

# Technical Data Sheet

Compressor model **ML45FB**  
 Voltage **220-240V 50Hz ~1**  
 Refrigerant **R404A**

## APPLICATION

Application Low Back Pressure  
 Refrigerant R404A  
 Evaporating Temp. -40,0 °C to -10,0 °C  
 Expansion Capillar/Valve  
 Comp. Cooling Fan cooled  
 Max. ambient temp. 43,0 °C

## COMPRESSOR

Displacement 4,56 cm<sup>3</sup>  
 Diameter 19,09 mm  
 Stroke 15,93 mm  
 Net Weight 8,57 Kg  
 Oil type ISO VG 32 ESTER  
 Oil charge 260 cm<sup>3</sup>

## MOTOR

Nominal Power 1/6 hp  
 Voltage/Frequency 220-240V 50Hz  
 Voltage range 187-264 V  
 Type CSIR  
 Phase number 1 PH  
 Locked Rotor Amps (LRA) 8,50 A  
 Max. Cont. Current (MCC) 2,20 A  
 Main W. resist. at 25°C 16,00 Ω  
 Start W. resist. at 25°C 36,00 Ω

## NOMINAL PERFORMANCE

|                  | ASHRAE       | CECOMAF      |
|------------------|--------------|--------------|
| Cooling Capacity | 170 kCal/h   | 133 W        |
| COP              | 0,94 W/W     | 0,66 W/W     |
| EER              | 0,81 kCal/Wh | 0,57 kCal/Wh |
| Input Power      | 210 W        | 202 W        |
| Current          | 1,40 A       | 1,38 A       |

## APPROVALS



## TEST CYCLE CONDITIONS

|                                       | ASHRAE<br>LBP (B) | CECOMAF<br>LBP (A) |
|---------------------------------------|-------------------|--------------------|
| Evaporating temp. (T <sub>e</sub> )   | -23,3 °C          | -25,0 °C           |
| Condensing temp. (T <sub>c</sub> )    | 55,0 °C           | 55,0 °C            |
| Liquid temp. (T <sub>liq.</sub> )     | 32,0 °C           | 55,0 °C            |
| Ambient temp. (T <sub>amb.</sub> )    | 32,0 °C           | 32,0 °C            |
| Suction temp. (T <sub>suction</sub> ) | 32,0 °C           | 32,0 °C            |
| Voltage/Frequency                     | 220 V 50 Hz       | 220 V 50 Hz        |

## ELECTRICAL COMPONENTS

|                         |                  |                   |  |  |
|-------------------------|------------------|-------------------|--|--|
| Starting capacitor      | 47- 56 µF 330 V  |                   |  |  |
| Relay                   | Option 1         | Option 2          |  |  |
| Reference               | 2014 118.        | QLZ-3.75A         |  |  |
| Pick-Up                 | 3.75 A           | 3.75 A            |  |  |
| Drop-Out                | 3.20 A           | 3.20 A            |  |  |
| Protector               | Option 1         | Option 2          |  |  |
| Reference               | MRP61AMJ         | T0073             |  |  |
| Current                 | 6,90 A           | 6,20 A            |  |  |
| Time check              | 7,5-14 seg       | 7,5-14 seg        |  |  |
| Disc temp. (Open/Close) | 90,00 / 57,00 °C | 110,00 / 62,00 °C |  |  |

## ASHRAE

| Tc<br>°C | Te<br>°C | Cooling<br>Capacity<br>kCal/h | Consumption<br>W | Current<br>A | COP<br>W/W | EER<br>kCal/Wh |
|----------|----------|-------------------------------|------------------|--------------|------------|----------------|
| 40       | -40      | 83                            | 140              | 1,25         | 0,69       | 0,59           |
| 40       | -35      | 113                           | 156              | 1,27         | 0,84       | 0,72           |
| 40       | -30      | 150                           | 175              | 1,31         | 1,00       | 0,86           |
| 40       | -25      | 196                           | 194              | 1,35         | 1,17       | 1,01           |
| 40       | -23,3    | 213                           | 202              | 1,37         | 1,23       | 1,06           |
| 40       | -20      | 250                           | 216              | 1,42         | 1,34       | 1,15           |
| 40       | -15      | 311                           | 240              | 1,51         | 1,51       | 1,30           |
| 40       | -10      | 380                           | 265              | 1,62         | 1,67       | 1,43           |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 45 | -40   | 75  | 140 | 1,25 | 0,62 | 0,54 |
| 45 | -35   | 103 | 157 | 1,27 | 0,76 | 0,65 |
| 45 | -30   | 139 | 176 | 1,31 | 0,92 | 0,79 |
| 45 | -25   | 182 | 197 | 1,36 | 1,08 | 0,93 |
| 45 | -23,3 | 199 | 204 | 1,38 | 1,13 | 0,97 |
| 45 | -20   | 234 | 220 | 1,43 | 1,24 | 1,06 |
| 45 | -15   | 293 | 244 | 1,53 | 1,40 | 1,20 |
| 45 | -10   | 360 | 270 | 1,65 | 1,55 | 1,33 |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 50 | -40   | 68  | 140 | 1,25 | 0,56 | 0,48 |
| 50 | -35   | 93  | 158 | 1,27 | 0,69 | 0,59 |
| 50 | -30   | 127 | 178 | 1,31 | 0,83 | 0,71 |
| 50 | -25   | 169 | 199 | 1,37 | 0,98 | 0,85 |
| 50 | -23,3 | 184 | 207 | 1,39 | 1,04 | 0,89 |
| 50 | -20   | 218 | 223 | 1,44 | 1,14 | 0,98 |
| 50 | -15   | 275 | 248 | 1,54 | 1,29 | 1,11 |
| 50 | -10   | 340 | 275 | 1,67 | 1,44 | 1,24 |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 55 | -40   | 60  | 140 | 1,25 | 0,50 | 0,43 |
| 55 | -35   | 84  | 159 | 1,28 | 0,61 | 0,53 |
| 55 | -30   | 115 | 180 | 1,32 | 0,75 | 0,64 |
| 55 | -25   | 155 | 202 | 1,38 | 0,89 | 0,77 |
| 55 | -23,3 | 170 | 210 | 1,40 | 0,94 | 0,81 |
| 55 | -20   | 202 | 226 | 1,46 | 1,04 | 0,89 |
| 55 | -15   | 257 | 252 | 1,56 | 1,19 | 1,02 |
| 55 | -10   | 320 | 280 | 1,70 | 1,33 | 1,14 |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 60 | -40   | 53  | 140 | 1,25 | 0,44 | 0,38 |
| 60 | -35   | 74  | 160 | 1,28 | 0,54 | 0,46 |
| 60 | -30   | 104 | 181 | 1,32 | 0,67 | 0,57 |
| 60 | -25   | 141 | 204 | 1,38 | 0,80 | 0,69 |
| 60 | -23,3 | 156 | 213 | 1,41 | 0,85 | 0,73 |
| 60 | -20   | 186 | 230 | 1,47 | 0,94 | 0,81 |
| 60 | -15   | 239 | 256 | 1,58 | 1,09 | 0,93 |
| 60 | -10   | 300 | 285 | 1,73 | 1,22 | 1,05 |

## CECOMAF

| Tc<br>°C | Te<br>°C | Cooling<br>Capacity<br>W | Consumption<br>W | Current<br>A | COP<br>W/W | EER<br>kCal/Wh |
|----------|----------|--------------------------|------------------|--------------|------------|----------------|
| 40       | -40      | 87                       | 140              | 1,25         | 0,62       | 0,54           |
| 40       | -35      | 123                      | 156              | 1,27         | 0,79       | 0,68           |
| 40       | -30      | 165                      | 175              | 1,31         | 0,95       | 0,82           |
| 40       | -25      | 215                      | 194              | 1,35         | 1,10       | 0,95           |
| 40       | -23,3    | 233                      | 202              | 1,37         | 1,15       | 1,00           |
| 40       | -20      | 270                      | 216              | 1,42         | 1,25       | 1,08           |
| 40       | -15      | 332                      | 240              | 1,51         | 1,39       | 1,20           |
| 40       | -10      | 401                      | 265              | 1,62         | 1,51       | 1,31           |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 45 | -40   | 75  | 140 | 1,25 | 0,54 | 0,46 |
| 45 | -35   | 106 | 157 | 1,27 | 0,67 | 0,58 |
| 45 | -30   | 143 | 176 | 1,31 | 0,81 | 0,70 |
| 45 | -25   | 187 | 197 | 1,36 | 0,95 | 0,82 |
| 45 | -23,3 | 204 | 204 | 1,38 | 1,00 | 0,86 |
| 45 | -20   | 238 | 220 | 1,43 | 1,08 | 0,94 |
| 45 | -15   | 295 | 244 | 1,53 | 1,21 | 1,05 |
| 45 | -10   | 359 | 270 | 1,65 | 1,33 | 1,15 |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 50 | -40   | 63  | 140 | 1,25 | 0,45 | 0,39 |
| 50 | -35   | 89  | 158 | 1,27 | 0,56 | 0,49 |
| 50 | -30   | 122 | 178 | 1,31 | 0,68 | 0,59 |
| 50 | -25   | 160 | 199 | 1,37 | 0,80 | 0,69 |
| 50 | -23,3 | 175 | 207 | 1,39 | 0,85 | 0,73 |
| 50 | -20   | 206 | 223 | 1,44 | 0,92 | 0,80 |
| 50 | -15   | 258 | 248 | 1,54 | 1,04 | 0,90 |
| 50 | -10   | 316 | 275 | 1,67 | 1,15 | 0,99 |

|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 55 | -40   | 52  | 140 | 1,25 | 0,37 | 0,32 |
| 55 | -35   | 72  | 159 | 1,28 | 0,46 | 0,39 |
| 55 | -30   | 100 | 180 | 1,32 | 0,56 | 0,48 |
| 55 | -25   | 133 | 202 | 1,38 | 0,66 | 0,57 |
| 55 | -23,3 | 146 | 210 | 1,40 | 0,70 | 0,60 |
| 55 | -20   | 174 | 226 | 1,46 | 0,77 | 0,66 |
| 55 | -15   | 220 | 252 | 1,56 | 0,87 | 0,76 |
| 55 | -10   | 274 | 280 | 1,70 | 0,98 | 0,84 |

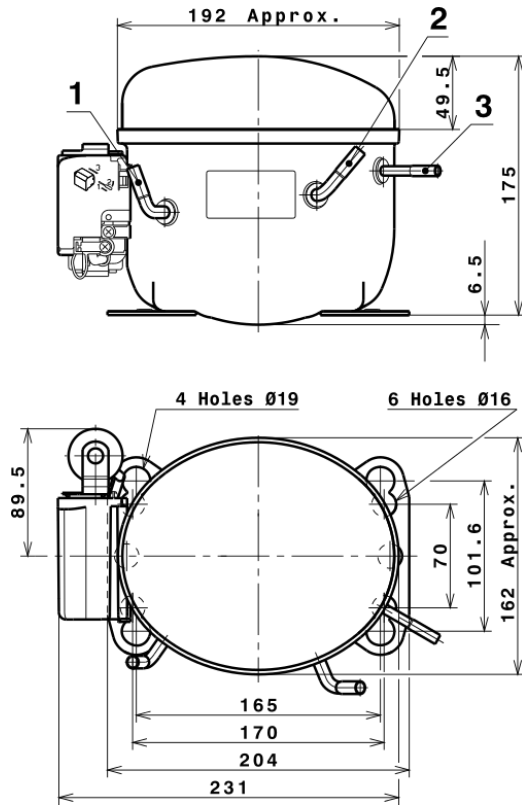
|    |       |     |     |      |      |      |
|----|-------|-----|-----|------|------|------|
| 60 | -40   | 40  | 140 | 1,25 | 0,29 | 0,25 |
| 60 | -35   | 56  | 160 | 1,28 | 0,35 | 0,30 |
| 60 | -30   | 78  | 181 | 1,32 | 0,43 | 0,37 |
| 60 | -25   | 106 | 204 | 1,38 | 0,52 | 0,45 |
| 60 | -23,3 | 118 | 213 | 1,41 | 0,55 | 0,48 |
| 60 | -20   | 141 | 230 | 1,47 | 0,62 | 0,53 |
| 60 | -15   | 183 | 256 | 1,58 | 0,71 | 0,62 |
| 60 | -10   | 231 | 285 | 1,73 | 0,81 | 0,70 |

## EN12900

| X | Cooling Capacity (W) | Consumption (W) | Current (A)  | Mass Flow (kg/h)    |
|---|----------------------|-----------------|--------------|---------------------|
| 1 | 967,3062190897       | 275,5505787772  | 1,6898319018 | 21,493639694895     |
| 2 | 24,7519678571        | 4,8309799021    | 0,0304131343 | 0,6318311618164     |
| 3 | -10,6824033385       | 1,3691262363    | 0,0074344513 | -0,14232537262891   |
| 4 | 0,1241878389         | 0,0379927262    | 0,0004876011 | 0,004845150942639   |
| 5 | -0,2094867184        | 0,0342281559    | 0,0001858613 | -0,0025084020112827 |

|          |   |
|----------|---|
| Equation | $x_1 + x_2Te + x_3Tc + x_4Te^2 + x_5TeTc$ |
|----------|---|

## COMPRESSOR DIMENSIONS



## DESIGNATION INTERNAL DIAM.

|   |           |        |
|---|-----------|--------|
| 1 | Suction   | 6,5 mm |
| 2 | Service   | 6,5 mm |
| 3 | Discharge | 4,9 mm |

## WIRING DIAGRAMS AND ELECTRICAL ASSEMBLY

### CSIR CONNECTION (L, P ranges)



# Technical Data Sheet

## FIXINGS



## SILENT BLOCKS (MOUNTING ACCESSORIES)

### STANDARD

Ø16 holes (170x70 net)



### AMERICAN FEET

Ø19 holes (165x101.6 net)



### SNAP-ON

Ø16 holes (170x70 net)



## SOA

SOA R404A LBP

