Coil length=2.54 m) (Parallel flow - 2 circuits)

Table 20: Water flow, q_w=0.1 l/s, Pressure drop, Δp_w=4.1 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	12.6	573	724	875	452	603	754	< 20
12	23.1	893	1117	1341	671	895	1119	< 20
18	33.8	1124	1390	1657	800	1066	1333	21
24	44.5	1288	1575	1862	861	1148	1435	24
30	54.6	1399	1690	1982	875	1166	1458	29
36	64.0	1489	1780	2072	875	1166	1458	31

Beam length=3.30 m (Coil length=2.84 m)

Table 21: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=6.7 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	15.5	629	789	949	480	640	880	< 20
12	26.7	968	1205	1443	712	949	1186	< 20
18	38.6	1217	1500	1782	847	1129	1411	22
24	50.0	1386	1688	1990	906	1208	1510	24
30	61.3	1503	1807	2112	914	1219	1524	28
36	71.2	1599	1904	2209	915	1220	1525	32

Beam length=3.30 m (Coil length=2.54 m) (Parallel flow - 2 circuits)

Table 22: Water flow, q_w=0.1 l/s, Pressure drop, Δp_w=4.7 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	15.5	656	825	994	507	676	845	< 20
12	26.7	998	1245	1493	742	989	1236	< 20
18	38.6	1254	1549	1843	884	1178	1473	22
24	50.0	1425	1740	2055	945	1260	1575	24
30	61.3	1541	1858	2176	953	1270	1588	28
36	71.2	1636	1954	2271	953	1270	1588	32

Two-way chilled beam 6 rows (2-pipe system) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 23: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.2 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	4.0	151	188	226	113	150	188	< 20
12	7.4	236	291	346	165	220	275	< 20
18	10.6	297	362	427	195	260	325	< 20
24	13.7	344	415	485	212	283	354	< 20
30	19.9	383	456	530	221	294	368	20
36	20.0	420	496	572	228	304	380	23

Beam length=1.50 m (Coil length=1.04 m)

Table 24: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.6 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	5.6	214	268	321	161	214	268	< 20
12	10.1	328	405	482	231	308	385	< 20
18	14.7	416	508	600	275	367	459	< 20
24	19.3	480	578	677	295	393	491	< 20
30	23.7	537	640	743	309	412	515	< 20
36	28.1	589	695	801	319	425	531	22

Beam length=1.80 m (Coil length=1.34 m)

Table 25: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	7.4	278	347	416	207	276	345	< 20
12	13.2	424	524	623	298	397	496	< 20
18	19.0	535	652	770	353	470	588	< 20
24	24.7	617	743	870	380	506	633	20
30	30.5	684	815	945	392	522	653	25
36	35.9	751	887	1022	407	542	678	32

Beam length=2.10 m (Coil length=1.64 m)

Table 26: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	8.7	336	420	504	252	336	420	< 20
12	15.7	517	640	762	367	489	611	< 20
18	22.5	647	791	935	431	575	719	< 20
24	29.7	749	904	1059	464	619	774	< 20
30	36.5	827	986	1145	477	639	795	28
36	43.2	908	1073	1237	494	658	823	30

Beam length=2.40 m (Coil length=1.94 m)

Table 27: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.7 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	10.5	400	500	600	299	399	499	< 20
12	18.9	615	759	904	434	578	723	< 20
18	27.3	769	938	1107	507	676	845	< 20
24	35.8	885	1066	1246	542	722	903	22
30	43.9	981	1167	1354	560	746	933	27
36	51.4	1065	1255	1446	572	762	953	32

Beam length=2.70 m (Coil length=2.24 m)

Table 28: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	11.6	454	568	683	343	457	571	< 20
12	21.4	702	867	1033	497	662	828	< 20
18	30.7	872	1065	1257	578	770	963	21
24	40.1	1007	1215	1422	623	830	1038	22
30	49.2	1107	1318	1530	635	846	1058	25
36	58.2	1200	1414	1627	641	855	1069	28

Beam length=3 m (Coil length=2.54 m)

Table 29: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	12.6	506	635	763	386	514	643	< 20
12	23.1	784	971	1158	562	749	936	< 20
18	33.8	961	1173	1386	637	849	1061	21
24	44.5	1127	1360	1593	700	933	1166	24
30	54.6	1240	1479	1718	716	955	1194	29
36	64.0	1339	1580	1822	725	966	1208	31

Beam length=3.30 m (Coil length=2.84 m)

Table 30: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	15.5	583	728	873	434	579	724	< 20
12	26.7	878	1085	1293	622	829	1036	< 20
18	38.6	1100	1343	1586	729	972	1215	22
24	50.0	1257	1516	1775	777	1036	1295	24
30	61.3	1371	1632	1893	783	1044	1305	28
36	71.2	1472	1735	1997	788	1051	1314	32

Two-way chilled beam 8+2 rows (4-pipe system - Cooling/Heating) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 31: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.8 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	4.0	165	207	250	127	169	211	< 20
12	7.4	260	323	386	189	252	315	< 20
18	10.6	327	402	477	225	300	375	< 20
24	13.7	378	460	542	246	328	410	< 20
30	16.9	419	504	590	257	342	428	20
36	20.0	455	543	631	263	351	439	23

Beam length=1.50 m (Coil length=1.04 m)

Table 32: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C 6	8	10	P_{coil}, W Δt, °C 6	8	10	L_{A10} dB(A)
6	5.6	235	296	356	182	242	303	< 20
12	10.1	361	449	537	264	352	440	< 20
18	14.7	458	563	669	317	422	428	< 20
24	19.3	530	644	759	344	459	574	< 20
30	23.7	585	704	823	357	476	595	< 20
36	28.1	640	764	887	371	494	618	22

Beam length=1.80 m (Coil length=1.34 m)

Table 33: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	7.4	302	379	456	231	308	385	< 20
12	13.2	470	585	699	344	458	573	< 20
18	19.0	590	726	862	408	544	680	< 20
24	24.7	679	826	973	442	589	736	20
30	30.5	754	908	1062	461	615	769	25
36	35.9	816	974	1131	472	629	786	32

Beam length=2.10 m (Coil length=1.64 m)

Table 34: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4.5 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	8.7	368	463	557	284	379	474	< 20
12	15.7	567	706	844	416	555	694	< 20
18	22.5	713	879	1045	497	663	829	< 20
24	29.7	822	1001	1180	537	716	895	< 20
30	36.5	908	1094	1280	558	744	930	28
36	43.2	984	1174	1363	569	759	949	30

Beam length=2.40 m (Coil length=1.94 m)

Table 35: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	10.5	438	551	663	338	450	563	< 20
12	18.9	676	841	1006	495	660	825	< 20
18	27.3	849	1045	1241	587	783	979	< 20
24	35.8	974	1184	1394	630	840	1050	22
30	43.9	1073	1290	1508	652	869	1086	27
36	51.4	1156	1377	1598	663	884	1105	32

Beam length=2.70 m (Coil length=2.24 m)

Table 36: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5.5 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	11.6	505	636	768	394	525	656	< 20
12	21.4	775	964	1154	569	759	949	< 20
18	30.7	964	1187	1410	669	892	1115	21
24	40.1	1108	1349	1590	723	964	1205	22
30	49.2	1210	1456	1702	738	984	1230	25
36	58.2	1311	1562	1812	752	1003	1254	28

Beam length=3 m (Coil length=2.54 m)

Table 37: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=6.1 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	12.6	558	704	850	437	583	729	< 20
12	23.1	859	1072	1284	638	850	1063	< 20
18	33.8	1082	1334	1587	758	1010	1263	21
24	44.5	1241	1512	1783	814	1085	1356	24
30	54.6	1350	1625	1900	826	1101	1376	29
36	64.0	1455	1735	2016	841	1121	1401	31

Beam length=3.30 m (Coil length=2.84 m)

Table 38: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=6.7 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	15.5	640	804	968	491	655	819	< 20
12	26.7	961	1195	1430	704	939	1174	< 20
18	38.6	1214	1495	1776	843	1124	1405	22
24	50.0	1373	1670	1968	893	1190	1488	24
30	61.3	1497	1800	2103	909	1212	1515	28
36	71.2	1596	1901	2205	913	1217	1521	32

Two-way chilled beam 6+2 rows (4-pipe system - Cooling/Heating) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 39: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.2 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	4.0	151	188	226	113	150	188	< 20
12	7.4	236	291	346	165	220	275	< 20
18	10.6	297	362	427	195	260	325	< 20
24	13.7	344	415	485	212	283	354	< 20
30	19.9	383	456	530	221	294	368	20
36	20.0	420	496	572	228	304	380	23

Beam length=1.50 m (Coil length=1.04 m)

Table 40: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.6 kPa

Nozzle opening mm	q_{air} l/s	P tot, W Δt, °C			P coil, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	5.6	214	268	321	161	214	268	< 20
12	10.1	328	405	482	231	308	385	< 20
18	14.7	416	508	600	275	367	459	< 20
24	19.3	480	578	677	295	393	491	< 20
30	23.7	537	640	743	309	412	515	< 20
36	28.1	589	695	801	319	425	531	22

Beam length=1.80 m (Coil length=1.34 m)

Table 41: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	7.4	278	347	416	207	276	345	< 20
12	13.2	424	524	623	298	397	496	< 20
18	19.0	535	652	770	353	470	588	< 20
24	24.7	617	743	870	380	506	633	20
30	30.5	684	815	945	392	522	653	25
36	35.9	751	887	1022	407	542	678	32

Beam length=2.10 m (Coil length=1.64 m)

Table 42: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	8.7	336	420	504	252	336	420	< 20
12	15.7	517	640	762	367	489	611	< 20
18	22.5	647	791	935	431	575	719	< 20
24	29.7	749	904	1059	464	619	774	< 20
30	36.5	827	986	1145	477	639	795	28
36	43.2	908	1073	1237	494	658	823	30

Beam length = 2.40 m (Coil length=1.94 m)

Table 43: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.7 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	10.5	400	500	600	299	399	499	< 20
12	18.9	615	759	904	434	578	723	< 20
18	27.3	769	938	1107	507	676	845	< 20
24	35.8	885	1066	1246	542	722	903	22
30	43.9	981	1167	1354	560	746	933	27
36	51.4	1065	1255	1446	572	762	953	32

Beam length=2.70 m (Coil length=2.24 m)

Table 44: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	11.6	454	568	683	343	457	571	< 20
12	21.4	702	867	1033	497	662	828	< 20
18	30.7	872	1065	1257	578	770	963	21
24	40.1	1007	1215	1422	623	830	1038	22
30	49.2	1107	1318	1530	635	846	1058	25
36	58.2	1200	1414	1627	641	855	1069	28

Beam length=3 m (Coil length=2.54 m)

Table 45: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=4.5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	12.6	506	635	763	386	514	643	< 20
12	23.1	784	971	1158	562	749	936	< 20
18	33.8	961	1173	1386	637	849	1061	21
24	44.5	1127	1360	1593	700	933	1166	24
30	54.6	1240	1479	1718	716	955	1194	29
36	64.0	1339	1580	1822	725	966	1208	31

Beam length=3.30 m (Coil length=2.84 m)

Table 46: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=5 kPa

Nozzle opening mm	q_{air} l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10} dB(A)
		6	8	10	6	8	10	
6	15.5	583	728	873	434	579	724	< 20
12	26.7	878	1085	1293	622	829	1036	< 20
18	38.6	1100	1343	1586	729	972	1215	22
24	50.0	1257	1516	1775	777	1036	1295	24
30	61.3	1371	1632	1893	783	1044	1305	28
36	71.2	1472	1735	1997	788	1051	1314	32

FläktWoods

Technical data for heating

Two-way chilled beam 8+2 rows (4-pipe system - Cooling/Heating) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 47: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=1.8 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	4.0	109	163	217	< 20
12	7.4	136	204	272	< 20
18	10.6	152	228	304	< 20
24	13.7	161	242	323	< 20
30	16.9	165	248	331	20
36	20	235	352	469	23

Beam length=1.50 m (Coil length=1.04 m)

Table 48: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	5.6	155	232	309	< 20
12	10.1	191	287	383	< 20
18	14.7	215	322	429	< 20
24	19.3	227	340	453	< 20
30	23.7	231	346	461	< 20
36	28.1	231	347	463	22

Beam length=1.80 m (Coil length=1.34 m)

Table 49: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.2 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	7.4	198	297	396	< 20
12	13.2	247	370	493	< 20
18	19.0	276	414	552	< 20
24	24.7	290	435	580	20
30	30.5	297	445	593	25
36	35.9	297	445	593	32

Beam length=2.10 m (Coil length=1.64 m)

Table 50: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.5 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	8.7	243	364	485	< 20
12	15.7	302	453	604	< 20
18	22.5	337	505	673	< 20
24	29.7	335	533	711	< 20
30	36.5	360	540	720	28
36	43.2	361	541	721	30

Beam length=2.40 m (Coil length=1.94 m)

Table 51: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.6 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	10.5	287	430	573	< 20
12	18.9	357	536	715	< 20
18	27.3	396	594	792	< 20
24	35.8	415	623	831	22
30	43.9	419	628	837	27
36	51.4	419	629	839	32

Beam length=2.70 m (Coil length=2.24 m)

Table 52: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.8 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	11.6	332	498	664	< 20
12	21.4	412	618	824	< 20
18	30.7	455	683	911	21
24	40.1	477	716	955	22
30	49.2	479	719	959	25
36	58.2	481	722	963	28

Beam length=3 m (Coil length=2.54 m)

Table 53: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.1 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	12.6	373	560	747	< 20
12	23.1	465	697	929	< 20
18	33.8	514	711	1028	21
24	44.5	535	803	1071	24
30	54.6	537	806	1075	29
36	64.0	539	809	1079	31

Beam length = 3.30 m (Coil length = 2.84 m)

Table 54: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.5 kPa

Nozzle opening mm	q_{air} l/s	P_{coil}, W t, °C 10	15	20	L_{A10} dB(A)
6	15.5	419	629	839	< 20
12	26.7	514	771	1028	< 20
18	38.6	576	864	1152	22
24	50.0	595	893	1191	24
30	61.3	596	894	1192	28
36	71.2	596	894	1192	32

Two-way chilled beam 6+2 rows (4-pipe system - Cooling/Heating) at pressure drop 70 Pa on the air side Ø125 mm.

Beam length=1.20 m (Coil length=0.74 m)

Table 55: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=1.8 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	4.0	117	176	235	< 20
12	7.4	149	223	297	< 20
18	10.6	168	252	336	< 20
24	13.7	178	267	356	< 20
30	16.9	184	276	368	20
36	20.0	186	279	372	23

Beam length=1.50 m (Coil length=1.04 m)

Table 56: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	5.6	167	250	333	< 20
12	10.1	209	313	417	< 20
18	14.7	235	352	469	< 20
24	19.3	250	375	500	< 20
30	23.7	256	384	512	< 20
36	28.1	259	388	517	22

Beam length=1.80 m (Coil length=1.34 m)

Table 57: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.2 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	7.4	215	322	429	< 20
12	13.2	270	405	540	< 20
18	19.0	303	455	607	< 20
24	24.7	319	479	639	20
30	30.5	329	493	657	25
36	35.9	331	497	663	32

Beam length=2.10 m (Coil length=1.64 m)

Table 58: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.5 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	8.7	261	392	523	< 20
12	15.7	329	494	659	< 20
18	22.5	369	553	737	< 20
24	29.7	391	586	781	< 20
30	36.5	398	597	796	28
36	43.2	401	601	801	30

Beam length=2.40 m (Coil length=1.94 m)

Table 59: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.6 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	10.5	309	464	619	< 20
12	18.9	389	584	779	< 20
18	27.3	437	655	873	< 20
24	35.8	457	686	915	22
30	43.9	467	700	933	27
36	51.4	469	703	937	32

Beam length=2.70 m (Coil length=2.24 m)

Table 60: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=2.8 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	11.6	359	538	717	< 20
12	21.4	449	674	899	< 20
18	30.7	501	751	1001	21
24	40.1	527	790	1053	22
30	49.2	534	801	1068	25
36	58.2	535	802	1069	28

Beam length=3 m (Coil length=2.54 m)

Table 61: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.1 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	12.6	405	607	809	< 20
12	23.1	507	760	1013	< 20
18	33.8	566	849	1132	21
24	44.5	593	890	1187	24
30	54.6	599	898	1197	29
36	64.0	599	898	1197	31

Beam length=3.30 m (Coil length=2.84 m)

Table 62: Water flow, q_w=0.05 l/s, Pressure drop, Δp_w=3.5 kPa

Nozzle opening mm	q_{air} l/s	P coil, W t, °C 10	15	20	L_{A10} dB(A)
6	15.5	451	677	903	< 20
12	26.7	562	843	1124	< 20
18	38.6	632	948	1264	22
24	50.0	657	986	1315	24
30	61.3	659	989	1319	28
36	71.2	661	992	1323	32

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.
- Δt=8 °C between room temperature and mean water temperature.
- Δt=8 °C between room temperature and supply air temperature.

Performance for water flows other than 0.05 l/s can be found in the Fläkt Woods product selection tool, ExSelAir (exselair.flaktwoods.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 Δt 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 ExSelAir 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
$P_{coil\ heat}$	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	Δt_w (°C) = P_{coil} (W) / 208 (US imperial) - Δt_w(°F) = P_{coil} (BTU/h) / 81177
L_{A10}	Sound pressure level in a room with 10 m² room absorption, dB(A)

Sound power level

NOVA II	Correction K dB |Octave band, middle frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
120	4	3	4	3	0	-8	-17	-18
150	4	3	4	3	0	-8	-17	-18
180	4	3	4	3	0	-8	-17	-18
210	4	3	4	3	0	-8	-17	-18
240	4	3	4	3	0	-8	-17	-18
270	4	3	4	3	0	-8	-17	-18
300	4	3	4	3	0	-8	-17	-18
330	4	3	4	3	0	-8	-17	-18
Tol ±	4	2	2	1	1	2	3	8

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} is 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.

NOVA II	Sound attenuation in supply air duct of the beam ΔL, dB |Octave band, middle frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
IQFI	26	17	16	20	19	19	24	20

Technical data for unequal air diffusion

A chilled beam with two-way air distribution utilizes the coil in full capacity, which is not the case in one-way distribution or middle positions.

Table 63: Cooling capacity (W) for the coil with 10 rows at Δt = 8 °C, Total pressure 70 Pa and water flow 0.05 l/s

Beam length, cm	120		150		180		210		240		270		300		330	
Nozzle setting, mm	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)	q_{air} (l/s)	10 rows (W)
36 - 06	12.1	282	17.1	398	22.2	507	26.9	617	32.6	714	37.4	818	41.8	917	48.4	1008
36 - 12	13.8	409	19.4	574	25.1	735	30.4	890	36.9	1044	42.4	1190	47.1	1331	54.2	1457
30 - 06	10.5	278	14.8	393	19.3	501	23.2	612	28.2	710	31.8	817	35.6	916	41.4	1005
30 - 12	12.2	323	17.1	454	22.2	583	26.7	708	32.5	831	36.8	952	41.0	1065	47.2	1163
24 - 06	8.9	270	12.5	381	16.2	490	19.5	597	23.7	694	26.6	806	29.6	902	34.3	1002
24 - 12	10.6	394	14.8	553	19.1	714	23.0	865	27.9	1019	31.6	1176	35.0	1313	40.1	1449
18 - 06	7.3	254	10.2	358	13.3	461	15.7	562	19.1	657	21.5	760	23.7	860	27.7	959
18 - 12	9.0	299	12.4	420	16.2	543	19.3	657	23.4	778	26.5	895	29.0	1008	33.5	1116

Dimensions and weight

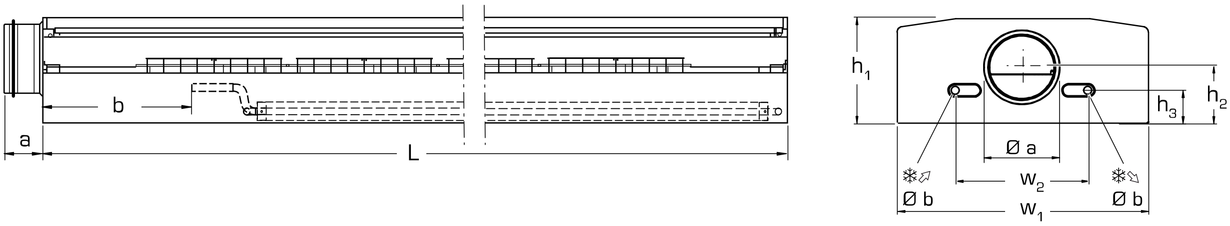


Table 64: IQFI-aaa-11-01/02/05/06-d

Øa mm	Øb mm	a mm	b mm	w_1 mm	w_2 mm	h_1 mm	h_2 mm	h_3 mm
125	15	69	273	450	228	192	118	65

Air connection is male.

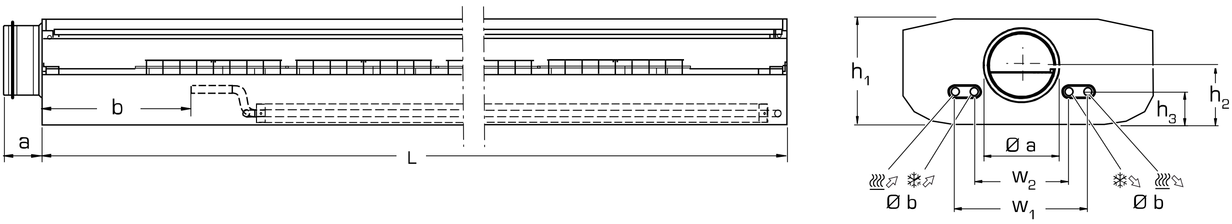


Table 65: IQFI-aaa-21-03/04/07/08-d

Øa mm	Øb mm	a mm	b mm	w_1 mm	w_2 mm	h_1 mm	h_2 mm	h_3 mm
125	15	69	273	228	158	192	118	65

Air connection is male.

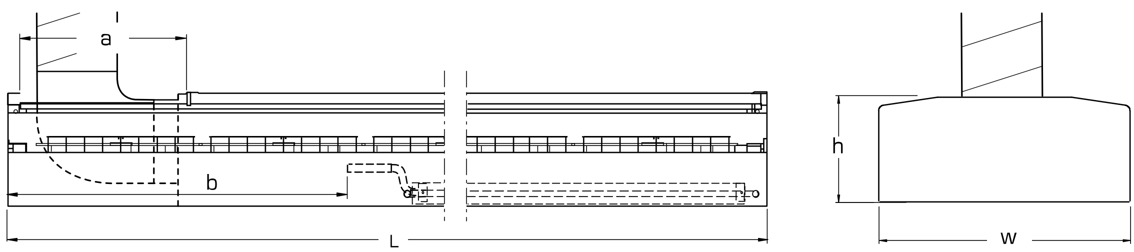


Table 66: IQFI-aaa-13-cc-d

Øa mm	Øb mm	a mm	b mm	w mm	h mm
125	15	280	573	450	192

Air connection is female.

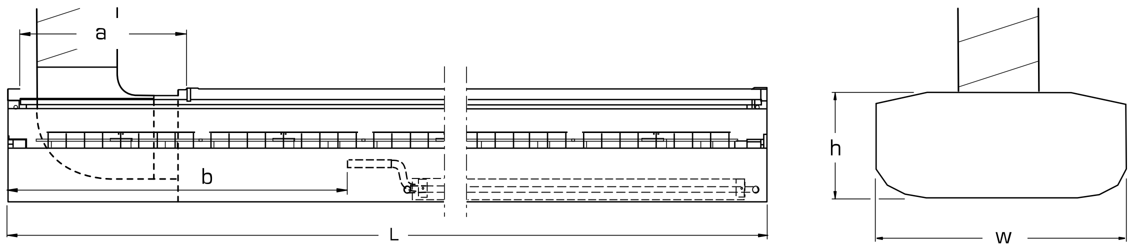


Table 67: IQFI-aaa-23-cc-d

Øa mm	Øb mm	a mm	b mm	w mm	h mm
125	15	280	573	450	192

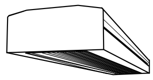
Air connection is female.

Chilled water in

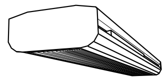
Chilled water out

Hot water in

Hot water out



bb=11, 13



bb=21, 23

Length and water content

Table 68: IQFI-aaa-11/21

Length, aaa	120	150	180	210	240	270	300	330
L, mm	1200	1500	1800	2100	2400	2700	3000	3300

Table 69: IQFI-aaa-13/23

Length, aaa	120	150	180	210	240	270	300
L, mm	1500	1800	2100	2400	2700	3000	3300

Water volume Cooling/Heating	Coil rows	Water content per length coil l/m
Cooling	10	0.63
Cooling	8	0.50
Cooling	6	0.38
Heating	2	0.13

All water connections are male.

Weight

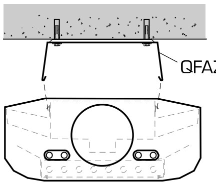
Length, aaa	120	150	180	210	240	270	300	330
Beam dry weight, kg	20	24	28	32	36	40	44	48
Beam water filled, kg	21	25	29	33	37	41	46	50

Accessories

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 2: 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.

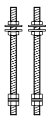
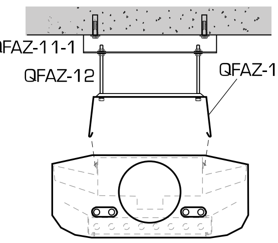


Figure 3: QFAZ-12



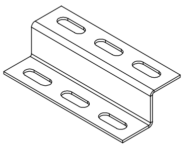
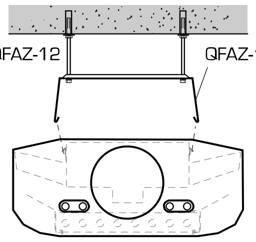
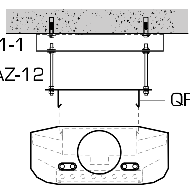


Figure 4: Suspension bracket QFAZ-11



Installation with fastening bracket QFAZ-19

Low-build fastening bracket (QFAZ-19) is available for installation where there is a limited height to install the chilled beam.



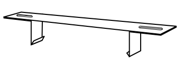
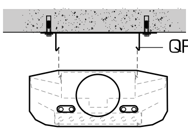


Figure 5: QFAZ-19-1-1



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

Duct enclosure

Duct enclosure (IQAZ-30) 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

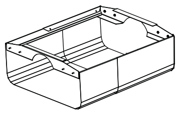
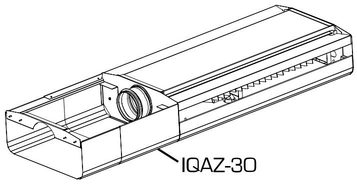


Figure 6: IQAZ-30

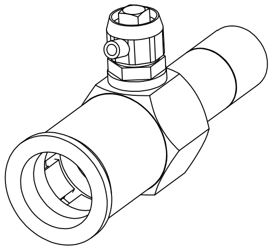


Purging nipple

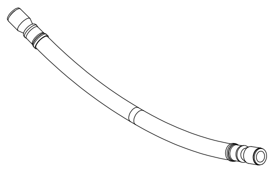
Purging nipple is available on demand and can be selected in product code.

Flexible hoses

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



Purging nipple

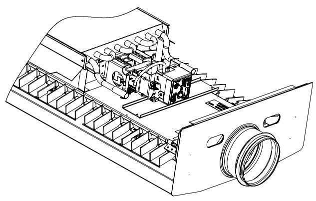


IQAZ-19 flexible hose with push-on connection.

Nozzle actuator for Pi Function

This chilled beam can be ordered with pressure independent airflow control function which requires installation of IQAZ-35 nozzle actuator. The actuator comes with Modbus communication and can be supplied loose for post installation.

Figure 7: IQAZ-35



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

Room Controller STRA-24

STRA-24 is a pre-programmed room controller intended to control the temperature and the CO_2 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, CO_2 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 CO_2.

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

Figure 8: STRA-24 Room Controller

Valves and actuators

To see full description and technical data for valve kit, please see the **STRA Accessories catalouge**.

Figure 9: STRZ-70

Integrated control

NOVA 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 (STRZ-70-31-01-0-2) are fixed on NOVA II in factory. It is delivered with push–on connections. A very simple operation allows the installer to connect it with no risk of leakage. The valves, optional condensate sensor and optional PIR (presence detector) are factory wired to a terminal block which is mounted behind the front plate of the unit. The PIR is mounted and integrated in the front plate. If the Pi-actuator (IQAZ-35) is chosen it will 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.

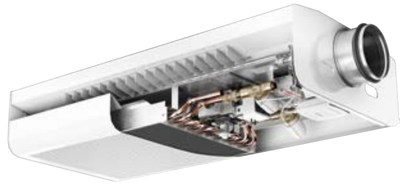
From the room controller, it is possible to make the commissioning, increase and decrease temperature and display main information. For more information regarding this product and related accessories, please see the **STRA-24 technical catalogue and STRA Accessories catalouge**.

Mounted behind front plate

The room controller is factory mounted and wired behind the front plate of NOVA II hidden from sight. This configuration uses an external temperature sensor installed below the coil. Temperature and condensation (in option) sensor are factory wired.

Integrated in front plate

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



Supplied loose

The room controller is supplied loose. On site the installer needs to connect the room controller to the terminal block placed behind the front plate of the NOVA II. This configuration uses the integrated temperature sensor in the room controller.

Condensation sensor (in option) is factory wired.

Accessories

Lighting

In certain cases, there is a requirement to provide the chilled beam with lighting function. Ceiling space is made available in this way, and a number of functions are combined in the same unit. The installation costs can be reduced in this way, because fewer products need to be installed.

Nova can be equipped with direct lighting. With direct lighting there is a requirement both for a given intensity of illumination, for example on a work surface, and for the air from the beam to ventilate the occupied zone effectively without creating draught problems. It is necessary in this case to find the right positioning of the beam to be able to guarantee the right intensity of illumination and good ventilation comfort.

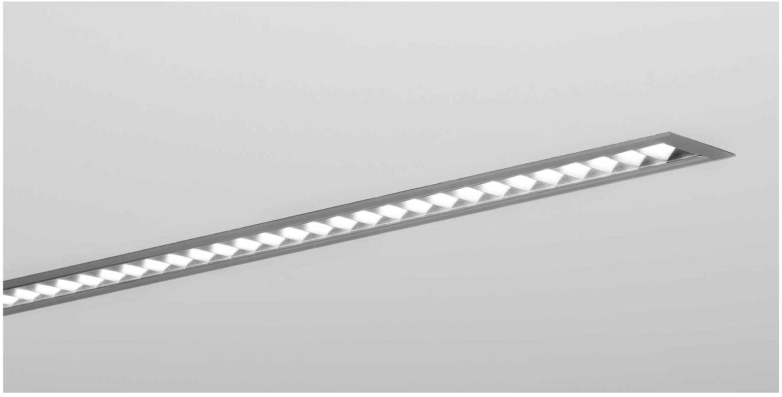
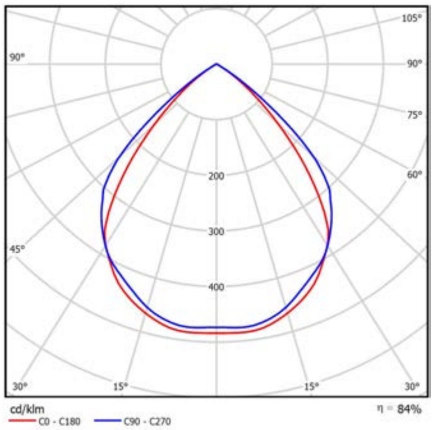
The lighting function is offered to the rectangular shaped version of NOVA(bb = 11 and 13)

Product facts

- The light source could both be fluorescent lamp or LED
- The connection cable can be supplied with a plug, loose ends, Wieland
- DALI ballast can be selected, then the connection cable with loose ends
- There are 4 different execution for fluorescent lamp:
  - Notor Integrated Beta
  - Notor Integrated Delta
  - Notor Integrated Lamell
  - Notor Integrated Opal
- There are 2 different executions for LED:
  - Notor Recessed LED Opal flush
  - Notor Recessed LED Opal dropped

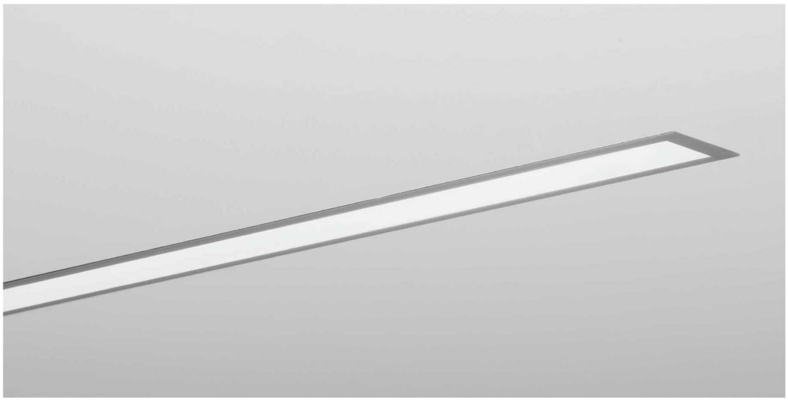
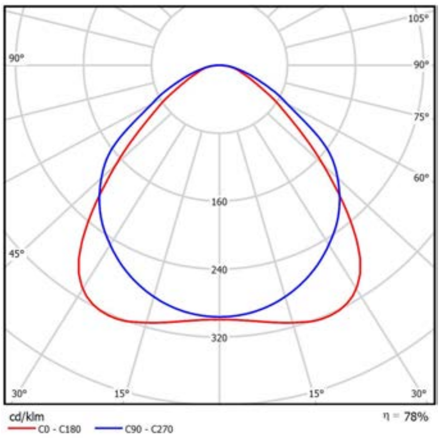
Notor Integrated Beta

With 1 x T16 28 W: Light output (Lamp) 2181 lm, Light output (Light source) 2600 lm

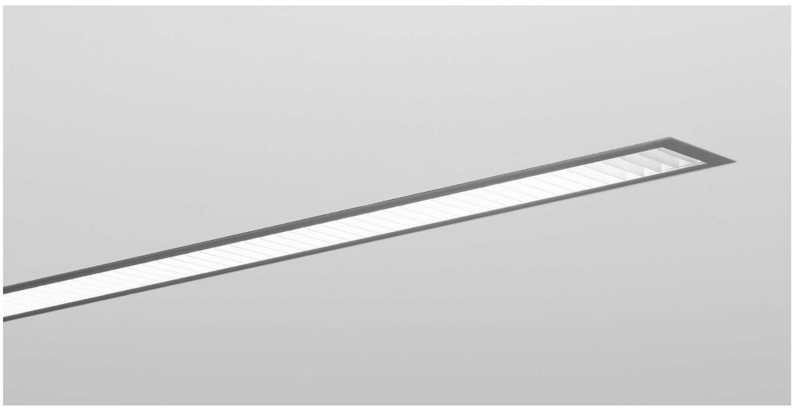
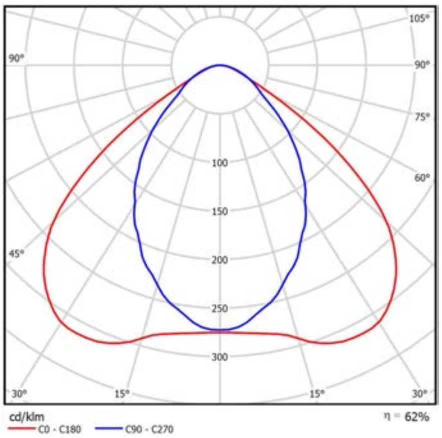
Notor Integrated Delta

With 1 x T16 28 W: Light output (Lamp) 2016 lm, Light output (Light source) 2600 lm

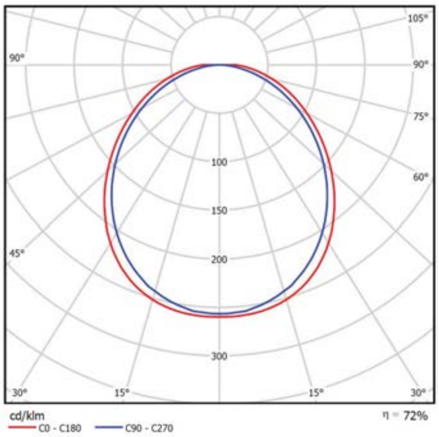
Notor Integrated Lamell

With 1 x T16 28 W: Light output (Lamp) 1599 lm, Light output (Light source) 2600 lm

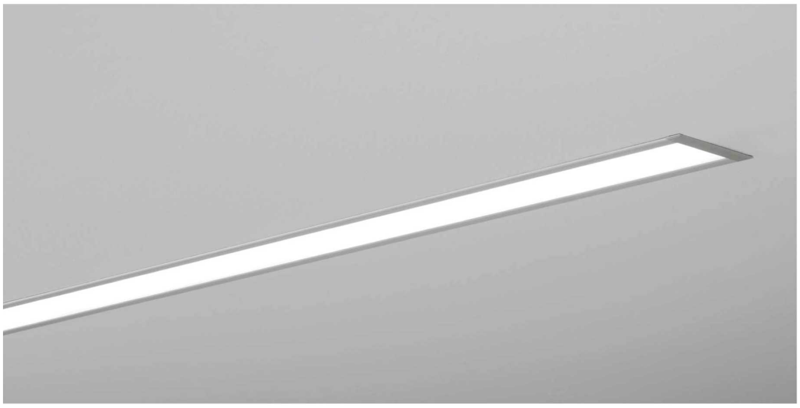
Notor Integrated Opal

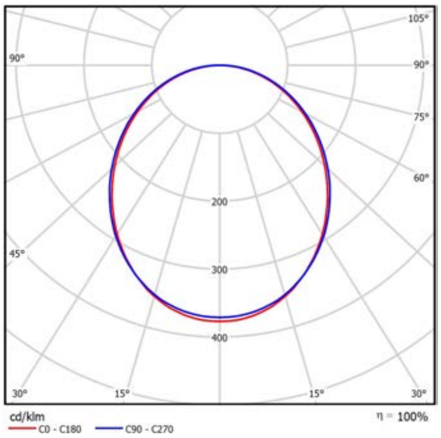
With 1 x T16 28 W: Light output (Lamp) 1868 lm, Light output (Light source) 2600 lm



Notor Recessed LED Opal Flush

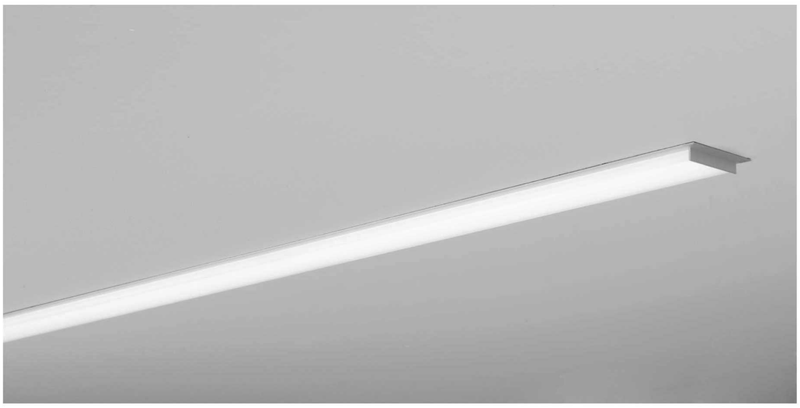
With length 1200: Light output (Lamp) 1798 lm, Light output (Light source) 1798 lm

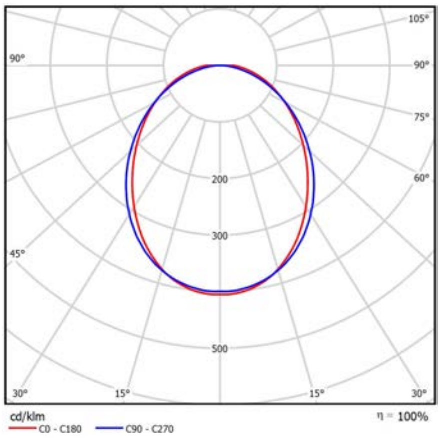




Notor Recessed LED Opal dropped

With length 1200: Light output (Lamp) 1855 lm, Light output (Light source) 1855 lm





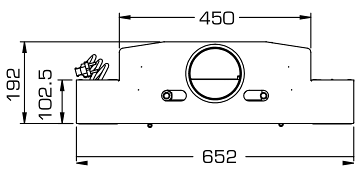
Dimensions lighting

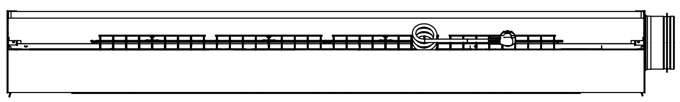
Table 70: Dimensions fluorescent lamp

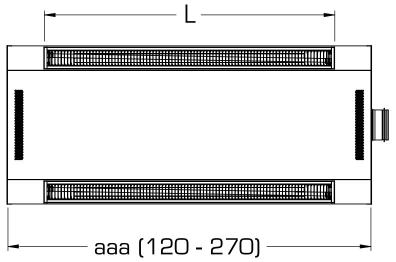
Beam lengths aaa (cm)	Fitting (mm)	Number of fittings	Output (W)
120	574	2	14 × 2
150	1174	2	28 × 2
180	1174	2	28 × 2
210	1174	2	28 × 2
240	1474	2	35 × 2
270	1474	2	35 × 2
300	1174	4	28 × 4
330	1174	4	28 × 4

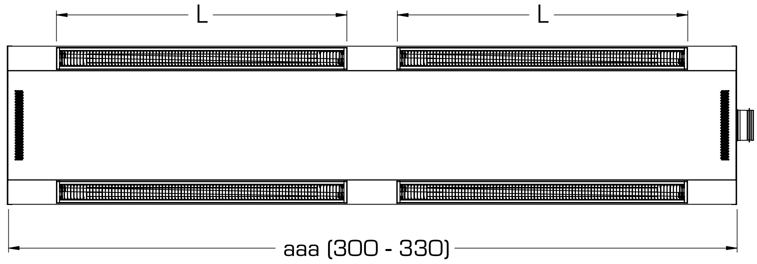
Table 71: Dimensions LED

Beam lengths aaa (cm)	Fitting (mm)	Number of fittings	Output (W)
120	589	2	12 × 2
150	1174	2	22 × 2
180	1174	2	22 × 2
210	1174	2	22 × 2
240	1174	2	22 × 2
270	1174	2	22 × 2
300	1174	4	22 × 4
330	1174	4	22 × 4









Beam lengths aaa (cm)	L = Length of fittings fluorescent lamp (mm)	L= Length of fittings LED (mm)	Number of fittings
120	574	5894	2
150	1174	1174	2
180	1174	1174	2
210	1174	1174	2
240	1474	1174	2
270	1474	1174	2
300	1174	1174	4
330	1174	1174	4

Product code and Accessories

Product code

NOVA II chilled beam **IQFI-aaa-bb-cc-d**

Length (aaa) (cm)
120, 150, 180, 210, 240, 270, 300, 330

Construction (bb)
11 = Rectangular shape, air, water horizontally through gable
13 = Rectangular shape, extended casing (300 mm), (only aaa = 120 - 300)
21 = Rounded shape, air, water horizontally through gable
23 = Rounded shape, extended casing (300 mm), (only aaa = 120 - 300)

Coil construction (cc)
01 = Cooling 6 tubes
02 = Cooling 6 tubes with purging nipple
03 = Cooling 8 tubes
04 = Cooling 8 tubes with purging nipple
05 = Cooling\Heating - 6\2 tubes
06 = Cooling\Heating - 6\2 tubes with purging nipple
07 = Cooling 10 tubes
08 = Cooling 10 tubes with purging nipple
09 = Cooling\Heating - 8\2 tubes
10 = Cooling\Heating - 8\2 tubes with purging nipple
11 = Parallel flow cooling 8 tubes (only aaa = 270, 300, and 330)
12 = Parallel flow cooling 8 tubes with purging nipple (only aaa = 270, 300, and 330)
13 = Parallel flow cooling 10 tubes (only aaa = 270, 300, and 330)
14 = Parallel flow cooling 10 tubes with purging nipple (only aaa = 270, 300, and 330)

Comfort Control (d)
1 = Without FPC
2 = With FPC

Accessory code

Pi Function actuator **IQAZ-35-02-c-1-e**

Cable execution (c)
1 = Cabel 1m without contact
2 = Cabel 80mm with RJ45-contact (female) for use with IPSUM Connection unit and is not compatible in combination with STRZ-76[a)]

a) 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)
247 = IQFI-120
355 = IQFI-150
455 = IQFI-180
550 = IQFI-210
670 = IQFI-240
765 = IQFI-270
850 = IQFI-300
955 = IQFI-330

Airflow V_0, V_{min}, V_{max}in l/s (cccccc) [a)]
cc---- = V_0
--cc-- = V_{min}
----cc = V_{max}

a) Ordering example below

Eg: IQAZ-36-355-020420
- k100% = 3.54
- V_0 = 2l/s
- V_{min} = 4l/s
- V_{max} = 20l/s

Integrated controls **STRZ-76-bb-cc-1-06**
Only for IQFI
bb = 11,21, not cc= 11,12

Placement of controller (bb)
00 = Without room controller (slave)
01 = Supplied loose
02 = Mounted behind front plate
03 = Integrated in front plate

Sensors and valve kit (valve and actuator) (cc)
01 = Cooling valvekit
02 = Cooling valvekit, condensate sensor
03 = Cooling valvekit, PIR
04 = Cooling valvekit, condensate sensor, PIR
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

Fastening brackets **QFAZ-18-1-1**
Set with 2 pieces, unpainted
1 set per beam

Fastening brackets (low-build) **QFAZ-19-1-1**
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

Suspension bracket **QFAZ-11-1**
Set with 2 pieces, unpainted
1 set per beam

Flexible hose **IQAZ-19-550-010010**

Length = 550 mm
Push-on 15 mm connection
Supplied loose

Bend 90° **BDEB-90-012**

Supplied loose

Duct enclosure **IQAZ-30-bbb-c**

Length (bbb)

050 = 30 - 50 cm
090 = 50 - 90 cm
170 = 90 - 170 cm

Design (cc)

1 = Rectangular shape
2 = Rounded shape

Lighting **IQAZ-31-bbb-cc-d-1**

Length (bbb) (cm)

aaa when bb = 11 in chilled beam code[a)]
aaa + 30 cm when bb = 13 in chilled beam code

a) aaa and bb refer to beam length and construction, respectively. Please see Product code section.

Execution (cc)

01 = Downlight Delta
02 = Downlight Lamell
03 = Downlight Opal
04 = Downlight Beta
05 = Downlight Opal flush, LED
06 = Downlight Opal dropped, LED

Connection cable (d)

0 = without
1 = Length 2 m loose wire connection
2 = Length 2 m plug connection
3 = Length 2 m male Wieland
4 = Length 2 m male 5-pin connector for DALI

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 **Fläkt Woods sales office.**

An order example for a room with 5 chilled beams. The beams are calculated as 270 cm length for required airflow and cooling capacity in product selection tool ExSelAir (http://exselair.flaktwoods.com).

Table 72: **Chilled beams**

Product codes	Description	Quantity
IQFI-270-11-14-2	NOVA II chilled beam, water cooling and heating with purging nipple, with FPC, for exposed installation	5
QFAZ-18-1-1	Fastning bracket, set of 2 for installation	5

Table 73: **Option for Demand Controlled Ventilation**

Product codes	Description	Quantity
IQAZ-35-02-1-1-1	Pi Function, Nozzle actuator 1 piece per chilled beam	5

Table 74: **Controls**

Product codes [a)]	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

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

Table 75: **Controls options for Demand Controlled Ventilation**

Product codes [a)]	Description	Quantity
STRZ-09-2	Occupancy detector (for single office application)	1
STRZ-18-1-2	CO_2 sensor (for meeting room)	1

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

Table 76: **Valves, actuators and flexible hoses**

Product codes	Description	Quantity
STRZ-70-31-01-0-2 [a)]	Valve + valve actuator	10
IQAZ-19-550-010010	Flexible hose push-on	10

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

Table 77: **Duct enclosure and integrated lighting**

Product codes	Description	Quantity
IQAZ-30-170-1	Rectangular duct enclosure, length 90 - 170 cm	5
IQAZ-31-270-06-1	Integrated lighting (LED), 2 fittings per beam, Length 1174 mm, with 2 m loose wire	5