# Selection Procedure

The following selection procedure is applicable to both reciprocating and screw compressors. (Refer to factory for selection on centrifugal compressors.) The total heat of rejection for the system is determined by adding the evaporator load, expressed in kW, and the absorbed kW of the compressor motor. This procedure applies to both open type and hermetic compressors.

Once the heat of rejection has been determined, multiply it by the factor for the specified operating conditions (condensing temperature and wet bulb temperature) obtained from either Table 1 or Table 2. The resultant figure is then used to select a unit from Table 3.

EXAMPLE

Given: 1000 kW Evaporator Load, Ammonia Refrigerant at 36°C Condensing Temperature, 24°C Wet Bulb Temperature with a 300 kW Compressor.

Selection:

| | | |
|---|---|---|
| Evaporator Load | = | 1000 kW |
| Compressor Load | = | 300 kW |
| Total | = | 1300 kW Heat of Rejection |

From Table 2, the Capacity Factor for 36°C Condensing Temperature and 24°C Wet Bulb temperature = 1,20

| | | | | |
|---|---|---|---|---|
| 1300 (Total Heat of Rejection) | x | 1,20 (Capacity Factor) | = | 1560 (Corrected Heat Rejection Load) |

Therefore, from Table 3 select LSCB-370, or LRC-379, or PMCB 375, or PMCB 385 depending upon layout, fan kW, and any other design considerations.

*Note:*

For screw compressor selections employing water cooled oil cooling, select a condenser for the total kW as in the example. The condenser can then function in one of two ways:

(1) Recirculating water from the water sump can be used directly in the oil cooler. A separate pump should be employed and the return water should be directed into the water sump at the opposite end from the pump suction.

(2) The condenser coil can be circuited so that water or a glycol-water mixture for the oil cooler can be cooled in a separate section of the coil. Specify load and water flow required.

For refrigerant injection cooled screw compressors select the condenser in the same manner as shown in the example.

If the oil cooler is supplied by water from a separate source, then the oil cooling load should be deducted from the heat of rejection before making the selection.

**TABLE 1 R-22 and R-134a Heat Rejection Factors**

| Condensing Pressure, (KPa) | | Cond. Temp. °C | WET BULB TEMPERATURE, °C. | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 134-a | | 10 | 12 | 14 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1090 | 669 | 30 | 1,07 | 1,15 | 1,25 | 1,38 | 1,47 | 1,57 | 1,69 | 1,83 | 2,00 | 2,23 | 2,50 | 2,86 | 3,36 | — | — | — | — | — |
| 1154 | 718 | 32 | 0,94 | 1,01 | 1,09 | 1,19 | 1,26 | 1,32 | 1,40 | 1,49 | 1,60 | 1,74 | 1,90 | 2,11 | 2,36 | — | — | — | — | — |
| 1220 | 759 | 34 | 0,85 | 0,90 | 0,97 | 1,04 | 1,09 | 1,14 | 1,20 | 1,26 | 1,34 | 1,43 | 1,54 | 1,66 | 1,81 | 2,02 | 2,31 | — | — | — |
| 1253 | 785 | 35 | 0,80 | 0,85 | 0,91 | 0,97 | 1,02 | 1,06 | 1,11 | 1,15 | 1,21 | 1,29 | 1,37 | 1,46 | 1,56 | 1,71 | 1,89 | 2,13 | 2,41 | 2,77 |
| 1287 | 814 | 36 | 0,77 | 0,81 | 0,86 | 0,92 | 0,96 | 1,00 | 1,04 | 1,07 | 1,13 | 1,19 | 1,26 | 1,34 | 1,43 | 1,56 | 1,71 | 1,90 | 2,14 | 2,43 |
| 1359 | 856 | 38 | 0,70 | 0,74 | 0,78 | 0,82 | 0,85 | 0,88 | 0,90 | 0,93 | 0,96 | 1,01 | 1,06 | 1,11 | 1,18 | 1,26 | 1,35 | 1,47 | 1,62 | 1,78 |
| 1431 | 915 | 40 | 0,65 | 0,67 | 0,70 | 0,73 | 0,76 | 0,78 | 0,80 | 0,83 | 0,86 | 0,89 | 0,93 | 0,97 | 1,02 | 1,08 | 1,14 | 1,22 | 1,32 | 1,44 |
| 1508 | 978 | 42 | 0,59 | 0,62 | 0,64 | 0,67 | 0,68 | 0,70 | 0,72 | 0,74 | 0,77 | 0,80 | 0,83 | 0,86 | 0,89 | 0,94 | 0,98 | 1,04 | 1,11 | 1,19 |
| 1587 | 1026 | 44 | 0,54 | 0,56 | 0,59 | 0,61 | 0,62 | 0,63 | 0,65 | 0,66 | 0,68 | 0,70 | 0,73 | 0,75 | 0,78 | 0,82 | 0,85 | 0,89 | 0,92 | 0,97 |

**TABLE 2 Ammonia (R-717) Heat Rejection Factors**

| Condensing Pressure, (KPa) | Cond. Temp. °C | WET BULB TEMPERATURE, °C. | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 12 | 14 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1063 | 30 | 0,95 | 1,03 | 1,12 | 1,23 | 1,31 | 1,40 | 1,51 | 1,63 | 1,79 | 1,99 | 2,24 | 2,56 | 3,00 | — | — | — | — | — |
| 1133 | 32 | 0,84 | 0,90 | 0,97 | 1,06 | 1,12 | 1,18 | 1,25 | 1,32 | 1,43 | 1,55 | 1,70 | 1,88 | 2,11 | — | — | — | — | — |
| 1206 | 34 | 0,76 | 0,81 | 0,86 | 0,93 | 0,98 | 1,02 | 1,07 | 1,12 | 1,19 | 1,28 | 1,38 | 1,48 | 1,61 | 1,80 | 2,06 | — | — | — |
| 1245 | 35 | 0,71 | 0,76 | 0,81 | 0,87 | 0,91 | 0,95 | 0,99 | 1,03 | 1,08 | 1,15 | 1,23 | 1,30 | 1,39 | 1,53 | 1,69 | 1,90 | 2,15 | 2,47 |
| 1284 | 36 | 0,69 | 0,73 | 0,77 | 0,82 | 0,86 | 0,89 | 0,92 | 0,96 | 1,01 | 1,07 | 1,13 | 1,20 | 1,28 | 1,39 | 1,53 | 1,70 | 1,91 | 2,17 |
| 1365 | 38 | 0,63 | 0,66 | 0,69 | 0,73 | 0,76 | 0,78 | 0,81 | 0,83 | 0,86 | 0,90 | 0,94 | 0,99 | 1,05 | 1,12 | 1,21 | 1,31 | 1,44 | 1,59 |
| 1451 | 40 | 0,58 | 0,60 | 0,62 | 0,65 | 0,67 | 0,70 | 0,72 | 0,74 | 0,76 | 0,80 | 0,83 | 0,87 | 0,91 | 0,96 | 1,02 | 1,09 | 1,18 | 1,29 |
| 1539 | 42 | 0,53 | 0,55 | 0,57 | 0,60 | 0,61 | 0,63 | 0,64 | 0,66 | 0,68 | 0,71 | 0,74 | 0,76 | 0,80 | 0,84 | 0,88 | 0,93 | 0,99 | 1,06 |
| 1630 | 44 | 0,49 | 0,50 | 0,52 | 0,54 | 0,56 | 0,56 | 0,58 | 0,59 | 0,61 | 0,63 | 0,65 | 0,67 | 0,70 | 0,73 | 0,76 | 0,79 | 0,83 | 0,86 |

**TABLE 3 Unit Heat Rejection Capacity**

## LSCB - Centrifugal Fan Models

| Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base |
|---|---|---|---|---|---|---|---|---|---|
| **LSCB-36** | 155 | **LSCB-210** | 904 | **LSCB-400** | 1722 | **LSCB-620** | 2669 | **LSCB-950** | 4090 |
| **41** | 177 | **225** | 969 | **410** | 1766 | **625** | 2691 | **960** | 4133 |
| **48** | 207 | **240** | 1033 | **430** | 1851 | **650** | 2798 | **980** | 4219 |
| **54** | 232 | **250** | 1076 | **431** | 1855 | **660** | 2841 | **1000** | 4305 |
| **65** | 280 | **280** | 1205 | **450** | 1937 | **690** | 2970 | **1020** | 4391 |
| **70** | 301 | **281** | 1206 | **460** | 1980 | **691** | 2972 | **1030** | 4434 |
| **75** | 323 | **295** | 1270 | **475** | 2045 | **720** | 3100 | **1060** | 4563 |
| **80** | 344 | **300** | 1292 | **480** | 2066 | **721** | 3102 | **1080** | 4649 |
| **90** | 387 | **310** | 1335 | **490** | 2109 | **755** | 3250 | **1100** | 4736 |
| **100** | 431 | **315** | 1356 | **500** | 2153 | **770** | 3315 | **1120** | 4822 |
| **110** | 474 | **330** | 1421 | **510** | 2196 | **800** | 3444 | **1180** | 5080 |
| **120** | 517 | **335** | 1442 | **515** | 2217 | **805** | 3466 | **1250** | 5381 |
| **135** | 581 | **345** | 1485 | **530** | 2282 | **820** | 3532 | **1310** | 5640 |
| **150** | 646 | **355** | 1528 | **540** | 2325 | **860** | 3702 | **1380** | 5941 |
| **155** | 667 | **360** | 1550 | **550** | 2368 | **861** | 3704 | **1440** | 6199 |
| **170** | 732 | **370** | 1593 | **560** | 2411 | **900** | 3875 | **1510** | 6501 |
| **185** | 796 | **385** | 1657 | **590** | 2540 | **920** | 3961 | **1610** | 6931 |
| **200** | 861 | **386** | 1662 | **591** | 2544 | | | | |

## LRC - Centrifugal Fan Models

| Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base |
|---|---|---|---|---|---|---|---|---|---|
| **LRC - 25** | 108 | **LRC - 65** | 280 | **LRC - 128** | 551 | **LRC - 225** | 969 | **LRC - 249** | 1072 |
| **27** | 116 | **72** | 310 | **131** | 564 | **233** | 1003 | **287** | 1236 |
| **29** | 125 | **76** | 327 | **140** | 603 | **246** | 1059 | **300** | 1292 |
| **35** | 151 | **84** | 362 | **155** | 667 | **188** | 809 | **321** | 1382 |
| **38** | 164 | **91** | 392 | **174** | 749 | **211** | 908 | **336** | 1446 |
| **42** | 181 | **101** | 435 | **183** | 788 | **227** | 977 | **361** | 1554 |
| **48** | 207 | **114** | 491 | **190** | 818 | **240** | 1033 | **379** | 1632 |
| **51** | 220 | **108** | 465 | **201** | 865 | **255** | 1098 | | |
| **58** | 250 | **116** | 500 | **213** | 917 | **269** | 1158 | | |

## Power-Mizer Models

| Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base |
|---|---|---|---|---|---|---|---|---|---|
| **PMCB-190** | 818 | **PMCB-360** | 1550 | **PMCB-580** | 2497 | **PMCB-885** | 3810 | **PMCB-1380** | 5941 |
| **210** | 904 | **375** | 1614 | **600** | 2583 | **960** | 4133 | **1410** | 6070 |
| **220** | 947 | **390** | 1679 | **630** | 2712 | **1000** | 4305 | **1485** | 6393 |
| **235** | 1012 | **415** | 1787 | **660** | 2841 | **1015** | 4370 | **1540** | 6630 |
| **240** | 1033 | **435** | 1873 | **690** | 2970 | **1030** | 4434 | **1630** | 7017 |
| **250** | 1076 | **455** | 1959 | **725** | 3121 | **1080** | 4649 | **1710** | 7362 |
| **275** | 1184 | **480** | 2066 | **755** | 3250 | **1120** | 4822 | **1770** | 7620 |
| **295** | 1270 | **510** | 2196 | **775** | 3336 | **1175** | 5058 | | |
| **325** | 1399 | **535** | 2303 | **815** | 3509 | **1260** | 5424 | | |
| **350** | 1507 | **560** | 2411 | **855** | 3681 | **1320** | 5683 | | |

## Alternate Power-Mizer Models*

| Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base | Model No. | kW Base |
|---|---|---|---|---|---|---|---|---|---|
| **PMCB-175** | 753 | **PMCB-425** | 1830 | **PMCB-585** | 2518 | **PMCB-805** | 3466 | **PMCB-1060** | 4563 |
| **290** | 1248 | **450** | 1937 | **645** | 2777 | **850** | 3659 | **1110** | 4779 |
| **330** | 1421 | **475** | 2045 | **705** | 3035 | **910** | 3918 | **1510** | 6501 |
| **335** | 1442 | **495** | 2131 | **770** | 3315 | **950** | 4090 | **1550** | 6673 |
| **385** | 1657 | **540** | 2325 | | | | | | |

**Unit Selections**

Selections for all evaporative condensers can be made by using EVAPCO's IES computer selection software.
IES provides quick and accurate selections at the click of a button. In addition to selections, the program displays unit drawings, dimensional and shipping information. Please contact your local sales representative or visit the EVAPCO Europe web.

NOTE: For applications requiring layout or fan kW combinations not shown above, please consult the factory or your EVAPCO representative.

* Alternate Power-Mizer models represent selections for alternate plan area or low fan kW applications. Standard models should be used for the lowest first-cost selection.

# Low Silhouette Evaporative Condenser  Centrifugal Fan Models LRC 25 to 246

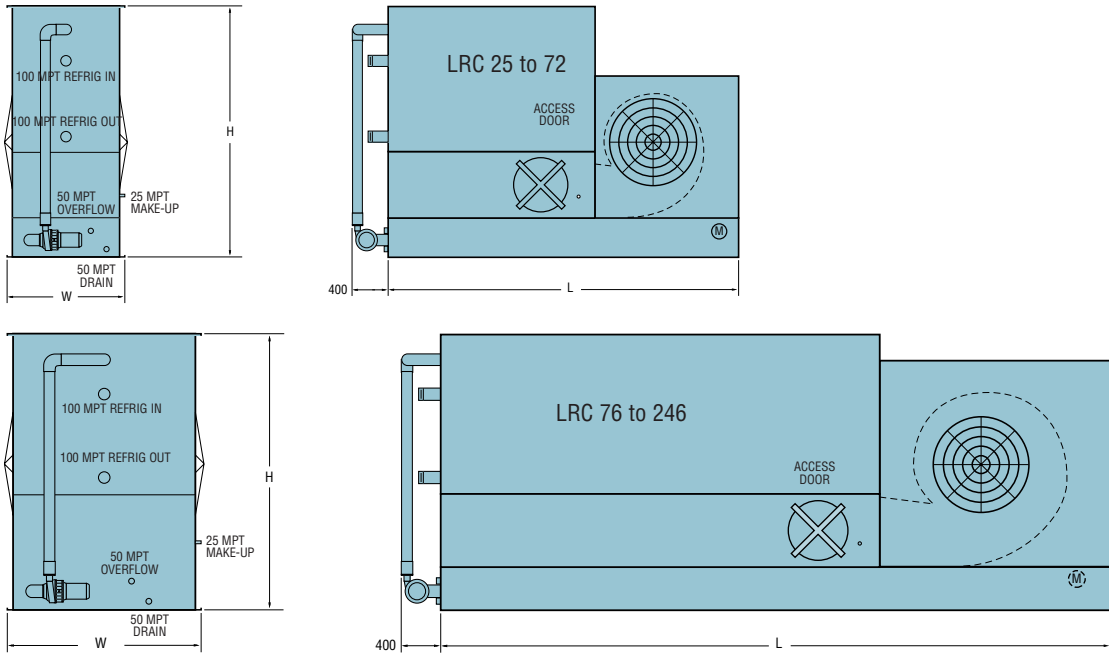



**TABLE 4  Engineering Data**

| UNIT NO. | FANS | | | WEIGHTS (kg) | | **R-717 Operating Charge (kg) | SPRAY PUMP | | REMOTE SUMP | | DIMENSIONS (mm) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N° | kW* | m³/s | Shipping | Operating | | kW | l/s | Liters Req'd*** | Conn. Size | HEIGHT H | LENGTH L | WIDHT W |
| LRC- 25 | 1 | 0,75 | 3,1 | 1050 | 1520 | 19 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 27 | 1 | 1,1 | 3,6 | 1050 | 1525 | 19 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 29 | 1 | 1,5 | 3,9 | 1050 | 1525 | 19 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 35 | 1 | 1,1 | 3,5 | 1200 | 1685 | 27 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 38 | 1 | 1,5 | 3,9 | 1200 | 1685 | 27 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 42 | 1 | 2,2 | 4,4 | 1205 | 1690 | 27 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 48 | 1 | 4 | 5,2 | 1210 | 1695 | 27 | 0,37 | 6,3 | 303 | 100 | 2026 | 3083 | 1029 |
| 51 | 1 | 2,2 | 4,3 | 1365 | 1860 | 34 | 0,37 | 6,3 | 303 | 100 | 2216 | 3083 | 1029 |
| 58 | 1 | 4 | 5,1 | 1370 | 1865 | 34 | 0,37 | 6,3 | 303 | 100 | 2216 | 3083 | 1029 |
| 65 | 1 | 4 | 5,0 | 1540 | 2050 | 42 | 0,37 | 6,3 | 303 | 100 | 2407 | 3083 | 1029 |
| 72 | 1 | 5,5 | 5,8 | 1565 | 2070 | 42 | 0,37 | 6,3 | 303 | 100 | 2407 | 3083 | 1029 |
| LRC-76 | 1 | 4 | 7,6 | 1835 | 2680 | 43 | 0,75 | 10 | 455 | 150 | 2026 | 3731 | 1540 |
| 84 | 1 | 5,5 | 8,7 | 1850 | 2700 | 43 | 0,75 | 10 | 455 | 150 | 2026 | 3731 | 1540 |
| 91 | 1 | 4 | 7,4 | 2075 | 2945 | 55 | 0,75 | 10 | 455 | 150 | 2216 | 3731 | 1540 |
| 101 | 1 | 5,5 | 8,5 | 2120 | 2985 | 55 | 0,75 | 10 | 455 | 150 | 2216 | 3731 | 1540 |
| 114 | 1 | 5,5 | 8,3 | 2365 | 3250 | 67 | 0,75 | 10 | 455 | 150 | 2407 | 3731 | 1540 |
| LRC-108 | 1 | 5,5 | 10,6 | 2380 | 3660 | 61 | 1,1 | 16 | 643 | 150 | 2026 | 4636 | 1540 |
| 116 | 1 | 7,5 | 11,7 | 2400 | 3675 | 61 | 1,1 | 16 | 643 | 150 | 2026 | 4636 | 1540 |
| 128 | 1 | 11 | 13,3 | 2450 | 3725 | 61 | 1,1 | 16 | 643 | 150 | 2026 | 4636 | 1540 |
| 131 | 1 | 5,5 | 10,4 | 2760 | 4065 | 79 | 1,1 | 16 | 643 | 150 | 2216 | 4636 | 1540 |
| 140 | 1 | 7,5 | 11,4 | 2770 | 4080 | 79 | 1,1 | 16 | 643 | 150 | 2216 | 4636 | 1540 |
| 155 | 1 | 11 | 13,1 | 2820 | 4130 | 79 | 1,1 | 16 | 643 | 150 | 2216 | 4636 | 1540 |
| 174 | 1 | 11 | 12,8 | 3215 | 4550 | 99 | 1,1 | 16 | 643 | 150 | 2407 | 4636 | 1540 |
| 183 | 1 | 11 | 12,6 | 3555 | 4920 | 118 | 1,1 | 16 | 643 | 150 | 2597 | 4636 | 1540 |
| LRC-190 | 1 | 15 | 16,2 | 3465 | 5250 | 106 | 1,5 | 21,8 | 908 | 200 | 2242 | 5553 | 1540 |
| 201 | 1 | 18,5 | 17,4 | 3470 | 5255 | 106 | 1,5 | 21,8 | 908 | 200 | 2242 | 5553 | 1540 |
| 213 | 1 | 15 | 15,8 | 3955 | 5780 | 132 | 1,5 | 21,8 | 908 | 200 | 2432 | 5553 | 1540 |
| 225 | 1 | 18,5 | 17,0 | 3965 | 5785 | 132 | 1,5 | 21,8 | 908 | 200 | 2432 | 5553 | 1540 |
| 233 | 1 | 22 | 18,1 | 3975 | 5790 | 132 | 1,5 | 21,8 | 908 | 200 | 2432 | 5553 | 1540 |
| 246 | 1 | 22 | 17,7 | 4430 | 6295 | 157 | 1,5 | 21,8 | 908 | 200 | 2623 | 5553 | 1540 |

*  For dry operation or for external static pressure up to 125 Pa use next larger size fan motor.
**  Refrigerant charge is shown for R-717. Multiply by 1.93 for R-22 and 1.98 for R-134a.
***Liters shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (300 mm would normally be sufficient.)

# Application

## Design

Evapco units are heavy-duty construction and designed for long trouble-free operation. Proper equipment selection, installation and maintenance is, however, necessary to ensure good unit performance. Some of the major considerations in the application of a condenser are presented below. For additional information, contact the factory.

## Air Circulation

In reviewing the system design and unit location, it is important that proper air circulation be provided. The best location is on an unobstructed roof top or on ground level away from walls and other barriers. Care must be taken when locating condensers in wells or enclosures or next to high walls. The potential for recirculation of hot, moist discharge air back into the fan intake exists. Recirculation raises the wet bulb temperature of the entering air causing the condensing pressure to rise above the design. For these cases, a discharge hood or ductwork should be provided to raise the overall unit height even with the adjacent wall, thereby reducing the chance of recirculation. Good engineering practice dictates that the evaporative condenser's discharge air not be directed or located close to or in the vicinity of building air intakes. Engineering assistance is available from the factory to identify potential recirculation problems and recommend solutions.

For additional information regarding layout of evaporative condensers, see Evapco Bulletin entitled *"Equipment Layout"*.

## Structural Steel Support

The recommended method of support for EVAPCO condensers is two structural "I" beams located under the outer flanges and running the entire length of the unit. Mounting holes 19mm in diameter, are located in the bottom channels of the pan section to provide for bolting to the structural steel; refer to certified drawings from the factory for bolt hole locations.
Beams should be level to within 1.7 mm per meter before setting the unit in place. Do not level the unit by shimming between it and the "I" beams as this will not provide proper longitudinal support.

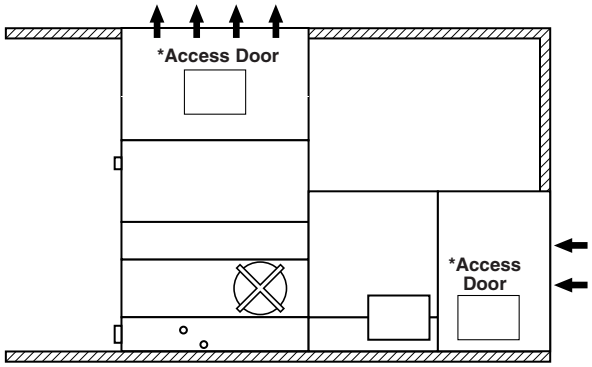
## Vibration Isolation

The fans on EVAPCO units are balanced and run virtually vibration free. In addition, the rotating mass is very small in relation to the total mass of the condenser, further reducing the possibility of objectionable vibration being transmitted to the building structure.
As a result, vibration isolation is generally not required.
In those cases where it is determined that vibration isolation is necessary, spring type vibration isolator rails can be furnished. The rails are constructed of heavy gauge Z-725 hot-dip galvanized steel for superior corrosion resistance. Rails are designed to be mounted between the condenser and the supporting steel framework. They are 90% efficient and have approximately 25 mm static deflection. Rails are designed for wind loading up to 80 km/hr.

It is important to note that vibration isolation must be installed continuously along the full length of the condenser on both sides of the unit. Point isolators may be used between the supporting steel and the building framework, but not between the unit and the supporting steel

## Indoor Installations

Centrifugal fan models can be installed indoors where it is desirable to hide the unit or where it is the only location available. Discharge ductwork is required for these installations. Normally it is best to use the room as a plenum for inlet air, but inlet ductwork can be used if required.
The design of ductwork should be symmetrical to provide even air distribution across both intake and discharge openings. The static pressure loss imposed by the ductwork must not exceed 125 Pa. Care must be taken to provide large access doors in the ductwork for accessibility to the unit fan section, eliminators and water distribution system for normal maintenance.
The centrifugal fan condenser can handle the external static of ductwork by using the next larger size fan motor. Units installed with inlet ductwork should also be ordered with the solid bottom panel option. Drawings are available from the factory showing size and location of duct connections.




## Maintaining the Recirculated Water System

The heat rejection in a condenser is accomplished by the evaporation of a portion of the recirculated spray water. As this water evaporates, it leaves behind all of its mineral content and impurities. Therefore, it is important to bleed-off an amount of water equal to that which is evaporated to prevent the build-up of these impurities. If this is not done, the mineral or the acidic nature of the water will continue to increase. This will ultimately result in heavy scaling or a corrosive condition.

# Applications

## Bleed-off

Each unit supplied with a pump mounted on the side is furnished with a clear bleed line for visual inspection and a valve which, when fully open, will bleed-off the proper amount of water. If the make-up water supplying to the unit is relatively free of impurities, it may be possible to cut back the bleed, but the unit must be checked frequently to make sure scale is not forming. Make-up water pressure should be maintained between 140 and 340 kPa.

## Water Treatment

In some cases the make-up will be so high in mineral content that a normal bleed-off will not prevent scaling. In these cases water treatment will be required and a reputable water treatment company familiar with the local water conditions should be consulted.

Any chemical water treatment used must be compatible with the galvanized construction of the unit. If acid is used for treatment, it should be accurately metered and the concentration properly controlled. The pH of the water should be maintained between 6.5 and 8.0. Units constructed of galvanized steel operating with circulating water having a pH of 8.3 or higher will require periodic passivation of the galvanized steel to prevent the formation of "white rust". Batch chemical feeding is not recommended because it does not afford the proper degree of control. If acid cleaning is required extreme caution must be exercised and only inhibited acids recommended for use with galvanized construction should be used. For more information see EVAPCO Bulletin entitled "Maintenance Instructions".

## Control of Biological Contamination

Water quality should be checked regularly for biological contamination, If biological contamination is detected, a more aggressive water treatment and mechanical cleaning program should be undertaken. The water treatment program should be performed in conjunction with a qualified water treatment company. It is important that all internal surfaces be kept clean of accumulated dirt and sludge. In addition, the drift eliminators should be maintained in good operating condition

**Note: The location of the evaporative condenser must be considered during the equipment layout stages of a project. It is important to prevent the discharge air (potential of biological contamination) from being introduced into the fresh air intakes of the building.**

## Recirculating Water System - Freeze Protection

Water lines to and from the unit, spray pump and related piping should be heat traced and insulated up to the overflow level in order to protect from freezing.

The unit should not be operated dry (fans on, pump off) unless the basin is completely drained and the unit has been designed for dry operation.

REMOTE SUMP

Whenever a condenser is idled during subfreezing weather, the water in the sump must be protected from freezing and damaging the pan. The simplest and most reliable method of accomplishing this is with a remote sump tank located in a heated space in the building under the condenser. The recirculating water pump is mounted at the remote sump and whenever it is shut-off, all of the water drains into the indoor tank. When a condenser is ordered for remote sump operation, the standard float valve and strainer are omitted, and the unit is provided with an oversized bottom water outlet connection. Where a remote sump is not possible, a supplementary means of heating the pan water must be provided.

ELECTRIC HEATERS

Electric immersion heaters are available factory installed in the basin of the condenser. They are sized to maintain a +4 or +5°C pan water temperature with –18°C ambient air temperature with the fans and pumps off. They are furnished with a thermostat and low water protection device to cycle the heater on when required and to prevent the heater elements from energizing unless they are completely submerged. Components are enclosed in rugged, weatherproof enclosures for outdoor use. The heater power contactors and electric wiring are not included as standard.

## Electric Pan Heaters

| Model No. | | | | kW* |
|---|---|---|---|---|
| LSCB | 36 | to | 80 | 2 |
| LSCB | 90 | to | 170 | 3 |
| LSCB | 185 | to | 250 | 4 |
| LSCB | 280 | to | 385 | (2) 3 |
| LSCB | 281 | to | 386 | 5 |
| LSCB | 410 | to | 560 | (2) 4 |
| LSCB | 591 | to | 770 | (2) 5 |
| LSCB | 820 | to | 1120 | (2) 8 |
| LSCB | 400 | to | 515 | 8 |
| LSCB | 550 | to | 805 | (2) 5 |
| LSCB | 800 | to | 1030 | (2) 8 |
| LSCB | 1100 | to | 1610 | (2) 10 |
| LRC | 25 | to | 72 | 2 |
| LRC | 76 | to | 114 | 3 |
| LRC | 108 | to | 183 | 4 |
| LRC | 190 | to | 246 | 6 |
| LRC | 188 | to | 269 | 7 |
| LRC | 249 | to | 379 | 9 |
| PMCB | 175 | to | 240 | 5 |
| PMCB | 250 | to | 375 | (2) 4 |
| PMCB | 290 | to | 480 | 8 |
| PMCB | 450 | to | 775 | (2) 6 |
| PMCB | 850 | to | 1030 | (2) 8 |
| PMCB | 1060 | to | 1550 | (4) 6 |
| PMCB | 435 | to | 580 | (2) 6 |
| PMCB | 600 | to | 885 | (2) 8 |
| PMCB | 1015 | to | 1120 | (2) 12 |
| PMCB | 1110 | to | 1770 | (2) 16 |

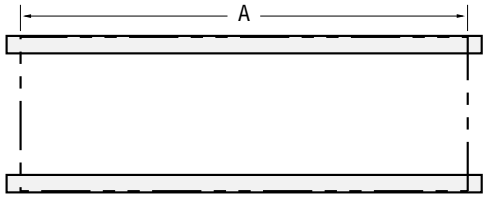
* Electric heater selection based on -18°C ambient temperature. For alternate low ambient heater selections, consult the factory.

# Steel Support

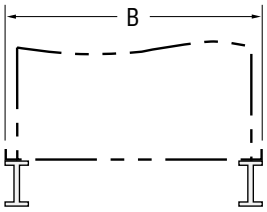
The recommended support for EVAPCO condensers is structural "I" beams located under the outer flanges and running the entire length of the unit. Mounting holes, 19mm in diameter are located in the bottom channels of the pan section to provide for bolting to the structural steel. (Refer to certified drawings from the factory for bolt hole locations.)

Beams should be level to within 3mm per 2m before setting the unit in place. Do not level the unit by shimming between it and the "I" beams as this will not provide proper longitudinal support.

**Plan Views**




**End Elevations**




| LRC DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| Models | | | | A | B |
| LRC | 25 | to | 72 | 3083 | 1029 |
| LRC | 76 | to | 114 | 3731 | 1540 |
| | 108 | to | 183 | 4636 | 1540 |
| | 190 | to | 246 | 5553 | 1540 |
| LRC | 188 | to | 269 | 4629 | 2388 |
| | 249 | to | 379 | 5553 | 2388 |

| LSCB DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| Models | | | | A | B |
| LSCB | 36 | to | 80 | 1826 | 1235 |
| | 90 | to | 120 | 2724 | 1235 |
| | 135 | to | 170 | 3651 | 1235 |
| LSCB | 185 | to | 250 | 3645 | 1664 |
| | 280 | to | 385 | 5490 | 1664 |
| LSCB | 281 | to | 386 | 3651 | 2388 |
| | 410 | to | 560 | 5486 | 2388 |
| | 581 | to | 770 | 7341 | 2388 |
| | 820 | to | 1120 | 11011 | 2388 |
| LSCB | 400 | to | 515 | 3648 | 2991 |
| | 550 | to | 805 | 5493 | 2991 |
| | 800 | to | 1030 | 7334 | 2991 |
| | 1100 | to | 1610 | 11024 | 2991 |

| PMCB DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| Models | | | | A | B |
| PMCB | 175 | to | 240 | 3648 | 1927 |
| | 250 | to | 375 | 5493 | 1927 |
| PMCB | 290 | to | 480 | 3648 | 2991 |
| | 450 | to | 775 | 5490 | 2991 |
| | 850 | to | 1030 | 7334 | 2991 |
| | 1060 | to | 1550 | 11024 | 2991 |
| PMCB | 435 | to | 580 | 3651 | 3620 |
| | 600 | to | 885 | 5490 | 3620 |
| | 1015 | to | 1120 | 7341 | 3620 |
| | 1110 | to | 1120 | 11024 | 3620 |