

# MagneW3000 Hyper

## Integral style Electromagnetic Flowmeter for Filling Machines

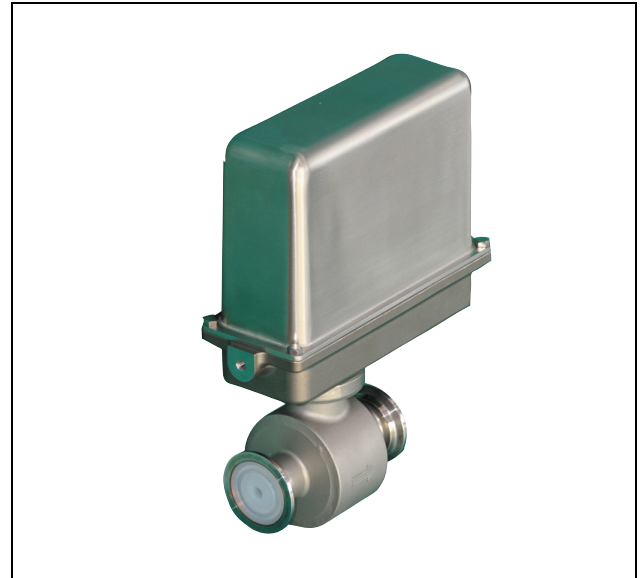
### Model MGR11A

#### OVERVIEW

The MagneW3000 Hyper, developed on the cutting edge of technology, is an electromagnetic flowmeter exclusively for integration with a filling machine. The MagneW3000 Hyper meets the complex needs of customers as a flowmeter for filling machines, with excitation and sampling technology to realize high-level repeatability and compact flowmeter structure to minimize the installation space for the filling machine.

#### FEATURES

- Highly repeatable measurement technology satisfies high speed filling applications. It is applicable to filling machines with a filling amount of 100 ml or more and filling time of 0.5 s or more. The cases for the converter and detector are made of 100% stainless steel and a compact all-in-one structure is adopted.
- Space requirement for a filling machine is reduced, thereby realizing an improvement of flexibility in installation position.
- It has realized a structure that enables an easy connection to the filling machine with an R3/4 internal thread by eliminating the terminal box. The detector body has also been miniaturized, allowing users to reduce installation space for a filling machine with many heads.
- Our patented master/slave method has eliminated interference among flowmeters even for an installation of a short-pitch detector, and is thereby reliable for filling machines with many heads. A filling machine with up to 169 heads can be handled. (The minimum inter-piping distance is 94 mm.)



#### APPLICATIONS

The MagneW3000 Hyper can be used with filling machines for PET bottles, cans, barrels, packs and others. The fluid condition is as follows.

##### **Conductivity**

50  $\mu\text{S}/\text{cm}$  (Repeatability varies depending on the conductivity.)

##### **Temperature:**

0 to 100°C (non condensing)

##### **CIP temperature**

140°C for steam sterilization, Maximum one hour/day

##### **Filling flow rate**

50 to 300 ml/s

##### **Fluid:**

Must be non abrasive fluid that is electrically homogeneous and does not corrode stainless steel. (water, soft drink, carbonated drink, wine, beer, etc.)  
Contact us separately to use the product for fluids containing solids (e.g. orange juice with fruit pulp) or isotonic drinks.

**SELECTION OF GASKET**

EPDM and Kalrez are available as optional materials for gaskets. Select one of them in accordance with the following conditions.

**EPDM gasket:**

Used for cleaning at a temperature under 120°C. EPDM tends to be less resistant than Kalrez to SIP. EPDM gaskets generally have better anti-corrosion characteristics than silicon gaskets for CIP. However, they may need to be changed periodically depending on the chemical agent for cleaning.

**Kalrez gasket:**

Used for SIP at a temperature under 150°C or for frequently-performed CIP. Kalrez gaskets are less swelling and have better anti-corrosion characteristics than silicon and EPDM gaskets and thus can be used for longer periods.

**STANDARD SPECIFICATIONS****Detector Specification**

8 mm, 15 mm

**Structure**

IEC PUBL529 IP67, NEMA ICS6-110 TYPE4X

**Material of Body****Measuring Pipe**

SCS14 (equivalent to SUS316)

**Case**

SCS13A

**Process Wetted Material:****Lining**

PFA

**Electrode**

SUS316L

**Ferrule for Welding (select from option)**

SUS316L

**Gasket**

EPDM (hardness 90)

(certified products and materials by safety inspection tests in conformity with Food Sanitation Law)

Kalrez (hardness 90)

(acceptable product from the food sanitation test, select from option)

**Electrode Structure**

Interpolation electrode (non-removable)

**Converter Specification****Structure:**

IEC PUBL529 IP67, watertight model

**Body Material****Case Material:**

SCS13A

**Cover material:**

SUS304

**Main Power Supply**

DC24 V ± 10%

**Power Consumption**

Less than 6 W

**Output Signal**

Pulse output, open collector pulse output (NPN)  
(contact capacity DC12-24 V/50 mA)

**Pulse Weight**

0.05 ml/p

**Pulse Width**

30 μs

**Span Frequency**

6000 Hz

**Range Setting**

300 ml/s (fixed)

**Damping Time Constant**

0.1 s (fixed)

**Sampling Cycle**

6 ms typ.

**Dropout**

3% (fixed)

**Inrush Current:**

6A typ.

10 mA Max (63.2% damping)

**Installation specification****Process Fluid Temperature**

0 to 100°C

**Process Fluid Pressure**

-0.1 to 1 MPa

**Process Fluid Corrosiveness**

Fluid should not be corrosive to stainless steel  
SUS316L and PFA.

**Process Fluid Abrasiveness**

Fluid should not be abrasive.

**Bubble Incorporation**

Bubbles should be eliminated by applying pressure on fluid since it may affect the accuracy.

**Cleaning Temperature**

140°C, No longer than one hour/day

**Ambient Temperature**

-5 to 50°C

**Ambient Humidity**

10 to 90%RH

**Wiring Connection**

R3/4 internal thread connection

**Straight Pipe Length for the Upstream Side**

Ensure the straight pipe length by 15D (120 mm) or longer with a stainless pipe (inside diameter 8 mm).

**Mounting**

Ferrule connection with ISO clamps for 1S  
(Secure with supporting screws for converter as needed.)

**Grounding**

Grounding resistance  
lower than 100ohms from the internal ground terminal

**Weight**

3.2 kg

**Reference performance****Standard Reproducibility**

Tap water of 20°C (conductivity 160 μS/cm), the performance regulation based on our standard conditions. Performance varies depending on the equipment structure.

Vs = Velocity of setting range

| Capacity | Filling time | Repeatability |
|----------|--------------|---------------|
| 2000ml   | 12s          | σ=1g          |
| 500ml    | 4s           | σ=4g          |

σ represents the standard deviation and is calculated as follows:

$$\sigma = \sqrt{\{\Sigma(\text{measured value "n"} - \text{mean value of number of "n"})^2\} / (n-1)}$$

**Measurable Electrical Conductivity:**

At least 50 μS/cm (Repeatability varies depending on the conductivity.)

**Measurable Flow Range**

50 ml/s to less than 300 ml/s

**Installation Criteria**

- This flowmeter requires consulting services individually depending on the piping condition and installation condition of the filling machine to which this flowmeter is connected, and the measurement fluid. If you are considering connecting your flowmeter to a filling machine, contact your local office of Yamatake.
- To maximize the performance of this equipment, select an optimum installation site based on the following criteria for selecting an installation site.
- Customers are responsible for waterproofing the R3/4 internal thread.
- Various factors including application, fluid type, steam sterilization and CIP degrade the sealing performance of gaskets. Change the gaskets periodically.

**Cautions after installation:**** Warning**

- **Check whether residual fluid and/or residual pressure remain in the pipes and the detector before removing this equipment. Failure to do so may cause injury.**

**Precaution regarding the ambient environment**

- Avoid selecting an ambient environment that can corrode stainless steel.
- When performing a welding operation near this equipment, be sure to connect the power supply transformer for welding to a ground.

**Precaution regarding the measurement fluid**

- Install this equipment in a place where the following conditions are met. Failure to do so may cause output errors and fluctuations.
- Where the measurement fluid can ensure necessary conductivity (which varies depending on which converter is to be connected) for the measurement and the distribution of the conductivity can be considered as homogeneous.
- Where the measurement fluid can be considered as electrically homogeneous. For example, if two types of fluid are mixed in the piping for the upstream, the ideal place should be somewhere where you can consider that the two types of fluid have been homogeneously mixed.
- Where the distribution of the mixture can be considered to be homogeneous if any mixture exists.

### MODEL SELECTIONS

Integral style Electromagnetic Flowmeter for Filling Machines MagneW3000 Hyper  
 Model MGR11A - I- II III IV V - Options

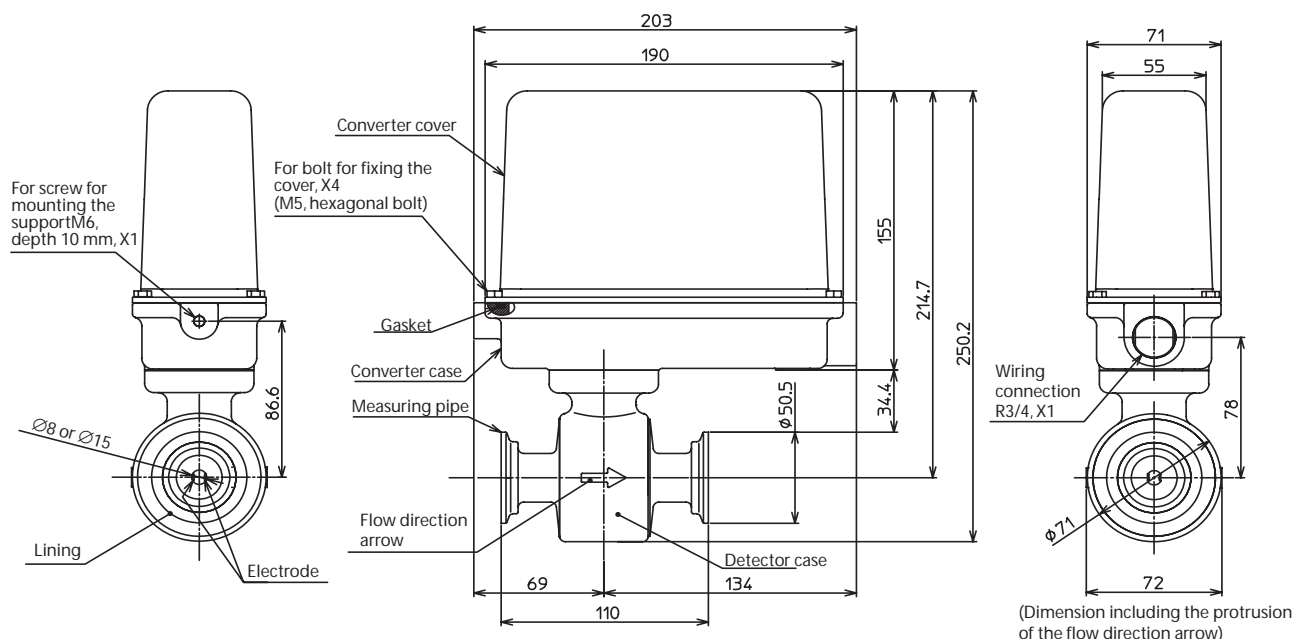
| Basic model no. |                          | -              |  | Selections |     | Optional selections |  | - |  |
|-----------------|--------------------------|----------------|--|------------|-----|---------------------|--|---|--|
|                 | MGR11A                   |                |  |            |     |                     |  |   |  |
| I               | Customized specification | Standard model |  | GE         |     |                     |  |   |  |
| II              | Detector diameter        | 8mm            |  |            | 008 |                     |  |   |  |
|                 |                          | 15mm           |  |            | 015 |                     |  |   |  |
| III             | Electrode material       | SUS316L        |  |            |     | L                   |  |   |  |
| IV              | Gasket material          | EPDM           |  |            |     | T                   |  |   |  |
|                 |                          | Kalrez         |  |            |     | K                   |  |   |  |
| V               | Converter classification | Master         |  |            |     |                     |  | M |  |
|                 |                          | Slave          |  |            |     |                     |  | S |  |

Options

|         |                           |   |
|---------|---------------------------|---|
| Options | No option                 | X |
|         | Traceability certificates | B |
|         | With TAG No               | C |
|         | Ferrules for piping       | D |

### DIMENSIONS

[Unit: mm]



Specifications are subject to change without notice.

**azbil**

Yamatake Corporation  
 Advanced Automation Company

1-12-2 Kawana, Fujisawa-shi  
 Kanagawa-ken 251-8522 Japan

URL: <http://www.azbil.com>

No part of this publication may be reproduced or duplicated without the prior written permission of Yamatake Corporation.

May 2009-Y/Y