

## Electromagnetic metering pumps

# ES series



## Precise chemical injection at low cost

The ES Series electromagnetic metering pump offers precise chemical injection at an economical cost. Manual or on/off control for simple addition applications. Sophisticated engineering to provide effective, reliable performance.

### High speed operation

Up to 360 strokes per minute results in high resolution chemical feed, elimination of slug-feed effects.

### Compact size

Ideal for OEM specifications, ES pumps are small, quiet, and lightweight.

### Double ball check valves

The ball, seat and guide assembly ensures a tight seal to prevent loss of prime.

### Long lasting diaphragm

PTFE laminate over EPDM is molded onto a solid core. A retainer plate is provided to minimize flow rate changes as pressure varies.



B11/16/21, C16/21

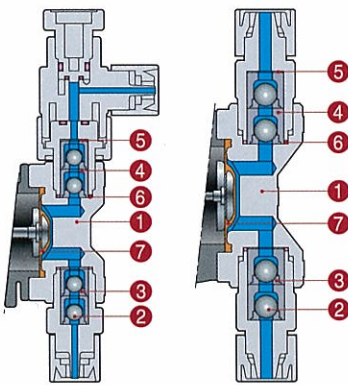
B31, C31/36

Wet-end part materials

Material symbol	VC	VH
1 Pump head	PVC	
2 Valve	Alumina ceramic	Hastelloy C276
3 Valve seat	FKM	EPDM
4 Valve guide	PVC	
5 Gasket	PTFE	
6 O-ring	FKM	EPDM
7 Diaphragm	PTFE coated EPDM	

Pump identification

ES - B 16 VC - 230N 1					
1	2	3	4	5	6
1 Series name				4 Wet-end part material symbol	VC, VH
2 Drive unit symbol	B : 16W			5 Power-supply voltage symbol	C : 22W
3 Diaphragm effective diameter	11 : 10mm	16 : 15mm			6 Hose connection (in mm)
	21 : 20mm	31 : 30mm			1 : 4 X 9
	36 : 35mm				3 : 6 X 8
					4 : 8 X 13
					5 : 9 X 12



Specifications

Model		B11	B16	B21	B31	C16	C21	C31	C36
Max.capacity	L/hr	2.28	3.9	5.7	12	4.8	7.8	16.2	24
	mL/min	38	65	95	200	80	130	270	400
	mL/shot	0.11	0.18	0.26	0.56	0.23	0.37	0.76	1.13
Max. discharge pressure	MPa	1.0	0.7	0.4	0.2	1.0	0.7	0.35	0.2
Stroke rate		0 - 360 spm							
Power supply		AC220 - 240V, single phase, 50Hz / 60Hz							
Insulation type, etc.		B type insulation and built-in thermal protector, with a 2.0m power cable, without plug							

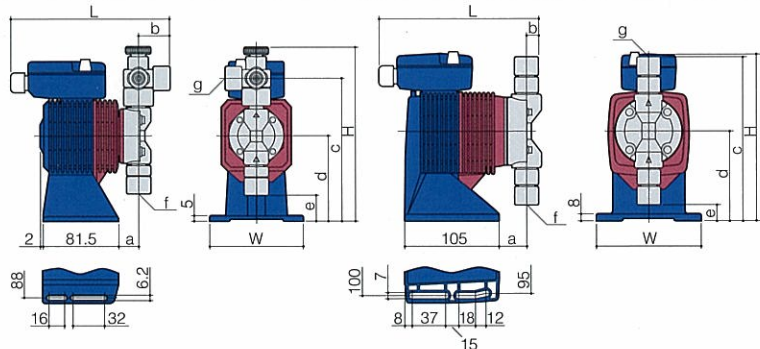
- Note:
- The max. discharge value in the table above represents the performance measured with clean water at max. discharge pressure, ambient temperature, and rated voltage. Actual discharge may increase if operation is conducted at a lower pressure.
  - Set the discharge pressure at 0.17 MPa or higher to prevent over-feeding trouble. (0.05 MPa or higher in the case of B31, C36.) If the pressure is to be lower than these levels, make sure to use a check valve or a back pressure valve, which is supplied as an optional item.
  - Range of liquid temperature : 0-40°C.
  - Range of the ambient temperature : 0-40°C.
  - Max. viscosity : Up to 50mPa·s. If the viscosity exceeds 50mPa·s, please contact us.

Dimensions in mm

Model	W	H	L	a	b	c	d	e	f & g Tubing
ES-B11	100	(184)	(178)	(25)	(37)	(150)	90	(26)	4 X 9, 6 X 8
ES-B16									8 X 13, 9 X 12
ES-B21									8 X 13, 9 X 12
ES-B31	116	(172)	(159)	(27)	16	-	100	(8)	4 X 9, 6 X 8
ES-C16									8 X 13, 9 X 12
ES-C21									8 X 13, 9 X 12
ES-C31	116	(186.5)	(177.5)	(29)	(16)	(182)	100	(18)	8 X 13, 9 X 12
ES-C36									8 X 13, 9 X 12

B11/16/21, C16/21

B31, C31/36



Optional accessory

Check valve

This has the function of a non-return valve and prevents siphon and overfeed.

CA : Available in PVC.

CB : In-line type to be connected in the middle of a hose; made of PVC.

Model	Connection		Set pressure MPa	Material			Applicable pump
	Inlet	mm Outlet		Body	Spring	O-ring	
CA-1VC	4x9	R3/8 and R1/2	0.17 ±0.04	PVC	Hastelloy C276	FKM	ES-B11, 16, 21
CA-1VE	6x8					EPDM	ES-C16, 21
CA-2VC	8x13 9x12					FKM	ES-C31
CA-2VE		0.05 +0.04 -0.03	EPDM	ES-B31			
CA-2VCL			FKM	ES-C36			
CA-2VEL					EPDM		

Note: Please contact us for the specifications of CB.

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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.

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