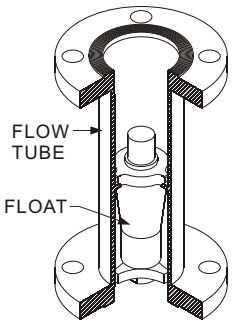
611 SERIES Metallic Meter Tube / Variable Area Type
FLOW INDICATING TRANSMITTER

DOERS

FEATURES

- LCD FOR FLOW RATE & TOTALIZER DISPLAY
- SUITABLE FOR LIQUIDS、STEAM OR GASES
- RIGID AND DURABLE BODY
- HIGH SAFETY AND RELIABILITY
- VARIOUS CONNECTIONS & FLOW DIRECTIONS OF YOUR CHOICES
- SIGNAL OUTPUT OF CURRENT OR PULSE CAN BE SPECIFIED
- FIELD CALIBRATION IS POSSIBLE
- ELECTRONIC DAMPER IS APT TO SET AT FIELD SITE



SIGNAL CONVERTER

LCD DISPLAY

Rate display	5 Digits (99999) , 9mm(0.35")
Totalizer display	8 Digits (99999999) , 5mm(0.2")
Display updated	2 sec / cycle for rate (adjustable) 1 count / cycle for totalizer (adjustable)
Decimal setting	Selectable from keys
Measure unit	/ sec , / min , / HR for rate LIT , FT^3 , M^3 for totalizer

ANALOG OUTPUT

Output signal	4 ~ 20mADC loop powered
Maximum load	600 ohms at 24VDC for current output type

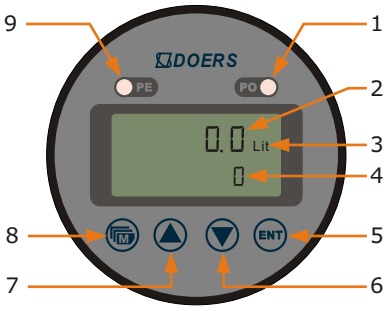
PULSE OUTPUT (OPTIONAL)

Signal form	Open collector pulse signal output , 10mA / 36VDC (max)
Pulse duration	32msec
Output rate	8 PCS max. (Contact Per Second)
Output definition	0, 10, 100, 1000 selectable from keys
Field display	When the output divided is "0", the converter is only for display

GENERAL

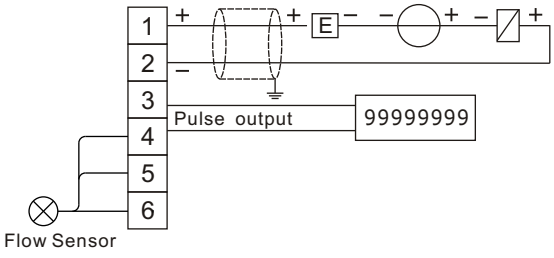
Zero / Span	Can be adjusted by engineer mode
Damping rate	1~9 sec adjustable
Power supply	10~36VDC 2-wire system for loop powered type
Accuracy	±2.0%F.S. (Without sensor error) ±1.0%F.S. (Option)
Linearity	Better than 1%
Output response time	Six seconds (typical)
Device output ripple	Less than 0.25% of full scale for a fully stable sensor input
Housing of Sensor	304SS or specified
Housing of Converter	ADC with epoxy coating or specified
Operating temperature range	23 to 122°F (-5 to 50°C)
Storage temperature range	14 to 140°F (-10 to 60°C)

FRONT WINDOW VIEW



1. **output message of pulse**
2. **Flow rate :** Instantaneous flow
3. **Flow rate unit :** Measurement unit : "Lit" (liter) , "Ft^3" (cubic feet) , "M^3"(cubic meter) with time unit of "Sec" (second) , "Min" (minute) , "Hr" (hour)
4. **Total flow :** Accumulated flow
5. **ENT Key :** Button used to confirm setting or go back to menus
6. **Down Key :** Button used to decrease values or go next to menus
7. **UP Key :** Button used to increase values or go to prior menu
8. **Menus Key :** Button used to switch different display modes or menus
9. **Error message for loop power**

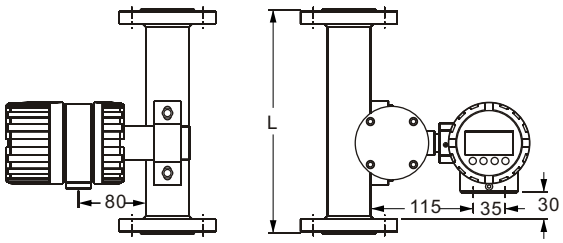
WIRING CONNECTIONS



⑥ FLOW

DIMENSIONS

■ 611A / 611F

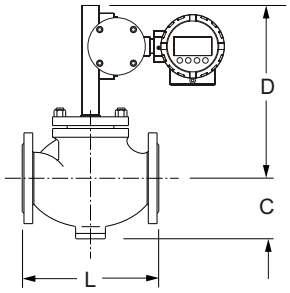


Options : Extended Follower (code item 6)

■ 611A/611F

METER SIZE		WATER MAX.		Air @1 atm 0°C		⑤INSTALLATION
mm	inch	M^3/H	△P mmH_2O	NM^3/H	△P mmH_2O	L mm
15	1/2	2.0	650	30	1000	250
20	3/4	2.5	650	50	1000	250
25	1	4.0	700	100	1000	250
40	1-1/2	8.0	900	200	1000	250
50	2	15.0	600	400	1000	250
65	2-1/2	25.0	700	500	1000	300
80	3	40.0	900	800	1500	300
100	4	60.0	1100	1200	2000	300
125	5	90.0	1300	2000	2000	400
150	6	130.0	1500	2500	2500	500

■ 611B

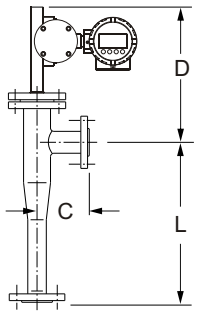


Options :
Extended follower
Cooling Fin (code item 6)

■ 611B

METER SIZE		WATER MAX.		Air @1 atm 0°C		⑤ INSTALLATION		
mm	inch	M^3/H	△P mmH_2O	NM^3/H	△P mmH_2O	L mm	C mm	D mm
15	1/2	1.5	800	18	1000	148	55	330
20	3/4	2.0	800	50	1000	148	55	330
25	1	4.0	900	100	1100	158	62	340
40	1-1/2	7.0	900	200	1200	198	75	350
50	2	15.0	1000	400	1400	228	85	370
65	2-1/2	25.0	1000	500	1500	288	118	380
80	3	35.0	1200	800	1700	320	135	400
100	4	60.0	1400	1200	2000	360	155	420

■ 611C

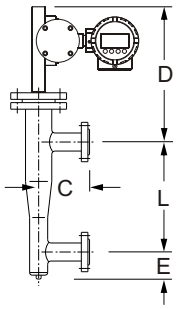


Options :
Extended Follower
Cooling Fin (code item 6)

■ 611C

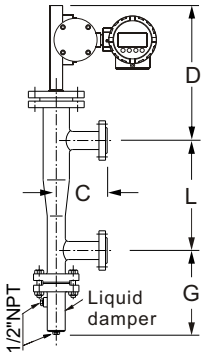
METER SIZE		WATER MAX.		Air @1 atm 0°C		⑤ INSTALLATION		
mm	inch	M^3/H	△P mmH_2O	NM^3/H	△P mmH_2O	L mm	C mm	D mm
15	1/2	2.0	600	30	400	250	100	300
20	3/4	2.5	600	50	400	250	100	300
25	1	4.0	700	80	400	250	100	330
40	1-1/2	8.0	700	130	400	250	130	350
50	2	15.0	800	300	400	250	130	350
65	2-1/2	25.0	800	600	500	350	150	350
80	3	40.0	1000	1000	500	350	180	370
100	4	70.0	1200	1800	600	350	180	370

■ 611D



Options : Extended follower
Cooling Fin
(code item 6)

■ 611E



Options : Extended follower
Cooling Fin
(code item 6)

■ 611D / E

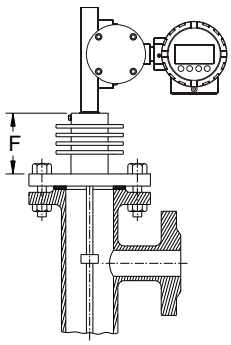
METER SIZE		STEAM @ 9Kg/cm^2G		Air @1 atm 0°C		⑤ INSTALLATION				
mm	inch	M^3/H	△P mmH_2O	NM^3/H	△P mmH_2O	L mm	C mm	D mm	E mm	G mm
15	1/2	30	800	30	600	250	100	300	45	190
20	3/4	40	900	50	600	250	100	300	45	190
25	1	60	1200	80	600	250	100	330	45	200
40	1-1/2	130	1300	130	600	250	130	350	55	210
50	2	250	1500	300	600	250	130	350	65	250
65	2-1/2	400	1700	600	700	350	150	350	75	250
80	3	600	1800	1000	700	350	180	370	90	260
100	4	1100	1800	1800	900	350	180	370	100	270

MODEL SELECTION

ITEMS	CODE	SPECIFICATIONS		
① MODEL	611A	Bottom to top flow direction		
	611B	Horizontal flow direction		
	611C	Bottom to top side flow direction		
	611D	Sideways flow direction		
	611E	Sideways flow direction with liquid damper		
	611F	Top to bottom flow direction		
	611G	Special versions		
② OUTPUT SIGNAL	—0	4～20mA DC , 2-Wire system	—2	4 ～ 20mA DC & Pulse output
	—1	Pulse output	—3	To be specified
③ CONNECTION	0	ANSI 150^{lb} Flange	2	DIN 2632 / 2633 Flange (PN10/16)
	1	JIS 10K Flange	3	To be specified
④ MATERIAL OF WETTED PARTS	0	304SS (1.4301)		
	1	316SS (1.4571)		
	2	316LSS		
	3	PTFE Lining		
	4	To be specified		
⑤ INSTALLATION LENGTH	—A	Standard design		
	—B	To be specified		
⑥ ELECTRIC PROTECTION / HOUSING RATING	A	IP67	C	Exia ⅡC T6
	B	Exd ⅡB T4	D	To be specified
⑦ OPTIONAL COOLING PARTS	A	Not required (-20 to +120°C)	C	Cooling fin (≦400°C)
	B	Extended follower (≦300°C)	D	To be specified
⑧ OPTIONAL JACKET PARTS	A	Not required	C	Full Jacket
	B	Semi-Jacket	D	To be specified
⑧ METER SIZE	—015 ≀ —100	15mm ($^1/_2$") ≀ 100mm (4")		
	—XXX	To be specified		
⑪ EXTRA TREATMENT	A	Not required (For General purpose)		
	B	High purity cleaning (HPC)		
	C	Electro-polishing (EP)		
	D	Special finished (Painting or Coating)		
	E	Explosion proof housing (Exd ⅡB T4,IP67)		
	S	To be specified		

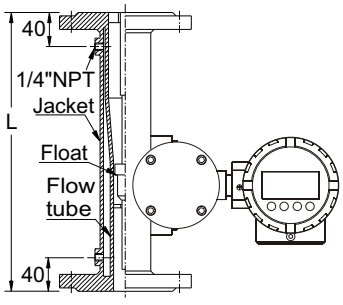
OPTIONAL

■ COOLING FIN

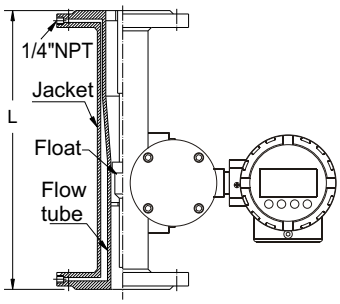


METER SIZE	F (mm)	
	≦250°C	≦400°C
15~25	50	70
40~65	80	100
80	90	110
100	100	120

■ SEMI-JACKET

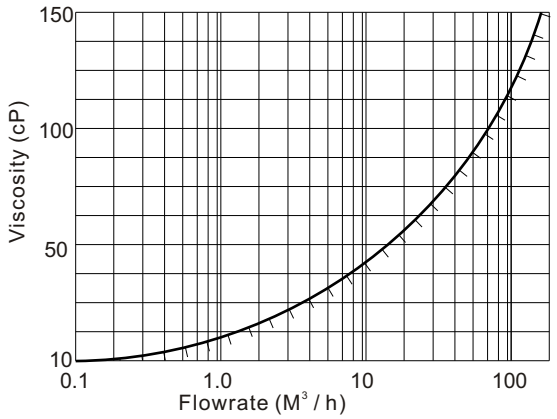


■ FULL JACKET

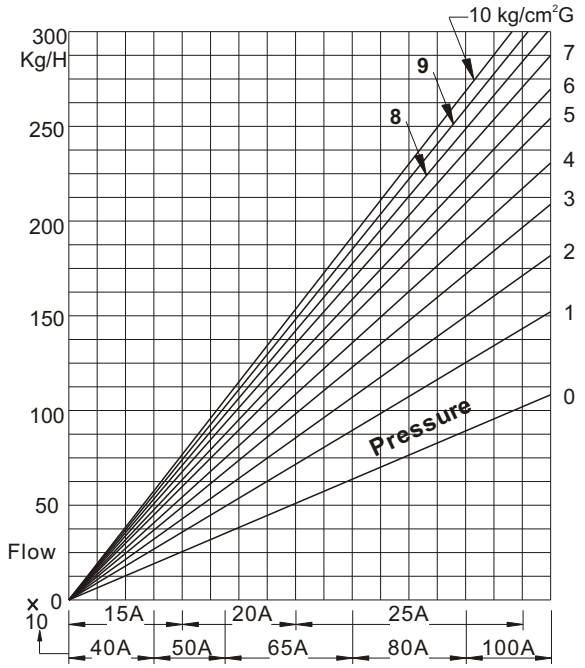


INSTRUCTIONS

■ SUITABLE RANGE FOR THE LIQUID VISCOSITY



■ PIPE SIZE OF STEAM FLOWS



■ GAS FLOW CALCULATION

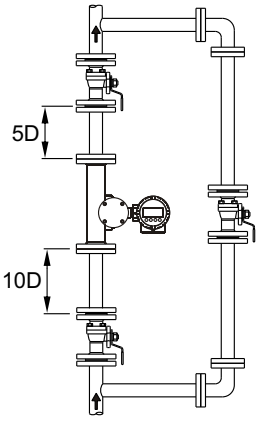
When the gas flowmeter is different from the ordered specifications , errors in measurement may occur. In this case , further calculation is necessary. The formula is as follows :

$$Qa = Qg \times \sqrt{\frac{\gamma}{1.293}} \times \sqrt{\frac{1.033}{(1.033+P)}} \times \sqrt{\frac{(273+t)}{273}}$$

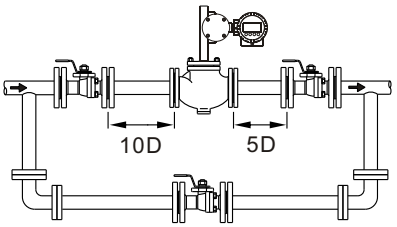
Qa : Air flowrate for converted result (M^3/H)
Qg : Flowrate of the gas to be metered (M^3/H)
γ : Density of the gas to be metered (kg/NM^3)
P : Operating pressure (kg/cm^2G)
t : Operating temperature (°C)

PIPELINE PLANNING

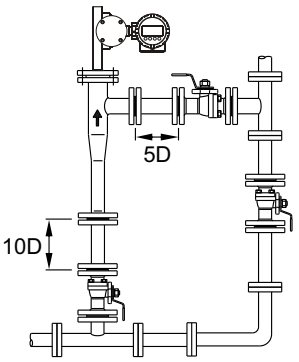
■ 611A



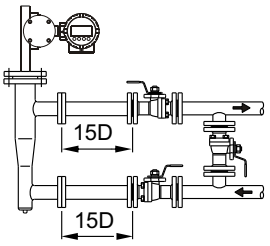
■ 611B



■ 611C



■ 611D



DOERS TECHNOLOGY CORPORATION
4F, NO. 1, LANE 11, TZU-CHIANG STREET, TU-CHENG INDUSTRIAL PARK, TAIPEI COUNTY, TAIWAN 23678
http : // www.doers.com.tw
E-mail : doers.tech@msa.hinet.net
TEL : 886-2-22682689
FAX : 886-2-22681248

ISO 9001 : 2000
Certificate No. EQAICC-Q-R5164