

Electric Vacuum End Effector

Model **EVE-500**

Electric vacuum end effector

eVEE*Contributes to carbon neutrality*

Utilize a vacuum pump as a negative pressure source

Application Examples

**No compressed
air required**

Switch from Ejector to Vacuum Pump for Energy-Saving Vacuum Lifting



**No compressed
air required**

Features

- No compressed air required due to built-in vacuum pump
- Enables energy savings in vacuum lifting

Energy saving

Pump automatically stops at preset pressure

Quiet operation

No air discharge noise

Vacuum holding function

Valve maintains vacuum when the pump stops automatically

Cleanliness

No external air inflow

Suitable for use anywhere

No compressed air required

I/O signal type

PNP / NPN models available

Easy setup

No need for hose routing

Compressor
+
Ejector



**No compressed
air required**

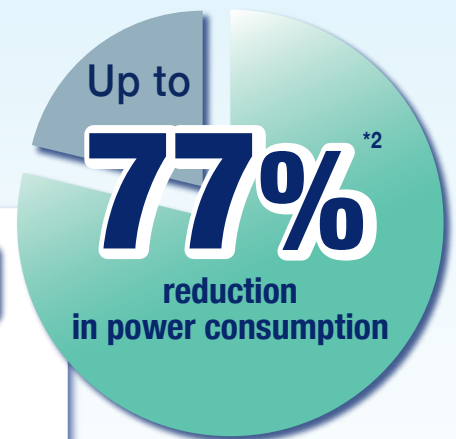
eVEE

Power Consumption

MAX
14.4 W *1

Energy Consumption

0.014 kWh



*1 Maximum instantaneous value during operation.

*2 Compared to an ejector of the same capacity, with an air consumption of 13 L/min per unit.

Specifications

Model | **EVE-500**

Attainable Vacuum		kPa {mmHg}	-66.6 {-500}		
Free Air Displacement		L/min	7.5		
Rated Voltage			24 V DC		
Power Consumption		W	14.4 *1		
Energy Consumption		kWh	0.014		
Dimensions *Excluding protrusion		mm	104(W) x 96(D) x 80(H)		
Weight	kg	<div></div>	EVE-500-NK	EVE-500-KOM EVE-500-KO	
			Main unit only	0.92	0.94
			When mounted	1.08	1.13
I/O Signal Type			PNP / NPN		
Mounting Interface			ISO Mechanical Interface 4		

Model Type Selection Guide			
I/O Signal Type		PNP	NPN
Mounting Type			
Screw type tool flange		EVE-500-NK-PNP	EVE-500-NK-NPN
Manual robotic hand changer	Master cylinder + Tool adapter	EVE-500-KOM-PNP *3	EVE-500-KOM-NPN *3
	Tool adapter only	EVE-500-KO-PNP *3	EVE-500-KO-NPN *3

*3 Made-to-order models. For details, please contact your local sales staff.



YouTube



Overview

See page 3 for standard accessories.

Application Examples



YouTube



Vacuum
Lifting Demonstration:
Cardboard

YouTube



Vacuum
Lifting Demonstration:
Other materials

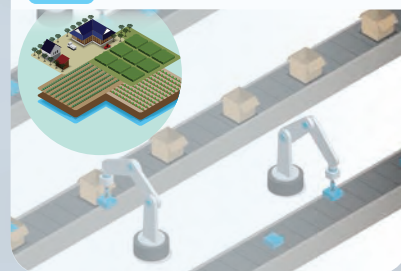
1 Warehouses



2 Food factories



3 Agricultural sectors



Functions

- Select the operation mode using the mode switch on the side of the main unit.
- Switch the floating function using the lock lever on the back of the main unit.

YouTube



Functions

Operating Modes

Program Mode



Side of the main unit

•Suction command signal (I/O) operation

Suction and release are controlled via the I/O signals from the robot. Suction starts when the I/O signal is [ON]. Release occurs when the I/O signal is [OFF], opening the atmospheric release valve.

Timer Mode



Side of the main unit

•Timer setting operation (2 to 30 seconds)

Set the suction time by turning the timer dial. (No I/O signal required)
Suction starts when the suction cup touches the workpiece, and release occurs after the set time elapses.

Floating Mechanism



Back of the main unit

•Floating stroke up to 15 mm in the Z-axis direction

Lock : Floating OFF **Unlock** : Floating ON

For stable suction and to reduce the load on the e-VEE and robot, it is recommended to use the [Floating ON] setting. Use the [Floating OFF] setting when using the bellows suction cup or when a pushing force is required for the suction cup or the workpiece.



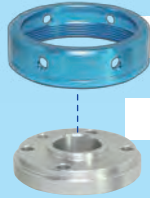
Do not leave the unit continuously powered on without performing suction operations. Prolonged energization without suction may cause overheating, leading to malfunction or failure. Perform suction operations periodically. It is recommended to operate the unit so that the suction state accounts for at least 50% of the operation cycle time.

Standard Accessories

Standard



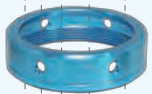
Screw type tool flange



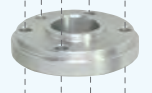
Adapter ring

Flange adapter

Robot flange



Parallel pin



Mounting bolt

*Mounting Interface:
ISO Mechanical Interface 4

Included:
Parallel pins (2 pcs)
Mounting bolts (4 pcs)

Optional accessory

For mounting

Pin spanner for tool flange



Model
EVE-PS-7075

Made-to-order



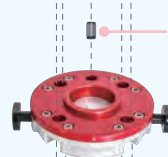
Manual robotic hand changer



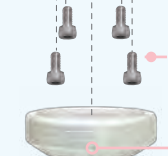
Master cylinder

Model
SXR0070-M

Robot flange



Parallel pin



Mounting bolt

Included:
Parallel pin (1 pc)
Mounting bolts (4 pcs)

Pin
(in the Master cylinder)

Hole position
(in the Tool adapter)

*Mounting Interface:
ISO Mechanical Interface 4

Main unit weight

0.92 kg

*Including tool flange

*Excluding suction cup adapter



Tool flange

Suction cup adapter flange

Mounted on the main unit

Filter (1 pc)
Built into suction cup adapter flange

Gasket for suction cup adapters

Mounting bolt

Suction cup adapter M6

Flat suction cup $\phi 35$

Suction cup mounting screw
M6

Tool adapter



Main unit weight

0.94 kg

*Including tool adapter and suction cup adapter flange

*Excluding suction cup adapter

Gasket for suction cup adapters

Mounting bolt

Suction cup mounting screw
M6

Installation examples of optional accessories

Branch type

2-branch



3-branch



4-branch

Robot Hand Kit CONVUM

*Compatible with e-VEE. Not available from NITTO Kohki.



Extension type

3-branch



Extension flange 100
EVE-EXF-100
Length: 100 mm

Safety guide

- ⚠ When attaching or detaching the main unit, always implement fall-prevention measures and exercise caution to prevent the unit from falling. Dropping the unit may result in damage to the product or personal injury. Additionally, ensure the robot's power is turned OFF prior to proceeding.
- ⚠ Regularly inspect the mounting bolts and adapter rings to ensure they are securely tightened.
- ⚠ If there is an inclination during connection, the equipment may become twisted, caught, or clamped. If clamped, releasing it may require a very large pusher force, making manual release difficult.
- ⚠ If manual release is not possible, attach a bolt or similar tool to the forced-release screw on the tool adapter and push the pusher to perform a forced release.
- ⚠ When attaching or detaching the bolts, apply a spanner to the two flats of the suction cup adapter flange and ensure that excessive torque is not applied to the center shaft.
- ⚠ If a swiveling operation is performed during transportation, the screws may loosen, causing the suction cup to come off. Perform transportation operations at a sufficiently low speed and acceleration. Pay special attention if the suction position and the center of gravity of the object being suctioned are misaligned.

See page 11 for optional accessories.

Standard Accessories

Suction cup adapter flange



Mounted on the main unit.
Filter (1 pc) is built into suction cup adapter flange.



Filter (1 pc)
EVE-FL10

Suction cup adapter M6

Model **EVE-PA-M6**



Included:



Gasket for suction cup adapters (1 pc)
EVE-PAG10



Mounting bolts (2 pcs)

Flat suction cup $\phi 35$

Model **PFG-35-S**



Included: Suction cup mounting screw (1 pc)



TN-PF-25-M6
M6

*The dimensions in the drawings are for reference only.

*Illustrations are not to scale.

Unit : mm



NITTO KOHKI

**Screw type
tool flange**

I/O Signal Type (PNP/NPN)

EVE-500-NK-PNP

EVE-500-NK-NPN



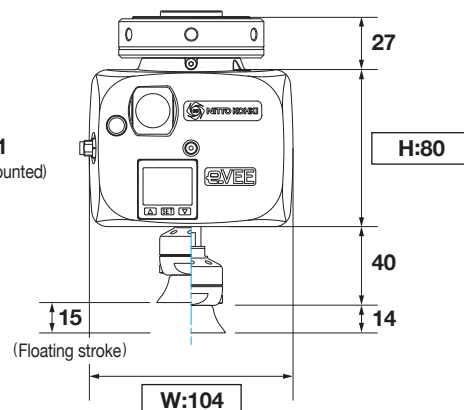
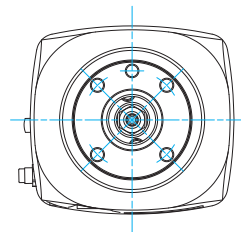
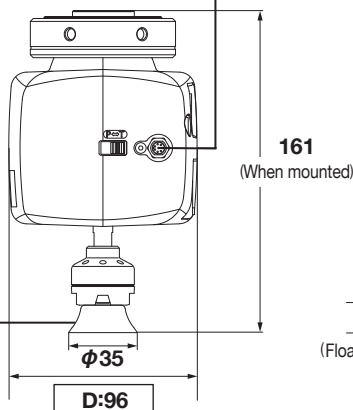
YouTube



How to calculate lifting force

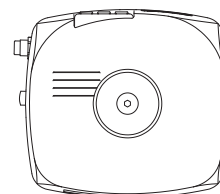
Connector of communication
cable for robots

e-VEE main unit



**Flat suction cup PFG-35-S
made by Convum Ltd.**

Only flat suction cup PFG-35-S comes with
the suction cup mounting screw **M6** (1 pc).



KOSMEK

Harmony in Innovation

**Manual robotic
hand changer**

I/O Signal Type (PNP/NPN)

**Master cylinder
+
Tool adapter**

EVE-500-KOM-PNP *1

EVE-500-KOM-NPN *1

Tool adapter only

EVE-500-KO-PNP *1

EVE-500-KO-NPN *1



There are two types of models.

- Master cylinder + Tool adapter
- Tool adapter only

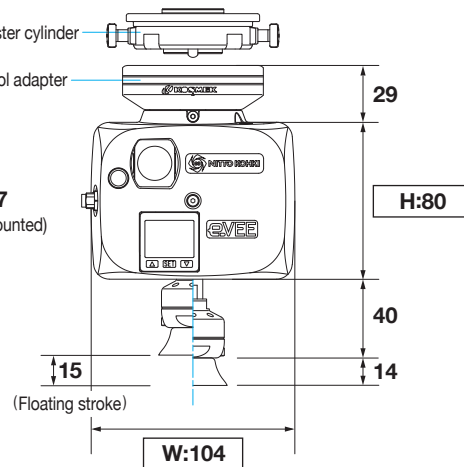
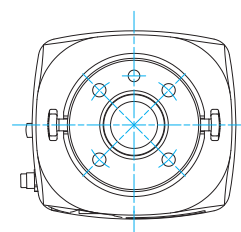
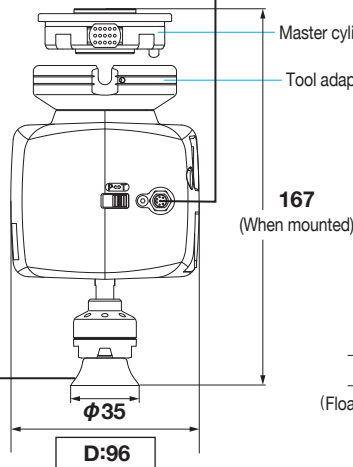
*1 Made-to-order models.

For details, please contact your local sales staff.



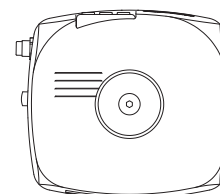
Connector of communication
cable for robots

e-VEE main unit



**Flat suction cup PFG-35-S
made by Convum Ltd.**

Only flat suction cup PFG-35-S comes with
the suction cup mounting screw **M6** (1 pc).



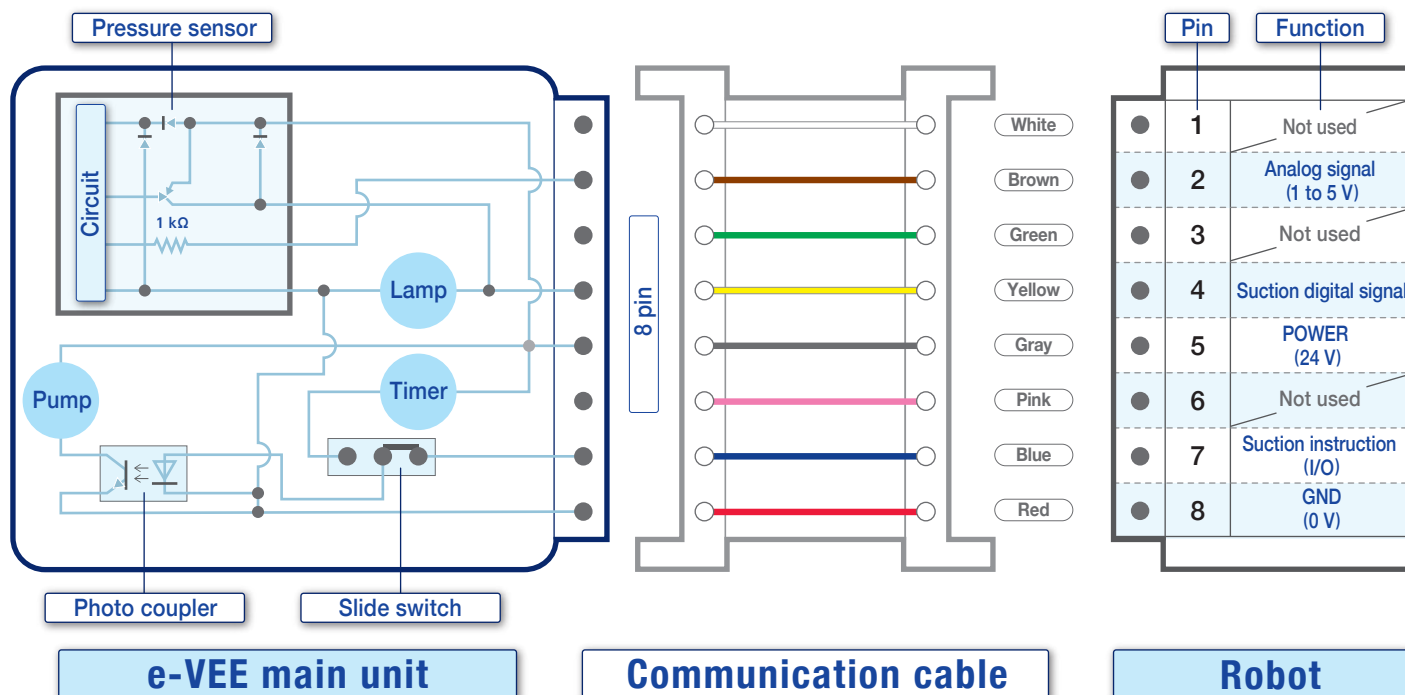
⚠ Check the function assignment of each pin and correctly set the input and output on the robot side.

*The schematic diagram is different from the actual circuit.

*It is recommended to use our optional cables for connection to this unit.

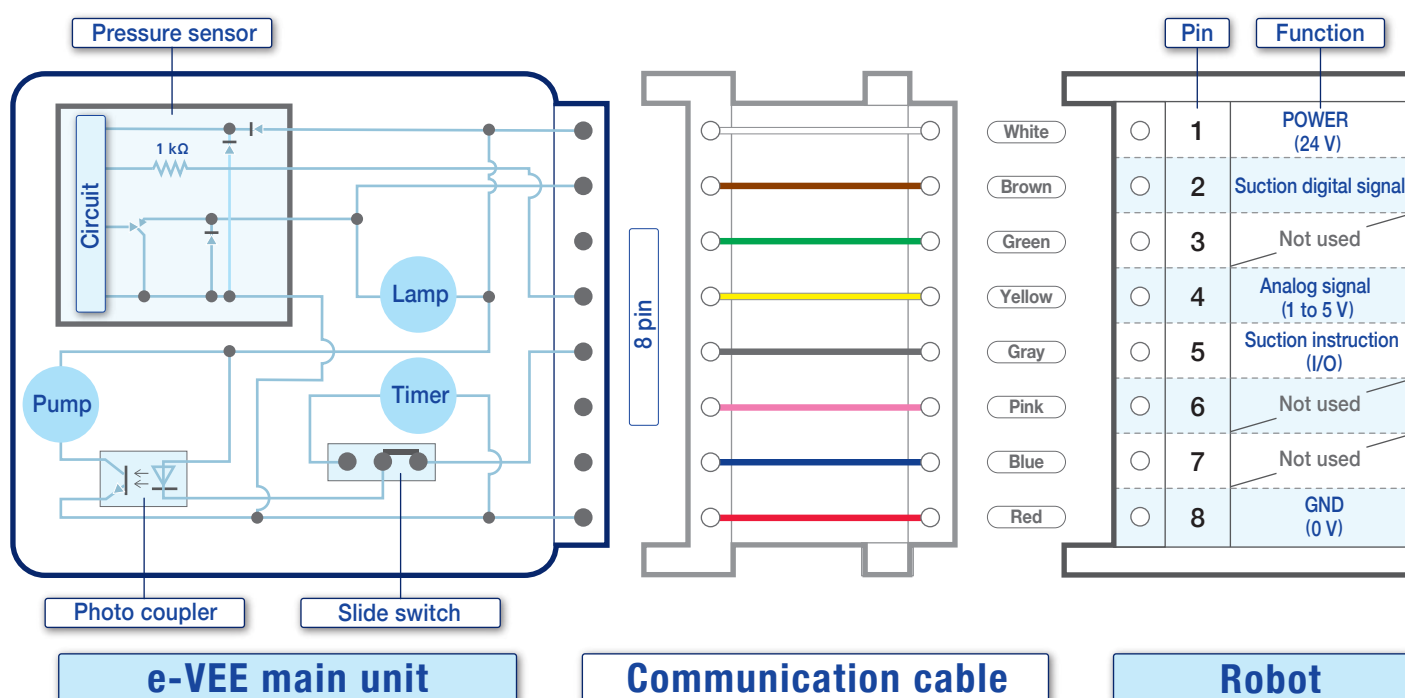
I/O Signal Type specifications

PNP



I/O Signal Type specifications

NPN



For communication cable for robots, see page 9.

- * ~ 7 Check the mounting type, size, shape and usage type of the installation equipment to select the appropriate standard or optional accessories.



Communication cable for robots



Check the connector pin configuration on the robot side.
The cable is required for connection. Not included. Please order separately.

1 Robot mounting type

- * Check the I/O signal type (PNP/NPN) and select the mounting type.

Nitto Kohki Screw type tool flange

Kosmek Ltd. Manual robotic hand changer

2 Select the number of suction cups and the extension/branch type.

Select the number of suction cups according to the weight and shape of the object to be transported. (Refer to 6) Then, select 3 to 5 .

3 Extension type

Select the Extension flange made by **Nitto Kohki** or extension type made by **Convum Ltd.** .

4 Branch type

Select 4 to 6 according to the weight and shape of the object to be transported.

5 Suction cup adapter

Change or add the suction cup adapter according to the size and number of suction cups being used.

6 Suction cup

Select the suction cup according to the weight and shape of the object to be transported.

YouTube



How to select the model

Nitto Kohki Standard accessories available

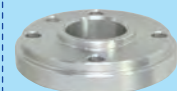
Standard accessories

Adapter ring



1

Flange adapter



Tool flange



Suction cup adapter flange

2

3

4

Gasket for suction cup adapters

Suction cup adapter

5

Mounting bolts

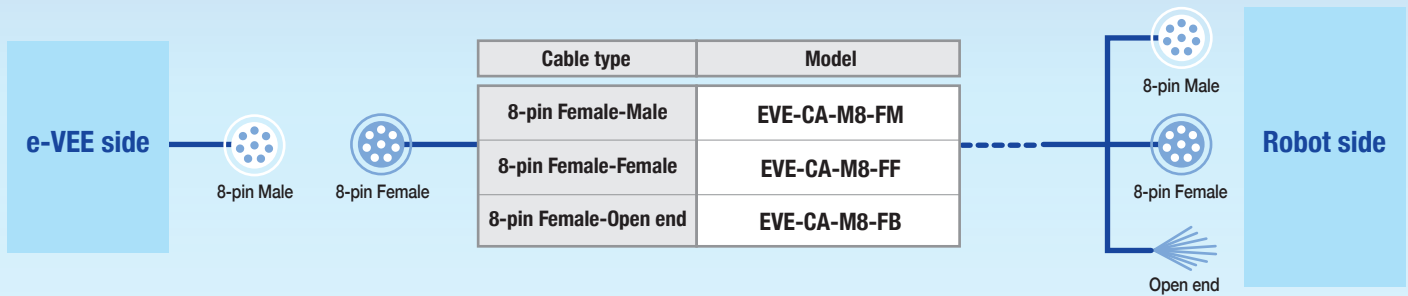
Suction cup

6

Suction cup mounting screw



Select the communication cable for robots.



1 Robot mounting type Check **PNP** or **NPN** *Communication cables for robots are common

Standard accessories



Screw type tool flange

Adapter ring + Flange adapter
EVE-500-NK-PNP / EVE-500-NK-NPN



Included:
Parallel pins (2 pcs)
Mounting bolts (4 pcs)



Manual robotic hand changer

Master cylinder + Tool adapter
EVE-500-KOM-PNP / EVE-500-KOM-NPN

Tool adapter only
EVE-500-KO-PNP / EVE-500-KO-NPN

Master cylinder



Tool adapter



Included:
Parallel pin (1 pc)
Mounting bolts (4 pcs)

2 Select the accessories (3 to 6) according to the application

Standard accessory



Suction cup adapter flange mounted on the main unit

2

5 6

Standard accessories

5 Suction cup adapter



Suction cup adapter M6 EVE-PA-M6

Included:
Gasket for suction cup adapters (1 pc)
Mounting bolts (2 pcs)

6 Suction cup



Flat suction cup $\phi 35$ PFG-35-S

Included:
Suction cup mounting screw (1 pc)

M6



4 5 6

Optional accessories: Branch type

2-branch



3-branch



4-branch

Robot Hand Kit
CONVUM



3 4 5 6

Optional accessories: Extension type

3-branch



4-branch CONVUM



Ex.1 FX type

Ex.2 FH type

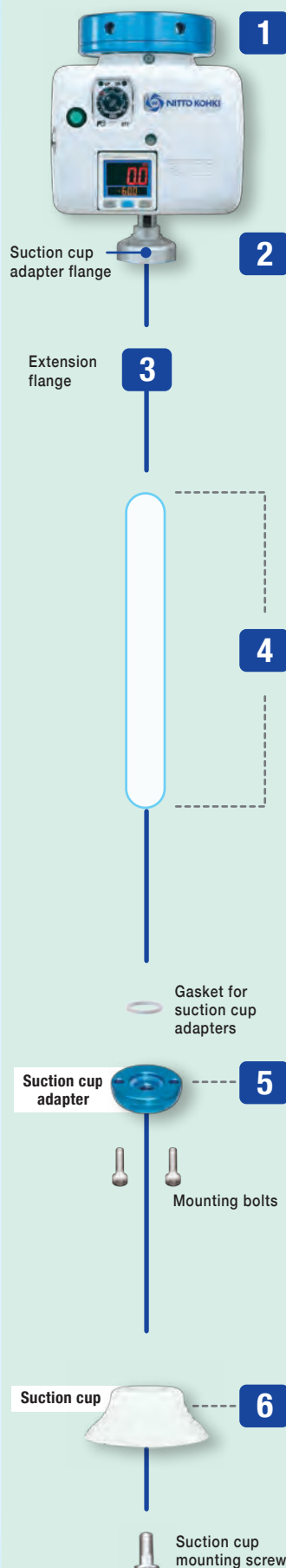


*Robot Hand Kit is compatible with e-VEE. Not available from Nitto Kohki.



How to install branch type

Branch type



1 Select robot mounting type [For details, see page 8.](#)

2 Select number of suction cups and extension/branch type

3 (If required) Select extension type [For details, see page 10.](#)

4 Select branch type

Select **4** to **6** according to the weight and shape of the object to be transported.

⚠ When using the FX/FH/FI/FE type, the optional branch adapter is required.

Optional accessory	Product of Convum Ltd.
<p>2-branch 3-branch</p> <p>3-branch suction cup adapter P40 EVE-PA-TR40</p> <p>Closing adapter</p>	<p>4-branch</p> <p>Robot Hand Kit</p> <p>CONVUM</p> <p>*Compatible with e-VEE. Not available from Nitto Kohki.</p>

5 Select suction cup adapter

Change or add the appropriate suction cup adapters according to the size and number of the suction cups to be used.

⚠ When no pad is attached in the center, be sure to attach the optional closing adapter.

Standard accessory	Optional accessories
<p>M6</p>	<p>M5</p> <p>G1/8</p> <p>Closing adapter</p> <p>2-branch</p>

6 Select suction cup

Select the suction cup according to the weight and shape of the object to be transported.

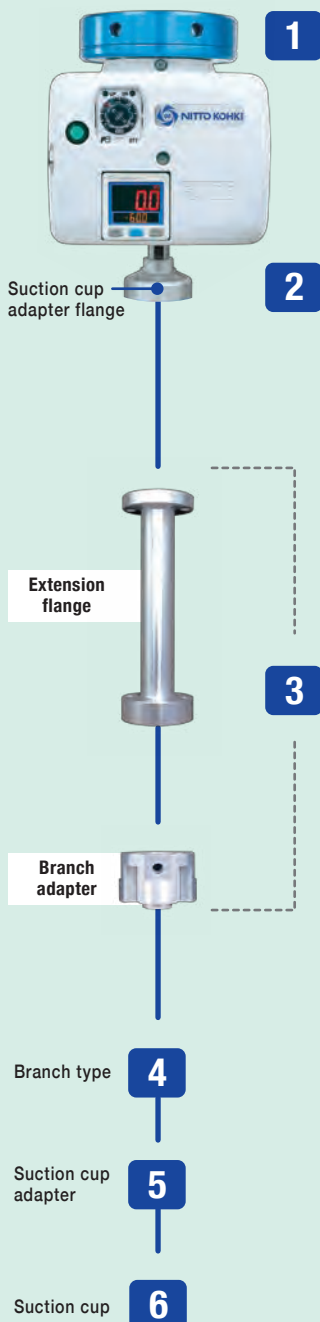
⚠ The suction cup mounting screw is sold separately.

Standard accessory	Optional accessories
<p>Flat suction cup φ35</p>	<p>Bellows suction cup φ35</p> <p>Deep suction cup φ45</p>

Change or add the suction cup adapter according to the size and number of suction cups.

How to install extension flange

Extension type



1 Select robot mounting type For details, see page 8.

2 Select number of suction cups and extension/branch type

3 Select extension type

Select the Extension flange made by **Nitto Kohki** or extension type made by **Convum Ltd.**

Nitto Kohki

Optional accessory

Extension flange EVE-EXF-100



Can be used with:

2-branch

3-branch

4-branch



Optional accessory

Branch adapter

Exclusive for:



PCD25
EVE-BA-25

FX type

FH type



PCD31.5
EVE-BA-31.5

FI type

FE type



PCD50
EVE-BA-50

with through-passage for
air distribution
(3 types)



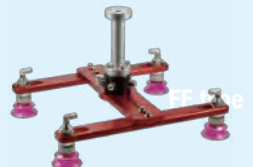
Convum Ltd.

Installation examples



FX type

FH type



*Compatible with e-VEE.
Not available from Nitto Kohki.

FX type

FH type

FI type

FE type

Optional branch adapters are required when using the FX/FH/FI/FE type.

For details, see page 9.

4 Select branch type

5 Select suction cup adapter

6 Select suction cup

Optional accessories



Standard accessories

Adapter ring



1

Flange adapter



2



Filter

3

4

Gasket for suction cup adapters

Suction cup adapter

5

Mounting bolts

Suction cup

6

Suction cup mounting screw

* Communication cable for robots



Length: 300 mm

8-pin Female-Male
EVE-CA-M8-FM



Length: 300 mm

8-pin Female-Female
EVE-CA-M8-FF



Length: 1500 mm

8-pin Female-Open end
EVE-CA-M8-FB

1 Robot mounting type

Kosmek Ltd.



Included:

- Parallel pin (1 pc)
- Mounting bolts (4 pcs)

Master cylinder
SXR0070-M



For mounting the tool flange

Pin spanner
EVE-PS-7075

2

10 pcs per box



Built into suction cup adapter flange

Filter
EVE-FL10

3 Extension type

*Each branch adapter includes a gasket for suction cup adapters (1 pc) and mounting bolts (4 pcs).



with through-passage

Weight: Approx. 60 g
Material: Aluminum

- Included:
- Gasket for suction cup adapters (1 pc)
 - Mounting bolts (2 pcs)

Extension flange 100
EVE-EXF-100

Branch adapter

with through-passage for air distribution (3 types)

10 pcs per box



Branch adapter PCD25
EVE-BA-25



Branch adapter PCD31.5
EVE-BA-31.5



Branch adapter PCD50
EVE-BA-50



Gasket for suction cup adapters
EVE-PAG10

4 Branch type



Weight: Approx. 95 g
Material: Aluminum

Included:

- Gasket for suction cup adapters (4 pcs)
- Mounting bolts (4 pcs)
- Spacer (3 pcs)

3-branch suction cup adapter P40
EVE-PA-TR40



- Included:
- Gasket for suction cup adapters (1 pc)
 - Mounting bolts (2 pcs)

Closing adapter
EVE-CA

5 Suction cup adapters

*The screw sizes in the center are different.



Included:

- Gasket for suction cup adapters (1 pc)
- Mounting bolts (2 pcs)

Suction cup adapter M6
EVE-PA-M6



Included:

- Gasket for suction cup adapters (1 pc)
- Mounting bolts (2 pcs)

Suction cup adapter M5
EVE-PA-M5



Included:

- Gasket for suction cup adapters (1 pc)
- Mounting bolts (2 pcs)

Suction cup adapter G1/8
EVE-PA-G1/8

6 Suction cups Convum Ltd.

*Suction cup mounting screw is not included.



Φ35

Flat suction cup
PFG-35-S



Φ35

Bellows suction cup
PJG-35-S



Φ45

Deep suction cup
PHG-45-S

M6



Suction cup mounting screw
TN-PF-25-M6

We offer a wide lineup of air compressors and vacuum pumps utilizing our unique linear-motor-driven free piston system.

With their low power consumption and compact design, these pumps are suitable as a "vacuum source" for integration into various devices and equipment.

Achieve energy and space savings by switching from ejectors and compressors

DC drive DC motor

Model **DP0410**

Power Consumption **36 W**

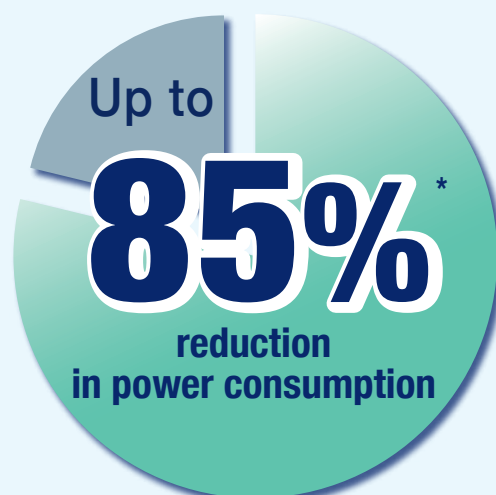


Model	DP0410
Attainable Vacuum kPa {mmHg}	-77.3 {-580}
Free Air Displacement L/min	18
Rated Voltage	24 V DC
Maximum Current	1.5 A
Rated Performance (MTTF)	10000 hours
Main unit weight kg	1.1

Compressor
+
Ejector

Switch to
a vacuum pump

* Compared to an ejector of the same capacity, with an air consumption of 50 L/min per unit



AC drive Free piston

Model **VP0660**

Power Consumption **60 W**



Model	VP0660
Attainable Vacuum kPa {mmHg}	-80 {-600}
Free Air Displacement L/min	25
Rated Voltage	230 V AC
Rated Performance (MTTF)	6000 hours
Main unit weight kg	5.0

AC drive Free piston

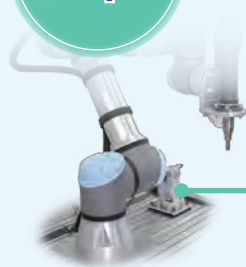
Model **VP0940**

Power Consumption **95 W**

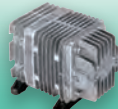


Model	VP0940
Attainable Vacuum kPa {mmHg}	-53.3 {-400}
Free Air Displacement L/min	60
Rated Voltage	230 V AC
Rated Performance (MTTF)	10000 hours
Main unit weight kg	4.55

Installation examples



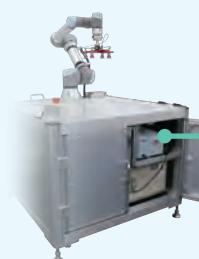
DP0410



VP0660



VP0940



Robot installation
example

Tools

Pneumatic Belt Sander **BELTON**Installation
example

YouTube

B-20CL-01
w/ floatingB-20CL-01
w/o floatingModel **B-20CL-01**

Grinding & Sanding

Deburring

Features

- For deburring die casting parts
- Belt size 20 mm (W)
- The flexibility of the belt enables curved surface grinding

Specifications

Air Pressure	MPa(kgf/cm ²)	0.6 (6)
Air Consumption (No-load)	m ³ /min	0.52
Free Speed	min ⁻¹	18000
Belt Speed	m/min	2770
Belt Size	mm	20×520
Inlet Size		Rc 1/4
Mass (Weight)	kg	1.6
Abrasive Belt Installed		Z #60×20mm

Accessories Included

- Abrasive Belt Z #60 x 20 mm, #80 x 20 mm, #100 x 20 mm, #120 x 20 mm
- 2.5 mm Hex. Socket Screw Key
- 4 mm Hex. Socket Screw Key
- Silencer
- Offset Bracket 20 Ass'y
- Bushing R 1/4 x NPT 1/4
- HI CUPLA 20PM Steel



Tools

Pneumatic Die Grinder **AIR SONIC**Installation
example

YouTube

Model **L-35C-02**

Grinding

Deburring

Features

- For grinding die casting parts
- Free speed is 37500 min⁻¹
- Precision grinding with high-speed rotation

Specifications

Air Pressure	MPa(kgf/cm ²)	0.6 (6)
Air Consumption (No-load)	m ³ /min	0.35
Free Speed	min ⁻¹	37500
Chuck Size	mm	φ6
Mass (Weight)	kg	1.1

Accessories Included

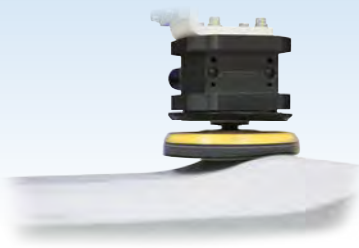
- 2 pieces of 14 mm Single Ended Spanner
- Bushing R 1/4 x NPT 1/4
- HI CUPLA 20PM Steel (Installed)



Tools

Pneumatic Double Action Sander **ORBITAL SANDER**Installation
example

YouTube

Installation
example 1Installation
example 2Model **APS-125-01**

Surface sanding

Features

- For surface sanding of metal workpieces
- Paper size 125 mm dia
- Double action movement reduces swirl patterns

Specifications

Air Pressure	MPa(kgf/cm ²)	0.6 (6)
Air Consumption (No-load)	m ³ /min	0.45
Free Speed	min ⁻¹	11000
Orbit Diameter	mm	5
Paper Size	mm	125 (5")
Mass (Weight)	kg	1.5

Accessories Included

- 2 pieces of Abrasive Paper #80 (Velcro)
- 2 pieces of Abrasive Paper #120 (Velcro)
- 17 mm Single Ended Spanner
- Bushing R1/4 x NPT 1/4
- HI CUPLA 20PM Steel
- Silencer





DLV45C12L

DLV70C06P


Controller
DCC0241X-AZ

YouTube



Special Website

Model **DLV45C/DLV70C**

Thirty different torque settings can be set on a single screwdriver

Installation examples on robots



Can be mounted on desktop robots, Cartesian robots, and 6-axis robots.

Features

- Current controlled torque system suitable for screw fastening work
- Low-voltage brushless motor
- ESD (Electrostatic Discharge) protection structure
- For both hand-held / automatic machines
- Controller has built in counting function. Prevents human errors
- Nine speed settings available
- Automatic three step speed control function
- Two types of measuring methods (Time/Motor rotation signal)
- Seven color indication LED (At the tip of the screwdriver)
- Two external I/O signal connection ports (NPN ⇄ PNP switchable, RS-232C)
- Various settings can be configured via a PC
(Free setting software available on Nitto Kohki website)



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