TEKEDGE

18V BATTERY-OPERATED BRUSHLESS VACUUM PUMP

OPERATING MANUAL

DV55-18VDC
DV120-18VDC

ASPEN PUMPS
ASIA PACIFIC

Thank you for purchasing the TEKEDGE 18V battery-operated brushless DC Motor vacuum pump.
Please read this operating manual carefully before you use the product. It will give you great help in installing and applying the product.

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I. Range of Usage

The battery-operated vacuum pumps are designed to be light and robust, making the job easier and quicker for the installer. The battery-operated vacuum pump can be used with different refrigerants, such as A1, A2L and A3. It is used in different applications such as refrigeration, medical machinery, vacuum packaging, gas analysis and other industries.

II. Features

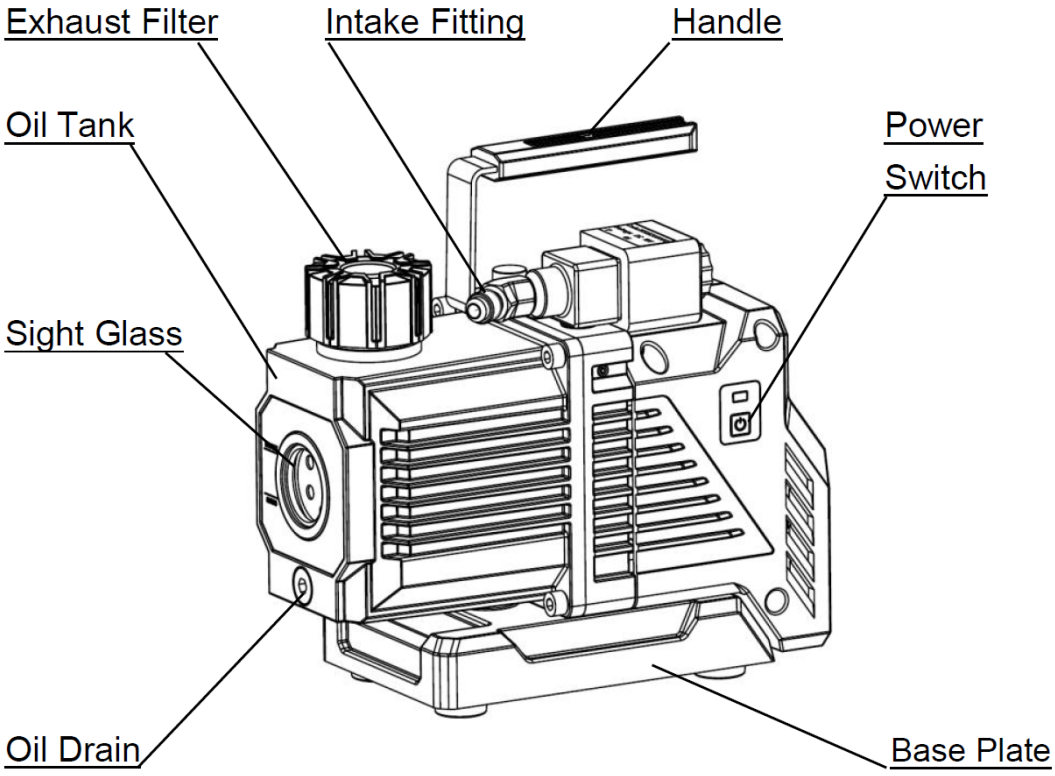
Anti-oil-returning design
Special air passage is designed to prevent pump oil from returning to contaminate vacuum vessel and pipeline after the pump stops.

Environment protection design
The product has a built-in device to eliminate oil mist and an oil-gas separator at air exhaust outlet to treat with oil contamination in air exhaust.

18V BRUSHLESS DC Motor
The battery-operated vacuum pump have a brushless DC Motor, and runs with an 18V battery which can be used in a no power supply environment. This product is especially designed for low temperature conditions to guarantee normal starting in winter (≥5°C temperature).

Oil circulation design
The product runs with extremely high ultimate vacuum and low noise.

III. Pump components



IV. Technical Parameters

Model	DV55-18VDC (double stage)	DV120-18VDC (double stage)
Voltage	18V DC	
Free Air Displacement	2.0CFM 55 l/min	4.3CFM 120 l/min
Ultimate Vacuum	15 Microns 2 pa	15 Microns 2 pa
Power	90W	190W
Oil Capacity	140 ml	300 ml
Dimensions	190x105x192 mm	271x120x260 mm
Net Weight	3.1 Kg	7 Kg

V. How to Use

- Check oil level before use and ensure oil level to be above oil base line, otherwise please refill high vacuum pump oil.
- Remove air inlet cap and connect to vacuum vessel. Pipe used shall be short and reliably sealed without leakage.
- Insert the 18V DC battery (The battery type we recommend is ZS1850B/5.0Ah/90Wh), then turn on the pump.
- The pumps are special designed for 18V AEG Lithium Ion battery. Other models of 18V Li-Ion battery (like BOSCH, MAKITA), can be used with an adapter.
- When power is low, the voltage of battery will decrease, the pump will sound an alarm (buzzer) as a warning so that battery can be charged or replaced.

VI. Cautions

1. Warning:

1. Do not vacuate combustible, explosive or poisonous gases
2. Do not vacuum gases that corrode metal or react chemically with pump oil;
3. Do not vacuum gases that contain particle dust and much steam;
4. Running with connection between air inlet and atmosphere should not exceed 3 minutes;
5. The temperature of gas sucked shall not exceed 60°C and ambient temperature shall be +5°C ~60°C;
6. Do not serve as compression pump or transfer pump;
7. Do not operate the pump without oil;
8. Do not touch the hot surface of machine at operation to avoid burning
9. Do not block air outlet when pump is working;
10. Keep pump away from heat sources when operating;
11. Keep the battery away from moist environments;
12. Do not touch “+”or “-” of battery by handle directly to avoid short circuit or other danger.

2. Caution:

To reduce the danger of electric shock, keep the machine indoor and do not expose it in rain.

3. Danger:

Do not work in the environment with explosive gas or gas leakage.

VII. Installation

Vacuum pump shall be placed in dry, ventilated clean site in operation. Surrounding distance shall be at least 2cm and especially 5cm for the front and rear ends.
Air inlet shall be connected to a vacuum rated hose. Should the air exhausted be harmful to human body or working environment, connect pipeline at air outlet to lead the exhaust outside the work site or treat with environment protection measures.
In case of special requirement, install an electric magnetic valve at air inlet of the pump.
If the air sucked contains steam or particles of dust, or with over-high temperatures, install a cooler or filter in the pipeline of air inlet to avoid damaging the pump.

VIII. Trouble Shooting

	Possible Reason	**Way To Eliminate**
Low Vacuum	1. Oil insufficient	Add oil to recommended filling line
	2. Pump oil emulsified, not clean	Drain Oil and Replace with new
	3. Oil inlet blocked or oil feeding inadequate	Clean oil inlet and filtering screen
	4. Pump pipeline or vessel leak	Check pipeline and vessel for leakage and repair
	5. Parts worn,clearance enlarged	Repair or replace
Oil Leakage	1. Oil seal damaged	Replace with a new oil seal
	2. Oil tank joint loose or damaged	Tighten screws or replace O-Ring
Oil Injection	1. Too much oil	Discharge oil to oil base line
	2. Inlet pressure too high for a long time	Check if pump is suitable for that application
Difficult Starting	1. Low oil temperature	Open air inlet, start the pump and keep it running, to heat the pump oil
	2. Motor or power supply trouble	Check and repair
	3. Foreign objects falling in the pump	Check and remove any foreign objects

IX. Maintenance and Service

- Keep pump clean and avoid foreign objects from falling in the pump.
- Keep oil topped up to recommended level and do not run the pump without oil.
- Observe oil purity. If oil turns dirty and cloudy or has some water or other volatile objects, drain and replace the oil, otherwise ultimate vacuum is affected.
- When replacing oil, first run the pump for 30 minutes to thin down the oil, stop the pump and discharge oil, then run 1-2 minutes with air inlet open and add some oil from air inlet to replace the residual oil in pump cavity. Repeat the steps for several times until the pump is clean. Replace the oil discharging plug and refill with new oil to recommended base line.
- If the pump is not going to be used for a long period of time, mount the air outlet cap and place the pump in dry place.

This pump is only to be opened by a qualified technician in order not to void warranty.