

IWAKI  
ELECTROMAGNETIC  
METERING  
PUMPS

**ES**



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 provides effective, reliable performance.

**High speed operation**

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

**Compact size**

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

**Double ball check valves**

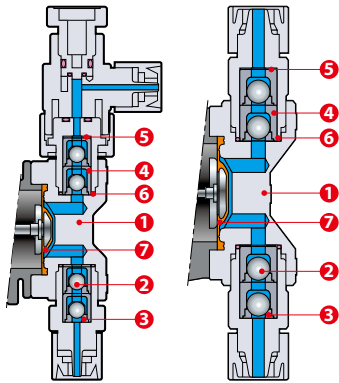
The precision ball, seat and guide assembly ensure tight sealing to prevent loss of prime.

**Long lasting diaphragm**

PTFE coated EPDM is molded onto a solid core. A retainer plate is used to prevent diaphragm deformation and flow rate variation at higher pressures.

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

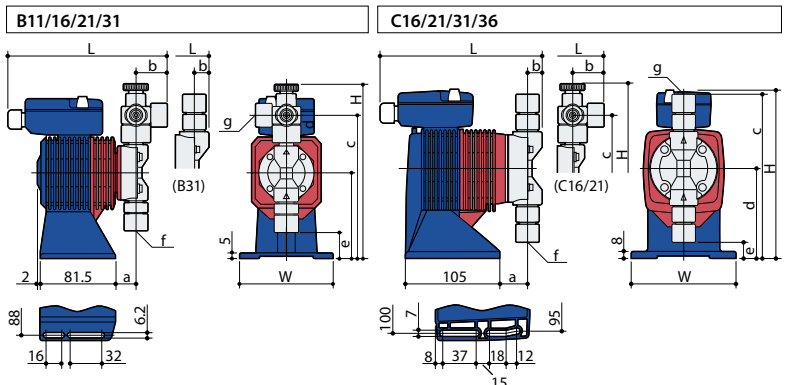
Specifications

| 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   |      |      |      | 0 - 353 spm |      |      |      |
| Power supply            |         | AC220 - 240V, single phase, 50Hz  |      |      |      |             |      |      |      |
| Current (Input)         |         | 0.5A  |      |      |      | 0.6A        |      |      |      |
| 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 6          |
| ES-B16 |         |       |         |      |       |         |        |      | 4 X 9, 6 X 8   |
| ES-B21 |         |       |         |      |       |         |        |      | 8 X 13, 9 X 12 |
| ES-B31 | 116     | (194) | (196.5) | (27) | (37)  | (160)   | 100    | (36) | 4 X 6          |
| ES-C16 |         |       |         |      |       |         |        |      | 4 X 9, 6 X 8   |
| ES-C21 |         |       |         |      |       |         |        |      | 8 X 13, 9 X 12 |
| ES-C31 |         |       |         |      |       |         |        |      | 8 X 13, 9 X 12 |
| ES-C36 | (186.5) | (177) | (28.5)  | (16) | (182) | (181.5) | (18.5) |      |                |



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  | 4x6          | R3/8 and R1/2 | 0.17 ±0.04       | PVC      | Hastelloy C276 | FKM    | ES-B11, 16, 21  |
| CA-1VE  | 4x9          |               |                  |          |                | EPDM   |                 |
| CA-2VC  | 6x8          |               |                  |          |                | FKM    | ES-C31          |
| CA-2VE  | 8x13<br>9x12 | EPDM          |                  |          |                |        |                 |
| CA-2VCL |              | FKM           | ES-B31<br>ES-C36 |          |                |        |                 |
| CA-2VEL |              | EPDM          |                  |          |                |        |                 |

Note: Please contact us for the specifications of CB models.

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

Legal attention related to export.

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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