

MagneW 3000 FLEX Smart Electromagnetic Flowmeter Detector (TIS Explosion-protected Apparatus) MGG15 (Remote type)

Introduction

The MagneW 3000 FLEX electromagnetic flowmeter detector is a high performance, highly reliable flowmeter developed with Yamatake's proven MagneW 3000 flow measurement technologies. The model MGG15 for JIS Explosion-proof use offer superior flowrate and process measurement and can be use with a wide range of MagneW 3000 FLEX converters.

Special features

- (1) Maximum measurable process fluid temperature is 125°C.
- (2) Provided with a built in zener barrier
- (3) Has an Ex de [ia] II CT4 approved explosion-proof structure.
- (4) High performance lining
 - A new, exclusive high quality lining technology and a special, mirror-finish PFA lining offer higher anti-adhesive properties than existing models.
 - The PFA lining is particularly applicable for the measurement of sticky pulp and gypsum slurries.
 - Only pure white PFA with no additives has been used to make new linings.
 - The embedded punch plate offers proven performance under conditions such as rapid thermal change and negative pressure.
- (5) Replacement interfacing detector (optional)
 - This detector can be use to replace the detector interfaces of our existing models and those of other manufacturers. Please consult your Yamatake Corporation representative for details.
- (6) Rugged detector structure
 - A stainless steel case has been adopted for those units with diameter of 2.5mm to 200mm.
- (7) A wide variety of piping connections
 - Remote type model MGG15 detectors can be used in combination with our conventional converters (model MG[] ,KIX, KIC). Please consult your Yamatake Corporation representative for details.

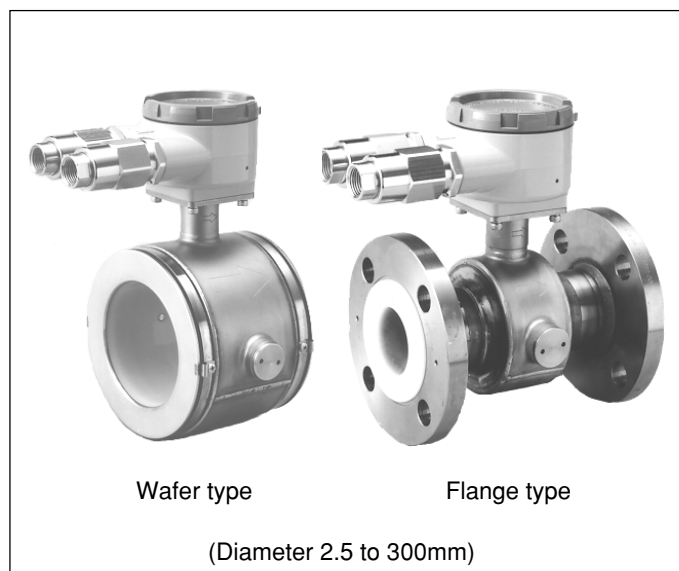


Table of a pass number in explosion-proof official examination

Nominal size(mm)	MGG15D/15F
2.5 - 15	TC15518
25	TC15519
40	TC15520
50	TC15521
65	TC15522
80	TC15523
100	TC15524
125	TC15525
150	TC15526
200	TC15527
250	TC15528
300	TC15529

Wide variety of applications

Petroleum/petrochemical/chemicals:

Corrosive liquids, dyestuffs, chemicals, industrial water, waste water, etc.

Electric power:

Corrosive liquids, cooling water, industrial water, waste-water, etc.

Gas:

Circulating water for air conditioning, etc.

Detector Specifications (standard)

Equipment specifications

Structure:

Explosion-proof structure; Ex de[ia] IIC T4

Finish:

MGG15: Corrosion-preventive acrylic resin
(model, diameter 2.5 to 200mm, terminal box only)
Corrosion-preventive polyurethane resin
(diameter 250 to 300mm, terminal box and case)

Color:

MGG15: Light beige (Munsell 4Y7.2/1.3)

Main body material:

Measuring pipe materials:

SUS304 stainless steel

Flange:

SUS304 stainless steel

(diameter: 2.5 to 65mm)

Carbon steel + corrosion-preventive coating

(diameter 80 to 300mm)

Case:

SCS13 stainless steel

(diameter 2.5 to 15mm)

SUS304 stainless steel

(diameter 25 to 200mm)

SS400 carbon steel

(diameter 250 to 300mm)

Terminal box: Aluminum alloy (remote model)

Process wetted materials:

Lining: PFA (diameter: 2.5 to 300mm)

Electrode: SUS316L, Hastelloy C, titanium, zirconium, tantalum, tungsten-carbide, platinum-iridium

Ground ring:

SUS316, Hastelloy C, titanium, zirconium, tantalum, platinum

Process wetted materials:

Gasket: PTFE

(if the grounding ring is not made of SUS316)

Structure of electrode:

MGG15: External insertion

Installation specifications

Ambient temperature: -10 to +50°C

Ambient humidity : 5 to 100% RH

Cable connection port:

G1/2 (PF1/2) internal thread

Pipe connection;

Wafer (models 2.5 to 200mm in diameter)

Flange (models 2.5 to 300mm in diameter)

Nuts and bolts (for models of wafer construction):

S20C carbon steel, SUS304 stainless steel

Flange rating:

JIS10K, JIS20K, JIS30K,
JPI150, JPI300, ANSI150, ANSI300,
DIN PN10, DIN PN16, DIN PN25,
DIN PN40 (diameter 2.5 to 50mm)

JIS10K, JIS20K, JIS30K,
JPI150, JPI300, ANSI150, ANSI300,
DIN PN10, DIN PN16, DIN PN25,
DIN PN40 (diameter 80 to 200mm)

JIS10K, JIS20K, JPI150, JPI300,
ANSI150, ANSI300, DIN PN10,
DIN PN16, DIN PN25(diameter 250 to 300mm)

Flange standards:

JIS: JIS B 2210 (1984)
ANSI: ANSI B 16.5 (1988)
(Diameter 2.5 to 200mm)
ANSI B 16.5 (1981)
(Diameter 250 to 300mm)
JPI: JPI-7S-15-93

Grounding: Grounding resistance: lower than 100 Ω

Mounting : Horizontally-mounted electrode

Straight pipe length:

Upstream side;

A minimum five straight pipe diameters.

A minimum 10 straight pipe diameter is required if a diffuser/valve/pump is installed.

Downstream side;

Two straight pipe diameters is recommended.

Cable (between remote detector and converter):

Maximum length: 300m
(depending on fluid conductivity)

Outer diameter: 10 to 12 mm

Signal cable: Dedicated cable
(11.4mm, 0.75mm² diameter)
or equivalent (CVVS, CEEV, etc.)

Excitation cable: Dedicated cable (10.5mm, 2mm²
diameter) or equivalent (CVV
and others)

Additional specifications (optional)

Test report:

Calibration certificate, withstand voltage test, insulation resistance, hydrostatic pressure test, physical inspection are included.

Certification of traceability:

The following three documents are included.

Traceability system chart

Traceability certificate

Test report

Material certificate:

Material certificate for electrode/grounding.

Water free treatment:

Condensation is removed from wetted surfaces.

Oil free treatment:

When removed from wetted surfaces.

Gasket for resin pipe (for general use):

When the detector is being mounted on a plastic pipe, attach this gasket between the PFA lining and the grounding ring, and between the grounding ring and the pipe flange.

Attaching the tag number to the terminal box:

Stamp the tag with the specified number and attach to the terminal box. The maximum number of characters in the tag number is 8.

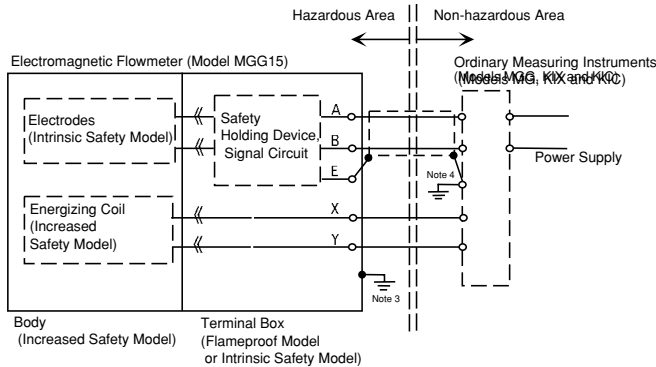
Attaching the tag number on the neck section:

Stamp the tag number specified and attach it to the neck section of the detector. The maximum number of characters in the tag number is 16.

For additional specifications, please contact your Yamatake Corporation representative.

Installation for Nonincendive model

This flowmeter is of flameproof structure and exhibits the specified explosion-proof capability only when it is used strictly in accordance with the following installation specifications:



- Note 1. Neither input power supply voltage to ground, nor voltage inside the ordinary measuring instruments should exceed 250V ac (50/60 Hz) or 250V dc during normal or abnormal operation. The energizing voltage should not exceed 45V dc, and the energizing current should not exceed 200mA.
- Ambient temperature for the flowmeter should be 60°C.
 - Grounding resistance should be less than 100Ω.
 - Grounding resistance should be less than 10Ω.

Performance (standard)

Accuracy (in combination with the model MGG10C/MGG14C converter)

Table 1

Diameter 2.5~15mm		Upper limit value of Vs=set velocity range	
Vs (m/s)	Velocity during measurement $\geq V_s \times 40\%$	Velocity during measurement $\leq V_s \times 40\%$	
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of indicated value	$\pm 0.2\%$ of Vs	
$0.1 \leq V_s \leq 1.0$	$\pm (0.1/V_s + 0.4\%)$ of the indicated value	$\pm 0.4(0.1/V_s + 0.4\%)$ of Vs	

Diameter 25~400mm		Upper limit value of Vs=set velocity range	
Vs (m/s)	Velocity during measurement $\geq V_s \times 20\%$	Velocity during measurement $\leq V_s \times 20\%$	
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of indicated value	$\pm 0.1\%$ of Vs	
$0.1 \leq V_s \leq 1.0$	$\pm (0.1/V_s + 0.4\%)$ of the indicated value	$\pm 0.2(0.1/V_s + 0.4\%)$ of Vs	

Measurable process fluid temperature:

-10 to +125°C

Measurable electrical conductivity:

Combined with MGG10C or MGG14C converter
3μS/cm or more

Measurable flow range:

Refer to the minimum/maximum set ranges shown in Table 2.

Measurable flow velocity: 0m/s to 10m/s

Table 2

Diameter (mm)	Minimum set range(m ³ /h) (Minimum constant flow speed of 0 to 0.1m/s)	Maximum set range(m ³ /h) (Maximum constant flow speed of 0 to 10m/s)
2.5	0 to 0.00177	0 to 0.177
5	0 to 0.00707	0 to 0.707
10	0 to 0.0283	0 to 2.83
15	0 to 0.0636	0 to 6.36
25	0 to 0.177	0 to 17.7
40	0 to 0.452	0 to 45.2
50	0 to 0.707	0 to 70.7
65	0 to 1.19	0 to 119
80	0 to 1.81	0 to 181
100	0 to 2.83	0 to 283
125	0 to 4.42	0 to 442
150	0 to 6.36	0 to 636
200	0 to 11.31	0 to 1,131
250	0 to 17.67	0 to 1,767
300	0 to 25.45	0 to 2,545

Contents of Model Number Tables

MagneW3000 FLEX(JIS Explosion-proof Model) (Wafer detector 2.5~10mm)

PFA lining

Basic Model No.

MGG15D

Selections

Optional selections

Options (Maximum selection: 5)

Basic Model No.		Selections		Optional selections		Options (Maximum selection: 5)	
MGG15D		-					
Diameter	2.5mm	002					
	5mm	005					
	10mm	010					
Lining	PFA		P				
Pipe connection	Wafer JIS10K for 15mm flange		11				
	Wafer JIS20K for 15mm flange		12				
	Wafer JIS30K for 15mm flange		13				
	Wafer JIS10/20K for 10mm flange		14				
	Wafer JIS30K for 10mm flange		15				
	Wafer ANSI150 for 15mm flange		21				
	Wafer ANSI300 for 15mm flange		22				
	Wafer DIN PN10 for 15mm flange		41				
	Wafer DIN PN16 for 15mm flange		42				
	Wafer DIN PN25 for 15mm flange		43				
	Wafer DIN PN40 for 15mm flange		44				
	Wafer DIN PN10/16/25/40 for 10mm flange		45				
	Wafer JPI150 for 15mm flange		61				
	Wafer JPI300 for 15mm flange		62				
Pipe combine	Wafer			X			
Electrodes	SUS316L				L		
	Hastelloy C				C		
	Titanium				K		
	Zirconium				H		
	Tantalum				T		
	Tungsten carbide				W		
	Platinum iridium				P		
	Others				<input type="checkbox"/>		
Grounding ring	SUS316				S		
	Hastelloy C				C		
	Titanium				K		
	Zirconium				H		
	Tantalum				T		
	Platinum				P		
	Others				<input type="checkbox"/>		
Wiring connection/ Cable adapter	G1/2 internal thread/with flame-proof cable gland				1		
Face to face dimension	Standard					A	
	Others					<input type="checkbox"/>	
Installation/ Wiring direction	Remote model	Upstream side					A
		Downstream side					B
		Horizontal piping mounting/Left side viewed from upstream					C
		Horizontal piping mounting/Right side viewed from upstream					D
Calibration/ Approval	Standard calibration						A
	Others						<input type="checkbox"/>

X	Finish	Standard
1		Corrosion-resistant finish
2		Corrosion-proof finish

X	Bolt/nuts	None
1		Carbon steel
2		SUS304

MagneW3000 FLEX(JIS Explosion-proof Model) (Flange detector 250~400mm)

PFA Lining

Basic Model No.

Selections

Optional selections

Options (Maximum selection: 5)

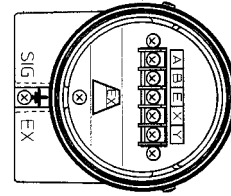
Basic Model No.		-		Selections										-		Optional selections		-		
MGG15F																				
Diameter	250mm	250																		
	300mm	300																		
Lining	PFA			P																
Pipe connection	Flange JIS10K			J1																
	Flange JIS20K			J2																
	Flange ANSI150			A1																
	Flange ANSI300			A2																
	Flange DIN PN10			D1																
	Flange DIN PN16			D2																
	Flange DIN PN25			D3																
	Flange JPI150			P1																
	Flange JPI300			P2																
Pipe combine	Flange			1																
Electrodes	SUS316L			L																
	Hastelloy C			C																
	Titanium			K																
	Zirconium			H																
	Tantalum			T																
	Tungsten carbide			W																
	Platinum iridium			P																
	Others			<input type="checkbox"/>																
Grounding ring	SUS316			S																
	Hastelloy C			C																
	Titanium			K																
	Others			<input type="checkbox"/>																
Wiring connection/ Cable adapter	G1/2 internal thread/with flame-proof cable gland			1																
Face to face dimension	Standard			A																
	Others			<input type="checkbox"/>																
Installation/ Wiring direction	Remote model	Upstream side			A															
		Downstream side			B															
		Horizontal piping mounting/Left side viewed from upstream			C															
		Horizontal piping mounting/Right side viewed from upstream			D															
Calibration/ Approval	Standard calibration			A																
	Others			<input type="checkbox"/>																

<input checked="" type="checkbox"/>	No option
<input type="checkbox"/>	Test report
<input type="checkbox"/>	Traceability certificate
<input type="checkbox"/>	Material certificate
<input type="checkbox"/>	Water-free treatment
<input type="checkbox"/>	Oil-free treatment
<input type="checkbox"/>	Gasket for plastic pipe (for general purposes)
<input type="checkbox"/>	TAG number plate attached to the terminal box (remote detector)
<input type="checkbox"/>	TAG number plate attached to the neck section
<input type="checkbox"/>	Others

<input checked="" type="checkbox"/>	Finish	Standard
<input type="checkbox"/>		Corrosion-resistant finish
<input type="checkbox"/>		Corrosion-proof finish
<input checked="" type="checkbox"/>	Bolt/nuts	None

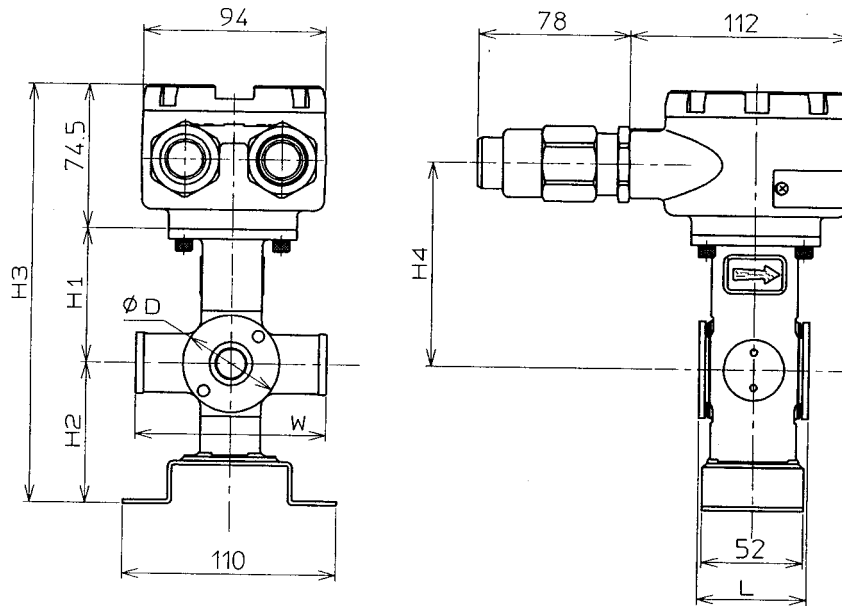
Dimension and terminal connection drawings

(Unit : mm)

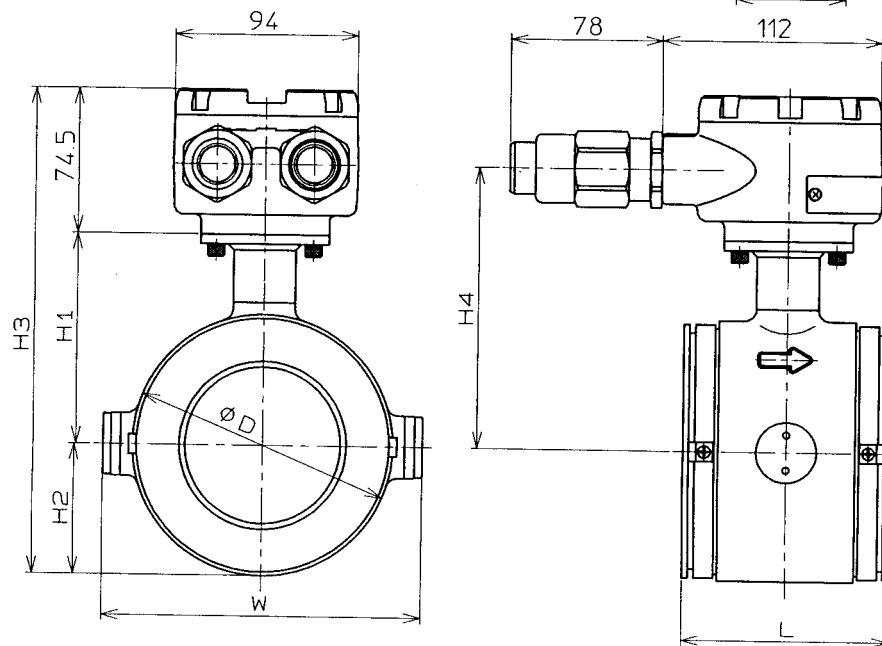


Wafer

2.5 to 15mm



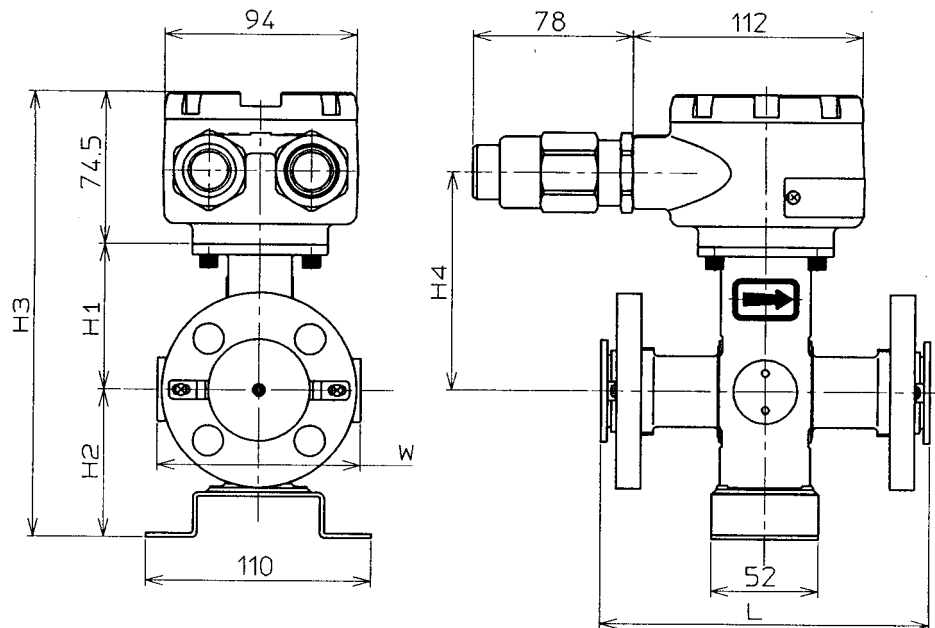
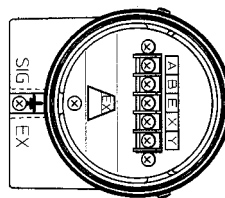
25 to 200mm



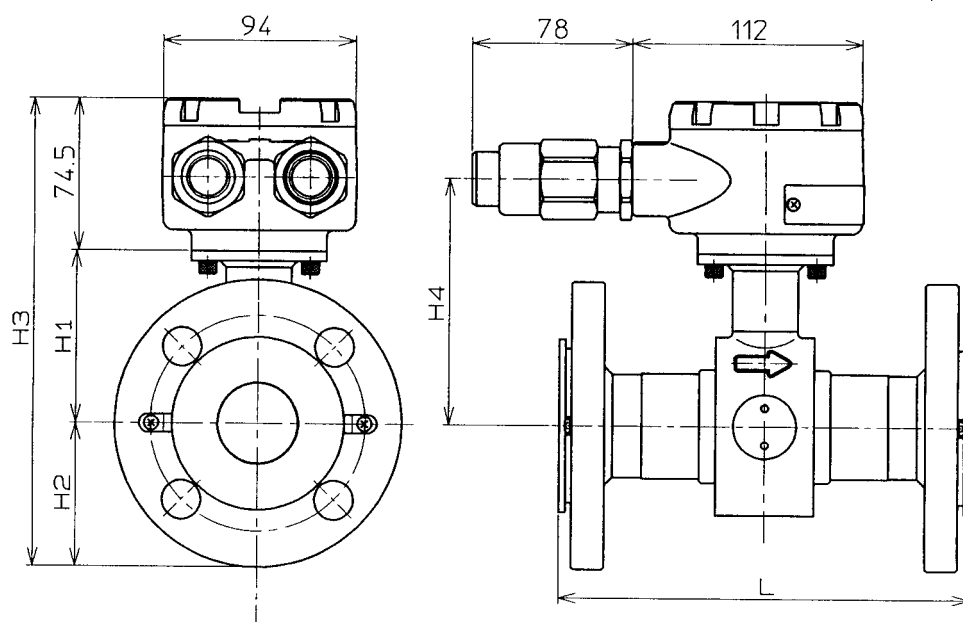
Detector diameter		2.5	5	10	15	25	40	50	65	80	100	125	150	200
Face to face dimension	L	56	56	56	56	56	80	86	96	106	120	140	160	200
	H1	71	71	71	71	77	84	93	100	108	121	133	160	185
Height	H2	72	72	72	72	34	43.5	52	62	67	79.5	95	110	135
	H3	217.5	217.5	217.5	217.5	185.5	202	219.5	236.5	249.5	274.5	302.5	344.5	394.5
	H4	96	96	96	96	102	109	118	125	133	146	158	185	210
Width	W	98	98	98	98	106	125	135	148	164	189	214	240	290
Outer diameter	φ D	49.5	49.5	49.5	49.5	68	87	104	124	134	159	190	220	270
Mass(kg)		3.3	3.3	3.3	3.0	3.3	3.5	4.1	5.2	5.9	7.4	10.7	14.3	22.7

Note: Face to face dimension (L) indicates the dimension with SUS316 grounding rings without gaskets.
For other material grounding rings than SUS316, gaskets are included. (Gasket thickness: 3mm)

Flange
2.5 to 15mm



25mm

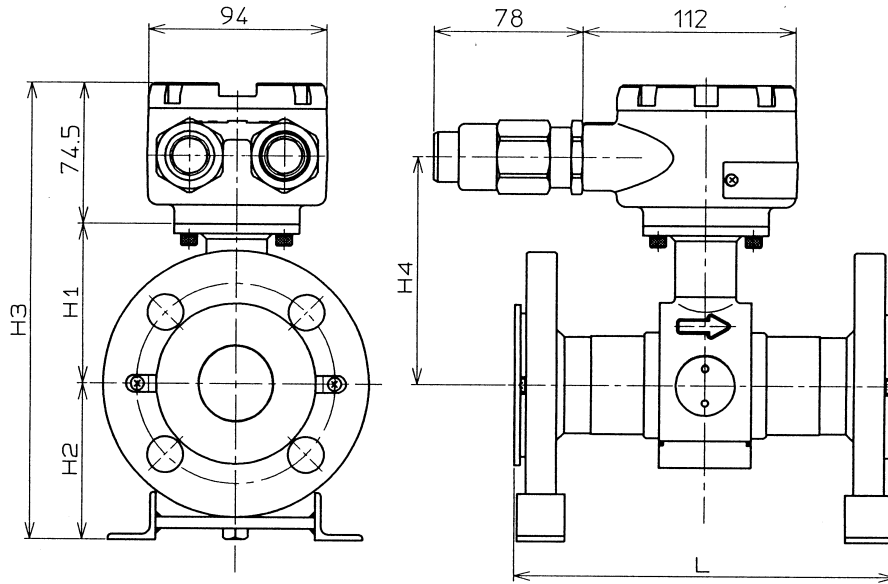


Detector diameter		2.5	5	10	15	25
Face to face dimension	L	160	160	160	200	200
	Height					
	H1	71	71	71	71	77
	H2	70	70	70	70	62.5
	H3	217.5	217.5	217.5	217.5	214
	H4	96	96	96	96	102
Width	W	98	98	98	98	106
Mass(kg)		5.7	5.7	5.7	5.7	6.2

Note: - The table indicates dimensions for JIS 10K Flange.
 - Face to face dimension (L) indicates the dimension with SUS316 grounding rings without gaskets.
 For other material grounding rings than SUS316 , gaskets are included. (Gasket thickness: 3mm)

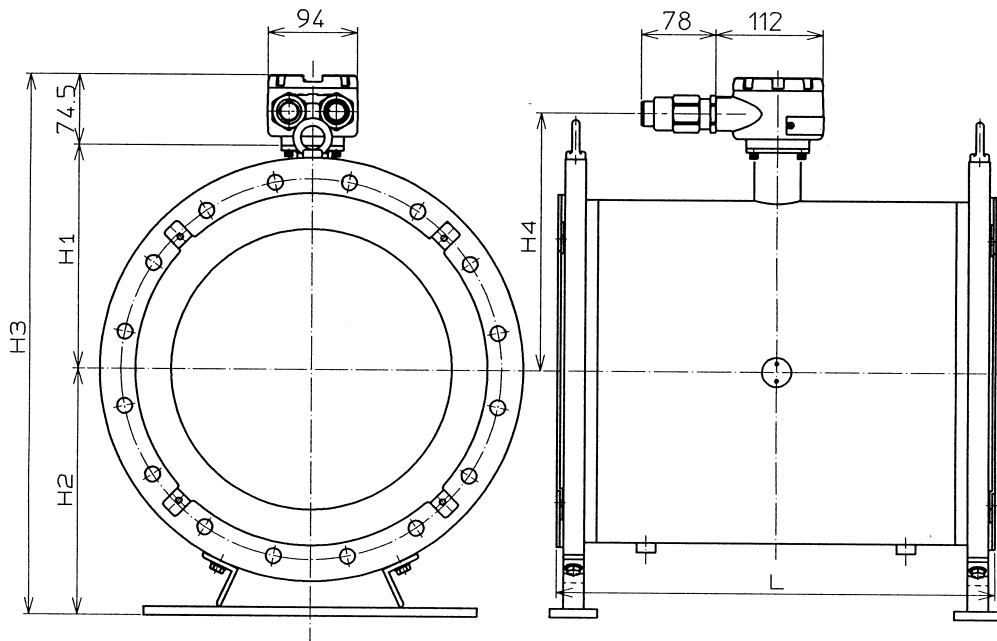
Flange

40 to 100mm



(Unit : mm)

150 to 300mm



Detector diameter		40	50	65	80	100	125	150	200	250	300
Face to face dimension	L	200	200	200	200	250	250	300	350	450	500
	Height										
	H1	84	93	100	108	121	133	160	185	235	258
	H2	85	90	102	110	120	143	175	197	221	250
	H3	243.5	257.5	276.5	292.5	315.0	350.5	409.5	456.5	530.5	582.5
Mass (kg)		7.2	9.2	10.7	13.3	19.1	26.7	33.3	48.7	60.7	73.7

- Note:
- The table indicates dimensions for JIS 10K Flange.
 - Face to face dimension (L) indicates the dimension with SUS316 grounding rings without gaskets. For other material grounding rings than SUS316, gaskets are included. (Gasket thickness: 3mm)

Specifications are subject to change without notice.

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