

LPM-102

LP-Gas Flowmeter

Technical Bulletin



Designed for retail sales dispensing units, the LPM-102 offers the widest flow range, (3-18 gpm) available in a meter of this type. In addition, the LPM-102 is self-contained with all required accessories including vapor eliminator, strainer and differential valve.

Available in a variety of configurations for every application, the LPM-102 can be ordered with registration calibrated in U.S. gallons or liters. An optional automatic temperature compensator is available, and 3/4" or 1" flanges may be specified. The Full-Circle Quick-Vent option allows safe and effective evacuation of the meter for maintenance and repairs.

The LPM-102 is completely compatible with the Neptune 1" Type 4D-MD flowmeter; both in external dimensions and its internal parts. The unit is UL Listed, and has received NTEP Certificate of Conformance #96-112A1.

Primary Features

At the heart of the model LPM-102 flowmeter is the superior Liqua-Tech measuring chamber. It features a hard-coated piston with special dense metal oxide finish and hardened steel bearing shaft, field proven in thousands of installations. The meter is also available with Liqua-Tech's patented *Trac-Bearing*® measuring chamber option, for improved accuracy, reliability and lower maintenance. The *Trac-Bearing*® design controls and stabilizes piston rotation more efficiently than standard control rollers, resulting in greater sustained linear accuracy with less wear.

The LPM-102 is equipped with Veeder-Root printing or non-printing registers, for established reliability and lowest operating torque. The meter is also available configured with gear plate, star-driver, or spindle only for adaptation to electronic registration units. The exclusive Liqua-Tech register gear plate adapter offers Neptune style change gears for ease of calibration.

Neptune is a registered trademark of Actaris Metering Systems. Liqua-Tech is an unaffiliated manufacturer of replacement parts for Neptune flowmeters.

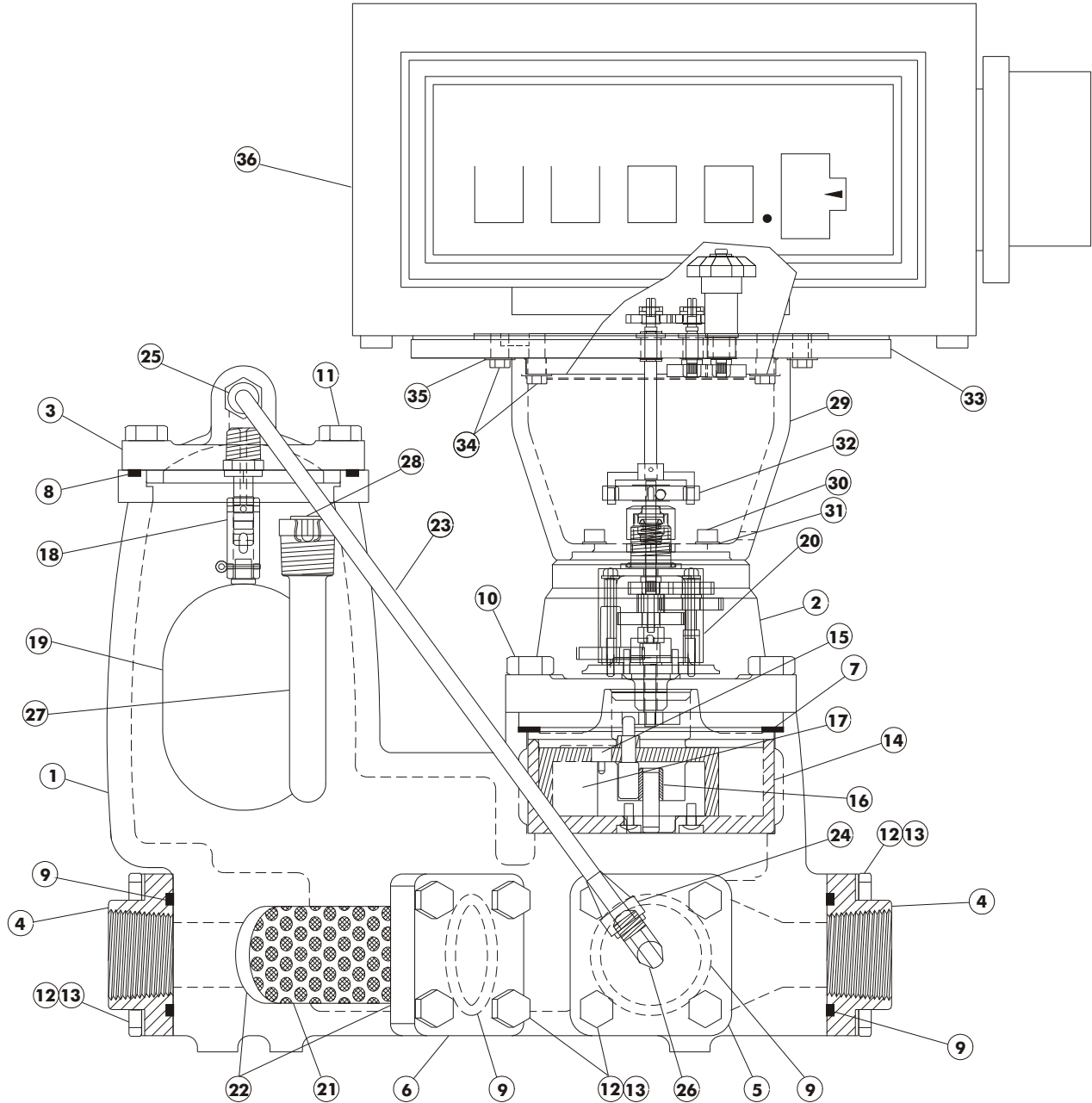
Specifications

- Rate of Flow:** 3.0 to 18.0 gpm (12 to 68 lpm) maximum.
- Working Pressure:** 350 psi (24 bar) maximum (24.6 Kg/cm²).
- Connections:** Standard assembly has inlet at left and outlet to right with 3/4" and 1" female pipe threads available.
- Register:** Veeder-Root model 789002 (printing) or model 788700 (non-printing).
- Units of Measure:** Calibration is in U.S. gallons or liters.
- Register Reset Capacity:** 9,999.9 gallons (9,999.9 liters, non-printing; 99,999 liters, printing).
- Register Totalizer Capacity:** 9,999,999.9 gallons (9,999,999.9 liters, non-printing; 99,999,999 liters, printing).
- Temperature Compensator:** Compensates to 60° F (15° C).
- Range:** -10° F to 125° F (-23° C to 52° C).
- Shipping Weight:**
 - Gear plate only (no register) 54 lbs.
 - With non-printing register 67 lbs.
 - With printing register 76 lbs.
 - With ATC and non-printing register 76 lbs.
 - With ATC and printing register 85 lbs.



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Parts List



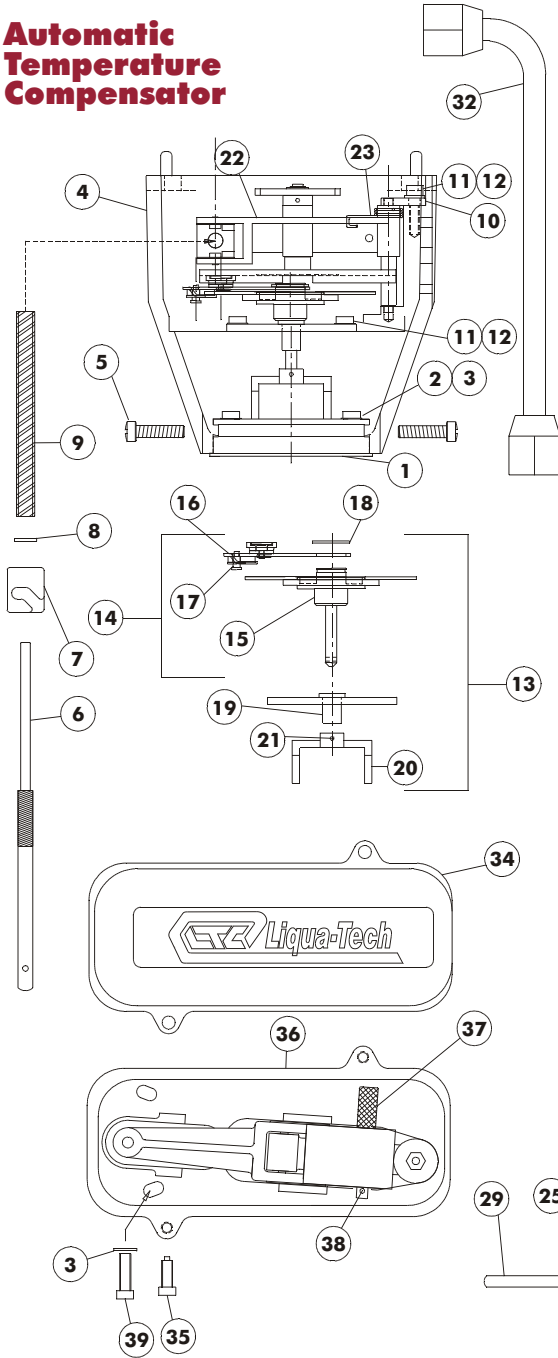
Ref.	Description	Part Number
1	Main case housing	L400027-001
2	Cover, main case	L087173-710
3	Cover, vapor eliminator	L087193-710
4	3/4" Flange inlet/outlet	L087180-710
	1" Flange inlet/outlet	L087180-711
5	Flange, differential valve	L087179-710
6	Flange, strainer	L400025-001
7	Gasket, main case	L004861-016
8	O-ring, vapor eliminator flange	L100139-012
9	O-ring, inlet/outlet flange	L100139-007
10	Bolt, hex head, 7/16 NC x 1 1/4", drilled	L040237-005
	Bolt, hex head, 7/16 NC x 1 1/4", undrilled	L040237-004
11	Bolt, hex head, 3/8-16 NC x 1"	L100067-027
12	Bolt, hex head, 5/16 NC x 1"	L100063-026
13	Lockwasher, split 5/16"	L100121-010
14	Measuring chamber, LP-gas, standard	L042075-101
	Measuring chamber, LP-gas, Trac-Bearing®	L042075-501
	15 Seal pin	L042792-000
	16 Roller control	L042086-010
17	Diaphragm	L042791-000
18	Vapor return valve	L087190-000

Ref.	Description	Part Number
19	Float	L087189-001
20	Gear train, 43.5 ratio, U.S. gallons	L080905-017
	Gear train, 11.6 ratio, liters	L080905-015
21	Strainer assembly, 80 mesh	L101738-001
22	O-ring, strainer endcaps	L100139-006
	Tube assembly, vapor release	L087196-001
23	24 Nut, flared, 1/4" tube	L087198-000
25	Male connector, 1/8" NPT x 1/4" tube	L084826-100
26	90° elbow, 1/8" NPT X 1/4" tube	L087195-000
27	Thermowell assembly	L086666-702
	28 Cover, thermowell	L083732-000
29	Register adapter tower	L886150-000
30	Screw, 10-32 x 3/8", socket cap	L088524-010
31	Lock washer, split, #10	L041211-000
32	Star drive, w/set screw	L082976-001
33	Register gear plate adapter, no ATC	L886101-001
34	Cap screw, plated, 1/4-28 x 5/8", drilled	L100061-101
	Cap screw, plated, 1/4-28 x 5/8", undrilled	L100061-100
35	Lock washer, external, 1/4"	L100123-100
36	Register, non-printing, Veeder-Root	788700
	Register, printing, Veeder-Root	789002

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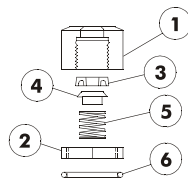
Parts List

Automatic Temperature Compensator



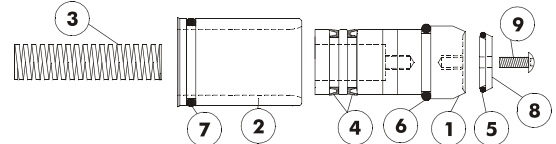
Ref.	Description	Part Number
	ATC Complete, LPM-102	L101080-005
1	Adapter mounting ring, ATC	L101052-001
2	Screw, filister head 10-32 x 3/4", S.S.	L041750-000
3	Lock washer, split, #10	L041211-000
4	Housing assembly, ATC	L101047-001
5	Screw, filister head 10-32 x 3/4", drilled	L041750-002
	Screw, filister head 10-32 x 3/4", undrilled	L041750-000
6	Push rod, ATC	L101059-001
7	Swivel block assembly, all ATC'S	L086612-000
8	Spacer, spring retainer, all ATC 'S	L088286-003
9	Spring, push rod	L084888-001
10	Plate, offset arm support	L101060-001
11	Screw, 10-32 x 3/8" socket buttonhead	L041750-008
12	Lock washer, internal, #10	L100122-007
	Lower drive bracket complete, 1" ATC	L084913-000
	Ratchet wheel assembly w/arms, ATC	L084916-000
15	Ratchet wheel and shaft assembly, ATC	L084917-000
	Ratchet arm set (1,2,33,44)	L086055-000
	Ratchet arm assembly, #1	L086057-001
	Ratchet arm assembly, #2	L086064-001
	Ratchet arm assembly, #33	L086637-001
	Ratchet arm assembly, #44	L086639-001
	Spring, ratchet pawl, ATC	L086063-000
	Retaining ring, 1/2" extension	L086071-000
19	Plate drive assembly, ATC	L101055-001
20	Drive fork (long)	L084192-006
21	Roll pin, 1/16" x 3/8", steel	L100370-003
22	Arm complete, offset spider	L084910-004
23	Spring, offset spider, ATC	L008355-506
24	Thermostat cover, ATC	L087179-001
25	Screw, socket head, 1/4"-20 x 3/4"	L008325-401
26	Thermostat housing, ATC	L101048-001
27	Screw, button head, 1/4"-20 x 5/8", S.S.	L008325-020
28	Lock washer, 1/4", split	L041117-000
29	Thermostat pin, ATC	L086648-006
30	Thermostat bellows assembly	L086646-000
31	O-ring, thermostat	L100139-005
32	Connecting tube, LPM-102, ATC	L101065-001
33	Elbow, 3/8" NPT x 3/8" SAE	L084825-000
34	Cover, lever arm mounting plate	L086665-000
35	Screw, cover, 10-32 x 3/4", special, drilled	L009287-003
36	Lever arm assembly & mounting plate	L086649-003
37	Pin, lever arm lock	L086661-001
38	Cotter pin, 1/16" x 3/8", S.S.	L041401-000
39	Screw, filister head, 10-32 x 5/8", steel	L041221-002

Stuffing Box Assembly



Ref.	Description	Part Number
1	Nut, stuffing box, complete, w/bushing	L083536-000
2	Clamp nut	L000034-000
3	U-cup seal (buna-n)	L100025-002
4	U-cup expander	L083539-000
5	Spring, stuffing box	L083540-000
6	O-ring, gear train, (buna)	L100138-003

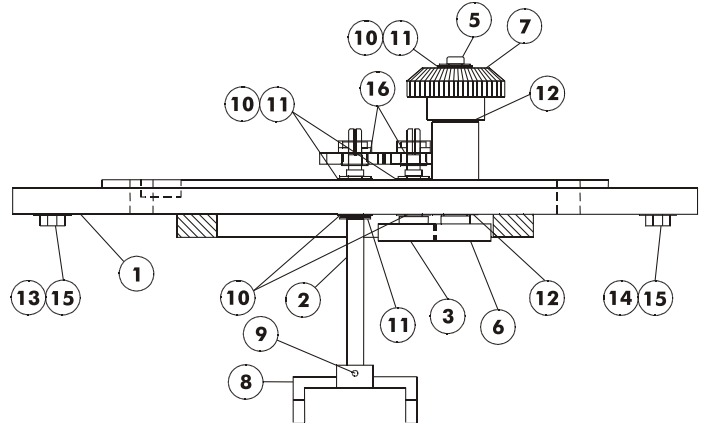
Differential Valve Assembly



Ref.	Description	Part Number
	Differential valve assembly, soft seat	L100028-011
1	Piston, differential valve	L100160-040
2	Sleeve, differential valve	L100027-010
3	Spring, differential valve	L100024-001
4	U-cup seals, extra low friction (2)	L100025-008
5	O-ring, primary, soft seat (buna-n)	L100025-102
6	O-ring, secondary, soft seat (viton)	L100025-101
7	O-ring, sleeve	L100139-006
8	Retainer, differential valve, (brass)	L100160-050
9	Screw, 10-32 x 1/2", buttonhead, S.S.	L041750-010

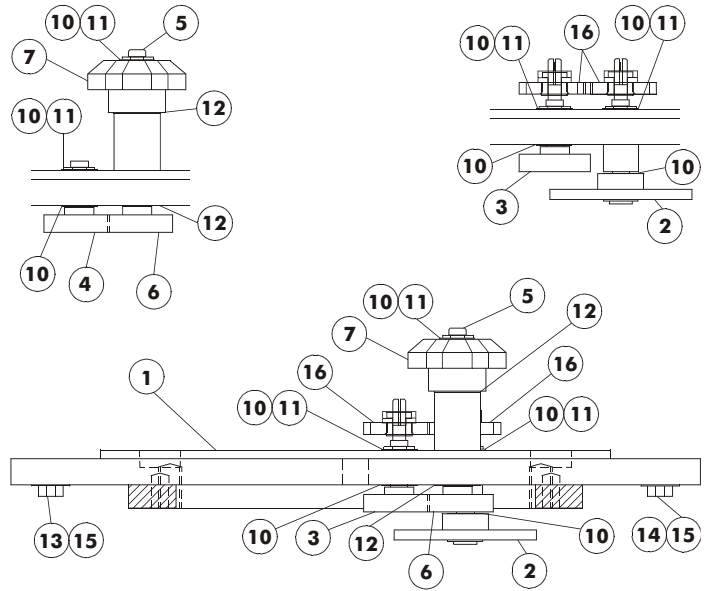
Register Gear Plate Adapter, No ATC

Ref.	Description	Part Number
	Gear plate assembly	L886101-001
2	S-shaft gear assembly	L886112-001
3	R-shaft gear assembly	L886115-000
5	Output shaft bevel gear assembly	L886116-002
6	Shaft, output, w/spur gear assembly	L886116-010
7	Gear, bevel, w/clutch assembly	L886116-011
8	Fork driver (short) w/pin	L088589-001
9	1/16" x 3/8" roll pin	L100370-003
10	Washer shim, 3/16" x 3/8" x .010"	L886121-000
11	Retaining ring, 3/16" E-type	L886131-000
12	Washer shim, 1/4" x 1/2" x .005"	L886122-000
13	Cap screws, 1/4"-28 x 5/8", undrilled	L100061-100
14	Cap screw, 1/4"-28 x 5/8", drilled	L100061-101
15	Lock washer, ext 1/4"	L100123-100
16	Register change gear assembly	L081230-xxx

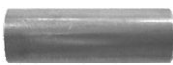


Register Gear Plate Adapter, ATC

Ref.	Description	Part Number
	Gear plate assembly	L886105-001
2	S-shaft gear assembly	L886112-002
3	R-shaft gear assembly	L886112-001
4	Idler shaft gear assembly	L886117-000
5	Output shaft bevel gear assembly	L886116-002
6	Shaft, output, w/spur gear assembly	L886116-010
7	Gear, bevel, w/clutch assembly	L886116-011
10	Washer shim, 3/16" x 3/8" x .010"	L886121-000
11	Retaining ring, 3/16" E-type	L886131-000
12	Washer shim, 1/4" x 1/2" x .005"	L886122-000
13	Cap screws, 1/4"-28 x 5/8", undrilled	L100061-100
14	Cap screw, 1/4"-28 x 5/8", drilled	L100061-101
15	Lock washer, ext 1/4"	L100123-100
16	Register change gear assembly	L081230-xxx



Meter Options



Strainer Magnet

Helps remove tank scale and other ferrous metal particulates in the liquid gas stream.

Part Number	Description
L101738-101	Strainer magnet



Trac-Bearing® Measuring Chamber

Provides greater sustained accuracy with less wear in low viscosity fluids. Patented design controls and stabilizes piston rotation better than standard control rollers.

Part Number	Description
L042075-CHG	Upgrade, Trac-Bearing® chamber, LPM-102



Quick-Vent Flange

Replaces the strainer screen flange for safe and effective evacuation of meter. Route LPG to remote location or storage container. Controllable bleed rate. UL listed.

Part Number	Description
00MA20-CHG	Quick-Vent option on LPM-102 3/4" & 1" meters

Standard Meter Configurations

Part Number	Register	ATC	Description
Units of Measure - Gallons			
L090028-040	none	no	w/o gear plate, tower, star driver
L090028-052	none	no	w/tower, w/o gear plate
L090028-051	none	no	w/gear plate
L090028-001	non-reset	no	157 register
L090028-101	non-printing	no	
L090028-102	printing	no	
L090028-109	none	yes	w/gear plate
L090028-105	non-printing	yes	
L090028-106	printing	yes	
Units of Measure - Liters			
L090028-050	none	no	w/o gear plate, tower, star driver
L090028-053	none	no	w/gear plate
L090028-010	non-reset	no	157 register
L090028-103	non-printing	no	
L090028-104	printing	no	
L090028-107	non-printing	yes	
L090028-108	printing	yes	
Units of Measure - 10 Liters			
L090028-011	Non-Reset (157)	no	10 liters