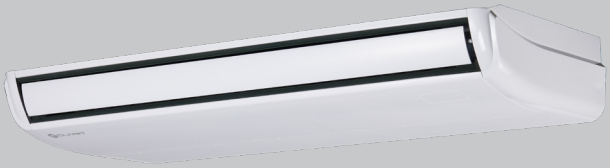
Direct expansion indoor unit for VRF

Ceiling & Floor

DDLC-3-XY D36 ÷ D140

TECHNICAL BULLETTIN



SIZE	D36	D45	D56	D71	D80	D90	D100	D112	D125	D140
COOLING CAPACITY kW	3.6	4.5	5.6	7.1	8	9	10	11.2	12.5	14
HEATING CAPACITY kW	4	5	6.3	8	9	10	11.2	12.5	14	16

General technical data

Model			DDLC-3-XY D36	DDLC-3-XY D45	DDLC-3-XY D56
Power supply				1 phase, 220-240V, 50Hz	
Cooling[1]	Capacity	kW	3.6	4.5	5.6
	Power input	W	16	24	40
Heating[2]	Capacity	kW	4	5	6.3
	Power input	W	16	24	40
Fan motor	Model		ZKSN-50-8-5L-4	ZKSN-50-8-5L-4	ZKSN-50-8-5L-4
	Type			DC	
Indoor coil	Number of rows		3	3	3
	Tube pitch × row pitch	mm	18×10.72	18×10.72	18×10.72
	Fin spacing	mm	1.35	1.35	1.35
	Fin type			Hydrophilic aluminum	
	Tube OD and type	mm		Φ5 Inner-groove	
	Dimensions (L×H×W)	mm	730×21.44×288	730×21.44×288	730×21.44×288
	Number of circuits		8	8	8
Air flow rate[3]		m^3/h	564/539/514/492 /467/445/424	712/674/637/603 /565/531/500	927/883/840/794 /751/707/665
Sound pressure level[4]		dB(A)	32/30/29/28/27/26 /25	36/35/34/33/32/31 /30	43/41/40/38/36/34 /33
Sound power level		dB(A)	43/42/40/39/38/38 /37	47/45/45/43/42/41 /40	54/53/51/50/48/47 /45
Main body	Net dimensions[5] (W×H×D)	mm		1069×674×234	
	Packed dimensions (W×H×D)	mm		1190×755×313	
	Net/Gross weight	kg	24.7/29.5	24.7/29.5	24.7/29.5
Refrigerant type				R410A/R32	
Design pressure (H/L)		MPa		4.4/1.5	
Pipe connections	Liquid/Gas pipe	mm		Φ6.35/Φ12.7	
	Drain pipe	mm		OD Φ25	

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. Fan motor speed and 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 in an anechoic chamber.
5. 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			DDLC-3-XY D71	DDLC-3-XY D80	DDLC-3-XY D90
Power supply				1 phase, 220-240V, 50Hz	
Cooling[1]	Capacity	kW	7.1	8	9
	Power input	W	42	56	75
Heating[2]	Capacity	kW	8	9	10
	Power input	W	42	56	75
Fan motor	Model		ZKSN-60-8-7-3	ZKSN-60-8-7-3	ZKSN-60-8-7-3
	Type			DC	
Indoor coil	Number of rows		3	3	3
	Tube pitch × row pitch	mm	18×10.72	18×10.72	18×10.72
	Fin spacing	mm	1.35	1.35	1.35
	Fin type			Hydrophilic aluminum	
	Tube OD and type	mm		Φ5 Inner-groove	
	Dimensions (L×H×W)	mm	930×21.44×288	930×21.44×288	930×21.44×288
	Number of circuits		8	8	8
Air flow rate[3]		m^3/h	1128/1062/1024/926/860/791/729	1300/1218/1138/1057/982/904/824	1480/1397/1302/1218/1138/1056/979
Sound pressure level[4]		dB(A)	43/40/39/37/35/34 /33	45/44/42/40/38/36 /34	48/47/46/44/42/40 /37
Sound power level		dB(A)	54/53/52/51/49/48 /48	55/53/51/50/49/46 /44	58/57/55/54/52/50 /49
Main body	Net dimensions[5] (W×H×D)	mm		1284×674×234	
	Packed dimensions (W×H×D)	mm		1405×755×323	
	Net/Gross weight	kg	29.8/34.8	29.8/34.8	29.8/34.8
Refrigerant type				R410A/R32	
Throttle				Electronic expansion valve	
Design pressure (H/L)		MPa		4.4/1.5	
Pipe connections	Liquid/Gas pipe	mm		Φ9.52/Φ15.9	
	Drain pipe	mm		OD Φ25	

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. Fan motor speed and 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 in an anechoic chamber.
5. 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

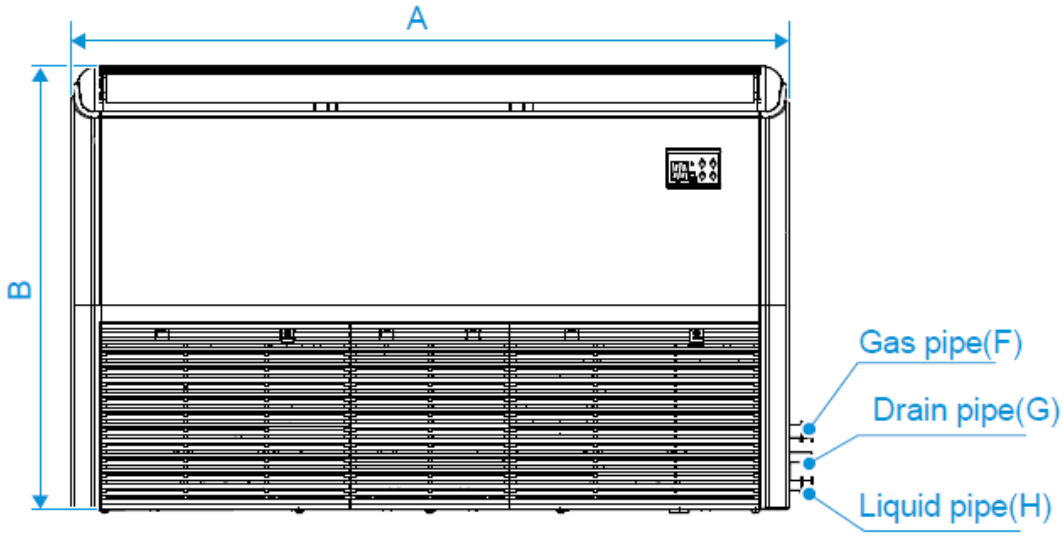
Model			DDLC-3-XY D100	DDLC-3-XY D112	DDLC-3-XY D125	DDLC-3-XY D140
Power supply			1 phase, 220-240V, 50Hz			
Cooling[1]	Capacity	kW	10	11.2	12.5	14
	Power input	W	50	65	95	140
Heating[2]	Capacity	kW	11.2	12.5	14	16
	Power input	W	50	65	95	140
Fan motor	Model		ZKSN-60-8-7-3	ZKSN-60-8-7-3	ZKSN-60-8-7-3	ZKSN-60-8-7-3
	Type		DC			
Indoor coil	Number of rows		3	3	3	3
	Tube pitch × row pitch	mm	18×10.72	18×10.72	18×10.72	18×10.72
	Fin spacing	mm	1.35	1.35	1.35	1.35
	Fin type		Hydrophilic aluminum			
	Tube OD and type	mm	Φ5 Inner-groove			
	Dimensions (L×H×W)	mm	1305×21.44×288	1305×21.44×288	1305×21.44×288	1305×21.44×288
	Number of circuits		8	8	8	8
Air flow rate[3]		m^3/h	1497/1469/1296/1200/1104/1015 /918	1648/1530/1469/1292/1178/1067 /956	2012/1879/1772/1649/1531/1469 /1285	2206/2070/1937/1810/1677/1516 /1402
Sound pressure level[4]		dB(A)	42/40/39/37/35 /33/32	44/42/41/39/37 /35/33	49/48/46/44/42 /40/38	51.5/50/48/46 /44/42/40
Sound power level		dB(A)	54/53/51/50/48 /46/44	56/54/53/51/49 /47/45	60/59/58/56/54 /53/51	63/62/60/58/56 /54/53
Main body	Net dimensions[5] (W×H×D)	mm	1649×674×234			
	Packed dimensions (W×H×D)	mm	1770×755×323			
	Net/Gross weight	kg	36.4/42.7	36.4/42.7	36.4/42.7	36.4/42.7
Refrigerant type			R410A/R32			
Throttle		Type	Electronic expansion valve			
Design pressure (H/L)		MPa	4.4/1.5			
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9			
	Drain pipe	mm	OD Φ25			

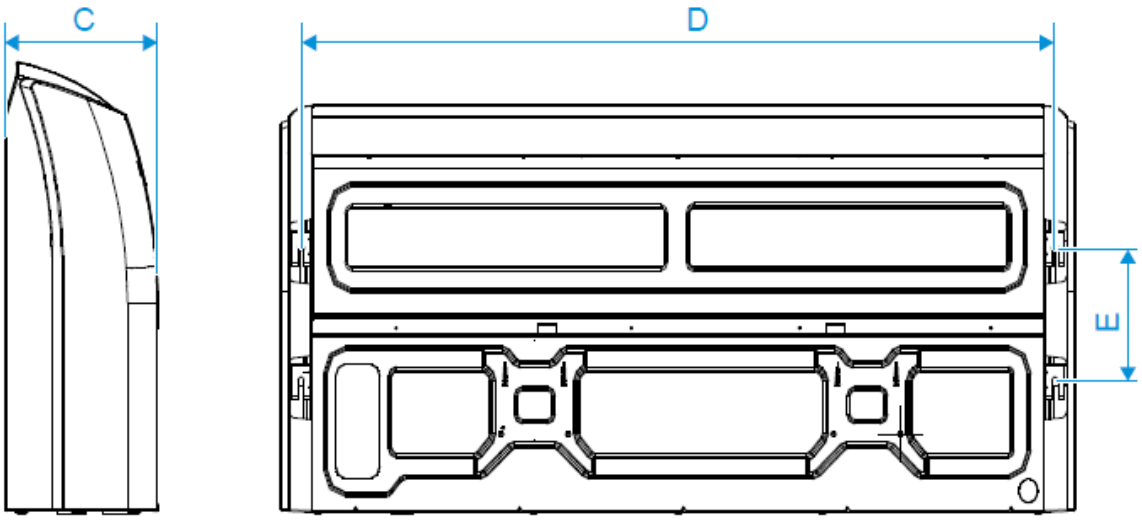
Notes:

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. Fan motor speed and 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 in an anechoic chamber.
5. 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

Size D36 - D140 (unit: mm)





Capacity(kW)	A	B	C	D	E	F	G	H
kW≤5.6	1069	674	234	984	221	Φ12.7	Φ25	Φ6.35
5.6<kW≤9.0	1284	674	234	1199	221	Φ15.9	Φ25	Φ9.52
9.0<kW≤14.0	1649	674	234	1565	221	Φ15.9	Φ25	Φ9.52

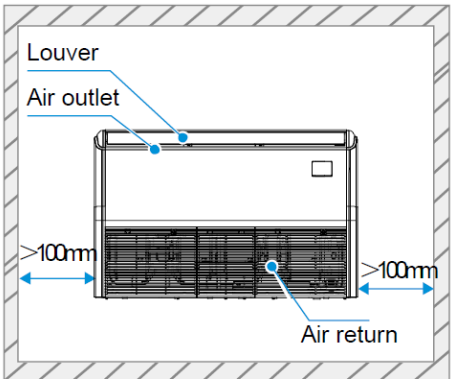
Placement Considerations

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.

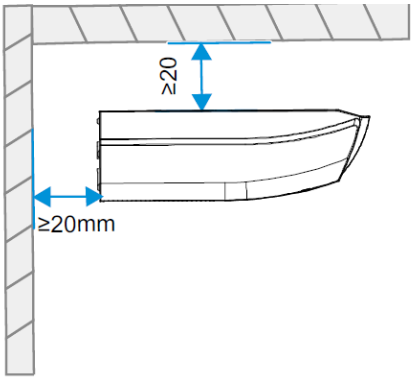
Space Requirements (unit: mm)

Ceiling & Floor



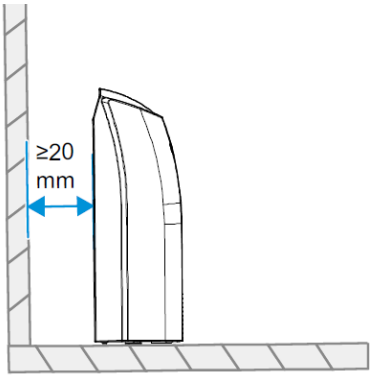
Installation distance from both sides of the indoor unit to the wall

Ceiling



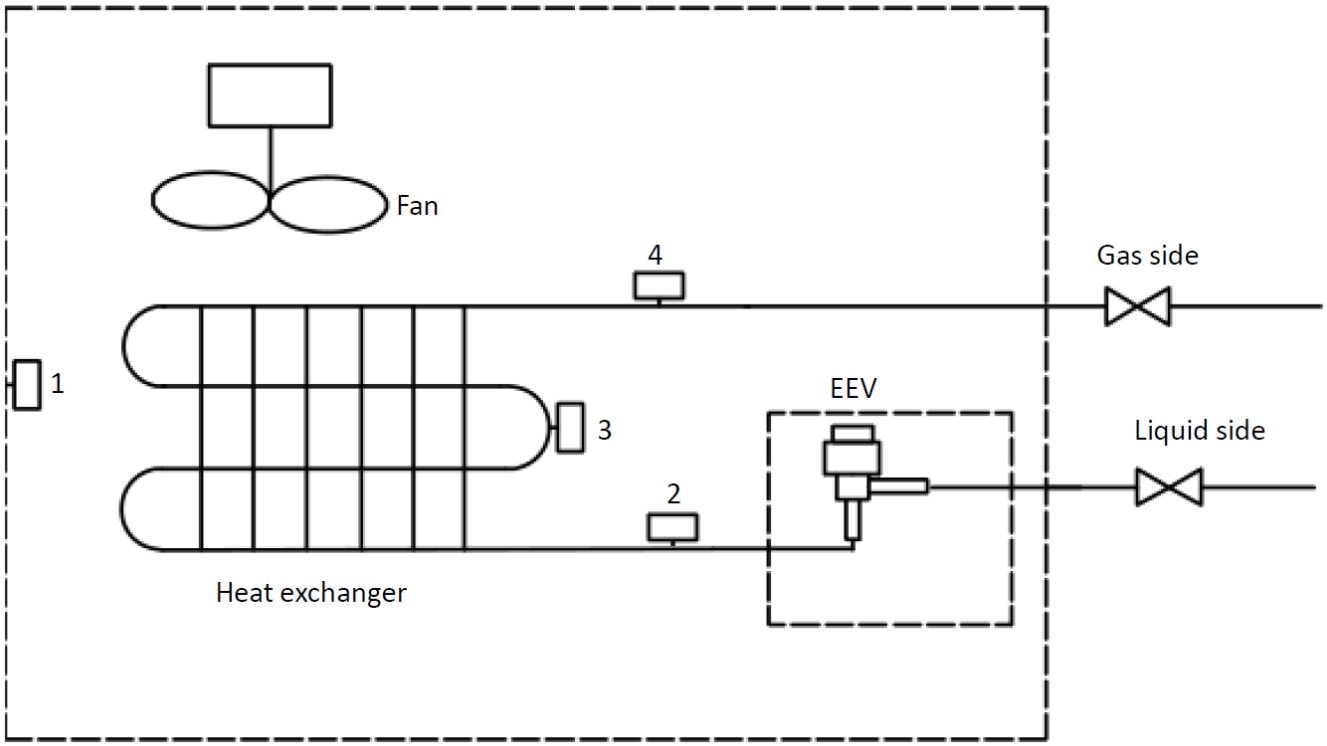
Installation distance from the top and back of the indoor unit to the wall

Floor

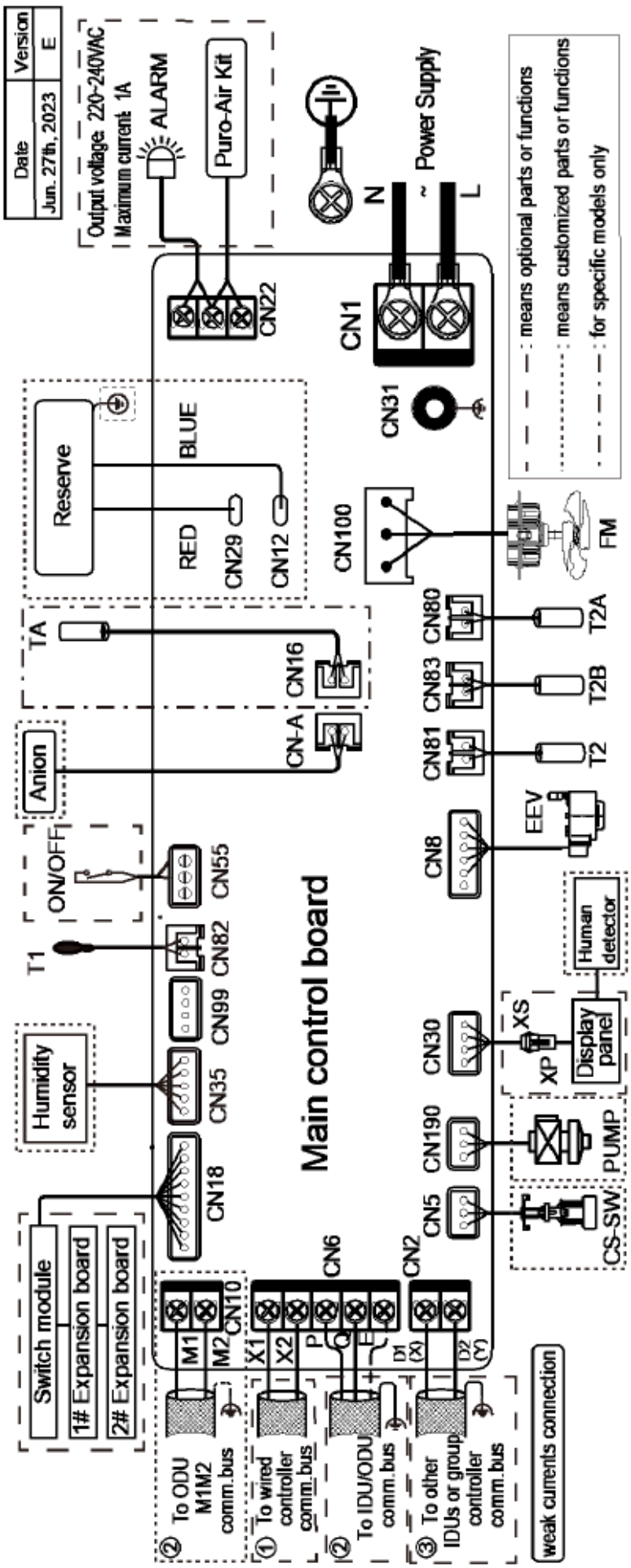


Installation distance from the back of the indoor unit to the wall

Piping Diagram



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



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

Notes for installers and service engineers

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.
- P ower supply wiring should be securely fastened at the power supply terminals loose power supply wiring would represent a fire risk.
- Aft er installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- D1D2 communication ports are used for group control communication. When connecting th e 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 mo de. In addition, D1D2 communication ports can also be connected to the central controller.

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
DDLC-3-XY D36	3.2	3.0	3.4	3.0	3.6	3.1	3.6	3.0	3.7	2.9	3.8	2.8	3.9	2.7
DDLC-3-XY D45	4.0	3.6	4.3	3.8	4.5	3.8	4.5	3.7	4.6	3.6	4.7	3.4	4.8	3.3
DDLC-3-XY D56	5.0	4.5	5.3	4.6	5.6	4.7	5.6	4.6	5.7	4.5	5.8	4.2	6.0	4.1
DDLC-3-XY D71	6.3	5.7	6.7	5.8	7.0	5.9	7.1	5.8	7.2	5.6	7.4	5.4	7.6	5.2
DDLC-3-XY D80	7.1	6.4	7.6	6.6	7.9	6.7	8.0	6.5	8.1	6.3	8.3	6.0	8.5	5.8
DDLC-3-XY D90	8.0	7.2	8.5	7.4	8.9	7.5	9.0	7.3	9.1	7.1	9.4	6.8	9.6	6.5
DDLC-3-XY D100	8.9	8.1	9.5	8.3	9.9	8.4	10.0	8.2	10.1	8.0	10.4	7.6	10.7	7.3
DDLC-3-XY D112	9.9	9.1	10.6	9.3	11.1	9.4	11.2	9.2	11.3	8.9	11.6	8.4	11.9	8.1
DDLC-3-XY D125	11.0	10.1	11.7	10.3	12.3	10.4	12.5	10.2	12.6	9.9	12.9	9.3	13.2	9.0
DDLC-3-XY D140	12.4	11.3	13.2	11.6	13.8	11.7	14.0	11.4	14.2	11.1	14.5	10.5	14.9	10.1

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
	SHC	SHC	SHC	SHC	SHC	SHC
DDLC-3-XY D36	4.2	4.2	4.0	3.8	3.8	3.5
DDLC-3-XY D45	5.3	5.3	5.0	4.8	4.7	4.4
DDLC-3-XY D56	6.7	6.6	6.3	6.1	5.9	5.5
DDLC-3-XY D71	8.5	8.4	8.0	7.8	7.5	7.0
DDLC-3-XY D80	9.5	9.5	9.0	8.7	8.5	7.8
DDLC-3-XY D90	10.6	10.5	10.0	9.7	9.4	8.8
DDLC-3-XY D100	11.9	11.8	11.2	10.9	10.5	9.8
DDLC-3-XY D112	13.3	13.1	12.5	12.1	11.8	10.9
DDLC-3-XY D125	14.8	14.7	14.0	13.6	13.2	12.2
DDLC-3-XY D140	17.0	16.7	16.0	15.6	15.0	14.0

Abbreviations:
SHC: Sensible Heat Capacity
Notes:
1.Shaded cells indicate rating condition.

Electrical Characteristics

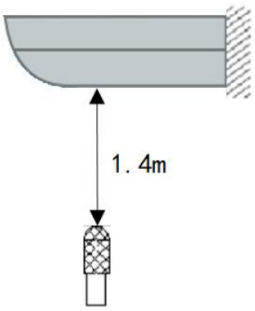
MODEL	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
DDLC-3-XY D36	50	220-240	198	264	0.20	15	50	0.16
DDLC-3-XY D45	50	220-240	198	264	0.28	15	50	0.22
DDLC-3-XY D56	50	220-240	198	264	0.43	15	50	0.34
DDLC-3-XY D71	50	220-240	198	264	0.45	15	50	0.36
DDLC-3-XY D80	50	220-240	198	264	0.60	15	60	0.48
DDLC-3-XY D90	50	220-240	198	264	0.75	15	60	0.60
DDLC-3-XY D100	50	220-240	198	264	0.63	15	60	0.50
DDLC-3-XY D112	50	220-240	198	264	0.75	15	60	0.60
DDLC-3-XY D125	50	220-240	198	264	1.00	15	60	0.80
DDLC-3-XY D140	50	220-240	198	264	1.25	15	60	1.00

Notes:
MCA: Max. Current Amps. (A)
MFA: Max. Fuse Amps. (A) :
KW: Fan Motor Rated Output (kW)
FLA: Full Load Amps. (A)

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

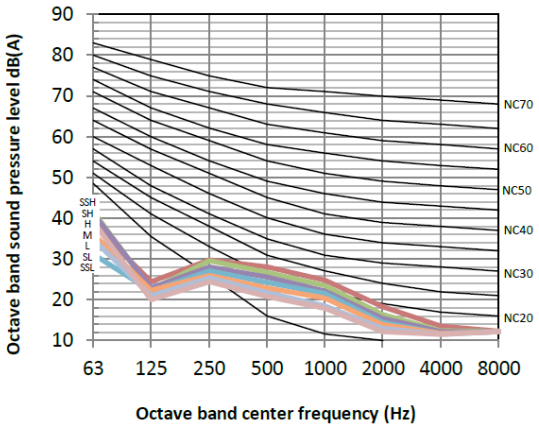
MODEL	Sound pressure levels dB						
	SSH	SH	H	M	L	SL	SSL
DDLC-3-XY D36	32	30	29	28	27	26	25
DDLC-3-XY D45	36	35	34	33	32	31	30
DDLC-3-XY D56	43	41	40	38	36	34	33
DDLC-3-XY D71	43	40	39	37	35	34	33
DDLC-3-XY D80	45	44	42	40	38	36	34
DDLC-3-XY D90	48	47	46	44	42	40	37
DDLC-3-XY D100	42	40	39	37	35	33	32
DDLC-3-XY D112	44	42	41	39	37	35	33
DDLC-3-XY D125	49	48	46	44	42	40	38
DDLC-3-XY D140	51.5	50	48	46	44	42	40



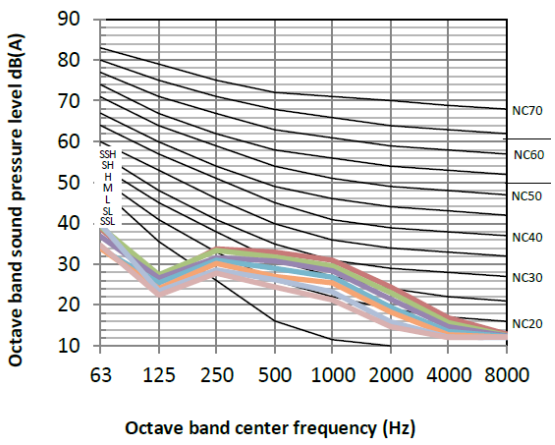
Notes:
1. Sound pressure levels are measured 1.4 m below the unit in a semi-anechoic chamber at 0 Pa. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Octave Band Levels

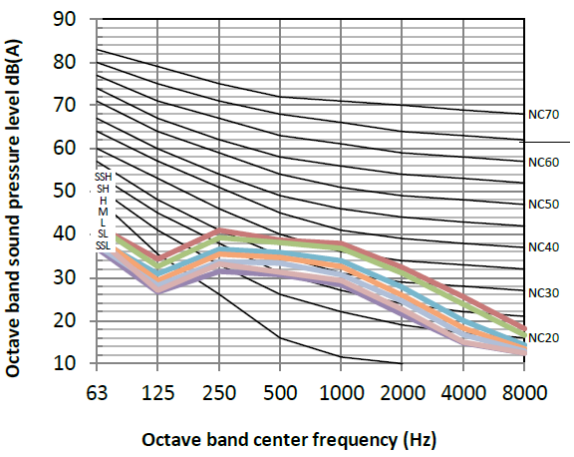
DDLC-3-XY D36



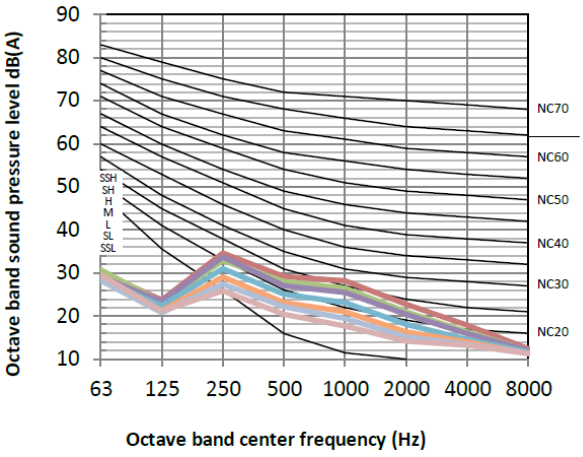
DDLC-3-XY D45



DDLC-3-XY D56

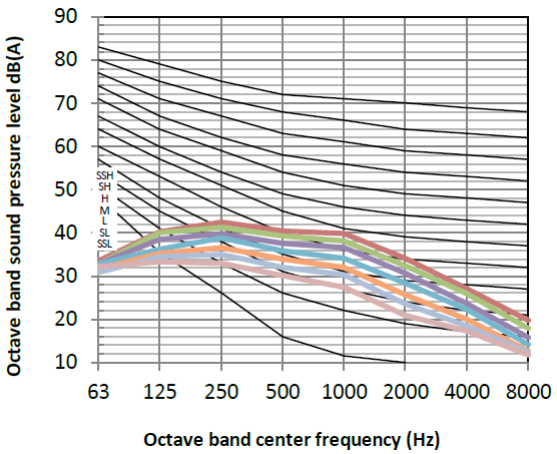


DDLC-3-XY D71

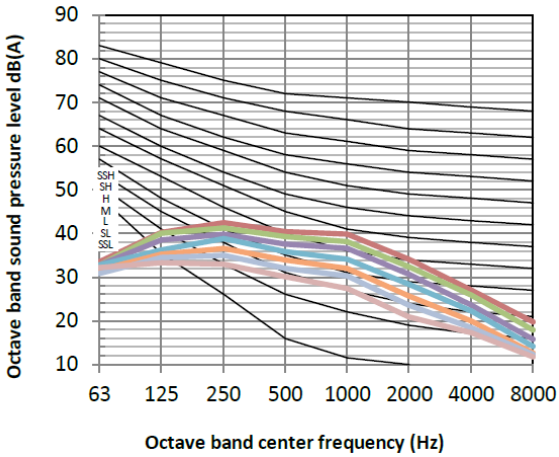


Sound levels

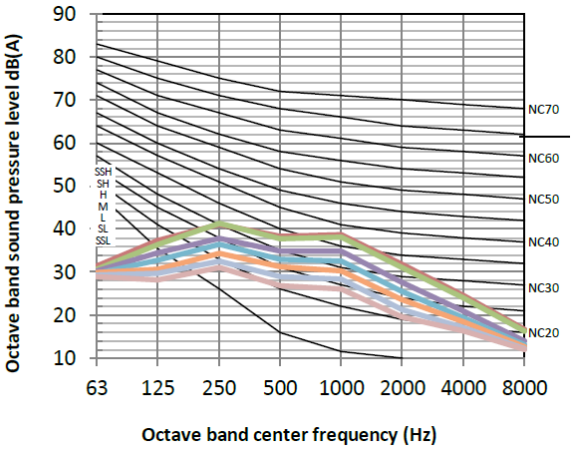
DDLC-3-XY D80



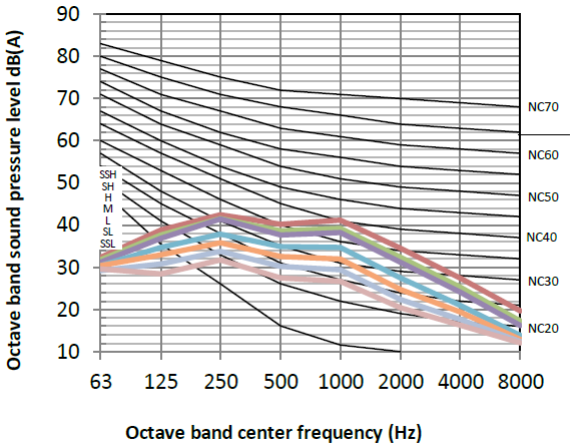
DDLC-3-XY D90



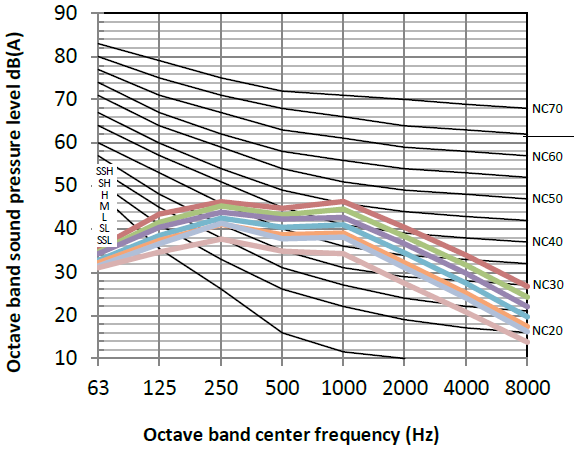
DDLC-3-XY D100



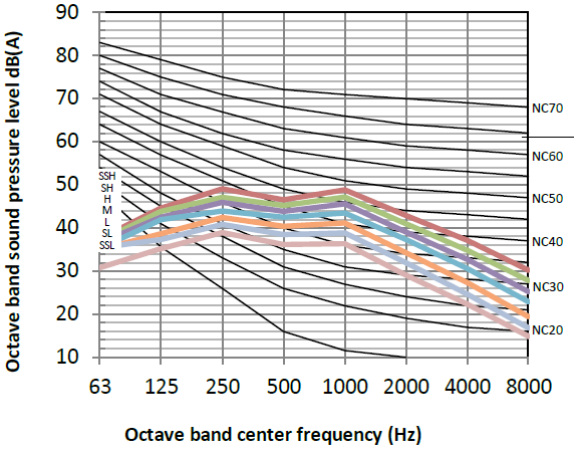
DDLC-3-XY D112



DDLC-3-XY D125



DDLC-3-XY D140



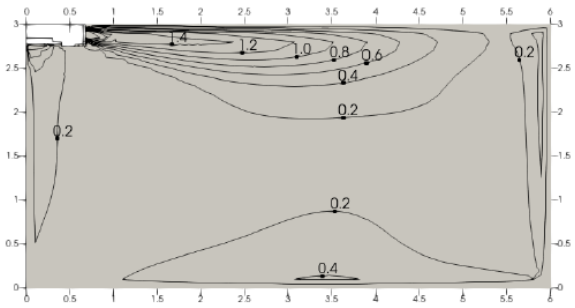
Simulate condition

MODEL NAME	Room size (m)	Ceiling height (m)	Flow angle (Cooling/Heating)	Placing
DDLC-3-XY D36	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D45	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D56	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D71	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D80	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D90	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D100	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D112	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D125	10×10	4	12°/52°	Ceiling&Floor
DDLC-3-XY D140	10×10	4	12°/52°	Ceiling&Floor

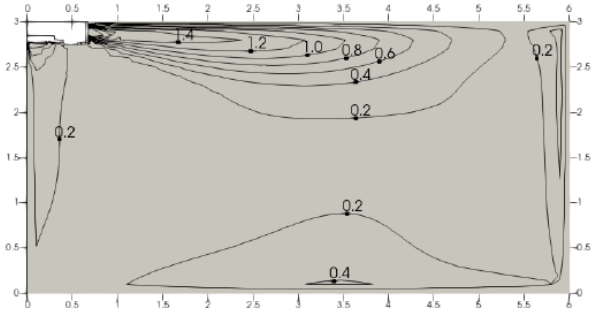
Note:
1. These figures and videos are based on software simulation. They show typical temperature and airflow distributions in the conditions above. In the actual installation, they may differ from these figures and videos under the influence of air temperature conditions, ceiling height, cooling/heating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

Airflow distributions - Cooling (after 300s)

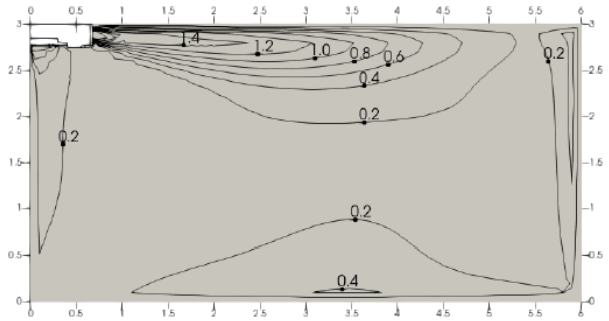
DDLC-3-XY D36



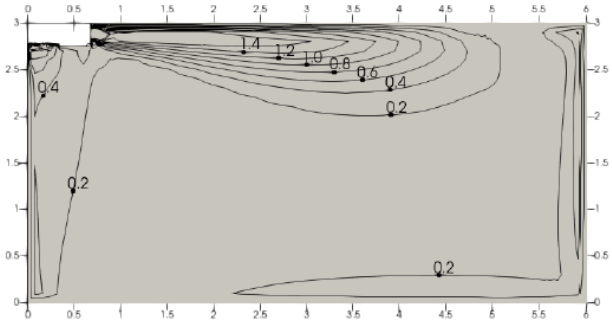
DDLC-3-XY D45



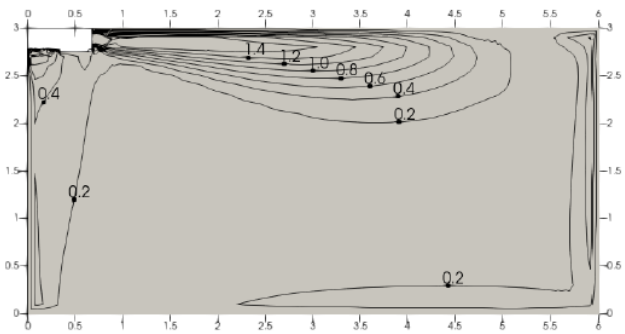
DDLC-3-XY D56



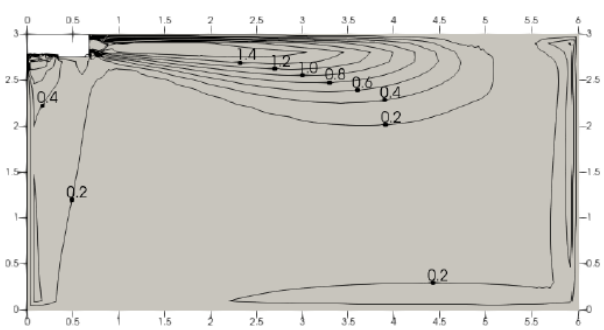
DDLC-3-XY D71



DDLC-3-XY D80

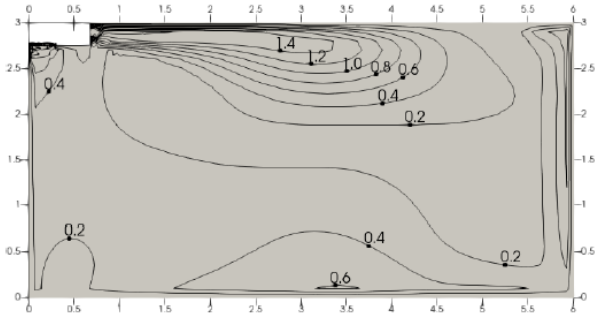


DDLC-3-XY D90

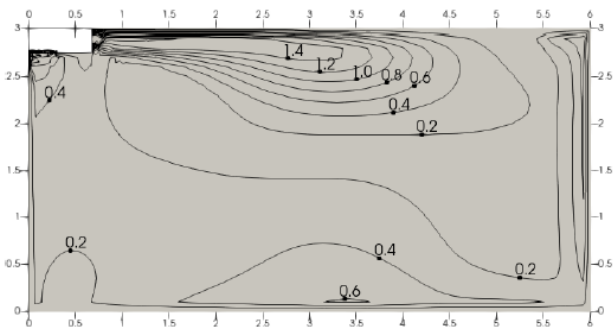


Temperature and Airflow Distributions

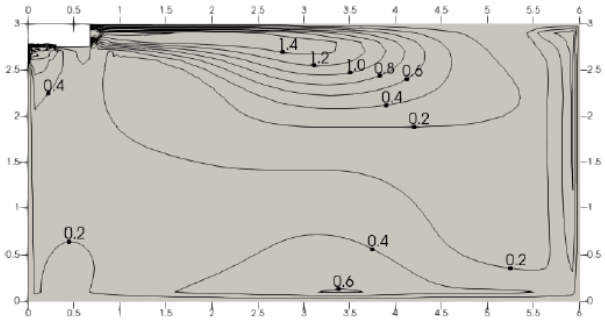
DDLC-3-XY D100



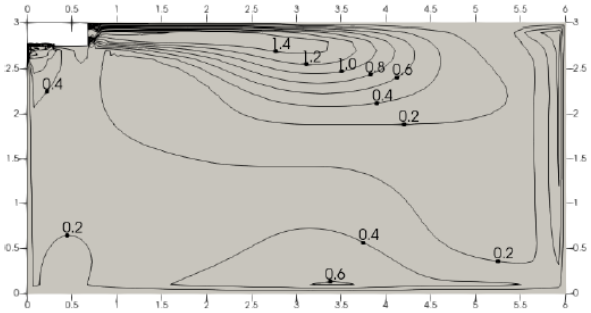
DDLC-3-XY D112



DDLC-3-XY D125

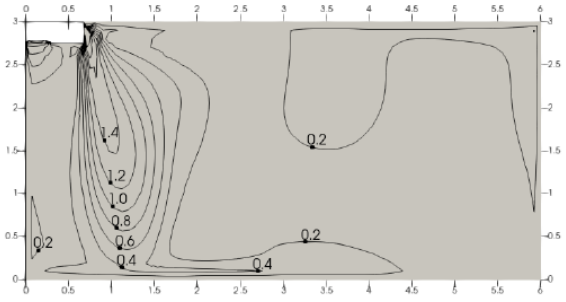


DDLC-3-XY D140

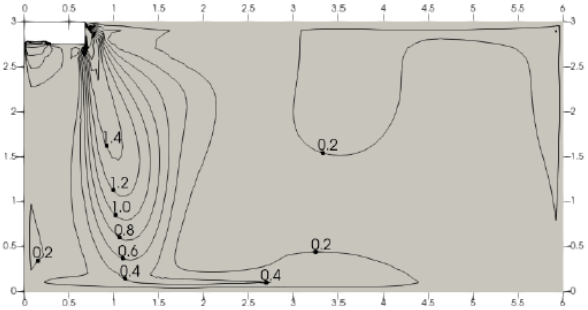


Airflow distributions - Heating (after 300s)

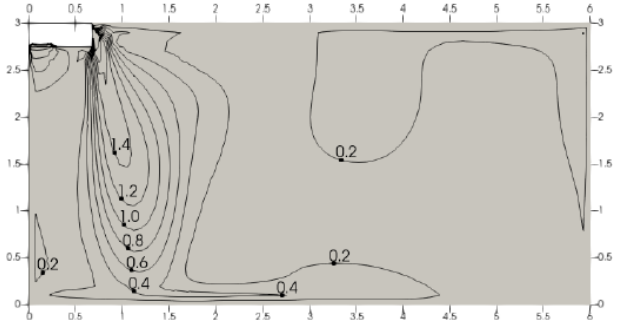
DDLC-3-XY D36



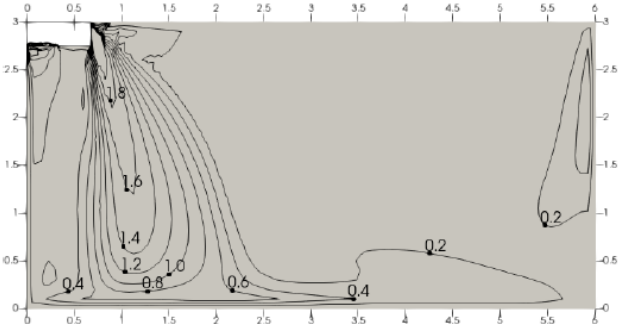
DDLC-3-XY D45



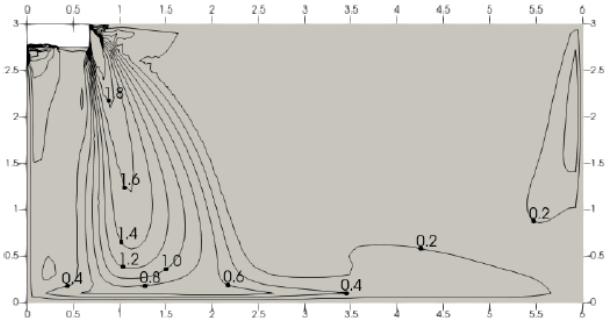
DDLC-3-XY D56



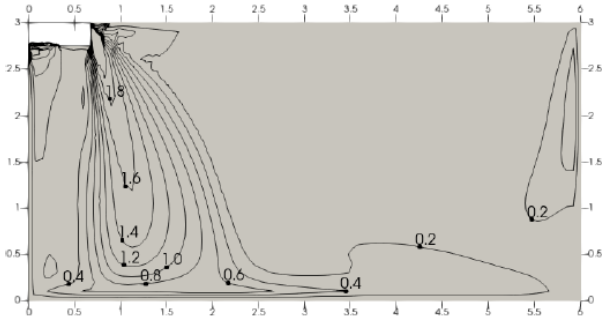
DDLC-3-XY D71



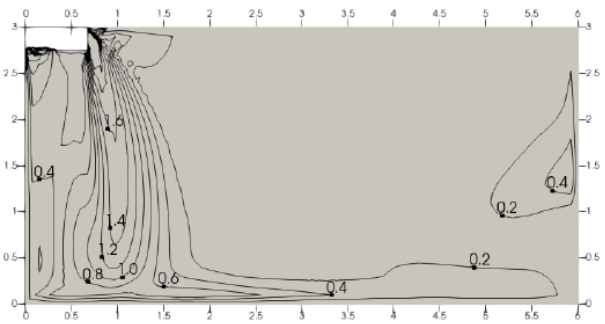
DDLC-3-XY D80



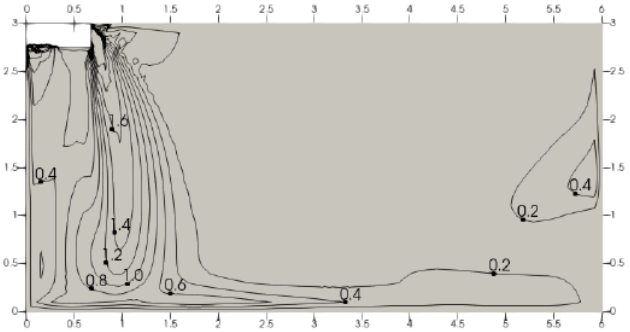
DDLC-3-XY D90



DDLC-3-XY D100



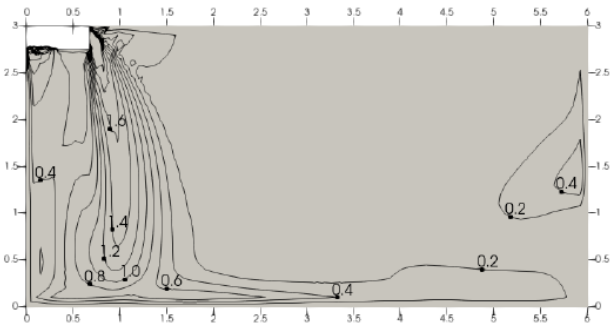
DDLC-3-XY D112



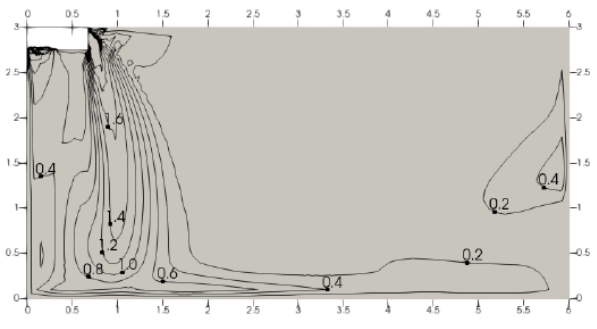
Temperature and Airflow Distributions

Airlfow distributions - Heating (after 300s)

DDLC-3-XY D125

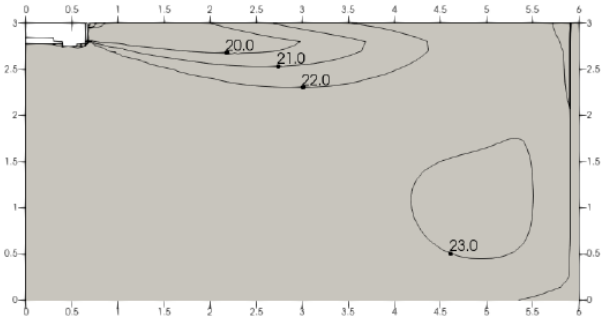


DDLC-3-XY D140

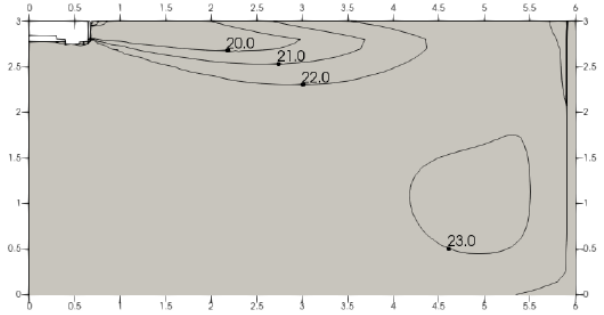


Temperature distributions - Cooling (after 300s)

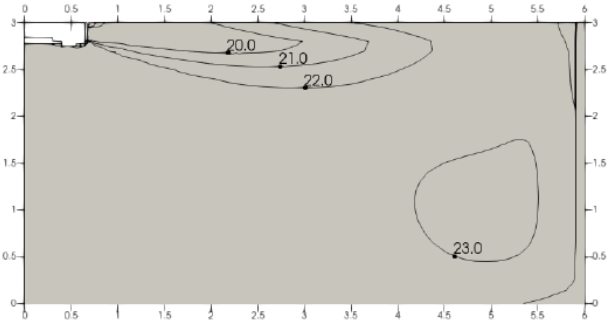
DDLC-3-XY D36



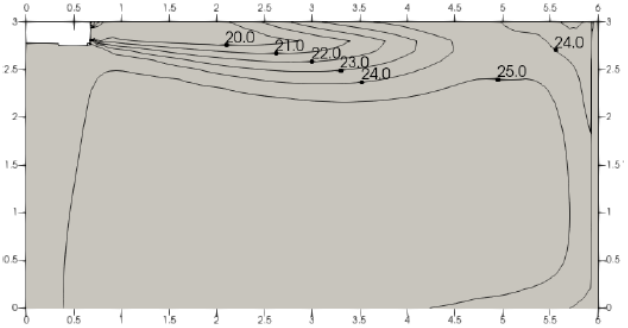
DDLC-3-XY D45



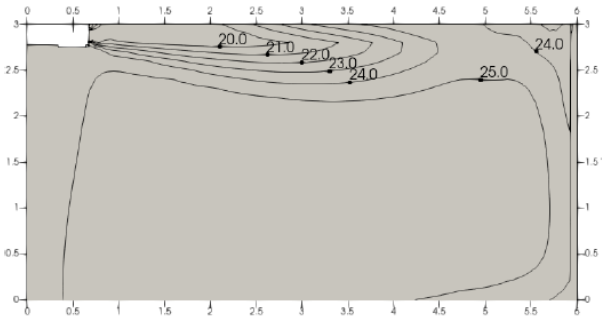
DDLC-3-XY D56



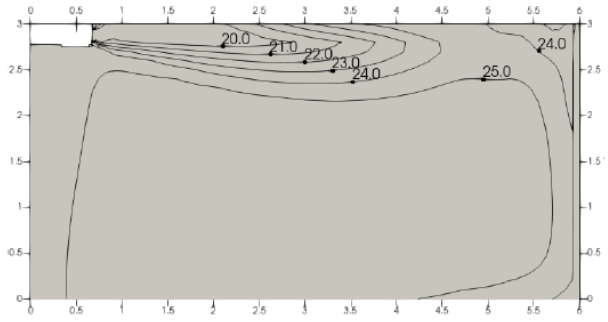
DDLC-3-XY D71



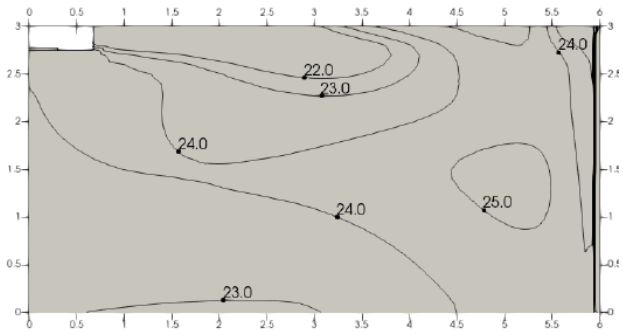
DDLC-3-XY D80



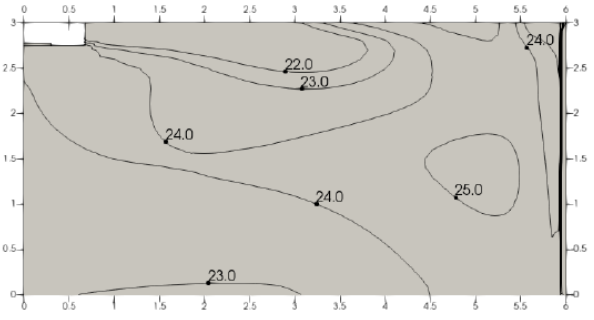
DDLC-3-XY D90



DDLC-3-XY D100



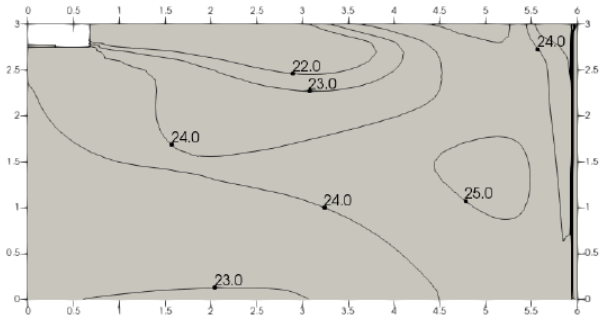
DDLC-3-XY D112



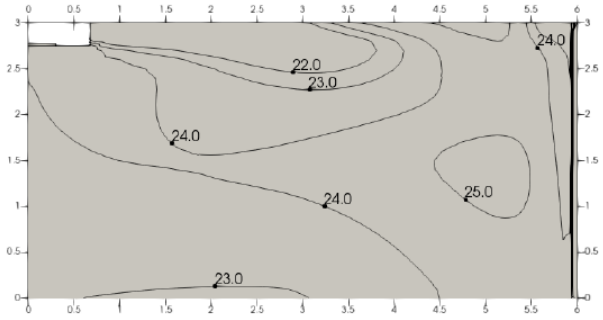
Temperature Distributions

Temperature distributions - Cooling (after 300s)

DDLC-3-XY D125

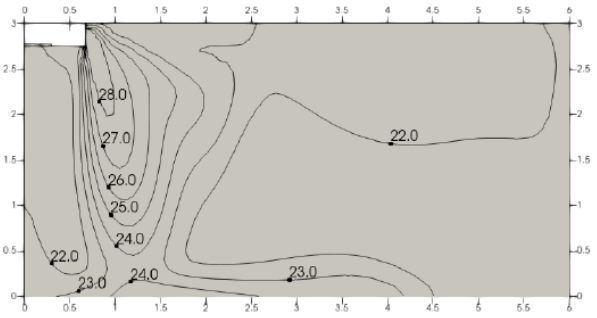


DDLC-3-XY D140

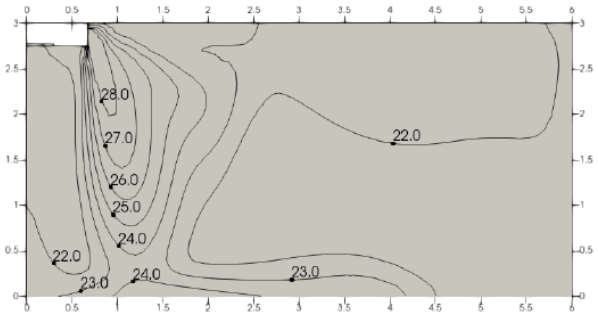


Temperature distributions - Heating (after 300s)

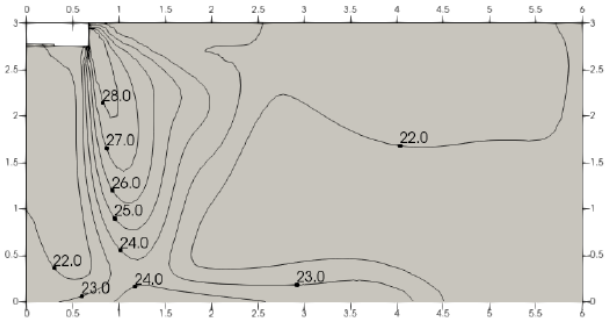
DDLC-3-XY D36



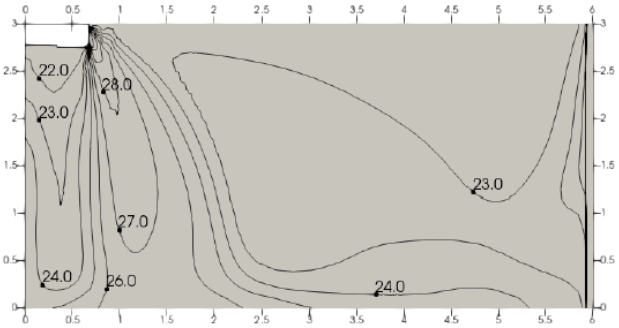
DDLC-3-XY D45



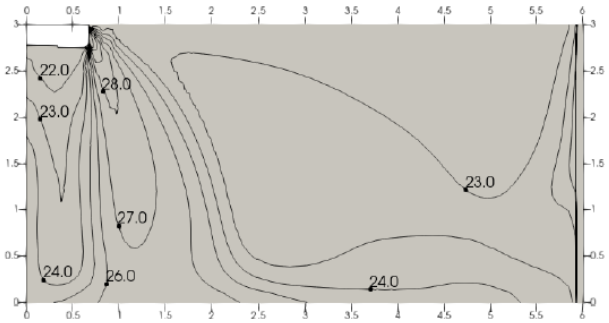
DDLC-3-XY D56



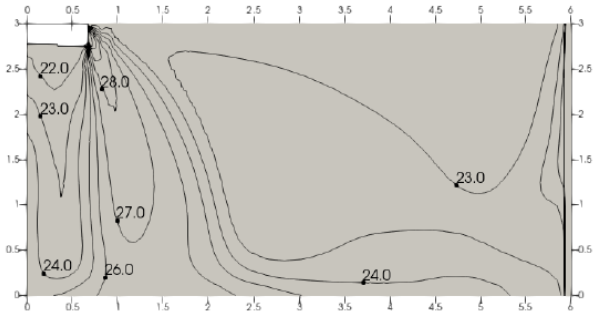
DDLC-3-XY D71



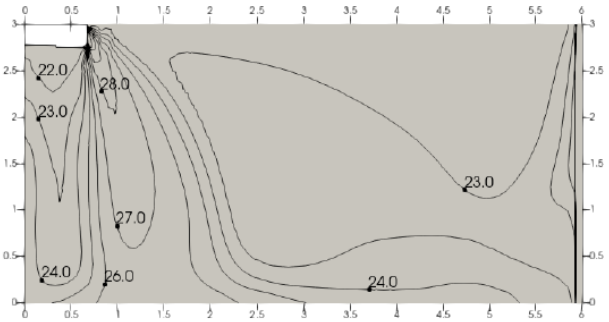
DDLC-3-XY D80



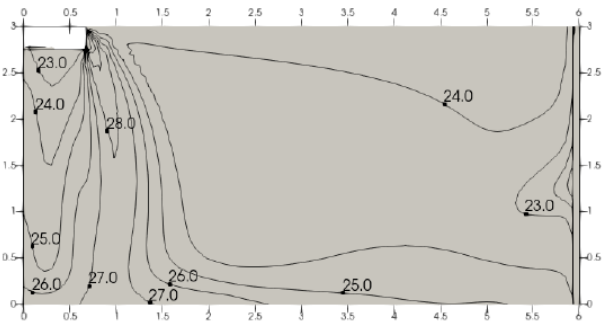
DDLC-3-XY D90



DDLC-3-XY D100



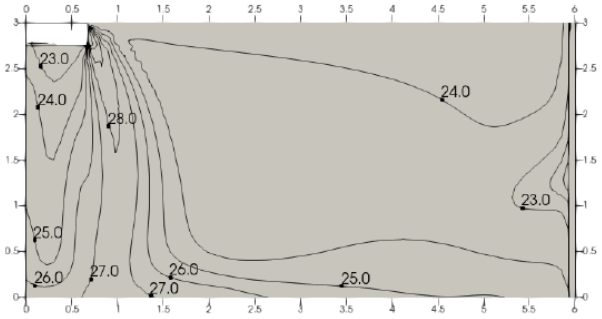
DDLC-3-XY D112



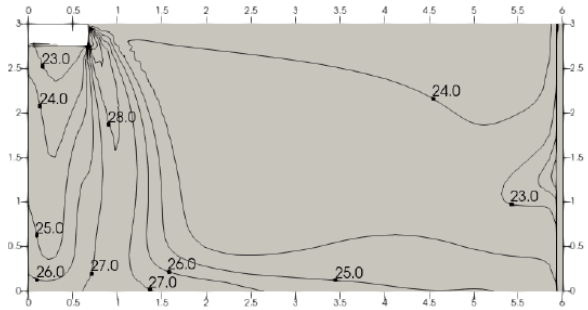
Temperature Distributions

Temperature distributions - Heating (after 300s)

DDLC-3-XY D125



DDLC-3-XY D140



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