



Using a Pressure Gauge to Assess Breast Pump Performance

Breast pump effectiveness is evaluated by measuring the vacuum (also called suction) of the pump with a pressure gauge, an instrument that measures negative pressure. Our pump gauge needle assesses inches (inHg) rather than mmHg (the abbreviation for millimeters of mercury). The reading on the gauge is in inches and 1 inHg is equal to 25.4 mmHg. A simple way to convert would be to check the mmHg for the pump and divide it by 25.4. For convenience, we have a chart of common pump suction recommendations and readings on the back page.

We recommend routinely testing multi-user pumps each time they are issued to a new user, if they are making noises, squeaking, or if clients complain about low suction or notice a decrease in their supply.

Prior to testing with the pump gauge:

1. If you provide pump services, set aside one double pumping accessory kit to be dedicated to pump testing. This will avoid wasting or contaminating pump accessory kits.
2. Assemble the kit for single pumping by securely attaching all the parts and a single bottle to the tubing. You only need to test one side.
3. Inspect all the parts of the pump – the flange, membrane, and valve. Even a small tear in the membrane can affect the pump's performance.

Instructions for testing the suction of multi-user pumps with the pump pressure gauge:

1. Insert the pump gauge stopper firmly into the pump flange and make certain it seals completely by pressing the edges of the stopper firmly.
2. If you have too large of a flange for a tight fit, consider using a smaller flange or an insert for an accurate reading.
3. Set the pump's vacuum regulator dial to the minimum/low setting.
 - Lactina – this is located on the pale-yellow arm of the pump (Minimum suction is achieved by setting the pointer on the regulator ring to MIN. For maximum suction, set the pointer to MAX).
 - Pump in Style – the vacuum regulator dial is on the faceplate of the pump (labeled low, medium, and high).
4. Turn on the pump and look at the gauge to read what the value is on MIN/low. Record this value.
5. Gradually increase the suction level on the vacuum regulator dial and watch the gauge to see if the pressure values increase in response. Continue to adjust the suction level on the pump until it is on the MAX/high setting. Record this value.
6. Compare the values you obtained with the standard values listed below. These values are accurate up to 1650 feet above sea level.

- **Symphony 50 – 250 mmHg**

- **Lactina**

- o MIN setting 90 – 100 mmHg

- o MAX setting 240 – 250 mmHg

(Values should go up as dial is adjusted from MIN to MAX)

- **Pump in Style**

- First phase 50 – 200 mmHg

- Second phase 100 – 250 mmHg

- o Low setting 90 – 100 mmHg

- o High setting 240 – 250 mmHg

Please Note: Vacuum levels can vary based on weather (so do not test pumps during stormy conditions) and elevation. For elevations above 1650 feet, see the chart below to see the values for the MAX/High setting. You will notice that the higher the elevation, the lower the normal values.

- Sea level to 1650 ft (500 meters) 255 mmHg (235 – 275 mmHg)
- 1650 to 3300 ft (500-1000 meters) 240 mmHg (220 – 260 mmHg)
- 3300 to 6600 ft (1000-2000 meters) 225 mmHg (205 – 245 mmHg)
- Above 6600 ft (2000 meters) 199 mmHg (179 – 219 mmHg)

7. The pressure gauge is very fragile and needs to be handled with care. Dropping a gauge can result in incorrect readings. The pressure gauge does not need to be removed from the flange for storage. It is best if the gauge is not removed every time a pump is tested, because the gauges are very delicate. If the pressure gauge does need to be removed from the flange for some reason, grasp the gauge and stopper and carefully pull the unit out and store it in a safe place.



Assessing Pump Pressure with the Breast Pump Pressure Gauge

Thank you for your purchase of our Breast Pump Gauge. We have been able to provide an affordable device that uses inches rather than millimeters making it much more cost efficient.

Our pump gauge needle assesses inches (inHg) rather than mmHg (the abbreviation for millimeters of mercury – Hg is the chemical symbol for mercury). The reading on the gauge is in inches and 1 inHg is equal to 25.4 mmHg.

A simple way to convert any measurement would be to check the recommended mmHg for the pump and divide it by 25.4.

Example: Breast pump suction recommendation is 200mmHg divide that number by 25.4 and the solution is 7.87, so if the gauge reads 7-8 Hg, your pump is working efficiently.

The Conversion Chart below will allow you to evaluate the pump range for each device being tested. **As a rule, 1 inHg is equal to 25.4mmHg.** Several common pump brands and their vacuum range are listed below but refer to your pump manufacturer for a complete list of specs or use the conversion factor to figure any specific numbers.



Breast Pump	Max Vacuum Range (mmHg)
Medela Pump In Style Advanced	235-250
Spectra S1 and S2	270-300
Philips Avent Comfort	Up to 220
Lansinoh Signature Pro	220-250
Ameda Purely Yours	Up to 250
Freemie Freedom	Up to 250
Elvie Pump	Up to 220
Willow Pump	Up to 220

Pump Vacuum Pressure Conversion	
inHg	mmHg
1	25
2	51
3	76
4	102
5	127
6	152
7	178
8	203
9	229
10	254
11	279
12	305
13	330
14	356
15	381
16	406
17	432
18	457
19	483
20	508

For best results, use a flange that is the best fit for yielding the most milk during pumping sessions. The average flange size is between 15-17mm. You may consider a food grade oil as a lubricant in the flange tunnel to avoid discomfort. It is recommended to pump 10-12 times every 24 hours to keep up milk supply when separated from baby.

If you are having difficulty latching, need an assessment for milk transfer or are experiencing pain, please reach out to an International Board-Certified Lactation Consultant (IBCLC).