

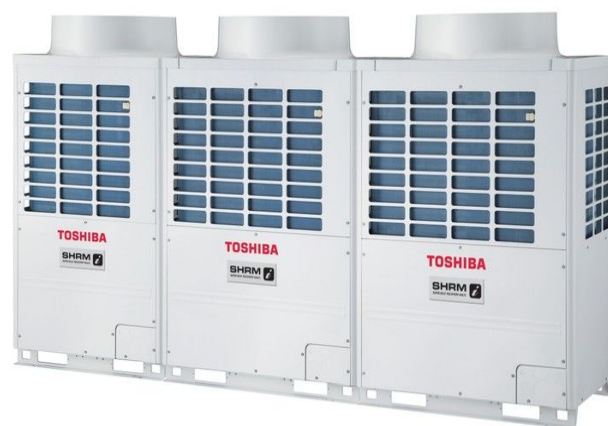
R22 & R407C Replacement Technology For SMMS*i* and SHRM*i*

- Re-use existing refrigerant pipework
- Cost effective upgrade
- Reduced installation time and expense
- ECA compliant
- Available for Heat Pump and Heat Recovery systems

TOSHIBA confirms our commitment to more environmentally friendly refrigerants utilizing our latest generation VRF **SMMS*i*** and **SHRM*i*** systems that can be used to replace existing R22 and R407C air conditioning plant. R22 (HCFC) was commonly used in air conditioning production up to 2004, on 1st January 2015 R22 equipment will become non serviceable, resulting in systems having to be replaced with more environmentally friendly refrigerants that have a lower or zero Ozone Depleting Potential (ODP).

Criteria for VRF replacement technology

- ♦ Existing system is operational in cooling mode.
- ♦ All pipes are the correct size (vertical pipes may be one size larger).
- ♦ Pipes are within acceptable separation limits.
- ♦ Pipes are free from defect.
- ♦ Pipes have not been exposed to prolonged atmospheric conditions.
- ♦ Pipes are flushed with a suitable cleaning agent in accordance with supplied instructions.
- ♦ Pipework is suitably insulated.
- ♦ Pipework passes a full F-Gas pressure test (3.7Mpa / 37bar / 536lb/in²)
- ♦ Power supply(s) and cables must be correctly rated for replacement plant.
- ♦ **Excluded Equipment: -**
 - ♦ Non-compliance of all of the above criteria;
 - ♦ Non-operational plant



The Enhanced Capital Allowance (ECA) scheme is a key part of the Government's program to manage climate change and is designed to encourage businesses to invest in energy saving equipment. It provides businesses with enhanced tax relief for investment in equipment that meets published energy saving criteria. For more information, please refer to our website www.toshiba-aircon.co.uk

Refrigerant Pipe Sizing For SMMS*i* and SHRM*i*

Pipe	Suction Gas						Liquid Side					Discharge Gas				Max. Piping Length (m) Height Difference Outdoor to Indoor	
	7/8	1 1/8	1 3/8	1 5/8	1 5/8	1 7/8	1/2	5/8	3/4	7/8	1 1/8	3/4	7/8	1 1/8	1 3/8	Height <3m	Height >3 <70m
8HP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				165	140
10HP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				165	140
12HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				165	140
14HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			165	140
16HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			175	150
18HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			175	150
20HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			175	150
22HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		175	150
24HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		175	150
26HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		175	150
28HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		175	150
30HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		180	155
32HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		180	155
34HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		180	155
36HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	180	155
38HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	180	155
40HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	180	155
42HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	180	155

Pipe	Suction Gas						Liquid Side					Max. Piping Length (m) Height Difference Outdoor to Indoor			
	7/8	1 1/8	1 3/8	1 5/8	1 5/8	1 7/8	1/2	5/8	3/4	7/8	1 1/8	Standard		High Efficiency	
SMMS <i>i</i>	7/8	1 1/8	1 3/8	1 5/8	1 5/8	1 7/8	1/2	5/8	3/4	7/8	1 1/8	Height <3m	Height >3 <70m	Height <3m	Height >3 <70m
8HP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				170	145		
10HP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				170	145		
12HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				170	145		
14HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			170	145		
16HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			170	145	180	155
18HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			180	155		
20HP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			180	155		
22HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		180	155		
24HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		180	155	190	165
26HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		180	155	190	165
28HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		180	155	190	165
30HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		180	155	190	165
32HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		180	155	190	165
34HP			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		190	165	190	165
36HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	190	165	190	165
38HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	190	165	190	165
40HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	190	165	190	165
42HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	190	165	190	165
44HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	190	165	190	165
46HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	155	130	155	130
48HP					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	155	130	155	130

Maximum system diversity factor connectable indoor units to outdoor is 105%



Procedures for installing VRF replacement technology

- ◆ Run the existing equipment in cooling mode for more than 30 minutes.
- ◆ Close service valves and pump refrigerant into condenser or recover refrigerant to storage cylinder(s).
- ◆ Remove oil traps and filter driers from existing circuits if fitted.
- ◆ Purge pipe work with oxygen free nitrogen (1bar - 15psig) and analyze any emerging oil.
- ◆ Flush all pipe work with an appropriate solvent flushing solution in accordance with instructions.
- ◆ Connect new refrigerant pipe work in accordance to the manufacturer's guidelines.
- ◆ Connect new indoor and outdoor units to system(s) pipework.
- ◆ Leak test following F-Gas regulations.
- ◆ Triple-evacuate the system(s) prior to commissioning achieving a minimum 4Torr (4000 Micron) vacuum.
- ◆ Maintain final vacuum for at least 30 minutes.
- ◆ Calculate additional refrigerant charge using SHRMI or SMMSi refrigerant charging tables for liquid pipes/lengths.
- ◆ Control cables for TCC transmission link (U1 & U2) must be renewed using 1.5mm 2 core screened cable.
- ◆ Initiate system(s) operation in the cooling mode and check operation is satisfactory and within normal limits.
- ◆ Remove gauges and ensure that system service valves are free from leakage.
- ◆ Toshiba commissioning sheets must be completed and returned to the Toshiba Technical Team for processing.
- ◆ Subject to approval confirmation of warranty period will be sent after verification of submitted commissioning data.

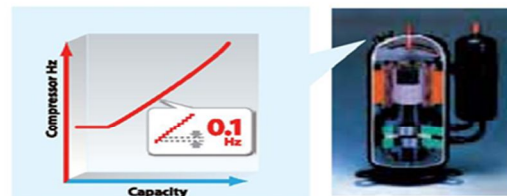


Smart innovations enable ultra-efficient operation

Intelligent systems work collaboratively to provide optimum operational efficiency.

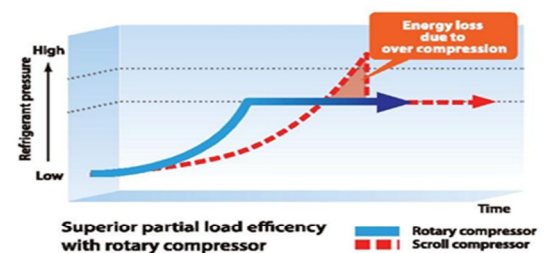
Infinity variable control

Ultra-precise inverter controls the compressor rotation speed in 0.1Hz increments, allowing for fine control over operational loads.



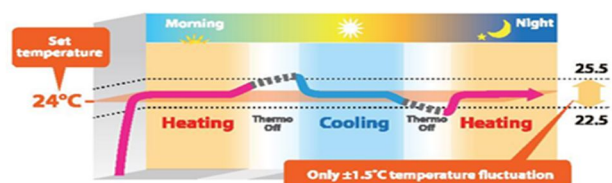
Rotary compressor

Unlike scroll compressors that have to initially exceed capacity in order to achieve target partial load, the rotary compressors can efficiently achieve the same target load with little energy loss.



Precision comfort

What truly makes the SHRM-i one the most flexible solutions available is its ability to provide simultaneous heating and cooling. Temperatures can be controlled and maintained precisely throughout the day. Room temperature is monitored and the air conditioning mode is switched to maintain the ideal temperature. As a result, temperature fluctuations are maintained within just $\pm 1.5^{\circ}\text{C}$.



For further information please contact our customer support team on 0870 843 0333, your local representative, your supplier of **TOSHIBA** products or email any enquiries to: - general.enquiries@toshiba-ac.com

