# UNIT COOLER

## THE PERFECT COMPLEMENT


WWW.TECUMSEH.COM

# Tecumseh UNIT COOLER

Founded in 1934, Tecumseh Products Company has consistently been a global leader of commercial refrigeration technology. Tecumseh offers high quality products which are able to provide the highly valued solutions to our customers. Aside that, our employees located globally design and manufacture innovative refrigeration and air-conditioning products for the people around the world.


## BENEFITS
TO MEET MARKET DEMANDS

### COMPACT

- Tecumseh Unit Cooler's compact design is an added bonus for space-conscious environment without affecting the cooling capacity optimum performance

### WIDE OFFERRING

- Tecumseh Unit Cooler offers a wide range of cooling capacity to ensure the best solution for high temperature & low temperature application.

### EXCELLENCE PERFORMANCE

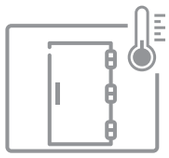
- With excellence heat exchange efficiency & homogeneous air circulation, goods will now be preserved under better conditions.

### EASY INSTALLATION & MAINTENANCE

- Lightweight feature is time efficience, greatly reducing installation time. Removable side panel & hinged drain pan; will ease for servicing & maintenance jobs.

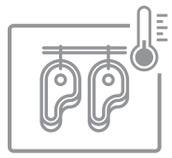
# APPLICATION

Tecumseh unit Coolers are suitable for common applications:



Walk-in Cooler Rooms

Walk-in Freezer Rooms



Food Processing Rooms

Preparation Rooms

# PRODUCT FEATURES

| CAPACITY | CASING | FAN DIAMETER |
|---|---|---|
| High Temp Application 2.4 to 30kW<br>Low Temp Application 2.5 to 57.4kW | Made of Premium Alumium / Stainless Stell | Available fan sizes of 300mm, 400mm & 500mm Wired in an enclosed junction box |

| DEFROSTING HEATER | REFRIGERANT | DRAIN PLUG |
|---|---|---|
| Electrical coils & Drain Pan Heater wired in an enclosed junction box | R-404A / R-22 / R-134A (multiple refrigerant option) | Made from PVC (Light & Durable Material) |

| DRAIN PAN | SIDE PANEL | FIN SPACING |
|---|---|---|
| Hinged Type for easy cleaning | Easy removable type for ease of maintenance | 4mm or 6mm to minimize defrosting cycles |

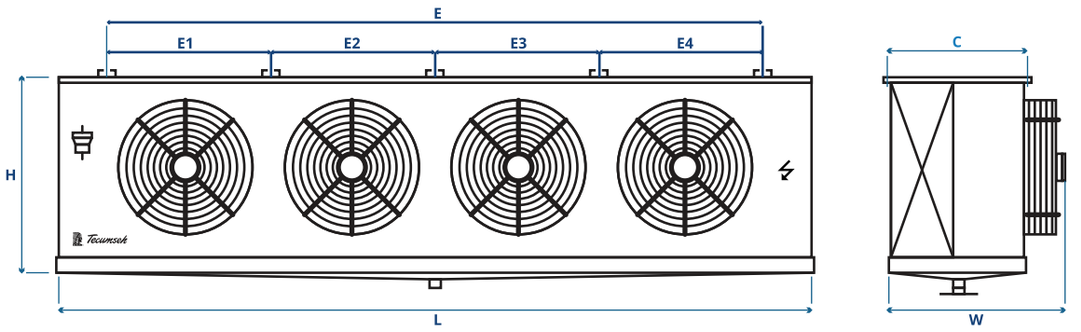
# NOMENCLATURE

| TEM | H | 4.0 | 14 |
|---|---|---|---|
| Tecumseh Unit Cooler | Application | Rated Capacity in kW | External Surface ($m^2$) |

| APPLICATION PARAMETERS | | |
|---|---|---|
| Code | Application | Fin Spacing (mm) |
| H | High Temp. | 4.0 |
| L | Low Temp. | 6.0 |

# FOR UNIT COOLER

*Specification drawing is for reference only, for detail information please refer to our staffs.




| High Temperature Application | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Unit Coolers | Dimension (mm) | | | | | Inlet OD (inch) | Outlet OD (inch) | Drain Size (inch) | Weight (kg) |
| Model | L | H | W | C | E | | | | |
| TEM-H-2.5/9 | 812 | 450 | 500 | 390 | 477 | 1/2 | 5/8 | 1 - 1/4 | 20 |
| TEM-H-4.0/14 | 1265 | 450 | 500 | 390 | 930 | 1/2 | 5/8 | 1 - 1/4 | 32 |
| TEM-H-5.0/19 | 1230 | 500 | 500 | 390 | 930 | 1/2 | 5/8 | 1 | 28 |
| TEM-H-5.4/22 | 900 | 570 | 550 | 450 | 565 | 1/2 | 5/8 | 1 - 1/4 | 35 |
| TEM-H-7.4/22 | 1440 | 570 | 550 | 450 | 1105 | 1/2 | 5/8 | 1 - 1/4 | 47 |
| TEM-H-9.0/30 | 1440 | 570 | 550 | 450 | 1105 | 1/2 | 5/8 | 1 - 1/4 | 50 |
| TEM-H-10.5/45 | 1440 | 570 | 550 | 450 | 1105 | 5/8 | 7/8 | 1 - 1/4 | 57 |
| TEM-H-16.2/80 | 1920 | 730 | 635 | 435 | 1650 | 5/8 | 1 - 1/4 | 1 | 120 |
| TEM-H-21.3/105 | 1920 | 730 | 635 | 435 | 1650 | 5/8 | 1 - 1/4 | 1 | 132 |
| TEM-H-25.0/125 | 2720 | 730 | 635 | 435 | 2450 | 3/4 | 1 - 1/2 | 1 | 182 |
| TEM-H-32.6/160 | 2720 | 730 | 635 | 435 | 2450 | 3/4 | 1 - 1/2 | 1 | 193 |
| TEM-H-37.6/185 | 3520 | 730 | 635 | 435 | 3250 | 3/4 | 1 - 7/8 | 1 - 1/2 | 230 |
| TEM-H-42.7/210 | 3520 | 730 | 635 | 435 | 3250 | 3/4 | 1 - 7/8 | 1 - 1/2 | 260 |
| TEM-H-57.4/280 | 3250 | 830 | 725 | 525 | 3250 | 7/8 | 1 - 7/8 | 1 - 1/2 | 290 |

| Low Temperature Application | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Unit Coolers | Dimension (mm) | | | | | Inlet OD (inch) | Outlet OD (inch) | Drain Size (inch) | Weight (kg) |
| Model | L | H | W | C | E | | | | |
| TEM-L-2.4/10 | 1265 | 450 | 500 | 390 | 930 | 1/2 | 5/8 | 1 - 1/4 | 31 |
| TEM-L-2.9/13 | 1265 | 450 | 500 | 390 | 930 | 1/2 | 5/8 | 1 - 1/4 | 34 |
| TEM-L-4.3/15 | 1440 | 570 | 550 | 450 | 1105 | 1/2 | 5/8 | 1 - 1/4 | 47 |
| TEM-L-5.3/21 | 1440 | 570 | 550 | 450 | 1105 | 1/2 | 5/8 | 1 - 1/4 | 50 |
| TEM-L-6.6/31 | 1440 | 570 | 550 | 450 | 1105 | 5/8 | 7/8 | 1 - 1/4 | 56 |
| TEM-L-11.2/60 | 1920 | 730 | 635 | 435 | 1650 | 5/8 | 1 - 1/4 | 1 | 115 |
| TEM-L-14.9/80 | 1920 | 730 | 635 | 435 | 1650 | 5/8 | 1 - 1/4 | 1 | 125 |
| TEM-L-18.7/100 | 2720 | 730 | 635 | 435 | 2450 | 3/4 | 1 - 1/2 | 1 | 170 |
| TEM-L-22.4/120 | 2720 | 730 | 635 | 435 | 2450 | 3/4 | 1 - 1/2 | 1 | 180 |
| TEM-L-26.2/140 | 3520 | 730 | 635 | 435 | 3250 | 3/4 | 1 - 7/8 | 1 - 1/2 | 210 |
| TEM-L-30.0/160 | 3520 | 730 | 635 | 435 | 3250 | 3/4 | 1 - 7/8 | 1 - 1/2 | 240 |

# TECHNICAL DATA

Nominal Capacity rated at room temperature(Troom) of 0°C, evaporating temperature (Tevp) of -8°C.
Air throw is for reference purpose only.
The actual air throw will be affected by the arrangement of the unit coolers or the placement of the goods.

| High Temperature Application | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Unit Coolers | | Fan | | | | | | Condesing Unit |
| Model | Nominal Capacity (W) | Qty. of Fan | Fan Diameter (mm) | Power (kW) | Volt (V) | Air Flow ($m^3/h$) | Air Throw (m) | Model |
| TEM-H-2.5/9 | 2500 | 1 | 300 | 1 x 0.06 | 230 | 1 x 1800 | 8 | CDU4516Z/PAC4516Z AW4516Z |
| TEM-H-4.0/14 | 4000 | 2 | 300 | 2 x 0.06 | 230 | 2 x 1800 | 9 | CDU4522Z/CDU4524Z PAC4522Z/AW4522Z |
| TEM-H-5.0/19 | 5000 | 2 | 300 | 2 x 0.06 | 230 | 2 x 1800 | 10 | CDU4532Z/PAC4532Z AW4532Z |
| TEM-H-5.4/22 | 5400 | 1 | 400 | 1 x 0.16 | 230 | 1 x 4235 | 12 | CDU4532Z/PAC4532Z AW4532Z |
| TEM-H-7.4/22 | 7400 | 2 | 400 | 2 x 0.16 | 230 | 2 x 4235 | 14 | CDU4538Z/CDU4544Z/ AW4544Z/PAC4538Z/ PAC4544Z/AW4538Z / PAC4536Z |
| TEM-H-9.0/30 | 9000 | 2 | 400 | 2 x 0.16 | 230 | 2 x 4235 | 13 | PAC4553Z/PAC4561Z/ PAC4548Z |
| TEM-H-10.5/45 | 10500 | 2 | 400 | 2 x 0.16 | 230 | 2 x 4235 | 12 | PAC4568Z/PAC4573Z/ PAC4560Z/PAC4572Z |
| TEM-H-16.2/80 | 18409 | 2 | 500 | 2 x 0.55 | 380 | 2 x 6300 | 15 | PAC4581Z/SHT4576ZHR/ PAC4584Z/SHT4591ZHR/ PAC4596Z |
| TEM-H-21.3/105 | 24205 | 2 | 500 | 2 x 0.55 | 380 | 2 x 6300 | 15 | SHT4610ZHR/ SHT4612ZHR/ PAC4611Z |
| TEM-H-25.0/125 | 28409 | 3 | 500 | 3 x 0.55 | 380 | 3 x 6300 | 15 | SHT4615ZHR/PAC4612Z |
| TEM-H-32.6/160 | 37045 | 3 | 500 | 3 x 0.55 | 380 | 3 x 6300 | 15 | SHT4620ZHR |
| TEM-H-37.6/185 | 42727 | 4 | 500 | 4 x 0.55 | 380 | 4 x 6300 | 15 | SHT4622ZHR |
| TEM-H-42.7/210 | 48523 | 4 | 500 | 4 x 0.55 | 380 | 4 x 6300 | 15 | SHT4627ZHR |
| TEM-H-57.4/280 | 65227 | 4 | 500 | 4 x 0.55 | 380 | 4 x 6300 | 15 | SHT4632ZHR |

| Low Temperature Application | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit Coolers | | Fan | | | | | | Defrost Heater | | | Condesing Unit |
| Model | Nominal Capacity (W) | Qty. of Fan | Fan Diameter (mm) | Power (kW) | Volt (V) | Air Flow ($m^3/h$) | Air Throw (m) | Qty. x Coil (kW) | Qty. x Drain Pan (kW) | Volt (V) | Model |
| TEM-L-2.4/10 | 3008 | 2 | 300 | 2 x 0.06 | 230 | 2 x 1800 | 9 | 2 x 0.70 | 1 x 1.00 | 220 | CDU2495Z/CDU2470Z PAC2495Z/PAC2470Z AW2495Z/AW2470Z |
| TEM-L-2.9/13 | 3634 | 2 | 300 | 2 x 0.06 | 230 | 2 x 1800 | 9 | 2 x 0.70 | 1 x 1.00 | 220 | CDU2512Z/PAC2512Z AW2512Z |
| TEM-L-4.3/15 | 5388 | 2 | 400 | 2 x 0.16 | 230 | 2 x 4235 | 14 | 2 x 0.90 | 1 x 1.20 | 220 | PAC2513Z PAC2516Z |
| TEM-L-5.3/21 | 6642 | 2 | 400 | 2 x 0.16 | 230 | 2 x 4235 | 13 | 2 x 0.90 | 1 x 1.20 | 220 | PAC2522Z PAC2525Z |
| TEM-L-6.6/31 | 8271 | 2 | 400 | 2 x 0.16 | 230 | 2 x 4235 | 12 | 4 x 0.95 | 1 x 1.20 | 220 | SHT2534ZBR |
| TEM-L-11.2/60 | 14035 | 2 | 500 | 2 x 0.55 | 380 | 2 x 6300 | 15 | 4 x 1.55 | 1 x 1.72 | 220 | SHT2542ZBR SHT2552ZBR |
| TEM-L-14.9/80 | 18672 | 2 | 500 | 2 x 0.55 | 380 | 2 x 6300 | 15 | 4 x 1.55 | 1 x 1.72 | 220 | SHT2558ZBR |
| TEM-L-18.7/100 | 23434 | 3 | 500 | 3 x 0.55 | 380 | 3 x 6300 | 15 | 4 x 2.27 | 1 x 2.44 | 220 | SHT2575ZBR |
| TEM-L-22.4/120 | 28070 | 3 | 500 | 3 x 0.55 | 380 | 3 x 6300 | 15 | 4 x 2.27 | 1 x 2.44 | 220 | SHT2610ZBR |
| TEM-L-26.2/140 | 32832 | 4 | 500 | 4 x 0.55 | 380 | 4 x 6300 | 15 | 4 x 2.99 | 1 x 3.02 | 220 | SHT2614ZBR |
| TEM-L-30.0/160 | 37594 | 4 | 500 | 4 x 0.55 | 380 | 4 x 6300 | 15 | 4 x 2.99 | 1 x 3.02 | 220 | SHT2615ZBR |

# SELECTION FEATURES & PERFORMANCE

To select the product in cinditions of practical use with R404A,
it is necessary to multiply the normal capacity value by the correction factor stated in (Table-1).
With other refrigerants, multiply the normal capacity by the respective factor (Table-2).

Table 1: Correction Factor of nominal capacity kW(R404A) for different room temperature and TD(F1)

| ΔT [K] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1.09 | 1.09 | 1.10 | 1.13 | 1.16 | 1.19 | 1.22 | 1.25 | 1.29 | 1.34 | 1.38 | 1.42 | 1.47 | 1.47 | 1.47 | 1.47 | 1.47 |
| 9 | 0.98 | 0.98 | 0.99 | 1.02 | 1.04 | 1.07 | 1.10 | 1.13 | 1.16 | 1.20 | 1.24 | 1.28 | 1.32 | 1.32 | 1.32 | 1.32 | 1.32 |
| 8 | 0.87 | 0.87 | 0.88 | 0.90 | 0.93 | 0.95 | 0.98 | 1.00 | 1.04 | 1.07 | 1.10 | 1.14 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 |
| 7 | 0.76 | 0.76 | 0.77 | 0.79 | 0.81 | 0.83 | 0.85 | 0.88 | 0.91 | 0.94 | 0.97 | 1.00 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| 6 | 0.65 | 0.65 | 0.66 | 0.68 | 0.70 | 0.71 | 0.73 | 0.75 | 0.78 | 0.80 | 0.83 | 0.85 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| 5 | 0.54 | 0.54 | 0.55 | 0.57 | 0.58 | 0.60 | 0.61 | 0.63 | 0.65 | 0.67 | 0.69 | 0.71 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| 4 | 0.44 | 0.44 | 0.44 | 0.45 | 0.46 | 0.48 | 0.49 | 0.50 | 0.52 | 0.54 | 0.55 | 0.57 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 |
| °C | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 |

Table 1: Correction Factor for Refrigerants (F2)

| T.Room (°C) | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R22 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| R134a | - | - | - | - | 0.86 | 0.88 | 0.89 | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 |
| R404A | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

*Selection Example :*

**A) For TEM model based on different conditions**

| | | |
|---|---|---|
| Air Inlet Temperature | = | -20°C |
| Temperature Different, ΔT | = | 7K |
| Refrigerant | = | R404A |
| Selected Model | = | TEM-L-4.3/15 |
| Nominal Capacity (W) from catalogue | = | 5388 |

**Heat Load (W),**
*can be calculated by using formula,*

**Nominal Capacity x F1 x F2** = 5388 x 0.79 x 1.00
= **4257W**

**B) Select TEM model based on required heat load**

| | | |
|---|---|---|
| **Heat Load** | = | **9000W** |
| **Air Inlet Temperature** | = | **0°C** |
| **Temperature Different, ΔT** | = | **7K** |
| **Refrigerant** | = | **R404A** |

**Nominal Capacity (W),**
*can be calculated by using formula,*

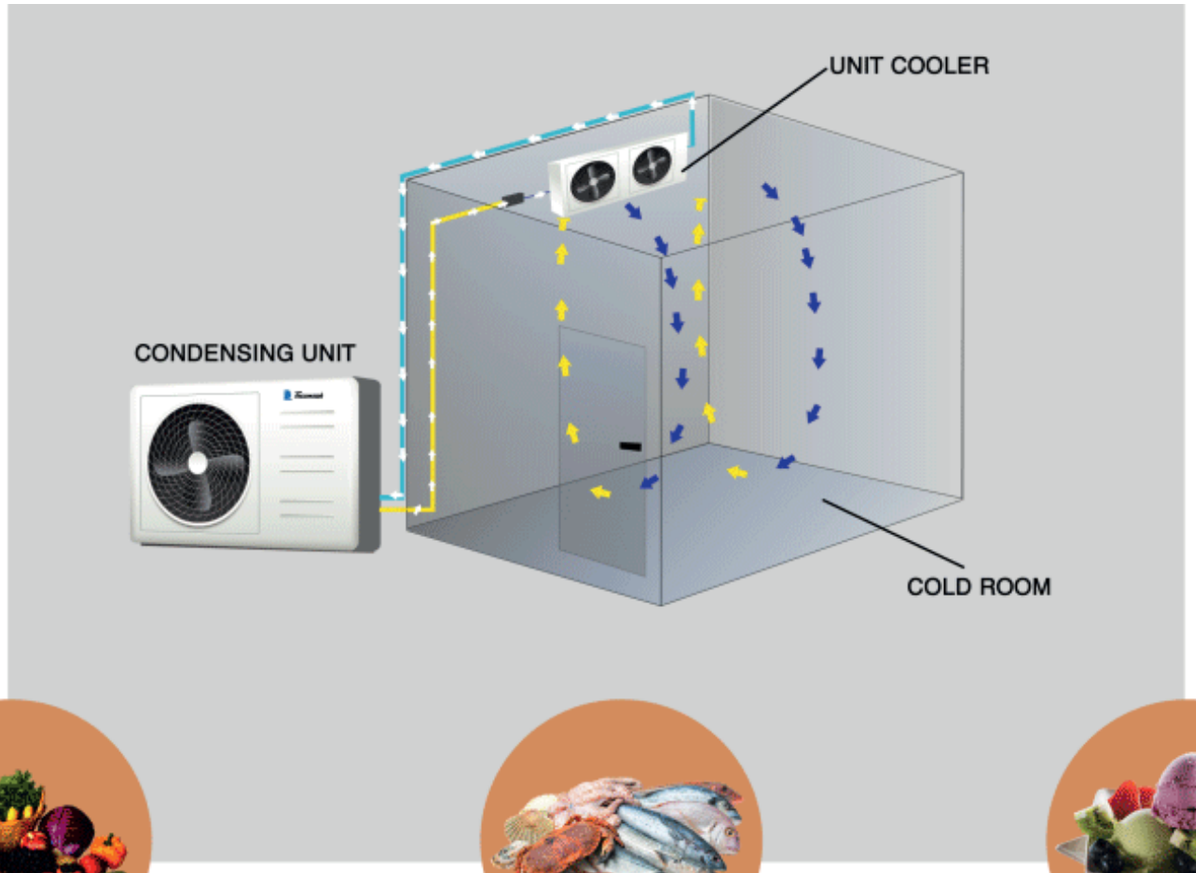
**Heat Load / ( F1 x F2 )** = 9000 / (0.88 x 1.00)
= **10227W**

** Selected model (High Temp Application)= TEM-H-10.5/45*

# TECUMSEH UNIT COOLER RANGE

PRESERVE THE FRESHNESS OF FOOD STORED IN YOUR COLD ROOM
WITH OUR CONDENSING UNIT AND UNIT COOLER RANGE

## PERFECT COMPLEMENT




**TECUMSEH PRODUCTS INDIA PRIVATE LIMITED**

Survey No. 687/P and 784/P,
Kistapur Village, Medchal,
Malkajgiri District, Hyderabad,
Telangana - 501 401, India