



# TECHNICAL GUIDANCE

## Metal Tube Type Variable Area Flowmeter

# NMX Series

### OUTLINE

NMX series is the renewal product developed by compacting the existing MX series now enjoying a good reputation. The unified face-to-face dimension in 250 mm makes the piping design much easier and saves the installation space. Both the intrinsic safety version NMX1000 and flameproof version NMX2000 are available.

The body is made of 316 SS or equivalent as standard or lined on the metal tube with the modified PTFE both applicable to corrosive fluids and chemicals.

### FEATURES

#### ●Unified face-to-face dimension

Easy piping arrangement with 250 mm from meter size 15 to 100 mm

#### ●Explosionproof version

Intrinsic safety : NMX1000

Flameproof : NMX2000

#### ●Complying with world-wide explosionproof

certificates including:

ATEX Europe

NEPSI China

FM USA

KOSHA Korea

#### Metal tube type

- Applicable wide variety of liquids, gases and steam
- Corrosion resistant for various fluids 316 SS or equivalent as standard

#### Lining type

- The metal body is lined with the modified PTFE as standard
- Excellent chemical resistance, impermeability and resistance to stress cracking



Metal tube type



Lining type

	Construction		Function		Explosionproof
NMX1000	Metal tube	Lining	Local indication	With alarm	Intrinsic safety, General purpose (Non-intrinsic safety)
				With transmitter	
NMX2000	Metal tube	Lining	Local indication	With alarm	Flameproof
				With transmitter	

## STANDARD SPECIFICATIONS

### Metal tube type

- Meter size : 15, 25, 40, 50, 80, 100 mm
- Connection by flange as standard : JIS 10K, 20K RF  
ANSI Class 150, 300 RF  
DIN PN16, 40  
GB PN1.6, 4.0

Higher pressure types are also available as an option.  
Consult us for details.

#### [Notes]

See the connection size table to the right.

\*1 The JIS 10K flange of connection size 15 to 40 mm as marked \*1 in the right table are made by JIS 20K. The JIS 20K flanges are 2 mm thicker than JIS 10K flanges and other dimensions of the both are same.

\*2 The PN1.6 (GB standard) and PN16 (DIN standard) in the connection size of DIN 15 through 50 are made by PN4.0 and PN40.

\*3 These connection sizes are non-standard. Consult us for their availability and also for other standards than the contents in the table.

- Measuring object : Liquids, gases, steam
- Fluid temperature : -20 to 300 °C (Local indicator)  
-20 to 200 °C (with transmitter)

Refer to explosionproof specification also.

- Fluid pressure : 4.1 MPa at ambient temperature  
3.3 MPa at 120 °C

The maximum allowable working pressure is subject to fluid temperature. Higher pressure version is available. Consult us for details.

Refer to JIS, ASME/ANSI, DIN, GB flange standards for details.

- Material : 316L SS or equivalent for wet parts
- Flow range : 0.04 to 100 m<sup>3</sup>/h  
In measuring a fluid with density 1.0 g/cm<sup>3</sup>, viscosity 1.0 mPa·s

: 1.2 to 600 m<sup>3</sup>/h (nor)

In measuring air with density 0 °C, 0 MPa [1 atm]

- Accuracy : ± 1.5 % F.S. as standard
- Rangeability : 10 : 1

### • Connection size table in mm

Metersize	Connection rating	Availability of connection size against meter size			
		1 rank smaller than meter	Same size as meter	1 rank larger than meter	2 rank larger than meter
15	10K	N.A.	15 <sup>1</sup>	20 <sup>1</sup>	25 <sup>1</sup>
	20K	N.A.	15	20	25
	Class 150	N.A.	15	20	25
	Class 300	N.A.	15	20	25 <sup>3</sup>
	PN1.6/PN16	N.A.	15 <sup>2</sup>	20 <sup>2</sup>	25 <sup>2</sup>
25	PN4.0/PN40	N.A.	15	20	25 <sup>3</sup>
	10K	N.A.	25 <sup>1</sup>	40 <sup>1</sup>	50
	20K	N.A.	25	40	50 <sup>3</sup>
	Class 150	N.A.	25	40	50
	Class 300	N.A.	25	40	50 <sup>3</sup>
40	PN1.6/PN16	N.A.	25 <sup>2</sup>	40 <sup>2</sup>	50 <sup>2</sup>
	PN4.0/PN40	N.A.	25	40	50 <sup>3</sup>
	10K	N.A.	40 <sup>1</sup>	50	65
	20K	N.A.	40	50	65 <sup>3</sup>
	Class 150	N.A.	40	50	65
50	Class 300	N.A.	40	50	65 <sup>3</sup>
	PN1.6/PN16	N.A.	40 <sup>2</sup>	50 <sup>2</sup>	65
	PN4.0/PN40	N.A.	40	50	65 <sup>3</sup>
	10K	N.A.	50	65	80
	20K	N.A.	50	65	80 <sup>3</sup>
80	Class 150	N.A.	50	65	80
	Class 300	N.A.	50	65	80 <sup>3</sup>
	PN1.6/PN16	N.A.	50 <sup>2</sup>	65	80
	PN4.0/PN40	N.A.	50	65	80 <sup>3</sup>
	10K	N.A.	80	100	125
100	20K	N.A.	80	100	125 <sup>3</sup>
	Class 150	N.A.	80	100	125
	Class 300	N.A.	80	N.A.	N.A.
	PN1.6/PN16	N.A.	80	100	125
	PN4.0/PN40	N.A.	80	100	125 <sup>3</sup>
100	10K	N.A.	100	125	150
	20K	N.A.	100	125 <sup>3</sup>	150 <sup>3</sup>
	Class 150	N.A.	100	125	150
	Class 300	N.A.	100 <sup>3</sup>	N.A.	N.A.
	PN1.6/PN16	N.A.	100	125	150
PN4.0/PN40	N.A.	100	125 <sup>3</sup>	N.A.	

See notes\*1, \*2, \*3 on the left column on this page

**1. NMX1000 Series (General purpose or intrinsic safety)**

- Fluid temperature : -20 to 300 °C (Local indicator)  
-20 to 200 °C (with transmitter)  
Refer to explosion specification also
- Ambient temperature : -25 to 100 °C (Local indicator)  
-20 to 60 °C (with transmitter)
- Ambient humidity : Less than 95 %RH
- Indicator construction : Protection class IP65 equivalent to NEMA 12/13
- Painting : External surface of indicator is painted with color RAL 5018(Equivalent to Munsell 7.5BG 5/4.5)

**2. NMX2000 Series (flameproof)**

- Fluid temperature : -20 to 200 °C  
Refer to explosionproof specification also
- Ambient temperature : -20 to 55 °C (TIIS certification)  
-20 to 60 °C (ATEX, NEPSI, KOSHA certification)
- Ambient humidity : Less than 95 %RH
- Indicator construction : Protection class IP65 equivalent to NEMA 12/13
- Painting : External surface of indicator is painted with color RAL 5018 (Equivalent to Munsell 7.5BG 5/4.5)

**Lining type**

- Meter size : 20, 25, 40, 50, 80, 100 mm
- Connection by flange only  
Equivalent to JIS 10K, 20K RF  
Equivalent to ANSI Class 150, 300 RF  
Equivalent to DIN PN16, 40  
Equivalent to GB PN1.6, 4.0  
The thickness of some flanges are thicker than the standards according to their sizes

[Notes]

The PN1.6 (GB standard) and PN16 (DIN standard) in the connection size of DIN 20 through 65 are made by PN4.0 and PN40.

- Connection size : Same as meter or 1 rank larger
- Measuring object : Liquids
- Fluid temperature : -20 to 120 °C  
Refer to explosionproof specification also.
- Fluid pressure : 4.1 MPa at ambient temperature  
3.3 MPa at 120 °C  
The maximum allowable working pressure is subject to fluid temperature.  
The negative pressure version can be used up to -0.06 MPa.
- Material : Modified PTFE, PFA or PTFE for wet parts  
Refer to DIMENSIONS for details of materials.
- Flow range : 0.15 to 50 m³/h  
In measuring a fluid with density 1.0 g/cm³, viscosity 1.0 mPa·s
- Accuracy : ± 2 % F.S. as standard
- Rangeability : 10 : 1 The range becomes 10 : 2 when the flow rate is 0.3 m³/h or smaller

**FUNCTION**

**NMX1000 Series** This type has a function of alarm or current output in addition to the local indicator on your request.

**NMX2000 Series** This type has a flameproof enclosure with current output as standard. The alarm or current output type certified by ATEX, NEPSI or KOSHA is available as an option.

**Alarm output**

Either low or high alarm can be selected as the alarm mode. Specify the alarm mode and alarm action (Open or Close) at the time of ordering.

● **Model code**

NMX□□□□-.../1A, 1B, 1C, 1D

● **Alarm output**

- Contacts : Reed switch 1 point with setting needle
- Electric rating:  
Max. voltage : 125 V AC or 100 V DC  
Operating current range : 10 μA to 0.5 A  
Max. switching capacity : 10 VA or 10 W

[Notes]

The above mentioned ratings are for resistance load. When using other load, the contacts may be deposited by a rush current. Ensure that the ratings are not exceeded even at the maximum rush current.

<b>Kinds of load</b>	Rush current
<b>Lamp load</b>	10 to 15 times of ordinary use
<b>Motor load</b>	5 to 10 times of ordinary use
<b>Inductive load</b>	4 to 5 times of ordinary use

- Applicable wiring : 0.2 to 2.5 mm², 24 to 12 AWG Single or stranded wire
- Insulation resistance : 100 MΩ or more (500 V DC)
- Withstand voltage : 1500 V AC (Holding time 1 min)
- Setting accuracy : ±2% F.S. against flow rate on the scale

[Notes]

During alarm being actuated the flow indication accuracy may be out of the guaranteed accuracy.

- Reset span : Less than 15% F.S. against flow rate on the scale (Less than 20% F.S. for the flow range marked as “\*1” in the FLOW RATE TABLE)

**1. Intrinsic safety (Alarm output)**

The intrinsic safety is available for NMX1000 series with an alarm output on your request.

**●Model code**

- NMX1 □□□-.../1A,1B,1C,1D/JI : TIIS certification  
Explosion classification : Ex ia II C T6  
Recommended intrinsically safe circuit barrier EB3C (EX ia IIC manufactured by IDEC)
- NMX1 □□□-.../1A,1B,1C,1D/EI : ATEX certification  
Explosion classification : II2G Ex ia II C T3...T4
- NMX1 □□□-.../1A,1B,1C,1D/UI : FM certification  
Explosion classification : Class 1, Division 1, Groups A, B, C & D  
: AEx ia II C T3, T4

**●Rating of intrinsically safe circuit**

- Maximum input voltage : 30 V
  - Maximum input current : 500 mA
- The specified safety barrier is to be properly installed in non-hazardous area to establish the intrinsically safe system. See Fig.1.

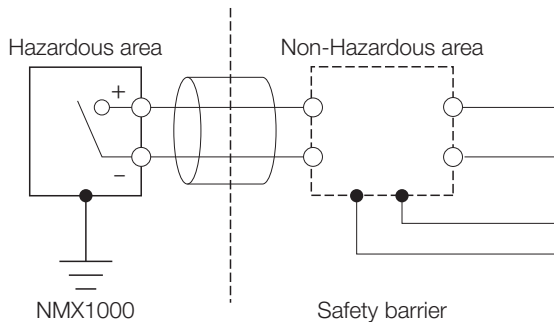


Fig.1

**●Maximum process temperature**

Applied for ATEX and FM certification only

Certified by	Temperature class	
	T3	T4
ATEX, FM	200°C	135°C

**2. Flameproof (Alarm output)**

The alarm output type certified by ATEX, NEPSI or KOSHA is available as an option for NMX2000 series.

- NMX2 □□□-.../1A,1B,1C,1D/EE : ATEX certification  
Explosion classification : II2G Ex d II C T6...T3
- NMX2 □□□-.../1A,1B,1C,1D/CE : NEPSI certification  
Explosion classification : Ex d II C T3 ~ T6 Gb;  
: Ex tD A21 IP65 T85°C
- NMX2 □□□-.../1A,1B,1C,1D/KE : KOSHA certification  
Explosion classification : Ex d II C T6...T3

**●Maximum process temperature**

Certified by	Temperature class			
	T3	T4	T5	T6
ATEX, KOSHA	200°C	135°C	100°C	85°C
NEPSI	185°C	120°C	85°C	70°C

Ambient temperature : -20 to 60°C

**Current output**

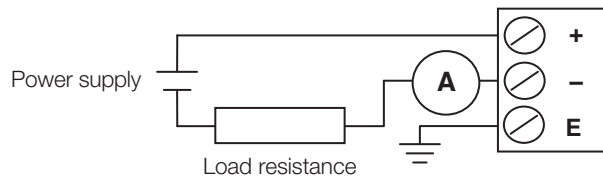
The current signal 4 to 20 mA is output corresponding to flow rate 0 to 100%

**●Model code**

- NMX1 □□□-.../E1 : General purpose
- NMX1 □□□-.../E2 : Intrinsically safe circuit
- NMX2 □□□-.../E1 : Flameproof enclosure

**●Current output**

- Power supply : 11 to 35 V DC between transmitter terminals 16.5 to 35 V DC for HART Communication between transmitter terminals
- Current output : 4 to 20 mA DC
- Current output accuracy : 1% F.S. against flow rate on the scale
- Allowable load resistance : 0 to 600 Ω at 24 V DC  
250 to 1000 Ω for HART Communication
- Power supply variation influence : 0.2% F.S. or less
- Load resistance influence : 0.2% F.S. or less
- Insulation resistance : 100 MΩ or more (500 V DC)
- Withstand voltage : 500 V AC (Holding time 1 min)
- Terminal schematics



**1. Intrinsic safety (Current output)**

The intrinsic safety is available for NMX1000 series with a current output on your request.

**●Model code**

- NMX1 □□□-.../E2/JI : TIIS certification  
Explosion classification : Ex ia II C T4
- NMX1 □□□-.../E2/EI : ATEX certification  
Explosion classification : II2G Ex ia II C T3...T4
- NMX1 □□□-.../E2/CI : NEPSI certification  
Explosion classification : Ex ia II C T4
- NMX1 □□□-.../E2/UI : FM certification  
Explosion classification : Class 1, Division 1, Groups A, B, C & D  
: AEx ia II C T3, T4

●Rating of intrinsically safe circuit

- Maximum input voltage : 28 V
- Maximum input current : 93 mA
- Maximum input power : 650 mW
- Maximum internal capacitance : 0.01302 μF
- Maximum internal capacitance : 0.3697 mH

The specified safety barrier is to be properly installed in non-hazardous area to establish the intrinsically safe system. See Fig.2.

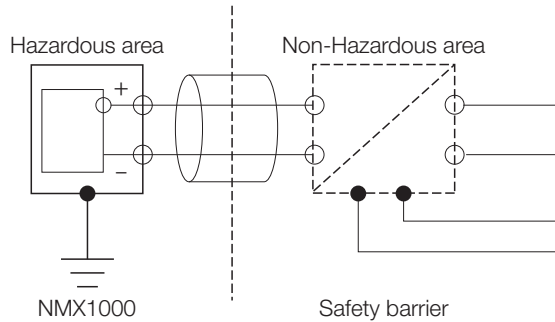


Fig.2

●Maximum process temperature

Certified by	Temperature class	
	T3	T4
TIIS	N.A.	Less than ignition temperature
ATEX, FM	200°C	135°C
NEPSI	N.A.	130°C

2. Flameproof (Current output)

●TIIS certification

- Cable entry : Pressure-tight packing gland
- Flameproof packing type cable gland  
SXC-16BY by Shimada Electric Co. is attached as an accessory.  
Cable entry size: G1/2  
Cable size : 8 to 12 mm diameter, inform us when ordering

●ATEX, NEPSI, KOSHA certification

- Cable entry : Pressure-tight packing gland
- Flameproof packing type cable gland  
Use proper cable glands applicable to each regulation

●Model code

- NMX2 □□□ -.../E1/JE : TIIS certification  
Explosion classification : Ex d II C T4
- NMX2 □□□ -.../E1/EE : ATEX certification  
Explosion classification : II2G Ex d II C T6...T3  
II2D Ex tD A21 IP65 T85°C
- NMX2 □□□ -.../E1/CE : NEPSI certification  
Explosion classification : Ex d II C T3 ~ T6 Gb;  
Ex tD A21 IP65 T85°C
- NMX2 □□□ -.../E1/KE : KOSHA certification  
Explosion classification : Ex d II C T6...T3

●Maximum process temperature

Certified by	Temperature class			
	T3	T4	T5	T6
TIIS	N.A.	Less than ignition temperature	N.A.	
ATEX, KOSHA	200°C	135°C	100°C	85°C
NEPSI	185°C	120°C	85°C	70°C

●Ambient temperature

Certified by	Ambient temperature
TIIS	-20 to 55°C
ATEX, NEPSI, KOSHA	-20 to 60°C

3. HART Communication (Current output)

The HART Communication (version 5,6) is available for the following models with a current output on your request.

●Model code

- NMX1 □□□ -.../E1/HC : General purpose
- NMX1 □□□ -.../E2/HC : Intrinsically safe circuit
- NMX2 □□□ -.../E1/HC : Flameproof enclosure

ADDITIONAL FUNCTION

Cable entry

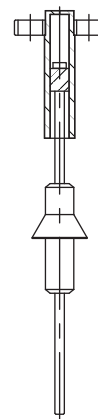
Select one from MODEL CODE table.

[Notes]

All the products of NMX2000 series certified by TIIS have the explosionproof packing type cable glands as attachments.

Damping device

The metal tube type flowmeters of all sizes for gas measurement are equipped with dampers as a standard. The damper device can be added for the liquid measurement with pulsation. The damper, however, should be avoided for such services as chlorine gas that tends to form chemical compound and fluids that contain rusts, debris and oil. They might hinder the damping effect.



## FLOW RATE TABLE

### Metal tube type

Meter size	Water		Air	
	Flow rate m <sup>3</sup> /h	Max. pressure loss kPa	Flow rate m <sup>3</sup> /h(nor)	Max. pressure loss kPa
15	0.04 to 1.85	11	1.2 to 45	17
25	1.5 to 5.4	16	45 to 135	30
	5.4 to 6*1	19		
40	5 to 10.5	8	130 to 230	10
50	9 to 16.8	10	220 to 300	8
	16.8 to 21.5*1	16	300 to 400*1	10
80	20 to 40	22	390 to 600	13
	40 to 50*1	32		
100	50 to 100*1	26	-	-

\*1 The reset span of alarm is less than 20% F.S.

The above flow rate shows the value converted into water (Density 1.0 g/cm<sup>3</sup>, Viscosity 1.0 MPa·s) and air (0°C, 0 MPa i.e. 1 atm). The numeric value as indicated shows the flow range in the maximum graduation.

### ●Flow conversion method

#### 1. When measuring liquids

Flow rates on the FLOW RATE TABLE are for liquid application equivalent to water (Density 1.0 g/cm<sup>3</sup> and viscosity 1.0 mPa·s). If actual fluid condition is different, a conversion calculation is required per following formula:

$$Q_w = Q \times 2.59 / \sqrt{((7.7/\rho) - 1)}$$

Q<sub>w</sub> : Water converted flow rate (m<sup>3</sup>/h)

Q : Flow rate of actual fluid (m<sup>3</sup>/h)

ρ : Density of actual fluid (g/cm<sup>3</sup>)

Consult us when the fluid has high viscosity.

#### 2. When measuring gases

Flow rates on the FLOW RATE TABLE are shown in m<sup>3</sup>/h (nor) converted from the condition that the meter operated at 20°C and 0 MPa. If actual fluid condition is different, a conversion calculation is required per following formula:

$$Q_A = Q \times 0.01635 \times \sqrt{(\rho(273+t)) / (0.1013+P)}$$

Q<sub>A</sub> : Converted flow rate in air 0°C, 0 MPa [m<sup>3</sup>/h(nor)]

Q : Flow rate of gas to be measured [m<sup>3</sup>/h(nor)]

ρ : Density of gas to be measured [kg/m<sup>3</sup>(nor)]

P : Operating pressure (MPa)

t : Operating temperature (°C)

#### 3. When measuring steam

Steam flow rate is converted into air flow rate at 0°C, 0 MPa by the following formula.

$$Q_A = 0.8488 \times Q_{s1} / \sqrt{\rho_s}$$

$$Q_A = 0.8488 \times Q_{s2} \times \sqrt{\rho_s}$$

Q<sub>A</sub> : Converted flow rate in air 0°C, 0 MPa [m<sup>3</sup>/h(nor)]

Q<sub>s1</sub> : Flow rate (Mass) in kg/h

Q<sub>s2</sub> : Flow rate (Volume) in m<sup>3</sup>/h

ρ<sub>s</sub> : Density of steam (kg/m<sup>3</sup>)

### Lining type

Meter size	Water	
	Flow rate m <sup>3</sup> /h	Max. pressure loss kPa
20	0.15 to 1.2*1	7
25	0.7 to 3.5	10
40	3 to 6	5
50	5 to 15	9
80	10 to 25	10
100	20 to 50	8

The above flow rate shows the value converted into water (Density 1.0 g/cm<sup>3</sup>, Viscosity 1.0 MPa·s). The numeric value as indicated shows the flow range in the maximum graduation.

\*1 The range becomes 10 : 2 when the flow rate is 0.3 m<sup>3</sup>/h or smaller

### ●Flow conversion method

Flow rates on the FLOW RATE TABLE are for liquid application equivalent to water (Density 1.0 g/cm<sup>3</sup> and viscosity 1.0 mPa·s). If actual fluid condition is different, a conversion calculation is required per following formula:

$$Q_w = Q \times 2 / \sqrt{((5/\rho) - 1)}$$

Q<sub>w</sub> : Water converted flow rate (m<sup>3</sup>/h)

Q : Flow rate of actual fluid (m<sup>3</sup>/h)

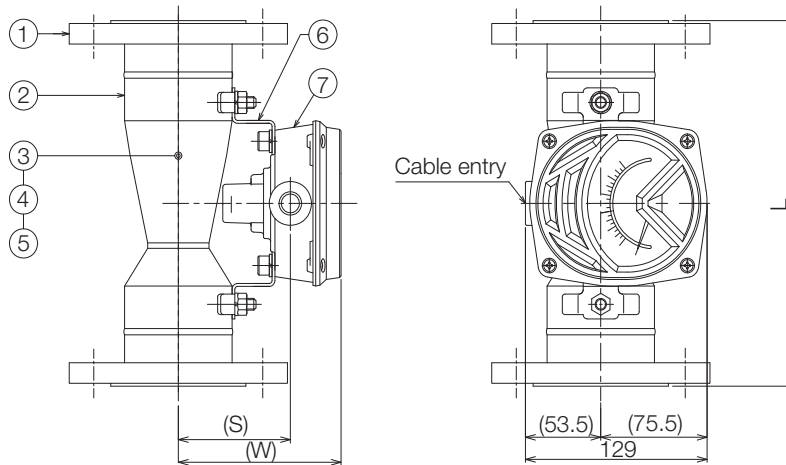
ρ : Density of actual fluid (g/cm<sup>3</sup>)

Consult us when the fluid has high viscosity.

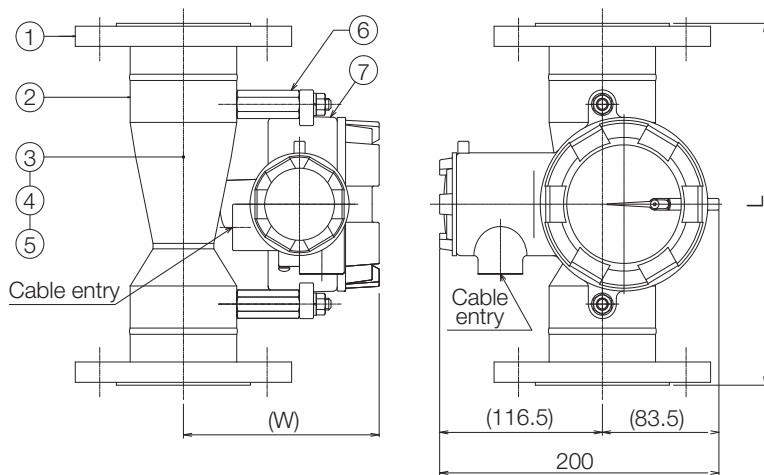


## DIMENSIONS

### Metal tube type



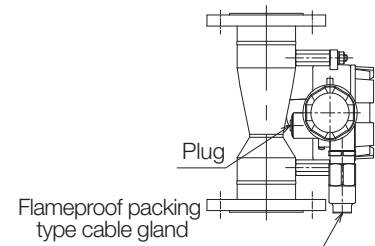
**NMX1000 Series**



**NMX2000 Series**

Either a backward or downward cable entry on the indicator is actually used.

A NMX2000 certified by TIIS has a packing type cable gland on the downward entry (backward entry for the meter size 100 mm) and a plug on the backward entry of size G1/2. See the drawing below.



### Material

Part No.	Description	Material	
		NMX1000 series	NMX2000 series
1	Flange	316L SS	
2	Tapered tube	316L SS	
3	Float guide	316L SS	
4	Float	316L SS	
5	Stopring	316L SS	
6	Fittings	316 SS	304 SS
7	Indicator	ADC 12	

[Notes]

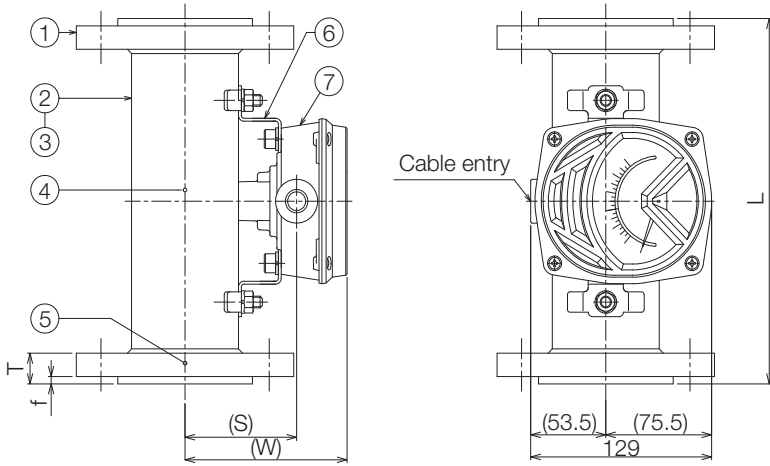
- The upper float guide is replaced with the damper (cylinder) for gas, steam services and other services where a damper required.
- The lower guides being fixed to the flanges of 15 mm and 100 mm meter sizes cannot be removed.

### Dimensions

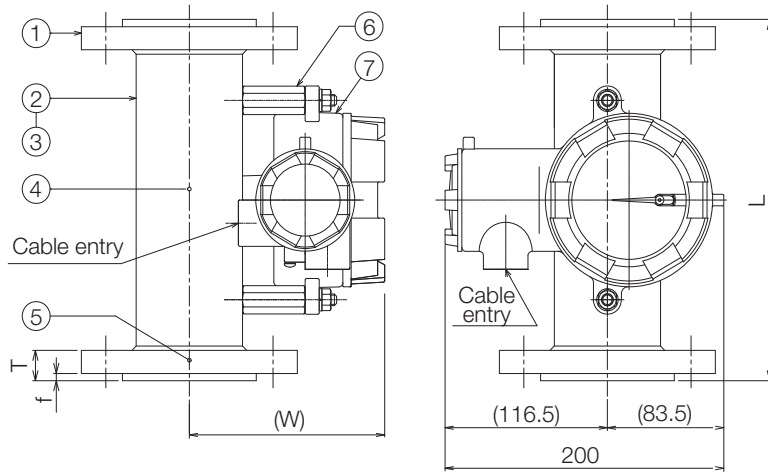
Meter size	Connection size A (inch)	NMX 1000series				NMX 2000series		
		Dimension mm			Approx. mass <sup>*1</sup> (kg)	Dimension mm		Approx. mass <sup>*1</sup> (kg)
		L	S	W		L	W	
15	15 (1/2)	250	79.5	115.5	2.5	250	140	4.5
25	25 (1)	250	79.5	115.5	4	250	140	6
40	40 (1 1/2)	250	79.5	115.5	4.5	250	140	6.5
50	50 (2)	250	79.5	115.5	7	250	140	9
80	80 (3)	250	81.5	117.5	13	250	144	15
100	100 (4)	250	96.5	132.5	18	250	156	20

\*1 Approximate mass shows the one of the ANSI Class 150.

Lining type



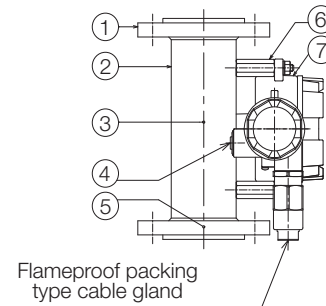
NMX1LFF Series



NMX2LFF Series

Either a backward or downward cable entry on the indicator is actually used.

A NMX2000 certified by TIIS has a packing type cable gland on the downward entry (backward entry for the meter size 100 mm) and a plug on the backward entry of size G1/2. See the drawing below.



Material

Part No.	Description	Material	
		NMX1LFF series	NMX2LFF series
1	Flange	316 SS	
2	Body	316 SS	
3	Lining of main body	Modified PTFE	
4	Float guide	PFA	
5	Float	PFA or PTFE/PFA	
6	Fittings	316 SS	304 SS
7	Indicator	ADC 12	

Dimensions

Meter size	Dimension			NMX1LFF series			NMX2LFF series	
	L	T (*1) Same connection size	f (*2)	Dimension mm		Approx. mass (*3) (kg)	Dimension mm	Approx. mass (*3) (kg)
				S	W		W	
20	250	19	5 (3)	48	84	4	108.5	6
25	250	19	5 (3)	79.5	115.5	5	140	7
40	250	21	5 (3)	79.5	115.5	6.5	140	8.5
50	250	21	5 (3)	79.5	115.5	9	140	11
80	250	22	6 (4)	81.5	117.5	14	144	16
100	250	22	6 (4)	96.5	132.5	20.5	156	22.5

(\*1) The flange thickness "T" differs with the flange standard. (The figures in above table are the ones for JIS 10K with the same connection size as meter.) Check with the PRODUCT SPECIFICATION for details to select appropriate bolt length.

(\*2) The figures in parentheses are the ones for ANSI class 150 or 300.

(\*3) The approximate mass is the one for JIS 10K with the same connection size as meter.



**MODEL CODE TABLE**

**1. Main body**

●Metal tube type

NMX	*	*	*	_**	**	*	_*	*	*	/**	Description	Remarks				
												Liquid service	Gas service			
Indicator type	1										General purpose or intrinsically safe circuit	See code table of NMX1000				
	2										Flameproof enclosure	See code table of NMX2000				
Main body	1										Standard					
Material contact with fluid	1										316L SS	Fixed				
Float material	1										316L SS					
Connection Rating											-J1	JIS10K	See connection size table at page 2			
											-J4	JIS20K				
											-A2	ANSI Class 150				
											-A5	ANSI Class 300				
											-G1	GB PN1.6				
											-G4	GB PN4.0				
											-D1	DIN PN16				
										-D4	DIN PN40					
Flange face										RF	RF flange	Fixed				
Connection size											1	15 A 1/2" DN15	As the standard practice, connection size of meters is the same as meter size or 1 or 2 rank larger than meter size. For details, refer to the connection size table at page 2.			
											2	20 A 3/4" DN20				
											3	25 A 1" DN25				
											4	40 A 1 1/2" DN40				
											5	50 A 2" DN50				
											6	65 A 2 1/2" DN65				
											7	80 A 3" DN80				
											8	100 A 4" DN100				
											9	125 A 5" DN125				
											A	150 A 6" DN150				
Meter size											-1	15 mm	Qw m <sup>3</sup> / h 20°C, water	0.04 ~ 1.85	QA m <sup>3</sup> / h(nor) 0°C, 0 MPa, air	1.2 ~ 45
											-3	25 mm		1.5 ~ 6		45 ~ 135
											-4	40 mm		5 ~ 10.5		130 ~ 230
											-5	50 mm		9 ~ 21.5		220 ~ 400
											-7	80 mm		20 ~ 50		390 ~ 600
											-8	100 mm		50 ~ 100		
Tapered tube										+		Model number of tapered tube	These codes are used by only TOKYO KEISO			
Float										+		Model number of float				
Float damper											1	Not provided	Not provided as standard	-		
											2	Provided	Upon customers' request	Provided as standard		
Indicator and other optional requirements											/**		Refer to the model code table of indicator and optional codes.			
Special requirements											/z	Special requirements not mentioned above	Consult us.			

## MODEL CODE TABLE continued

## 1. Main body

## ●Lining type

NMX	*	*	*	*	_*	**	*	_*	*	*	/**	Description	Remarks
Indicator type	1											General purpose or intrinsically safe circuit	See code table of NMX1000
	2											Flameproof enclosure	See code table of NMX2000
Main body	L											Lining	Fixed
Material contact with fluid	F											PFA lining	
Float material	F											PFA lining or PFA/PTFE	
Connection Rating					-J1							Equivalent to JIS10K	Applied for all types
					-J4							Equivalent to JIS20K	
					-A2							Equivalent to ANSI Class 150	
					-A5							Equivalent to ANSI Class 300	
					-G1							Equivalent to GB PN1.6	
					-G4							Equivalent to GB PN4.0	
					-D1							Equivalent to GB DIN PN16	
				-D4							Equivalent to GB DIN PN40		
Flange face					RF							RF flange	Fixed
Connection size												20 A 3/4" DN20	As the standard practice, connection size of meters is the same as meter size or 1 rank larger than meter size.
												25 A 1" DN25	
												40 A 1 1/2" DN40	
												50 A 2" DN50	
												65 A 2 1/2" DN65	
												80 A 3" DN80	
												100 A 4" DN100	
												125 A 5" DN125	
	Meter size												
												25 mm	
												40 mm	
												50 mm	
												80 mm	
												100 mm	
Tapered tube										+		Model number of tapered tube	These codes are used by only TOKYO KEISO
Float											+	Model number of float	
Float damper											1	Not provided	
Indicator and other optional requirements												/**	Refer to the model code table of indicator and optional codes.
Special requirements												/z	Special requirements not mentioned above Consult us.

MODEL CODE TABLE continued

2. Indicator and optional codes

●NMX1000 Series

NMX	*	*	*	*	**	*	*	*	*	*	/**	Description	Remarks	
Indicator type	1											Type 1 General purpose or intrinsically safe circuit		
Code of main body section	*	*	*	**	**	*	*	*	*	*			See the code table of main body	
Additional function	Alarm output (1 point)	/1A	1 point (Close at High)										Duplicated selection of code is not allowed.	
		/1B	1 point (Open at High)											
		/1C	1 point (Close at Low)											
		/1D	1 point (Open at Low)											
	Current output (2-wire, 4 to 20 mA )	/E1	Type 1 General purpose										Available only for /E1 and /E2	
		/E2	Type 2 Intrinsically safe circuit											
		/HC	HART Communication											
	Intrinsically safe circuit	/JI	TIIS certification										Available for alarm output*1 and current output (/E2) only	Duplicated selection of code is not allowed.
		/EI	ATEX certification											
		/UI	FM certification											
/CI		NEPSI certification										Available for current output (/E2) only		
Cable entry	/M2	M20 x 1.5(F)										Duplicated selection of code is not allowed.		
	/GH	G 1/2(F)												
	/NP	NPT 1/2(F)												
Optional requirements	Cleaning	/OL	Degrease treatment											
		/WL	Non-water treatment											
	/AP	Acid pickling										Not available for lining type		
	Painting	/PS	Special color											
	Inspection	/LT	Gas leak test											
Accessories	/AC	Provided										IR series , amplifier for alarm or others		
Special requirements	/Z	Special requirements not mentioned above										Consult us.		

\*1 The flowmeter with an alarm output needs an Intrinsically safe circuit barrier.

●NMX2000 Series

NMX	*	*	*	*	**	*	*	*	*	*	/**	Description	Remarks	
Indicator type	2											Type 2 Flameproof enclosure		
Code of main body section	*	*	*	**	**	*	*	*	*	*			See the code table of main body	
Additional function	Alarm output (1 point)	/1A	1 point (Close at High)										<ul style="list-style-type: none"> <li>• Duplicated selection of code is not allowed.</li> <li>• Flowmeter with TIIS certification (/JE) cannot have any of these alarm outputs.</li> <li>• Flowmeter with current output (/E1) cannot have any of these alarm outputs.</li> </ul>	
		/1B	1 point (Open at High)											
		/1C	1 point (Close at Low)											
		/1D	1 point (Open at Low)											
	Current output (2-wire, 4 to 20 mA )	/E1	Type 1(Non-intrinsically safe circuit)										Flowmeter with alarm output (/1 □) cannot have the current output.	
	HART Communication	/HC	HART Communication										Applicable for /E1	
	Flameproof enclosure	/JE	TIIS certification										Applicable for /E1 only	Duplicated selection of code is not allowed.
/EE		ATEX certification												
/CE		NEPSI certification												
/KE		KOSHA certification												
Cable entry	/M2	M20 x 1.5(F)										<ul style="list-style-type: none"> <li>• Duplicated selection of code is not allowed.</li> <li>• Flowmeter with TIIS certification (/JE) cannot have any of these codes.</li> <li>• Flowmeter with TIIS certification (/JE) have a packing type cable gland with G1/2</li> </ul>		
	/GH	G 1/2(F)												
	/NP	NPT 1/2(F)												
Optional requirements	Cleaning	/OL	Degrease treatment										Not available for lining type	
		/WL	Non-water treatment											
	Painting	/AP	Acid pickling											
	Inspection	/PS	Special color											
	Screw adapter for a conduit connection Connected to cable gland	/M1	M16 x 1.5(F)											<ul style="list-style-type: none"> <li>• Duplicated selection of code is not allowed.</li> <li>• Applicable for the flowmeter with TIIS certification</li> </ul>
		/M2	M20 x 1.5(F)											
/NP		NPT 1/2(F)												
Accessories	/AC	Provided										IR series or others		
Special requirements	/Z	Special requirements not mentioned above										Consult us.		

## MODEL CODE TABLE continued

### Scale range

Following table shows 17 kinds of standard graduation pattern.

Scale range	Subdivision of graduation pattern						
1 - 10	1	2	4	6	8	10	
1.2 - 12	1.2	2	4	6	8	10	12
1.5 - 15	1.5	2.5	5	7.5	10	12.5	15
1.6 - 16	1.6	5	10	15	16		
1.8 - 18	1.8	5	10	15	18		
2 - 20	2	5	10	15	20		
2.5 - 25	2.5	5	10	15	20	25	
3 - 30	3	5	10	15	20	25	30
3.5 - 35	3.5	10	20	30	35		
4 - 40	4	10	20	30	40		
4.5 - 45	4.5	10	20	30	40	45	
5 - 50	5	10	20	30	40	50	
6 - 60	6	10	20	30	40	50	60
7 - 70	7	20	40	60	70		
7.5 - 75	7.5	20	40	60	75		
8 - 80	8	20	40	60	80		
9 - 90	9	20	40	60	80	90	

## CAUTIONS

- This flowmeter in its principle transmits the displacement caused by the magnetic coupling. The surrounding magnet field might affect the performance of the instrument.
- Avoid the installation in the magnetic field and do not bring the magnetic material close less than 20 cm including insulation cover which may affect the performance.
- When installing two or more flowmeters, install them in more than 30 cm distance to avoid the mutual interferences.

### For lining type

- Metal tube body has a vent hole to release a gas. Care should be taken not to block it by coating or a heat insulation material. If moisture is adhered to the vent hole, a corrosive gas may be dissolved and corrode the metal tube. Ensure that the vent hole is free from moisture such as rainwater, dew condensation, etc.
- The following gaskets are recommended for flange connection:  
T#/9010 series (Made by NICHIAS CORPORATION)  
T#/N7030 series (Made by NIPPON VALQUA INDUSTRIES, LTD)

\* Specification is subject to change without notice.

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