



High Accuracy/General-purpose/PD Flowmeter  
Smart type  
**ULTRA OVAL**  
METER SIZE: 39, 41, 45, 50, 52, 53, 55, 56, 57

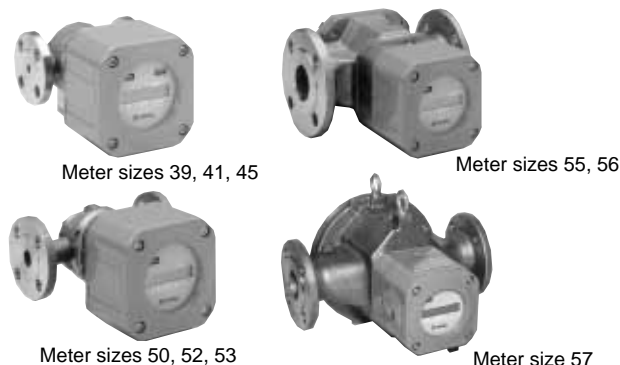
GENERAL SPECIFICATION  
GS.No.GBU110E-7

### ■ GENERAL

The ULTRA OVAL is installed with a multifunctioned smart type ULTRA register with a communication function. Through OVAL's Smart Communication Unit (EL2300 /2310) connected to a Personal Computer, various kinds of process parameters including self diagnosis can be monitored on the CRT of the PC. Easy access to a process is just one of the merit of the advanced intelligent Smart type ULTRA OVAL.

### ■ FEATURES

1. Pressure loss reduction and improvement of durability have been attained by elimination of mechanical transmission and introduction of carbon bearing.
2. Pocketless construction in a measuring chamber eliminates stagnation of measuring liquid such as chemicals and foods applications.
3. Smart type ULTRA register installed micro CPU registrate cumulative flow totalizing, resettable flow totalizing, instantaneous flow rate and alarm signal with LCD and through EL2300 connecting with a user's personal computer, monitoring of instant flow rate, etc, read out of various kinds of parameters in a



4. process and presetting. changing and selfdiagnosis can be remotely operated.
4. Output signals composed of both totalizing signal (open collector pulse of either scaled or unscaled) and instantaneous flow rate signal (analog, 4 to 20mADC) can be transmitted at a time.
5. A available reverse flow pulse output. (applicable within temp. range, -10 to +120°C model). Refer to 2nd page.
6. Explosionproof model is available.
7. Approval of "High pressure gas regulation" is obtainable.

### ■ GENERAL SPECIFICATIONS

#### ● Meter Body

Item		Description								
Meter size		39	41	45	50	52	53	55	56	57
Nominal size		10mm			20mm	25mm		40mm	50mm	
Flange rating	1 group	JIS 10K RF, ANSI/JPI 150 RF								
	3 group	JIS 16, 20, 30K RF, ANSI/JPI 300 RF, DIN 10, 16, 20, 25								
Flow range		See flow range table (P.3)								
Operating temperature range	Standard	-10 to +120°C								
	Low	—————			-60 to +60°C					
	High	—————			120 to 200°C	120 to 260°C				
	Jacketed	—————			120 to 260°C					
Linearity		±0.35% or ±0.15% (Option)								
Repeatability		±0.05% or ±0.02% (Option)								
Material	Body	SCS14 or ▲SCS16								
	Rear cover	SUS316 or ▲SUS316L								
	Rotor	39:Special carbon only, 41 to 57:SUS316 or ▲SUS316L								
	Bearing	39:Special carbon only, 41 to 57:Special carbon or Ceramics(※1)								
	Shaft	SUS316 or ▲SUS316L								
Jacketed	Connection	—————			Rc 1/2		Rc 3/4			
	Max. operating press.	—————			0.98MPa					
Flow direction		Right → left (standard), left → right, bottom → top, top → bottom								

※1 : With ceramics bearings, the max. allowable temperature is 60°C. (For information, consult the factory.)

※ : ▲Special

#### ● Flange Rating and Max. Operating Pressure [In case of body material: SCS14] (MPa)

Flange group	Temp.	JIS 10K RF	ANSI/JPI 150 RF	JIS 20K RF	JIS 30K RF	ANSI/JPI 300 RF
1	Max. 120°C	1.18	1.5	—	—	—
	Max. 200°C	1.18	1.5	—	—	—
	Max. 350°C	—	—	—	—	—
3	Max. 120°C	—	—	1.96	2.94	2.94
	Max. 200°C	—	—	1.7	1.7	1.7
	Max. 350°C	—	—	1.5	1.5	1.5

Consult the factory for body material SCS16

## OVAL Corporation

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## ● Specifications of Register

Item		Description				
Meter size		※39	41, ※45	50, 52, ※53	55, 56, ※57	
Local display (LCD) mode change	Cumulative counter, 8 digits, unit	X0.1mL(st'd), X1mL, X10mL	X1mL(st'd), X10mL, X0.1L	X10mL(st'd), X0.1L, X1L	X0.1L(st'd), X1L, X10L	
	Instantaneous flow rate (4 digits)	b mode	X10mL/h	X0.1L/h	X1L/h	
		p mode	0 to 100%			
	Bar graph mode	8 division				
Output signal	Current	Analog		4 to 20mADC Dumping: 0 to 100sec. See range of load resistance (P6)		
		Pulse (※5,6)	Type	Scaled or unscaled: 0/1=4/20mADC (※1)		
			Pulse width	Scaled: 1 to 1000ms (st'd 1ms). Unscaled: 2ms		
	Open collector	Unit of scaled pulse		Same as of LCD counter		
		Pulse (※5,6)	Type	Scaled or unscaled: Max. V 30VDC. Allowable current: 50mA (※1)		
			Pulse width	Scaled: 1 to 1000ms (st'd 1ms). Unscaled: 2ms		
		Unit of scaled pulse		Same as of LCD counter		
		Nor./Rev. status judgement		Max. voltage: 30VDC. Allowable current: 50mA (※3)		
	Alarm output status		Max. voltage: 30VDC. Allowable current: 50mA			
	Communication		Current output: 4 to 20mA FSK(Frequency Modulation)signal(BELL202 st'd) to instantaneous flow rate signal 12 to 45VDC Current consumption: Max. 30mA. See range of load resistance (P6)			
Power supply		※: If you connect OVAL communication unit EL2300, use a power supply below 35VDC.				
Ambient temperature		-10 to +60°C (Without dew condensation)				
Function	3 $\alpha$ temperature correction		Thermal expansion in measuring chamber			
	Meter error correction		Meter error % in each test point			
	Reverse flow correction counting		(※3)			
	Setting of instantaneous flow rate span		Optional point within guaranteed range(>3x Min. flow rate and <2x Max. flow rate for each model)			
	4 to 20mADC trim					
	Communication		HART PROTOCOL communication setting and read out of each parameter can be conducted with EL2300			
	Alarm		Nominal: Transistor, "OFF" Abnominal: Transistor, "ON" (※4)			
Self diagnosis, loop check						
Accuracy		Totalizing count: $\pm 0.01\%$ $\pm 1$ count Flow rate indication: $\pm 0.3\%$ of FS				
Cable		Capture cable externally shielded (VCTF 1.25mm <sup>2</sup> ) finish O.D: 8.5 to 12mm (※2)				
Transmission length		Max. 1km				
Wiring mode	2 wires system		Analog or current pulse			
	4 wires system		Analog or current pulse+Open collector			
Construction		Explosionproof: Exd II BT4X Non-explosionproof construction				
Degree of Protection for enclosure		IP66 (Dust-tight/Water-tight Type)-IEC/EN60529, JIS C 0920				
Coating color		Munsell 2.5PB5/8				

※1 : Discrimination of current output pulse and open collector pulse provides similar setting.

※2 : For use in hazardous locations, use cables heat resistant to 70°C or higher if ambient temperature exceeds 50°C. (Even in an environment not exceeding 50°C in ambient temperature, use cables capable of withstanding 60°C or higher.) Do not fail to use pressure-tight packings furnished as standard accessories.

※3 :

	Nor. rotation		Both nominal and Reverse rotation	
	Normal	Reverse	Normal	Reverse
Totalization	Add	Subtract	Add	Subtract
Inst. flow rate % indication	(+)	—	(+)	—
Analog output	4 to 20mA	4mA fixed	4 to 20mA	4mA fixed
Pulse output	with	without	with	with
Nor./Rev. flow monitoring	—	—	Transistor "ON"	Transistor "OFF"

\* Type LUS, LUT, KUS only

※4 : In case of alarming, transmission error and flow rate information are displayed alternately

※5 : Under certain circumstances, the max. flowrate may have limitations if the minimum factored pulse unit is chosen and the pulse width exceeds 1 msec. If this problem arises, consult the factory.

※6 : If the minimum factored pulse unit is chosen with the capacity indicated by an asterisk ※, pulse width other than 1 ms is NOT selectable.

## ■ NOMINAL METER FACTORS

Meter size	Nominal meter factors mL/P	Max. frequency Hz	Max. flowrate m <sup>3</sup> /h	Pulse P/rev.
39	0.09838	33.9	0.012	2
41	0.4896	34.0	0.06	2
45	1.2339	94.6	0.42	4
50	4.968 [4.968]	111.8 [111.8]	2	4 [4]
52	9.664 [9.664]	109.2 [109.2]	3.8	4 [4]
53	17.513 [17.513]	101.5 [101.5]	6.4	4 [4]
55	23.07 [34.60]	168.6 [112.4]	14	6 [4]
56	37.33 [74.66]	178.6 [89.3]	24	8 [4]
57	98.04 [196.08]	124.7 [62.3]	44	8 [4]

※ : [ ] is for Low/High temperatures and it is a value with a jacket.

## ■ FLOW RANGES

### ● Meter sizes: 39 to 45

Linearity:  $\pm 0.35\%$ Operating temp. range:  $-10$  to  $+120^{\circ}\text{C}$ 

Unit in L/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to *200mPa-s
39	2 to 12	1.4 to 12	0.7 to 12	0.35 to 12	0.2 to 12
41	18 to 60	12 to 60	4 to 60	2.5 to 60	1 to 60
45	50 to 420	35 to 420	15 to 420	10 to 420	5 to 420

\*Only model 45 can handle up to 1000mPa-s

●The standard accuracy for model 39 is  $\pm 0.35\%$ . Consult the factory for  $\pm 0.2\%$  accuracy model.Linearity:  $\pm 0.15\%$  (Option)Operating temp. range:  $-10$  to  $+120^{\circ}\text{C}$ 

Unit in L/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to *200mPa-s
39	3 to 12	2 to 12	1 to 12	0.5 to 12	0.3 to 12
41	27 to 60	18 to 60	6 to 60	3.7 to 60	1.5 to 60
45	75 to 420	52 to 420	22 to 420	15 to 420	7.5 to 420

### ● Meter sizes: 50 to 57

1. Linearity:  $\pm 0.35\%$ Operating temp. range:  $-10$  to  $+120^{\circ}\text{C}$  (std.)Unit in m<sup>3</sup>/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
50	0.3 to 1.6	0.15 to 1.6	0.1 to 1.6	0.05 to 2	0.03 to 2
52	0.7 to 3	0.4 to 3	0.3 to 3	0.15 to 3.8	0.08 to 3.8
53	1.1 to 5	0.7 to 5	0.55 to 5	0.28 to 6.4	0.15 to 6.4
55	1.8 to 11	1.2 to 11	1 to 11	0.4 to 14	0.26 to 14
56	3.5 to 20	2.5 to 20	2 to 20	0.9 to 24	0.6 to 24
57	8 to 37	5 to 37	4 to 37	2 to 44	1.2 to 44

2. Linearity:  $\pm 0.35\%$ Operating temp. range:  $120$  to  $200^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
50	0.6 to 1.4	0.3 to 1.4	0.2 to 1.4	0.09 to 1.8	0.05 to 1.8
52	1 to 2.7	0.8 to 2.7	0.5 to 2.7	0.23 to 3.4	0.15 to 3.8
53	2 to 4.5	1.4 to 4.5	0.9 to 4.5	0.35 to 5.7	0.28 to 6.4
55	3.6 to 9	2.4 to 9	1.5 to 9	0.6 to 12	0.4 to 14
56	7.5 to 18	5 to 18	3 to 18	1.4 to 21	0.9 to 24
57	15 to 33	10 to 33	6 to 33	3 to 39	2 to 44

3. Linearity:  $\pm 0.35\%$ Operating temp. range:  $200$  to  $260^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

Viscosity Meter size	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
52	1 to 2.7	0.6 to 2.7	0.3 to 3.4	0.16 to 3.8
53	2 to 4.5	1.2 to 4.5	0.6 to 5.7	0.3 to 6.4
55	3.6 to 9	2 to 9	0.8 to 12	0.55 to 14
56	7.5 to 18	4 to 18	1.8 to 21	1.2 to 24
57	15 to 33	8 to 33	4 to 39	2.5 to 44

Note: 1. For measurement of high viscosity fluids (above 1000mPa-s), consult the factory.

2. For flow range of meters for low temperature service ( $-60$  to  $+60^{\circ}\text{C}$ ) refer to Table 1 or 4.3. For standard flowmeters ( $-10$  to  $+60^{\circ}\text{C}$ ) refer to Table 1 or 4.4. For flow range of meters compatible with thermal shock ( $-10$  to  $+120^{\circ}\text{C}$ ), refer to Table 2 or 5. (Thermal shock means sharp fluid temperature changes at a rate in excess of  $3^{\circ}\text{C}/\text{min}$ . or staircase changes in excess of  $30^{\circ}\text{C}$  between steps.)

### ● For flow range with "water," select by temperature and viscosity brackets from the table below.

Temperature range	Viscosity range
Max. $30^{\circ}\text{C}$	0.8 to 2.0 mPa-s
$30$ to $80^{\circ}\text{C}$	0.3 to 0.8 mPa-s
$80$ to $120^{\circ}\text{C}$	Less than 0.3 mPa-s

4. Linearity:  $\pm 0.15\%$  (Option)Operating temp. range:  $-10$  to  $+120^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
50	0.5 to 1.6	0.3 to 1.6	0.15 to 1.6	0.08 to 2	0.05 to 2
52	1 to 3	0.7 to 3	0.5 to 3	0.25 to 3.8	0.15 to 3.8
53	1.6 to 5	1.1 to 5	0.75 to 5	0.4 to 6.4	0.22 to 6.4

Operating temp. range:  $-10$  to  $+60^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
55	2.7 to 11	1.8 to 11	1.5 to 11	0.6 to 14	0.4 to 14
56	5.2 to 20	0.5 to 20	3 to 20	1.4 to 24	0.9 to 24
57	12 to 37	8 to 37	6 to 37	3 to 44	2 to 44

Operating temp. range:  $60$  to  $120^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

Viscosity Meter size	Less than 0.3mPa-s	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
55	4 to 11	2.7 to 11	2.2 to 11	0.9 to 14	0.6 to 14
56	8 to 2	5.2 to 20	4.5 to 20	2.1 to 24	1.3 to 24
57	18 to 37	12 to 37	9 to 37	4.5 to 44	3 to 44

5. Linearity:  $\pm 0.15\%$  (Option)Operating temp. range:  $120$  to  $200^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

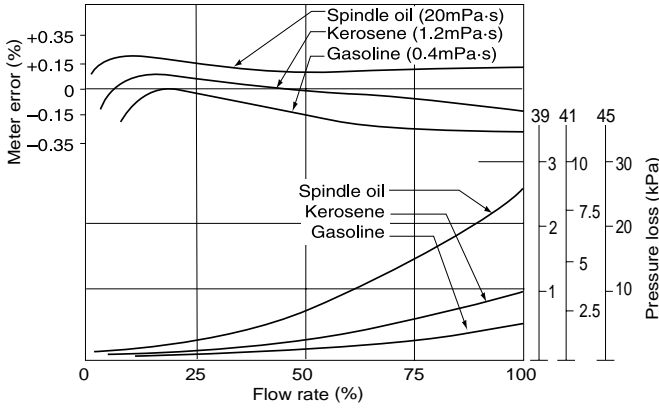
Viscosity Meter size	0.3mPa-s to 0.8mPa-s	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
50	0.45 to 1.4	0.3 to 1.4	0.15 to 1.8	0.08 to 1.8
52	1.5 to 2.7	0.9 to 2.7	0.55 to 3.4	0.33 to 3.8
53	2.4 to 4.5	1.5 to 4.5	0.9 to 5.7	0.49 to 6.4
55	4 to 9	2.7 to 9	1.3 to 12	0.9 to 14
56	8 to 18	5.2 to 18	3.1 to 21	1.9 to 24
57	18 to 33	12 to 33	6.7 to 39	7.5 to 44

6. Linearity:  $\pm 0.15\%$  (Option)Operating temp. range:  $200$  to  $260^{\circ}\text{C}$ Unit in m<sup>3</sup>/h

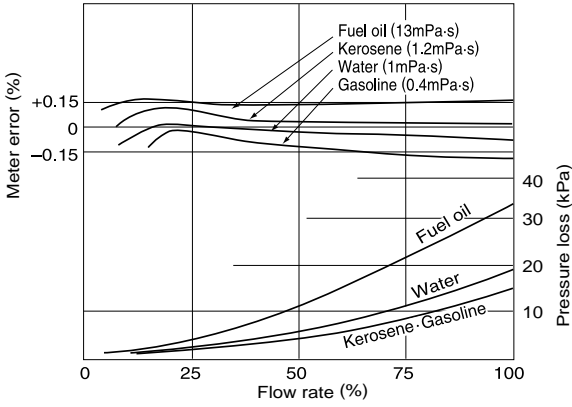
Viscosity Meter size	0.8mPa-s to 2mPa-s	2mPa-s to 5mPa-s	5mPa-s to 1000mPa-s
52	1.5 to 2.7	0.9 to 3.4	0.49 to 3.8
53	2.4 to 4.5	1.3 to 5.7	0.73 to 6.4
55	4 to 9	1.9 to 12	1.3 to 14
56	8 to 18	4.6 to 21	2.8 to 24
57	18 to 33	10 to 39	6.7 to 44

**■ NOMINAL METER FACTOR**

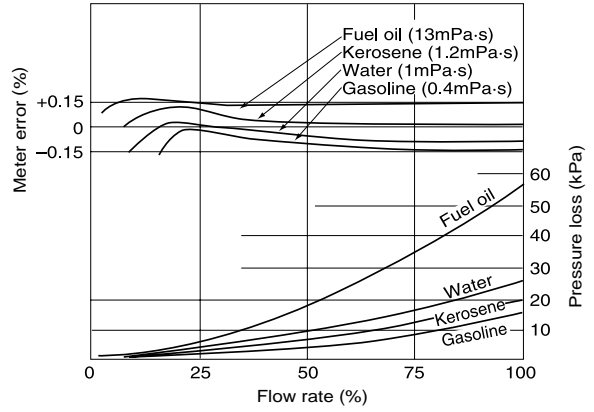
● Meter size: 39, 41, 45



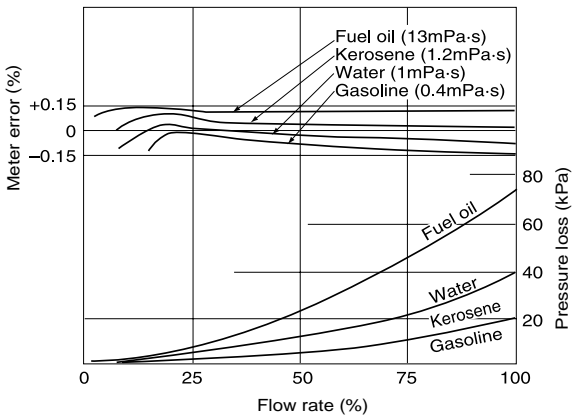
● Meter size: 50, 52, 53



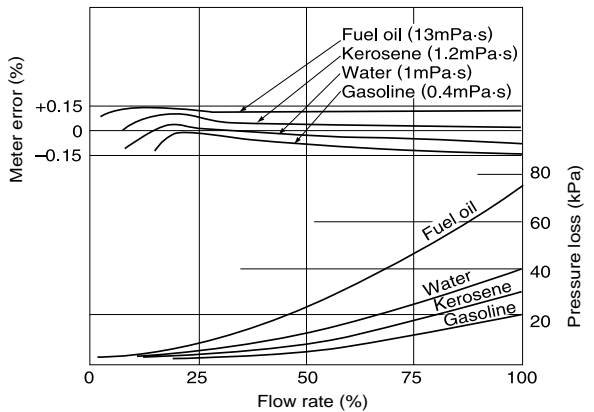
● Meter size: 55



● Meter size: 56

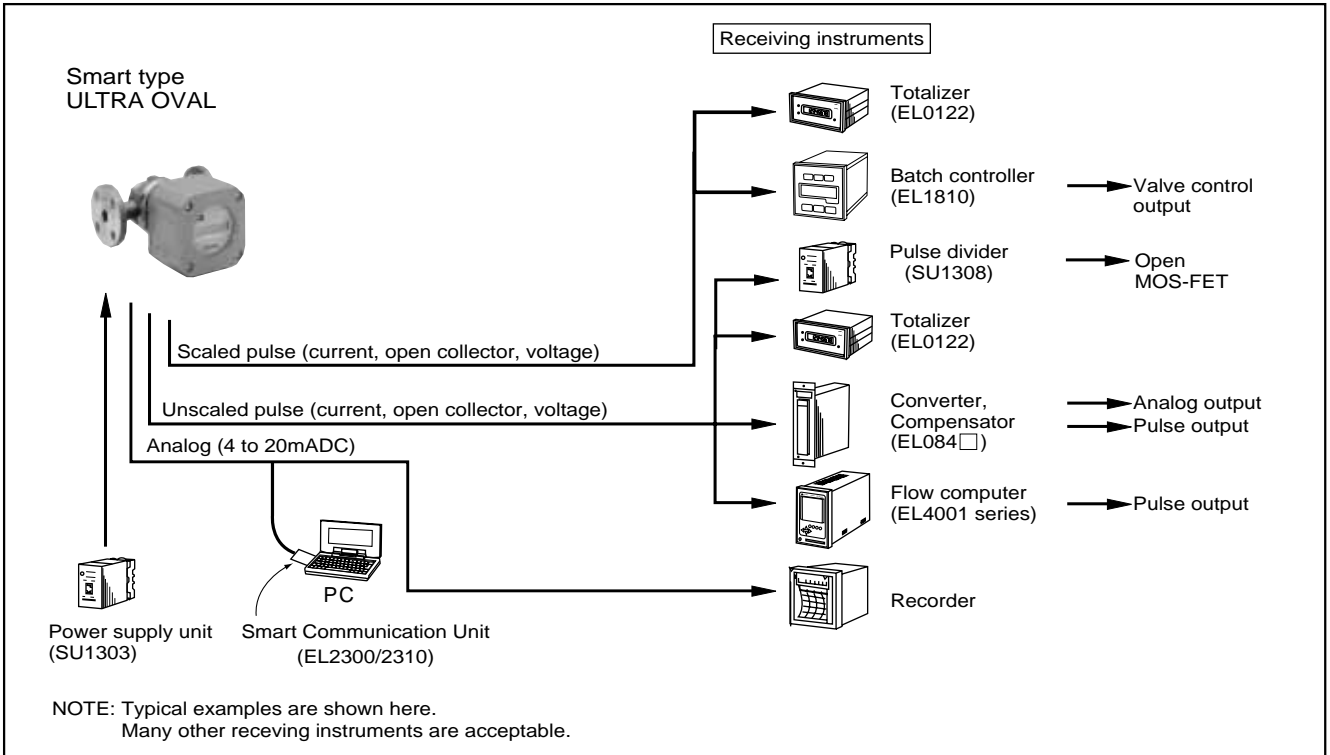


● Meter size: 57

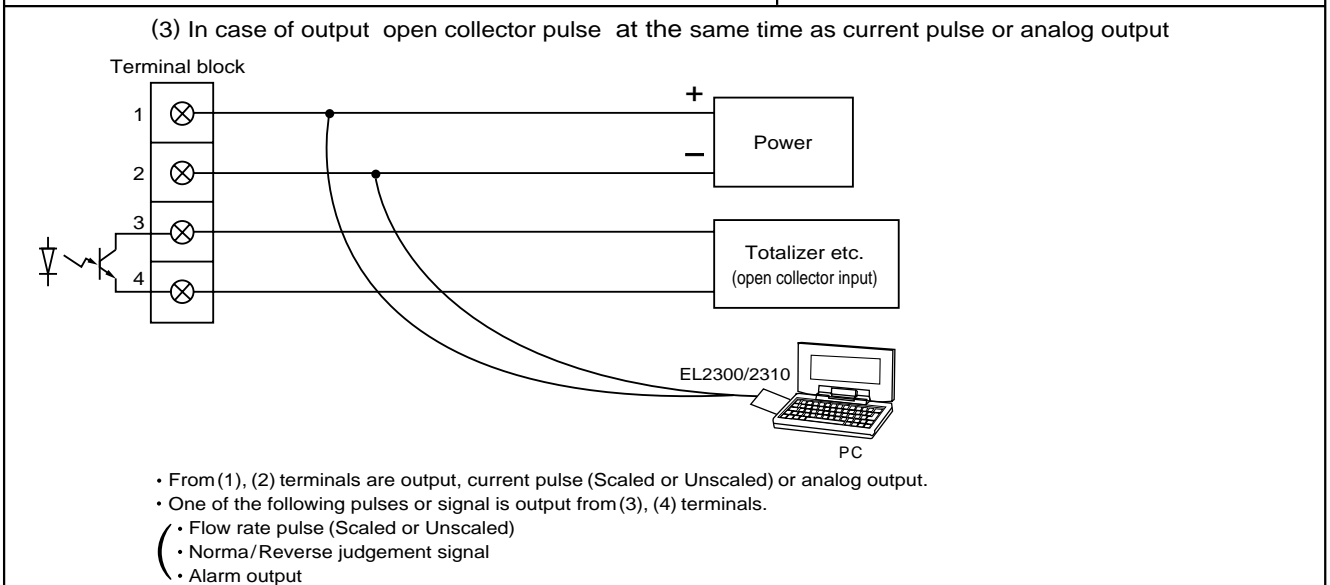
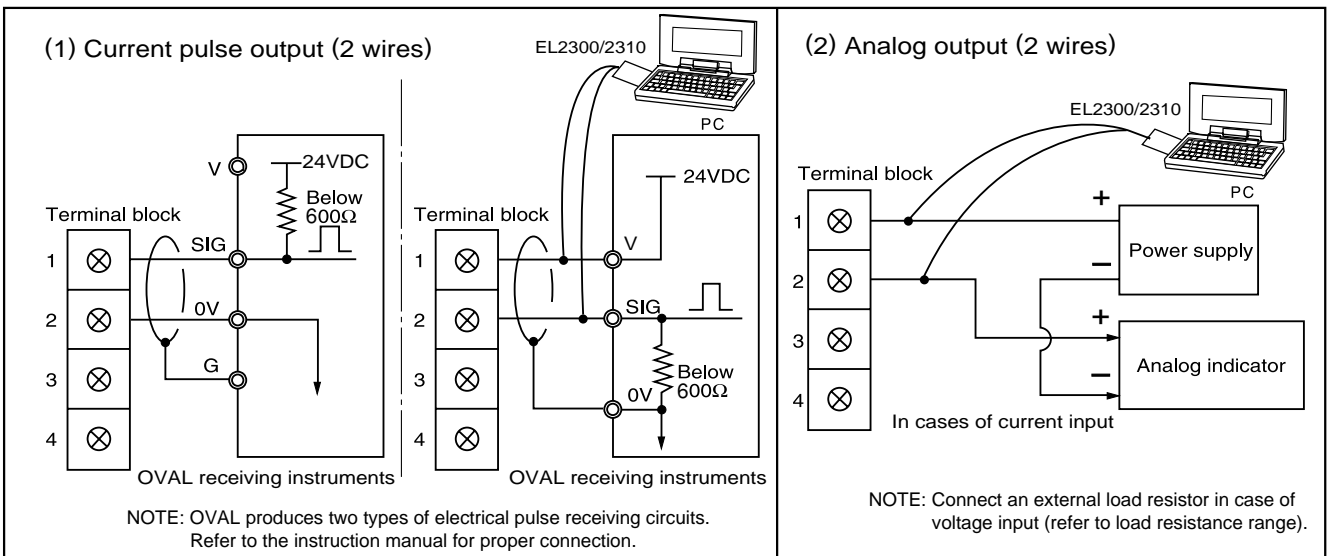


NOTE: 100% flow rate show the maximum flow rate for each viscosity in intermittent condition.

■ SYSTEM with RECEIVING INSTRUMENTS

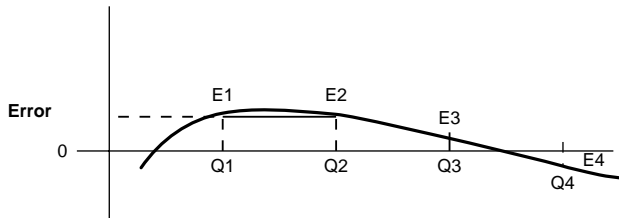


■ EXTERNAL WIRING



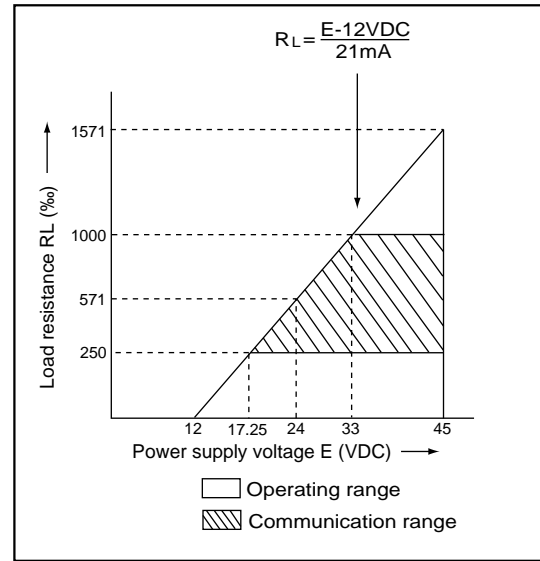
**INSTRUMENTAL ERROR CORRECTION**

Instrumental error correction in the Smart type ULTRA OVAL is accomplished by establishing instrumental errors at several flow rate points and then making corrections between these arbitrarily chosen flow rate points with broken lines as shown in the graph below. This approach offers accurate flow measurement.



Q1 through Q4 are entered in value of flow rate ; E1 through E4 in percent instrument error. At flow rates below Q1 and above Q4, accuracy calculation will be fixed with an instrumental error at E1 and E4, respectively.

**LOAD RESISTANCE RANGE**



( If you connect OVAL communication unit EL2300, use a power supply below 35V DC. )

**MODEL CODE NUMBER (Meter size 39, 41, 45)**

Item	Code No.												Description	
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫		
Type	L	U	S											ULTRA OVAL. standard version (-10 to +120°C)
Meter size	3	9												Nominal size 10mm (1/2")
	4	1												Nominal size 10mm (1/2")
	4	5												Nominal size 10mm (1/2")
Body material				C										SCS14
				E										SCS16 [Special]
Flange rating				1										JIS 10K RF, ANSI/JPI 150 RF
				3										JIS 16 to 30K RF, ANSI/JPI 300 RF, DIN 10 to 25
Bearing type (※1)				1	-									Standard bearings (Special carbon)
				5	-									Ceramics bearings (Depends on liquid kind.)
				7	-									Anti-polymerizing ceramics bearings (Depends on liquid kind.)
				8	-									Anti-polymerizing carbon bearings (Special carbon)
Register type				8										Smart ULTRA model
Register construction				1										Non-explosionproof
				2										Explosionproof
Output signal				1	0									Analog 2 wires
				1	5									Analog + Unscaled pulse (Open collector) 4 wires
				1	6									Analog + Scaled pulse (Open collector) 4 wires
				1	A									Analog + Alarm output (Open collector) 4 wires
				1	B									Analog + Normal/Reverse output (Open collector) 4 wires
				2	0									Scaled pulse (Current pulse) 2 wires
				2	6									Scaled pulse (Current pulse) + Scaled pulse (Open collector) 4 wires
				2	A									Scaled pulse (Current pulse) + Alarm output (Open collector) 4 wires
				2	B									Scaled pulse (Current pulse) + Normal/Reverse output (Open collector) 4 wires
				3	0									Unscaled pulse (Current pulse) 2 wires
				3	5									Unscaled pulse (Current pulse) + Unscaled pulse (Open collector) 4 wires
			3	A									Unscaled pulse (Current pulse) + Alarm output (Open collector) 4 wires	
			3	B									Unscaled pulse (Current pulse) + Normal/Reverse output (Open collector) 4 wires	

※1 : Rotor material of model 41,45 is used the same body material SUS316 or SUS316L. Bearing and rotor material of model 39 is used only special carbon.

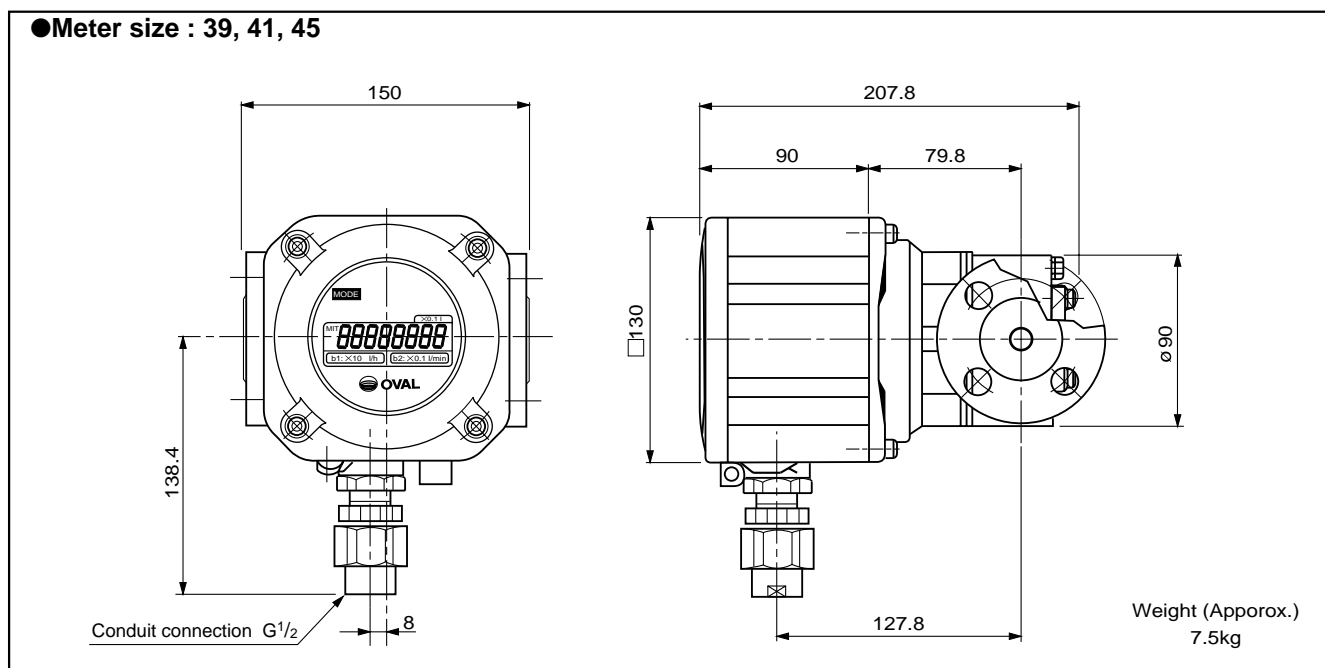
■ MODEL CODE NUMBER (Meter size 50 to 57)

Item	Code No.												Description	
	①	②	③	④	⑤	⑥	⑦	⑧	-	⑨	⑩	⑪		⑫
Type	L	U	S											ULTRA OVAL. standard version (-10 to +120°C)
	L	U	H											ULTRA OVAL. with heat-radiation tube (120 to 350°C, meter sizes 50: Max. 200°C)
	L	U	N											ULTRA OVAL. with hear-absorption tube (-60 to +60°C)
	L	U	J											Jacketed type ULTRA OVAL. (Meter size 52 to 57 only)
	L	U	T											ULTRA OVAL. abrupt temperature change corresponding (-10 to +120°C)
	K	U	S											ULTRA OVAL. standard flowmeter (-10 to +60°C)
Meter size	5	0												Nominal size 20mm (3/4")
	5	2												Nominal size 25mm (1")
	5	3												Nominal size 25mm (1")
	5	5												Nominal size 40mm (1.1/2")
	5	6												Nominal size 50mm (2")
	5	7												Nominal size 50mm (2")
Body material	C													SCS14
	E													SCS16 [Special]
Flange rating	1													JIS 10K RF, ANSI/JPI 150 RF
	3													JIS 16 to 30K RF, ANSI/JPI 300 RF, DIN 10 to 25
Bearing type	1	-												Standard bearings (Special carbon)
	5	-												Ceramics bearings (Depends on liquid kind.)
	7	-												Anti-polymerizing ceramics bearings (Depends on liquid kind.)
	8	-												Anti-polymerizing carbon bearings (Special carbon)
Register type									8					Smart ULTRA model
Register configuration													1	Non-explosionproof
													2	Explosionproof
Output signal	1	0												Analog 2 wires
	1	5												Analog + Unscaled pulse (Open collector) 4 wires
	1	6												Analog + Scaled pulse (Open collector) 4 wires
	1	A												Analog + Alarm output (Open collector) 4 wires
	1	B												Analog + Normal/Reverse output (Open collector) 4 wires (※1)
	2	0												Scaled pulse (Current pulse) 2 wires
	2	6												Scaled pulse (Current pulse) + Scaled pulse (Open collector) 4 wires
	2	A												Scaled pulse (Current pulse) + Alarm output (Open collector) 4 wires
	2	B												Scaled pulse (Current pulse) + Normal/Reverse output (Open collector) 4 wires (※1)
	3	0												Unscaled pulse (Current pulse) 2 wires
3	5												Unscaled pulse (Current pulse) + Unscaled pulse (Open collector) 4 wires	
3	A												Unscaled pulse (Current pulse) + Alarm output (Open collector) 4 wires	
3	B												Unscaled pulse (Current pulse) + Normal/Reverse output (Open collector) 4 wires (※1)	

※1 : Type LUS, LUT, KUS only.

■ DIMENSIONS [Unit in mm]

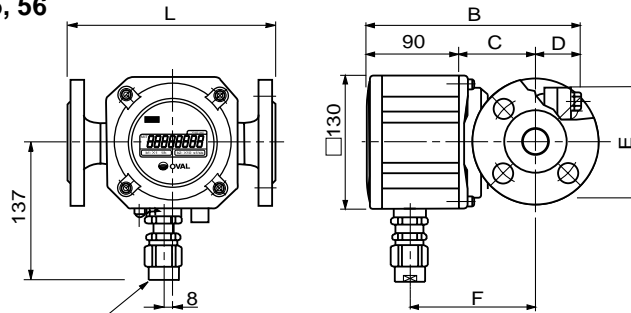
● Meter size : 39, 41, 45



■ DIMENSIONS [Unit in mm]

● Standard (Type: LUS, LUT, KUS)

● Meter size : 50, 52, 53, 55, 56



Conduit connection G<sup>1</sup>/<sub>2</sub> (female)  
(Only for units with output signal function)

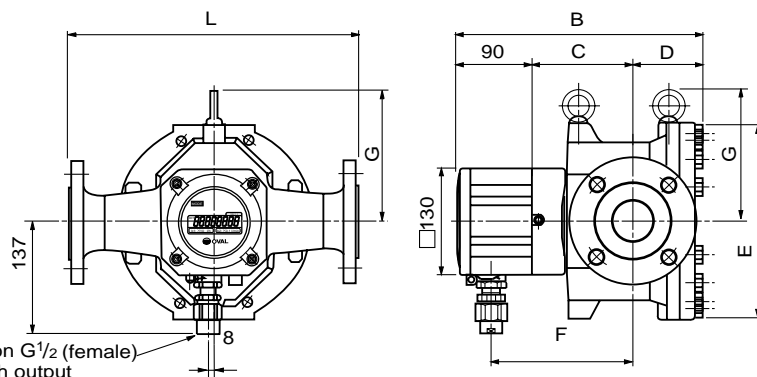
1. Flange rating 1 group

Meter size	Flange rating	L	B	C	D	E	F	Weight (Approx.)
50	JIS 10K RF	200	216.8	86.8	40	φ 96	134.8	9kg
	ANSI/JPI 150 RF	198						
52	JIS 10K RF	200	207.8	74.8	43	□ 106	122.8	10kg
	ANSI/JPI 150 RF	200						
53	JIS 10K RF	200	231.3	85.8	55.5	□ 106	133.8	11kg
	ANSI/JPI 150 RF	200						
55	JIS 10K RF	230	244.8	92.8	62	□ 130	140.8	16kg
	ANSI/JPI 150 RF	233						
56	JIS 10K RF	250	269.8	106.8	73	□ 154	154.8	20kg
	ANSI/JPI 150 RF	258						

2. Flange rating 3 group

Meter size	Flange rating	L	B	C	D	E	F	Weight (Approx.)
50	JIS 20K RF	204	216.8	86.8	40	96	134.8	12kg
	JIS 30K RF	208						
	ANSI/JPI 300 RF	204						
52	JIS 20K RF	204	207.8	74.8	43	106	122.8	13kg
	JIS 30K RF	212						
	ANSI/JPI 300 RF	207						
53	JIS 20K RF	204	231.3	85.8	55.5	106	133.8	14kg
	JIS 30K RF	212						
	ANSI/JPI 300 RF	207						
55	JIS 20K RF	234	248.8	94.8	64	163	142.8	22kg
	JIS 30K RF	242						
	ANSI/JPI 300 RF	240						
56	JIS 20K RF	254	271.8	109.8	72	193	157.8	26kg
	JIS 30K RF	262						
	ANSI/JPI 300 RF	263						

● Meter size : 57



Conduit connection G<sup>1</sup>/<sub>2</sub> (female)  
(Only for units with output signal function)

1. Flange rating 1 group

Meter size	Flange rating	L	B	C	D	E	F	G	Weight (Approx.)
57	JIS 10K RF	350	299.8	124.8	85	φ 240	172.8	171.5	36kg
	ANSI/JPI 150 RF	357							

2. Flange rating 3 group

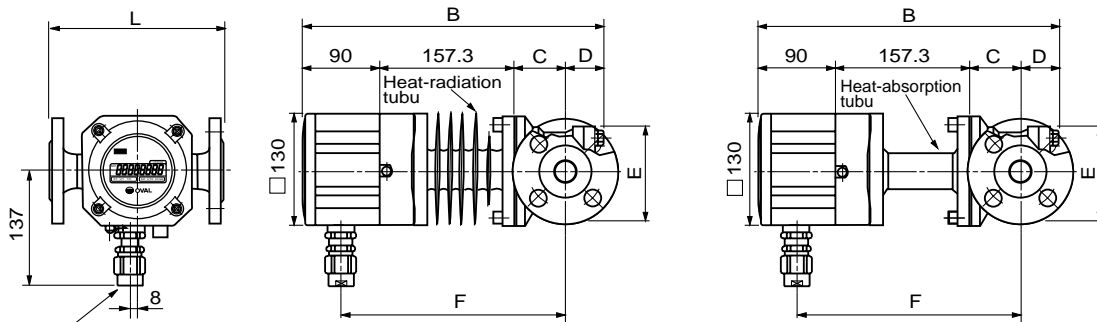
Meter size	Flange rating	L	B	C	D	E	F	G	Weight (Approx.)
57	JIS 20K RF	354	308.8	131.8	87	φ 260	179.8	171.5	47kg
	JIS 30K RF	362							
	ANSI/JPI 300 RF	363							

In case the other Flange rating dimensions are requested consult factory.

**■ DIMENSIONS [Unit in mm]**

**● With heat-radiation/heat-absorption tube (Type: LUH, LUN)**

**● Meter size : 52, 53**

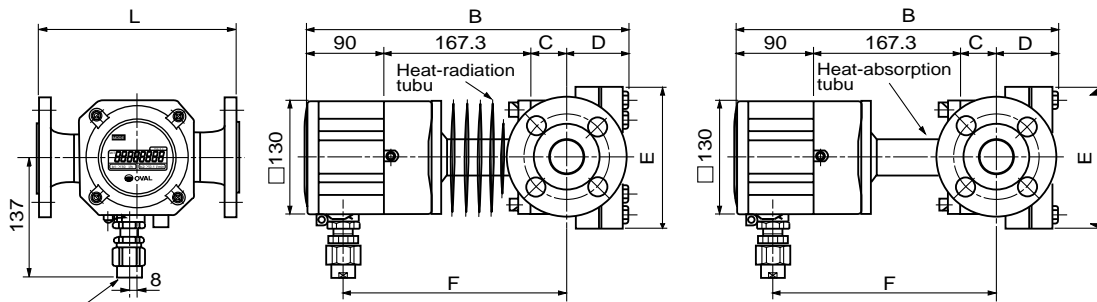


Conduit connection G<sup>1</sup>/<sub>2</sub> (female)  
(Only for units with output signal function)

**Flange rating 1 group**

Meter size	Flange rating	L	B (Overall laength)	C	D	E	F	Weight (Approx.)
52	JIS 10K RF	200	353.3	59	47	□106	264.3	W/Heat-radiation tube 17kg
	ANSI/JPI 150 RF	200						W/Heat-absorption tubu 16kg
53	JIS 10K RF	200	376.8	70	59.5	□106	275.3	W/Heat-radiation tube 18kg
	ANSI/JPI 150 RF	200						W/Heat-absorption tubu 17kg

**● Meter size : 55, 56**

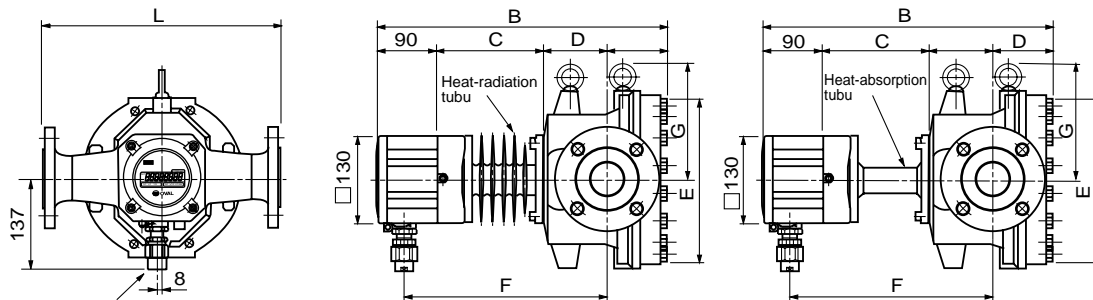


Conduit connection G<sup>1</sup>/<sub>2</sub> (female)  
(Only for units with output signal function)

**Flange rating 1 group**

Meter size	Flange rating	L	B	C	D	E	F	Weight (Approx.)
55	JIS 10K RF	230	371.3	43	71	φ 163	258.3	W/Heat-radiation tube 23kg
	ANSI/JPI 150 RF	233						W/Heat-absorption tubu 22kg
56	JIS 10K RF	250	391.3	63	76	φ 193	273.3	W/Heat-radiation tube 27kg
	ANSI/JPI 150 RF	258						W/Heat-absorption tubu 26kg

**● Meter size : 57**



Conduit connection G<sup>1</sup>/<sub>2</sub> (female)  
(Only for units with output signal function)

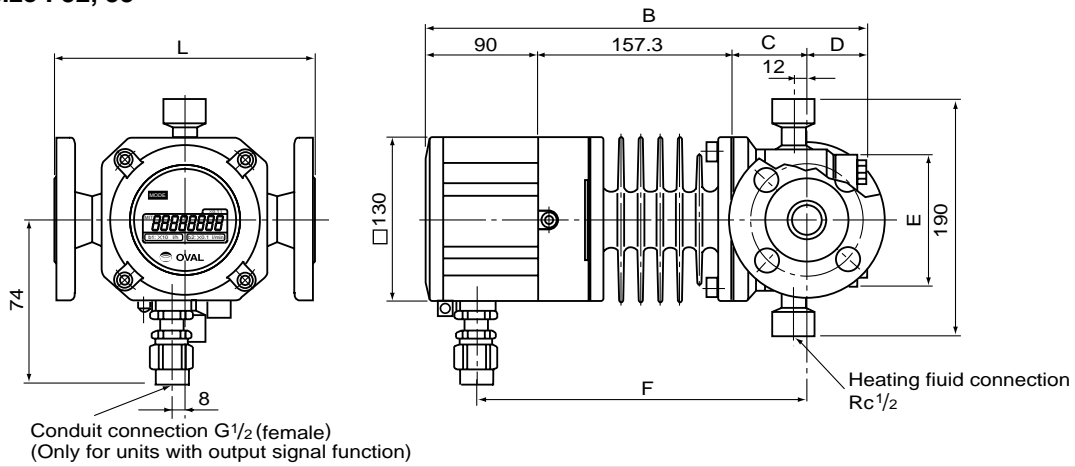
**Flange rating 1 group**

Meter size	Flange rating	L	B	C	D	E	F	G	Weight (Approx.)
57	JIS 10K RF	350	424.3	90	87	φ 260	295.3	171.5	W/Heat-radiation tube 43kg
	ANSI/JPI 150 RF	357							W/Heat-absorption tubu 42kg

■ DIMENSIONS [Unit in mm]

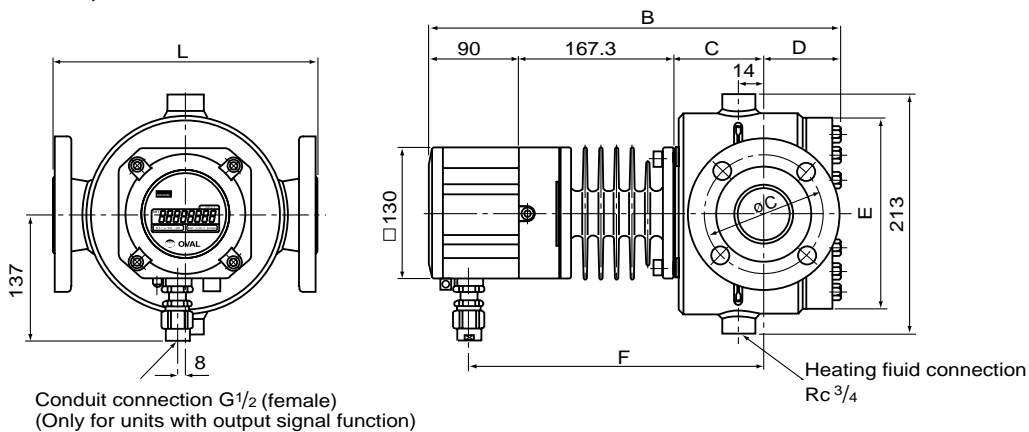
● Jacketed type (Type: LUJ)

● Meter size : 52, 53



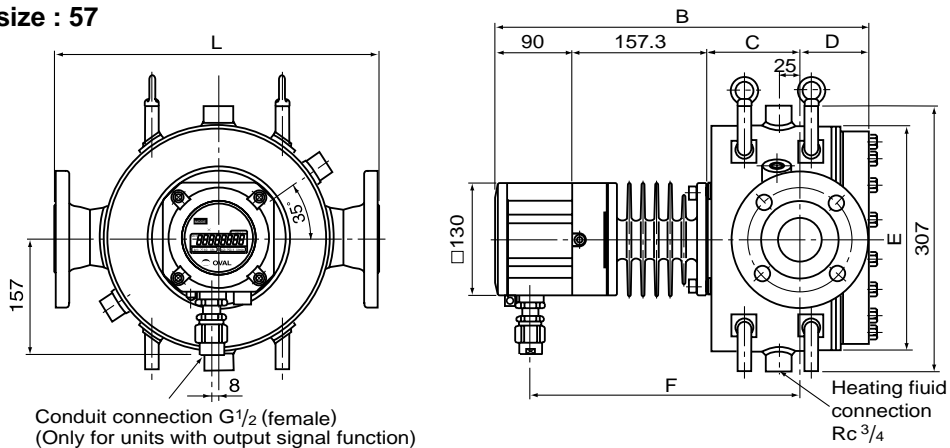
Meter size	Flange rating	L	B	C	D	E	F	Weight (Approx.)
52	JIS 10K RF	200	352.8	58.5	47	□106	263.8	13kg
	ANSI/JPI 150 RF	200						
53	JIS 10K RF	200	376.3	69.5	59.5	□106	274.8	13.7kg
	ANSI/JPI 150 RF	200						

● Meter size : 55, 56



Meter size	Flange rating	L	B	C	D	E	F	Weight (Approx.)
55	JIS 10K RF	280	367.3	69	71	φ 163	284.3	25kg
	ANSI/JPI 150 RF							
56	JIS 10K RF	320	417.3	89	76	φ 193	299.3	31kg
	ANSI/JPI 150 RF							

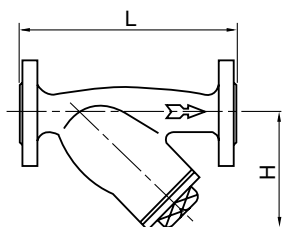
● Meter size : 57



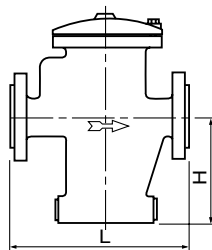
Meter size	Flange rating	L	B	C	D	E	F	Weight (Approx.)
57	JIS 10K RF	350	451.8	117.5	87	φ 260	322.8	52kg
	ANSI/JPI 150 RF	357						

## ■ STRAINER

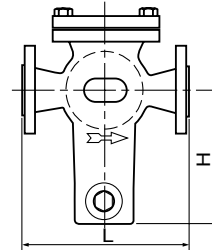
It is necessary to install a strainer directly before the flowmeter or as close as possible on the flow input side, so that solid particles mixed in the fluid do not enter the flowmeter and causes problems.



SR013C031



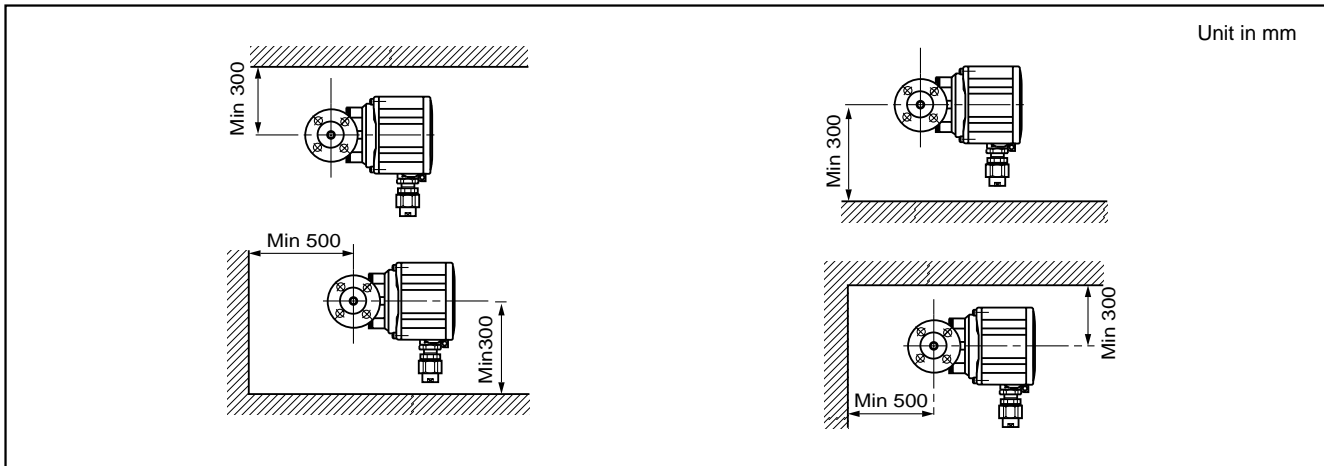
SR011C031



SR018C031

Model number	Nominal size	Flange rating	L (mm)	H (mm)	Body material	Screen material	std. screen mesh	Applicable meters	
SR013C031	10mm	JIS 10K RF	180	100	SCS14A	SUS316	200	39	
SR013C032		ANSI/JPI 150 RF	178						
SR013C032		JIS 20K RF	184						
		JIS 30K RF	188						
		ANSI/JPI 300 RF	185	126					45
SR023C031	20mm	JIS 10K RF	180	100	SCS14A (SCS16A)	SUS316 (SUS316L)	200	50	
SR023C032		ANSI/JPI 150 RF	177						
SR023C032		JIS 20K RF	184						
SR031C031	25mm	JIS 10K RF	230	165	SCS14A (SCS16A)	SUS316 (SUS316L)	100	52	
SR038C032		ANSI/JPI 150 RF	231	209					53
SR038C032		JIS 20K RF	234						
SR041C031	40mm	JIS 10K RF	230	165	SCS14A (SCS16A)	SUS316 (SUS316L)	60	55	
SR048C032		ANSI/JPI 150 RF	233	209					
SR048C032		JIS 20K RF	234						
SR051C031	50mm	JIS 10K RF	290	190	SCS14A (SCS16A)	SCS316 (SCS316L)	60	56	
SR058C032		ANSI/JPI 150 RF	296	242					57
SR058C032		JIS 20K RF	294						

## ■ REQUIRED SPACE AROUND THE METER



## ■ OPERATING PRECAUTIONS

1. Every OVAL flowmeter is carefully assembled and precisely adjusted to measure flows down to minute flows before it leaves the factory. Take every precaution in uncrating, installation in the piping assembly, and testing.
2. Never allow foreign solids to enter the measuring chamber.
3. Flush the piping assembly thoroughly.
4. Avoid allowing the meter rotors to spin uncontrolled by directing a stream of air, etc. or allowing the fluid to flow excessively - even momentarily.
5. It is essential that a strainer (supplied by OVAL) exclusively designed for OVAL flowmeters be used.

## ■ ORDERING INFORMATION

Please complete the following form when making inquiries.

1. Model	L _____ <input type="checkbox"/> Standard <input type="checkbox"/> High temp. <input type="checkbox"/> Low temp. <input type="checkbox"/> Jacketed
2. Fluid to be measured	Name _____ Viscosity _____ mPa·s Specific gravity _____
3. Flowrate (L/h, m <sup>3</sup> /h)	Maximum _____ Normal _____ Minimum _____
4. Fluid temperature (°C)	Maximum _____ Normal _____ Minimum _____
5. Ambient temperature (°C)	Maximum _____ Normal _____ Minimum _____
6. Pressure (MPa)	Maximum _____ Normal _____ Minimum _____
7. Flow direction	Right ⇌ Left, Bottom ⇌ Top
8. Flange connection	Nominal size _____ mm, Flange rating _____
9. Required linearity	± _____ %
10. Explosionproof configuration	<input type="checkbox"/> Required class _____ <input type="checkbox"/> Not required
11. Accessories	<input type="checkbox"/> Strainer, <input type="checkbox"/> Air eliminator, <input type="checkbox"/> Companion flange
12. Quantity	Including accessories _____
13. Application	_____ (dosing, sampling, blending process, etc.) <input type="checkbox"/> Flow integration, <input type="checkbox"/> Flow indication, <input type="checkbox"/> Record, <input type="checkbox"/> Flow control, <input type="checkbox"/> Batch control, <input type="checkbox"/> CPU interface, <input type="checkbox"/> Others
14. Receiving instrument	Type, manufacturer, model, specifications (input, output, power supply, etc.)
15. Distance between flow meter and receiving instrument	_____ m

The specification as of May, 2009 is stated in this GS Sheet. Specifications and design are subject to change without notice.



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