



**Mastercool<sup>®</sup>** Inc.  
*"World Class Quality"*





## DO NOT ATTEMPT TO OPERATE WITHOUT USING OIL!!!

In order to make the best use of your investment, familiar-ize yourself with the new features and operating instructions before starting pump. Routine care and maintenance of your vacuum pump will give you years of reliable service.

**Retain shipping box and packing material for use if factory warranty service is required .**

**IMPORTANT!: Use oil specifically refined for Deep Vacuum Pumps. Use of oil not refined for Deep Vacuum Pumps and/or operating with contaminated oil will void warranty.**

Each vacuum pump has been factory tested for CFM and micron performance. The serial number has been recorded. Complete and mail the warranty form immediately to validate your warranty!



## WARNING



Wear Safety Goggles

## OPERATING INSTRUCTIONS

### 1. OIL FILL

This [vacuum pump](#) has been tested at the factory and shipped with only trace amounts of oil. **OIL MUST BE ADDED BEFORE OPERATING!** Failure to add oil will damage cartridge and void warranty!

- Make sure the oil drain valve located below the front casing is closed before attempting to add oil. (See ref. #4 in parts breakdown.)
- Remove the large brass oil fill plug from the top of pump and insert the oil bottle into the fill port. (See ref. #5 in parts breakdown.)
- Slowly add oil until oil level rises to the top of the Oil Level Line. Do not overfill with oil!
- Replace the oil fill plug.

**CAPACITY: 42 LIT/MIN = 10 oz.**

**142 LIT/MIN = 16 oz.**

**213 LIT/MIN = 22 oz.**

### 2. CHECKING OIL LEVEL

- Open the gas ballast valve (small brass fitting located next to the handle) one turn. Do not remove!
- Start pump and run with intake port capped for about two minutes. Observe the oil level with the pump running. The oil level in the sight glass should be even with the level line.
- If the level is low, open the intake port and run pump for 15 seconds, stop pump and observe oil level again. Add a small amount of oil as needed.

### 3. GAS BALLAST VALVE

The gas ballast valve must be 1/4 turn to fully opened for the first part of the evacuation procedure. After about two minutes close the valve and continue the evacuation procedure to reach ultimate vacuum.

**FAILURE TO OPEN THE GAS BALLAST VALVE MAY RESULT IN DAMAGE TO YOUR CARTRIDGE.** Failure to close the valve during evacuation will result in poor vacuum performance.

During the first stages of evacuation, vapors are highly concentrated. Unfortunately, some vapors will condense into a liquid and mix with the oil, thus reducing the oil's ability to produce a deep vacuum. The **GAS BALLAST VALVE** emits a controlled amount of dry air into the pump during compression to minimize this effect and keep oil relatively clean during the first part of the evacuation. Periodically remove the Gas Ballast Valve Needle and clean or replace the O-ring. Clean mating surfaces and lightly coat with vacuum pump oil before securely retightening.

#### **4. CHANGING OIL**

In order to reach the deep vacuum required, your vacuum pump needs clean, moisture-free oil during evacuation. Dirty oil becomes a mixture of corrosive acids and water that effects the pump's ability to pull a deep vacuum. Left sitting in the pump, this sludge will rust and erode internal surfaces...shortening the pump's life.

**Care should be taken to avoid contact of oil with skin or eyes. OIL MAY BE HOT! Used oil should be properly disposed of in a leakproof corrosive-resistant container according to local regulations.**

- a. After every evacuation, while the pump is warm and oil is thin, take a small sample of oil from the drain port.
- b. If the oil is contaminated, drain the oil by placing the pump on a level surface and opening the oil drain valve. Catch the waste oil in a container and properly dispose of it.
- c. If the pump has been sitting for more than one month, the oil is considered contaminated regardless of appearance and should be changed as outlined above.
- d. To add oil, close drain, remove the oil fill cap and fill to the Oil Level Line with fresh oil.

#### **5. INTAKE CONNECTIONS**

Replace all caps and finger-tighten. Do not use caps with damaged or missing O-rings and always store vacuum pump with capped ports to prevent dirt and moisture contamination.

#### **6. PUMP MOTOR**

The PUMP and OIL must be above 30°F. The line voltage must be equal to the rating on the motor nameplate + / - 10%. Normal operating temperature is approximately 160°F, which is HOT to the touch! Line voltage and ambient temperature will affect the normal operating temperature somewhat. Your vacuum pump is designed for continuous duty and will run for extended periods without overheating. The motor has an automatic resetting overload protection feature. If the motor will not restart the pump after shut-off, it may have opened the thermal protection. Disconnect the pump from the system, wait about 15 minutes for the motor to cool down and then try again.