TOSHIBA

SHRM
SUPER HEAT RECOVERY MULTI
ADVANCE

SHRM-ADVANCE
KEY **ASPECTS**

SCOP UP TO 4.6

SEER UP TO 8.9

EN378 COMPLIANCE SOLUTION AVAILABLE

1. R32 CAPACITY **RULES**

Toshiba R32 VRF indoor units are manufactured to comply IEC 60335-2-40 standard requirements for electrical heat pumps and air conditioners. Re-designed indoor models with improved capacity performance (circa 2.5%) can be connected to smaller more compact outdoor unit chassis.
Smaller outdoor models fitted with plate sub cool heat exchanger enable reduced pipe sizes for indoor units benefiting with significant reduction in installation cost and system refrigerant volume.

- Improved Twin Rotary Compressor with liquid injection, exclusive 2-stage vane for enhanced performance and reliability
- Simplified oil management system, reducing complexity and increasing compressor durability

2. R32 PIPEWORK **DESIGN**

It is mandatory to know the exact amount of installed refrigerant charge when designing R32 VRF systems. Toshiba selection programme tool evaluates design calculations to provide accurate estimation for installed system pipework lengths and refrigerant volume. This allows risk assessment analysis for any required refrigerant safety measures.

If design information is unavailable, assumptions will result in over specification: Toshiba may advise extra safety measures that are unnecessary based on lack of information for required pipework lengths and room area dimensions resulting in higher capital cost to cover unknown parameters. Designing cost effective solutions that meet the needs of our customers and delivering greener buildings is key.
Accuracy must be checked before accepting and processing any customer order to ensure compliance. Orders may be rejected for non-compliance.

- New sub-cool plate heat exchanger for smaller pipe diameters
- Up to 48% reduction in refrigerant charge
- Up to 83% reduction for total equivalent CO_2

R32
REFRIGERANT

3. R32 UNITS UNDER GROUP **CONTROL**

Using remote leak detection sensors and new TU2C-Link communication network protocol, Toshiba enables group control for up to 16 indoor units installed in the same room and comply in accordance with IEC 60335-2-40 response time. In the event of a leak, ALL indoor units grouped and sharing the same local remote controller will stop operation and shut-off valves fitted to system will fully close.

- TU2C-Link 19,200 bps for faster and larger data response
- 128 Max. connectable indoor units

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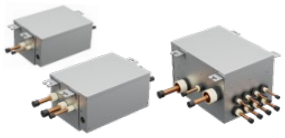
4. R32 LEAK DETECTION **TECHNOLOGY**

Toshiba's leak detection technology guarantees compliance to IEC 60335-2-40 (Ed. 6) standard requirements for electrical heat pumps and air conditioners. Remote leak detection sensors operating with indoor units, independent shut-off valves, or single and multi-port flow selectors with integrated factory shut-off valves, and optional battery kit, ensure effective refrigerant isolation and pump-down.

- Safety features: pump down; Individual shut off: or leak detection only
- Safety devices: pump down sensor; shut off valve; battery kit; leak detection sensor
- Remote monitoring with central controller
- RBC-VRFR32AK EN378 compliance solution available



Independent and integrated shut-off valves

Audible/visual alarm in every leak detector

Dedicated battery kit for PMV isolation in event of power failure

5. R32 DESIGN CONSIDERATIONS FLOW SELECTOR BOX (FS) **SHUT OFF VALVE (SV)**

Flow selector boxes and safety shut-off valves require evaluated consideration to ensure design compliance. Important consideration such as installation height, location and room area must be considered to ensure correct implementation of adequate safety measures.

- When installing FS and SV boxes outside of the room, a standalone sensor is required to protect the space only for zone B or C. Zone A requires no additional equipment. (Fig.1)
- Zone B and C Toshiba leak detector will initiate third party alarms and/or ventilation fans (ventilation is mandatory for zone C). (Fig.1)
- Toshiba selection program tool checks IEC 60335-2-40 (Ed.6) conditions and will evaluate and apply correct rules to the lowest floor including below ground. (Fig.1)
- Indoor unit, FS and SV boxes located in the same room can operate with the same safety devices keeping cost and installation time to a minimum. (Fig.2)
- Toshiba selection program tool selects pump-down or individual shut-off (if available)
- Visual graphs of room size v refrigeration charge in Toshiba selection program. (Fig.3)
- IEC 60335-2-40 (Ed.6) a sensor must be installed within 10m in line of sight (7m if out of sight). (Fig.4)
- Toshiba R32 VRF outdoor units have built-in pump-down facility (requirement BREEAM) FS or SV boxes will isolate all downstream pipework including indoor units.

- Max piping length 500m; height between ODU-IDU 90m; height between IDU-IDU 40m
- Farthest pipe from first branch 65m; farthest equivalent length 190m
- Max. length FS box to IDU 50m

Fig.1

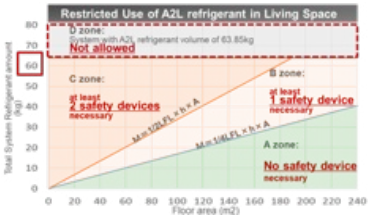


Fig.2

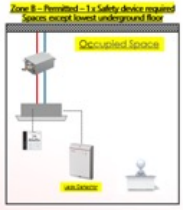


Fig.3

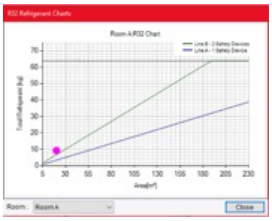
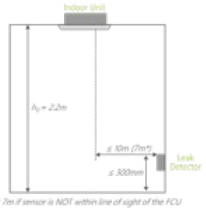


Fig.4



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