



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Desiccant air dryer (heatless dryer)

SHD Series

JIS symbol



P4
Series



Specifications

Item	SHD3025	SHD3045	SHD3075	SHD3100	SHD3125	SHD3150	SHD3200	SHD3240	
Working fluid	Compressed air								
Inlet air pressure range MPa	0.4 to 1.0								
Inlet air temperature range °C	5 to 50								
Ambient temperature °C	0 to 40								
Rated conditions	35 (no water drops)								
	25								
	0.7								
	Inlet air flow rate m ³ /min(ANR)	2.5	4.5	7.5	10	12.5	15	20	24
	-20, -40, -60								
	-20°C: 14 / -40°C: 16.5 / -60°C: 23								
Desiccant cylinder module quantity	1	2	3	4	5	6	8	10	
Regenerating method	Self-regeneration non-heating system								
Desiccant	Activated alumina, synthetic zeolite								
Dew point sensor	G type: Electrostatic capacitance temperature and humidity sensor / M type: Dew point meter (Electrostatic capacitance polymer sensor)								
Power supply	Single-phase 100/200 VAC 50/60 Hz								
Power consumption	15 W								
Port size Rc	1	1	1 1/2	1 1/2	2	2	2 1/2	2 1/2	
Weight kg	120	180	240	300	370	430	550	670	

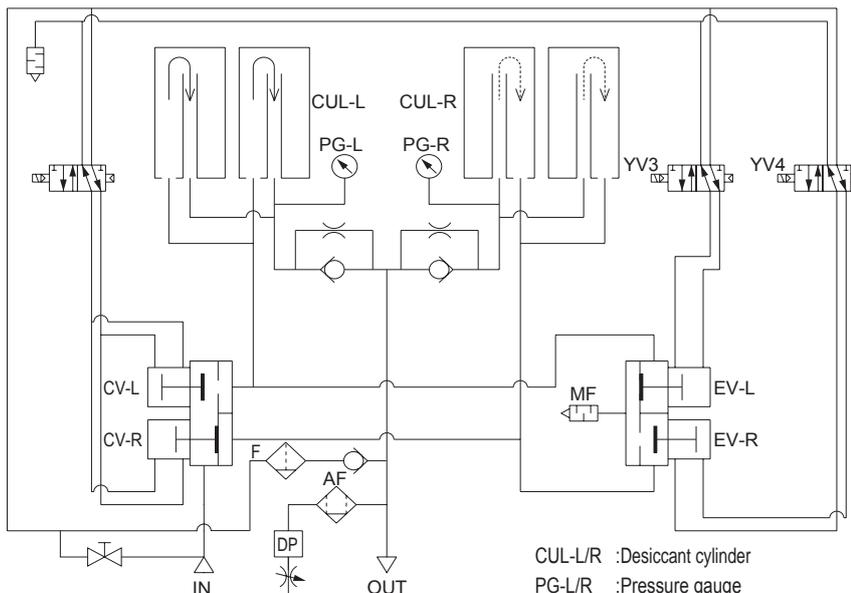
*1: The standard paint color is quality cool white (Munsell No.5GY7.5/0.5).

*2: Attach the included accessory filters on the inlet side and the outlet side. Filters may be required for the sake of the system. In such cases, please prepare them separately.

*3: ANR shows conditions of 20°C atmospheric pressure and relative humidity 65%.

*4: Contact CKD for the model No. of accessory filters.

Functions



CUL-L/R :Desiccant cylinder
 PG-L/R :Pressure gauge
 CV-L/R :Inlet switching valve
 EV-L/R :Exhaust switching valve
 (L/R indicates the left and right sides.)

MF :Silencer
 AF :Dew point sensor protection fill#
 DP :Dew point sensor
 YV1 :Valve for inlet switching valveB
 YV3/4 :Valve for exhaust switchingB

Moist compressed air coming in from IN goes through the valve CV and enters desiccant cylinder CUL-L. The moist compressed air evenly flows within the desiccant cylinder, the water vapor within the compressed air is suctioned by the desiccant, and once transformed into ultra dry air, comes out of the OUT via the check valve. Part of the ultra dry air that has been reduced in pressure via the orifice enters the desiccant cylinder CUL-R, is used for the regeneration drying of the desiccant of CUL-R, and is then released into the air. Part of the air exiting the OUT is guided to the dew point sensor DP for its dew point to be measured. Depending on the dew point, it will be in energy-saving mode in which the switching time is extended. (After the removal process ends, both cylinders are kept in an increased state of pressure and the switching time is extended.)

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How to order

SHD3 045 - G 07 - 40 - E3 - 100VAC - S * *

Model No.

* Contact CKD for model No.

A Flow rate classification

B Sensor
*1

C Inlet air pressure

D Outlet pressure dew point

E Option
*3

F Voltage

Code	Description
A Flow rate classification	
025	2.5m ³ /min(ANR)
045	4.5m ³ /min(ANR)
075	7.5m ³ /min(ANR)
100	10m ³ /min(ANR)
125	12.5m ³ /min(ANR)
150	15m ³ /min(ANR)
200	20m ³ /min(ANR)
240	24m ³ /min(ANR)
B Sensor	
G	Temperature and humidity sensor
M	Dew point meter
C Inlet air pressure	
04	0.4 MPa
05	0.5 MPa
06	0.6 MPa
07	0.7 MPa
08	0.8 MPa
09	0.9 MPa
10	1 MPa
D Outlet pressure dew point	
20	-20°C
40	-40°C
60	-60°C
E Option	
E1	Without accessory filter
E2	AF4000 Series attached
E3	Standard (AF2 included)
G	Voltage specification
H	English language specifications
L	Foundation bolt nut (SS400)
L1	Foundation bolt nut (SUS304)
F Voltage	
100 VAC	
200 VAC	

Compatibility table by variation

	SHD
P4	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. □: Not applicable

⚠ Precautions for model No. selection

- *1: With "G" type sensor, it is not possible to select the "-60°C" specification for the outlet pressure dew point. In addition, the dew point display value of the "G" type is of an accuracy to serve as a guide, as accuracy will be lowered in particular in the low dew point range. When prioritizing dew point management, use of the "M" type is recommended.
- *2: The unit's full performance may not be obtained if used at less than the selected pressure. Be sure to select the model No. with your working pressure.
- *3: When ordering several options, indicate the required options in alphabetical order.
- *4: Made-to-order product. Contact CKD Sales for details.

	Dew point sensor	Rated dew point °C (*1)	Energy-saving/setting dew point °C (*2)
SHD3000 Series	-G	-20	-10
		-40	-20
		-40	-40
	-M	-20	-20
		-40	-40
		-60	-60

*1: Default setting (Setting purge rate)

*2: Configured by the user
Arbitrary configuration at 3 steps is possible depending on the applications or conditions of use

⌋ When the load is smaller than the rating, the unit will enter the energy conservation operating mode at this configured temperature. ⌋

Selection guide

P4
Series

Max. flow rate table Values are with an inlet temperature of 35°C.

Model No.	SHD3025	SHD3045	SHD3075	SHD3100	SHD3125	SHD3150	SHD3200	SHD3240
Inlet air flow rate	2.5	4.5	7.5	10	12.5	15	20	24

*1: The -20, -40, and -60°C specifications will be of the same air flow rate.

Unit: m³/min(ANR)

● Selection method

The above flow rate table lists values for when the inlet pressure is 0.7 MPa and the inlet air temperature is 35°C. When conditions differ, determine the specifications by using the coefficient table and curve listed below.

Inlet air flow rate = (Inlet flow rate of max. flow rate table (*2)) x (Pressure coefficient) x (Temperature coefficient)

Purge flow rate(*3) = (Inlet flow rate of max. flow rate table (*2)) x (Purge rate by dew point (*4))

Outlet air flow = (Inlet air flow rate) - (Purge flow rate)

Pressure coefficient table (Always select with the pressure that will be used.)

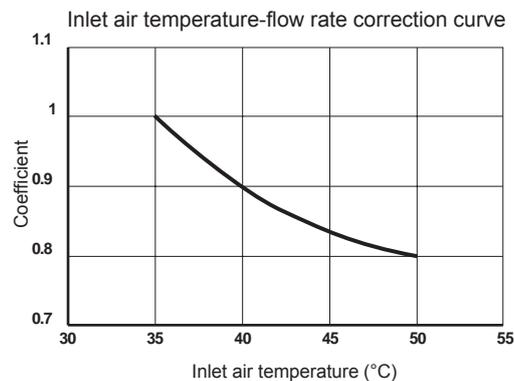
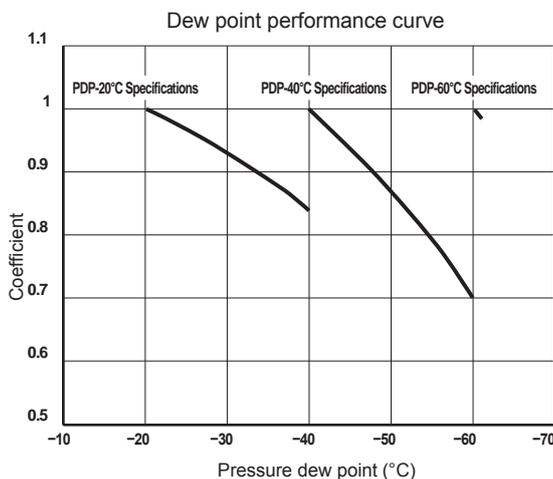
Inlet air pressure (MPa)	0.4	0.5	0.6	0.7	0.8	0.9	1
Coefficient	0.63	0.75	0.88	1.00	1.13	1.25	1.38

*2: These are values from the above table and are values decided based on the model No.

*3: The average value is listed.

*4: 14% for -20°C specifications, 16.5% for -40°C specifications, 23% for -60°C specifications.

*5: Abbreviation for PDP (pressure dew point).



(Example)

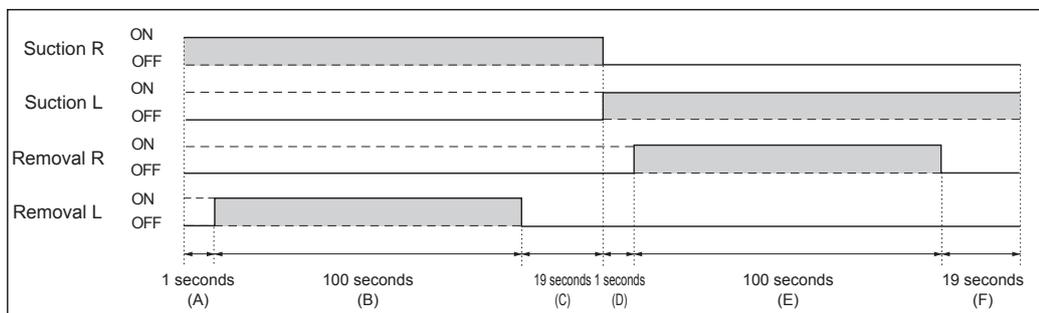
Pressure 0.6 MPa, pressure dew point -40°C,
inlet air temperature
Air flow rate of SHD3045 at 50°C

Inlet air flow rate = 4.5 × 0.88 × 0.8 = 3.168 m³/min

Purge flow rate = 4.5 × 0.165 = 0.743 m³/min

Outlet air flow rate = 3.168 - 0.743 = 2.425 m³/min

Time chart



The normal processes are listed on the left. During energy conservation, the state (C, F) after the removal has been completed will be retained. After this, as soon as the dew point degrades, switching will resume to return to the normal processes.

B and E indicate removal (regeneration) time; C and F indicate rising pressure time.

When a heatless dryer is installed

- Model No. SHD3075 to SHD3240 comes with a class 2 pressure vessel withstand pressure certificate. Keep this while using the components. (Applications to the Labor Standards Supervision Office are no longer required in Japan.)
- When starting a test after the installation of this unit, operate the unit for the period of time designated below with a flow rate that is approximately 10 to 20% of the flow rate that will be used.

Pressure dew point (°C)(*6)	-20	-30	-40	-60
(Reference) Atmospheric dew point (°C)	-40	-48	-57	-74
Time (h)	6	12	24	72

*6: The pressure dew point is for when the pressure is 0.7 MPa.

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Motorless specifications