

# MagneW 3000 PLUS Smart Electromagnetic Flowmeter Model MGH14C(Converter with FOUNDATION™ Fieldbus) / MGH18 (Detector)HENRI Flowmeter for Pulp Slurry

## OVERVIEW

The MagneW 3000 PLUS HENRI (High-Energy Noise-Resistant Instrument) flowmeter is a high-performance and highly reliable flowmeter for Pulp & Paper applications based on Yamatake's proven MagneW 3000 flow measurement technologies. The MagneW 3000 PLUS HENRI offers the stable and accurate measurement for severe Pulp and Paper applications with a unique lining manufacturing technology and high-frequency excitation technology.

The MagneW 3000 PLUS HENRI converter fully complies with the Fieldbus FOUNDATION™ interoperability.

Its built in AI control function block provides process variable for the regulatory control.

The MagneW3000/PLUS HENRI converter passed the Interoperability Test Program developed by the Foundation to assure maximum interoperability with other Foundation Fieldbus devices, and is registered with the Foundation. As such, it can cooperate seamlessly with other registered field devices as well as host systems in a wide range of control applications.

## FEATURES

### Stable and accurate measurement by high-frequency excitation technology

- MagneW 3000 PLUS HENRI minimizes the output fluctuation caused by various noises (Slurry noise, AC noise and Electrochemical noise) and realizes stable and accurate flow
- measurement for pulp slurry applications.

### High-performance lining

- A unique high quality lining technology makes it possible to offer mirror-finish PFA lining. The mirror-finish PFA lining is best suited for scaling applications.
- A new material ETFE (harder than PFA) lining is suitable for wearing applications in Pulp & Paper process. ETFE lining extends life-time of lining than (that of) PFA lining.



### Replaceable face-to-face dimension detector (Optional)

- This detector can replace the detector of our existing models and those of other suppliers. Please consult your Yamatake representative for details.

### Rugged detector structure

- A stainless steel housing has been adopted for diameter 40 to 200mm [1.5 to 8 in.].
- A watertight structure is used for the watertight model (MGH18).

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**APPLICATIONS****Applications for pulp production, preparation and papermaking process**

- Pulpstock flow to head box
- DIP (De-inked pulp) application
- Pulp from screen
- Green liquor
- Diluted black liquor
- Dye/pigment dosing application
- White liquor
- High consistency pulp
- Pulp from pulper

**For converter (MGH14C)****FUNCTIONAL SPECIFICATIONS****Type of protection**

JIS C 0920 waterproof model  
NEMA ICS6-110 TYPE 4X  
IEC PUBL 529 IP66

**Input signal****Flow signal**

Electromotive force from the detector

**Output signal****Fieldbus output**

Flow rate output  
Totalized value

**Unit of flow indication**

**Volume flow** m<sup>3</sup>, L, cm<sup>3</sup>, G, mG, kG, B  
**Mass flow** t, kg, g, lb  
**Time** d, h, min, s

**Damping time**

Adjustable between 0.5 and 199.9 seconds

**Drop out**

Adjustable between 0 to 10% of setting range.  
Below selected value, pulse output is cut.

**Lightning protection**

12kV, 1000A  
Equipped with the lightning arrester in the power source and external input and output terminals.

**Power failure**

An EEPROM retains data record of totalized flow volume (retention period approximately 10 years).

**Power supply**

AC90 to 246V

**Frequency**

47 to 63Hz

**Power consumption**

30W max.

**Ambient temperature limits**

-25 to +50°C

**Ambient humidity limits**

5 to 100%RH

**Optional specifications****Display Indication by LCD with backlighting****Main display**

7-segment, 6 digits

**Sub display**

16 digits, 2 lines

**Display contents**

**Display contents**

Demonstrates three values simultaneously.

- Flow volume in percentage
- Actual flow volume
- Totalized flow volume

**Selection of main display and sub display**

Main display is selectable from the three values.

**Data setting device**

Setting by infrared ray touch sensor

Infrared ray touch sensor : Four key switches

**Empty pipe detection**

When the detector is empty, the Fieldbus is fixed at zero.

Display is latched to zero.

**Functions of built-in counter****Totalizer**

According to the pulse scale setting, it totals one count at a time, for normal and reverse flows

**Totalizer with presetting function**

A preset value (target totalized value) can be set between 0000000000 and 9999999999. The counting

**Traceability certificate**

The following three documents are provided.

- Traceability System Chart
- Traceability Certificate
- Test Report

**Tropicalization treatment**

Protects the electromagnetic flow meter in harsh environments during transportation and/or storage.

The following treatments are applied.

- Corrosion protection
- Moisture prevention
- Mildew proofing

**Indication other than SI units**

The following non-SI units are available.

**Volume unit**

B (barrel), kG (kilo-gallon), G (gallon), mG (milli-gallon)

**Mass unit**

lb (pound)

**Air purge hole with PT1/4 internal thread**

Prepare air purge hole with PT1/4 internal thread by using one of the conduits of the converter.

**PHYSICAL SPECIFICATION****Finish****Standard**

Corrosion-preventive acrylic resin

**Corrosion-resistant**

Baked acrylic resin

**Corrosion-proof**

Epoxy resin

**Color**

Light beige (Munsell 4Y7.2/1.3)

**Main body material**

Aluminum alloy

**Display cover material**

Tempered glass, 5mm thick

**Weight**

3.7kg

**INSTALLATION**

MGH18 detector must be coupled with MGH14C converter.

**Electrical connection**

G1/2 (PF1/2) internal thread, 1/2NPT internal thread, CM20 internal thread, Pg13.5 internal thread.

**Mounting**

Wall mounting, 2 inch pipe mounting

**Grounding**

Resistance less than 100  $\Omega$

## FIELDBUS SPECIFICATIONS

### Blocks supported by the MagneW 3000 PLUS HENRI

Name of Block	Number	Explanation
Resource Block	1	The Resource Block(RB) maintains overall resources of the MagneW 3000.
Transducer Block	1	The Transducer Block(XB) interfaces with the sensing element of the MagneW 3000, converts the measured value in engineering units specified, and sends it to the AI Function Block.
AI Function Block	1	The AI Function Block(AI FB) accepts an analog input signal from the XB, scales it, detects alarm conditions, and provides it in a uniform format in the Fieldbus network.

### VCR Structure

The MagneW 3000 has 16 VCRs (Virtual Communication Relationships), of which the first one is dedicated to the SMIB/NMIB defined by the Foundation Fieldbus specifications. The rest of the VCRs are fully configurable. Their default configurations are shown below:

VCR No.	Configuration	VCR No.	Configuration
1	QUB(Server) for NIMIB/SNIB	9	QUU(Source)
2	BNU(Subscriber)	10	QUU(Source)
3	BNU(Subscriber)	11	QUU(Source)
4	BNU(Subscriber)	12	QUB(Server)
5	BNU(Subscriber)	13	QUB(Server)
6	BNU(Publisher)	14	QUB(Server)
7	BNU(Publisher)	15	QUB(Server)
8	QUU(Source)	16	QUB(Server)

### Network Parameters

The following table show the key parameter values that affect interoperability of the Fieldbus devices. The LAS need be configured to satisfy these parameters. If other devices on the same Fieldbus network require a greater number for them, the greater number must be used. This will degrade network performance, though.

Symbol	Parameter name	Range of Values
V(ST)	Slot Time	5 to 100
V(MID)	Minimum Interframe Gap	10 to (V (MRD) -1) x V (ST), smaller than 120 inclusive.
V(MRD)	Maximum Response Delay	V (MRD) x (V (ST) shall be greater than 20 and V (MRD) shall be smaller than 11, inclusive.
T1	SM Step Tuner	96000(3 seconds)
T2	SM Set Address Sequence Timer	1920000(60 seconds)
T3	SM Set Address Wait Timer	480000(15 seconds)

Note: An LAS requires parameters other than those listed here to operate. Please refer to the user's manual that comes with your LAS device.

Note: The T3 need be set between 15 seconds and 60 seconds.

## For Detector (MGH18)

## FUNCTIONAL SPECIFICATIONS

### Type of protection

JIS C 0920 watertight model  
NEMA ICS6-180 TYPE 4X  
EC PUBL 529 IP67

### Temperature range of liquid to be measured

#### PFA lining

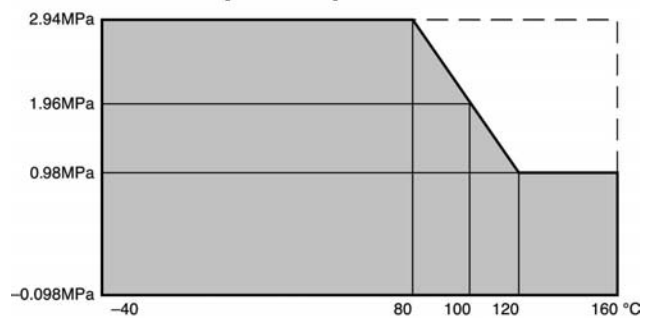
Diameter	temperature
40 to 200mm	-40 to 160°C
250 to 400mm	-40 to 120°C

#### ETFE lining

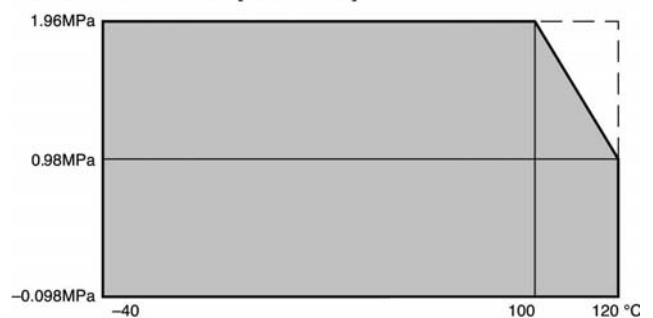
Diameter	temperature
80 to 200mm	-40 to 120°C
250 to 400mm	-40 to 120°C

#### PFA lining

Size: 40 to 200mm [1.5 to 8 in.]



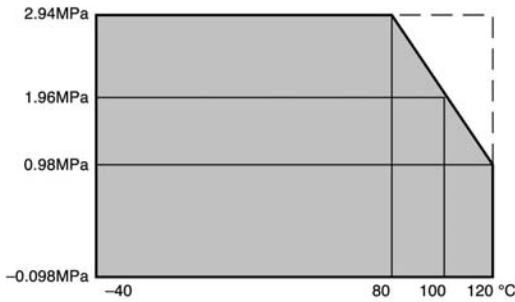
Size: 250 to 400mm [10 to 16 in.]



: Standard  
 : Refer to factory basis  
 Consult your Yamatake representative

**ETFE lining**

Size: 80 to 200mm [3 to 8 in.]



Size: 250 to 400mm [10 to 16 in.]



: Standard  
 : Refer to factory basis  
 Consult your Yamatake representative

**Measurable electrical conductivity**

Coupled with MGH14C converter

20µS/cm or greater

(In case of less than 20µS/cm, consult your Yamatake representative.)

**Measurement flow range**

Size(mm)	Minimum range(m <sup>3</sup> /h) (Minimum flow velocity range is 0 to 0.3m/s)	Maximum range(m <sup>3</sup> /h) (Maximum flow velocity range is 0 to 10m/s)	Conversion factor K
40	0 to 1.36	0 to 452	0.2210
50	0 to 2.12	0 to 70.6	0.1415
80	0 to 5.43	0 to 180	0.05526
100	0 to 8.48	0 to 282	0.03537
150	0 to 19.1	0 to 636	0.01572
200	0 to 34.0	0 to 1131	0.008842
250	0 to 53.1	0 to 1767	0.005659
300	0 to 76.4	0 to 2544	0.003930
350	0 to 104.0	0 to 3463.6	0.00288716
400	0 to 135.8	0 to 4523.8	0.00221049

Velocity V(m/s) = K x Q

K = Flow conversion factor = 1/3600 x 4/(πD<sup>2</sup>)

Q = Flow rate (m<sup>3</sup>/h)

**Flange rating**

JIS10K, JIS16K, JIS20K, JIS30K, JPI150, JPI300, ANSI150, ANSI300, DIN PN10, DIN PN16, DIN PN25, DIN PN40 (Diameter 40 to 200mm)

JIS10K, JIS20K, JPI150, JPI300

ANSI150, ANSI300, DIN PN10, DIN PN16, DIN PN25 (Diameter 250 to 400mm)

**Ambient temperature limits**

-30 to +80°C

**Ambient humidity limits**

5 to 100%RH

**Optional specifications**

**Test report**

Calibration certificate, withstand voltage test, insulation resistant, hydrostatic pressure test, physical inspection are in-cluded.

**Traceability certificate**

The following three documents are included.

- Traceability System Chart
- Traceability Certificate
- Test Report

**Material certificate**

Material certificate for electrode/grounding ring

**Water free treatment**

Condensation is removed from process wetted materials surface.

**Oil free treatment**

Oil is removed from process wetted materials surface.

**Gasket for plastic piping**

When the detector is being mounted on plastic pipe, attach this gasket between the lining and the grounding ring, and between the grounding ring and the plastic 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 of 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 of the tag number is 16.

**PERFORMANCE SPECIFICATIONS**

**Accuracy (MGH14C with MGH18 detector)**

Diameter 40 to 400mm

Vs = velocity of setting range

Vs (m/s)	Velocity during measurement <sup>3</sup> Vs x 20 %	Velocity during measurements ≤ Vs x 20 %
1.0 ≤ Vs ± 10	±0.5% of rate	±0.1% of Vs
0.3 ≤ Vs ± 1.0	±(0.1/Vs+0.4)% of rate	±0.2(0.1/Vs+0.4)% of Vs

**PHYSICAL SPECIFICATIONS****Finish****Standard**

Corrosion-preventive acrylic resin  
(Diameter 40 to 200mm, terminal box only)  
Corrosion-preventive polyurethane resin  
(Diameter 250 to 400mm, housing)  
Corrosion-preventive acrylic resin  
(Diameter 250 to 400mm, terminal box)

**Corrosion-resistant**

Baked acrylic resin  
(Diameter 40 to 200mm, terminal box only)  
Corrosion-preventive polyurethane resin  
(Diameter 250 to 400mm, housing)  
Baked acrylic resin  
(Diameter 250 to 400mm, terminal box)

**Corrosion-proof**

Epoxy resin  
(Diameter 40 to 200mm, terminal box only)  
Epoxy resin  
(Diameter 250 to 400mm, housing and terminal box)

**Color**

Light beige (Munsell 4Y7.2/1.3)

**Main body material****Measuring pipe material**

SUS304 stainless steel

**Flange**

SUS304 stainless steel  
(Diameter 40 to 50mm)  
Carbon steel + corrosion-preventive coating  
(Diameter 80 to 400mm)

**Housing**

SUS304 stainless steel (Diameter 40 to 200mm)  
Carbon steel (Diameter 250 to 400mm)

**Terminal box**

Aluminum alloy

**Material of parts in contact with liquid****Lining**

PFA (Diameter 40 to 400mm)  
ETFE (Diameter 80 to 400mm)

**Electrode**

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

**Grounding ring**

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

**Gasket**

PTFE (if grounding ring material is exotic.)

**INSTALLATION****Electrical connection**

G1/2 (PF1/2) internal thread  
1/2NPT internal thread  
CM20 internal thread  
Pg13.5 internal thread

**Pipe connection**

Wafer (Diameter 40 to 200mm)  
Flange (Diameter 40 to 400mm)

**Grounding**

Resistance less than 100 Ω

**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  
(depends on fluid conductivity)  
Outer diameter 10 to 12mm  
Signal cable Dedicated cable MGA12W  
(O.D. 11.4mm, 0.75mm<sup>2</sup>) or equivalent (CVVS, CEEV etc.)  
Excitation cable Dedicated cable MGA12W  
(O.D. 10.5mm, 2mm<sup>2</sup>) or equivalent (CVV and others)

**MODEL SELECTION**

Type/Basic model No.	Lining material	Pipe connection	Size (mm)	Page
Waterproof Converter MGH14C				7
Watertight detector MGH18D	PFA/ETFE	Wafer	4 to 200	8
Watertight detector MGH18F	PFA/ETFE	Flange	4 to 200	9
Watertight detector MGH18F	PFA/ETFE	Flange	250 to 400	10

**Waterproof Converter MGH14C Converter**

Basic model No.		Selections			Optional Selections			Options	
MGH14C-									
Power supply	AC90 to 264V, 47 to 63Hz		M						
Output signal/ communication	Fieldbus			F					
Electrical connection/ Watertight gland	G1/2 internal thread/without watertight gland			1					
	G1/2 internal thread/with brass (Ni-plated) watertight gland			2					
	G1/2 internal thread/with plastic watertight gland			3					
	1/2 NPT internal thread/without watertight gland			4					
	CM20 internal thread/without watertight gland			5					
	Pg13.5 internal thread/without watertight gland			6					
Installation/ Wiring direction	Remote style	Wall mounting with standard bracket		G					
		2-inch pipe mounting with standard bracket		H					
		Others		<input type="checkbox"/>					
Finish	Standard				X				
	Corrosion-resistant finish				1				
	Corrosion-proof finish				2				
Display	None				X				
	Main display : Indication of flow rate in %				A				
	Main display : Indication of actual flow volume				B				
	Main display : Totalized value				C				
Contact inputs/ outputs	None					X			
Style code	None						X		
Options	<b>Yamatake Version (Must be selected)</b>								Y
	Empty pipe detection function								A
	Pulse output (Open collector)								B
	Traceability certificate								C
	Tropicalization treatment								E
	<b>Indication other than SI units (Must be selected)</b>								H
	Attachment of the TAG number to the terminal box <b>Note 1</b>								J
	PT1/4 air purge hole								Q
	Others								<input type="checkbox"/>

Note 1: Must be selected for Tag No. requirement.

**Watertight detector MGH18D**  
**Wafer style detector 40 to 200mm**

Basic model No.		Selections		Optional Selections		Options		
MGH18D								
Diameter	40mm	040						
	50mm	050						
	80mm	080						
	100mm	100						
	150mm	150						
	200mm	200						
Lining material	PFA		P					
	ETFE (80mm or larger)		E					
Pipe connection	Wafer JIS 10K		11					
	Wafer JIS 16/20K		12					
	Wafer JIS 30K		13					
	Wafer ANSI150		21					
	Wafer ANSI300		22					
	Wafer DIN PN10		41					
	Wafer DIN PN16		42					
	Wafer DIN PN25		43					
	Wafer DIN PN40		44					
	Wafer JPI150		61					
Wafer JPI300		62						
Electrode material	SS316L		L					
	Hastelloy C		C					
	Titanium		K					
	Zirconium		H					
	Tantalum		T					
	Tungsten carbide		W					
	Platinum-iridium		P					
Others		<input type="checkbox"/>						
Grounding ring material	SS316		S					
	Hastelloy C		C					
	Titanium		K					
	Zirconium		H					
	Tantalum		T					
	Platinum		P					
Others		<input type="checkbox"/>						
Electrical connection/ Watertight gland	Integral style		1					
	Remote style	G1/2 internal thread/ w/o watertight gland		2				
		G1/2 internal thread/ w/ brass (Ni-plated) watertight		3				
		G1/2 internal thread/ w/ plastic watertight gland		4				
		1/2 NPT internal thread/ w/o watertight gland		5				
		CM20 internal thread/ w/o watertight gland		6				
		Pg13.5 internal thread/ w/o watertight gland		7				
		G1/2 internal thread/ w/ SS304 watertight gland		8				
Face to face dimension		Standard		A				
Others		<input type="checkbox"/>						
Installation Wiring	Integral style		H					
	Remote style	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	Standard calibration		A					
Others		<input type="checkbox"/>						

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

X	Bolts/ Nuts	None
1		Carbon steel
2		SS304

**Watertight detector MGH18F**  
**Flange style detector 40 to 200mm**

Basic model No.		Selections				Optional Selections				Options		
MGH18F												
Diameter	40mm	040										
	50mm	050										
	80mm	080										
	100mm	100										
	150mm	150										
	200mm	200										
Lining material	PFA		P									
	ETFE (80mm or larger)		E									
Pipe connection	Flange JIS 10K		J1									
	Flange JIS 16/20K		J2									
	Flange ANSI150		A1									
	Flange ANSI300		A2									
	Flange DIN PN10		D1									
	Flange DIN PN16		D2									
	Flange DIN PN25		D3									
	Flange DIN PN40		D4									
	Flange JPI150		P1									
	Flange JPI300		P2									
Flange material	Standard		1									
	Others		<input type="checkbox"/>									
Electrode material	SS316L		L									
	Hastelloy C		C									
	Titanium		K									
	Zirconium		H									
	Tantalum		T									
	Tungsten carbide		W									
	Platinum-iridium		P									
	Others		<input type="checkbox"/>									
Grounding ring material	SS316		S									
	Hastelloy C		C									
	Titanium		K									
	Zirconium		H									
	Tantalum		T									
	Platinum		P									
	Others		<input type="checkbox"/>									
Electrical connection/ Watertight gland	Integral style									1		
	Remote style	G1/2 internal thread/ w/o watertight gland									2	
		G1/2 internal thread/ w/ brass (Ni-plated) watertight									3	
		G1/2 internal thread/ w/ plastic watertight gland									4	
		1/2 NPT internal thread/ w/o watertight gland									5	
		CM20 internal thread/ w/o watertight gland									6	
		Pg13.5 internal thread/ w/o watertight gland									7	
		G1/2 internal thread/ w/ SS304 watertight gland									8	
Face to face dimension		Standard									A	
Others		<input type="checkbox"/>										
Installation Wiring	Integral style										H	
	Remote style	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
		Standard calibration										
Others			<input type="checkbox"/>									

Y	Yamatake Version (Must be selected)
A	Test report
B	Traceability certificate
C	Material certificate (only for electrode and grounding ring)
E	Water free treatment
F	Oil free treatment
J	w/ gasket for plastic piping
K	Tag on the terminal box (remote style only)
L	Wire on tag
P	Specific color finish

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

Flange style detector 250 to 300mm

Basic model No.		Selections				Optional Selections				Options	
MGH18F											
Diameter	250mm	250									
	300mm	300									
	350mm	350									
	400mm	400									
Lining material	PFA		P								
	ETFE		E								
Pipe connection	Flange JIS 10K		J1								
	Flange JIS 16/20K		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								
Flange material	Standard		1								
	Others		2								
Electrode material	SS316L		L								
	Hastelloy C		C								
	Titanium		K								
	Zirconium		H								
	Tantalum		T								
	Tungsten carbide		W								
Grounding ring material	SS316L protruded		1								
	SS316		S								
	Hastelloy C		C								
	Titanium		K								
	Others		<input type="checkbox"/>								
Electrical connection/ Watertight gland	Integral style		1								
	Remote style	G1/2 internal thread/ w/o watertight gland		2							
		G1/2 internal thread/ w/ brass (Ni-plated) watertight gland		3							
		G1/2 internal thread/ w/ plastic watertight gland		4							
		1/2 NPT internal thread/ w/o watertight gland		5							
	CM20 internal thread/ w/o watertight gland		6								
	Pg13.5 internal thread/ w/o watertight gland		7								
	G1/2 internal thread/ w/ SS304 watertight gland		8								
Face to face dimension	Standard		A								
	Others		<input type="checkbox"/>								
Installation Wiring	Integral style		H								
	Remote style	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	Standard calibration		A								
	Others		<input type="checkbox"/>								

Y	Yamatake Version (Must be selected)
A	Test report
B	Traceability certificate
C	Material certification (only for electrode and grounding ring)
E	Water free treatment
F	Oil free treatment
J	w/ gasket for plastic piping
K	Tag on the terminal box (remote style only)
L	Wire on tag
P	Specific color finish

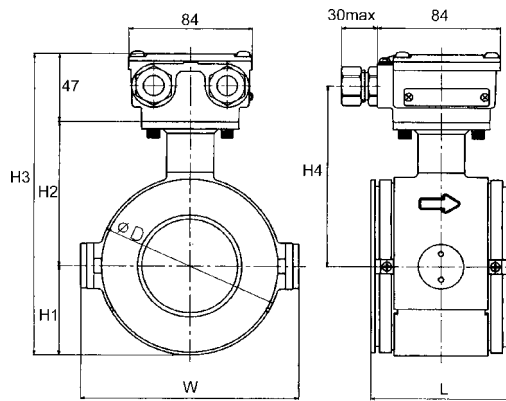
X	Finish	Standard finish
1		Corrosion-resistant finish
2		Corrosion-proof finish

**DIMENSIONS**

**Wafer style**

**Size: 40 to 200mm**

(Unit: mm)

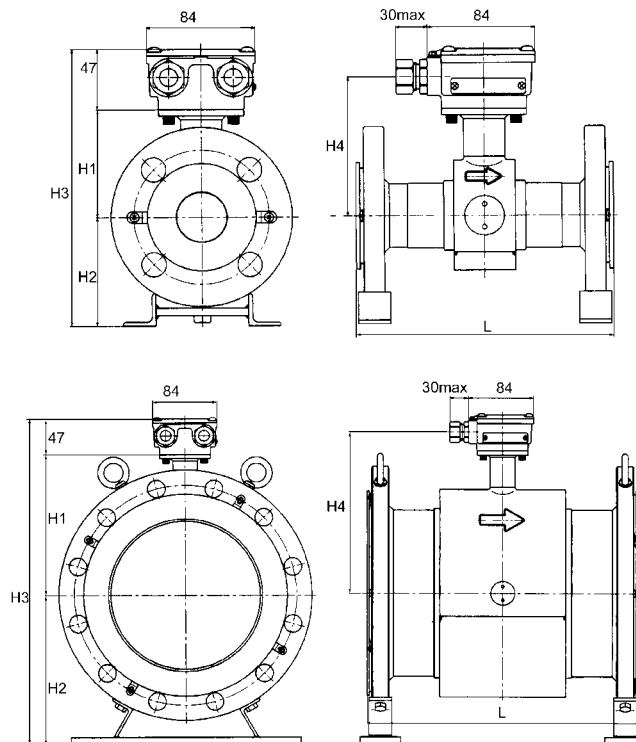


Size		40	50	80	100	150	200
Face to face dimension mm	L	80	86	106	120	160	200
	H1	84	93	108	120.5	160	185
Height mm	H2	43.5	52	67	79.5	110	135
	H3	174.5	192	222	247	317	367
	H4	109	118	133	145.5	240	210
Housing width mm	W	125	135	164	189	240	290
Housing outer diameter mm	φ D	87	104	134	159	220	270
Weight (kg)		2.8	3.4	5.2	6.7	13.6	22.0

**Flange style**

**Size: 40 to 400mm**

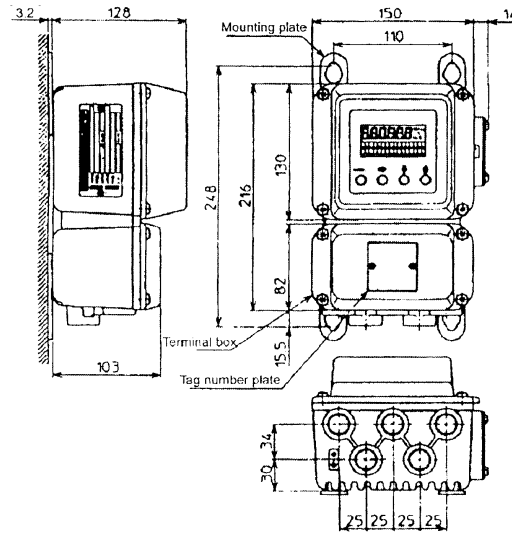
(Unit: mm)



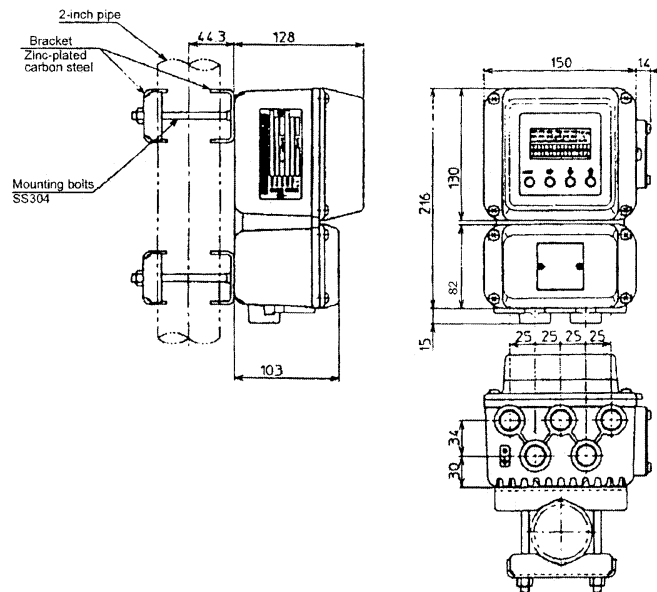
Size		40	50	80	100	150	200	250	300	350	400
Face to face dimension mm	L	200	200	200	250	300	350	450	500	550	600
	H1	84	93	108	120.5	160	185	235	258	282	310
Height mm	H2	85	90	67	79.5	110	135	221	250	273	321
	H3	216	230	222	247	317	367	503	555	602	678
	H4	109	118	133	145.5	240	210	260	283	307	335
Weight (kg)		6.5	8.5	12.6	18.4	32.6	48.0	60.0	73.0	96.0	128.0

**Converter**  
**Wall mount type**

(Unit: mm)



**2-inch pipe mount type**



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