3.0 DISPENSING EQUIPMENT
Dispenser Components

In order to safely dispense propane, you must know the equipment you are working with and how to use it. There are two main types of packaged propane dispenser installations; vertical tank dispensers and horizontal tank dispensers.

Dispensing equipment may vary with the location. Your system may or may not have the following components.

- An ASME storage tank that supplies propane to the dispensing equipment
- Valves to control the flow of propane through the piping system
- Extra heavy piping and forged steel pipe fittings
- A propane pump, driven by an explosion-proof electric motor
- A platform scale for weighing cylinders during and after filling
- Automatic pump by-pass valve(s), to protect the pump, piping and hoses against excessively high pressures when the hose end valves are closed and the pump is running.
- Electrical wiring, fixtures and switches to control the propane pump motor and provide for emergency shutdown.
- A metering system for measuring liquid propane transferred into appropriate containers.
- Propane transfer hose assemblies for cylinder filling and ASME tank filling.
- Hose end adapters to accommodate the different valves used on DOT cylinders and ASME tanks.
- An emergency break-away device for vehicle mounted containers designed to provide protection in case of a pull-away. These are usually on the ASME tank.
transfer hose assembly to stop the flow of gas if the customer drives away with the hose attached.

- A fenced enclosure or lockable cabinet to secure the dispenser when not in use. Depending on the site and enclosure, traffic barricades may also be required.

**Manual shutdown dispensers** rely on the operator to determine when the maximum permitted filling limit for a cylinder is reached, and to stop the flow of liquid into cylinders by manually closing one or more valves.

**Automatic shutdown systems** are used primarily where several cylinders are being filled simultaneously, such as the cylinder dock at a propane plant. They reduce the possibility of overfilling cylinders and normally consist of a sensor or trip lever mounted on the balance beam of the scale and a master control valve that restricts the flow of liquid propane to the dispensing hose.

The dispenser tank may be equipped with either an **internal excess flow valve** in combination with a positive shutoff valve or an **internal valve** which incorporates excess flow protection and may include thermal and remote shutoff capability.

**Remote shutdown stations** may also be located away from the pump and transfer location providing a greater level of emergency shutdown capability.

**Ball valves** control the flow of propane from the supply tank through the piping and may be used as a hose end valve. A ball valve is open when the valve handle is pointed in the same direction as the piping; in the closed position, the handle is across the piping.

**Globe valves** are similar to a water faucet and are operated by turning the hand-wheel counter-clockwise to open and clockwise to close. They must be either fully open or fully closed.
Hose end valves stop the flow of propane as part of the container filling operation. As another safeguard against overfilling containers hose end valves must be quick-closing, or snap acting types. Many designs also incorporate a safety latch to prevent accidental opening when the valve is not connected for filling.

Platform balance beam scales determine when the proper filling weight for cylinders is reached and when to stop the flow of liquid propane into the cylinder.

In many states and jurisdictions, scales must bear certification decals from weights and measures officials, and be periodically inspected and calibrated for accuracy.

Platform scales can be either single beam or double beam. Both require periodic maintenance and should be checked daily for proper registration at zero and with a known weight.

They must also be leveled and protected from weather, especially accumulation of water, debris, snow or ice.

Preparing the Dispenser

The first step in preparing the dispenser for operation is to unlock and open any or all entry gate or gates. If the dispenser is equipped with a cabinet, unlock the cabinet and verify that the hose end valves are closed.
With the exception of the hose end valves, SLOWLY open the liquid outlet valve and the first downstream manual valve.

- If valves are opened too quickly, the excess flow valve may close, and you’ll hear a snapping noise.
- Shut off the manual valve and the internal valve.
- When the pressure equalizes, slowly open the operating valves including the vapor valve connected to the vapor return line from the meter.

Inspect all valves, piping, transfer hose and fittings for proper operation.

Inspect the threads of all connection adapters, especially brass for excess wear and to assure that the gaskets are in place and in suitable working condition.

Verify there are no propane leaks.

Dispenser Shutdown

When the dispenser is not in use or at any time that a qualified dispenser operator is not in attendance, the dispenser should be shut down and secured. The shut down procedure is basically the reverse of preparing the dispenser for operation.

- Close all valves at the storage tank.
- Place a dust cap or plug in the hose end valve or filling adapter
- Store the filler hose in the proper location.
- Close and lock the cabinet and/or fence gates.

Becoming familiar with the dispensing equipment and how it works will enable you to safely fill cylinders and protect your customers, your workplace, and yourself.