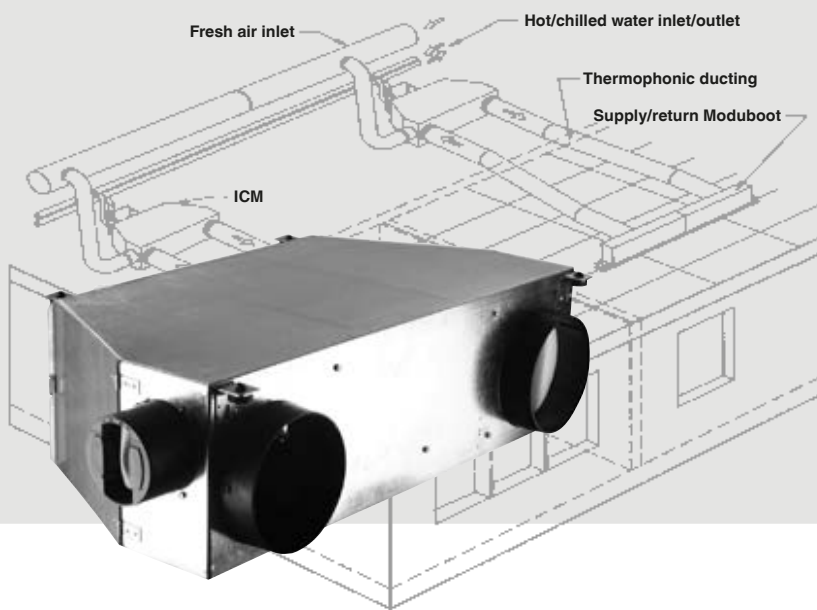




United Technologies

PRODUCT SELECTION DATA



- All inclusive offer : minimizing installation cost with all options factory fitted and tested
 - Easy integration in centralized zone
 - Best in class sound levels
- External Static Pressure : 100 to 350 Pa

Individual Comfort Module for Variable Air Volume Systems

42BJ ICM LEC 1.9 - 2.9 - 4.9

42BJ ICM LEC 1.9 - 2.9 - 4.9

Total cooling capacity 0.5-6.0 kW

Total heating capacity 0.5-12.2 kW

Le Module de Confort Individuel Carrier 42BJ MCI est un système de climatisation compact disponible en 3 tailles, permettant de traiter des locaux de 25 à 50 m².

Le 42BJ MCI LEC est constitué d'un caisson en tôle d'acier galvanisé recouvert intérieurement d'une isolation thermique et phonique (classement au feu M1).

Il comporte, un moto ventilateur centrifuge de type "LEC: Low Energy Consumption" (basse consommation énergétique).

Ce moteur à entraînement direct est à commutation électronique (communément appelés moteur EC), piloté par un signal 0-10 V lui permettant de fonctionner sur une longue plage de vitesses de rotation en variation de vitesse native, précise, simple et silencieuse, un filtre à air, une alimentation d'air neuf munie d'un régulateur de débit, une batterie froide, une batterie chaude et/ou électrique.

Ce module est raccordé sur le chantier par l'intermédiaire de gaines souples isophoniques (gaine de soufflage calorifugée) à un ou plusieurs plénums comportant un diffuseur linéaire parfaitement intégré dans le faux plafond du local à climatiser (gamme Moduboots CARRIER 35BD/35SR).

Les unités peuvent être disposées dans les faux plafonds ou planchers techniques, de préférence dans les couloirs, où elles sont reliées aux circuits d'eau chaude, d'eau glacée et d'air neuf.

Ces circuits implantés dans les zones de circulation du bâtiment, facilitant ainsi la maintenance, ne traversent jamais d'espaces climatisés. Seul le ou les diffuseurs 35BD/35SR, éléments inertes du système, se trouvent dans l'espace occupé. Ainsi, la maintenance est assurée en dehors de l'espace occupé et facilite la programmation pendant les heures d'occupation du bâtiment.

Le Module de Confort Individuel a été conçu pour être particulièrement silencieux, de plus, grâce à sa pression statique disponible, il peut être éloigné de l'espace climatisé.

Caractéristiques

- Confort
Le 42BJ MCI LEC peut être équipé d'une régulation numérique Carrier NTC, chaque occupant aura alors à sa disposition une interface utilisateur à distance, placé sur son bureau ou au mur, lui permettant le choix individuel des conditions de confort:
 - Température ambiante du local
 - Fonction air forcé (renouvellement rapide de l'air du bureau)
 - Mise en mode occupé ou inoccupé par l'utilisateur de chaque MCI LEC pour répondre aux exigences d'économie d'énergie.

Aquasmart Evolution permet de contrôler et d'optimiser chaque module en fonction des impératifs de l'exploitant ou des réglementations locales. Grâce à ce système central de surveillance énergétique, on peut à tout moment contrôler les conditions de confort et obtenir la meilleure économie

d'exploitation énergétique du système sans troubler le confort individuel.

Dans le cas où le produit est livré sans organe de régulation CARRIER, la vérification de la conformité CEM est de la responsabilité de l'intégrateur.

Qualité de l'air

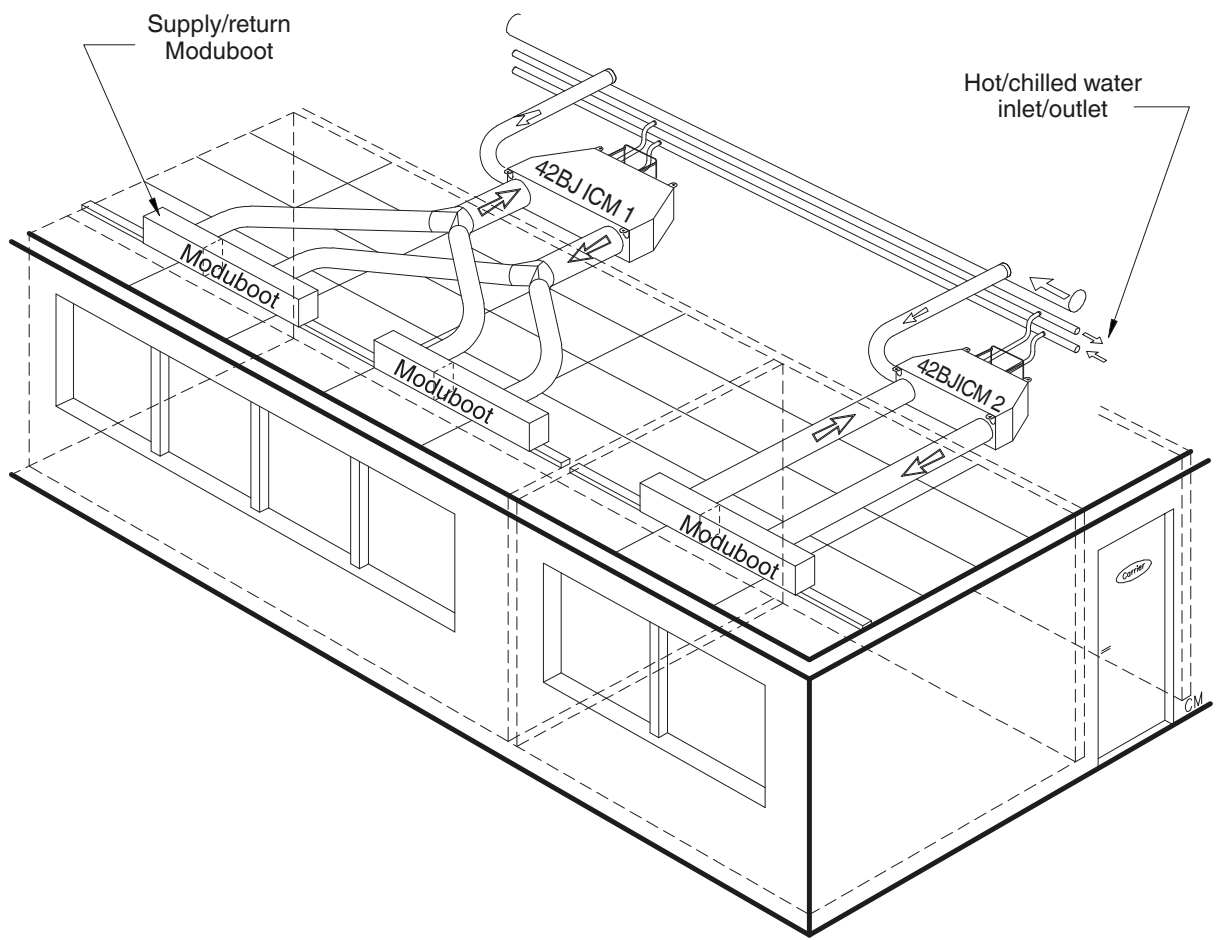
- La Qualité d'Air Intérieure (QAI)
Carrier s'attache à mettre au point un système de gestion de la Qualité de l'Air Intérieur (QAI) intégré aux appareils de climatisation. Une innovation majeure qui préfigure la climatisation de demain.

Dans cette application, chaque module de confort individuel (MCI LEC) est équipé d'une gestion de l'introduction de l'air neuf et d'une filtration de haute efficacité permettant de lutter efficacement contre tout type de polluant. Cela garanti ainsi, une bonne qualité d'air intérieur détaillée ci-dessous en 2 étapes:

- Une filtration haute efficacité: type F5 ou F6
- La modulation de débit d'air neuf: afin de maîtriser le débit d'air diffusé dans une pièce, les appareils CARRIER pourront être équipés d'un système de modulation de débit d'air neuf.
- Three objectives:
To adjust the ventilation rate to the actual occupation in the rooms
To maintain good indoor air quality in order to ensure comfort and hygiene for the occupants.
To control energy consumption due to the air renewal in the rooms and adjust it to avoid "overventilation" of the building, and to minimise the operating costs especially during unoccupied periods.
- Operating principles
The occupants of a room release on average 0.0045 l/s (16,2 l/h) CO₂. A CO₂ sensor, placed in the return air duct of the terminal, checks the concentration in the air conditioned room. The measured concentration indicates the actual occupation of the room.

The sensor sends a signal to the numerical Carrier controller which in turn passes an action signal to the fresh air valve: if the CO₂ concentration is below a threshold value, the fresh air flow is minimal or zero, if it is above, the fresh air flow is increased up to the specified maximum.

- Operating limits
Supply air temperature 12°C, when the unit is installed in a room with an ambient temperature of 27°C dry bulb and 65% relative humidity.



Physical and electrical data

42BJ ICM LEC		1.9			2.9			4.9		
Fan speed*										
Air flow	l/s	16	116	190	25	163	224	40	220	239
	m ³ /h	58	418	684	90	587	806	144	792	860
Available static pressure	Pa	1	50	135	1	50	95	2	50	59
Cooling mode**										
Total cooling capacity	kW	0.46	2.6	3.65	0.68	4.06	5.3	1.3	5.14	5.43
Sensible cooling capacity	kW	0.33	2	2.93	0.47	3	3.99	0.89	3.8	4.05
Water flow rate	l/s	0.02	0.12	0.17	0.03	0.19	0.25	0.06	0.25	0.26
	l/h	80	448	628	118	699	912	224	884	935
Water pressure drop	kPa	2	27	47	2	39	61	5	61	68
Water content	l	0.9	0.9	0.9	1.2	1.2	1.2	1.5	1.5	1.5
Two-pipe heating mode***										
Heating capacity	kW	0.51	2.95	4.14	0.76	4.82	6.34	1.43	6.4	6.8
Four-pipe heating mode****										
Heating capacity	kW	0.69	3.1	4.04	1.09	4.37	5.22	1.94	6.4	6.71
Water flow rate	l/s	0.02	0.07	0.10	0.03	0.10	0.12	0.05	0.15	0.16
	l/h	60	267	348	94	376	449	168	550	577
Water pressure drop	kPa	1	15	23	4	32	41	8	67	73
Water content	l	0.2	0.2	0.2	0.29	0.29	0.29	0.45	0.45	0.45
Electric heater										
	V-ph-Hz	230-1-50								
Maximum capacity	kW	0.5	1.9	2.23	0.75	2.12	2.25	1	2.25	2.25
Maximum current drawn	A	11	11	11	11	11	11	11	11	11
Sound levels										
Sound power level (return + radiated)	dB(A)	29	50	59	34	52	59	33	60	62
Sound power level (supply)	dB(A)	26	57	66	20	63	69	31	69	72
Global sound power level	dB(A)	31	58	67	34	63	69	35	70	72
Sound pressure level†	dB(A)	10	37	46	13	42	48	14	49	51
NR value†		-	32	41	-	37	43	-	44	46
Electrical data, motor										
		230 V-1 ph-50 Hz, EC motor with low energy consumption								
Power input	W	4	49	160	4	68	174	5	46	186
Air filter F5 or F6										
	mm	240 x 400			240 x 550			315 x 550		
Physical data										
Connection diameter, chilled and hot-water coil	in	1/2 gas			1/2 gas			1/2 gas		
Spigot connection diameter	mm	200			200			250		
Height (standard)	mm	270			270			345		
Depth (standard)	mm	665			815			815		
Overall length (standard)	mm	900			1100			1100		
Unit weight (standard)	kg	31			40			50		

* Fan speed: L = Low, M = Medium, H = High

** Conditions: Entering air temperature 27°C/47% rh, entering water temperature 7°C, water temperature difference 5 K.

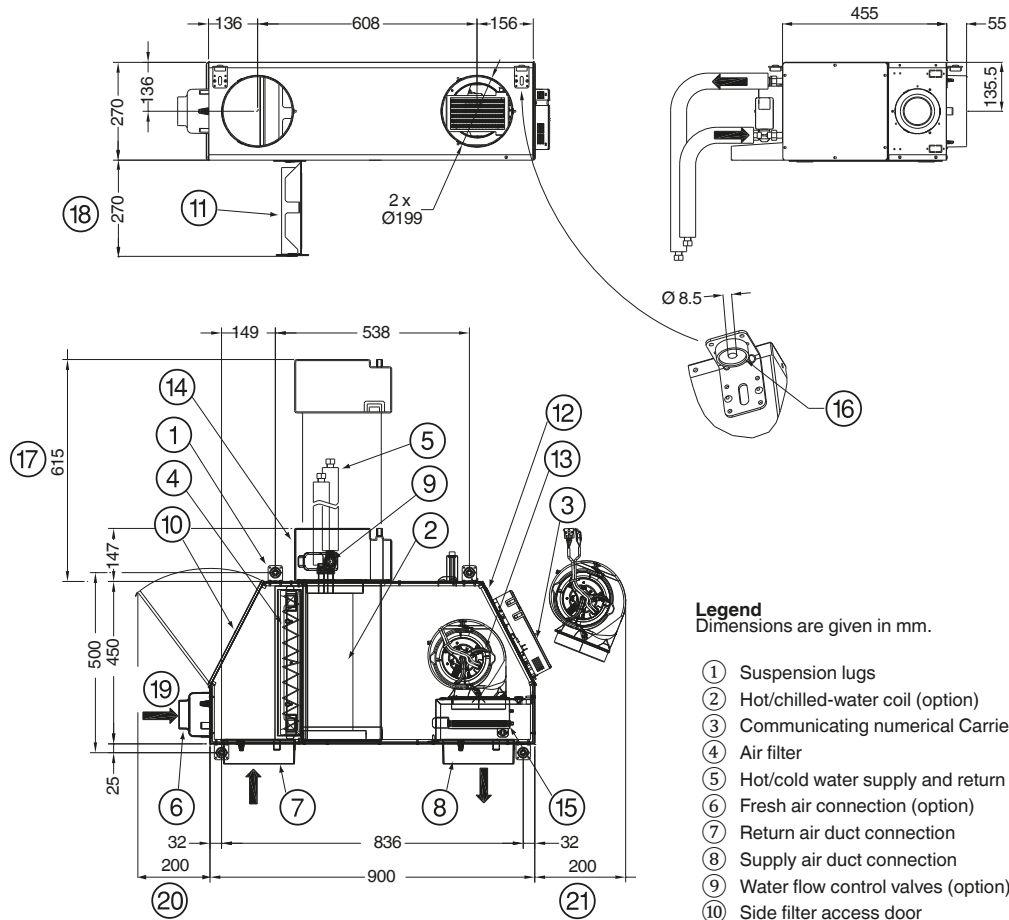
*** Conditions: Entering air temperature 20°C - entering water temperature 50°C, with same water flow rate as in cooling mode.

**** Conditions: Entering air temperature 20°C - entering water temperature 70°C, water temperature difference 10 K.

† Based on a hypothetical sound attenuation for the room and the system of -21 dB(A).

Dimensions and clearances 42BJ 1.9

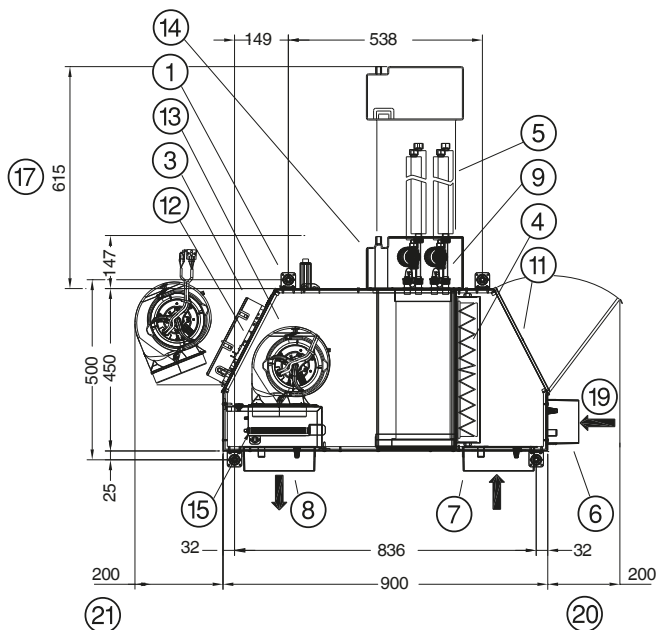
Connections on the left-hand side



Legend
Dimensions are given in mm.

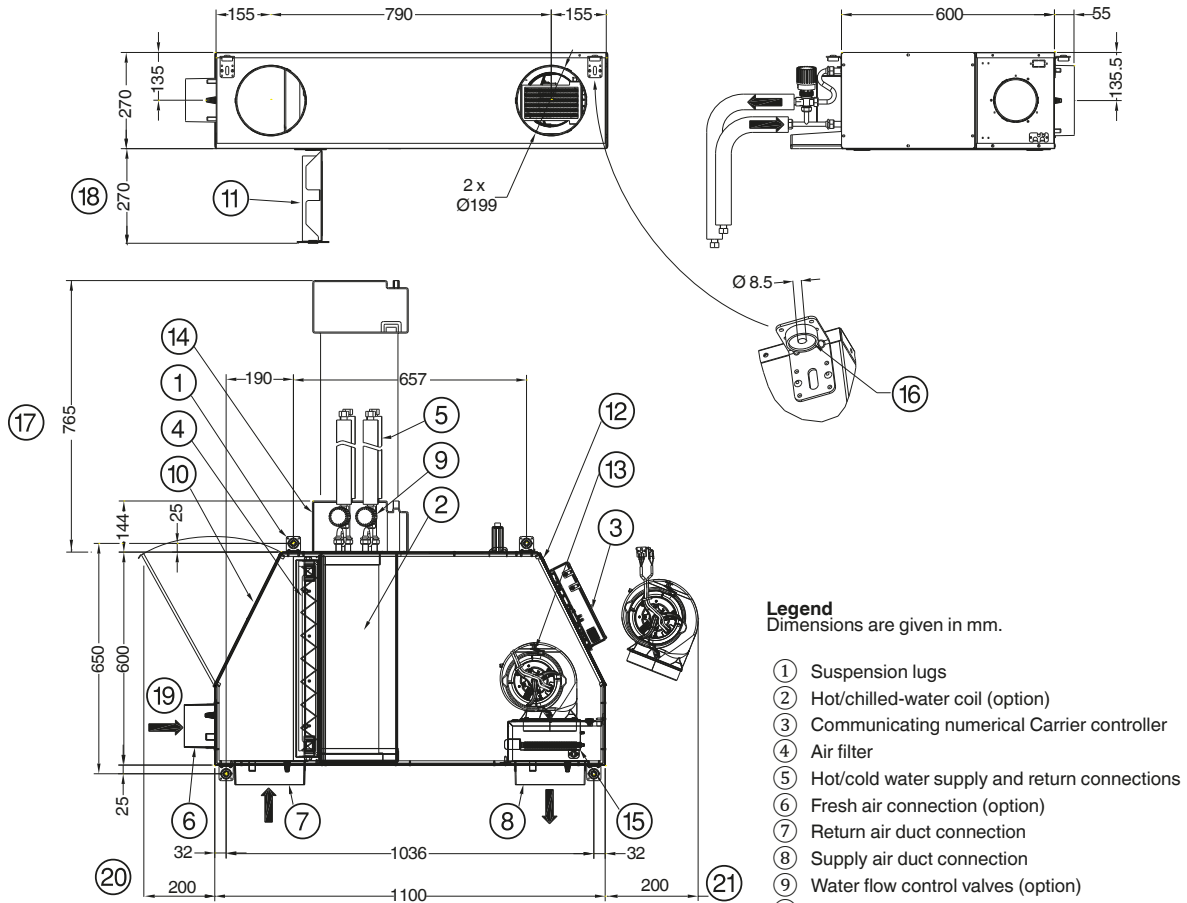
- ① Suspension lugs
- ② Hot/chilled-water coil (option)
- ③ Communicating numerical Carrier controller
- ④ Air filter
- ⑤ Hot/cold water supply and return connections
- ⑥ Fresh air connection (option)
- ⑦ Return air duct connection
- ⑧ Supply air duct connection
- ⑨ Water flow control valves (option)
- ⑩ Side filter access door
- ⑪ Motor access door
- ⑫ LEC fan motor assembly
- ⑬ Condensate drain pan
- ⑭ Electric heater (option)
- ⑮ Electric heater
- ⑯ Rubber grommet
- ⑰ Clearance condensate pan and coil assembly
- ⑱ Clearance bottom filter access (option)
- ⑲ Fresh air (option)
- ⑳ Clearance side filter access
- ㉑ Clearance for fan removal

Connections on the right-hand side



Dimensions and clearances 42BJ 2.9

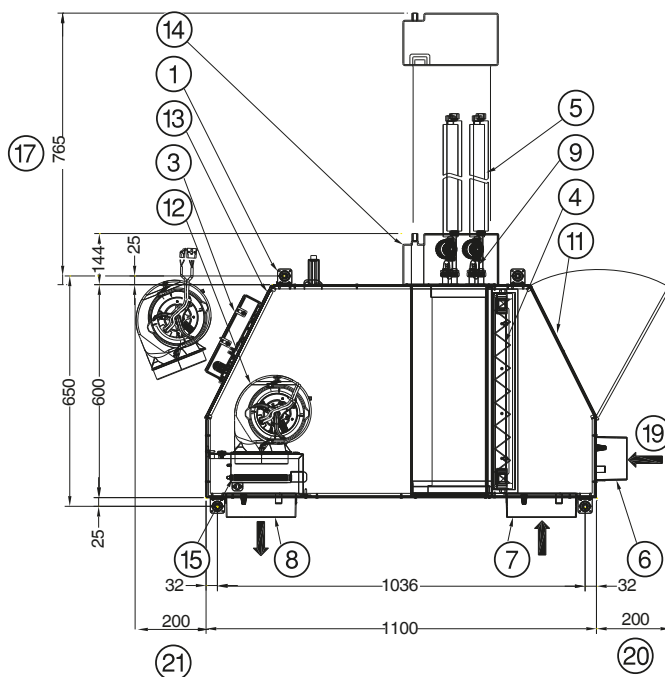
Connections on the left-hand side



Legend
Dimensions are given in mm.

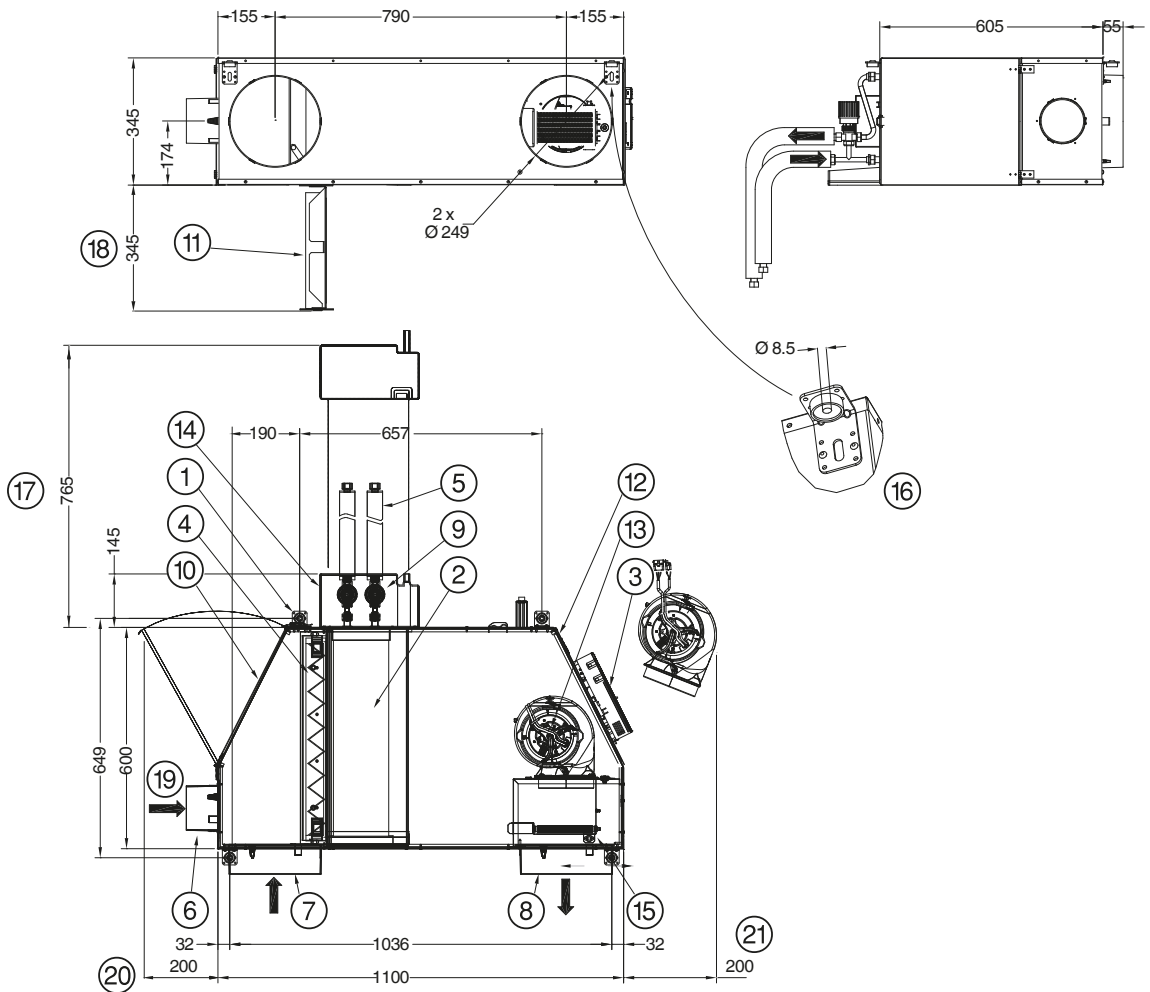
- ① Suspension lugs
- ② Hot/chilled-water coil (option)
- ③ Communicating numerical Carrier controller
- ④ Air filter
- ⑤ Hot/cold water supply and return connections
- ⑥ Fresh air connection (option)
- ⑦ Return air duct connection
- ⑧ Supply air duct connection
- ⑨ Water flow control valves (option)
- ⑩ Side filter access door
- ⑪ Motor access door
- ⑫ LEC fan motor assembly
- ⑬ Condensate drain pan
- ⑭ Electric heater (option)
- ⑮ Electric heater
- ⑯ Rubber grommet
- ⑰ Clearance condensate pan and coil assembly
- ⑱ Clearance bottom filter access (option)
- ⑲ Fresh air (option)
- ⑳ Clearance side filter access
- ㉑ Clearance for fan removal

Connections on the right-hand side

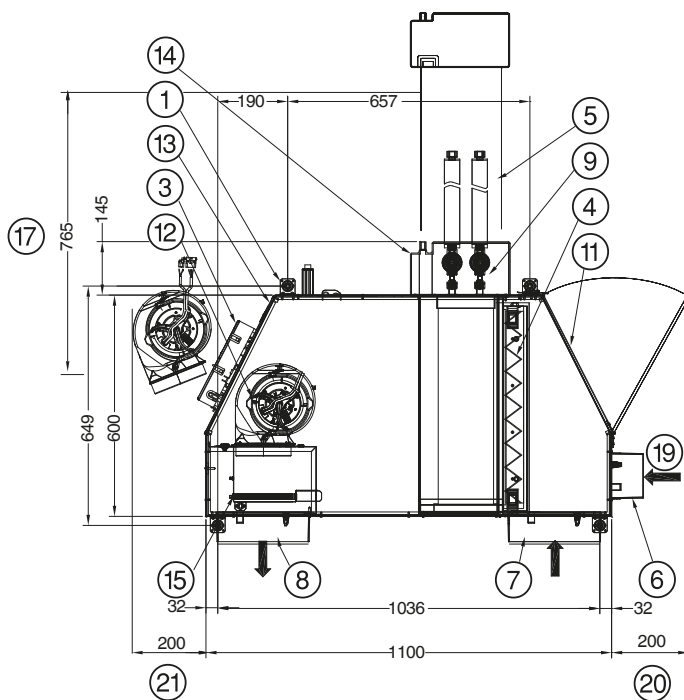


Dimensions and clearances 42BJ 4.9

Connections on the left-hand side



Connections on the right-hand side



Legend

Dimensions are given in mm.

- ① Suspension lugs
- ② Hot/chilled-water coil (option)
- ③ Communicating numerical Carrier controller
- ④ Air filter
- ⑤ Hot/cold water supply and return connections
- ⑥ Fresh air connection (option)
- ⑦ Return air duct connection
- ⑧ Supply air duct connection
- ⑨ Water flow control valves (option)
- ⑩ Side filter access door
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- ⑱ Clearance bottom filter access (option)
- ⑲ Fresh air (option)
- ⑳ Clearance side filter access
- ㉑ Clearance for fan removal

Main modules and components

- Variable-speed LEC fan motor assembly
The 42BJ ICM LEC units are equipped with a variable-speed fan motor assembly controlled by a 0-10 V signal from the electronic Carrier controller.

- Water coil
The water coil has aluminium fins mechanically bonded to copper tubes by expansion.

Water inlet and outlet connections are threaded 1/2" gas. Air purge valves are standard. The coil is integral with the drain pan and the coil access door to ease removal for service. Coils available are:

- two-pipe coils with changeover or for use with an electric heater.
- four-pipe coils.

- Thermoformed condensate drain pan
The main pan is below the coil with an auxiliary pan below the valves. This monobloc construction prevents leaks. With the coil on the suction side of the fan to facilitate drainage, condensate has to be drained through a non-return flap valve. The difference in height between the main and auxiliary drain pans is enough to overcome the depression within the unit and dispenses with the need for an in-built siphon.

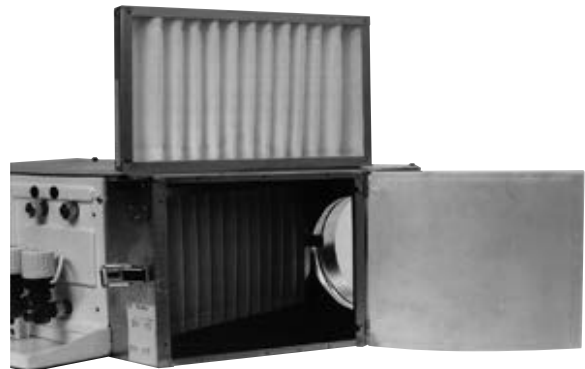
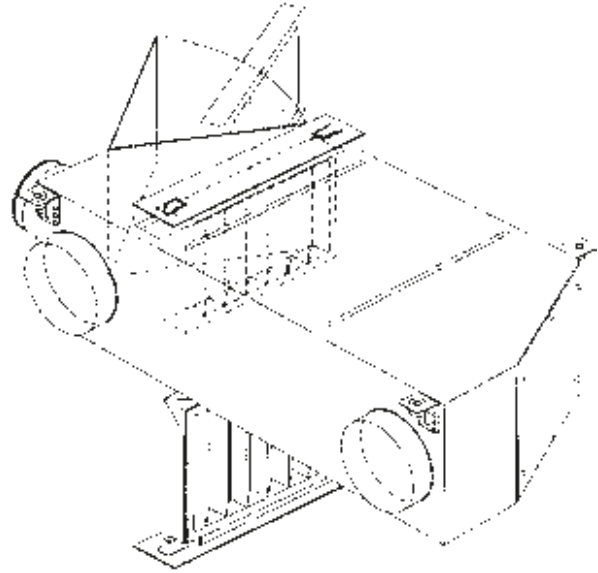
The auxiliary pan is insulated. The drain stub itself has 16 mm external diameter.

- Filter and access
The 42BJ ICM is fitted with a high-efficiency F5 or F6 type filter.

Fire rating medium M1, metal frame

Three filter access options are provided on the 42BJ:

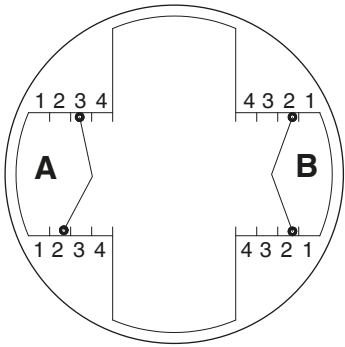
- From above for units in false floor voids
- From below for units in false ceiling voids
- From the side (all applications)



- **Constant volume fresh air controller (option)**
The ICM unit can be fitted with a constant fresh air flow controller allowing the number of air changes to be controlled accurately. It is vital to choose the correct constant fresh air flow controller for the intended occupancy of the room or zone.

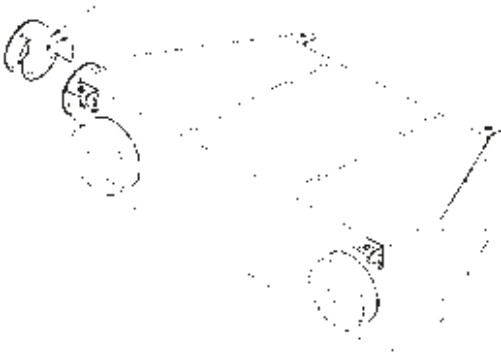
The following range of controllers is available:
 - 8.3 l/s or 30 m³/h (-10%; +20%)
 - 16.6 l/s or 60 m³/h (-10%; +20%)

The fresh air supply is located upstream of the water coil. The collar which houses the flow controller is made of ABS and has the following diameter:
 - 125 mm for the controller with 16.6 l/s (60 m³/h)
 - 74 mm for the controller with 8.3 l/s (30 m³/h).



	l/s	m ³ /h	A	B
MR60	17	60	4-4	4-4
MR75	21	75	4-3	4-3
MR85	24	85	3-3	3-2
MR90	25	90	3-2	2-2
MR100	28	100	2-1	2-1
MR105	29	105	2-1	1-1
MR110	31	110	1-1	1-1
MR120	33	120	3-3	-
MR130	36	130	2-1	-
MR140	39	140	1-1	-
MR160	44	160	-	-

Fresh air controller



Important: If the ICM is fitted with a return air temperature sensor, the constant fresh air flow rate must not exceed 50% of the air flow rate delivered by the unit at minimum speed.

Note: The 16.6 l/s or 60 m³/h fresh air controller can be modified on site by removing or retracting of the two plastic restrictions in order to bring its capacity up to a maximum constant fresh air flow of 44.4 l/s (160 m³/h).

A label attached to the 42BJ shows how to modify the control of the two plastic restrictions.

Note: To operate correctly, the 8.3 l/s (30 m³/h) constant fresh air flow controller requires a differential pressure in the range 50 Pa to 200 Pa. The 16.6 l/s (60 m³/h) constant fresh air controller requires a differential pressure in the range 70 Pa to 200 Pa.

- **PTC electric heater (option)**
These are high-performance PTC electric heaters (PTC = positive temperature coefficient) which make use of two technologies: electric heating and surface temperature limitation (a state-of-the-art technology based on the use of ceramics).

The true dissipated power is then dependent on the temperature and flow rate of the incoming air.

The technology ensures totally safe self-regulation of the dissipated power. In addition, each electric heater is fitted with a self-resetting safety thermostat of the normally closed type that cuts out when the temperature rises to 70°C with an average differential of 20 K.

Caution: It is vital to disconnect the ICM from the general power supply before carrying out any work on the electric heater.

Enhanced comfort without stratification:
supply air temperature = 35°C



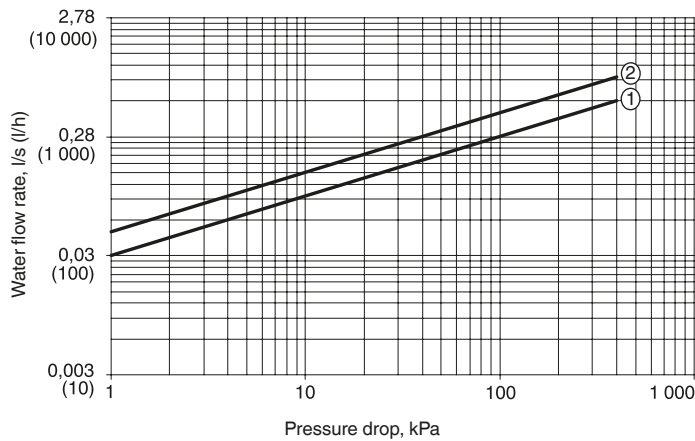
Technical specifications

Valves (option)

It should be noted that the valve body is the same for whatever controller option is chosen.

- **Electrothermal actuator**
The actuator is a 230 V a.c. on/off type. Linear movement is provided by the expansion and contraction of a wax element heated by an electrical resistor.
- **Two-way 1/2" valve body**
 - 1/2" male BSP connection for union nuts
 - Straight valve body with arrow indicating direction of flow embossed on valve body
 - Nominal size DN 15 for 1/2" valve
 - Fluid: water and glycol solution (max. 40% glycol)
 - Operating range: 2-90°C
 - Nominal pressure: PN 16 bar (1600 kPa)
 - Kvs = 1.6
- **Three-way 1/2" valve body (with integral bypass)**
 - 1/2" male BSP connection for union nuts
 - Straight valve body with arrow indicating direction of flow embossed on valve body
 - Nominal size DN 15 for 1/2" valve
 - Fluid: water and glycol solution (max. 40% glycol)
 - Operating range: 2-90°C
 - Nominal pressure: PN 16 bar (1600 kPa)
 - Kvs = 1

Water valve pressure drop



- 1 Kvs = 1
- 2 Kvs = 1.6

Flexible water pipes



- **Materials**
 - Pipes: MEPD-based elastomer (modified ethylene-propylene-diene)
 - Braid: 304L stainless steel
 - Insulation: cellular foam rubber with M1 fire rating (9 mm thick, flexible water pipes).
- **Characteristics**
 - Minimum bend radius: 106 mm
 - The flexible water pipes are designed for treated or untreated water (maximum 40% ethylene glycol or propylene glycol).
 - Maximum hot water temperature 90°C
 - Maximum operating pressure: 16 bar
 - 1/2" flat gas connections
 - Length: 1 m.

Control

The 42BJ ICM LEC can be supplied with a Carrier controller. The NTC controller offers functions to suit the various application requirements, summarised in the table below.

NTC controller functions		Availability
Control algorithms	Proportional-integral	X
Valve management	On-off actuators	X
	Modulating motors	O
Fan control	Three manual speeds	X
	Automatic fan speed selection	X
	LEC motor control	X
Main functions	Setpoint control	X
	Occupied/unoccupied mode	X
	Frost protection mode	X
	Window contact input	X
	Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)	X
	Automatic seasonal changeover (4 pipes and 2 pipes + electric heater)	X
	Manual changeover	X
	Continuous ventilation within dead-band	X
	Periodical ventilation within dead-band	X
	Unit grouping	X
	Motorised louvre control	X
	On-site configuration	X
	Supply air temperature monitoring limiting	X
	Communication (CCN)	X
	Electrical heater loadshed	X
	Dirty filter alarm	X
	Alarm reporting	X
	IAQ control	O
	Demand control ventilation (DCV)	O
	Free cooling mode	O
User interface	LCD display	X
	Automatic or manual fan speed control	X
	Operating mode selection	X
	Eco/unoccupied button	X

Legend:

NTC New Terminal Controller

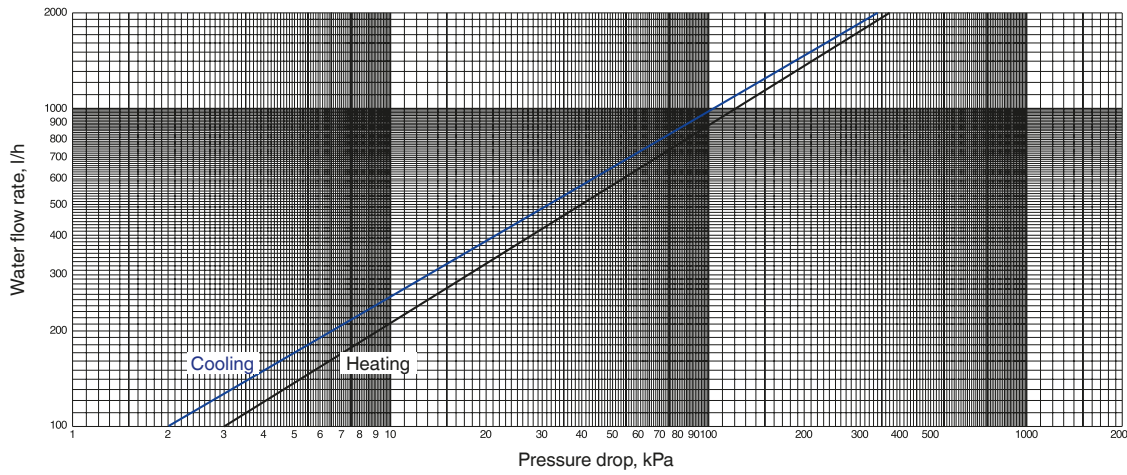
X Standard function

O Available as an option

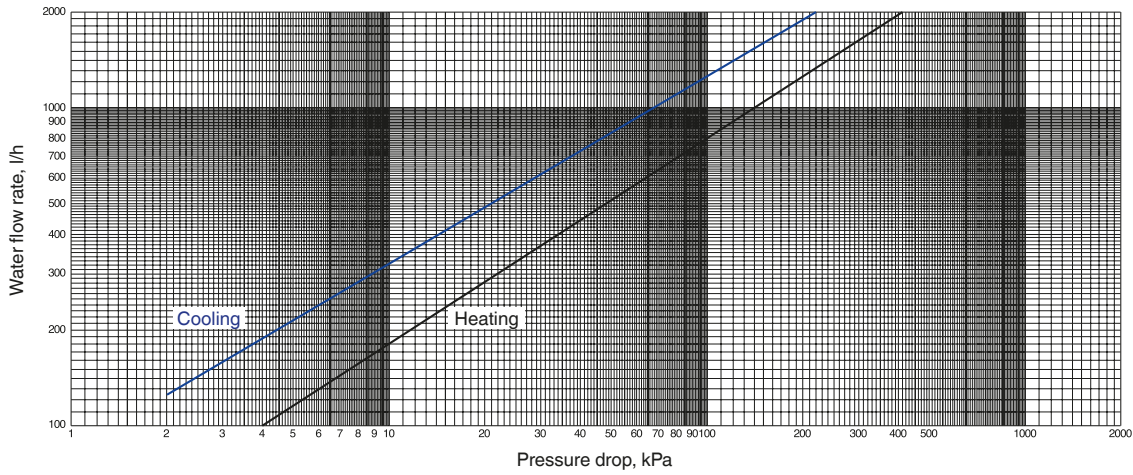
NOTE: For the features and specifications of the Carrier controller refer to the technical documentation for this controller. Upon special request other controller types can be factory-installed on the units (supplied by Carrier or the customer).

Water coil pressure drop

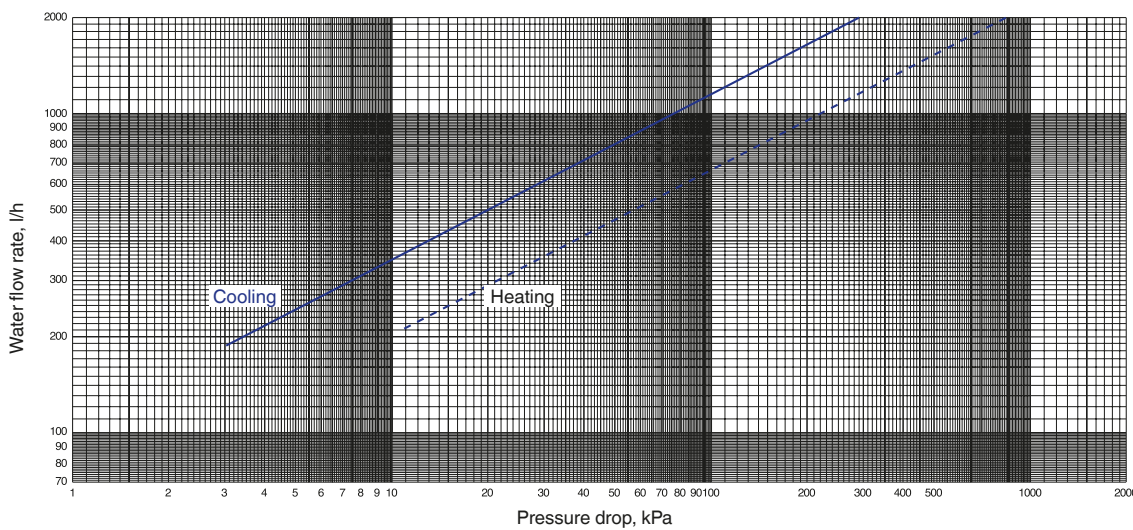
Water coil pressure drop curves, 42BJ MCI LEC size 1.9



Water coil pressure drop curves, 42BJ MCI LEC size 2.9

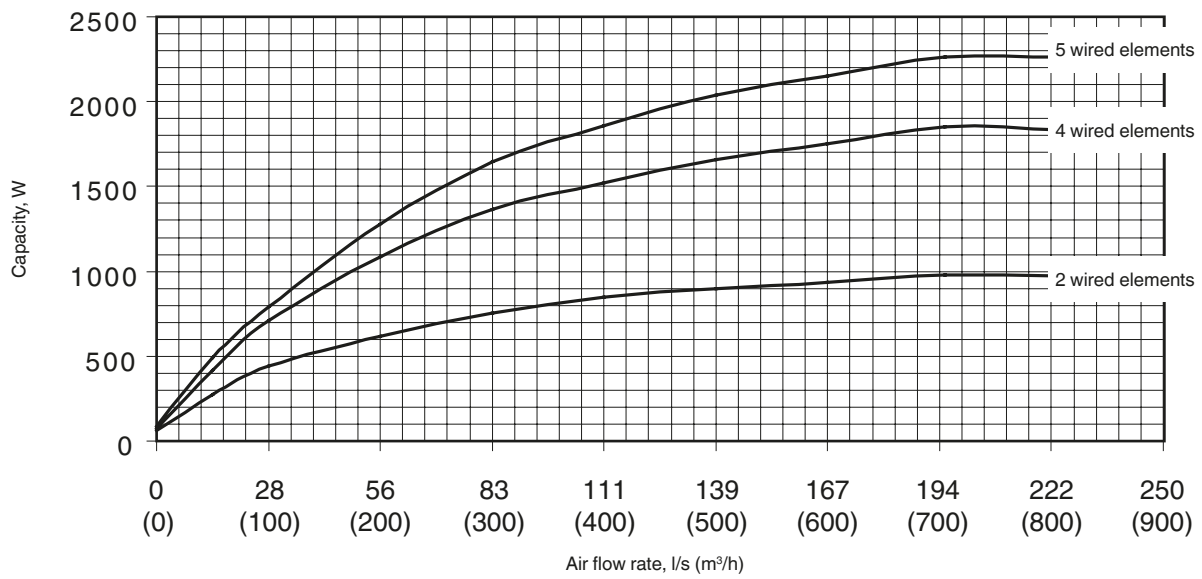


Water coil pressure drop curves, 42BJ MCI LEC size 4.9



NOTES:
The curves are plotted for the following conditions: entering hot-water temperature 50°C, entering chilled-water temperature 6°C.
To convert l/h to l/s, please divide by 3600.

Electric heater performances



NOTES:
 Supply voltage = 230 V, entering air temperature = 19°C
 Three wiring types are available: Low capacity - 2 wired elements, medium capacity - 4 wired elements, high capacity - 5 wired elements.

Air flow data

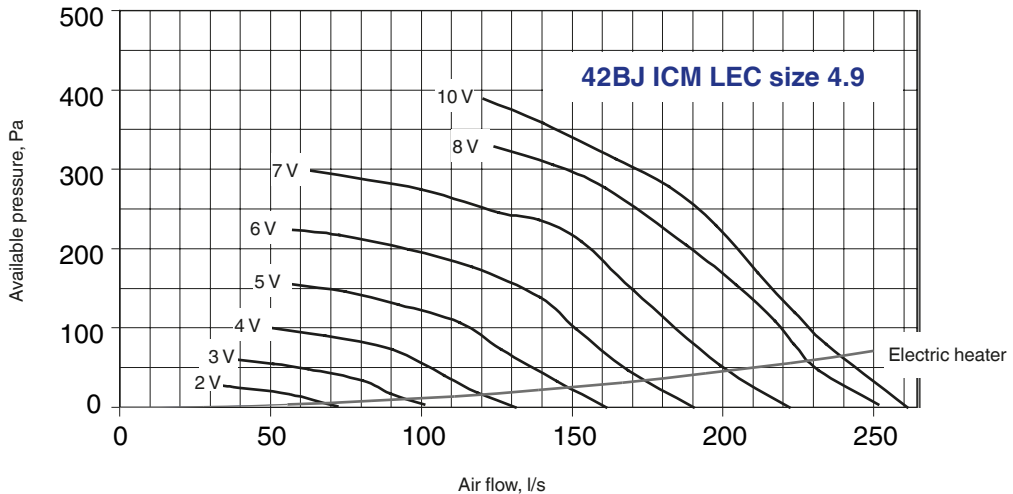
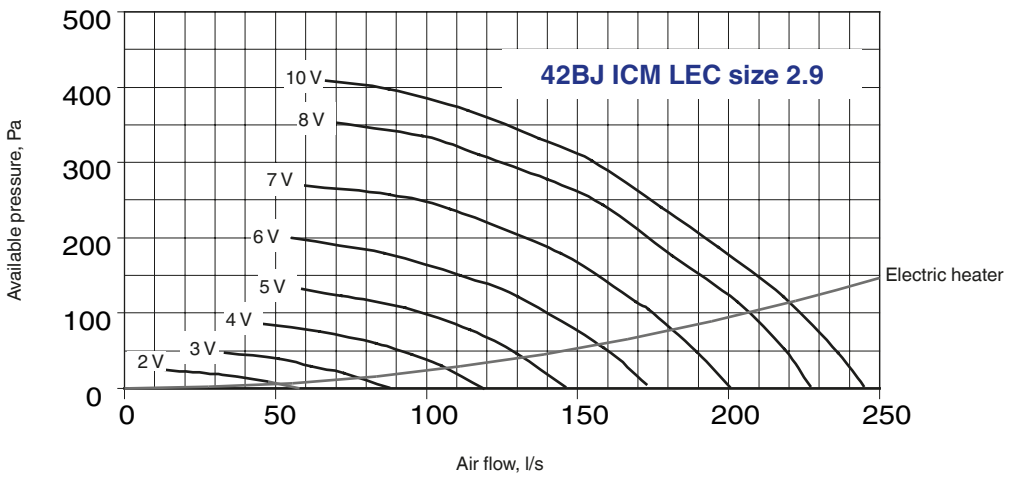
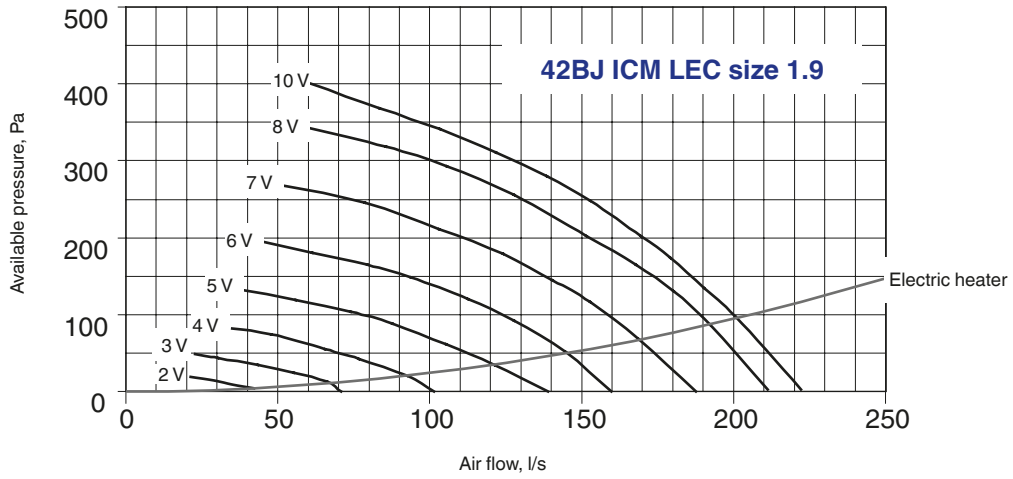
42BJ MCI LEC	Size 1.9					Size 2.9					Size 4.9					
U (V)	I (A)	P (W)	Qv (m³/h)	Qv (l/s)	PR (Pa)	I (A)	P (W)	Qv (m³/h)	Qv (l/s)	PR (Pa)	I (A)	P (W)	Qv (m³/h)	Qv (l/s)	PR (Pa)	
10V	1.36	175	800	222	2	1.40	181	881	245	4	1.50	191	940	261	0	
	1.30	168	722	201	97	1.43	177	850	236	48	1.48	183	843	234	80	
	1.28	158	685	190	135	1.40	173	785	218	122	1.46	175	806	224	120	
	1.24	151	645	179	174	1.33	171	708	197	188	1.42	167	761	211	170	
	1.22	149	610	169	203	1.26	158	640	178	240	1.38	160	712	198	229	
	1.18	144	550	153	248	1.19	146	557	155	303	1.32	154	656	182	279	
	1.13	135	498	138	280	1.12	142	494	137	332	1.28	146	592	165	313	
	1.10	132	439	122	311	1.01	121	409	114	369	1.21	135	505	140	359	
	0.91	109	372	103	341	0.92	105	315	88	397	1.15	126	434	121	389	
	0.88	106	300	83	369	0.84	101	240	67	408	-	-	-	-	-	
0.81	97	220	61	400	-	-	-	-	-	-	-	-	-	-		
8V	1.29	160	760	211	2	1.22	139	817	227	4	1.28	155	906	252	3	
	1.20	147	692	192	87	1.20	141	787	218	52	1.25	150	834	232	47	
	1.14	136	649	180	130	1.20	138	730	203	115	1.23	146	805	223	79	
	1.05	135	604	168	165	1.17	139	653	181	177	1.21	141	782	217	109	
	1.08	129	546	152	203	1.00	122	570	158	244	1.19	138	736	205	155	
	0.90	105	460	128	256	1.09	116	504	140	277	1.15	134	676	188	204	
	0.93	108	380	106	293	0.92	111	423	117	311	1.09	129	580	161	277	
	0.81	92	308	86	319	0.83	98	355	99	335	1.05	124	517	144	306	
	0.70	79	212	59	344	0.72	82	233	65	356	0.98	120	448	124	329	
	7V	0.92	108	675	188	0	0.89	103	721	200	3	0.96	120	800	222	0
0.88		101	608	169	67	0.87	96	682	190	49	0.92	115	716	199	53	
0.84		99	550	153	116	0.88	100	624	173	105	0.89	108	613	170	148	
0.78		85	506	140	145	0.86	95	609	169	115	0.86	105	551	153	209	
0.72		84	447	124	179	0.81	89	520	144	180	0.82	100	500	139	236	
0.64		79	371	103	211	0.68	77	388	108	239	0.76	98	452	126	246	
0.58		62	283	79	245	0.61	67	316	88	257	0.69	86	360	100	274	
0.55		64	182	51	269	0.52	58	212	59	269	0.56	69	227	63	298	
6V		0.60	68	575	160	0	0.63	69	622	173	6	0.66	78	685	190	0
		0.58	65	522	145	51	0.62	67	571	159	54	0.61	72	607	169	47
	0.56	62	460	128	92	0.58	65	469	130	122	0.58	69	545	151	99	
	0.54	66	405	113	121	0.54	63	400	111	150	0.55	64	502	139	139	
	0.47	59	338	94	148	0.47	55	310	86	180	0.53	61	421	117	177	
	0.44	48	286	79	165	0.39	45	200	56	200	0.50	56	345	96	199	
	0.39	46	221	61	181	-	-	-	-	-	0.46	52	262	73	217	
	0.36	43	159	44	195	-	-	-	-	-	0.43	47	207	58	223	
	5V	0.46	57	500	139	0	0.42	46	525	146	2	0.43	46	581	161	0
		0.40	48	437	121	35	0.42	47	468	130	46	0.42	44	522	145	33
0.35		45	379	105	61	0.40	43	412	114	78	0.41	42	456	127	73	
0.32		38	316	88	88	0.35	38	334	93	107	0.41	41	406	113	106	
0.29		36	266	74	104	0.30	31	258	72	123	0.40	40	333	92	129	
0.27		31	201	56	119	0.26	27	212	59	132	0.38	34	269	75	146	
0.23		27	132	37	133	-	-	-	-	-	0.34	27	206	57	155	
4V		0.24	28	365	101	0	0.27	27	428	119	0	0.29	30	472	131	0
		0.23	26	333	93	21	0.26	28	377	105	31	0.26	28	428	119	18
		0.20	23	276	77	42	0.24	25	342	95	45	0.25	26	387	108	41
	0.18	20	236	66	56	0.23	23	300	83	59	0.25	24	326	90	73	
	0.17	19	172	48	74	0.20	22	233	65	75	0.24	23	245	68	91	
	0.16	17	126	35	82	0.17	18	165	46	85	0.22	22	173	48	102	
	3V	0.14	15	255	71	0	0.15	16	315	87	1	0.18	17	363	101	3
0.13		14	238	66	13	0.14	14	262	73	20	0.16	16	323	90	17	
0.11		13	199	55	24	0.13	13	223	62	30	0.16	14	290	81	34	
0.11		12	156	43	34	0.13	12	183	51	39	0.15	13	224	62	49	
0.10		10	109	30	44	0.11	10	120	33	47	0.13	12	183	51	55	
0.10		9	82	23	48	-	-	-	-	-	0.12	11	139	39	60	
2V		0.08	6	153	43	4	0.09	8	209	58	0	0.10	9	262	73	1
	0.07	6	126	35	10	0.09	7	172	48	8	0.09	8	203	56	16	
	0.07	6	106	29	14	0.08	6	134	37	15	0.08	8	167	46	22	
	0.06	6	75	21	19	0.08	5	96	27	20	0.07	5	135	38	26	
						0.07	6	31	9	26	0.06	4	123	34	27	

U Control supply voltage fan motor assembly
I Current draw (rms)
P Power input of the fan motor assembly, Carrier numerical controller
Qv Air flow rate
PR Available external static pressure

NOTE: Supply voltage = 230 V ± 15 %-1 ph-50 Hz

Air flow/available pressure curves

Available static pressure curve (Pa) as a function of air flow (m³/h or l/s)



Sound power levels

42BJ variable-speed EC motor

42BJ MCI LEC		1.9						2.9						4.9					
U (V)	Type	Octave band frequency, Hz					dB(A)	Octave band frequency, Hz					dB(A)	Octave band frequency, Hz					dB(A)
		125	250	500	1K	2K		125	250	500	1K	2K		125	250	500	1K	2K	
10V	SUP	66	65	58	55	62	66	69	67	63	59	64	69	71	69	63	63	67	72
	RET	64	60	50	50	36	55	64	59	51	49	32	55	67	63	54	53	39	59
	RAD	60	58	56	51	46	57	59	58	54	50	46	56	65	59	58	52	45	58
8V	SUP	64	63	57	54	59	64	68	66	61	58	63	68	70	67	62	62	65	70
	RET	62	58	49	49	35	54	64	59	51	49	32	55	66	62	53	52	37	57
	RAD	59	56	55	50	45	56	57	56	52	48	44	54	64	58	56	51	43	57
7V	SUP	63	62	55	53	57	61	66	64	59	57	62	66	69	65	60	61	63	68
	RET	61	57	48	48	34	53	63	58	51	48	31	54	64	60	51	51	34	56
	RAD	59	54	53	49	44	54	55	54	50	47	42	52	63	57	55	50	41	56
6V	SUP	61	59	53	52	54	59	63	60	55	55	58	63	65	62	57	58	59	64
	RET	58	53	45	46	30	50	59	53	45	44	25	49	61	57	48	48	30	53
	RAD	55	51	49	45	39	51	52	50	46	43	38	48	59	53	51	47	37	52
5V	SUP	58	56	52	51	51	57	59	57	51	52	54	59	61	58	53	56	55	61
	RET	55	50	42	43	26	47	54	47	40	39	20	44	58	54	45	46	26	50
	RAD	52	49	46	41	35	47	49	46	42	40	33	44	56	50	48	44	34	49
4V	SUP	53	51	47	46	44	51	54	51	46	47	47	53	56	52	48	50	49	55
	RET	50	45	38	38	24	42	48	42	35	35	18	39	52	48	41	41	22	45
	RAD	48	44	41	36	28	43	43	42	38	35	28	40	51	45	44	40	27	45
3V	SUP	48	46	42	41	37	45	50	45	42	41	40	47	51	47	43	45	43	49
	RET	45	40	34	33	22	37	43	37	30	30	17	34	46	42	36	37	18	40
	RAD	43	40	36	32	21	38	37	38	34	31	22	35	46	41	39	35	21	40
2V	SUP	40	36	34	30	24	36	43	39	36	36	33	34	44	40	36	35	33	40
	RET	37	32	29	26	18	31	35	30	26	25	17	30	38	40	29	29	19	34
	RAD	40	31	27	28	17	33	37	35	33	30	20	34	37	35	32	31	23	35

U Fan motor assembly supply voltage (rms)
SUP Supply (dB re = 10⁻¹² W)
RET Return (dB re = 10⁻¹² W)
RAD Radiated (dB re = 10⁻¹² W)

NOTES

- Measurements are based on the usual ISO standards and have been carried out without return air adapter.
- Any calculation of sound pressure levels within a room must take account of the sound deadening effect (absorption) in the duct, plenum, room and ceiling.
- For a selected speed the sound level can vary within a tolerance of ± 2.5 dB(A), depending on the available static pressure.
- In the case of ICMs fitted with electric heaters (in the suction side), for the same air flow apply the following correction factors:

Frequency, Hz	125	250	500	1 k	2 k	A
Correction, dB(A)	+ 2	+ 2	+ 1	0	+ 0.5	+ 0.5

Accessories

A broad range of accessories is available to facilitate the installation of the 42BJ ICM LEC. Contact your local Carrier representative.

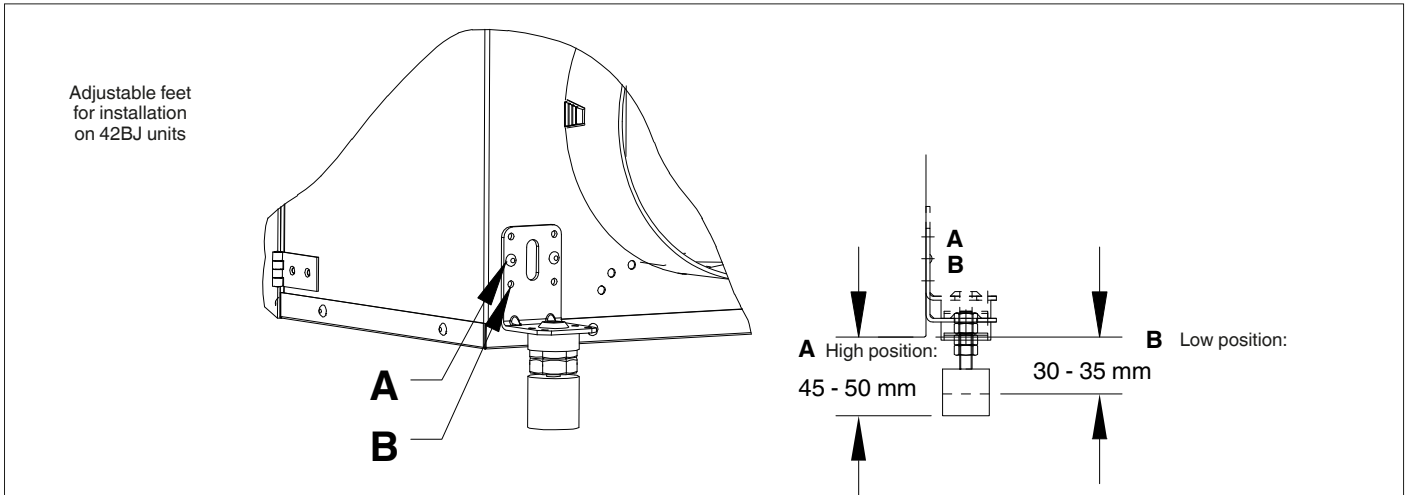
- **Condensate drain pump**
A 42BJ ICM can be fitted with a condensate drain pump, preferably before, but if necessary after the unit has been installed in a false floor or ceiling.

For the operation please refer to the installation instructions, order number M4281-76.

- **Adjustable feet for installation in a false floor void**
Provide side or top filter access: see codification below.

The 42BJ ICM LEC can be installed in a floor void. Adjustable feet with built-in vibration absorbers are available as accessories for installation on site. For further information please contact your local Carrier representative.

Installation procedure



Codification

Product reference	Product type*				Size		Modification code*	Coils	Supply and return air plenum*	Valves	Valve motors	Control	Sensors	Filter and access	Fresh air	Motor wiring*
	4	2	B	J	1	9										
Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

* Fixed values

Digits 5/6	
1	9
2	9
4	9

Digit 10	
-	None
C	2-way valve
D	3-way valve
J	2-way valve + flexible piping
K	3-way valve + flexible piping

Digit 15	
-	None
A	125 mm ø fresh air spigot only
B	8.3 l/s (30 m3/h)
C	16.6-44.4 l/s (21/28/36)
E	60-160 m3/h (75/100/130)
X	Motorised fresh air valve adapter ø 125 mm
X	SPECIAL

Digit 8	
A	2 pipes right
B	2 pipes left
C	4 pipes right
D	4 pipes left
E	2 pipes/2 wires right, low pressure (PTC 2 wired stages)
F	2 pipes/2 wires left, low pressure (PTC 2 wired stages)
G	2 pipes/2 wires right, high pressure (PTC 5 wired stages)
H	2 pipes/2 wires left, high pressure (PTC 5 wired stages)
J	2 pipes/2 wires right, high pressure (PTC 4 wired stages)
K	2 pipes/2 wires left, high pressure (PTC 4 wired stages)

Digit 11	
0	None
A	230 V on/off
C	3 points 230 V

Digit 12	
-	None
A	NTC
D	NTC + IAQ board
K	NTC + fuse holder
L	NTC + IAQ board + fuse holder

Digit 13	
-	None
A	Return air sensor
B	Supply air sensor
C	Changeover sensor
D	A + B
E	A + B + C
F	A + C
G	B + C
H	CO2 sensor
J	A + CO2
K	B + CO2
L	C + CO2
M	A + B + CO2
N	A + C + CO2
P	B + C + CO2
Q	A + B + C + CO2

Digit 14	
F	F5 access from below
G	F5 side access
H	F5 access from above
K	F6 access from below
L	F6 side access
M	F6 access from above
S	Activated carbon filters + UVPCO (access from below)
T	Activated carbon filters + UVPCO (side access)
U	Activated carbon filters + UVPCO (access from above)

Guide specification

- The performance of each 42BJ ICM LEC unit supplied shall conform to the published technical and performance data.
- The casing of 42BJ ICM LEC units shall be made of galvanised steel, thermally and acoustically insulated, and shall provide adequate access to all components for maintenance and repair. All units shall have suspension lugs with flat rubber pieces to absorb shock and vibration.
- The connection collar for the supply and return air ducts has a diameter of 2 x 199 mm for sizes 1.9 and 2.9, and 2 x 249 mm for size 4.9.
- The fresh air connection collar shall be 125 mm in diameter and located upstream of the air filter and upstream of the heat exchange coils to enable the fresh air to be conditioned.

It shall be connected to the main primary air distribution duct via the extending flexible pipe. The fresh air flow must be between 8.3 and 44.4 l/s (30 and 160 m³/h).

- Each 42BJ ICM LEC unit supplied shall be fitted with a changeover heating or cooling coil, or a monobloc heating or cooling coil, or a cooling coil that is used with an electric heater. Water coils shall have manual bleed valves.
- The one-row cooling coils and five-row heating coils shall be made of copper tubes and aluminium fins. The operating pressure for water shall not exceed 10 bar (1000 kPa).
- The condensate drain pan beneath the coil and valves shall be monobloc and made of ABS to prevent the possibility of leaks.
- The two-way or three-way motorised water flow control valves shall be provided with flexible water pipes fitted with 1/2" threaded nuts to simplify site connections and maintenance work. Actuators shall be of the electrothermal type.
- Each 42BJ ICM LEC unit shall have a disposable high-efficiency F5 or F6 type air filter and M1 fire rating.

- Access to the filter shall be from the top, bottom or side of the unit, according to choice.
- The fan shall be a centrifugal, single-wheel type with single or double inlet. The available static pressure shall be sufficient to enable units to be installed outside the air conditioned space in order to simplify maintenance.
- The direct-drive fan motor is of the low-energy consumption (LEC) type. This direct-drive motor is electronically commutated (commonly referred to as EC motor), piloted by a 0-10 V signal that permits operation with a wide range of rotational speeds, varying from the base setting and is precise, simple and quiet.
- Electrical connections carried out on 42BJ ICM LEC units shall be the quick connection type in order to simplify maintenance.
- The communicating Carrier numerical controller shall use the CCN (Carrier Comfort Network) communication protocol.
- This controller shall provide the following functions:
 - Control of the fan speed on the ICM between a set minimum and maximum hot or cold air flow.
 - Control of the water flow through the two or three-way, on/off type valves by reference to internal and external loads to maintain a constant ambient temperature in the air conditioned space.
 - On/off control or PTC electric heater capacity.
 - Control via a microterminal with numerical display or a wall-mounted thermostat.
- The power supply to the controller shall be 230 V a.c. ± 15%, single-phase, 50 Hz, to avoid the need for a transformer. The electric heater shall be controlled directly by the Carrier numerical controller to avoid the need for a power triac.



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Manufacturer reserves the right to change any product specifications without notice.
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Quality and Environment
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