Chicago Pneumatic

Condensate Management

People. Passion. Performance.

www.mfcp.com

Removal of Contaminants in Compressed Air Condensate

During the compression process, contaminants such as dust particles and water vapor from the atmospheric air are mixed with the hot oil. At the end of the process, when the air has cooled down, contaminated condensate is generated, which is an unavoidable, expensive and ugly by-product of a compressed air system.

If allowed to collect anywhere in the distribution system, especially in an air receiver, moisture separator or filter bowl, condensate will overflow into the compressed air system causing damage to equipment and processes. Contaminated condensate is considered hazardous waste and should be treated and disposed of as such. Current legislation requires condensate treatment before disposal.

CP's Condensate Separator series (CPP) allows you to minimize your compressed air waste treatment costs and care for the environment all at once.

CPP solution uses a patented multi-stage filtration process that separates contaminants from condensate. The contaminants are trapped in the 1st stage filter and polished in the 2nd stage tower leaving only clean water to be drained.

Be fully compliant with the most stringent environmental regulations at minimal operation cost with our easy to install solution!

CPP Condensate Separator Series

Features

- Removes all compressor lubricants
- Light weight, easy to drain
- Easy change disposable filter elements
- Convenient replacement filter kit with watertight disposal container
- Simple set up
- Maintenance indicator
- Robust - indifferent to shock and vibrations

Did you know?

If you are disposing of your water condensate, without separating potential oil by-product, you could be **VIOLATING THE LAW**!

Section 309 of the Federal Water Pollution Control Act states that even negligent violations could mean at least $2,500 per day in fines, including potential jail time.

Protect yourself and your business by setting up a **Chicago Pneumatic Condensate Management system** TODAY!

Technical Data

Treatment capacity in an installation **with dryer**.
Condensates are collected from compressor(s), air receiver(s), dryer(s), filter(s) for a daily operation of 12 hours.

	Cold climate			Temperate climate			Hot climate	
Ambient temperature (°F)	40	50	60	68	77	86	95	104
Relative humidity (%)	60			60			70	
	in cfm							
CPP-40	291	198	139	101	74	56	36	28
CPP-100	789	537	378	274	201	151	99	77
CPP-150	1204	820	577	418	307	231	151	118
CPP-360	2949	2008	1414	1023	752	564	371	288
CPP-615	5025	3423	2410	1743	1282	962	632	490
CPP-850	6852	4667	3287	2377	1748	1311	862	669
CPP-1200	9801	6676	4700	3400	2500	1875	1232	956
CPP-2430	19602	13351	9401	6801	5001	3750	2466	1913

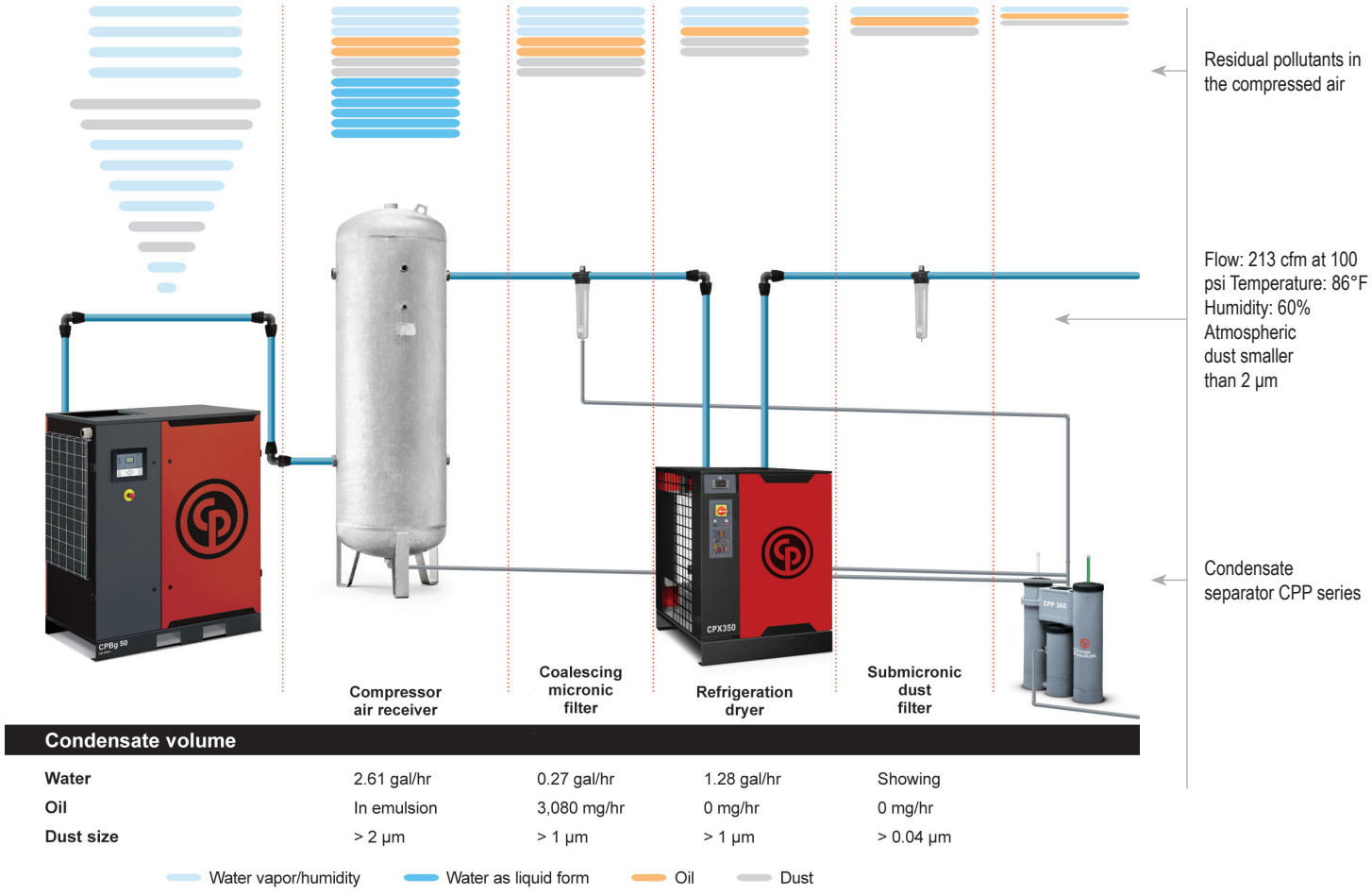
Treatment capacity in an installation **without dryer**.
Condensates are collected from compressor(s), air receiver(s), filter(s) for a daily operation of 12 hours.

	Cold climate			Temperate climate			Hot climate		
Ambient temperature (°F)	40	50	60	68	77	86	95		104
Relative humidity (%)	60			60			70		
	in cfm								
CPP-40	374	255	180	129	95	72	47		36
CPP-100	980	667	470	340	250	188	123		95
CPP-150	1454	990	697	504	371	278	183		142
CPP-360	3613	2461	1733	1254	922	692	454		353
CPP-615	6312	4300	3028	2190	1610	1208	794		616
CPP-850	8472	5770	4063	2939	2161	1621	1065		827
CPP-1200	12085	8231	5796	4193	3083	2313	1520		1180
CPP-2430	24171	16463	11592	8385	6166	4624	3040		2358
Service (hr)	8	10	12	14	16	18	20	22	24
Correction factor	1.50	1.20	1.00	0.86	0.75	0.67	0.60	0.55	0.50
	Capacity based on a residual oil content of 4 mg/gal								
Relative humidity (%)	20	30	40	50	60	70	80	90	
Correction factor	3.38	2.12	1.54	1.21	1.00	0.85	0.74	0.66	
Oil content of 3 mg/gal	Multiply below capacity by 2/3								
Condensate made of polyglycol	Above capacity								

	Dimensions (in)			Weight (lb)	Connections (G/NPT)	
	a	b	c		(in)	(in)
					1	2
CPP-40	18.5	6.5	23.6	9	1 x ½	1 x ½
CPP-100	27	10	29.5	29	2 x ½	1 x ½
CPP-150	27	10	29.5	33	2 x ½	1 x ¾
CPP-360	29.5	21.5	35.5	55	2 x ¾	1 x ¾
CPP-615	29.5	21.5	40.5	57	2 x ¾	1 x ¾
CPP-850	37	25.5	43	62	2 x ¾	1 x ¾
CPP-1200	37	27	43	66	2 x ¾	1 x ¾
CPP-2430	37	46.5	43	132	2 x ¾	1 x ¾

Dimensions

Condensate Separator in a Compressed Air System



Condensate volume				
Water	2.61 gal/hr	0.27 gal/hr	1.28 gal/hr	Showing
Oil	In emulsion	3,080 mg/hr	0 mg/hr	0 mg/hr
Dust size	> 2 µm	> 1 µm	> 1 µm	> 0.04 µm

This drawing illustrates that during the air treatment process, 4.16 gallons of water per hour, plus dust, and 3,080 mg/hr of oil are produced. The CPP Condensate Separator will reduce this oil content to 4 mg/gal. With such a small residual amount, it is possible to discharge the condensate, with no risk to the environment.

Simple Concept Compact and Easy to Use

The patented technology of the Chicago Pneumatic CPP Condensate Separator minimizes the collection and treatment cost of compressed air waste products.

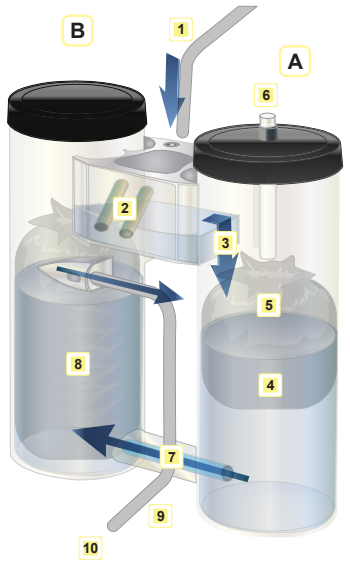
Compatible with all compressed air condensate, this universal system can easily be integrated into any compressed air installation.

Two filtration stages (oleophilic filtration and activated carbon filtration) give a guarantee of minimum oil content in the condensate before disposal.

Universal System that Controls Residual Oil Level

The Chicago Pneumatic CPP range of separators eliminates oil through multi-stage filtration rather than the conventional gravity systems which have limitations on the type of condensate that can be treated. As a result, the CPP separator capacity is not linked to the type of emulsion collected since it can treat the same volume of condensate whether saturated with mineral oil, semi-synthetic oil or polyglycol. Here is the step-by-step process of how the CPP filters work:

1. Collection of untreated condensate enters the system.
2. Condensates are collected though mufflers located in the integral expansion chamber where first stage separation takes place by depressurization.
3. The depressurized condensate then flows into column A and passes through an oleophilic media, made of oil absorbing fibers which allow water to pass through.
4. The oleophilic filter floats in column A.
5. This is advantageous for absorbing residual oil floating on the surface.
6. The additional weight of the oil causes the filter to gradually sink as it gets more saturated, which ensures that clean filter material is always in contact with the surface of the water.
7. The indicator stick at the top of column A shows the status of the filter, as the filter is consumed the stick sinks. The filter has to be changed just before its fully submerged.
8. The prefiltered condensate is then directed into column B.
9. Column B contains activated carbon, and absorbs the remaining oil in the condensate. The large capacity of the system prevents any risk of spillage in case of blockage of the system or if the system produces excessive quantities of condensate.
10. Clean water exits the disposable filter through the outlet port and is discharged from the OWS purifier. Oil content is approximately 4 mg/gal, at reference conditions, at the outlet, a level that allows disposal of the condensate without risk to the environment.



A Clean Way to Eliminate Condensate

A Universal System

By using oleophilic oil filtration, the system is able to deal with an extensive range of condensates, and pre-analysis of the condensate is unnecessary.
Oleophilic filtration captures the oil even in an unstable emulsion, which cannot normally be separated using gravity separation.

Easy to Use

CPP condensate separators are resistant to vibration, shock and splashes that might occur during condensate injection.
This treatment system is therefore compatible with all types of drains (timer, level detection…).

Reliable Design

Large volume of the expansion chamber ensures reduced emulsion of condensate.
Oil is captured in the oleophilic filter. An oil can is therefore not required so oil collection is safe and reliable.

Condensate Disposal of Controlled Quality

Residual oil is captured in the filter, which guarantees quality of the condensate—even in an unstable system (condensate emulsion).

Simple, Low-Cost Maintenance

A service indicator notifies the user to change the filter before it becomes saturated.

Condensate Separator Service Kits

Kit A (First 6 Months)

Comprised of material to change the oleophilic filter(s) once. It is for the first service after installation where the condensate is in normal condition. After this, kit B or D can be used (depending on the environment). This assumes a 12h usage day, please adjust according to actual usage.

Kit B (12 Months)

Comprised of material to change oleophilic filter(s)twice and the activated filter(s) once in a year. This kit should be used with the condensate in normal conditions. The lifetime of the carbon filter is then considered twice as long as the oleophilic filters. This assumes a 12h usage day, please adjust according to actual usage.

Kit D (Higher Oil Content - 6 months)

Comprised of material to change oleophilic filter(s)and carbon filter together once after 6 months. This kit should be used with the condensate in harsh conditions. The lifetime of the carbon filter is then considered as long as the oleophilic filters. This assumes a 12h usage day, please adjust according to actual usage.

Kit X (Special Oil - 6 months)

Comprised of material to change oleophilic filter(s)once and replace the carbon filter by an OGC filter. It can be used to process any kind of condensate mixture containing any kind of compressor oil (polyglycol based oils, silicon based lubricants, and many types of emulsions)

KITS INCLUDE	A	B	D	X
CPP-40, 100 & 150 KITS				
Oleophilic filter	1	2	1	1
Activated carbon filter	0	1	1	0
OGC filter	NA			1
Diffuser	1			
Muffler	1			
CPP-360, 615, 850 & 1200 KITS				
Oleophilic filter	1	2	1	1
Small oleophilic filter	1	2	1	1
Activated carbon filter	0	2	2	NA
OGC filter	NA			2
Diffuser	1	2	1	1
Muffler	2	4	2	1
CPP-2430 KITS				
Oleophilic filter	2	4	2	2
Small oleophilic filter	2	4	2	2
Activated carbon filter	0	4		NA
OGC filter	NA			4
Diffuser	1	2	1	1
Muffler	2	4	2	2

Cyclonic Condensate Separators

MODEL	SIZE (in)	SCFM
CCS37.5	0.375	70
CCS50	0.5	91
CCS75	0.75	138
CCS100	1	215
CCS150	1.5	452
CCS200	2	753
CCS250	2.5	1447

* Note: Thread connections are BSP according to ISO 7/1. Adapters to connect from BSP ISO 7/1 to NPT ANSI B2.1 will have to be supplied locally.

MODEL	RECOMMENDED COMPRESSORS
CCS37.5	CPN3-15, QRS3-15, QRS20 (175psi)
CCS50	QRS20 (100-150psi), QRS25 (150-175psi), QRS30 (175psi), CPVS20
CCS75	QRS25 (100-125psi), QRS30 (100-150psi), CPVS25-30
CCS100	CPC40, CPC40G, CPC50 (150-175psi), CPC50G (150-175psi), CPC60 (175psi), CPVS40
CCS150	CPC50 (100-125psi), CPC50G (100-125psi), CPC60 (100-150psi), CPC60G, CPD75, CPD75G, CPD100, CPE100 (125-175psi), CPE125 (175psi), CPVS50, CPVS60, CPVS75, CPVS95
CCS200	CPE100 (100psi), CPE125 (100-150 psi), CPE150, CPF175 (125-175psi), CPF200 (175psi), CPVS100, CPVS125, CPVS150
CCS250	CPF175 (100psi), CPF200 (100-150psi), CPF250, CPF300, CPVS175, CPVS200, CPVS250

PNL No Air Loss Drain Series

Features & Specifications

- Regular and aggressive condensate
- Alarm function
- Dry contact for alarm
- Contact for external test
- Self cleaning function
- 110 Vac Standard; 24 Vac/dc, 48 Vac, 1000 Vac, 200 Vac, 230 Vac also available

Benefits

- True “No Air Loss” Design - Maximum energy savings
- Highest Reliability - Unaffected by dirt and debris
- Lowest Maintenance - Reduced time and labor costs
- Fully Automatic - Monitors level and function
- Integrated Alarm - With remote detection
- Sensor Controlled - Safe for all condensate types with unparalleled performance

Technical Data

Standard Pressure

NO AIR LOSS DRAINS					
MODEL	MAX FLOW RATE (SCFM)	CONNECTIONS NPT		WEIGHT (lb)	W X H (in)
		INLET	OUTLET		
PNL-200	100	1 x 0.50"	1 x 0.25"	1.8	6.5 x 4.6
PNL-450	225	1 x 0.50"	1 x 0.25"	2.2	6.7 x 5
PNL-1000	500	3 x 0.50"	1 x 0.50"	3.6	8.3 x 6.2
PNL-3600	1,300	2 x 0.50”	1 x 0.50"	4.4	8.4 x 6.4
PNL-10K	5,400	3 x 0.75"	1 x 0.50"	4.4	9.9 x 7.1
PNL-100K	50,000	2 x 0.75" & 1 x 1.00"	1 x 0.50"	13	11.3 x 11

* Max. Working Pressure: 232 psig
Min. Working Pressure: 12 psig
** Temp. Range: 34 °F - 140 °F

High Pressure

NO AIR LOSS DRAINS					
HIGH PRESSURE MODEL	MAX FLOW RATE (SCFM)	CONNECTIONS NPT		WEIGHT (lb)	W X H (in)
		INLET	OUTLET		
PNL-600 HP	280	1 x 0.50"	1 x 0.375"	2	6.2 x 5.6
PNL-3600 HP	1,300	2 x 0.50"	1 x 0.375"	4.4	8.4 x 6.4

* Max. Working Pressure: 915 psig for PNL-600 HP
725 psig for PNL-3600 HP
Min. Working Pressure: 12 psig
** Temp. Range: 34 °F - 140 °F

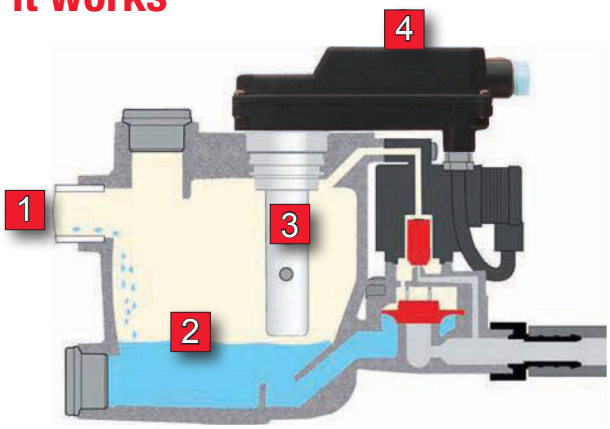
Over 100 years of experience

Since 1901 the Chicago Pneumatic name has represented high-performance tools and equipment designed for an extensive range of applications. Today, Chicago Pneumatic has a global reach, with local customer centers around the world. Chicago Pneumatic products are tailored to the needs of the industrial, vehicle service, and construction markets. Every day we develop and manufacture new products that are meant to meet your demands not only today, but tomorrow as well.

To learn more about our extensive range of tools, hydraulic attachments, industrial and portable compressors, accessories and workshop equipment, please visit www.cp.com.

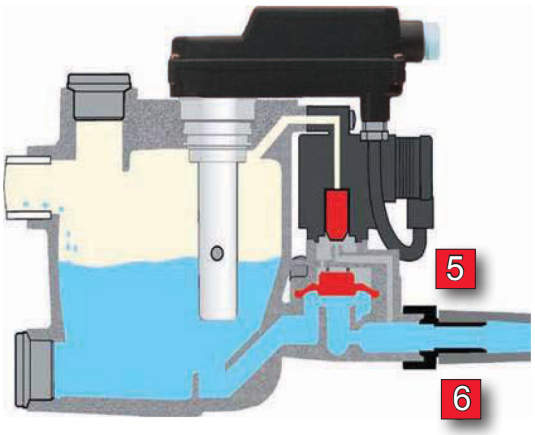
PNL No Air Loss Drain Series

How it works



Empty State

1. Condensate enters side inlet port.
2. Condensate level begins to rise.
3. Condensate level activates sensor.
4. Sensor signals control board. Control board activates solenoid valve. Solenoid valve stops pilot air flow to diaphragm. Condensate pushes diaphragm open.



Filled State

5. Open diaphragm provides condensate discharge path. Condensate discharge begins. Reservoir level begins to fall. Reservoir level drops below sensor. Sensor deactivates solenoid valve. Pilot air closes diaphragm before level drops below discharge port.
6. Condensate discharge completed. Reservoir begins to fill and cycle repeats.

MEMBER OF CAGI Compressed Air & Gas Institute

The Compressed Air and Gas Institute, CAGI, is an organization dedicated to improving the compressed air industry through established standards. As a proud member of CAGI, CP Compressors publishes all technical data in accordance with CAGI/PNEUROP PN2CPTC2 guidelines and voluntarily allows products to be selected for participation in CAGI's Performance Verification Program. With CP Compressors, our customers know they are receiving the excellent performance that we publish.

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