

# LL-F

## Roots Flow Meter made of Stainless Steel

Model LL-F Roots flow meter made of stainless steel is a volumetric measuring instruments. Its components used for measurement should be made of stainless steel material with better corrosion resistance ability. This flow meter could be used to measure corrosive crude petroleum containing water and other corrosive media.

It can provide on-site display of accumulated flow; when being coupled with photoelectron pulse converter through transmission interface, it can provide output of pulse or analogue signals. Besides, with the help of various totalizers it can also carry out remote measurement、display、and control.

Standard for this product is Q/YXBM 368-2000; while the inspecting regulation is JJG667-97 'for volumetric flow meter of liquid'.



### □Principal Specifications

Unit: mm

| Model   | Nominal sizes DN<br>DN<br>mm | Nominal pressure<br>PN<br>MPa | Maximum flow rate<br>m <sup>3</sup> /h | Elementary error limit |                      | Speed of transmission output shaft<br>m <sup>3</sup> /r |
|---------|------------------------------|-------------------------------|--|------------------------|----------------------|---|
|         |                              |                               |  | Range ratio<br>5: 1    | Range ratio<br>10: 1 |   |
| LL-15F  | 15                           | 1.6                           | 2.5                                    | ±0.2                   | ±0.5                 | 0.001   |
| LL-25F  | 25                           |                               | 6                                      |                        |                      |   |
| LL-40F  | 40                           |                               | 16                                     |                        |                      |   |
| LL-50F  | 50                           | 4.0                           | 25                                     |                        |                      | 0.01  |
| LL-80F  | 80                           |                               | 60                                     |                        |                      |   |
| LL-100F | 100                          | 6.3                           | 100                                    |                        |                      |   |

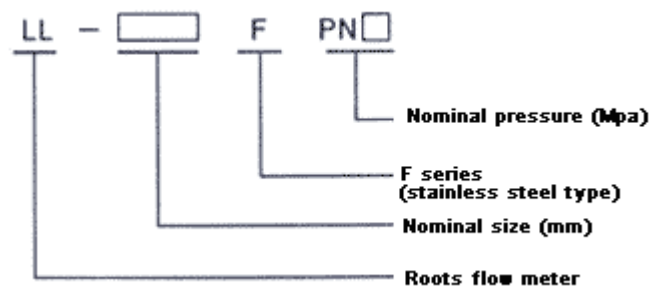
**Temperature of medium:** 0~120℃  
>120℃ (for special order)

**Viscosity range:** 3~500 mPa . s

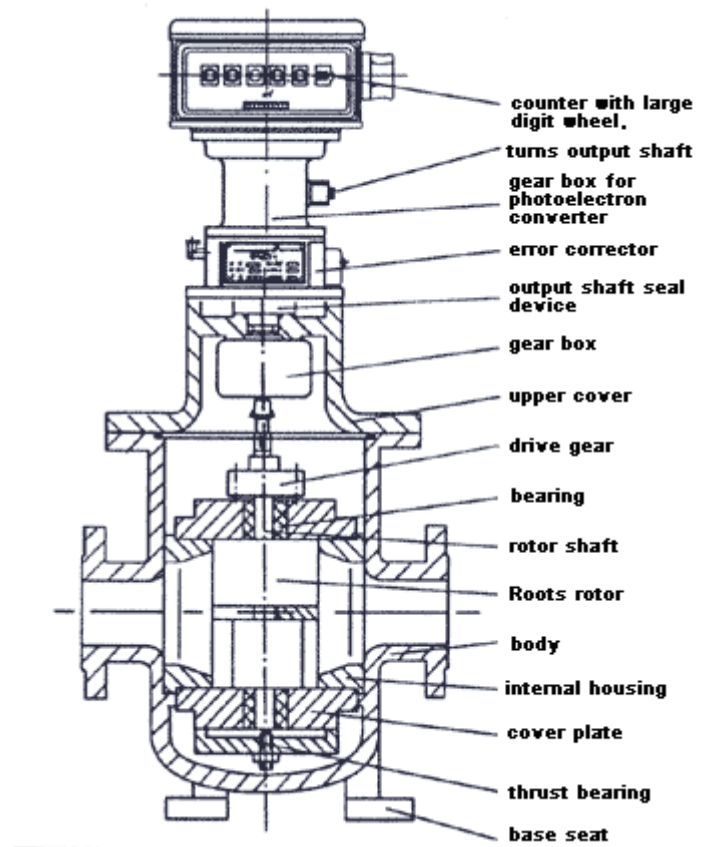
**Maximum pressure loss:** <0.12 MPa

**Connection mode for pipe:** Flange connection (its ratings accord with standard JB/T79-94)

□Model designation

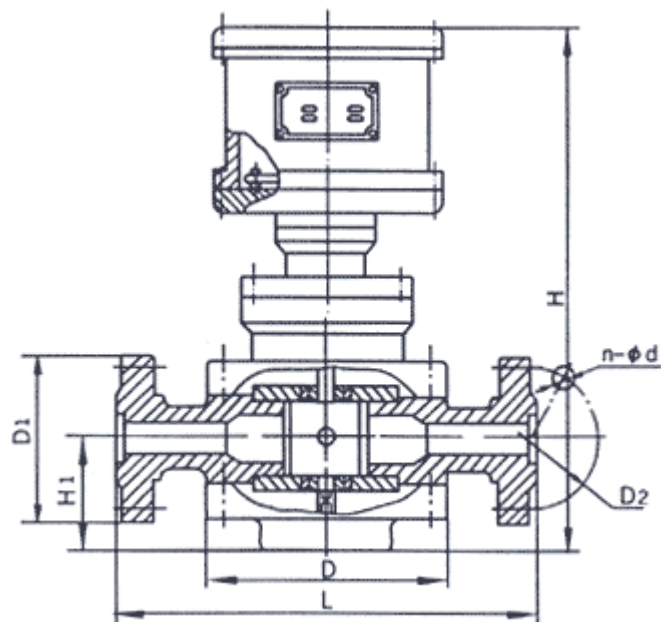


## □Structure Drawing



## □Overall dimensions for mounting

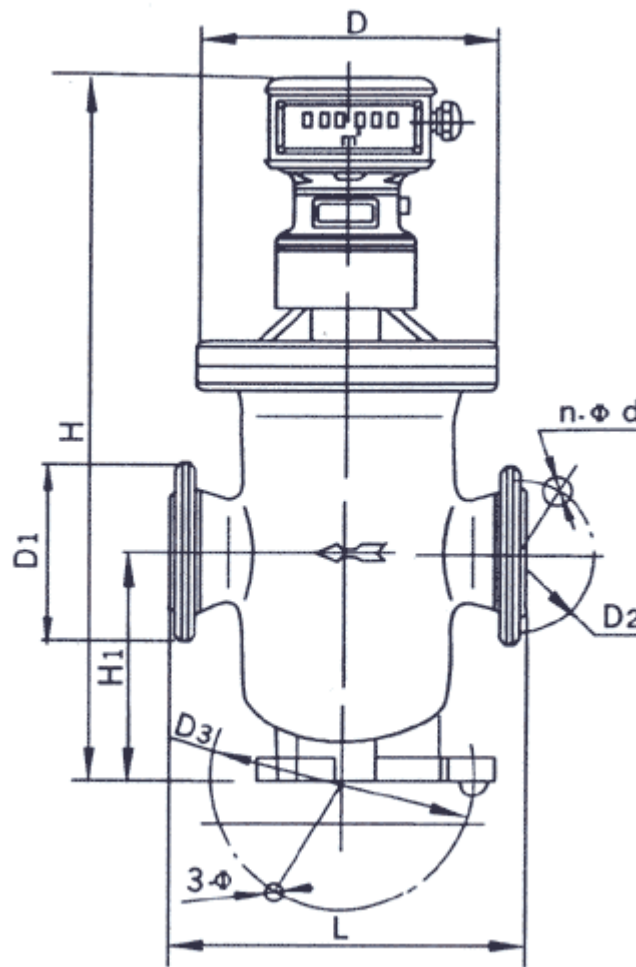
- Nominal sizes DN 15~40 mm, PN 6.3



Unit: mm

| Model         | Overall height<br>H | Height of center<br>H1 | Outside diameter of large plane<br>D | Distance between two flanges<br>L | Outside diameter of flanges<br>D1 | Circle of bolt hole centers<br>D2 | Apertures for bolts<br>n-φd | Connecting bolts<br>n-Md1 | Weight (kg) |
|---------------|---------------------|------------------------|--------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------|---------------------------|-------------|
| Dimensions    |                     |                        |                                      |                                   |                                   |                                   |                             |                           |             |
| LL-15F, PN6.3 | 316                 | 73                     | Φ150                                 | 260                               | Φ105                              | Φ75                               | 4-Φ14                       | 4-M12                     | 15          |
| LL-25F, PN6.3 | 356                 | 93                     | Φ150                                 | 260                               | Φ135                              | Φ100                              | 4-Φ18                       | 4-M16                     | 24          |
| LL-40F, PN6.3 | 370                 | 110                    | Φ216                                 | 300                               | Φ165                              | Φ125                              | 4-Φ23                       | 4-M20                     | 43          |

- Nominal sizes DN 50~100 mm

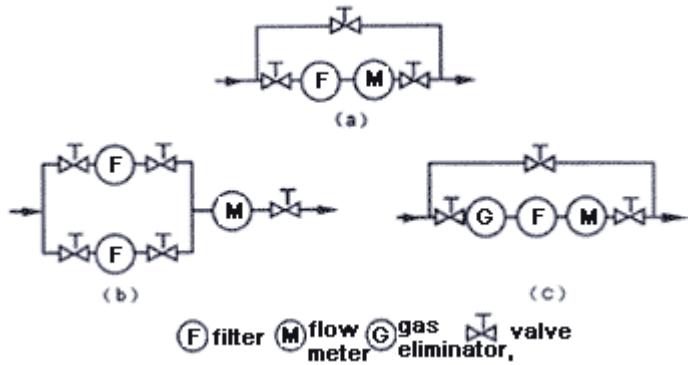


Unit: mm

| Model          | Overall height H | Height of center H1 | Outside diameter of large plane D | Location of base bolt D3 | Base bolt apertures 3-Φ | Distance between two flanges L | Outside diameter of flanges D1 | Circle of bolt hole Centers D2 | Apertures for bolts n-Φd | Connecting bolts n-Md1 | Weight (kg) |
|----------------|------------------|---------------------|-----------------------------------|--------------------------|-------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------|------------------------|-------------|
| Dimensions     |                  |                     |                                   |                          |                         |                                |                                |                                |                          |                        |             |
| LL-50F, PN1.6  | 940              | 237                 | Φ300                              | Φ240                     | 3-Φ18                   | 360                            | Φ160                           | Φ125                           | 4-Φ18                    | 4-M16                  | 128         |
| PN2.5          |                  |                     |                                   |                          |                         |                                | Φ160                           | Φ125                           | 4-Φ18                    | 4-M16                  |             |
| PN4.0          |                  |                     |                                   |                          |                         |                                | Φ160                           | Φ125                           | 4-Φ18                    | 4-M16                  | 129         |
| PN6.3          |                  |                     |                                   |                          |                         |                                | Φ175                           | Φ135                           | 4-Φ23                    | 4-M20                  | 130         |
| LL-80F, PN1.6  | 1037             | 289                 | Φ400                              | Φ370                     | 3-Φ23                   | 460                            | Φ195                           | Φ160                           | 8-Φ18                    | 8-M16                  | 228         |
| PN2.5          |                  |                     |                                   |                          |                         |                                | Φ195                           | Φ160                           | 8-Φ18                    | 8-M16                  |             |
| PN4.0          |                  |                     |                                   |                          |                         |                                | Φ195                           | Φ160                           | 8-Φ18                    | 8-M16                  | 229         |
| PN6.3          |                  |                     |                                   |                          |                         |                                | Φ210                           | Φ170                           | 8-Φ23                    | 8-M20                  | 231         |
| LL-100F, PN1.6 | 1100             | 318                 | Φ425                              | Φ370                     | 3-Φ23                   | 500                            | Φ215                           | Φ180                           | 8-Φ18                    | 8-M16                  | 280         |
| PN2.5          |                  |                     |                                   |                          |                         |                                | Φ230                           | Φ190                           | 8-Φ23                    | 8-M20                  |             |
| PN4.0          |                  |                     |                                   |                          |                         |                                | Φ230                           | Φ190                           | 8-Φ23                    | 8-M20                  | 282         |
| PN6.3          |                  |                     |                                   |                          |                         |                                | Φ250                           | Φ200                           | 8-Φ25                    | 8-M22                  | 286         |

Note: The allocation of pipe flanges should accord with JB/T81-94 (PN 1.6, PN2.5) or JB/T82.2-94 (PN4.0, PN6.3).

□Mode of pipe installation

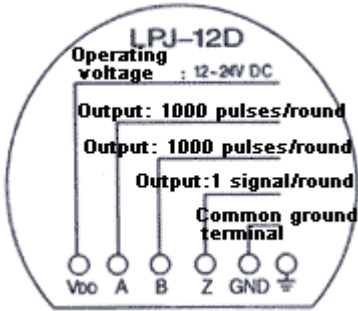


Notes: Requirements of mounting:

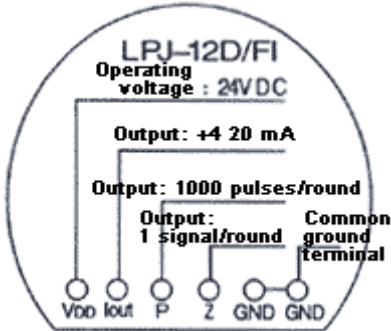
- Select mounting location with less vibration and free from high temperature and moisture.
- Mount the flow meter upright on a horizontal pipe.
- Before mounting flow meter, it is necessary to clear away all impurities as sludge and welding dregs out of the pipe.
- The flow meter should be located at a lower place so as to separate gas from the measured fluid at other higher places. If necessary, a gas eliminator should be mounted ahead of the flow meter.
- Filter and gas eliminator should be mounted on the upstream side of flow meter, while adjusting valve should be mounted on the downstream side.

□ Wiring terminal diagrams of photoelectron pulse converter

- LPJ-12D (explosion-proof type)



- LPJ-12D/FI (explosion-proof type)



□Attachable instruments

- Photoelectron pulse converter

| Model      | Function Description  |
|------------|---|
| LPJ-12D    | Explosion isolation type, contact signal: 1 time/round,dual channel pulse signal: 1000 times/round with phase difference 90°. |
| LPJ-12D/FI | In addition to the functions of LPJ-12D, output of analogue signal 4~20mA could be provided.                                  |

