

PROPANE AUTOGAS DISPENSER SPECIFICATIONS

OVERVIEW AND PURPOSE:

This document provides recommended minimum specifications, from the Propane Education and Research Council (PERC), to ensure positive end-user experiences with the installation and operation of propane autogas dispensing equipment.

Following these specifications will ensure that new propane autogas dispensing equipment installed:

- Meets all necessary federal, state and local codes and regulations.
- Delivers fuel to end-users in a similar way to gasoline.
- Will be the correct dispenser for the type of vehicle that will be filled.
- Provides propane autogas powered vehicle operators a safe, reliable refueling option.

SYSTEM PERFORMANCE REQUIREMENTS:

- Dispensing rate minimum of 8 gallons per minute [GPM].
- Pump package [motor, pump, bypass, piping, system sizing and electrical] must be able to provide adequate differential pressure based on vehicle type, geographic location and climate conditions.
- Location of dispensing station and proximity to the pump package impacts performance and shall be considered.
- Vehicle fueling area [ground where vehicle is parked] should be reasonably level to allow for complete fuel fills.
- Dispenser metering:
 - Shall meet all federal, state and local codes and regulations applicable at the installation location.
 - Shall be constructed with lockable access panels to prevent tampering.
 - Shall provide separation of the base classified area from the non-classified area [above 48"] by a permanent seal.

EQUIPMENT REQUIREMENTS:

- Dispenser cabinet:
 - Shall be constructed of nonflammable, noncombustible materials; including but not limited to powder coat steel, stainless steel, aluminum or equivalent materials.

- If you are using an electronic dispensing system, it shall be equipped with a pulse transmitter providing a minimum of 100 pulses per gallon [PPG] for retail sales and/or custody transfer.
- Mechanical temperature compensation without pulse output is acceptable.
- Meter accuracy shall be in accordance with federal, state and local codes and regulations, with a minimum accuracy of $\pm 0.6\%$ [.006] linearity and $\pm 0.24\%$ [.0024] repeatability when dispenser is used for retail sales and/or custody transfer.
- The meter shall be inspected prior to operation to ensure compliance with state weights and measure standards applicable at the location of installation when dispenser is used for retail sales and/or custody transfer.
- Dispenser display:
 - Shall indicate gallons dispensed, with mechanical or electronic register.
 - If equipment is mechanical, indicate gallons dispensed and totalizer display.
 - If equipment is electronic: indicate gallons dispensed, net or gross gallons, dispenser may include display with an alpha numeric keypad for ease of entering data.
- Electrical requirements:
 - All electrical installations shall be performed by a licensed, bonded electrician with motor control experience to ensure compliance with all federal, state and local codes and regulations at the location of installation.

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- Dispenser and all internal electrical components shall be wired in full compliance with the manufacturer's specifications. Electrical components contained within the dispenser cabinet, where required, shall be Class 1 Group D Division 1 or Division 2, and be provided with all required seal off devices.
- Distance must be considered when selecting service wire sizing to meet necessary voltage and amperage requirements of the motor manufacturer.
- Piping, valves, and fittings:
 - All piping within the dispenser cabinet shall be A53 Grade B or better, schedule 80 or approved equivalent materials.
 - All threaded fittings shall be forged steel, brass or other materials approved for use with liquid propane.
 - All threaded fittings and valves shall be minimum 400 PSIG water, oil or gas [WOG] rated.
 - Ball valves shall be full port for liquid service.
 - Internal valves, excess flow valves, and backflow check valves shall be installed in appropriate locations in accordance with federal, state and local codes and regulations.
- Hose assembly:
 - UL and CGA propane delivery hose shall be continuously marked "LP-GAS 350 PSI WP, 1750 burst pressure," maximum 18' length per NFPA 58 code.
 - Hose assembly shall have a UL 567 compliant hose breakaway device.
 - Fueling nozzle shall be gas pump style 1^{3/4}" ACME with quick-acting shutoff, low emission release, and failsafe discharge feature [example: GG 20 low emission Gasguard™ or equivalent].
 - Compatible with the dispensing device locking mechanism.
- Pump system and pump assembly:
 - Dispenser provider shall evaluate the filling requirements and provide the appropriate pump to meet these requirements. Vendor shall provide as a minimum pump curves showing flow, differential pressure, and horsepower required to meet system needs.
 - For most vehicles require a minimum differential pressure of 125 PSIG.
 - Pump inlet strainer [minimum 80 mesh] or any restrictions shall be minimum of 10 pipe-diameters from the pump inlet. Pump manufacturer's installation instructions shall be followed.
 - Pump inlet and outlet shall have isolation full port ball valves.
- In-line fuel filter:
 - Filter capable of filtering particles measuring 5 microns should be used.
 - Filter should be placed after the propane autogas pump, to filter the stored fuel prior to entering the vehicle.
- Tank assembly:
 - Tank selected must be suited for the application intended.
 - A new tank or a thoroughly cleaned tank should be used to prevent foreign material from entering the vehicle system.
 - Container provided shall be equipped with a bottom liquid connection sufficient to supply the pump at the pump manufacturer's recommended volume.
 - The container shall be equipped with a suitable vapor connection for the pump bypass.
 - The container shall be equipped with suitable connection for the vapor eliminator from the meter to operate properly.
- All other tank openings shall comply with federal, state and local codes and regulations.
- Installation foundation:
 - Tank and dispensing unit shall either be mounted on a concrete or masonry foundation unless it is part of a complete storage and dispensing unit supported on a common base to prevent uneven settling and stress on piping.

ADDITIONAL INFORMATION:

- Any compatible fuel management system may be used. Fuel management systems may include, but are not limited to the vehicle fuel usage, vehicle number, driver ID, mileage, gallons delivered, or any other information suitable to the customer's needs.
- If the dispenser is used for retail sales it must be an approved device for its intended purpose.
- Optional equipment and upgrades may include, but are not limited to:
 - Dispenser display with an alpha numeric key pad for ease of entering data.
 - Painted surface of dispenser shall be protected from damage from the breakaway system with an aluminum 12" x 14" wear plate.
- Resources:
 - UL 495: Power-Operated Dispensing Devices for LP-Gas
 - Handbook 44, National Conference on Weights and Measures
 - IFC
 - NFPA 58, 30A, 70 (NEC)
 - Applicable federal, state and local codes and regulations.

FOR MORE INFORMATION

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