Chilled beam iQ Star NOVA

Functions

- Energy Control
- Motorized Energy Control
- FPC
- Control and regulation equipment
- Heating function
- Lighting

The chilled beam iQ Star® NOVA is an integrated system for ventilation, cooling and heating, fulfilling most needs for indoor climate. It has been designed for free hanging installation and is available in two different design: a rounded and a squared shape. The blow through the supply air slot is directed diagonally upwards, which increases the probability of adhesion to the ceiling and thereby draught-free room ventilation. The air flow can easily be set using "Energy Control", a patent-pending function that provides a comfortable indoor climate. In order to further increase flexibility, EC can be fitted with a motor, MEC (Motorized Energy Control), i.e. the beam is equipped with a VAV function. EC consists of a nozzle rail on each side of the chilled beam (left and right). The Flow Pattern Control system (FPC) will enhance the flexibility of the NOVA chilled beam. The beam is also available with fittings for direct illumination.

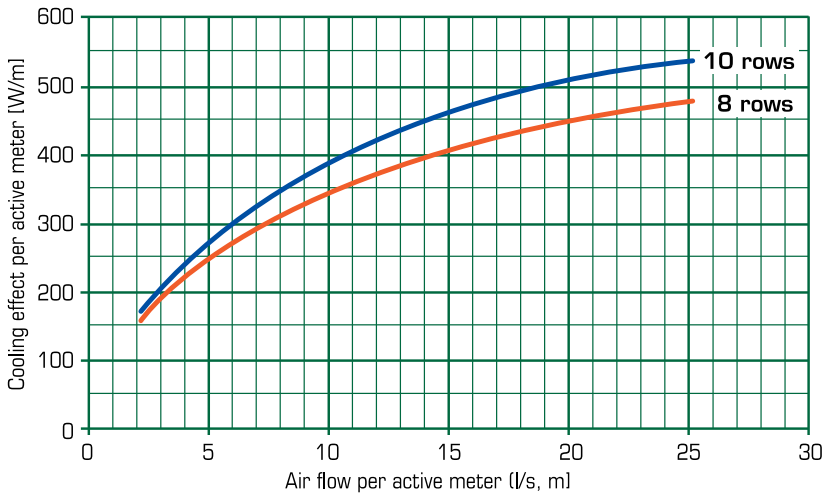
Product Facts

- NOVA chilled beam for exposed mounting
- Available in two different executions: NOVA squared shape NOVA rounded shape
- Fastening brackets for rapid and simple installation - lift up - snap in place
- Available with the following functions: heating coil, Energy Control, Flow Pattern Control (FPC air deflector) and control and regulation equipment
- Openable front plate in one piece. (Swing down)

Product code example

Exposed chilled beam
IQFH-180-01-01-1

Quick Selection



The diagram shows the total cooling effect per active metre at a total pressure of 70 Pa, water flow qw = 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 .

Technical data for cooling effect

Cooling effects for two-way chilled beam 10 rows at pressure drop 70 Pa on the air side, induction rail number 1.

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	0.9	106	139	171	98	130	163	<20
2	3.5	191	244	296	158	210	263	<20
3	6.3	264	331	399	203	271	339	<20
4	9.4	335	417	499	245	327	409	<20
5	11.7	376	464	552	264	352	440	<20
6	17.1	468	569	670	304	405	506	21

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	2.8	158	202	246	131	175	219	<20
2	6.1	281	356	430	223	297	371	<20
3	9.3	376	471	567	287	382	478	<20
4	13.8	477	592	707	345	460	575	<20
5	17	535	659	783	372	496	620	<20
6	24.7	658	798	938	421	561	701	25

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	3	193	248	303	164	219	274	<20
2	7.8	363	459	555	288	384	480	<20
3	12.3	491	615	739	373	497	621	<20
4	18	616	764	912	443	591	739	<20
5	22.2	690	849	1008	477	636	795	<20
6	32.4	851	1031	1211	540	720	900	26

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	4.5	253	323	393	210	280	350	<20
2	9.8	444	561	678	350	467	584	<20
3	15.5	604	756	908	455	607	759	<20
4	22.1	751	931	1111	539	719	899	<20
5	27.2	839	1032	1225	578	771	964	<20
6	39.5	1036	1255	1474	657	876	1095	27

Cooling effects for two-way chilled beam 8 rows at pressure drop 70 Pa on the air side, induction rail number 1.

Data for rail 2 and other operating conditions, see ExSelAir.

Beam length = 1.20 m (Coil length = 0,74 m)

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	0.9	101	132	162	92	123	154	<20
2	3.5	178	227	275	145	193	241	<20
3	6.3	244	305	367	184	245	306	<20
4	9.4	306	378	450	216	288	360	<20
5	11.7	343	420	497	231	308	385	<20
6	17.1	427	515	603	263	351	439	21

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	2.8	152	194	236	125	167	209	
2	6.1	264	333	401	206	274	343	
3	9.3	346	431	517	257	342	428	
4	13.8	438	539	641	305	407	509	
5	17	486	594	702	323	431	539	
6	24.7	608	731	855	371	494	618	

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	3	186	239	291	158	210	263	<20
2	7.8	338	426	514	263	351	439	<20
3	12.3	453	565	677	335	447	559	<20
4	18	567	698	829	394	525	656	<20
5	22.2	631	770	909	418	557	696	<20
6	32.4	785	943	1101	474	632	790	26

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	5.1	286	365	444	237	316	395	<20
2	11.2	488	615	741	380	507	634	<20
3	17.5	649	809	969	481	641	801	<20
4	25.7	810	998	1185	563	751	939	<20
5	31.7	902	1101	1301	598	797	996	22
6	46.3	1114	1337	1561	670	893	1116	30

Technical data for cooling effect

Cooling effects for two-way chilled beam 10 rows at pressure drop 70 Pa on the air side, induction rail number 1.

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	5.1	297	380	463	248	331	414	<20
2	11.2	523	662	800	416	554	693	<20
3	17.5	706	885	1064	538	717	896	<20
4	25.7	883	1095	1307	636	848	1060	<20
5	31.7	989	1217	1446	685	913	1141	22
6	46.3	1209	1463	1718	764	1019	1274	30

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

Water flow, q_w = 0.05 l/s, Pressure drop, Δp_w = 6.0 kPa

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	6.2	347	443	538	287	383	479	<20
2	13.2	606	766	925	479	639	799	<20
3	20.4	817	1024	1231	621	828	1035	<20
4	29.9	1019	1263	1507	732	976	1220	<20
5	36	1126	1387	1647	781	1041	1301	24
6	52.4	1378	1670	1962	875	1167	1459	31

Beam length = 3.00 m (Coil length = 2.54 m)

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	7	390	498	606	323	431	539	<20
2	14.9	685	865	1046	542	722	903	<20
3	23.1	920	1153	1386	698	931	1164	<20
4	33.6	1145	1419	1693	822	1096	1370	<20
5	41.4	1274	1566	1859	877	1169	1461	24
6	59.1	1539	1863	2187	972	1296	1620	32

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	7.6	433	553	673	360	480	600	<20
2	16.3	756	956	1156	600	800	1000	<20
3	25.3	1021	1280	1539	778	1037	1296	<20
4	37	1265	1568	1871	910	1213	1516	20
5	45.7	1405	1728	2050	967	1289	1611	25
6	64.4	1682	2036	2391	1064	1418	1773	33

Cooling effects for two-way chilled beam 8 rows at pressure drop 70 Pa on the air side, induction rail number 1.

Data for rail 2 and other operating conditions, see ExSelAir.

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

Water flow, q_w = 0.05 l/s, Pressure drop, Δp_w = 5.0 kPa

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	5.1	286	365	444	237	316	395	<20
2	11.2	488	615	741	380	507	634	<20
3	17.5	649	809	969	481	641	801	<20
4	25.7	810	998	1185	563	751	939	<20
5	31.7	902	1101	1301	598	797	996	22
6	46.3	1114	1337	1561	670	893	1116	30

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	6.2	330	420	510	270	360	450	<20
2	13.2	563	709	854	437	582	728	<20
3	20.4	752	937	1122	556	741	926	<20
4	29.9	938	155	1372	651	868	1085	<20
5	36	1030	1259	1487	685	913	1141	24
6	52.4	1265	1519	1773	762	1016	1270	31

Beam length = 3.00 m (Coil length = 2.54 m)

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	7	377	480	583	310	413	516	<20
2	14.9	640	806	972	497	663	829	<20
3	23.1	850	1060	1269	629	838	1048	<20
4	33.6	1049	1292	1534	727	969	1211	<20
5	41.4	1162	1417	1672	765	1020	1275	24
6	59.1	1421	1705	1990	854	1138	1423	32

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

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

Nozzle	q_l, l/s	P_{tot}, W Δt, °C			P_{coil}, W Δt, °C			L_{A10}, dB(A)
		6	8	10	6	8	10	
1	7.6	418	533	648	345	460	575	<20
2	16.3	704	886	1069	548	730	913	<20
3	25.3	938	1170	1402	695	927	1159	<20
4	37	1155	1422	1689	800	1067	1334	20
5	45.4	1286	1569	1851	848	1130	1413	25
6	64.4	1556	1869	2182	938	1251	1564	33

Technical data for heating effect

NOVA, two-way chilled beam heating effect at pressure drop 70 Pa on the air side.

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	0.9	91	136	181	<20
2	3.5	111	167	223	<20
3	6.3	130	195	260	<20
4	9.4	146	219	292	<20
5	11.7	155	233	311	<20
6	17.1	166	249	332	21

Data for rail 2 and other operating conditions, see ExSelAir.

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	2.8	125	188	251	<20
2	6.1	159	238	317	<20
3	9.3	183	275	367	<20
4	13.8	205	308	411	<20
5	17	218	327	436	<20
6	24.7	233	349	465	25

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	3	161	241	321	<20
2	7.8	203	305	407	<20
3	12.3	235	352	469	<20
4	18	265	398	531	<20
5	22.2	279	419	559	<20
6	32.4	299	448	597	26

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	4.5	199	298	397	<20
2	9.8	249	373	497	<20
3	15.5	288	432	576	<20
4	22.1	323	485	647	<20
5	27.2	340	510	680	<20
6	39.5	363	544	725	27

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	5.1	234	351	468	<20
2	11.2	295	443	591	<20
3	17.5	340	510	680	<20
4	25.7	381	572	763	<20
5	31.7	399	598	797	22
6	46.3	423	634	845	30

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	6.2	272	408	544	<20
2	13.2	339	509	679	<20
3	20.4	392	588	784	<20
4	29.9	440	660	880	<20
5	36	457	686	915	24
6	52.4	485	727	969	31

Beam length = 3.00 m (Coil length = 2.54 m)

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	7	308	462	616	<20
2	14.9	386	579	772	<20
3	23.1	444	666	888	<20
4	33.6	495	743	991	<20
5	41.4	519	778	1037	24
6	59.1	541	812	1083	32

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

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

Nozzle	ql (l/s)	P coil, W t°C 10	15	20	dB(A)
1	7.6	344	516	688	<20
2	16.3	429	643	857	<20
3	25.3	496	744	992	<20
4	37	551	827	1103	20
5	45.7	576	864	1152	25
6	64.4	604	906	1208	33

Technical data, sound data

Conditions for cooling power tables

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

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

The cooling effect of supply air is based on an under temperature of 8 °C , 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 tool, ExSelAir.

Note! 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 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 °C. This is why the temperature Δt should be increased by 1 °C to avoid overdimensioning of the beam.

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

Electric heating effect

The chilled beams can be equipped with electric heating of 300 W/600W, see the separate catalogue section Electric 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	Difference between room air temperature and average water temperature, °C
Δp_w	Pressure drop water, kPa
Δt_w	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)

Sound power level

NOVA		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_{ok}

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

Sound attenuation

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

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

Technical data, flow patterns

Technical data for un-equal air diffusion

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

NOVA

The tables below shows the cooling capacity for the induction rail number 1, the coil with 8 or 10 rows at Δt 8°C. Total pressure 70 Pa and water flow 0.05 l/s.

Beam length	120		150		180		210		240		270		300		330	
Nozzle	q (l/s)	8 row (W)	q (l/s)	8 row (W)	q (l/s)	8 row (W)	q (l/s)	8 row (W)	q (l/s)	8 row (W)	q (l/s)	8 row (W)	q (l/s)	8 row (W)	q (l/s)	8 row (W)
6-1	9,2	286	13,9	408	18,0	526	22,6	639	26,7	759	30,9	875	35,3	992	39,1	1093
6-2	10,6	299	15,5	422	20,4	544	25,2	665	29,6	786	34,1	895	38,9	1011	42,9	1122
6-3	11,9	310	17,1	432	22,5	559	27,9	681	32,5	801	37,4	921	42,5	1036	46,8	1137
6-4	13,5	326	19,3	451	25,3	581	31,1	705	36,4	827	41,7	940	47,2	1053	51,8	1163
6-5	14,7	334	20,9	460	27,4	592	33,5	718	39,2	840	44,6	961	50,7	1077	55,7	1177
5-1	6,4	247	9,9	356	12,7	454	16,0	555	18,7	664	21,5	757	24,9	870	27,6	966
5-2	7,7	266	11,6	379	15,1	490	18,7	594	21,7	707	24,9	806	28,6	920	31,7	1017
5-3	9,1	284	13,1	401	17,3	513	21,4	628	24,7	744	28,3	846	32,5	962	35,9	1061
5-4	10,7	300	15,3	420	20,1	542	24,7	661	28,7	780	33,0	888	37,6	1002	41,5	1102
4-1	5,2	229	8,3	325	10,6	415	13,4	509	15,5	610	18,3	701	20,6	793	22,7	881
4-2	6,6	250	9,9	352	12,9	457	16,1	556	18,6	663	21,7	760	24,4	856	26,9	957
4-3	7,9	268	11,5	378	15,1	491	18,9	596	21,7	707	25,2	809	28,4	917	31,3	1013
3-1	3,6	194	6,0	273	7,6	347	10,0	432	11,4	510	13,3	584	15,1	667	16,6	744
3-2	4,9	221	7,7	309	10,0	405	12,7	496	14,4	584	16,8	668	19,0	758	20,8	842
2-1	2,2	161	4,4	223	5,4	288	7,2	357	8,2	420	9,7	477	11,0	548	12,0	605

Beam length	120		150		180		210		240		270		300		330	
Nozzle	q (l/s)	10 row (W)	q (l/s)	10 row (W)	q (l/s)	10 row (W)	q (l/s)	10 row (W)	q (l/s)	10 row (W)	q (l/s)	10 row (W)	q (l/s)	10 row (W)	q (l/s)	10 row (W)
6-1	9,2	324	13,9	462	18,0	591	22,6	724	26,7	858	30,9	995	35,3	1123	39,1	1232
6-2	10,6	340	15,5	483	20,4	621	25,2	755	29,6	890	34,1	1020	38,9	1147	42,9	1267
6-3	11,9	354	17,1	497	22,5	639	27,9	784	32,5	919	37,4	1051	42,5	1177	46,8	1297
6-4	13,5	373	19,3	514	25,3	666	31,1	805	36,4	940	41,7	1084	47,2	1209	51,8	1316
6-5	14,7	382	20,9	531	27,4	679	33,5	828	39,2	964	44,6	1098	50,7	1224	55,7	1343
5-1	6,4	277	9,9	398	12,7	505	16,0	623	18,7	744	21,5	847	24,9	968	27,6	1081
5-2	7,7	299	11,6	426	15,1	548	18,7	670	21,7	795	24,9	913	28,6	1037	31,7	1142
5-3	9,1	322	13,1	452	17,3	582	21,4	711	24,7	838	28,3	961	32,5	1086	35,9	1205
5-4	10,7	342	15,3	476	20,1	619	24,7	751	28,7	883	33,0	1011	37,6	1136	41,5	1255
4-1	5,2	251	8,3	361	10,6	459	13,4	568	15,5	673	18,3	782	20,6	879	22,7	974
4-2	6,6	280	9,9	394	12,9	509	16,1	624	18,6	742	21,7	850	24,4	961	26,9	1061
4-3	7,9	302	11,5	425	15,1	549	18,9	672	21,7	795	25,2	916	28,4	1023	31,3	1137
3-1	3,6	211	6,0	296	7,6	380	10,0	472	11,4	558	13,3	641	15,1	734	16,6	808
3-2	4,9	245	7,7	343	10,0	447	12,7	546	14,4	643	16,8	744	19,0	839	20,8	929
2-1	2,2	173	4,4	242	5,4	308	7,2	381	8,2	455	9,7	520	11,0	590	12,0	658

Airflow, quick selection

Beam	Induction setting		Air pressure drop (Pa)			
Length	rail	nozzle	60	80	100	120
120	1	1	-	1	1.3	1.6
120	1	2	3.2	4	4.7	5.4
120	1	3	5.8	6.9	7.8	8.7
120	1	4	8.8	10.3	11.5	12.7
120	1	5	11	12.7	14.2	15.6
120	1	6	16.1	18.6	20.8	22.8
120	2	1	2.1	2.5	2.9	3.2
120	2	2	2.5	3	3.5	3.9
120	2	3	4	4.9	5.7	6.5
120	2	4	4.5	5.5	6.4	7.2
120	2	5	7.8	9.1	10.3	11.3
120	2	6	13	15.1	16.9	18.5
150	1	1	2.6	3	3.4	3.8
150	1	2	5.6	6.5	7.4	8.1
150	1	3	8.5	10	11.3	12.4
150	1	4	12.7	14.7	16.5	18.2
150	1	5	15.7	18.1	20.3	22.3
150	1	6	22.9	26.4	29.5	32.4
150	2	1	3.7	4.3	4.8	5.3
150	2	2	4.2	4.9	5.6	6.2
150	2	3	6.2	7.3	8.4	9.3
150	2	4	6.9	8.1	9.2	10.2
150	2	5	11.2	13	14.6	16
150	2	6	18.2	21	23.5	25.8
180	1	1	2.6	3.4	4.2	4.9
180	1	2	7.2	8.4	9.4	10.4
180	1	3	11.3	13.1	14.7	16.1
180	1	4	16.7	19.2	21.5	23.5
180	1	5	20.6	23.7	26.5	29
180	1	6	30	34.6	38.7	42.3
180	2	1	4.3	5.2	6.1	6.8
180	2	2	5.3	6.3	7.2	8
180	2	3	8.3	9.7	10.9	12
180	2	4	9.2	10.6	11.9	13.1
180	2	5	14.6	16.9	18.9	20.7
180	2	6	23.8	27.5	30.7	33.6
210	1	1	4	4.9	5.8	6.5
210	1	2	9.1	10.5	11.9	13
210	1	3	14.3	16.6	18.5	20.3
210	1	4	20.5	23.7	26.5	29
210	1	5	25.2	29.1	32.6	35.6
210	1	6	36.6	42.3	47.2	51.7
210	2	1	5.9	6.8	7.6	8.3
210	2	2	6.9	7.9	8.9	9.7
210	2	3	10.3	11.8	13.2	14.5
210	2	4	11.4	13.2	14.7	16.1
210	2	5	17.9	20.6	23	25.2
210	2	6	29.2	33.7	37.7	41.3

Beam	Induction setting		Air pressure drop (Pa)			
Length	rail	nozzle	60	80	100	120
240	1	1	4.6	5.5	6.3	7
240	1	2	10.4	12	13.4	14.7
240	1	3	16.2	18.7	20.8	22.8
240	1	4	23.8	27.4	30.6	33.5
240	1	5	29.4	33.9	37.8	41.4
240	1	6	42.9	49.4	55.2	60.4
240	2	1	6.7	7.8	8.8	9.8
240	2	2	7.9	9.1	10.3	11.3
240	2	3	12.1	13.9	15.6	17
240	2	4	13.3	15.3	17.1	18.7
240	2	5	20.9	24.1	26.9	29.4
240	2	6	34.3	39.5	44.1	48.3
270	1	1	5.6	6.7	7.7	8.6
270	1	2	12.2	14.2	15.9	17.4
270	1	3	18.9	21.8	24.4	26.7
270	1	4	27.7	32	35.8	39.2
270	1	5	33.3	38.5	43	47.1
270	1	6	48.6	56	62.6	68.6
270	2	1	8.4	9.8	11.1	12.3
270	2	2	9.7	11.4	12.9	14.3
270	2	3	14.7	17.1	19.2	21.2
270	2	4	16	18.5	20.8	22.9
270	2	5	24.7	28.6	32.1	35.2
270	2	6	39.9	46.2	51.7	56.6
300	1	1	6.4	7.6	8.6	9.5
300	1	2	13.8	15.9	17.8	19.5
300	1	3	21.4	24.7	27.6	30.2
300	1	4	31.1	35.9	40.1	43.9
300	1	5	38.3	44.2	49.5	54.2
300	1	6	54.7	63.2	70.6	77.3
300	2	1	9.3	10.9	12.2	13.5
300	2	2	10.8	12.5	14.1	15.4
300	2	3	16.3	18.8	21	23
300	2	4	17.6	20.3	22.7	24.8
300	2	5	27.7	32	35.8	39.2
300	2	6	44.8	51.7	57.7	63.2
330	1	1	7	8.2	9.2	10.1
330	1	2	15.1	17.4	19.4	21.3
330	1	3	23.5	27	30.2	33
330	1	4	34.2	39.5	44.2	48.4
330	1	5	42.4	48.8	54.5	59.5
330	1	6	59.6	68.8	76.9	84.2
330	2	1	10.1	11.7	13.2	14.6
330	2	2	11.7	13.5	15.2	16.7
330	2	3	17.6	20.3	22.8	24.9
330	2	4	19.1	22	24.5	26.8
330	2	5	30.2	34.9	39	42.7
330	2	6	48.6	55.9	62.4	68.3

Construction and function

Construction and function

The beam is intended for free hanging installation and is available in two different design. The squared shape or the rounded shape will enable to fit the chilled beam to its architectural environment. It's available from the length 90 cm to the length 300 cm by step of 30 cm . There are several air and water connections configurations to fit with all duct work and piping layout: through end the gable, upwards or each at opposite side. The front plate is fully openable thanks to hinges to make easy the maintenance and the cleaning of the beam.

The squared shape offers also the opportunity to mount direct lightings on the side to enhance the integration of the beam within the room. The NOVA 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 NOVA: Energy Control, Motorized Energy Control (MEC), Flow Pattern Control (FPC air deflector) and control and regulation equipment.

In order to handle variations in airflow, a ventilation system with NOVA and MEC should be controlled with a constant pressure, i.e. the static pressure before the chilled beam should remain constant regardless of airflow which requires the duct work to be properly designed. For help with sizing and designing the duct work, see the section Project Design EMPA / EMPD in documentation Optivent project design.

Energy Control

The air flow is easily adjusted using the patented Energy Control function, which also allows different forms of air distribution (two-way, one-way and midway position). For even greater flexibility there is also a Motorized Energy Control (MEC) option for pressure dependent ventilation.

The Energy control is delivered with 6 different sizes of nozzles. When the beam is installed, the air flow can be adjusted to 6 different levels without any tools needed. In addition, these 6 levels can be individually set on each side of the beam, resulting in an asymmetric air flow distribution.

There are two induction rails available with each different sizes of nozzles. The rail number 1 is the standard rail with the widest airflow range whereas the rail number 2 enables to achieve airflows not available with the rail number 1. Thus there are 6 x 2 = 12 different settings for designing.

Motorized Energy Control (MEC)

NOVA can be equipped with MEC which enables a pressure dependent air flow. In order to achieve this, NOVA must be equipped with a motor (IQAZ-23) and control with the aid of a thermostat (STRA-14). For more in-depth information about IQAZ-23 and STRA-14, see their documentation.

In normal operation the beam is set to the chosen air flow setting. At times of heavy demand (increased supply air demand) the chilled beam is switched to boost mode by means of a pushbutton or CO_2 sensor. If a presence detector or pushbutton is installed in the room the beam can also be programmed to switch to Energy Saving Mode.

The room controller (STRA-14) has 5 operating modes. For each operating mode, one specific nozzle size is used. Depending on operating mode, the nozzle size used is changed on the beam.

STRA-14 uses 3 different airflow levels:

1. Energy Saving mode - Used when the room controller is operating in Unoccupied mode and OFF

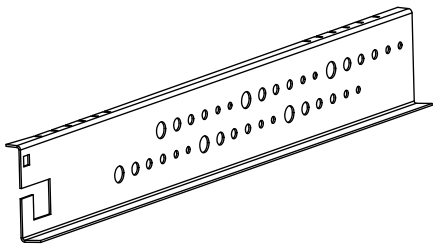
2. Normal airflow – Used when the room controller is operating in Occupied mode.

3. Boost airflow – Used when the room controller is operating in Boost mode.

Which nozzle to be used for each airflow level (Energy Saving mode, Normal airflow and Boost airflow), is set in the room controller STRA-14. For NOVA, the airflow levels can be set to following nozzles:

Operating mode	Nozzle NOVA
Energy Saving mode	1-4
Normal flow	2-5
Boost mode	3-6

Nozzle rail NOVA



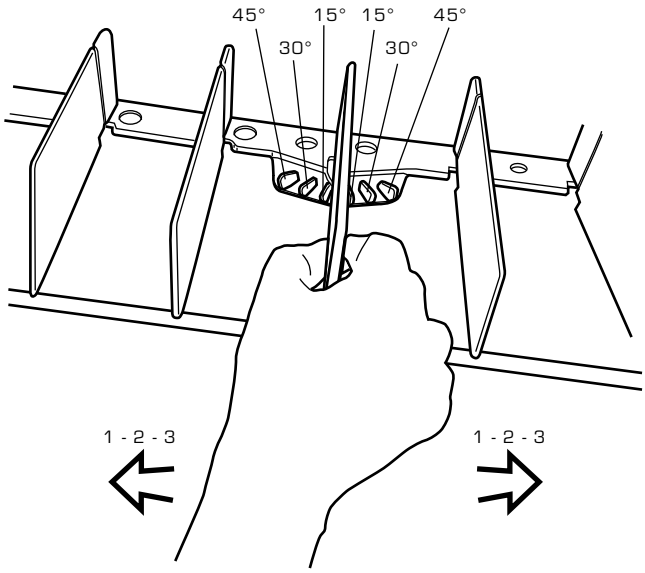
Construction and function

Flow Pattern Control (FPC)

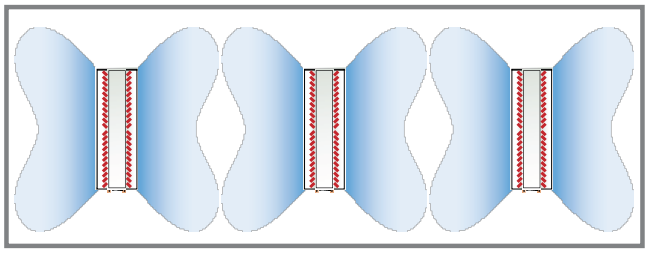
The FPC (Flow Pattern Control) function for NOVA provides high flexibility. The combination of flow pattern control (FPC) and the patented comfort control gives NOVA unique characteristics.

Fläkt Woods FPC air deflector provides the facility to adjust the air direction to different angles. The FPC is adjusted and changed easily by a simple operation.

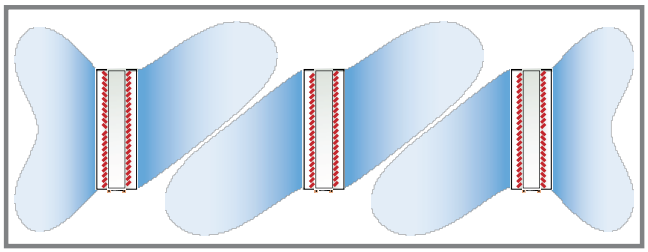
Installation example with FPC air deflector and comfort setting



The figure below shows an installation in which the air direction is set at 30° in two directions and the air flow is set with the comfort control setting at 50% - 50%. This installation alternative provides an effective and comfortable air distribution in the room.



The figure below shows an installation in which a high air flow is required. The comfort control setting is still set at 50% - 50%, but the air deflectors are set respectively at 30° in two directions and at 30° in one direction.



Material and surface finish

The casing is mainly made of galvanized steel sheet. The front plate 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, maintenance and commissioning 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.

Lighting

In certain cases, there is a requirement to provide the chilled beam with a 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 square shaped version of NOVA(bb = 11 and 13)

Product facts

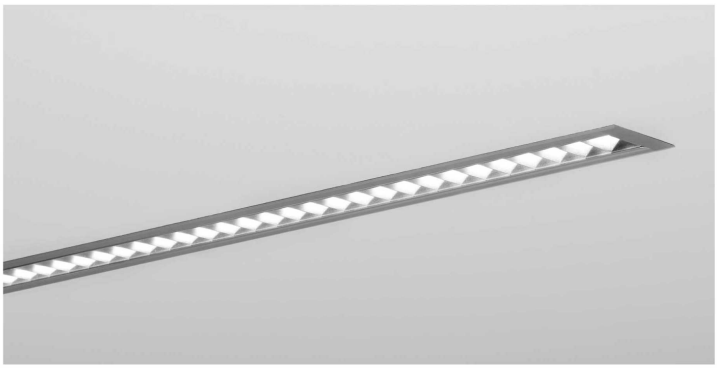
- The light source could both be fluorescent lamp or LED
- The connection cable can be supplied with a plug, loose ends, Wieland
- DALI ballast can be selected, then the connection cable with loose ends
- There are 4 different execution for fluorescent lamp:
  - Notor Integrated Beta
  - Notor Integrated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

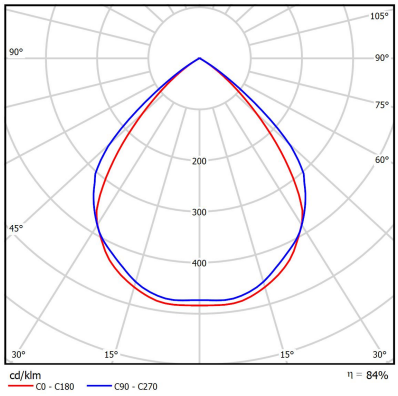
Lighting

- Notor Recessed LED Opal dropped

Notor Integrated Beta

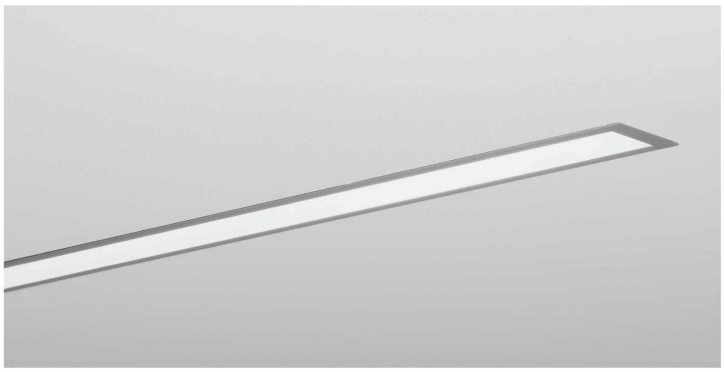
With 1 x T16 28 W: Light output (Lamp) 2181 lm, Light output (Light source) 2600 lm

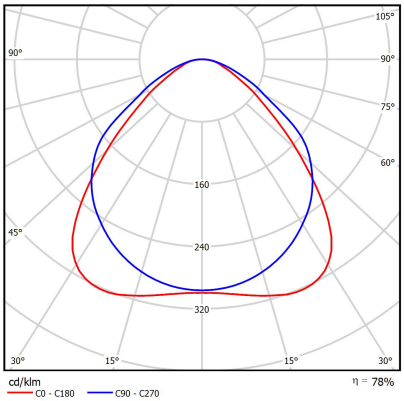




Notor Integrated Delta

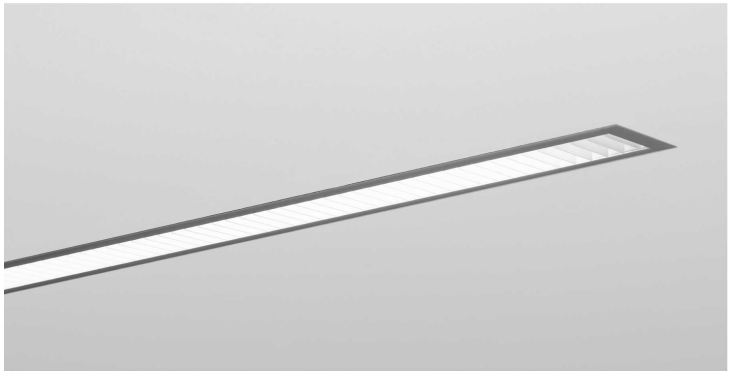
With 1 x T16 28 W: Light output (Lamp) 2016 lm, Light output (Light source) 2600 lm

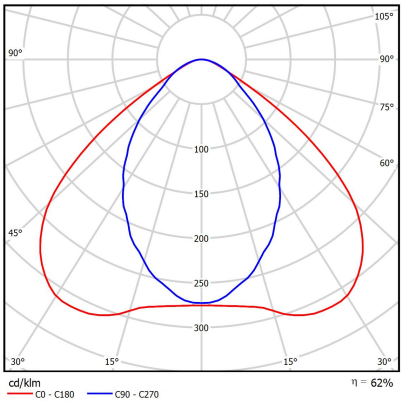




Notor Integrated Lamell

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

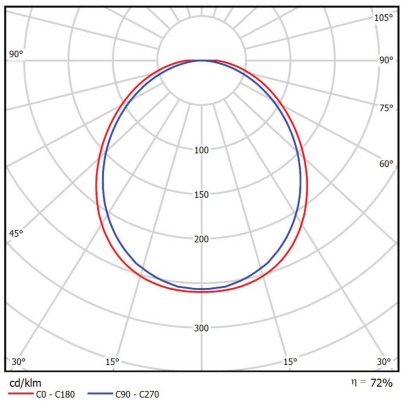




Lighting

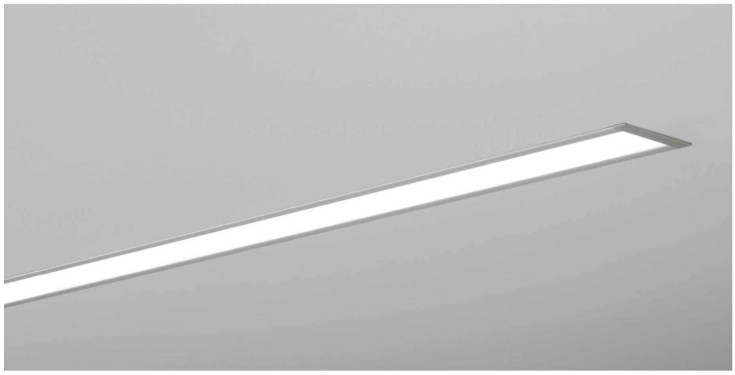
Notor Integrated Opal

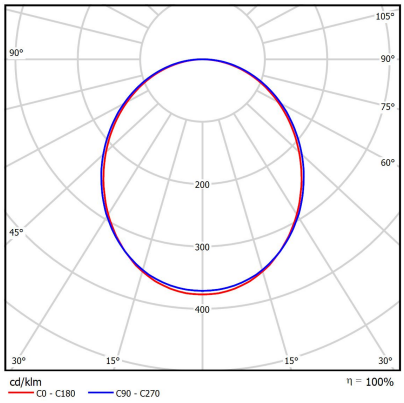
With 1 x T16 28 W: Light output (Lamp) 1868 lm, Light output (Light source) 2600 lm



Notor Recessed LED Opal Flush

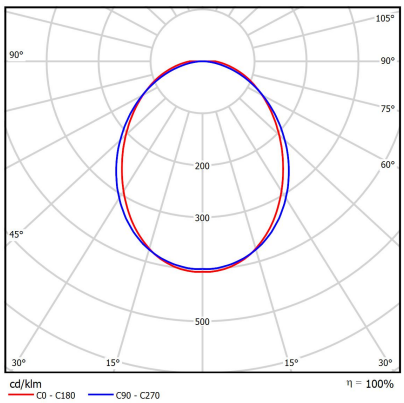
With length 1200: Light output (Lamp) 1798 lm, Light output (Light source) 1798 lm





Notor Recessed LED Opal dropped

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



Dimensions lighting

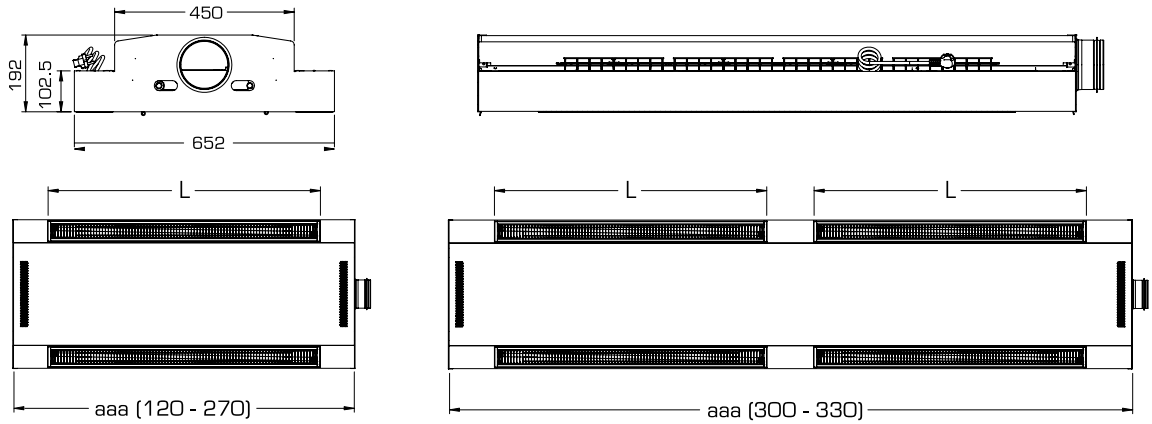
Dimensions fluorescent lamp

Beam lengths (aaa)	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

Dimensions LED

Beam lengths (aaa)	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

IQAZ-31

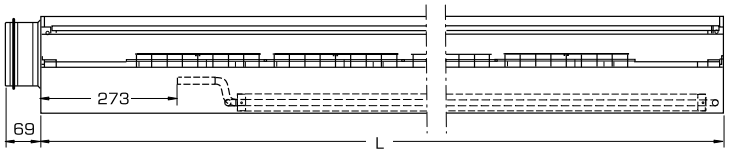


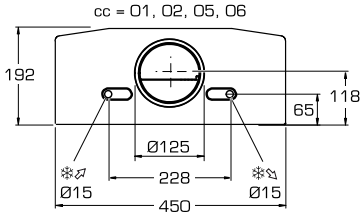
aaa	L = Length of fittings fluorescent lamp (mm)	L= Length of fittings LED (mm)	Number of fittings
120	574	589	2
150	1174	1174	2
180	1174	1174	2
210	1174	1174	2
240	1474	1174	2
270	1474	1174	2
300	1174	1174	4
330	1174	1174	4

Dimensions and weight information

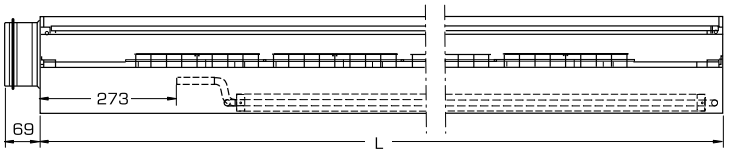
Dimensions and weights

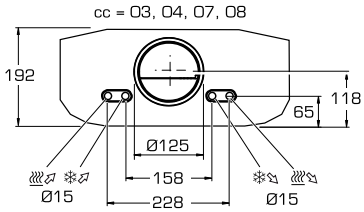
IQFH-aaa-11-cc-d



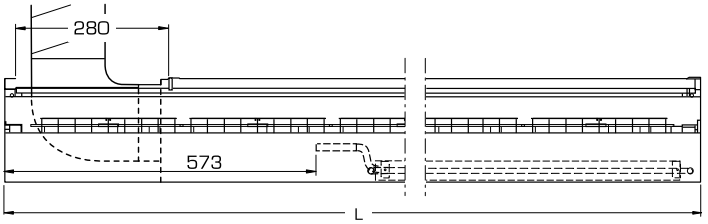


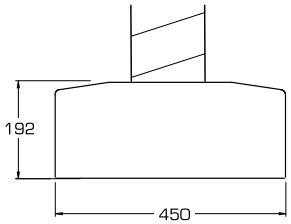
IQFH-aaa-21-cc-d



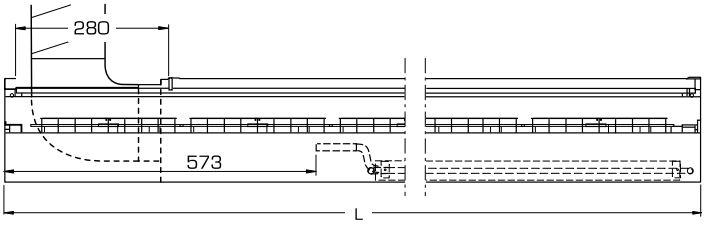


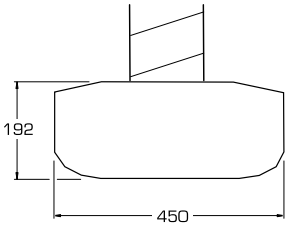
IQFH-aaa-13-cc-d





IQFH-aaa-23-cc-d



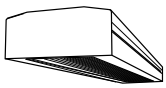


IQFH-aaa-11/21

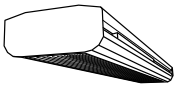
aaa	120	150	180	210	240	270	300	330
L	1200	1500	1800	2100	2400	2700	3000	3300

IQFH-aaa-13/23

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



bb=11, 13



bb=21, 23

Weight

aaa	120	150	180	210	240	270	300	330
Dry weight, kg	20	24	28	32	36	40	44	48
Water filled 10 rows, kg	21	25	29	33	37	41	46	50

Water volume cooling, 10 rows = 0.63 l/m batteri
Water volume cooling, 8 rows = 0.50 l/m batteri
Water volume cooling, 6 rows = 0.38 l/m batteri
Water volume heating, 2 rows = 0.13 l/m batteri

Product code

Product code

Main code

NOVA Standard **IQFH-aaa-bb-cc-d**

Total 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 (300mm), (only aaa= 120-300)
21 = Rounded shape, air, water horizontally through gable
23 = Rounded shape, extended casing (300mm), (only aaa= 120-300)

Coil construction (cc)
01 = Cooling 8 pipe
02 = Cooling 8 pipe with purging nipple
03 = Cooling\Heating 6\2 tubes
04 = Cooling\Heating 6\2 tubes w. purging nipple
05 = Cooling 10 pipe
06 = Cooling 10 pipe w. purging nipple
07 = Cooling\Heating 8\2 tubes
08 = Cooling\Heating 8\2 tubes w. purging nipple
09 = Cooling 6 pipe
10 = Cooling 6 pipe w. purging nipple

Comfort control (d)
1 = With EC, rail 1
2 = With EC, FPC, rail 1
3 = With EC, rail 2
4 = With EC, FPC, rail 2

Fastening bracket, unpainted **QFAZ-19-1-1**

Set with 2 pcs.
1 set QFAZ-19 per beam

Fastening bracket, unpainted **QFAZ-18-1-1**

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

Accessories

Accessories

Motorized Energy Control **IQAZ-23-04-1-3-0-0**

Version (bb)
04 = Nova

Sides connected ©)
1 = Both sides)

Version (d)
3 = 24 V, 3-position variable* (e = 0; f = 0)

Factory-set hole setting for normal mode (e)
0 = None (e = f)

Factory-set hole setting for active mode (f)
0 = None

Suspension rods M8 **QFAZ-12**

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

Suspension bracket **QFAZ-11-1**

One set with 2 pcs.
One set per beam

Flexible hose **IQAZ-19-550-010-010**

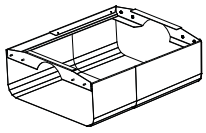
550 mm with Ø 15 push-on

Bending **BDEB-90-012**

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

Length (bbb)
050 (30 - 50cm)
090 (50 - 90cm)
170 (90 - 170cm)

Design (cc)
1 = Rectangular shape
2 = Rounded shape



Code for lighting **IQAZ-31-bbb-cc-d-e**

Length (bbb) cm)

(aaa when bb=11 in chilled beam code)
(aaa + 30 when bb=13 in chilled beam code)

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

Chilled beam (e)

1 = Nova IQFH