Direct expansion indoor unit for VRF

2-way cassette

Q2DN-3-XY D22-D71

TECHNICAL BULLETTIN

R-410A R-32 EEV

SIZE	D22	D28	D36	D45	D56	D71
COOLING CAPACITY kW	2.2	2.8	3.6	4.5	5.6	7.1
HEATING CAPACITY kW	2.6	3.2	4.0	5.0	6.3	8.0

General technical data

Model			Q2DN-3-XY D22	Q2DN-3-XY D28	Q2DN-3-XY D36
Power supply			1-phase, 220-240V, 50Hz		
Cooling[1]	Capacity	kW	2.2	2.8	3.6
		kBtu/h	7.5	9.6	12.3
	Power input	W	35	40	40
Heating[2]	Capacity	kW	2.6	3.2	4
		kBtu/h	8.9	10.9	13.6
	Power input	W	35	40	40
Fan motor type	Type		DC		
	Number		1		
Indoor coil	Number of rows		1		
	Tube pitch × row pitch	mm	21×13.37		
	Fin spacing	mm	1.5		
	Fin type		Hydrophilic aluminum		
	Tube OD and type	mm	Φ7 Inner-groove		
	Dimensions (L×H×W)	mm	882×210×13.37		
	Number of circuits		4		
Air flow rate[3]		m^3/h	654/612/571/530/488/449/410		725/679/641/591/554 /509/458
Sound pressure level[4]		dB(A)	33/31/30/29/27/25/24		35/33/32/30/29/27/25
Sound power level[5]		dB(A)	49/47/46/45/43/41/40		51/49/48/46/45/43/41
Main body	Net dimensions[6] (W×H×D)	mm	1172×299×591		
	Packed dimensions (W×H×D)	mm	1355×400×675		
	Net/Gross weight	kg	29.7/36.3		
Panel	Net dimensions (W×H×D)	mm	1430×53×680		
	Packed dimensions (W×H×D)	mm	1525×130×765		
	Net/Gross weight	kg	11/15		
Refrigerant type			R410A/R32		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7		
	Drain pipe	mm	OD Φ32		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.4m below the unit in a anechoic chamber.
5. Sound power level is from highest level to lowest level, total 7 levels for each model.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

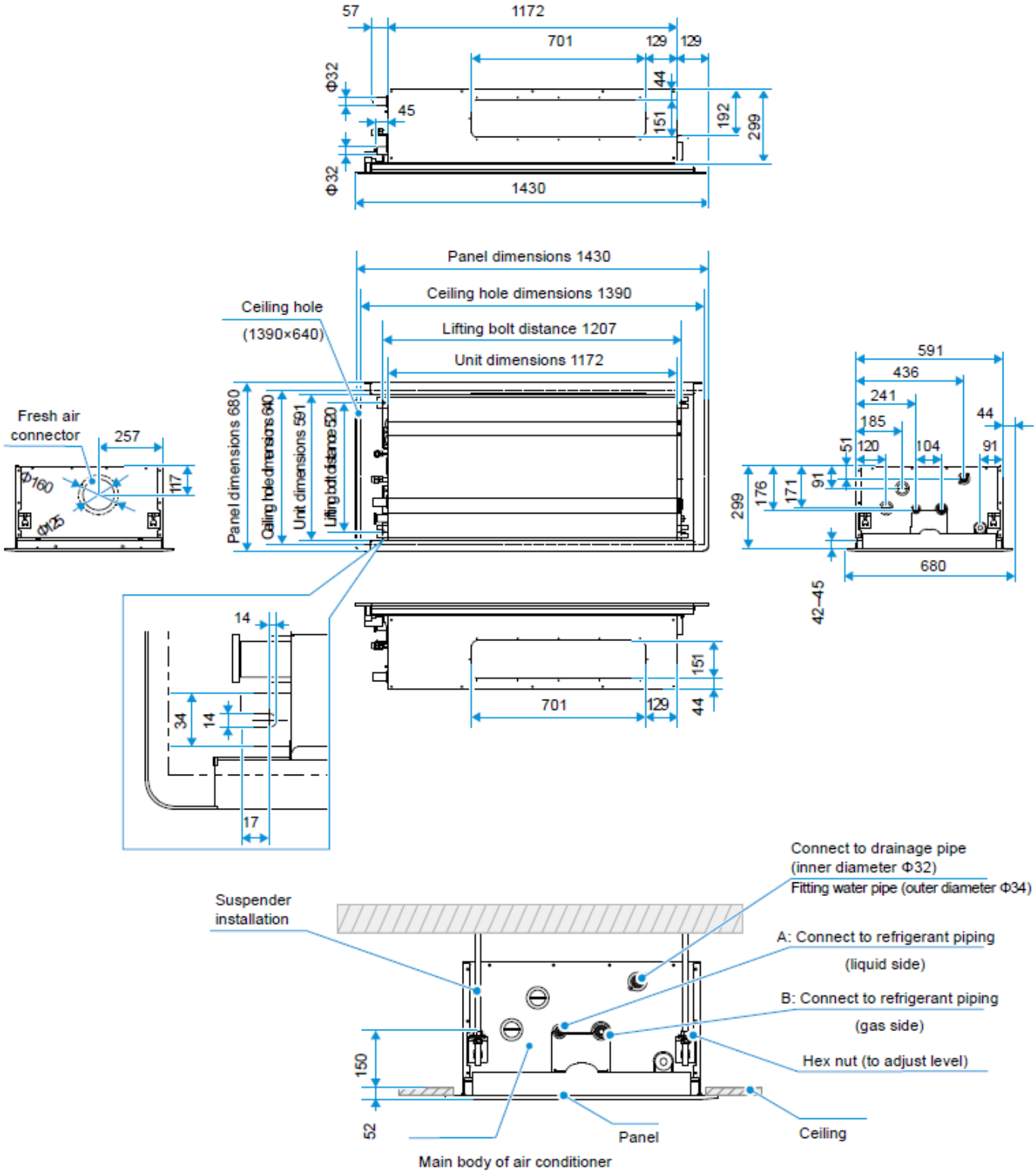
General technical data

Model			Q2DN-3-XY D45	Q2DN-3-XY D56	Q2DN-3-XY D71
Power supply			1-phase, 220-240V, 50Hz		
Cooling[1]	Capacity	kW	4.5	5.6	7.1
		kBtu/h	15.4	19.1	24.2
	Power input	W	50	69	98
Heating[2]	Capacity	kW	5	6.3	8
		kBtu/h	17.1	21.5	27.3
	Power input	W	50	69	98
Fan motor type	Type		DC		
	Number		1		
Indoor coil	Number of rows		2		
	Tube pitch × row pitch	mm	21×13.37		
	Fin spacing	mm	1.5		
	Fin type		Hydrophilic aluminum		
	Tube OD and type	mm	Φ7 Inner-groove		
	Dimensions (L×H×W)	mm	882×210×26.74		
	Number of circuits		6		
Air flow rate[3]		m^3/h	850/792/731/670/631 /592/550	980/925/855/800/755 /702/670	1200/1115/1068/1000 /921/808/770
Sound pressure level[4]		dB(A)	37/36/35/34/32/31/30	39/37/36/35/33/31/30	44/42/41/40/38/36/34
Sound power level[5]		dB(A)	53/52/51/50/48/47/46	55/53/52/51/49/47/46	60/58/57/56/54/52/50
Main body	Net dimensions[6] (W×H×D)	mm	1172×299×591		
	Packed dimensions (W×H×D)	mm	1355×400×675		
	Net/Gross weight	kg	31.6/38.2		
Panel	Net dimensions (W×H×D)	mm	1430×53×680		
	Packed dimensions (W×H×D)	mm	1525×130×765		
	Net/Gross weight	kg	11/15		
Refrigerant type			R410A/R32		
Design pressure (H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7		Φ9.52/Φ15.9
	Drain pipe	mm	OD Φ32		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured 1.4m below the unit in a anechoic chamber.
5. Sound power level is from highest level to lowest level, total 7 levels for each model.
6. The dimension is only the body size, excluding the size of the installation lug, connecting copper pipe, etc. For detailed dimensions, please refer to the installation manual.

Dimensions (unit: mm)



Model	B	A
D22÷ D56	Φ12.7	Φ6.35
D71	Φ15.9	Φ9.52

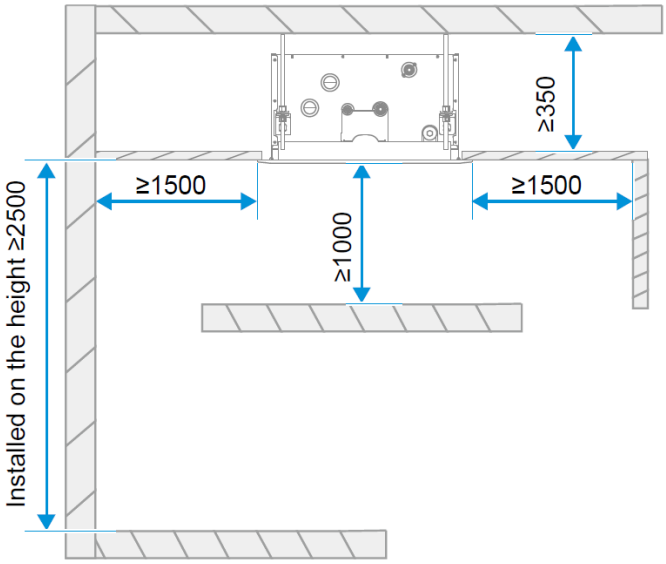
Unit placement

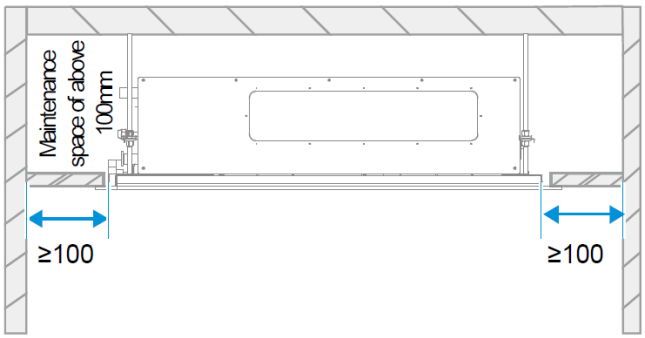
Placement Considerations

Unit placement should take account of the following considerations:

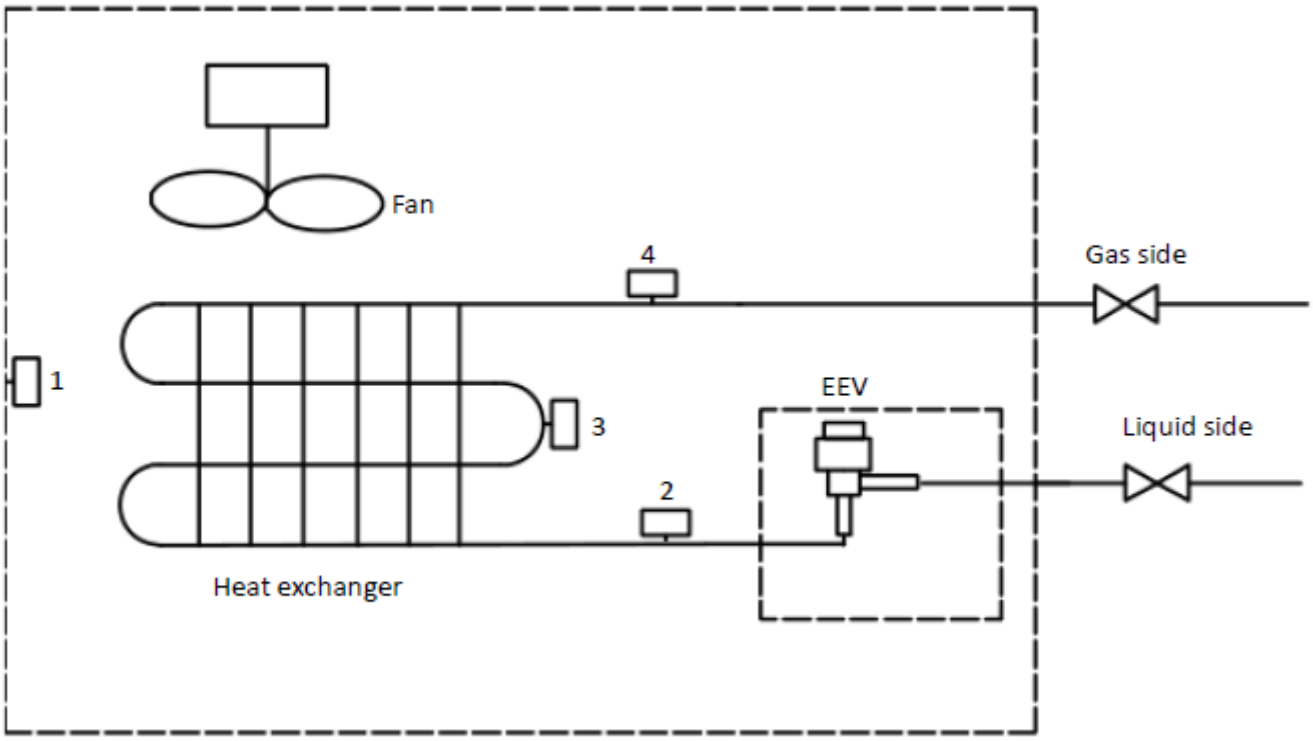
- Units should not be installed in the following locations:
  - A place filled with mineral oil, fumes or mist, like a kitchen.
  - A place where there are corrosive gases, such as acid or alkaline gases.
  - A place exposed to combustible gases and using volatile combustible gases such as diluent or gasoline.
  - A place where there is equipment emitting electromagnetic radiation.
  - A place where there is a high salt content in the air like a coast.
  - Do not use the air conditioner in an environment where an explosion may occur.
  - Places like in vehicles or cabin rooms.
  - Factories with major voltage fluctuations in the power supplies.
  - Other special environmental conditions.
- Units should be installed in positions where:
  - Ensure that the airflow in and out of the IDU is reasonably organized to form an air circulation in the room.
  - Ensure IDU maintenance space.
  - The nearer the drainage pipe and copper pipe are to the ODU, the lower the pipe cost is.
  - Prevent the air conditioner from blowing directly to the human body.
  - The closer the wiring to the power cabinet, the lower the wiring cost is.
  - Keep the air-conditioning return air away from the setting sun of the room.
  - Be careful not to interfere with the light tank, fire pipe, gas pipe and other facilities.
  - The IDU should not be lifted in the places like load-bearing beam and columns that affect the structural safety of the house.
  - The wired controller and the IDU should be in the same installation space; otherwise, the sampling point setting of the wired controller need to be changed.

Space requirements (unit: mm)



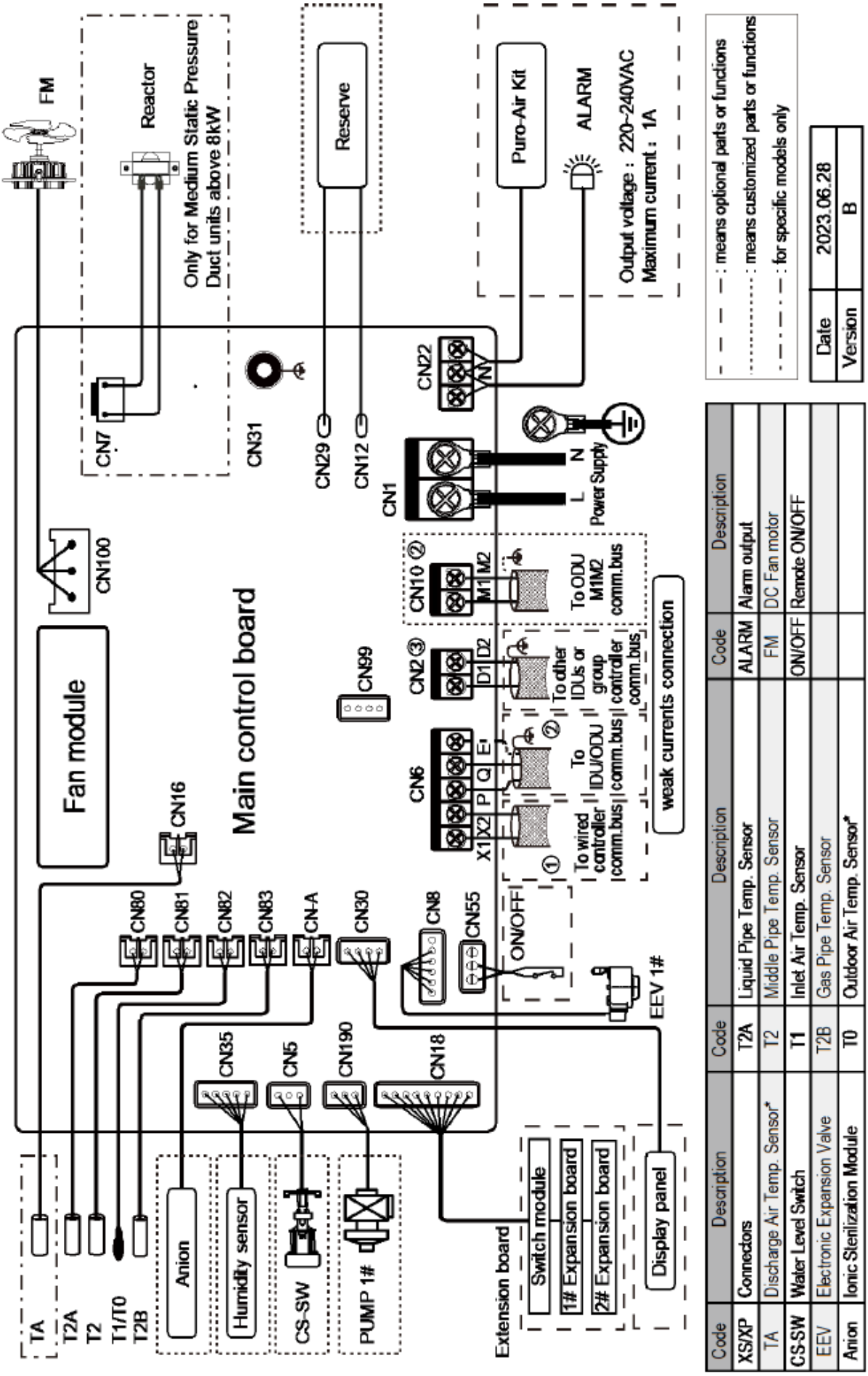


1. The centerline of the maintenance hole should be in the same position as the centerline of the indoor unit.



LEGEND		
1	T1	Inlet Air Temp. Sensor
2	T2A	Liquid Pipe Temp. Sensor
3	T2	Middle Pipe Temp. Sensor
4	T2B	Gas Pipe Temp. Sensor
5	EEV	Electronic Expansion Valve
6	FAN	DC Fan motor

Wiring Diagram



Code	Description	Code	Description	Code	Description
XS/XP	Connectors	T2A	Liquid Pipe Temp. Sensor	ALARM	Alarm output
TA	Discharge Air Temp. Sensor*	T2	Middle Pipe Temp. Sensor	FM	DC Fan motor
CS-SW	Water Level Switch	T1	Inlet Air Temp. Sensor	ON/OFF	Remote ON/OFF
EEV	Electronic Expansion Valve	T2B	Gas Pipe Temp. Sensor		
Anion	Ionic Sterilization Module	T0	Outdoor Air Temp. Sensor*		

* Indicates that this sensor is only available for Fresh Air Processing Unit

Caution

- All installation , servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- The dotted lines indicate the field wiring or optional function
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.

Capacity Tables

Cooling Capacity Table

MODEL	Indoor air temperature (°C WB/DB)													
	14/20		16/23		18/26		19/27		20/28		22/30		24/32	
	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Q2DN-3-XY D22	2.0	1.9	2.1	2.0	2.2	2.0	2.2	1.9	2.3	1.9	2.3	1.7	2.4	1.7
Q2DN-3-XY D28	2.5	2.4	2.7	2.6	2.8	2.5	2.8	2.4	2.9	2.4	2.9	2.2	3.0	2.1
Q2DN-3-XY D36	3.2	3.1	3.4	3.2	3.6	3.3	3.6	3.1	3.7	3.0	3.8	2.9	3.9	2.7
Q2DN-3-XY D45	4.0	3.8	4.3	3.9	4.5	3.9	4.5	3.8	4.6	3.7	4.7	3.5	4.8	3.3
Q2DN-3-XY D56	5.0	4.8	5.3	4.8	5.6	4.9	5.6	4.7	5.7	4.6	5.8	4.3	6.0	4.1
Q2DN-3-XY D71	6.3	6.0	6.7	6.1	7.0	6.2	7.1	6.0	7.2	5.8	7.4	5.5	7.6	5.2

Abbreviations:
TC: Total capacity (kW)
SC: Sensible capacity(kW)

Notes:
1.Shaded cells indicate rating condition.

Heating Capacity Table

MODEL	Indoor air temperature (°C DB)					
	16	18	20	21	22	24
	TC	TC	TC	TC	TC	TC
Q2DN-3-XY D22	2.8	2.8	2.6	2.5	2.4	2.3
Q2DN-3-XY D28	3.4	3.4	3.2	3.1	3.0	2.8
Q2DN-3-XY D36	4.2	4.2	4.0	3.8	3.8	3.5
Q2DN-3-XY D45	5.3	5.3	5.0	4.8	4.7	4.4
Q2DN-3-XY D56	6.7	6.6	6.3	6.1	5.9	5.5
Q2DN-3-XY D71	8.5	8.4	8.0	7.8	7.5	7.0

Abbreviations:
TC: Total capacity (kW)

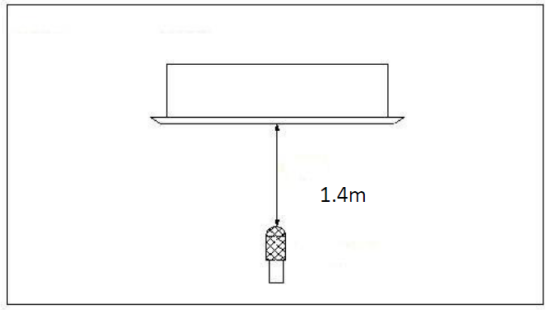
Notes:
1.Shaded cells indicate rating condition.

MODEL	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
Q2DN-3-XY D22	50	220-240	198	242	0.47	15	50	0.38
Q2DN-3-XY D28	50	220-240	198	242	0.47	15	50	0.38
Q2DN-3-XY D36	50	220-240	198	242	0.52	15	50	0.42
Q2DN-3-XY D45	50	220-240	198	242	0.59	15	50	0.47
Q2DN-3-XY D56	50	220-240	198	242	0.9	15	50	0.72
Q2DN-3-XY D71	50	220-240	198	242	1.3	15	50	1.04

Abbreviations:
MCA: Minimum Circuit Amps MFA: Maximum Fuse Amps FLA: Full Load Amps
Voltage range: Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.
Maximum allowable voltage variation between phases is 2%.
Selection wire size based on the value of MCA.
MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth circuit breaker).

Overall

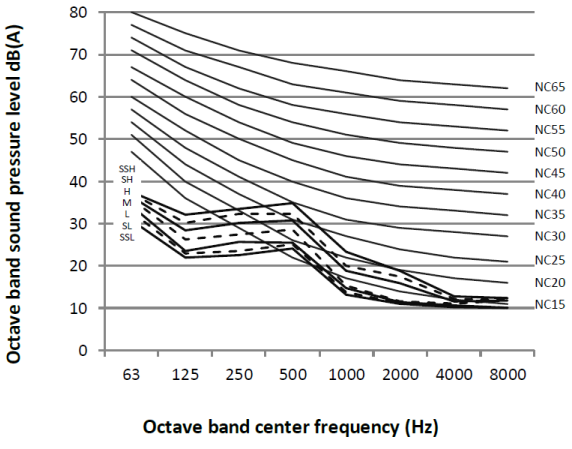
MODEL	Sound pressure levels dB						
	SSH	SH	H	M	L	SL	SSL
Q2DN-3-XY D22	33	31	30	29	27	25	24
Q2DN-3-XY D28	33	31	30	29	27	25	24
Q2DN-3-XY D36	35	33	32	30	29	27	25
Q2DN-3-XY D45	37	36	35	34	32	31	30
Q2DN-3-XY D56	39	37	36	35	33	31	30
Q2DN-3-XY D71	44	42	41	40	38	36	34



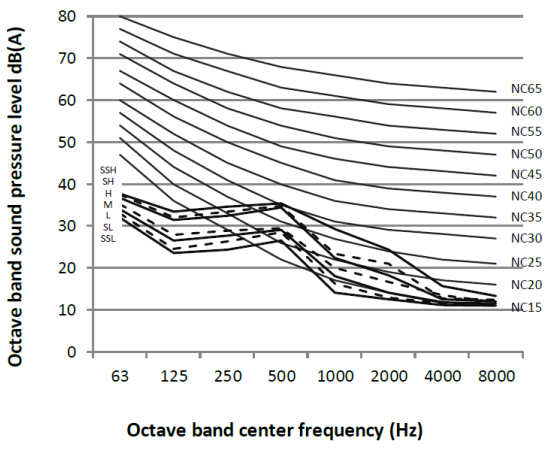
Notes:
1. Sound pressure levels are measured 1.4m below the unit in a semi-anechoic chamber at 0 Pa static pressure. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Octave Band Levels

Q2DN-3-XY D22 - D28

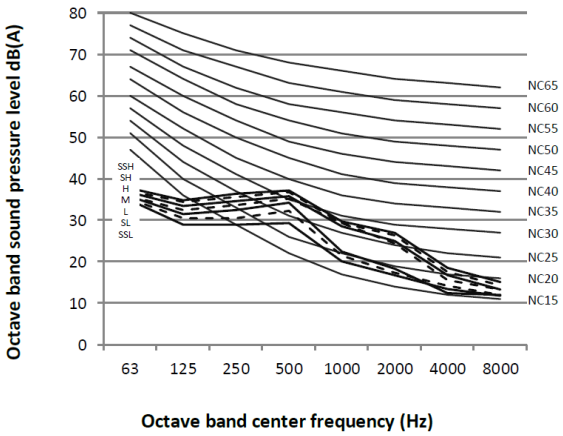


Q2DN-3-XY D36

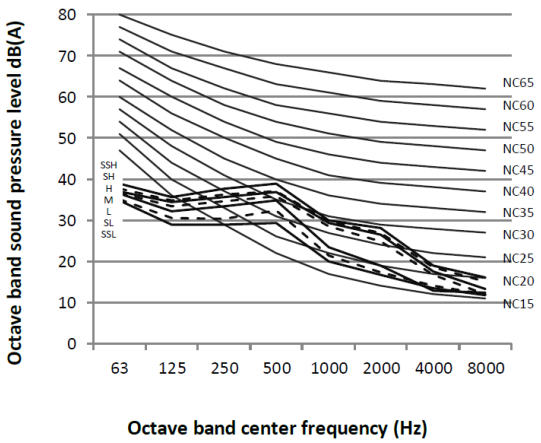


Sound Level

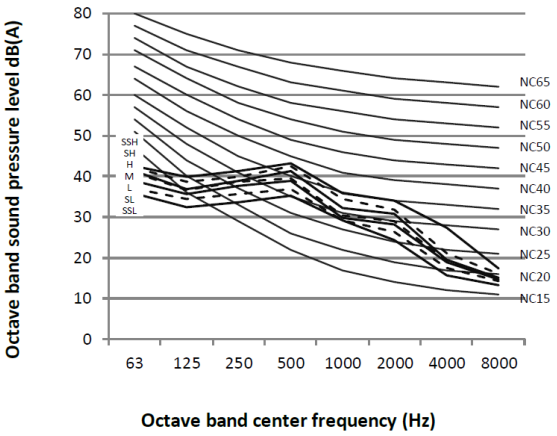
Q2DN-3-XY D45



Q4AN-3-XY D56



Q2DN-3-XY D71



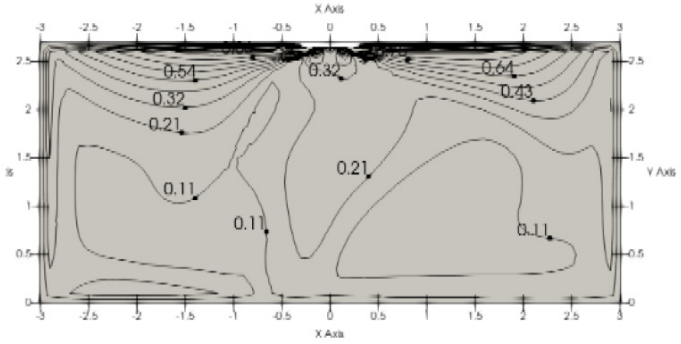
Simulate condition

MODEL NAME	Room size (m)	Ceiling height (m)	Flow angle (Cooling/Heating)	Placing
Q2DN-3-XY D22	6*6	2.7	35°/55°	Cassette
Q2DN-3-XY D28	6*6	2.7	35°/55°	Cassette
Q2DN-3-XY D36	6*6	2.7	35°/55°	Cassette
Q2DN-3-XY D45	8*8	2.7	35°/55°	Cassette
Q2DN-3-XY D56	8*8	2.7	35°/55°	Cassette
Q2DN-3-XY D71	8*8	2.7	35°/55°	Cassette

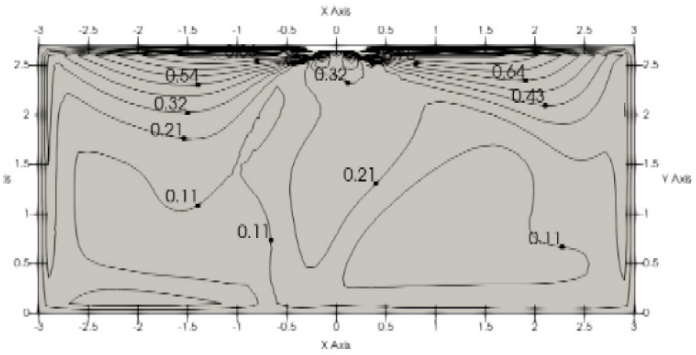
Note:
1. These figures and videos are based on software simulation. They show typical temperature and airflow distributions in the conditions above. In the actual installation, they may differ from these figures and videos under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

Airflow distributions - Cooling (after 300s)

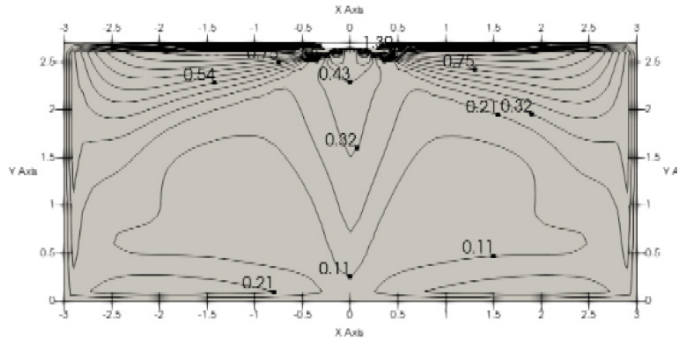
Q2DN-3-XY D22



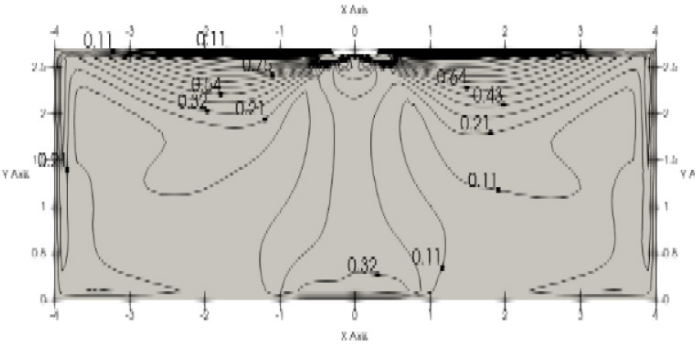
Q2DN-3-XY D28



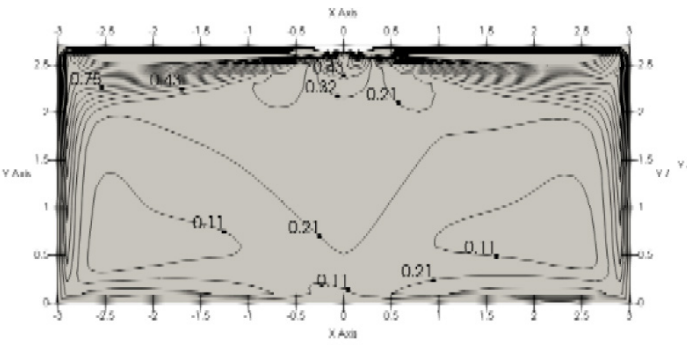
Q2DN-3-XY D36



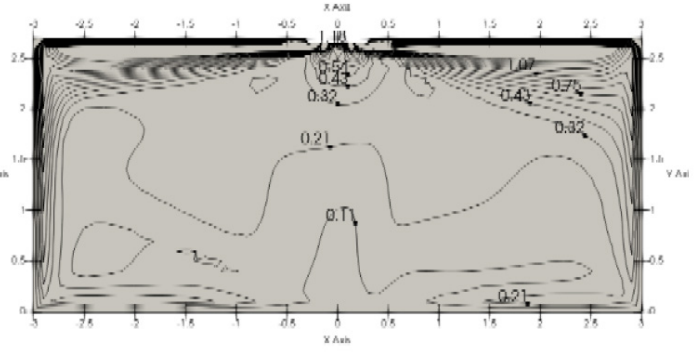
Q2DN-3-XY D45



Q2DN-3-XY D56



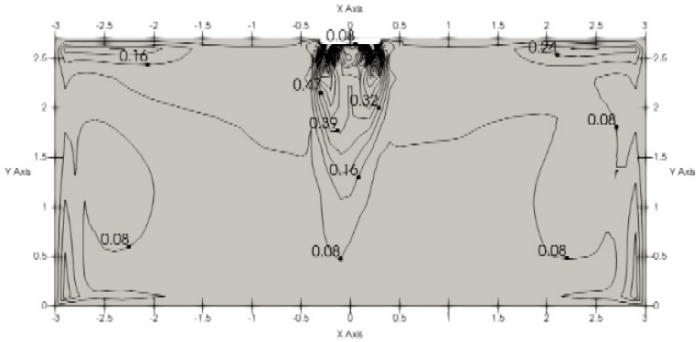
Q2DN-3-XY D71



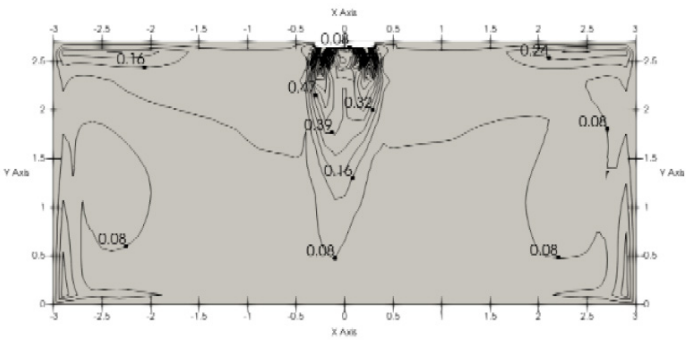
Temperature and Airflow Distributions

Airflow distributions - Heating (after 300s)

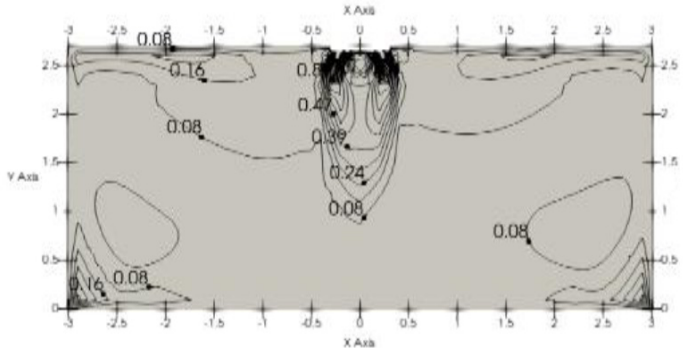
Q2DN-3-XY D22



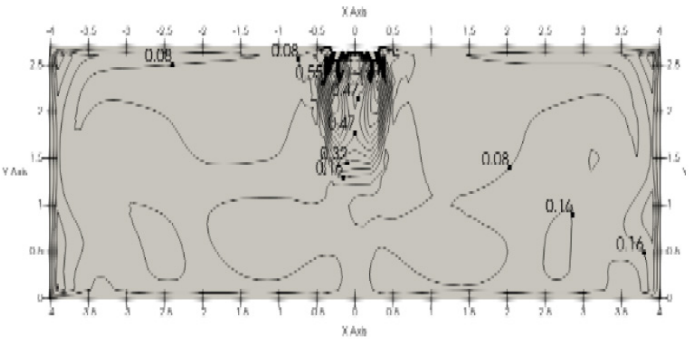
Q2DN-3-XY D28



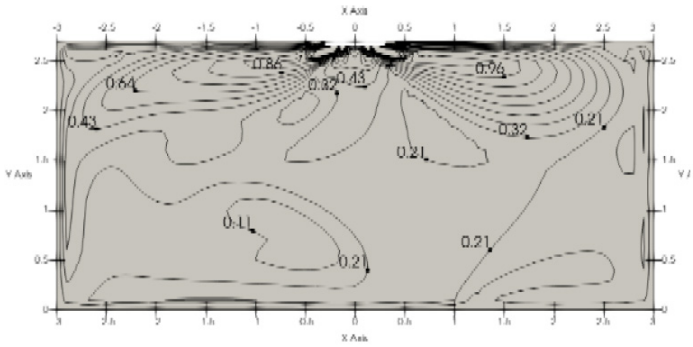
Q2DN-3-XY D36



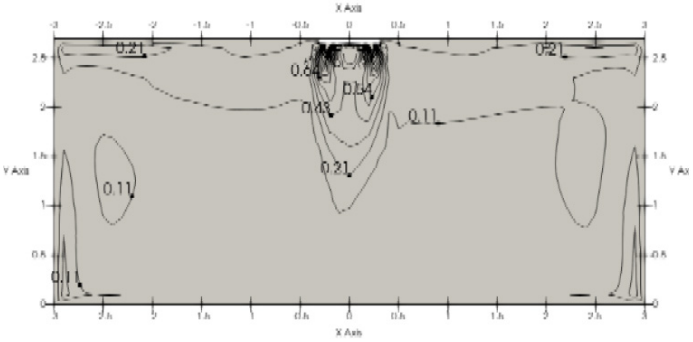
Q2DN-3-XY D45



Q2DN-3-XY D56

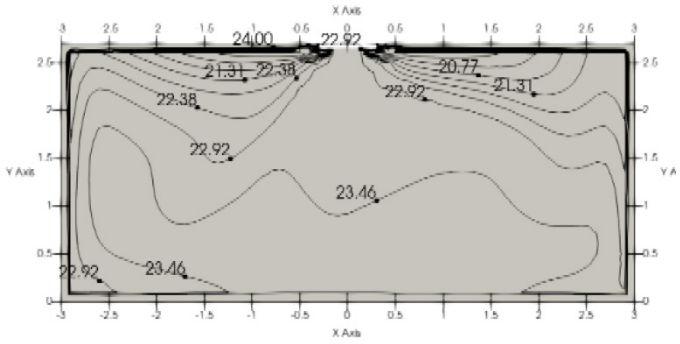


Q2DN-3-XY D71

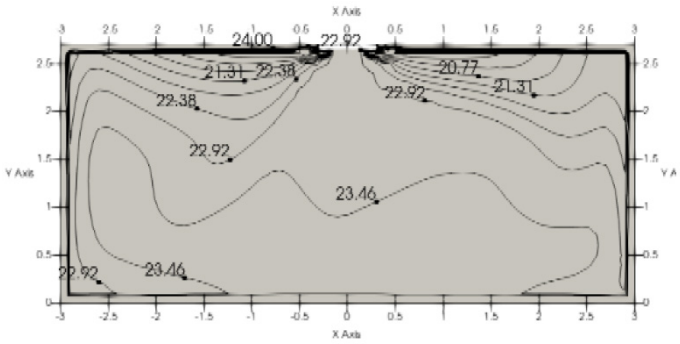


Temperature distributions - Cooling (after 300s)

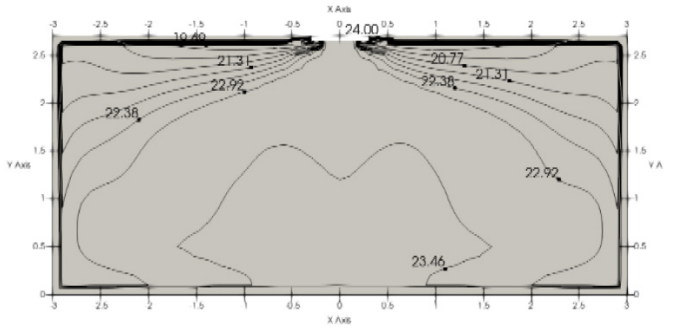
Q2DN-3-XY D22



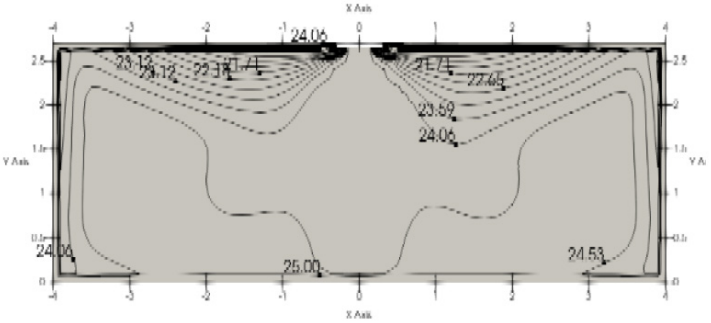
Q2DN-3-XY D28



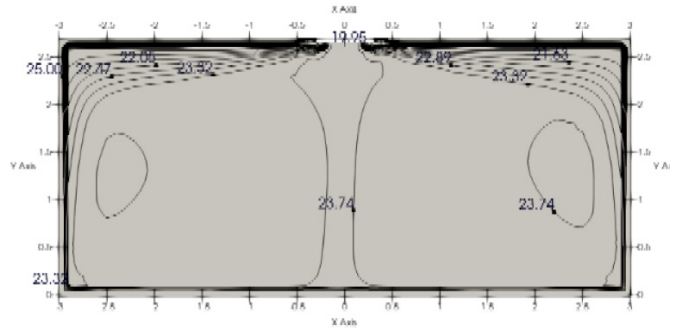
Q2DN-3-XY D36



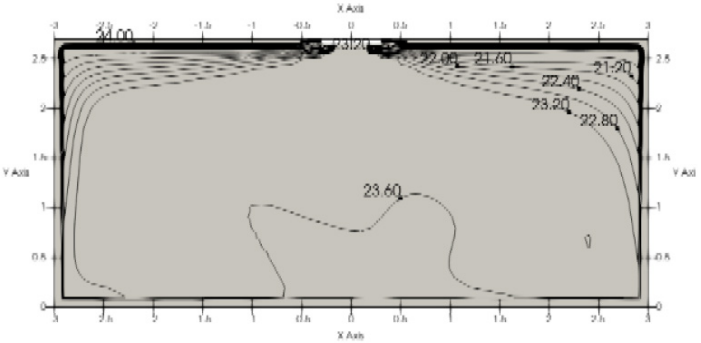
Q2DN-3-XY D45



Q2DN-3-XY D56

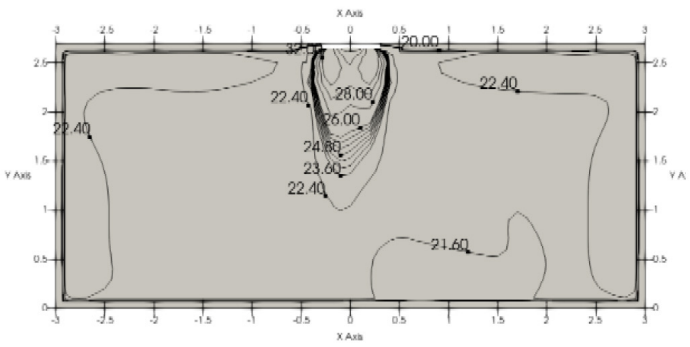


Q2DN-3-XY D71

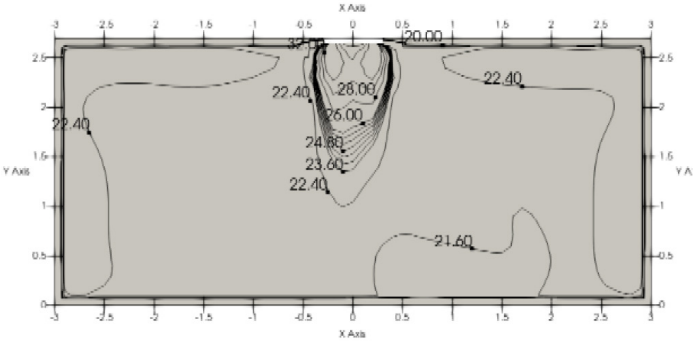


Temperature distributions - Heating (after 300s)

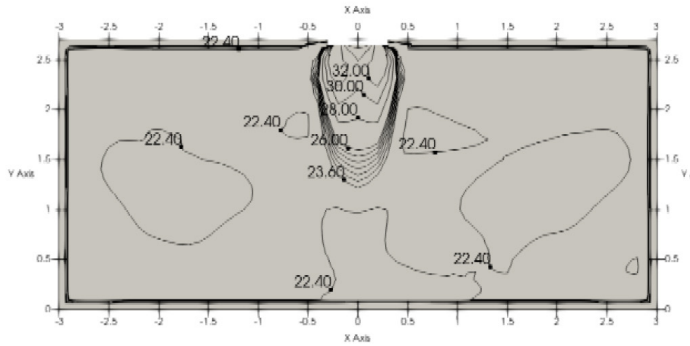
Q2DN-3-XY D22



Q2DN-3-XY D28



Q2DN-3-XY D36



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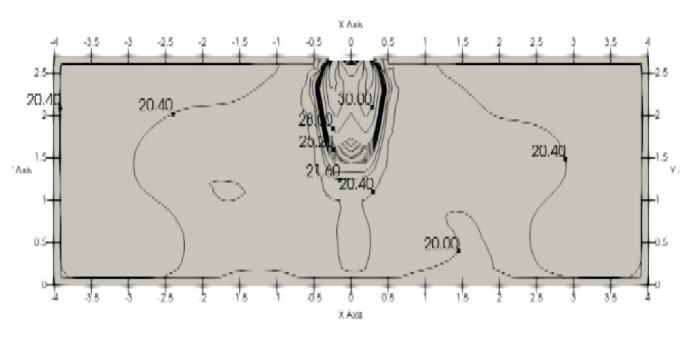

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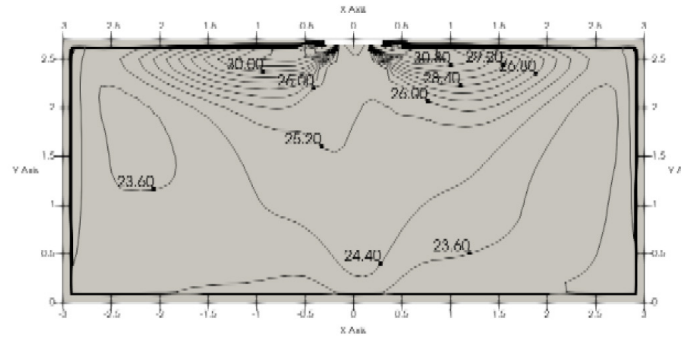
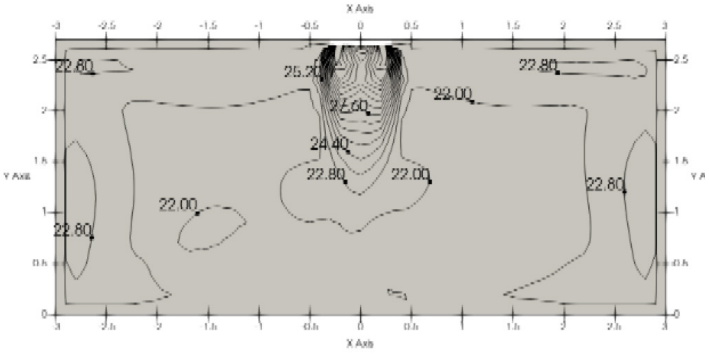


Q2DN-3-XY D71



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