

ELRD Series Refrigerant Air Dryers



Why do we need to dry the air?
When atmospheric air cools down, as happens following a compressor compression process, water vapour precipitates as condensate. This is the form of water that is naturally present in the air we breathe. Under average conditions, a compressor with a capacity of 3 m³/min at 7.5 bar will generate approximately 40 litres of water per day. This condensate needs to be removed from the compressed air system to prevent corrosion and damage to transmission piping and end use machines. Compressed air drying is hence essential and is an important part of air treatment process.

Compressed air will also contain water, dirt, wear particles, bacteria and even degraded lubricating oil. All these impurities mix together to form an abrasive sludge. This sludge is often acidic and accelerates wear and tear of tools, pneumatic machinery, block valves and orifices. This results in costly air leaks and high maintenance. It also corrodes pipes and can bring production process to a standstill.

Only compressed air that is totally clean and dry will ensure reliable working of compressed air systems and maximum savings. The favoured method of drying the compressed air is through refrigeration dryers.

Elgi offers a reliable solution through Elgi Airmate Refrigerant Air Dryers. The dryers ensure longer life of compressed air systems through efficient removal of the condensate and contaminants.



Elgi Dryer Features:



Controller
The use of microprocessor based controller ensures higher performance reliability of the drier. The controller indicates the pressure dew point for online monitoring. Setting options for controlling the cycle controller and automatic drain valves are provided.



Condenser
Highly efficient copper tubed Aluminum finned condenser. The hot and high pressure refrigerant enters into the condenser in gaseous state and gets cooled through the forced circulation of cold air using a fan and flows to the expansion valve in liquid state

Refrigeration compressor
Hermetically sealed and highly energy efficient reciprocating piston compressor ensures effective compression of the refrigerant for drying the compressed air.



Capillary/Expansion Device
Use of capillary refrigerant expander or mechanical expansion device prior to the heat exchanger ensures that the refrigerant flow into the evaporator is only in the liquid state. High quality copper ensures minimum dew point fluctuation and maximum heat transfer efficiency between compressed air and refrigerant.



Heat exchanger
High efficiency 'tube in tube' heat exchanger. The high quality copper tube ensures maximum heat transfer efficiency, corrosion resistance and minimum pressure drop. The heat exchanger is filled with PUF for better insulation and efficiency. It performs the function of both pre-cooler and evaporator.



Cycle controller

The pressure operated 100% modulating cycle controller provides a quicker and reliable response to the inlet air temperature. It ensures optimum dew point control under all operating conditions. It is primarily used to prevent freezing phenomenon in the evaporator. Mechanical type cycle controller is used in the higher flow models and solenoid operated cycle controller is used in lower flow models.

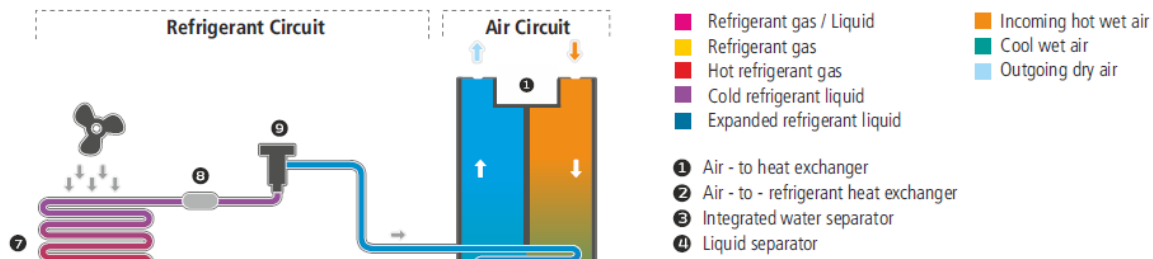


Condensate drain

High reliability automatic condensate drain ensures maximum condensate removal from the system. The drain is solenoid controlled and the timings of moisture draining can be set by the user using the microprocessor based controller. This controllable feature ensures reliable moisture cured air even at high humid and tropical conditions.



ELGI Refrigeration Air dryer Schematic diagram



Model	Flow		Max Pressure bar g	Electrical			Dimensions in mm			Weight Kg	Cooling media
	cfm	m ³ /min		Volts	Hz	phase	length	breadth	height		
ELRD 010	10	0.28	16	230	50	Single	360	475	570	45	Air
ELRD 020	20	0.57	16	230	50	Single	360	475	570	45	Air
ELRD 030	30	0.85	16	230	50	Single	360	475	570	47	Air
ELRD 040	40	1.13	16	230	50	Single	360	475	570	47	Air
ELRD 050	50	1.42	16	230	50	Single	500	600	735	84	Air
ELRD 080	80	2.27	16	230	50	Single	500	600	735	84	Air

Performance data is measured at 7 bar; inlet temperature 45°C, ambient temperature 35°C, pressure dew point +3°C

Customized models are available on request

Dryers of higher capacities are also available

Due to continuous engineering improvements, technical specifications are subject to change without prior notice

Correction factors

Inlet temp.	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
factor	1.22	1.20	1.15	1.05	1	0.85	0.8	0.7

Ambient temp.	20°C	25°C	30°C	35°C	40°C	45°C	50°C
factor	1.20	1.14	1.10	1	0.91	0.87	0.78

Working Pressure	4 bar g	5 bar g	6 bar g	7 bar g	8 bar g	9 bar g	10 bar g	11 bar g
factor	0.75	0.85	0.93	1	1.06	1.11	1.15	1.18

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