R32 SIDE DISCHARGE ECONOMICAL CENTRAL DUCTED 24VAC UNITARY + RS485 CONTROL

48,000 BTU/H UNITARY HEAT PUMP

SUBMITTAL DATA: TUD48AH2/NhG-D(U) + TUD60-48W2/NhG-D(U)

Job Name	Location		Date	
Purchaser	Engineer			
Submitted To	For	☐ Reference	☐ Approval	☐ Construction
Unit Designation	Schedule No.			

AHRI CERTIFIED REF	**218330469**
ENERGY STAR NUMBER	**4585305**

Operating Range	
Cooling	5 ~ 118°F / -15 ~ 54 ℃
Heating	5 ~ 75°F / -15 ~ 24 ℃





TWK-010WC1
(Optional)



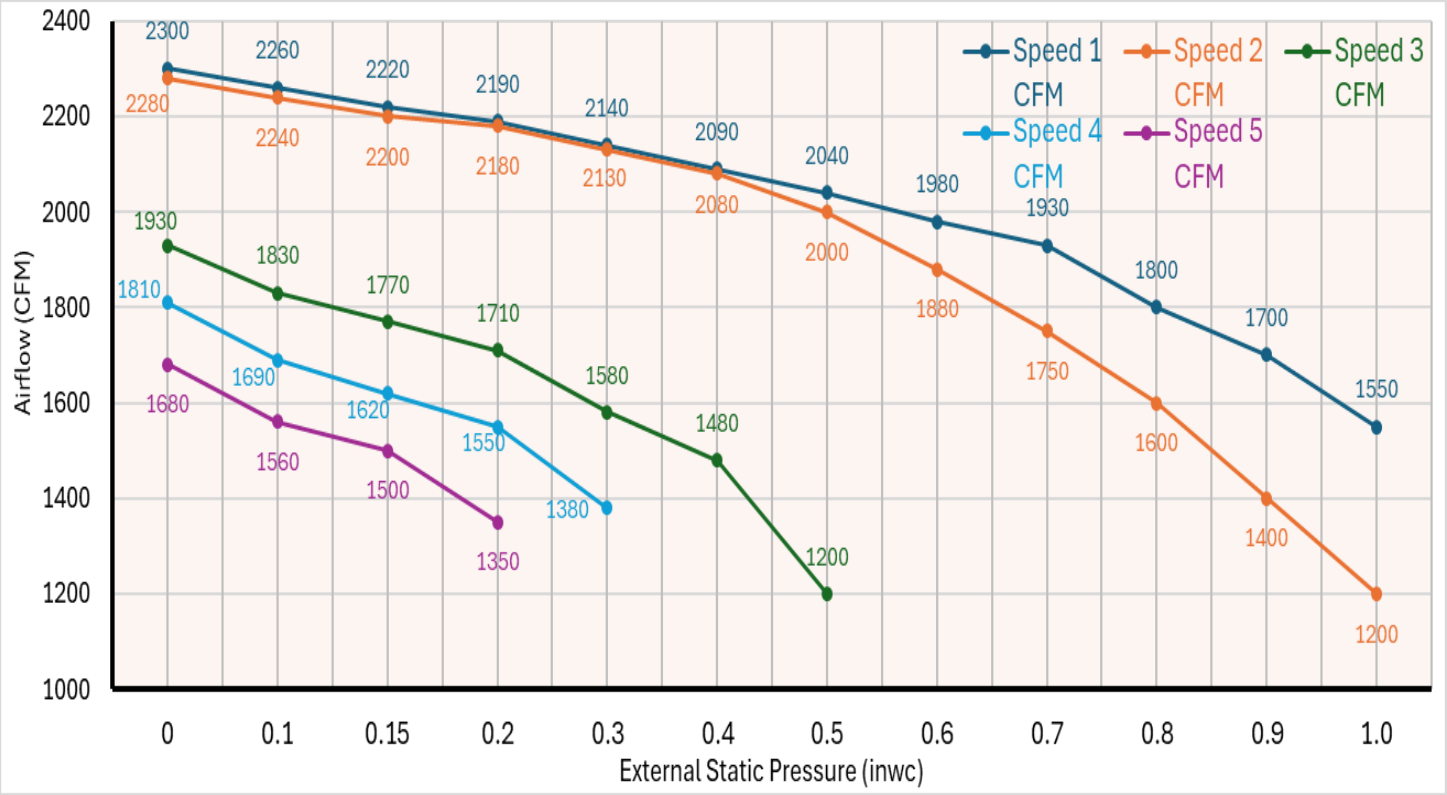
SYSTEM PERFORMANCE			
Cooling	Rated Capacity @ 95°F	Btu/h	48,000
	Min-Max Capacity	Btu/h	24,000 – 52,000
	SEER2 / EER2	/	20.0 / 11.7
Heating	Rated Capacity @ 47°F	Btu/h	48,000
	Rated Capacity @ 17°F	Btu/h	38,500
	Rated Capacity @ 5°F	Btu/h	36,000
	Min-Max Capacity	Btu/h	24,000 – 53,000
	HSPF2 (Region IV /V)	/	9.5 /6.5
	COP @47°F / @5°F	/	3.30 / 2.18
INDOOR UNIT			
Power Ssupply		VAC	208-230V / 1Ph / 60Hz
Rated Air Flow Volume		CFM	1,400
Static Pressure (Rated / Maximum)		in w.c	0.5 / 1.0
Sound Pressure Level (Cooling / Heating)		dB(A)	53 / 53
Condensate Drain Size (OD)		in	ϕ1.0 x 0.05
Unit Dimension (WxHxD)		in	24-13/16 x 52 x 21-1/4
Package Dimension (WxHxD)		in	27-1/4 x 54-3/16 x 26
Weight (Net / Gross)		lbs	200 / 218
Electric Heater (Optional)		kW	5, 8, 10, 15
OUTDOOR UNIT			
Compressor Type			Twin Rotary, 1 stage, Inverter
Sound Pressure Level		dB(A)	62 (56 – 62)
Unit Dimension (WxHxD)		in	35-7/16 x 49-5/8 x 13-3/8
Package Dimension (WxHxD)		in	40-11/16 × 55-3/16 × 17-3/8
Weight (Net / Gross)		lbs	214 / 236
Refrigerant Charge – R32		oz / lbs	148.2 / 9.26
Coil Type (Golden Fin)			Copper Tube / Aluminum Fin
REFRIGERANT PIPING			
Line Set Size (Liquid - Gas)		in	3/8 - 3/4
Pre-Charge Lengh		ft	25
Additional Charge		oz/ft	0.22
Pipe Length (Min - Max)		ft	10 – 100
Max. Pipe Elevation		ft	50
ELECTRICAL			
Power Supply			208/230V / 1Ph / 60 Hz
Outdoor Unit	Rated Current (Cooling / Heating)	A	18.8 / 18.9
	MCA / MOCP	A	35.5 / 40.0
Indoor Unit	Rated Current (Cooling / Heating)	A	2.1 / 1.9
	MCA / MOCP	A	7.1 / 15.0
Main Power Wire Size		AWG	Size Per Local Code
LIMITED WARRANTY	10 Year Parts, 10 Years Compressor - Residential & Commercial		

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FEATURES: TUD48AH2/NhG-D(U)

FAN PERFORMANCE



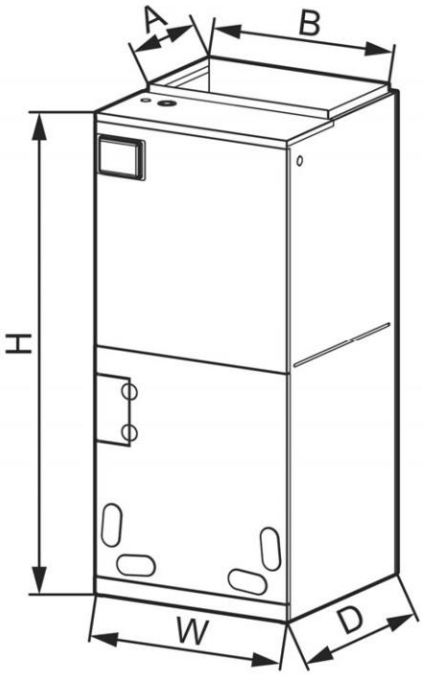
CFM \ ESP	0 inwc	0.1 inwc	0.15 inwc	0.2 inwc	0.3 inwc	0.4 inwc	0.5 inwc	0.6 inwc	0.7 inwc	0.8 inwc	0.9 inwc	1.0 inwc
Speed 5	2300	2260	2220	2190	2140	2090	2040	1980	1930	1800	1700	1550
Speed 4	2280	2240	2200	2180	2130	2080	2000	1880	1750	1600	1400	1200
Speed 3	1930	1830	1770	1710	1580	1480	1200					
Speed 2	1810	1690	1620	1550	1380							
Speed 1	1680	1560	1500	1350								

1. Above chart CFM ratings are based on the dry coil with factory filter installed
2. For wet coil CFM ratings, multiply the CFM by 0.96 correction factor
3. The figure with underline indicates not turn on auxiliary heat-kit

SYSTEM FEATURES	
Outdooor Electronic Expansion Valve (EEV)	YES
Indoor EEV Control	YES
Compressor + Base pan With Electric Heater	YES
Intelligent Preheating	YES
Memory/Power Failure Recovery	YES
Intelligent Preheating	YES
Outdoor Unit Low Noise Control	YES, each level lower around 2dB(A)
Communication Protocol	RS485, 24Vac

DIMENSIONS : TUD48AH2/NhG-D(U) + TUD60-48W2/NhG-D(U)

Indoor Unit



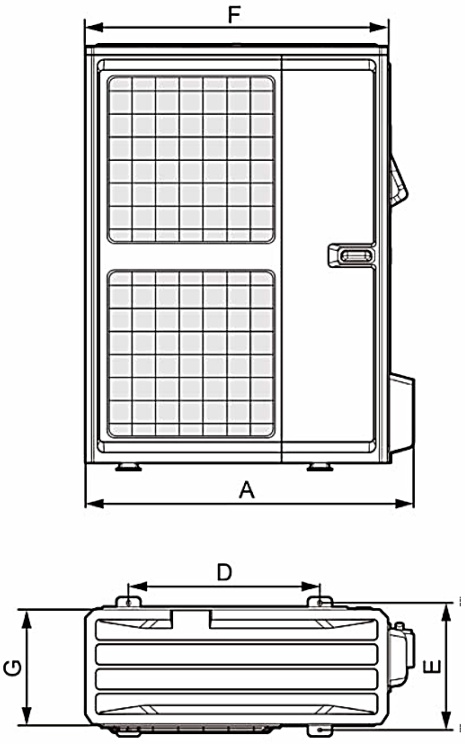
Unit: inch

Model	Dimension				
	W	D	H	A	B
TUD24AH2/NhG-D(U) TUD30AH2/NhG-D(U)	18-1/8	21-1/4	43-1/2	11-5/8	16-3/4
TUD36AH2/NhG-D(U)	21-1/4	21-1/4	48-3/16	11-5/8	20
TUD48AH2/NhG-D(U) TUD60AH2/NhG-D(U)	24-13/16	21-1/4	52	11-5/8	20

Filter Size	
Supplied*	20-5/8 x 20-5/16 x 1/2
Suggested	20-5/8 x 20-5/16 x 1

*Supplied filter is metal mesh mainly for protection

Outdoor Unit

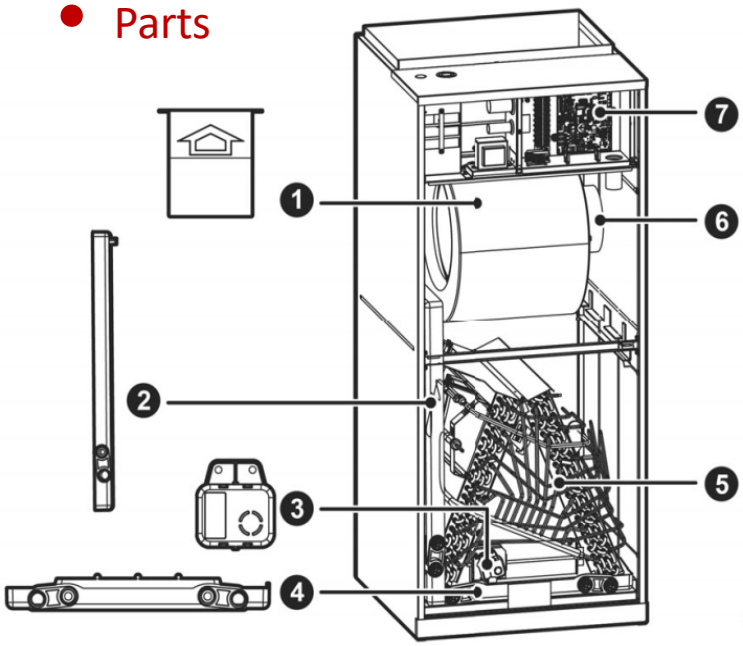


Unit: inch

Dimensions Model	TUD60-48W2/NhG-D(U)
A	38-1/2
B	16-1/4
C	49-5/8
D	22-7/16
E	14-7/8
F	35-7/16
G	13-3/8

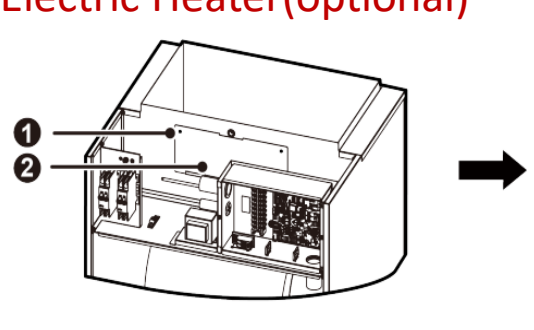
INTERNAL PARTS & OPTIONAL ELECTRIC HEATER: TUD48AH2/NhG-D(U)

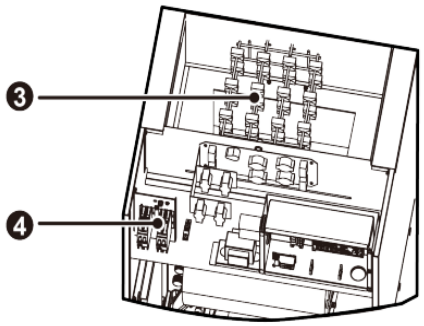
Parts



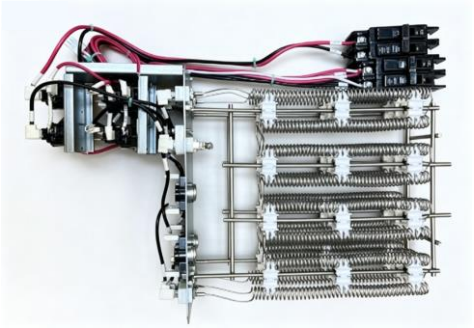
1. Centrifugal fan
2. Secondary drain pan
3. Refrigerant leakage sensor
4. Primary drain pan
5. Evaporator assy
6. Fan motor
7. Electric box assy

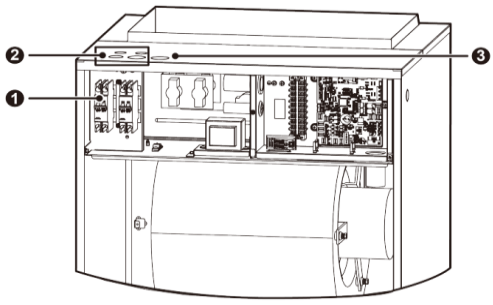
Electric Heater(optional)





1. Bolt
2. Cover plate
3. Heater kit
4. Circuit breaker



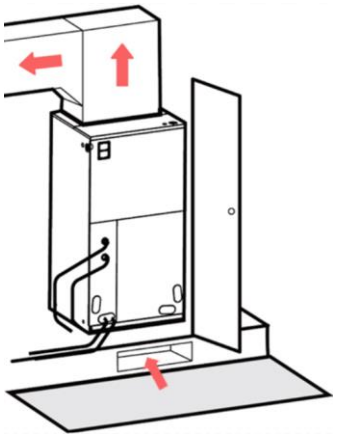


1. Circuit breaker
2. The power cords of indoor unit get in through this hole
3. The thermostat wires get in through this hole

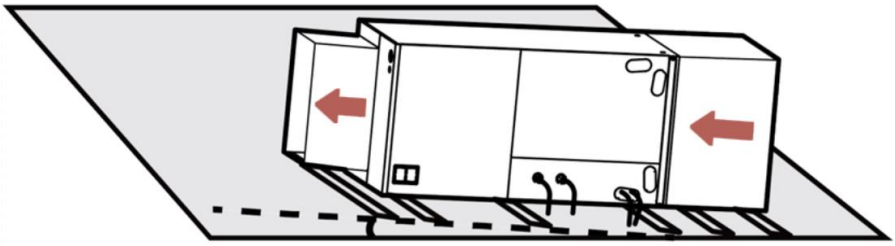
Model	Dimensions WxHxD (inch)	Primary Heating Capacity (BTU)	Weight (lb)	Electric Heat (kW)		Min. Circuit (A)		Max.Fuse or Breaker Ampacity (A)	
				240V	208V	240V	208V	240V	208V
TUD-Heat-5KW	12 x 5 x 17	12,800~17,000	3.3	5	3.76	26.0	22.6	30	25
TUD-Heat-8KW		20,400~27,300	3.5	8	6	41.7	36.0	45	40
TUD-Heat-10KW		25,600~43,100	3.6	10	7.51	52.0	45.0	60	45
TUD-Heat-15KW	12 x 5 x 19	38,300~51,100	4.4	15	11.25	52 & 26	45 & 22.6	60 & 30	45 & 25

INSTALLATION CLEARASNCES: TUD48AH2/NhG-D(U)

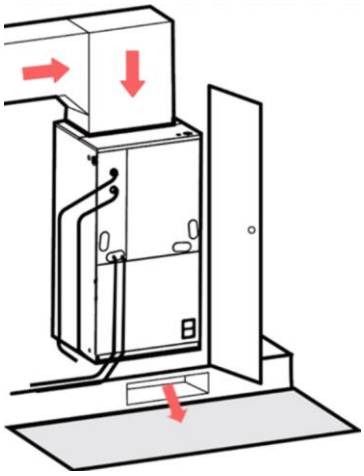
- Vertical Installation
- Horizontal Installation



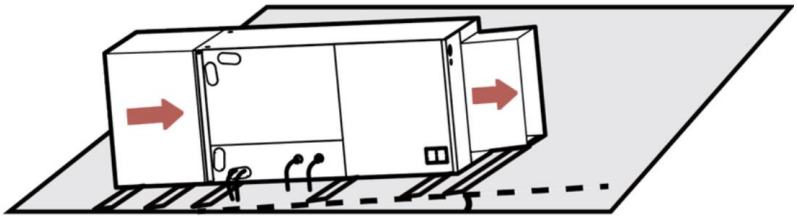
Upflow: No action needed



Airflow Out Left: No action needed



Downflow: Must reinstall the inside coil and fan motor



Airflow Out Right: Must Relocate Drain Pan

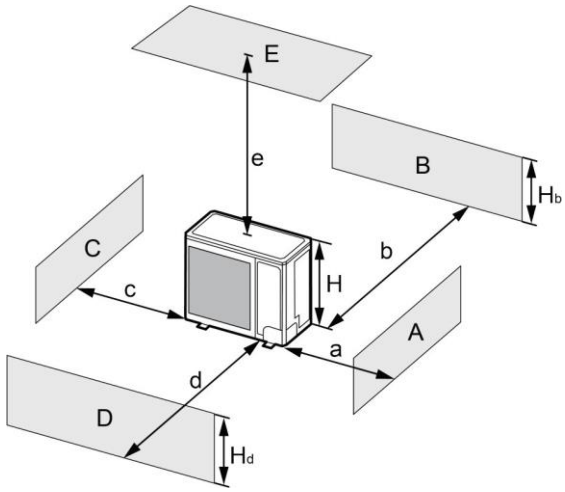
Minimum Clearances	
Front	> 24 inch
Allow a minimum of 24” in front of the unit for service clearance. When installing in an area directly over a finished ceiling (such as an attic), an emergency drain pan is required directly under the unit. **See local codes for requirements.** When installing this unit in an area that may become wet, elevate the unit with a sturdy, non-porous material. In installations that may lead to physical damage (i.e. a garage) it is advised to install a protective barrier to prevent such damage.This air handler is designed for a complete supply and return ductwork system.	
Multi-Position	Upflow, downflow, horizontal left, horizontal right

INSTALLATION CLEARASNCES: TUD60-48W2/NhG-D(U)

Minimum Clearances

Note: The ODU should be located **2inches** above the expected snow level or follow the local code

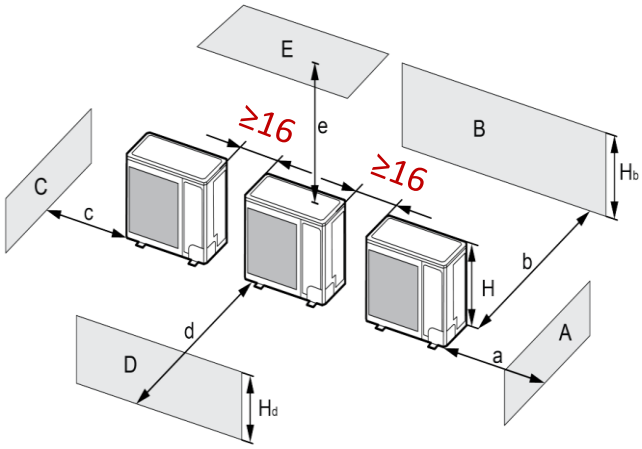
- Install one outdoor unit



Obstacle/Wall A~E	Obstacle/Wall Hb Hd H		Clearance (in)				
			A	b	c	d	e
B	—		-	⩾4	-	-	-
A,B,C,	—		⩾12	⩾4	⩾4	-	-
B,E	—		-	⩾4	-	-	⩾40
A,B,C,E	—		⩾12	⩾6	⩾6	-	⩾40
A,C,E	—		⩾8	-	⩾20	-	⩾10
D	—		-	-	-	⩾40	-
D,E	—		-	-	-	⩾40	⩾40
B,D	Hb < Hd	Hd > H	-	⩾4	-	⩾40	-
	Hb > Hd	Hd < H	-	⩾4	-	⩾40	-
B,D,E	Hb < Hd	Hb⩽1/2H	-	⩾10	-	⩾80	⩾40
		1/2H < Hb⩽H	-	⩾10	-	⩾80	⩾40
		Hb > H	Prohibited				
	Hb > Hd	Hd⩽1/2H	-	⩾4	-	⩾80	⩾40
		1/2H < Hd⩽H	-	⩾8	-	⩾80	⩾40
		Hd > H	Prohibited				

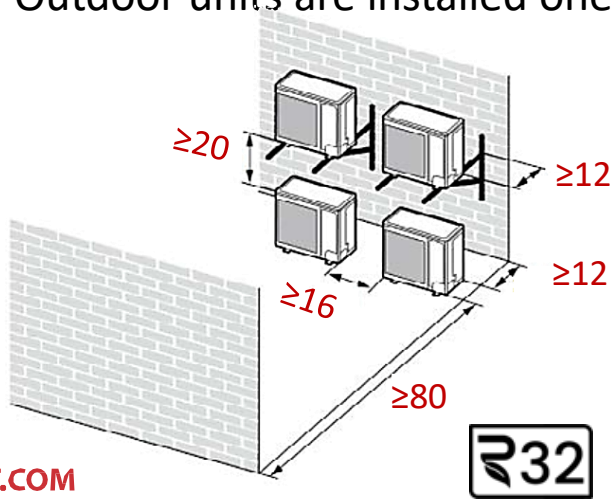
- Install two or more outdoor units

1. Outdoor units are installed side by side



Obstacle/Wall A~E	Obstacle/Wall Hb Hd H		Minimum Clearance (in)				
			A	b	c	d	e
A,B,C	—		⩾12	⩾12	⩾40	—	—
A,B,C,E	—		⩾12	⩾12	⩾40	—	⩾40
D	—		—	—	—	⩾80	—
D,E	—		—	—	—	⩾80	⩾40
B,D	Hb < Hd	Hd > H	—	⩾12	—	⩾80	—
	Hb > Hd	Hd < 1/2H	—	⩾10	—	⩾80	—
		1/2H < Hd⩽H	—	⩾12	—	⩾100	⩾40
B,D,E	Hb < Hd	Hb⩽1/2H	—	⩾12	—	⩾80	⩾40
		1/2H < Hb⩽H	—	⩾12	—	⩾100	
		Hb > H	Prohibited				
	Hb > Hd	Hd⩽1/2H	—	⩾10	—	⩾100	⩾40
		1/2H < Hd⩽H	—	⩾12	—	⩾100	⩾40
		Hd > H	Prohibited				

2. Outdoor units are installed one above another

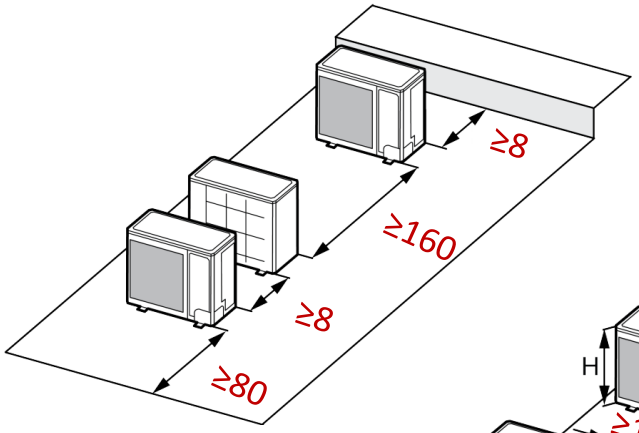


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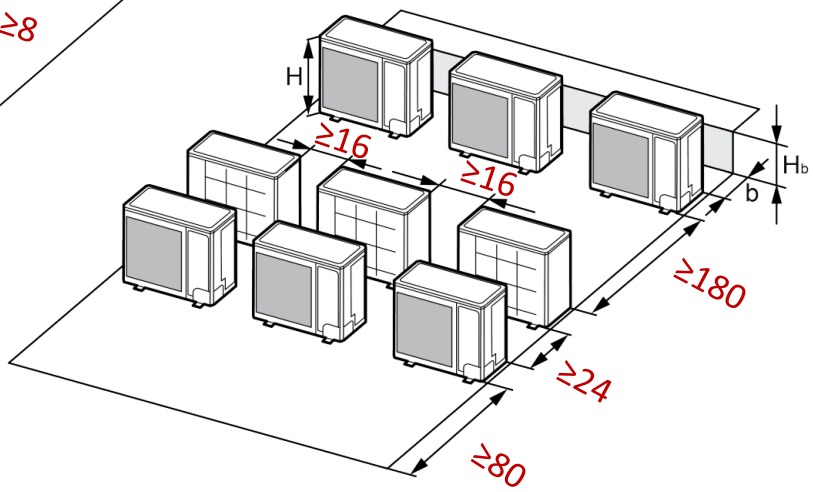
INSTALLATION CLEARASNCES: TUD60-48W2/NhG-D(U)

Minimum Clearances
Note: The ODU should be located **2inches** above the expected snow level or follow the local code

3. Outdoor units are installed in rows



Obstacle/Wall H_b, H_d	Clearance (in)
$H_b \leqslant 1/2H$	b ⩽ 10
$1/2H < H_b \leqslant H$	b ⩽ 12
$H_b > H_d$	Prohibited



For the narrow space cannot guarantee the front clearance, requires to apply the below wind baffle to change the air flow direction



After installed



Wind baffle (field supplied)