TOSHIBA

Leading Innovation

Better air

Leading the new era in air conditioning

**MADE IN JAPAN

Leading Innovation

1961	World's first split type air-conditioner
1978	World's first micro computer controlled room air-conditioner
1980	World's first inverter custom air-conditioner
1981	World's first inverter room air-conditioner
1993	World's first digital DC twin rotary air-conditioner
1998	World's first Hybrid Inverter air-conditioner
2000	World's first green DC Hybrid Inverter using R410A gas

TOSHIBA

Leading Innovation >>>

United Technologies

Climate | Controls | Security

June 8, 2017

Dear partners and customers,

You may be aware of news reports relating to the non-certified release of Toshiba Corporation's fiscal Q3 financial results on April 11.

I would like to assure our partners and customers that these reports are not related to our Toshiba Carrier joint ventures around the world, which operate as independent legal entities with our own operational management and financial controls. The Toshiba Carrier joint ventures continue to have financial and operational support from both UTC Climate, Controls & Security and the Toshiba Corporation. The global alliance between our two companies remains on strong financial footing and steadfast in its commitments to serve customers.

Toshiba Corporation and Toshiba Carrier Corporation have provided letters which can be used to advise customers and business partners on this matter, as attached.

Yours truly,

Titus Yu
MD, Southeast Asia Pacific
UTC Climate, Controls & Security

Chong Wai Yen
MD, Singapore
UTS Climate, Controls & Security

Carrier leverages its global reach to distribute Toshiba's air conditioning products outside of Japan as part of the Toshiba-Carrier alliance founded in 1999 with the formation of Toshiba Carrier Corporation. Founded by the inventor of modern air-conditioning, Carrier is a world leader in high-technology heating, air-conditioning and refrigeration solutions. Carrier is a part of UTC Climate, Controls & Security, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide.

In Singapore, Carrier Singapore is in charge of the distribution network for Toshiba air-conditioning products. Toshiba Corporation will continue to support Carrier Singapore on the development and supply of Toshiba air-conditioning products to this region.

Singapore remains a strategic area for Carrier, and its joint venture with Toshiba. As our valued customer/dealer/ distributor, you will continue to be offered our best products, service and support.

Thank you for your trust in Carrier. Please do not hesitate to contact us should you have any questions.

Carrier Singapore (Pte) Ltd
Toshiba Airconditioning Sales & Services
28 Teban Gardens Crescent | Singapore 608926
Main Line: +65 6567 5522
Warranty : +65 6567 5333 / 5337
Website: http://www.toshiba-aircon.com.sg/

Carrier

United Technologies
turn to the experts

TOSHIBA

Leading Innovation

INVERTER

When technology meets comfort

- No Ozone Depletion
- Quiet
- Comfort
- Powerful
- Energy Saving

Toshiba was the first company to incorporate inverter technology into air conditioning systems in 1981 and since then it has always maintained a technological advantage over its competitors.

The development of the new and exclusive **DC Hybrid Inverter** system has reaffirmed this ability to innovate and maintain technological leadership in a fast-growing market. But for Toshiba, innovation also means a strong commitment to international institutions that carefully evaluate the impact of new technologies on our environment.

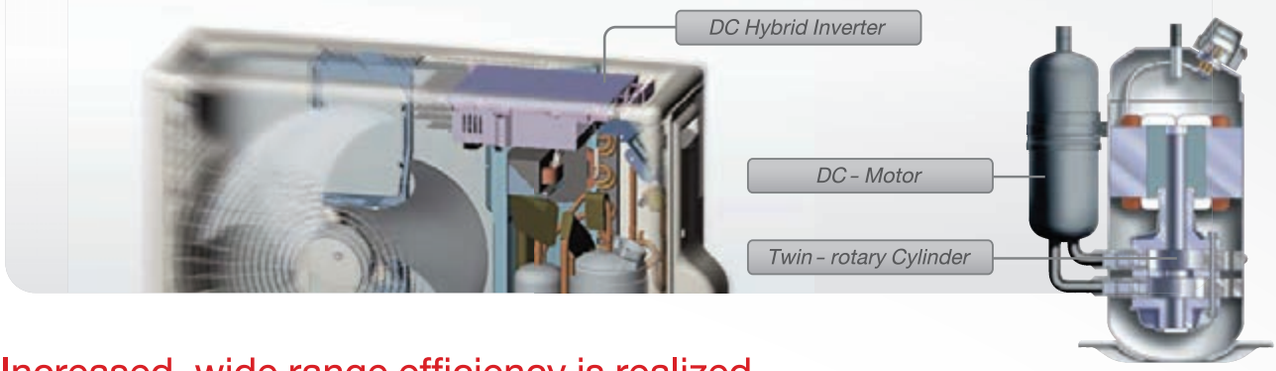
Toshiba combines technological development with care for future generations , the result is a range of extremely **energy-efficient air conditioners**, reducing greenhouse gas emissions from the source.

Toshiba continuous research developed **PWM** technology, which is used together with the traditional **PAM** control. The application of these two distinct technologies allows total control of performance and energy use.

Inverter Technology & Energy Saving

DC Twin-Rotary Compressor

HFC R-410A



Increased, wide range efficiency is realized.

This compressor enables the adoption of a high-pressure refrigerant. High efficiency is evident in low speed operation ranges. It can reduce energy consumption when operated in a long stable conditions.

High Efficiency

Rotation with two rollers at the same time, makes accurate compressor rotation possible with less energy loss. As a result, it offers a great reduction in energy consumption yet with very powerful operation

High reliability & Low Noise

The enhanced DC Twin-rotary compressor delivers stable performance with minimum friction. Ideal for noise-sensitive applications. The sound of the outdoor unit is almost imperceptible.

g

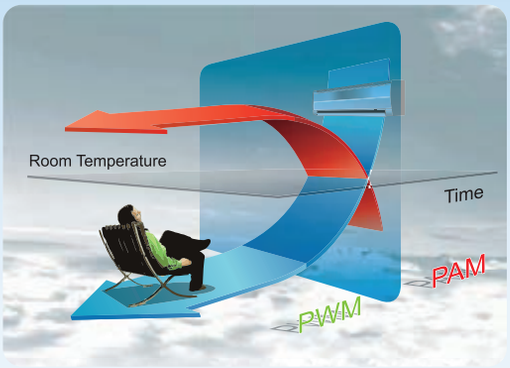
No Ozone Depletion | Quiet | Comfort | Powerful | Energy Saving

TOSHIBA
Leading Innovation

Toshiba **DC Hybrid Inverter** Technology

A New Dimension in Efficient Performance

Unique Hybrid Design



PAM
High power

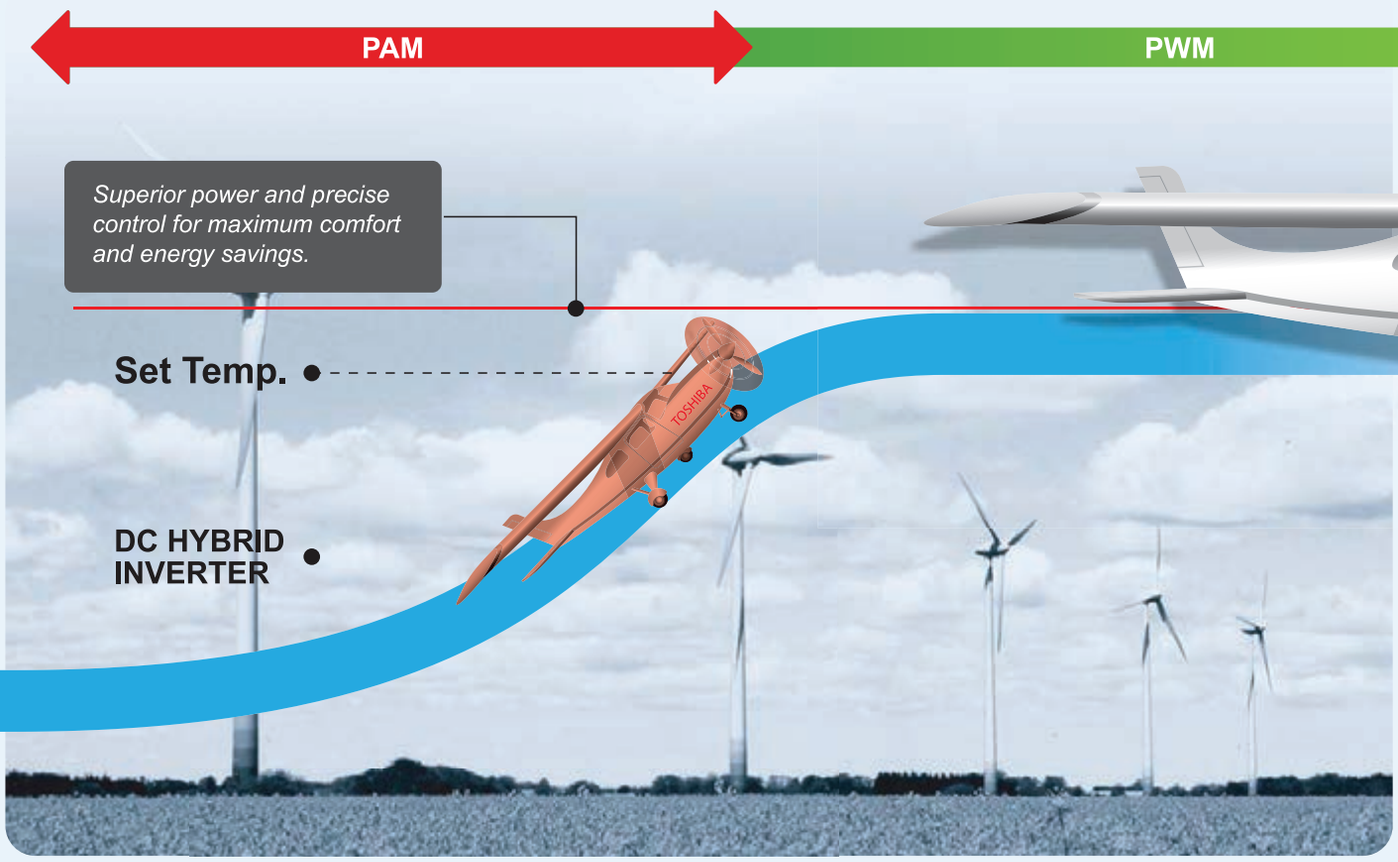
PAM works like a turbo engine in a car. It will set the compressor at the maximum power, providing fast cooling in order to achieve the desired room temperature when the air conditioner is switched on.

PWM
High efficient

PWM helps to balance the compressor speed revolution either high speed when providing fast cooling or slow speed when maintaining room temperature. So, like Cruise control in a car, it results in significantly less energy consumption.

The former provides the highest levels of power while the latter ensures the desired room temperature and energy efficiency. As a hybrid, the Toshiba Inverter System features the best of both.

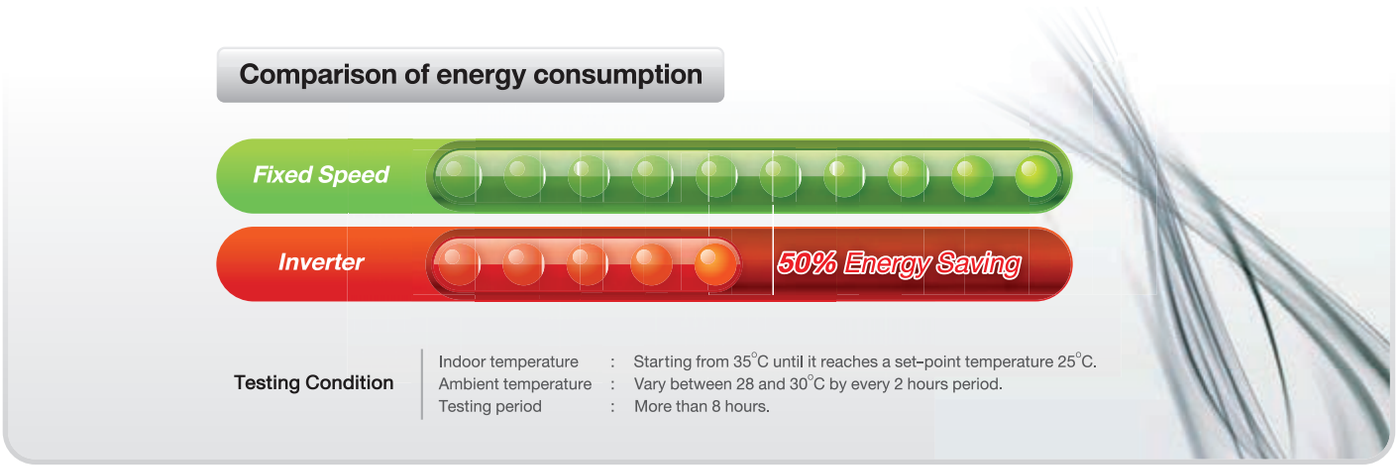
Toshiba **DC Hybrid Inverter** system

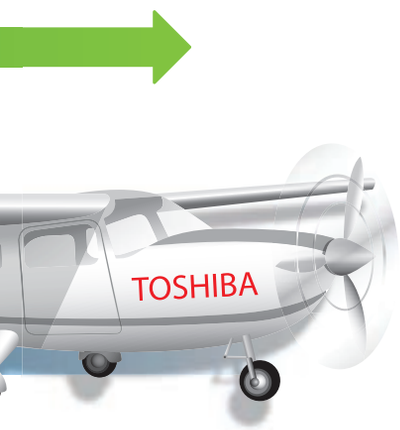


Benefits of the Toshiba
DC Hybrid Inverter system

Energy saving

Digital technology provides superior control and cost efficiency with the DC Inverter compressor when compared to AC Fixed Speed compressors. Super-accurate rotation of an environmentally sustainable compressor results in power savings of up to 50%* and quieter operation.





Comfort

High power

No ozone Depletion

Comfort

Toshiba's DC Hybrid Inverter uses a Twin Rotary compressor**, which ensures a steadier rotation therefore reducing the unwanted vibration sound.

High power

PAM drives high power to ensure the fastest achievement of the set temperature.

No ozone Depletion

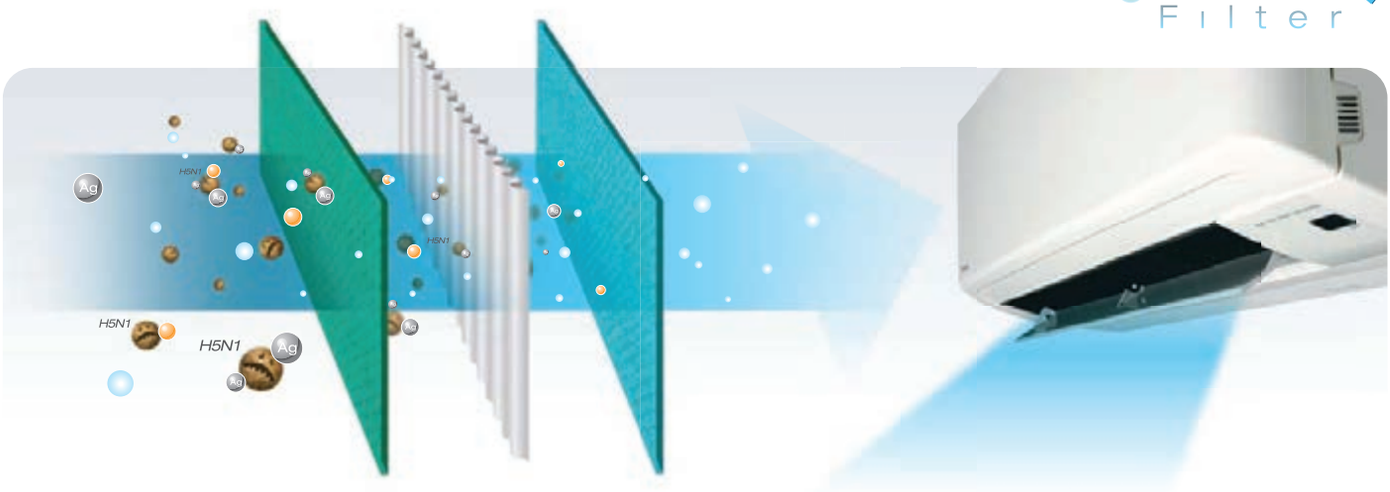
At Toshiba, our concerns for the environment have led us to use the R-410a refrigerant, which is confirmed to be non-ozone depleting, non-flammable and non-toxic.

*13k Btu Inverter vs. 13k Btu Fixed Speed product
**Applicable to RAS-10,13,18,22,24N3KCV/N3ACV Series

TOSHIBA
Leading Innovation

Technology for health through

TOSHIBA IAQ Filter



Toshiba IAQ* filter

Toshiba IAQ's technology is able to seriously inhibit the reproductive ability of **harmful bacteria and viruses such as H5N1 Avian Influenza.** With Toshiba IAQ, your family can breathe easy and your house will look like as if it has been spring cleaned.

Anti Bacteria and Anti Virus

Ag

- Anti bacteria* : destroys up to 99.9% of bacteria
- Deodorizing power : Absorbs and decomposes smoke, ammonia, volatile organics, food smells and bad odors
- Prevent mould formation : Inhibits the formation of mould and fungi

Leuconostoc enzyme

- Anti virus** : Avian Influenza virus (H5N1)

* Improve air hygiene by reducing the amount of bacteria and viruses. However, does not guarantee a sterilized room or protection against infection after using the filter.

* Korea Apparel Testing & Research Institute, BS05-00001771
**Betagro Science Center Co., Ltd., 900017366

Your health is our main concern

Today, we spend more time in the air conditioned room, either in the office or at home, "Clean airflow" means you can breathe with greater confidence.

Self Cleaning Function

This function is designed to reduce the humidity that causes mould to form inside an air-conditioning unit.

It simply refreshes you in a natural way.

When you turn off your air conditioner, an internal fan automatically activates to dry out the coil. This removes the moisture, which causes mould to form.

Comfort & Health

Hi Power

Hi Power mode makes your room cool faster yet quiet when operating

When you come home on the hot day, just press on the "Hi-Power" button, Toshiba's extra airflow rapidly deliver extra cooling throughout the room without making undesired noise

Comfort & Health

Toshiba Research Center understands your needs

One Touch My Comfort

Toshiba has assessed user preferences in your region of the world to ensure that our need can be fully catered for. The One touch My Comfort features customized temperature and airflow settings, which will deliver you ultimate comfort with one simple touch of the button.

Comfort Sleep

Awake in the middle of the night because you felt the room is too cold? Do you feel too cold during sleeping at night?

With Toshiba's convenience feature, when you activate the Comfort Sleep button, your air-conditioning system will compensate for naturally lower night air temperatures so you can sleep in complete comfort

Real time on-off

We design Real time on-off feature, which can set on and off times or program a setting to repeat every 24 hours.

Comfort & Health

Your health is our main concern

Today, more and more, we spend time in the air conditioned room, either in the office or at home, "clean airflow" means you can breathe with greater confidence.

Self Cleaning Function

Same contents, but create more illustrations to explain the feeling

- Uncomfortable (smelly) if there is no self-cleaning function.
- Comfortable if having self-cleaning function.

20 minutes of fan operation after shut down, dries the moist air and helps reduce mould formation.

When you turn off your air conditioner an internal fan automatically activates to dry out the coil. This removes the moisture which causes mould to form.

Easy Maintenance from Stylish Front Grille

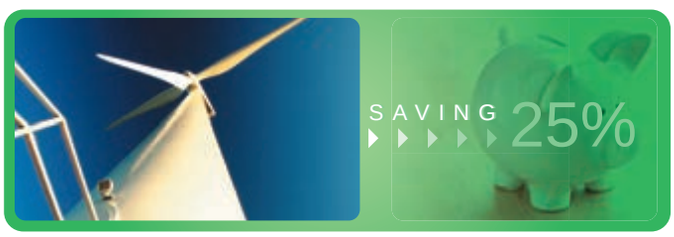
Regularly cleaning the air conditioner and filter, we can have a positive influence on healthy indoor environment - cleaner airflow, better capacity, and more money saving on electricity bill.

- The smooth grille makes for easy cleaning just sponge, rinse and leave to dry in the shade.

Eco-Logic

Achieve energy-savings of up to 25% compared wth standard setting without sacrificing comfort.

Only push “ECO” button

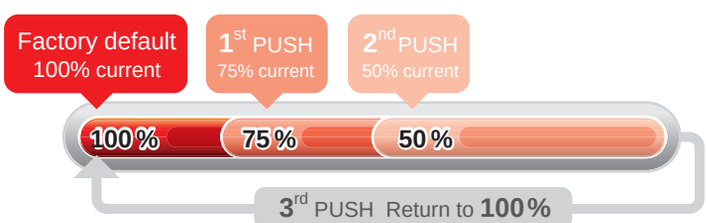


Cooling only The temperature is raised by 1°C after 1 hour and another degree after 2 hours, which will be maintained until switching off.

Power Select mode

Easy steps to activate.

Only push “POWER SEL” button



The latest feature helps make today’s lifestyle more comfortable as it offers the benefit of saving electricity. POWER SEL* button, gives you the freedom to control power consumption of the air conditioner from a remote control by preventing high power operation. It helps you when you would like to avoid electricity black out, and need electricity for other appliances etc.

*Applicable to selected single split models only

- In the previous design, dust collects on the grille which is difficult to clean. The collection of dust increases the suction resistance, which results in capacity reduction and higher noise level.

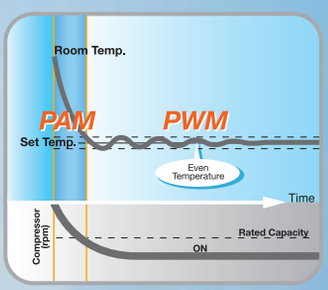
  With the new design, dust collection on the pre-filter, which is easily to take off and wash in luke warm water.

- The vertical louver can be taken off to wash and clean the inside cross flow fan.

Single Split Type

Single Inverter

Toshiba DC Hybrid Inverter



Superior power and precise control for maximum comfort and energy savings.

Toshiba DC (Direct Current) Hybrid Inverter, the advanced digital technology in air conditioning system, is easily implied as a perfect control of power. It operates to reach maximum power rapidly and also maintains the desired temperature constantly by intelligently varying the electrical current frequency to modulate the rotation of the compressor. As a result, it is the solution that eliminates highly fluctuated temperature that you used to be uncomfortable with.

Energy saving • Powerful & Precise • Environmentally Friendly

Product Line Up

Cool, clean comfort can grace every room in your home thanks to Toshiba technology. Breathtaking advances in air-conditioning features mean you can breathe with greater confidence. New stylish, compact and cost-efficient models are enhanced by Toshiba technology and advanced Total Quality System.

Single Inverter

INVERTER · HFC R-410A · TOSHIBA NEW IAQ Filter · SELF CLEANING

COOL ONLY

RAS-10N3KCV-SG
10,000 BTU / 2.50 (1.10 - 3.00) kW

RAS-10N3ACV-SG

COOL ONLY

RAS-13N3KCV-SG
13,000 BTU / 3.50 (1.10 - 4.00) kW
RAS-18N3KCV
18,000 BTU / 5.00 (1.10 - 6.00) kW
RAS-22N3KCV
22,000 BTU / 5.80 (1.20 - 6.50) kW

RAS-13N3ACV-SG
RAS-18N3ACV
RAS-22N3ACV

COOL ONLY

RAS-24N3KCV
24,000 BTU / 6.50 (1.50 - 7.70) kW

RAS-24N3ACV

Inverter Advanced Features

- One Touch Preset
- One Touch My Comfort
- Toshiba New IAQ
- Quiet
- Timer
- Swing & Fix Louver
- Fan Speed
- Auto Diagnosis
- Comfort Sleep
- IR Selectable remocon
- Eco-Logic

Specifications

Inverter
Hiwall Single Split Type

Condition (Cool) : Indoor Air Temperature 27°C DB, 19°C WB
Outdoor Air Temperature 35°C DB, 24°C WB

System		Cool Only (R-410)				
Model (Indoor Unit)		RAS-10N3KCV-SG	RAS-13N3KCV-SG	RAS-18N3KCV	RAS-22N3KCV	RAS-24N3KCV
(Outdoor Unit)		RAS-10N3ACV-SG	RAS-13N3ACV-SG	RAS-18N3ACV	RAS-22N3ACV	RAS-24N3ACV
Power Supply	(V/ph/Hz)	220-240/1/50				
Cooling Capacity	(kW)	2.40(0.77-3.50)	3.40(0.92-4.10)	5.00(1.10-6.00)	5.80(1.20-6.50)	6.50(1.50-7.70)
COP	(W/W)	4.44(3.67-3.33)	3.51(4.38-3.08)	3.52(6.11-3.00)	3.33(6.00-2.95)	3.42(5.00-2.66)
Power Consumption (Cooling)	(kW)	0.54(0.21-1.05)	0.97(0.21-1.33)	1.42(0.18-2.00)	1.74(0.20-2.20)	1.90(0.30-2.90)
Operating Current (Cooling)	(A)	2.47(1.06-4.80)	4.43(1.06-6.08)	6.39(1.06-8.92)	7.81(1.18-9.81)	8.69(1.78-12.85)
Indoor Unit		RAS-10N3KCV-SG	RAS-13N3KCV-SG	RAS-18N3KCV	RAS-22N3KCV	RAS-24N3KCV
Dimension (HxWxD)	(mm)	293x798x230	293x798x230	320x1050x243	320x1050x243	320x1050x243
Net weight	(kg)	10	10	14	13	13
Airflow volume	(m^3/h)	648	648	858	1188	1098
Fan Motor Output	(W)	35	35	30	30	30
Operating Noise (H/M/L), (H/M+/M/L+/L)	(dB)	41/37/32/27/24	41/37/33/29/25	44/41/38/35/32	49/45/42/39/35	47/45/42/39/36
Outdoor Unit		RAS-10N3ACV-SG	RAS-13N3ACV-SG	RAS-18N3ACV	RAS-22N3ACV	RAS-24N3ACV
Dimension (HxWxD)	(mm)	550x780x290	550x780x290	550x780x290	550x780x290	890x900x320
Net weight	(kg)	27	27	36	36	65
Compressor Output	(W)	780	780	1100	1100	2000
Fan Motor Output	(W)	43	43	43	43	60
Operating Noise	(dB)	48	48	49	52	52
Pipe Size						
Liquide Size	(mm/inch)	6.35(1/4")	6.35(1/4")	6.35 (1/4")	6.35 (1/4")	9.52 (3/8")
Gas Size	(mm/inch)	9.52(3/8")	9.52(3/8")	12.70(1/2")	12.70(1/2")	15.88(5/8")
Coupler Style		Flare	Flare	Flare	Flare	Flare
Drain	(Inside Dia. mm)	16.3	16.3	16.3	16.3	16.3
Max. Piping Length	(m)	15	15	20	20	30
Chargeless Length	(m)	15	15	15	15	20
Max. Piping Height	(m)	12	12	10	10	20
Usable Outdoor Temp	(Cooling, °C)	10-46	10-46	10-46	10-46	10-46

- Hi-Power
- Auto restart
- Add-Chargeless
- Automatic Changeover (Cool/Dry)
- Dry (Dehumidifying) Function
- Automatic 3 mins Delay Safety Control
- Washable front panel
- Self Cleaning
- Sleep Timer
- Power-SEL

Multi System

Multi-System

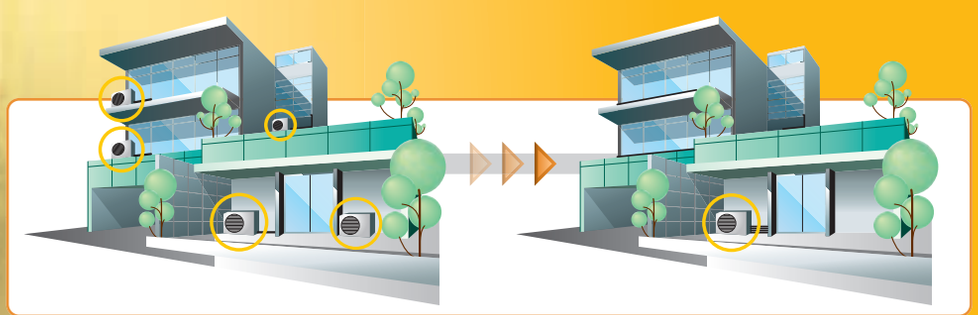
With even more sophisticated filters, Toshiba fights impurities and maximises comfort. One external compressor can serve up to five units for exceptional flexibility, economy and reliability under Toshiba's Total Quality System

Flexibility

The Toshiba Multi-System gives you a wide range of choices to create your desired comfort level. Choose from a flexible and efficient selection of interior units for up to five rooms.

Small Unit - Big Advantages

Toshiba Multi-System exterior units are lightweight and compact. With only one outdoor unit, the noise is significantly lower than 1:1 systems, it takes up much less space on your walls and keeps your environment neat and peaceful.



Luxury Through Flexible Technology

Advanced **Cleaning** | Ultimate **Comfort** | Design **Compact** | **Cost Saving**

Product Line Up

With even more sophisticated filters, Toshiba fights impurities and maximises comfort. One external compressor can serve up to five units for exceptional flexibility, economy and reliability under Toshiba's Total Quality System

Multi-System Inverter (High Efficiency)

INVERTER | HFC R-410A | 7 IN 1 FILTRATION | SUPER OXI DEO FILTER | SUPER STERILIZER FILTER

2/3 Rooms

COOLING

RAS-M10SKCV
RAS-M13SKCV
RAS-M16SKCV

RAS-3M24S3ACV-SG

3/4 Rooms

COOLING

RAS-M10SKCV
RAS-M13SKCV
RAS-M16SKCV
RAS-M22SKCV

RAS-4M26S3ACV-SG

4/5 Rooms

COOLING

RAS-M10SKCV
RAS-M13SKCV
RAS-M16SKCV
RAS-M22SKCV
RAS-M24SKCV

RAS-5M28S3ACV-SG

DUCT TYPE IS AVAILABLE :

RAS-M10SDCV
RAS-M13SDCV
RAS-M16SDCV
RAS-M22SDCV

Specifications

RAS-3M24S3ACV-SG
RAS-4M26S3ACV-SG
RAS-5M28S3ACV-SG

High Effiency Multi Inverter

Condition (Cool) : Indoor Air Temperature 27°C DB, 19°C WB
Outdoor Air Temperature 35°C DB, 24°C WB

Indoor Unit : Hiwall type

System		Cooling Only (R-410)				
Model		RAS-M10SKCV	RAS-M13SKCV	RAS-M16SKCV	RAS-M22SKCV	RAS-M24SKCV
Power Supply	(V/ph/Hz)	230/1/50				
Cooling Capacity	(kW)	2.7 (1.4 ~ 3.2)	3.7 (1.4 ~ 4.4)	4.5 (1.4 ~ 5.0)	6.0 (2.4 ~ 6.8)	7.1(2.4-7.2)
Indoor Unit						
Dimension (HxWxD)	(mm)	275x790x205	275x790x205	275x790x205	320x1050x228	320x1050x228
Net weight	(kg)	9	9	9	14	13
Airflow volume	(m^3/h)	516	564	690	1080	1134
Operating Noise (H-L)	(dB)	38 - 26	39 - 26	45 - 30	47 - 35	49 - 37
Pipe Size						
Liquide Size	(mm/inch)	6.35(1/4")	6.35(1/4")	6.35(1/4")	6.35(1/4")	6.35(1/4")
Gas Size	(mm/inch)	9.52(3/8")	9.52(3/8")	12.70(1/2")	12.70(1/2")	12.70(1/2")

Indoor Unit : Duct type

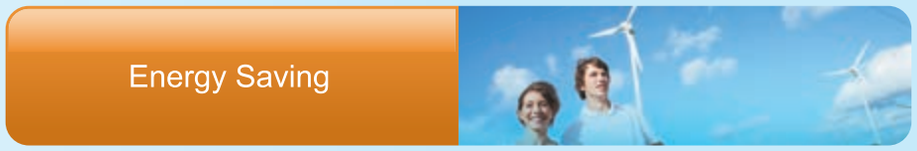
System		Cooling Only (R-410)			
Model (Indoor Unit)		RAS-M10SDCV	RAS-M13SDCV	RAS-M16SDCV	RAS-M22SDCV
Power Supply	(V/ph/Hz)	230/1/50			
Cooling Capacity	(kW)	2.7 (1.4 ~ 3.2)	3.7 (1.4 ~ 4.4)	4.5 (1.4 ~ 5.0)	6.0 (2.4 ~ 6.8)
Indoor Unit					
Dimension (HxWxD)	(mm)	230x750x440	230x750x440	230x750x440	230x900x440
Net weight	(kg)	19	19	19	21
Airflow volume	(m^3/h)	720	780	780	900
Operating Noise (H-L)	(dB)	31 - 23	32 - 24	33 - 25	35 - 27
Static pressure					
Upper limit	(Pa)	54.9	63.7	63.7	68.6
Standard	(Pa)	35.3	41.2	41.2	35.3
Pipe Size					
Liquide Size	(mm/inch)	6.35(1/4")	6.35(1/4")	6.35(1/4")	6.35(1/4")
Gas Size	(mm/inch)	9.52(3/8")	9.52(3/8")	12.7(1/2")	12.7(1/2")
Length of Signal receiver code	(mm)	2000			

Outdoor Unit

Number of Indoor units		3 Rooms Multi	4 Rooms Multi	5 Rooms Multi
Outdoor Unit		RAS-3M24S3ACV-SG	RAS-4M26S3ACV-SG	RAS-5M28S3ACV-SG
Cooling Capacity, Rated	(min ~ max) (kW)	5.2(2.4 ~ 7.0)	7.5(4.2 ~ 10.0)	7.9(3.7 ~ 11.5)
Dimension (HxWxD)	(mm)	630x800x300	890x900x320	890x900x320
Net weight	(kg)	45	74	75
Max. Piping Length (Per unit)	(m)	25	25	25
Max. Piping Length (Total)	(m)	50	70	80
Max. Chargeless Length	(m)	50	40	40
Max. Piping Height	(m)	10	15	15
Refrigerant Type		R 410A		
Usable Outdoor Temp	(Cooling, °C)	10-43 (Maximum Intake Temperature 46)		
Operating noise dB(A) sound pressure level		50	52	52

*The specifications may be subjected to change without prior notice for purpose of improvement

"**Experience the pleasure** of advanced technology"



TOSHIBA
AIRCONDITIONING

CSL - IMS 2018/4

CERTIFICATE NO. AJA 99/1369 TIS 18001 OHS 01055/070 DHSAS 18001 DHSAS03001/021

Notice : Toshiba is committed to continuously improving its products, to ensure the highest quality and reliability standards, and to meet local regulations and market requirements. All features and specifications subject to change without prior notice