YAMATAKE Specification

MagneW 3000 PLUS Smart Electromagnetic Flowmeter
Model MGG18D
Detector (Ceramic lining)

OVERVIEW

The MagneW 3000 PLUS ceramic lining detector is a high-performance and highly-reliable flow meter based on Yamatake's proven MagneW 3000 flow measurement technologies.
A broader portfolio of MagneW 3000 PLUS meets various applications.

(Remote model)
(Diameter 15 to 100mm)

FEATURES

- A unique high-quality electrode structure offers the strongest ceramic lining detector against thermal shock.
- Ceramic lining detectors range in size from 15mm to 100mm are available and meet various severe applications, such as high-temperature, high-pressure, and wearing applications.
- Mirror finish surface of the ceramic lining is available for scaling applications.

APPLICATIONS

Applicable to a wide range of applications in various industries.

Pulp and paper
Liquid, pulp, chemicals, corrosive liquids, etc.

Petroleum/petrochemical/chemicals
Corrosive liquids, dyes, chemicals, etc.

Public utilities
Service water, sewage, excrement, sludge, sediment slurry etc.

Steel/non-ferrous metals/ceramics
Aluminum slurry, corrosive liquids, etc.

Machinery/equipment/electric machinery
Corrosive liquids, etc.

Construction
Construction material slurry, sediment slurry, cement slurry, etc.

Shipbuilding
Sediment slurry, etc.

FUNCTIONAL SPECIFICATIONS

Type of protection

JIS C 0920 waterproof model

NEMA ICS6-110 TYPE4

IEC PUBL 529 IP66

Temperature range of liquid to be measured

Ceramic lining

Diameter (mm)	Temperature of the liquid to be measured	
	Integral model	Remote mode
15 to 100	-40 to +120 °C	-40 to +180 °C

Measurable electrical conductivity

Combined with MGG14C converter

3mS/cm or more

(in case of less than 3mS/cm, consult your Yamatake representative)

Measurement flow range

Refer to the minimum/maximum set ranges shown in the table below.

Diameter(mm)	Minimum set range(m3/h)(Minimum constant flow speed of 0 to 0.1m/s)	Maximum set range(m3/h)(Maximum constant flow speed of 0 to 0.1m/s)	Flow conversion factor K
15	0 to 0.0637	0 to 6.36	1.572
25	0 to 0.177	0 to 17.6	0.5659
40	0 to 0.453	0 to 45.2	0.2210
50	0 to 0.707	0 to 70.6	0.1415
80	0 to 1.81	0 to 180	0.005526
100	0 to 2.83	0 to 282	0.03537

Measurement flow velocity range

0 to 10m/s

Measurable flow pressure

-0.098 to +3.92 MPa {-1 to +40kgf/cm2}

Flange rating

JIS 10K, 20K, 30K, 40K

ANSI 150, 300, JPI 150, 300

DIN PN10, 16, 25, 40

JIS G3451 F12 (diameter 80 to 100mm)

Ambient temperature limits

-25 to +60°C (integral model)

-30 to +80°C (integral model)

Ambient humidity limits

10 to 90% RH

Optional specifications

Test report

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

Traceability certificate

The following three documents are included.

- Traceability System Chart
- Traceablility Certificate
- Test Report

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 to the neck section

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

Mirror finish for ceramic lining

Polish the surface of ceramic lining.

For additional specifications, please contact your Yamatake representative

PERFORMANCE SPECIFICATIONS

Accuracy

(in combination with the MGG14C converter)

<diameter 15mm> Upper limit value of Vs=set velocity range

Vs(m/s)	Velocity during measurement ³ Vs × 40%	Velocity during measurement ≤ Vs × 40%
1.0 ≤ Vs ≤ 10	± 0.5% of indicated value	± 0.2% of Vs
0.1 ≤ Vs ≤ 1.0	± (0.1/Vs+0.4)% of the indicated value	± 0.4(0.1/Vs+0.4)% of Vs

<diameter 25 ~ 400mm> Upper limit value of Vs=set velocity range

Vs(m/s)	Velocity during measurement ³ Vs × 20%	Velocity during measurement ≤ Vs × 20%
1.0 ≤ Vs ≤ 10	± 0.5% of indicated value	± 0.1% of Vs
0.1 ≤ Vs ≤ 1.0	± (0.1/Vs+0.4)% of the indicated value	± 0.2(0.1/Vs+0.4)% of Vs

PHYSICAL SPECIFICATIONS

Finish

Corrosion-preventive acrylic resin

Color

Light beige (Munsell 4Y7.2/1.3, terminal box)

Dark beige (Munsell 10YR4.7/0.5, detector housing)

Main body material

Measuring pipe material

Ceramic (Al_2O_3 99.7%)

Housing

Cast steel (diameter 15, 25mm)

Aluminum alloy (diameter 40 to 100mm)

Terminal box

Aluminum alloy (remote model)

Material of parts in contact with liquid

Lining

Ceramic (Al_2O_3 99.7%)

(diameter 15 to 100mm)

Electrode

SUS316L, Hastelloy C, Titanium, Zirconium, Tantalum, Tungsten-carbide, Platinum-iridium

Grounding ring

None, Platinum metalize

Structure of electrode

Internal insertion type

(electrode can not be removed)

INSTALLATION

Electrical connection

Integral model

Connection to converter

Remote model

G1/2 (PF1/2) internal thread, 1/2 NPT internal thread, CM20 internal thread, Pg 13.5 internal thread

Pipe connection

Wafer

Grounding

Resistance Lower than 100Ω

Mounting

Horizontally-mounted electrode

Length of straight pipe

Upstream side

A minimum five straight pipe diameters

A minimum 10 straight pipe diameters is required if a diffuser/valve/pump is installed upstream side.

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 (11.4 mm, 0.75mm2)

or equivalent (CVVS, CEEV, etc.)

Excitation cable

Dedicated cable MGA12W

(O.D. 10.5mm, 2mm2)

or equivalent (CVV and others)

MODEL SELECTION

Basic Model No.	Selections										Optional selections			Options	
MGG18D	–									–			–		

Diameter	15mm		015							
	25mm		025							
	50mm		050							
	80mm		080							
	100mm		100							
Lining	Ceramic (Al_2O_3 99.7%)			C						
Pipe connection	Wafer JIS10K				11					
	Wafer JIS20K				12					
	Wafer JIS30K				13					
	Wafer ANSI150				21					
	Wafer ANSI300				22					
	Wafer JIS G3451 F12 (Diameter 80mm or larger)				31					
	Wafer DIN PN10				41					
	Wafer DIN PN16				42					
	Wafer DIN PN25				43					
	Wafer DIN PN40				44					
	Wafer JPI150				61					
	Wafer JPI300				62					
Electrodes	SUS316L					L				
	Hastelloy C					C				
	Titanium					K				
	Zirconium					H				
	Tantalum					T				
	Tungsten carbide					W				
	Platinum Iridium					P				
Grounding rings	None (Note *1)						X			
	Platinum metalize						M			
Electrical connection/ Watertight gland	Integral type							1		
	Remote type	G1/2 internal thread/without watertight gland						2		
		G1/2 internal thread/with brass (Ni-plated) watertight gland						3		
		G1/2 internal thread/with plastic watertight gland						4		
		1/2NPT internal thread/without watertight gland						5		
		CM20 internal thread/without watertight gland						6		
		Pg13.5 internal thread/without watertight gland						7		
		Others						□		
Face to face dimension	Standard								A	
Installation/ Electrical connection	Integral type									H
	Remote type	Upstream side (Horizontal/Vertical piping mounting)								A
		Downstream side (Horizontal/Vertical piping mounting)								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									□

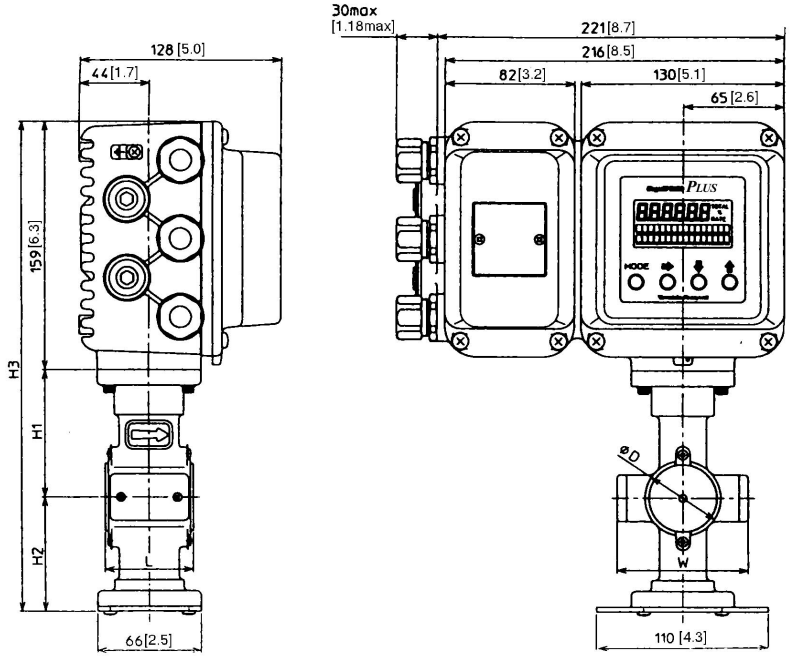
Y		Yamatake Version (Must be selected)
A		Test report
B		Traceability cetrificate
K		Attaching Tag number plate on the terminal box
L		Attaching Tag number plate to the neck section
X	Finish	Standard
1		Corrosion-resistant finish
2		Corrosion-proof finish
X	Bolt/nuts	None
1		Carbon steel
2		SUS304

Note *1 This specification (without grounding rings) is applicable when the grounding is possible through pipe line. In case of plastic pipes or lined pipes, this selection is not applicable. Please select "P" as grounding ring selection code.

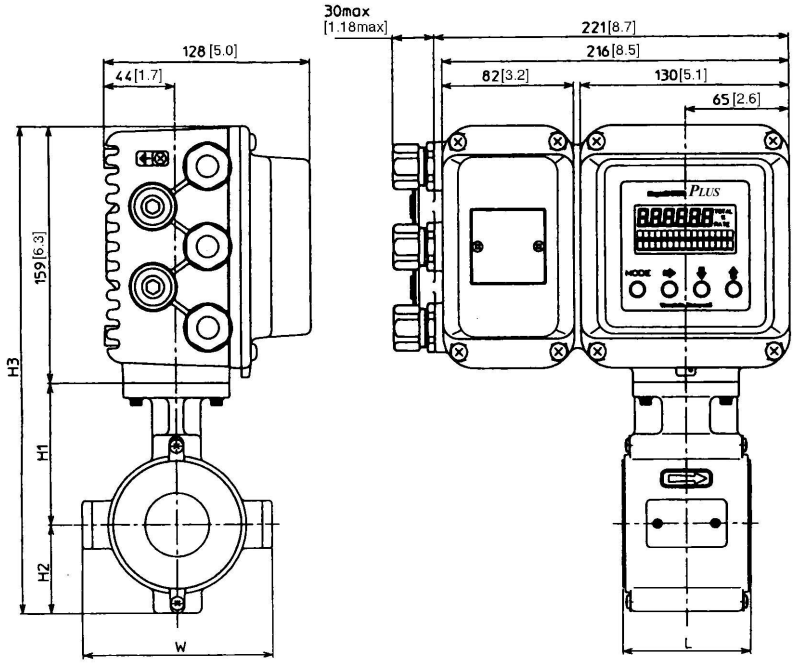
DIMENSIONS

Integral style (15 to 25 mm)

(Unit: mm [in.])



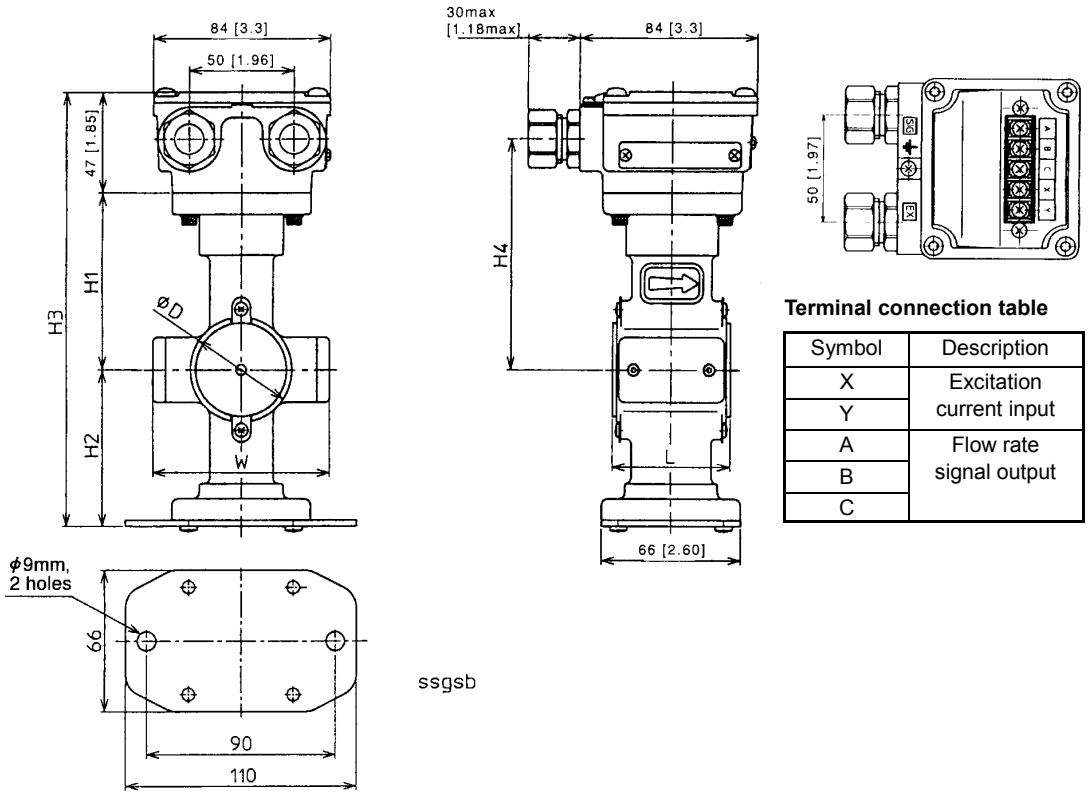
Integral style (40 to 100 mm)



Nominal diameter		15	25	40	50	80	100
Face to face dimension	L	56	56	80	86	106	120
Height	H1	82	89	88	95	109	121
	H2	73	80	55	64	78	90
	H3	314	328	302	318	346	370
Width	W	84	94	116	132	161	185
Outer diameter	ϕD	48.5	65	86	102	132	156
Weight (kg) included a converter MGG14C		5.5	5.5	5.2	5.8	7.6	9.0

Remote style (15 to 25 mm)

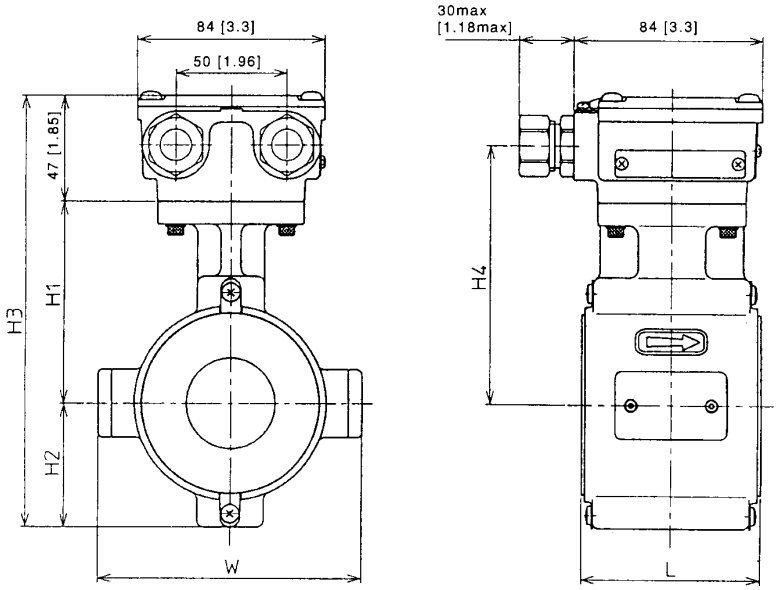
(Unit: mm)



Terminal connection table

Symbol	Description
X	Excitation current input
Y	
A	Flow rate signal output
B	
C	

Remote style (40 to 100 mm)



Nominal diameter		15	25	40	50	80	100
Face to face dimension	L	56	56	80	86	106	120
Height	H1	82	89	88	95	109	121
	H2	73	80	55	64	78	90
	H3	202	216	190	206	234	258
	H4	107	114	113	120	134	146
Width	W	84	94	116	132	161	185
Outer diameter	ϕD	48.5	65	86	102	132	156
Weight (kg)		2.5	2.8	2.4	3.0	4.8	6.3

Note

YAMATAKE

Savemation

Saving through Automation

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