



TWO-STAGE AIR CONDITIONERS



TZALD-17 SERIES

Efficiencies up to 17 SEER/13 EER
Nominal Sizes 2, 3, 4 & 5 Ton
[7.03, 10.6, 14.06, & 17.6 kW]
Cooling Capacities 17.3 to 60.5 kBTU
[5.7 to 17.7 kW]

Features

- New composite base pan – dampens sound, eliminates corrosion and reduces number of fasteners needed
- Powder coat paint system – for a long lasting professional finish
- The Two-Stage Copeland Scroll™ UltraTech™ Compressor modulates between two capacity settings – 67% and 100% – providing more precise temperature control, lower humidity and greater efficiency in comparison to single stage compressors. It uses 70% fewer moving parts which also increases efficiency and reliability.
- Modern cabinet aesthetics – increased curb appeal with visually appealing design
- Vertical louver panels – provide ultimate coil protection, enhance cabinet strength, and increased cabinet rigidity
- Optimized fan orifice – optimizes airflow and reduces unit sound
- Rust resistant screws – confirmed through 1500-hour salt spray testing
- 3" between valves, 4" below valves, 5" above valves – provides a minimum working area of 27-square inches for easier access
- 15" wide, industry leading corner service access – makes repairs easier and faster.
- External gauge port access – allows easy connection of "low-loss" gauge ports
- Single-row condenser coil – makes unit lighter and allows thorough coil cleaning to maintain "out of the box" performance
- Fewer cabinet fasteners – allow for faster access to internal components and hassle-free panel removal
- Service trays – hold fasteners or caps during service calls
- QR code – provides technical information on demand for faster service calls
- Fan motor harness with extra long wires allows unit top to be removed without disconnecting fan wire.
- High and low pressure standard on all models.

"Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet Energy Star. Ask your Contractor for details or visit www.energystar.gov."

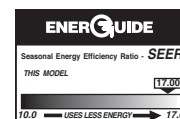


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Model Number Identification

<u>TZ</u>	<u>A</u>	<u>L</u>	<u>D</u>	<u>17</u>	<u>24</u>	<u>2</u>	<u>A</u>	<u>B</u>
Brand	Product	Refrigerant	Motor	SEER	Capacity	Voltage	Region	Major Series
Thermal Zone	A - Air Conditioner	L = R410A	D = Dual Stage	17 = 17 SEER	24 = 24,000 36 = 36,000 48 = 48,000 60 = 60,000	2 = 1ph, 208-230/60	A = All Regions	B = First Design Series with HPC/LPC

Available SKUs

Available Models
TZALD17242AB
TZALD17362AB
TZALD17482AB
TZALD17602AB

Physical Data				
Model No.	TZALD1724	TZALD1736	TZALD1748	TZALD1760
Nominal Tonnage	2.0	3.0	4.0	5.0
Valve Connections				
Liquid Line O.D. – in.	3/8	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	7/8	7/8
Refrigerant (R-410A) furnished oz.¹	128	151	204	223
Compressor Type	Scroll			
Outdoor Coil				
Net face area – Outer Coil	19.8	22.2	32.3	32.3
Net face area – Inner Coil	—	—	—	—
Tube diameter – in.	0.375	0.375	0.375	0.375
Number of rows	1	1	1	1
Fins per inch	20	22	22	22
Outdoor Fan				
Diameter – in.	24	24	26	26
Number of blades	3	3	3	3
Motor hp	1/5	1/5	1/2	1/2
CFM	3326	3540	4251	5133
RPM	850	820	646	825
watts	112	112	132	113
Shipping weight – lbs.	200	209	297	298
Operating weight – lbs.	193	202	290	291
Electrical Data				
Line Voltage Data (Volts-Phase-Hz)	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
Maximum overcurrent protection (amps)²	25	35	50	60
Minimum circuit ampacity³	16	21	32	42
Compressor				
Rated load amps	11.7	15.3	21.2	28.8
Locked rotor amps	58.3	83	104	152.9
Condenser Fan Motor				
Full load amps	1.4	1.2	5.3	5.3
Locked rotor amps	—	—	—	—

¹Refrigerant 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.

²HACR type circuit breaker or fuse.

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

Accessories

Model No.		TZALD1724	TZALD1736	TZALD1748	TZALD1760
Compressor crankcase heater*		44-17402-44	44-17402-44	44-101884-05	44-101884-05
Low ambient control		RXAD-A08	RXAD-A08	RXAD-A08	RXAD-A08
Freeze Stat		50313	50313	50313	50313
Compressor sound cover		68-23427-26	68-23427-26	68-25217-10	68-25217-10
Compressor hard start kit		SK-A1	SK-A1	SK-A1	SK-A1
Liquid Line Solenoid (24 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD3T3TVLC	200RD3T3TVLC
	Solenoid Coil	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V
Liquid Line Solenoid (120/240 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD3T3TVLC	200RD3T3TVLC
	Solenoid Coil	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V

*Crankcase Heater recommended with Low Ambient Kit.

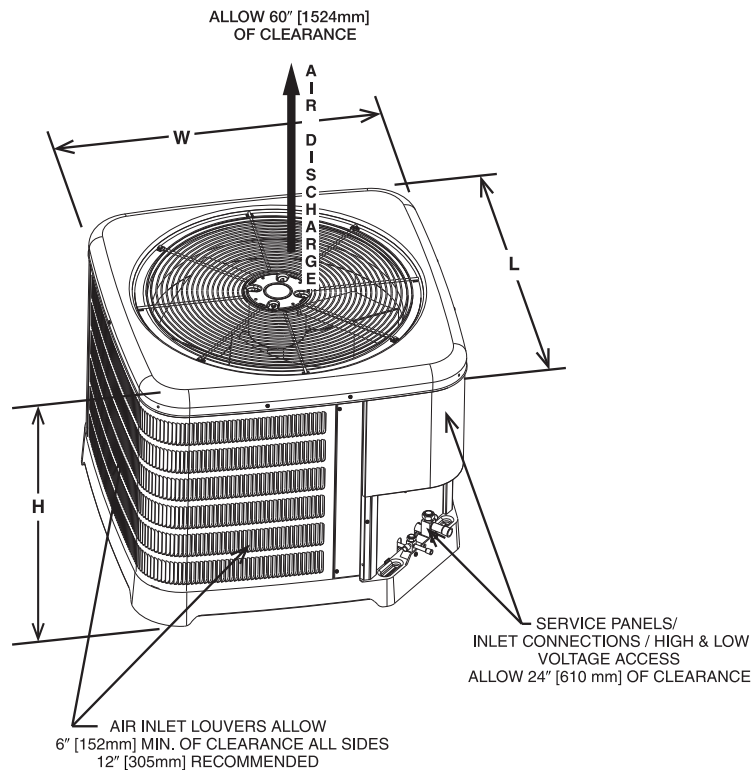
Weighted Sound Power Level (dBA)

Unit Size Voltage, Series	Standard Rating (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
TZALD1724	72.5	48.6	53.7	62.9	63.0	60.5	57.3	54.6
TZALD1736	72.3	53.1	52.7	60.9	62.4	61.2	58.4	51.6
TZALD1748	73.0	46.1	50.4	59.5	64.6	59.6	55.8	54.6
TZALD1760	76.7	58.8	60.5	65.6	65.2	62.9	62.4	55.5

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

Unit Dimensions

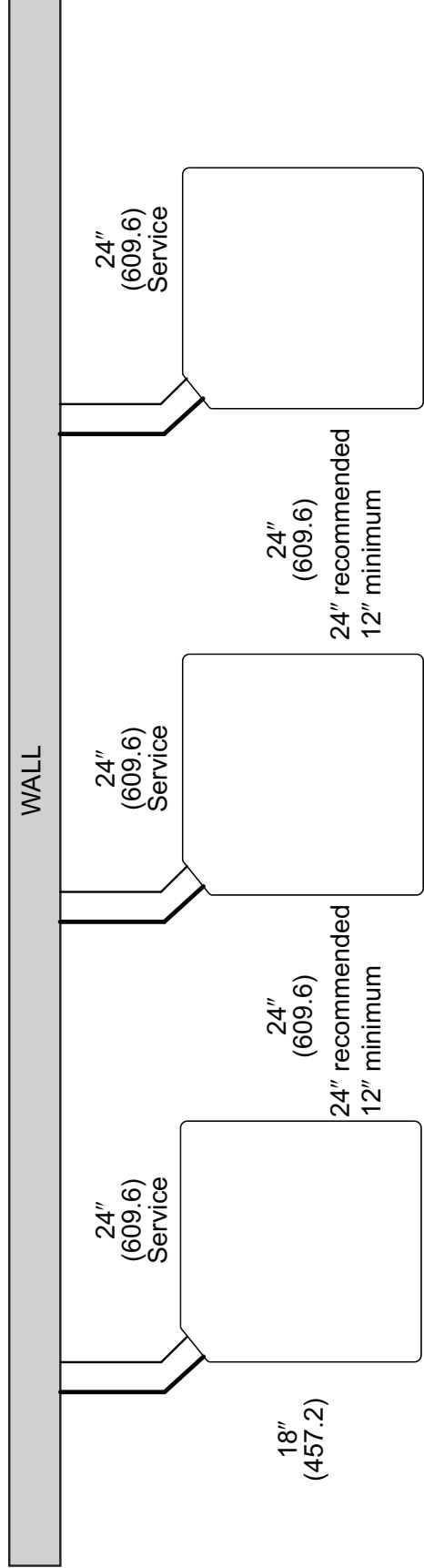
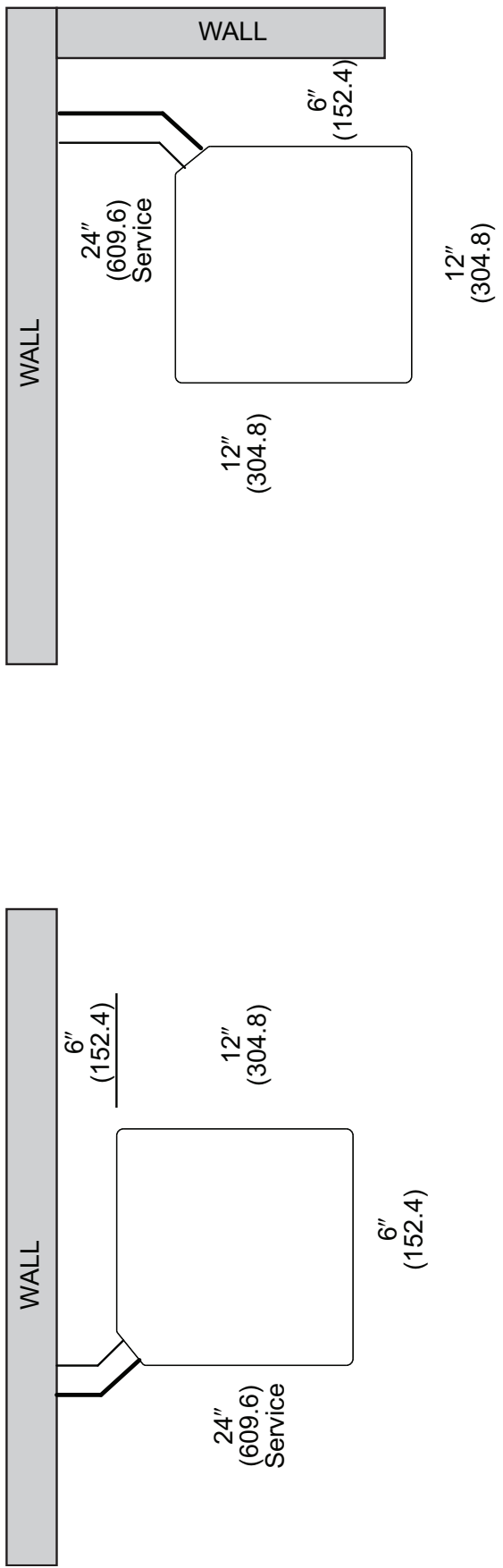
MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
TZALD1724	35	889	33.75	857	33.75	857	36.75	933	36.38	924	36.38	924
TZALD1736	39	990	33.75	857	33.75	857	40.75	1035	36.38	924	36.38	924
TZALD1748	51	1295	35.75	908	35.75	908	52.75	1339	38.38	974	38.38	974
TZALD1760	51	1295	35.75	908	35.75	908	52.75	1339	38.38	974	38.38	974



ST-A1226-23-00

[] Designates Metric Conversions

CLEARANCES



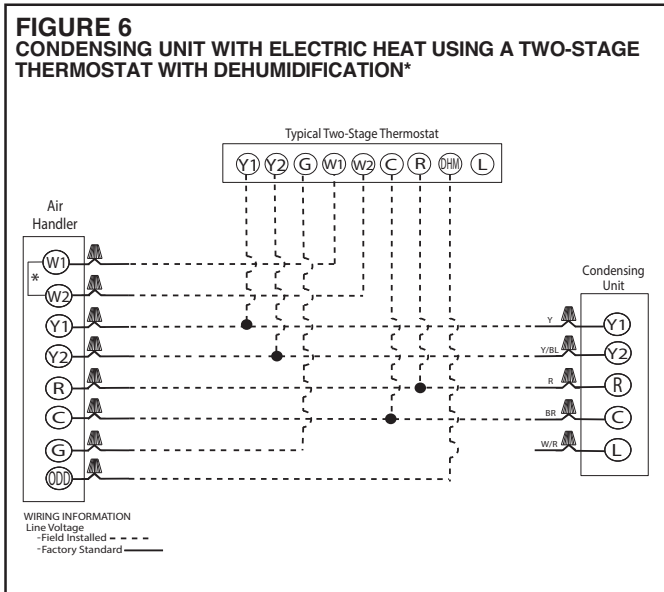
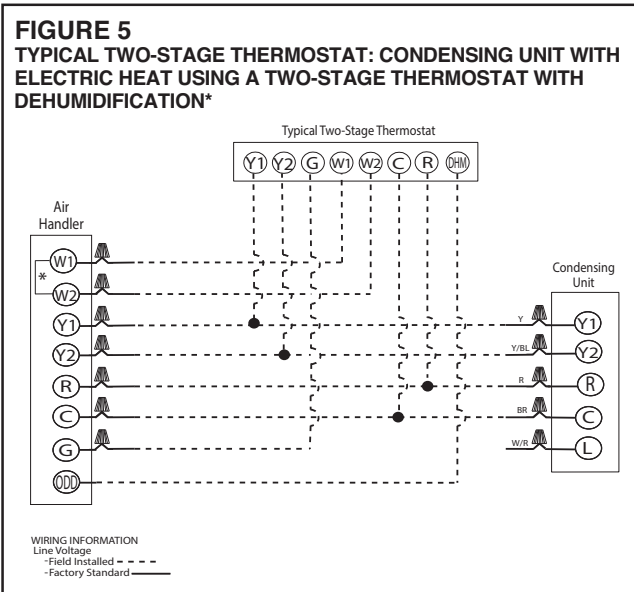
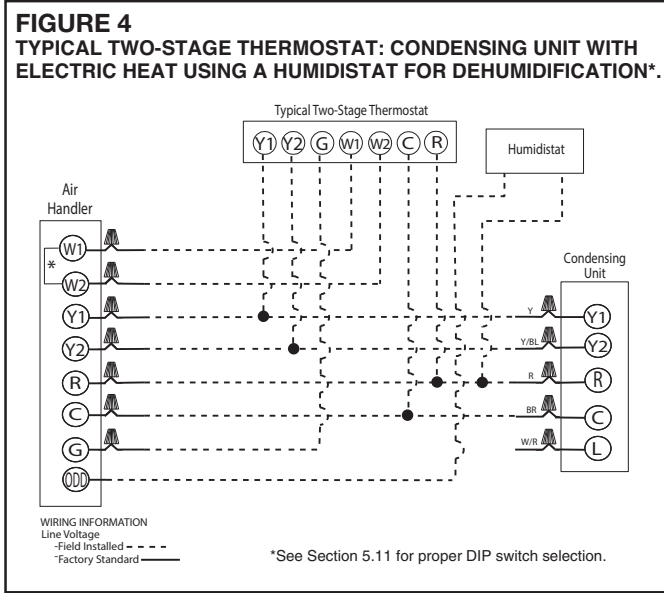
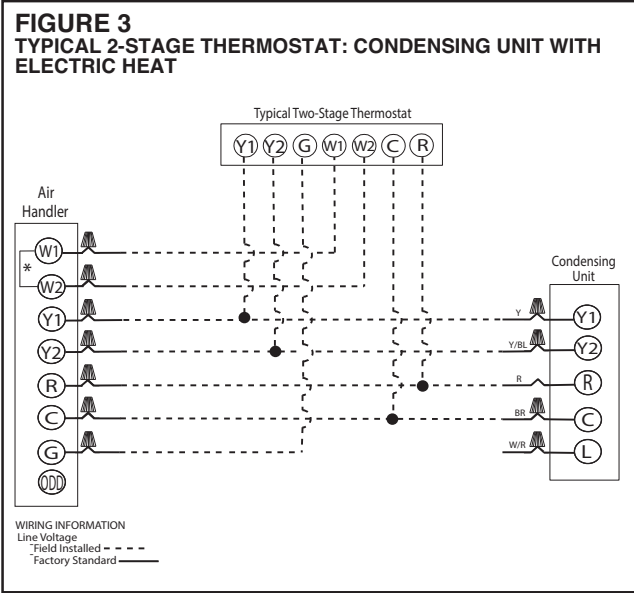
NOTE: NUMBERS IN () = mm

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.

Thermostat Wiring Diagrams

The following figures show the typical wiring diagrams with air handler and condensing unit. Cooling and heat pump airflows may need to be adjusted for homeowner comfort once the system is operational.

WIRE COLOR CODE			
BK – BLACK	G – GREEN	PR – PURPLE	Y – YELLOW
BR – BROWN	GY – GRAY	R – RED	
BL – BLUE	O – ORANGE	W – WHITE	



*If maximum outlet temperature rise is desired, it is recommended that W1 and W2 be jumpered together.

Application Guidelines

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01 -in. wc.
2. Minimum outdoor operation air temperature for cooling mode without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature is 125°F (51.7°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. Use only copper wire for electric connections at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
6. Do not apply capillary tube indoor coils to these units.
7. Factory – supplied filter drier must be installed.

Conventional Thermostat Wiring

Table 2A: Refrigerant Line Sizing Chart (English Units)

17 SEER 2-Stage Air-Conditioners									
Unit Size	Allowable Liquid Line Size	Allowable Vapor Line Size	Use Long Line Guidelines for Linear Line Lengths Greater Than Shown Below (Feet)	Outdoor Unit ABOVE or BELOW Indoor Unit Equivalent Length (Feet)					
				< 25	26-50	51-75	76-100	101-125	126-150
				Maximum Vertical Rise (Outdoor Unit Below Indoor Unit)* / Capacity Multiplier					
2.0 Ton *SEE NOTE 3	1/4"	5/8"	N/A	25 / 0.99	50 / 0.98	31 / 0.97	3 / 0.97	N/R	N/R
	5/16"	5/8"	73	25 / 0.99	50 / 0.98	50 / 0.97	50 / 0.97	50 / 0.96	50 / 0.95
	3/8"	5/8"	48	25 / 0.99	50 / 0.98	50 / 0.97	50 / 0.97	50 / 0.96	50 / 0.95
	1/4"	3/4"	N/A	25 / 1.00	50 / 1.00	31 / 0.99	3 / 0.99	N/R	N/R
	5/16"	3/4"	73	25 / 1.00	50 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	50 / 0.98
	3/8"	3/4"	48	25 / 1.00	50 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	50 / 0.98
3 Ton	5/16"	5/8"	20	25 / 0.99	50 / 0.97	50 / 0.95	50 / 0.93	34 / 0.91	N/R
	3/8"	5/8"	15	25 / 0.99	50 / 0.97	50 / 0.95	50 / 0.93	50 / 0.91	N/R
	5/16"	3/4"	20	25 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	34 / 0.97	18 / 0.96
	3/8"	3/4"	15	25 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	50 / 0.97	50 / 0.96
	1/2"	3/4"	0	25 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	50 / 0.97	50 / 0.96
4 Ton	3/8"	3/4"	0	25 / 0.99	50 / 0.98	50 / 0.97	50 / 0.95	50 / 0.94	50 / 0.93
	1/2"	3/4"	0	25 / 0.99	50 / 0.98	50 / 0.97	50 / 0.95	50 / 0.94	50 / 0.93
	3/8"	7/8"	0	25 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	50 / 0.98	50 / 0.97
	1/2"	7/8"	0	25 / 1.00	50 / 0.99	50 / 0.99	50 / 0.98	50 / 0.98	50 / 0.97
5 Ton	3/8"	3/4"	0	25 / 0.99	50 / 0.97	50 / 0.95	50 / 0.93	50 / 0.91	N/R
	1/2"	3/4"	0	25 / 0.99	50 / 0.97	50 / 0.95	50 / 0.93	50 / 0.91	N/R
	3/8"	7/8"	0	25 / 1.00	50 / 0.99	50 / 0.98	50 / 0.98	50 / 0.97	39 / 0.96
	1/2"	7/8"	0	25 / 1.00	50 / 0.99	50 / 0.98	50 / 0.98	50 / 0.97	50 / 0.96

NOTES:

1. Do not exceed 150 ft linear line length.
2. Do not exceed 500 ft vertical separation if outdoor unit is above indoor unit.
3. *3/4" suction line should only be used for 2 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.

Table 2B: Refrigerant Line Sizing Chart (Metric Units)

17 SEER 2-Stage Air-Conditioners									
Unit Size	Allowable Liquid Line Size mm [in.]	Allowable Vapor Line Size mm [in.]	Use Long Line Guidelines for Linear Line Lengths Greater Than Shown Below (Meters)	Outdoor Unit ABOVE or BELOW Indoor Unit Equivalent Length (Meters)					
				< 8	8-15	16-23	24-30	31-38	39-46
				Maximum Vertical Rise (Outdoor Unit Below Indoor Unit)* / Capacity Multiplier					
7.0 KW [2 Ton] *SEE NOTE 3	6.35 [1/4]	15.88 [5/8]	N/A	8 / 0.99	15 / 0.98	9 / 0.97	1 / 0.97	N/R	N/R
	7.94 [5/16]	15.88 [5/8]	22	8 / 0.99	15 / 0.98	15 / 0.97	15 / 0.97	15 / 0.96	15 / 0.95
	9.53 [3/8]	15.88 [5/8]	15	8 / 0.99	15 / 0.99	15 / 0.97	15 / 0.97	15 / 0.96	15 / 0.95
	6.35 [1/4]	19.05 [3/4]*	N/A	8 / 1.00	15 / 0.99	9 / 0.99	1 / 0.99	N/R	N/R
	7.94 [5/16]	19.05 [3/4]*	22	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.99	15 / 0.98	15 / 0.98
	9.53 [3/8]	19.05 [3/4]*	15	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.99	15 / 0.98	15 / 0.98
10.6 KW [3 Ton]	7.94 [5/16]	15.88 [5/8]	6	8 / 0.99	15 / 0.97	15 / 0.95	15 / 0.93	10 / 0.91	N/R
	9.53 [3/8]	15.88 [5/8]	5	8 / 0.99	15 / 0.97	15 / 0.95	15 / 0.93	15 / 0.91	N/R
	7.94 [5/16]	19.05 [3/4]	6	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.98	10 / 0.97	5 / 0.96
	9.53 [3/8]	19.05 [3/4]	5	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.98	15 / 0.97	15 / 0.96
	12.70 [1/2]	19.05 [3/4]	0	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.98	15 / 0.97	15 / 0.96
14.1 KW [4 Ton]	9.53 [3/8]	19.05 [3/4]	0	8 / 0.99	15 / 0.98	15 / 0.97	15 / 0.95	15 / 0.94	15 / 0.93
	12.70 [1/2]	19.05 [3/4]	0	8 / 0.99	15 / 0.98	15 / 0.97	15 / 0.95	15 / 0.94	15 / 0.93
	9.53 [3/8]	22.23 [7/8]	0	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.98	15 / 0.98	15 / 0.97
	12.70 [1/2]	22.23 [7/8]	0	8 / 1.00	15 / 0.99	15 / 0.99	15 / 0.98	15 / 0.98	15 / 0.97
17.6 KW [5 Ton]	9.53 [3/8]	19.05 [3/4]	0	8 / 0.99	15 / 0.97	15 / 0.95	15 / 0.93	15 / 0.91	N/R
	12.70 [1/2]	19.05 [3/4]	0	8 / 0.99	15 / 0.97	15 / 0.95	15 / 0.93	15 / 0.91	N/R
	9.53 [3/8]	22.23 [7/8]	0	8 / 1.00	15 / 0.99	15 / 0.98	15 / 0.98	15 / 0.97	12 / 0.96
	12.70 [1/2]	22.23 [7/8]	0	8 / 1.00	15 / 0.99	15 / 0.98	15 / 0.98	15 / 0.97	15 / 0.96

NOTES:

1. Do not exceed 46 meters line length.
2. Do not exceed 15 meters vertical separation if outdoor unit is above indoor unit.
3. *19.05 mm [3/4 in.] suction line should only be used for 2 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.

[] Designates English Conversions

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]	SEER	EER	Indoor CFM [L/s]
TZALD1724	TCF2417STA	24000 [7.0]	18000 [5.3]	6000 [1.8]	14.00	12.20	800 [377.6]
TZALD1736	TCF3621MTA	34800 [10.2]	26000 [7.6]	8800 [2.6]	14.00	12.20	1075 [507.4]
TZALD1748	TCF6021MTA	46000 [13.5]	34400 [10.1]	11600 [3.4]	14.00	11.70	1500 [708.0]
TZALD1760	TCF6024STA	55500 [16.3]	41700 [12.2]	13800 [4.0]	14.00	11.70	1600 [755.2]

Air Handler							
Outdoor Unit	Indoor Coil	Total Capacity BTU/H [kW]	Net Sensible BTU/H [kW]	Net Latent BTU/H [kW]	SEER	EER	Indoor CFM [L/s]
TZALD1724	TZHDLVMT2421	24000 [7.0]	18000 [5.3]	6000 [1.8]	17.0	13.0	525 [495.5]
TZALD1736	TZHDLVMT3621	34800 [10.2]	26000 [7.6]	8800 [2.6]	17.0	13.0	800 [377.6]
TZALD1748	TZHDLVMT4821	47000 [13.7]	34400 [10.1]	11600 [3.4]	16.5	13.0	1150 [542.7]
TZALD1760	TZHDLVMT6024	56000 [16.4]	41700 [12.2]	13800 [4.0]	16.0	12.5	1175 [554.5]

Note: Additional ratings and system match ups and downloadable ratings certificates can be accessed from the AHRI website: www.ahrirectory.org

[] Designates Metric Conversions

GUIDE SPECIFICATIONS

General

System Description

Outdoor-mounted, air-cooled, split-system air conditioner composite base pan unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, suction and legend line service valve, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a coil unit.

Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL-us approval.
- Unit cabinet will be capable of withstanding ASTM B117 1000-hr salt spray test.
- Air-cooled condenser coils will be leak tested at 150 psig and pressure tested at 550 psig.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer) — U.S. and Canada only.

Products

Equipment

Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge R-410A, and special features required prior to field start-up.

Unit Cabinet

- Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.
- All units constructed with louver coil protection and corner post. Louver can be removed by removing one fastener per louver panel.

AIR-COOLED, SPLIT-SYSTEM AIR CONDITIONER

TZALD17

2 TO 5 NOMINAL TONS

Fans

- Condenser fan will be direct-drive propeller type, discharging air upward.
- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes.

Refrigeration Components

- Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valve with sweat connections, system charge of R-410A refrigerant, and compressor oil.
- Unit will be equipped with filter drier for R-410A refrigerant for field installation.

Operating Characteristics

- The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F/°C. The power consumption at full load will not exceed _____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F/°C wet bulb and _____ °F/°C dry bulb, and air entering the unit at _____ °F/°C.
- The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Nominal unit electrical characteristics will be _____ v, three phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

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.

***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.**

Conditional PartsTen (10) Years

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.

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