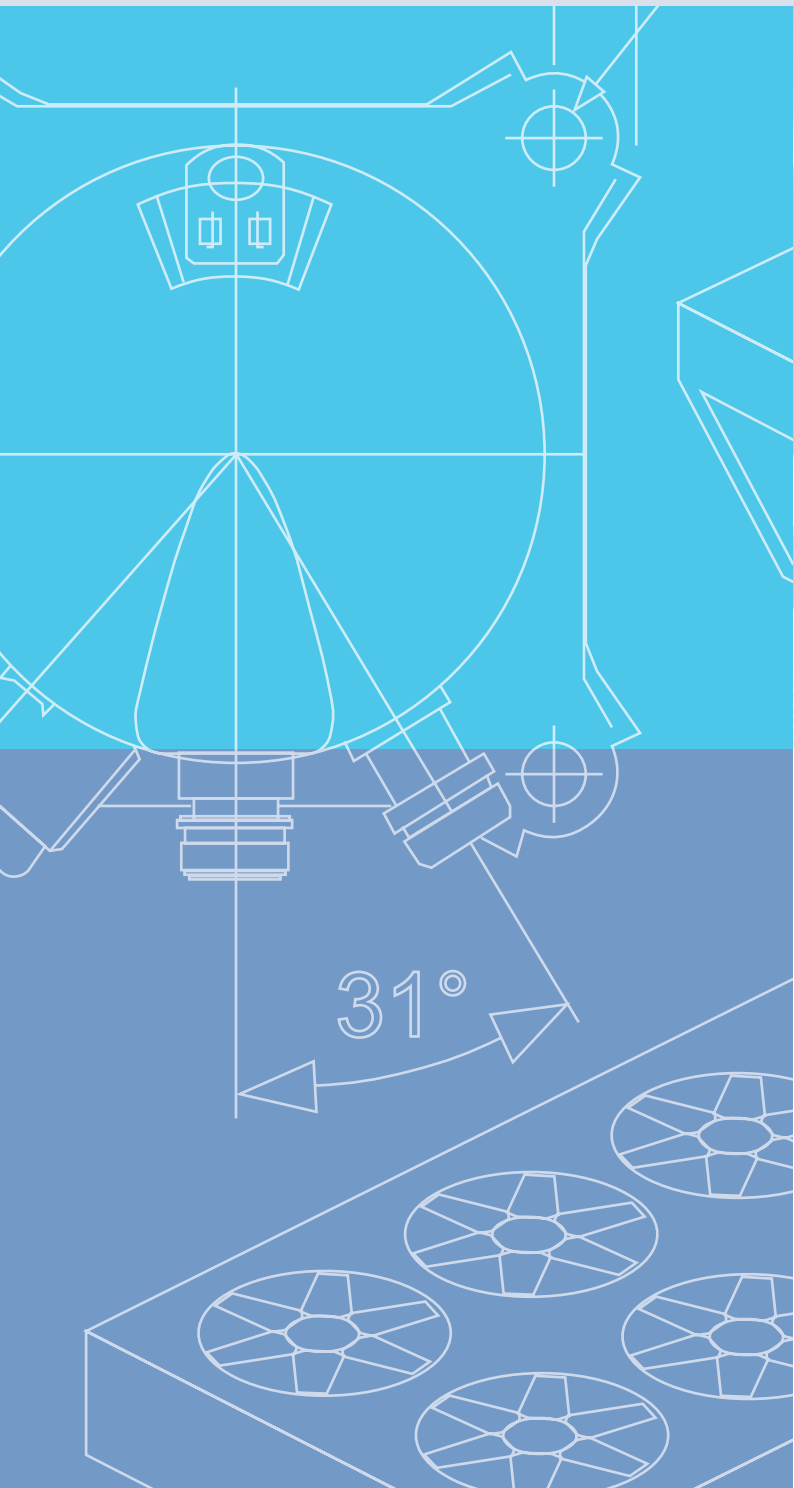




Replacement Guidelines for Scroll Compressors

ZR90K3*, ZR11M3*... ZR19M3* with ZR94KCE... ZR190KCE
ZP180KCE with ZP182KCE



EMERSON[™]
Climate Technologies

| | | |
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1 Introduction

The purpose of this Replacement Guideline is to help customers in replacing the existing A/C compressor range (ZR90K* to ZR19M*, ZP180K*) with the new A/C **SUMMIT** compressor range (ZR94K* to ZR190K* and ZP90K* to ZP182K*, from 7.5 to 15 HP). The previous generation will be phased out by the end of 2010.

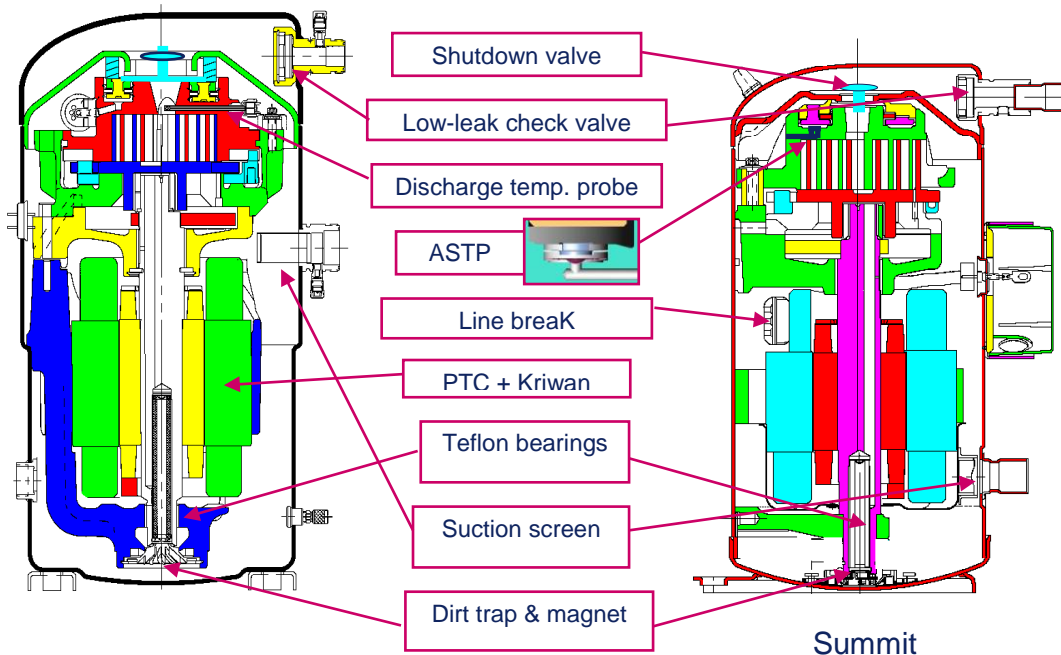
This new range of compressors features a significant size, weight, and sound reduction in all models. These compressors are designed for use with R410A (ZP) and R407C, R22, R134a (ZR) refrigerants. They are built in a uniform platform design, which simplifies engineering and system manufacturing for OEMs.



Previous generation



Summit



2 Nomenclature

2.1 Previous generation

Z R 90K 3 E - TWD - 522

| |
|---|
| Bill of material number (522, 551, 561, 568, 591) |
| Motor version |
| Oil type: E = POE oil None = mineral oil |
| Model variation |
| Nominal capacity [BTU/h] @ 60 Hz and ARI conditions Capacity multiplier; K - x 1000, M - x 10000 |
| Application range temperature: R = high/medium; P = 410A |
| Compressor family: Z = Scroll |

2.2 Summit – New generation

Z R 94K 3 E - TFD - 425

| |
|--|
| Bill of material number (425, 550) |
| Motor version |
| Oil type: E = POE oil None = mineral oil |
| Model variation |
| Nominal capacity [BTU/h] @ 60 Hz and ARI conditions Capacity multiplier; K - x 1000 |
| Application range temperature: R = high/medium; P = 410A |
| Compressor family: Z = Scroll |

3 Ident numbers

| | Previous generation | | | | SUMMIT | | | |
|--------------|---------------------|----------------|----------------|------|----------|----------------|----------------|------|
| | | TWD-551 | TWD-522 | kW* | | TFD-425 | TFD-550 | kW* |
| R407C | ZR90K3E | 8508586 | 8514256 | 18.7 | ZR94KCE | 8600200 | 8608000 | 20.5 |
| | ZR11M3E | 8508326 | 8506013 | 22.7 | ZR108KCE | 8600244 | 8608011 | 23.0 |
| | ZR12M3E | 8506886 | 8514314 | 26.3 | ZR125KCE | 8600222 | 8608022 | 26.9 |
| | | | | | ZR144KCE | 8600288 | 8608033 | 30.8 |
| | ZR16M3E | 8508246 | 8527438 | 32.0 | ZR160KCE | 8604100 | 8608044 | 33.4 |
| | ZR19M3E | 8512192 | 8512216 | 39.5 | ZR190KCE | 8604122 | 8608055 | 39.2 |

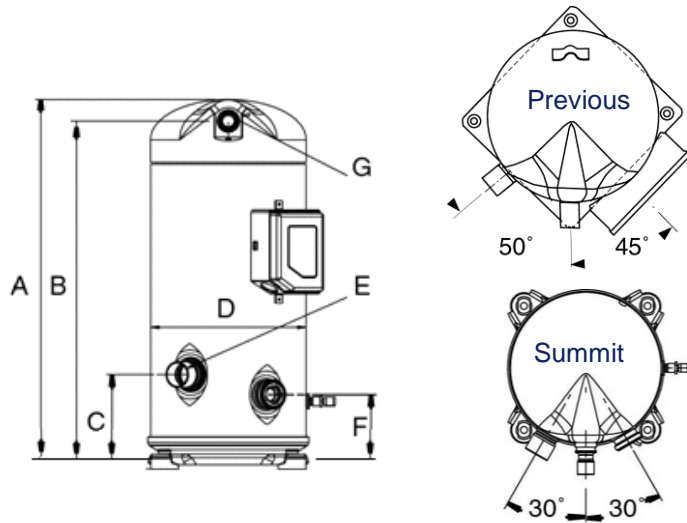
*R407C Dew (En 12900)

| | TWD-551 TWD-522 kW** | | | TFD-425 kW** | | |
|--------------|----------------------|----------------|----------------|--------------|---------------------|---------------------|
| | | | | | | |
| R410A | | | | ZP90KCE | 8600211 19.2 | |
| | | | | ZP103KCE | 8600255 22.4 | |
| | | | | ZP120KCE | 8600233 26.0 | |
| | | | | ZP137KCE | 8600299 29.3 | |
| | | | | ZP154KCE | 8604144 33.1 | |
| | ZP180KCE | 8542219 | 8543041 | 39.0 | ZP182KCE | 8604155 39.1 |

**R410A (EN 12900)

4 Technical comparisons

4.1 Performance & dimensions – Cross-reference tables



4.1.1 R407C refrigerant

| | ZR90 | ZR94 | ZR11 | ZR108 | ZR12 | ZR125 | ZR144 | ZR16 | ZR160 | ZR19 | ZR190 |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| HP | 7.5 | 7.5 | 9 | 9 | 10 | 10 | 12 | 13 | 13 | 15 | 15 |
| kW (En 12900) | 18.7 | 20.5 | 22.7 | 23 | 26.3 | 26.9 | 29.3 | 32 | 33.4 | 39.5 | 39.2 |
| COP | 3.14 | 3.26 | 3.17 | 3.34 | 3.22 | 3.31 | 3.11 | 3.14 | 3.23 | 3.2 | 3.2 |
| Sound Lwa | 77 | 74 | 78 | 74 | 78 | 74 | 75 | 78 | 78 | 80 | 80 |
| A | 524 | 476 | 524 | 533 | 524 | 533 | 533 | 532 | 552 | 578 | 551 |
| B | 484 | 444 | 484 | 501 | 484 | 501 | 501 | 492 | 520 | 533 | 519 |
| C | 305 | 94 | 305 | 122 | 305 | 122 | 122 | 305 | 141 | 305 | 140 |
| Shell Diameter D | 283 | 232 | 283 | 232 | 283 | 232 | 232 | 283 | 234 | 283 | 234 |
| Suction Diameter E | 1"3/8 | 1"1/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"5/8 | 1"3/8 |
| Discharge Diameter G | 7/8" | 7/8" | 7/8" | 7/8" | 7/8" | 7/8" | 7/8" | 7/8" | 7/8" | 1"1/8 | 7/8" |
| Sight Glass Ext Diam | 1"3/4 | 1"1/4 | 1"3/4 | 1"1/4 | 1"3/4 | 1"1/4 | 1"1/4 | 1"3/4 | 1"1/4 | 1"3/4 | 1"1/4 |
| Weight kg | 94 | 57 | 96 | 59 | 100 | 61 | 61 | 103 | 64 | 119 | 66 |
| Foot Mounting | 220X220 | 190X190 | 220X220 | 190X190 | 220X220 | 190X190 | 190X190 | 220X220 | 190X190 | 220X220 | 190X190 |

Previous Summit

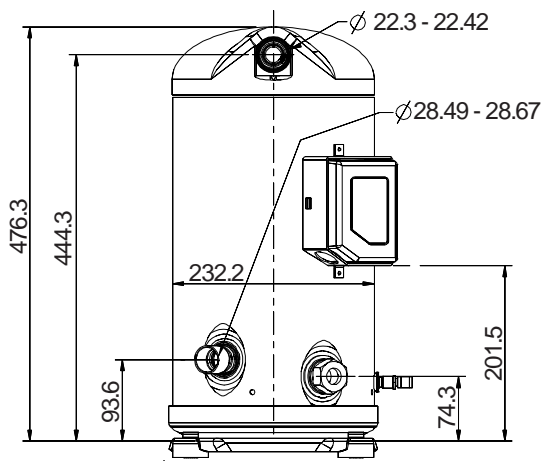
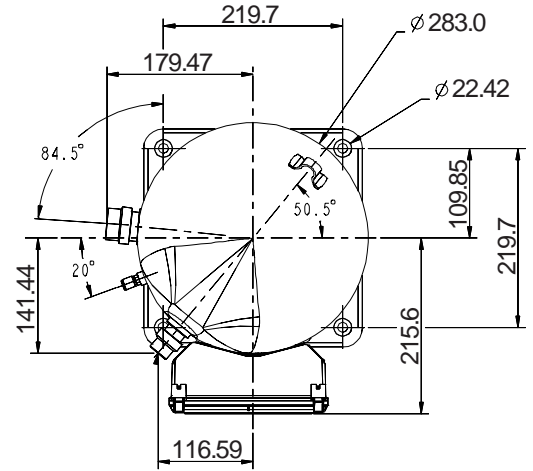
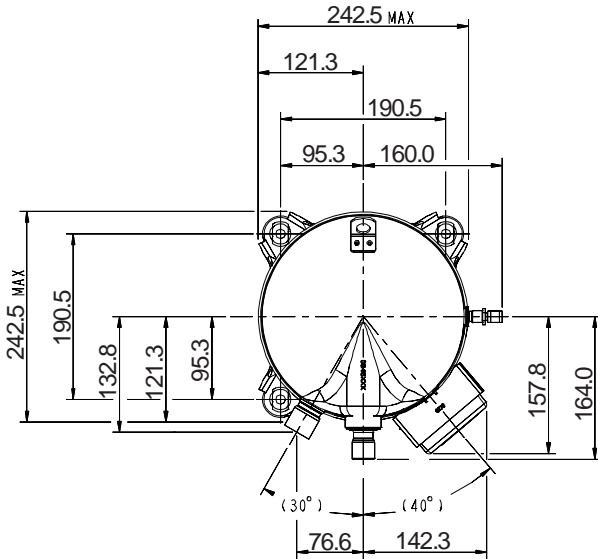
4.1.2 R410A refrigerant

| | ZP90 | ZP103 | ZP120 | ZP137 | ZP154 | ZP180 | ZP182 |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| HP | 7.5 | 9 | 10 | 12 | 13 | 15 | 15 |
| kW (En 12900) | 19.2 | 22.4 | 26 | 29.3 | 33.1 | 38.9 | 39.1 |
| COP | 3.05 | 3.17 | 3.15 | 3.11 | 3.2 | 3.2 | 3.2 |
| Sound Lwa | 72 | 74 | 74 | 75 | 76 | 80 | 77 |
| A | 495 | 552 | 552 | 552 | 570 | 578 | 551 |
| B | 463 | 520 | 520 | 520 | 538 | 533 | 519 |
| C | 94 | 141 | 141 | 141 | 159 | 305 | 92 |
| Shell Diameter D | 232 | 232 | 232 | 232 | 232 | 283 | 232 |
| Suction Diameter E | 1"1/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"3/8 | 1"5/8 | 1"3/8 |
| Discharge Diameter G | 7/8" | 7/8" | 7/8" | 7/8" | 7/8" | 1"1/8 UNF | 7/8" |
| Sight Glass Ext Diam | 1"1/4 UNF | 1"1/4 UNF | 1"1/4 UNF | 1"1/4 UNF | 1"1/4 UNF | 1"3/4 UNF | 1"1/4 UNF |
| Weight kg | 56 | 59 | 61 | 61 | 64 | 119 | 66 |
| Foot Mounting | 190 X 190 | 191 X 190 | 192 X 190 | 193 X 190 | 194 X 190 | 220 X 220 | 196 X 190 |

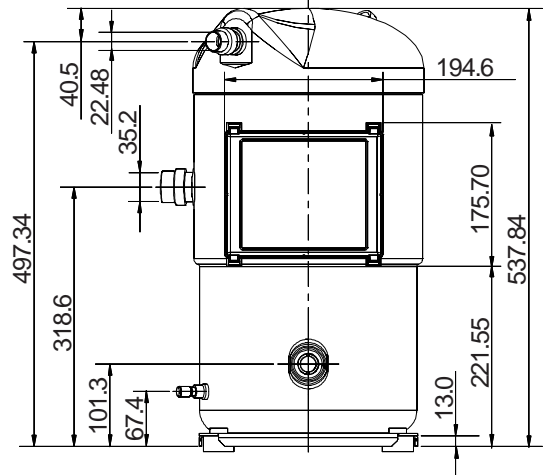
Previous Summit

5 Drawings

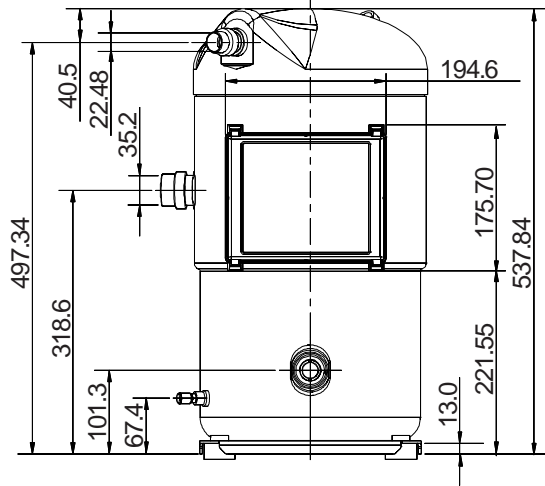
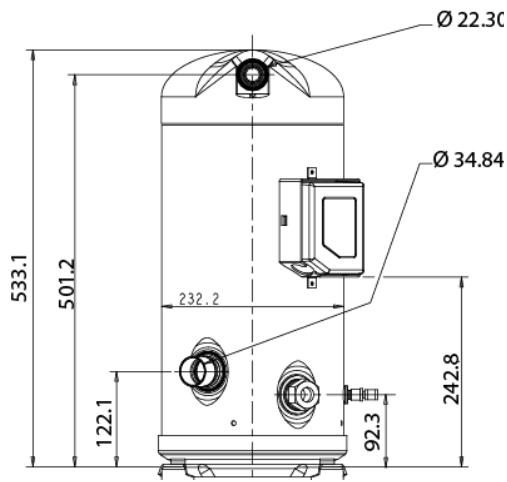
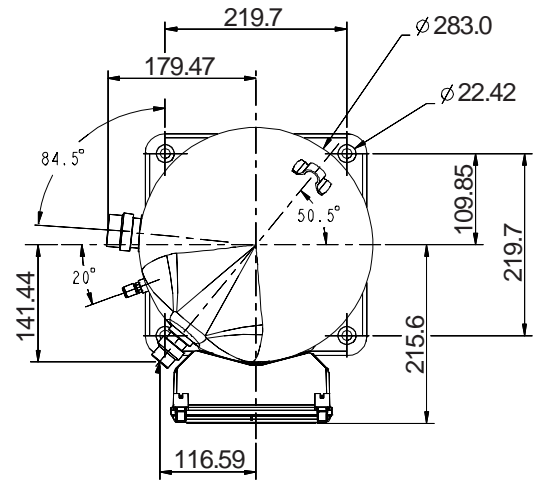
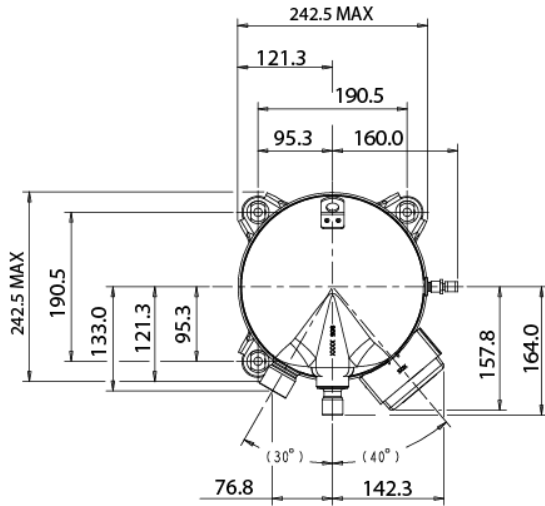
The following drawings show the position of the suction and discharge plugs as well as the sight glass, the Schrader valve and the terminal box.



ZR94K*

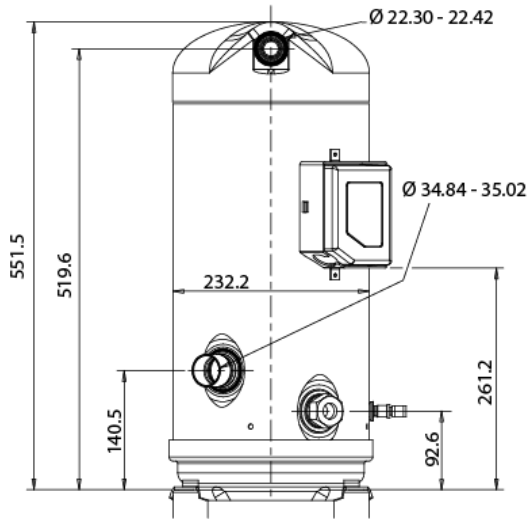
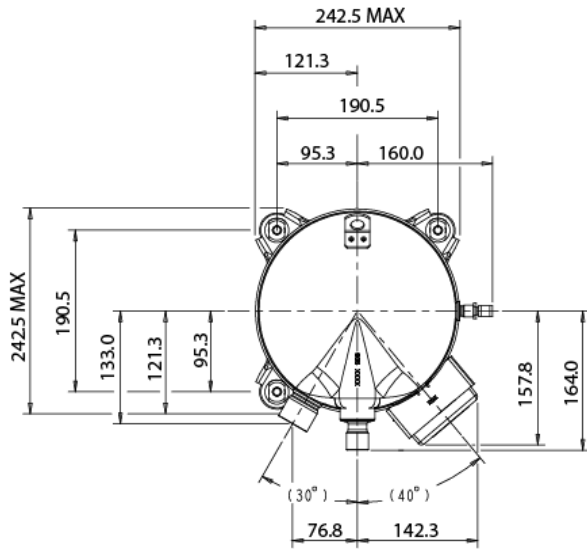


ZR90K*

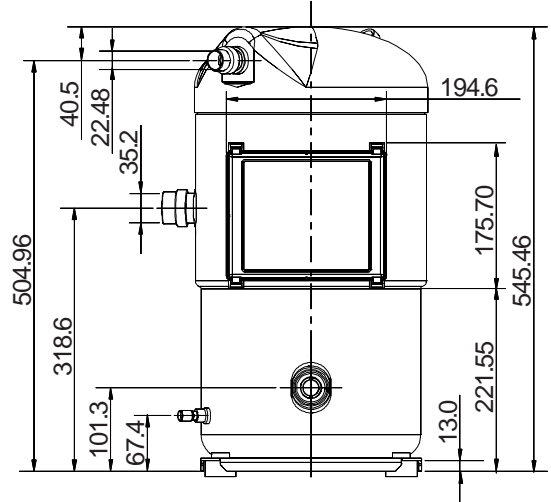
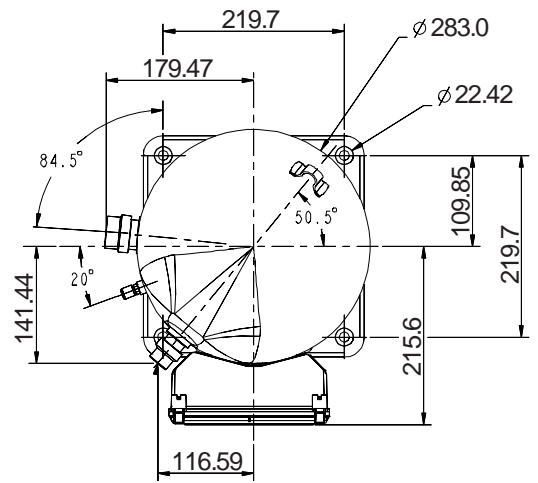


ZR108K*, ZR125K*, ZR144K*

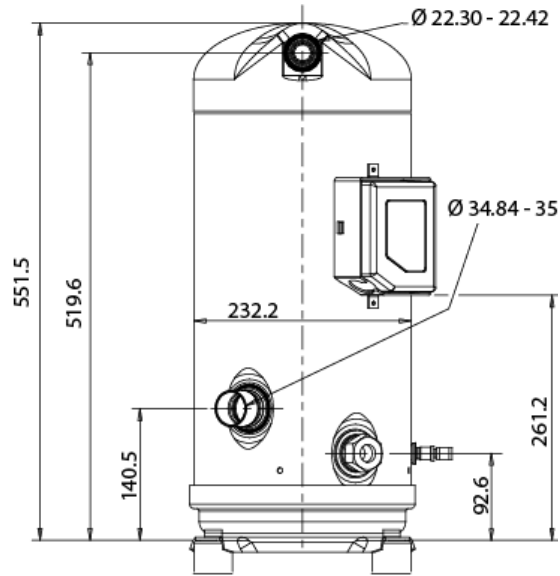
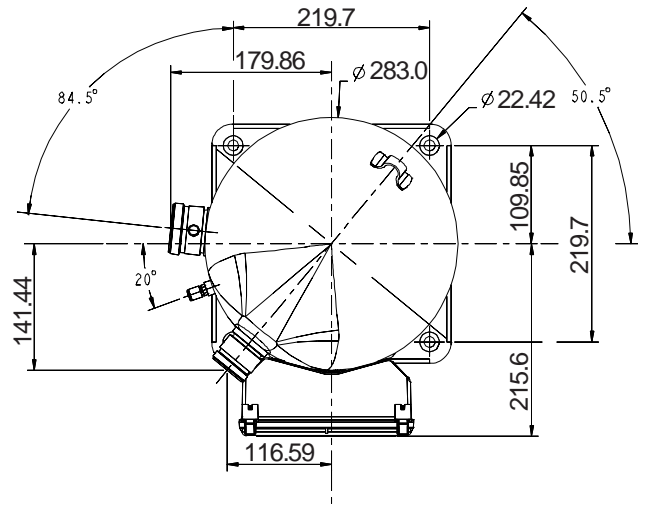
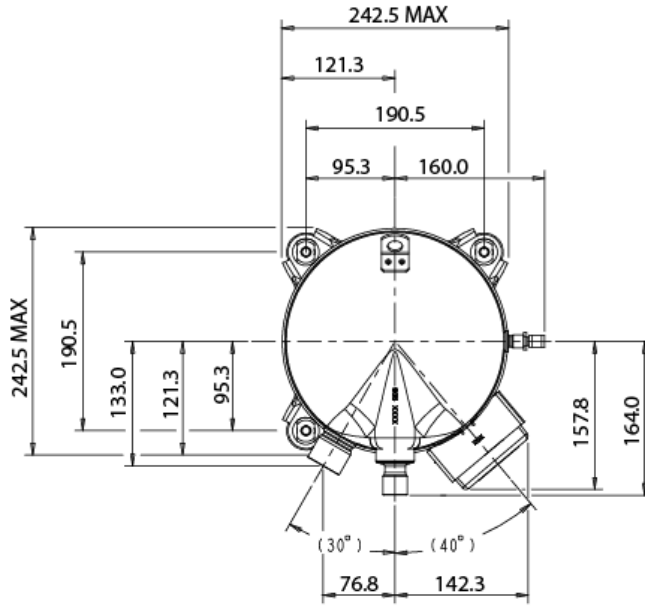
ZR11M*, ZR12M*



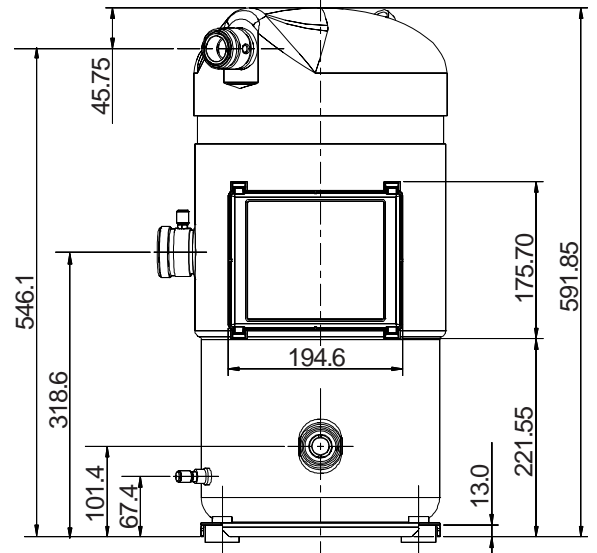
ZR160K*



ZR16M*



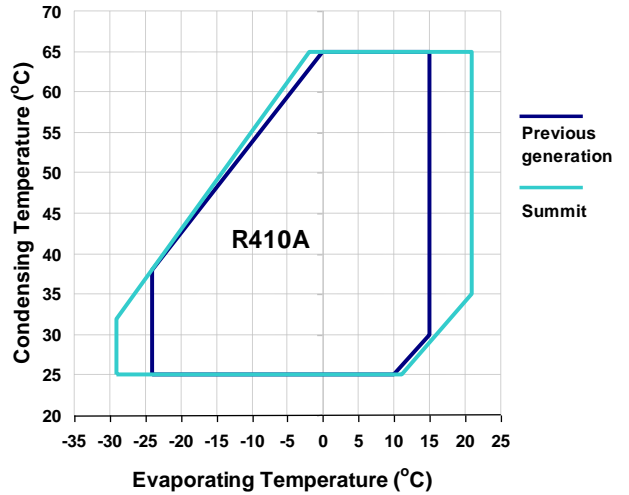
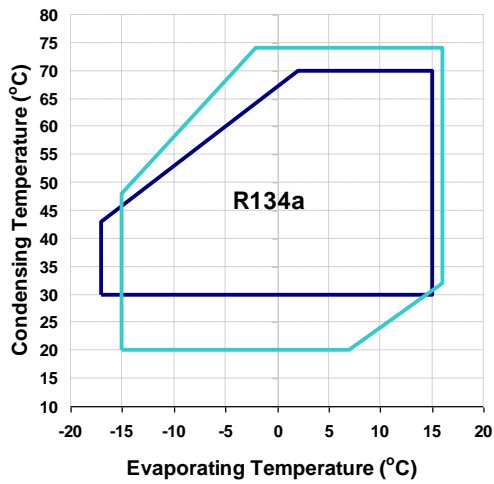
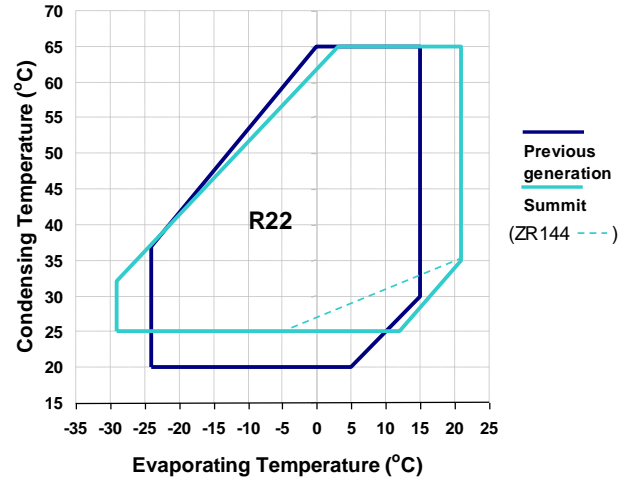
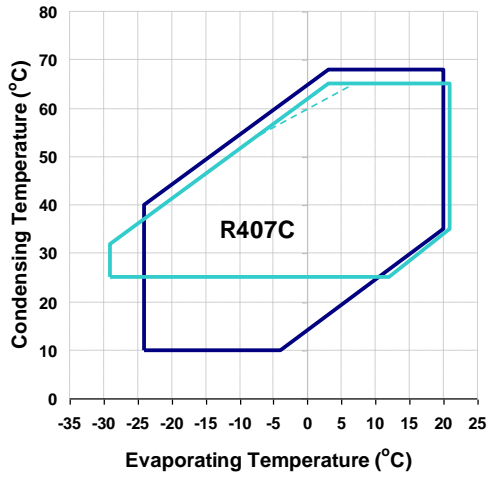
ZR190K* & ZP182K*



ZR19M* & ZP180K*

6 Operating envelopes

Operating envelopes for all qualified refrigerants R407C, R22, R134a & R410A are shown in the diagrams below:



7 Motor version

7.1 Motor insulation

The motor insulation material for scroll compressor models is shown in the table below:

| Compressor | Class |
|------------------------------|-------|
| ZR94K* to ZR190K* | B |
| ZP90K* to ZP182K* | |
| ZR90K* to ZR19M* and ZP180K* | H |

7.2 Motor designation

Scroll refrigerant compressors are available in various motor versions depending upon the size of the load. The motor versions differ in operating voltage, type of switching, number of phases, frequency and type of motor protection. A code for the motor is included in the model designation to ensure correct designation because of the many variations available during order handling and service. An example for the compressor model designation is given below:

T F D
T W D

| Motor Type | Motor Protection Device | Motor Voltages | | | |
|----------------------------|---|----------------|---------|----|----|
| | | V | Ph | Hz | |
| T Three-phase motor | F Inherent Internal klixon line break motor protection | C | 200 | 3 | 50 |
| | | | 208/230 | 3 | 60 |
| | W For three-phase motors, electronic motor protection with thermistors & release module KRIWAN in the terminal box | D | 380/420 | 3 | 50 |
| | | | 460 | 3 | 60 |
| | | E | 500 | 3 | 50 |
| | | | 575 | 3 | 60 |
| | | R | 200/240 | 3 | 50 |
| | | 5 | 200/220 | 3 | 50 |
| | | 200/230 | 3 | 60 | |
| | 7 | 380 | 3 | 60 | |

| | | 3~ / 50Hz | | | | | | |
|---------------|-------|-----------|---------|---------|---------|-----|---------|---------|
| | | TFD | TF5 | TWC | TWD | TWE | TWR | TW5 |
| | | 380/420 | 200/220 | 200/220 | 380/420 | 500 | 200/240 | 200/220 |
| SUMMIT | ZR94 | | | | | | | |
| | ZR108 | | | | | | | |
| | ZR125 | | | | | | | |
| | ZR144 | | | | | | | |
| | ZR160 | | | | | | | |
| | ZR190 | | | | | | | |
| Previous gen. | ZR90 | | | | | | | |
| | ZR11 | | | | | | | |
| | ZR12 | | | | | | | |
| | ZR16 | | | | | | | |
| | ZR19 | | | | | | | |
| SUMMIT | ZP90 | | | | | | | |
| | ZP103 | | | | | | | |
| | ZP120 | | | | | | | |
| | ZP137 | | | | | | | |
| | ZP154 | | | | | | | |
| | ZP182 | | | | | | | |
| Previous gen. | ZP180 | | | | | | | |

| | | 3~ / 60 Hz | | | | | | | | |
|---------------|-------|------------|-----|---------|-----|---------|-----|-----|---------|-----|
| | | TFD | TFE | TF5 | TF7 | TWC | TWD | TWE | TW5 | TW7 |
| | | 460 | 575 | 200/230 | 380 | 208/230 | 460 | 575 | 200/230 | 380 |
| SUMMIT | ZR94 | | | | | | | | | |
| | ZR108 | | | | | | | | | |
| | ZR125 | | | | | | | | | |
| | ZR144 | | | | | | | | | |
| | ZR160 | | | | | | | | | |
| | ZR190 | | | | | | | | | |
| Previous gen. | ZR90 | | | | | | | | | |
| | ZR11 | | | | | | | | | |
| | ZR12 | | | | | | | | | |
| | ZR16 | | | | | | | | | |
| | ZR19 | | | | | | | | | |
| SUMMIT | ZP90 | | | | | | | | | |
| | ZP103 | | | | | | | | | |
| | ZP120 | | | | | | | | | |
| | ZP137 | | | | | | | | | |
| | ZP154 | | | | | | | | | |
| | ZP182 | | | | | | | | | |
| Previous gen. | ZP180 | | | | | | | | | |

8 Motor protection

8.1 Motor code

The centre letter of the motor code in the nomenclature of a Copeland Scroll™ compressor indicates which kind of motor protection device is used. Compressors ZR94K* to ZR144K* and ZP90K* to ZP137K* are code **TF***. Compressors ZR160K*, ZR190K*, ZP154K* and ZP182K* are code **TF*** and **TW***.

The centre letter "F" (eg, TFD) stands for inherent motor protector (Klixon) which is embedded in the stator head and internally interrupts the power supply of the windings at high current or high motor winding temperature. After the temperature has dropped down to the reset value the compressor motor restarts automatically. This protection device is always installed internally and is not accessible.

The centre letter "W" in the motor code (eg, TWD) stands for the use of an electronic motor protection device, which can offer various functions. In general it monitors the winding resistances during compressor operation. The electronic motor protector is always installed outside the shell of the compressor (inside the terminal box) and is exchangeable.

8.2 Electronic motor protection device INT69SC – Models ZR90K* to ZR19M*

This system utilises the temperature dependent resistance of thermistors (also called PTC-resistances) to read the winding temperature. A chain of four thermistors connected in series is embedded in the motor windings so that the temperature of the thermistors can follow the winding temperature with little inertia. An electronic module is required to process the resistance values and trip a control relay depending on the thermistor resistance.

9 Discharge temperature protection

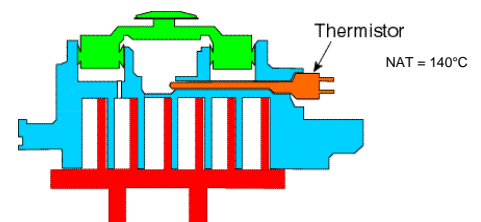
ZR94K* to ZR190K* and ZP90K* to ZP182K* Scroll compressors have an Advanced Scroll Temperature Protection (ASTP). Advanced Scroll Temperature Protection is a temperature sensitive thermo-disc that acts to protect the compressor from discharge gas overheating. Once the discharge gas reaches a critical temperature, the ASTP feature will cause the scrolls to separate and stop pumping although the motor continues to run. After running for some time without pumping gas, the motor protector will open.



NOTE: Depending upon the heat build-up in the compressor, it may take up to two hours for the ASTP and motor protector to reset!

A label has been added above the terminal box to identify compressors with Advanced Scroll Temperature Protection.

For compressors ZR90K* to ZR19M* and ZP180K*, a thermistor is located in the discharge port of the fixed scroll. Excessive discharge temperature will cause the electronic protector module to trip. The discharge gas thermistor is wired in series with the motor thermistor chain.

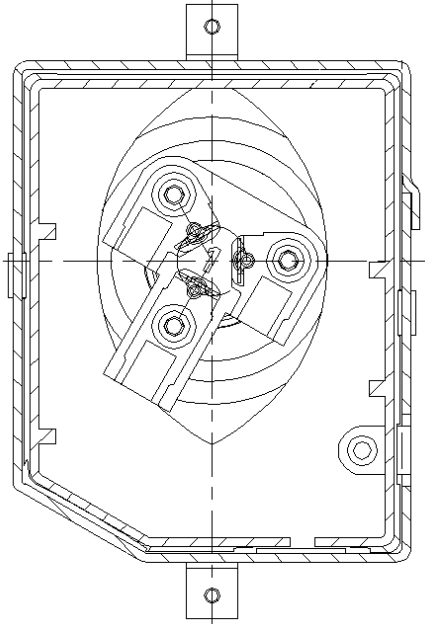


10 Terminal box

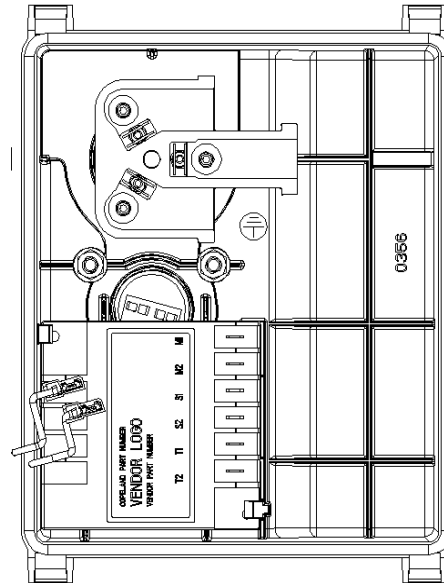
10.1 Protections

The terminal box is IP21 for all models without electronic motor protection (eg, TF*) and IP54 for all models with electronic motor protection (eg, TW*).

Because the electrical characteristics are very close in previous generation and Summit, motor protections (fuses, contactors) will be the same for both.



Summit TF*

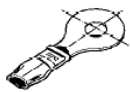


Summit TW*

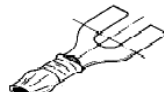
10.2 Cable connectors

The following table lists the recommended types of cable connectors to be used for the various electrical terminals of the compressors and the motor protection module. “B” and “C” must be selected for diameters of 5 mm.

Cable sizes must be selected according to DIN ISO 0100, IEC 364 or national regulations.



Ring tongue (B)

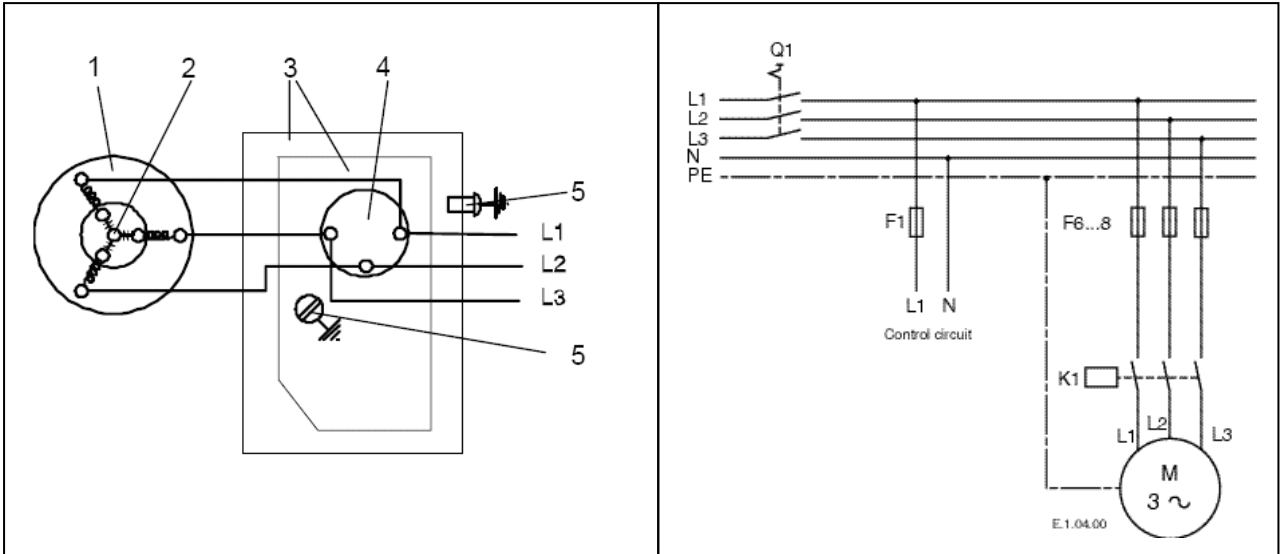


Spade (C)

| | Model | TF* | TW* |
|---------------------|-------------------|-----|-----|
| SUMMIT | ZR94K* to ZR190K* | B/C | B/C |
| | ZR90K* to ZR19M* | | B/C |
| Previous generation | ZP90K* to ZP182K* | B/C | |
| | ZP180K* | | B/C |

NOTE: To earth these compressors use a Ring tongue (B) connection.

Fusite connections and recommended wiring diagrams are shown below. Both generations of compressors are wired in the same way.

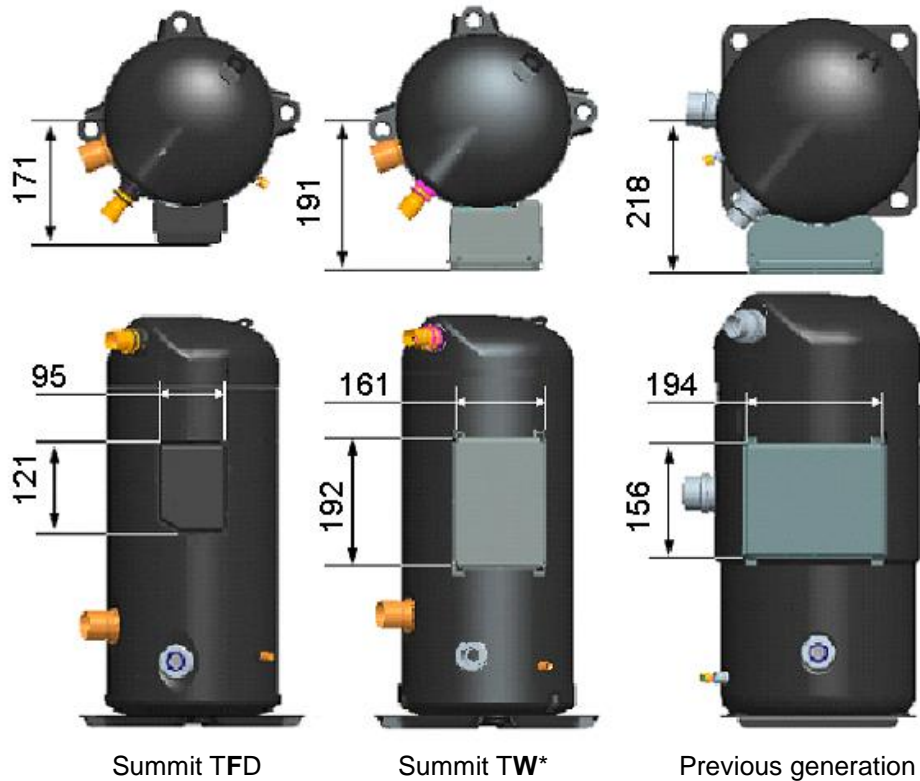


Legend

- 1.....Motor
- 2.....Internal inherent motor protection
- 3.....Terminal box
- 4.....Lead connection
- 5.....Earth connection

- L1, L2, L3 .. Line
- N..... Neutral
- PE..... Protective earth
- F1, F6, F8.. Fuses
- K1 Contactor
- Q1..... Main switch

10.3 Terminal box dimensions



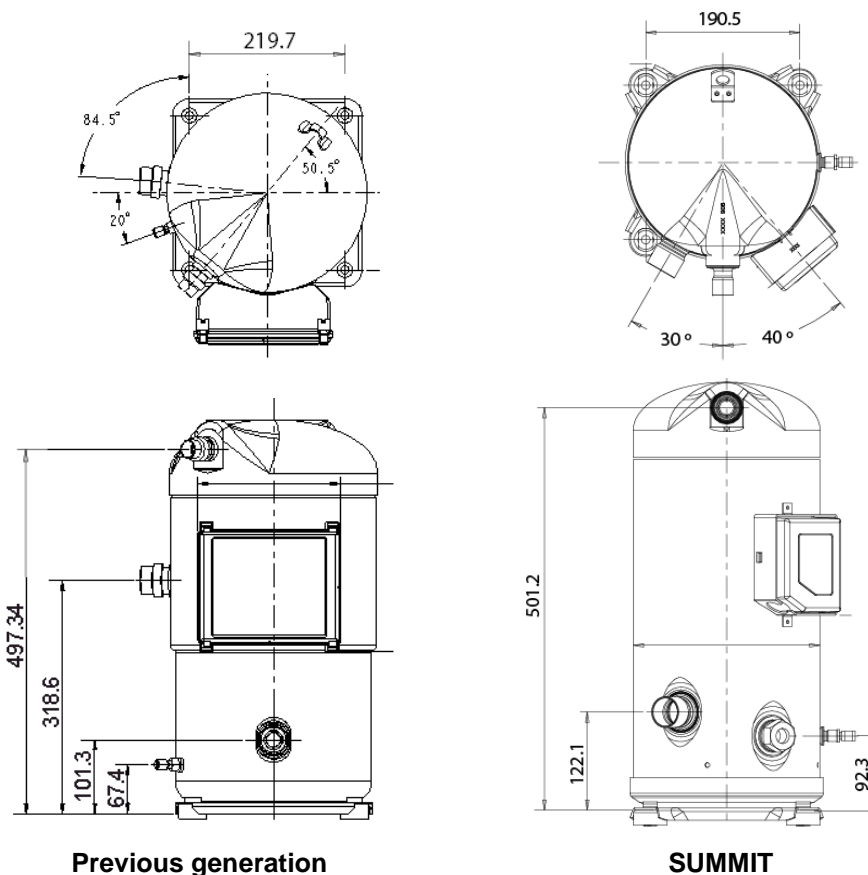
11 Tandemization

The following table shows the Tandem Summit-Summit configurations approved by Emerson Climate Technologies:

| ZP Tandem SUMMIT Compressors | HP | ZR Tandem SUMMIT Compressors |
|---------------------------------|----|---------------------------------|
| | | ZRT188K*E = 2 x ZR94K*E |
| ZPT180K*E = 2 x ZP90K*E | 16 | |
| ZPT206K*E = 2 x ZP103K*E | 18 | ZRT216K*E = 2 x ZR108K*E |
| ZPU223K*E = ZP103K*E + ZP120K*E | 19 | |
| ZPT240K*E = 2 x ZP120K*E | 20 | ZRT250K*E = 2 x ZR125K*E |
| ZPU240K*E = ZP103K*E + ZP137K*E | 21 | |
| ZPU257K*E = ZP120K*E + ZP137K*E | 22 | |
| ZPU272K*E = ZP90K*E + ZP182K*E | 23 | ZRT285K*E = ZR160K*E + ZR125K*E |
| ZPT274K*E = 2 x ZP137K*E | 24 | |
| ZPU274K*E = ZP120K*E + ZP154K*E | 23 | |
| ZPU285K*E = ZP103K*E + ZP182K*E | 24 | ZRT288K*E = 2 x ZR144K*E |
| ZPU302K*E = ZP182K*E + ZP120K*E | 25 | ZRU315K*E = ZR190K*E + ZR125K*E |
| ZPT308K*E = 2 x ZP154K*E | 26 | ZRT320K*E = 2 x ZR160K*E |
| ZPU319K*E = ZP137K*E + ZP182K*E | 27 | ZRU334K*E = ZR190K*E + ZR144K*E |
| ZPU336K*E = ZP182K*E + ZP154K*E | 28 | ZRU350K*E = ZR190K*E + ZR160K*E |
| ZPT364K*E = 2 x ZP182K*E | 30 | ZRT380K*E = 2 x ZR190K*E |

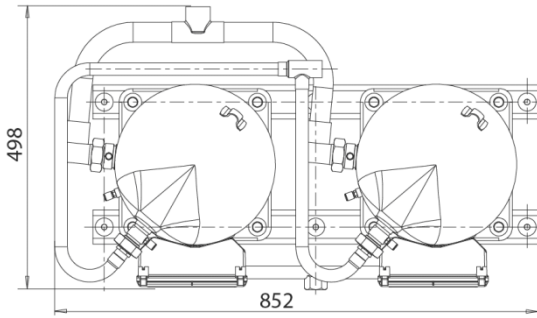
11.1 Replacement of a compressor in an existing Tandem

A compressor in an existing Tandem with previous generation compressors **cannot be** replaced with a new Summit compressor because the positions of the suction, discharge and sight glass ports are different. The distances between holes on the mounting feet are different too. Therefore a previous generation compressor will be needed for replacement on a Tandem.

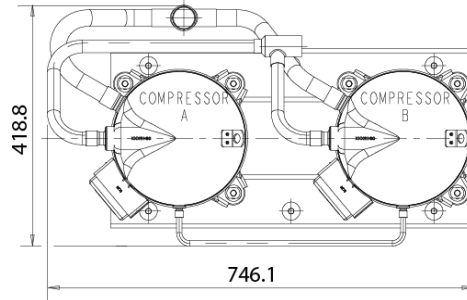


11.2 Replacement of a Tandem

A new Summit Tandem can replace a previous generation Tandem.



Previous generation



SUMMIT

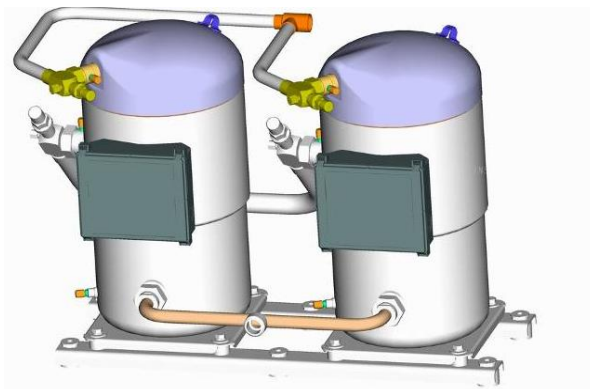
Summit Tandems are approximately 100 mm shorter in length and 80 mm shorter in width than previous generation Tandems. For replacement see table below:

| ZR previous generation | HP | ZR SUMMIT |
|-------------------------------|----|---------------------------------|
| ZRT180K3* = ZR90K3* + ZR90K3* | 15 | ZRT188K*E = 2 x ZR94K*E |
| ZRT220K3* = ZR11M3* + ZR11M3* | 18 | ZRT216K*E = 2 x ZR108K*E |
| ZRT240K3* = ZR12M3* + ZR12M3* | 20 | ZRT250K*E = 2 x ZR125K*E |
| ZRT280K3* = ZR12M3* + ZR16M3* | 23 | ZRT285K*E = ZR160K*E + ZR125K*E |
| ZRU310K3* = ZR19M3* + ZR12M3* | 25 | ZRU315K*E = ZR190K*E + ZR125K*E |
| ZRT320K3* = ZR16M3* + ZR16M3* | 26 | ZRT320K*E = 2 x ZR160K*E |
| ZRU350K3* = ZR16M3* + ZR19M3* | 28 | ZRU350K*E = ZR190K*E + ZR160K*E |
| ZRT380K3* = ZR19M3* + ZR19M3* | 30 | ZRT380K*E = 2 x ZR190K*E |

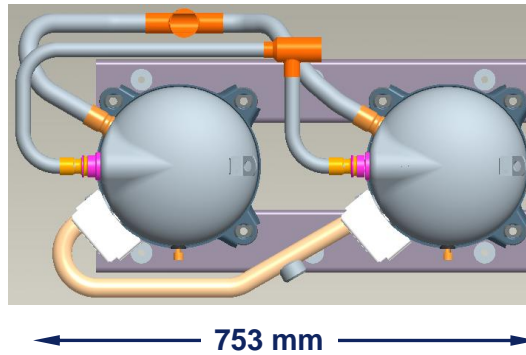
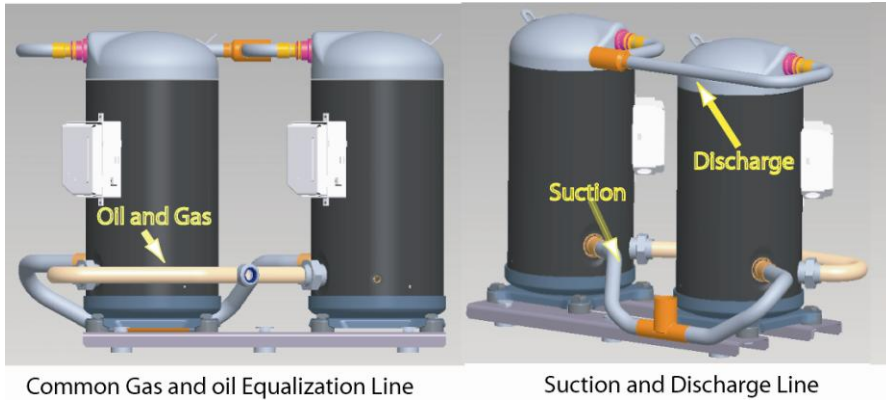
11.3 Oil and gas equalization – Two-Phase Tube Line (TPTL) design

Connection for both oil and gas equalization is made via the sight glass of each compressor even when the compressors are of different tonnage (ZRU/ZPU). The so-called Two-Phase Tube Line (TPTL) for oil and gas equalization balances the pressure between the shells thereby maintaining the same oil level in each compressor.

The Two-Phase Tube Line (TPTL) allows for oil and gas equalization between compressors. TPTL is not a requirement for even Tandem combinations, but is a requirement for all uneven Tandems. An even Tandem is defined as any Tandem assembly where the compressors are of equal capacity. An uneven Tandem includes compressors of different capacities.



Previous generation



New generation SUMMIT

11.4 Adaptor for TPTL

Even or uneven Tandems:

- 1"1/4 Rotalock sight glass
- Tube 1"1/8 for TPTL
- Adapter kit 1"1/4 ⇒ 1"1/8
- # 8602955 (with seal)

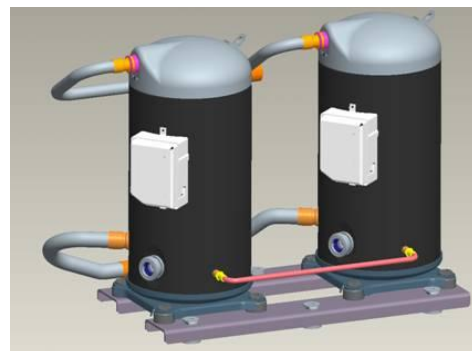


11.5 Oil equalization only

For even Tandems an oil equalization line is an adequate and much more cost-effective option.

Even Tandem only:

- 3/8" Oil tube throughout Schrader stub (Schrader removed)



12 BOM description

| Model | BOM | Suction / Discharge | | Oil sight glass | Protection | | | Equalization lines | | | |
|---------------------|----------------|---------------------|-----|-----------------|------------|-----------|--------|--------------------|-----|-------|-----|
| | | Connections | | | Klixon | Relay | | INT69SCE 24V | Gas | | Oil |
| | | Braze | Rot | | | 120-240 V | 24V AC | | Rot | Braze | |
| Previous generation | ZR90K to ZR19M | 522 | X | | X | | X | | | | |
| | | 551 | | X | X | | X | | | | |
| | | 561 | | X | X | | | X | | | |
| | | 568 | X | | X | | | X | | | |
| | | 591 | | X | X | | | | X | | |
| | | 570 | | X | X | | X | | | X | X |
| | | 572 | X | | X | | X | | | X | X |
| | | 540 | | X | X | | | X | | X | X |
| | 542 | X | | X | | | X | | | X | |
| | Summit | ZR and ZP | 522 | X | | X | | X | | | |
| 551 | | | | X | X | | X | | | | |
| 561 | | | | X | X | | | X | | | |
| 568 | | | X | | X | | | X | | | |
| 425 | X | | X | X | | | | | | | |
| 550 | X | | X | X | | | | | | | |

13 Adapters and fittings

Because new Summit compressors have only brazed connections and many systems with previous generation compressors have Rotalock connections, the customer will need adaptors if he wants to keep Rotalock valve connections. For adapters and fittings please refer to tables hereunder:



Kit to transform braze into Rotalock

| Model | | Suction | | Discharge | | | Suction + Discharge | |
|-------|-------|-----------|---------|---------------|-----------|---------|---------------------|---------|
| | | Diam comp | Ident | Diam Rotalock | Diam comp | Ident | Diam Rotalock | |
| ZR94 | ZP90 | 1 1/8" | 8515168 | 1 3/4" | 7/8" | 8026935 | 1 1/4" | |
| ZR108 | ZP103 | 1 3/8" | 8515146 | | | | | 8400648 |
| ZR125 | ZP120 | | | | | | | |
| ZR144 | ZP137 | | | | | | | |
| ZR160 | ZP154 | | | | | | | |
| ZR190 | ZP182 | | | | | | | |



Rotalock valve kit

| Model | | Suction | | Discharge | | | Suction + Discharge | |
|-------|-------|-----------|---------|---------------|-----------|---------|---------------------|---------|
| | | Diam comp | Ident | Diam Rotalock | Diam comp | Ident | Diam Rotalock | |
| ZR94 | ZP90 | 1 1/8" | 8547952 | 1 3/4" | 7/8" | 8547918 | 1 1/4" | |
| ZR108 | ZP103 | 1 3/8" | 8547929 | | | | | 8401378 |
| ZR125 | ZP120 | | | | | | | |
| ZR144 | ZP137 | | | | | | | |
| ZR160 | ZP154 | | | | | | | |
| ZR190 | ZP182 | | | | | | | |

NOTE: There is no Summit Rotalock version available.

14 Mounting parts

14.1 Mounting parts for single operation

Mounting parts originally delivered with the compressors:

| Compressors | Ident number | Characteristics |
|-----------------------------|------------------------|---------------------------|
| ZR94KCE to ZR190KCE BOM 550 | 8607621 527-0210-00 | Rubber 55-65 Durometer |

Optional mounting parts: The following compressors are originally delivered with hard mounting parts. Rubber grommets are available on request. The mounting part kit N° 8607621 is compliant with the sound shell base plate.

| Compressors | Ident number | Characteristics |
|--|---|---|
| ZR94KCE to ZR144KCE BOM 425 ZP90KCE to ZP182KCE BOM 425 | 8607621 527-0210-00 Variation = 8608260 | Rubber 55-65 Durometer Height 33 mm |
| ZR94KCE to ZR144KCE BOM 425 ZP90KCE to ZP137KCE BOM 425 | 8000822 527-0116-00 Variation = 8600357 | Rubber 35-64 Durometer Height 19mm |
| ZR94KCE to ZR190KCE ZP90KCE to ZP182KCE | <i>Special 8030450</i> 527-0157-00 <i>Variation = 8600368</i> | Rubber 60-70 Durometer Height 19mm |

14.2 Mounting parts for compressors in Tandem/Trio operation

Standard delivery for Summit compressors is BOM 425.

Mounting parts between compressor and rails **are part of the standard delivery with the following compressors:**

| Compressors | Ident number | Characteristics |
|--|------------------------|-----------------|
| ZR94KCE to ZR190KCE BOM 425 ZP90KCE to ZP182KCE BOM 425 | 8602933 527-0206-01 | Hard zinc |

Mounting parts between rails and ground **must be ordered separately.**

| Compressors | Tandem | Trio | Characteristics |
|--|------------------------|----------------------------|---------------------------|
| ZR94KCE to ZR190KCE ZP90KCE to ZP180KCE | 8537451 527-0177-00 | 2 x 8537451 527-0177-00 | Rubber 65-75 Durometer |

14.3 Crankcase heater (optional)

| Previous generation | | Summit | |
|---------------------|---------|-----------|---------|
| 70W, 120V | 8563349 | 90W, 120V | 8561014 |
| 70W, 240V | 8563350 | 90W, 240V | 8561025 |
| 70W, 480V | 8563361 | 90W, 480V | 8561036 |

15 Standard components and accessories – Summit

15.1 Standard components

- Discharge temperature protection: Advanced Scroll Temperature Protection
- Inherent internal line break motor protection on **TF***
- Electronic motor protection on **TW***
- Rubber grommet mounting parts on 550
- Hard rubber grommets mounting parts on 425



15.2 Accessories

- Adapter kit to convert a brazing into a Rotalock connection (suction and discharge)
- Rotalock valves (kit) (1 suction valve + gasket, 1 discharge valve + gasket)
- Crankcase heater - 90 W External
- Sound shell assembly with base
- Mounting parts kit: compressor > rail: steel
- Mounting parts kit: rail > ground: rubber

16 Data sheets

16.1 Performance data sheet with R407C

Conditions: Suction superheat: 10K; Liquid subcooling: 0K; Power supply: 380/420V – 3~ – 50 Hz

R407C - ZR94KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|------|-------|-------|-------|-------|------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 7.61 | 9.65 | 12 | 14.75 | 17.95 | 21.8 | 26.2 | 28.2 | 31.4 | | | |
| | 30 | 6.93 | 9.07 | 11.45 | 14.2 | 17.4 | 21.1 | 25.3 | 27.2 | 30.3 | 33.1 | 36.1 | |
| | 35 | 6.03 | 8.29 | 10.75 | 13.5 | 16.65 | 20.2 | 24.4 | 26.2 | 29.2 | 31.8 | 34.7 | 41 |
| | 40 | | 7.3 | 9.84 | 12.6 | 15.75 | 19.25 | 23.3 | 25 | 27.9 | 30.4 | 33.1 | 39.2 |
| | 45 | | | 8.73 | 11.55 | 14.65 | 18.1 | 22 | 23.7 | 26.5 | 28.9 | 31.5 | 37.3 |
| | 50 | | | | 10.25 | 13.35 | 16.8 | 20.6 | 22.3 | 24.9 | 27.2 | 29.7 | 35.2 |
| | 55 | | | | | 11.9 | 15.25 | 19 | 20.6 | 23.2 | 25.4 | 27.8 | 33.1 |
| | 60 | | | | | | 13.55 | 17.2 | 18.75 | 21.2 | 23.4 | 25.7 | 30.8 |
| | 65 | | | | | | | 15.2 | 16.75 | 19.2 | 21.2 | 23.5 | 28.3 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 3.4 | 3.46 | 3.5 | 3.53 | 3.55 | 3.55 | 3.56 | 3.56 | 3.56 | | | |
| | 30 | 3.81 | 3.87 | 3.92 | 3.95 | 3.97 | 3.98 | 3.98 | 3.97 | 3.97 | 3.97 | 3.96 | |
| | 35 | 4.28 | 4.34 | 4.39 | 4.42 | 4.44 | 4.44 | 4.44 | 4.43 | 4.43 | 4.42 | 4.41 | 4.39 |
| | 40 | | 4.89 | 4.94 | 4.97 | 4.98 | 4.98 | 4.96 | 4.96 | 4.94 | 4.93 | 4.91 | 4.88 |
| | 45 | | | 5.57 | 5.59 | 5.6 | 5.59 | 5.57 | 5.55 | 5.53 | 5.51 | 5.49 | 5.45 |
| | 50 | | | | 6.32 | 6.32 | 6.3 | 6.26 | 6.24 | 6.21 | 6.19 | 6.16 | 6.09 |
| | 55 | | | | | 7.15 | 7.12 | 7.07 | 7.04 | 7 | 6.97 | 6.93 | 6.85 |
| | 60 | | | | | | 8.06 | 8 | 7.97 | 7.92 | 7.87 | 7.83 | 7.72 |
| | 65 | | | | | | | 9.07 | 9.04 | 8.97 | 8.92 | 8.86 | 8.73 |

R407C - ZR108KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 8.48 | 10.75 | 13.5 | 16.75 | 20.6 | 25 | 30.2 | 32.5 | 36.2 | | | |
| | 30 | 7.93 | 10.15 | 12.8 | 15.95 | 19.6 | 23.9 | 29 | 31.2 | 34.8 | 38 | 41.4 | |
| | 35 | 7.34 | 9.5 | 12.05 | 15.05 | 18.6 | 22.8 | 27.6 | 29.7 | 33.2 | 36.3 | 39.5 | 46.8 |
| | 40 | | 8.82 | 11.25 | 14.15 | 17.55 | 21.5 | 26.2 | 28.2 | 31.5 | 34.4 | 37.6 | 44.6 |
| | 45 | | | 10.45 | 13.2 | 16.45 | 20.2 | 24.6 | 26.6 | 29.7 | 32.5 | 35.6 | 42.2 |
| | 50 | | | | 12.2 | 15.25 | 18.85 | 23 | 24.9 | 27.9 | 30.6 | 33.4 | 39.8 |
| | 55 | | | | | 14.05 | 17.4 | 21.4 | 23.1 | 25.9 | 28.5 | 31.2 | 37.3 |
| | 60 | | | | | | 15.95 | 19.65 | 21.3 | 23.9 | 26.3 | 28.9 | 34.6 |
| | 65 | | | | | | | 17.85 | 19.35 | 21.8 | 24.1 | 26.5 | 31.9 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 3.74 | 3.8 | 3.84 | 3.89 | 3.96 | 4.06 | 4.23 | 4.31 | 4.46 | | | |
| | 30 | 4.19 | 4.26 | 4.3 | 4.34 | 4.38 | 4.45 | 4.56 | 4.62 | 4.74 | 4.85 | 4.99 | |
| | 35 | 4.67 | 4.77 | 4.82 | 4.85 | 4.88 | 4.92 | 5 | 5.04 | 5.11 | 5.2 | 5.3 | 5.56 |
| | 40 | | 5.32 | 5.39 | 5.43 | 5.46 | 5.48 | 5.52 | 5.55 | 5.6 | 5.65 | 5.72 | 5.92 |
| | 45 | | | 6.02 | 6.08 | 6.11 | 6.12 | 6.14 | 6.16 | 6.19 | 6.22 | 6.27 | 6.4 |
| | 50 | | | | 6.79 | 6.84 | 6.85 | 6.86 | 6.87 | 6.88 | 6.9 | 6.93 | 7.01 |
| | 55 | | | | | 7.64 | 7.67 | 7.68 | 7.68 | 7.68 | 7.69 | 7.7 | 7.75 |
| | 60 | | | | | | 8.58 | 8.59 | 8.6 | 8.59 | 8.59 | 8.6 | 8.62 |
| | 65 | | | | | | | 9.61 | 9.61 | 9.61 | 9.61 | 9.61 | 9.61 |



R407C - ZR125KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 9.91 | 12.55 | 15.7 | 19.4 | 23.8 | 28.9 | 34.8 | 37.4 | 41.5 | | | |
| | 30 | 9.21 | 11.85 | 14.95 | 18.6 | 22.8 | 27.8 | 33.5 | 36 | 40.1 | 43.7 | 47.6 | |
| | 35 | 8.41 | 11.05 | 14.05 | 17.6 | 21.7 | 26.6 | 32.1 | 34.6 | 38.5 | 42 | 45.8 | 54.1 |
| | 40 | | 10.1 | 13.1 | 16.55 | 20.5 | 25.2 | 30.5 | 32.9 | 36.7 | 40.1 | 43.7 | 51.7 |
| | 45 | | | 12 | 15.35 | 19.2 | 23.7 | 28.8 | 31.1 | 34.8 | 38 | 41.5 | 49.2 |
| | 50 | | | | 14 | 17.75 | 22 | 27 | 29.1 | 32.6 | 35.8 | 39.1 | 46.5 |
| | 55 | | | | | 16.15 | 20.2 | 25 | 27 | 30.4 | 33.4 | 36.6 | 43.7 |
| | 60 | | | | | | 18.35 | 22.8 | 24.8 | 28 | 30.8 | 33.9 | 40.6 |
| | 65 | | | | | | | 20.5 | 22.4 | 25.4 | 28.1 | 31 | 37.3 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 4.38 | 4.44 | 4.49 | 4.53 | 4.6 | 4.69 | 4.83 | 4.9 | 5.03 | | | |
| | 30 | 4.9 | 4.97 | 5.02 | 5.05 | 5.1 | 5.16 | 5.26 | 5.32 | 5.41 | 5.51 | 5.63 | |
| | 35 | 5.46 | 5.55 | 5.61 | 5.65 | 5.68 | 5.72 | 5.79 | 5.83 | 5.9 | 5.97 | 6.06 | 6.29 |
| | 40 | | 6.2 | 6.28 | 6.32 | 6.35 | 6.38 | 6.43 | 6.45 | 6.5 | 6.55 | 6.62 | 6.79 |
| | 45 | | | 7.03 | 7.09 | 7.12 | 7.15 | 7.18 | 7.19 | 7.23 | 7.26 | 7.31 | 7.43 |
| | 50 | | | | 7.96 | 8 | 8.03 | 8.05 | 8.06 | 8.08 | 8.11 | 8.14 | 8.23 |
| | 55 | | | | | 9.01 | 9.04 | 9.07 | 9.07 | 9.08 | 9.1 | 9.12 | 9.18 |
| | 60 | | | | | | 10.2 | 10.2 | 10.25 | 10.3 | 10.3 | 10.3 | 10.3 |
| | 65 | | | | | | | 11.55 | 11.55 | 11.6 | 11.6 | 11.6 | 11.6 |

R407C - ZR144KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 10.6 | 13.85 | 17.55 | 21.8 | 26.8 | 32.5 | 39.2 | 42.2 | 46.9 | | | |
| | 30 | 9.61 | 12.95 | 16.75 | 21 | 25.9 | 31.6 | 38.1 | 41 | 45.6 | 49.7 | 54.2 | |
| | 35 | 8.44 | 11.9 | 15.7 | 19.95 | 24.8 | 30.3 | 36.7 | 39.5 | 44 | 48 | 52.3 | 61.7 |
| | 40 | | 10.6 | 14.45 | 18.7 | 23.4 | 28.9 | 35 | 37.7 | 42 | 45.9 | 50.1 | 59.2 |
| | 45 | | | 13 | 17.2 | 21.9 | 27.1 | 33.1 | 35.7 | 39.9 | 43.6 | 47.6 | 56.3 |
| | 50 | | | | 15.55 | 20.1 | 25.2 | 30.9 | 33.4 | 37.4 | 41 | 44.8 | 53.2 |
| | 55 | | | | | 18.1 | 23 | 28.5 | 30.9 | 34.7 | 38.2 | 41.8 | 49.8 |
| | 60 | | | | | | | 25.9 | 28.2 | 31.8 | 35.1 | 38.5 | 46.1 |
| | 65 | | | | | | | | 25.3 | 28.7 | 31.8 | 35 | 42.1 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|-------|-------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 4.87 | 4.96 | 5.04 | 5.1 | 5.18 | 5.26 | 5.38 | 5.44 | 5.53 | | | |
| | 30 | 5.44 | 5.55 | 5.63 | 5.69 | 5.75 | 5.82 | 5.91 | 5.95 | 6.03 | 6.1 | 6.19 | |
| | 35 | 6.08 | 6.21 | 6.3 | 6.36 | 6.42 | 6.47 | 6.53 | 6.56 | 6.62 | 6.67 | 6.74 | 6.91 |
| | 40 | | 6.95 | 7.05 | 7.13 | 7.18 | 7.22 | 7.26 | 7.29 | 7.32 | 7.36 | 7.41 | 7.53 |
| | 45 | | | 7.92 | 8 | 8.05 | 8.09 | 8.12 | 8.13 | 8.16 | 8.18 | 8.21 | 8.29 |
| | 50 | | | | 9 | 9.06 | 9.1 | 9.12 | 9.13 | 9.14 | 9.15 | 9.16 | 9.21 |
| | 55 | | | | | 10.2 | 10.25 | 10.25 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 |
| | 60 | | | | | | | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 |
| | 65 | | | | | | | | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 |

R407C - ZR160KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 11.2 | 14.85 | 19.2 | 24.3 | 30.4 | 37.5 | 45.7 | 49.3 | 55.2 | | | |
| | 30 | 10.05 | 13.6 | 17.8 | 22.8 | 28.7 | 35.5 | 43.5 | 47 | 52.7 | 57.8 | 63.2 | |
| | 35 | 8.86 | 12.3 | 16.4 | 21.2 | 26.9 | 33.5 | 41.2 | 44.6 | 50.1 | 55 | 60.3 | 71.9 |
| | 40 | | 10.95 | 14.85 | 19.5 | 24.9 | 31.3 | 38.7 | 42 | 47.3 | 52 | 57.1 | 68.3 |
| | 45 | | | 13.3 | 17.7 | 22.9 | 29 | 36.1 | 39.3 | 44.4 | 48.9 | 53.8 | 64.6 |
| | 50 | | | | 15.9 | 20.8 | 26.7 | 33.4 | 36.5 | 41.3 | 45.7 | 50.3 | 60.7 |
| | 55 | | | | | 18.7 | 24.2 | 30.6 | 33.5 | 38.1 | 42.3 | 46.7 | 56.6 |
| | 60 | | | | | | 21.7 | 27.7 | 30.4 | 34.8 | 38.8 | 43 | 52.4 |
| | 65 | | | | | | | 24.7 | 27.3 | 31.4 | 35.1 | 39.1 | 48 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|-------|------|------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 5.54 | 5.61 | 5.68 | 5.76 | 5.84 | 5.94 | 6.07 | 6.13 | 6.23 | | | |
| | 30 | 6.22 | 6.3 | 6.37 | 6.45 | 6.53 | 6.62 | 6.73 | 6.78 | 6.87 | 6.95 | 7.04 | |
| | 35 | 6.98 | 7.07 | 7.15 | 7.22 | 7.29 | 7.37 | 7.46 | 7.5 | 7.58 | 7.65 | 7.72 | 7.91 |
| | 40 | | 7.95 | 8.03 | 8.09 | 8.15 | 8.21 | 8.29 | 8.32 | 8.38 | 8.43 | 8.49 | 8.64 |
| | 45 | | | 9.04 | 9.09 | 9.14 | 9.18 | 9.23 | 9.26 | 9.29 | 9.33 | 9.38 | 9.48 |
| | 50 | | | | 10.25 | 10.3 | 10.3 | 10.3 | 10.35 | 10.4 | 10.4 | 10.4 | 10.5 |
| | 55 | | | | | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 | 11.6 |
| | 60 | | | | | | 13.1 | 13.05 | 13.05 | 13 | 13 | 13 | 13 |
| | 65 | | | | | | | 14.7 | 14.7 | 14.7 | 14.6 | 14.6 | 14.5 |

R407C - ZR190KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 13.65 | 17.7 | 22.4 | 27.9 | 34.4 | 41.8 | 50.5 | 54.3 | 60.5 | | | |
| | 30 | 12.55 | 16.6 | 21.3 | 26.8 | 33.1 | 40.4 | 48.9 | 52.6 | 58.6 | 63.9 | 69.7 | |
| | 35 | 11.2 | 15.35 | 20 | 25.4 | 31.6 | 38.7 | 46.9 | 50.6 | 56.4 | 61.6 | 67.1 | 79.3 |
| | 40 | | 13.85 | 18.45 | 23.8 | 29.8 | 36.7 | 44.7 | 48.2 | 53.8 | 58.8 | 64.2 | 76 |
| | 45 | | | 16.75 | 21.9 | 27.8 | 34.5 | 42.1 | 45.5 | 50.9 | 55.8 | 60.9 | 72.3 |
| | 50 | | | | 19.8 | 25.5 | 31.9 | 39.3 | 42.6 | 47.7 | 52.4 | 57.3 | 68.2 |
| | 55 | | | | | 23 | 29.2 | 36.2 | 39.3 | 44.3 | 48.7 | 53.4 | 63.8 |
| | 60 | | | | | | 26.2 | 32.9 | 35.8 | 40.5 | 44.7 | 49.2 | 59.1 |
| | 65 | | | | | | | 29.3 | 32.1 | 36.5 | 40.5 | 44.7 | 54 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 6.77 | 6.86 | 6.93 | 7.02 | 7.16 | 7.37 | 7.68 | 7.84 | 8.13 | | | |
| | 30 | 7.57 | 7.67 | 7.74 | 7.8 | 7.89 | 8.03 | 8.26 | 8.38 | 8.6 | 8.82 | 9.08 | |
| | 35 | 8.44 | 8.57 | 8.65 | 8.7 | 8.76 | 8.85 | 9 | 9.09 | 9.25 | 9.42 | 9.62 | 10.2 |
| | 40 | | 9.57 | 9.67 | 9.73 | 9.77 | 9.83 | 9.92 | 9.98 | 10.1 | 10.2 | 10.4 | 10.8 |
| | 45 | | | 10.8 | 10.9 | 10.95 | 10.95 | 11.05 | 11.05 | 11.2 | 11.2 | 11.4 | 11.7 |
| | 50 | | | | 12.2 | 12.25 | 12.3 | 12.3 | 12.35 | 12.4 | 12.5 | 12.5 | 12.8 |
| | 55 | | | | | 13.75 | 13.75 | 13.8 | 13.8 | 13.9 | 13.9 | 13.9 | 14.1 |
| | 60 | | | | | | 15.45 | 15.5 | 15.5 | 15.5 | 15.5 | 15.6 | 15.7 |
| | 65 | | | | | | | 17.35 | 17.35 | 17.4 | 17.4 | 17.4 | 17.5 |



16.2 Performance data sheet with R410A

Conditions: Suction superheat: 10K; Liquid subcooling: 0K; Power supply: 380/420V – 3~ – 50 Hz

R410A - ZP90KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 8.27 | 10.21 | 12.55 | 15.31 | 18.52 | 22.21 | 26.42 | 28.26 | 31.2 | | | |
| | 30 | 7.74 | 9.61 | 11.85 | 14.48 | 17.54 | 21.06 | 25.07 | 26.82 | 29.6 | 32.1 | 34.7 | |
| | 35 | 7.22 | 9.01 | 11.15 | 13.66 | 16.57 | 19.92 | 23.74 | 25.4 | 28.1 | 30.4 | 32.9 | 38.3 |
| | 40 | | 8.37 | 10.41 | 12.8 | 15.57 | 18.75 | 22.37 | 23.95 | 26.5 | 28.7 | 31.1 | 36.2 |
| | 45 | | | 9.61 | 11.88 | 14.51 | 17.52 | 20.95 | 22.44 | 24.8 | 26.9 | 29.2 | 34 |
| | 50 | | | | 10.85 | 13.33 | 16.18 | 19.41 | 20.82 | 23.1 | 25.1 | 27.2 | 31.8 |
| | 55 | | | | | 12.02 | 14.69 | 17.73 | 19.05 | 21.2 | 23 | 25 | 29.3 |
| | 60 | | | | | | 13.01 | 15.84 | 17.07 | 19 | 20.8 | 22.6 | 26.6 |
| | 65 | | | | | | | 13.65 | 14.78 | 16.6 | 18.2 | 19.9 | 23.6 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 3.71 | 3.69 | 3.66 | 3.65 | 3.64 | 3.64 | 3.66 | 3.68 | 3.71 | | | |
| | 30 | 4.08 | 4.06 | 4.05 | 4.05 | 4.06 | 4.09 | 4.13 | 4.16 | 4.2 | 4.25 | 4.3 | |
| | 35 | 4.52 | 4.5 | 4.49 | 4.49 | 4.5 | 4.53 | 4.59 | 4.62 | 4.67 | 4.73 | 4.79 | 4.94 |
| | 40 | | 5.02 | 5 | 4.99 | 4.99 | 5.02 | 5.07 | 5.1 | 5.15 | 5.21 | 5.27 | 5.43 |
| | 45 | | | 5.62 | 5.59 | 5.57 | 5.58 | 5.61 | 5.64 | 5.69 | 5.73 | 5.79 | 5.94 |
| | 50 | | | | 6.32 | 6.27 | 6.25 | 6.25 | 6.27 | 6.3 | 6.34 | 6.38 | 6.51 |
| | 55 | | | | | 7.12 | 7.06 | 7.02 | 7.02 | 7.03 | 7.05 | 7.08 | 7.18 |
| | 60 | | | | | | 8.05 | 7.96 | 7.94 | 7.92 | 7.91 | 7.92 | 7.97 |
| | 65 | | | | | | | 9.1 | 9.05 | 8.99 | 8.95 | 8.93 | 8.92 |

R410A - ZP103KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 9.18 | 11.52 | 14.27 | 17.49 | 21.22 | 25.53 | 30.47 | 32.64 | 36.1 | | | |
| | 30 | 8.49 | 10.82 | 13.51 | 16.6 | 20.17 | 24.25 | 28.91 | 30.95 | 34.2 | 37.1 | 40.2 | |
| | 35 | 7.67 | 10.01 | 12.65 | 15.65 | 19.07 | 22.95 | 27.35 | 29.27 | 32.3 | 35.1 | 37.9 | 44.2 |
| | 40 | | 9.06 | 11.68 | 14.61 | 17.89 | 21.6 | 25.76 | 27.58 | 30.5 | 33 | 35.7 | 41.6 |
| | 45 | | | 10.56 | 13.44 | 16.62 | 20.16 | 24.12 | 25.83 | 28.5 | 31 | 33.5 | 39 |
| | 50 | | | | 12.12 | 15.21 | 18.61 | 22.38 | 24 | 26.6 | 28.8 | 31.2 | 36.4 |
| | 55 | | | | | 13.64 | 16.92 | 20.5 | 22.03 | 24.4 | 26.6 | 28.8 | 33.6 |
| | 60 | | | | | | 15.02 | 18.43 | 19.88 | 22.2 | 24.1 | 26.2 | 30.7 |
| | 65 | | | | | | | 16.07 | 17.43 | 19.6 | 21.4 | 23.3 | 27.5 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 3.98 | 4.03 | 4.04 | 4.02 | 4.01 | 4 | 4.04 | 4.06 | 4.12 | | | |
| | 30 | 4.47 | 4.52 | 4.53 | 4.52 | 4.51 | 4.51 | 4.56 | 4.59 | 4.66 | 4.73 | 4.83 | |
| | 35 | 5.04 | 5.08 | 5.07 | 5.06 | 5.04 | 5.04 | 5.09 | 5.12 | 5.19 | 5.27 | 5.38 | 5.66 |
| | 40 | | 5.73 | 5.7 | 5.67 | 5.63 | 5.63 | 5.66 | 5.69 | 5.76 | 5.84 | 5.94 | 6.22 |
| | 45 | | | 6.45 | 6.38 | 6.32 | 6.29 | 6.31 | 6.33 | 6.39 | 6.46 | 6.56 | 6.83 |
| | 50 | | | | 7.23 | 7.13 | 7.07 | 7.05 | 7.07 | 7.11 | 7.17 | 7.25 | 7.5 |
| | 55 | | | | | 8.09 | 7.98 | 7.93 | 7.92 | 7.94 | 7.98 | 8.05 | 8.27 |
| | 60 | | | | | | 9.07 | 8.96 | 8.94 | 8.93 | 8.94 | 8.99 | 9.16 |
| | 65 | | | | | | | 10.18 | 10.13 | 10.1 | 10.1 | 10.1 | 10.2 |

R410A - ZP120KCE-TFD

| Capacity kW | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|----|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| | | 25 | 11.02 | 13.93 | 17.22 | 20.92 | 25.08 | 29.75 | 34.95 | 37.19 | 40.7 | | |
| 30 | 10 | 12.86 | 16.09 | 19.74 | 23.84 | 28.44 | 33.57 | 35.78 | 39.3 | 42.4 | 45.6 | | |
| 35 | 8.98 | 11.76 | 14.91 | 18.46 | 22.46 | 26.95 | 31.97 | 34.14 | 37.6 | 40.6 | 43.8 | 50.6 | |
| 40 | | 10.65 | 13.67 | 17.09 | 20.96 | 25.3 | 30.18 | 32.28 | 35.6 | 38.6 | 41.7 | 48.4 | |
| 45 | | | 12.39 | 15.64 | 19.33 | 23.5 | 28.19 | 30.21 | 33.4 | 36.3 | 39.3 | 45.8 | |
| 50 | | | | 14.13 | 17.6 | 21.55 | 26.01 | 27.94 | 31 | 33.7 | 36.6 | 42.8 | |
| 55 | | | | | 15.77 | 19.45 | 23.64 | 25.46 | 28.4 | 30.9 | 33.7 | 39.6 | |
| 60 | | | | | | 17.19 | 21.06 | 22.75 | 25.5 | 27.9 | 30.4 | 36 | |
| 65 | | | | | | | 18.19 | 19.73 | 22.2 | 24.4 | 26.7 | 31.8 | |

| Power Input kW | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|------|-------|-------|-------|------|------|------|------|----|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| | | 25 | 4.56 | 4.58 | 4.57 | 4.57 | 4.58 | 4.62 | 4.71 | 4.77 | 4.87 | | |
| 30 | 5.17 | 5.19 | 5.19 | 5.18 | 5.17 | 5.19 | 5.25 | 5.29 | 5.37 | 5.46 | 5.56 | | |
| 35 | 5.85 | 5.88 | 5.87 | 5.85 | 5.83 | 5.83 | 5.86 | 5.89 | 5.94 | 6.01 | 6.09 | 6.32 | |
| 40 | | 6.64 | 6.63 | 6.61 | 6.57 | 6.55 | 6.55 | 6.56 | 6.6 | 6.64 | 6.7 | 6.88 | |
| 45 | | | 7.5 | 7.47 | 7.42 | 7.37 | 7.35 | 7.35 | 7.36 | 7.38 | 7.42 | 7.55 | |
| 50 | | | | 8.45 | 8.39 | 8.32 | 8.27 | 8.25 | 8.24 | 8.25 | 8.27 | 8.35 | |
| 55 | | | | | 9.5 | 9.41 | 9.33 | 9.31 | 9.27 | 9.26 | 9.25 | 9.29 | |
| 60 | | | | | | 10.67 | 10.56 | 10.52 | 10.5 | 10.4 | 10.4 | 10.4 | |
| 65 | | | | | | | 11.96 | 11.91 | 11.8 | 11.8 | 11.7 | 11.7 | |

R410A - ZP137KCE-TFD

| Capacity kW | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|----|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| | | 25 | 12.36 | 15.51 | 19.08 | 23.19 | 27.99 | 33.61 | 40.19 | 43.12 | 47.9 | | |
| 30 | 11.3 | 14.46 | 17.96 | 21.92 | 26.48 | 31.78 | 37.95 | 40.69 | 45.1 | 49.1 | 53.4 | | |
| 35 | 10.07 | 13.29 | 16.76 | 20.6 | 24.96 | 29.97 | 35.77 | 38.34 | 42.5 | 46.2 | 50.3 | 59.2 | |
| 40 | | 11.94 | 15.41 | 19.18 | 23.37 | 28.13 | 33.59 | 36 | 39.9 | 43.4 | 47.2 | 55.5 | |
| 45 | | | 13.88 | 17.59 | 21.66 | 26.2 | 31.36 | 33.63 | 37.3 | 40.5 | 44.1 | 51.9 | |
| 50 | | | | 15.79 | 19.76 | 24.12 | 29.01 | 31.14 | 34.6 | 37.6 | 40.9 | 48.2 | |
| 55 | | | | | 17.62 | 21.82 | 26.47 | 28.48 | 31.7 | 34.6 | 37.6 | 44.4 | |
| 60 | | | | | | 19.22 | 23.64 | 25.54 | 28.5 | 31.2 | 34.1 | 40.3 | |
| 65 | | | | | | | 20.4 | 22.17 | 25 | 27.5 | 30.1 | 35.8 | |

| Power Input kW | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|-------|-------|-------|-------|------|------|------|------|----|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| | | 25 | 5.16 | 5.19 | 5.21 | 5.23 | 5.26 | 5.31 | 5.38 | 5.43 | 5.5 | | |
| 30 | 5.81 | 5.84 | 5.86 | 5.86 | 5.88 | 5.9 | 5.95 | 5.98 | 6.04 | 6.1 | 6.18 | | |
| 35 | 6.52 | 6.55 | 6.57 | 6.57 | 6.57 | 6.58 | 6.61 | 6.63 | 6.67 | 6.72 | 6.77 | 6.93 | |
| 40 | | 7.34 | 7.36 | 7.36 | 7.35 | 7.35 | 7.36 | 7.38 | 7.4 | 7.44 | 7.48 | 7.6 | |
| 45 | | | 8.23 | 8.24 | 8.23 | 8.22 | 8.22 | 8.23 | 8.25 | 8.27 | 8.3 | 8.4 | |
| 50 | | | | 9.22 | 9.22 | 9.21 | 9.21 | 9.21 | 9.22 | 9.23 | 9.25 | 9.33 | |
| 55 | | | | | 10.33 | 10.32 | 10.32 | 10.32 | 10.3 | 10.3 | 10.4 | 10.4 | |
| 60 | | | | | | 11.58 | 11.57 | 11.57 | 11.6 | 11.6 | 11.6 | 11.6 | |
| 65 | | | | | | | 12.98 | 12.98 | 13 | 13 | 13 | 13 | |



R410A - ZP154KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 14.07 | 17.65 | 21.67 | 26.27 | 31.6 | | | | | | | |
| | 30 | 12.95 | 16.55 | 20.51 | 24.98 | 30.1 | 36 | 42.85 | 45.88 | | | | |
| | 35 | 11.74 | 15.36 | 19.27 | 23.6 | 28.51 | 34.13 | 40.61 | 43.47 | 48.1 | 52.3 | 56.7 | 66.6 |
| | 40 | | 14.07 | 17.92 | 22.12 | 26.82 | 32.15 | 38.26 | 40.96 | 45.3 | 49.2 | 53.4 | 62.7 |
| | 45 | | | 16.43 | 20.5 | 24.99 | 30.04 | 35.78 | 38.31 | 42.4 | 46 | 49.9 | 58.6 |
| | 50 | | | | 18.72 | 22.99 | 27.75 | 33.13 | 35.48 | 39.3 | 42.7 | 46.3 | 54.4 |
| | 55 | | | | | 20.79 | 25.25 | 30.25 | 32.44 | 35.9 | 39.1 | 42.4 | 49.9 |
| | 60 | | | | | 18.33 | 22.48 | 27.09 | 29.1 | 32.3 | 35.2 | 38.2 | 45 |
| | 65 | | | | | | 19.33 | 23.52 | 25.33 | 28.2 | 30.8 | 33.6 | 39.7 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 5.74 | 5.79 | 5.86 | 5.95 | 6.08 | | | | | | | |
| | 30 | 6.45 | 6.48 | 6.54 | 6.62 | 6.73 | 6.86 | 7.01 | 7.08 | | | | |
| | 35 | 7.22 | 7.26 | 7.31 | 7.38 | 7.46 | 7.57 | 7.7 | 7.76 | 7.86 | 7.95 | 8.04 | 8.24 |
| | 40 | | 8.12 | 8.16 | 8.22 | 8.3 | 8.39 | 8.51 | 8.55 | 8.64 | 8.71 | 8.79 | 8.96 |
| | 45 | | | 9.12 | 9.18 | 9.25 | 9.33 | 9.43 | 9.47 | 9.54 | 9.6 | 9.66 | 9.8 |
| | 50 | | | | 10.25 | 10.32 | 10.39 | 10.48 | 10.51 | 10.6 | 10.6 | 10.7 | 10.8 |
| | 55 | | | | | 11.52 | 11.59 | 11.67 | 11.7 | 11.8 | 11.8 | 11.8 | 11.9 |
| | 60 | | | | | 12.87 | 12.94 | 13.01 | 13.04 | 13.1 | 13.1 | 13.2 | 13.3 |
| | 65 | | | | | | 14.45 | 14.52 | 14.55 | 14.6 | 14.6 | 14.7 | 14.7 |

R410A - ZP182KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 16.44 | 20.68 | 25.41 | 30.83 | 37.12 | 44.49 | 53.12 | 56.97 | 63.2 | | | |
| | 30 | 15.18 | 19.41 | 24.04 | 29.26 | 35.26 | 42.23 | 50.37 | 53.99 | 59.9 | 65.2 | 70.9 | |
| | 35 | 13.84 | 18.08 | 22.63 | 27.67 | 33.39 | 39.99 | 47.64 | 51.04 | 56.6 | 61.5 | 66.9 | 78.9 |
| | 40 | | 16.64 | 21.12 | 26 | 31.46 | 37.69 | 44.88 | 48.07 | 53.2 | 57.9 | 62.9 | 74.1 |
| | 45 | | | 19.46 | 24.18 | 29.39 | 35.28 | 42.03 | 45.01 | 49.8 | 54.2 | 58.9 | 69.3 |
| | 50 | | | | 22.16 | 27.14 | 32.69 | 39 | 41.78 | 46.3 | 50.3 | 54.7 | 64.4 |
| | 55 | | | | | 24.62 | 29.85 | 35.73 | 38.31 | 42.5 | 46.2 | 50.2 | 59.2 |
| | 60 | | | | | 21.77 | 26.66 | 32.11 | 34.48 | 38.3 | 41.7 | 45.4 | 53.6 |
| | 65 | | | | | | 22.97 | 27.96 | 30.12 | 33.6 | 36.7 | 40 | 47.4 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 6.84 | 6.93 | 7.03 | 7.13 | 7.23 | 7.32 | 7.39 | 7.41 | 7.43 | | | |
| | 30 | 7.6 | 7.69 | 7.8 | 7.91 | 8.02 | 8.13 | 8.23 | 8.27 | 8.31 | 8.34 | 8.37 | |
| | 35 | 8.46 | 8.54 | 8.64 | 8.75 | 8.87 | 8.99 | 9.1 | 9.15 | 9.21 | 9.25 | 9.29 | 9.35 |
| | 40 | | 9.51 | 9.59 | 9.69 | 9.8 | 9.92 | 10.04 | 10.09 | 10.2 | 10.2 | 10.3 | 10.4 |
| | 45 | | | 10.68 | 10.76 | 10.85 | 10.96 | 11.08 | 11.12 | 11.2 | 11.3 | 11.3 | 11.4 |
| | 50 | | | | 11.99 | 12.06 | 12.15 | 12.25 | 12.29 | 12.4 | 12.4 | 12.5 | 12.6 |
| | 55 | | | | | 13.46 | 13.51 | 13.58 | 13.62 | 13.7 | 13.7 | 13.8 | 13.9 |
| | 60 | | | | | 15.08 | 15.09 | 15.12 | 15.14 | 15.2 | 15.2 | 15.2 | 15.3 |
| | 65 | | | | | | 16.92 | 16.9 | 16.9 | 16.9 | 16.9 | 16.9 | 17 |

16.3 Performance data sheet with R134a

Conditions: Suction superheat: 10K; Liquid subcooling: 0K; Power supply: 380/420V – 3~ – 50 Hz

R134a - ZR94KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|----------------|----------------|----------------------------|------|-------|-------|-------|-------|-------|------|-------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Capacity kW | 21 | 7.88 | 9.88 | 12.25 | 14.95 | 18.1 | 19.45 | | | |
| | 25 | 7.54 | 9.48 | 11.75 | 14.45 | 17.5 | 18.85 | 21 | | |
| | 30 | 7.12 | 8.99 | 11.2 | 13.75 | 16.75 | 18.05 | 20.1 | 22 | |
| | 35 | 6.7 | 8.49 | 10.6 | 13.1 | 15.95 | 17.2 | 19.2 | 21 | 22.9 |
| | 40 | 6.28 | 7.99 | 10 | 12.4 | 15.15 | 16.35 | 18.3 | 20 | 21.9 |
| | 45 | 5.87 | 7.48 | 9.4 | 11.65 | 14.3 | 15.45 | 17.3 | 19 | 20.8 |
| | 50 | | 6.97 | 8.78 | 10.95 | 13.45 | 14.55 | 16.3 | 17.9 | 19.65 |
| | 55 | | 6.45 | 8.15 | 10.2 | 12.55 | 13.6 | 15.3 | 16.8 | 18.45 |
| | 60 | | | 7.51 | 9.4 | 11.65 | 12.65 | 14.25 | 15.7 | 17.25 |
| | 65 | | | 6.86 | 8.62 | 10.7 | 11.65 | 13.15 | 14.5 | 16 |
| | 70 | | | | 7.81 | 9.75 | 10.6 | 12.05 | 13.3 | 14.7 |
| 74.1 | | | | 7.14 | 8.94 | 9.76 | 11.1 | 12.3 | 13.6 | |
| Power Input kW | 21 | 2.18 | 2.21 | 2.27 | 2.36 | 2.45 | 2.48 | | | |
| | 25 | 2.4 | 2.42 | 2.48 | 2.55 | 2.63 | 2.65 | 2.68 | | |
| | 30 | 2.69 | 2.71 | 2.76 | 2.82 | 2.88 | 2.9 | 2.91 | 2.91 | |
| | 35 | 3.01 | 3.03 | 3.07 | 3.13 | 3.18 | 3.19 | 3.19 | 3.18 | 3.15 |
| | 40 | 3.36 | 3.37 | 3.42 | 3.47 | 3.51 | 3.52 | 3.52 | 3.5 | 3.46 |
| | 45 | 3.72 | 3.75 | 3.8 | 3.85 | 3.89 | 3.89 | 3.88 | 3.86 | 3.82 |
| | 50 | | 4.15 | 4.21 | 4.27 | 4.3 | 4.31 | 4.29 | 4.27 | 4.22 |
| | 55 | | 4.59 | 4.66 | 4.72 | 4.76 | 4.76 | 4.75 | 4.72 | 4.67 |
| | 60 | | | 5.13 | 5.21 | 5.25 | 5.26 | 5.25 | 5.22 | 5.17 |
| | 65 | | | 5.64 | 5.73 | 5.79 | 5.79 | 5.79 | 5.76 | 5.71 |
| | 70 | | | | 6.28 | 6.36 | 6.37 | 6.37 | 6.35 | 6.3 |
| 74.1 | | | | 6.77 | 6.85 | 6.87 | 6.88 | 6.86 | 6.82 | |

R134a - ZR108KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|----------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Capacity kW | 21 | 8.97 | 11.25 | 13.9 | 17.05 | 20.6 | 22.2 | | | |
| | 25 | 8.61 | 10.8 | 13.4 | 16.5 | 20 | 21.5 | 24 | | |
| | 30 | 8.15 | 10.25 | 12.8 | 15.75 | 19.15 | 20.6 | 23 | 25.1 | |
| | 35 | 7.68 | 9.7 | 12.15 | 14.95 | 18.25 | 19.7 | 22 | 24 | 26.2 |
| | 40 | 7.21 | 9.13 | 11.45 | 14.2 | 17.35 | 18.7 | 20.9 | 22.9 | 25 |
| | 45 | 6.73 | 8.55 | 10.75 | 13.35 | 16.35 | 17.7 | 19.8 | 21.7 | 23.7 |
| | 50 | | 7.96 | 10.05 | 12.5 | 15.4 | 16.65 | 18.7 | 20.5 | 22.4 |
| | 55 | | 7.37 | 9.31 | 11.65 | 14.35 | 15.55 | 17.5 | 19.25 | 21.1 |
| | 60 | | | 8.57 | 10.75 | 13.3 | 14.45 | 16.3 | 17.9 | 19.7 |
| | 65 | | | 7.83 | 9.84 | 12.25 | 13.3 | 15.05 | 16.6 | 18.25 |
| | 70 | | | | 8.93 | 11.15 | 12.15 | 13.75 | 15.2 | 16.75 |
| 74.1 | | | | 8.17 | 10.25 | 11.15 | 12.7 | 14.05 | 15.55 | |
| Power Input kW | 21 | 2.44 | 2.46 | 2.54 | 2.63 | 2.74 | 2.78 | | | |
| | 25 | 2.68 | 2.7 | 2.76 | 2.84 | 2.93 | 2.96 | 2.99 | | |
| | 30 | 3 | 3.02 | 3.08 | 3.15 | 3.21 | 3.23 | 3.25 | 3.26 | |
| | 35 | 3.36 | 3.38 | 3.43 | 3.49 | 3.54 | 3.55 | 3.56 | 3.55 | 3.53 |
| | 40 | 3.74 | 3.77 | 3.82 | 3.88 | 3.92 | 3.93 | 3.92 | 3.91 | 3.87 |
| | 45 | 4.15 | 4.19 | 4.25 | 4.3 | 4.34 | 4.34 | 4.34 | 4.31 | 4.27 |
| | 50 | | 4.64 | 4.71 | 4.77 | 4.81 | 4.81 | 4.8 | 4.77 | 4.72 |
| | 55 | | 5.12 | 5.21 | 5.28 | 5.32 | 5.32 | 5.31 | 5.28 | 5.22 |
| | 60 | | | 5.74 | 5.83 | 5.87 | 5.88 | 5.87 | 5.83 | 5.78 |
| | 65 | | | 6.3 | 6.41 | 6.47 | 6.48 | 6.47 | 6.44 | 6.39 |
| | 70 | | | | 7.03 | 7.11 | 7.13 | 7.12 | 7.1 | 7.05 |
| 74.1 | | | | 7.56 | 7.66 | 7.69 | 7.69 | 7.67 | 7.63 | |



R134a - ZR125KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Capacity kW | 21 | 10.3 | 12.9 | 16 | 19.6 | 23.7 | 25.5 | | | |
| | 25 | 9.86 | 12.4 | 15.45 | 18.95 | 22.9 | 24.7 | 27.5 | | |
| | 30 | 9.33 | 11.8 | 14.7 | 18.1 | 22 | 23.7 | 26.4 | 28.8 | |
| | 35 | 8.79 | 11.1 | 13.9 | 17.2 | 20.9 | 22.6 | 25.2 | 27.5 | 30 |
| | 40 | 8.25 | 10.45 | 13.1 | 16.25 | 19.85 | 21.5 | 24 | 26.2 | 28.6 |
| | 45 | 7.72 | 9.79 | 12.3 | 15.3 | 18.75 | 20.3 | 22.7 | 24.9 | 27.2 |
| | 50 | | 9.12 | 11.5 | 14.3 | 17.6 | 19.05 | 21.4 | 23.5 | 25.7 |
| | 55 | | 8.45 | 10.65 | 13.3 | 16.4 | 17.8 | 20 | 22 | 24.1 |
| | 60 | | | 9.81 | 12.3 | 15.2 | 16.5 | 18.65 | 20.5 | 22.5 |
| | 65 | | | 8.97 | 11.25 | 14 | 15.2 | 17.2 | 19 | 20.9 |
| | 70 | | | | 10.2 | 12.75 | 13.9 | 15.75 | 17.4 | 19.2 |
| 74.1 | | | | 9.36 | 11.7 | 12.75 | 14.5 | 16.1 | 17.8 | |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Power Input kW | 21 | 2.85 | 2.89 | 2.98 | 3.09 | 3.2 | 3.24 | | | |
| | 25 | 3.13 | 3.16 | 3.24 | 3.34 | 3.43 | 3.46 | 3.49 | | |
| | 30 | 3.52 | 3.54 | 3.61 | 3.7 | 3.77 | 3.79 | 3.8 | 3.79 | |
| | 35 | 3.94 | 3.96 | 4.02 | 4.1 | 4.15 | 4.16 | 4.16 | 4.14 | 4.1 |
| | 40 | 4.39 | 4.42 | 4.48 | 4.54 | 4.59 | 4.6 | 4.59 | 4.56 | 4.51 |
| | 45 | 4.87 | 4.9 | 4.97 | 5.04 | 5.08 | 5.08 | 5.06 | 5.03 | 4.97 |
| | 50 | | 5.43 | 5.5 | 5.57 | 5.62 | 5.62 | 5.6 | 5.56 | 5.5 |
| | 55 | | 5.99 | 6.08 | 6.16 | 6.2 | 6.21 | 6.19 | 6.15 | 6.08 |
| | 60 | | | 6.69 | 6.79 | 6.84 | 6.85 | 6.83 | 6.8 | 6.73 |
| | 65 | | | 7.35 | 7.46 | 7.54 | 7.55 | 7.54 | 7.5 | 7.44 |
| | 70 | | | | 8.18 | 8.28 | 8.29 | 8.29 | 8.27 | 8.21 |
| 74.1 | | | | 8.81 | 8.92 | 8.95 | 8.96 | 8.93 | 8.88 | |

R134a - ZR144KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Capacity kW | 21 | 13.3 | 16.15 | 19.45 | 23.2 | 27.3 | 29 | | | |
| | 25 | 13 | 15.8 | 19.05 | 22.7 | 26.8 | 28.4 | 31 | | |
| | 30 | 12.5 | 15.15 | 18.35 | 22 | 25.9 | 27.6 | 30.2 | 32.3 | |
| | 35 | 11.85 | 14.4 | 17.5 | 21 | 24.9 | 26.5 | 29.1 | 31.2 | 33.4 |
| | 40 | 11.05 | 13.55 | 16.5 | 19.95 | 23.7 | 25.3 | 27.8 | 29.9 | 30.5 |
| | 45 | 10.2 | 12.55 | 15.4 | 18.7 | 22.4 | 23.9 | 26.4 | 28.4 | 32 |
| | 50 | | 11.5 | 14.2 | 17.4 | 20.9 | 22.5 | 24.8 | 26.8 | 28.8 |
| | 55 | | 10.4 | 13 | 16 | 19.4 | 20.9 | 23.1 | 25.1 | 27 |
| | 60 | | | 11.7 | 14.55 | 17.8 | 19.2 | 21.4 | 23.2 | 25.1 |
| | 65 | | | 10.4 | 13.1 | 16.15 | 17.5 | 19.55 | 21.3 | 23.2 |
| | 70 | | | | 11.65 | 14.5 | 15.75 | 17.7 | 19.4 | 21.2 |
| 74.1 | | | | 10.45 | 13.15 | 14.35 | 16.2 | 17.8 | 19.5 | |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Power Input kW | 21 | 3.12 | 3.17 | 3.28 | 3.51 | 3.93 | 4.17 | | | |
| | 25 | 3.36 | 3.41 | 3.48 | 3.64 | 3.96 | 4.15 | 4.51 | | |
| | 30 | 3.75 | 3.81 | 3.86 | 3.96 | 4.17 | 4.31 | 4.57 | 4.86 | |
| | 35 | 4.21 | 4.31 | 4.36 | 4.41 | 4.54 | 4.63 | 4.81 | 5.02 | 5.29 |
| | 40 | 4.73 | 4.88 | 4.94 | 4.97 | 5.03 | 5.08 | 5.2 | 5.34 | 5.54 |
| | 45 | 5.26 | 5.5 | 5.59 | 5.62 | 5.63 | 5.65 | 5.71 | 5.8 | 5.92 |
| | 50 | | 6.13 | 6.28 | 6.32 | 6.31 | 6.31 | 6.33 | 6.36 | 6.43 |
| | 55 | | 6.74 | 6.97 | 7.05 | 7.04 | 7.02 | 7.01 | 7.01 | 7.02 |
| | 60 | | | 7.65 | 7.78 | 7.79 | 7.77 | 7.73 | 7.7 | 7.68 |
| | 65 | | | 8.29 | 8.5 | 8.54 | 8.52 | 8.48 | 8.43 | 8.38 |
| | 70 | | | | 9.16 | 9.25 | 9.25 | 9.21 | 9.16 | 9.09 |
| 74.1 | | | | 9.64 | 9.8 | 9.81 | 9.79 | 9.73 | 9.66 | |

R134a - ZR160KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|------|-------|------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Capacity kW | 21 | 14.45 | 17.55 | 21.1 | 25.2 | 29.9 | 32 | | | |
| | 25 | 13.9 | 17 | 20.5 | 24.5 | 29 | 31 | 34.2 | | |
| | 30 | 13.1 | 16.2 | 19.65 | 23.5 | 27.9 | 29.8 | 32.9 | 35.6 | |
| | 35 | 12.15 | 15.3 | 18.75 | 22.5 | 26.7 | 28.6 | 31.5 | 34.1 | 36.9 |
| | 40 | 11 | 14.25 | 17.7 | 21.4 | 25.5 | 27.3 | 30.1 | 32.6 | 35.3 |
| | 45 | 9.59 | 12.95 | 16.45 | 20.2 | 24.2 | 26 | 28.7 | 31.1 | 33.6 |
| | 50 | | 11.45 | 15.05 | 18.8 | 22.8 | 24.5 | 27.1 | 29.4 | 31.9 |
| | 55 | | 9.65 | 13.35 | 17.15 | 21.2 | 22.8 | 25.4 | 27.7 | 30.1 |
| | 60 | | | 11.4 | 15.3 | 19.3 | 21 | 23.5 | 25.8 | 28.1 |
| | 65 | | | 9.15 | 13.15 | 17.2 | 18.9 | 21.4 | 23.6 | 25.9 |
| | 70 | | | | 10.7 | 14.85 | 16.5 | 19.05 | 21.2 | 23.5 |
| 74.1 | | | | 8.45 | 12.65 | 14.35 | 16.9 | 19.1 | 21.3 | |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|----------------|----------------|----------------------------|------|-------|-------|------|-------|-------|------|-------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Power Input kW | 21 | 3.63 | 3.66 | 3.63 | 3.5 | 3.25 | 3.1 | | | |
| | 25 | 3.95 | 4.02 | 4.05 | 4 | 3.85 | 3.76 | 3.57 | | |
| | 30 | 4.35 | 4.45 | 4.52 | 4.56 | 4.51 | 4.46 | 4.35 | 4.22 | |
| | 35 | 4.81 | 4.89 | 4.99 | 5.07 | 5.1 | 5.09 | 5.04 | 4.98 | 4.88 |
| | 40 | 5.35 | 5.4 | 5.49 | 5.59 | 5.67 | 5.68 | 5.68 | 5.66 | 5.61 |
| | 45 | 6.03 | 6.02 | 6.07 | 6.16 | 6.25 | 6.28 | 6.31 | 6.32 | 6.31 |
| | 50 | | 6.78 | 6.77 | 6.82 | 6.9 | 6.93 | 6.97 | 7 | 7.02 |
| | 55 | | 7.74 | 7.64 | 7.62 | 7.66 | 7.68 | 7.72 | 7.75 | 7.77 |
| | 60 | | | 8.71 | 8.6 | 8.56 | 8.57 | 8.58 | 8.6 | 8.62 |
| | 65 | | | 10.05 | 9.8 | 9.67 | 9.64 | 9.61 | 9.6 | 9.6 |
| | 70 | | | | 11.25 | 11 | 10.95 | 10.85 | 10.8 | 10.75 |
| 74.1 | | | | 12.7 | 12.3 | 12.2 | 12.05 | 11.95 | 11.9 | |

R134a - ZR190KCE-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|------|------|------|------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Capacity kW | 21 | 17.35 | 21.1 | 25.5 | 30.4 | 36 | 38.5 | | | |
| | 25 | 16.55 | 20.3 | 24.6 | 29.4 | 34.9 | 37.3 | 41.1 | | |
| | 30 | 15.5 | 19.25 | 23.4 | 28.1 | 33.5 | 35.8 | 39.5 | 42.9 | |
| | 35 | 14.45 | 18.15 | 22.2 | 26.8 | 32 | 34.3 | 37.9 | 41.1 | 44.6 |
| | 40 | 13.25 | 16.95 | 21 | 25.5 | 30.5 | 32.7 | 36.2 | 39.4 | 42.7 |
| | 45 | 11.9 | 15.6 | 19.6 | 24 | 28.9 | 31.1 | 34.5 | 37.5 | 40.7 |
| | 50 | | 14.05 | 18.05 | 22.4 | 27.2 | 29.3 | 32.6 | 35.5 | 38.6 |
| | 55 | | 12.35 | 16.25 | 20.5 | 25.3 | 27.3 | 30.5 | 33.3 | 36.4 |
| | 60 | | | 14.25 | 18.45 | 23.1 | 25.1 | 28.2 | 31 | 33.9 |
| | 65 | | | 12 | 16.15 | 20.7 | 22.6 | 25.6 | 28.3 | 31.1 |
| | 70 | | | | 13.5 | 17.9 | 19.8 | 22.8 | 25.4 | 28.1 |
| 74.1 | | | | 11.1 | 15.45 | 17.3 | 20.2 | 22.7 | 25.4 | |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | |
|----------------|----------------|----------------------------|------|-------|------|------|-------|-------|-------|------|
| | | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 |
| Power Input kW | 21 | 4.35 | 4.46 | 4.57 | 4.68 | 4.79 | 4.84 | | | |
| | 25 | 4.73 | 4.84 | 4.94 | 5.05 | 5.16 | 5.2 | 5.26 | | |
| | 30 | 5.26 | 5.36 | 5.45 | 5.55 | 5.65 | 5.69 | 5.76 | 5.81 | |
| | 35 | 5.85 | 5.94 | 6.03 | 6.12 | 6.21 | 6.25 | 6.3 | 6.35 | 6.4 |
| | 40 | 6.53 | 6.6 | 6.68 | 6.76 | 6.84 | 6.87 | 6.93 | 6.97 | 7.01 |
| | 45 | 7.29 | 7.35 | 7.41 | 7.48 | 7.55 | 7.58 | 7.63 | 7.67 | 7.7 |
| | 50 | | 8.2 | 8.25 | 8.31 | 8.36 | 8.39 | 8.42 | 8.46 | 8.49 |
| | 55 | | 9.17 | 9.2 | 9.24 | 9.28 | 9.3 | 9.33 | 9.35 | 9.38 |
| | 60 | | | 10.25 | 10.3 | 10.3 | 10.35 | 10.35 | 10.35 | 10.4 |
| | 65 | | | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 |
| | 70 | | | | 12.8 | 12.8 | 12.8 | 12.8 | 12.8 | 12.8 |
| 74.1 | | | | 14.05 | 14 | 14 | 13.95 | 13.95 | 13.95 | |



16.4 Performance data sheet with R22

Conditions: Suction superheat: 10K; Liquid subcooling: 0K; Power supply: 380/420V – 3~ – 50 Hz

R22 - ZR94KC-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 7.42 | 9.77 | 12.4 | 15.35 | 18.7 | 22.5 | 26.8 | 28.7 | 31.7 | | | |
| | 30 | 6.75 | 9.08 | 11.65 | 14.55 | 17.85 | 21.5 | 25.7 | 27.5 | 30.5 | 33 | 35.8 | |
| | 35 | 6.05 | 8.37 | 10.95 | 13.8 | 17 | 20.6 | 24.6 | 26.4 | 29.2 | 31.8 | 34.4 | 40.2 |
| | 40 | | 7.62 | 10.15 | 12.95 | 16.1 | 19.6 | 23.5 | 25.3 | 28 | 30.4 | 33 | 38.7 |
| | 45 | | | 9.3 | 12.05 | 15.1 | 18.55 | 22.4 | 24 | 26.7 | 29.1 | 31.6 | 37 |
| | 50 | | | | 11.05 | 14.05 | 17.35 | 21.1 | 22.7 | 25.3 | 27.6 | 30 | 35.3 |
| | 55 | | | | | 12.85 | 16.1 | 19.7 | 21.3 | 23.8 | 26 | 28.3 | 33.4 |
| | 60 | | | | | | 14.65 | 18.2 | 19.7 | 22.1 | 24.2 | 26.5 | 31.4 |
| | 65 | | | | | | | 16.45 | 17.95 | 20.3 | 22.3 | 24.5 | 29.2 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 3.4 | 3.44 | 3.46 | 3.48 | 3.51 | 3.57 | 3.66 | 3.72 | 3.81 | | | |
| | 30 | 3.81 | 3.86 | 3.88 | 3.9 | 3.92 | 3.97 | 4.05 | 4.1 | 4.18 | 4.28 | 4.38 | |
| | 35 | 4.28 | 4.32 | 4.35 | 4.36 | 4.38 | 4.41 | 4.48 | 4.52 | 4.59 | 4.67 | 4.77 | 5.03 |
| | 40 | | 4.85 | 4.87 | 4.88 | 4.88 | 4.91 | 4.96 | 4.99 | 5.05 | 5.12 | 5.21 | 5.44 |
| | 45 | | | 5.46 | 5.46 | 5.46 | 5.47 | 5.5 | 5.52 | 5.57 | 5.63 | 5.7 | 5.9 |
| | 50 | | | | 6.13 | 6.11 | 6.1 | 6.12 | 6.13 | 6.17 | 6.21 | 6.27 | 6.44 |
| | 55 | | | | | 6.86 | 6.83 | 6.82 | 6.83 | 6.85 | 6.88 | 6.93 | 7.07 |
| | 60 | | | | | | 7.66 | 7.63 | 7.63 | 7.63 | 7.65 | 7.68 | 7.79 |
| | 65 | | | | | | | 8.55 | 8.54 | 8.53 | 8.53 | 8.54 | 8.62 |

R22 - ZR108KC-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 9.06 | 11.45 | 14.2 | 17.4 | 21.1 | 25.3 | 30.1 | 32.1 | 35.4 | | | |
| | 30 | 8.59 | 10.9 | 13.55 | 16.65 | 20.2 | 24.3 | 28.9 | 30.9 | 34.1 | 36.9 | 39.9 | |
| | 35 | 8.08 | 10.3 | 12.9 | 15.9 | 19.35 | 23.3 | 27.7 | 29.7 | 32.7 | 35.5 | 38.4 | 44.6 |
| | 40 | | 9.72 | 12.25 | 15.15 | 18.45 | 22.2 | 26.5 | 28.4 | 31.3 | 34 | 36.8 | 42.8 |
| | 45 | | | 11.5 | 14.3 | 17.5 | 21.1 | 25.2 | 27 | 29.9 | 32.4 | 35.1 | 40.9 |
| | 50 | | | | 13.4 | 16.45 | 19.95 | 23.9 | 25.6 | 28.4 | 30.8 | 33.4 | 39 |
| | 55 | | | | | 15.35 | 18.7 | 22.5 | 24.2 | 26.8 | 29.1 | 31.6 | 36.9 |
| | 60 | | | | | | 17.35 | 21 | 22.6 | 25.1 | 27.3 | 29.7 | 34.8 |
| | 65 | | | | | | | 19.35 | 20.9 | 23.3 | 25.4 | 27.7 | 32.6 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 3.62 | 3.7 | 3.77 | 3.82 | 3.88 | 3.96 | 4.07 | 4.13 | 4.23 | | | |
| | 30 | 4.07 | 4.16 | 4.24 | 4.3 | 4.36 | 4.43 | 4.54 | 4.6 | 4.7 | 4.8 | 4.91 | |
| | 35 | 4.56 | 4.66 | 4.74 | 4.8 | 4.86 | 4.93 | 5.03 | 5.08 | 5.17 | 5.26 | 5.37 | 5.64 |
| | 40 | | 5.22 | 5.3 | 5.36 | 5.41 | 5.47 | 5.56 | 5.6 | 5.68 | 5.76 | 5.86 | 6.1 |
| | 45 | | | 5.94 | 5.99 | 6.03 | 6.08 | 6.14 | 6.18 | 6.25 | 6.32 | 6.4 | 6.62 |
| | 50 | | | | 6.72 | 6.74 | 6.77 | 6.82 | 6.84 | 6.9 | 6.95 | 7.02 | 7.21 |
| | 55 | | | | | 7.58 | 7.58 | 7.6 | 7.62 | 7.65 | 7.69 | 7.74 | 7.89 |
| | 60 | | | | | | 8.53 | 8.52 | 8.52 | 8.53 | 8.55 | 8.58 | 8.69 |
| | 65 | | | | | | | 9.59 | 9.58 | 9.56 | 9.57 | 9.58 | 9.64 |

R22 - ZR125KC-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|------|-------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 10.8 | 13.55 | 16.9 | 20.8 | 25.2 | 30.2 | 35.7 | 38 | 41.7 | | | |
| | 30 | 10.25 | 12.85 | 16 | 19.7 | 24 | 28.8 | 34.1 | 36.4 | 40 | 43.1 | 46.3 | |
| | 35 | 9.75 | 12.2 | 15.2 | 18.7 | 22.8 | 27.4 | 32.6 | 34.8 | 38.3 | 41.3 | 44.5 | 51.2 |
| | 40 | | 11.55 | 14.4 | 17.8 | 21.7 | 26.2 | 31.1 | 33.3 | 36.6 | 39.6 | 42.7 | 49.2 |
| | 45 | | | 13.6 | 16.85 | 20.6 | 24.9 | 29.7 | 31.7 | 35 | 37.8 | 40.8 | 47.2 |
| | 50 | | | | 15.8 | 19.4 | 23.5 | 28.1 | 30.1 | 33.3 | 36 | 38.9 | 45.1 |
| | 55 | | | | | 18.1 | 22 | 26.5 | 28.4 | 31.4 | 34.1 | 36.9 | 42.9 |
| | 60 | | | | | | 20.4 | 24.7 | 26.5 | 29.5 | 32 | 34.7 | 40.5 |
| | 65 | | | | | | | 22.7 | 24.4 | 27.2 | 29.7 | 32.3 | 37.9 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 4.17 | 4.29 | 4.38 | 4.45 | 4.52 | 4.61 | 4.73 | 4.8 | 4.91 | | | |
| | 30 | 4.7 | 4.83 | 4.93 | 5.01 | 5.08 | 5.17 | 5.28 | 5.34 | 5.44 | 5.53 | 5.65 | |
| | 35 | 5.29 | 5.43 | 5.54 | 5.62 | 5.69 | 5.77 | 5.87 | 5.92 | 6.01 | 6.1 | 6.2 | 6.46 |
| | 40 | | 6.11 | 6.22 | 6.31 | 6.37 | 6.44 | 6.53 | 6.57 | 6.65 | 6.73 | 6.82 | 7.05 |
| | 45 | | | 6.99 | 7.08 | 7.14 | 7.2 | 7.27 | 7.31 | 7.37 | 7.44 | 7.52 | 7.72 |
| | 50 | | | | 7.96 | 8.02 | 8.07 | 8.12 | 8.15 | 8.2 | 8.25 | 8.31 | 8.48 |
| | 55 | | | | | 9.02 | 9.05 | 9.09 | 9.11 | 9.15 | 9.19 | 9.23 | 9.37 |
| | 60 | | | | | | 10.2 | 10.2 | 10.2 | 10.3 | 10.3 | 10.3 | 10.4 |
| | 65 | | | | | | | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | 11.6 |

R22 - ZR144KC-TFD

| | Cond. Temp. °C | Evaporating temperature | | | | | | | | | | | |
|-------------|----------------|-------------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 12.45 | 15.6 | 19.4 | 23.8 | 28.8 | | | | | | | |
| | 30 | 11.85 | 14.85 | 18.5 | 22.8 | 27.6 | 33 | 38.9 | 41.4 | | | | |
| | 35 | 11.2 | 14 | 17.5 | 21.6 | 26.3 | 31.6 | 37.4 | 39.9 | 43.7 | 47 | 50.4 | 57.6 |
| | 40 | | 13.2 | 16.45 | 20.4 | 25 | 30.1 | 35.8 | 38.2 | 42 | 45.2 | 48.6 | 55.7 |
| | 45 | | | 15.4 | 19.15 | 23.5 | 28.5 | 34 | 36.3 | 40 | 43.2 | 46.5 | 53.5 |
| | 50 | | | | 17.8 | 21.9 | 26.7 | 32 | 34.3 | 37.9 | 41 | 44.3 | 51.1 |
| | 55 | | | | | 20.3 | 24.8 | 29.9 | 32.1 | 35.6 | 38.7 | 41.8 | 48.5 |
| | 60 | | | | | | 22.8 | 27.7 | 29.8 | 33.2 | 36.1 | 39.1 | 45.6 |
| | 65 | | | | | | | 25.3 | 27.3 | 30.5 | 33.3 | 36.3 | 42.5 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|------|------|-------|------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 4.73 | 4.89 | 4.98 | 5.06 | 5.15 | | | | | | | |
| | 30 | 5.31 | 5.49 | 5.61 | 5.68 | 5.76 | 5.89 | 6.09 | 6.2 | | | | |
| | 35 | 5.94 | 6.16 | 6.29 | 6.38 | 6.45 | 6.54 | 6.7 | 6.79 | 6.96 | 7.14 | 7.36 | 7.95 |
| | 40 | | 6.89 | 7.05 | 7.14 | 7.21 | 7.28 | 7.41 | 7.48 | 7.62 | 7.77 | 7.95 | 8.45 |
| | 45 | | | 7.89 | 8 | 8.07 | 8.12 | 8.22 | 8.27 | 8.38 | 8.5 | 8.65 | 9.07 |
| | 50 | | | | 8.96 | 9.03 | 9.08 | 9.14 | 9.18 | 9.26 | 9.36 | 9.48 | 9.82 |
| | 55 | | | | | 10.1 | 10.15 | 10.2 | 10.2 | 10.3 | 10.4 | 10.5 | 10.7 |
| | 60 | | | | | | 11.35 | 11.4 | 11.4 | 11.5 | 11.5 | 11.6 | 11.8 |
| | 65 | | | | | | | 12.7 | 12.75 | 12.8 | 12.8 | 12.8 | 13 |



R22 - ZR160KC-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 13 | 16.9 | 21.1 | 25.8 | 31 | 37 | 43.9 | 46.9 | 51.7 | | | |
| | 30 | 11.45 | 15.55 | 19.9 | 24.6 | 29.8 | 35.6 | 42.2 | 45.1 | 49.7 | 53.9 | 58.3 | |
| | 35 | 9.53 | 13.95 | 18.45 | 23.3 | 28.4 | 34.1 | 40.5 | 43.3 | 47.7 | 51.6 | 55.8 | 65.1 |
| | 40 | | 11.95 | 16.75 | 21.7 | 26.9 | 32.5 | 38.7 | 41.4 | 45.7 | 49.4 | 53.4 | 62.2 |
| | 45 | | | 14.6 | 19.75 | 25 | 30.7 | 36.8 | 39.4 | 43.5 | 47.2 | 51 | 59.3 |
| | 50 | | | | 17.45 | 22.9 | 28.6 | 34.7 | 37.2 | 41.2 | 44.7 | 48.4 | 56.4 |
| | 55 | | | | | 20.4 | 26.2 | 32.2 | 34.8 | 38.7 | 42.1 | 45.7 | 53.4 |
| | 60 | | | | | | 23.4 | 29.5 | 32 | 35.9 | 39.3 | 42.7 | 50.2 |
| | 65 | | | | | | | 26.3 | 28.9 | 32.7 | 36.1 | 39.5 | 46.7 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|-------|-------|-------|-------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 5.65 | 5.74 | 5.85 | 5.96 | 6 | 5.94 | 5.71 | 5.57 | 5.29 | | | |
| | 30 | 6.31 | 6.34 | 6.46 | 6.59 | 6.71 | 6.76 | 6.69 | 6.62 | 6.46 | 6.27 | 6.02 | |
| | 35 | 7.11 | 7.07 | 7.13 | 7.26 | 7.4 | 7.52 | 7.56 | 7.55 | 7.48 | 7.38 | 7.23 | 6.76 |
| | 40 | | 7.96 | 7.94 | 8.01 | 8.15 | 8.29 | 8.4 | 8.43 | 8.43 | 8.4 | 8.33 | 8.04 |
| | 45 | | | 8.94 | 8.93 | 9.01 | 9.14 | 9.27 | 9.32 | 9.36 | 9.38 | 9.36 | 9.22 |
| | 50 | | | | 10.05 | 10.05 | 10.1 | 10.25 | 10.3 | 10.4 | 10.4 | 10.4 | 10.4 |
| | 55 | | | | | 11.35 | 11.3 | 11.35 | 11.4 | 11.5 | 11.5 | 11.6 | 11.6 |
| | 60 | | | | | | 12.75 | 12.7 | 12.7 | 12.8 | 12.8 | 12.8 | 12.8 |
| | 65 | | | | | | | 14.35 | 14.3 | 14.3 | 14.3 | 14.3 | 14.3 |

R22 - ZR190KC-TFD

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|-------------|----------------|----------------------------|-------|-------|------|------|------|------|------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Capacity kW | 25 | 15.1 | 19.8 | 24.9 | 30.6 | 37 | 44.2 | 52.4 | 56 | 61.8 | | | |
| | 30 | 13.5 | 18.3 | 23.4 | 29 | 35.3 | 42.4 | 50.4 | 53.8 | 59.4 | 64.4 | 69.8 | |
| | 35 | 11.8 | 16.65 | 21.8 | 27.4 | 33.6 | 40.5 | 48.3 | 51.6 | 57.1 | 61.9 | 67.1 | 78.4 |
| | 40 | | 14.85 | 20 | 25.6 | 31.7 | 38.5 | 46.1 | 49.4 | 54.6 | 59.3 | 64.3 | 75.3 |
| | 45 | | | 18.05 | 23.6 | 29.6 | 36.3 | 43.7 | 46.9 | 52 | 56.6 | 61.4 | 72 |
| | 50 | | | | 21.3 | 27.3 | 33.9 | 41.1 | 44.2 | 49.2 | 53.6 | 58.3 | 68.6 |
| | 55 | | | | | 24.7 | 31.2 | 38.2 | 41.3 | 46.1 | 50.4 | 55 | 64.9 |
| | 60 | | | | | | 28.1 | 35 | 38 | 42.7 | 46.9 | 51.3 | 60.9 |
| | 65 | | | | | | | 31.4 | 34.3 | 38.9 | 43 | 47.2 | 56.5 |

| | Cond. Temp. °C | Evaporating temperature °C | | | | | | | | | | | |
|----------------|----------------|----------------------------|------|------|-------|-------|-------|-------|-------|------|------|------|------|
| | | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 7 | 10 | 12.5 | 15 | 20 |
| Power Input kW | 25 | 6.72 | 6.86 | 7.01 | 7.16 | 7.31 | 7.47 | 7.63 | 7.69 | 7.79 | | | |
| | 30 | 7.52 | 7.65 | 7.79 | 7.92 | 8.07 | 8.22 | 8.37 | 8.43 | 8.52 | 8.59 | 8.67 | |
| | 35 | 8.43 | 8.55 | 8.66 | 8.79 | 8.92 | 9.05 | 9.19 | 9.25 | 9.33 | 9.4 | 9.47 | 9.62 |
| | 40 | | 9.56 | 9.66 | 9.77 | 9.88 | 10 | 10.1 | 10.15 | 10.3 | 10.3 | 10.4 | 10.5 |
| | 45 | | | 10.8 | 10.9 | 10.95 | 11.05 | 11.2 | 11.2 | 11.3 | 11.4 | 11.4 | 11.5 |
| | 50 | | | | 12.15 | 12.2 | 12.3 | 12.4 | 12.4 | 12.5 | 12.5 | 12.6 | 12.7 |
| | 55 | | | | | 13.6 | 13.65 | 13.75 | 13.75 | 13.8 | 13.9 | 13.9 | 14 |
| | 60 | | | | | | 15.25 | 15.25 | 15.3 | 15.3 | 15.4 | 15.4 | 15.4 |
| | 65 | | | | | | | 17 | 17 | 17 | 17.1 | 17.1 | 17.1 |

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