

GENERAL

R-101-E is a glass tube type variable area flowmeter. The flow rate is indicated by the position of float and the graduation engraved on the glass tube.

Although it has a very simple construction, it is widely used for measurement of flow rate of liquids and gases in various applications thanks to its high reliability and easy handling capability.

A large sized tapered tube is adopted compared to standard type glass tube flowmeters and wide scale range is possible. In addition to standard material of steel and stainless steel, PVC is also available for corrosive applications.

STANDARD SPECIFICATION

- Available size 15mm(1/2")~100mm(4")
 - Measuring fluid All kinds of liquids and gases
(Not suitable for steam measurement. AM series Metal Tube Flowmeters are recommended)
 - Available material
 - Fittings Carbon steel, 304SS, PVC, HPVC*
 - Tapered tube Pyrex glass
(Acryl tapered tube is available on request.)
 - Float For liquids 304SS, PVC, HPVC* others
 For gases Aluminium, 304SS, others
 - Seal NBR, EPDM, Viton
- * High temperature use PVC
- Process connection
 - Standard JIS10K flange
 - Option ANSI, DIN, other flanges
 Rc, NPT threads (upto 50mm)
 - Flow direction Bottom to Top



- Press. range

| Size (mm) | Max. Op. Press kg/cm ² (MPa) | Size (mm) | Max. Op. Press kg/cm ² G(MPa) |
|-----------|---|-----------|--|
| 15 | 10 (1.0) | 50 | 6 (0.6) |
| 20 | 8 (0.8) | 65 | 6 (0.6) |
| 25 | 8 (0.8) | 80 | 4 (0.4) |
| 40 | 6 (0.6) | 100 | 4 (0.4) |

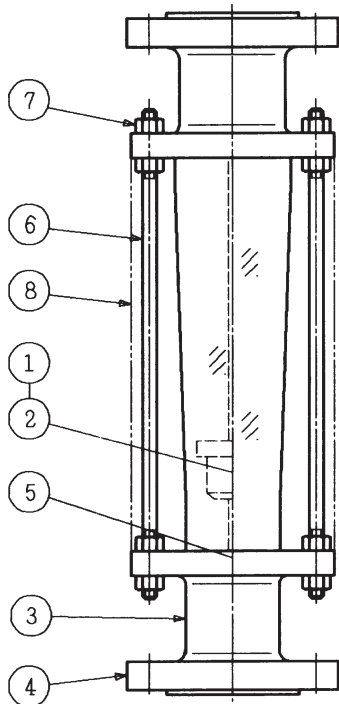
- Temp. range
 - Standard metallic material upto 120°C
 - PVC material upto 60°C
 - HPVC material upto 80°C
- Allowable thermal shock 80°C
- Accuracy
 - Metallic float versions ±1.5% F.S.
 - Resin float versions ±2.5% F.S.
- Range ability 10:1
- Paint Munsell 7.5BG4/1.5
- Option Double scaling

NB : Alarm contact version (R-751-E) available. Contact Tokyo Keiso for separate Technical Guidance

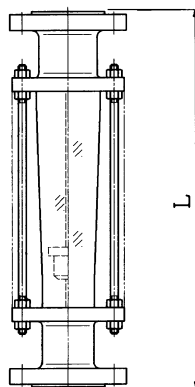
MODEL CODE

All products : R-101-E

STANDARD MATERIAL



DIMENSION



| Size (mm) | L (mm) | |
|-----------|-------------------|-----|
| | Metallic material | PVC |
| 15 | 320 | 320 |
| 20 | 320 | 320 |
| 25 | 320 | 360 |
| 40 | 370 | 400 |
| 50 | 370 | 400 |
| 65 | 370 | 410 |
| 80 | 400 | 410 |
| 100 | 400 | 410 |

PRODUCT WEIGHT

| Size (mm) | Weight (kg) | | Size (mm) | Weight (kg) | |
|-----------|-------------------|-----|-----------|-------------------|-----|
| | Metallic material | PVC | | Metallic material | PVC |
| 15 | 2.5 | 0.7 | 50 | 9.5 | 4.0 |
| 20 | 3.5 | 1.0 | 65 | 13 | 6.0 |
| 25 | 5.5 | 2.0 | 80 | 17 | 7.0 |
| 40 | 7.0 | 3.0 | 100 | 20 | 9.0 |

| NO. | Parts Name | Material class1 | | | |
|------|--------------|-----------------|---------|-----|------|
| | | 1 | 2 | 3 | 4 |
| 1 | Tapered tube | Pyrex glass*1 | | | |
| 2 | Float | 304SS*2 | 304SS*2 | PVC | HPVC |
| 3 | Fittings | SGP*5 | 304SS*5 | PVC | HPVC |
| 4 | Flange | SS400 | 304SS | PVC | HPVC |
| 5 | Gasket | NBR*3 | | | |
| 6 | Column | SS400 | | | |
| 7 | Nut | SS400 | | | |
| 8 *4 | Cover | Transparent PVC | | | |

ORDERING INFORMATION

Notify the following for order/inquiry;

Fluid name _____
 Sp.Gr.(Sp.Wt.) _____
 Viscosity _____ cP _____
 Press. _____ kg/cm²G _____
 Temp. _____ °C _____
 Full scale _____ m³/h Nm³/h _____
 Connection size mm inch _____
 Connection rating JIS10RF Rc thread _____
 Material class 1 (Carbon steel) 2 (304SS)
 3 (PVC) 4 (HPVC)

Special Instruction, if any

*1: Acryl tapered tube is available on request
 *2: Aluminium is used for gas applications as standard
 *3: EPDM or Viton gaskets available on request
 *4: Option
 *5: SCS13 for 15-25mm

FLOW RATE TABLE

● 304SS float, Water (Sp.Gr.1.0, Vis.1.0cP)

| Size (mm) | Possible range (m ³ /h) | Press. Loss mmH ₂ O(kPa) |
|-----------|------------------------------------|-------------------------------------|
| 15 | Min. 0.25 | 80 (0.8) |
| | Max. 1.6 | 1100 (10.8) |
| 20 | Max. 4 | 800 (7.8) |
| 25 | Max. 6.5 | 1200 (11.8) |
| 40 | Max. 16 | 1000 (9.8) |
| 50 | Max. 30 | 1500 (14.7) |
| 65 | Max. 40 | 1800 (17.7) |
| 80 | Max. 55 | 2000 (19.6) |
| 100 | Max. 100 | 2000 (19.6) |

● PVC, HPVC float, Water (Sp.Gr.1.0,Vis.1.0cP)

| Size (mm) | Possible range (m ³ /h) | Press. Loss mmH ₂ O(kPa) |
|-----------|------------------------------------|-------------------------------------|
| 15 | Min. 0.25 | 80 (0.8) |
| | Max. 1.0 | 550 (5.4) |
| 20 | Max. 2.7 | 500 (4.9) |
| 25 | Max. 5 | 800 (7.8) |
| 40 | Max. 12 | 700 (6.9) |
| 50 | Max. 20 | 700 (6.9) |
| 65 | Max. 32 | 1000 (9.8) |
| 80 | Max. 50 | 1600 (15.7) |
| 100 | Max. 65 | 1600 (15.7) |

● 304SS float, Other than Water

| Size (mm) | Possible range (m ³ /h) | Press. Loss mmH ₂ O(kPa) |
|-----------|------------------------------------|-------------------------------------|
| 15 | Min. 0.25 | 80 (0.8) |
| | Max. 1.3 | 1000 (9.8) |
| 20 | Max. 2.8 | 700 (6.9) |
| 25 | Max. 4.5 | 800 (7.8) |
| 40 | Max. 10 | 550 (5.4) |
| 50 | Max. 15.5 | 600 (5.9) |
| 65 | Max. 23 | 600 (5.9) |
| 80 | Max. 31 | 800 (7.8) |
| 100 | Max. 52 | 950 (9.3) |

● PVC, HPVC float, Other than Water

| Size (mm) | Possible range (m ³ /h) | Press. Loss mmH ₂ O(kPa) |
|-----------|------------------------------------|-------------------------------------|
| 15 | Min. 0.25 | 80 (0.8) |
| | Max. 0.6 | 550 (5.4) |
| 20 | Max. 1.9 | 500 (4.9) |
| 25 | Max. 3.6 | 800 (7.8) |
| 40 | Max. 7.0 | 700 (6.9) |
| 50 | Max. 11.5 | 700 (6.9) |
| 65 | Max. 15.5 | 1000 (9.8) |
| 80 | Max. 25 | 1600 (15.7) |
| 100 | Max. 42 | 1600 (15.7) |

Above table is indicated by flow rate of water. Convert flow rate by the following formula for liquids than water.

$$Q \times (2.63 \div \sqrt{(7.9/\gamma) - 1})$$

γ : Sp.Gr. of liquid to be measured

Above table is indicated by flow rate of water. Convert flow rate by the following formula for liquids than water.

$$Q \times (1.58 \div \sqrt{(3.5/\gamma) - 1})$$

γ : Sp.Gr. of liquid to be measured

● Gas measurement with Aluminium float

| Size (mm) | Possible range (Nm ³ /h) | Press. Loss mmH ₂ O(kPa) |
|-----------|-------------------------------------|-------------------------------------|
| 15 | Min. 4.5 | 30 (0.3) |
| | Max. 21 | 250 (2.5) |
| 20 | Max. 48 | 350 (3.4) |
| 25 | Max. 77 | 500 (4.9) |
| 40 | Max. 170 | 400 (3.9) |
| 50 | Max. 250 | 400 (3.9) |
| 65 | Max. 380 | 300 (2.9) |
| 80 | Max. 530 | 300 (2.9) |
| 100 | Max. 850 | 350 (3.4) |

Above table is indicated by flow rate of air at 0°C, 1 atm. Convert flow rate by the following formula for different conditions.

$$Q \times 0.0541 \times \sqrt{\gamma \times (273+t) / (1.033+p)}$$

● Gas measurement with 304SS float

| Size (mm) | Possible range (Nm ³ /h) | Press. Loss mmH ₂ O(kPa) |
|-----------|-------------------------------------|-------------------------------------|
| 15 | Min. 8 | 90 (0.9) |
| | Max. 35 | 710 (7.0) |
| 20 | Max. 85 | 1000 (9.8) |
| 25 | Max. 130 | 1200 (11.8) |
| 40 | Max. 280 | 900 (8.8) |
| 50 | Max. 390 | 800 (7.8) |
| 65 | Max. 600 | 800 (7.8) |
| 80 | Max. 800 | 870 (8.5) |
| 100 | Max. 1100 | 900 (8.8) |

Above table is indicated by flow rate of air at 0°C, 1 atm. Convert flow rate by the following formula for different conditions.

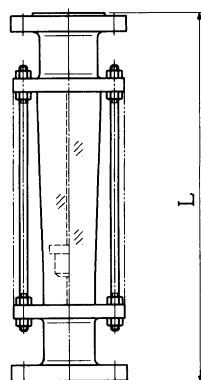
$$Q \times 0.0541 \times \sqrt{\gamma \times (273+t) / (1.033+p)}$$

STANDARDIZED ITEM

NE series are ready for quick delivery with standardized specification. Order by Model code only.

Calibration condition Water, Sp.Gr.1.0, 1.0cP
 Connection JIS10KRF flange
 Scale Graduation Double scaled by m³/h (L/h) and L/min
 Press. rating As per standard R-101-E
 Temp. rating As per standard R-101-E
 Dimension As per standard R-101-E (Refer to following table)

Material Flange ① Carbon steel
 Type NE-□□□-□□S
 ② 304SS
 Type NE-□□□-□□4
 Tapered tube Pyrex glass
 Float 304SS
 Seal NBR



| Code | Size | L |
|-------------|------|------|
| | | (mm) |
| NE-015-□□-□ | 15A | 320 |
| NE-020-□□-□ | 20A | 320 |
| NE-025-□□-□ | 25A | 320 |
| NE-040-□□-□ | 40A | 370 |
| NE-050-□□-□ | 50A | 370 |
| NE-065-□□-□ | 65A | 370 |
| NE-080-□□-□ | 80A | 400 |
| NE-100-□□-□ | 100A | 400 |

↑ Flange material S : Carbon steel
 4 : 304SS

Model code
 Connection size

| Code | Size | Scale graduation | |
|--------------|------|-------------------|----------|
| | | m ³ /h | L/min |
| NE-015-03-□ | 15A | 30~300 L/h | 0.5~5 |
| NE-015-05-□ | | 50~500 L/h | 1~10 |
| NE-015-08-□ | | 80~800 L/h | 1.3~13 |
| NE-015-10-□ | | 0.1~1 | 1.8~18 |
| NE-015-15-□ | | 0.15~1.5 | 2.5~25 |
| NE-020-15-□ | 20A | 0.15~1.5 | 2.5~25 |
| NE-020-20-□ | | 0.2~2 | 3~30 |
| NE-020-30-□ | | 0.3~3 | 5~50 |
| NE-025-20-□ | 25A | 0.2~2 | 4~40 |
| NE-025-30-□ | | 0.3~3 | 5~50 |
| NE-025-40-□ | | 0.4~4 | 6~60 |
| NE-025-50-□ | | 0.5~5 | 9~90 |
| NE-025-60-□ | | 0.6~6 | 10~100 |
| NE-040-05-□ | 40A | 0.5~5 | 8~80 |
| NE-040-08-□ | | 0.8~8 | 13~130 |
| NE-040-10-□ | | 1~10 | 15~150 |
| NE-040-15-□ | | 1.5~15 | 25~250 |
| NE-050-10-□ | 50A | 1~10 | 18~180 |
| NE-050-15-□ | | 1.5~15 | 25~250 |
| NE-050-20-□ | | 2~20 | 35~350 |
| NE-050-25-□ | | 2.5~25 | 40~400 |
| NE-065-15-□ | 65A | 1.5~15 | 25~250 |
| NE-065-20-□ | | 2~20 | 35~350 |
| NE-065-30-□ | | 3~30 | 50~500 |
| NE-065-40-□ | | 4~40 | 70~700 |
| NE-080-30-□ | 80A | 3~30 | 50~500 |
| NE-080-40-□ | | 4~40 | 70~700 |
| NE-080-50-□ | | 5~50 | - * |
| NE-100-40-□ | 100A | 4~40 | 70~700 |
| NE-100-50-□ | | 5~50 | - * |
| NE-100-70-□ | | 7~70 | 120~1200 |
| NE-100-80-□ | | 8~80 | 130~1300 |
| NE-100-90-□ | | 9~90 | 150~1500 |
| NE-100-100-□ | | 10~100 | 180~1800 |

* NE-80-50-□ and NE-100-50-□ : L/min graduation is not available.

* Specification subject to change without notice

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