CKD

SM－10256－A

INSTRUCTION MANUAL

SUPER DRYER

SD3000, SD4000

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

APR-06 7th Edition
CKD Corporation

Thank you very much for purchasing our refrigerated air dryer, Super dryer.
This manual explains basic points of installation, operation, etc. to have our dryers perform at their best. Be sure to read this manual before using your dryer.
Keep this manual together with the warranty book.
This manual is edited consisting of the following five sections.

- ○ PRODUCT
- ○ CAUTION
- ○ INSTALLATION
- ○ MAINTENANCE
- ○ MODEL CODING

It is, of course , desireble that you read this manual through before start using the product. This manual is so edited that a certain idea will be conveyed by reading the related section only , first of all. For instance , just reading the section of the installation ,in case that an imediate installation is mandatorily required.

Table of Contents

1. PRODUCT

1-1. Specifications

Item				Model	SD 3015	SD 3025	SD 3035	SD 3050	SD 3075	SD 4050	SD 4075	SD 4100
Applicable conditions	Media				Compressed air							
	Inlet pressure		MPa		0.4～1.5							
	Proof pressure		MPa		2.25							
	Inlet air temperature		℃		5～50							
	Ambient temperature		℃		5～50							
Standard rating	Inlet pressured dew point		℃		25							
	Inlet air pressure		MPa		0.7							
	Inlet air temperature		℃		25							
	Ambient temperature		℃		25							
	Port size		Rc		3/8					1/2		
	Purge port size(option E)		Rc		1/2							
	Weight		kg		1.4	1.8	2.2	2.7	3.6	4.0	5.4	6.8
Outlet atmospheric dew point	-20℃	Inlet air flow	ℓ/min (ANR)		125	300	490	760	1200	680	1100	1500
		Outlet air flow	ℓ/min (ANR)		100	240	390	610	960	570	930	1260
		Purge flow	ℓ/min (ANR)		25	60	100	150	240	110	170	240
	-40℃	Inlet air flow	ℓ/min (ANR)		35	90	150	230	370	410	650	890
		Outlet air flow	ℓ/min (ANR)		25	65	110	170	270	300	480	650
		Purge flow	ℓ/min (ANR)		10	25	40	60	100	110	170	240
	-60℃	Inlet air flow	ℓ/min (ANR)		20	55	90	140	220	240	380	520
		Outlet air flow	ℓ/min (ANR)		10	30	50	80	120	130	210	280
		Purge flow	ℓ/min (ANR)		10	25	40	60	100	110	170	240

Note : Water drop and oil (less than 0.1PPM$^{W}/_{W}$) to be eliminated from the compressed air supplied to Super dryer.

1-2.Model selection

(1) Model selection method

The performance curve of dew point as mentioned above are shown the relationship between output air pressured dew point on condition that inlet air pressure is 0.7 MPa and its temperature is 25℃(saturated). Select the model on the right of the intersection of the required dew point and the required flow.

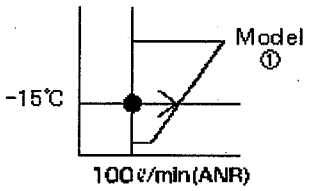
<Correction method of air flow>

It is necessary that output air flow shall be corrected by each correction curve, except for rated conditions.

(Rated output air flow) × (Correction factor) = (Output air flow)

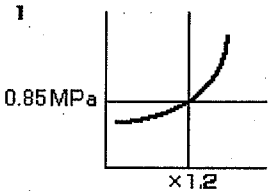
But, in the case of the air by which input air passed along the refrigerated drier, select inlet air temperature as 10 ℃ regardless of an actual temperature.

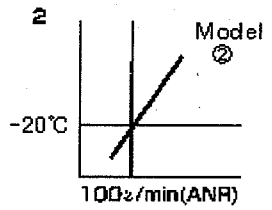
(例) Required dew point : - 15℃
Required air flow : 100ℓ/min(ANR)
The model ① which is located on the right of the intersection shall be selected.



(例) Inlet air pressure : 0.85Mpa
Required dew point : - 20℃
Required air flow : 120ℓ/min(ANR)

1. The correction factor 1.2 shall be read from outlet air flow correction curve against inlet air pressure.
2. The model ② shall be selected flow performance curve of dew point, since outlet air flow is 120ℓ/min ANR (=100ℓ/min ANR × 1.2)

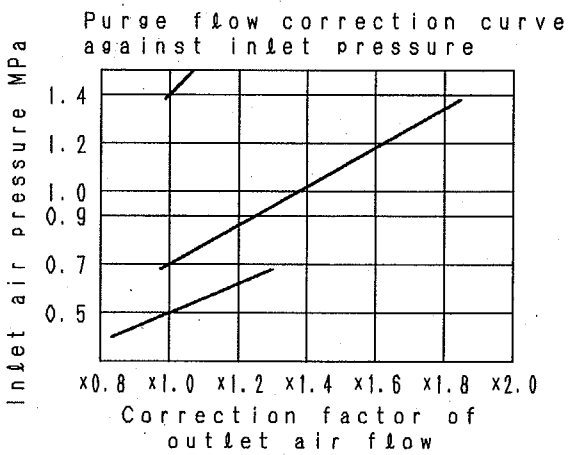




(2) Purge flow

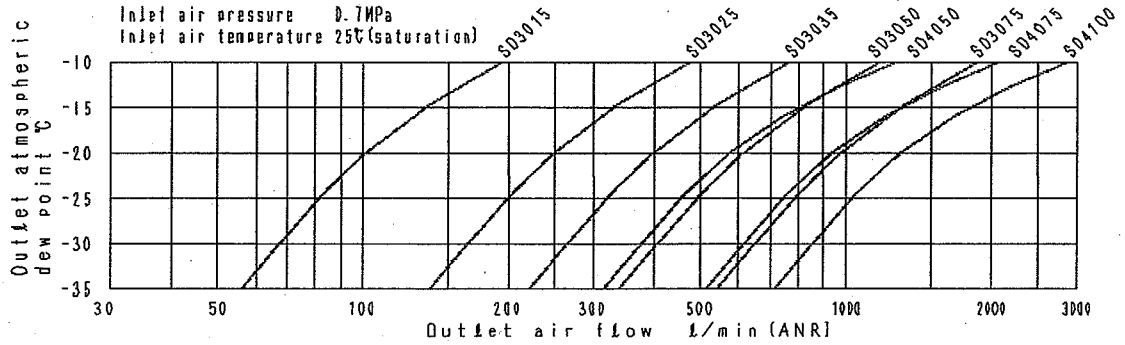
Purge flow is shown in each specification column. The flow which added purge flow to outlet side use air flow should be can be supplied from an inlet.

Purge flow in case inlet air pressure differs from rating turns into flow which applied the correction factor of the right to rated purge flux.

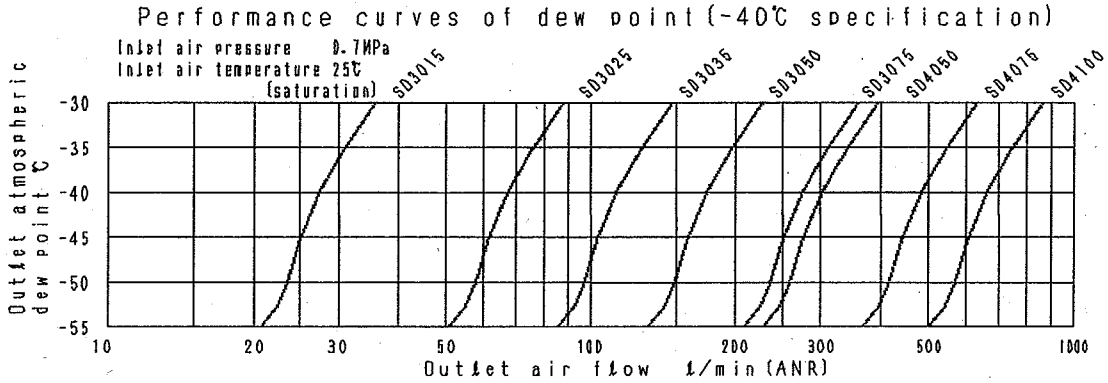


(3) Dew point performance

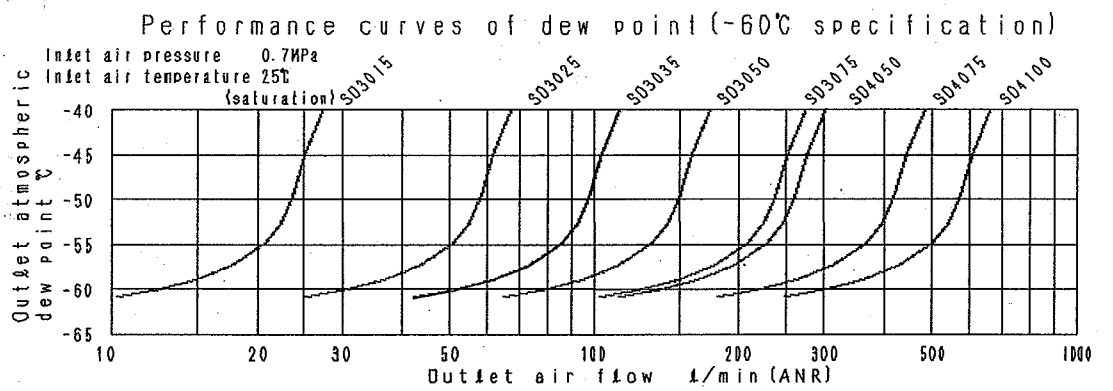
Performance curves of dew point (-20℃ specification)



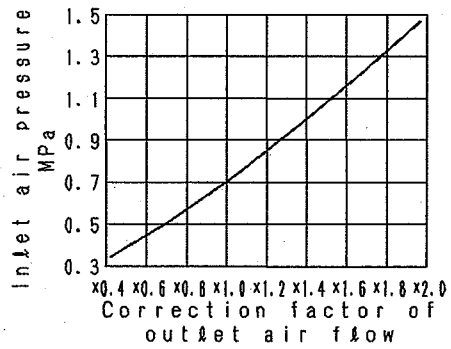
Performance curves of dew point (-40℃ specification)



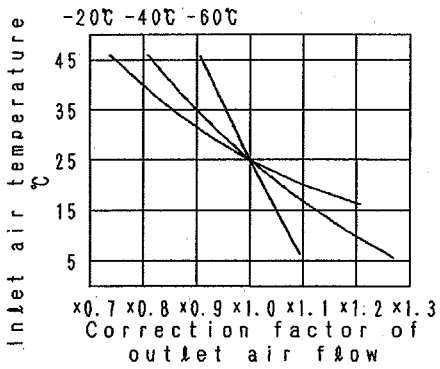
Performance curves of dew point (-60℃ specification)



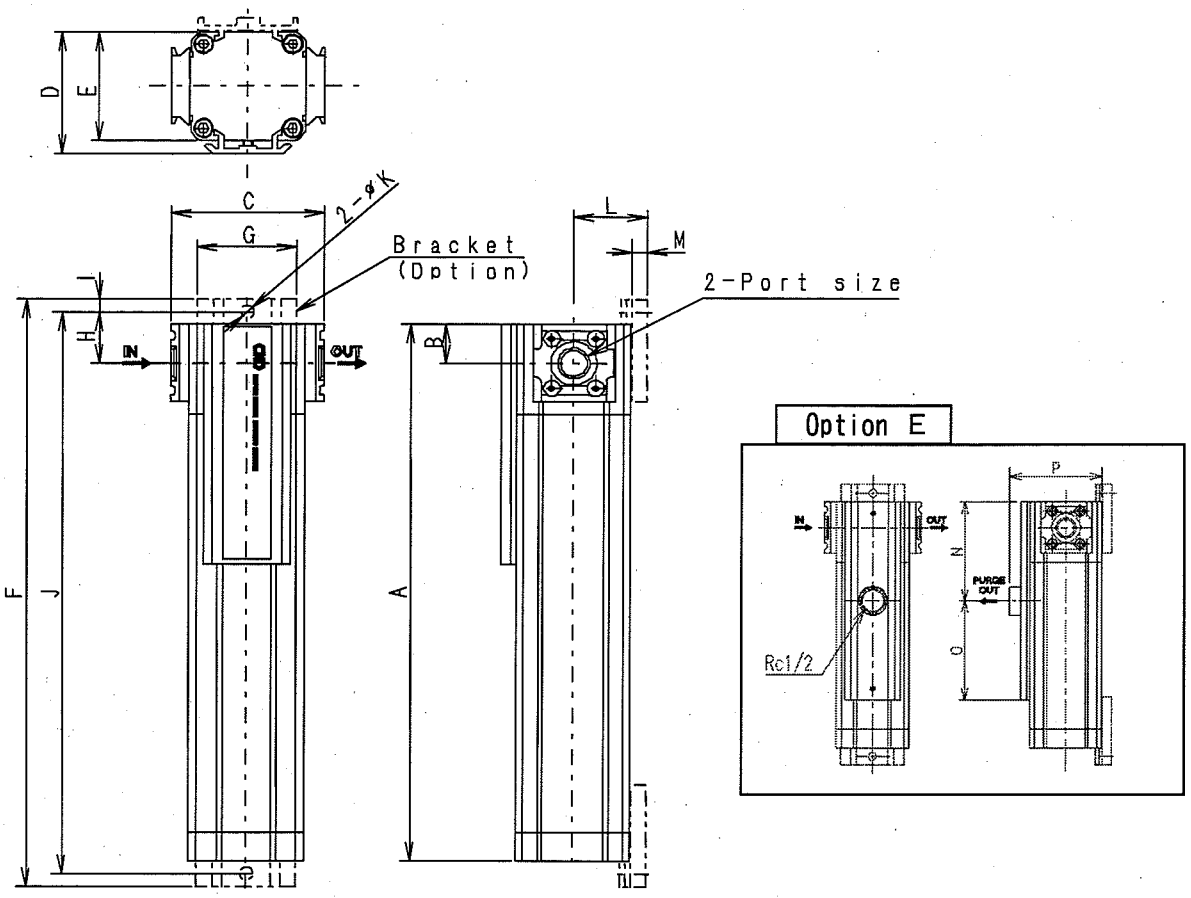
Outlet air flow correction curve against inlet air pressure



Outlet air flow correction curve against inlet air temperature



1-3. Outside drawing



Model code	A	B	C	D	E	Port size	Bracket dimensions								Option E dimensions		
							F	G	H	I	J	K	L	M	N	O	P
SD3015	215	22.5	85	71	63	Rc3/8	245	55	30	7.5	230	7	40	8	86.5	(86.5)	81
SD3025	315	22.5	85	71	63	Rc3/8	345	55	30	7.5	330	7	40	8	86.5	(86.5)	81
SD3035	415	22.5	85	71	63	Rc3/8	445	55	30	7.5	430	7	40	8	86.5	(86.5)	81
SD3050	565	22.5	85	71	63	Rc3/8	595	55	30	7.5	580	7	40	8	86.5	(86.5)	81
SD3075	815	22.5	85	71	63	Rc3/8	845	55	30	7.5	830	7	40	8	86.5	(86.5)	81
SD4050	565	22.5	100	90	79	Rc1/2	605	70	32.5	10	585	9	50	10	86.5	(86.5)	104
SD4075	815	22.5	100	90	79	Rc1/2	855	70	32.5	10	835	9	50	10	86.5	(86.5)	104
SD4100	1065	22.5	100	90	79	Rc1/2	1105	70	32.5	10	1085	9	50	10	86.5	(86.5)	104

2. CAUTION

1) Use within ambient temperature of 5～60℃.
2) Avoid use in the state where inlet air temperature becomes higher than ambient temperature. (An inside may be covered with waterdrop if the main part of a super drier is cooled.)
3) Keep operating pressure below 1.5MPa.
4) Avoid installation close to welding or spray painting areas.
5) Avoid installation in direct sun light.
6) Air filter of 5 μ m filtration and oil mist filter to be installed at inlet of Super dryer when supplied air is lubricated and close to saturated.
7) Pressure reducing valve, such as regulator to be installed at outlet of Super dryer.
8) Super dryers reduce oxygen content. Do not use for breathing air.

3. INSTALLATION

3-1.Piping

1) Install so as an air flow coindides with the directional arrows on the cover.
2) Use port size larger than that of air piping for air filter and Super dryer.
3) Flush air into the pipe to blow out foregh substances and metal chips before piping.
4) Leave at least two thread pitches prior to the end of pipe before apllying sealant or sealing tape to reduce the possibility of contamination or fowling.

●Seal Tape　　●Sealant (Paste)

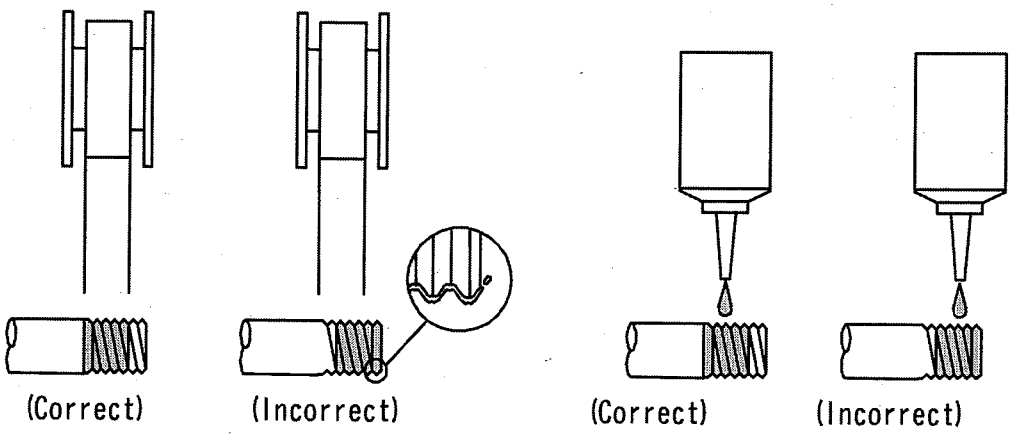


Fig.1

3-2.Installation

When bracket "B" attached as an option is used.

1) Insert bracket "B" to the rail slit of Super dryer ,fix it by retaining screw after positioning with Stopper pin. (Refer to fig.2)
   Use tightenning torque 3Nm for set screw.
2) Install Super dryer so that base of it is parallel to floor.
3) Allow a minimum of 100mm upward and 20mm downward for maintenance purpose. (Refer to fig.3)

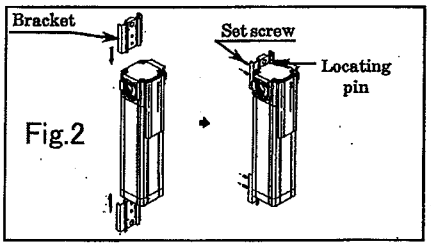


Fig.2

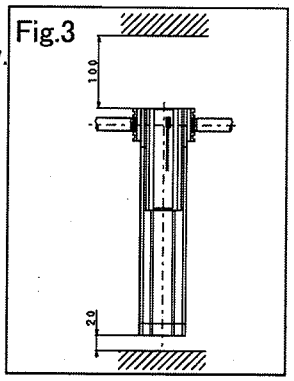


Fig.3

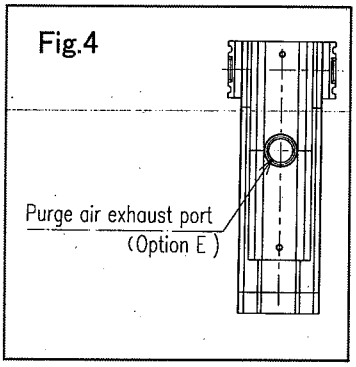


Fig.4

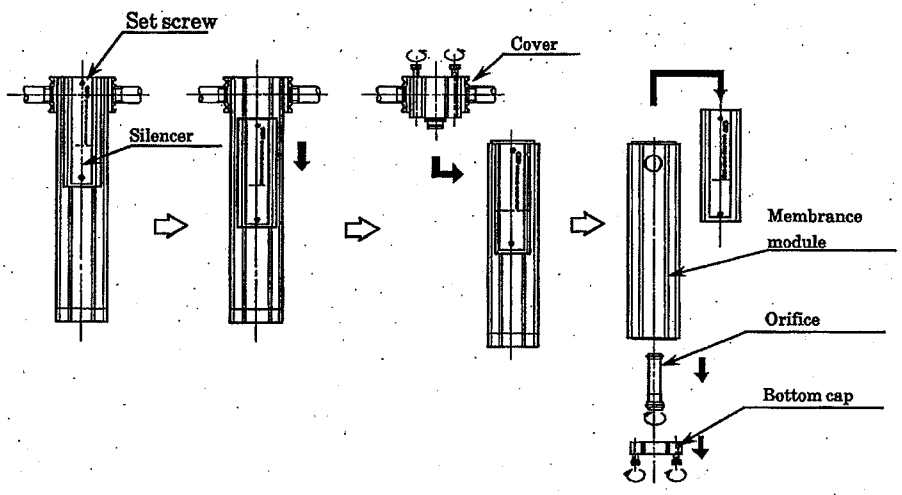
4) In case of the option E of SD3000 series, piping of exhaust air should use the hose or piping material of I.D. 8 mm or more, and give length as less than 3m. (Refer to fig.4)
5) In case of the option E of SD4000 series, piping of exhaust air should use the hose or piping material of I.D. 8.9 mm or more, and give length as less than 2m. (Refer to fig.4)

4. MAINTENANCE

4-1.Membrane module replacement

1) Slide silencer downward by loosening two set screws at silencer portion with hex. bar spanna. (Round nominated 2.5) (In case of option "E", shift supporter up and down, and remove exhaust adapter.)
2) Remove membrane module downward by loosening four hex. soc. hd. cap screw.(Upper face)with hex. bar spanna (Round nominated 5 for SD3000, 6 for SD4000)
3) Loosen four hex. soc. hd. cap screw of membrance module base with hex. bar spanna (Round nominated 5 for SD3000, 6 for SD4000), remove bottom cap, pull out purge orifice after loosening. Silencer to be pulled out also.
4) Do not damage membrance module face, follow above steps in reverse manner when assembled. In case of option "E", since it positions so that an exhaust adapter may close purge exhaust port, fix with up-and-down supporter.
   Tightening torque is as follows:

Hex. bar spanna	Tightening torque
Round nominated 2.5	3N·m
Round nominated 5	6N·m
Round nominated 6	10N·m



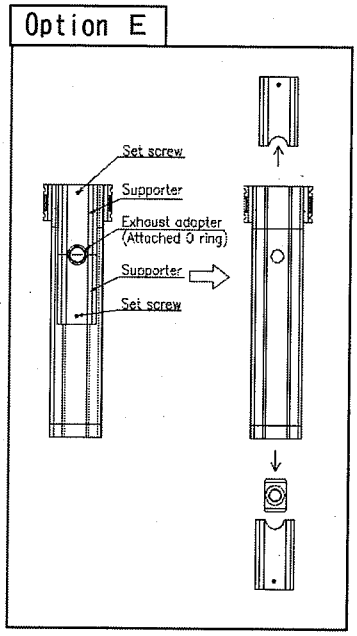


Fig.5

4-2.Maintenance parts

Part name / Model	Membrane module	O ring set
SD3015-○○	SD3015-F3-197100	SD-3000/4000 -ORING-SET
SD3025-○○	SD3025-F3-197101	
SD3035-○○	SD3035-F3-197102	
SD3050-○○	SD3050-F3-197103	
SD3075-○○	SD3075-F3-197104	
SD4050-○○	SD4050-F3-197105	
SD4075-○○	SD4075-F3-197106	
SD4100-○○	SD4100-F3-197107	

When you use it for a long period of time, simultaneously with membrane module exchange, please also exchange O ring(4). O ring is prepared as maintenance parts "O ring set."

5. MODEL CODIND

SD — ⓐ — ⓑ — ⓒ — ⓓ — ⓔ

Product	ⓐ Series		ⓑ Basic module dimension		ⓒ Type		ⓓ Inlet air pressure		ⓔ Option	
Super dryer	3	Basic module □63	015	150mm	A	Outlet pressured dew point −20℃	05	0.5MPa	Nil	No option
	4	Basic module □80	025	250mm			07	0.7MPa	B	With bracket
			035	350mm	B	Outlet pressured dew point −40℃	14	1.4MPa	X1	IN-OUT reverse
			050	500mm					E	Common exhaust
			075	750mm	C	Outlet pressured dew point −60℃				
			100	1000mm						