

# TEXAS SAMPLING, INCORPORATED



## Cylinder Type Sampling Systems

### Features

**Easy operation**  
**Sight flow indicator**  
**(liquid only)**  
**System pressure gauge**

**Check valves in quick connects**  
**Installation/operation manual**

- Minimum number of valves (2) required to operate
- Allows visual checking of sample flow and level of sample in cylinder
- Indicates loop pressure for venting loop and disconnecting cylinder.
- Provides double blocks on open connections of sampling system after sample cylinder is removed
- Provides vital information for installation, operation, and maintenance

TSI LPG samplers enable operators to obtain representative samples of gas or high vapor pressure liquids. The sample is captured in a sample cylinder for easy transport to the lab. Texas Sampling's patented design uses cylinder saddles to ensure safe, proper alignment, hold cylinder securely in place, and prevents leakage when connecting the cylinder. For maximum operator safety, our LSL liquid sampler design allows the operator to obtain the proper outage. Any excess process left in the system is vented allowed to vaporize so that the pressure in the quick connects is reduced. Simple two-valve operation and the easy on/off design of the sample cylinder makes the Texas Sampling system a superior choice for any high-vapor-pressure liquid or gas application.

### Description

#### LSL — Liquid Sample System

The LSL is a patented system designed to take samples of high-vapor-pressure liquids for sample points with a process return. A sight glass is incorporated in the design to perform two functions. First, the sight glass is used to verify that there is process flow through the sample system, ensuring that a representative sample is taken. Second, the sight glass is used to visually verify that there is an outage in the sample cylinder to ensure proper vapor space expansion. Any residual process remaining in the cylinder after analysis can be flushed back into the process, minimizing the need to clean the cylinder between samples.

#### LSG — Gas Sample System

The LSG sample system is designed for taking samples of gases or vapor in applications where a process return is available. The sample cylinder is filled from the top to flush any liquids or condensed vapors back to the process to prevent contamination from the fresh sample. A pressure gauge is incorporated in the design to indicate that process pressure is in the sample system during sample collection. An armored

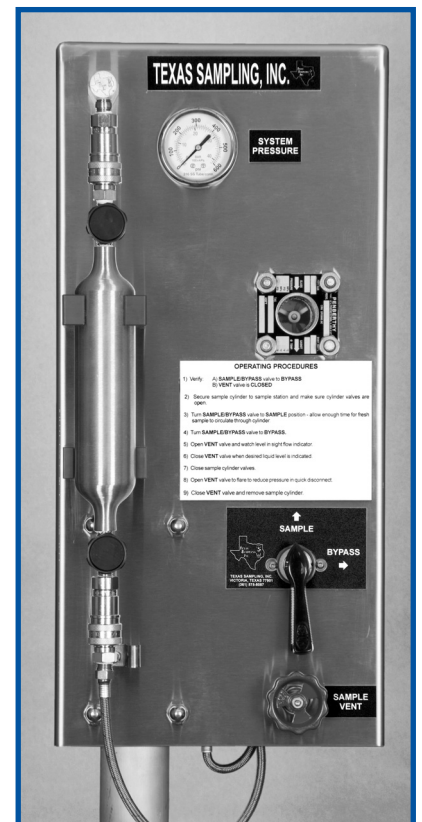
rotameter can be added as an option to verify flow through system.

#### LRL (liquid)/LRG (gas) — without return

Some sample points do not have the ability to return flow to the process. The LR series is designed specifically for these applications. A flow control valve is used to control the flow and back pressure of the sample through the system. The process flows to the vent or flare system when circulating to ensure a representative sample. Available for liquids (LRL) and gases (LRG).

#### LPL (liquid)/LPG (gas) — with purge

The LP series is used in applications which require the purging of the process from the sample system before disconnecting the sample cylinder. Nitrogen is used to purge the process from the cylinder connections and out the vent connection ensuring the connections are clean and dry before the cylinder is removed. Available for liquids (LPL) and gases (LPG).



# Cylinder Type Sampling Systems — Model Configurator

## Model

- LSL-LPG Liquid w/ return
- LSG-LPG Gas w/ return
- LRL-LPG Liquid w/o return
- LRG-LPG Gas w/o return
- LPL-LPG Liquid w/ purge
- LPG-LPG Gas w/ purge

### Gauge Range (max. operating pressure should be 70% of gauge range)

- 1 0-300psi
- 2 0-600psi
- 3 0-1000psi
- 4 0-2000psi (high-pressure option)

### Cylinder Assembly Options

- A 150cc sample cylinder
- B 300cc sample cylinder
- C 500cc sample cylinder
- D 1000cc sample cylinder
- X Without (customer specifies cylinder size)

### Cylinder Options

- 1 Diptube
- 2 Swagelok quick connects (QC4, QC6. For other series, call factory)
- 3 Relief valve (Rupture disc)
- X Without

### System options

- A High pressure (> 600 psig up to 2,000 psig @ 100°F)
- X Without

### Process Connections

- 1 1/2" tube
- 2 Up to 3/4" x 150# flange
- S 1/4" tube connection

### Block Valves (1/4")

- B Process block valve (1/4" ball type) (for use with temperatures up to 350°F)
- C Needle valve
- D Other process block valve
- E Check valve
- X Without

### Vent Options

- 1 Emission filter (activated carbon in SS canister) Not recommended for systems without return.
- 2 Emission filter with crystals to indicate when carbon needs changing
- X Without

### Pipestand

- PS (2" x 60" galvanized with 10" x 10" base)
- X Without

### Enclosure (all 304 SS)

- N Non-insulated
- IE Insulated with electric heater
- IS Insulated with steam or glycol mounted heating coils
- X Without

**Coolers** (high-efficiency coolers designed to customer's requirements: includes TV and T1 in thermowell, H2O block valves, plate mounted)

Recommended for process temperatures over 130°F. Cooler data sheet must be submitted for proper sizing.

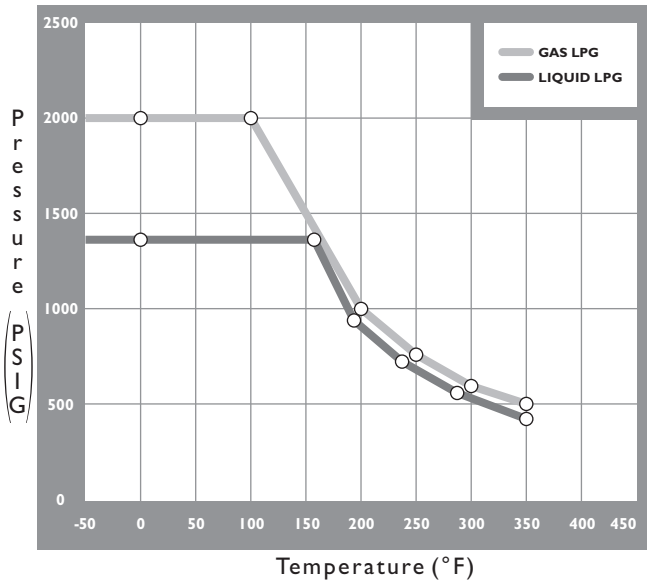
- CX Process Cooler \*Please contact Texas Sampling for proper sizing
- X Without

### Miscellaneous

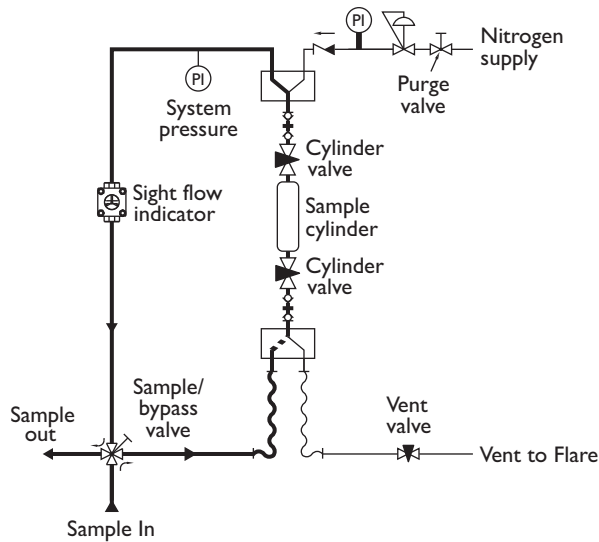
- K1 Kalrez o-ring 4-way sample valve
- K2 Kalrez o-ring check valve
- K3 Parker QC w/Kalrez o-ring (add 3 weeks to delivery)
- F Specify fittings other than standard Hoke
- X Without

# Cylinder Type Sampling Systems — Technical Data

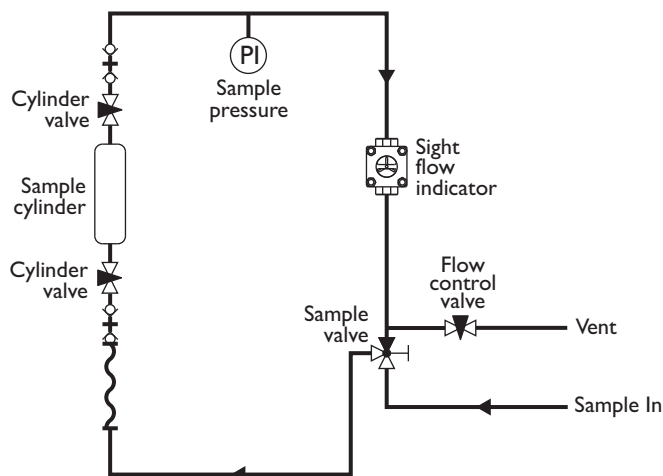
## Pressure vs. Temperature



## LPL: LPG Liquid with purge



## LRL: LPG Liquid without return



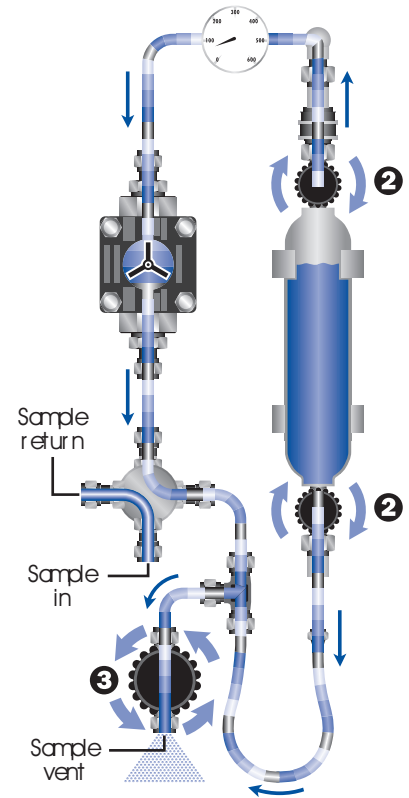
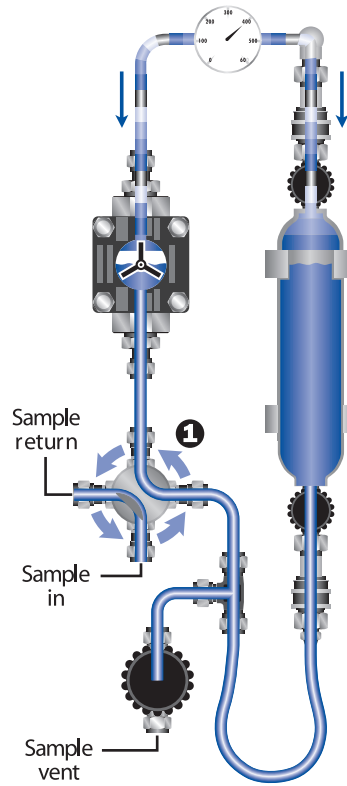
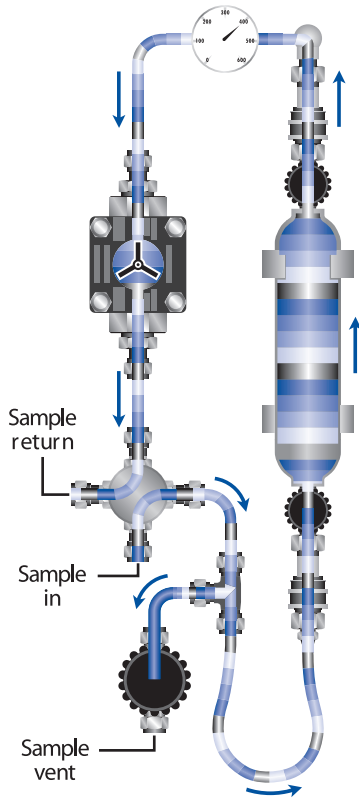
## Options

- Process Block Valves**
  - Isolates system from process stream
- Graphoil-packed valves**
  - Provide improved fire-safe capabilities (not API 607 rated)
- Coolers**
  - Available in a variety of sizes to cool process before entering into sample cylinder
- Carbon canister**
  - Absorbs vented vapors from system while sampling
- Insulated enclosure**
  - Maintains constant temperature using steam or electric heat
- Non-insulated enclosure**
  - Provides protection from the environment
- Pipe stand**
  - Available from Texas Sampling to provide convenient system installation
- Armored flow meter**
  - Allows verification process flow through gas of sample system
- Sample cylinder assembly**
  - Available from Texas Sampling in a variety of sizes with cylinder valves and quick disconnects
- Diptube**
  - Use as extra safety precaution to ensure proper outgase
- High-pressure equipment**
  - High-pressure sight glass for applications with pressures greater than 1440 PSIG@100°F but less than 2,800 PSIG

# LSL-LPG Liquid with Return

Sample mode

Vent mode



1. Capture sample

2. Isolate sample

3. Vent sampler



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