DIRECT EXPANSION REFRIGERATED AIR DRYER

CDK-SA Series

27 - 20,400 m³/h | 50Hz

2 YEARS WARRANTY Compressor & Heat Exchanger

ECO FRIENDLY REFRIGERANT

www.airdit.com

ABOUT DIT

DIT, Franco-Thai manufacturer with more than two decades of experience as an air treatment specialist, leverages its expertise to develop and design products tailored for industrial use in the compressed air field. DIT is constantly focused on achieving optimal performance and possesses several patents, ensuring a leading position in terms of innovation and an ongoing commitment to excellence in performance.

Emboldened by this expertise and in partnership with industry-leading component suppliers renowned for their cost-effective solutions, DIT provides you with a comprehensive selection of the most efficient products available on the market.

Our technical office and commercial team possess the expertise to assist you worldwide with both standard projects and tailor-made solutions. Through valuable suggestions and in response to your preferences, our team excels at identifying the most fitting solutions to meet your specific requirements, enabling you to respond adeptly and globally to address various challenges with precision and expertise.

At DIT, our foremost mission revolves around ensuring client satisfaction. We take great pride in crafting and tailoring solutions that are uniquely designed to meet YOUR specific needs and requirements.

Our CDK line of direct expansion refrigerated air dryers is a valuable addition to our comprehensive range of compressed air treatment solutions. This line complements a wide array of products, including:

- **Refrigeration dryers**
- **Adsorption dryers**
- **Compressed air treatment unit**
- **Filtration**
- **Drains**
- **Oil/Water separators**
- **After coolers**

Together, these offerings provide a comprehensive suite of compressed air solutions to meet your unique client request with respect of all international standards dedicated to compressed air systems.

OPERATING PRINCIPLE

Introduction to CDK Dryers and Refrigeration Principle

Our CDK dryers work by using a process called direct expansion refrigeration to effectively dry compressed air that comes from the network. With an efficient refrigeration system and our patented 3-in-1 heat exchanger, we achieve optimal drying by efficiently exchanging heat across the entire surface.

Description of Heat Exchanger

Our heat exchanger, made of stainless steel, has has three sections. The first section is an air/air exchanger, which cools down the moist, water-saturated air before it enters. The second section is an air/refrigerant fluid exchanger, which further cools the compressed air to a temperature of +4°C, removing moisture through a built-in separator. This patented heat exchanger, created in collaboration with the one of the largest heat exchanger manufacturer, ensures efficient cooling in various air conditions and ambient temperatures. It also minimizes resistance to the flow of compressed air, resulting in low pressure drop.

Initial Cooling for Efficiency

At the beginning of the process, the hot and moisture-laden compressed air undergoes preliminary cooling within the air/air heat exchanger. This reduces the cooling requirement in the air/refrigerant gas zone, increasing energy efficiency by more than 45%.

Condensate Separation and Removal

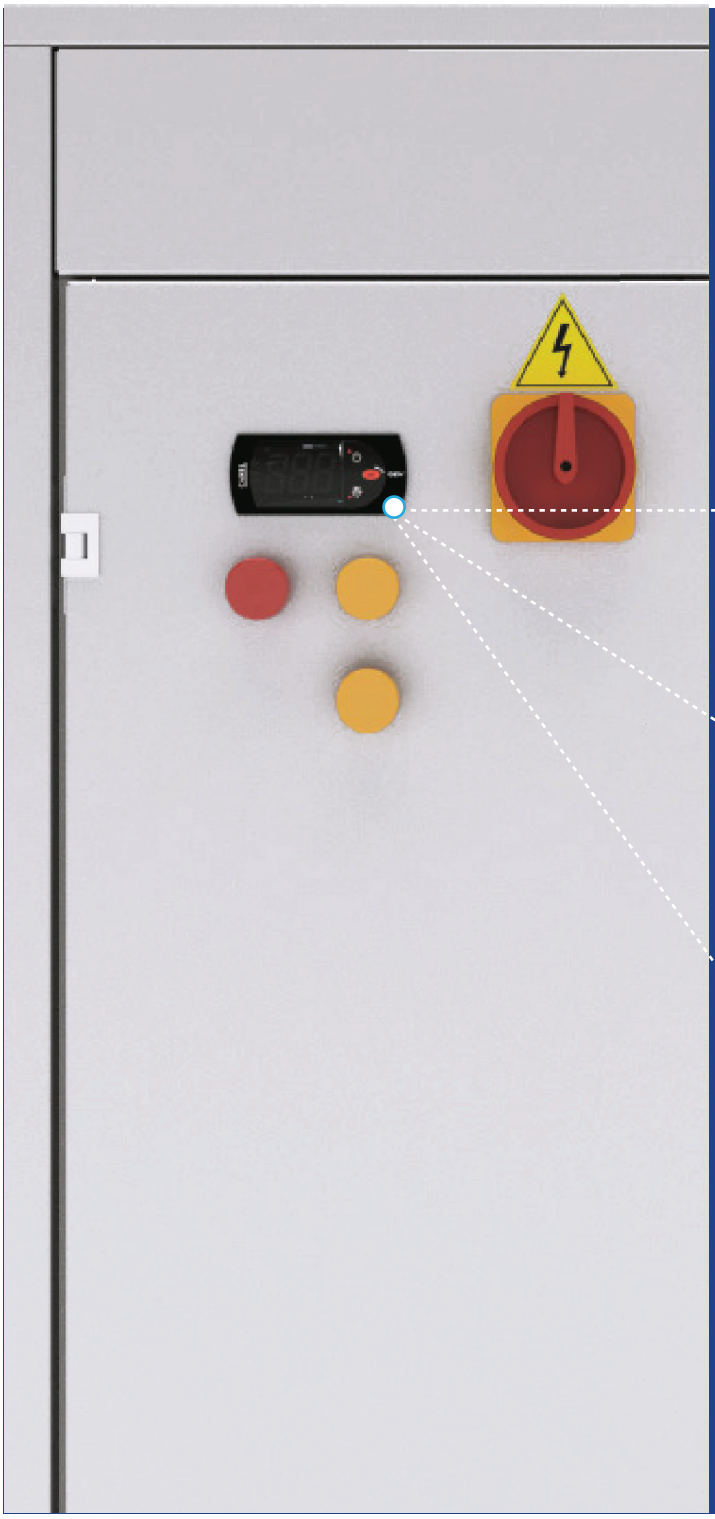
The moisture droplets separated within the separator are collected and gravity-fed to the condensate drain. The resulting condensate can be efficiently purged using a fully adjustable high-performance sequential drain or, for greater energy savings, a level-detection drain (available as an option starting from the CDK 0003 model).

Continuous Supply of Dry Air

After being dried and cooled in the air/refrigerant gas exchanger, the compressed air is reheated in the air/air exchanger before it continues through the compressed air network. This ensures a steady and uninterrupted supply of dry air for your processes.

PERFORMANT, USER-FRIENDLY AND ECOLOGIC

Every product in the range is equipped with a standard intelligent Carel controller, which provides several features. These include displaying the dew point under pressure, managing the timing of condensate purging (how long it stays open and how often it opens), protecting the compressor and heat exchanger from freezing through electronic safety mechanisms before being mechanically triggered by a low-pressure switch, and various other attributes that enhance safety and optimize the unit's performance.



DIGITAL CONTROLLER AS STANDARD

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Carel PGD

From the CDK 0800 and above, your dryer will have a Carel PGD that will control all the refrigeration circuits via a single centralized regulator.

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Carel PLD

From the CDK 0300 to 0700, your dryer will have a Carel PLD that will control all the refrigeration circuits via a single centralized regulator.

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Carel Easy

Opting for the CDK 0003 to 0250 model means your dryer will come with a Carel Easy controller, providing effective management of all refrigeration circuits.

PRODUCT FEATURES

TECHNICAL FEATURES

3-in-1 Heat exchanger
Constructed with stainless steel brazed plates (AISI316), this heat exchanger offers significant energy savings through its economizer pre-exchanger, minimal pressure drops, and high-performance separator. The stainless-steel plates used in its construction protect against moisture-related corrosion, ensuring exceptional longevity in the market.

Compressors
These hermetic refrigeration compressors (including pistons, rotary, and scroll types) efficiently generate cold air to maintain the dew point under all conditions and usage scenarios.

Controller
For models from CDK 0003 to 0250, the 'Easy' controller ensures optimal dryer control, providing a dew point display, managing condensate purge, and ensuring the refrigeration circuit's proper communication RS485 for CDK 0300 and beyond, the PGD+PLD controller manages multiple refrigeration circuits simultaneously through a centralized regulator and displays alarms and faults in text format.

Hot Gas Valves
The next-generation direct expansion dryer includes a hot gas valve, enhancing dew point stability during winter and periods of no heat load. This valve ensures high responsiveness and flexibility in the refrigeration circuit. Its robust design enables operation within a wide range of ambient temperatures, up to 43°C and allows for compressed air intake up to 80°C.

ADVANTAGES

Cost Efficient Energy Usage
Our 3-in-1 heat exchanger design ensures exceptional performance with an extremely minimal pressure drop of just 0.15 bar at the specified flow rate.

Easy Setup and Operation
Our direct expansion refrigeration dryer is a plug-and-play product, with all components seamlessly integrated for straightforward use. CDK dryers come equipped with a power cable, allowing for hassle-free commissioning without the need to access the dryer's internals.

Durability and Sturdiness
The dryer's robust body, coated with baked epoxy paint, guarantees long-term durability, even in harsh and dusty environments. Its high-efficiency condenser, featuring durable fins, ensures easy cleaning and exceptional longevity.

Streamlined Maintenance
Maintenance is simplified with easy access via a single panel, facilitating optimal and quick dryer device maintenance. The CDK dryers are designed for direct access to all components, and technical diagnostics are made easier with pressure taps within the refrigeration circuit and a low-pressure gauge on the condenser side.

CDK-SA

(WITHOUT AFTERCOOLER)

UL/CE Condenser Fan

Provide qualified cooling fans with UL/CE safety certification for long using life.

Stainless Steel Plate Heat Exchanger

UL / CE / PED Certified
Long life time durability
Corrosion Resistant
High Thermal Transfer Efficiency
Compact
Easy Installation
Proven and Reliable Quality
Flexible Flows and Temp / Monitor Option

Easy to Operate CAREL Control Panel

The advance digital display allows DIT's dryer operation to be easily monitored at a glance.

MODEL:
CDK-0200SA

Reliable Solenoid Valve

DIT's reliable solenoid valve is standard in all models. The discharge and pause timers are adjustable via the CAREL control panel. The flexible and adaptable operation of the valve ensures effective discharge of condensates.

High Quality Refrigerant Compressor

Hermetic, suction gas is cooled and protected against thermal and current overloads. The compressor is mounted on anti-vibration rubber supports to ensure quiet running of the dryer.

TECHNICAL SPECIFICATIONS: CDK-SA AIR COOLED DRYER

	Rated flow			Connections	Power supply	Dimensions(mm)			Weight	Cooling Datas	Pressure
Part model	m3/h	m3/min	cfm	BSPP	V/Ph/Hz	W	L	H	kg	Refrigerant	Bar(Max.)
CDK-0003 SAN	27	0.45	16	1/2"	230V / 1 Ph / 50Hz	382	450	430	31	R134a	16
CDK-0005 SAN	39	0.65	23	1/2"	230V / 1 Ph / 50Hz	382	450	430	32	R134a	16
CDK-0008 SAN	54	0.9	32	1/2"	230V / 1 Ph / 50Hz	382	450	430	33	R134a	16
CDK-0003 SA	27	0.45	16	1/2"	230V / 1 Ph / 50Hz	382	450	430	31	R134a	16
CDK-0005 SA	39	0.65	23	1/2"	230V / 1 Ph / 50Hz	382	450	430	32	R134a	16
CDK-0008 SA	54	0.9	32	1/2"	230V / 1 Ph / 50Hz	382	450	430	33	R134a	16
CDK-0010 SA	84	1.4	49	1/2"	230V / 1 Ph / 50Hz	382	502	480	38	R134a	16
CDK-0015 SA	108	1.8	64	3/4"	230V / 1 Ph / 50Hz	382	502	480	40	R134a	16
CDK-0020 SA	162	2.7	95	3/4"	230V / 1 Ph / 50Hz	393	723	650	65	R134a	16
CDK-0030 SA	258	4.3	152	1"	230V / 1 Ph / 50Hz	404	723	650	69	R134a	16
CDK-0040 SA	330	5.5	194	1-1/2"	230V / 1 Ph / 50Hz	404	875	761	92	R134a	16
CDK-0050 SA	408	6.8	240	1-1/2"	230V / 1 Ph / 50Hz	451	875	761	101	R407C	16
CDK-0060 SA	486	8.1	286	1-1/2"	230V / 1 Ph / 50Hz	451	1190	882	115	R407C	16
CDK-0075 SA	660	11	388	2"	230V / 1 Ph / 50Hz	451	1190	882	135	R407C	16
CDK-0100 SA	900	15	530	2"	400V / 3 Ph / 50Hz	451	1190	882	145	R407C	16
CDK-0125 SA	1080	18	636	2-1/2"	400V / 3 Ph / 50Hz	588	1190	882	165	R407C	16
CDK-0150 SA	1380	23	812	2-1/2"	400V / 3 Ph / 50Hz	588	1204	1005	198	R407C	16
CDK-0175 SA	1680	28	989	2-1/2"	400V / 3 Ph / 50Hz	588	1204	1005	208	R407C	10
CDK-0200 SA	1800	30	1059	3"	400V / 3 Ph / 50Hz	588	1204	1005	225	R407C	10
CDK-0250 SA	2160	36	1271	3"	400V / 3 Ph / 50Hz	1004	1204	1005	256	R407C	10
CDK-0300 SA	2580	43	1518	DN 100	400V / 3 Ph / 50Hz	1004	1560	1615	380	R407C	10
CDK-0350 SA	2880	48	1695	DN 100	400V / 3 Ph / 50Hz	1004	1560	1615	400	R407C	10
CDK-0400 SA	3660	61	2154	DN 125	400V / 3 Ph / 50Hz	1004	1560	1615	450	R407C	10
CDK-0500 SA	4320	72	2542	DN 125	400V / 3 Ph / 50Hz	1200	1560	1615	510	R407C	10
CDK-0600 SA	5340	89	3143	DN 150	400V / 3 Ph / 50Hz	1200	2200	1900	930	R407C	10
CDK-0700 SA	5760	96	3390	DN 150	400V / 3 Ph / 50Hz	1200	2200	1900	1050	R407C	10
CDK-0800 SA	7320	122	4308	DN 150	400V / 3 Ph / 50Hz	1200	2200	1900	1120	R407C	10
CDK-1000 SA	8640	144	5085	DN 200	400V / 3 Ph / 50Hz	1200	2860	1900	1260	R407C	10
CDK-1200 SA	10200	170	6003	DN 200	400V / 3 Ph / 50Hz	1200	2860	1900	1580	R407C	10
CDK-1500 SA	11100	185	6532	DN 250	400V / 3 Ph / 50Hz	1200	3200	2050	2200	R407C	10
CDK-2000 SA	17100	285	10063	DN 300	400V / 3 Ph / 50Hz	1200	5000	2050	2400	R407C	10
CDK-2500 SA	20400	340	12005	DN 300	400V / 3 Ph / 50Hz	1200	5000	2050	3100	R407C	10

Specifications

Unit operating limits	Ambient temperatures from +5°C to +43°C- pressure from 4 bar to 16 bar (10bar over 1680 m3/h)
Design conditions	Ambient temperatures +35°C, inlet air temperatures +45°C, pressure dew point +4°C, pressure 7 bar(g)
Refrigerant type	R134a up to 330m3/h and over R407c

The advertised product weights are net without packaging and expressed in kilograms.

The maximum operating pressure is 16 bar

The maximum compressed air inlet temperature is 65°C

The correction factors details are available from our sales and technical teams, or are specified within our selection software, below is an extract of main values

Dryer maximum airflow = Dryer airflow x K1 x K2 x K3 x K4

Correction Factor

K1	Working pressure	(barg)	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Correction factor	(K1)	0.57	0.72	0.82	0.92	1	1.06	1.08	1.11	1.14	1.18	1.19	1.21	1.24	1.26
K2	Ambient temperature	(°C)	28	30	32	35	38	40	42	43	-	-	-	-	-	-
	Correction factor	(K2)	1.14	1.10	1.06	1	0.94	0.91	0.88	0.86	-	-	-	-	-	-
K3	Air inlet temperature	(°C)	35	40	45	50	55	60	63	65	-	-	-	-	-	-
	Correction factor	(K3)	1.48	1.18	1	0.83	0.71	0.58	0.52	0.48	-	-	-	-	-	-
K4	Dew point	(°C)	-	3	4	5	6	7	8	10	-	-	-	-	-	-
	Correction factor	(K4)	-	0.96	1	1.02	1.03	1.06	1.07	1.09	-	-	-	-	-	-

TECHNICAL SPECIFICATIONS: CDK-SW WATER COOLED DRYER

	Rated flow			Connections	Power supply	Dimensions(mm)			Weight	Cooling Datas	Pressure
Part model	m3/h	m3/min	cfm	BSPP	V/Ph/Hz	W	L	H	kg	Refrigerant	Bar(Max.)
CDK-0100 SW	900	15	530	2"	400V / 3 Ph / 50Hz	451	1190	882	145	R407C	16
CDK-0125 SW	1080	18	636	2-1/2"	400V / 3 Ph / 50Hz	451	1190	882	165	R407C	16
CDK-0150 SW	1380	23	812	2-1/2"	400V / 3 Ph / 50Hz	451	1190	882	198	R407C	16
CDK-0175 SW	1680	28	989	2-1/2"	400V / 3 Ph / 50Hz	451	1190	882	220	R407C	10
CDK-0200 SW	1800	30	1059	3"	400V / 3 Ph / 50Hz	588	1204	1005	225	R407C	10
CDK-0250 SW	2160	36	1271	3"	400V / 3 Ph / 50Hz	588	1204	1005	285	R407C	10
CDK-0300 SW	2580	43	1518	DN 100	400V / 3 Ph / 50Hz	750	1204	1005	325	R407C	10
CDK-0350 SW	2880	48	1695	DN 100	400V / 3 Ph / 50Hz	750	1204	1005	390	R407C	10
CDK-0400 SW	3660	61	2154	DN 125	400V / 3 Ph / 50Hz	800	1204	1615	450	R407C	10
CDK-0500 SW	4320	72	2542	DN 125	400V / 3 Ph / 50Hz	800	1204	1615	750	R407C	10
CDK-0600 SW	5340	89	3143	DN 150	400V / 3 Ph / 50Hz	900	1800	1615	930	R407C	10
CDK-0700 SW	5760	96	3390	DN 150	400V / 3 Ph / 50Hz	900	1800	1615	1050	R407C	10
CDK-0800 SW	7320	122	4308	DN 150	400V / 3 Ph / 50Hz	900	1800	1615	1120	R407C	10
CDK-1000 SW	8640	144	5085	DN 200	400V / 3 Ph / 50Hz	1200	1850	1800	1260	R407C	10
CDK-1200 SW	10200	170	6003	DN 200	400V / 3 Ph / 50Hz	1200	2380	1800	1580	R407C	10
CDK-1500 SW	11100	185	6532	DN 250	400V / 3 Ph / 50Hz	1200	2380	1800	1950	R407C	10
CDK-2000 SW	17100	285	10063	DN 300	400V / 3 Ph / 50Hz	1200	2400	1800	2220	R407C	10
CDK-2500 SW	20400	340	12005	DN 300	400V / 3 Ph / 50Hz	1200	2400	1800	2400	R407C	10

Specifications	
Unit operating limits	Ambient temperatures from +5˚C to +43˚C- pressure from 4 bar to 16 bar (10bar over 1680 m3/h)
Design conditions	Ambient temperatures +30˚C, inlet air temperatures +45˚C, pressure dew point +4˚C, pressure 7 bar(g)
Refrigerant type	R407c

The advertised product weights are net without packaging and expressed in kilograms.

The maximum operating pressure is 16 bar

The maximum compressed air inlet temperature is 65˚C

The correction factors details are available from our sales and technical teams, or are specified within our selection software, below is an extract of main values

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Correction Factor

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	Correction factor	(K1)	0.57	0.72	0.82	0.92	1	1.06	1.08	1.11	1.14	1.18	1.19	1.21	1.24	1.26
K2	Water temperature	(°C)	25	26	28	30	32	34	36	37	-	-	-	-	-	-
	Correction factor	(K2)	1.14	1.10	1.06	1	0.94	0.91	0.88	0.86	-	-	-	-	-	-
K3	Air inlet temperature	(°C)	35	40	45	50	55	60	63	65	-	-	-	-	-	-
	Correction factor	(K3)	1.48	1.18	1	0.83	0.71	0.58	0.52	0.48	-	-	-	-	-	-
K4	Dew point	(°C)	-	3	4	5	6	7	8	10	-	-	-	-	-	-
	Correction factor	(K4)	-	0.96	1	1.02	1.03	1.06	1.07	1.09	-	-	-	-	-	-

SUSTAINABLE AIR & WATER SOLUTIONS FOR
INDUSTRIAL APPLICATIONS

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