

6. Condensate Treatment

During the process of compressing air, atmospheric air along with water vapour and atmospheric contaminants (hydrocarbon, dust particles or chemical vapours) are drawn into the compressor intake. Additionally, the compression chambers of most compressors require oil for lubrication, sealing and cooling. Once compressed, air flows into an after cooler to remove the heat of compression. As the air cools in the after cooler, water and hydrocarbon vapours will condense.

Additional condensation takes place as the air is further cooled in the piping and air dryer. Environmental regulations strictly prohibit the discharge of oily wastes and chemicals, including the condensate drained from a compressed air system. Because of these requirements, municipalities regulate the discharge of compressor condensate to surface water, wastewater treatment facilities and sanitary sewers.

Why install a Condensate Drain?

Condensate drains are possibly the least glamorous and most ignored component of a compressed air system but nevertheless, a most important part. No matter how much you spend on that fancy new compressed air system, not spending a little effort with your drain choice could cause you no end of headaches and increased operating costs for years to come.

Contaminants can enter a system at the compressor intake or be introduced into the air stream by the system itself. Lubricant, metal particles, rust and pipe scale are all separated and filtered out, but it is the drains that must operate properly for the filters and separators to be successful in completing their task.

Drains can be found on an intercooler, after-cooler, filter, dryer, receiver, drip leg, or at point of use. Drains come in many types and variants for all these applications, some quite fancy, but they fall into these basic categories. Level sensed – timer operated – float – none (yes, that is a drain choice).

How do your drains improve system efficiency?

Besides the obvious savings of compressed air with a zero air-loss drain choice, there are other less obvious ways drains can save energy or cost you energy if not properly maintained. They are key components in the quest for system efficiency and reliability.

When a drain fails to eject all the condensate collected, oil and/or water will collect, affecting – filter efficiency – causing carry over into the system – allowing freeze-up in the winter.

On multiple stage compressors, moisture carry-over from the intercooler may allow liquid into the next stage causing premature wear and possibly a catastrophic failure.

Installing a reliable drain is an absolute must!!!

Will any condensate drain do?

Because compressed air condensate contains particles that contaminate compressed air systems and potentially cause valve blockages, it is important to choose a drain that offers a large enough orifice. Avoid drains that have diaphragm type valve constructions as the diaphragm has a very small hole in it that, once blocked, the complete drain fails to operate.

Drains are also installed outdoors. IP65 (Nema4) insulation protection is there for a minimum requirement. Avoid drains that do not comply to this minimum specification.

For long life expectations, select drains that have FPM seals. FPM is the best suited for the aggressive make up of compressor condensate.

Servicing a drain must be straight forward and quick. Avoid drains that are not service friendly as this will cost more time during maintenance intervals.

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AIRSTREAM CONDENSATE TREATMENT									
Reference	Description	Discharge Time	Interval time	Voltage Hertz	Max Pressure Bar	Φ Orifice	Φ In-Out	IP	Capacity
ADTEC 11	JORC Timer Solenoid drain 1/4"	2 sec	1 - 120 min	220V/50Hz	16	2.0 mm	1/4"	65	Filters - up to 10 000l/min
ADOP1	JORC Timer solenoid drain fluidrain 1/2"	0.5 - 10 sec	0.5 - 45 min	220V/50Hz	16	4.5 mm	1/2"	65	Receivers - up to 500l
ADMAGY	JORC Magnetic zero loss drain 1/2"	Zero loss type		0	16	2.0 mm	1/2" - 1/8"	65	All Filters
ADMAGY-UL	JORC Mini magnetic zero loss drain 1/2"	Zero Loss type		0	16	2.0 mm	1/2" - 1/8"	65	All Filters
ADNUFORS-CR	JORC Pneumatic zero-loss drain 1/2"	Zero Loss type		0	16	6.0 mm	1/2"	65	1000 lt
ADKAPTIV-MD	JORC Zero loss drain 1/2"	Zero Loss type		220V/50Hz	16	2.0 mm	1/2"	65	All Filters
ADKAPTIV-CS	JORC Zero loss drain 1/2" WITH ALARM	Zero Loss type		220V/50Hz	16	4.5 mm	1/2"	65	Receivers - over 1000 lt
ADTEC 44	JORC Motorised ball valve 1/2"	7.5sec - 15 min	4 min - 24 hrs	220V/50Hz	40	1/2"	1/2"	65	Receivers - over 500l
ADTEC 55	JORC 4 station timer solenoid drain	0.5 - 10 sec	4.5 - 90 min	220V/50Hz	16	4.0 mm	3/8"	65	
ADSAVER-1	JORC Air saver 1"	90 sec	7 day program	220V/50Hz	16	1"	1"	65	
ADSAVER-2	JORC Air saver 2"	105 sec	7 day program	220V/50Hz	16	2"	2"	65	
ADCT3	Condensate Cleaner 3 000l/min			0	16				
ADCT7	Condensate Cleaner 7 000l/min			0	16				
ADCT15	Condensate Cleaner 15 000l/min								

