
Quality Air
Solution
People. Passion. Performance.
Chicago
Pneumatic

IMPROVE YOUR BUSINESS, PRODUCTIVITY, QUALITY AND EFFICIENCY.

Quality air solutions will allow you to prevent corrosion, leakages, pollution and rust.

A compressor takes humidity and contamination from the intake air, during the compression process. These particles combine with the oil used in the compressor. All these impurities can cause wear and corrosion to the downstream equipments, with potential costly interruption to production, and reduction in the efficiency and service life of the equipment used. To reduce this negative impact, a whole range of Quality Air Solution products have been developed to ensure air quality, increase efficiency and productivity and lengthen the life span of your equipment and tools. In sum, with a range from dryers to filters, you can tackle several quality air problems at once, making them highly recommended components for every successful business.

Moisture

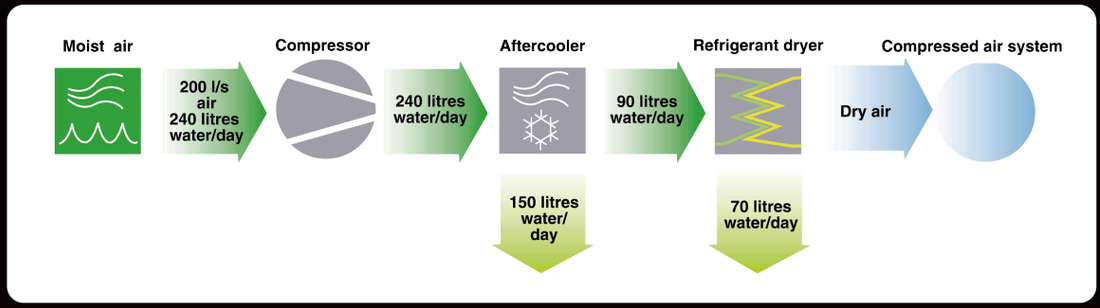
Particles

Oil

Hydrocarbons

Viruses

Bacteria



A compressor that delivers 200 litres of air per second, also supplies approx. 240 litres of water per day if working with air at 20°C. To avoid problems and disturbances due to water precipitation in the pipes and connected equipment the compressed air must be dried. This drying can be achieved by using a reliable Chicago Pneumatic CPZ Refrigerant Dryer.

Whichever is your compressed air need, Chicago Pneumatic can successfully help you to achieve the proper air quality class.

Compressed air according to ISO 8573-1:2010						
Purity class	Solid particles			Water		Total Oil*
	Number of particles per m^3			Pressure dow point		Concentration
	0.1-0.5 m	0.5-1.0 m	1.0-5.0 m	°C	°F	mg/m^3
0	As specified by the equipment user or supplier and more stringent					
1	≤ 20.000	≤ 400	≤ 40	≤ -70	≤ -94	84L/Hr
2	≤ 400.000	≤ 6.000	≤ 100	≤ -40	≤ -40	800L/Hr
3	-	≤ 90.000	≤ 1000	≤ -20	≤ -4	-
4	-	≤ 20.000	≤ 10.000	≤ 3	≤ 37.4	-
5	-	-	≤ 100.000	≤ 7	≤ 44.6	-
6		≤ 5 m-m3		≤ 10	≤ 50	-

*Liquid, aerosol and vapour

A glimpse of some application areas

Conveying



By using Chicago Pneumatic air treatment products you will be able to increase the lifetime of your production plant. Avoid expensive emergency maintenance and ensure easy, fast and reliable production chain.

Pharmaceuticals



For very sensitive applications where top air quality is indispensable, we can providecompressed air at the correct dew point and without solid contaminants giving you peace of mind regarding your production processes. Superior air treatment for superior quality products.

Metalwork



Avoiding water in compressed air and corrosion in the air network or tools is of key importance in the metal industry. Consequently, customers' air quality requirements are ever more strict. Anticipating this trend, we are close to you to always be a step ahead in the market with our innovative solutions.

Food industry



Zero risk at product contamination is a key focus in the food industry which also applies to the compressed air if it is in direct contact with the food itself. For this reason customers need to foresee a proper and complete air treatment system which allows for superior products.

HOW DOES CPZ 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 CPZ dryer 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

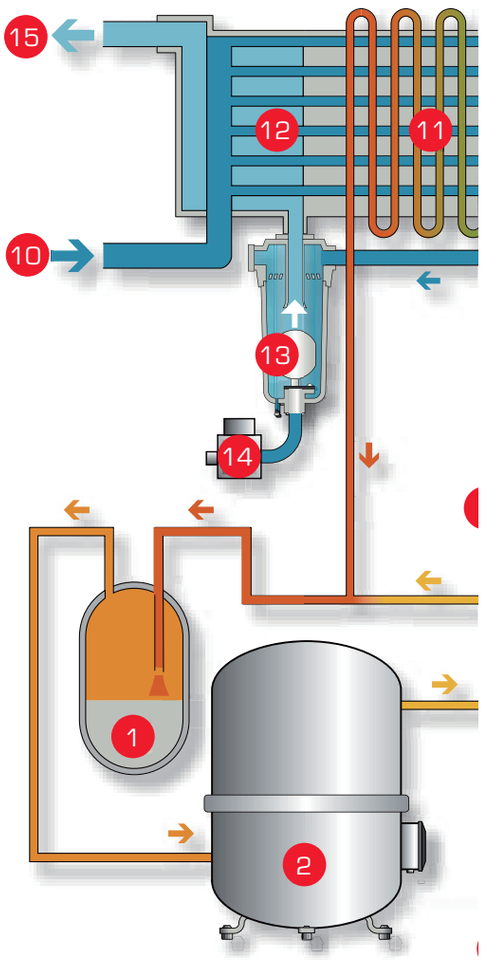
Cools the refrigerant slightly so that it can change from gas to liquid; refrigerant is more effective in the liquid state.

7 Capillary Filter

Protects the expansion device from harmful particles.

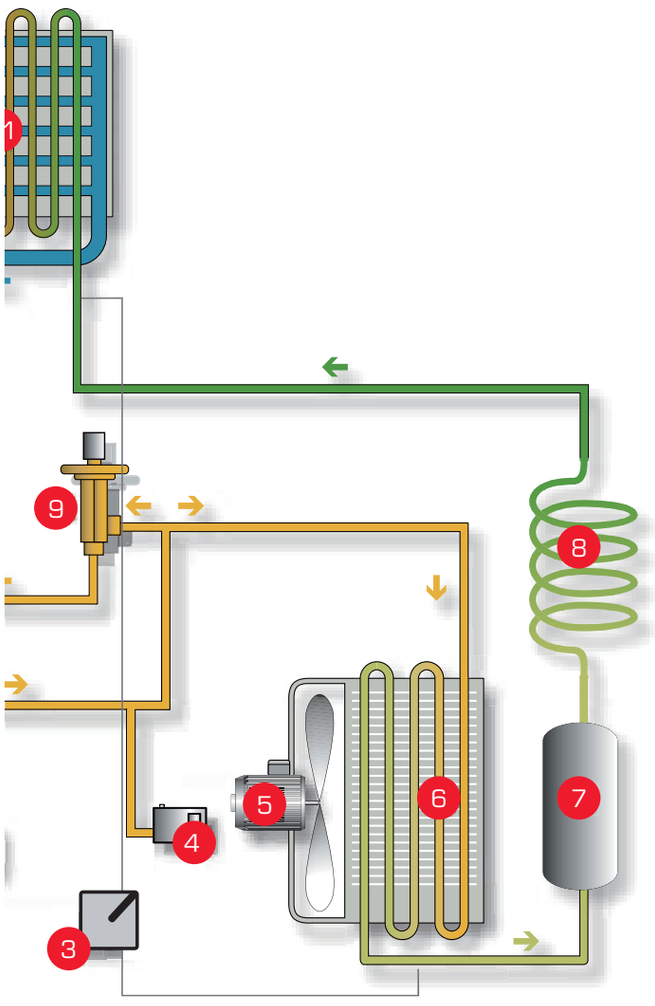
8 Capillary Tube

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 thedewpoint of the dryer.



Air circuit

Wet compressed air flows directly through the CPZ 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.



Hot Gas Bypass 9

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 freeing.

Air Inlet 10

Hot saturated air enters the dryer.

Air-To-Refrigerant Heat Exchanger 11

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

Air-To-Air Heat Exchanger 12

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

Water Separator 13

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..

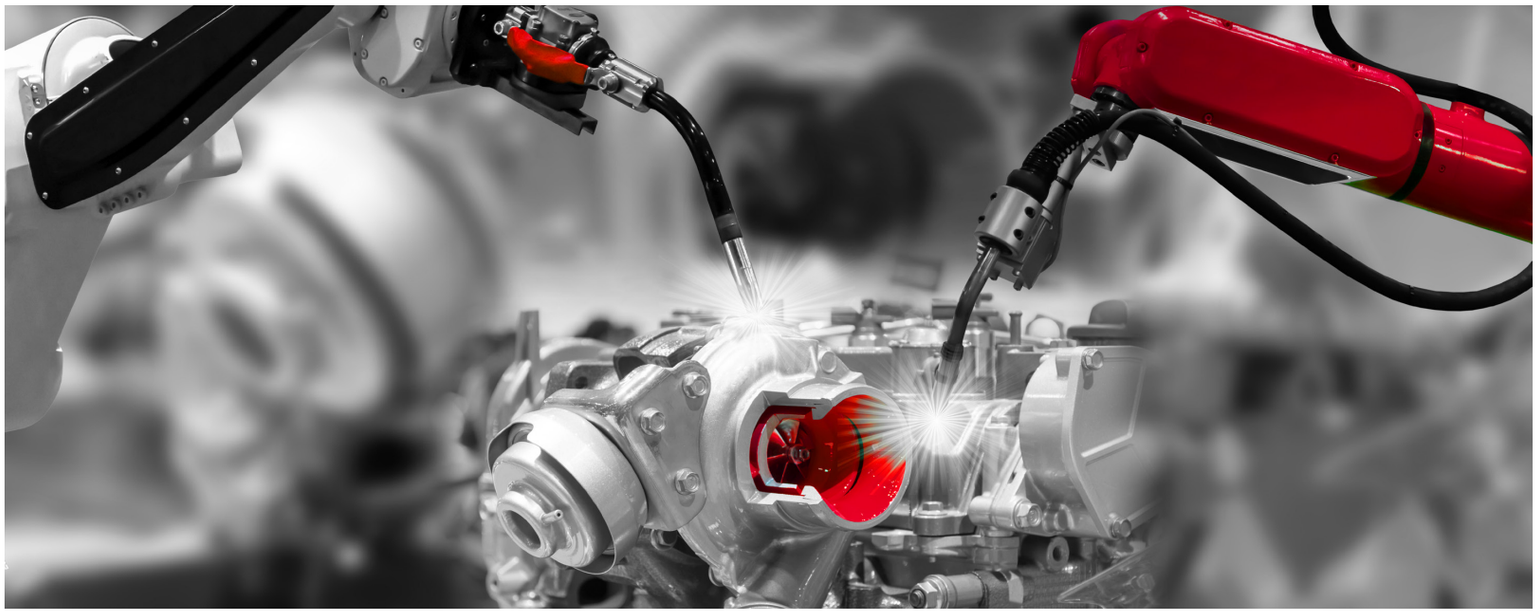
Automatic Drain 14

Removes the free water collected in the water separator.

Air Outlet 15

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

PROFESSIONAL AIR QUALITY FOR PROTECTION OF EQUIPMENT & PROCESSES



The CPZ refrigerant dryers guarantee dry and qualitative compressed air which prolongs the lifetime of your equipment and ensures a superior production quality. Water vapour is eliminated, avoiding corrosion in your compressed air network and tools. All in all this lowers your maintenance costs and improves your overall production process for complete peace of mind.

Pressure Dew Point 7-10°C

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

Professional Energy Efficiency

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

Environment Safety

- Low (GWP) global warming potential
- Low (ODP) ozone depletion potential
- Energy saving

Reliable

- Industrial grade refrigeration compressor
- Digital controller & PDP display
- Optimised piping with 3 stage leak test



REFRIGERANT DRYER
CPZ 30-2650 50HZ

50Hz									
Model	l/min	cfm	m³/h	Bar	V/Ph/Hz	G/DN	kg	LxWxH (mm)	Refrigerant
CPZ 30	1000	35	60	13	230/1/50	G3/4"	30	352x430x445	R134A
CPZ 50	1500	53	90	13	230/1/50	G1"	32	550x370x800	R134A
CPZ 75	2100	74	126	13	230/1/50	G1"	36	550x370x800	R134A
CPZ 115	3500	124	210	13	230/1/50	G1.5"	60	520x500x800	R410A
CPZ 160	4500	159	270	13	230/1/50	G1.5"	68	550x600x980	R410A
CPZ 200	6000	212	360	13	230/1/50	G1.5”	75	550x600x980	R410A
CPZ 250	7500	265	450	13	230/1/50	G2"	85	550x600x980	R410A
CPZ 300	9000	318	540	13	230/1/50	G2"	120	900x750x1000	R410A
CPZ 380	11500	406	690	13	230/1/50	G2.5"	138	1025x660x1120	R410A
CPZ 480	15000	530	900	13	230/1/50	G2.5"	156	1025x660x1120	R410A
CPZ 600	17500	618	1050	13	230/1/50	G2.5"	168	1025x660x1120	R410A
CPZ 700	22500	794	1350	13	230/1/50	G2.5"	175	1025x660x1120	R410A
CPZ 870	24600	869	1476	10	230/1/50	G2.5”	215	1025x660x1120	R410A
CPZ 1270	36000	1272	2160	10	400/3/50	DN100	400	1220x1000x1700	R410A
CPZ 1560	45000	1590	2700	10	400/3/50	DN100	410	1220x1000x1700	R410A
CPZ 1800	51000	1802	3060	10	400/3/50	DN100	425	1220x1000x1700	R410A
CPZ 2120	60000	2120	3600	10	400/3/50	DN150	580	1670x1000x1900	R410A
CPZ 2650	75000	2650	4500	10	400/3/50	DN150	600	1670x1000x1900	R410A



QUALITY AIR FOR HIGH END EQUIPMENT AND PROCESS

Robust Structure



Reliable structure due to a robust canopy ensuring a safe installation independently of the environment.

Electronic Controller



Monitor the operations and dew point of your CPZ dryer with the electronic controller.

Highly Efficient Heat Exchanger



The highly efficient heat exchanger safeguards your optimized cooling power and lowers pressure drops.

Timer Drain



Reliable timer drain with adjustable drain interval and discharge time.

Correction Factor for conditions differing from the project K = A x B x C

CPZ 30-700

Room temperature (A)									
Ambient Temperature (°C)	25	30	35	40	45				
Multiplication Factor	1	0.91	0.81	0.72	0.62				

Operating Temperature (B)									
Inlet Temperature (°C)	25	30	35	40	45	50	55		
Multiplication Factor	1	1	1	0.82	0.69	0.58	0.49		

Operating Pressure (C)									
Pressure (bar)	5	6	7	8	9	10	11	12	13
Correction Factor	0.90	0.96	1.00	1.03	1.06	1.08	1.10	1.12	1.13

CPZ 870-2650

Room temperature (A)									
Ambient Temperature (°C)	25	30	35	40	45				
Multiplication Factor	1	0.93	0.87	0.8	0.7				

Operating Temperature (B)									
Inlet Temperature (°C)	25	30	35	40	45	50	55		
Multiplication Factor	1	1	1	0.82	0.67	0.55	0.44		

Operating Pressure (C)									
Pressure (bar)	2	3	4	5	6	7	8	9	10
Correction Factor	0.375	0.5	0.625	0.75	0.875	1	1.08	1.15	1.22



Design Condition	
Operating Pressure:	7 bar(100psi)
Operating Temperature:	35°C
Room Temperature:	25°C

Limit Conditions	
Max Operating Pressure	13 bar (188psi)
Max Operating Temperature	55°C
Min/Max Room Temperature	5°C/45°C

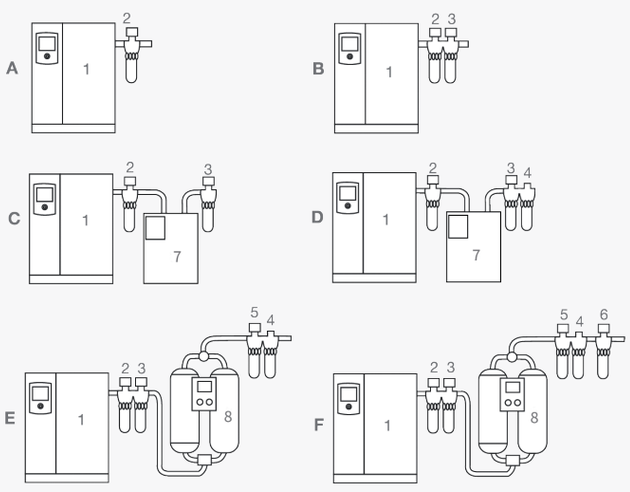
CP FILTERS
43-2430M³/h

Thorough filtration for complete peace of mind

A unique combination of robustness and efficiency allows our high performance filters to purify your compressed air for complete peace of mind. Whichever your required purity, CP filters come in different variants offering a tailored solution for each situation.



Typical Installations



1. Compressor with after-cooler
2. G filter
3. C filter
4. V filter
5. S filter
6. D filter
7. P filter
8. Refrigerant dryer
9. Adsorption dryer

A. General purpose protection
(air purity to ISO 8573-1: G filter class 2:-:3 & P filter class 4:-:3)

B. General purpose protection and reduced oil concentration
(air purity to ISO 8573-1: class 1:-:2)

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

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

E. High quality air with extremely low dew point
(air purity to ISO 8573-1: class 2:2:1)

F. High quality air with extremely low dew point
(air purity to ISO 8573-1: class 1:2:1)

CP FILTERS
43-2430M³/h

Five filter types to cover all purity requirements

G

Coalescing filters for general purpose protection, removing solid particles, liquid water and oil aerosol. Total Mass Efficiency: 99%.

For optimum filtration, a G filter should be preceded by a water separator.

S

Particulate filters for dust protection. Count Efficiency: 99,81% at Most Penetrating Particle Size (MPPS = 0,1 micron).

An S filter should be preceded by a dryer at all times.

C

High-efficiency coalescing filters, removing solid particles, liquid water and oil aerosol. Total Mass Efficiency: 99,9 %.

For optimum filtration, a C filter should be preceded by a G filter at all times.

D

High-efficiency particulate filters for dust protection. Count Efficiency: 99,97 % at Most Penetrating Particle Size (MPPS = 0,06 micron).

A D filter should be preceded by an S filter at all times and is commonly fitted after an adsorption dryer.

V

Activated carbon filter for removal of oil vapour and hydrocarbon odors with a maximum

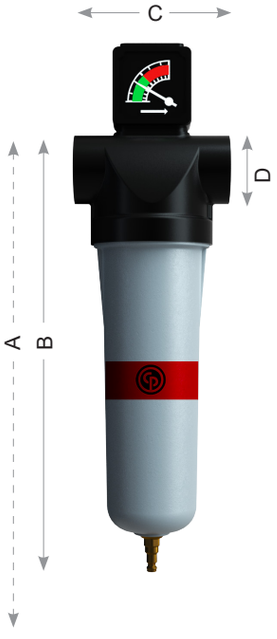
remaining oil content of 0,003 mg/m³ (0,003 ppm). 1000 hour lifetime.

P

Coalescing and particulate general purpose pre-filter. Removes solid particles, dust, liquid and oil aerosol.

Total Mass Efficiency: 90%.

Filter type	Nominal Capacity*			Maximum pressure		Connections/ port thread	Dimensions			Free space for cartridge replacement	Weight
							A	B	C	D	
	l/min	m3/h	cfm	bar	psi	G	mm	mm	mm	mm	kg
FILTER 45	720	43	25	16	232	3/8"	90	21	228	75	1
FILTER 90	1500	90	53	16	232	1/2"	90	21	228	75	1,1
FILTER 125	2100	126	74	16	232	1/2"	90	21	283	75	1,3
FILTER 180	3000	180	106	16	232	3/4"	110	27,5	303	75	1,9
FILTER 180	3000	180	106	16	232	1"	110	27,5	303	75	1,9
FILTER 290	4800	288	170	16	232	1"	110	27,5	343	75	2,1
FILTER 505	8400	504	297	16	232	1 1/2"	140	34	449	100	4,2
FILTER 685	11400	684	403	16	232	1 1/2"	140	34	532	100	4,5
FILTER 935	15600	936	551	16	232	1 1/2"	140	34	532	100	4,6
FILTER 1295	21600	1296	763	16	232	2"	179	50	618	150	6,9
FILTER 1295	21600	1296	763	16	232	2 1/2"	179	50	618	150	6,9
FILTER 1890	31500	1890	1112	16	232	3"	210	57	720	200	11,0
FILTER 2430	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 partnumbers please contact your local customer center

Automatic Drains

Model	Inlet	Outlet	Max Pressure	Min Temp	Max Temp	Nominal Discharge	Capacity
CFD 85	1/2”	6mm	16bar	1.5^{0}C	85^{0}C	22ml	84L/Hr
CZD 100	1/2”	1/2”	16bar	1.5^{0}C	85^{0}C	92ml	800L/Hr

Model	Inlet	Outlet	Max Pressure	Min Temp	Max Temp	Voltage
CED 320	1/2”	6mm	15bar	1.5^{0}C	55^{0}C	230V/1P/50-60Hz
Supply with 1.2 meter lead						



CFD 85



CZD 100



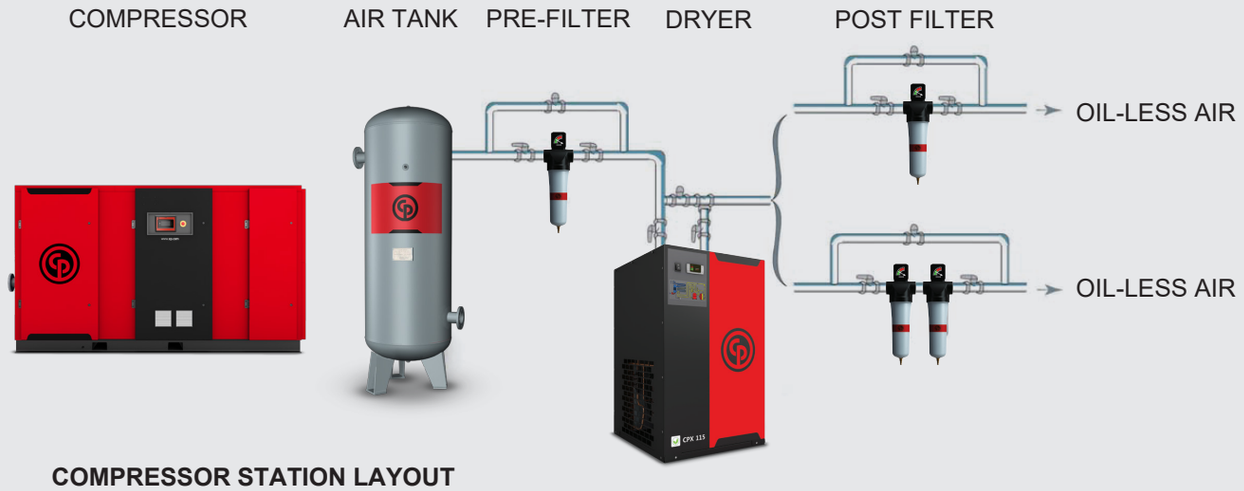
CZD 320

Oil Water Separators

Model	Nominal Flow			Inlet	Outlet	Dimension
	l/min	m^3/h	cfm		mm	LxWxH(mm)
OSD 20	2000	120	71	1/4“	10	140×140×240
OSD 35	3500	210	124	1/2“	20	215×257×500
OSD 105	10500	630	371	1/2“	20	345×282×654
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 STATION LAYOUT

Chicago Pneumatic

At Chicago Pneumatic we have a passion for performance and long-lasting partnerships. Since 1901, we have been committed to reliability based on technology and trust.



People. Passion. Performance.

For more information, please contact your CP partner:

Use only authorized parts. Any damage or malfunction caused by the use of unauthorized parts is not covered by Warranty or Product Liability.

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