TAHVIEH
AIR CONDITIONING SYSTEMS

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ISO 9001
Registered Firm
IMQ

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ECO FRIENDLY

Split Air Conditioning Unit

(Wall Mounted, Floor Standing, Duct)

Tahvieh History and activity

Tahvieh Company was established in 1964 and successfully paved its way in the air conditioning industry by utilizing technology of Air temp & Trane companies. This company later managed to receive manufacturing permit under the license of two U.S. companies of Chrysler and Air temp.
During 80's, Tahvieh started to design and manufacture a new generation of air conditioning system relying on its rich technical knowledge and great capability of its manpower. As one of the largest private companies in designing and manufacturing air conditioning equipment, it has managed to become a pioneer of this industry in Iran.
In 2013, we began the second half-century of our glorious presence in air conditioning industry and in addition to the previous products, Tahvieh initiated manufacturing of new products and by the end of the first half of 2016, we managed to manufacture and supply mini-chillers, various types of split air condition systems (floor standing, wall mounted and ducted), electrical enclosure air condition, precision air condition, ice cream makers and air conditioning systems for automotive and rail industry.
Leadership, the ability to meet all consumer demands in designing and manufacturing of superior quality products and extensive and fast aftersales services have enabled us to become a premium brand in Iran. Unique customer care has been assigned as the main strategy of Tahvieh and this company has always been loyal to its customers.
Tahvieh Co., In 2016 being a member of International Institute of Refrigeration (IIR). Today, Tahvieh, as one of the largest manufacturers of air conditioning systems and as a top brand in Iran, is one of the reliable sources of supplying the strategic and important industries of the country such as oil, gas, petrochemical, refining, power plants, telecommunications, steel making, train & automobiles, healthcare, Development and other industries of the country.

TAHVIEH
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Wall Mounted Split Unit

Features

Split Units are heating and cooling systems that allow you to control the temperatures in individual rooms or spaces. The first modern split air conditioner was invented in 1902 by Willis Haviland Carrier

A split air conditioner consists of two main components. An outdoor compressor/condenser and an indoor air-handling unit(s) (evaporator). The outdoor unit is installed on or near the wall outside of the room or space that you wish to cool. The unit houses the compressor, condenser coil and the expansion coil or capillary tubing. The indoor section and matching outdoor section are connected by refrigerant tubing (hence the name "split"). The indoor section consists of a fan, indoor cooling coil, heating section, and filter.

This system is two types: Constant revolutions and Inverter. The inverter type energy consumption is 60% lower than the Constant revolutions type in Ideal conditions.

Nomenclature

Wall Mounted Split Unit

Item	Description		Symbol
1	Company	Tahvieh	T
2-3	Production	Wall Mounted Split Unit	WS
4	Climate Conditions	Tropical	T
		Non-Tropical	N
5-6	Nominal Cooling Capacity	Btu/hr / 1000	Number
7	Product Group	Cooling	C
		Cooling & Heating	H
8	Refrigerant	R407C	1
		R410a	2
9	Power Supply	1PH/220V/50HZ	1
		3PH/380V/50HZ	3
10	Location	Indoor	I
		Outdoor	O

Example: T-WS-N-09-H-2-1-I ⟶ TWS-N09-H21-I

Specification and function

- Cooling Capacity is from 9000 to 30000 btu/hr for various climate conditions
- Turbo Technology in cooling and heating
- Quiet starter and low noise performance with the use of DC Inverter
- Automatic Flow Swing in 4 way (vertical & horizontal) and position setting of air guide bar for indoor unit
- Timer 24 hour and Sleep Mode
- Automatic defrost system
- Equipped with a system for reducing the humidity of space
- Fault self-diagnosis and display function
- Cold space protection technology
- Inner grooved tube coils
- Anti-corrosion fins
- Automatic restart system
- Auto drying, mildew prevention and cleaning coil
- Equipped with child lock

Technical Information

3D DC Inverter, Wall Mounted Split Unit- Non Tropical

REFRIGERANTE R410a

Model		Unit	TWS-N09-H21-I / TWS-N09-H21-O	TWS-N12-H21-I / TWS-N12-H21-O	TWS-N18-H21-I / TWS-N18-H21-O	TWS-N24-H21-I / TWS-N24-H21-O
Power Supply		V/Hz/ph	220-240/50/1			
Cooling Capacity		W	2700 (1250_4200)	3500 (1250_5800)	5400 (3200_7600)	7000 (4500_9500)
Heating Capacity		W	2750 (1250_4300)	3650 (2400_4900)	5500 (3200_7800)	8000 (3000_10000)
Operating Cooling Ampere		A	3.7 (1.5 _ 4.4)	4.3 (1.5 _ 5)	6.3 (2.1 _ 9.7)	9.5 (4.5 _ 14)
Operating Heating Ampere		A	3.7 (2 _ 5.7)	4.5 (2.6 _ 5.8)	7 (2.8_ 8.9)	10 (3.5 _ 13)
EER in Cooling Mode		W/W	3.3	3.6	3.5	3.3
COP in Heating Mode		W/W	3.6	3.7	3.6	3.3
Air Flow		m3/hr	≥ 450	≥ 500	≥ 850	≥ 1050
Sound Pressure	Indoor Unit	dB(A)	33-39	34-40	37-45	39.5-49
	Outdoor Unit	dB(A)	48-51	46-51	47-51	56-57
Dimension (W*H*D)	Indoor Unit	mm	750*252*197	790*268*214	1018*220*320	1095*265*325
	Outdoor Unit	mm	762*539*347	762*539*347	874*593*347	874*593*347
Net Weight	Indoor Unit /Outdoor Unit	Kg	10 / 29	11 / 29	15 / 40	17 / 45
Packing Dimension (W*H*D)	Indoor Unit	mm	806*248*306	850*266*318	1107*291*382	1166*307*376
	Outdoor Unit	mm	876*607.5*366	876*607.5*366	971*665.5*430	971*665.5*430
Packing Weight	Indoor Unit /Outdoor Unit	Kg	11 / 32	13 / 32	17 / 44	19 / 49
Liquid Line size		inch	1/4	1/4	1/4	1/4
Discharge Line size		inch	3/8	3/8	1/2	1/2
Max. piping length		m	15			
Max. height of piping		m	5			
Area to be cooled		m^2	14-21	18-26	23-42	38-47
Refrigerant			R410A			
Compressor Type			ROTARY			

Wall Mounted Split Unit-Tropical

REFRIGERANTE R410a

Model		Unit	TWS-T09-H21-I	TWS-T12-H21-I	TWS-T18-H21-I	TWS-T24-H21-I	TWS-T30-H21-I	TWS-T36-H21-I
Power Supply		V/Hz/ph	220-240/50/1					
Cooling Capacity		W	3100	3360	6350	6870	10000	10500
Heating Capacity		W	3100	3400	6400	6900	10000	10600
Operating Cooling Amper		A	5.5	6	11.5	12	9.5	9.5
Operating Heating Amper		A	6	6.5	12	12.5	10	10
EER in Cooling Mode		W/W	2.95	2.96	2.98	3.0	2.9	2.9
COP in Heating Mode		W/W	2.98	2.95	2.97	3.0	2.9	2.9
Air Flow		m3/hr	≥ 450	≥ 500	≥ 850	≥ 1050	≥ 1200	≥ 1200
Sound Pressure	Indoor Unit	db(A)	33-39	34-40	37-45	39.5-49	39.5-49	39.5-49
	Outdoor Unit	db(A)	48-51	46-51	47-51	56-57	56-57	56-57
Dimension	Indoor Unit	mm	750*252*197	790*268*214	1018*220*320	1095*265*325	1200*275*355	1200*275*355
	Outdoor Unit	mm	762*539*347	762*539*347	694*852*347	694*852*347	874*593*347	874*593*347
Net Weight	Indoor/ Outdoor Unit	Kg	10 / 29	11 / 29	15 / 42	17 / 47	17 / 55	17 / 55
Packing Dimension	Indoor Unit	mm	806*248*306	850*266*318	1107*291*382	1166*307*376	1210*285*365	1210*285*365
	Outdoor Unit	mm	876*607.5*366	876*607.5*366	955*766*424	955*766*424	955*815*424	955*815*424
Packing Weight	Indoor/ Outdoor Unit	Kg	11 / 32	13 / 32	17 / 44	19 / 49	19 / 57	19 / 57
Liquid Line size		inch	1/4	1/4	1/4	3/8	3/8	3/8
Discharge Line size		inch	3/8	3/8	1/2	5/8	5/8	5/8
Max. piping length		m	15					
Max. height of piping		m	5					
Area to be cooled		m^2	14-21	18-26	23-42	38-47	38-47	38-47
Refrigerant			R410A					
Compressor Type			ROTARY					

All data is calculated according to below condition:

Cooling Mode: ambient temperature is 114.8°F / 75.2°F (dB/wB), room temperature is 84.2°F / 66.2°F (dB/wB)

Heating Mode: ambient temperature is 44.6°F / 42.8°F (dB/wB), room temperature is 68.0°F / 59.0°F (dB/wB)

Floor Standing Split Unit

Features

Floor standing split unit consists of two main components; an outdoor compressor/condenser and an indoor air-handling unit(s) (evaporator). The outdoor unit is installed on outside of the room. The cooling capacity of floor standing split units generally is more than 36000 btu/hr and its power supply is 3ph. Due to the high air throw and cooling capacity, it is suitable for large halls and areas.

Nomenclature

Floor Standing Split Unit

Item	Description		Symbol
1	Company	Tahvieh	T
2-3	Production	Floor Standing Split Unit	FS
4	Climate Conditions	Tropical	T
		Non-Tropical	N
5-6	Nominal Cooling Capacity	Btu/hr / 1000	Number
7	Product Group	Cooling	C
		Cooling & Heating	H
8	Refrigerant	R407C	1
		R410A	2
9	Power Supply	1PH/220V/50HZ	1
		3PH/380V/50HZ	3
10	Location	Indoor	I
		Outdoor	O

Example: T-FS-N-41-C-1-3-I ⟶ TFS-N41-C13-I

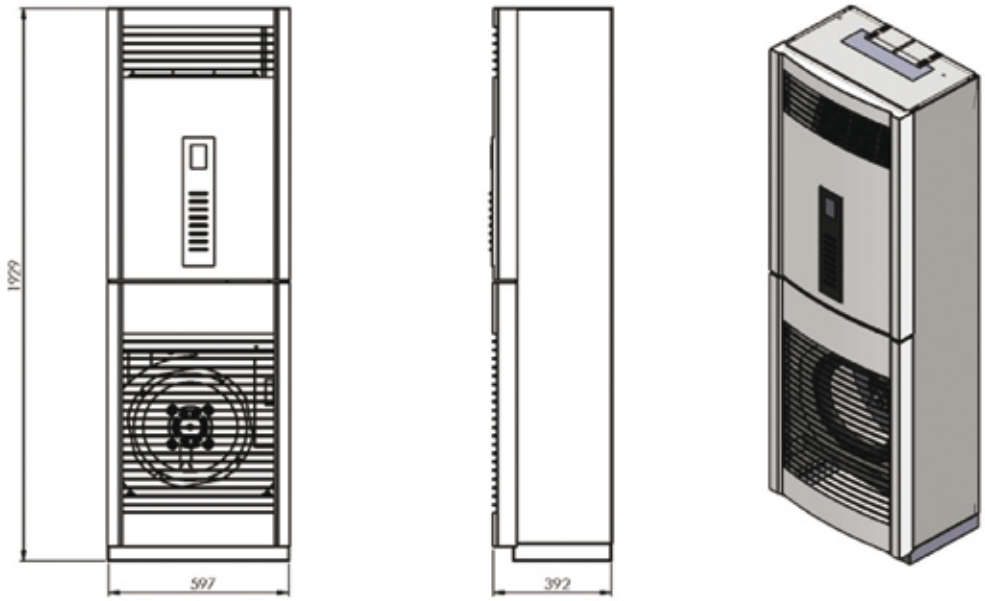
Specification and function

- Turbo Technology in cooling and heating
- Automatic Flow Swing in 4 way (vertical & horizontal)
- Timer 24 hour and Sleep Mode
- Automatic defrost system
- Equipped with a system for reducing the humidity of space
- Fault self-diagnosis and display function
- Automatic restart system
- Washable Filter & Body
- Equipped with child lock

Technical Information

Model		Unit	TFS-N41C-13I	TFS-N50C-13I
Power Supply		V/Hz/ph	380-415/50/3	
Cooling Capacity		Btu/hr	41000	50000
		W	12000	14000
Power Input		KW	4.2	5.2
Operating Cooling Ampere		A	7.2	9.4
EER in Cooling Mode		W/W	2.86	2.7
Air Flow		m3/hr	1800	1800
Sound Pressure	Indoor Unit	db(A)	57	57
	Outdoor Unit	db(A)	67	67
Dimension	Indoor Unit	mm	313*1868*600	313*1868*600
	Outdoor Unit	mm	1237*345*970	1237*345*970
Net Weight	Indoor/ Outdoor Unit	Kg	61/105	61/105
Packing Dimension	Indoor Unit	mm	520*2085*720	520*2085*720
	Outdoor Unit	mm	1385*485*1125	1385*485*1125
Packing Weight	Indoor/ Outdoor Unit	Kg	77/115	77/115
Liquid Line size		inch	3/8	3/8
Discharge Line size		inch	3/4	3/4
Max. piping length		m	15	
Max. height of piping		m	5	
Refrigerant		-	R407C	R22
Compressor Type		-	Scroll	

DIMENSION DAT



Duct Split Unit

Features

Ducted air conditioners are common in the workplace, shopping centers and other large areas, but they are also increasingly common for the home. They involve a central location where the air is treated, then sent by fans through a system of ducts and into each room. Ducted air conditioners are great for keeping large areas at a uniform temperature.

Tahvieh Concealed Ducted 'Split' systems consist of an outdoor unit and an indoor unit installed in the ceiling space. Air is distributed from the indoor unit by duct to one or more air vents. With convenient thermostat control, heating, cooling or auto settings are available at your fingertips.

Ducted air conditioning system differs from a split system in that the entire unit is concealed, usually in the roof space of your property or housed unobtrusively outside the property. The cooled air is then directed to multiple rooms or zones within the building via a system of concealed ducting.

The difference between ductless split unit and duct split unit is:

Ductless Split Unit: Indoor units are placed in each room for individual heating and cooling.
Each indoor unit operates independently to enable individual temperature settings.
In heating mode, heat pump

Duct Split Unit: Air is sent through ducts from one central location to heat and cool all rooms.
All rooms are air conditioned uniformly at the same temperature settings.
In Heating mode, it can be had water heating coil which is supply from heating package units.

Duct split is in three designs: Low Pressure, Medium Pressure and High Pressure according to length of the duct and air pressure loss in duct.

Nomenclature

Duct Split Unit

Item	Description			Symbol
1	Company	Tahvieh		T
2-3	Production	Duct Split Unit	Non-Tropical	DS
			Tropical	DT
4	Air Flow Discharge	Indoor Unit	Front Discharge	F
		Outdoor Unit	Side Discharge	S
			Top Discharge	T
5	Location	Indoor		I
		Outdoor		O
6	Connection Side	Right Piping		R
		Left Piping		L
7	Product Group	High Pressure		H
		Medium Pressure		M
		Low Pressure		L
8-9	Cooling Capacity	Capacity / 1000		Number
10	Refrigerant & Power Consumption	R22	220V/50Hz/1ph	R
			380V/50Hz/3ph	P
		R410A	220V/50Hz/1ph	G
			380V/50Hz/3ph	H

Example: T-DS-S-I-R-M-24-R ⟶ TDSSIRM24R

Attributes and Benefits

- Use duct split unit in each separate apartment unit
- Several rooms can be air conditioned by one indoor unit and zoning is available as an option. Zoning allows you to control which rooms you want to air condition at any particular time, aiding efficiency.
- Considered to be the quietest air conditioning choice as the indoor unit is situated above the ceiling and well away from the users
- Intelligent control system
- The unit could be set in automatic mode
- Set the indoor temperature desirably
- indoor fan has 4 speed and Depending on the temperature set automatically
- Timer 24 hour and Sleep Mode
- On/Off program in desire time and days
- Distribution and throwing of air by the diffusers placed in the conceal duct
- Filtration according to customer requirement (option)
- With duct split unit, fresh air can easily be introduced and mixed in with the conditioned air
- Inner grooved tube coils in indoor unit to increase efficiency
- Needed and suitable heating with water heating coil Instead of heat pump in winter. Hot water is supplied from the Package
- Capability of installation in limited space, adjusting return air from behind or below According to installation location indoor unit
- Easy maintenance of indoor unit
- Low maintenance cost
- Ability to use a long duct

Technical Information

R22/R407c							
Model (INDOOR)			TDS-FTRM-24-R	TDS-FTRM-36-R	TDS-FTRM-36-P	TDS-FTRM-48-P	TDS-FTRM-60-P
Nominal Capacity			2 Ton	3 Ton	3 Ton	4 Ton	5 Ton
Cooling	Capacity*	Btu/h	26110	37090	37000	51470	62340
		KW	7.65	10.87	10.84	15.08	18.27
	COP	W/W	4.27	3.93	3.95	4.1	4.19
	EER	BTU/W	14.6	13.4	13.51	14	14.3
	Moisture removal	LB/H	6.1	9.2	9.2	13.8	16.96
Heating	Capacity**	Btu/h	33980	47090	47090	50350	60700
		KW	9.960	13.800	13.800	14.750	17.800
Electrical Data	Total operating output	W	1747	2437	2437	3510	4402
	Total operating current	A	10.9	15.5	5.98	9.4	10
	POWER	V/Ph/Hz	230/1/50	230/1/50	380/3/50	380/3/50	380/3/50
	Max.input consumtion	W	2330	3210	3210	4680	5790
	Max.current	A	16.59	17.95	8.25	16.2	13.4
Indoor cooling coil	Fin material		Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
	Tube material		Copper	Copper	Copper	Copper	Copper
Indoor heating coil	Water pressure drop	FT-H2O/KPA	0.5/1.49	1.4/4.18	1.4/4.78	1.8/5.38	2.5/7.47
	Water flow volume	GPM/ m3/h	4 / 0.91	6/1.36	6/1.36	7/1.59	8/1.82
	Entering water temp	°F/°C	176/80	176/80	176/80	176/80	176/80
	Fin material		Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
	Tube material		COPPER	COPPER	COPPER	COPPER	COPPER
indoor fan	Power Output	W	80	130	130	180	230
	Running current	A	0.54	0.9	0.9	1.5	1.6
	Speed (SHi/Hi/Me/Lo)	rpm	950/900/800/750	900/850/800/700	900/850/800/700	900/850/800/700	900/850/800/700
External Static pressure***		in-wg /Pa	0.2/50	0.2/50	0.2/50	0.3/75	0.3/75
Indoor air flow	(SHi/Hi/Me/Lo)	CFM	750/680/620	1100/950/860	1100/950/860	1350/1250/1150	1600/1500/1400
		m3/hr	1275/1156/1054	1870/1615/1462	1870/1615/1462	2295/2125/1955	2720/2550/2380
Indoor dimension	Unit(WxHxD)	mm	950*334*552	1152*342*552	1152*342*552	1253*388*593	1300*380*593
Indoor weight	Net	kg	47	52	52	57	58
	Gross	kg	50	55	55	60	61
Model (OUTDOOR)			TDS-SORM-24-R	TDS-SORM-36-R	TDS-SORM-36-P	TDS-SORM-48-P	TDS-SORM-60-P
Outdoor coil	Fin material		Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
	Tube material		COPPER	COPPER	COPPER	COPPER	COPPER
Compressor	Brand		COPELAND	COPELAND	COPELAND	COPELAND	COPELAND
	Type		SCROLL	SCROLL	SCROLL	SCROLL	SCROLL
	Power input	kw	2	2.7	2.7	4	4.8
	Rated current(RLA)	A	14.8	15.2	5.5	12.4	9.1
	Locked rotor Amp(LRA)	A	61	100	46	65	74
	Thermal protection		INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTRNAL
	Capacitor	µF	50	60	-	-	-
outdoor fan	Output	W	250	380	380	250*2	380*2
	Rated current	A	1.15	1.85	1.85	1.15*2	1.85*2
	Capacitor	µF	8	10	10	8	10*2
	Applied QTY.	qty	1	1	1	2	2
Outdoor dimension	Unit(WxHxD)	mm	964*833*354	1004*833*383	1004*833*383	1004*1315*407	920*1330*350
Outdoor weight	Net	kg	92	107	107	133	145
	Gross	kg	95	110	110	135	150
Refrigerant	Type		R22	R22	R22	R22	R22
	Charge	gr	1800	2400	2400	3200	4000
Connected pipe size	Liquid sideØ	in	3/8	3/8	3/8	3/8	1/2
	Gas sideØ	in	5/8	5/8	5/8	3/4	3/4
	Max.refrigerant pipe length	m	25	25	25	25	25
	Max.difference in level	m	10	10	10	10	10

All data are calculated according to below condition
* Cooling Mode: indoor temp 27°c DB/19°c WB & outdoor temp 35 °c DB/24°c WB
** Heating Mode: indoor temp 20°c DB/15°c WB & outdoor temp7 °c DB/6°c WB
*** It's possible to increase ESP upon request
All dara are generated in sea level
Pipe sizing can be changed regarding distances

COOLING CAPACITY IN DIFFERENT AMBIENT (R22/R407C)						
Ambient Temp˚F/˚C		95 ˚F/35 ˚C	100 ˚F/37 ˚C	105 ˚F/40 ˚C	110 ˚F/44 ˚C	115 ˚F/46 ˚C
TDS-FIRM-24-R	BTU/H	26108	25576	25009	24401	23753
	KW	7.65	7.5	7.33	7.15	6.96
TDS-FIRM-36-R	BTU/H	37090	36461	35822	35169	34504
	KW	10.87	10.68	10.5	10.31	10.11
TDS-FIRM-36-P	BTU/H	37004	36375	35735	35081	34416
	KW	10.84	10.66	10.47	10.28	10.09
TDS-FIRM-48-P	BTU/H	51469	50384	49297	48215	47144
	KW	15.08	14.77	14.45	14.13	13.82
TDS-FIRM-60-P	BTU/H	62336	61063	59760	58433	57073
	KW	18.27	17.9	17.51	17.12	16.73

REMARK
* COOLING MODE: indoor temp 27˚c DB/19˚c WB
** ALL above data are generated in sea level

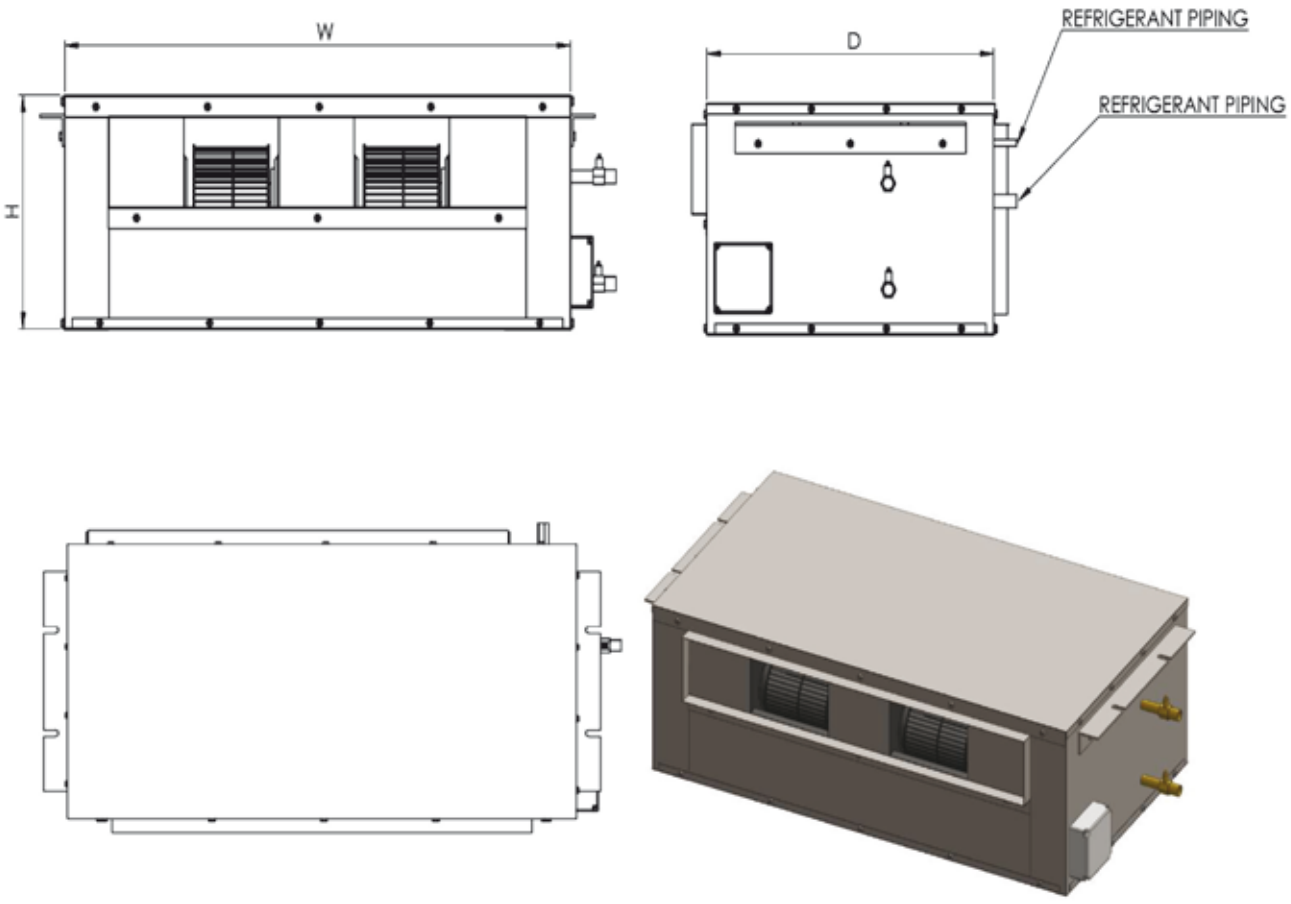
HEATING CAPACITY IN DIFFERENT CONDITIONS

MODEL	GPM(M3/H)	TEMPRETURE °F/°c			
		122°F/50°C	140°F/60°C	158°F/70°C	176°F/80°C
		Btu/H*			
TDS-SIRM-24-R	3 (0.68)	15730	21239	26738	32208
	4 (0.9)	16676	22475	28249	33979
	5 (1.13)	17311	23302	29253	35155
TDS-SIRM-36-R	5 (1.13)	22493	30301	38073	45787
	5 (1.36)	23192	31213	39188	47094
	7 (1.59)	23723	31906	40027	48082
TDS-SIRM-36-P	5 (1.13)	22493	30301	38073	45787
	6 (1.36)	23192	31213	39188	47094
	7 (1.59)	23723	31906	40027	48082
TDS-SIRM-48-P	6 (1.36)	24172	32572	40950	49285
	7 (1.59)	24730	33305	41846	50342
	8 (1.81)	25171	33880	42551	51165
TDS-SIRM-60-P	7 (1.59)	29242	39395	49504	59651
	8 (1.81)	29847	40186	50477	60698
	9 (2.04)	30341	40828	51260	61625

*Notice:
All above data are generated in sea level
It`s Possible to increase heating capacity upon request

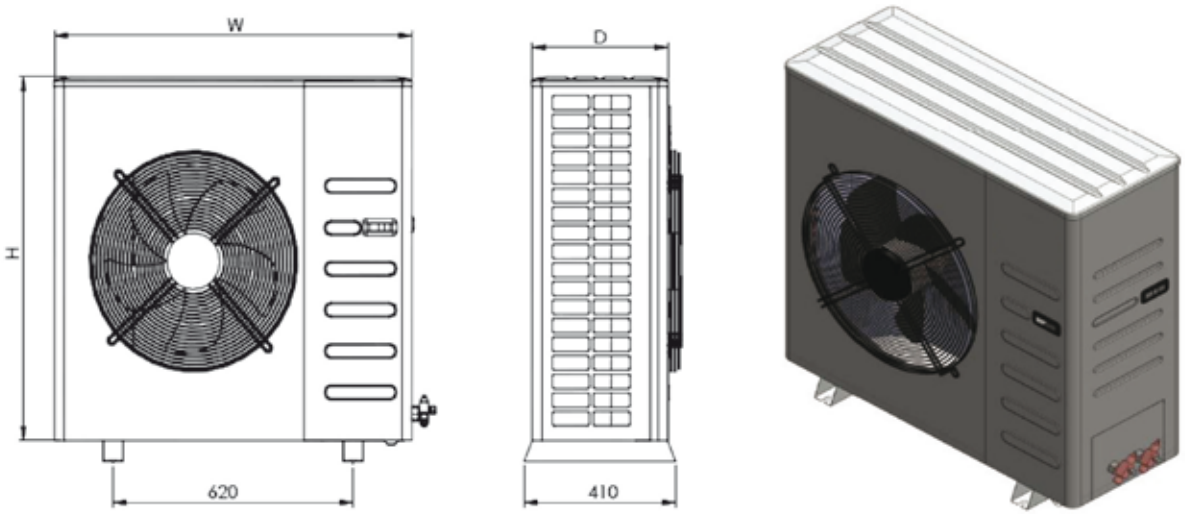
DIMENSION DATA

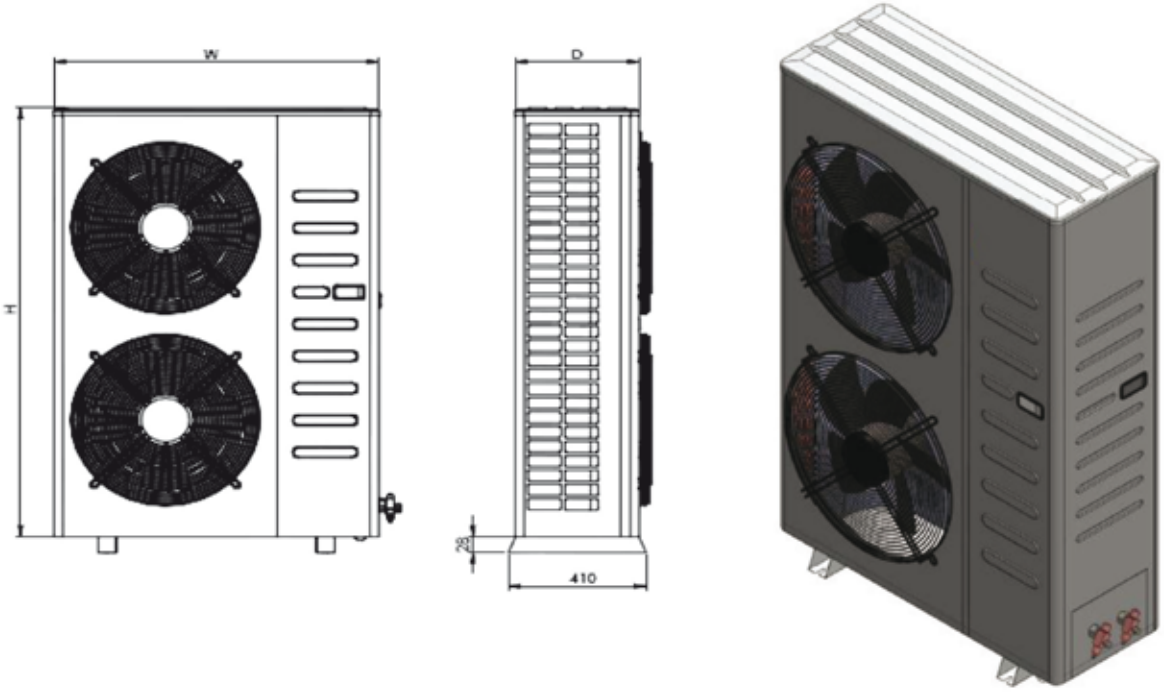
Indoor Unit Dimension



DUCTSPLIT			
Model(Indoor)	W(mm)	H(mm)	D(mm)
TDS-FIRM-24-R	950	330	510
TDS-FIRM-36-R	1150	330	550
TDS-FIRM-36-P	1150	330	550
TDS-FIRM-48-P	1250	380	590
TDS-FIRM-60-P	1300	380	590

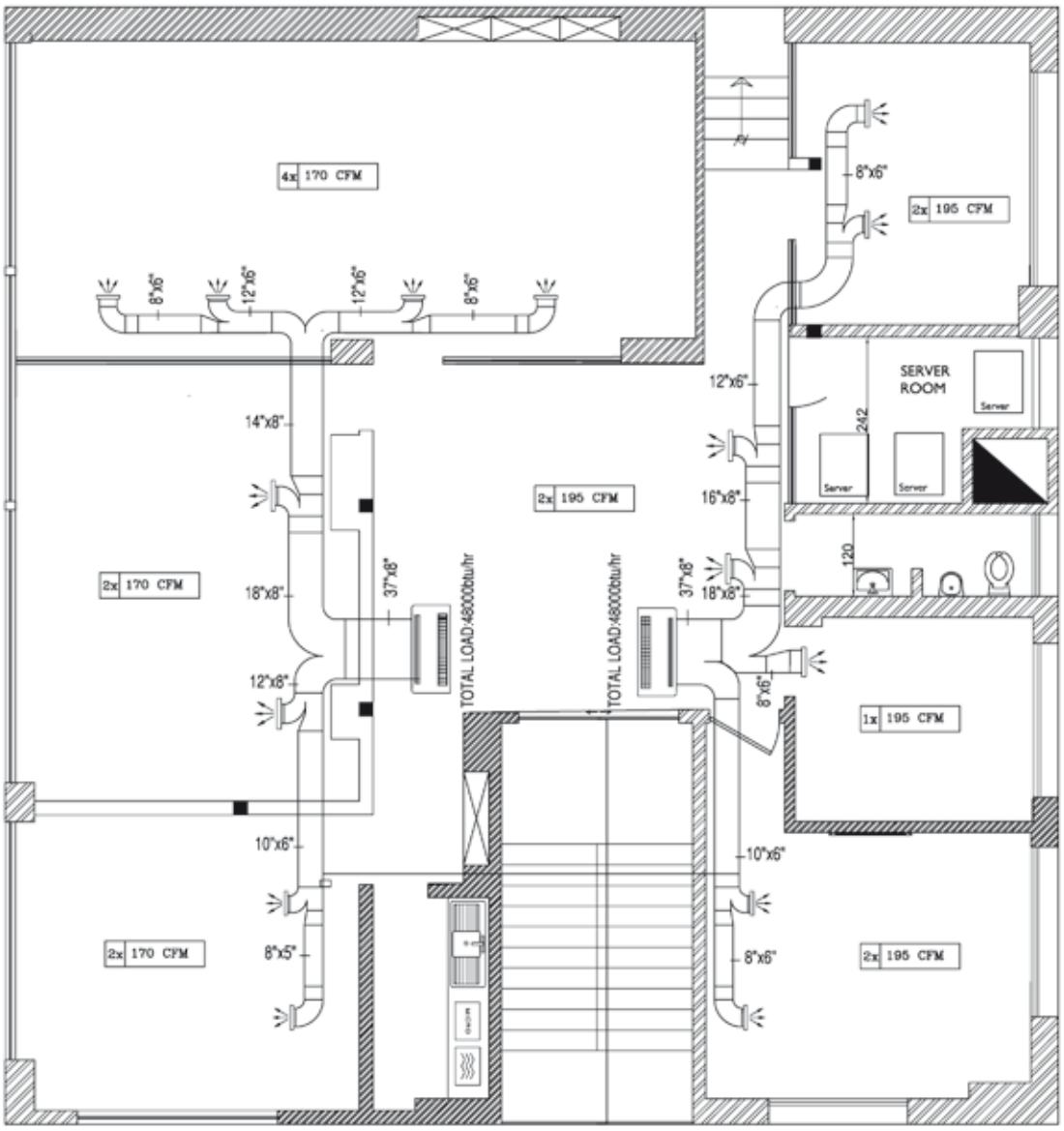
Outdoor Unit Dimension





DUCT SPLIT			
Model(Outdoor)	W(mm)	H(mm)	D(mm)
TDS-SORM-24-R	920	870	350
TDS-SORM-36-R	920	870	350
TDS-SORM-36-P	920	870	350
TDS-SORM-48-P	920	1330	350
TDS-SORM-60-P	920	1330	350

Installation and Layout



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AIR CONDITIONING SYSTEMS