

RST Ölçü Kontrol Enstrümanları ve Otomasyon Hizmetleri

# DMS-OG Series Oval Gear Flow Meter CATALOGUE



## Overview

Oval gear flow meter is one of positive displacement flow meter and is mainly composed of meter shell, oval gear rotor and converter. It is an instrument used for continuous or discontinuous metering and control of liquids in the pipeline. It has advantages of large metering range, excellent accuracy, small pressure loss and high viscosity adaptability etc; It has good performance on measuring high-temperature and high-viscosity liquids. It is applicable to the calibration and metering of crude oil, chemical, chemical fiber, traffic, commerce, food, medicine and health, scientific research and military etc.

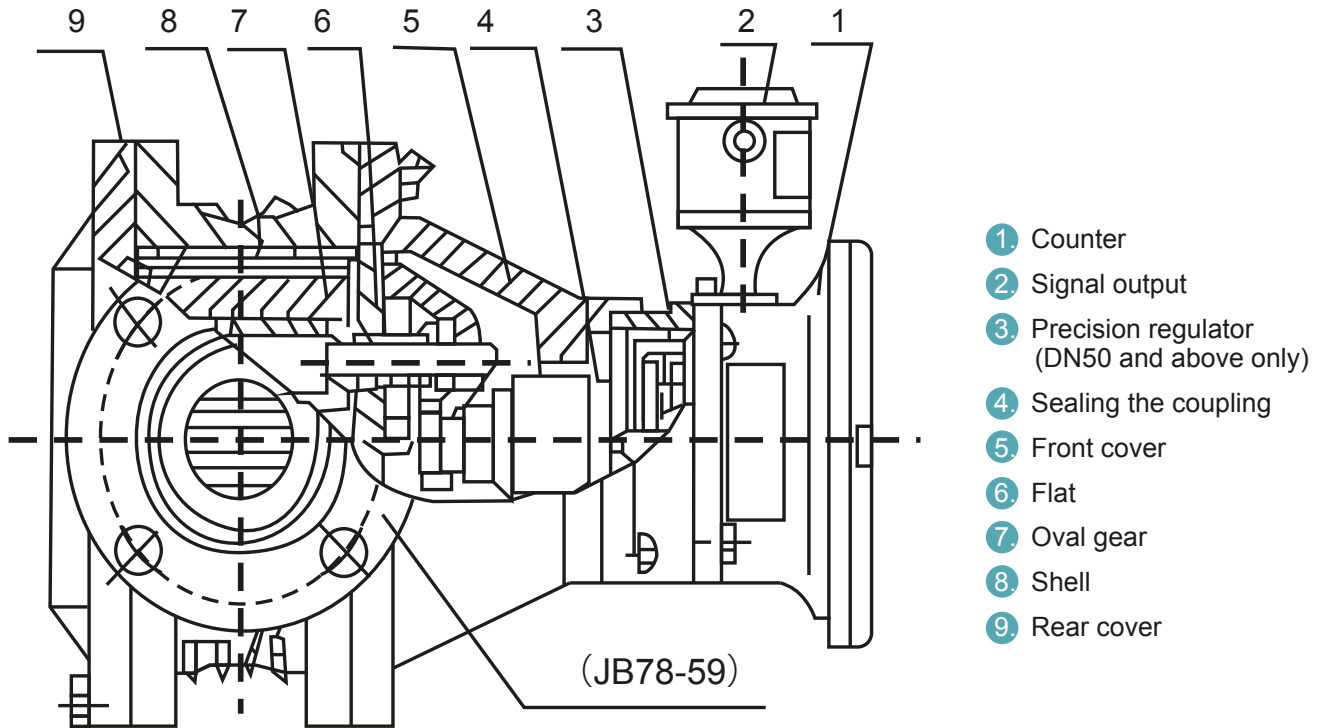


## Working Principle And Structure

Flow meter is installed in the metering tank and the measurement of a pair of oval box gear, with the upper and lower cover an early Lunar sealed cavity (due to rotation of the gear, so sealing is not an absolute) as a unit of emissions. When measured by the pipe into the liquid flow meter, due to pressure generated by the Import and Export Department to promote a pair of differential gears for rotation, the constant measurement by cavity after the beginning of the Lunar liquid delivery to the exit, elliptical gear with each revolution time displacement is the product of four times the measured volume of liquid flow.



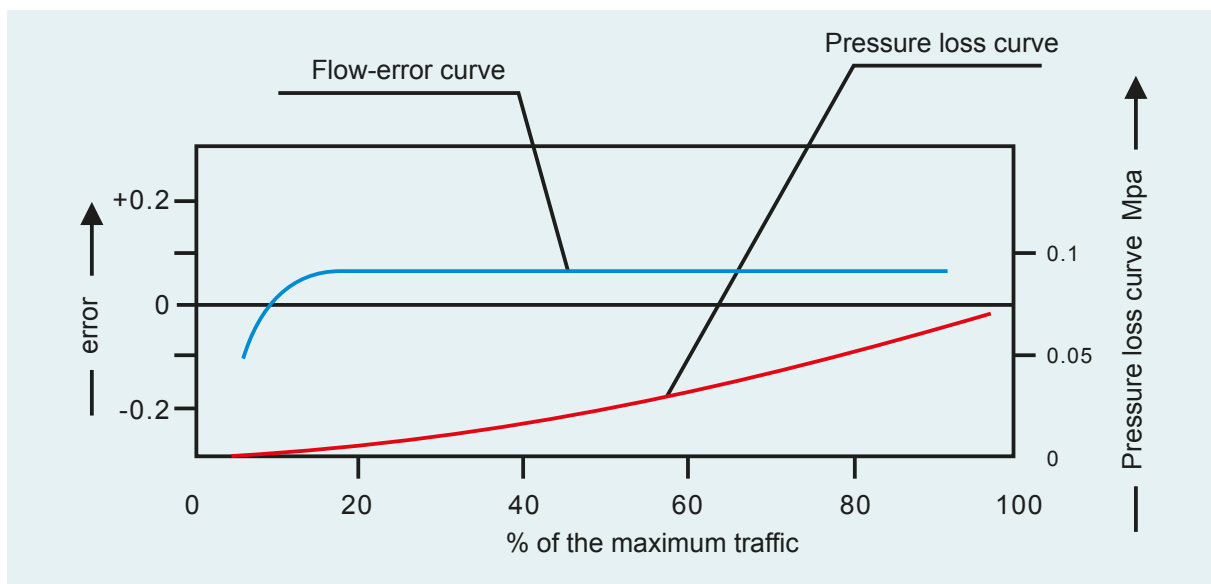
Flow meter is made by the shell, counter, oval gear and coupling (magnetic coupling and sub-axial coupling) and so on.



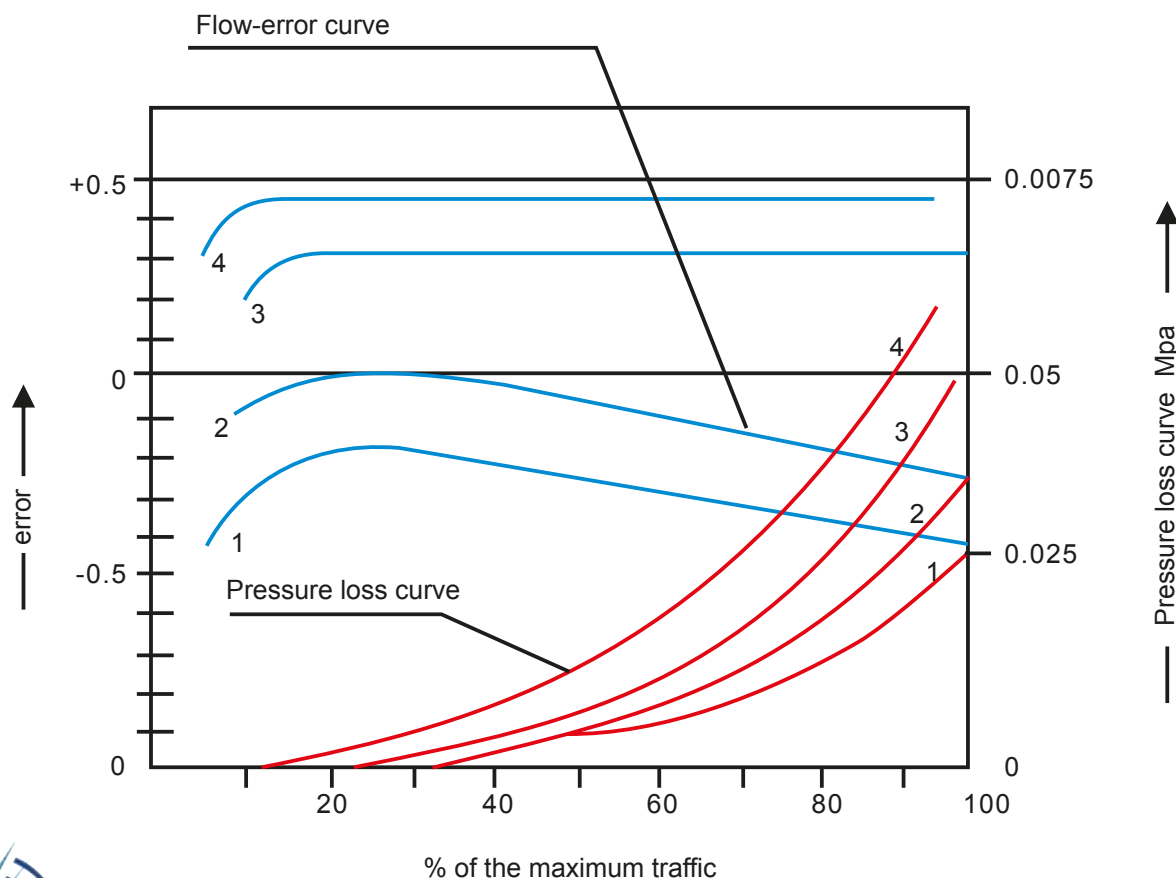
## Main Technical Parameters

|                     |                                                                                                             |
|---------------------|-------------------------------------------------------------------------------------------------------------|
| Model               | DMS-OG                                                                                                      |
| Transmitter Type    | Pointer with zero returning, Pointer display with Output, LCD display                                       |
| Medium              | Fuel Oil, Petroleum, Petroleum Products, Vegetable Oil, Food, Chemicals                                     |
| Accuracy            | ±0.2%, ±0.5%                                                                                                |
| Nominal Diameter    | DN8~DN200 (1"~4")                                                                                           |
| Nominal Pressure    | 1.6~6.3MPa                                                                                                  |
| Medium Temperature  | -20 °C~+250 °C                                                                                              |
| Medium Viscosity    | 2~10000mPa.s                                                                                                |
| Power Supply        | 12VDC, 24VDC                                                                                                |
| Output Signal       | Pulse, DC4~20mA, RS485                                                                                      |
| Display             | Accumulative Flow, Single Measurement(Mechanical Dial), Remote transmission of total and instantaneous flow |
| Error Adjustment    | Changing Gear Adjustment                                                                                    |
| Level Of Protection | IP65                                                                                                        |
| Explosion Proof     | Flame-proof Type, ExdIIBT4                                                                                  |
| Ambient Temperature | -20°C~+55°C                                                                                                 |
| Sensor Material     | Cast Iron, Cast Steel, Stainless Steel                                                                      |
| Sensor Connection   | Flange, Thread, Tri-clamp                                                                                   |

## 0.2% Accuracy Flow Meter Error And Pressure Loss Curve



## 0.5% Accuracy Flow Meter Error And Pressure Loss Curve



## Flow Range for Different Model

Cast Iron type (A), Cast Steel type (E), Stainless Steel type (B)

| Model<br>Item              | LC-A Cast Iron |           | LC-E Cast Steel |           | LC-B Stainless Steel |           |
|----------------------------|----------------|-----------|-----------------|-----------|----------------------|-----------|
| Pressure (MPa)             | 1.0, 1.6       |           | 2.5, 4.0, 6.4   |           | 1.0, 1.6             |           |
| Medium's Viscosity         | 2~200 mPa.s    |           |                 |           |                      |           |
| Operating Temperature      | -20 ~+100      |           |                 |           |                      |           |
| Flow range m³/h            |                |           |                 |           |                      |           |
| Model<br>Nominal size (mm) | LC-A Cast Iron |           | LC-E Cast Steel |           | LC-B Stainless Steel |           |
|                            | ±0.5%          | ±0.2%     | ±0.5%           | ±0.2%     | ±0.5%                | ±0.2%     |
| 8                          | 0.02~0.5       | 0.024~0.5 | 0.02~0.5        | 0.024~0.5 | 0.02~0.5             | 0.024~0.5 |
| 10                         | 0.08~0.4       | 0.1~0.4   | 0.08~0.4        | 0.1~0.4   | 0.1~0.5              | 0.1~0.5   |
| 15                         | 0.25~1.5       | 0.3~1.5   | 0.25~1.5        | 0.3~1.5   | 0.3~1.5              | 0.3~1.5   |
| 20                         | 0.5~3          | 0.6~3     | 0.5~3           | 0.6~3     | 0.6~3                | 0.6~3     |
| 25                         | 1~6            | 1.2~6     | 1~6             | 1.2~6     | 1.2~6                | 1.2~6     |
| 40                         | 2.5~15         | 3~15      | 2.5~15          | 3~15      | 3~15                 | 3~15      |
| 50                         | 4~24           | 4.8~24    | 4~24            | 4.8~24    | 4.8~24               | 4.8~24    |
| 80                         | 10~60          | 12~60     | 10~60           | 12~60     | 12~60                | 12~60     |
| 100                        | 16~100         | 20~100    | 16~100          | 20~100    | 20~100               | 20~100    |
| 150                        | 32~190         | 38~190    | 32~190          | 38~190    | 38~190               | 38~190    |
| 200                        | 34~340         | 68~340    | 34~340          | 68~340    | 68~340               | 68~340    |

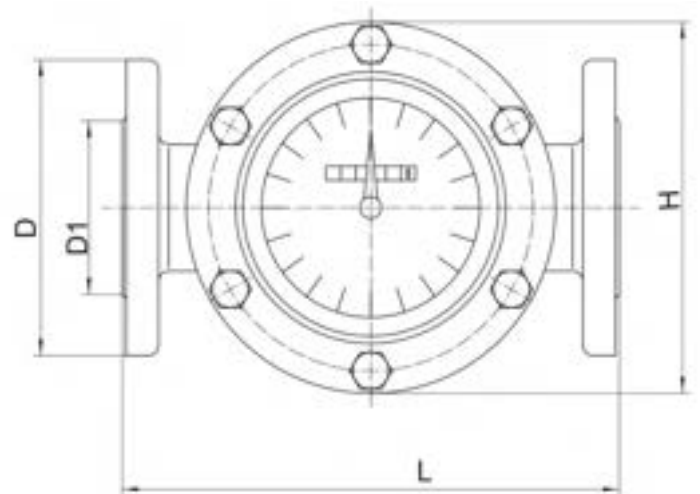
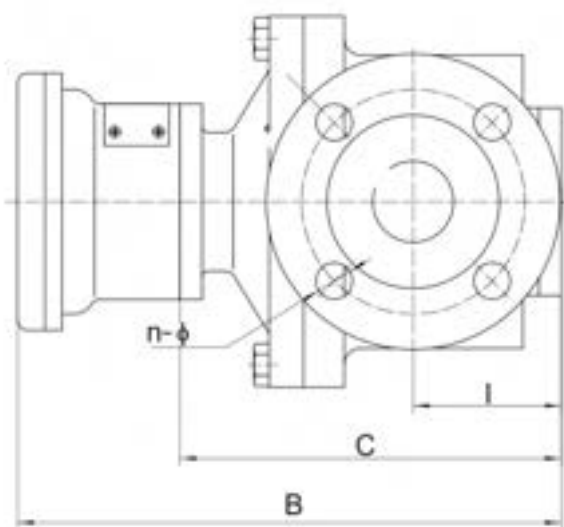
High temperature Cast Iron (TA), Cast Steel type (TE), Stainless Steel type (TB)

| Model<br>Item                  | LC-TA Cast Iron |           | LC-TE Cast Steel |           | LC-TB Stainless Steel |           |
|--------------------------------|-----------------|-----------|------------------|-----------|-----------------------|-----------|
| Pressure (MPa)                 | 1.0, 1.6        |           | 2.5, 4.0, 6.4    |           | 1.0, 1.6              |           |
| Medium's Viscosity             | 2~200 mPa.s     |           |                  |           |                       |           |
| Operating Temperature          | +100    ~+250   |           |                  |           |                       |           |
| Flow range m³/h                |                 |           |                  |           |                       |           |
| Model<br><br>Nominal size (mm) | LC-TA Cast Iron |           | LC-TE Cast Steel |           | LC-TB Stainless Steel |           |
|                                | ±0.5%           | ±0.2%     | ±0.5%            | ±0.2%     | ±0.5%                 | ±0.2%     |
| 8                              | 0.02~0.5        | 0.024~0.5 | 0.02~0.5         | 0.024~0.5 | 0.02~0.5              | 0.024~0.5 |
| 10                             | 0.08~0.4        | 0.1~0.4   | 0.08~0.4         | 0.1~0.4   | 0.1~0.5               | 0.1~0.5   |
| 15                             | 0.24~1.35       | 0.35~1.35 | 0.24~1.35        | 0.35~1.35 | 0.36~1.35             | 0.36~1.35 |
| 20                             | 0.54~2.7        | 0.72~2.7  | 0.54~2.7         | 0.72~2.7  | 0.72~2.7              | 0.72~2.7  |
| 25                             | 1.2~5.4         | 1.4~5.4   | 1.2~5.4          | 1.4~5.4   | 1.4~5.4               | 1.4~5.4   |
| 40                             | 2.7~13.5        | 3.6~13.5  | 2.7~13.5         | 3.6~13.5  | 3.6~13.5              | 3.6~13.5  |
| 50                             | 4.4~21.6        | 5.75~21.6 | 4.4~21.6         | 5.75~21.6 | 5.75~21.6             | 5.75~21.6 |
| 80                             | 10.8~54         | 14.4~54   | 10.8~54          | 14.4~54   | 14.4~54               | 14.4~54   |
| 100                            | 18~90           | 24~90     | 18~90            | 24~90     | 24~90                 | 24~90     |
| 150                            | 38~170          | 45.6~170  | 38~170           | 45.6~170  | 45.6~170              | 45.6~170  |
| 200                            | 34~340          | 68~340    | 34~340           | 68~340    | 68~340                | 68~340    |

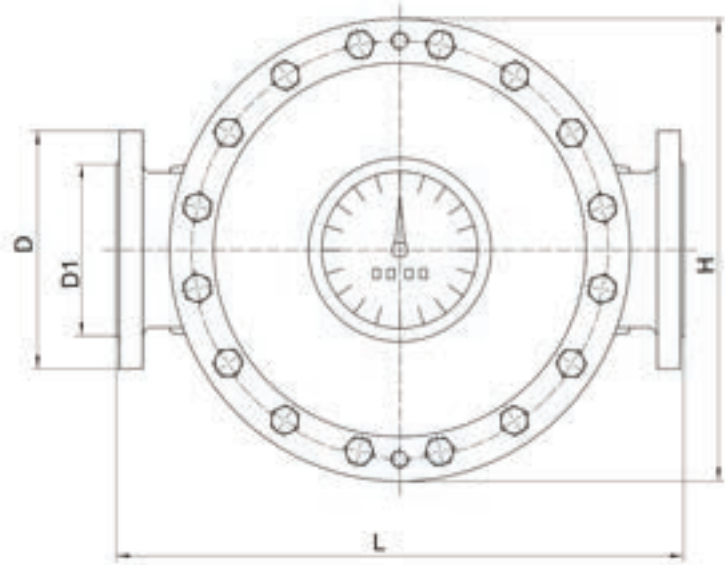
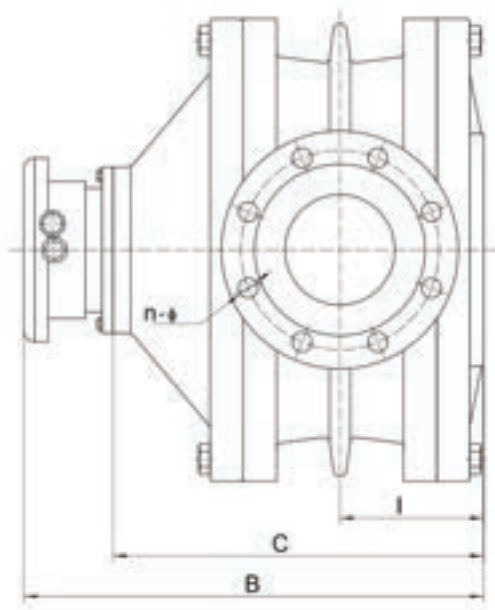
High viscosity Cast Iron (NA), Cast Steel type (NE)

| Model              |          | LC-NA Cast Iron |         |       |         | LC-NB Stainless Steel |      |         | LC-NE Cast Steel |        |  |
|--------------------|----------|-----------------|---------|-------|---------|-----------------------|------|---------|------------------|--------|--|
| Pressure (MPa)     |          | 1.6             |         |       |         |                       |      | 2.5,6.4 |                  |        |  |
| Medium's Viscosity |          | 200~3000 mPa.s  |         |       |         |                       |      |         |                  |        |  |
| Temperature        |          | -10 ~+100       |         |       |         |                       |      |         |                  |        |  |
| Accuracy           |          | ±0.5%           |         |       |         |                       |      |         |                  |        |  |
| Flow range m³/h    |          |                 |         |       |         |                       |      |         |                  |        |  |
| DN                 | 10       | 15              | 20      | 25    | 40      | 50                    | 80   | 100     | 150              | 200    |  |
| Flow               | 0.04~0.2 | 0.15~0.75       | 0.3~1.5 | 0.6~3 | 1.5~7.5 | 2.4~12                | 6~30 | 10~50   | 38~100           | 34~300 |  |

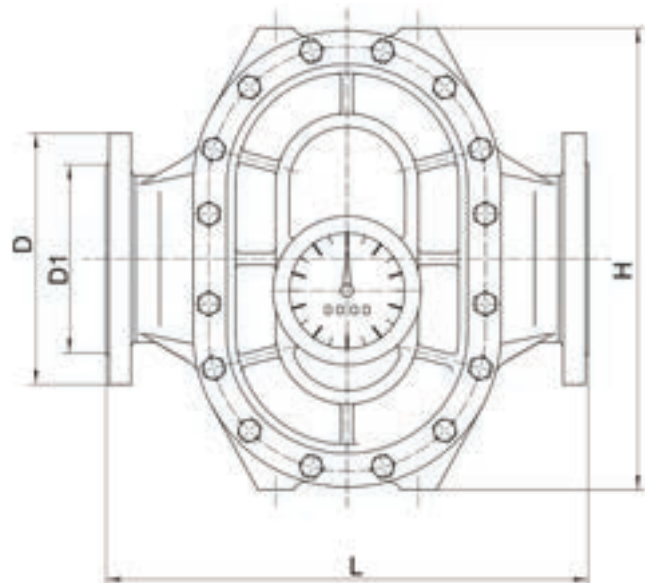
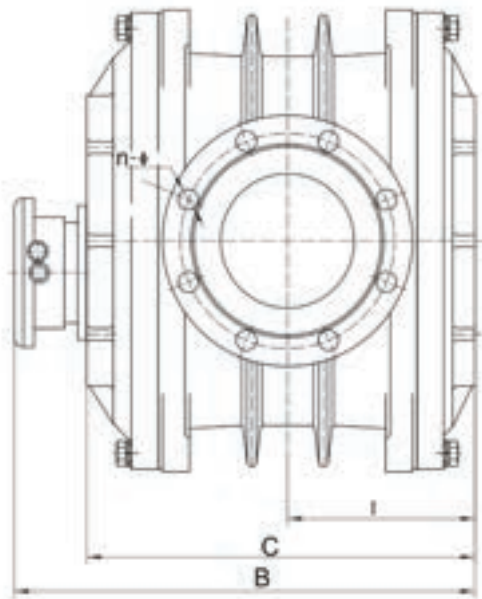
## Dimensions



DN10~DN40



DN50~DN100



DN150, DN200

(A) Cast iron type; Cast iron high viscosity type; High temperature cast iron type; Other cast iron type (Units: mm)

| DN | L   | H   | A   | B   | D  | D1 | N | Φ  |
|----|-----|-----|-----|-----|----|----|---|----|
| 10 | 150 | 100 | 165 | 210 | 90 | 60 | 4 | 14 |
| 15 | 170 | 118 | 172 | 226 | 95 | 65 | 4 | 14 |

|     |     |     |     |     |     |     |    |    |
|-----|-----|-----|-----|-----|-----|-----|----|----|
| 20  | 200 | 150 | 225 | 238 | 105 | 75  | 4  | 14 |
| 25  | 260 | 180 | 232 | 246 | 115 | 85  | 4  | 14 |
| 40  | 245 | 180 | 249 | 271 | 145 | 110 | 4  | 18 |
| 50  | 340 | 250 | 230 | 372 | 160 | 125 | 4  | 18 |
| 65  | 420 | 325 | 270 | 386 | 180 | 145 | 4  | 18 |
| 80  | 420 | 325 | 315 | 433 | 195 | 160 | 8  | 18 |
| 100 | 515 | 418 | 370 | 458 | 215 | 180 | 8  | 18 |
| 150 | 540 | 515 | 347 | 557 | 280 | 240 | 8  | 23 |
| 200 | 650 | 650 | 476 | 720 | 335 | 295 | 12 | 23 |

Note: Above oval gear flow meter drawing is DIN PN16 flange, other standards can be provided on request.

(B) Cast steel type, steel high viscosity type, high temperature steel type Units: mm

| DN  | L   | H   | B   | A   | D   | D1  | N  | Φ  |
|-----|-----|-----|-----|-----|-----|-----|----|----|
| 15  | 200 | 138 | 232 | 180 | 105 | 75  | 4  | 14 |
| 20  | 250 | 164 | 220 | 160 | 125 | 90  | 4  | 18 |
| 25  | 300 | 202 | 252 | 185 | 135 | 100 | 4  | 18 |
| 40  | 300 | 202 | 293 | 208 | 165 | 125 | 4  | 23 |
| 50  | 384 | 262 | 394 | 312 | 175 | 135 | 4  | 23 |
| 80  | 450 | 337 | 452 | 332 | 210 | 170 | 8  | 23 |
| 100 | 555 | 442 | 478 | 310 | 250 | 200 | 8  | 25 |
| 150 | 540 | 510 | 557 | 347 | 300 | 250 | 8  | 26 |
| 200 | 650 | 650 | 720 | 476 | 36  | 310 | 12 | 26 |

Note: Above oval gear flow meter drawing is DIN PN16 flange, other standards can be provided on request.

Cast iron, cast steel oval gear flow meters type high-temperature size: DN15 ~ DN25, A, B according to the table, data size plus 160mm extension tube heat: DN40 ~ DN80, A, B-size table size increases by thermal extension of 300mm pipe, rest size of the corresponding size table Ibid

(C) Stainless steel type Units: mm

| DN  | L   | H   | B   | A   | D   | D1  | N | Φ  |
|-----|-----|-----|-----|-----|-----|-----|---|----|
| 15  | 208 | 120 | 228 | 172 | 95  | 65  | 4 | 14 |
| 20  | 236 | 150 | 238 | 225 | 105 | 75  | 4 | 14 |
| 25  | 287 | 195 | 246 | 232 | 115 | 85  | 4 | 14 |
| 40  | 265 | 178 | 349 | 265 | 145 | 110 | 4 | 18 |
| 50  | 265 | 178 | 349 | 265 | 160 | 125 | 4 | 18 |
| 65  | 365 | 260 | 436 | 319 | 180 | 145 | 4 | 18 |
| 80  | 420 | 305 | 459 | 324 | 200 | 160 | 8 | 18 |
| 100 | 515 | 400 | 554 | 373 | 220 | 180 | 8 | 18 |
| 150 | 540 | 515 | 607 | 397 | 280 | 240 | 8 | 23 |

Above oval gear flow meter drawing is DIN PN16 flange, other standards can be provided on request.

## Application Examples



Oil Depot System



Fuel Oil transferring



On Boat



Oil Truck

## Model Selection

| QTLC              | xxx                      | x                                              | x | x | x  | x | x | x | x | x | x   | x |
|-------------------|--------------------------|------------------------------------------------|---|---|----|---|---|---|---|---|-----|---|
| Size (mm)         | DN8~DN200mm<br>(1/4"~4") |                                                |   |   |    |   |   |   |   |   |     |   |
| Media viscosity   | 2~200 mPa·s              |                                                | D |   |    |   |   |   |   |   |     |   |
|                   | 200~1000 mPa·s           |                                                | E |   |    |   |   |   |   |   |     |   |
|                   | 1000~2000 mPa·s          |                                                | F |   |    |   |   |   |   |   |     |   |
|                   | 3000~10000 mPa·s         |                                                | H |   |    |   |   |   |   |   |     |   |
| Accuracy          | ±0.5% (Standard)         |                                                |   | 5 |    |   |   |   |   |   |     |   |
|                   | ±0.2%                    |                                                |   | 2 |    |   |   |   |   |   |     |   |
| Body material     | Cast iron                |                                                |   |   | CI |   |   |   |   |   |     |   |
|                   | Cast steel               |                                                |   |   | CS |   |   |   |   |   |     |   |
|                   | SS304                    |                                                |   |   | SS |   |   |   |   |   |     |   |
| Media Temperature | -20 ~+100 ( Standard )   |                                                |   |   |    | L |   |   |   |   |     |   |
|                   | +100 ~+250               |                                                |   |   |    | H |   |   |   |   |     |   |
| Display           | Pointer + Zero return    |                                                |   |   |    |   | P |   |   |   |     |   |
|                   | LCD + Zero return        |                                                |   |   |    |   | L |   |   |   |     |   |
| Power Supply      | Mechanical type          |                                                |   |   |    |   |   | M |   |   |     |   |
|                   | 24VDC                    |                                                |   |   |    |   |   | 2 |   |   |     |   |
|                   | 12VDC                    |                                                |   |   |    |   |   | 1 |   |   |     |   |
| Output            | No                       |                                                |   |   |    |   |   |   | N |   |     |   |
|                   | Pulse                    |                                                |   |   |    |   |   |   | Y |   |     |   |
|                   | 4-20mA                   |                                                |   |   |    |   |   |   | 4 |   |     |   |
| Communication     | No                       |                                                |   |   |    |   |   |   |   | N |     |   |
|                   | RS485                    |                                                |   |   |    |   |   |   |   | R |     |   |
|                   | HART                     |                                                |   |   |    |   |   |   |   | H |     |   |
| Connection        | Flange<br>(DN8~DN200)    | DIN D10: PN10, D16: PN16, D25: PN25, D40: PN40 |   |   |    |   |   |   |   |   | D** |   |
|                   |                          | ANSI A15: 150#, A30: 300#, A60: 600#           |   |   |    |   |   |   |   |   | A** |   |
|                   |                          | JIS J10: 10K, J20: 20K, J30: 30K, J40: 40K     |   |   |    |   |   |   |   |   | J** |   |
|                   | Tri-clamp (DN8~DN80)     |                                                |   |   |    |   |   |   |   | C |     |   |
|                   | Thread (DN8~DN150)       |                                                |   |   |    |   |   |   |   | T |     |   |
| Ex-proof          | With                     |                                                |   |   |    |   |   |   |   |   |     | N |
|                   | Without                  |                                                |   |   |    |   |   |   |   |   |     | E |

## Products



