



»»» Quality Air Solutions

**CDX 10-240  
FILTER 7-405**

Quality, Safe, Reliable  
Professional Compressed  
Air Purification





## User benefits

### Quality purification

- » Rotary refrigerant compressor
- » ISO9001. ISO14001 Quality assurance
- » Petebted 3 stage cooler design
- » Hot gas by-pass valve
- » Stable dew point

### Environment safety

- » Low (GWP) global warming potential
- » Low (ODP) ozone depletion potential
- » Energy saving
- » Green refrigerant gasses

### Smart control

- » Informative digital display
- » Six failure alarms
- » Fan control
- » High quality timer drain with settings

### Reliable and easy to install

- » A lifetime investment
- » Peace of mind
- » Connection from top
- » Plug and play design

### Protect your compressed air installation against:



Moisture



Particles



Oil



Hydrocarbons



Viruses

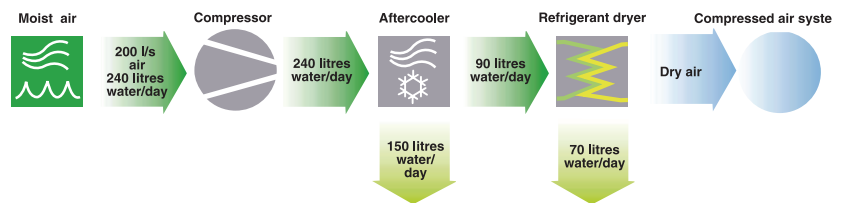


Bacteria

## How clean is your compressed air?

Atmospheric air naturally contains several impurities such as dust, various forms of hydrocarbons and water in the form of humidity. Once sucked into the compressor, these are compressed and delivered down the line along with oily particles. These polluting agents interact with each other and can generate abrasive and corrosive emulsions that can cause wear and corrosion in the downstream equipment.

Ceccato has developed a range of quality air solutions to ensure professional air quality. Increase efficiency & productivity and extend the life span of your equipment & tools. It is a matter of vital importance to the user that the compressed air is of the right quality. If air that contains contamination comes into contact with the final product, rejection costs can quickly become unacceptably high and the cheapest solution can quickly become the most expensive.



## The benefits of refrigerant dryers

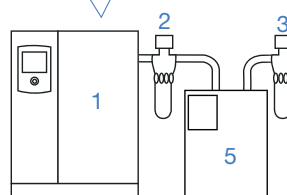
### Clean and dry air

- Compressed air is cooled down by refrigerant gas, condensing the water in the air, allowing it to be removed.
- Protection of the air network from corrosion, rust and leakages.
- Higher final product quality.
- Increase your overall productivity.
- Protection for the downstream equipment.

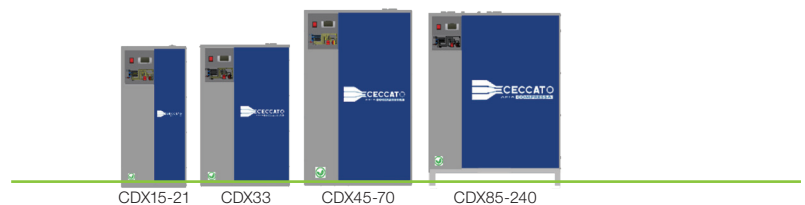
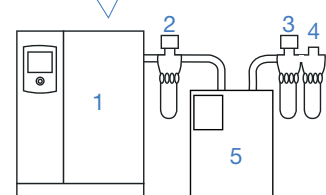
### Typical installations

1. Compressor with after cooler
2. G filter
3. C filter
4. V filter
5. Refrigerant dryer. Vertical receiver is always recommended

High quality air with reduced dew point (air purity to ISO 8573-1: class 1:4:2)



High quality air with reduced dew point and oil concentration (air purity to ISO 8573-1: class 1:4:1)





## »»» Digital Controller

CDX dryers are installed with professional control technology to inform all important information to the user:



### Technical details:

- Status of the refrigerant dryer
- Status of the fan
- Dewpoint indication

### Alarm display:

- Alarm about high or low dewpoint
- Fan failure
- Low or high refrigerant pressure

## »»» Professional timer operated discharge

The dryers are installed with high quality & reliable timer operated condensate drain discharge. User friendly with easy settings to adjust the drain interval & operating period.



## »»» Compressed air quality according to ISO 8573-1:2010

PURITY CLASS	Solid particles			Water		Total oil*
	Number of particles per m <sup>3</sup>			Pressure dewpoint		Concentration
	0,1 - 0,5 µm	0,5 - 1,0 µm	1,0 - 5,0 µm	°C	°F	mg/m <sup>3</sup>
0	As specified by the equipment user or supplier and more stringent than Class 1.					
1	≤ 20.000	≤ 400	≤ 10	≤ -70	≤ - 94	≤ 0,01
2	≤ 400.000	≤ 6.000	≤ 100	≤ -40	≤ -40	≤ 0,1
3	-	≤ 90.000	≤ 1000	≤ -20	≤ -4	≤ 1
4	-	-	≤ 10.000	≤ 3	≤ 37,4	≤ 5
5	-	-	≤ 100.000	≤ 7	≤ 44,6	-
6	≤ 5 mg/m <sup>3</sup>			≤ 10	≤ 50	-

# HOW DOES CDX DRYER WORK?

## Refrigerant circuit

The refrigerant circuit compresses and expands the refrigerant medium in a circular system in order to efficiently transfer heat from the wet compressed air to the atmosphere. The CDX dryer's refrigerant circuit is designed as a whole and only uses components of high and reliable quality, supplied by globally recognized manufacturers.

### 1 Refrigerant Separator

Ensures that only refrigerant gas can enter the compressor, as liquid would cause damage.

### 2 Refrigerant Compressor

Brings the gaseous refrigerant to a high pressure and a high temperature.

### 3 Digital controller

To show operation status and inform alarm information to users

### 4 Max. Pressure Switch

Protects by ensuring that the refrigerant gas never exceeds the maximal pressure.

### 5 Condenser Fan

Efficiently provides constant flow of ambient air to the air condenser (only for air cooled).

### 6 Condenser

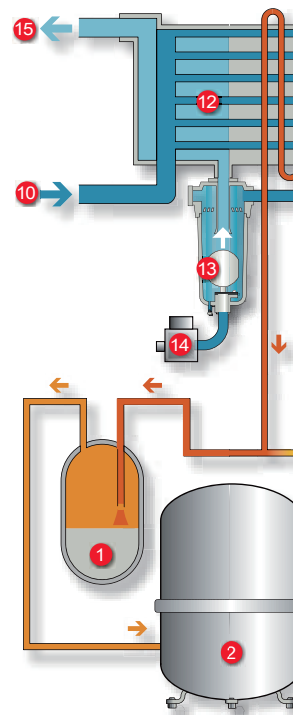
Cools the refrigerant slightly so that it can change from gas to liquid; refrigerant is more effective in the liquid state.

### 7 Capillary Filter

Protects the expansion device from harmful particles.

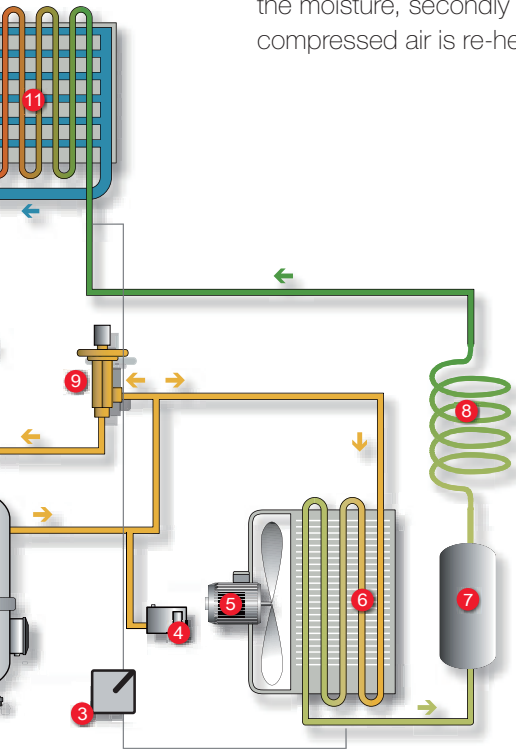
### 8 Capillary Tube

Reduces the refrigerant's pressure, thereby lowering its temperature and increasing its cooling capacity; the refrigerant is now almost all liquid, with some residual gas. Capillary tubes are expansion devices that are extremely reliable, and stabilize the dewpoint of the dryer.



## Air circuit

Wet compressed air flows directly through the CDX dryer's internal 3-in-1 heat exchanger, where in the 3 key dryer functions are combined. Firstly the wet compressed air is cooled down to condensate the moisture, secondly this condensed moisture will be collected and drained out. Finally the dried compressed air is re-heated before it enters the factory's pipework.



### 9 Hot Gas Bypass

Regulates the amount of refrigerant passing through the air-to-refrigerant heat exchanger, ensuring a stable pressure dewpoint, and eliminating the chance of the condensate freezing.

### 10 Air Inlet

Hot saturated air enters the dryer.

### 11 Air-To-Refrigerant Heat Exchanger

Transfers heat from the compressed air to the cold refrigerant, forcing water vapor in the compressed air to condense.

### 12 Air-To-Air Heat Exchanger

Cools down the air inlet whilst re-heating the outlet air.

### 13 Water Separator

Collects and drains out condensate from the cooled air flow. 3-in-1 aluminum heat exchangers combine above points 11,12 and 13 making them highly efficient and reliable.

### 14 Automatic Drain





Removes the free water collected in the water separator.

### 15 Air Outlet







Re-heats the outgoing air to prevent condensation on the factory's pipework.

# CDX 10-240 50Hz and 60Hz REFRIGERANT DRYERS

## »»» Technical data 50Hz

Model	Max. Working Pressure	Air Treatment Capacity			Electrical	Connections	Dimensions (mm)			Weight	Refrigerant gas
											
	bar	l/min	m <sup>3</sup> /h	cfm	V/Hz/Ph	G	L	W	H	Kg.	
CDX10	13	1000	60	35	230/50/1	G3/4"	352	430	445	30	R134a
CDX15	13	1500	90	53	230/50/1	G1"	550	370	800	32	R134a
CDX21	13	2100	126	74	230/50/1	G1"	550	370	800	36	R134a
CDX33	13	3500	210	124	230/50/1	G1"	520	500	800	60	R410A
CDX45	13	4500	270	159	230/50/1	G1.5"	550	600	980	68	R410A
CDX55	13	6000	360	212	230/50/1	G1.5"	550	600	980	75	R410A
CDX70	13	7500	450	265	230/50/1	G2"	550	600	980	85	R410A
CDX85	13	9000	540	318	230/50/1	G2"	900	750	1000	120	R410A
CDX110	13	11500	690	406	230/50/1	G2.5"	1025	660	1120	138	R410A
CDX140	13	15000	900	530	230/50/1	G2.5"	1025	660	1120	156	R410A
CDX170	13	17500	1050	618	230/50/1	G2.5"	1025	660	1120	168	R410A
CDX200	13	22500	1350	794	230/50/1	G2.5"	1025	660	1120	175	R410A

## »»» Technical data 60Hz

Model	Max. Working Pressure	Air Treatment Capacity			Electrical	Connections	Dimensions (mm)			Weight	Refrigerant gas
											
	bar	l/min	m <sup>3</sup> /h	cfm	V/Hz/Ph	G	L	W	H	Kg.	
CDX10	13	1000	60	35	220/60/1	G3/4"	432	354	445	32	R134a
CDX15	13	1500	90	53	220/60/1	G1"	550	370	800	32	R134a
CDX21	13	2100	126	74	220/60/1	G1"	550	370	800	36	R134a
CDX33	13	3300	198	116	220/60/1	G1.5"	520	500	800	60	R410A
CDX45	13	4500	270	159	220/60/1	G2"	550	600	980	68	R410A
CDX55	13	5700	342	201	220/60/1	G2"	550	600	980	75	R410A
CDX70	13	7200	432	254	220/60/1	G2"	550	600	980	85	R410A
CDX85	13	8400	504	297	220/60/1	G2.5"	1025	660	1120	120	R410A
CDX110	13	10800	648	381	220/60/1	G2.5"	1025	660	1120	130	R410A
CDX140	13	13800	828	487	220/60/1	G2.5"	1025	660	1120	135	R410A
CDX170	13	17000	1020	600	220/60/1	G2.5"	1025	660	1120	150	R410A
CDX200	13	20000	1200	706	220/60/1	G2.5"	1025	660	1120	155	R410A
CDX240	13	24000	1440	847	220/60/1	G2.5"	1025	660	1120	155	R410A



## »»» Correction factor

for conditions differing from the project  $K = A \times B \times C$

(A) Ambient temperature	°C	25	30	35	40	45
		1.00	0.91	0.81	0.72	0.62

(B) Inlet temperature	°C	25	30	35	40	45	50	55
		1.00	1.00	1.00	0.82	0.69	0.58	0.49

(C) Inlet pressure	bar	5	6	7	8	9	10	11	12	13
		0.90	0.96	1.00	1.03	1.06	1.08	1.10	1.12	1.13



Design Condition		Limit Conditions:	
Operating Pressure:	7 bar (100psi)	Max Operating Pressure	13 bar (188psi)
Operating Temperature:	35°C	Max Operating Temperature	55°C
Room Temperature:	25°C	Min/Max Room Temperature	5°C/45°C

## »»» Pressure Dew Point 3-7°C

- High efficiency plate-fin heat exchanger
- Professional water removing function
- Low relative humidity in outlet air

## »»» Professional Energy efficiency

- 50% less energy consumption compared to shell and tube type dryers
- Optimized refrigeration system



## »»» Environmental friendly refrigerant gases

A key objective in the design of the CDX dryer was to deliver a product that offers performance, reliability and safety with the lowest possible environmental impact.

- Environmentally friendly thanks to the use of R134a, R410A gas.
- No impact on the ozone layer.
- R410A benefits:
  - » Low Global Warming Potential (GWP)
  - » Energy saving by use of rotary refrigerant compressor

# HIGH PERFORMANCE FILTRATION

## »»» The Ceccato solution

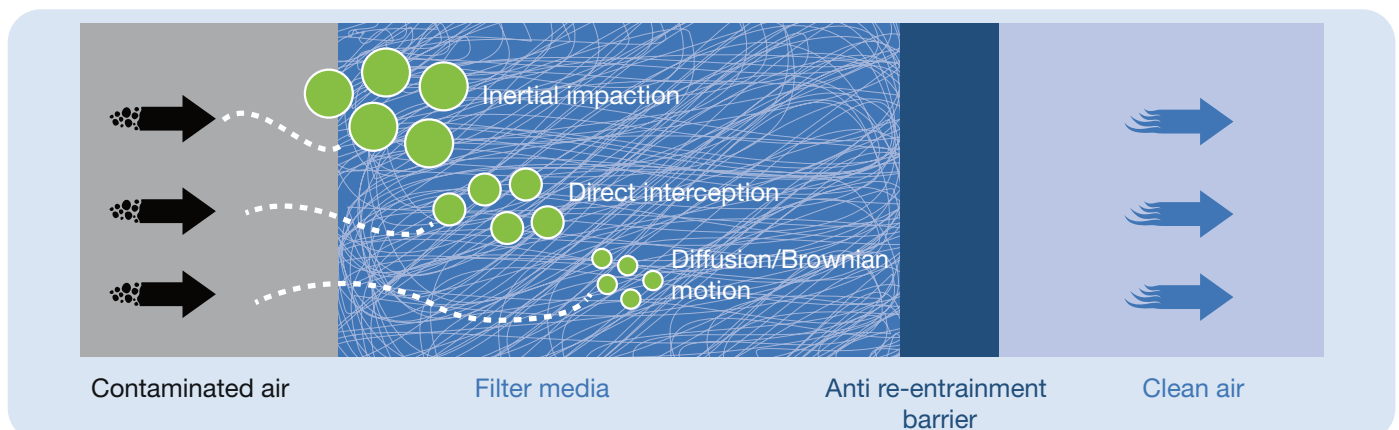
Building on many years of experience in compressed air solutions and continuous in-depth research and development, Ceccato offer wide selection of filtration solutions and application knowledge. Our Quality line filters efficiently reduce all types of contamination with minimal pressure drop.

## »»» Components



- 1 Double O-rings guarantee proper sealing to reduce leakage risks and increase energy savings.
- 2 Increased user friendliness and reliability via push-on element.
- 3 Protection paper avoids direct contact between filter media and stainless steel filter core.
- 4 Enhanced glass fiber media ensure high filter efficiency, low pressure drop, and guaranteed lifetime performance. For oil coalescence filters, multiple layers are wrapped around each other to avoid the risk of early oil breakthrough.
- 5 Enhanced high-performance stainless steel filter cores ensure ultimate strength and low risk of implosion.
- 6 Oil coalescence filters: double drainage layer (outer protection paper and foam) has a large drainage capacity which is ideal for variable speed compressors. Moreover, the poly-urethane foam avoids oil re-entrainment. Dust filters: open foam acts as a pre-filter for the largest dust particles, which prolongs the filter lifetime.
- 7 Epoxy sealed caps for reliable filtration.
- 8 Internal ribs support the element and facilitate the route of oil droplets.

For optimal filtration, Ceccato filters apply a triple filtration function: Inertial impaction, direct interception, and diffusion.





## »»» Several options to tailor the filtration to your needs



- » Pressure gauge
- » Dry contact mounted on the differential pressure gauge to give remote indication of the cartridge replacement



- » Pressure indicator
- » Serial Connection Kit allows easy mounting on filters in series
- » Wall mounting kit to simplify the installation

The quality of air required throughout a typical compressed air system varies. Offering an extensive filter range, Ceccato can always match your precise requirements, ensuring that all types of contamination are avoided and costs are reduced to an absolute minimum.

	S	D	G	C	D	V
<b>Filter type</b>	Solid particles	Solid particles	Oil aerosol & solid particles	Oil aerosol & solid particles	Oil aerosol & solid particles	Oil vapor
<b>Test method</b>	ISO 12500-3	ISO 12500-3	ISO 12500-1 ISO 8573-2	ISO 12500-1 ISO 8573-2	ISO 12500-1 ISO 12500-1 ISO 8573-2	ISO 8573-5
<b>Inlet Oil Concentration (mg/m<sup>3</sup>)</b>	NA	NA	10	10	10	0.01
<b>Count efficiency (% at MPPS)</b>	MPPS=0.1 µm 99.81	MPPS=0.06 µm 99.97	NA	NA	MPPS=0.1 µm 89.45	NA
<b>Count efficiency (% at 1 µm)</b>	99,97	99,999	NA	NA	94,19	NA
<b>Count efficiency (% at 0,01 µm)</b>	99,87	99,992	NA	NA	93,63	NA
<b>Max oil carry-over (mg/m<sup>3</sup>)</b>	NA	NA	0.1	0.01	1	0.003
<b>Dry pressure drop (mbar)</b>	120	140	NA	NA	85	160
<b>Wet pressure drop (mbar)*</b>	NA	NA	205	240	115	NA
<b>Wet pressure drop (mbar), in typical compressor installation</b>	NA	NA	185	200	NA	NA
<b>Element service</b>	After 4.000 operating hours or 1 year or pressure drop > 350 mbar	After 4.000 operating hours or 1 year or pressure drop > 350 mbar	After 4.000 operating hours or 1 year	After 4.000 operating hours or 1 year	After 4.000 operating hours or 1 year	After 1.000 operating hours ( at 20°C.) or 1 year
<b>Precede with</b>	-	S	water separator	G	-	G & C

\* Inlet oil concentration = 10 mg/m<sup>3</sup>

## »»» Technical data

Model	Nominal Capacity*			Maximum Pressure		Connections/ portthread	Dimension			Free space for cartridge replacement	Weight
	l/min	m³/h	cfm	bar	psi	G	A mm	B mm	C mm	D mm	Kg
FILTER 7	720	43	25	16	232	3/8"	90	21	228	75	1
FILTER 15	1500	90	53	16	232	1/2"	90	21	228	75	1,1
FILTER 21	2100	126	74	16	232	1/2"	90	21	283	75	1,3
FILTER 30	3000	180	106	16	232	3/4"	110	27,5	303	75	1,9
FILTER 30	3000	180	106	16	232	1"	110	27,5	303	75	1,9
FILTER 48	4800	288	170	16	232	1"	110	27,5	343	75	2,1
FILTER 84	8400	504	297	16	232	1 1/2"	140	34	449	100	4,2
FILTER 114	11400	684	403	16	232	1 1/2"	140	34	532	100	4,5
FILTER 156	15600	936	551	16	232	1 1/2"	140	34	532	100	4,6
FILTER 216	21600	1296	763	16	232	2"	179	50	618	150	6,9
FILTER 216	21600	1296	763	16	232	2 1/2"	179	50	618	150	6,9
FILTER 315	31500	1890	1112	16	232	3"	210	57	720	200	11,0
FILTER 405	40500	2430	1430	16	232	3"	210	57	890	200	12,6

\* Reference condition: pressure 7 bar. (102 psi). Maximum operating temperature of 66°C, and 35°C, only for V series. Minimum operating temperature of 1°C



For other compressed air inlet pressures, multiply the filter capacity by the following correction factors

Inlet pressure (bar)	1	2	3	4	5	6	7	8	10	12	14	16
Inlet pressure (sig)	15	29	44	58	72,5	87	102	116	145	174	203	232
Correction factor	0,38	0,53	0,65	0,75	0,83	0,92	1	1,06	1,2	1,31	1,41	1,5



## Automatic Drains



CFD 85



CZD 800



CED 320

Model	Inlet	Outlet	Max Pressure	Min Temp	Max Temp	Nominal Discharge	Capacity
CFD 85	1/2"	6mm	16bar	1.5°C	85°C	22ml	84L/Hr
CZD 800	1/2"	1/2"	16bar	1.5°C	85°C	92ml	800L/Hr

Model	Inlet	Outlet	Max Pressure	Min Temp	Max Temp	Voltage
CED 320	1/2"	6mm	15bar	1.5°C	55°C	230V/1P/50-60Hz

Supply with 1.2 meter lead

## Oil Water Separators



Model	Nominal Flow			Inlet	Outlet	Dimension
	l/min	m³/h	cfm			
OSD 20	2000	120	71	1/4"	10	140x140x240
OSD 35	3500	210	124	1/2"	20	215x257x500
OSD 105	10500	630	371	1/2"	20	345x282x654
OSD 255	25500	1530	901	1/2"	20	432x495x989
OSD 365	36500	2190	1289	1/2"	20	432x495x989
OSD 510	51000	3060	1801	1/2"	20	990x520x989
OSD 710	71000	4260	2507	1/2"	20	990x520x989

## Complete Compressor Room Solutions

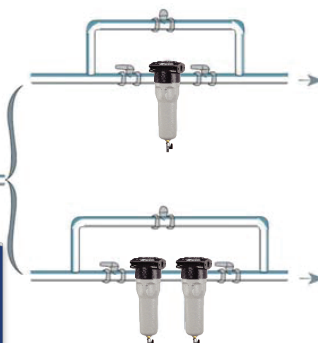
COMPRESSOR

AIR TANK

PRE-FILTER

DRYER

POST FILTER



OIL-LESS AIR

OIL-FREE AIR

COMPRESSOR STATION LAYOUT



**Refrigerant Dryers  
Line Filters**

**Condensate Removal &  
Treatment**

**Part of a full range of  
Quality air products**



- A high quality product offering you **technology you can trust**.
- Our products are **easy to use** and guarantee high **reliability**.
- Distributors are always nearby ensuring **availability** of both products and support.
- Choosing our high performance products entails a **partnership** that will boost your business.
- Safeguarding long-term productivity through optimal **serviceability** and use of original parts.



Care. Trust. Efficiency.

**Care.**

Care is what service is all about: professional service by knowledgeable people, using high-quality original parts.

**Trust.**

Trust is earned by delivering on our promises of reliable, uninterrupted performance and long equipment lifetime.

**Efficiency.**

Equipment efficiency is ensured by regular maintenance. Efficiency of the service organization is how Original Parts and Service make the difference.

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