



*Direct expansion
indoor unit for VRF*

Fresh Air Processing Units

CNFA-3-XY D90÷D160



TECHNICAL BULLETIN



SIZE	D90	D140	D160
COOLING CAPACITY kW	9.0	14.0	16.0
HEATING CAPACITY kW	8.1	12.5	14.0

General technical data

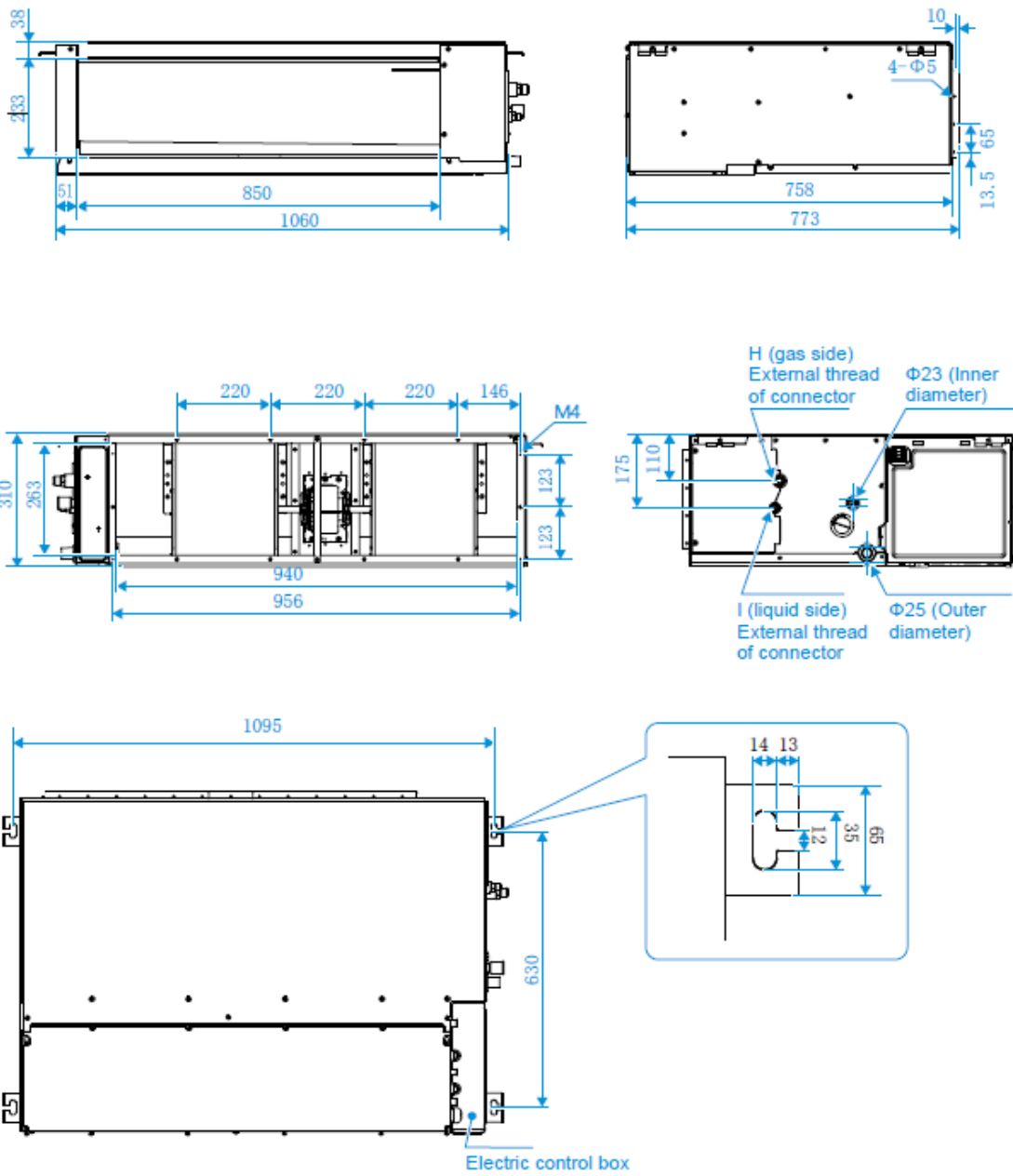
Model			CNFA-3-XY D90	CNFA-3-XY D140	CNFA-3-XY D160
Power supply			1 phase, 220-240V, 50Hz		
Cooling ¹	Capacity	kW	9.0	14.0	16.0
	Power input	W	80	165	185
Heating ²	Capacity	kW	8.1	12.5	14.0
	Power input	W	80	165	185
Fan motor	Type		DC		
	Quantity		1		
Indoor coil	Number of rows		3	3	3
	Tube pitch × 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	850×360×32.16	850×360×32.16	850×360×32.16
	Number of circuits		10	10	10
Air flow rate ³	m ³ /h	690/633/575/518/ 460/403/345	1100/1008/917/825/ 733/642/550	1230/1128/1025/923/ 820/718/615	
External static pressure ⁴	Pa	100 (0~300)	150 (0~300)	150 (0~300)	
Sound pressure level ⁵	dB(A)	39/37.5/36/34/32.5/30.5/29	44.5/42.5/40/37/35/33/32	44.5/43/41/38/36/34/32.5	
Sound power level	dB(A)	61/59/56/53/51/48/45	66/64/61/57/55/53/51	67/65/62/58/56/54/52	
Main body	Net dimensions ⁵ (W×H×D)	mm	1095×310×773		
	Packed dimensions (W×H×D)	mm	1215×360×885		
	Net/Gross weight	kg	37/41.5	40/43.5	
Refrigerant type		R410A/R32			
Design pressure (H/L)	MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ9.52/Φ15.9		
	Drain pipe	mm	OD Φ25		
Operating temperature range	°C	Heating: -10 to 16; Cooling: 20 to 52; Fan only: 5 to 48			

Notes:

1. Outdoor air temperature 33°C DB, 28°C WB; equivalent refrigerant piping length 8m with zero level difference.
2. Outdoor air temperature 0°C DB, -2.9°C WB; equivalent refrigerant piping length 8m 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. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured in a semi-anechoic chamber.

Dimensions

Size D90 - D140 - D160 (unit: mm)



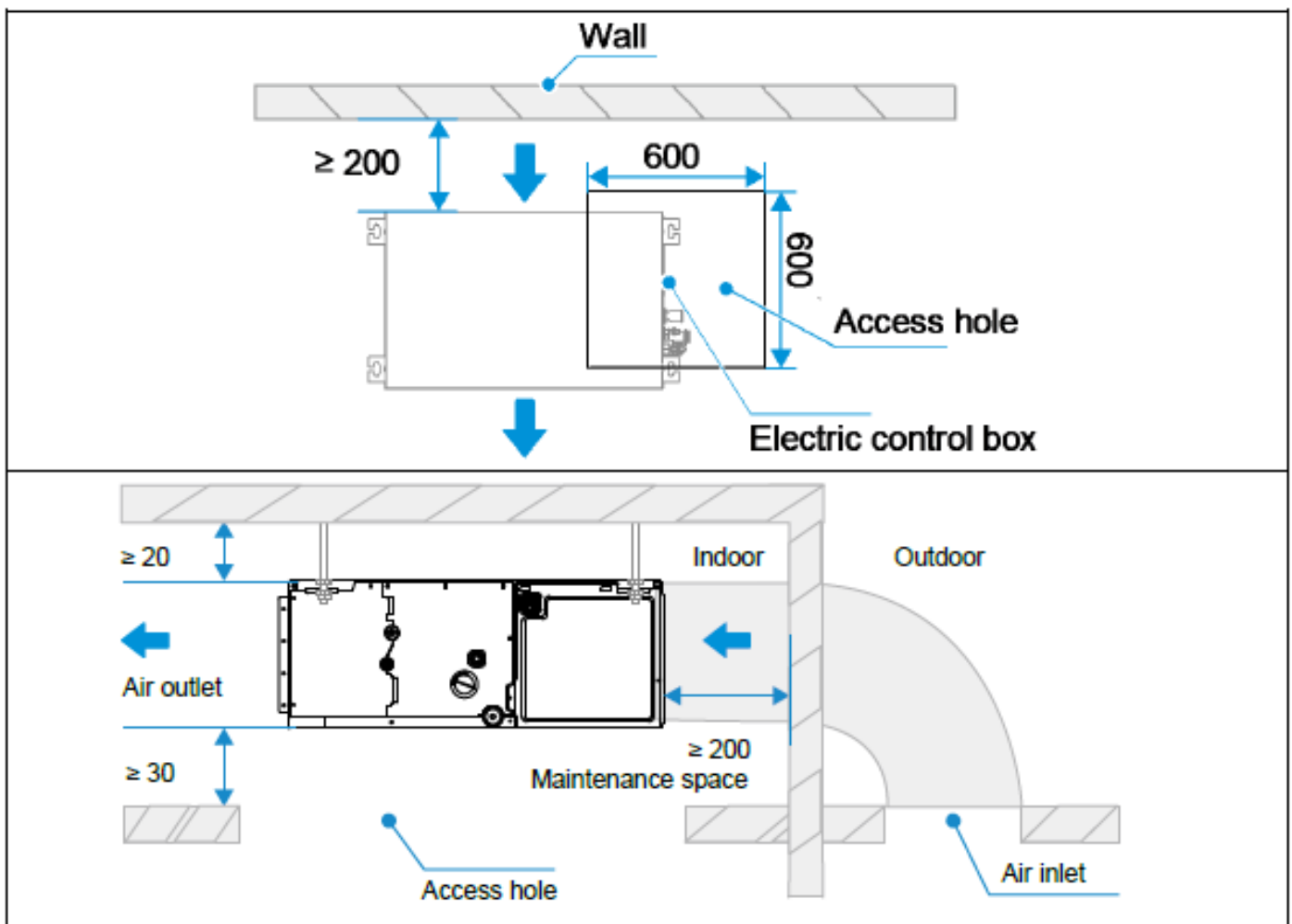
Capacity(kW)	H	I
9 - 14 - 16	Φ 15.9	Φ 9.52

Placement Considerations

Unit placement should take account of the following considerations:

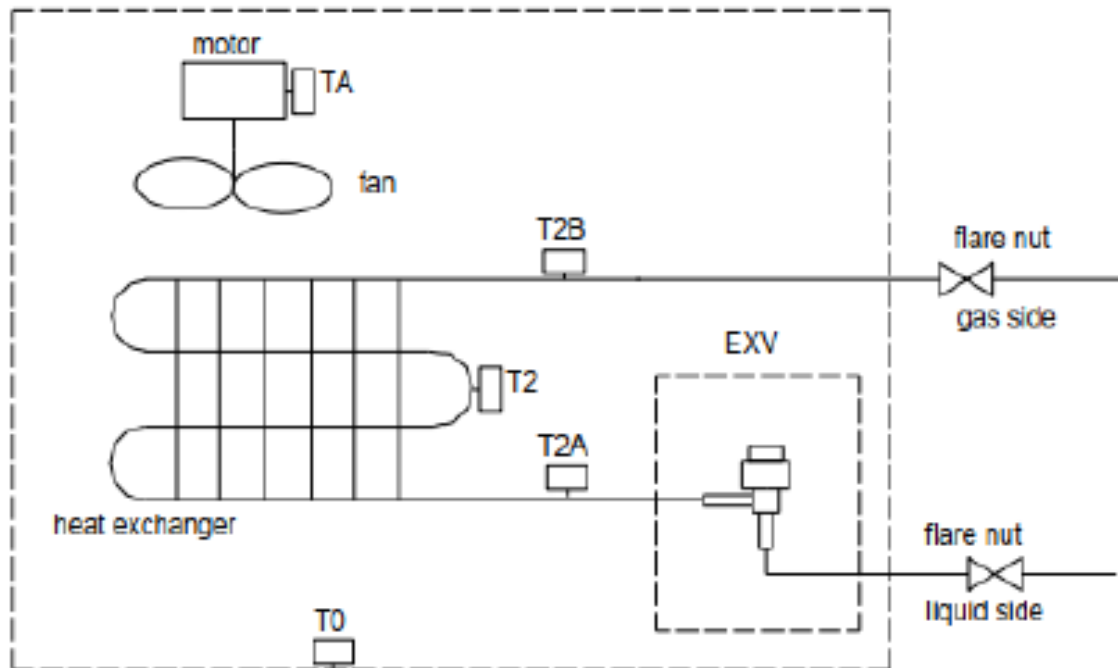
- Units should not be installed in the following locations:
 - Where exposure to direct radiation from a high-temperature heat source or to interference from a source of electromagnetic radiation may occur.
 - Where dust or dirt may affect heat exchangers.
 - Where exposure to oil or to corrosive or harmful gases, such as acidic or alkaline gases, may occur.
 - Where exposure to salinity may occur, such as seaside locations.
 - Where highly flammable materials are present.
 - Where exposure to oily air may occur, such as a kitchen.
 - Where exposure to very high humidity may occur, such as a laundry.
- Units should be installed in positions where:
 - The ceiling is horizontal and is able to bear the unit's weight.
 - There are no obstructions that could impede the airflow into and out of the unit.
 - The airflow out of the unit can reach throughout the room.
 - There is sufficient space for access during installation, servicing and maintenance.
 - The refrigerant piping and drain piping can be easily connected to the refrigerant piping and drain piping systems.
 - Short-circuit ventilation (where outlet air returns quickly to a unit's air inlet) will not occur.

Space Requirements (unit: mm)



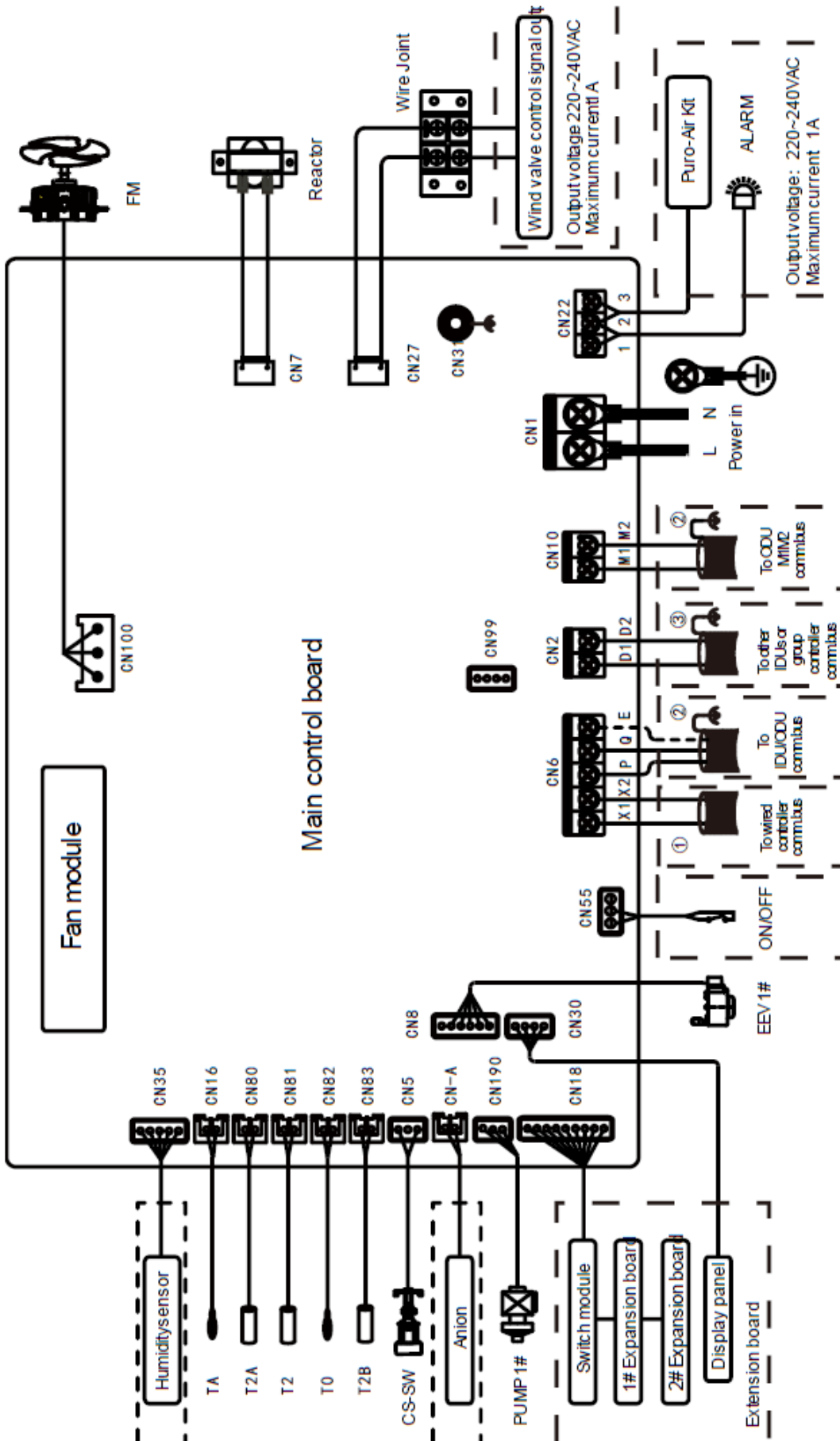
Piping Diagram

Size D90 - D140 - D160



T0	Outdoor fresh air temperature sensor
T2	Indoor heat exchanger mid-point temperature sensor
T2B	Indoor heat exchanger outlet temperature sensor
TA	Air outlet temperature sensor
T2A	Indoor heat exchanger inlet temperature sensor

Size D90 - D140 - D160



Code	Title
FM	Indoor fan motor
XT1-2	Terminal
CS	Water level switch
EEV	Electronic expansion valve

Capacity Tables

Cooling Capacity Table

Capacity (kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)								
		15.0	17.0	20.0	23.0	26.0	28.0	30.0	32.0	35.0
		TC	TC	TC	TC	TC	TC	TC	TC	TC
		KW	KW	KW	KW	KW	KW	KW	KW	KW
9.0	20.0	2.5	3.4							
	22.0	2.6	3.4	4.8						
	25.0	2.7	3.4	4.7						
	27.0		3.4	4.7	6.2					
	29.0			4.7	6.2	7.8				
	31.0			4.7	6.2	7.8	9.0			
	33.0				6.1	7.8	9.0	10.2		
	35.0				5.4	7.1	8.3	9.6	10.9	
	37.0					7.0	8.3	9.6	10.9	12.9
	39.0					6.6	7.8	9.1	10.5	12.7
	41.0					6.6	7.7	9.0	10.4	12.7
	43.0					5.8	7.0	8.3	9.7	12.0
	46.0					5.8	7.0	8.2	9.6	11.9
	48.0					5.1	6.2	7.5	8.8	11.1
	52.0						6.1	7.4	8.7	11.0
14.0	20.0	4.2	5.4							
	22.0	4.2	5.4	7.5						
	25.0	4.4	5.4	7.5						
	27.0		5.4	7.4	9.7					
	29.0			7.4	9.7	12.3				
	31.0			7.4	9.6	12.2	14.0			
	33.0				9.6	12.2	14.0	15.9		
	35.0				8.6	11.1	12.9	14.9	17.0	
	37.0					11.0	12.9	14.9	17.0	20.2
	39.0					10.2	12.1	14.1	16.2	19.7
	41.0					10.2	12.0	14.0	16.2	19.7
	43.0					9.1	10.9	12.8	15.0	18.5
	46.0					9.0	10.8	12.7	14.9	18.4
	48.0					8.1	9.6	11.6	13.6	17.1
	52.0						9.6	11.4	13.5	16.9

Abbreviations:

TC: Total capacity (kW)

Notes:

1. Shaded cells indicate rating condition.

Cooling Capacity Table

Capacity (kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)								
		15.0	17.0	20.0	23.0	26.0	28.0	30.0	32.0	35.0
		TC	TC	TC	TC	TC	TC	TC	TC	TC
		KW	KW	KW	KW	KW	KW	KW	KW	KW
16.0	20.0	4.8	6.2							
	22.0	4.8	6.2	8.6						
	25.0	5.1	6.2	8.5						
	27.0		6.2	8.5	11.1					
	29.0			8.5	11.1	14.0				
	31.0			8.5	11.0	13.9	16.1			
	33.0				11.0	13.9	16.0	17.6		
	35.0				9.8	12.6	14.8	17.0	19.4	
	37.0					12.6	14.7	17.0	19.4	23.1
	39.0					11.7	13.8	16.1	18.5	22.5
	41.0					11.7	13.7	16.0	18.4	22.4
	43.0					10.4	12.4	14.6	17.1	21.1
	46.0					10.4	12.4	14.5	16.9	20.9
	48.0					9.4	11.0	13.2	15.5	19.5
	52.0						11.1	13.1	15.4	19.3

Abbreviations:

TC: Total capacity (kW)

Notes:

1. Shaded cells indicate rating condition.

Capacity Tables

Heating Capacity Table

Capacity (kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)									
		-11.0	-7.0	-5.2	-2.9	0.0	2.0	4.0	6.0	10.0	14.0
		TC	TC	TC	TC	TC	TC	TC	TC	TC	TC
		KW	KW	KW	KW	KW	KW	KW	KW	KW	KW
9.0	-10.0	10.6									
	-5.0		9.2	9.2							
	0.0				8.1						
	3.0				7.5	7.5	7.5				
	7.0						6.6	6.6	6.6		
	11.0							5.8	5.8	5.8	
	16.0								4.7	4.7	4.8
14.0	-10.0	16.3									
	-5.0		14.2	14.2							
	0.0				12.5						
	3.0				11.5	11.5	11.5				
	7.0						10.2	10.2	10.2		
	11.0							8.9	8.9	8.9	
	16.0								7.3	7.3	7.3
16.0	-10.0	18.3									
	-5.0		15.9	15.9							
	0.0				14.0						
	3.0				12.9	12.9	12.9				
	7.0						11.4	11.4	11.4		
	11.0							10.0	10.0	10.0	
	16.0								8.2	8.2	8.2

Abbreviations:

TC: Total capacity (kW)

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)
CNFA-3-XY D90	50	220-240	198	264	1.82	15	0.24
CNFA-3-XY D140	50	220-240	198	264	2.91	15	0.24
CNFA-3-XY D160	50	220-240	198	264	3.25	15	0.24

MCA: Max. Current Amps. (A)

MFA: Max. Fuse Amps. (A) :

KW: Fan Motor Rated Output (kW)

FLA: Full Load Amps. (A)

IFM: Indoor Fan Motor

Notes:

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%.

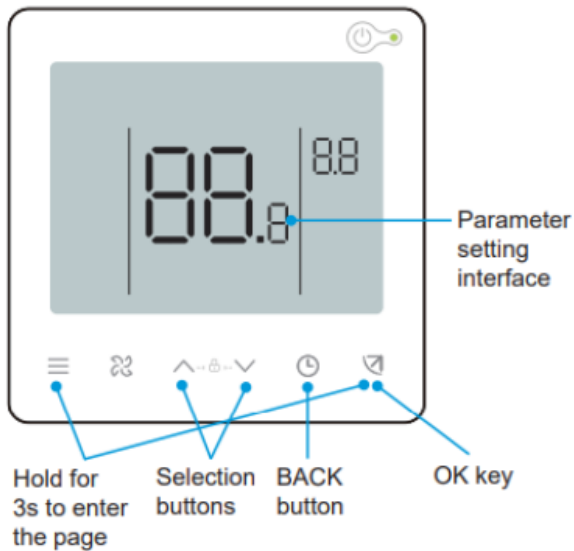
Selection wire size based on the value of MCA.

MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth circuit breaker).

Fan performances

How to switch between Constant Airflow mode and Constant Speed mode

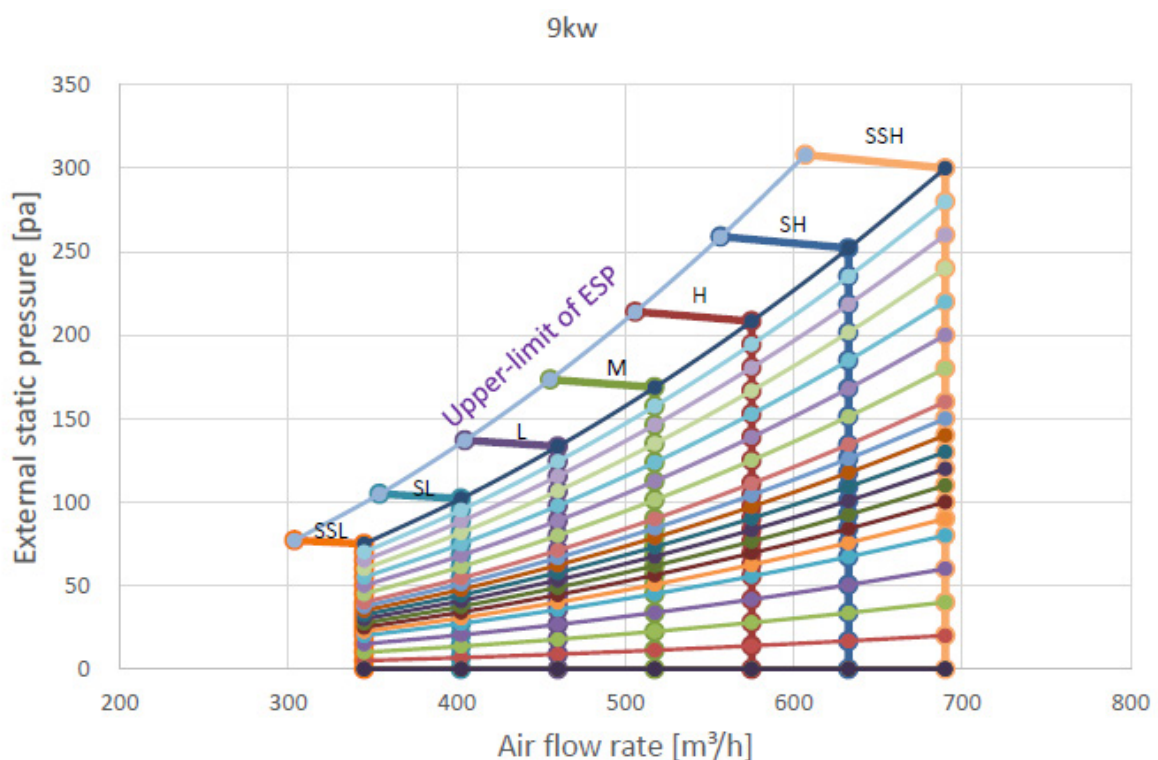
1. In the main interface, press “☰” + “↵” for 3 seconds at the same time, and the main interface will display “CC”. Press the “▲” and “▼” to select the indoor unit (“n00-n63” is displayed, and the last two digits are the indoor unit addresses). Press the “↵” to enter the parameter setting interface, and “n00” will be displayed.
2. Press the “▲” and “▼” until “N30” is displayed on the page, and then press the “↵” to enter the mode setting. Use the “▲” and “▼” keys to adjust to the demand mode parameter values, and press the “↵” to confirm.
3. Press the “⌚” button to return to the previous menu and exit the parameter setting. Parameter setting will also exit after 60 s of no operation.



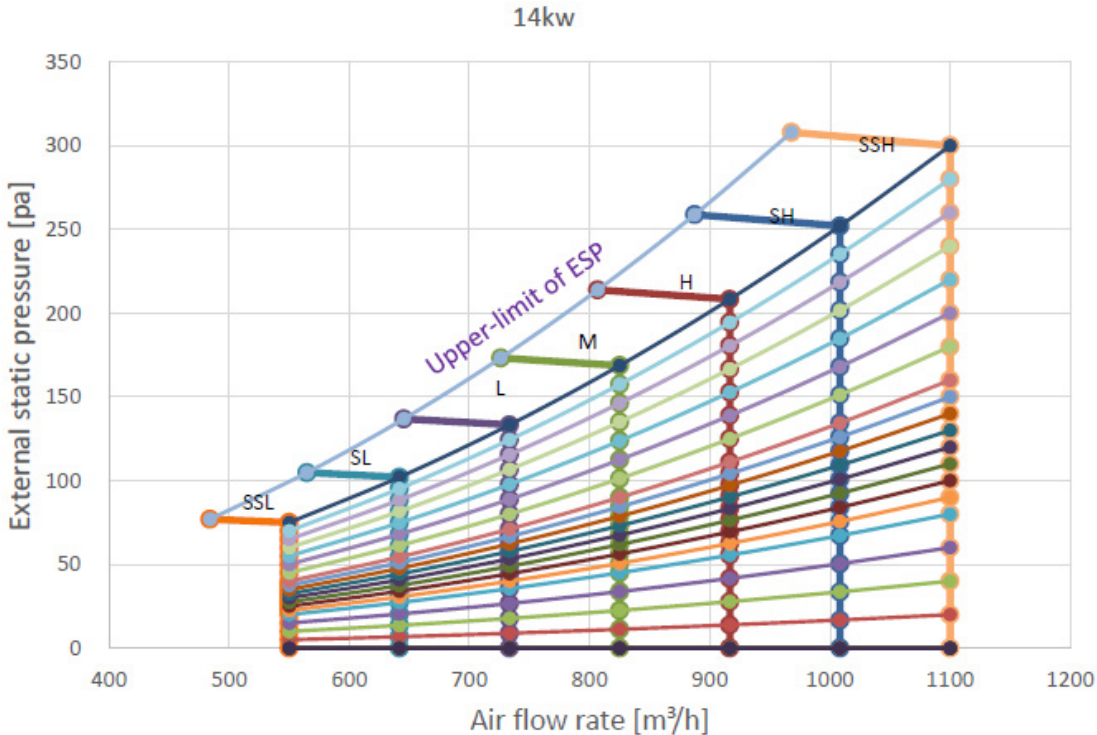
First level menu	Second level menu	Description	Default
n30	00	Constant Speed	-
	01	Constant Airflow	√

Constant Airflow mode

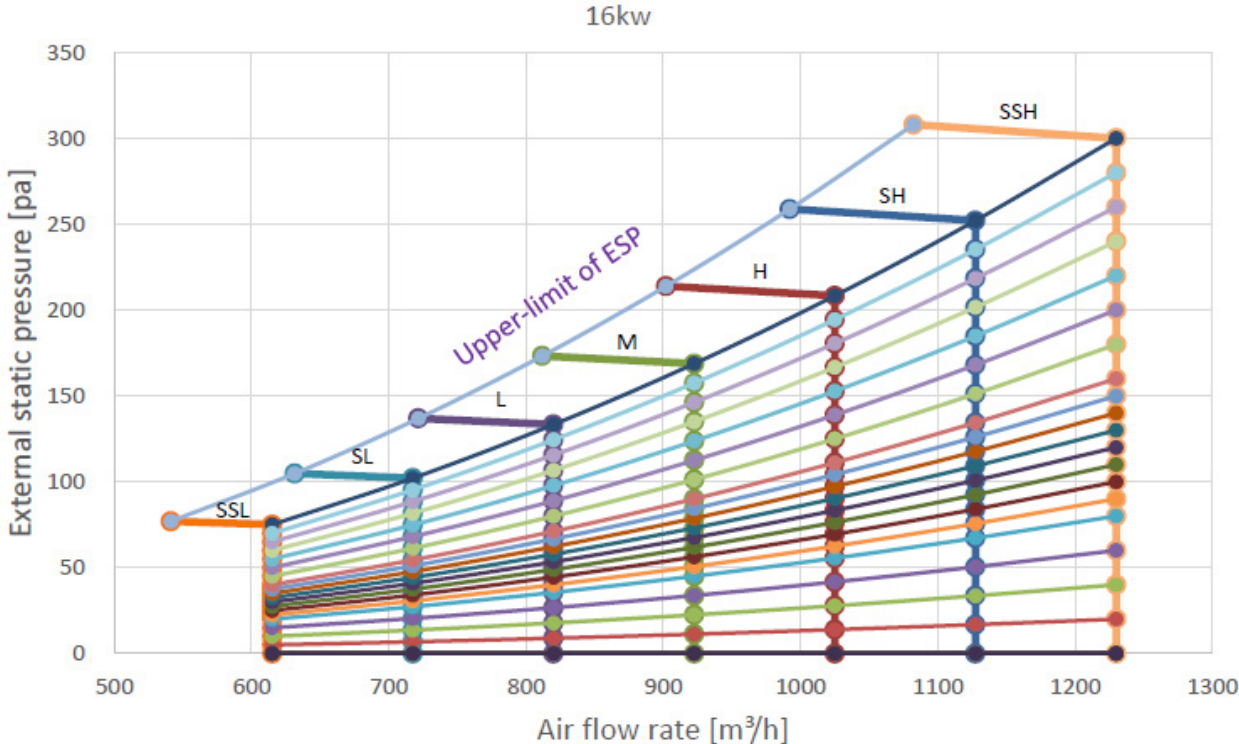
Fan performance diagram - CNFA-3-XY D90



Fan performance diagram - CNFA-3-XY D140



Fan performance diagram - CNFA-3-XY D160

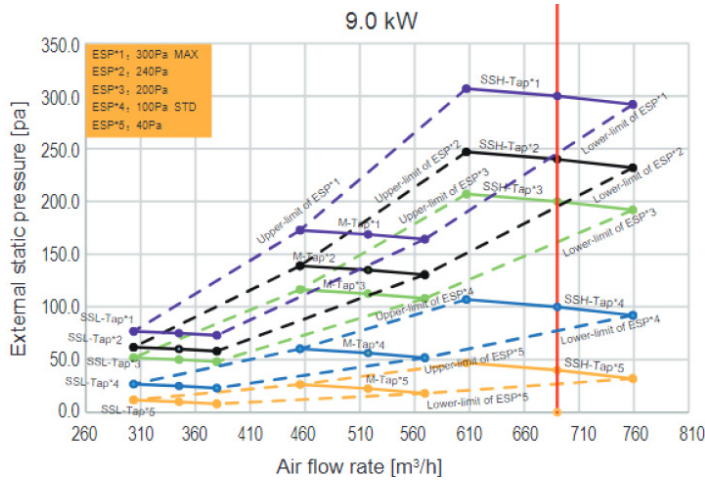


Fan performances

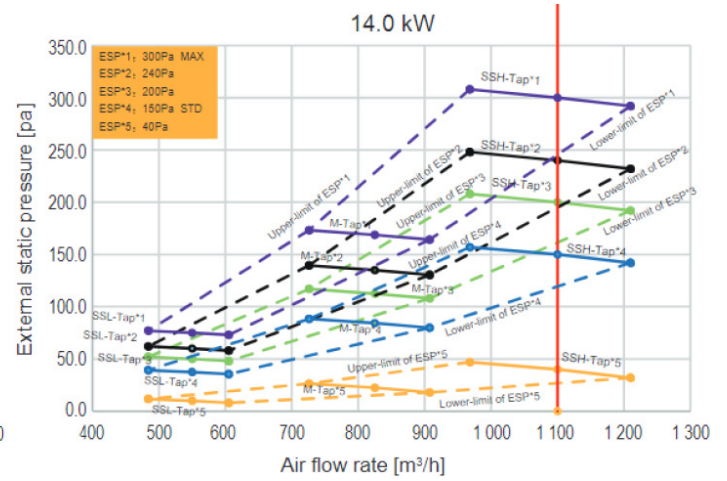
Constant Speed mode

Fan performance diagram

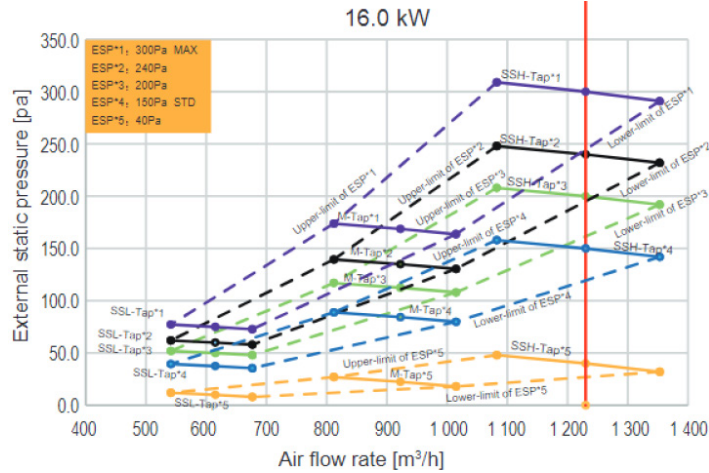
CNFA-3-XY D90



CNFA-3-XY D140



CNFA-3-XY D160



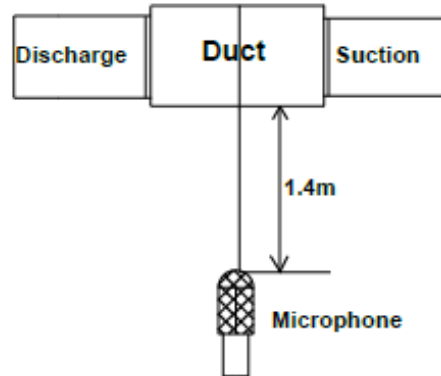
Capacity	00	01	02	03	04	05	06	07	08	09
9kW	0Pa	20Pa	40Pa	60Pa	80Pa	90Pa	100Pa	110Pa	120Pa	130Pa
14kW	0Pa	20Pa	40Pa	60Pa	80Pa	90Pa	100Pa	110Pa	120Pa	130Pa
16kW	0Pa	20Pa	40Pa	60Pa	80Pa	90Pa	100Pa	110Pa	120Pa	130Pa
Capacity	10	11	12	13	14	15	16	17	18	19
9kW	140Pa	150Pa	160Pa	180Pa	200Pa	220Pa	240Pa	260Pa	280Pa	300Pa
14kW	140Pa	150Pa	160Pa	180Pa	200Pa	220Pa	240Pa	260Pa	280Pa	300Pa
16kW	140Pa	150Pa	160Pa	180Pa	200Pa	220Pa	240Pa	260Pa	280Pa	300Pa

Overall

MODEL	Sound pressure levels dB						
	SSH	SH	H	M	L	SL	SSL
CNFA-3-XY D90	39	37.5	36	34	32.5	30.5	29
CNFA-3-XY D140	44.5	42.5	40	37	35	33	32
CNFA-3-XY D160	44.5	43	41	38	36	34	32.5

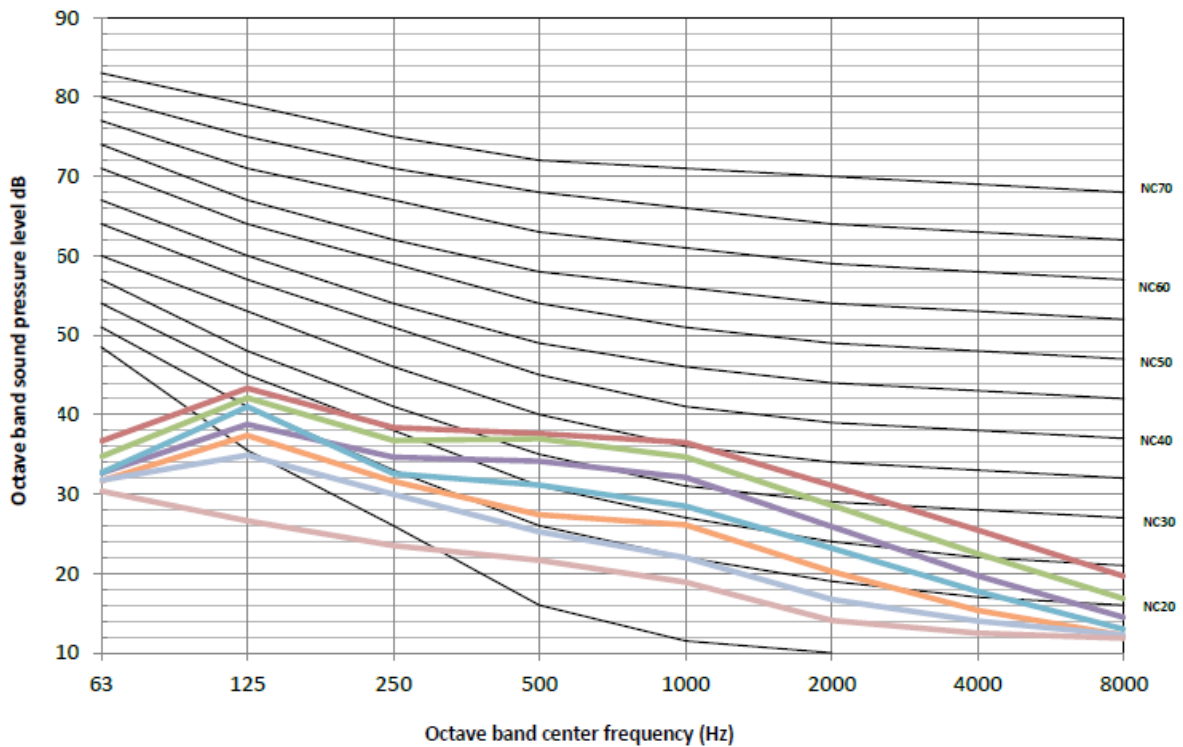
Notes:

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.



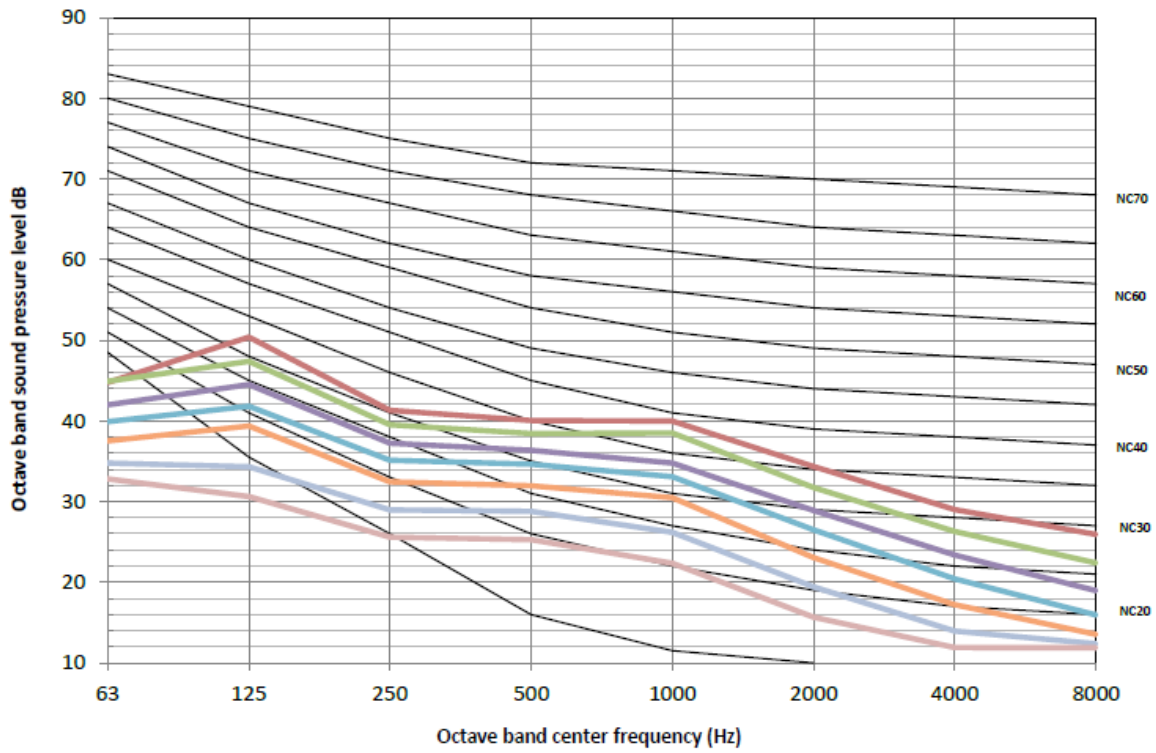
Octave Band Levels

CNFA-3-XY D90

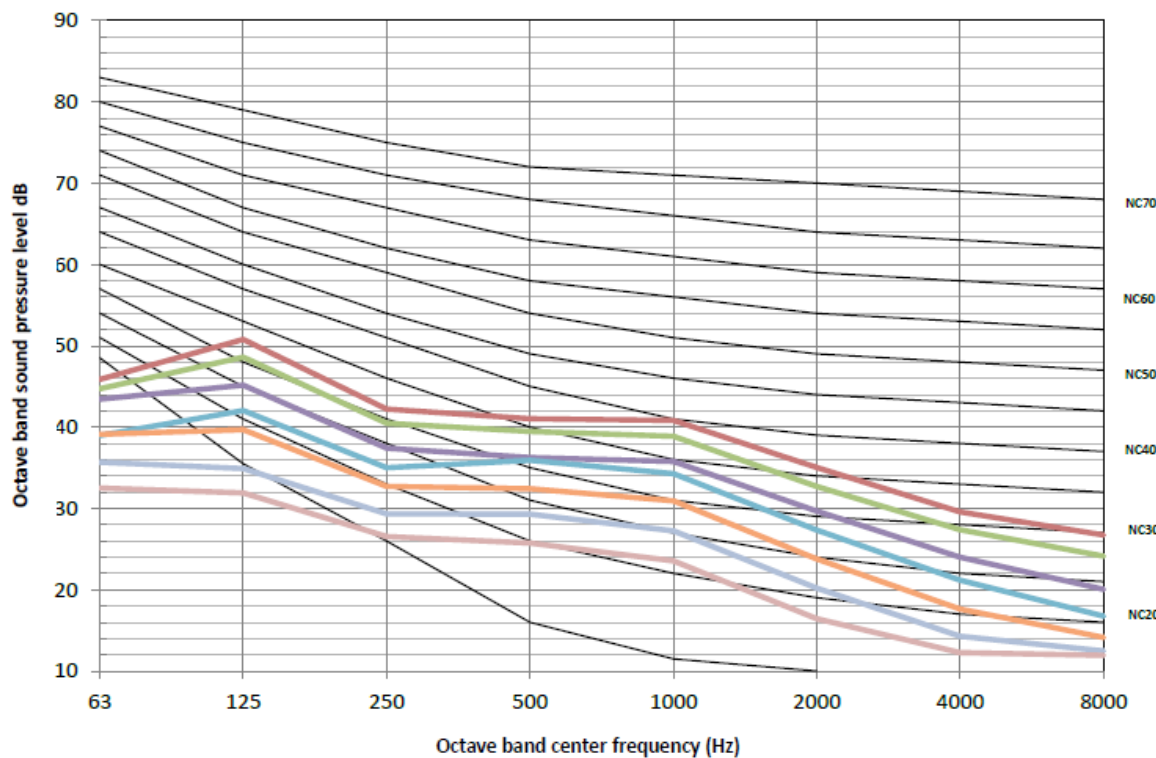


Sound levels

CNFA-3-XY D140



CNFA-3-XY D160



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