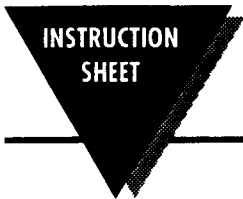




# FL600 Series Stainless Steel Flowmeter



M2207/0795

## Unpacking Information

Remove the Packing List and verify that you have received all equipment, including the following (quantities in parentheses):

- FL600 Series Flowmeter (1)
- Extractor Tool (1)
- Instruction Sheet (1)

If you have any questions about the shipment, please call the OMEGA Customer Service Department.

When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

**NOTE**

The carrier will not honor damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

## Use of the Flowmeter

Meters are not specifically recommended for service other than water or air. The user must determine meter suitability for use with other fluids.

## Features

- Heavy duty 304SS Frame, End Plates, and Shield Retainers
- Full 3/16" Thick Polycarbonate Safety Shield
- 316SS In-Line (Vertical) Fittings
- Detachable, Clear Polycarbonate Scale Plate Mounts Directly on Front of Metering Tube
- Direct Reading Scales (GPM Water or SCFM Air)
- Unique Float Stop Design Allows Internals to be Removed and Replaced without Disturbing Tube or Shield
- Simple to Clean
- NIST Traceable Calibration Available

## Available Models

### Water Models \*

Part Number	Max GPM	ΔP in H <sub>2</sub> O	NPT
FL601G	0.73	5	1/2"
FL602G	2.30	40	1/2"
FL603G	5.00	14	1"
FL604P	26.00	70	1"
FL605P	61.00	40	2"
FL606P	116.00	45	2"

### Air Models \*

Part Number	Max SCFM	NPT	Max. Pressure PSIG
FL610G	3	3/8"	250
FL611G	10.2	1/2"	250
FL612G	21.3	3/4"	200
FL613P	87.6	1"	200
FL614P	251.0	1-1/2"	125
FL615P	247.0	2"	125

\*Models with "G" have rib-guided floats; Models with "P" have pole-guided floats. Weights and maximum pressure shown are for both water and air models.

## Installation

This is important information. Read it carefully before beginning work.

- 1) Make sure your pressure, temperature, fluid and other requirements are compatible with the meter.
- 2) Select a suitable location for installation to prevent excess stress on the other meter which may result from:
  - a) Misaligned pipe
  - b) The weight of related plumbing

- c) "Water Hammer" which is most likely to occur when flow is suddenly stopped as with quick closing solenoid operated valves. (If necessary a surge chamber should be installed. This will also be useful in pressure start-up situations.)
- d) Thermal expansion of liquid in a stagnated or valve isolated system. (If necessary install valving which will allow the meter to be drained when not in use.)
- e) Instantaneous pressurization which will stress the meter and could result in tube failure.

**NOTE**

In closed thermal transfer or cooling systems install the meter in the cool side of the line to minimize meter expansion and contraction and possible fluid leaks at the threaded connections.

- 3) Handle the meter carefully during installation.
  - a) Use an appropriate amount of Teflon tape on external pipe threads before making connections. Do not use paste or stick type thread sealing products.
- 4) Install the meter vertically with the inlet port at the bottom. No piping runs are required.
- 5) Meters with stainless steel fittings will support several feet of pipe as long as significant vibration or stress resulting from misaligned pipe are not factors.
- 6) Meters with plastic fittings must be installed so that fittings are not made to support any part of the associated plumbing. Clamps mounted to a bulkhead or panel can be used to hold the meter securely at both ends.
- 7) Meters used in gas service should have suitable valves plumbed in at the inlet and outlet of the meter. These valves should be no more than 1-1/2 pipe diameters from the meter ports. The valve at the outlet should be used to create back pressure as required to prevent float bounce. It should be set initially and then left alone. The inlet valve should be used for throttling purposes. Depending on the installation, valves may not be essential, but they are most useful in many installations. Remember to get a correct reading of flow in gas service it is necessary to know the pressure right at the meter (before the valve).

## Cleaning

- 1) If the tube is plain taper (has a rod guided float) thread the extractor tool onto the threaded guide extension in the outlet fitting. Remove the float stop retainers, and carefully withdraw the float and guide assembly from the tube. The tube is now fully accessible for cleaning with a bottle brush and an appropriate mild soap solution\*. (It is normally not necessary to remove the inlet float stops when tubes have pole guided floats.) The guide and float assembly may not be cleaned with the same fluid. (This unit is not meant to be disassembled.) To reassemble, carefully guide the float assembly back into the tube.\*\* Line up the dimples on the float stop with threaded holes, insert and thread the float stop retainers into the fitting. Tighten them down. Disengage the extractor tool. Remove and replace the teflon tape on the plugs. Replace plugs in end fittings.
- 2) If the tube is ribbed (i.e. fluted or beaded) remove the bottom plug. Thread the extractor tool onto the float stop assembly. Remove the inlet float stop retainer screws and gently pull the float stop from the fitting cavity. Use care. The float will follow the stop out of the cavity. Then remove the top float stop in the same fashion. The float will follow the stop out of the cavity. Then remove the top float stop in the same fashion. The tube is now ready for in place cleaning (as indicated above). When refitting the float and stop assembly make certain the float is not damaged by the threads on the side port of the fitting. Use caution as the float enters the tube. The tube will easily be damaged if a cocked float is forced against the glass tube. When the float and inlet stop are reinserted in the meter rotate the extractor tool to line up the float stop dimples and the threaded float stop retainer holes. Reinsert the retainer screws and tighten. Disengage the extractor tool. Repeat this last step on the outlet float stop assembly. Change the teflon tape on the plugs and reinstall.
 

\*Do not use cleaning agents that will damage the float, tube or O-rings.

\*\*When installing float/guide assembly make certain that the end of the guide fully engages the inlet float stop before retainer screws are replaced.

**CAUTION**

Glass tube meters should not be used with strong or hot alkalis, fluorines, hydrofluoric acid, steam or water above 200°F (104°C).

Extra caution must be exercised when meters are used in high pressure gas cylinder applications. Pressure regulations should be installed at the cylinder and at the inlet of the meter.

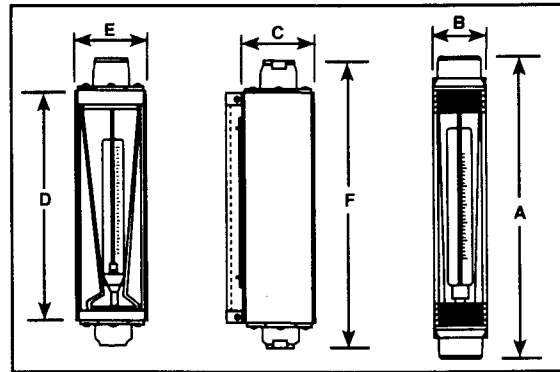
Serious property damage and great personal injury could occur as the result of a meter misused or used in an unsuitable application.

**WARNING**

Pressure and temperature ratings are based on a study of the engineering data for particular materials used in construction and on the design of individual models. This information is supplemented by destructive test results. Meters with stainless enclosures must never be operated without shields securely in place. Meters exposed to difficult environments such as those created by certain chemicals, excessive vibration or other stress inducing factors could fall at or below the suggested maximums. Never operates meters above pressure maximums. It is strongly recommended that all meter installations utilize an appropriate pressure relief valve and/or rupture disc. The pressure settings and locations of these devices should be such that meters cannot be overpressurized. Meter failure could result in damage to equipment and serious personal injury. Always use suitable safety gear, including OSHA approved eye protection when working around meters in service. We are happy to pass along chemical compatibility information that has been published by the manufactures of raw materials used in our products; however, this information should not be construed as a recommendation made by OMEGA Engineering, Inc. for a specific application.

**Specifications**

- Accuracy: ± 3% of full scale
- Repeatability: ±1%
- Scale: 127 mm (5")
- Wetted Parts: 316 stainless steel borosilicate glass, PVC fittings optional
- Max. Temp.: 93°C (200°F), 43°C (110°F) for units with PVD fittings
- Connections: FNPT
- Weight:
  - (FL601G/FL610G): 10 lbs
  - (FL602G/FL611G): 10 lbs
  - (FL603G/FL612G): 10 lbs
  - (FL604P/FL613P): 10 lbs
  - (FL605P/FL614P): 17 lbs
  - (FL606P/FL615P): 17 lbs
- Dimensions: See below



A	B	C	D	E	F	Connection Size
-	-	2-9/16"	8-15/16"	2-1/2"	11-7/8"	1/2" FNPT
12-1/4"	2-1/2"	3-7/8"	10-11/16"	3-3/8"	13-3/4"	1" FNPT
-	-	5-3/8"	11-3/4"	5-15/16"	16"	2" FNPT

NOTES



WARRANTY

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

OMEGA is glad to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.

OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

**LIMITATION OF LIABILITY:** The remedies of purchaser set forth herein are exclusive and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

Every precaution for accuracy has been taken in the preparation of this manual; however, OMEGA ENGINEERING, INC. neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the products in accordance with the information contained in the manual.

SPECIAL CONDITION: Should this equipment be used in or with any nuclear installation or activity, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the equipment in such a manner.



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Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN™  
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RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA ENGINEERING Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR NON-WARRANTY REPAIRS OR CALIBRATION, consult OMEGA for current repair/calibration charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair/calibration,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

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