

VACUUM PUMPS

CPS Vacuum Pumps – Direct Drive

Airefrig Part Number	Description	Litres Per Minute	Micron	H.P.	List Price Ex GST
VP2DA	Vacuum Pump - 2 stage	45	10	1/4	\$528.00
VP2DE	Vacuum Pump - 2 stage	48	10	1/4	\$528.00
VP3DA	Vacuum Pump - 2 stage	75	10	-	\$742.50
VP4DE	Vacuum Pump - 2 stage	96	10	1/2	\$742.50
VP6DE	Vacuum Pump - 2 stage	144	10	1/2	\$973.50
VP8D	Vacuum Pump - 2 stage	192	10	2/3	\$1,305.00
VP10DA	Vacuum Pump - 2 stage	236	10	3/4	\$1,961.85
VP10D	Vacuum Pump - 2 stage	240	10	3/4	\$1,961.85
VP12D	Vacuum Pump - 2 stage	288	10	1.0	\$2,198.64

Airefrig Part Number	Description	List Price Ex GST
L340	Vacuum Pump Oil (945 mls)	\$21.32
L341	Vacuum Pump Oil (3.78 Litre)	\$42.77
CAB001	CPS A/C Power Cord for Vacuum pumps & Recovery units	P.O.A.
VG200	CPS Vacuum Gauge with Digital Display	\$640.92
AVT45	Tee 1/4M/F x 1/4 Female Flare Knurl x 1/4 M/F (suit VG200)	\$39.51
VPASU	Vac Pump Anti-Siphon Valve Kit (c/w 1/4,3/8,1/2MF Adaptors)	\$108.24



VG200 – Vacuum Gauge

- Advanced 5 digit LCD display
- Reads microns, Torr, in/hg or mBar at a touch of a button.
- Withstand 400PSI pressure.
- Carry case & hook included.



AVT45

Vacuum Pump Maintenance and Service Information

The vacuum pump consists of two cascaded stages driven by a common shaft. The first stage (or roughing stage) takes air/vapour via the inlet port, compresses it and exhausts through an exhaust port. The second stage takes from the inside of this exhaust port and also compresses the vapour and then exhausts this vapour out through a second exhaust port.

The purpose of a gas ballast valve (where fitted) is to bleed dry air into the second chamber at 0 PSIG or very close to it. This way the second stage draws in vapour, it's pressure is reduced and vapour is removed from the oil/vapour as the saturated vapour pressure is lowered. The second stage typically is also fed oil from the pump reservoir and when the pump is under ballast this oil is also exposed to the reduced pressure and this assists removal of moisture from the oil.

As the pump is working slightly harder when under ballast, more heat is also generated so allowing the oil which is being circulated through the second chamber to warm up and return to the reservoir so raising the temperature of the reservoir faster. This enables the pump to reach operating temperature faster. Remember, if the oil is cold the moisture pulled back can blend with the cold oil, overload the oil with moisture and in short order can wreck the pump. The idea is to get the pump **HOT**, this way moisture hits hot oil and is pushed straight out of the pump. A hot pump works better and will last longer than a pump which is never allowed to reach operating temperature.

To start and use the pump, ensure the ballast and inlet ports are both closed, turn the pump on. Once the pump is started open the ballast valve and leave to run like this for approximately ½ hour. When ready to use, close the ballast and connect to the system to be evacuated, open the suction port and evacuate the system. After the vacuum is complete, it is good practice to run the pump for a further 10 – 15 minutes under ballast again to remove impurities from the oil. An even better practice is to actually drain the oil from the pump, allow the pump to cool before adding fresh oil.

To drain the oil from the pump ensure it is on a level surface (preferable with the oil warm) and remove the drain plug from the pump. You may need to unscrew the exhaust chimney or oil inlet in order to allow air into the pump to allow oil flow. Inspect the oil for cloudiness, impurities and foreign lumps. When refilling, ensure pump is cool and refill to the correct level. **DO NOT overfill !!** If water is noticed in the pump you may need to refill, run under ballast for a short time, drain and refill in order to ensure the moisture is removed.

Not all pumps are identical in operation, always, as a first step, read the instructions that come with the pump.



VACUUM PUMP PERFORMANCE CHECK

Vacuum Pump Quick Performance Check

This document describes a simple and quick method to conduct a basic operational and performance check on a vacuum pump.

** Please ensure that your vacuum pump is in sound electrical and mechanical condition prior to applying electrical power and operating.*

1. Check the oil level in the sight glass is between the minimum and maximum level indicators, oil should look clean and clear if the pump has been recently serviced. Oil colour can vary from water clear to honey colour depending on the brand, but it should look translucent and not be dark or opaque which could indicate the presence of contaminants.

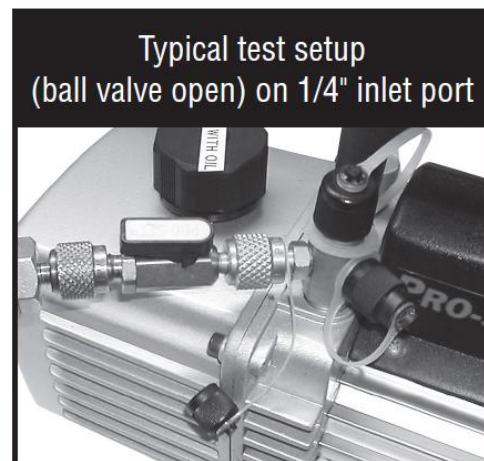
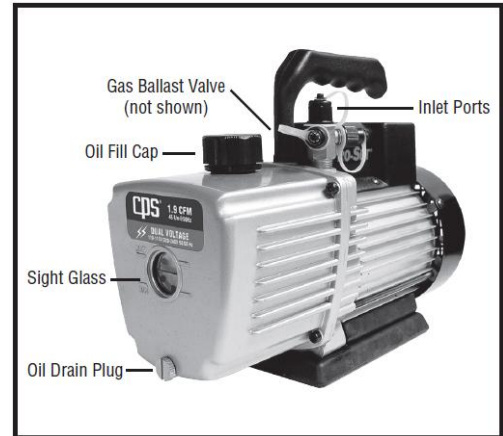
2. Ensure the pumps flare inlet port connection that you will be using is clean and dry, give it a wipe with a clean dry cloth to remove any debris.

3. Attach your ball valve (ensure the tap is closed) with the vacuum gauge directly to the inlet port. In some cases you may require the 3/8" female to 1/4" male adaptor depending on the individual vacuum pumps inlet configuration. In some case you may also need to use the supplied 1/4" ' T ' adaptor and cap the unused ' T ' adaptor 1/4" male port.

4. Start the pump and allow it to run for a few minutes before opening the ball valve. Allow the pump to evacuate the ball valve and vacuum gauge assembly for a couple of minutes prior to checking the vacuum reading. Older model vacuum pumps may require a longer warm up period due to their internal construction, be guided by the pumps owner who should know his equipment.

5. The best practice is to always close the ball valve prior to stopping the pump to reduce the chance of oil migrating into the vacuum gauges sensitive sensor assembly.

6. If the reading is above 400 microns the pump could be internally worn, in need of an oil change, repairs, have an air leak or perhaps faulty port caps on unused inlets.



VG200 VACUUM GAUGE SERVICING

VG200 Vacuum Gauge Servicing

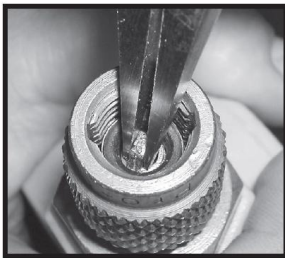
The **VG200** are simple to use precision digital readout vacuum gauges able to read in Hg", microns, Torr and mbarr selectable by pressing the units button.

In order to maintain peak performance some simple periodic maintenance is required to ensure the units internal vacuum sensor assembly remains as clean as possible. We recommend a quick visual inspection of the sensor assembly gasket daily and cleaning whenever you notice any oil on the gasket. This brochure outlines this simple cleaning procedure. Ensure you have access to a vacuum pump prior to cleaning, you will need to connect your VG200 to a vacuum pump for at least 15 minutes to evacuate moisture from the sensor immediately after cleaning.

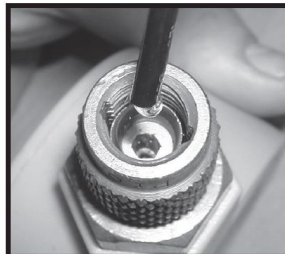


Routine cleaning and service:

1. Remove the valve core depressor (if fitted) and the black **HXG** gasket with needle nose pliers.



2. Inject methylated spirits into the sensor to fill the gasket cup, a standard medical syringe is perfect for this task.



3. Hold the unit in one hand and place your thumb over the gasket cup area.
4. Using your hand to create a swirling motion will encourage the methylated spirits to enter the sensor chamber.
5. Repeat from **Step 2** until the sensor is full and will not take anymore liquid.
6. Use a continuous swirl motion with the unit to create swirling effect of the solution in the housing for 15 seconds.
7. Invert and flick the unit (sensor out) to eliminate the bulk of the solution from the sensor assembly.
8. Insert a new HXG gasket (flat surface down 45° chamfer out) and re-fit the HXD valve core depressor if required. Place your **VG200** on a vacuum pump for at least 15 minutes to evacuate any remaining moisture.
9. When not in use store your vacuum gauge in it's padded protective bag. As with any electronic device if it is going to be stored for an extended period of time consider the removal of the batteries.

Precautions with the VG200:

- There are no user serviceable parts inside the case.
- Keep away from dust, dirt and water.
- Clean the plastic case with a soft moist cloth. **DO NOT USE SOLVENT BASED CLEANERS.**
- Regularly inspect the HXG gasket seal for signs of oil, if oil is evident perform the above cleaning procedure.