Haier

Unmatched Cooling. Unlimited Comfort







The specifications, designs and information in this brochure are subject to the actual products Haier reserves the right to make change without any notice.

Light Commercial Catalogue

Haief Brand Story

Established in 1984, Haier Group is a world-leading provider of solutions to better life. In the process of sustainable innovation and entrepreneurship, Haier always upholds the principle of "prioritizing people's value". Mr. Zhang Ruimin, Chairman of the Board and CEO of Haier Group, first proposed the Rendanheyi Model in September 2005. After 15 years of development and innovation, Rendanheyi has achieved trans-culture, trans-industry and trans-field fusion and replication with its contemporary features, universality characteristics.

Focusing on user experience, Haier has grown from the once collectively owned small factory on the verge of bankruptcy into an ecosystem that leads the IoT era. As the world's first and only IoT ecosystem brand, Haier has been included on the list of BrandZ[™] Top 100 Most Valuable Global Brands for two consecutive years. Haier has topped Global Major Appliances Brand Rankings by Euromonitor International for 11 consecutive years. It's subsidiary Haier Smart Home is among the list of Global 500 of Fortune.

Today Haier Group owns four listed companies, has six platforms including Haier Smart Home, COSMOPlat, Ririshun, Yingkang Life, Haier Biomedical, Haina Cloud and HCH, and has Seven global brands such as Haier, Casarte, Leader, GE Appliances, Fisher & Paykel, AQUA and Candy. It has successfully incubated 5 unicorn companies and 23 gazelle companies. Moreover, Haier has established open innovation systems, 25 industrial parks, 124 manufacturing centers, 108 marketing centers and more than 140,000 sales networks around the globe, it has gone deep into 160 countries and regions globaly, serving more than 1 billion users' families.

Upholding the vision of "creating new engines to growth in the era of IoT with Rendanheyi Model", Haier Group is committed to working with its world-class ecosystem partners to continuously build premium brand, scenario brand and ecosystem brand, and to set up IoT ecosystems in clothing, food, accommodation, travel, health, elderly care, biomedicine and education, and to tailor personalized smart life for users around the globe.

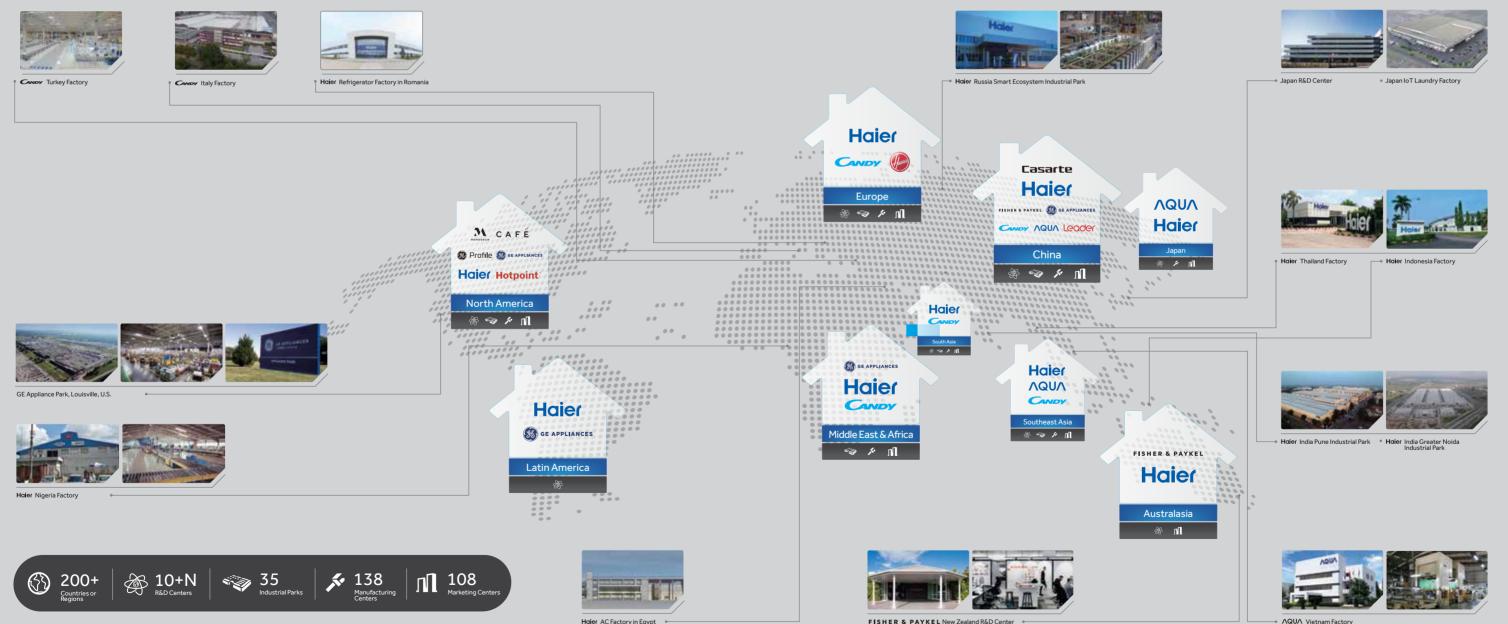


Haier Global Network

Haier has owned 10+N R&D centers, 35 industrial park, 138 factories, 108 marketing centers across the world, and the sales network over 200 countries or regions.

Haier has seven major household appliance brands across the world: Haier, Casarte, Leader, AQUA, Fisher & Paykel, GE Appliances (GEA) and CANDY. All these brands together have constituted Haier's global brand cluster, which can fully meet the best experience of different consumer groups in different regions all across the world.







most admired companies the world.



was once again listed on the Fortune Global 500, ranking 13 up from last year

Haier Global Manufacturing Capacity

Haier owns 16 air conditioner factories, 1 of which is MHAQ, a JV between Haier and Mitsubishi Heavy. These factories have a total production capacity of over 27.2 million units per year.





The First Batch of Enterprises selected as "Lighthouse Factory" in the world

Haief AC R&D Center

Haier Air Conditioning R&D Center, located in Qingdao, China, completed in December 2013, covers 20,000 square meters. It has more than 120 laboratories, including testing laboratories, key part research laboratories and all-weather user experience simulation laboratories. The R&D center also has the world tallest "drop tower" for testing long refrigerant piping tests(106 meters tall).

The user experience center gains recognition by domestic well-known certification and testing institutions, also is recognized by international organizations like TUV and Intertek etc. At Haier, we believe that the best air conditioning is one that builds on uncompromising quality control worldwide, developing and manufacturing fine products and delivering them to customers everywhere.

Haier MITSUBISH

Haier All

mmmmm

Haier	HIGHLY
	HIGHLY boratory





Simulated Rainfall Test

Simulated Sunshine Test





Simulated Snow Test

 \bigcirc

Global Certification CE T CERTIFIED (ETD)



In April 2014, Haier established joint laboratories with Highly for research in heating & cooling technology and with Mitsubishi Electric for innovative technology for user experience. Research by the user experience center covers the fields of user comfort evaluation, aerodynamics, acoustics, EMC(Electro-Magnetic Compatibility) and mechanics etc. The labs can carry out more than 600 international tests as per ISO, IEC, EN, CISPR and ANSI etc. to meet the requirements of Europe, Asia, America, Australia, Middle East and other 100 countries and regions.



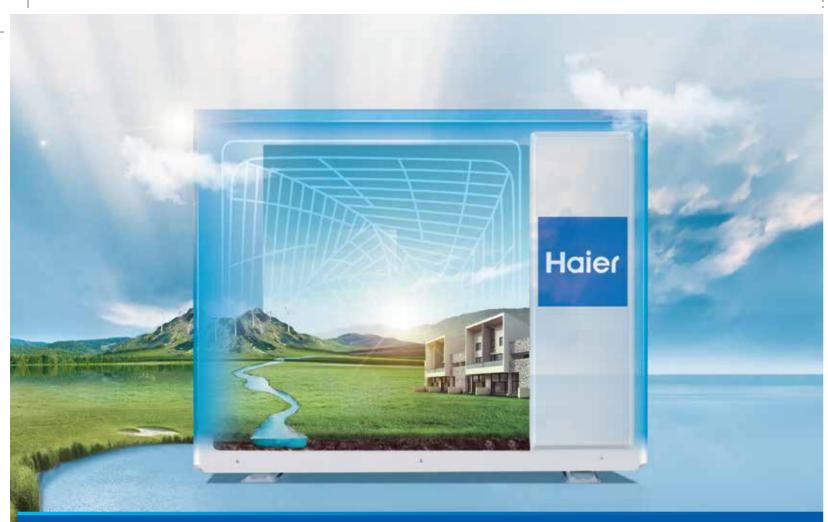
PRODUCT LINE-UP

R-32

Type Btu/h	Controller	18000	24000	36000	48000
Power Supply	Standard	1/230/50	1/230/50	1/230/50	3/400/50
Outdoor		1U18S6SM1SA	IU24S6SR1SA	TU36S6SS1SB	TU48S6SN1SB
1 Way Cassette (P1B-1348IB)	YL-HRS01	AB18S6SA1FA	AB24S6SA1FA		
Round Way Cassette (Panel PB-950QB)	YL-HRS01	AB18S6SR1FA	AB24S6SR1FA	AB36S6SR1FA	AB48S6SR1FA

•003 •



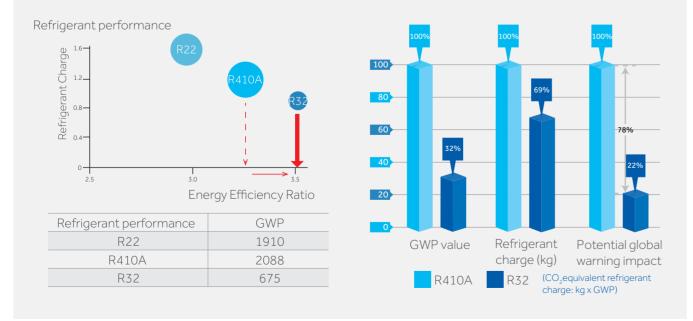


OUTDOOR

High Efficiency

R32 environmental refrigerant

Higher energy efficiency Benefits for Installers R32 lower GWP: 675, reducing the impact of refrigerant gases on global warming.



High Efficiency

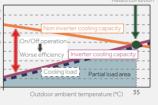
Inverter

Inverter air conditioner can adjust its cooling capacity according to the cooing load. This is less power consumption.



uel efficient. Constantly stopping and starting consumes energy and fuel efficient

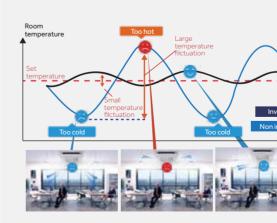
Inverters operate without repeated On/Off operation



New designed fan

Based on aerodynamics theory, we create 550mm super big diameter helix fan, air flow increase 16.7%.

Comfortable



DC inverter system

working conditions.

Continuous driving without opping and starting is more



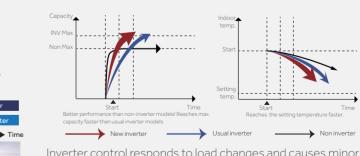
For the purpose of high seasonal performance, we

fan motor with different running speed in different

take high discharge DC inverter compressor and DC







Inverter control responds to load changes and causes minor temperature adjustments. On-inverter control frequently turns ON and OFF in response to load fluctuations or load mismatch and causes large temperature swings.

% Convenience

"888" digital test panel

All running parameters & error code can be checked from "888" digital display, installer can make easy work.



Double side 4 handles

Because of double side 4 handles design, it is very easy for 2 peoples carry it.



Built-in valve design

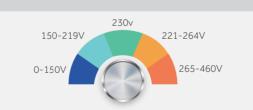
The new built-in valve design, it can realize 4 way pipe connection (front, rear, right, down), it is more beautiful and easy installation.



Reliability

Wide voltage operation*

One phase: 150v-264v Three phase: 300v-460v

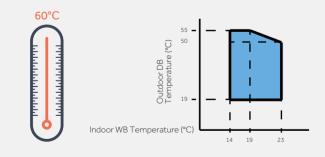


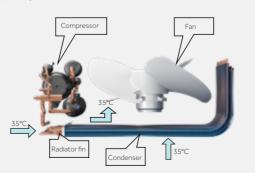
Running in high temperature 60°C*

Running in High temperature 55°C

The compressor drive module uses haier patented cooling technology.

Under the circumstance of high ambient temperature, the cooling capacity of the machine does not decline.





*Applicable to the South Asia region



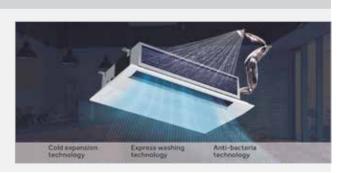
Healthy

Self-clean

Freezes the evaporator with moisture in the air, and removes away dirt in melting, 20 minutes of self-cleaning ensuring healthy air that comes out of air conditioners.

Antibacterial filter

With silver ion health filter, its bactericidal rate is as high as 99.9%, mildew grade is 0.





UVC sterilization (Optional)

The built-in UVC sterilization module emits short-wave sterilization ultraviolet rays near the return air outlet to sterilize the air entering the air conditioner and removes harmful chemicals and residues.



W Exquisite Design

LED hidden display

LED displays the temperature clearly and supports 0.5 °C temperature adjustment precise.

Elegant jasmine white panel

Elegant jasmine white color design perfectly suits for different lifestyle.



Comfortable

10° tilt panel

10° tilt panel avoids the air directly blowing to people and more comfortable.



Freestyle airflow

• 5-Speed airflow

• Super wide air supply angle ensures the air supplied to each corner of the room.



High ceiling design

High ceiling design which is suitable for 3.5m high ceiling space installation

% Convenience

185mm ultra-thin unit

185mm of thickness for easy installation.



Smart

IOT

Besides normal wired/infrared control, haier provides smart control from haier smart APP, including the ON/OFF, operation mode selection, fan speed, temperature, and air flow adjustment, etc.





High lift-up drain pump

It can lift condensed water up to 600mm, which make installation more flexible according to the layout.



Room Card Function

Support the use of room card to control the unit on and off, can be well adapted to the hotel and other occasions.



•010•

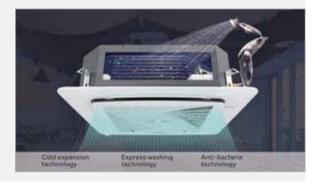


ROUND WAY CASSETTE

🎓 Healthy

Self-clean

Freezes the evaporator with moisture in the air, and removes away dirt in melting, ensuring healthy air that comes out of air conditioners.



UVC sterilization (optional)*

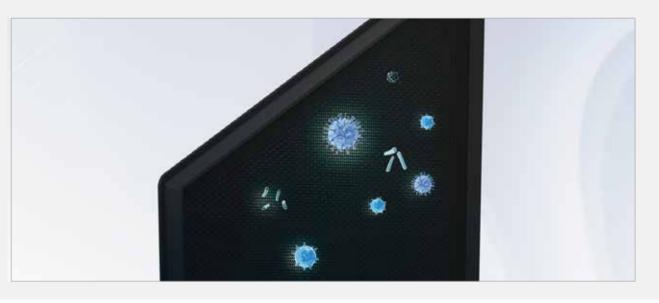
The built-in LED UV lights kill airborne hazards when the air circulates from air inlet, ensuring the clean air out.

*The H series will come standard with UVC module

Antibacterial filter (optional)

Silver (Ag) is a natural antibacterial material, which has good broad-spectrum antibacterial properties and could motivate bacterial extinction.

Haier antibacterial filter has added silver ions a aureus effectively, with long lasting effects.



🏂 Energy Saving

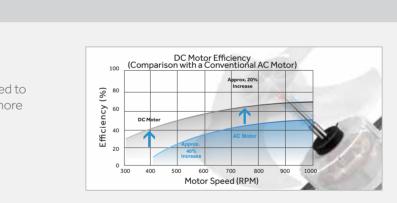
DC fan motor

Haier cassette adopts DC fan motor, compared to conventional AC fan motor, DC fan motor is more efficiency.

New heat exchanger design

The area of exchanger is enlarge to increase heating efficiency.

Haier antibacterial filter has added silver ions and antibacterial organics to kill escherichia coli & staphylococcus





W Exquisite Design



1 Spiral Piano White Panel

"Spiral" concept, "Haier" image.

2 Hidden LED display

The 360° smart flow cassette have particular hidden LED display design that clearly visualizes the temperature.

Flap is closed When air conditioner off

There is no crack from the flap and the panel when the air conditioner off. More elegance.

Free Style airflowl

There are 5-speed airflow: super low/low/medium/high/turbo mode to choose.

Turbo mode with super high speed for cooling/heating rapidly; (increases the cooling effect and speed by 10%).

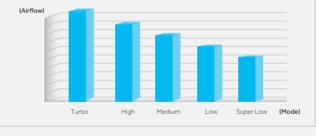
Super big inlet Grill

Brand-new designed fan

The diameter of new fan is enlarged based on

acrodynamic theory, so that there is the least resistance against airflow. Reduce 3dB(A) for

Compared to conventional air inlet grill, we enlarge the air inlet area by 23%, lower air speed & lower the sound level.



****** Comfortable

Individual flap control

The four flaps can be controlled individually according to end users by controller, providing maximum comfort throughout the room, it is a good solution to avoid "air conditioning disease".



High ceiling mode

Lots of shops are 5 meters high ceiling. This model can be installed in 4.5 metres height. The best solution for high ceiling shop.

Round way air supply

Round way air supply without blind spot.



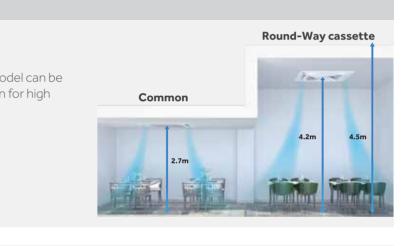
Square hanger

Unit body size: 765*765mm, innovative square hanger, flexible direction adjustment for installation.

sound level.





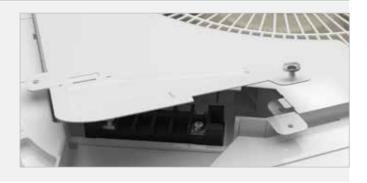






Dismantling only 1 screw

Installer can finish wiring by taking down 1 screw.



Convenient clip

There is clip to lock the panel. Just one installer can finish the screwing for panel. Save manpower and easy installation.



High lift-up drain pump

It can lifts condensed water up to 1000mm, which is more flexible to install the duct according to the layout.



MONO SPLIT INVERTI

(∋∺ Smart

IOT

Besides normal wired/infrared control, haier supplies smart control from haier smart APP, including the on/off, operation mode selection, fan speed temperature, and air flow adjustment.



*The H series will come standard with WiFi module

Human sensor (optional)

Switch-on when people coming in and switch-off when people leaving to save energy.















	Indoor Unit	
MODEL	Outdoor Unit	
Function		
Nominal Performance Data	Capacity	KW
Norminan enformance Data	ISEER	/
Star Rating		/
INDOOR UNIT		
Electrical Parameters	Power Supply	Ph/V/Hz
Performance	Indoor Air Flow (H/M/L)	m³/h
renomance	Sound Pressure Level (H/M/L)	dB(A)
la stallation	External Dimension (W/D/H)	mm
Installation	Net/Shiping Weight	kg
	Panel Mode	/
Panel Model	External Dimension (W/D/H)	mm
	Net/Shipping Weight	kg
Coil Material		
Fin Type		
Electrical Parameters	Power Supply	Ph/V/Hz
	External Dimension (W/D/H)	mm
	Net/Shipping Weight	kg
landa llation	Compressor Type	/
Installation	Refrigerant Type	/
	Liquid Gas	mm
	Gas Side	mm
	Operation Temperature	°C
Working Temp.	Ambient Temperature Range	°C
Coil Material		
Fin Type		

18k/24k Btu/Hr





AB18S6SA1FA	AB24S6SA1FA
1U18S6SM1SA	1U24S6SR1SA
Cooling	Cooling
5.1	6.5
3.99	3.84
3	3

1/230/50	1/230/50								
800/650/500	900/800/600								
51/46/41	52/47/42								
1170/539/185	1170/539/185								
26/31	27/32								
P1B-1348IB	P1B-1348IB								
1348/600/45	1348/600/45								
5.1/9.8	5.1/9.8								
Copper									

Hydrophilic Aluminium

1/230/50	1/230/50								
800/280/555	890/340/700								
31/35	50/59								
Rotary	Rotary								
R32	R32								
6.35	9.52								
12.7	15.88								
16-30	16-30								
18-55	18-55								
Сор	pper								
Hydrophilic Aluminium									

Round Way Cassette















vative 4 Independ Airflow Control

Auto Swing: Wide Disch Angle: 0°to 70°

Round Way Air Supply Intelligent Senser (option

Self Clear

	Indoor Unit		AB18S6SR1FA	AB24S6SR1FA	AB36S6SR1FA	AB48S6SR1F		
MODEL	Outdoor Unit		1U18S6SM1SA	1U24S6SR1SA	1U36S6SS1SB	1U48S6SN1S		
Function			Cooling	Cooling	Cooling	Cooling		
Nominal Performance Data	Capacity	KW	5.2	6.8	10.6	13		
Nominal Ferrormance Data	ISEER	/	4.33	4.19	3.61	3.61		
Star Rating		/	3	3	3	3		
INDOOR UNIT								
Electrical Parameters	Power Supply	Ph/V/Hz	1/230/50	1/230/50	1/230/50	1/230/50		
Performance	Indoor Air Flow (H/M/L)	m³/h	1300/1100/900	1600/1300/1000	1800/1500/1250	2000/1800/16		
Terrormance	Sound Pressure Level (H/M/L)	dB(A)	46/43/39	52/48/42	55/52/46	56/53/47		
la stallation	External Dimension (W/D/H)	mm	840/840/204	840/840/246	840/840/246	840/840/28		
Installation	Net/Shiping Weight	kg	24/29	26/33	26/33	29/35		
	Panel Mode	/	PB-950QB	PB-950QB	PB-950QB	PB-950QB		
Panel Model	External Dimension (W/D/H)	mm	950/950/50	950/950/50	950/950/50	950/950/5		
	Net/Shipping Weight	kg	5.5/8.5	5.5/8.5	5.5/8.5	5.5/8.5		
Coil Material				Сор	oper			
Fin Type			Hydrophilic Aluminium					
OUTDOOR UNIT								
Electrical Parameters	Power Supply	Ph/V/Hz	1/230/50	1/230/50	3/400/50	3/400/50		
	External Dimension (W/D/H)	mm	800/280/555	890/340/700	920/370/756	950/370/96		
	Net/Shipping Weight	kg	31/35	37/42	53/57	75/86		
Installation	Compressor Type	/	Rotary	Rotary	Rotary	Rotary		
Installation	Refrigerant Type	/	R32	R32	R32	R32		
	Liquid Gas	mm	6.35	9.52	9.52	9.52		
	Gas Side	mm	12.7	15.88	19.05	19.05		
Marking Town	Operation Temperature	°C	16-30	16-30	16-30	16-30		
Working Temp.	Ambient Temperature Range	°C	18-55	18-55	18-55	18-55		
Coil Material				Сор	oper	·		
Fin Type				Hydrophilic	: Aluminium			

18k/24k/36k/48k Btu/Hr



• 020 •

PRODUCT LINE-UP

Туре	BTU/h	Controller	36000	48000	
Power Supply	,	Standard	3/400/50	3/400/50	
Outdoo	r		TU36NC1QRB	TU48NC1QRB	
Tower		YL-HQS01	AP36KC1QRA	AP48KC1QRA	



96000	48000
3/400/50	3/400/50
TU96WS1QRB	TU48IC2ERB
AP96FS1ERA	AP48KC1ERA



TOWER

Healthy

Self-clean

Freezes the evaporator with moisture in the air, and removes away dirt in melting, ensuring healthy air that comes out of air conditioners.

Fresh air inlet

Freezes the evaporator with moisture in the air, and removes away dirt in melting, ensuring healthy air that comes out of air conditioners.Silver (Ag) is a natural antibacterial material, which has good broad-spectrum antibacterial properties and could motivate bacterial extinction.

Haier antibacterial filter has added silver ions and antibacterial organics to kill Escherichia coli & Staphylococcus aureus effectively, with long lasting effects.



Comfortable



15m long distance airflow

According to the requirement of office room and large parlor, 15m long distance.

Reliable protect

Reliable protect the system has many protect functions to achieve reliable running: High-pressure protection; Low-pressure protection; Phase protection; Over-current protection.





3D airflow

The cabinet type adopts two stepping motors to combines vertical and horizontal auto-swing to circulate cool/warm air to the every corner of the room.

Wide angle 160° air supply

Rounding 3-dimensional, 160° wide angle air sending, reach every corner of the room.



Child lock

After you set this function, the working status can not be changed either by the remote controller or the touch screen, unless this setting is cancelled.













Wide Angle 160° Air Supply



MODEL	
Function	
Nominal Performance Data	
Star Rating	
INDOOR UNIT	
Electrical Parameters	

	Indoor Unit		AP36KC1QRA	AP48KC1QRA	AP96FS1ERA	AP48KC1ERA						
MODEL	Outdoor Unit		1U36NC1QRB	1U48NC1QRB	1U96WS1QRB	1U48IC2ERB						
Function			Cooling	Cooling	Cooling	Heat Pump						
	Capacity	KW	10.8	13.0	24.7	12.5						
Nominal Performance Data	ISEER	/	3.23	3.39	NA	3.47						
Star Rating		/	2	2	NA	3						
INDOOR UNIT												
Electrical Parameters	Power Supply	Ph/V/Hz	1/230/50	1/230/50	1/230/50	1/230/50						
Performance	Indoor Air Flow (H/M/L)	m3/h	2000/1800/1500	2000/1700/1500	4500/4100/3700	2000/1700/150						
Ferformance	Sound Pressure Level (H/M/L)	dB(A)	49/45/41	49/45/41	60/58/56	49/45/41						
Installation	External Dimension (W/D/H)	mm	600/350/1880	600/350/1880	1200/420/1880	600/350/1850						
	Net/shipping Weight	kg	59/68	59/68	133/149	59/68						
Coil Material				Сор	pper							
Fin Type		Hydrophilic Aluminium										
OUTDOOR UNIT												
Electrical Parameters	Power Supply	V/Ph/Hz	3/400/50	3/400/50	3/400/50	3/400/50						
	Airflow (H)	m3/h	4500	5000	10000	6000						
Performance	Sound Pressure Level (H)	dB(A)	64	61	62	58						
	External Dimension (W/D/H)	mm	920/385/762	965/370/950	1050/400/1636	948/340/1250						
	Net/shipping Weight	kg	61/66	78/90	155/170	96						
Installation	Compressor Type	-	Rotary	Rotary	Rotary	Rotary						
	Refrigerant type	-	R410A	R410A	R410A	R410A						
	Liquid Gas	mm	9.52	9.52	12.7	9.52						
	Gas Side	mm	15.88	19.05	22.22	19.05						
	Operation Temperature	°C	16-30	16-30	16-30	16-30						
	· ·					-5-55						
Working Temp.	Ambient Temperature Range	°C	18-55	18-55	18-55	-5-55						
Working Temp.		°C	18-55		pper	-5-55						



																														1
•	• •	0 0	• •	•	• •	0	۰	• •	•	۰	• •	•	۰	•	•	٠	• •	۰	• •	۰		• •	٠	• •	•	۰	• •	۰	٠	•
•	• •	• •	• •	•	• •		•	• •		•	• •	•	+	•	• •		• •	•	• •	•		• •	•	•	•	•	• •		•	•
0	• •		• •	•	• •		•	• •			• •	•			•		• •	•	• •			• •	•			•	• •			•
	• •						•										• •	•	• •			• •	•				• •			•
0	• •																0 0	•		•		• •					• •			•
						<i>.</i> .			<i>.</i> .			•						•					•			•				•
٠	• •	Date	<u>,</u>			Ι.	•		1									•	• •							•				•
		0 0					•											•												•
																		-												
	• •		• •			*	•	• •			• •			•		*		•		•			•			÷				•
0	• •		• •	• •	• •	0	٠	• •		0	• •	0	0	•	• •	0	• •	۰	• •	•	0	• •	۰	• •		٥	• •	0	•	٠
0	• •	0 0		• •			•	• •			• •				• •		0 0	0	• •	•	•	• •	•	• •		•	• •			•
0	• •	0 0	0 0	• •			۰	• •		0	• •			0	• •		0 0	•	• •	0		0 0	۰	• •	0	•	• •			۰
	• •	0 0	• •	• •	• •	0	•	• •	*	•	• •	• •		•	• •	0	• •	۰	• •	•		• •	•	• •	•	٥	• •	•	•	•
۰	• •	• •	• •	•	• •	•	•	• •	*	•	• •	•		• •	• •	•	• •	•	• •	۰	•	• •	•	• •	•	•	• •	•	•	•
0	• •		• •	• •	• •		٠	• •	*	0	• •	• •			• •		• •	۰	• •	۰		• •	٠	• •	•	۰	• •	•		•
	• •	0 0	• •			0	۰	• •		0	• •		0	•	• •	0	0 0	•	• •	۰	0	0 0	۰	• •		0	• •		•	•
0	• •	0 0	• •		• •		٠	• •		0	• •			0	• •		• •	•	• •	•		• •	۰	• •		۰	• •		•	•
0	• •	• •	• •	•	• •	٠	٠	• •		٠	• •	•		•	• •	٠	• •	۰	• •	٠	*	• •	٠	•		۰	• •	*	•	٠
۰	• •	• •	• •	•	• •		٠	• •		٠	• •	•		•	• •		• •	۰	• •	•		• •	•	• •	•	۰	• •	•	٠	•
0	• •		• •	•	• •	0	٠	• •		0	• •	• •	0	•	•	0	• •	۰	• •	۰	0	• •	۰	• •	•	۰	• •	•		٠
0	• •	• •	• •		• •	0	•	• •	•	•	• •				• •		0 0	•	• •	•	0	D 0	۰	• •		0	• •		•	٠
	• •	0 0	• •		• •		•	• •		0	• •			0	• •		• •	•	• •	۰		• •	۰	• •		٠	• •	•	•	•
•	• •	• •	• •	•	• •	٠	•	• •		٠	• •	•		•	•		• •	۰	• •	۰	*	• •	•	•	•	٠	• •		•	٠
•	• •	• •	• •	•	• •		٠	• •			• •	•		•	•		• •	۰	• •	٠		• •	٠	•	•	۰	• •	۰	•	•
•	• •	• •	• •	•	• •		٠	• •		*	• •	•		•	•	•	• •	۰	• •	۰	•	• •	٠	• •	•	۰	• •	•	•	•
	• •	0 0	• •	•	• •		•	• •		0	• •				• •		• •	•	• •	۰		• •	۰	•		٠	• •			•
	• •	0 0	• •		• •		•	• •		•	• •	•		•	• •		• •	•	• •	۰		• •	۰	•	•	۰	• •		•	•
٠	• •	• •	• •		• •		•	• •	+	٠	• •	•		•	• •		• •	۰	• •	•		• •	•	•	•	٠	• •		•	٠
٠	• •		• •		• •		٠	• •	+		• •	•		•	•		• •	۰	• •	۰		• •	٠	•	•	٠	• •	•	•	•
0	• •	0 0	• •	•	• •		•	• •			• •	•		•	•		• •	۰	• •			• •	•	• •		۰	• •	•	•	•
	• •	0 0	• •					• •			• •				• •		0 0		• •	۰		o o	۰	• •		•	• •			٠
0	• •	0 0	• •	•	• •		٠	• •			• •			•	• •		0 0		• •	۰		• •	۰	• •		•	• •			٠
	• •		• •	•	• •		٠	• •	+	•	•	•	+	•	•		• •	•	• •	٠		• •	٠	•	•	٠	• •		•	•
+	• •	• •	• •	•	• •		•	• •	+		• •	•		•	• •		• •		• •	•		• •	•	•	•	•	• •			•
	• •	0 0	• •	•	• •		•	• •			• •			•	• •		• •	•	• •	۰		• •	٠	• •	•	٠	• •			•
0	• •	0 0	• •					• •			• •				• •		0 0		• •	۰		o o	۰	• •		•	• •			٠
0	• •	0 0	• •	•	• •		٠	• •		٠	• •			•	• •		0 0	•	• •	۰		• •	۰	• •		•	• •			٠
۰	• •	• •	• •	•	• •	٠	٠	• •		•	•	•		•	•	•	• •	•	• •	٠	•	• •	٠	• •	•	٠	• •		•	٠
0	• •	0 0	• •	•	• •		•	• •		•	•	•		•	•	0	• •	۰	• •	۰		• •	•	• •		٠	• •	0	•	•
	• •	0 0	• •		• •		•	• •	0	•	• •				•	0	• •	۰	• •	۰		• •	۰	• •		۰	• •		•	•
	• •	0 0	• •		• •		•	• •		٠	• •	•		•	• •		• •	۰	• •	۰		• •	•	•	•	٠	• •		•	٠
٠	• •	• •	• •	•	• •	٠	۰	• •		٠	• •	•		•	•	٠	• •	۰	• •	٠		• •	٠	•		٠	• •		•	•
۰	• •		• •		• •		۰	• •		٠	• •	•		•	•		• •	۰	• •	۰	•	• •	٠	• •		۰	• •		•	•
0	• •	0 0	• •				0	• •			• •				• •		• •	0	• •			• •	۰	• •		•	• •		•	•
	• •	0 0	• •					• •			• •				• •		0 0		• •	۰		o o	۰	• •			• •			٠
	• •	0 0	• •	•	• •		٠	• •		٠	• •	•		•	• •		• •	•	• •	۰	٠	• •	٠	• •	•	٠	• •		•	٠
٠	• •	• •	• •	•	• •		٠	• •	+	•	•	•	+	•	•		• •	•	• •	٠		• •	•	•	•	٠	• •		•	•
	• •		• •	•	• •		٠	• •		٠	• •	•		•	•	٠	• •	٠	• •	٠		• •	٠			٠	• •		•	•
0	• •	0 0	• •	•			0	• •			• •				• •		• •	0	• •			• •	•	• •		0	• •		•	•
0	• •	0 0	• •	• •	0 0			• •			• •						o o			٠		• •	۰	• •		۰	• •			•
0	• •	0 0	• •	•	• •	0	•	• •		٠	• •	•		•	• •		• •	•	• •	٠		• •	۰	• •		۰	• •			•
	• •	• •	• •		• •		٠	• •			• •	•		•	•		• •	۰	• •			• •	•			٠	• •		•	•
	• •		• •		• •		۰	• •			• •	•		•	•		• •	۰	• •			• •	٠	• •		۰	• •			•
	• •							• •							• •		• •									•	• •			•
	• •	0 0						• •			• •				• •							• •				•	• •			•
•	• •		• •		• •	0	0	• •		•	• •	•			• •		• •	۰		۰	0	• •	۰	• •		0	• •		•	•
•	• •	• •	• •		• •		۰	• •			• •	•		•	•		• •	۰	• •			• •	•	• •		۰	• •			•
	• •	• •	• •	•			٠	• •			• •	•			• •	•		٠							•	٠	• •			•

