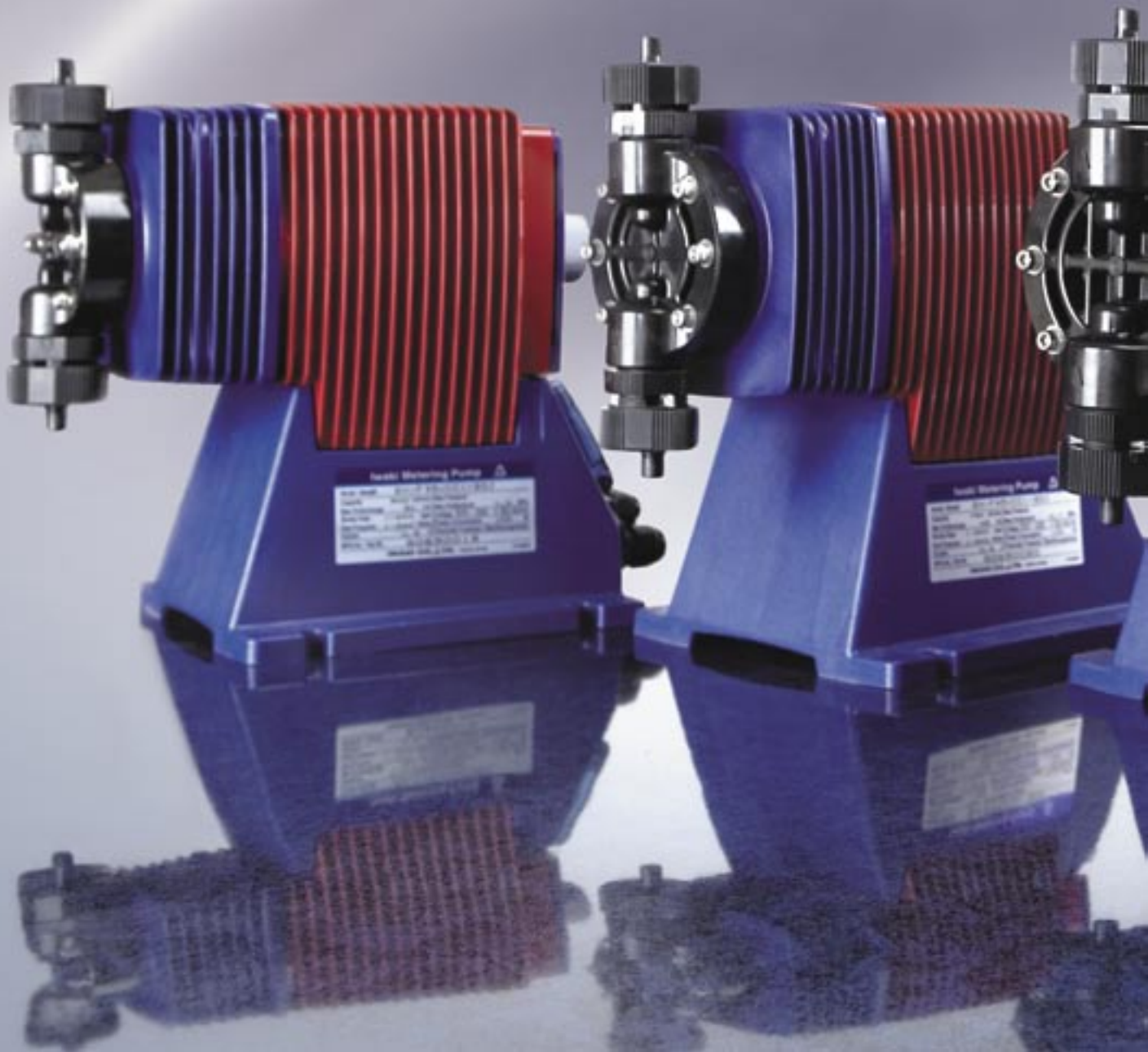


Electromagnetic metering pumps **EH-F** type



The largest electromagnetic metering pump available, with a max. flow of 2 L/min.

EH-F pump is the largest electromagnetic metering pump currently available, with a max. discharge capacity of 2 L/min. CPU built-in controller has analog input for 0-20mA and also pulse signal input functions, which allow automatic control methods such as analog proportional and pulse multiply/divide. With the new EH-F model, IWAKI'S EH Series electromagnetic metering pumps now can cover a wide range of flow from max. 38 mL/min. up to 2 L/min.



Outdoor use

The pump has an enclosure rating of IP65 and can be installed outdoors. This enables a wide range of application when both incorporated on other equipment and individually installed in industrial facilities.

Superior controllability

The controller CPU enables four modes of function of manual, analogue proportional, dividing ($n : 1$) and multiplying ($1 : n$).

Low cost and simple auto-control

Low cost and simple automatic control is possible since control signals feed directly into the pump, eliminating the need for electric stroke length servo controls and variable speed motor drives. The elimination of this additional hardware reduces cost considerably.

Wide variety of pump heads

Standard pump head materials are PVC and GFRPP (glass fiber reinforced polypropylene). PVC pump heads are available with either hose or flange types to meet your piping requirements.



CPU-equipped automatic pump controller



Operation mode

1 Manual operation

Pump stroke rate can be adjusted via key pad by 1 spm steps from 1 to 240 spm. The stroke rate can be set both while the pump is operating or stationary.

2 Analogue proportional control

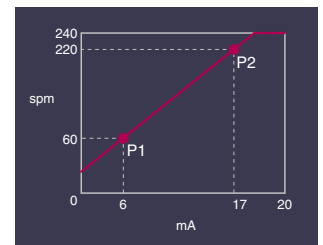
Two modes of analogue control are available - fixed (ANA. R) and variable (ANA. V).

● Analogue fixed mode

Stroke rate is controlled proportionally to the external current input signal (DC4-20, 20-4, 0-20 and 20-0mA).

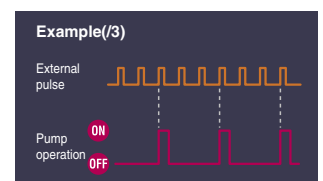
● Analogue variable mode

If two optional points are set in the range of 0-20mA, the stroke rate between the two points can be controlled proportionally. (Note) 0 mA may not correspond to 0 spm, depending on the setting. Ask us for details.



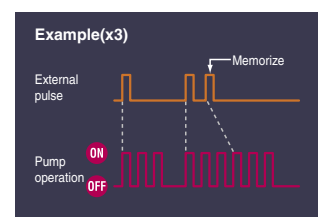
3 Divide control operation

Divide control operation is achieved by external pulse signal. Pump gives one shot against "n" times pulse input. "n" can be set from 1 to 9999 pulses.



4 Multiply control operation

Multiply operation is achieved by external pulse signal. Pump makes "n" times shots against one pulse input. "n" can be set from 1 to 9999 pulses. If pulses continue during the multiply operation, they are stored in the buffer memory up to max. 65535 pulses.

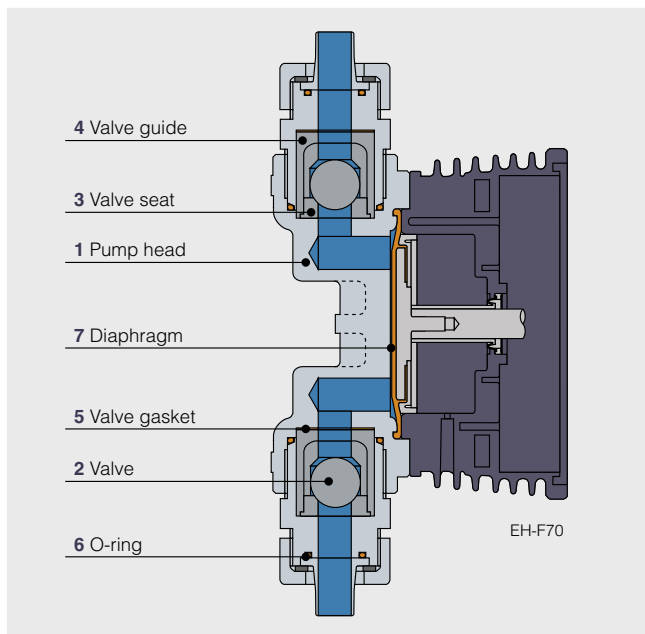


Robust pump body and IP65 water-proof

Wet end materials

Material symbol	VC	V6	PC
1 Pump head	PVC	PVC	GFRPP
2 Valve	Alumina ceramic	SUS316	Alumina ceramic
3 Valve seat	FKM	EPDM	FKM
4 Valve guide	PVC	PVC	GFRPP
5 Valve gasket	PTFE	PTFE	PTFE
6 O-ring	FKM	EPDM	FKM
7 Diaphragm	PTFE+EPDM	PTFE+EPDM	PTFE+EPDM

(Note) EPDM of diaphragm is not wet-end.



Model code

EH - F 45 VC C1 - 10A - □□

1 2 3 4 5 6 7

1 Series code	
2 Drive unit code	F: 100W (Average power consumption)
3 Diaphragm effective dia	35: 35mm 45: 45mm 55: 55mm 70: 70mm
4 Wet-end material code	Refer to material table.
5 Connection code	C1: $\phi 10 \times \phi 16$ PVC hose C3: $\phi 15 \times \phi 22$ PVC hose C10: JIS10K15A flange C10T: JIS10K15A flange (Elbow flange type)
6 Voltage code	10A: AC115V single phase 20A: AC230V single phase
7 Special version code	Special configuration



Specifications of pump

Model		EH-F35	EH-F45	EH-F55	EH-F70
Max. capacity	mL/min	500	750	1200	2000
	mL/shot	0.83 - 2.08	1.25 - 3.13	2.00 - 5.00	3.33 - 8.33
Max. discharge pressure	MPa	1.0	0.7	0.45	0.3
connection	Hose	ø10×ø16mm	ø10×ø16mm	ø10×ø16mm	ø15×ø22mm
	Flange	JIS10K15A (VC, V6 only)	JIS10K15A (VC, V6 only)	JIS10K15A (VC, V6 only)	JIS10K15A (VC, V6 only)
Stroke rate	spm	1 - 240	1 - 240	1 - 240	1 - 240
Stroke length	%	40 - 100	40 - 100	40 - 100	40 - 100
Average power consumption	W	100W	100W	100W	100W
Power supply (for both 50/60Hz)		AC115V (allowable AC104-126V) single phase, AC230V (allowable AC207-253V) single phase			
Mass	kg	16	16	16	16

● Liquid temp. range VC, V6 type: 0 - 40 °C PC type: 0 - 60 °C

● Standard accessories EH-F35, 45 : Check valve CA-3 type EH-F55, 70: Back pressure valve BV type.

(Note 1) Discharge capacity is the figure at max. discharge press. (Stroke length 100%, Stroke rate 240 spm).

At low pressure the pump discharges larger capacity than shown on above table.

(Note 2) Performance mentioned as above is based on pumping clean water at ambient temp. at rated power voltage.

(Note 3) PC type has no flange connection type. Only hose connection type is available.

(Note 4) Special painting and explosion proof model is not available.

Specifications of controller

Operation mode	MAN (Manual operation)	1 - 240 spm	
	EXT (Ext signal operation) Selectable among four on right.	DIV (Dividing)	/ 1 - 9999
		MULT (Multiply)	× 1 - 9999
		ANA.R(Analog fix)	DC4 - 20, 0 - 20, 20 - 4, 20 - 0mA
Main function	ANA.V(analog variable)	Two points DC0.0 - 20.0mA, Range 0 - 240 spm	
	STOP	Pump stops when STOP signal comes in.	
	Key lock	Lock, unlock of key operation	
Input	Pulse	Potential free contact Max. 100Hz (Note 1)	
	Current	DC0 - 20mA (Input resistance 200Ω)	
	STOP	Potential free contact (Note 2)	
Output	spm synchronous output	Photo MOS relay AC/DC24V 0.1A	

(Note 1) Max. frequency of input pulse is 100Hz. Max. frequency depends on the setting of chattering. Ask us for details.

(Note 2) Max. allowable voltage to contact is DC5V, DC1.9mA current. When a contact such as relay is used, use it of min. load of 1mA or lower.

A variety of pump accessories to support pump performance

Check valve/Back pressure valve

These are installed when differential pressure is small between discharge and suction sides. Differential pressure must be 0.13MPa or more.

If it is below 0.13MPa, the valves built-in pump can not do effective checking which makes over-feeding.

Check valve CA type



Model	Connection		Setting pressure MPa	Wet-end materials			Applicable pump	Material symbol
	IN	OUT		body	spring	O-ring		
CA-3VCH-C1	ø10xø16 hose	R1/2	0.17±0.04	PVC	Hastelloy C276	FKM	EH-F35, 45	VC
CA-3VEH-C1	ø10xø16 hose	R1/2	0.17±0.04	PVC	Hastelloy C276	EPDM	EH-F35, 45	V6
CA-3VH-C1	ø10xø16 hose	R1/2	0.17±0.04	GFRPP	Hastelloy C276	FKM	EH-F35, 45	PC
CA-4VC-C1	ø10xø16 hose	R3/4	0.17±0.04	PVC	Hastelloy C276	FKM	EH-F55	VC
CA-4VE-C1	ø10xø16 hose	R3/4	0.17±0.04	PVC	Hastelloy C276	EPDM	EH-F55	V6
CA-4V-C1	ø10xø16 hose	R3/4	0.17±0.04	PP	Hastelloy C276	FKM	EH-F55	PC
CA-4VCL-C3	ø15xø22 hose	R3/4	0.05±0.03	PVC	Hastelloy C276	FKM	EH-F70	VC
CA-4VEL-C3	ø15xø22 hose	R3/4	0.05±0.03	PVC	Hastelloy C276	EPDM	EH-F70	V6
CA-4VL-C3	ø15xø22 hose	R3/4	0.05±0.03	PP	Hastelloy C276	FKM	EH-F70	PC

Back pressure valve BV type



(Connection : hose type)



(Connection : flange type)

Model	Connection		Setting pressure MPa	Wet-end materials		Applicable pump	Material symbol
	IN	OUT		body	O-ring		
BV-1NV-C1RA	ø10xø16 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	PVC	FKM	EH-F35, 45	VC
BV-1NV-C10A	JIS10K15A flange	JIS10K15A flange	0.15 $\pm_{-0.08}^{+0.02}$	PVC	FKM	EH-F35, 45	VC
BV-1NE-C1RA	ø10xø16 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	PVC	EPDM	EH-F35, 45	V6
BV-1NE-C10A	JIS10K15A flange	JIS10K15A flange	0.15 $\pm_{-0.08}^{+0.02}$	PVC	EPDM	EH-F35, 45	V6
BV-1NPV-C1RA	ø10xø16 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	GFRPP	FKM	EH-F35, 45	PC
BV-3NV-C1RA	ø10xø16 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	PVC	FKM	EH-F55	VC
BV-3NV-C10A	JIS10K15A flange	JIS10K15A flange	0.15 $\pm_{-0.08}^{+0.02}$	PVC	FKM	EH-F55, 70	VC
BV-3NE-C1RA	ø10xø16 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	PVC	EPDM	EH-F55	V6
BV-3NE-C10A	JIS10K15A flange	JIS10K15A flange	0.15 $\pm_{-0.08}^{+0.02}$	PVC	EPDM	EH-F55, 70	V6
BV-3NPV-C1RA	ø10xø10 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	GFRPP	FKM	EH-F55	PC
BV-3NV-C3RA	ø15xø22 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	PVC	FKM	EH-F70	VC
BV-3NE-C3RA	ø15xø22 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	PVC	EPDM	EH-F70	V6
BV-3NPV-C3RA	ø15xø22 hose	R3/8, R1/2	0.15 $\pm_{-0.08}^{+0.02}$	GFRPP	FKM	EH-F70	PC

Air chamber/Accumulator

To avoid vibration of pipe or over-feeding by reducing pulsation which is peculiar to electro magnet metering pump.

Air chamber A type



Model	Connection		Capacity L	Wet-end materials		Applicable pump	Material symbol
	IN	OUT		Body	O-ring		
A-1VV	JIS10K15A Flange	JIS10K15A Flange	1.0	PVC	FKM	EH-F35, 45, 55, 70	VC
A-1VE	JIS10K15A Flange	JIS10K15A Flange	1.0	PVC	EPDM	EH-F35, 45, 55, 70	V6

Accumulator AQ type



Model	Connection		Capacity mL	Wet-end materials		Applicable pump	Material symbol
	IN	OUT		Body	O-ring		
AQ-4V-C1	ø10xø16 hose	ø10xø16 hose	66	PVC	FKM	EH-F35, 45	VC
AQ-4E-C1	ø10xø16 hose	ø10xø16 hose	66	PVC	EPDM	EH-F35, 45	V6
AQ-4PV-C1	ø10xø16 hose	ø10xø16 hose	66	GFRPP	FKM	EH-F35, 45	PC
AQ-10V-C1	ø10xø16 hose	ø10xø16 hose	164	PVC	FKM	EH-F55	VC
AQ-10E-C1	ø10xø16 hose	ø10xø16 hose	164	PVC	EPDM	EH-F55	V6
AQ-10PV-C1	ø10xø16 hose	ø10xø16 hose	164	GFRPP	FKM	EH-F55	PC
AQ-10V-C3	ø15xø22 hose	ø15xø22 hose	164	PVC	FKM	EH-F70	VC
AQ-10E-C3	ø15xø22 hose	ø15xø22 hose	164	PVC	EPDM	EH-F70	V6
AQ-10PV-C3	ø15xø22 hose	ø15xø22 hose	164	GFRPP	FKM	EH-F70	PC

Hose flange

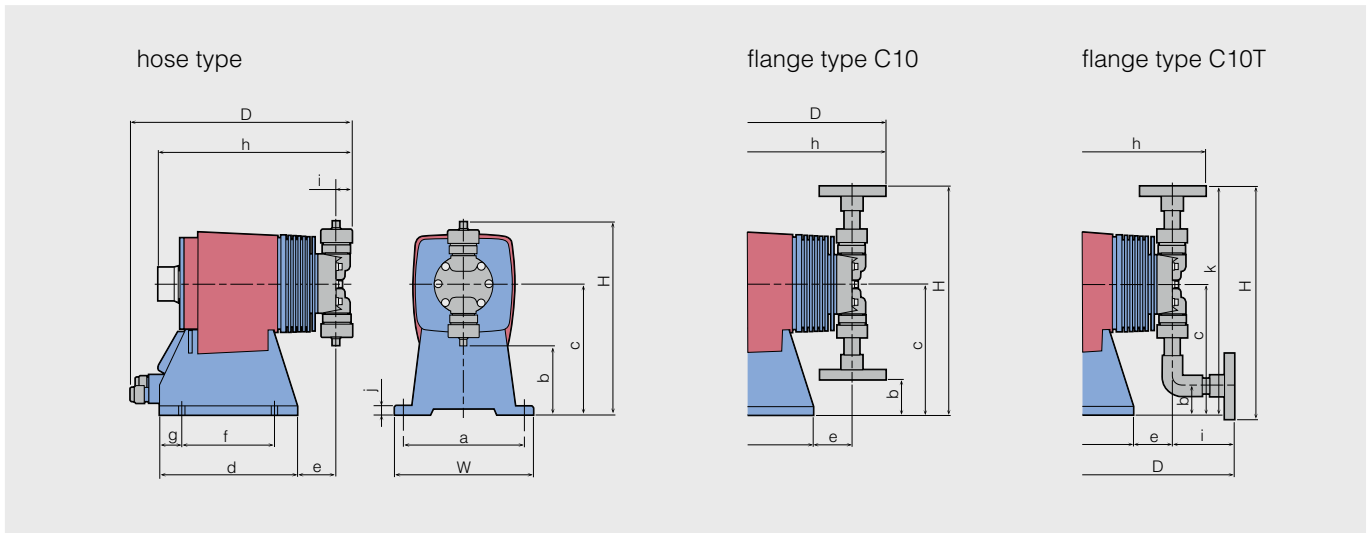
Convenient piping tool enabling to connect hose directly from flange.

Hose flange



Model	Connection		Wet-end materials		Applicable pump	Material symbol
	IN	OUT	Body	O-ring		
15HFVx10H	ø10xø16 hose	JIS10K15A	PVC	FKM	EH-F35, 45, 55	VC
15HFVx15H	ø15xø22 hose	JIS10K15A	PVC	FKM	EH-F70	VC
15HFEx10H	ø10xø16 hose	JIS10K15A	PVC	EPDM	EH-F35, 45, 55	V6
15HFEx15H	ø15xø22 hose	JIS10K15A	PVC	EPDM	EH-F70	V6

Dimensions in mm



hose type	W	H	D	a	b	c	d	e	f	g	h	i	j
EH-F35	200	(280)	(323)	175	(100)	190	202	(57.5)	135	32.5	(283)	22	12
EH-F45	200	(287)	(323.5)	175	(93)	190	202	(58)	135	32.5	(283.5)	22	12
EH-F55	200	(292)	(332.5)	175	(88)	190	202	(67)	135	32.5	(292.5)	22	12
EH-F70	200	(306.5)	(337.5)	175	(73.5)	190	202	(69)	135	32.5	(297.5)	25	12

flange type C10	W	H	D	a	b	c	d	e	f	g	h	j
EH-F35	200	(328.5)	(348.5)	175	(51.5)	190	202	(57.5)	135	32.5	(308.5)	- 12
EH-F45	200	(335.5)	(349)	175	(44.5)	190	202	(58)	135	32.5	(309)	- 12
EH-F55	200	(340.5)	(358)	175	(39.5)	190	202	(67)	135	32.5	(317.5)	- 12
EH-F70	200	(355.5)	(360)	175	(24.5)	190	202	(69)	135	32.5	(320)	- 12

flange type C10T	W	H	D	a	b	c	d	e	f	g	h	i	j	k
EH-F35	200	(332.5)	(390)	175	(43.5)	190	202	(57.5)	135	32.5	(308.5)	(89)	12	(328.5)
EH-F45	200	(346.5)	(390.5)	175	(36.5)	190	202	(58)	135	32.5	(309)	(89)	12	(335.5)
EH-F55	200	(356.5)	(399.5)	175	(31.5)	190	202	(67)	135	32.5	(317.5)	(89)	12	(340.5)
EH-F70	200	(386.5)	(401.5)	175	(16.5)	190	202	(69)	135	32.5	(320)	(89)	12	(355.5)

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()Country codes



Caution for safety use: Before use of pump, read instruction manual carefully to use the product correctly.

Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.