

**DOCUMENTS  
FOR DRY VACUUM PUMP**

DOC. No. **7312-Q8N121**

REV. **0**

CUSTOMER

COMPLETE **9** SHEETS  
IN

FINAL USER

PROJECT

SERVICE

JOB No.

EBARA SER. No.

ITEM No.

MODEL/ EQUIP. **EV-PA50**

SET

TO SET

ES Component Section

ISSUED BY Components Engineering Department  
Components Division

5

4

3

2

1

APPROVED BY H. Arai 21.Nov.'18

CHECKED BY \_\_\_\_\_

REV. PAGE DATE APP'D BY PREPARED BY N. Takahashi 12.Nov.'18



**EBARA** CORPORATION

## 1. Detailed Specifications

The following tables and figures should be consulted for pump specification, dimension and performance details.

Table 1.1 Specifications

Model		EV-PA50
Pumping Speed ( Gas ballast setting ) *2		50 L/min ( 36 L/min )
Ultimate Pressure ( Gas ballast setting ) *2		20 Pa ( 200 Pa )
Connection	Gas Inlet	NW16
	Gas Outlet	Rc1
Approx. power at ultimate pressure (Max Power)		230W ( 230W )
Approx. Weight		9kg
Ambient Temperature		5 – 30°C
Cooling System		Air Cooling
Power Supply (Pump IN)	Volt	DC24V
	Power capacity	250VA
	Connection	D/MS3102A18-1P
Gas Ballast *2	Connection	ISO G1/8 Female
	Flow rate	> 8.4 Pam <sup>3</sup> /s (at atmosphere pressure)
	Gas type	Dry Air or N <sub>2</sub>
Control Signal(I/O)		D-sub 9Pin
Acoustic noise test data *6		58 dB(A)

EV-PA type series are designed for clean vacuum applications.

- \*1 Do not exhaust corrosive gas and flammable gas with this pump. Moreover, it is not possible to use it for the usage in which a reaction by-products is generated.
- \*2 The gas ballast flow rate is set by a built-in orifice. (at atmosphere pressure)  
When the gas ballast is supplied with pressurized gas, install regulator at the gas ballast port which is the connection type Rc1/8 Female. And adjust the supply pressure to 0.05MPa (Gauge) pressure or less to set the gas ballast flow rate to 8.4Pam<sup>3</sup>/s.  
The pumping speed and the ultimate pressure might be effected by the gas ballast flow rate. Install valve, check valve, and filter to the ballast port if necessary.  
The ability for moisture exhaust in the gas ballast is 10g/hr at the maximum.
- \*3 The ambient air temperature must be less than 30°C.
- \*4 An earth leakage breaker and the emergency stop switch are not put on this pump. It is necessary to install it based on the law and the standard in the installation region.
- \*5 Since the judgment based on Japanese regulation of foreign trade control is required, please ask EBARA when the product written in this document is exported outside Japan.
- \*6 Measured on the following condition
  - (1) Pump is operating under ultimate pressure. (No gas ballast)
  - (2) Measured at 1m distance from cover.

**Option**

•AC-DC Converter

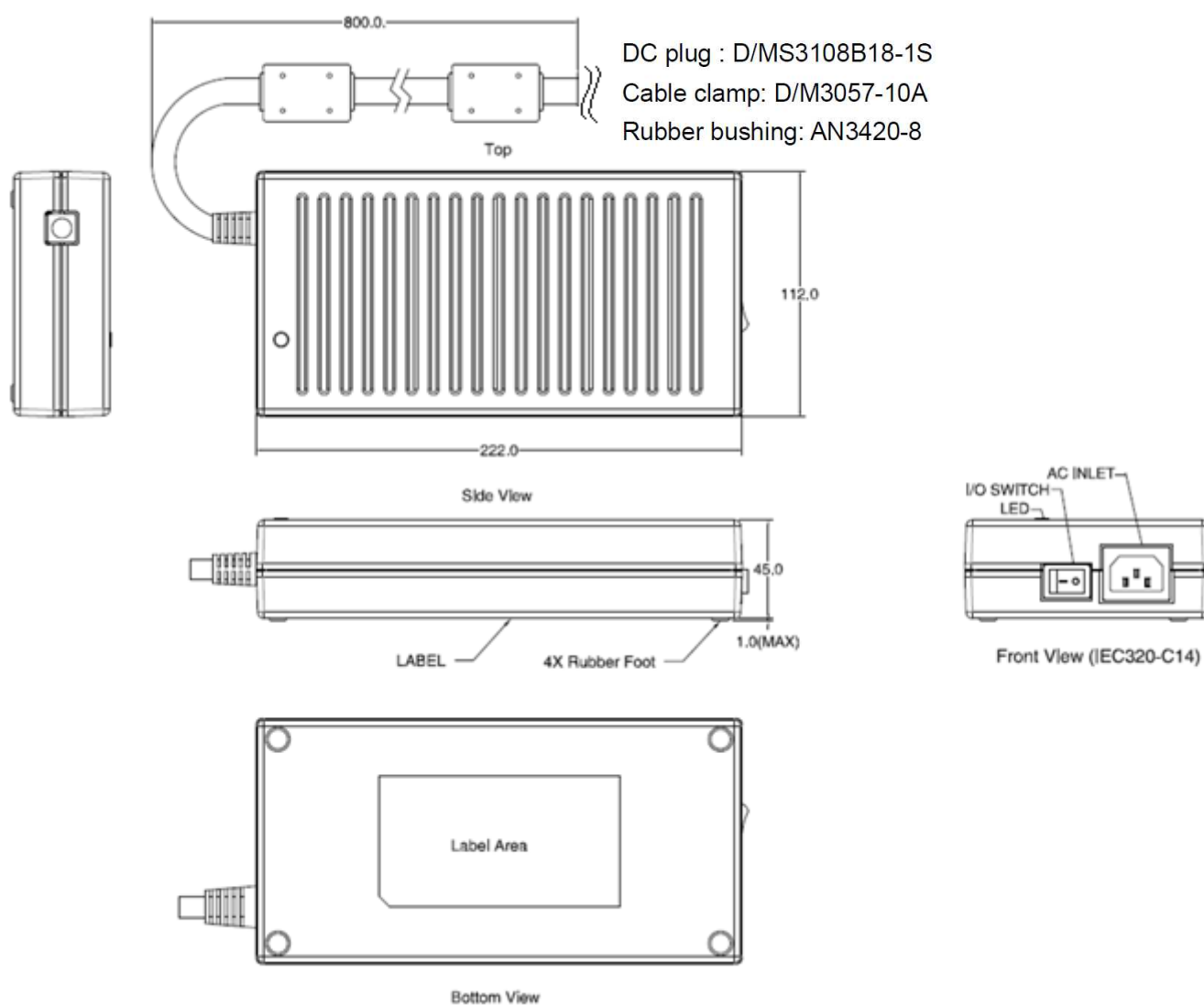
[SPEC]

AC input Range : 90 – 264VAC

AC input connector: IEC320-C14

Output power: DC24V

Max output power: 300W





## Performance Curve

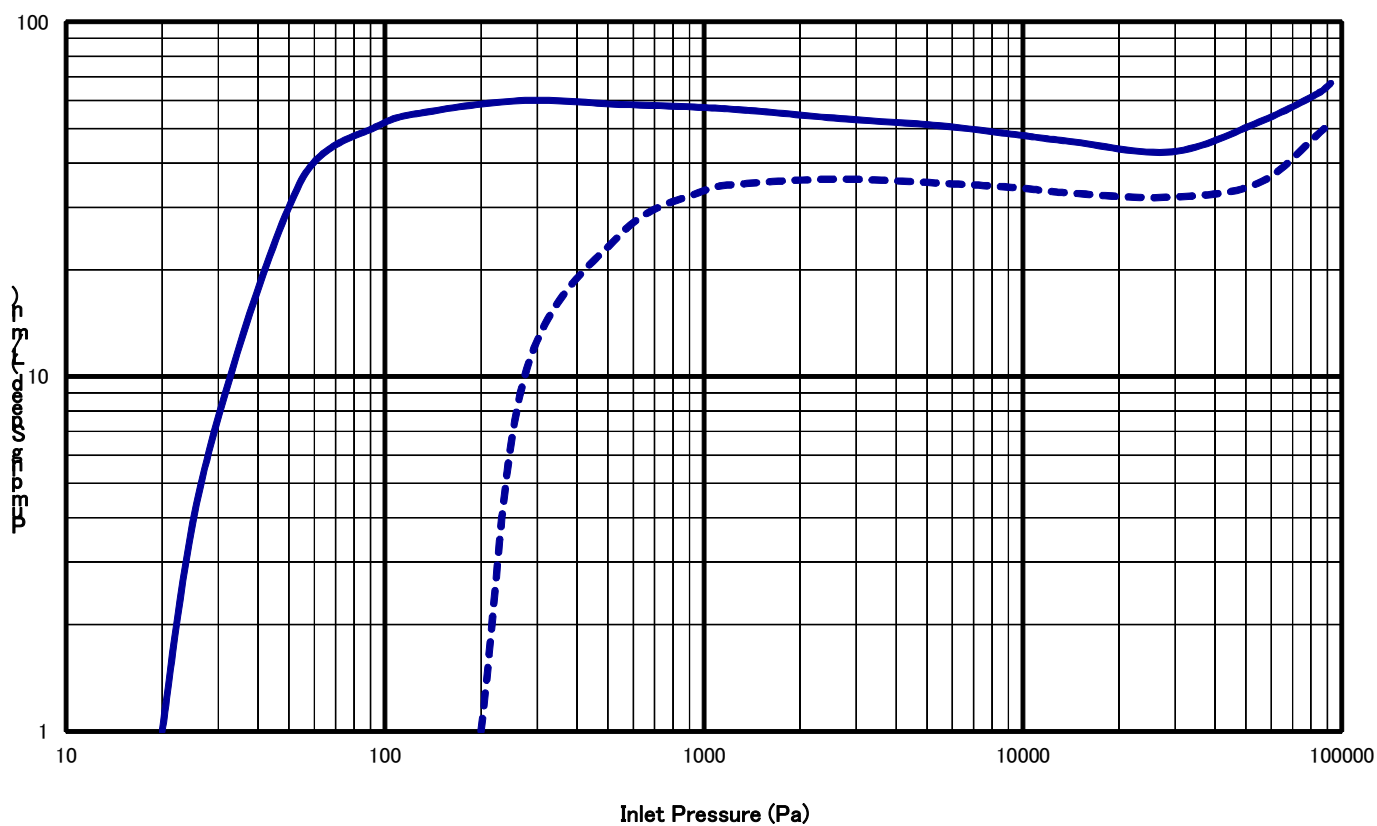


Fig. 1.1 Performance Curve  
(Dashed line: Gas ballast setting)

### Pump System Flow

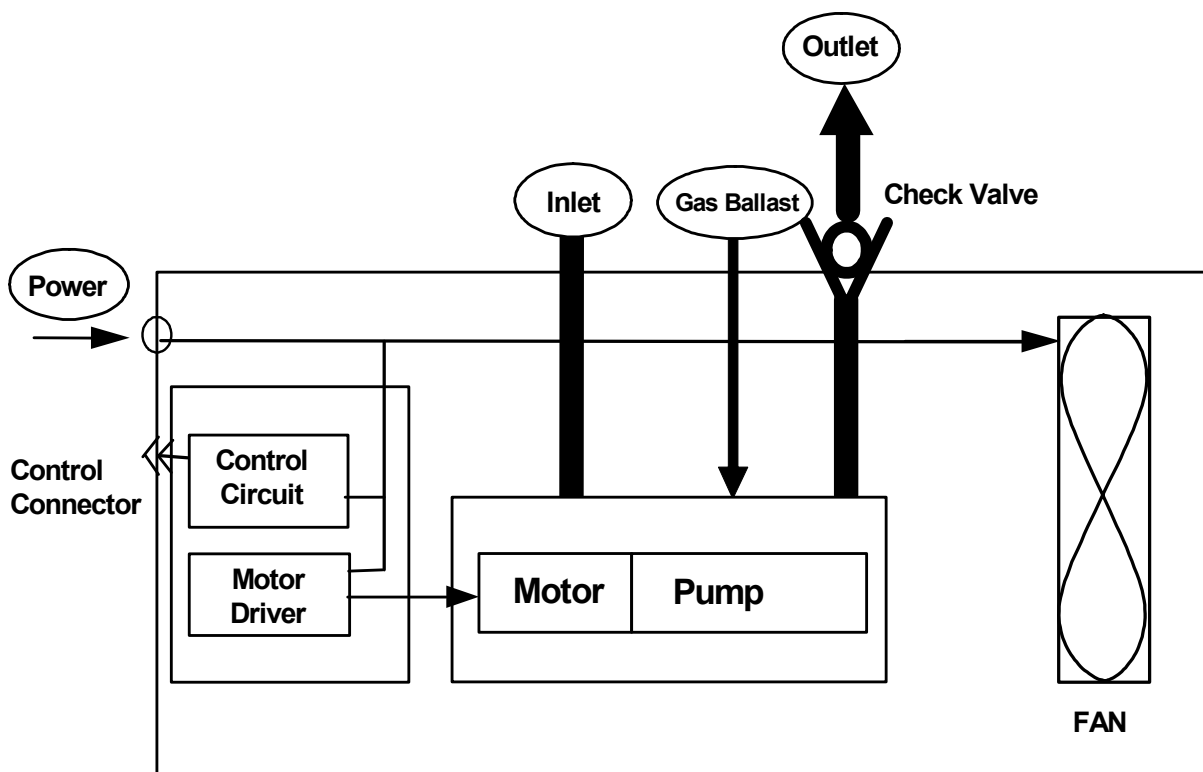


Fig. 1.2 System Flow

## 2. Electrical connection

### 2.1 Connecting of the power supply

Wire the connector for the main power supply (DC24V).

Use the power cable recommended in Table 2.1, 2.2.

Table 2.1 Receptacle Specification

Receptacle type	D/MS3102A18-1P
Recap. Manufacture	DDK
Plug type	Straight ; D/MS3106A18-1S Angle ; D/MS3108B18-1S Cable Clamp ; D/MS3057-10A
Power capacity VA	250W

Table 2.2 Recommended Power Cable

Area	Voltage	Type	Manufacture	Specification	Suitable wire
Japan US EU	100~240V	PW-250A4-1Y350E	POWER-WIN TECHNOLOGY	VCTF 3pin(Including an Earth-pin) AWG16, 1.8m	AWG #16

## 2. 2 Control Signal Wiring

Connect wires to the control connector for remote operation and remote monitoring. Tables 2.3 and Fig. 2.1, 2.2 show the pin assignments.

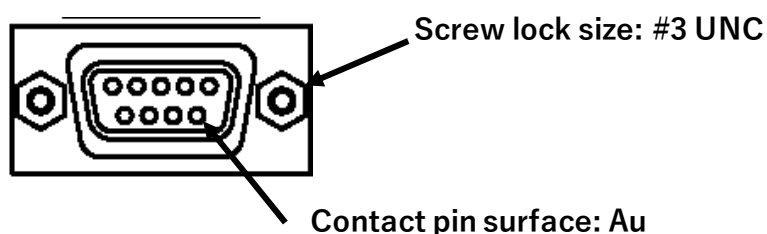


Fig. 2.1 9 Pin D Sub-Miniature Female Receptacle  
(As seen from connecting side)

Table2.3 Control Connector Pin Assignment

Pin. No.	Signal name	I/O	Signal type
1	—	—	—
2	—	—	—
3	Operation signal input(+)	IN	Start: Close
4	Alarm Reset input(+)	IN	Reset: Close
5	Operation / Alarm Reset Input COM(-)	IN	—
6	—	—	
7	—	—	
8	Error Output (+)	OUT	Alarm: Open
9	Error Output	—	

\*Set to less than 500mA total of 9pin and 5pin.



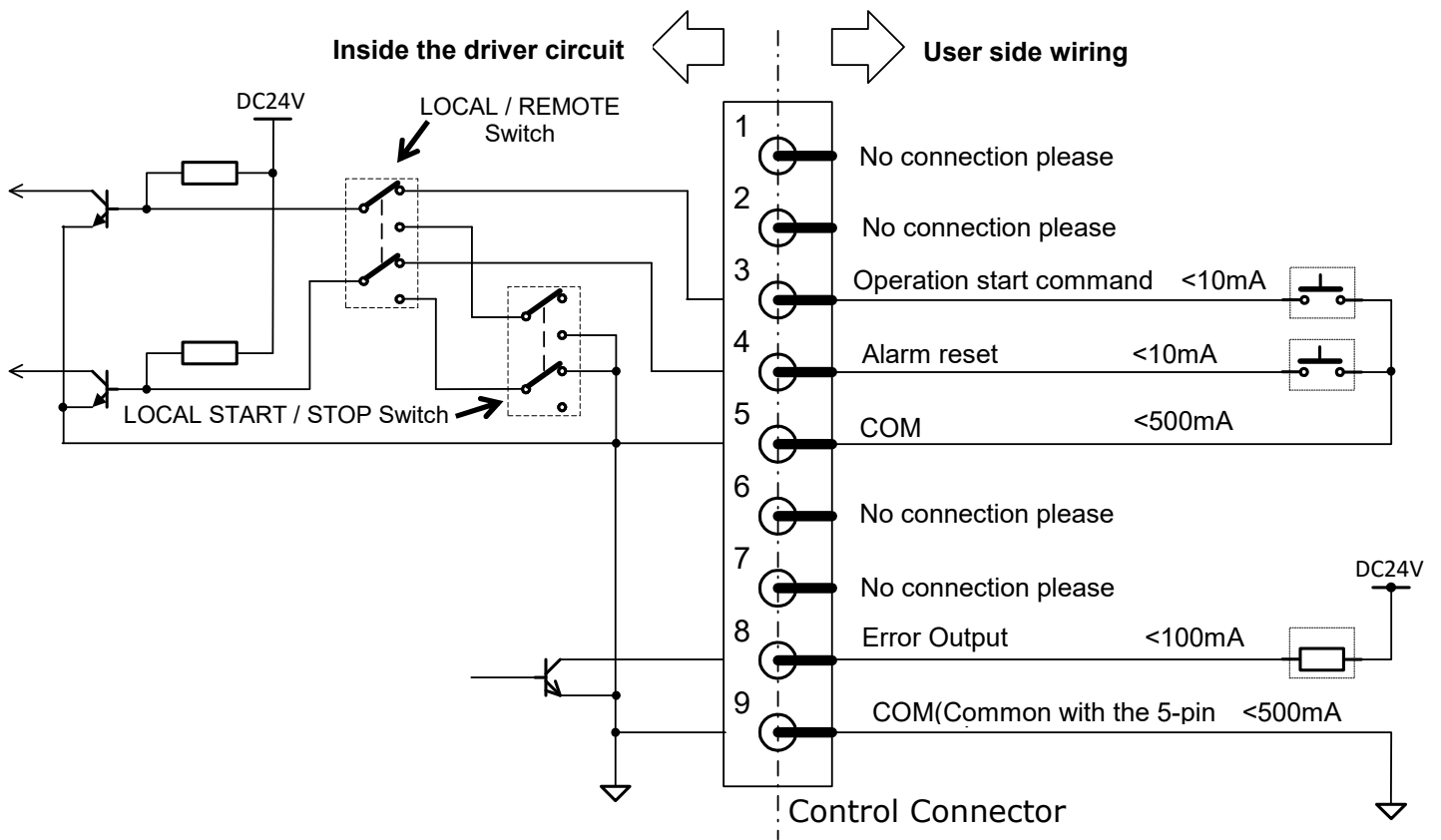


Fig.2.2 Control Connector I/O Specification