

## 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.

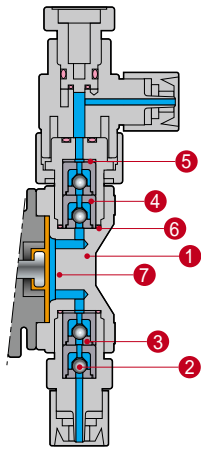
### Double ball check valves

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.





### 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 |                |

Note : Above illustration shows ES-B10, B15 & B20.

### Pump identification

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

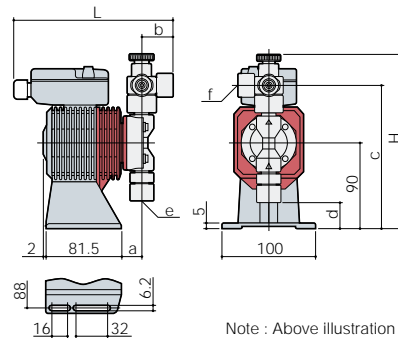
### Specifications

| Model                                 |         | B10   | B15  | B20  | B30            |
|---------------------------------------|---------|---|------|------|----------------|
| Max.capacity                          | L/hr    | 2.28  | 3.9  | 5.7  | 12             |
|                                       | mL/min  | 38  | 65   | 95   | 200            |
|                                       | mL/shot | 0.11  | 0.18 | 0.26 | 0.56           |
| Max. discharge pressure               | MPa     | 1.0   | 0.7  | 0.4  | 0.2            |
| Stroke rate                           |         | 0 - 360 spm   |      |      |                |
| Power supply                          |         | AC220 - 240V, single phase, 50Hz / 60Hz   |      |      |                |
| Insulation type, etc.                 |         | E type insulation and built-in thermal protector, with a 2.0m power cable, without plug |      |      |                |
| Connection (Applicable tube diameter) | mm      | 4 X 9, 6 X 8  |      |      | 8 X 13, 9 X 12 |

- The max. discharge value in the table above represents the performance measured with clean water at max. discharge pressure. Actual discharge may increase if operation is conducted at a lower pressure.
- Set the discharge pressure at 0.12 MPa or higher to prevent over-feeding trouble. (0.05 MPa or higher in the case of B30.) 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 : 0-50°C.
- Max. viscosity : Up to 50mPa·s. If the viscosity exceeds 50mPa·s, please contact us.

### Dimensions in mm

| Model  | H   | L   | a  | b  | c   | d  | e & f Tubing   |
|--------|-----|-----|----|----|-----|----|----------------|
| ES-B10 | 184 | 173 | 22 | 35 | 150 | 28 | 4 X 9, 6 X 8   |
| ES-B15 |     |     |    |    |     |    |                |
| ES-B20 | 171 | 158 | 26 | 16 | -   | 9  | 8 X 13, 9 X 12 |
| ES-B30 |     |     |    |    |     |    |                |



Note : Above illustration shows ES-B10, B15 & B20.

### Optional accessory

#### Check valve

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

**CA** : Available in PVC and CFRPP.

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

**CS** : Made of stainless steel.

| Model         | Connection |               | Set pressure<br>MPa | Material    |                |        | Applicable pump  |
|---------------|------------|---------------|---------------------|-------------|----------------|--------|------------------|
|               | Inlet mm   | Outlet        |                     | Body        | Spring         | O-ring |                  |
| CA-1VC (1V)   | 4x9        | R3/8 and R1/2 | 0.17 ± 0.04         | PVC (CFRPP) | Hastelloy C276 | FKM    | ES-B10, B15, B20 |
| CA-1VE (1E)   | 6x8        |               |                     |             |                | EPDM   |                  |
| CA-2VCL (2VL) | 8x13       | 9x12          | 0.05 +0.04 -0.03    | PVC (CFRPP) | Hastelloy C276 | FKM    | ES-B30           |
| CA-2VEL (2EL) | 9x12       |               |                     |             |                | EPDM   |                  |

Note: Please contact us for the specifications of CB and CS type.