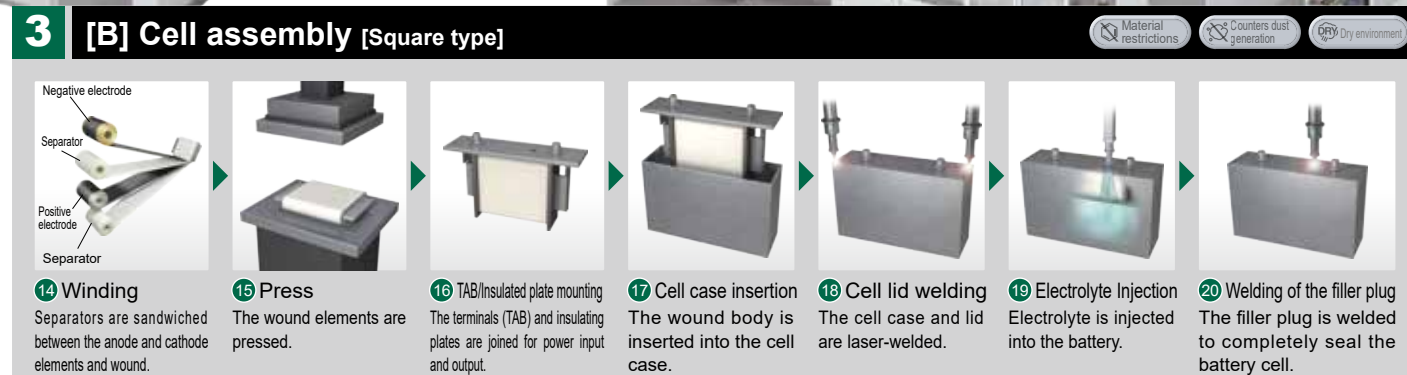
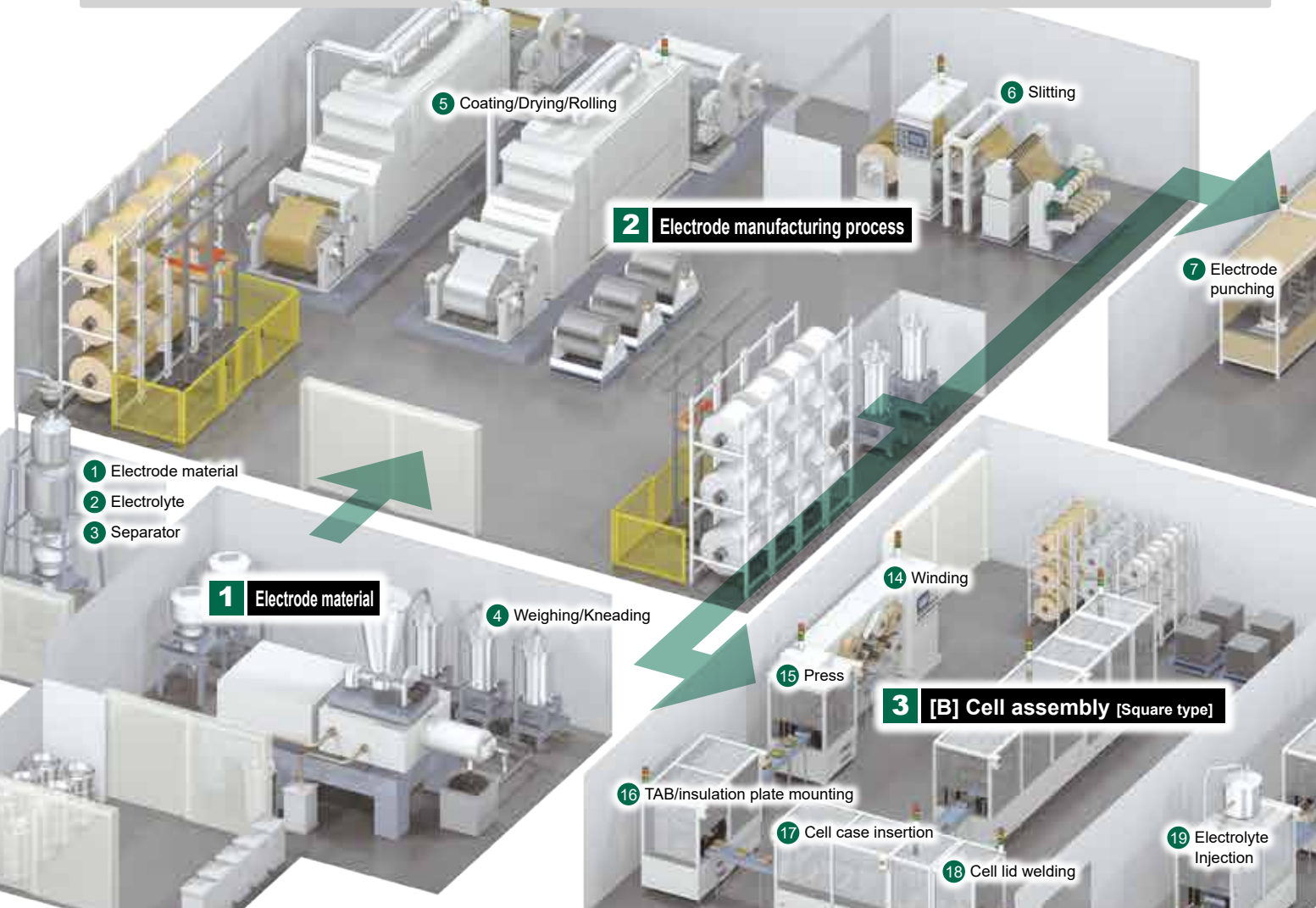
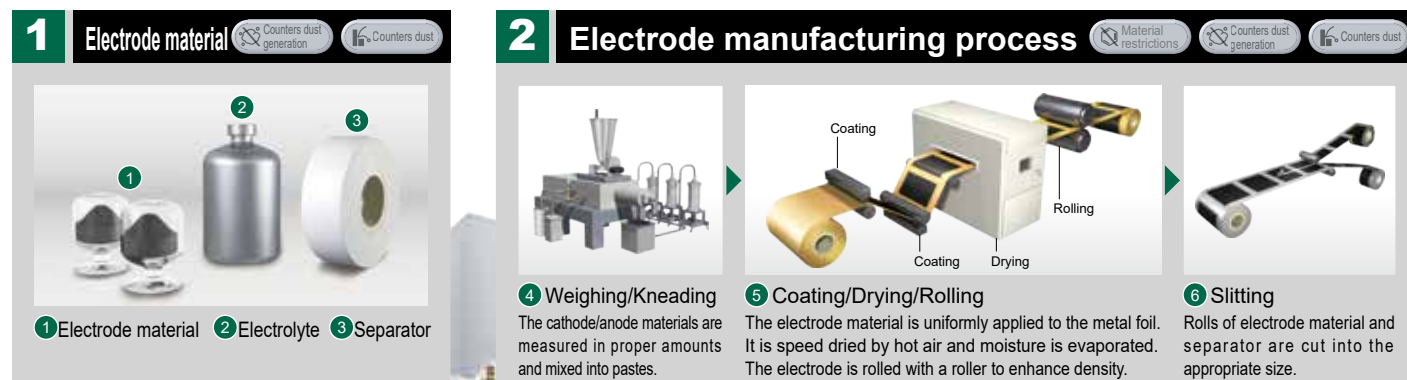
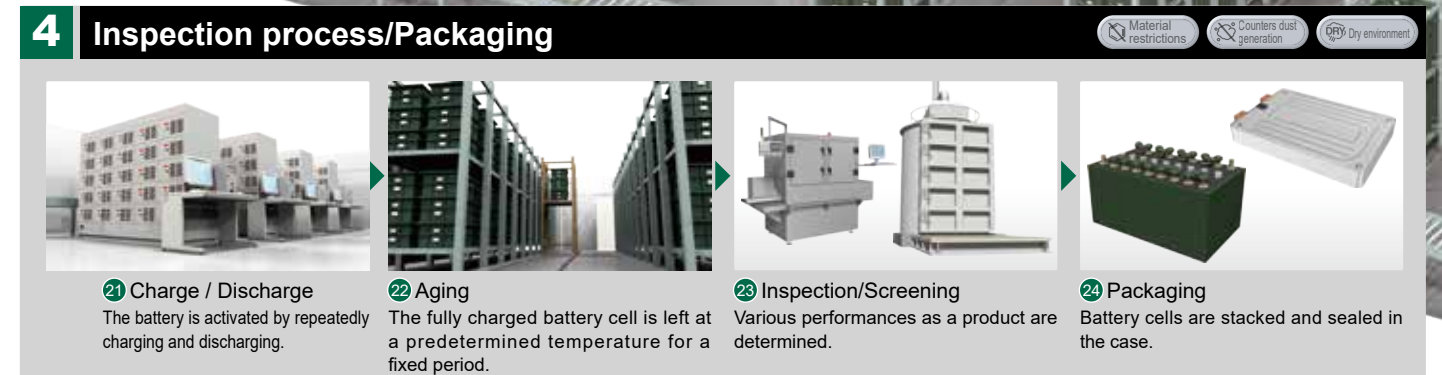
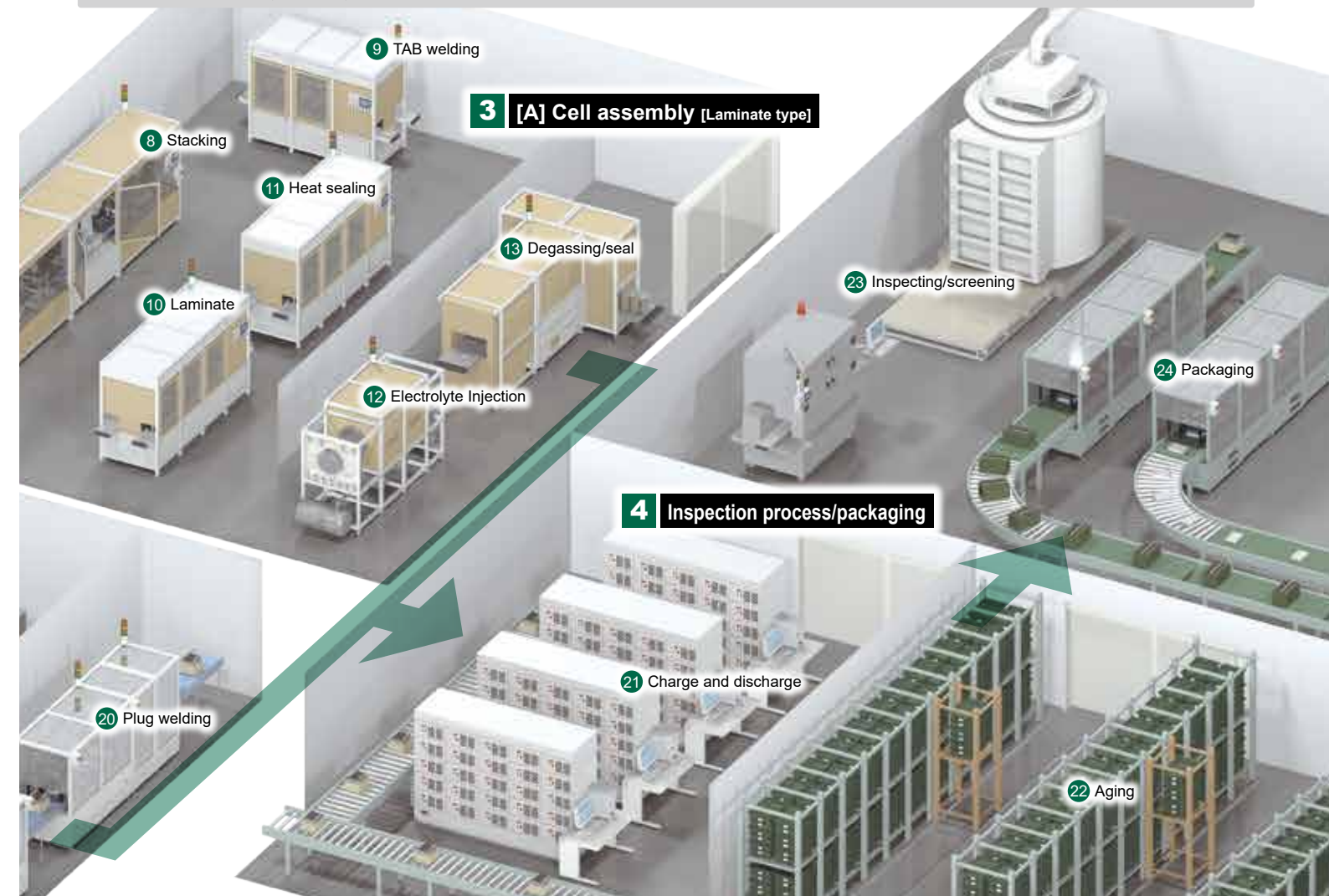
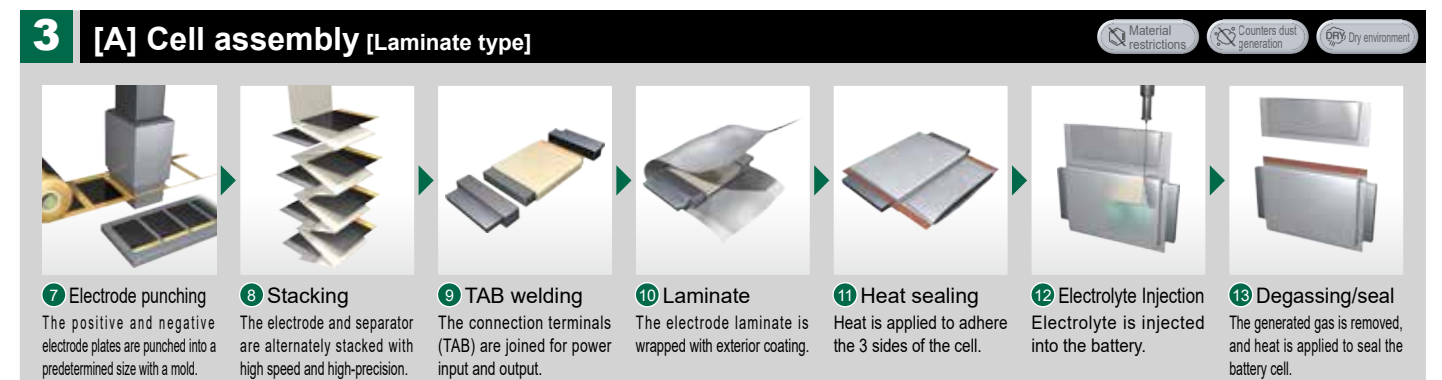


Rechargeable battery manufacturing process

Each manufacturing process in the manufacture of rechargeable batteries requires support for a variety of environments, such as dust/explosion-proof/vacuum/ultra-dry and material restrictions.



Equipment related to rechargeable batteries P4* Series



Contributes to "Stable operation" and "Long service life components" for equipment that never stops.

With the progress of rechargeable and next-generation battery development, we have responded to the demand for components with improved dry environmental performance. Our products are compatible with the production stability of the manufacturing process and consistently meet the needs of rechargeable battery manufacturing, from electrode production to packaging.

Make Progress!!

P4 Series



Series Zoning

Compatible models are available in 2 grades (P4 Series, P40 Series) according to the atmosphere and installation location of the device.

B ZONE

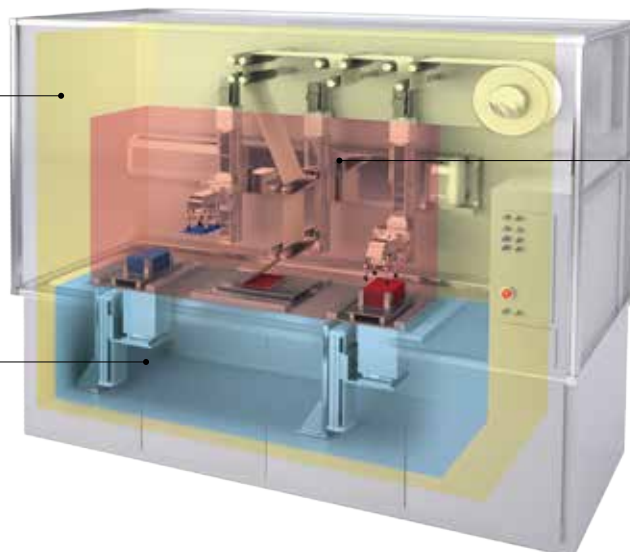
Zone above but removed from the workpiece

>> **-P4 Series**

C ZONE

Zone below the workpiece

>> **-P4 Series**



A ZONE

Zone immediately above and close to the workpiece

>> **-P40 Series**

>> **-P42 Series**

Places used with high frequency or where high durability is required

>> **Refer to HP Series General Catalog**
(catalog No.CC-1421A)

HP
HIGH PRODUCTIVITY

Material restrictions



Restrict materials for component parts.

Restricts the use of materials and surface treatments inappropriate for the rechargeable battery manufacturing process.



Limited copper material



Limited zinc material



Limited nickel-based material



Limited zinc plating



Limited electrolytic nickel plating

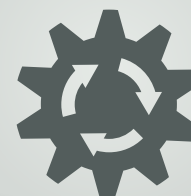
Dry environment



Long service life even in -70°C dew point environments

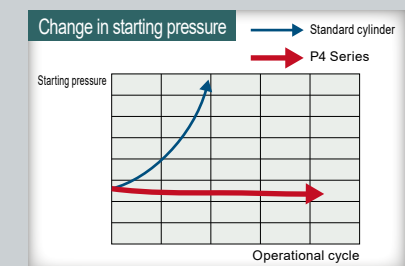
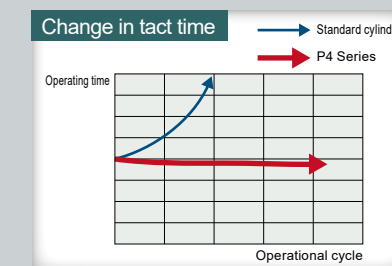
Adopted grease compatible with ultra-dry environments. Retains the smooth operation of the sliding part for long periods, even in dry environments.

Stable operation



Contributing to a system that never stops

Uses a special grease that supports low dew points and high frequency use. Contributes to stable operation of equipment.



Fights dust and its generation



Suppresses dust generation of metal wear powder

Equipped with a local exhaust function (vacuum treatment port). Prevents contamination of the electrodes or cell by not leaking the metal wear powder outside.

Contributes to the needs of all types of rechargeable batteries and next-generation battery manufacturing processes.

Material limitations for the flow path part/sliding part

* Trace amounts present in the alloy are excluded.

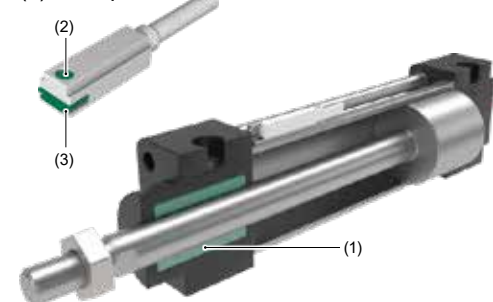
Same mounting size as standard

-P4 Series

The use of copper, zinc, and nickel-based materials and electrolytic nickel plating is limited in the construction of the flow path part and sliding part.

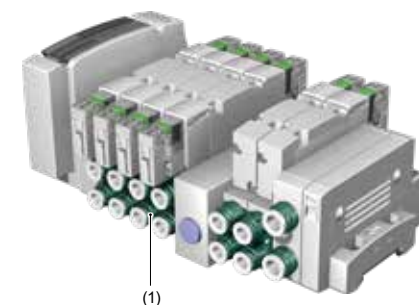
Cylinder

- (1) Copper-based bearing
→ Cast iron-based bearing
- (2) SUS screw
- (3) SUS plate



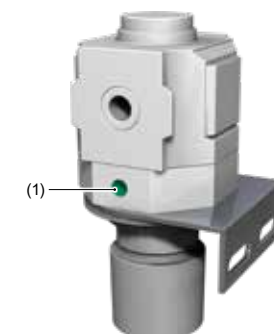
Pneumatic valves

- (1) SUS fitting



Regulator

- (1) Exhaust port



Electric actuator

We offer a wide range of motor-equipped (stepping motor) and motorless (servo motor/stepping motor) variations.

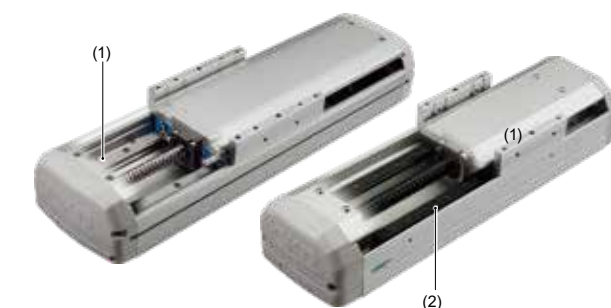
Same mounting size as standard

Electrolyte proof specifications

Improved environmental resistance with raydent equivalent processing.

- (1) Standard
- (2) Anti-rust treated

Motorless specifications

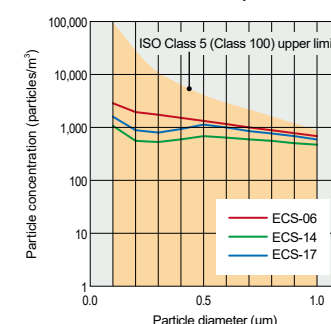
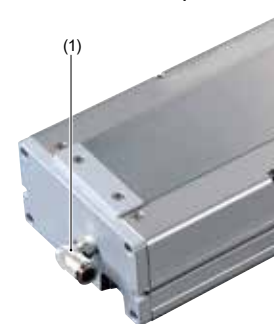


Low contamination specifications

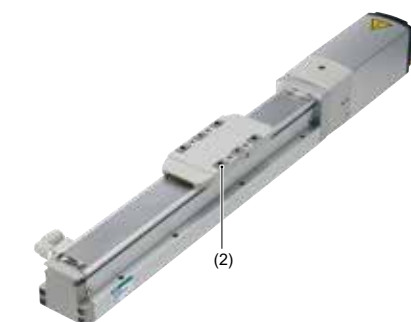
- (1) Counters dust generation

Motorless specifications

Class 100 or equivalent with vacuum treatment port.



Motor specification



Motor specification



Material limitations for all parts

* Electrical components (coil, circuit, wiring section, etc.) are excluded.
* Trace amounts present in the alloy are excluded.

Same mounting size as standard

-P40 Series

The use of copper, zinc, and nickel-based materials, zinc plating, and electrolytic nickel plating is limited in the construction of all parts.

Cylinder

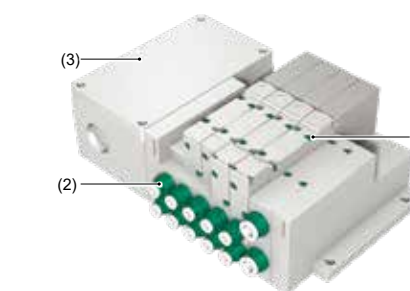
- (1) Electroless Ni plating



Pneumatic valves

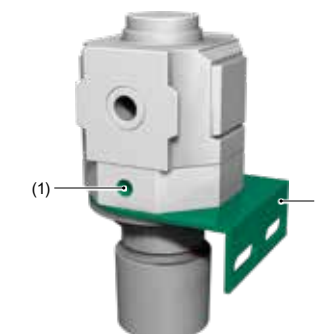
- (1) SUS screw
 - (2) SUS fitting
- Electric circuit unit IP65*

*D-sub-connector specifications are IP40.



Regulator

- (1) Exhaust port
- (2) Electroless Ni plating



1/5 or less dust generation rate achieved

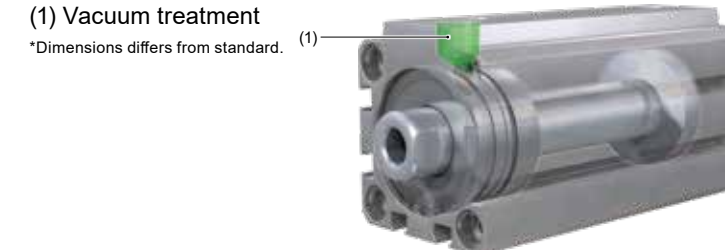
-P42 Series

Local exhaust function (vacuum treatment port) is added to P40 specifications. Prevents metal powder from contaminating the electrode and cell, and reduces product failure of rechargeable batteries. In addition, SUS is used in piston rods.

Cylinder

- (1) Vacuum treatment

*Dimensions differs from standard.

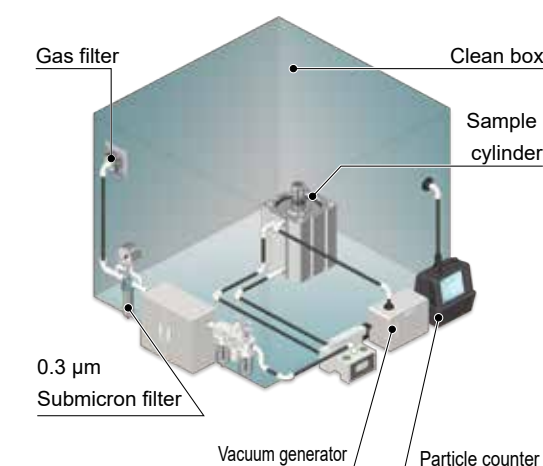


Test method

The cylinder is operated in a clean box, and dust generation rate is measured.

Test conditions

| | |
|-----------------|----------|
| Supply pressure | 0.5 MPa |
| Cylinder speed | 200 mm/s |
| Frequency | 30cpm |
| Load | No load |



For more information about the -P41 Series, please contact our sales department.



Compatible with more than 100 models
A line-up that can contribute to the evolving rechargeable battery manufacturing processes