CKD

HEATLESS AIR DRYER

INSTRUCTION MANUAL

HD-0.5
HD-1
HD-1.5
HD-2
HD-4
HD-6
HD-9

● Be sure to read this manual before installing and operating your HEATLESS AIR DRYER.

● Keep this manual within the reach of an operator all the time.

ＣＫＤCorporation

15-09 7th edition 90-8698-A

Safety instructions

This dryer must be operated by a person who has basic knowledge of electric, compressed air,liquid, piping, refrigerant, etc. We are not responsible for any accidents caused when a person who does not have the basic knowledge or who is not well trained installation, operation, repair, etc.
Improper operation may cause poor performance of the dryer or may cause accidents.
We applied a variety of safety measures to our dryers, but improper handling of dryers could cause accidents. Thus, be sure to read and fully understand this manual before using them.
"Save this instruction manual".

Caution for safety

Cautions at operation are indicated in the following two ways.

⚠ **WARNING** ⚠ **CAUTION**

⚠ **WARNING** used when improper handling could kill or seriously harm operators

⚠ **CAUTION** used when improper handling could harm operators or damage objects

⚠ **WARNING: ELECTRICAL SHOCK**

★Power supply terminal box, switches, etc. may cause you electrical shock.

●Be sure to turn off the power before inspection. Do not operate the dryer with your wet hands.

⚠ **EARTH CONNECTION**

★Be sure to connect earth to prevent electrical shock.

This dryer is industrials. Be sure to fully attend to using the dryer.

FORWARD

Thank you for purchasing our quality product, “Heatless air dryer”.
For proper application of it, please read this manual well prior to start operating it.
Beware of causing unexpected trouble sometimes, otherwise, not only may fail to attain the capacity to its full extent.

Keep this booklet in custody to prevent misplacing it.

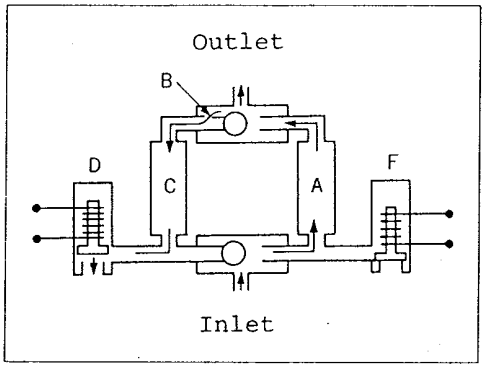
Table of Contents

1. CAUTIONS

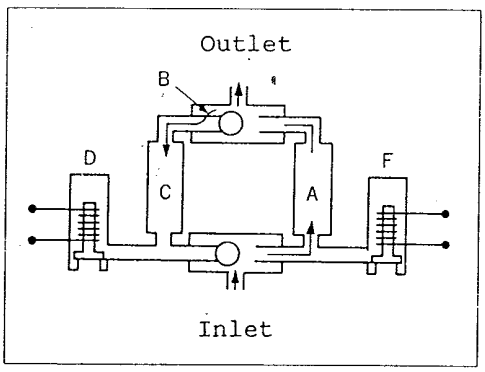
1) Do not use the dryer to remove humidity of except compressed air.
   *Breakdown, explosion, or fire may result.
2) Install an earth leakage breaker on the power supply.
   *Electric shock may result.
3) Need to earth wiring.
   *Causes of an electric shock or a fire.
4) Operate the dryer within specification ranges.
   *Operation may stop abnormally, or the product's service life may be shortened.
5) Do not turn on the power switch without enclosures.
   *Electric shock or heat injury may result.
6) Do not remodel this dryer.
   *Break-down or shorter life time of the product may result. If you did, the warranty is expired.
7) Do not touch any parts, wires, terminals or piping in side of the dryer.
   *Causes of an electric shock or a fire.
8) If emergency stop occurs during operation, remove the cause of abnormal conditions referring to the trouble shooting.
   *If the emergency stop occurs repeatedly, this may cause the dryer to malfunction.
9) Do not use the dryer for pneumatic caisson shield or respiratory medical equipment.
   *It could cause an accident includes injury.
10) Do not use the dryer for transportation devices such as automobile, ship etc.
   *Vibration could be a cause of break down of the internal components.

2. DESCRIPTION OF FUNCTION

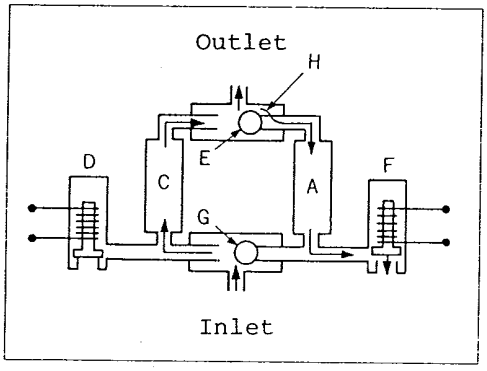
Equipped with unique valve mechanism, CKD Heatless Dryers are simple in structure and have excellent drying efficiency.



In the left-hand-side figure, solenoid valve (F) is closed while valve (D) is open. The wet compressed air from inlet passes through desiccant tube (A) and gets dried. Most of this dry air flows out to outlet, while a small quantity passes through orifice (B) for pressure reduction before flowing into desiccant tube (C). Here, the wet desiccant is removed of moisture before passing through solenoid valve (D) and finally being discharged to the atmosphere. (Regenerative purging)



In the left-hand-side figure, the timer keeps both of the solenoid valve (D) and (F) closed during the stationary stage. Here, the air from desiccant tube (A) flows into desiccant tube (C) through orifice (B) , virtually balancing the pressures in (A) and (C).



The solenoid valve (F) is opened by the timer, but since (D) remains closed, the pressure in desiccant tube (A) drops immediately, causing ball checks (E) and (G) to make a quick shift rightward.
This closes tube (A), and turns the main current of compressed air to tube (C), where the air is dried. A part of the compressed air passes through orifice (H) for pressure reduction before flowing into tube (A), where the desiccant is removed of moisture before being discharged to the atmosphere through solenoid valve (F). (Regenerative purging)

3. CAUTION AT INSTALLATION

3-1) See to it that the ambient temperature is -1～52℃.

3-2) Provide a space of approximately 500mm at the top, bottom and front in order to enable the replacement of desiccant tube, solenoid valve ,etc .convenient.

3-3) Install a regulator, filter and Microalescer in the primary side in order to upkeep the performance of desiccant. Install the filter also in the secondary side. (See "Installation Drawing" on page 4.)

3-4) Install pipes to the inlet and outlet of heatless air dryer, taking due care that there mis no leakage.

3-5) Connect the power source according to the plate on the heatless air dryer.

3-6) Connect a ground to the grounding terminal of the heatless air dryer left side. (screw size: M4)

3-7) At the time of maintenance and check, install a by-pass circuit with a stop valve if the flow inside the pipe can not be shut off.(See "Installation Drawing" on page 4.)

3-8) Install plugs to the inlet and outlet not in use in order to avoid leakage.

4. MAINTENANCE & CAUTION AT MAINTENANCE

4-1) Turn on the power source of heatless air dryer only after applying pressure. Turning on the power source before applying pressure (particularly at pressure less than 0.2MPa) may deteriorate the function of ball check, causing excessively high rate of regenerative purging at the beginning.

4-2) The outlet flow rate extremely exceeding the specified value may deteriorate the function of ball check, leading to excessively high rate of regenerative purging. Hence due care shall be paid to this regard.

4-3) The desiccant, not used over a long period(approximately one week), may have become wet. In such case, stop the secondary valve of heatless air dryer and carry out regenerative purging for about 30 minutes before operation.

4-4) The regenerative purging is set to change over from left to right and vice versa every 30 seconds (every 2minutes in the case of HD-6 and HD-9). Make sure that the change-over is made properly as specified.

4-5) Replacement of desiccant

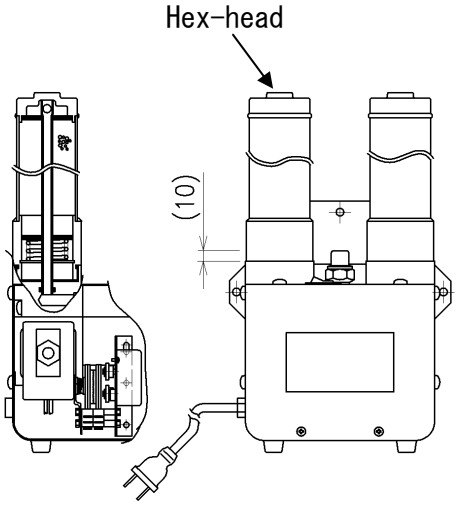
The desiccant tower consists of spring, desiccant, porous sheet, filter, etc, and is installed to the main body. Refer to LEST OF SPARE on page 12 for replacement of desiccant. However, replacement shall be made every 1.5～2 years.

Execute it according to the following notes when you remove the desiccant tower.

① HD-0.5,HD-1,HD-1.5

Turn the hex-head part of the head gripping it.

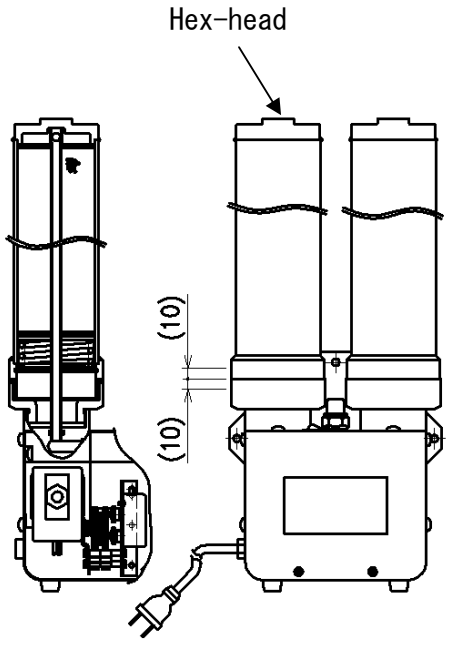
Do not grip it in the size shown (10mm) in a right picture when you turn the lower side of the tower gripping it. There is a possibility that air leaks when excessive power is added because there is O ring.



②HD-2,HD-4

Turn the hex-head part of the head gripping it.

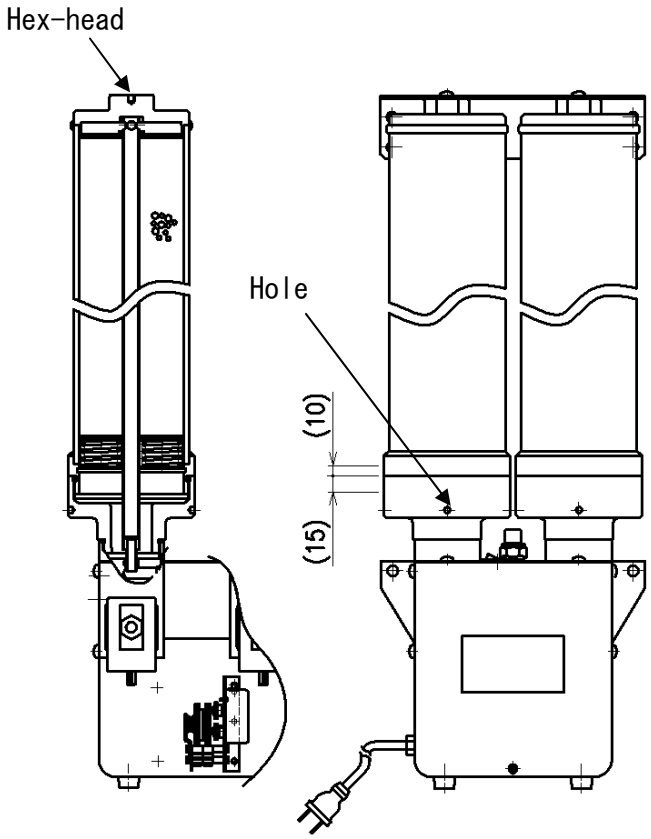
Do not grip it in the size shown (10mm) in a right picture when you turn the lower side of the tower gripping it. There is a possibility that air leaks when excessive power is added because there is O ring.



③ HD-6,HD-9

Turn the hex-head part of the head gripping it,or hang on the hole part with the pin spanner and turn.

Do not grip it in the size shown (15mm,10mm) in a right picture when you turn the lower side of the tower gripping it. There is a possibility that air leaks when excessive power is added because there is O ring.



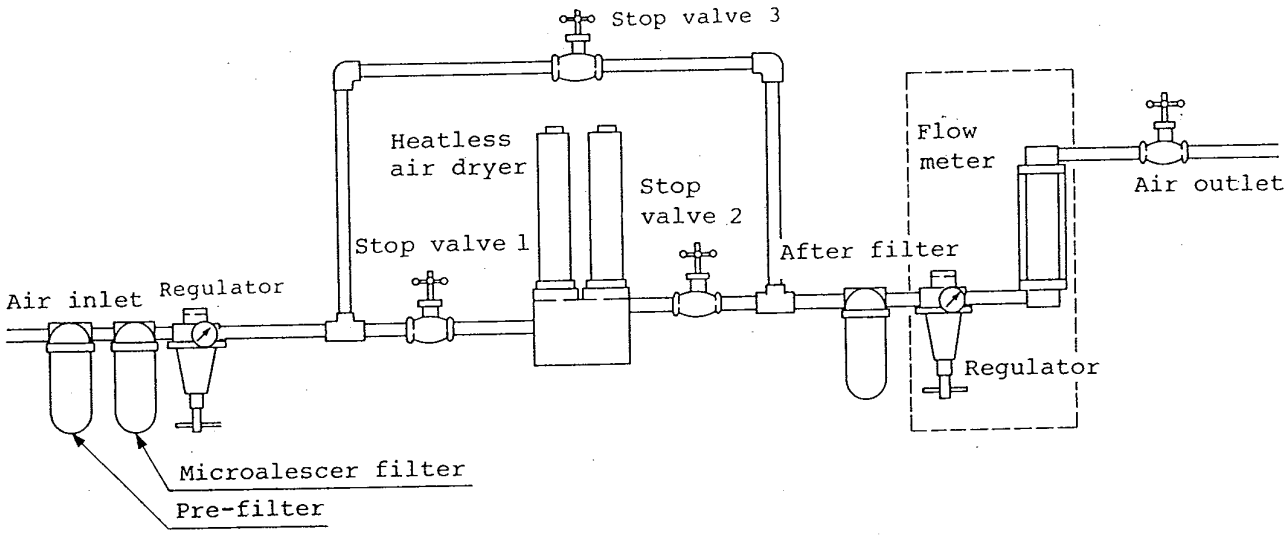
4-6) Replacement of solenoid valve

The standard replacement period for solenoid valve is approximately 2 years.Replace by removing the cover of heatless air dryer.

5. TROUBLESHOOTING

Trouble	Cause	Countermeasure
Failure in regenerative purging.	・ Power source is not connected. ・ Abnormal voltage. ・ Wire disconnection. ・ Two solenoid valves are defective. ・ Defective timer motor. ・ Broken fuse.	・ Connect the power source (POWER LAMP lights up) ・ Regulate to normal voltage. ・ Check and repair. ・ Replace the defective valves. ・ Replace. ・ Check, and replace the fuse.
Excessively high regenerative purging.	・ Defective timer motor. ・ Displacement of timer motor limit switch(Slackened screws). ・ Intrusion of foreign substance in solenoid valve. ・ Broken plunger spring of solenoid valve. ・ Worn-out timer motor limit switch. ・ Excessive outlet flow rate.	・ Replace. ・ Return to normal position, refer to “change-over time chart.”(Tighten the screws.) ・ Overhaul and clean. ・ Replace the spring. ・ Replace the timer motor. ・ Correct to specified flow rate.
Only one side of tube functions for regenerative purging.	・ Disconnection in solenoid valve circuit. ・ Defective coil of solenoid valve. ・ Clogged valve seat orifice.	・ Check and repair. ・ Replace the coil. ・ Clean the orifice.
Excessively high regenerative purging in one side of tube.	・ Intrusion of foreign substance in solenoid valve. ・ Broken plunger spring of solenoid valve. ・ Ball check entangled in valve seat. ・ Displacement of timer motor limit switch(Slackened screws). ・ Worn-out timer motor limit switch.	・ Overhaul and clean. ・ Replace the spring. ・ Overhaul and clean, or replace the ball check. ・ Return to normal position, refer to “change-over time chart.”(Tighten the screws.) ・ Replace the timer motor.
Excessively high regenerative purging for first 10 seconds, and back to normal later.	・ Incoming air pressure below 0.2MPa. ・ Ball check entangled in valve seat. ・ Excessive outlet flow rate instantaneously.	・ Correct to normal air pressure. ・ Overhaul and clean, or replace the ball check. ・ Install a tank in the outlet side to prevent pressure variation.
High outlet dew point, Moisture indicator : Light green or Pink	・ Low incoming air pressure. ・ Excessive outlet flow rate. ・ High temperature of incoming air. ・ Aged desiccant.	・ Regulate to normal pressure. ・ Correct to normal flow rate. ・ Correct to normal temperature. ・ Replace the desiccant.

6. HEATESS AIR DRYER INSTALLATION DIAGRAM

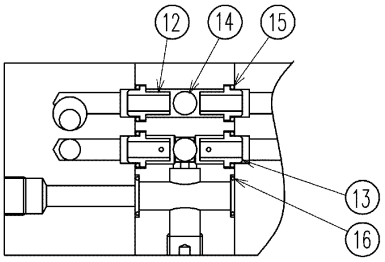


Note :

1. ⬚ is a reference diagram for installing regulator and flow meter.
2. Microalescer is not needed if the inlet air has no oil content.

7. OUTLINE DRAWING

7-1. HD-0.5, HD-1, HD-1.5, HD-2, HD-4



SECTION A-A'

H-dimension

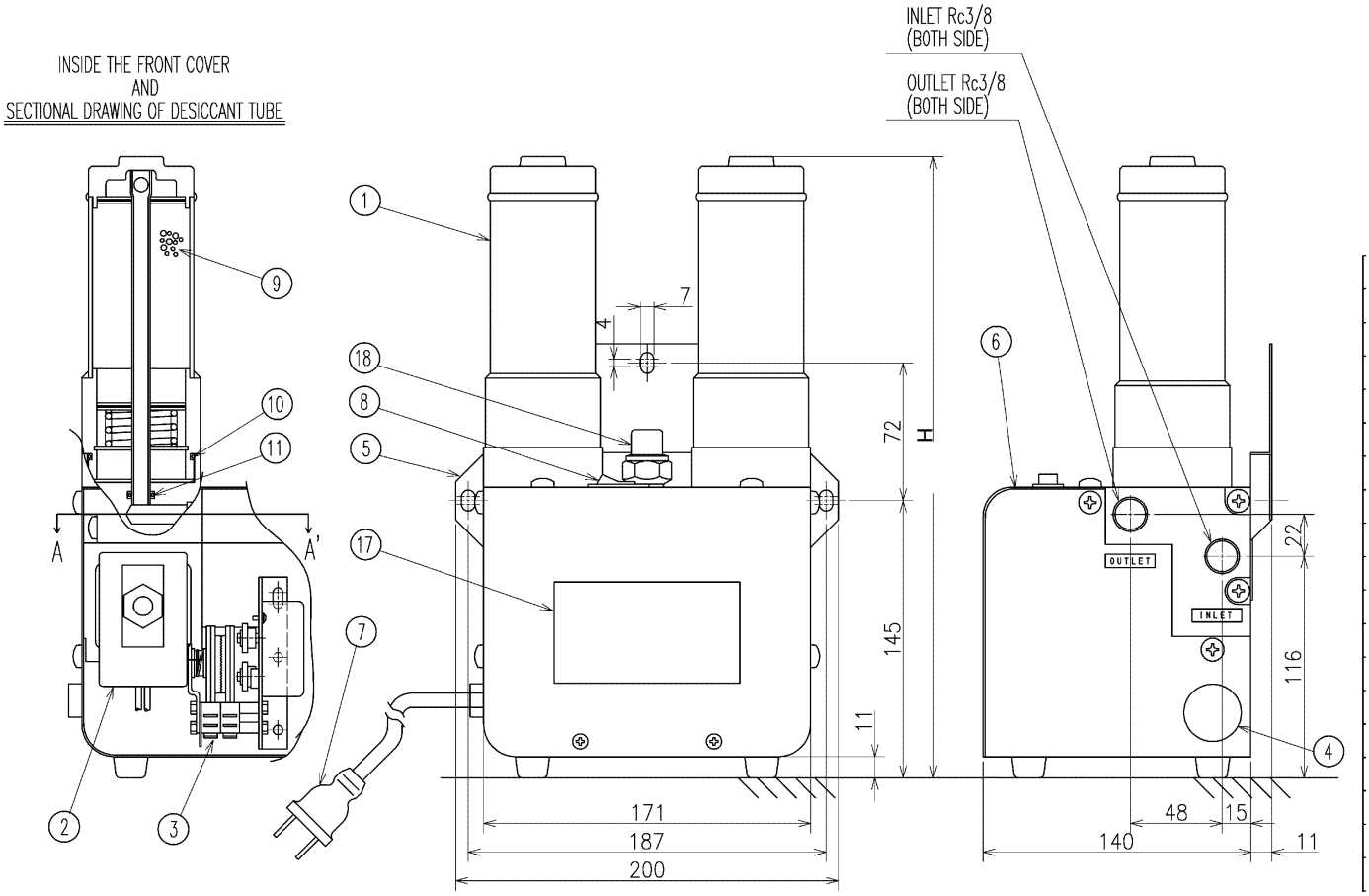
Model No.	H
HD-0.5	325
HD-1	440
HD-1.5	485
HD-2	467
HD-4	689

Note:

1. Attach plug to the inlet and outlet not in use.
2. The attachment plug is not installed for AC200V.
3. Desiccant tube assembly No.& desiccant replacement No.

Model No.	Desiccant tube ass'y No.	Desiccant replacement No.
HD-0.5	15-8771	15-8771-D
HD-1	15-8772	15-8772-D
HD-1.5	15-8773	15-8773-D
HD-2	15-8774	15-8774-D
HD-4	15-8775	15-8775-D

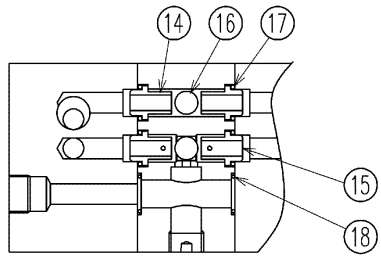
INSIDE THE FRONT COVER
AND
SECTIONAL DRAWING OF DESICCANT TUBE



No.	PART	MATERIAL/NUMBER	Q'TY	REMARK	No.	PART	MATERIAL/NUMBER	Q'TY	REMARK
8	SWITCH	87-8727-2	1	DS-323 (FOR 200V)					
8	SWITCH	87-8727-1	1	DS-322A(FOR 100V)	18	MOISTURE INDICATOR	F4-188308	1	
7	ATTACHMENT PLUG	87-6299	1	CORD 2.3m	17	NAME PLATE		1	
6	FRONT COVER		1		16	O-RING	78-8702	4	
5	BRACKET		1		15	O-RING	78-042	4	
4	SILENCER	43-8719	1	SL-10A	14	BALL CHECK	79-506	2	
3	TIMER MOTOR	87-8709-2	1	J226-058(FOR 200V)	13	VALVE SEAT(2)	30-8728	2	
3	TIMER MOTOR	87-8709-1	1	J226-057(FOR 100V)	12	VALVE SEAT(1)	30-8727	2	
2	SOLENOID VALVE	15-8855-2	2	ADK11-15X2016-FL-AC200V	11	O-RING	78-8700	2	
2	SOLENOID VALVE	15-8855-1	2	ADK11-15X2016-FL-AC100V	10	O-RING	78-8698	2	
1	DESICCANT TUBE ASSENBLY	See Note(3)	2		9	DESICCANT	85-8699		

7-2. HD-6

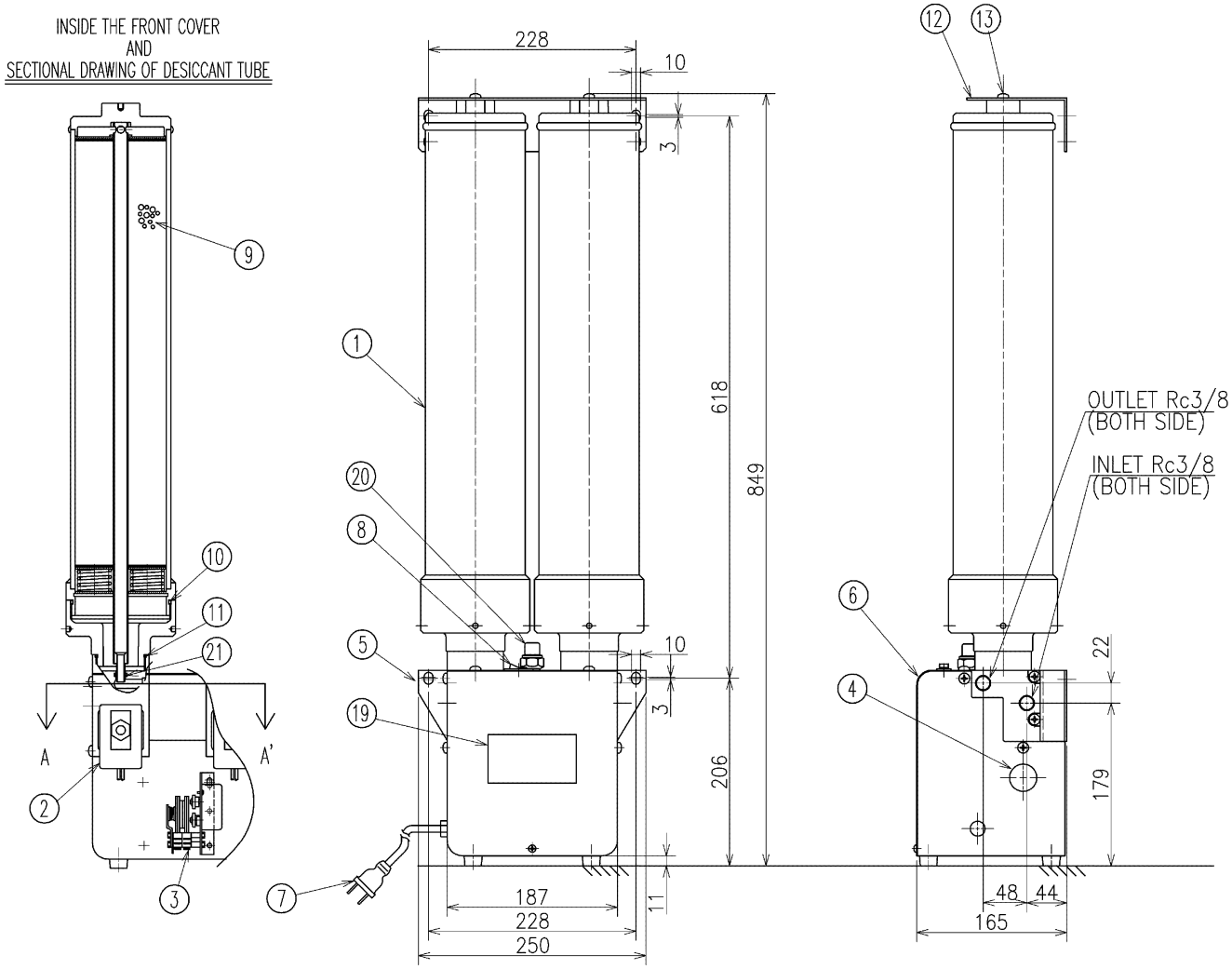
SECTION A–A'



Note :

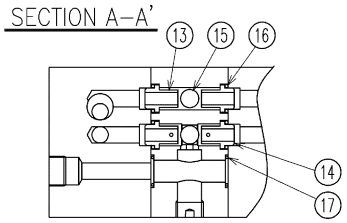
1. Attach plug to the inlet and outlet not in use.
2. The attachment plug is not installed for AC200V.
3. Desiccant tube assembly No.:F3-505026-D.

INSIDE THE FRONT COVER
AND
SECTIONAL DRAWING OF DESICCANT TUBE



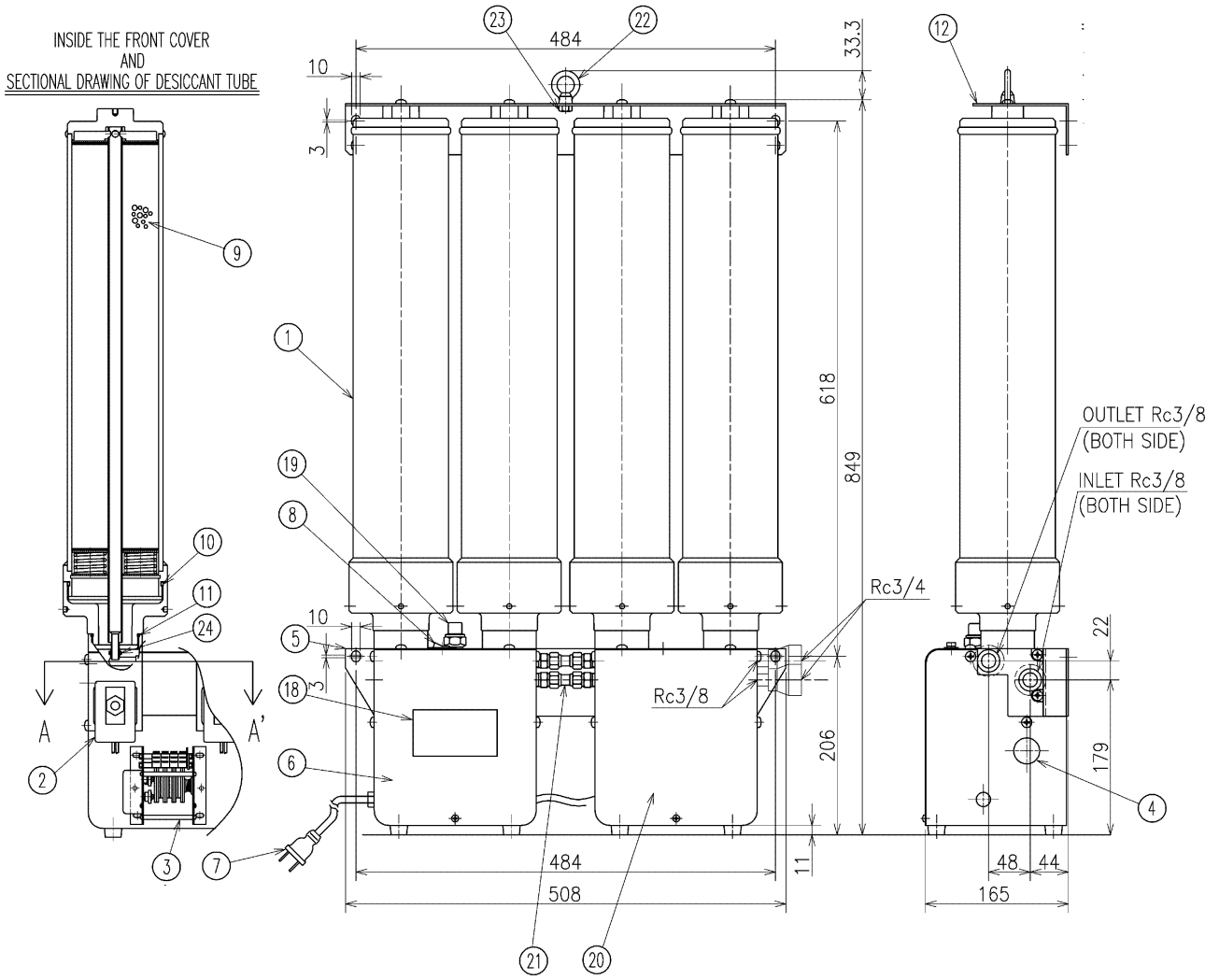
21	O-RING	87-8700	2		20	MOISTURE INDICATOR	F4-188308	1	
8	SWITCH	87-8727-2	1	DS-323 (FOR 200V)	19	NAME PLATE		1	
8	SWITCH	87-8727-1	1	DS-322A (FOR 100V)	18	O-RING	78-8702	4	
7	ATTACHMENT PLUG	87-6299	1	CORD 2.3m	17	O-RING	78-042	4	
6	FRONT COVER		1		16	BALL CHECK	79-506	2	
5	BRACKET		1		15	VALVE SEAT (2)	F4-506836	2	
4	SILENCER	43-8719	1	SL-10A	14	VALVE SEAT (1)	F4-506835	2	
3	TIMER MOTOR	87-8710-2	1	J226-060 (FOR 200V)	13	Cross recessed pan-head screw	36-8708	2	M6 × ℓ8
3	TIMER MOTOR	87-8710-1	1	J226-059 (FOR 100V)	12	Bracket (2)	F3-505051	1	
2	SOLENOID VALVE	15-8855-2	2	ADK11-15X2016-FL-AC200V	11	O-RING	78-8698	2	
2	SOLENOID VALVE	15-8855-1	2	ADK11-15X2016-FL-AC100V	10	O-RING	F4-505044	2	F3-505026
1	DESICCANT TUBE ASSENBLY	F3-505026	2		9	DESICCANT	85-8699		F3-505026
No.	PART	MATERIAL/NUMBER	Q'TY	REMARK	No.	PART	MATERIAL/NUMBER	Q'TY	REMARK

7-2. HD-9



Note :

1. Attach plug to the inlet and outlet not in use.
2. The attachment plug is not installed for AC200V.
3. Desiccant tube assembly No.:F3-505026-D.

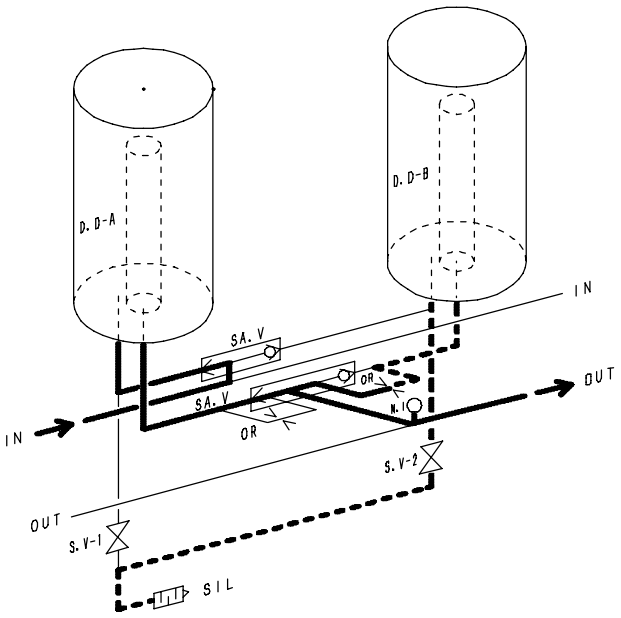


					24	O-RING	78-8700	4	
10	O-RING	F4-505044	4	F3-505026	23	Hexagon nut		1	M8
9	DESICCANT	505032			22	Eyebolt		1	M8
8	SWITCH	87-8727-2	1	DS-323 (FOR 200V)	21	Connection tube		2	
8	SWITCH	87-8727-1	1	DS-323A(FOR 100V)	20	Front cover(2)		1	
7	ATTACHMENT PLUG	87-6299	1	CORD 2.3m	19	MOISTURE INDICATOR	F4-188308	1	
6	FRONT COVER		1		18	NAME PLATE		1	
5	BRACKET		1		17	O-RING	78-8702	8	
4	SILENCER	43-8719	2	SL-10A	16	O-RING	78-042	8	
3	TIMER MOTOR	87-8711-1	1	J226-062(FOR 200V)	15	BALL CHECK	79-506	4	
3	TIMER MOTOR	87-8711-1	1	J226-061(FOR 100V)	14	VALVE SEAT(2)	F4-506836	4	
2	SOLENOID VALVE	15-8855-2	4	ADK11-15X2016-FL-AC200V	13	VALVE SEAT(1)	F4-506835	4	
2	SOLENOID VALVE	15-8855-1	4	ADK11-15X2016-FL-AC100V	12	Bracket(2)	F3-505057	1	
1	DESICCANT TUBE ASSENBLY	F3-505026	4		11	O-RING	78-8698	4	
No.	PART	MATERIAL/NUMBER	Q'TY	REMARK	No.	PART	MATERIAL/NUMBER	Q'TY	REMARK

8. PNEUMATIC CIRCUIT DIAGRAM

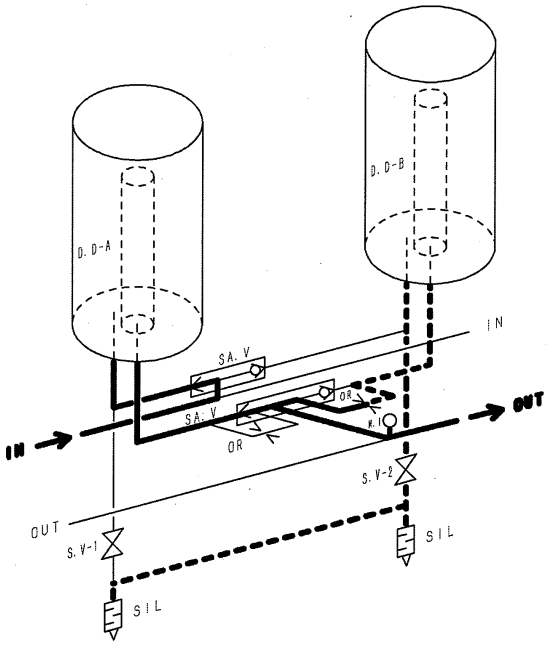
8-1.

HD-0.5, HD-1, HD-1.5, HD-2, HD-4



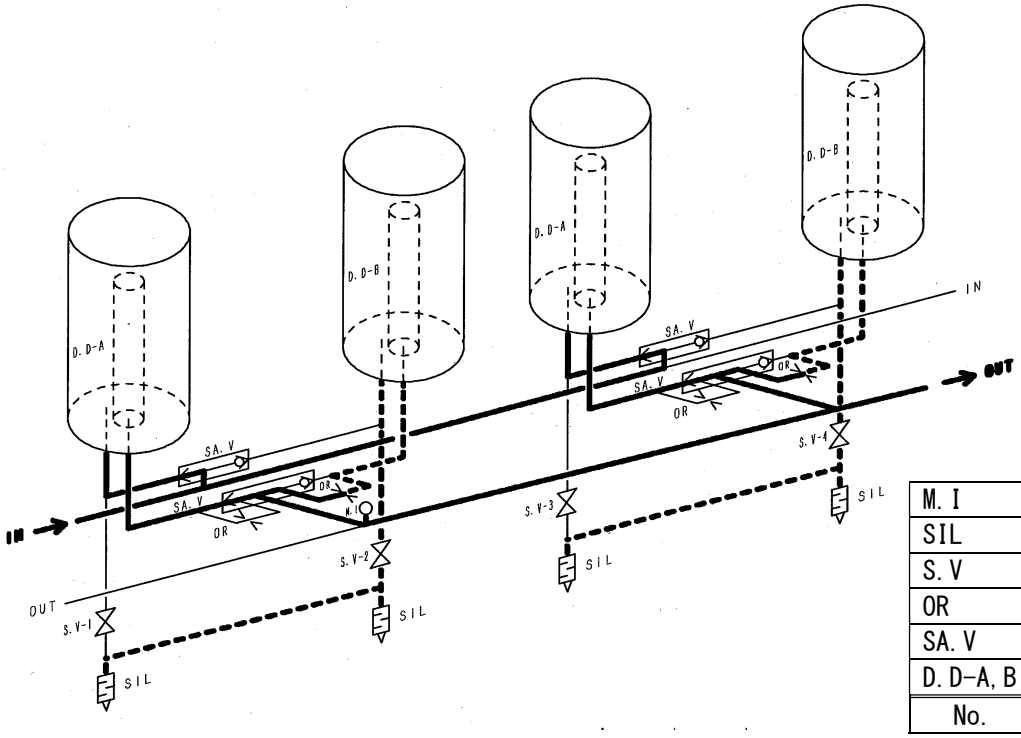
8-2.

HD-6



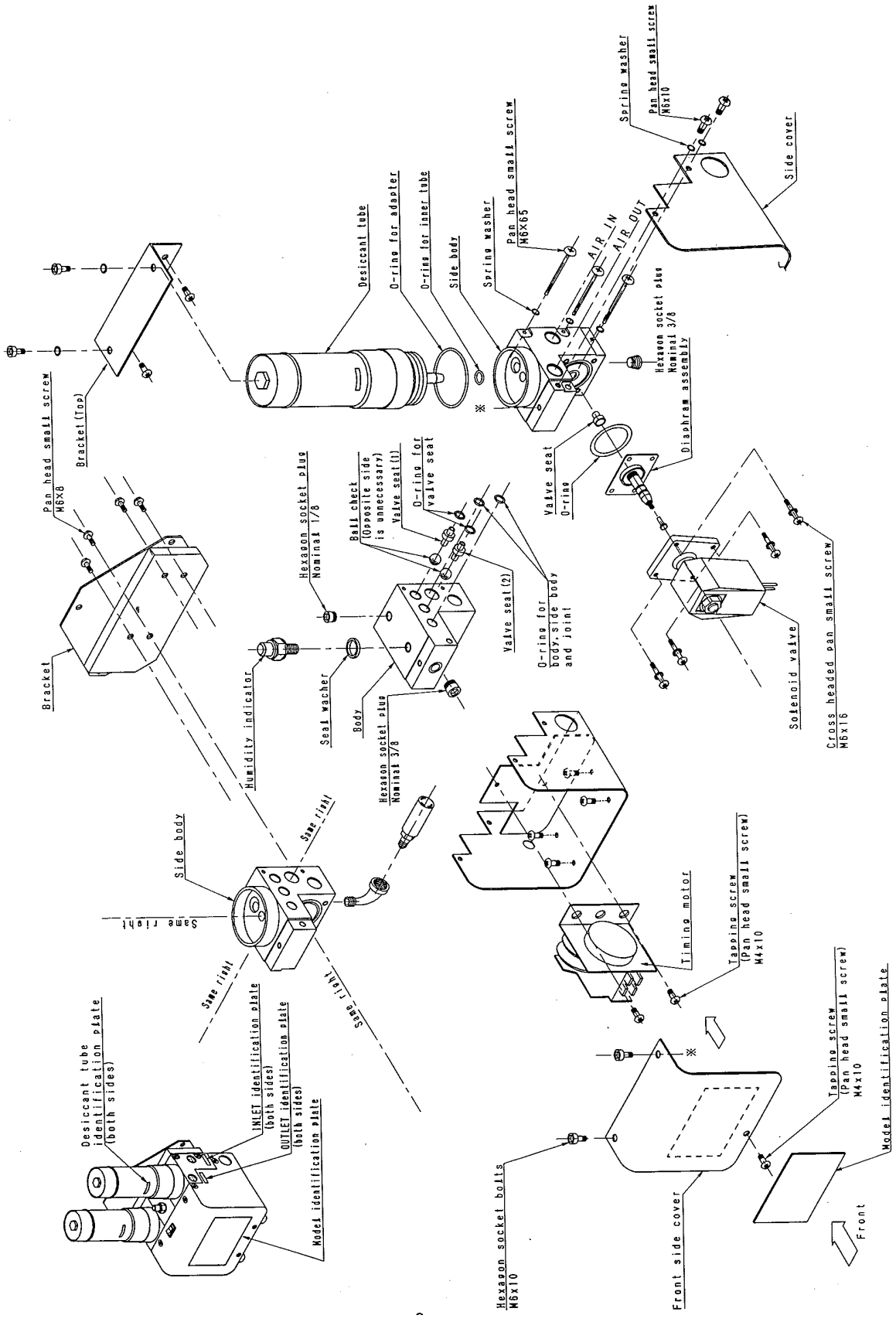
8-3.

HD-9



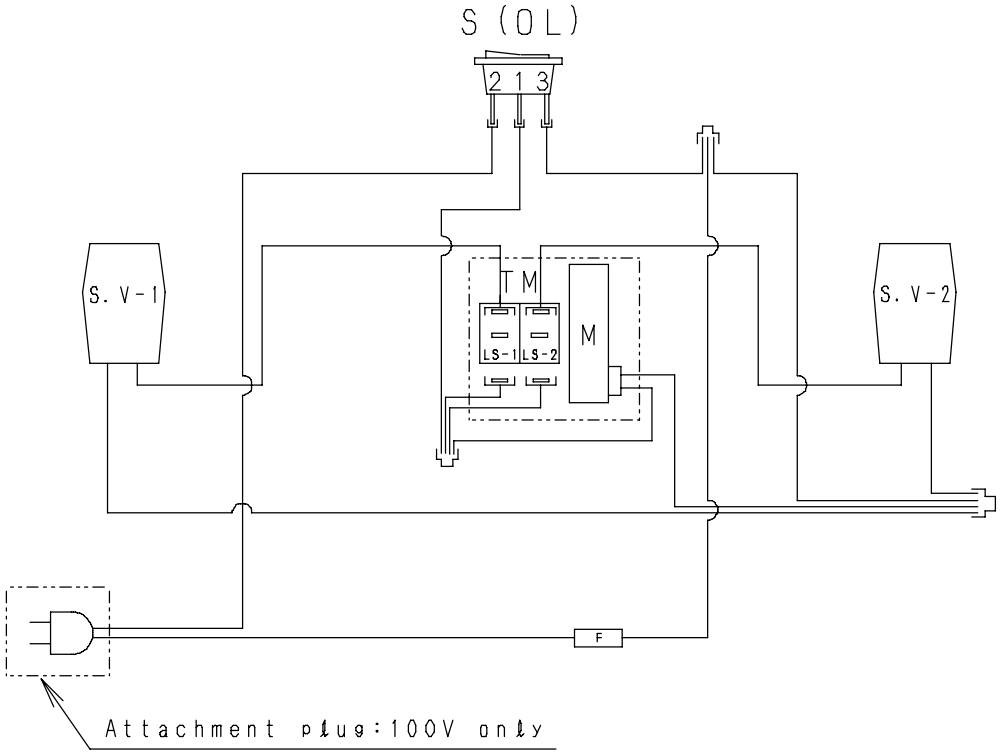
M. I	MOISTURE INDICATOR
SIL	SILENCER
S. V	SOLENOID VALVE
OR	ORIFICE
SA. V	SHUTTLE VALVE
D. D-A, B	DRYING DRUM
No.	PART

9. OVERHAULING

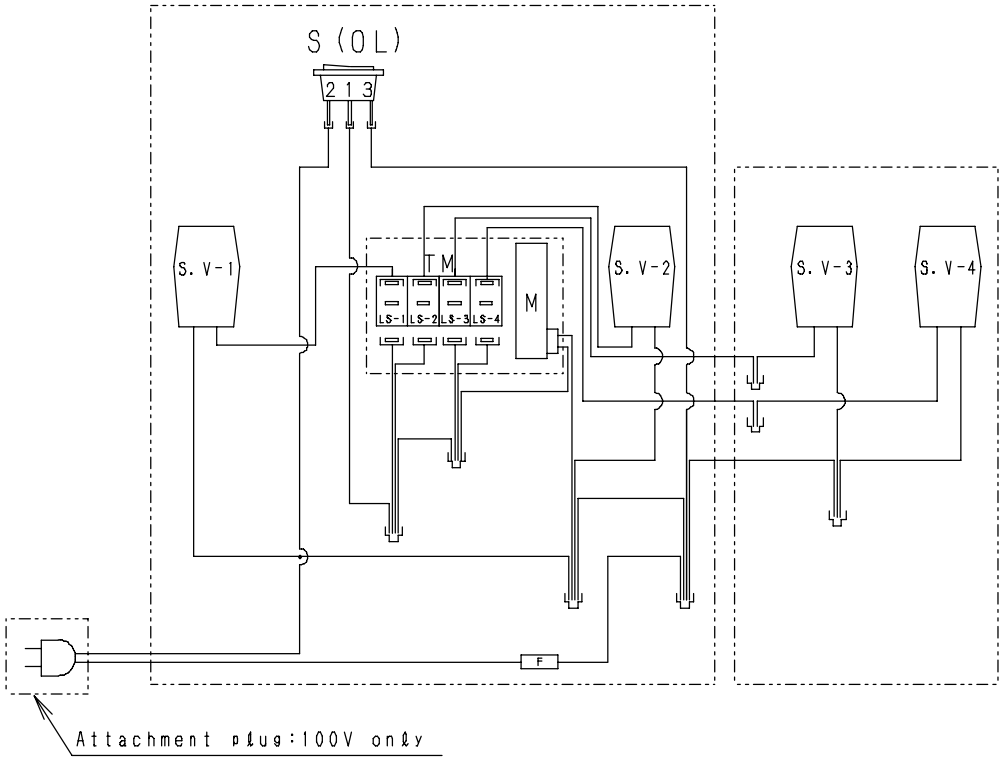


10. ELECTRIC WIRING DIAGRAM

10-1. HD-0.5, HD-1, HD-1.5, HD-2, HD-4, HD-6

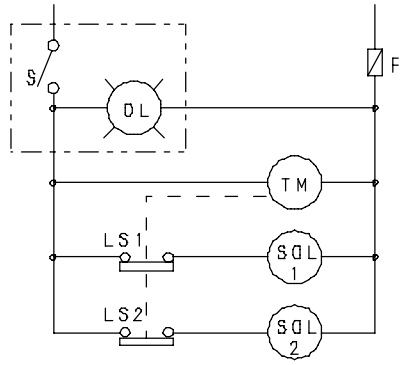


10-2. HD-9



１１. ELECTRIC CIRCUIT DIAGRAM

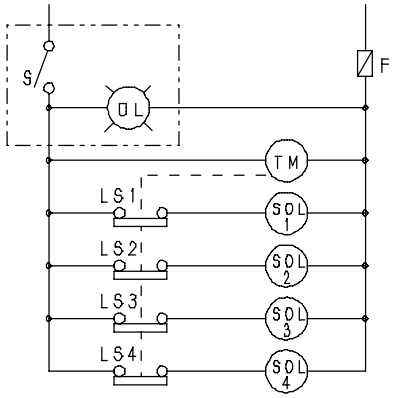
11-1. HD-0.5, HD-1, HD-1.5, HD-2, HD-4, HD-6



AC100V 50/60Hz
or AC200V 50/60Hz

S(OL) : Switch with indicating lamp
TM : Timer motor
M : Motor
LS-1, 2 : Limit switches
S.V.-1, 2, 3, 4, : Solenoid valves
F : Glass tube fuse

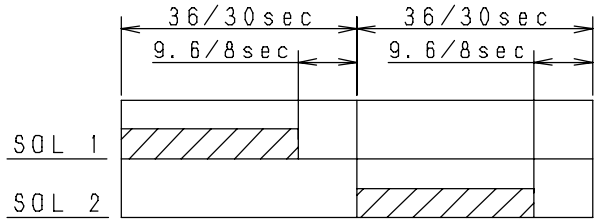
11-2. HD-9



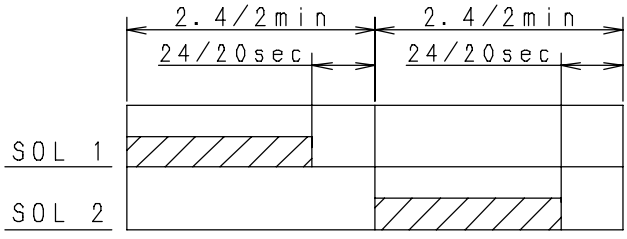
AC100V 50/60Hz
or AC200V 50/60Hz

１２. CHANGE-OVER TIME CHART

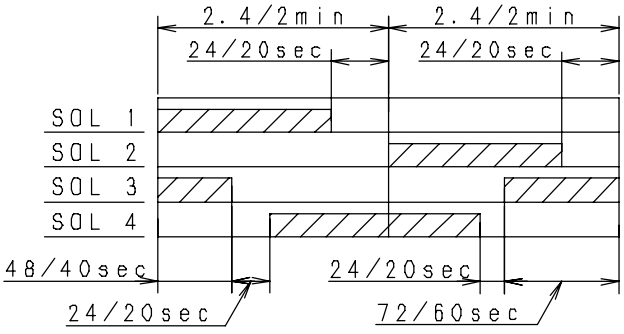
12-1. HD-0.5, HD-1, HD-1.5, HD-2, HD-4



12-2. HD-6



12-3. HD-9

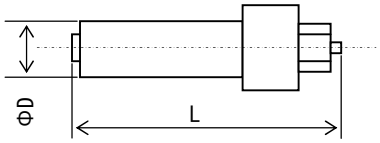


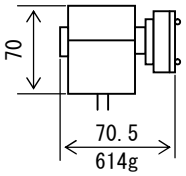
※Time chart varies with the frequency (50/60Hz).

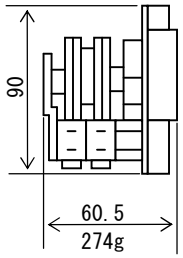
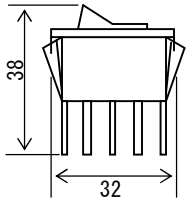
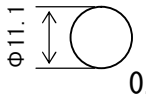
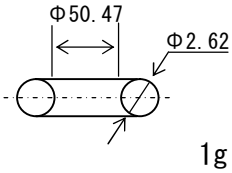
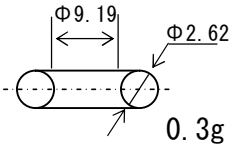
１３. LIST OF SPARE PARTS

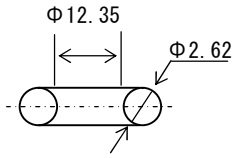
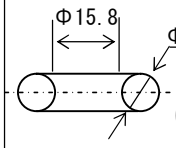
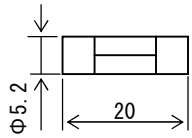
Heatless Air Dryer (HD-0.5,HD-1,HD-1.5,HD-2,HD-4,HD-6,HD-9)

1. It is desirable to keep in stock the spare parts in compliance with “maintenance parts term” in order to use the equipment safely.
2. The numbers in brackets in “Quantity” column are for HD-9.

<table>
<tr><th rowspan="2">No.</th><th rowspan="2">Parts</th><th rowspan="2">Schematic Drawing & Weight</th><th rowspan="2">Ma-terial</th><th rowspan="2">Quan-tity</th><th rowspan="2">Parts No.</th><th colspan="3">Maintenance Parts Term</th></tr>
<tr><th>More than 1 yr., less than 2 yr.</th><th>More than 2 yr., less than 3 yr.</th><th>More than 3 yr.</th></tr>
<tr><td>1</td><td>Desiccant tube ass’y</td><td> 

<table>
<tr><th>Model No.</th><th>Desiccant tube ass’y</th><th>ΦD</th><th>L</th><th>Weight</th><th>Quantity</th></tr>
<tr><td>HD-0.5</td><td>15-8771</td><td>55</td><td>181</td><td>0.54kg</td><td>2</td></tr>
<tr><td>HD-1</td><td>15-8772</td><td>55</td><td>296</td><td>0.82kg</td><td>2</td></tr>
<tr><td>HD-1.5</td><td>15-8773</td><td>55</td><td>341</td><td>1.02kg</td><td>2</td></tr>
<tr><td>HD-2</td><td>15-8774</td><td>80</td><td>323</td><td>1.78kg</td><td>2</td></tr>
<tr><td>HD-4</td><td>15-8775</td><td>80</td><td>545</td><td>3.06kg</td><td>2</td></tr>
<tr><td>HD-6</td><td>505026</td><td>110</td><td>636</td><td>7kg</td><td>2</td></tr>
<tr><td>HD-9</td><td>505026</td><td>110</td><td>636</td><td>7kg</td><td>4</td></tr>
</table></td><td></td><td></td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>2</td><td>Desiccant</td><td>Inform CKD of the following numbers for the replacement of desiccant only in desiccant tube ass’y. Also send the desiccant tube, which will be returned after replacing the desiccant.
<table>
<tr><th>Model No.</th><th>Desiccant Re-Placement No.</th></tr>
<tr><td>HD-0.5</td><td>15-8771-D</td></tr>
<tr><td>HD-1</td><td>15-8772-D</td></tr>
<tr><td>HD-1.5</td><td>15-8773-D</td></tr>
<tr><td>HD-2</td><td>15-8774-D</td></tr>
<tr><td>HD-4</td><td>15-8775-D</td></tr>
<tr><td>HD-6</td><td>505026-D</td></tr>
<tr><td>HD-9</td><td>505026-D</td></tr>
</table>
Note : Stop the secondary valve and carry out regenerative purging for about 30 minutes after the replacement of desiccant tube ass’y or desiccant.</td><td></td><td></td><td></td><td>○</td><td></td><td></td></tr>
<tr><td>3</td><td>Solenoid valve</td><td> 
</td><td></td><td>2
(4)</td><td>For 100V
ADK11-15
x2016-
FL-100V
For 200V
ADK11-15
x2016-
FL-200V</td><td></td><td>○</td><td></td></tr>
</table>

No.	Parts	Schematic Drawing & Weight	Ma-terial	Quan-tity	Parts No.	Maintenance Parts Term		
						More than 1 yr., less than 2 yr.	More than 2 yr., less than 3 yr.	More than 3 yr.
4	Timer motor	 274g		1	HD-0.5,1,1.5, 2,4 For 100V 87-8709-1 For 200V 87-8709-2 HD-6 For 100V 87-8710-1 For 200V 87-8710-2 HD-9 For 100V 87-8711-1 For 200V 87-8711-2			○
5	Switch	 9.6g		1	For 100V 87-8727-1 For 200V 87-8727-2			○
6	Ball check	 0.9g	Ure-thane rubber	2 (4)	79-506			○
7	O-ring	 1g	NBR	2 (4)	78-8698 ARP-568-136			○
8	O-ring	 0.3g	NBR	2 (4)	78-8700 ARP-568-110			○

No.	Parts	Schematic Drawing & Weight	Ma-terial	Quan-tity	Parts No.	Maintenance Parts Term		
						More than 1 yr., less than 2 yr.	More than 2 yr., less than 3 yr.	More than 3 yr.
9	O-ring	 0.3g	NBR	4 (8)	78-042 ARP-568-112			○
10	O-ring	 0.3g	NBR	4 (8)	78-8702 JIS B2401 P16			○
11	Fuse			1	Glass tube fuse(Φ5.2) available in the market For 100V,1A For 200V,0.5A			

１４. HOW TO READ THE MOISTURE INDICATOR

The moisture indicator shows Light green or Pink when the desiccant is aged or when the heatless air dryer is not operating normally. In such case, refer to item 4,"TROUBLESHOOTING"on page 6.

14-1. If the desiccant is found to be aged, replace according to item 13,"LIST OF SPARE PARTS"on page 15.

14-2. How to read :

The green silica gel, contained in a transparent container, turns to light green when the relative humidity exceeds 20%. When moisture is absorbed much, it's changing into orange via pink. When it'll be less than 20 %, it discolors more greenly than light green.

The outlet atmospheric dew points when the silica gel changes from green to light green are shown in the next Table.

Outlet air temperature (℃)	10	20	30	40	50
Outlet atmospheric dew point (℃)	-12	-4	+5	+13	+21

１５. HOW TO MEASURE THE DEW POINT

Dew point can be measured either by using dry ice and thermometer, or through an instrument using electricity or battery.

In general dry ice is used for measuring dew points up to −40℃, while dew points below −40 are measured by means of an instrument.

Here, due attention shall be paid to the tube for taking out the sample air.

Dew point cannot be measured correctly by taking the sample air in vinyl or nylon tubes since moisture in atmospheric air intrudes into these tubes because of their water absorbing property. The vinyl or nylon tubes make hardly any difference in measuring the dew points up to −20℃. However, for dew points below −40℃, the measured value becomes 5～10℃ higher than the actual dew point.

Furthermore, the measured value does not go down, however long the time may elapse.

Hence, it is necessary to use teflon tubes, copper tubes, stainless steel tubes, etc. for taking out the sample air.

１６. SPECIFICATION

Model No.	HD-0.5	HD-1	HD-1.5	HD-2	HD-4	HD-6	HD-9
Inlet air pressure range	0.2～1.0MPa						
Incoming air temperature range	5～52℃						
Ambient temperature range	-1～52℃						
Regeneration system	Self-regeneration heatless system						
Regeneration cycle	Change-over : Every 60Hz…1min(Change : 0.5min) 50Hz…1.2min(Change : 0.6min)					Change-over : Every 60Hz…4min (Change : 2min) 50Hz…4.8min (Change : 2.4min)	
Power source	Single phase AC100V 50/60Hz or AC200V 50/60Hz						
Power consumption	26W						52W
Desiccant	Synthetic zeolite						
Connecting pipe size	Rc3/8						Rc3/4
Mass(kg)	6.5	7	7.5	9.5	11.5	21.5	42.5