

## HOW TO CHOOSE A PROPER VACUUM PUMP

The A/C refrigeration vacuum pump is one of the most important tools an engineer will use during their role, as it is a key player when carrying out maintenance on air conditioning units, so the following points should be considered when you select a vacuum pump.

### 1, System's Refrigerant

Different refrigerant needs the relevant vacuum pump, you can find the refrigerant on the equipment's specification label.

|                                         |                           |
|-----------------------------------------|---------------------------|
| Outdoor Model                           | KFR-35W-F17(Outdoor Unit) |
| Refrigerant                             | R22/R80g                  |
| Weight                                  | 32KGS                     |
| Indoor Unit Resistance Class            | IPX4                      |
| Power Source                            | 5.4A                      |
| Rated Current                           | 1190W                     |
| Rated Input                             | 220V~50Hz                 |
| Excessive Operating Pressure(discharge) | 2.6MPa                    |
| Excessive Operating Pressure(suction)   | 2.6MPa                    |

For these air conditioning units which used with R410A refrigerant, if the vacuum pump oil be sucked to system, the refrigerant will be led to contamination and destruction, then caused the deteriorations, so it will be a huge impact on the cooling efficiencies and service life of the equipment.

### 2, Determining The Flowrate Required(CFM,L/min)

When ascertaining what vacuum pump needs to be used, it's important to determine the CFM rating required for a job. This is more commonly known in some countries as the LPM, Liters per minute. A pump with higher CFM rating will help you get to full vacuum quicker. But Higher CFM does NOT mean better vacuum, only faster evacuation.

### 3, Working Place

Considering that some outdoor unit installed on rooftop without power socket. It is hard to get the AC power source. As the energy density of lithium batteries has come a long way in the past few decades with the progress of technology, and working time is also getting longer and longer. So a portable, cordless vacuum pump is necessary.

### 4, Ultimate Vacuum Level

The density of the gas in the vacuum state is usually represented by 'vacuum degree'. The smaller figures means higher vacuum degree. It usually appears as Microns(Pa). As the name implies, a dual-stage rotary vane vacuum pump contains two stages of pumping in a single assembly. One is a low vacuum stage while the other is a mated high vacuum stage. So a dual-stage rotary vacuum pump is able to produce the better vacuums than single-stage. The central air conditioning unit, cooling store need better vacuum degree, so Dual-stage vacuum pump is the best choice.

## WIPCOOL VACUUM PUMP'S SELECTION

WIPCOOL vacuum pumps are divided into S series and F series  
S series equipped with transparent oil tank, lightweight & portable, highly cost-effective.  
F series equipped with built-in solenoid valve and overhead vacuum meter as standard, there even has lithium battery, dual power, R32 vacuum pump for your choice, which provides the ultimate user experience.



| Model         | Flowrate(CFM) | Vacuum degree(Microns) | Refrigerant | Power source          |
|---------------|---------------|------------------------|-------------|-----------------------|
| S1-S2         | 2-4           | 150                    | A1          | AC                    |
| F1            | 1.5           | 150                    | A1          | AC                    |
| F2R-F5R       | 5-11          | 150                    | A1,A2,A2L   | AC                    |
| 2F0,2F1       | 1.5-2.5       | 15                     | A1          | AC                    |
| 2F0R-2F5R     | 1.5-11        | 15                     | A1,A2,A2L   | AC                    |
| F1BK          | 1.5           | 150                    | A1          | Dual power(AC/Li-ion) |
| F2BRK         | 5             | 150                    | A1,A2,A2L   | Dual power(AC/Li-ion) |
| 2F1BRK,2F2BRK | 2.5-5         | 15                     | A1,A2,A2L   | Dual power(AC/Li-ion) |

### Side note:

Safety grade of refrigerant  
The safety of refrigerants mainly refers to the toxicity, flammability and explosiveness.  
It usually represented by A, B, C plus 1, 2, 3, A1 represents the safest, and C3 represents most dangerous

|                  | Low toxicity | Moderate toxicity | High toxicity |
|------------------|--------------|-------------------|---------------|
| High flammable   | A3           | B3                | C3            |
| Mildly flammable | A2           | B2                | C2            |
| Non flammable    | A1           | B1                | C1            |

The normal refrigerants' grade as below for reference:  
A1: R11, R12, R22, R23, R124, R125, R134a, R410a, R502, R718  
A2: R142b, R152a, R406a, R411a, R411b, R412a, R413a, R415b, R418a, R419a, R512a  
A2L: R143a, R32, R1234yf, R1234ze(E)

## Vacuum pump

### Clear-The "HEART" Is Beating

- Patent structure  
Reduces oil leakage risk
- Clear oil tank  
Clearly view condition of oil and system
- One-way valve  
Preventing vacuum oilbackflow to system
- Solenoid valve(S1X1.5X/2X,Optional)  
100% Preventing vacuum oil backflow to system



Vacuum Pump



Anti-oil injection design



Anti-dumping oil leakage design



Force-feed lubricating mechanism



Clear oil tank

#### TECHNICAL DATA :

| Model            | S1                          | S1.5           | S2                 |
|------------------|-----------------------------|----------------|--------------------|
| Voltage          | 230V~/50-60Hz or 115V~/60Hz |                |                    |
| Ultimate Vacuum  | 150 microns                 |                |                    |
| Input Power      | 1/4HP<br>2CFM               | 1/4HP<br>3CFM  | 1/3HP<br>4CFM      |
| Flow Rate (Max.) | 57L/min<br>85 L/min         | 210ml<br>230ml | 113 L/min<br>200ml |
| Oil Capacity     | 230ml                       | 3.4kg          | 3.4kg              |
| Weight           | 3.3kg                       |                |                    |
| Dimension        | 266x121x194                 |                |                    |
| Inlet Port       | 1/4"SAE                     |                |                    |

## New Refrigerant Vacuum Pump Vacuuming Quickly

- Patented anti-dumping design to avoid oil leakage
- Overhead vacuum gauge, compact and easy to operate
- Built-in solenoid valve to prevent backflow
- Integral cylinder structure to improve reliability
- No oil injection and less oil mist, prolonging oil service life
- New motor technology, lightweight and easy to carry



Overhead vacuum gauge



Anti-dumping oil leakage design



Anti-oil injection design



Built-in solenoid valve

#### TECHNICAL DATA :

| Model            | F1                          | F1.5              | 2F0               | 2F1               |
|------------------|-----------------------------|-------------------|-------------------|-------------------|
| Voltage          | 230V~/50-60Hz or 115V~/60Hz |                   |                   |                   |
| Ultimate Vacuum  | 150 microns                 |                   |                   |                   |
| Input Power      | 1/4HP<br>1.5CFM             | 1/4HP<br>3CFM     | 1/4HP<br>1.5CFM   | 1/4HP<br>2.5CFM   |
| Flow Rate (Max.) | 42 L/min<br>370ml           | 85 L/min<br>330ml | 42 L/min<br>280ml | 71 L/min<br>280ml |
| Oil Capacity     | 370ml                       | 330ml             | 280ml             | 280ml             |
| Weight           | 4.2kg                       | 4.5kg             | 4.7kg             | 4.7kg             |
| Dimension        | 309x113x198                 |                   |                   |                   |
| Inlet Port       | 1/4"SAE                     |                   |                   |                   |

## R32 Vacuum Pump

### Vacuuming Quickly

- Patented anti-dumping technology reduces oil leakage risk
- Top-set vacuum meter, compact design and easy to operate
- Built-in solenoid valve to prevent backflow
- Non-sparking design, suitable for use with R32 and other new refrigerants
- No oil injection and less oil mist, prolonging oil life
- Brush-less motor technology, More than **25% Lighter** than similar products



Single Stage R32 Vacuum Pump

#### TECHNICAL DATA :

| Model            | F2R                         | F3R                         | F4R                        | F5R                       |
|------------------|-----------------------------|-----------------------------|----------------------------|---------------------------|
| Voltage          | 230V~/50-60Hz or 115V~/60Hz |                             |                            |                           |
| Ultimate Vacuum  | 150 microns                 |                             |                            |                           |
| Input Power      | 1/3HP<br>50CFM<br>142 L/min | 1/2HP<br>70CFM<br>198 L/min | 3/4HP<br>9CFM<br>225 L/min | 1HP<br>11CFM<br>312 L/min |
| Flow Rate (Max.) | 580ml                       | 560ml                       | 690ml                      | 670ml                     |
| Oil Capacity     | 5.5kg                       | 5.7kg                       | 8.5kg                      | 8.7kg                     |
| Weight           | 339x130x225                 | 339x130x225                 | 410x150x250                | 410x150x250               |
| Dimension        | 1/4" & 3/8" SAE             | 1/4" & 3/8" SAE             | 1/4" & 3/8" SAE            | 1/4" & 3/8" SAE           |
| Inlet Port       |                             |                             |                            |                           |

Dual Stage R32 Vacuum Pump

#### TECHNICAL DATA :

| Model            | 2F0R                        | 2F1R                        | 2F1.5R                    | 2F2R                       | 2F3R                       | 2F4R                     | 2F5R                      |
|------------------|-----------------------------|-----------------------------|---------------------------|----------------------------|----------------------------|--------------------------|---------------------------|
| Voltage          | 230V~/50-60Hz or 115V~/60Hz |                             |                           |                            |                            |                          |                           |
| Ultimate Vacuum  | 15 microns                  |                             |                           |                            |                            |                          |                           |
| Input Power      | 1/4HP<br>1.5CFM<br>42 L/min | 1/4HP<br>2.5CFM<br>71 L/min | 1/3HP<br>3CFM<br>85 L/min | 1/2HP<br>5CFM<br>142 L/min | 3/4HP<br>7CFM<br>198 L/min | 1HP<br>9CFM<br>255 L/min | 1HP<br>11CFM<br>312 L/min |
| Flow Rate (Max.) | 280ml                       | 280ml                       | 480ml                     | 450ml                      | 520ml                      | 500ml                    | 480ml                     |
| Oil Capacity     | 4.2kg                       | 4.2kg                       | 6.2kg                     | 6.5kg                      | 9.8kg                      | 10kg                     | 10.2kg                    |
| Weight           | 309x113x198                 | 309x113x198                 | 339x130x225               | 339x130x225                | 410x150x250                | 410x150x250              | 410x150x250               |
| Dimension        | 1/4" SAE                    | 1/4" SAE                    | 1/4" & 3/8" SAE           | 1/4" & 3/8" SAE            | 1/4" & 3/8" SAE            | 1/4" & 3/8" SAE          | 1/4" & 3/8" SAE           |
| Inlet Port       |                             |                             |                           |                            |                            |                          |                           |

## Cordless Vacuum Pump

### Li-ion Battery Power

### Portable Evacuation

- High performance lithium battery power, convenient to use
- Patented anti-dumping design to avoid oil leakage
- Overhead vacuum gauge, easy to read
- Built-in solenoid valve to prevent oil backflow
- Integral cylinder structure to improve reliability
- No oil injection and less oil mist, prolong oil service life



#### Recommend accessories



Battery converter  
BC-18, See P44  
Applied on  
F1B, 2F0B/2F0BR,  
2F1B/2F1BR



Battery converter  
BC-18P, See P44  
Applied on  
F2BR, 2F2BR



Be used with AC power



Battery adaptor  
BA-1-1, See P44  
Suitable for Bosch, Makita, Panasonic, Milwaukee,  
DeWalt, Worx, Devon Li-ion battery

#### TECHNICAL DATA :

| Model                   | F1B                | 2F0B               | 2F0BR              | 2F1B               | 2F1BR              | F2BR              | 2F2BR             |
|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|
| Li-ion Battery          | DC18V 5.0AH        |                    |                    |                    |                    |                   |                   |
| Standard Battery Holder | AEG/ RIDGID        |                    |                    |                    |                    |                   |                   |
| Ultimate Vacuum         | 150 micron         | 15 microns         |                    | 150 microns        |                    |                   |                   |
| Input Power             | 1/4HP              | 1/4HP              | 1/4HP              | 1/4HP              | 1/4HP              | 1/3HP             | 1/2HP             |
| Flow Rate (Max.)        | 1.5CFM<br>42 L/min | 1.5CFM<br>42 L/min | 1.5CFM<br>42 L/min | 2.5CFM<br>71 L/min | 2.5CFM<br>71 L/min | 5CFM<br>142 L/min | 5CFM<br>142 L/min |
| Oil Capacity            | 400ml              | 300ml              | 300ml              | 300ml              | 300ml              | 580ml             | 580ml             |
| Weight                  | 5.0kg              | 5.5kg              | 5.0kg              | 5.5kg              | 5.0kg              | 6.5kg             | 7.5kg             |
| Dimension               | 358x113x198        | 358x113x198        | 358x113x198        | 358x113x198        | 358x113x198        | 420x130x225       | 420x130x225       |

## Lithium/AC Dual Power Vacuum Pump

### Dual Power Freely Switch

- Never suffer from low battery anxiety
- Freely switch between AC power and battery power
- Avoiding any downtime on the jobsite



Lithium battery is full  
Enjoy the convenient  
of cordless



Lithium battery is low  
Start corded use for  
unlimited runtime

#### TECHNICAL DATA :

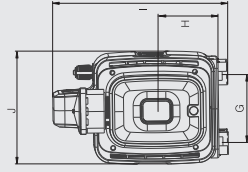
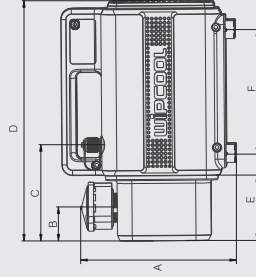
| Model                             | F1BK                                                                                                     | 2F1BRK                                    | F2BRK                                                         | 2F2BRK              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------|---------------------|
| Lithium/AC Dual Power Vacuum Pump | 18V- 5.0AH LI-ION<br>1.5CFM<br>42 L/min<br>150microns                                                    | 2F1BRK<br>2.5CFM<br>71 L/min<br>15microns | F2BRK<br>18V- 9.6AH LI-ION<br>5CFM<br>142 L/min<br>150microns | 2F2BRK<br>15microns |
| Include:                          | Vacuum pump, Battery Charger, Battery converter<br>5.0Ah Li-ion battery(F1BK,2F1BRK),9.6Ah(F2BRK,2F2BRK) |                                           |                                                               |                     |

#### AC POWER SUPPLY PLUGS

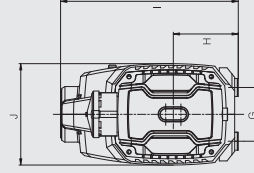
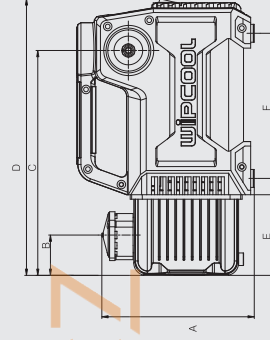


| Model | Description       |
|-------|-------------------|
| W01   | Israel plug       |
| W02   | China plug        |
| W03   | Australia plug    |
| W04   | South africa plug |
| W05   | Europe plug       |
| W06   | America plug      |
| W07   | Britain plug      |
| W08   | Japan plug        |
| W09   | Italy plug        |
| W10   | Argentina plug    |
| W11   | Brazil plug       |
| W12   | South Korea Plug  |

#### S series



#### F series



#### TECHNICAL DATA :

| Model           | A   | B  | C   | D   | E   | F   | G  | H   | I   | J   |
|-----------------|-----|----|-----|-----|-----|-----|----|-----|-----|-----|
| F1 F1.5 2F0 2F1 | 175 | 45 | 250 | 310 | 90  | 162 | 60 | 73  | 200 | 115 |
| F2 F3 2F1.5 2F2 | 195 | 45 | 280 | 340 | 110 | 165 | 70 | 87  | 225 | 130 |
| F4 F5 2F3 2F4   | 235 | 50 | 320 | 390 | 110 | 204 | 90 | 100 | 262 | 150 |