



## iC Air Conditioners



### **TZSA14AY**

Cooling Efficiencies up to: 15.2 SEER2 / 12 EER2

Nominal Sizes: 1.5 to 2.5 Tons [5.28 to 8.79 kW]

Cooling Capacities: 17.1 to 28.6 kBTU [5.0 to 8.38 kW]

Refrigerant Type: R-454B

Manufactured for  
**Thermal Zone**<sup>™</sup>  
Philadelphia, PA



## Table of Contents

Features and Benefits .....	3
Model Number Identification .....	4
General Data/Electrical Data .....	5
Accessories .....	6
Weighted Sound Power .....	6
Unit Dimensions .....	7
Clearances .....	8
Refrigerant Line Size Information .....	9-10
Performance Data .....	11
Limited Warranty .....	12

## Features and Benefits

- **Fully Louvered Steel Cabinet:** Features durable construction to add protection from yard hazards, weather corrosion
- **Optimized 7mm Coil Design:** Allows for improved airflow, heat transfer and energy consumption
- **Easily Accessible Control Box:** Ease of installation and serviceability
- **Refrigerant Detection System<sup>1</sup>:** An integrated one-box, patented design featuring the A2L sensor and mitigation board, offering easier commissioning with a single component and simplified wiring configuration, compatibility with any 24V thermostat application and system protection by automatically pausing outdoor unit operation — if excess refrigerant is detected

<sup>1</sup>Factory or field-installed in the furnace coil or air handler and is applicable to the complete heating and cooling system featuring Low GWP Refrigerant (A2L).

# Air Conditioners

<u>TZ</u>	<u>SA</u>	<u>14</u>	<u>A</u>	<u>Y</u>	<u>18</u>	<u>A</u>	<u>J</u>	<u>1</u>	<u>N</u>	<u>A</u>
Brand	Product Category	SEER2	Region	Refrigerant	Capacity BTU/HR	Major Series	Voltage	Type	Controls	Minor Series
TZ - Thermal Zone™	SA - Legacy AC	14 - 14.3 SEER2	A - All Regions	Y - R-454B	18 - 18,000 [5.28 kW] 24 - 24,000 [7.03 kW] 30 - 30,000 [8.79 kW]	A - 1st Design	J - 1ph, 208/230/60	1 - 1-Stage	N - Non-Communicating	A - 1st Design

[ ] Designates Metric Conversions

AVAILABLE MODELS
TZSA14AY18AJ1NA
TZSA14AY24AJ1NA
TZSA14AY30AJ1NA

STANDARD EQUIPMENT
R-454B Refrigerant
Scroll Compressor
Field Installed Filter Drier
Front Seating Service Valves
Internal Pressure Relief Valve
Internal Thermal Overload
Long Line capability
Low Ambient capability with Kit
Optimized Venturi Airflow
Rust resistant screws
QR code
External gauge ports

<b>General Data</b>			
<b>MODEL NO.</b>	<b>TZSA14AY18A</b>	<b>TZSA14AY24A</b>	<b>TZSA14AY30A</b>
<b>Nominal Tonnage</b>	1.5	2.0	2.5
<b>Valve Connections</b>			
Liquid Line O.D. – in.	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	3/4
<b>Refrigerant (R-454B) furnished oz.<sup>1</sup></b>	103	101	124
<b>Compressor Type</b>	Scroll		
<b>Outdoor Coil</b>			
Net face area – Outer Coil	14.5	14.5	18.1
Net face area – Inner Coil	13.9	13.9	17.5
Tube diameter – in.	0.276	0.276	0.276
Number of rows	2	2	2
Fins per inch	22	22	22
<b>Outdoor Fan</b>			
Diameter – in.	18	18	22
Number of blades	3	3	2
Motor hp	1/7	1/7	1/6
CFM	2036	2036	2546
RPM	1075	1075	825
Watts	154	154	165
<b>Shipping weight – lbs.</b>	154	153	185
<b>Operating weight – lbs.</b>	162	161	192
<b>Electrical Data</b>			
<b>Line Voltage Data (Volts-Phase-Hz)</b>	<b>208/230-1-60</b>	<b>208/230-1-60</b>	<b>208/230-1-60</b>
<b>Maximum overcurrent protection (amps)<sup>2</sup></b>	15	20	25
<b>Minimum circuit ampacity<sup>3</sup></b>	12	14	16
<b>Compressor</b>			
Rated load amps	8	10	12
Locked rotor amps	45	60	71
<b>Condenser Fan Motor</b>			
Full load amps	0.80	0.80	0.80
Locked rotor amps	1.70	1.70	1.70

<sup>1</sup>Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the installation instructions for information about set length and additional refrigerant charge required.

<sup>2</sup>HACR type circuit breaker or fuse.

<sup>3</sup>Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

## Accessories

MODEL NO.		TZSA14AY18A	TZSA14AY24A	TZSA14AY30A
Compressor crankcase heater <sup>1</sup>		44-17402-44	44-17402-44	44-17402-44
Low ambient control		RXAD-A08	RXAD-A08	RXAD-A08
Compressor sound cover		68-23427-26	68-23427-26	68-23427-26
Compressor hard start kit		SK-A1	SK-A1	SK-A1
Compressor time delay		RXMD-B01	RXMD-B01	RXMD-B01
Low pressure control		RXAC-A07	RXAC-A07	RXAC-A07
High pressure control		RXAB-A07	RXAB-A07	RXAB-A07
Liquid Line Solenoid (24 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC
	Solenoid Coil	61-AMG24V	61-AMG24V	61-AMG24V
Liquid Line Solenoid (120/240 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC
	Solenoid Coil	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V

<sup>1</sup>Crankcase Heater recommended with Low Ambient Kit.

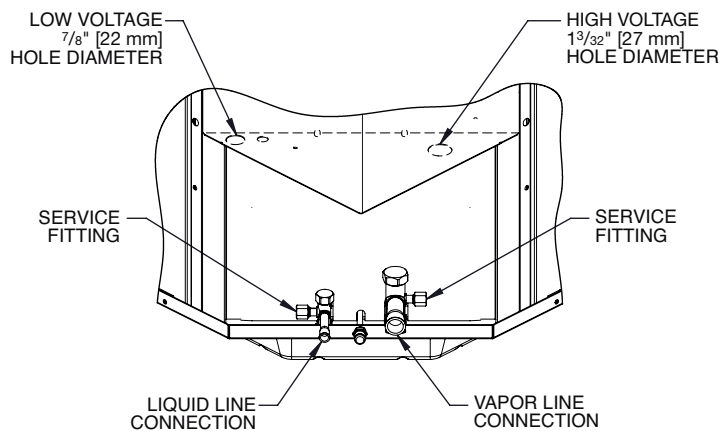
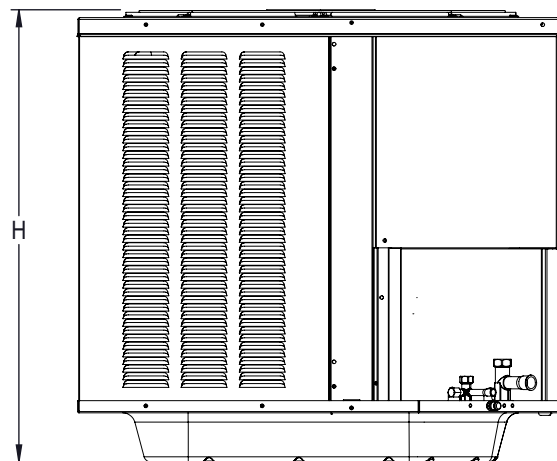
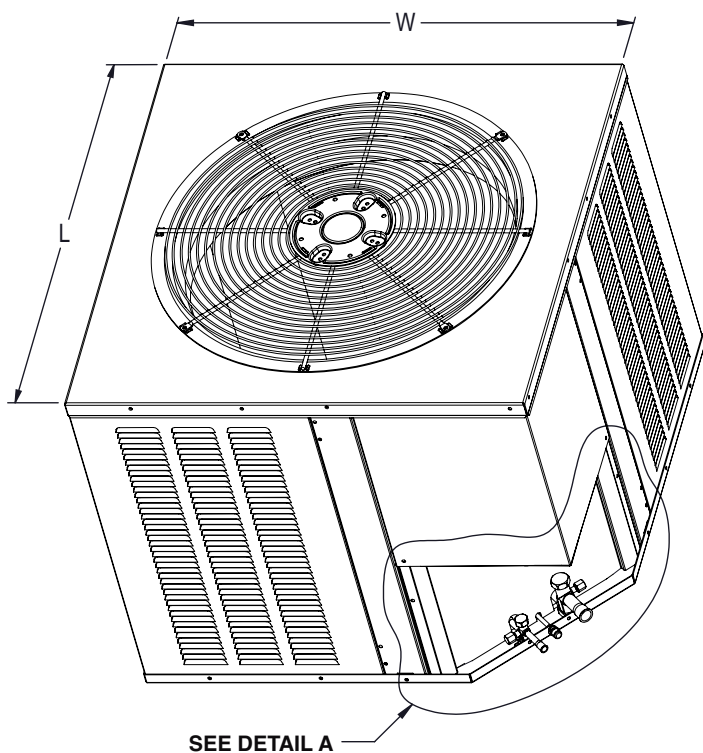
## Weighted Sound Power Level (dBA)

UNIT SIZE - VOLTAGE, SERIES	STANDARD RATING (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA WITHOUT TONE ADJUSTMENT)						
		125	250	500	1000	2000	4000	8000
TZSA14AY18A	76.0	56.7	59.5	62.1	66.1	64.7	62.5	62.6
TZSA14AY24A	76.0	56.6	57.9	62.6	67.2	65.5	61.1	58.0
TZSA14AY30A	74.0	46.7	55.2	62.8	66.1	60.4	57.3	51.2

**NOTE:** Tested in accordance with AHRI Standard 270-08 (not listed in AHRI)

## Unit Dimensions

MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
TZSA14AY18A	32.25	819	23.63	600	23.63	600	32.50	826	24.75	629	24.75	629
TZSA14AY24A	32.25	819	23.63	600	23.63	600	32.50	826	24.75	629	24.75	629
TZSA14AY30A	32.25	819	27.63	702	27.63	702	32.50	826	28.75	730	28.75	730



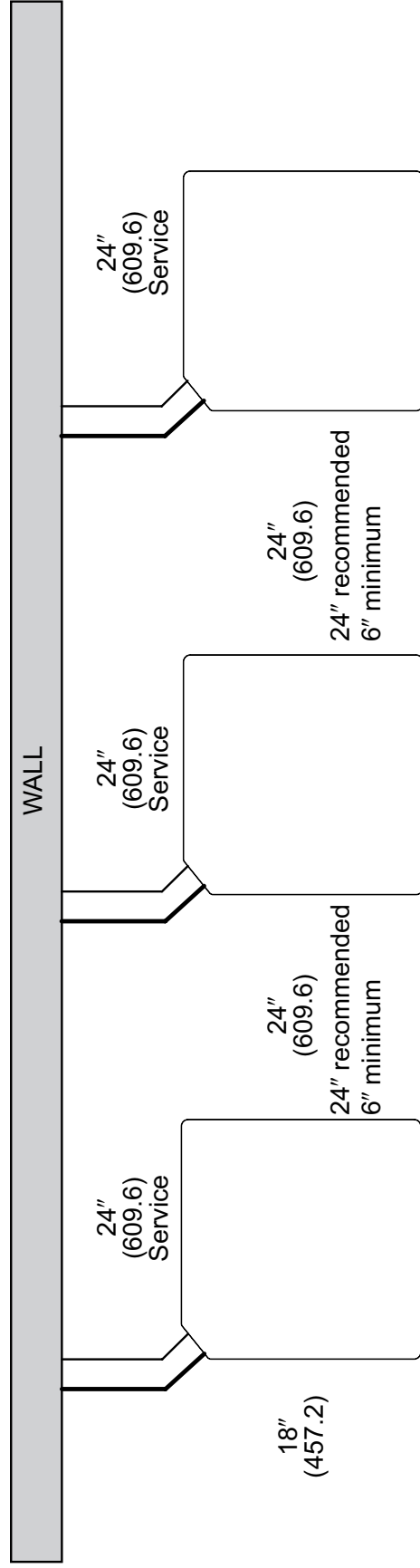
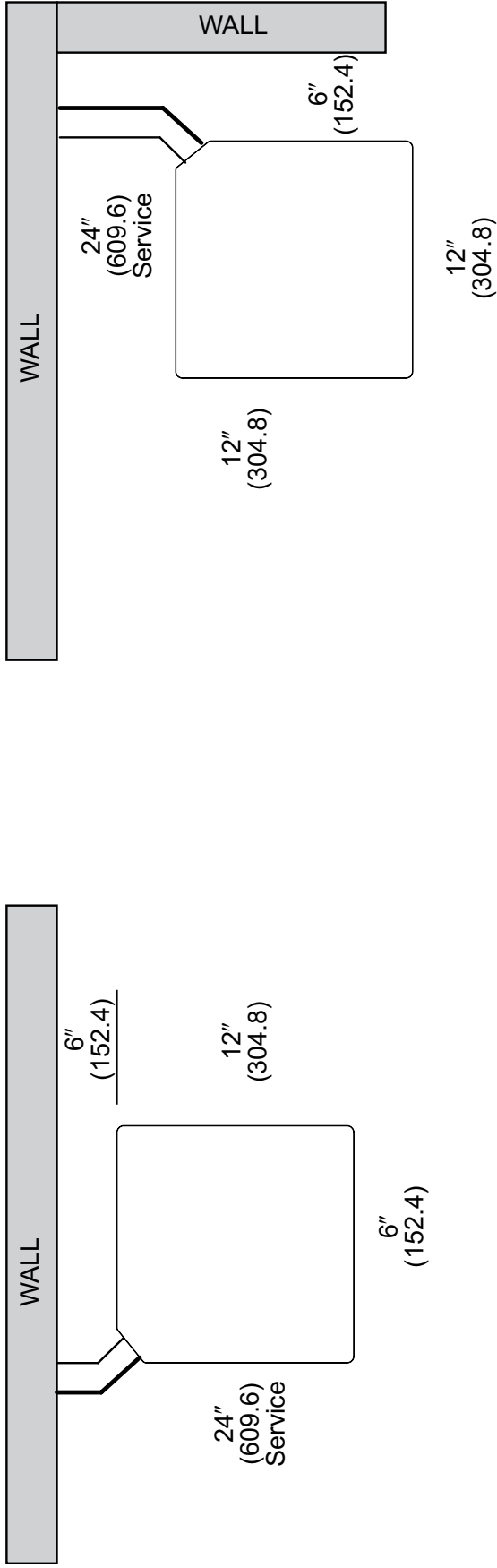
DETAIL A

ST-A1331-01

**NOTE:** Illustrations show the deep drawn basepan.

[ ] Designates Metric Conversions

# CLEARANCES



**NOTE: NUMBERS IN ( ) = mm**

**IMPORTANT:** When installing multiple units in an alcove, roof well or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

## Refrigerant Line Size Information

13.4/14.3 SEER2 AC R-454B												
UNIT SIZE	ALLOWABLE LIQUID LINE SIZE	ALLOWABLE SUCTION LINE SIZE	EQUIVALENT LENGTH (FEET)									
			< 25	26-50	51-75	76-100	101-125	126-150	151-175	176-200	201-225	226-250
			MAXIMUM VERTICAL RISE (OUTDOOR UNIT BELOW INDOOR UNIT) * / CAPACITY MULTIPLIER									
1.5 Ton	1/4"	5/8"	25/1	50/0.99	61/0.99	41/0.98	21/0.98	1/0.98	0/0.98	0/0.98	0/0.97	0/0.97
	5/16"	5/8"	25/1	50/0.99	75/0.99	100/0.98	98/0.98	93/0.98	87/0.98	82/0.98	78/0.97	75/0.97
	3/8"	5/8"	25/1	50/0.99	75/0.99	100/0.98	117/0.98	115/0.98	114/0.98	112/0.98	111/0.97	110/0.97
	1/4"	3/4"	25/1	50/1	61/1	41/0.99	21/0.99	1/0.99	0/0.99	0/0.99	0/0.99	0/0.98
	5/16"	3/4"	25/1	50/1	75/1	100/0.99	98/0.99	93/0.99	87/0.99	82/0.99	78/0.99	75/0.98
	3/8"	3/4"	25/1	50/1	75/1	100/0.99	117/0.99	115/0.99	114/0.99	112/0.99	111/0.99	110/0.98
2 Ton	1/4"	5/8"	25/1	50/0.99	25/0.98	0/0.98	0/0.98	0/0.97	0/0.96	0/0.97	0/0.96	0/0.95
	5/16"	5/8"	25/1	50/0.99	75/0.98	88/0.98	79/0.98	70/0.97	62/0.96	53/0.97	46/0.96	40/0.95
	3/8"	5/8"	25/1	50/0.99	75/0.98	100/0.98	109/0.98	106/0.97	103/0.96	100/0.97	97/0.96	94/0.95
	1/4"	3/4"	25/1	50/1	25/0.99	0/0.99	0/0.99	0/0.98	0/0.98	0/0.99	0/0.99	0/0.98
	5/16"	3/4"	25/1	50/1	75/0.99	88/0.99	79/0.99	70/0.98	62/0.98	53/0.99	46/0.99	40/0.98
	3/8"	3/4"	25/1	50/1	75/0.99	100/0.99	109/0.99	106/0.98	103/0.98	100/0.99	97/0.99	94/0.98
2.5 Ton	5/16"	5/8"	25/0.99	50/0.98	75/0.98	69/0.97	56/0.98	43/0.96	30/0.94	17/0.93	6/0.92	0/0.93
	3/8"	5/8"	25/0.99	50/0.98	75/0.98	100/0.97	101/0.98	96/0.96	92/0.94	87/0.93	83/0.92	78/0.93
	5/16"	3/4"	25/1	50/0.99	75/0.99	69/0.98	56/0.98	43/0.99	30/0.98	17/0.98	6/0.97	0/0.97
	3/8"	3/4"	25/1	50/0.99	75/0.99	100/0.98	101/0.98	96/0.99	92/0.98	87/0.98	83/0.97	78/0.97

**NOTES:**

- 1) Do not exceed 200 ft linear line length.
- 2) \*Do not exceed 100 ft vertical separation if outdoor unit is above indoor unit.
- 3) \*\*3/4" suction line should only be used for 1.5 ton systems if outdoor unit is below or at same level as indoor to assure proper oil return.
- 4) Always use the smallest liquid line allowable to minimize refrigerant charge.
- 5) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
- 6) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

## Refrigerant Line Size Information (Con't.)

13/14 SEER2 AC R-454B												
UNIT SIZE	ALLOWABLE LIQUID LINE SIZE MM [IN.]	ALLOWABLE SUCTION LINE SIZE MM [IN.]	EQUIVALENT LENGTH (METERS)									
			< 8	8-15	16-23	24-30	31-38	39-46	47-53	54-61	62-69	70-76
			MAXIMUM VERTICAL RISE (OUTDOOR UNIT BELOW INDOOR UNIT) * / CAPACITY MULTIPLIER									
5.3 kW [1.5 Ton]	6.35 [1/4]	15.88 [5/8]	8/1	15/0.99	19/0.99	12/0.98	6/0.98	0/0.98	0/0.98	0/0.98	0/0.97	0/0.97
	7.94 [5/16]	15.88 [5/8]	8/1	15/0.99	23/0.99	30/0.98	30/0.98	28/0.98	27/0.98	25/0.98	24/0.97	23/0.97
	9.53 [3/8]	15.88 [5/8]	8/1	15/0.99	23/0.99	30/0.98	36/0.98	35/0.98	35/0.98	34/0.98	34/0.97	34/0.97
	6.35 [1/4]	19.05 [3/4]	8/1	15/1	19/1	12/0.99	6/0.99	0/0.99	0/0.99	0/0.99	0/0.99	0/0.98
	7.94 [5/16]	19.05 [3/4]	8/1	15/1	23/1	30/0.99	30/0.99	28/0.99	27/0.99	25/0.99	24/0.99	23/0.98
	9.53 [3/8]	19.05 [3/4]	8/1	15/1	23/1	30/0.99	36/0.99	35/0.99	35/0.99	34/0.99	34/0.99	34/0.98
7.0 kW [2 Ton]	6.35 [1/4]	15.88 [5/8]	8/1	15/0.99	8/0.98	0/0.98	0/0.98	0/0.97	0/0.96	0/0.97	0/0.96	0/0.95
	7.94 [5/16]	15.88 [5/8]	8/1	15/0.99	23/0.98	27/0.98	24/0.98	21/0.97	19/0.96	16/0.97	14/0.96	12/0.95
	9.53 [3/8]	15.88 [5/8]	8/1	15/0.99	23/0.98	30/0.98	33/0.98	32/0.97	31/0.96	30/0.97	30/0.96	29/0.95
	6.35 [1/4]	19.05 [3/4]	8/1	15/1	8/0.99	0/0.99	0/0.99	0/0.98	0/0.98	0/0.99	0/0.99	0/0.98
	7.94 [5/16]	19.05 [3/4]	8/1	15/1	23/0.99	27/0.99	24/0.99	21/0.98	19/0.98	16/0.99	14/0.99	12/0.98
	9.53 [3/8]	19.05 [3/4]	8/1	15/1	23/0.99	30/0.99	33/0.99	32/0.98	31/0.98	30/0.99	30/0.99	29/0.98
8.8 kW [2.5 Ton]	7.94 [5/16]	15.88 [5/8]	8/0.99	15/0.98	23/0.98	21/0.97	17/0.98	13/0.96	9/0.94	5/0.93	2/0.92	0/0.93
	9.53 [3/8]	15.88 [5/8]	8/0.99	15/0.98	23/0.98	30/0.97	31/0.98	29/0.96	28/0.94	27/0.93	25/0.92	24/0.93
	7.94 [5/16]	19.05 [3/4]	8/1	15/0.99	23/0.99	21/0.98	17/0.98	13/0.99	9/0.98	5/0.98	2/0.97	0/0.97
	9.53 [3/8]	19.05 [3/4]	8/1	15/0.99	23/0.99	30/0.98	31/0.98	29/0.99	28/0.98	27/0.98	25/0.97	24/0.97

**NOTES:**

- 1) Do not exceed 61m linear line length.
- 2) \*Do not exceed 30m vertical separation if outdoor unit is above indoor unit.
- 3) \*\*19.05mm suction line should only be used for 1.5 ton systems if outdoor unit is below or at same level as indoor to assure proper oil return.
- 4) Always use the smallest liquid line allowable to minimize refrigerant charge.
- 5) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
- 6) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

## Performance Data @ AHRI Standard Conditions – Cooling

DESIGNATED TESTED COMBINATION (DTC)							
OUTDOOR UNIT	INDOOR COIL	TOTAL CAPACITY BTU/H [KW]	NET SENSIBLE BTU/H [KW]	NET LATENT BTU/H [KW]	SEER2	EER2	INDOOR CFM [L/S]
TZSA14AY18A	TCFY2417STAN	17,100 [5.0]	13,100 [3.8]	4,000 [1.2]	14.3	11.7	600 [283.2]
TZSA14AY24A	TCFY2417MTAN	22,800 [6.7]	17,000 [5.0]	5,800 [1.7]	14.3	11.7	735 [346.9]
TZSA14AY30A	TCFY3617STAN	27,500 [8.1]	19,900 [5.8]	7,600 [2.2]	14.3	11.7	910 [429.5]

**NOTE:** This data includes DTC (Designated Test Combination) ratings and is for reference purposes only. A full listing of official ratings and system match-ups, along with downloadable certificates, can be accessed from the AHRI website: [www.ahridirectory.org](http://www.ahridirectory.org).

[ ] Designates Metric Conversions



**GENERAL TERMS OF LIMITED WARRANTY\***

Thermal Zone™ will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

Conditional Parts  
(Registration Required)..... Ten (10) Years

**\*For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

**Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.**

Trademarks are property of their respective owners.

In keeping with its policy of continuous progress and product improvement, manufacturer reserves the right to make changes without notice.

[thermalzone.com](http://thermalzone.com)