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Operating Temperatures and Battery Charge for DC Vacuum Lifters
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To our valued customers and partners:

Wood's Powr-Grip takes pride in our products and is committed to providing you with the best service available. Recently, we updated instructions for DC-powered vacuum lifters regarding the appropriate operating temperatures and battery charge. Instructions now state that the lifter is to not be used below 32° F [0° C] or with less than a 50% charge on the battery. These values are specified to ensure reliable operation of lifters and are based on product testing and component specifications, including variations among different gauges, pumps and batteries.

Although many factors go into determining these specifications, there are several primary considerations. Provided that operators account for these factors and compensate for them when necessary, they may be able to safely use the vacuum lifter outside of the specifications. However, Wood's Powr-Grip cannot guarantee that lifters used outside the specifications will function correctly in any particular instance.

Moisture

When a vacuum lifter is used in temperatures below freezing (32° F [0° C]), any water moisture entering the vacuum system may freeze. Ice in the system is a hazard because, as a solid, it can block airflow or interfere with seals, thus causing vacuum leaks. Additionally, since water increases in volume as it turns to ice, it can cause damage to vacuum system components. As directed in the instructions, the operator must take care to make certain all air filters are emptied of any water that may have accumulated inside, and to make sure that the load is dry and completely free of any frost or ice on its surface. If these steps are carefully followed, then ice in the vacuum system should not be an issue.

Battery Charge

The level of battery energy has a direct effect on the ability of the vacuum pump to start and to restart under a load--which is necessary for a DC-powered vacuum lifter to maintain sufficient vacuum for lifting. Electric motors require more current to start than they do to run continuously. As anyone who has started a car in cold weather knows, a lead acid battery is not able to provide as much current when it is cold as compared to when it is warm. In testing, standard batteries with a 50% charge (12.2 volts) at 32°F [0° C] were able to start the vacuum pumps employed on Powr-Grip lifters. However at colder temperatures or with less battery energy, the pumps did not start reliably. Safe operation of the vacuum lifter requires that the pump be able to start consistently before the system vacuum falls to 16" Hg [-54 kPa].

To counteract these problems, the operator may either warm the battery or charge the battery more fully prior to employing the lifter, thus enabling it to provide the needed current to start the pump. Wood's Powr-Grip cannot offer specific information about what charge a battery requires to function reliably at temperatures below 32° F [0° C]. However, in general, it is best in such instances to keep the battery fully charged and warm (eg, 70°F [21° C]) and then reinstall the battery on the lifter just before beginning a lift. It is also important to realize that the battery charge will not last as long in cold temperatures as it will in warm temperatures. In other words, while you may be able to accomplish 20 lifts a day during summer months, you are not likely to complete as many lifts in cold weather without charging or replacing the battery more frequently.

Your continued satisfaction with Powr-Grip products is very important to us. This service bulletin is intended to provide you with the information needed to ensure that a vacuum lifter is operated in a safe manner. We also want to assure you that we are continuously improving our designs to increase safety and reduce the chances of unintended use by operators. If you have any questions or need further assistance, please contact your dealer or a Technical Service Representative at Wood's Powr-Grip.

Sincerely,
The team at Wood's Powr-Grip

