

## GENERAL

**MAGMAX<sup>®</sup>** EGS2000 is less expensive, general purpose flange type primary head of electromagnetic flowmeters with Polypropylene liner and Hard rubber liner suitable for water, sewage and hot water.

25 to 1000 mm sizes are available.

EGS2000 is used in combination with **MAGMAX<sup>®</sup>** series converter of electromagnetic flowmeter.

## FEATURES

- ❑ Polypropylene liner (Size : 25 to 150 mm) achieved high-durability and high-heat resistance. Suitable for water, sewage, and hot water for process temperature up to 90°C.
- ❑ Hastelloy C<sup>®</sup> electrodes as standard.
- ❑ ASME, JIS, DIN flanges are available including high pressure services.
- ❑ High accuracy of  $\pm 0.5\%$  of reading.
- ❑ Protection class IP68, against submersion is also available.

## STANDARD SPECIFICATION

### General Specification

- Converter for combination : **MAGMAX<sup>®</sup>** series Converter  
EGC300F/W, EGC100W or others
- Excitation : Square wave
- Nominal size : 25, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, and 1000 mm  
(For size over 1000 mm, consult TOKYO KEISO.)
- Measuring range : Flow velocity  
Min. 0 to 0.3 m/s  
Max. 0 to 12 m/s  
Flow rate  
Min. 0 to 0.531 m<sup>3</sup>/h  
(Minimum flow at 25 mm size)  
Max. 0 to 33928 m<sup>3</sup>/h  
(Maximum flow at 1000 mm size)
- Protection class : IIP66/67 and IP68 as an option  
(IEC 60529)
- Body material  
Measuring tube : Stainless steel (SS304)  
Primary head housing : Carbon steel<sup>(\*)</sup> [Standard]<sup>(\*)</sup>  
[Option] Stainless steel/SS304  
Flanges : Carbon steel<sup>(\*)</sup> [Standard]  
[Option] Stainless steel/SS316L  
Terminal box : Aluminum alloy<sup>(\*)</sup>

(\*) Anti-corrosive painting

(\*) When the size is 25 to 40mm and the wetted part lining is hard rubber: Cast duplex stainless steel.



### Wetted part material

Liner : [Standard]

Size 25 to 150 mm ; Polypropylene

Size 200 to 1000 mm ; Hard rubber

[Option]

Hard rubber (Size 25 to 150 mm)

Note: Refer to the "LINER MATERIAL AND FLANGE."

Electrode : Hastelloy C22<sup>®</sup> [Standard]

[Option] Stainless steel/SS316

Earth ring : [Option] Stainless steel/SS316 and others.

### Painting

: Siloxane coating

### Color

: Grey (Primary head housing / Terminal box housing)

Jade green (Terminal box cover)

### Cable entry

: 2 × G1/2 female thread

2 × 1/2 NPT female thread

2 × M20 with watertight glands

(Option : Watertight glands for G1/2)

### Power supply

: Supplied from converter

### Ambient temperature

: -40 to +65°C (For operation)

-50 to +70°C (For storage)

### Grounding

: Grounding resistance must be less than 100Ω

### Process connection

: Flange connection

### Flanges

: JIS10K/20K, ASME class 150/300,

DIN PN40/16/10

Note: Refer to the "LINER MATERIAL AND FLANGE."

### Fluid Specification

- Temperature : Polypropylene liner: -5 to 90°C  
Hard rubber liner: -5 to 80°C
- Pressure : Subject to pressure and temperature rating of the flanges.  
Note: The allowable pressure and temperature differ with the liner material.  
Refer to "FLUID TEMPERATURE AND PRESSURE RANGE" for details.

- Conductivity : 20 µS/cm or more

Note: The minimum conductivity is restricted according to the kind of the converter to combine and the length of electrode signal cable. Refer to the Technical Guidance for Converter.

### Accuracy

±0.5% of reading

Note: Refer to the Technical Guidance for Converter as details.

## FLUID TEMPERATURE AND PRESSURE RANGE

### Fluid Temperature

Liner	Nominal size (mm)	Temperature
Polypropylene	25 to 150	-5 to +90°C
Hard rubber	25 to 1000	-5 to +80°C

### Maximum Pressure

Liner	Nominal size (mm)	Pressure MPa *1
Polypropylene	25 to 80 (Except 65mm)	4.0
	65, 100 to 150	1.6
Hard rubber	25 to 1000	15

\*1 Maximum operating pressure must be within the flange rating pressure.

The value on this table indicates maximum pressure which can be manufactured.

Consult TOKYO KEISO for details.

### Permissible Vacuum Load

\*2 : Vacuum not acceptable - : Not applicable

Liner	Nominal size (mm)	Minimum pressure kPa (abs) / Fluid temp.			
		40°C	60°C	80°C	90°C
Polypropylene	25 to 150	25	40	40	*2
	25 to 300	25	40	40	-
Hard rubber	350 to 1000	50	60	60	-

## FLOW RANGE

Nominal size (mm)	Possible setting range (m³/h)		Nominal size (mm)	Possible setting range (m³/h)	
	Min. (Velocity : 0 to 0.3 m/s)	Max. (Velocity : 0 to 12 m/s)		Min. (Velocity : 0 to 0.3 m/s)	Max. (Velocity : 0 to 12 m/s)
25	0 to 0.531	0 to 21.2	300	0 to 76.4	0 to 3053
40	0 to 1.36	0 to 54.2	350	0 to 104	0 to 4156
50	0 to 2.13	0 to 84.8	400	0 to 136	0 to 5428
65	0 to 3.59	0 to 143	450	0 to 172	0 to 6870
80	0 to 5.43	0 to 217	500	0 to 213	0 to 8482
100	0 to 8.49	0 to 339	600	0 to 306	0 to 12214
125	0 to 13.3	0 to 530	700	0 to 416	0 to 16624
150	0 to 19.1	0 to 763	800	0 to 543	0 to 21714
200	0 to 34.0	0 to 1357	900	0 to 688	0 to 27481
250	0 to 53.1	0 to 2120	1000	0 to 849	0 to 33928

**LINER MATERIAL AND FLANGE**

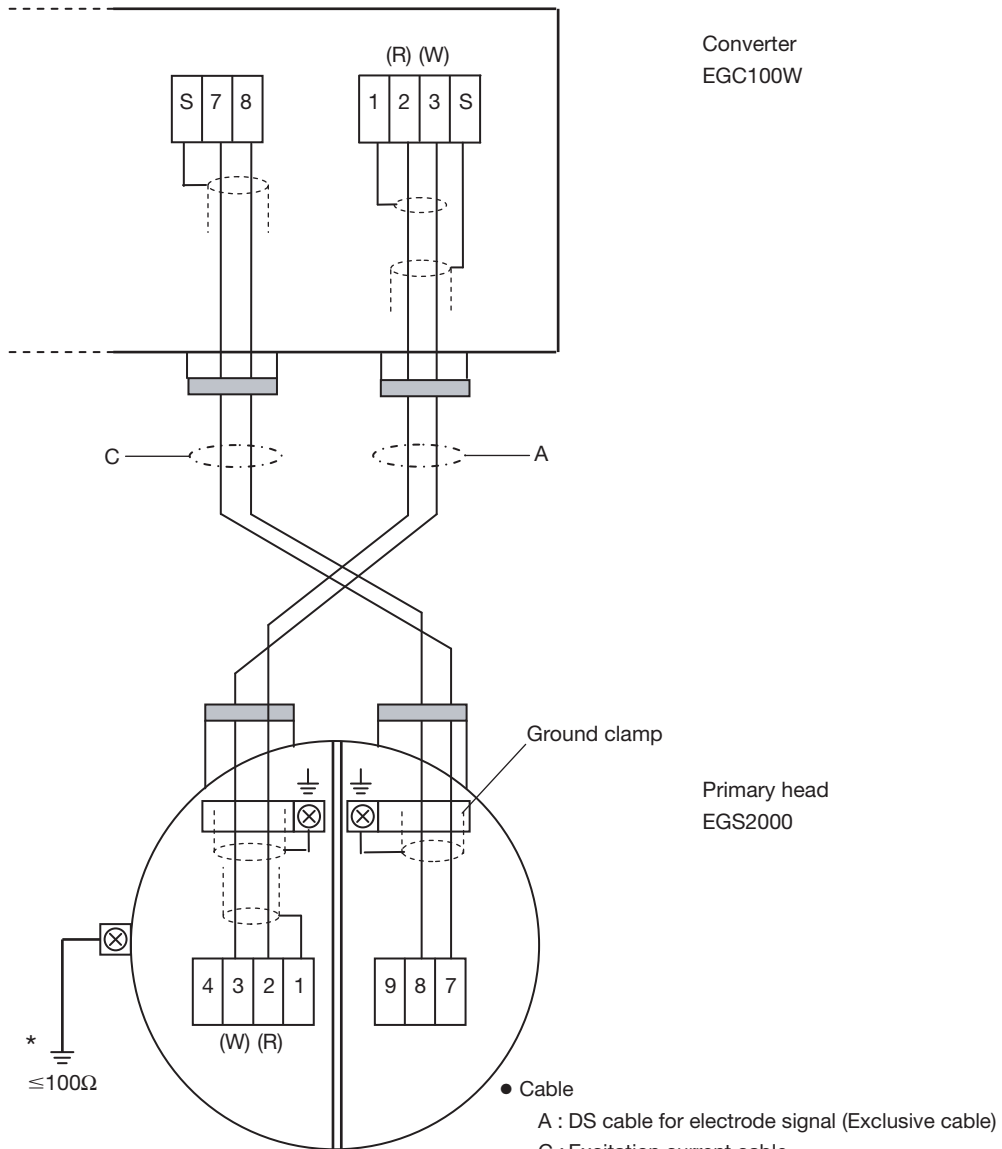
◎ : Standard    ○ : Option    - : Not applicable

Flange rating	Liner	Nominal size (mm)																			
		25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
JIS10K*	Polypropylene	◎	◎	◎	◎	◎	◎	◎	◎	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
JIS20K	Polypropylene	◎	◎	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	-	-	-	-
ASME class 150	Polypropylene	◎	◎	◎	◎	◎	◎	◎	◎	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
ASME class 300	Polypropylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	-	-	-	-
DIN PN10	Hard rubber	-	-	-	-	-	-	-	-	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
DIN PN16	Polypropylene	-	-	-	◎	-	◎	◎	◎	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	-	-	-	○	-	○	○	○	○	○	○	○	○	○	○	○	-	-	-	-
DIN PN25	Polypropylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	-	-	-	○	-	○	○	○	○	○	○	○	○	○	○	○	-	-	-	-
DIN PN40	Polypropylene	◎	◎	◎	-	◎	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hard rubber	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	-	-	-	-

\* JIS20K flange is provided for nominal size 25 and 40 mm as standard.  
 (Installation dimensions of JIS20K flange are equal to JIS10K except the flange thickness.)

**ELECTRICAN CONNECTION DIAGRAM**

Following diagram shows the interconnection diagram between the primary head and EGC100W converter as an example. See the relevant technical guidance when other type of converter is interconnected.



Colors in ( ) show sheath color of cores.  
 (R): Red, (W): White

- Cable
  - A : DS cable for electrode signal (Exclusive cable)
  - C : Excitation current cable
  - 2 cores × 0.75 to 2.5 mm<sup>2</sup> with shield
  - (To be supplied by customer)
- Terminal : Spring clamp terminal
- \* Connect to the ground using the grounding wire in cross-section area from grounding terminal.
- (To be supplied by customer)

Terminal No.	Description
1	Electrode signal output
2	
3	
4	Not used
7	Exciting current input
8	
9	Not used
S	Shield
⊥	Grounding

**Cable length between Primary head and Converter**

- The maximum length of electrode signal cable \*1

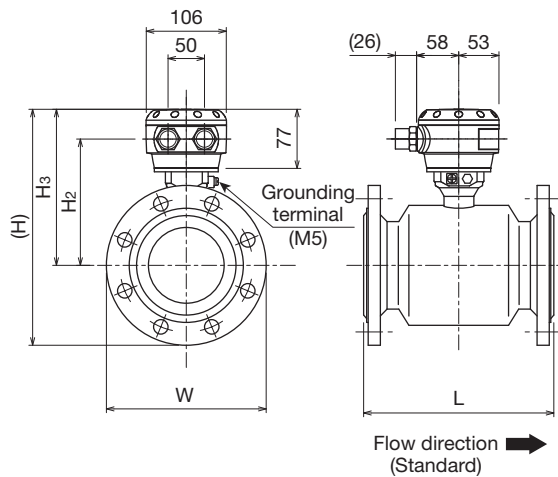
Converter	Cable *2	size (25 to 150mm)	size (200 to 1000mm)
EGC300F/W	A	600m	
	B	600m	
EGC100W	A	600m	

\*1 The maximum length of electrode signal cable is subject to the fluid conductivity also. Refer to the technical guidance of converter to be connected.

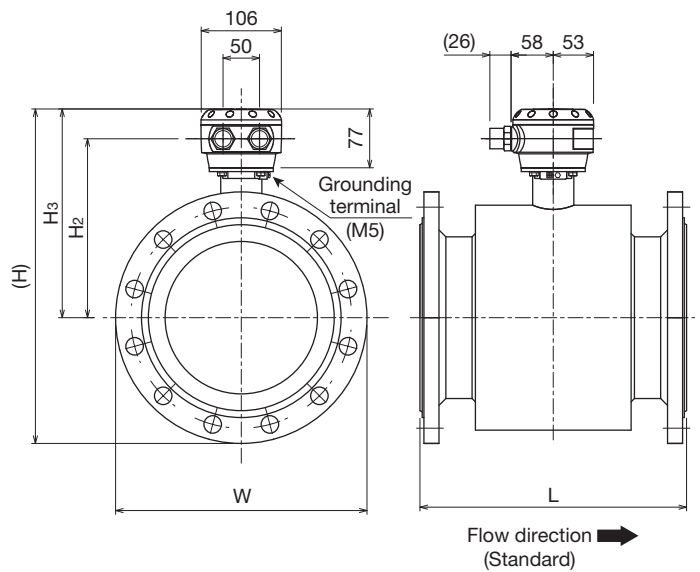
\*2 The electrode signal cable A : When DS cable is used  
 B : When BTS cable is used

**DIMENSIONS**

Nominal size: 25 to 150 mm



Nominal size: 200 to 1000 mm



Nominal size (mm)	Dimensions (mm)							Mass (kg)	
	L *1		(H)		H2	H3	W *2	Mass (kg)	
	JIS 10K	ANSI 150	JIS 10K	ANSI 150				JIS 10K	ANSI 150
25	150	150	223	215	125	161	90	8	9
40	150	150	238	232	132	168	105	9	10
50	200	200	257	256	144	180	120	9	10
65	200	200	266	267	148	184	140	11	12
80	200	200	279	281	150	186	150	13	14
100	250	250	309	318	168	204	175	16	19
125	250	250	343	345	182	218	210	20	23
150	300	300	374	373	198	234	240	23	27
200	350	350	441	447	240	276	291	35	44
250	400	400	497	500	261	297	331	49	65
300	500	500	544	563	286	322	381	59	96
350	500	700	589	610	308	344	428	79	130
400	600	800	650	668	334	370	483	99	167
450	600	800	705	712	359	395	533	118	187
500	600	800	759	770	385	421	585	129	224
600	600	800	874	882	440	476	694	165	307
700	700	-	987	-	499	535	812	246	-
800	900	-	1101	-	555	591	922	329	-
900	1000	-	1203	-	607	643	1026	426	-
1000	1200	-	1313	-	659	695	1132	508	-

\*1 1) Dimension L does not include earth rings thickness.

2) Total overall length (L') with earth rings is as follows.

$$L' = L + 2 \times (3+t) \text{ mm}$$

t : Gasket thickness between the liner and earth ring \*

\* In case of install the earth ring, gaskets are also needed between the primary head liner side and earth ring.

3) Dimension L is for JIS10K and ASME class150 flange. Consult TOKYO KEISO for other flanges.

\*2 Dimension W indicates external dimension of housing

**MODEL AND SPECIFICATION CODE**

● Nominal size : 25 to 150 mm

Model : EGS2000

Primary head Spec. code	V	N	1	4	4				0	0	1			0	0	0		0	2	0	0	0	0	0	0	Description	Standard
Primary head code	V	N	1	4																					Flange type	○	
(Fixed code)				4																					always 4	○	
Nominal size				4																					25 mm	○	
				6																					40 mm	○	
				7																					50 mm	○	
				8																					65 mm		
				A																					80 mm	○	
				B																					100 mm	○	
				C																					125 mm		
Flange																									150 mm	○	
				3																					DIN PN16		
				4																					DIN PN25		
				5																					DIN PN40		
				A																					ASME class 150		
				B																					ASME class 300		
				M																					JIS 20K		
(Fixed code)																									JIS 10K (For size 50 mm or more) *1	○	
																									Others		
				0																					always 0	○	
	Terminal box / Cable entry				4																					Aluminum alloy / 1/2 NPT female thread	
					5																					Aluminum alloy / 1/2 G female thread	○
					6																					Aluminum alloy / M20 with watertight glands	
					9																					Others	
Type				0																					Separate type	○	
Liner																										Polypropylene	○
																										Hard rubber	
Electrode material																										Stainless steel (SS316)	
																										Hastelloy® C22	○
Construction of electrode																										Fixed mounting	○
Primary head housing / Flange material																										Carbon steel / Carbon steel *4	○
																										Carbon steel / Stainless steel (SS316L)	
Protection class																										IP66/67	○
																										IP68	
(Fixed code)																										always 00	○
Calibration																										Standard calibration	○
Earth ring																										None	○
																										Stainless steel (SS316) *2	
																										Others *2	
(Fixed code)																									always 02000000	○	
Special feature																										(Blank) None	○
																									/Z	Involved *3	

\*1 JIS20K flange is provided for nominal size 25 and 40 mm as standard.  
 (Installation dimensions of JIS20K flange are equal to JIS10K except the flange thickness.)  
 Select JIS20K flange (Code:M) for size 25 or 40 mm.

\*2 The earth rings are to be installed between primary head and connection flanges on installation.  
 (Refer to the remarks for "DIMENSIONS" table)

\*3 Add code "/Z" to a series of above mentioned codes with explanation for the other requirements not mentioned above code table.  
 Do not hesitate to consult TOKYO KEISO Co., Ltd. before ordering for such requirements.

\*4 When the size is 25 to 40mm and the wetted part lining is hard rubber, the material of primary head housing become cast duplex stainless steel.

● Nominal size : 200 to 600 mm

Model : EGS2000

Primary head Spec. code	V	N	1	5	4				0	0	1			0	0	0	0	0	2	0	0	0	0	0	0	0	Description	Standard
Primary head code	V	N	1	5																						Flange type	○	
(Fixed code)					4																					always 4	○	
Nominal size						E																				200 mm	○	
						F																				250 mm	○	
						G																				300 mm	○	
						H																				350 mm		
						K																				400 mm		
						L																				450 mm		
						M																				500 mm		
					N																				600 mm			
Flange						2																				DIN PN10		
						3																				DIN PN16		
						4																				DIN PN25		
						5																				DIN PN40		
						A																				ASME class 150		
						B																				ASME class 300		
						M																				JIS 20K		
						N																				JIS 10K	○	
Use purpose						9																				Others		
					0																					General type	○	
						4																				Aluminum alloy / 1/2 NPT female thread		
						5																				Aluminum alloy / 1/2 G female thread	○	
Terminal box / Cable entry						6																				Aluminum alloy / M20 with watertight glands		
						9																				Others		
Type					0																					Separate type	○	
Liner						0																				Hard rubber	○	
Electrode material						1																					Stainless steel (SS316)	
						3																					Hastelloy® C22	○
Construction of electrode						1																				Fixed mounting	○	
Primary head housing / Flange material						1																					Carbon steel / Carbon steel	○
						3																					Carbon steel / Stainless steel (SS316L)	○
Protection class						0																					IP66/67	○
						1																					IP68 *5	
(Fixed code)									0	0																always 00	○	
Calibration																					0						Standard calibration	○
Earth ring																											None	○
																											Stainless steel (SS316) *2	
																											Others *2	
(Fixed code)																										always 02000000	○	
Special feature																										(Blank)	None	○
																										/Z	Involved *3	

\*2 The earth rings are to be installed between primary head and connection flanges on installation.

(Refer to the remarks for "DIMENSIONS" table)

\*3 Add code "/Z" to a series of above mentioned codes with explanation for the other requirements not mentioned above code table.

Do not hesitate to consult TOKYO KEISO Co., Ltd. before ordering for such requirements.

● Nominal size : 700 to 1000 mm

Model : EGS2000

Primary head Spec. code	V N 1 6 4					0 0	1		0 0 0	0 2 0 0 0 0 0 0		Description	Standard
Primary head code	V N 1 6											Flange type	○
(Fixed code)	4											always 4	○
Nominal size	P											700 mm	
	R											800 mm	
	S											900 mm	
	T											1000 mm	
Flange	2											DIN PN10	
	A											ASME class 150	
	N											JIS 10K	○
	9											Others	
Use purpose	0											General type	○
Terminal box / Cable entry	4											Aluminum alloy / 1/2 NPT female thread	
	5											Aluminum alloy / 1/2 G female thread	○
	6											Aluminum alloy / M20 with watertight glands	
	9											Others	
Type	0											Separate type	○
Liner	0											Hard rubber	○
Electrode material	1											Stainless steel (SS316)	
	3											Hastelloy® C22	○
Construction of electrode	1											Fixed mounting	○
Primary head housing / Flange material	1											Carbon steel / Carbon steel	○
	3											Carbon steel / Stainless steel (SS316L)	
Protection class	0											IP66/67	○
	1											IP68 *5	
(Fixed code)								0 0				always 00	○
Calibration									0			Standard calibration	○
Earth ring	0											None	○
	1											Stainless steel (SS316) *2	
	9											Others *2	
(Fixed code)									0 2 0 0 0 0 0 0			always 02000000	○
Special feature	(Blank)											None	○
	/Z											Involved *3	

\*2 The earth rings are to be installed between primary head and connection flanges on installation.

(Refer to the remarks for "DIMENSIONS" table)

\*3 Add code "/Z" to a series of above mentioned codes with explanation for the other requirements not mentioned above code table.

Do not hesitate to consult TOKYO KEISO Co., Ltd. before ordering for such requirements.

## STANDARD ACCESSORIES

- Instruction manual : 1

## OPTION

- G1/2 watertight glands for cable entry : 1 set [Symbol : WG]

## ORDERING INSTRUCTIONS

Specify the following when ordering :

1. Model and spec. code

Example : Model : EGC2000

Spec. code : VN1447N0500311000002000000

2. Option (Specify if necessary.)

Specify the symbol with reference to the option.

3. Fluid name

\* Specification is subject to change without notice.

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