

ARRANGING THE PUMP DISCHARGE LINE FOR FASTEST DELIVERY

By

LAWRENCE W. SMITH

Smith Precision Products Co., South Pasadena, California

(Reprinted from the article "How to Speed-Up Fuel Deliveries"
in the *Butane-Propane News*, January, 1953)

METERS
BACK-PRESSURE VALVES
HOSE VALVES
SAFETY-FILL NOZZLES
DELIVERY HOSE
TANK FILLER VALVES
BACK PRESSURES IN TANKS
BASIC LPG PUMPING SYSTEM
PUMP CAPACITY AGAINST PRESSURE

Complete Index Begins on Page 17
Illustrating Figure A on Pages 10 & 11

SMITH
PRECISION PRODUCTS COMPANY

1135 MISSION STREET • SOUTH PASADENA • CALIFORNIA • PHONE PYRAMID 12293

ARRANGING THE PUMP DISCHARGE LINE FOR FASTEST DELIVERY

THIS article is written for the benefit of the operators of delivery trucks and stationary dispensing systems. Our purpose is to show how it is often possible to make small changes in the pump discharge line that will allow a considerable speed-up in the delivery rate. We also want to show how to design new systems for the very fastest pumping.

To do this, we will present tables giving the pressure drop (resistance-to-flow) across various parts of pump delivery lines; we will explain the significance of these tables; and we will show how these tables can be used for estimating delivery rates in dispensing systems.

There are seven important parts or units in the pump discharge line that affect the delivery rate. These

are all illustrated in the accompanying Figure A, and may be listed as follows:

- Unit 1. Meter (12).**
- Unit 2. Back-pressure valve (14).**
- Unit 3. Valve on meter end of hose, if used (35).**
- Unit 4. Hose (16).**
- Unit 5. Valve on delivery end of hose (28).**
- Unit 6. Tank filler valve (36).**
- Unit 7. Back-pressure built up in tank when vapor return line is not used.**

Other items, such as the short lengths of piping normally used in discharge lines, or the elbows, tees, and other simple fittings, can be neglected, as their effect is small in comparison with the items listed. Let us take up the above seven units one by one in the discussion to follow.

