

MagneW 3000

Electromagnetic Flowmeter Detectors (Remote Type)

Model KID20B (Sanitary Type)

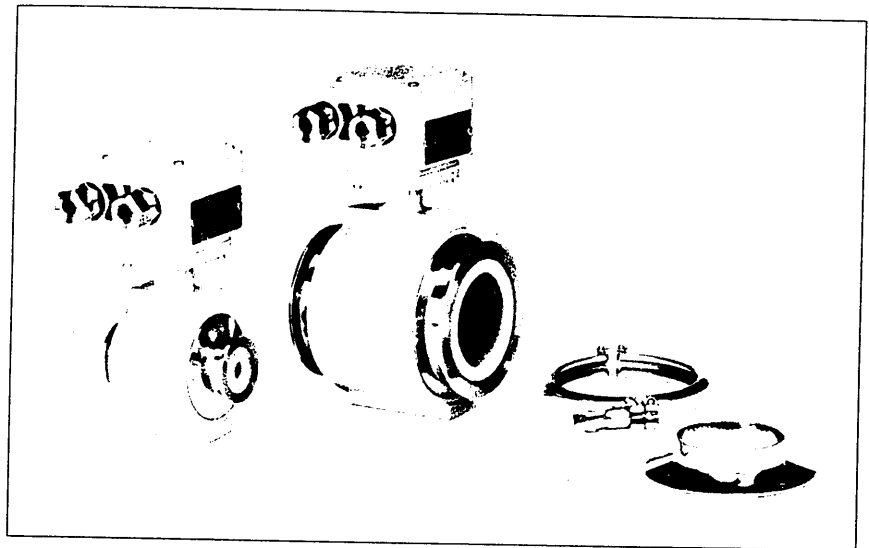
Introduction

The MagneW3000 Electromagnetic Flowmeters are extremely compact and light, and can lay claim to being a new generation instrument. They render high measuring accuracy and stability. Model KID20B sanitary-type detector, a key component of the flowmeter, is designed to fully satisfy applications requiring high-level sanitary standards in dairy, fermentation, and other industries.

Features of Electromagnetic Flowmeters

The features of electromagnetic flowmeters in general (quoted from JIS Z8764) are as follows:

- 1) Volumetric measurement of a liquid flow can be done without being influenced by changes in temperature, pressure, density, or viscosity of the liquid being measured.
- 2) Measurement is not affected by conductivity change, provided that conductivity is above a minimum level. Therefore, irrespective of the type of liquid measured, calibration can be done with the actual flow of water at normal temperature.
- 3) Liquids which contain solid suspensions can also be measured.
- 4) Pressure loss caused by measurement is practically zero.
- 5) The output signal is linearly proportional to the actual flow, starting from zero flow.
- 6) Only a short length of straight pipe is required at the upstream side of the detector as compared with those required by other types of flowmeters.
- 7) Structure without moving parts assures fast response.



Features of the MagneW3000 Sanitary Type Detectors

The outstanding features of the MagneW3000 Sanitary Type Detectors are as follows:

- 1) The MagneW3000 employs a square wave excitation system, thereby providing excellent zero-point stability and eliminating zero-point shift that could be caused by stain of electrodes.
- 2) The practical measuring range accuracy is $\pm 0.5\%$ of rate.
- 3) The detectors are extremely compact and light, and provide a very high magnetizing efficiency—all products of their design which employs a Finite Element Method magnetic field analysis (concentrated magnetic field system).
- 4) Adopted for piping connection are IDF clamps highly facile for mounting or demounting.
- 5) The compact and light detectors are very convenient for installation and maintenance.
- 6) Pipe interior structure is completely free from moving mechanical parts or other items that obstruct liquid flow, thus being ideal for CIP washing applications.
- 7) The MagneW3000 is available either in an integral type or remote type. Conversion between the two is possible.
- 8) The lining is made of Teflon PFA and embedded with an integral punched plate structure (patent No. 129514), making the MagneW 3000 highly resistant to sharp changes in heat, steam, and vacuum pressures.

Measurable Liquids

Any liquids, provided that their electrical conductivity is $3\mu\text{S}/\text{cm}$ or higher, can be measured irrespective of their properties or states (viscosity, temperature, pressure, or slurry).

Water: Tap water, mineral water

Foods: Beer, milk, juice, sauce, wine

Viscous liquids: Jam, yogurt

Instrument Specifications

Item	Specification
Size (Diameter)	15 (0.5"S), 25 (1"S), 40 (1.5"S), 50 (2"S), 80 (3"S), 100 (4"S) mm
Materials	Case: Aluminium alloy Lining (Noncolored): Teflon PFA Electrodes (Internal insertion type): SUS316L
Case structure	Equivalent to NEMA4, IEC IP66, JIS C0920 water-proof type
Finish	Acryl baked finish (Corrosion-resistant finish)
Finish color	Light beige (Munsell 4Y7.2/1.3)
Pipe connection parts	Welded type ferrule: SUS304 (#400 mirror surface finish for wet-part) Clamp band: IDF standard Gasket: Silicone rubber (Product that satisfactorily passed foods sanitation tests)

Installation Specifications

Ambient temperature	-30 to +80°C
Ambient humidity	10 to 90% RH
Pipe connection	IDF clamp
Cable connection	G ¹ / ₂ , CM20, ¹ / ₂ NPT internal thread
Cables (Between detector and converter)	Signal cable: 2-core individually double-shielded cable (Yamatake-Honeywell standard KIW 0.75mm ² , outside dia. 11.4mm), or equivalent cable (CVVS, CEEV, etc.) Cable for excitation current: Chloroprene cable 2RNCT, JIS C3327 (2mm ² , outside dia. 11.4mm) or equivalent cable (vinyl-sheathed cable CVV JIS C3401, etc.)
Cable length	Up to 300 meters (Cable length is limited by detector size and electrical conductivity of measured liquid. For details, refer to specification sheet for the dedicated cables for MagneW SS2-5662-0100.)
Mounting angle	The two electrodes to be in mutually horizontal position
Ground	JIS Class 3 ground (Ground resistance not greater than 100 ohms)

Fluid Specifications

Fluid temperature	-40 to +160°C (Up to +150°C for steam disinfection)
Fluid pressure	-1 to +10kgf/cm ² G
Flow velocity ranges	0 - 0.1m/s to 0 - 10m/s (as used in conjunction with KIX converter) 0 - 0.3m/s to 0 - 9.999m/s (as used in conjunction with KIC converter)
Electrical conductivity of fluid	3 μS/cm or over

Performance Specification

Accuracy	±0.5% of rate (For more information, refer to the spec. sheets of the converter)
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Flow Conversion Table

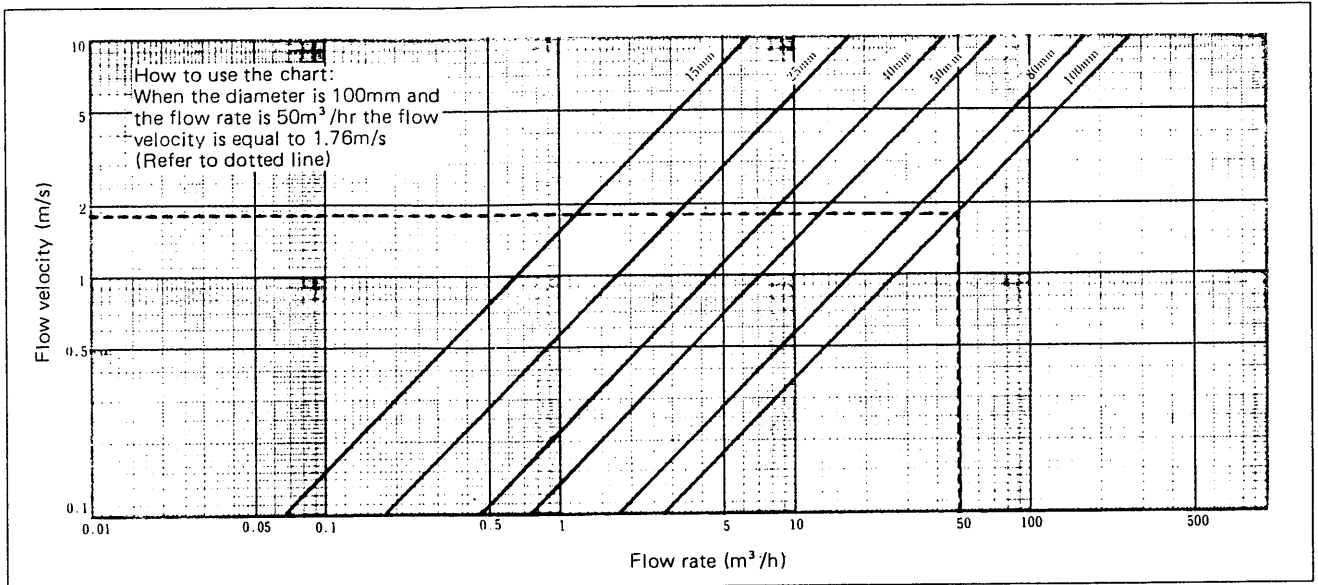
$$V = K \times Q \text{ [V: Flow velocity (m/s); Q: Flow rate (m}^3\text{/h)}]$$

$$K: \text{ Flow conversion factor } \left[\frac{1}{3600} \times \frac{4}{\pi D^2} \right]$$

Example: When size is 50mm and flow rate is 20m³/h
 $V = 0.1415 \times 20 = 2.830 \text{ [m/s]}$

Size (mm)	Flow conversion factor K	Flow span (m ³ /h) Q	Flow velocity (m/s) V
15 (0.5"S)	1.572	0.0636 to 6.36	0.1 to 10
25 (1"S)	0.5659	0.177 to 17.7	
40 (1.5"S)	0.2210	0.452 to 45.2	
50 (2"S)	0.1415	0.707 to 70.7	
80 (3"S)	0.05526	1.81 to 181.0	
100 (4"S)	0.03537	2.83 to 283.0	

Maximum Flow Velocity Conversion Chart



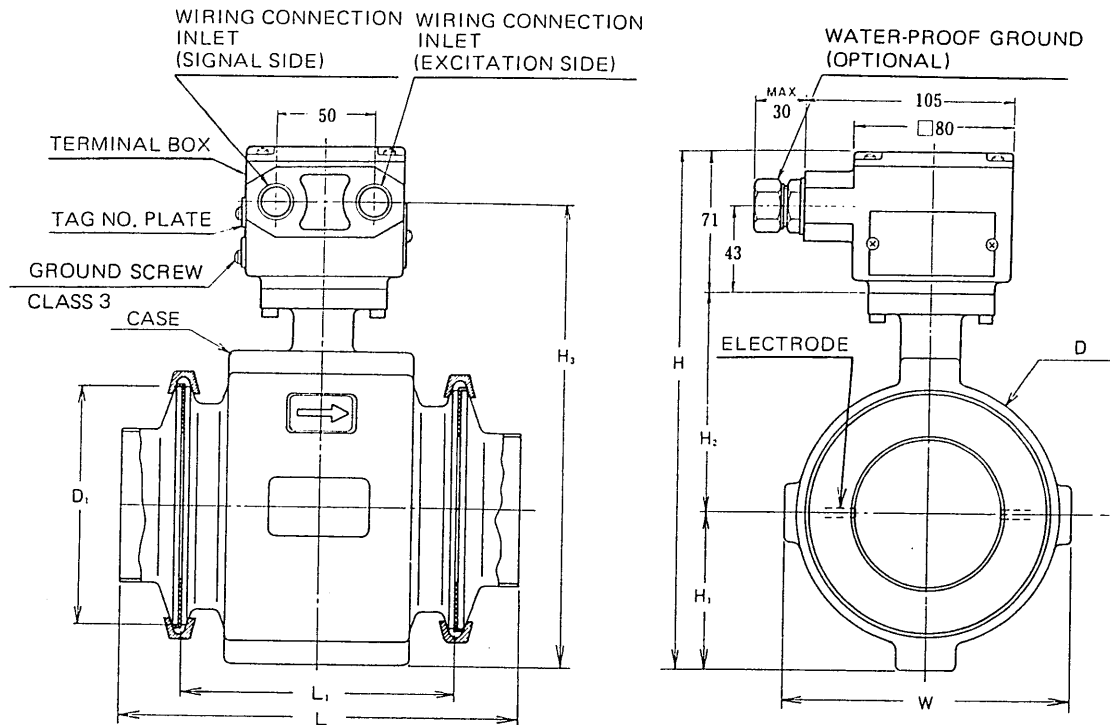
Model Number Table

Ex: KID20B-0050PL51XV-1

Basic Model No.	Selections							Description
	Size	Lining Material	Electrode Material	Process Pipe Connection	Ground Ring	Conduit Connection	Additional Specifications	
	I	II	III	IV	V	VI	VII	
KID 20B								Sanitary type detector
	-0015							15mm (0.5"S)
	-0025							25mm (1"S)
	-0040							40mm (1.5"S)
	-0050							50mm (2"S)
	-0080							80mm (3"S)
	-0100							100mm (4"S)
		P						Teflon PFA
			L					SUS316L
				51				IDF clamp
					X			None
						V		G ¹ / ₂ internal thread
						W		CM20 internal thread
						Y		1/2NPT internal thread
								Type with water-tight gland cannot be selected.
						-X		None
						-1		SUS304 water-tight gland
						-2		Plastic water-tight gland

Dimension Drawing

(Unit: mm)



Size (Diameter)		15 (0.5"S)	25 (1"S)	40 (1.5"S)	50 (2"S)	80 (3"S)	100 (4"S)
Face-to-face	L	193	169	169	175	197	211
	L_1	110	110	110	116	138	197
Height	H	214	214	214	230	258	282
	H_1	55	55	55	64	78	90
	H_2	88	88	88	95	109	121
	H_3	186	186	186	202	230	254
Case width	W	104	104	104	114	144	168
Case OD	D	86	86	86	102	132	156
	D_1	50.5	77.5	77.5	91	119	130
Weight (kg)		3.7	4.5	4.4	5.2	8.4	9.2

Note: The above dimensions are applicable to unit body only (welded type ferrule, clamp band, and gasket are excluded).

Ordering Information

When ordering, please specify:

- 1) Model number
- 2) Additional specifications
- 3) Condition fluid being measured
 - Name of fluid
 - Temperature range
 - Range of flow rate
 - Pressure range
 - Conductivity

Specifications are subject to change without notice.