



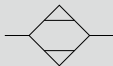
Desiccant air dryer (compact heatless dryer)

HD Series

Stable supply of ultra dry air with atmospheric dew point -72°C.

● Processing air flow rate: 75 to 1235 ℓ/min (ANR) (0.7 MPa, atmospheric dew point -72°C)

JIS symbol



Specifications

1 MPa $\approx$ 145.0 psi, 1 MPa = 10 bar

Item		HD-0.5	HD-1	HD-1.5	HD-2	HD-4	HD-6	HD-9
Port size	Rc	3/8						3/4
Inlet air pressure range MPa		0.2 (≈29 psi, 2 bar) to 1.0 (≈145 psi, 10 bar)						
Inlet air temperature range °C		5 (41°F) to 52 (125°F)						
Ambient temperature °C		-1 (30°F) to 52 (125°F)						
Regenerating system		Self-regeneration non-heating system						
Regenerative cycle		1 minute (0.5-minute switch)					4 minutes (2-minute switch)	
Power	V	Single-phase 100 VAC, 200 VAC 50/60 Hz						
Power consumption	W	26						52
Desiccant		Synthetic zeolite						
Weight	kg	6.5	7.0	7.5	9.5	11.5	21.5	42.5
Desiccant cylinder No.		15-8771	15-8772	15-8773	15-8774	15-8775	505026	505026
Desiccant filling No.		15-8771-D	15-8772-D	15-8773-D	15-8774-D	15-8775-D	505026D	505026D
Indicator for dew point monitoring		Standard equipment						
Silencer		Standard equipment						

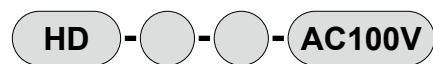
*1: In cases when the fluid contains oil, attach an oil removing filter (oil mist filter) on the inlet side. Attach a filter (5 μm , 0.3 μm , oil mist filter) with a filtration rating that suits the usage purpose on the OUT side.

*2: As the IN port and OUT port are provided at 2 locations each to the right and left, use a blanking plug with any port that will not be used.

*3: The standard paint color is Quality Cool White (Munsell No. 5 GY 7.5/0.5).

*4: For applications for use within clean rooms, consult with your CKD branch or dealer.

How to order



A Flow rate classification

B Option
*4

C Voltage

Code	Description
A Flow rate classification	
0.5	
1	
1.5	
2	
4	
6	
9	
B Option	
Blank	Standard
F	Specified color paint
G	Voltage specification
H	English language specifications
H2	Stainless steel nameplate
Y2	Product photo
C Voltage	
100 VAC	
200 VAC	

When placing an order

● The heatless dryer is adjusted to the required atmospheric dew point, flow rate, etc., at shipment.

Always indicate the following items when placing an order.

- Model No.
- Required outlet flow rate ℓ/min (ANR)
- Required atmospheric dew point °C
- Inlet air pressure MPa
- Inlet air temperature °C

⚠ Precautions for model No. selection

*1: For lubrication compressors, attach an oil removal filter (oil mist filter) on the inlet side of the heatless dryer. Attach a filter with a filtration rating that suits the usage purpose on the OUT side.

*2: As the heatless air dryer is equipped with a dew point monitoring device (moisture indicator), it is possible to check the drying status.

*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.

*4: When ordering several options, indicate the required options in alphabetical order.

Selection guide

● Reading the max. flow rate table

Two numbers are listed in each box in the max. flow rate table. The number on the top indicates the inlet air flow rate necessary to dry the flow rate listed on the bottom. The number on the bottom indicates the max. outlet flow rate of the dry air. The difference between the number on the top and the number on the bottom is the purge flow rate necessary for regeneration drying.

Max. flow rate table

Unit: ℓ/min (ANR)

Model No.		Atmospheric dew point -17.5°C							Atmospheric dew point -40°C							Atmospheric dew point -72°C						
		HD-0.5	HD-1	HD-1.5	HD-2	HD-4	HD-6	HD-9	HD-0.5	HD-1	HD-1.5	HD-2	HD-4	HD-6	HD-9	HD-0.5	HD-1	HD-1.5	HD-2	HD-4	HD-6	HD-9
Inlet air pressure (MPa)	1.0	165	325	445	665	1,225	1,870	3,000	130	255	335	500	935	1,405	2,150	105	210	290	435	735	1,105	1,685
		145	280	380	570	1,085	1,645	2,605	110	210	270	405	795	1,180	1,830	85	165	225	340	595	880	1,345
	0.9	150	300	405	615	1,120	1,710	2,740	115	235	310	460	855	1,285	1,970	95	195	265	400	670	1,010	1,540
		130	255	340	520	980	1,485	2,345	95	190	245	365	715	1,060	1,650	75	150	200	305	530	785	1,200
	0.8	135	270	370	555	1,015	1,545	2,475	105	215	280	415	775	1,160	1,780	85	175	240	360	610	910	1,390
		115	225	305	460	875	1,320	2,080	85	170	215	320	635	935	1,460	65	130	175	265	470	685	1,050
	0.7	120	240	325	490	890	1,370	2,195	95	190	245	370	685	1,030	1,575	75	155	215	320	540	810	1,235
		100	195	260	395	750	1,145	1,800	75	145	180	275	545	805	1,255	55	110	150	225	400	585	895
	0.6	105	210	285	430	785	1,195	1,915	80	165	215	320	600	900	1,375	65	135	185	280	470	705	1,075
		85	165	220	335	645	970	1,520	60	120	150	225	460	675	1,055	45	90	120	185	330	480	735
	0.5	90	180	245	370	675	1,030	1,650	70	140	185	280	515	775	1,185	55	115	160	240	405	610	930
		70	135	180	275	535	805	1,255	50	95	120	185	375	550	865	35	70	95	145	265	385	590
	0.4	75	150	205	305	560	855	1,370	60	120	155	230	430	640	985	45	95	135	200	335	505	770
		55	105	140	210	420	630	975	40	75	90	135	290	415	665	25	50	70	105	195	280	430
	0.3	60	120	165	245	450	690	1,105	45	95	125	185	345	520	795	40	80	105	160	270	405	620
		40	75	100	150	310	465	710	25	50	60	90	205	295	475	20	35	40	65	130	180	280
	0.2	45	90	125	185	340	515	825	35	70	95	140	260	385	595	30	60	80	120	205	305	465
		25	45	60	90	200	290	430	15	25	30	45	120	160	275	10	15	15	25	65	80	125

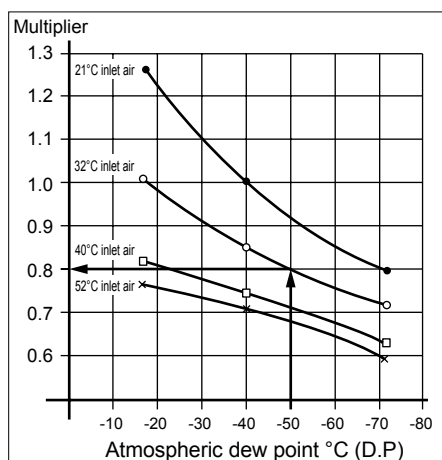
● Selection method

The above flow rate table is for conditions of an inlet air temperature of 21°C and an atmospheric dew point of -17.5°C, -40°C, and -72°C. When conditions differ, determine the specifications by using the multiplier table below left.

Inlet air flow rate = (Inlet air flow rate listed in the max. flow rate table when the atmospheric dew point is -40°C) × multiplier

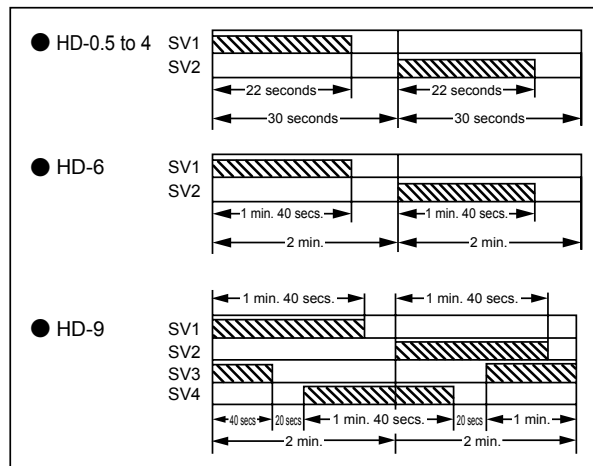
Purge flow rate = (Inlet air flow rate listed in the max. flow rate table when the atmospheric dew point is -40°C) - (Outlet air flow rate listed in the max. flow rate table when the atmospheric dew point is -40°C)

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



(Example) When pressure is 0.9 MPa, atmospheric dew point is -50°C, and inlet air temperature is 32°C, the inlet air flow rate, purge flow rate, and outlet air flow rate of HD-4 are,
 Inlet air flow rate = 855 × 0.8 ≈ 684 ℓ/min
 Purge flow rate = 855 - 715 = 140 ℓ/min
 Outlet air flow rate = 684 - 140 = 544 ℓ/min

Time chart



* Number of seconds is displayed at 60Hz.
 Multiply by approx. 1.2 for 50 Hz.

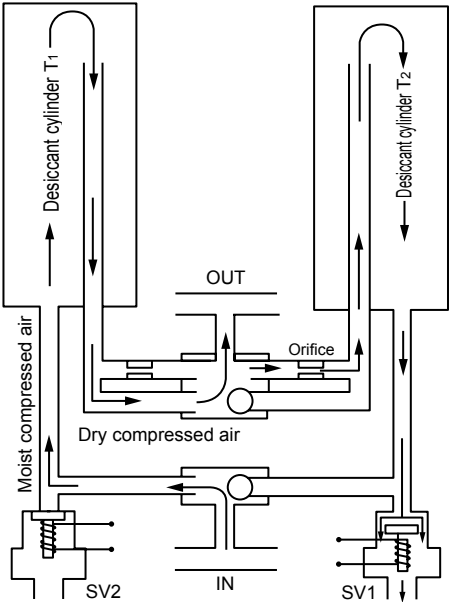
When a heatless dryer is installed

- When starting test operation after installation of this unit, operate the unit for the time below with a flow rate that is approximately 10 to 20% of the flow rate that will be used.

Atmospheric dew point (°C)	-17.5	-40	-72
Time (h)	2	6	72

F.R.L. Functions

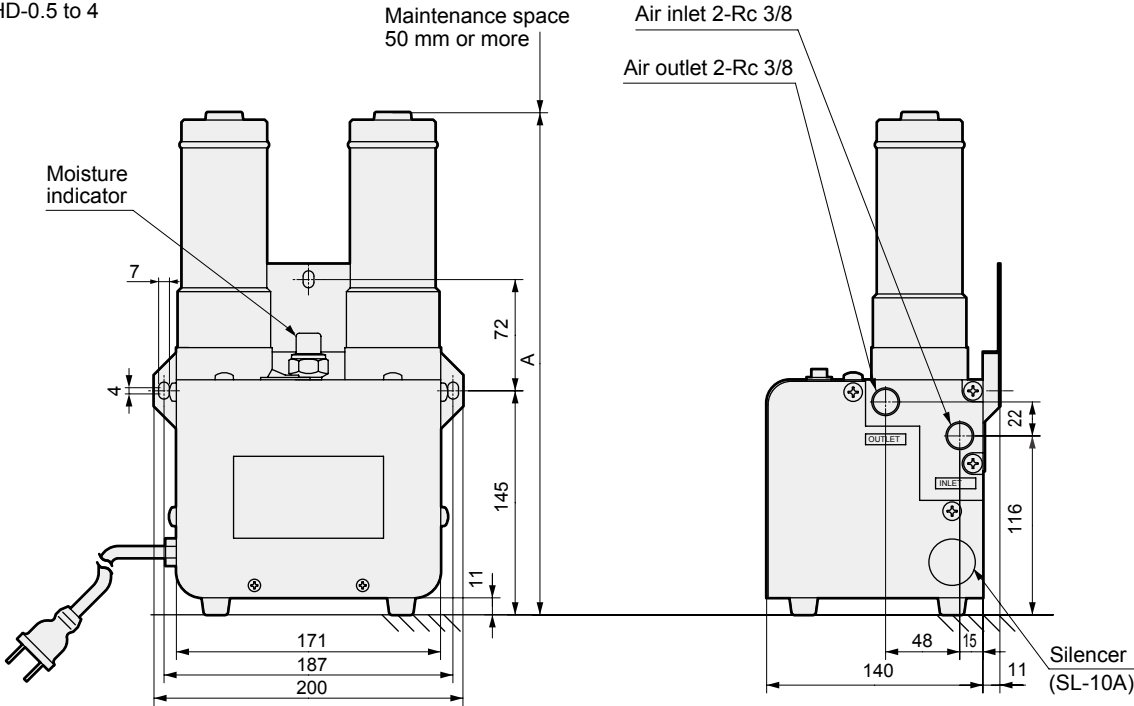
- F.R.
- F (Filtr)
- R (Reg)
- L (Lub)
- Drain Separ
- Mech Press SW
- Res press exh valve
- SlowStart
- Anti-bac/Bac-remove Filtr
- Film Resist FR
- Oil-ProhR
- Med Press FR
- No Cu/ PTFE FRL
- Outdrs FRL
- Adapter Joiner
- Press Gauge
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- Speed Ctrl
- Silncr
- CheckV/ other
- Fit/Tube
- Nozzle
- Air Unit
- PrecsCompn
- Electro Press SW
- ContactSW
- AirSens
- PresSW Cool
- Air Flo Sens/Ctrl
- WaterRtSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Gas generator
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending



Moist compressed air coming in from IN goes through the shuttle valve and enters desiccant cylinder T₁. The moist compressed air evenly flows within the desiccant cylinder, the water vapor within the moist compressed air is adsorbed by the desiccant, and once transformed into ultra dry air, comes out of the OUTlet via the shuttle valve. Part of the ultra dry air that has been reduced in pressure via the orifice enters the desiccant cylinder T₂, is used for the regeneration drying of the desiccant of desiccant cylinder T₂, and is then released into the air. With this drying and regeneration process, the switching is performed with a timing motor within the control box and ultra dry air is continuously supplied in a stable manner to the OUT side.

Dimensions

● HD-0.5 to 4

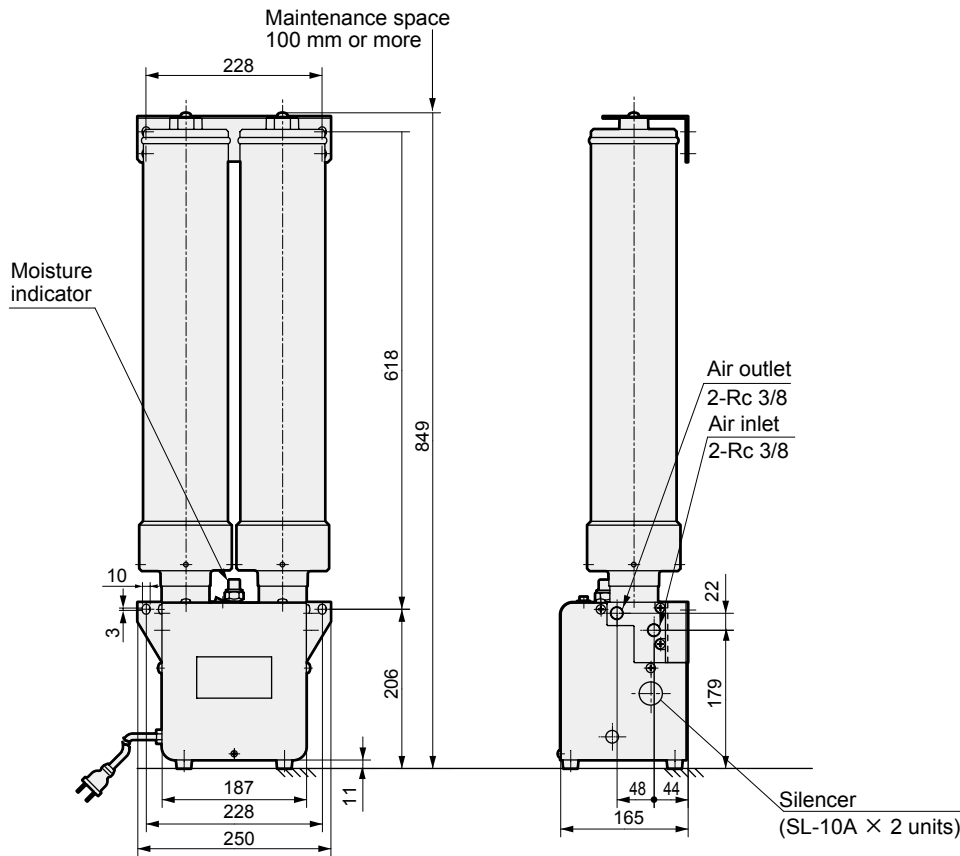


Model No.	Dimension A
HD-0.5	325
HD-1	440
HD-1.5	485
HD-2	467
HD-4	689

Dimensions

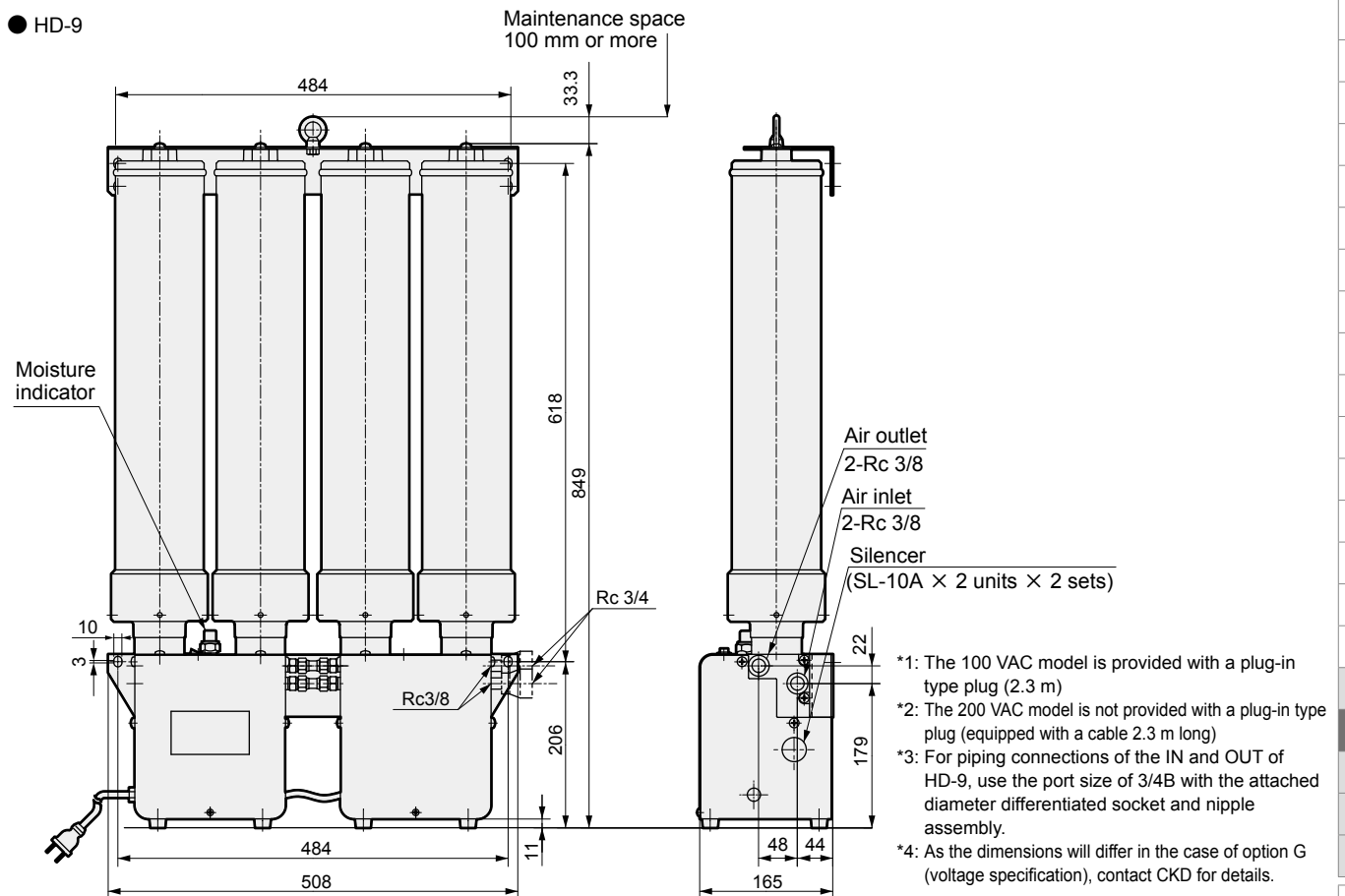


● HD-6



Dimensions

● HD-9



F.R.L.
F.R.
F (Filtr)
R (Reg)
L (Lub)
Drain Separ
Mech Press SW
Res press exh valve
SlowStart
Anti-bac/Bac-remove Filtr
Film Resist FR
Oil-ProhR
Med Press FR
No Cu/ PTFE FRL
Outdrs FRL
Adapter Joiner Press Gauge
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
Speed Ctrl
Silncr
CheckV/ other
Fit/Tube
Nozzle
Air Unit
PresCompn
Electro Press SW
ContactSW
AirSens
PresSW Cool
Air Flo Sens/Ctrl
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
Gas generator
RefrDry
DesiccDry
HiPolymDry
MainFiltr
Dischrg etc
Ending