IWAKI ELECTROMAGNETIC METERING PUMPS

EWN-R

Solutions for chemical handling applications
The EWN-R is the diaphragm type electromagnetic metering pump with a built-in multifunctional digital controller. Our technology makes the high-speed operation of 360spm available. The built-in controller that handles both digital and analogue signals controls operation in various ways. PVC, GFRPP, PVDF or SUS316 pump head is selectable. Also, special pump types for particular purposes are lined up. The user-friendly EWN-R will meet a wide variety of demands for chemical feeding.
High resolution
The stroke rate can be set with 1spm increments in between 1 and 360spm. The stroke length adjustment further assists fine adjustment that the stroke rate adjustment cannot reach. Contention precise chemical feeding is now available.

Multi voltage
The use of the multi voltage circuit design allows the pump to work anywhere in the world.

A wide variation
In addition to the standard type of PVC, GFRPP, PVDF or SUS316 pump head, B- or C-type drive unit and each diaphragm size, the high compression type for gaseous liquid transfer (sodium hypochlorite, etc), the high pressure type for power injection (boiler compounds, etc) and the high viscosity type for viscous liquid transfer (polymer liquid, etc) are available.

Built-in controller
The EWN-R has the mode of 1:1 operation, multiplier/divider programming control (digital signal) and proportional control (analogue signal) and can dedicate itself to a particular purpose by selecting a suitable mode. Also, the flow rate indication can be converted from 1spm to L/H or GPH.

Pump body
The use of the integrated controller reduces a sealing area, so that the water-/dust-proof design of IP65 is attained. Also, a plastic cover protects the control panel under an adverse environment.

Air vent valve
Rotating a standard air vent valve, the remained gas can be easily expelled from the pump head.

Multi hose connection
The use of a new hose stopper eliminates a twist in tube connection.
Technical data

Construction

Wet-end materials

<table>
<thead>
<tr>
<th>Wet-end material symbol</th>
<th>Pump head</th>
<th>Valve</th>
<th>Valve seat</th>
<th>O-ring</th>
<th>Diaphragm</th>
<th>Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC</td>
<td>PVC</td>
<td>Alumina ceramic</td>
<td>FKM</td>
<td>FKM</td>
<td>PTFE+EPDM</td>
<td>PTFE</td>
</tr>
<tr>
<td>VH</td>
<td>PVC</td>
<td>Hastelly C276</td>
<td>EPDM</td>
<td>EPDM</td>
<td>PTFE+EPDM</td>
<td>PTFE</td>
</tr>
<tr>
<td>PC</td>
<td>GFRPP</td>
<td>Alumina ceramic</td>
<td>FKM</td>
<td>FKM</td>
<td>PTFE+EPDM</td>
<td>PTFE</td>
</tr>
<tr>
<td>PH</td>
<td>GFRPP</td>
<td>Hastelly C276</td>
<td>EPDM</td>
<td>EPDM</td>
<td>PTFE+EPDM</td>
<td>PTFE</td>
</tr>
<tr>
<td>FC</td>
<td>PVDF</td>
<td>Alumina ceramic</td>
<td>PCTFE</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TC</td>
<td>PVDF</td>
<td>Hastelly C276</td>
<td>FKM</td>
<td>FKM</td>
<td>PTFE+EPDM</td>
<td>PTFE</td>
</tr>
<tr>
<td>SH</td>
<td>SUS316</td>
<td>Hastelly C276</td>
<td>SUS316</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Pump identification

- **Series symbol**: EWN-R series
- **Drive unit symbol**: EWN
- **Connection**: Blank: Ø4 x Ø6 (B09,B11,B16,B21,C16,C21) Ø9 x Ø12 (B31,C31,C36)
  For other option, please contact us.
- **Diaphragm diameter**: 09: 8mm 11: 10mm 16: 15mm 21: 20mm 31: 30mm 36: 35mm
- **Effective diaphragm dia.**
- **Wet-end material symbol**: For details, see the table of materials.
- **Controller function code**: R: Standard type
- **Controller function code**: H: High pressure type
- **Special version code**: E: With European cord
- **Special version code**: A: With Australian cord
- **Power code**: E: With European cord
- **Power code**: A: With Australian cord
- **Wet-end material symbol**: See table of materials.
- **Connection**
- **Special configuration code**: H2: High pressure type (2MPa)

For other option, please contact us.
Specifications of pump

<table>
<thead>
<tr>
<th>Model</th>
<th>B11</th>
<th>B16</th>
<th>B21</th>
<th>B31</th>
<th>C16</th>
<th>C21</th>
<th>C31</th>
<th>C36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>L/hr</td>
<td>mL/min</td>
<td>ml/shot</td>
<td>MPa</td>
<td>Max. pressure</td>
<td>% stroke rate</td>
<td>% stroke length range</td>
<td>Average power consumption</td>
</tr>
<tr>
<td></td>
<td>2.3</td>
<td>3.9</td>
<td>6.0</td>
<td>12.0</td>
<td>4.8</td>
<td>7.8</td>
<td>16.2</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>65</td>
<td>100</td>
<td>200</td>
<td>80</td>
<td>130</td>
<td>270</td>
<td>420</td>
</tr>
<tr>
<td></td>
<td>0.05 to 0.1</td>
<td>0.09 to 0.18</td>
<td>0.14 to 0.28</td>
<td>0.28 to 0.56</td>
<td>0.09 to 0.22</td>
<td>0.14 to 0.36</td>
<td>0.3 to 0.75</td>
<td>0.47 to 1.17</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>0.7</td>
<td>0.4</td>
<td>0.2</td>
<td>1.0</td>
<td>0.7</td>
<td>0.35</td>
<td>0.2</td>
</tr>
</tbody>
</table>
| Note 1: Each discharge capacity shown above is at discharge pressure (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.
Note 2: The performance is based on pumping clean water at ambient temperature at rated voltage.
Note 3: Liquid temperature ·VC/VH types: -10 to 40ºC ·PC/PH/FC/SH/TC types: -10 to 60ºC
Note 4: Max pressure is not guaranteed under any discharge condition. Max pressure of PVC type is 1.2 MPa. Please contact us for details.

Specifications of controller

<table>
<thead>
<tr>
<th>Operational mode</th>
<th>MAN</th>
<th>EXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>LCD</td>
<td>LED</td>
</tr>
<tr>
<td>Control function</td>
<td></td>
<td>Pump keeps running when Pre-STOP is activated. Pump stops when STOP is activated.</td>
</tr>
<tr>
<td>Input</td>
<td>Pulse</td>
<td>Non Voltage contact or open collector, Max. 200Hz</td>
</tr>
<tr>
<td>Output</td>
<td>Photo-MOS relay AC/DC24V 0.1A</td>
<td></td>
</tr>
</tbody>
</table>

* Note 1: If the max. stroke rate by calculation exceeds 100% stroke rate because of the relation between the setting and input signal when the pump is in EXT operation, the operation is fixed to the Maximum stroke rate speed of manual operation.
* Note 2: By changing the setting, the pump can run when the contact signal comes in.
* Note 3: The max. frequency of input pulse is 200 Hz. ON time of input pulse is 10 to 100 ms.
* Note 4: The max. chargeable voltage to a contact is 12V and current is 0.1mA. If a contact such as relay is used, the minimum application load should be 0.1mA or below.
The pump can be specialized for the need of a special chemical transfer.

**High compression type**

The optimum feeding for gaseous liquids

Increased compression ratio due to minimized dead volume in pump chamber. Suitable for injection of gaseous liquids such as sodium hypochlorite, hydrogen peroxide etc.

**Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity L/hr</th>
<th>Capacity mL/min</th>
<th>Capacity mL/shot</th>
<th>Discharge pressure MPa</th>
<th>Stroke rate % (rpm)</th>
<th>Stroke length range % (mm)</th>
<th>Current A</th>
<th>Average power consumption W</th>
</tr>
</thead>
<tbody>
<tr>
<td>B09</td>
<td>0.7</td>
<td>12</td>
<td>0.03 to 0.07</td>
<td>1.0</td>
<td>0.1 to 100 (1 to 180)</td>
<td>50 to 100 (0.625 to 1.25)</td>
<td>1.8</td>
<td>20</td>
</tr>
<tr>
<td>B11</td>
<td>1.4</td>
<td>23</td>
<td>0.04 to 0.13</td>
<td>0.9</td>
<td>0.1 to 100 (1 to 180)</td>
<td>40 to 100 (0.6 to 1.50)</td>
<td>3.2</td>
<td>24</td>
</tr>
<tr>
<td>B16</td>
<td>2.4</td>
<td>40</td>
<td>0.11 to 0.22</td>
<td>0.9</td>
<td>0.1 to 100 (1 to 180)</td>
<td>70 to 100 (0.5 to 1.25)</td>
<td>4.7</td>
<td>24</td>
</tr>
<tr>
<td>B21</td>
<td>3.6</td>
<td>63</td>
<td>0.18 to 0.35</td>
<td>0.9</td>
<td>0.1 to 100 (1 to 180)</td>
<td>70 to 100 (0.5 to 1.25)</td>
<td>7.8</td>
<td>24</td>
</tr>
<tr>
<td>C16</td>
<td>3.2</td>
<td>54</td>
<td>0.12 to 0.30</td>
<td>0.9</td>
<td>0.1 to 100 (1 to 180)</td>
<td>70 to 100 (0.5 to 1.25)</td>
<td>10.8</td>
<td>24</td>
</tr>
<tr>
<td>C21</td>
<td>4.7</td>
<td>78</td>
<td>0.17 to 0.43</td>
<td>0.9</td>
<td>0.1 to 100 (1 to 180)</td>
<td>70 to 100 (0.5 to 1.25)</td>
<td>13.8</td>
<td>24</td>
</tr>
</tbody>
</table>

**High pressure type**

Suitable for boiler chemical injection

- The high pressure type can handle the maximum discharge pressure of 1.7MPa.
- The 25 and 40mL/min (max. discharge pressure) types are available.
- Capable of boiler chemical injection to the discharge line of a water-supply pump as long as the discharge pressure is 1.7MPa or below.

**Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity L/hr</th>
<th>Capacity mL/min</th>
<th>Capacity mL/shot</th>
<th>Discharge pressure MPa</th>
<th>Stroke rate % (rpm)</th>
<th>Stroke length range % (mm)</th>
<th>Current A</th>
<th>Average power consumption W</th>
</tr>
</thead>
<tbody>
<tr>
<td>B11</td>
<td>0.8</td>
<td>15</td>
<td>0.05 to 0.1</td>
<td>1.0</td>
<td>0.1 to 100 (1 to 240)</td>
<td>50 to 100 (0.5 to 1.0)</td>
<td>1.2</td>
<td>20</td>
</tr>
<tr>
<td>B16</td>
<td>1.2</td>
<td>24</td>
<td>0.07 to 0.17</td>
<td>1.7</td>
<td>0.1 to 100 (1 to 240)</td>
<td>40 to 100 (0.5 to 1.25)</td>
<td>1.7</td>
<td>20</td>
</tr>
<tr>
<td>C16</td>
<td>1.2</td>
<td>40</td>
<td>0.05 to 0.07</td>
<td>1.7</td>
<td>0.1 to 100 (1 to 240)</td>
<td>70 to 100 (0.6 to 0.9)</td>
<td>0.8</td>
<td>20</td>
</tr>
<tr>
<td>C21</td>
<td>2.4</td>
<td>70</td>
<td>0.25 to 0.63</td>
<td>1.7</td>
<td>0.1 to 100 (1 to 240)</td>
<td>70 to 100 (0.5 to 1.25)</td>
<td>2.4</td>
<td>20</td>
</tr>
</tbody>
</table>

**Viscosity type**

Suitable for high-polymer coagulant injection

- Suitable for polymer flocculants injection in wastewater treatment. Please contact us for details.

**Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity L/hr</th>
<th>Capacity mL/min</th>
<th>Capacity mL/shot</th>
<th>Discharge pressure MPa</th>
<th>Stroke rate % (rpm)</th>
<th>Stroke length range % (mm)</th>
<th>Current A</th>
<th>Average power consumption W</th>
</tr>
</thead>
<tbody>
<tr>
<td>B11</td>
<td>0.8</td>
<td>15</td>
<td>0.05 to 0.1</td>
<td>1.0</td>
<td>0.1 to 100 (1 to 240)</td>
<td>50 to 100 (0.5 to 1.0)</td>
<td>1.2</td>
<td>20</td>
</tr>
<tr>
<td>B16</td>
<td>1.2</td>
<td>24</td>
<td>0.07 to 0.17</td>
<td>1.7</td>
<td>0.1 to 100 (1 to 240)</td>
<td>40 to 100 (0.5 to 1.25)</td>
<td>1.7</td>
<td>20</td>
</tr>
<tr>
<td>C16</td>
<td>1.2</td>
<td>40</td>
<td>0.05 to 0.07</td>
<td>1.7</td>
<td>0.1 to 100 (1 to 240)</td>
<td>70 to 100 (0.6 to 0.9)</td>
<td>0.8</td>
<td>20</td>
</tr>
<tr>
<td>C21</td>
<td>2.4</td>
<td>70</td>
<td>0.25 to 0.63</td>
<td>1.7</td>
<td>0.1 to 100 (1 to 240)</td>
<td>70 to 100 (0.5 to 1.25)</td>
<td>2.4</td>
<td>20</td>
</tr>
</tbody>
</table>

Note 1: Each discharge capacity shown above is at discharge pressure (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.

Note 2: The performance is based on pumping clean water at ambient temperature at rated voltage.

The pump can be specialized for the need of a special chemical transfer.
Optional accessories

Accessories

Check valve CAN / CBN / CS
This has the function of a non-return valve and prevents siphon and overfeed.
CAN: Available in PVC and GFRPP/CFRPP.
CBN: In-line type to be connected in the middle of a hose; made of PVC.
CS: Made of stainless steel for SH type.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Connection</th>
<th>Set pressure MPa</th>
<th>Material</th>
<th>Applicable pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN-1VC</td>
<td>4x6, 5x6, 6x12, 9x12</td>
<td>0.17 ± 0.04</td>
<td>FKM</td>
<td>EWN-809, 11, 16, 21, 16/21, 16/26, 21/26</td>
</tr>
<tr>
<td>CAN-1VE (1E)</td>
<td>4x6</td>
<td>0.17 ± 0.04</td>
<td>FKM</td>
<td>EWN-809, 11, 16, 21, 16/21, 16/26, 21/26</td>
</tr>
<tr>
<td>CAN-2VC (2V)</td>
<td>6x12, 9x12</td>
<td>0.17 ± 0.04</td>
<td>FKM</td>
<td>EWN-C31</td>
</tr>
<tr>
<td>CAN-2VE (2E)</td>
<td>6x12, 9x12</td>
<td>0.17 ± 0.04</td>
<td>FKM</td>
<td>EWN-C31</td>
</tr>
</tbody>
</table>

Foot valve FS / FSP / FSTC
This foot valve with a strainer is made of PVC or GFRPP.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Tube connection</th>
<th>Material</th>
<th>Applicable pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSV</td>
<td>4x6mm</td>
<td>PVC / FKM / Alumina ceramic</td>
<td>-</td>
</tr>
<tr>
<td>FSPV</td>
<td>4x6mm</td>
<td>GRFRP / FKM / Alumina ceramic</td>
<td>-</td>
</tr>
<tr>
<td>FSPE</td>
<td>9x12mm</td>
<td>GRFRP / EPDM / Hastelloy C276</td>
<td>-</td>
</tr>
<tr>
<td>FSTC</td>
<td>10x12mm</td>
<td>PVDF / FKM / Alumina ceramic</td>
<td>-</td>
</tr>
</tbody>
</table>

Chemical tank EXDT
This is a polyethylene round tank.

Capacity: 35, 60, 100, 200 or 300L

Priming set PS
Made of PVC furnished with level sensor(s) and foot valve.

Pulse oscillating flow meter
Failed flow detection

Flow checker FCM
Failed flow detection

Siphon preventing valve BVC
Made of PVC or GFRPP consisting of non-metallic parts.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Connection</th>
<th>Set pressure MPa</th>
<th>Material</th>
<th>Applicable pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVC-1</td>
<td>4x6, 9x12</td>
<td>0.2 or 0.05</td>
<td>PVC</td>
<td>EWN-B31, C36, 16, 21, 31, 36</td>
</tr>
<tr>
<td>BVC-15</td>
<td>8x12</td>
<td>0.05 ± 0.03</td>
<td>SUS316</td>
<td>EWN-B31, C36, 16, 21, 31, 36</td>
</tr>
</tbody>
</table>

Multi-function valve MFV
This valve has the multi-function of air vent, pressure release inside pipe, pressure relievel and back pressure valve.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Tube connection</th>
<th>Set pressure MPa</th>
<th>Material</th>
<th>Applicable pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFV-HCT</td>
<td>4x6mm, 5x6mm, 6x9mm, 6x12mm, 9x12mm, 10x12mm, 14x5mm, 3x12mm</td>
<td>0.25 ± 0.1 MPa</td>
<td>PVC / FKM</td>
<td>EWN-B31, 16, 21, 31, 36</td>
</tr>
<tr>
<td>MFV-MTC</td>
<td>4x6mm, 5x6mm, 6x9mm, 6x12mm, 9x12mm, 10x12mm, 14x5mm, 3x12mm</td>
<td>0.25 ± 0.1 MPa</td>
<td>PVC / FKM</td>
<td>EWN-B31, 16, 21, 31, 36</td>
</tr>
<tr>
<td>MFV-LTC</td>
<td>4x6mm, 5x6mm, 6x9mm, 6x12mm, 9x12mm, 10x12mm, 14x5mm, 3x12mm</td>
<td>0.05 ± 0.1 MPa</td>
<td>PVC / FKM</td>
<td>EWN-B31, 16, 21, 31, 36</td>
</tr>
</tbody>
</table>

 IWAKI ELECTROMAGNETIC METERING PUMPS EWN-R
Dimensions in mm

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**Model** EWN-11, 16, 21  EWN-31  EWN-36

<table>
<thead>
<tr>
<th>Model</th>
<th>H</th>
<th>L</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>EWN-11</td>
<td>(199)</td>
<td>265</td>
<td>(24)</td>
<td>(164)</td>
<td>(23)</td>
<td>(47)</td>
</tr>
<tr>
<td>EWN-16</td>
<td>(212)</td>
<td>267</td>
<td>(6)</td>
<td>(177)</td>
<td>(25)</td>
<td>(48)</td>
</tr>
<tr>
<td>EWN-21</td>
<td>(211)</td>
<td>267</td>
<td>(7)</td>
<td>(176)</td>
<td>(24)</td>
<td>(48)</td>
</tr>
</tbody>
</table>

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**VC/VH**

Model H L a b c d

EWN-11, 16, 21 (199) 265 (24) (164) (23) (47)

EWN-31 (212) 267 (6) (177) (25) (48)

EWN-36 (211) 267 (7) (176) (24) (48)

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**PC/PH**

Model H L a b c d

EWN-11, 16, 21 (199) 265 (24) (164) (23) (47)

EWN-31 (212) 267 (6) (177) (25) (48)

EWN-36 (211) 267 (7) (176) (24) (48)

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**TC**

Model H L a b c d

EWN-11, 16, 21 (198) 265 (25) (163) (23) (47)

EWN-31 (211) 267 (7) (176) (25) (48)

EWN-36 (211) 266 (6) (176) (24) (49)

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**SH**

Model H L a b c d

EWN-11, 16, 21 (201) 232 (44) (155) (22) (15)

EWN-31 (213) 233 (34) (167) (23) (15)

EWN-36 (216) 233 (32) (170) (23) (15)

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**FC**

Model H L a b c d

EWN-11, 16, 21 (166) 231 (40) (160) (23) (13)

EWN-31 (177) 236 (23) - (25) (16)

EWN-36 (177) 235 (23) - (24) (16)

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Before use of pump, read instruction manual carefully to use the product correctly.

Caution for safety use:

- Please contact us for special version.

Legal attention related to export:

- Our products and/or parts of products fall in the category of goods contained in control list of international regime for export control.
- Please be reminded that export license could be required when products are exported due to export control regulations of countries.

IWAKI has global network.

Please find your distributor location at [www.iwakipumps.jp](http://www.iwakipumps.jp).

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**U.S.A.** IWAKI America Inc.  
**Argentina** IWAKI America Inc. (Argentina Branch)

**Singapore** IWAKI Singapore Pte Ltd.

**Indonesia** IWAKI Singapore (Indonesia Office)

**Australia** IWAKI Pump Australia Pty Ltd.

**South Korea** IWAKI Pump Co., Ltd.

**China** GTZ IWAKI Engineering & Trading Co., Ltd.

**Vietnam** IWAKI Korea Co., Ltd.

**Thailand** IWAKI (Thailand) Co., Ltd.

**Malaysia** IWAKI Singapore Pte Ltd.

**Australia** IWAKI Pump Malaysia Sdn Bhd.

**U.K.** IWAKI (UK) Lt.  
**France** IWAKI France S.A.

**Germany** IWAKI Europe GmbH  
**Italy** IWAKI Europe GmbH (Italy Branch)

**Belgium** IWAKI Belgium N.V.

**Singapore** IWAKI Singapore Pte Ltd.

**Indonesia** IWAKI Indonesia Sdn Bhd.

**Taiwan** IWAKI Pumps Co., Ltd.

**Korea** IWAKI Korea Co., Ltd.

**Japan** IWAKI Pumps Co., Ltd.

**Argentina** IWAKI America Inc.

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