NEW PRODUCTS GUIDE

Digest version  Vol. 1

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5 Port Solenoid Valve
Plug Lead Type
Series **S0700**
Added body ported type!

**Body Ported**

**Flow-rate characteristics**
* For single/double solenoid

\[ C[\text{dm}^3/(s\cdot\text{bar})] : 0.6 \]

- **Valve width:** 7.4 mm
- **Possible to drive cylinders:** Up to \( \varnothing 32 \) (300 mm/s)
- **Power consumption:** 0.35 W
- **Weight:** 39 g

+ Single solenoid, built-in silencer type

**Applications**

- Transportation of packaged workpiece
- Air cylinder

For details, refer to the WEB catalog or the catalog of each product.

CAT.NAS11-109
Vacuum suction and release can be controlled with a single valve!

- Flow rate adjustment of release air
- Prevents workpiece blow-off.

Can be mounted on the same manifold with the standard valve.
* When the individual EXH spacer is used.

Mountable manifolds

- Connector connecting base
- Metal base
Fieldbus System
(For Input/Output)
Series EX600
Dual port type SI Unit communication
connector compatible with EtherNet/IP™ added!

New Unit type added
Dual port SI Unit (EtherNet/IP™) product
- Can be used for linear type or DLR type topology.
- Supports QuickConnect™ function.
- Status checks and settings can be performed on a web browser.

Self Diagnosis Function
It is possible to ascertain the maintenance period and identify the parts that require maintenance, by an input/output open circuit detection function and an input/output signal ON/OFF counter function. Also, the monitoring of input and output signals and the setting of parameters can be performed with a Handheld Terminal.

Reduction in wiring time with SPEEDCON (Phoenix Contact). Just insert and make 1/2 rotation!

Max. 9 Units (Note)
Can be connected in any order.
The Input Unit to connect input device such as an auto switch, pressure switch and flow switch, and the Output Unit to connect output device such as a solenoid valve, relay and indicator light can be connected in any order.
Note) Except SI Unit

Max. 9 Units
Can be connected in any order.
The Input Unit to connect input device such as an auto switch, pressure switch and flow switch, and the Output Unit to connect output device such as a solenoid valve, relay and indicator light can be connected in any order.
Note) Except SI Unit

Manifold Solenoid Valves
Series SY3000/5000/7000
Series SV1000/2000/3000
Series S0700
Series VQC1000/2000/4000

Note) The SY3000/5000/7000, S0700, and VQC1000/2000/4000 are not UL-compatible.
**Latest EtherNet/IP™ Technology**

The following functions are available for the dual port EtherNet/IP™ product (EX600-SEN3/4).

### Added Compatible Topologies (connection configuration).

**EX600-SEN1/2**

- Star type
- The current single port product (EX600-SEN1/2) was only for star topology.

**EX600-SEN3/4**

- The new dual port product (EX600-SEN3/4) is available for both the linear and device level ring topologies, in addition to the star type.

In the device level ring type, even though the communication cable is disconnected in one location, EtherNet/IP™ communication can be continued, and the disconnected portion can be specified by the ring supervisor.

### QuickConnect™ Function Available

**From Power ON to communication connection**

10 sec. ➔ **Approx. 0.5 sec.**

In the case of a tool changer, it takes about 10 seconds for the communication to be connected in common EtherNet/IP™ products, after the power of the device installed on the tool is turned ON. Since the QuickConnect™ function is available in the EX600-SEN3/4, the communication can be connected in about 0.5 seconds.

### Built-in Web Server Function

The EX600-SEN3/4 has a built-in web server function, which enables status checks, parameter settings and forced output of the EX600 using general-purpose web browsers, such as Internet Explorer. Start-up of the system and maintenance can be performed efficiently.
Rod flange added.
Can be used for a wide range of applications according to the installation conditions. (for ø12 to ø63)

Can be retrofitted to the standard rotary clamp cylinder.
Compact Cylinder
With Double Clevis, Double Knuckle Joint
CQ2D-XC26

- 3 types of double clevis width
  - 12.5 mm, 16.5 mm, 19.5 mm
  - Lighter installation, reduction in design labor and design in a suitable size
  - A product lineup similar to the clamp cylinder CK1 and CLK2 series

- The part number with double knuckle joint is available.
  - Not necessary to order a bracket for the applicable cylinder separately

- Split pins adopted for pin fixing

Rotary Grippers
Series MRHQ

- Finger options added.
- Air gripper with dust cover added.

For details, refer to the WEB catalog or the catalog of each product.
Regulator
Series IR1200-A/2200-A/3200-A

Air consumption Air bleed “0” has been achieved!

Reduced by up to approx. 27%*

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.13</td>
<td>0.14</td>
<td>IR1200-A</td>
</tr>
<tr>
<td>0.23</td>
<td>0.30</td>
<td>IR2200-A</td>
</tr>
<tr>
<td>0.47</td>
<td>0.64</td>
<td>IR3200-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000/3000

High flow rate
Up to approx. twice*

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.4 [720]</td>
<td>11.3 [320]</td>
<td>IR1200-A</td>
</tr>
<tr>
<td>67.1 [1900]</td>
<td>33.2 [940]</td>
<td>IR2200-A</td>
</tr>
<tr>
<td>177 [5000]</td>
<td>141 [4000]</td>
<td>IR3200-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000/3000

Space saving
New structure without fixed throttle does not require a mist separator.

Reduced by 71 mm (For IR2200-A)

Digital pressure switch standardized

For details, refer to the WEB catalog or the catalog of each product.

Cat. NAS60-24

For the current IR1010

≤ 0.16 to 0.41 scfm [<img src= width=52 height=52> to <img src= width=52 height=52> L/min (ANR)]

≤ 4.4 to 11.5 L/min (ANR)
**Reduction in air consumption**

- Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.

---

**Annual cost reduction effect**

![Graph showing annual cost reduction effect for different units and models of regulators.](image)

---

**No fixed throttle in the new design.**

- Poor quality of air may cause operation failure. Select a model that is suitable for the desired air cleanliness by referring to “Air Preparation Equipment Model Selection Guide” (Best Pneumatics No. 5) for air quality.

---

**Flow rate: Up to approx. twice**

(Compared to the current SMC product) scfm [L/min(ANR)]

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.4 [720]</td>
<td>11.3 [320]</td>
<td>IR1200-A</td>
</tr>
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<td>33.2 [940]</td>
<td>IR2200-A</td>
</tr>
<tr>
<td>177 [5000]</td>
<td>141[4000]</td>
<td>IR3200-A</td>
</tr>
</tbody>
</table>

Supply pressure: 102 psi [0.7 MPa]
Precision Regulator
Series IR1000-A/2000-A/3000-A

**Reduced by up to approximately 90%**

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or less</td>
<td>0.16 [4.4]</td>
<td>IR1000-A/IR2000-A</td>
</tr>
<tr>
<td>1 or less</td>
<td>0.41 [11.5]</td>
<td>IR3000-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000/3000

**Up to approximately twice**

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.4 [720]</td>
<td>11.3 [320]</td>
<td>IR1000-A</td>
</tr>
<tr>
<td>67.1 [1900]</td>
<td>33.2 [940]</td>
<td>IR2000-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000

**Reduced by up to approximately 27%**

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.13</td>
<td>0.14</td>
<td>IR1000-A</td>
</tr>
<tr>
<td>0.23</td>
<td>0.30</td>
<td>IR2000-A</td>
</tr>
<tr>
<td>0.47</td>
<td>0.64</td>
<td>IR3000-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000/3000

**Space saving**

New structure without fixed throttle does not require a mist separator.

**Sensitivity:** 0.2% (Full span)

**Repeatability:** ±0.5% (Full span)

**Lightweight**

**High flow rate**

For details, refer to the WEB catalog or the catalog of each product.

For IR2000-A

Digital pressure switch standardized

Poor quality of air may cause operation failure. Select a model that is suitable for the desired air cleanliness by referring to "Air Preparation Equipment Model Selection Guide" (Best Pneumatics No. 5) for air quality.
**Reduction in air consumption**

Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.

---

**Annual cost reduction effect**

<table>
<thead>
<tr>
<th>Units used</th>
<th>Annual cost of power consumed by compressor [$8.30/year]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Current model IR1000-A</td>
</tr>
<tr>
<td>10</td>
<td>Series IR2000</td>
</tr>
<tr>
<td>20</td>
<td>Series IR3000</td>
</tr>
</tbody>
</table>

**Comparison between IR1000-A/IR2000-A and the current IR1000/IR2000**

- **Series IR1000**
  - IR1010-A
  - Current model: 25.4 [720] scfm
  - New: 11.3 [320] scfm

- **Series IR2000**
  - IR2010-A
  - Current model: 67.1 [1900] scfm
  - New: 33.2 [940] scfm

---

**No fixed throttle in the new design.**

- Special bleeding structure
- No fixed throttle in the new design.

**Flow rate: Up to approx. twice**

(Compared to the current SMC product) scfm [L/min(ANR)]

<table>
<thead>
<tr>
<th>New IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.4 [720]</td>
<td>11.3 [320]</td>
<td>IR1000-A</td>
</tr>
<tr>
<td>67.1 [1900]</td>
<td>33.2 [940]</td>
<td>IR2000-A</td>
</tr>
</tbody>
</table>

Supply pressure: 102 psi [0.7 MPa]

---

* Poor quality of air may cause operation failure. Select a model that is suitable for the desired air cleanliness by referring to “Air Preparation Equipment Model Selection Guide” (Best Pneumatics No. 5) for air quality.
3-Color Display
Digital Flow Switch

<Applicable fluid> Dry air, N₂

Series PFMC

3-color/2-screen display*

- Instantaneous flow rate (Main screen)
- Set value (Sub screen)

Expanded flow range
Wide range of flow measurement with one product

Flow ratio* 100:1

* Rated flow ratio is 10:1 for current PF2A.

<table>
<thead>
<tr>
<th>Rated flow range</th>
<th>scfm [L/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>2000 L type</td>
</tr>
<tr>
<td>26</td>
<td>40</td>
</tr>
</tbody>
</table>

Setting resolution 0.26 gal/min [1 L/min]

Compact, Space saving
Compared with the current PF2A,

- Weight 78% reduction 1100 g → 240 g
- Mounting space 74% reduction

2000 L type

Current PF2A: 1.32 gal/min [5 L/min]
### Rotary display

Display can be rotated in increments of 45° to suit the installation conditions. Easy operation, improved visibility.

- **Counterclockwise 90°**
- **Clockwise 225°**

### Installation example

#### Functions

- **Output operation**
- **Display color**
- **Reference condition**
- **Setting of response time**
- **Display mode**
- **Selection of display on sub screen**
- **External input function**
- **Accumulated value hold**
- **Forced output function**
- **Analog output free range function**
- **Selection of display OFF mode**
- **Peak/Bottom value display**

### Bypass structure

Bypass structure with protruding part at the main piping, reduces the contact of moist air with the sensor, reducing degradation of the sensor and maintaining accuracy.

### Response time

Can be selected from

- 50 msec. (0.05 sec.)
- 0.5 sec.
- 1.0 sec.
- 2.0 sec.

Response time can be set depending on application.

### Applications

- **Flow control of equipment, main line and branch line**
  - Remote control is possible with accumulated pulse.

- **Accumulated indication shows the operating flow rate or residual amount (of N2 etc.) in a gas cylinder.**

- **Flow control of the air for spray painting**

**Note:** The product is not designed to be explosion proof.

Refer to the WEB catalog or the Best Pneumatics No. 3 for details of multi-counter CEUs.

### Example of recommended pneumatic circuit

- Compressed air line
  - Air dryer
  - Air filter
  - Regulator
  - Micro mist separator
  - AMD/AFD
  - Flow switch
  - IDF/IDU
  - AF
  - AR

### Digital flow switch to save energy!

Flow control is necessary for promoting energy saving in any application. Saving energy starts from numerical control of the flow consumption of equipment and lines and clarification of the purpose and effect.

- **Digital display allows visualization.**
- **3-color/2-screen display,** improved visibility
- **Remote control** is possible with accumulated pulse.
2-Color Display Digital Flow Switch

<Applicable fluid> Dry air, N²

Series PFMB

Added 2000 L type.

Expanded flow range! Wide range of flow measurement with one product

**Flow ratio**

* Rated flow ratio is 10:1 for current PF2A.

<table>
<thead>
<tr>
<th>Rated flow range [L/min]</th>
<th>0.2</th>
<th>0.5</th>
<th>1</th>
<th>2</th>
<th>5</th>
<th>10</th>
<th>20</th>
<th>25</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>300</th>
<th>500</th>
<th>600</th>
<th>1000</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>200</td>
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<td></td>
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<td>500</td>
<td>1000</td>
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<tr>
<td>NEW</td>
<td>20</td>
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</tr>
</tbody>
</table>

Setting resolution: 0.26 gal/min [1 L/min]

Current PF2A: 1.3 g/min [5 L/min] (200 L: 0.53 g/min [2 L/min])

1 L/min = 0.04 scfm  [200 L/min = 7.06 scfm, 500 L/min = 17.66 scfm, 1000 L/min = 35.31 scfm, 2000 L/min = 70.62 scfm]

Expanded flow range!

Comparing with the current PF2A,

**Weight**

- Approx. 66% reduction
  - 290 g ⇒ 70 g

**Mounting space**

- Approx. 67% reduction
  - 500 L/1000 L/2000 L type

**PFMB**

- 29 mm shorter
  - Series PF2A (current model)
- 44 mm shorter
  - 70 L
- 46 mm shorter
  - 116 mm

**PFMB**

- 27.8 mm shorter
  - Series PF2A (current model)
- 45.2 mm shorter
  - 70 mm
- 46 mm shorter
  - 116 mm

For details, refer to the WEB catalog or the catalog of each product.

CAT.NAS100-95
Flow adjustment valve is integrated.

Reduces piping installation work and space requirements. Special design provides smooth adjustment to match needle rotations.

Piping variations

200 L type

Straight
One-touch fitting ø8
Female thread Rc, NPT, G 1/4

Bottom
One-touch fitting ø8
Female thread Rc, NPT, G 1/4

Functions

- Output operation
- Display color
- Reference condition
- Response time
- Display mode
- External input function
- Accumulated value hold
- Forced output function
- Analog output free range function
- Display OFF mode
- Peak/Bottom value display
- Keylock function
- Error display function
- Orientation correction function
- Reversible display mode
- Reset to the default settings.
- Setting of security code

Response time

Can be selected from
50 msec. (0.05 sec.)/ 0.1 sec./ 0.5 sec./ 1.0 sec./ 2.0 sec.
Response time can be set depending on application.

Grease-free

Reversible display

When the switch is used upside down, the orientation of the display can be rotated to make it easier to read.

With a reversible display function
(Can be set with the reversible display mode.)

Bypass structure

Bypass structure with protruding part at the main piping, reduces the contact of moist air with the sensor, reducing degradation of the sensor and maintaining accuracy.
Pressure Sensor for General Fluids

Series PSE570

Proof pressure 435 psi [3 MPa] * For PSE570
<Twice as compared with the PSE560>

Withstand voltage 500 VAC
<Twice as compared with the PSE560>

Enclosure: IP65

Materials of parts in contact with fluid

| Piping port * | C3604 + Nickel plating |
| Pressure sensor * | Al₂O₃ (Alumina 96%) |
| O-ring | FKM + Grease |

* Stainless steel 316L is used for the PSE560. For details, refer to the WEB catalog or the Best Pneumatics No. 6.

Variations

<table>
<thead>
<tr>
<th>Series</th>
<th>Rated pressure range</th>
<th>Proof pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSE570</td>
<td>0 14.5 psi [100 kPa] 73 psi [500 kPa] 145 psi [1 MPa]</td>
<td>435 psi [3.0 MPa]</td>
</tr>
<tr>
<td>PSE574</td>
<td>0 73 psi [500 kPa]</td>
<td>218 psi [1.5 MPa]</td>
</tr>
</tbody>
</table>

Application examples

- Liquid coolant pressure control
- Discharge pressure control for compressor

Adopted M12 connector.

Port size (With M5 female thread): R1/8, 1/4
Fan Type Ionizer
Series IZF

Thinnest and Fastest

**Thickness** 40 mm

**Rapid static neutralization** 0.5 seconds

---

**Slim design**

<table>
<thead>
<tr>
<th>Model</th>
<th>Thickness (Depth)</th>
<th>Width</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>IZF21</td>
<td>40</td>
<td>104</td>
<td>155</td>
</tr>
<tr>
<td>IZF31</td>
<td>144</td>
<td>195</td>
<td></td>
</tr>
</tbody>
</table>

**Offset voltage** (Ion balance): ±5 V
**Extensive static neutralization**

At maximum flow rate

<table>
<thead>
<tr>
<th>Installation distance [mm]</th>
<th>0</th>
<th>400</th>
<th>800</th>
<th>1200</th>
<th>1600</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
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<td>2 s</td>
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<td>4 s</td>
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<td>6 s</td>
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<tr>
<td>8 s</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>−300 mm</td>
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<td></td>
</tr>
</tbody>
</table>

At maximum flow rate, with adjustable louver/largest angle

<table>
<thead>
<tr>
<th>Installation distance [mm]</th>
<th>0</th>
<th>400</th>
<th>800</th>
<th>1200</th>
<th>1600</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>0</td>
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<tr>
<td>2 s</td>
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<tr>
<td>4 s</td>
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<td></td>
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<tr>
<td>6 s</td>
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</tr>
<tr>
<td>8 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>−300 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At maximum flow rate, with adjustable louver/smallest angle

<table>
<thead>
<tr>
<th>Installation distance [mm]</th>
<th>0</th>
<th>400</th>
<th>800</th>
<th>1200</th>
<th>1600</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>−300 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Extensive static neutralization area can be covered with adjustable louver.**

Adjustable in 5-stages from wide to narrow angle

90-degree rotation mounting available (Adjustable in a vertical direction)

**Application Examples**

- **Extensive static neutralization at close range**
- **Long range static neutralization**

Refer to page 24 for flow rate adjustment and the description below for angle adjustment of the adjustable louver.
**Rapid static neutralization**

Installation distance and discharge time (Discharge time from 1000 V to 100 V)

**The emitters life is almost doubled with averaging function.**

Averaging Function
The life of the emitters is almost doubled\(^*\) by switching the polarity of the applied high voltage every time the power is supplied hence averaging the wear level of the emitters.

\(^*\) Compared with the IZF10.

**Built-in sensor constantly monitors offset voltage.**

**Automatic balance adjustment function achieves stable offset voltage and reduces adjustment time.**

- Prevents reduction of offset voltage performance due to emitters contamination when the ionizer is used for a long period of time.
- Corrects offset voltage displacement due to the installation environment.

Constantly monitors offset voltage by use of a sensor. Prevents reduction of offset voltage performance due to emitters contamination when the ionizer is used for a long period of time. Balance adjustment trimmer can provide offset voltage adjustment suitable for the installation environment.
Emitter contamination can be reduced by automatic cleaning function.

Cleaning arms are installed inside. Emitter cleaning is started by external input or operation button.

The emitter points are cleaned with a brush by the motor driven rotating cleaning arms, which reduces the emitters' contamination.

Contamination of the emitters can be detected.

Emitter contamination level is constantly monitored. When maintenance is required, the user is alerted by a signal output and the LED turning ON.

Emitter cartridge is easily replaceable.
(No tools are required.)
Flow Rate Adjustment Function

Flow rate is adjustable in 10 steps using the flow rate adjustment dial. The flow rate adjustment dial is removable to prevent unexpected changes of adjustment.

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow rate adjustment level</th>
<th>ft³/min</th>
<th>[m³/min]</th>
</tr>
</thead>
<tbody>
<tr>
<td>IZF21</td>
<td>14 [0.4]</td>
<td>18 [0.5]</td>
<td>21 [0.6]</td>
</tr>
<tr>
<td></td>
<td>25 [0.8]</td>
<td>28 [0.9]</td>
<td>32 [1.1]</td>
</tr>
<tr>
<td></td>
<td>64 [1.8]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IZF31</td>
<td>46 [1.3]</td>
<td>60 [1.7]</td>
<td>67 [1.9]</td>
</tr>
<tr>
<td></td>
<td>81 [2.3]</td>
<td>88 [2.5]</td>
<td>95 [2.7]</td>
</tr>
<tr>
<td></td>
<td>155 [4.4]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7 types of alarms are provided.

1. Power supply failure
2. Incorrect high voltage
3. Fan motor failure
4. CPU failure
5. Maintenance warning
6. Emitter cartridge mounting failure
7. Automatic cleaning failure

LED indicator can be checked from 2 directions!

Filter

Prevents ingress of lint and foreign matter to the motor and possibility of short-circuit between emitters!
Neutralizing static electricity on PET bottles
Trip-resistance during conveying
Prevents adhesion of dust.

Neutralizing static electricity on molded goods
Improves detachability of molded goods from a die.

Neutralizing static electricity on film molded goods
Sticking and scattering prevention on a conveyor

Neutralizing static electricity from parts feeder
Prevents clogging.

Neutralizing static electricity from packing films
Prevents the filled substance from adhering to the packing film and reduces packing mistakes.

Neutralizing static electricity from packing materials made from polystyrene foam.
Darkening due to dust adhesion prevented

Neutralizing static electricity from parts feeder
Prevents clogging.

Neutralizing static electricity on packaging materials made from polystyrene foam.
Darkening due to dust adhesion prevented

Neutralizing static electricity on an electric substrate
Prevents element disruption due to discharge, and adhesion of dust.

Application Examples

Compact fan type with simple functions Series IZF10

- Compact design (H x W x D): 80 mm x 110 mm x 39 mm
- Weight: 280 g
- 2 types of fans available
  - Rapid static neutralizing fan: Discharge time (Static neutralization time)
    1.5 s (When neutralizing static electricity from 1000 V to 100 V at a distance of 300 mm from the workpiece (front surface))
  - Low-noise fan: 48 dB(A) (Measured at a distance of 300 mm from the workpiece),
    Rapid static neutralizing fan: 57 dB(A)
- Offset voltage (ion balance)\(^*\): ±13 V
- With alarm
  Incorrect high voltage, Emitter dirt detection

\(^*\) Based on ANSI/ESD-STM3.1-2006 standards
Ionizer/Nozzle Type
IZN10-X367

Nozzles with right angles added.

- Slim design
  - 16mm
  - 360° rotation

- 2 types of nozzles
  - Energy saving static neutralization nozzle with right angles
    - Short range static neutralization, Design focuses on offset voltage.
    - Offset voltage: Within ±10 V
    - Increases air blow flow rate by external air intake
    - Static neutralization is possible with minimal air consumption.

  - High flow rate nozzle with right angles
    - Long range static neutralization and dust removal
      - Ionized air assisted by the compressed air
      - Improved dust removal performance by the energy of compressed air.
      - Suitable for static neutralization at a long distance (max. 500 mm).
    - Offset voltage: Within ±30 V

For details, refer to the WEB catalog or the catalog of each product.

Energy saving static neutralization nozzle with right angles

High flow rate nozzle with right angles

Static neutralization from narrow conveyor space

Obstacle at upper portion of equipment

For details, refer to the WEB catalog or the catalog of each product.

For details, refer to the WEB catalog or the catalog of each product.
### Desktop Duster Box
**Series ZVB**

**Integrated the static neutralization, dust removal and dust collection processes into one box!**

**Adopted a dedicated ionizer with improved static neutralization efficiency.**

**3 functions in 1 unit! All in one**

<table>
<thead>
<tr>
<th>Blow nozzle with improved dust removal efficiency</th>
<th>Dust removal</th>
<th>Dust collection</th>
</tr>
</thead>
</table>

**Pneumatic dust collector enables quick dust collection response.**

#### A4 size [ZVB20]
- 210 x 297 mm (Dimensions)
- 202 x 212 mm (Static neutralization space)

#### A3 size [ZVB40]
- 400 x 384 mm (Dimensions)
- 392 x 298 mm (Static neutralization space)

**Supports workpieces of various sizes.**

- Smartphone
- Lamp cover
- Cosmetic case
- Parts for home appliances
- Lens
- Electronic components

For details, refer to the [WEB catalog](#) or the catalog of each product.

---

### Specifications

<table>
<thead>
<tr>
<th><strong>Model</strong></th>
<th><strong>Size</strong></th>
<th><strong>Dimensions</strong></th>
<th><strong>Static neutralization space</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ZVB20 A4</td>
<td></td>
<td>210 x 297 mm</td>
<td>202 x 212 mm</td>
</tr>
<tr>
<td>ZVB40 A3</td>
<td></td>
<td>400 x 384 mm</td>
<td>392 x 298 mm</td>
</tr>
</tbody>
</table>

---

### Notes

- Secured a large static neutralization space.
- Reduced the dust collector space using a pneumatic dust collector (vacuum flow), to secure the static neutralization space to the utmost.
- Equipped with an additional air blow nozzle only for dust removal. Besides the ionized air, the angle and flow rate of the air blow can be adjusted (Optional). The pressure can also be adjusted with an additional air blow pressure regulator installed on the back side of the body.

---

### Key Features

- Emitter: Easy maintenance of emitter
- Nozzle: Dedicated for the blow without impairing the generation efficiency of the ion
- Static neutralization: Improved the static neutralization and dust removal efficiency with a separate ion blow and air blow structure!
- Dust removal: Adopted a nozzle that neutralizes static electricity in a wide range.
- Dust collection: Adopted a diffusion type nozzle for the ionizer, so that ionized air reaches all corners of the box.
- Workpieces: Supports an extensive range of large workpieces.

---

### Additional Notes

- Offset voltage: ±10 V
- Static neutralization distance: 100 mm
- Discharge time: 0.3 s
- Air blow adjustable range: 100 V
- Ion blow: Adopted a maintenance-free pneumatic dust collector.
- Separation: Separate ion blow/air blow structure. Reduced the attenuation of the ion by an air blow.
- Diffusion: Adopted a diffusion type nozzle for the ionizer, so that ionized air reaches all corners of the box.
- Multiple Use: Supports workpieces of various sizes.
Improved the static neutralization and dust removal efficiency with a separate ion blow and air blow structure!

**Ionizer**
- **Offset voltage:** $\pm 10$ V
  - Static neutralization distance: 100 mm
- **Discharge time:** 0.3 s
  - $1000$ V $\rightarrow 100$ V

---

1. **Minimized attenuation of ion**
   - Separate ion blow/air blow structure. Reduced the attenuation of the ion by an air blow.

2. **Adopted a nozzle that neutralizes static electricity in a wide range.**
   - Adopted a diffusion type nozzle for the ionizer, so that ionized air reaches all corners of the box. Supports an extensive range of large workpieces.

3. **Easy maintenance of emitter**
   - Since the emitter can be removed easily, replacement and cleaning can also be performed easily.

---

4. **Secured a large static neutralization space.**
   - Reduced the dust collector space using a pneumatic dust collector (vacuum flow), to secure the static neutralization space to the utmost.

<table>
<thead>
<tr>
<th>Model</th>
<th>Size</th>
<th>Static neutralization space (Width x Depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZVB20</td>
<td>A4</td>
<td>202 x 212</td>
</tr>
<tr>
<td>ZVB40</td>
<td>A3</td>
<td>392 x 298</td>
</tr>
</tbody>
</table>

---

5. **Nozzle dedicated for the blow without impairing the generation efficiency of the ion**
   - Equipped with an additional air blow nozzle only for dust removal. Besides the ionized air, the angle and flow rate of the air blow can be adjusted (Optional). The pressure can also be adjusted with an additional air blow pressure regulator installed on the back side of the body.

6. **Adopted a maintenance-free pneumatic dust collector.**
   - Since a built-in pneumatic dust collector blows the sucked in dust to the exhaust port by the power of compressed air, dust will not remain inside the dust collector. The maintenance-free dust collector without a drive unit also reduces the risks of malfunction.

7. **Quick dust collection response**
   - The pneumatic dust collector starts collecting dust immediately after the built-in solenoid valve is opened. Reduces the cycle time with a quick response, from the input of an electrical signal to the start of suction.
Angle Seat Valve
Air Operated Type
Series VXB

Low pressure loss due to angle seat structure!
Reduced leakage with rubber seal!

Long service life
3 million cycles⁺ (Steam)
5 million cycles⁺ (Air)
⁺ Based on SMC’s test condition

Low leakage
0.6 in³/min
(10 cm³/min)⁺ or less
⁺ With air

Space saving
Height
100 mm⁺
⁺ Port size: 3/8

Body material
Bronze (CAC)

Body material
Stainless steel
316L equivalent

For details, refer to the WEB catalog or the catalog of each product.

CAT.NAS70-54
Long service life

Steam 3 million cycles

Air 5 million cycles

* Based on SMC’s test condition

1 Squeeze seal with scraper function
Scraper function added to the seal to shut off fluid leakage

2 Resin scraper
Scraper function during the main valve stroke

3 Protective seal
Prevents foreign matter from entering the squeeze seal when the valve is open.

4 Guide bushing
Prevents misalignment and lengthens the squeeze seal life.

Low leakage

Internal leakage 0.6 in³/min (10 cm³/min)* or less

1 Rubber seal
Special FKM with high sealing performance

Low pressure loss

Pressure loss Small

Pressure loss Large

Angle seat structure

Current structure

Variations

<table>
<thead>
<tr>
<th>Model</th>
<th>Orifice diameter</th>
<th>Cv</th>
<th>Port size</th>
<th>Max. operating pressure Standard</th>
<th>Max. operating pressure High pressure</th>
<th>Body material</th>
<th>Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>VXB215A</td>
<td>11</td>
<td>3.5</td>
<td>3/8 (10A)</td>
<td>145 psi [1 MPa]</td>
<td>232 psi [1.6 MPa]</td>
<td>Stainless steel 316L equivalent, Bronze (CAC)</td>
<td>Steam</td>
</tr>
<tr>
<td>VXB215B</td>
<td>14</td>
<td>5.4</td>
<td>1/2 (15A)</td>
<td>87 psi [0.6 MPa]</td>
<td>174 psi [1.2 MPa]</td>
<td>Stainless steel 316L equivalent, Bronze (CAC)</td>
<td>Steam</td>
</tr>
<tr>
<td>VXB215C</td>
<td>18</td>
<td>7.6</td>
<td>3/4 (20A)</td>
<td>58 psi [0.4 MPa]</td>
<td>87 psi [0.6 MPa]</td>
<td>Stainless steel 316L equivalent, Bronze (CAC)</td>
<td>Steam</td>
</tr>
</tbody>
</table>

* Can be used with air and water.

Pilot pressure

psi [MPa]

Standard | 44 to 145 [0.3 to 1]

High pressure | 73 to 145 [0.5 to 1]

Fluid temperature

361°F [183°C] (steam) or less

Max. operating pressure

Standard | High pressure

Steam

Air

Current structure

RoHS

CAT.NAS70-54

For details, refer to the WEB catalog or the catalog of each product.
Coolant Valve

**Series SGC**

1 1/4 (32A) to 2 (50A) added.

**Flow rate**

Cv (For 73 psi [0.5 MPa] specification)

<table>
<thead>
<tr>
<th>Variations</th>
<th>Series</th>
<th>Port size</th>
<th>Cv (kv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGC2</td>
<td>3/8 (10A), 1/2 (15A)</td>
<td>6.5 (5.6)</td>
<td></td>
</tr>
<tr>
<td>SGC3</td>
<td>3/4 (20A)</td>
<td>11.8 (10.1)</td>
<td></td>
</tr>
<tr>
<td>SGC4</td>
<td>1 (25A)</td>
<td>18.3 (15.7)</td>
<td></td>
</tr>
<tr>
<td>SGC5</td>
<td>1 1/4 (32A)</td>
<td>28 (24)</td>
<td></td>
</tr>
<tr>
<td>SGC6</td>
<td>1 1/2 (40A)</td>
<td>43 (36.9)</td>
<td></td>
</tr>
<tr>
<td>SGC7</td>
<td>2 (50A)</td>
<td>70 (60)</td>
<td></td>
</tr>
</tbody>
</table>

**Power consumption:**

- **0.35 W/1.8 W**
  - For 24 VDC

**Service life:**

5 million cycles or more (For the SGC2, 3, 4, based on SMC’s test condition)

**Water hammer:** Reduced by 30%*

- Compared to current model, VNC series
- For 0.35 W type, SGC2 to 7

**Thread type:** Rc, G, NPT, NPTF

**M12 connector**

**Thread type:** Rc, G, NPT, NPTF

**With auto switches for verifying whether the valve is open/closed**

For details, refer to the WEB catalog or the catalog of each product.
**Variations** (Common specifications for external pilot solenoid type and air operated type)

<table>
<thead>
<tr>
<th>Series</th>
<th>Port size</th>
<th>Thread type</th>
<th>Type of actuation</th>
<th>Operating pressure range</th>
<th>Cv</th>
<th>kv</th>
<th>Electrical entry (For external pilot solenoid type)</th>
<th>Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGC2</td>
<td>3/8</td>
<td>Rc</td>
<td>N.C./N.O.</td>
<td>73 [0.5]</td>
<td>4.6</td>
<td>3.9</td>
<td></td>
<td>- Conduit terminal</td>
</tr>
<tr>
<td></td>
<td>1/2</td>
<td>G (ISO1179-1)</td>
<td></td>
<td>145 [1]</td>
<td>3.5</td>
<td>3</td>
<td></td>
<td>- DIN terminal</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>NPTF</td>
<td></td>
<td>73 [0.5]</td>
<td>6.5</td>
<td>5.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145 [1]</td>
<td>4.8</td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>232 [1.6]</td>
<td>2.7</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGC3</td>
<td>1 1/4</td>
<td>(32A)</td>
<td></td>
<td>73 [0.5]</td>
<td>11.8</td>
<td>10.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145 [1]</td>
<td>7.1</td>
<td>6.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>232 [1.6]</td>
<td>4.5</td>
<td>3.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGC4</td>
<td>1 1/2</td>
<td>(40A)</td>
<td></td>
<td>73 [0.5]</td>
<td>18.3</td>
<td>15.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145 [1]</td>
<td>11.0</td>
<td>9.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>232 [1.6]</td>
<td>7.3</td>
<td>6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGC5</td>
<td>2</td>
<td>(50A)</td>
<td></td>
<td>73 [0.5]</td>
<td>28</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145 [1]</td>
<td>20</td>
<td>17.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGC6</td>
<td>1 1/4</td>
<td>(32A)</td>
<td></td>
<td>73 [0.5]</td>
<td>43</td>
<td>36.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145 [1]</td>
<td>30</td>
<td>25.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGC7</td>
<td>2</td>
<td>(50A)</td>
<td></td>
<td>73 [0.5]</td>
<td>70</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1: For DC voltage
Note 2: The response time is equivalent to the VNC series.
* Made to Order

**Coolant Valve Series SGC**

- **Dry bearings**
  - Prevents the shaft, which is a sliding part, from vibrating and helps to extend the service life of the rubber components and improves the seal performance of the main valve.

- **Squeeze seal**
  - Completely shuts off the leakage of liquid coolant and increases the scraper effects. These two safety designs result in a dual advantage.

- **Scraper**
  - Prevents foreign matter from entering, while the main valve is activated.

- **Choice of seal materials**
  - NBR, FKM

- **Auto switch**
  - Able to confirm whether the valve is open/closed. Mountable on the 2 sides. (SGC2, 3, 4 only)

- **Magnet** (SGC2, 3, 4 only)

- **Grease channel**
  - Prevents the loss of grease and helps to extend the service life.

- **For External Pilot Solenoid Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>SGC2</th>
<th>SGC3</th>
<th>SGC4</th>
<th>SGC5</th>
<th>SGC6</th>
<th>SGC7</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.35 W type Note 1</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>1.8 W type  Note 1 2)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Note 1: For DC voltage
Note 2: The response time is equivalent to the VNC series.
Thermo-con/Rack Mount Type
Series HECR
Added cooling capacity 800 W, 1 kW!

Good space utilization

Mountable in a 19-inch rack
Saves space by mounting multiple equipment together in a rack.

Temperature stability
±0.018 to 0.054°F
[±0.01 to 0.03°C]

Set temperature range
50 to 140°F
[10 to 60°C]

Cooling capacity
200 W, 800 W, 1 kW

Energy saving design
400 W
(HECR008/HECR010)
with 500 W load

Low-noise design
54 dB
(HECR008/HECR010)
with 500 W load

Heat source
Temperature sensor
If the external temperature sensor is installed directly on the heat source, the learning control function may not work properly due to large heat volume or large temperature difference. Be sure to install the sensor at the circulating fluid inlet.

Circulating fluid volume can be checked.

Turn the power ON.

Press the SEL key, and adjust the temperature setting with the keys.

Press the RET key to complete.

Can precisely control the temperature of a heat source or process fluid.

Learning control function (Temperature control by external temperature sensor)

Low vibration,
Low noise

Drain pan
Drain pan is equipped to avoid any risk of fluid leakage over equipment mounted in a lower rack.

Fluid fill port
Fluid can be supplied without removing the product from the rack.

Power switch

Rack mounting bracket
Floor type is also available. (Option)
The rack mounting brackets and the handles can be removed and rubber feet can be mounted instead.

Variations

<table>
<thead>
<tr>
<th>Series Cooling capacity</th>
<th>Heating capacity</th>
<th>Cooling method</th>
<th>Temperature stability</th>
<th>Power supply</th>
<th>Circulating fluid Options International standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermo-con/Rack Mount Type</td>
<td>HECR002 200 W</td>
<td>Peltier-type</td>
<td>±0.018 to 0.054°F</td>
<td>Single-phase 100 to 240 VAC (50/60 Hz)</td>
<td>Tap water</td>
</tr>
<tr>
<td>HECR008 800 W</td>
<td>1.4 kW</td>
<td>Air-cooled</td>
<td>±0.01 to 0.03°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HECR010 1 kW</td>
<td>2 kW</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Can precisely control the temperature of a heat source or process fluid.

Precisely control the temperature of the circulating fluid by using the Peltier device.
Refrigerant-free and environmentally friendly.

Learning control function (Temperature control by external temperature sensor)

This function adjusts the fluid temperature to the set value with an automatic offset setting. Set the external temperature sensor at the circulating fluid inlet located just in front of the heat source, which allows the thermo-con to sample the fluid temperature. This function is effective when automatically adjusting for heat exhaust from piping etc.

Simple operation

- Turn the power ON.
- Press the key, and adjust the temperature setting with the keys.
- Press the RET key to complete.

Low vibration, Low noise

Less vibration and noise with no moving parts such as a compressor.
For HECR008/010, noise is reduced by suppressing the number of fan rotations when the cooling load is low.

Variations

<table>
<thead>
<tr>
<th>Series</th>
<th>Cooling capacity</th>
<th>Heating capacity</th>
<th>Cooling method</th>
<th>Temperature stability</th>
<th>Power supply</th>
<th>Circulating fluid</th>
<th>Options</th>
<th>International standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermo-con/ Rack Mount Type HECR002</td>
<td>200 W</td>
<td>600 W</td>
<td>±0.018 to 0.054°F</td>
<td>Single-phase 100 to 240 VAC (50/60 Hz)</td>
<td>Tap water Ethylene glycol 20%</td>
<td>With Feet and No Rack Mounting Brackets With Flow Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermo-con/ Rack Mount Type HECR008</td>
<td>800 W</td>
<td>1.4 kW</td>
<td>Peltier-type air-cooled</td>
<td>±0.01 to 0.03°C</td>
<td>Single-phase 200 to 240 VAC (50/60 Hz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermo-con/ Rack Mount Type HECR010</td>
<td>1 kW</td>
<td>2 kW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Circulating Fluid Temperature Controller

**Thermo-chiller  Standard Type**

**Series HRS090**

Cooling capacity 9 kW added to the standard type HRS series.

- Cooling capacity: 9 kW
- Temperature stability: ±0.9°F [0.5°C]
- Set temperature range: 41 to 95°F [5 to 35°C]
- Max. ambient temperature: 113°F [45°C]
- Power supply: 3-phase 200 to 230 VAC

For details, refer to the WEB catalog or the catalog of each product.

---

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HRSE Basic type</td>
<td>±3.6 [±2.0]</td>
<td>50 to 86 [10 to 30]</td>
<td></td>
<td>Indoor use</td>
<td>3-phase 200 to 230 VAC</td>
</tr>
<tr>
<td>HRS Standard type</td>
<td>±0.18 [±0.1]</td>
<td>41 to 104 [5 to 40]</td>
<td></td>
<td>Indoor use</td>
<td>(Except 9 kW)</td>
</tr>
<tr>
<td></td>
<td>±0.9 [±0.5]</td>
<td>41 to 95 [5 to 35]</td>
<td></td>
<td></td>
<td>(Except 9 kW, only 60 Hz)</td>
</tr>
<tr>
<td>HRS100/150 Standard type</td>
<td>±1.8 [±1.0]</td>
<td>41 to 95 [5 to 35]</td>
<td></td>
<td>Outdoor installation IPX4</td>
<td>(400 V as standard)</td>
</tr>
<tr>
<td>HRSH090 Inverter type</td>
<td>±0.18 [±0.1]</td>
<td>41 to 104 [5 to 40]</td>
<td></td>
<td>Indoor use</td>
<td>(400 V as standard)</td>
</tr>
<tr>
<td>HRSH Inverter type</td>
<td>±0.18 [±0.1]</td>
<td>41 to 95 [5 to 35]</td>
<td></td>
<td>Outdoor installation IPX4</td>
<td>(400 V as standard, 200 V as an option)</td>
</tr>
</tbody>
</table>

★: Newly added
Circulating Fluid Temperature Controller

Thermo-chiller Basic Type

Series HRSE

Power supply 230 VAC, CE marked product added!

Large energy saving by triple control!

- Compressor ON/OFF
- Air-cooled condenser fan
- Electronic valve control

Power consumption

33% Energy saving

Without triple control

With triple control

Power supply 100/200 VAC 50/60 Hz

New 230 VAC 50/60 Hz

Cooling capacity 1.2, 1.6, 2.2 kW

Max. ambient temperature 104°F (40°C)

Set temperature range 50 to 86°F (10 to 30°C)

Temperature stability ±3.6°F (±2.0°C)

Maintenance free Magnet pump

Low-noise design 55 dB(A)

Maintenance free Magnet pump

Compact/Lightweight 70.5 lbs (32 kg)

17.1 [435] inch [mm]

14.8 [377] inch [mm]

24.2 [615] inch [mm]
## Motorless Type

### Electric Actuators

#### Series LE

Your motor and driver can be used together!

Manufacturers of compatible motors: 14 companies

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi Electric Corporation</td>
<td>YASKAWA Electric Corporation</td>
</tr>
<tr>
<td>SANYO DENKI CO., LTD.</td>
<td>OMRON Corporation</td>
</tr>
<tr>
<td>Panasonic Corporation</td>
<td>FANUC CORPORATION</td>
</tr>
<tr>
<td>NIDEC SANKYO CORPORATION</td>
<td>FUJI ELECTRIC CO., LTD.</td>
</tr>
<tr>
<td>KEYENCE CORPORATION</td>
<td>Rockwell Automation, Inc. (Allen-Bradley)</td>
</tr>
<tr>
<td>FASTECH Co., Ltd.</td>
<td>Siemens AG</td>
</tr>
<tr>
<td>Beckhoff Automation GmbH</td>
<td>Delta Electronics, Inc.</td>
</tr>
</tbody>
</table>

### Slider Type Series LEF

#### Ball Screw Drive/Series LEFS

<table>
<thead>
<tr>
<th>Size</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>50 to 800</td>
</tr>
<tr>
<td>32</td>
<td>50 to 1000</td>
</tr>
<tr>
<td>40</td>
<td>150 to 1200</td>
</tr>
</tbody>
</table>

#### Belt Drive/Series LEFB

<table>
<thead>
<tr>
<th>Size</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>300 to 2000</td>
</tr>
<tr>
<td>32</td>
<td>300 to 2500</td>
</tr>
<tr>
<td>40</td>
<td>300 to 3000</td>
</tr>
</tbody>
</table>

### High Rigidity Slider Type Series LEJ

#### Ball Screw Drive/Series LEJS

<table>
<thead>
<tr>
<th>Size</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>200 to 1200</td>
</tr>
<tr>
<td>63</td>
<td>300 to 1500</td>
</tr>
</tbody>
</table>

### Rod Type Series LEY

<table>
<thead>
<tr>
<th>Size</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>30 to 400</td>
</tr>
<tr>
<td>32</td>
<td>30 to 500</td>
</tr>
<tr>
<td>63</td>
<td>100 to 800</td>
</tr>
</tbody>
</table>

### Guide Rod Type Series LEYG

<table>
<thead>
<tr>
<th>Size</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>30 to 300</td>
</tr>
<tr>
<td>32</td>
<td>30 to 300</td>
</tr>
</tbody>
</table>

For details, refer to the WEB catalog or the catalog of each product.
Vacuum Pad with Ejector
Pad Diameter: ø63, ø80
Series ZHP

Ejector and pad are integrated.
Space saving and reduced piping labor!

Two-stage ejector
More efficient ejector

- Suction flow rate increased
- Air consumption reduced

+ 1) Compared with SMC single stage ejector

Two-stage ejector

First ejector Second ejector

Q1 + Q2 = Suction flow rate

With One-touch fitting
Metric: ø4, ø6
Inch: ø5/32", ø1/4"

Strainer
Prevents entry of foreign matter at the pad suction port.

Improved ease of removal

Dents and bumps on the adsorption surface prevent the workpiece from sticking to it. This facilitates easy removal.

With groove

Dents and bumps are formed on the adsorption surface. Workpieces can be removed easily.

Shot-blasted

Micro-dents and bumps are formed on the adsorption surface. Workpieces can be removed easily.

Through-hole silencer

The exhaust is discharged directly to atmosphere, cutting off the unpleasant frequency while exhibiting the maximum possible vacuum performance.

- Low noise: 60 dB(A)
  (Exhaust noise when the nozzle diameter is ø0.7)
- Structure designed to minimize clogging

Daisy-chain vacuum piping is possible.

With ejector Without ejector

For details, refer to the WEB catalog or the catalog of each product.
**Vacuum Pad**

<table>
<thead>
<tr>
<th>Flat Type</th>
<th>With Groove</th>
<th>Bellows Type</th>
<th>With Groove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø32, Ø40, Ø50, Ø63, Ø80, Ø100, Ø125</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Series ZP3E**

**Stability of suction position**

- Groove and rib formed to adsorb with entire surface
- Dents and bumps on the adsorption surface expands the area which is in contact with the workpiece.
- Ribs reduce the inclinations during transport of workpiece.

**Improved ease of removal**

- With groove
  - Dents and bumps on the adsorption surface prevent the workpiece from sticking to it. This facilitates easy removal.
- Shot-blasted
  - Micro-dents and bumps are formed on the adsorption surface. Workpieces can be removed easily.

**The number of mounting screws reduced**

- Mounting screw
  - 4 PCS.
  - 1 PC.

For details, refer to the WEB catalog or the catalog of each product.

For the ZP series (Heavy-duty type):

- Metal plate
- Rubber pad
- Holder
- Plate
- Stopper
- Pad

The rubber pad and metal part can be separated.

Can be disposed of separately.

For use where adsorption marks must not be left on workpieces.

Mark-free NBR pad

The metal parts and rubber parts can be separated completely.

**Vacuum Pad**

- CAT.NAS100-112

**Note:** The pad material when weight was measured is NBR.

**Suction flow rate increased**

- Ball joint type pad weight reduced
  - Weight reduced by up to 290 g

**No trace of the pad!**

**Double suction port size**

Pad diameter: Ø63, Ø80

Compared with the ZP series

**Seal washer**

**Clear trace of the pad**

**Standard pad**

**Standard type**

**Ball joint type**

**ZP3E**

**Shot-blasted**

Micro-dents and bumps are formed on the adsorption surface.

Workpieces can be removed easily.
Can be disposed of separately.

The rubber pad and metal part can be separated.

Mark-free

For use where adsorption marks must not be left on workpieces.

Suction flow rate increased

Applicable to workpieces with a large suction flow rate and high permeability, and vacuum blow

Ball joint type pad weight reduced

Weight reduced by changing the internal structure and materials

Direct mounting with male thread added

- Reduced in height
- Easy mounting with tightening with a hexagonal wrench
Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.