Robust Air™

REFRIGERATION DRYER

MAKE IN INDIA

Robust Air™

INTRODUCTION

Since its establishment in 2012, Robust Air has been a prominent supplier of air and gas solutions throughout India. Specializing in turnkey supply of Air and Gas equipment, we are committed to engineering excellence and customer satisfaction. Our expertise lies in designing and implementing on-site systems for the continuous supply of high-purity gases and compressed air.

At Robust Air, quality is our top priority. We meticulously select the finest quality components for our products, ensuring superior performance and reliability. Leveraging our manufacturing facilities in India, we offer cost-effective solutions without compromising on quality.

Trusted by reputed companies nationwide, Robust Air has earned a reputation for reliability and innovation in the industry. Our focus on customer satisfaction and our track record of delivering innovative solutions have contributed to our success.

Moving forward, we remain dedicated to innovation and excellence, continuously striving to meet the evolving needs of our customers. With our unwavering commitment to quality and customer satisfaction, Robust Air is poised to maintain its position as a leader in the air and gas solutions industry.

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REFRIGERATION DRYERS

Why do we need Compressed Air Dryer ?

Compressed air dryers play a crucial role in maintaining the quality and efficiency of compressed air systems. Here's why they are indispensable:

1. **Moisture Control**: Compressed air naturally contains moisture, which can lead to corrosion, contamination, and malfunctioning of equipment. Dryers effectively remove moisture from the air, ensuring the integrity of downstream processes and prolonging the lifespan of equipment.

2. **Prevention of Contamination**: Moisture in compressed air can also promote the growth of bacteria and fungi, leading to contamination in sensitive applications such as food and pharmaceutical industries. Dryers eliminate moisture, preventing contamination and ensuring product purity.

3. **Protection of Equipment**: Moisture can cause damage to pneumatic equipment, including valves, cylinders, and air tools, leading to costly repairs and downtime. By drying the compressed air, dryers protect equipment from corrosion and premature wear, improving reliability and performance.

4. **Optimized Performance**: Dry air improves the efficiency and performance of pneumatic tools and processes. By removing moisture, dryers prevent issues such as freezing in pneumatic lines, ensuring consistent and reliable operation even in harsh environments.

In summary, compressed air dryers are essential for maintaining the quality, reliability, and efficiency of compressed air systems, protecting equipment, preventing contamination, and optimizing performance in various industrial applications.

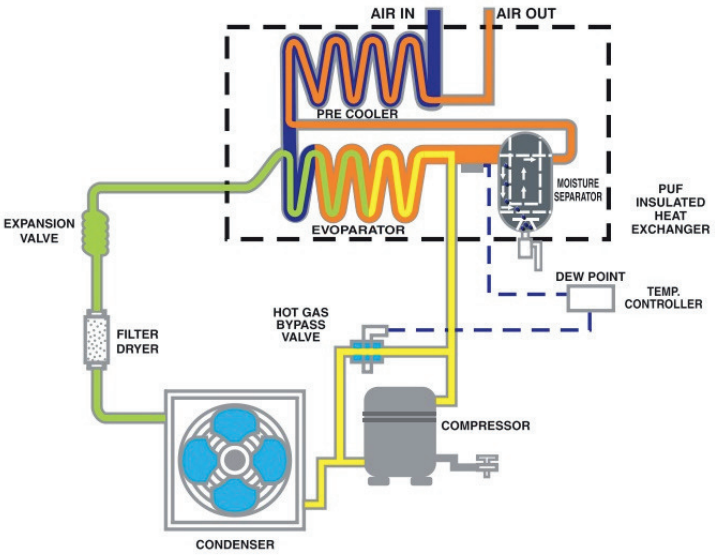
Working of Refrigeration Dryers

AIR CYCLE

The process begins as refrigerated air enters the **pre-cooler** through the air inlet, where it undergoes initial cooling. Subsequently, the air flows into the **evaporator**, where it undergoes further cooling by the refrigerant. The cooled compressed air then proceeds to the **moisture separator**, where any condensate liquid is efficiently discharged from the machine via the **automatic discharging valve**. Afterward, the cooled and dry air cycles back to the **pre-cooler** to regulate its temperature. Finally, the processed air exits the refrigerated air dryer through the air outlet, ready for use in various applications.

REFRIGERANT CYCLE

The journey of the refrigerant begins as it leaves the **refrigerant compressor** as a high-temperature and high-pressure gas. Through either the **air-cooled or water-cooled condenser**, it undergoes a transformation into a high-pressure liquid, effectively shedding excess heat. Along the way, any impurities are filtered out by the **drying filter**, ensuring purity. Next, the refrigerant passes through the **throttling device**, where it transitions into a low-temperature and low-pressure semi-liquid, semi-vapour state. It then enters the **evaporator**, where it exchanges heat with the incoming hot compressed air, completing the cooling process. Finally, the refrigerant returns to the **refrigerant reservoir** and eventually circles back to the **refrigerant compressor** to repeat the cycle.



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Technical Data - RART Series

Model	Dryer Capacity		Dimensions (in mm)			Connection Size (in inches)	Power Supply
	m^3 / min	cfm	Length (L)	Breadth (B)	Height (H)		
RART - 050	1.33	47	620	410	630	3/4"	220 V / 50 Hz
RART - 070	1.95	69	620	410	630	3/4"	220 V / 50 Hz
RART - 090	2.49	88	600	440	725	1"	220 V / 50 Hz
RART - 100	2.83	100	600	440	725	1"	220 V / 50 Hz
RART - 120	3.4	120	800	440	775	1"	220 V / 50 Hz
RART - 150	4.25	150	800	440	775	1"	220 V / 50 Hz
RART - 225	6.37	225	880	500	755	1-1/4"	220 V / 50 Hz
RART - 300	8.92	315	900	550	1240	2"	220 V / 50 Hz
RART - 400	12.47	440	900	550	1240	2"	415 V / 50 Hz
RART - 550	16.15	570	900	550	1240	2"	415 V / 50 Hz
RART - 600	17.85	630	900	600	1420	2 - 1/2"	415 V / 50 Hz

Note: Dryer Capacity is at 35°C ambient temperature and 50°C air inlet temperature.

Correction Factor Table

	Environment Temperature (in °C)	30	35	40	45	50	55
	Inlet Temperature (°C)	40	45	50	55	60	75
Working Pressure (in bar)	4	1.06	0.87	0.77	0.71	0.67	0.61
	5	1.12	0.92	0.82	0.75	0.71	0.64
	6	1.17	0.96	0.85	0.79	0.74	0.67
	7	1.22	1.00	0.89	0.82	0.77	0.70
	8	1.24	1.02	0.90	0.84	0.79	0.71
	10	1.29	1.06	0.94	0.87	0.82	0.74
	12	1.34	1.10	0.99	0.90	0.86	0.76
	15	1.40	1.15	1.03	0.93	0.89	0.79

STANDARD WORKING CONDITIONS

Air Inlet Temperature : 35°C
Ambient Temperature : 45°C
Working Pressure : 7 bar
Pressure Dew Point : 2°C - 10°C
Refrigerant : R-22

OPERATING RANGE

Working Pressure : 4 - 16 bar
Ambient Temperature : 5°C - 55°C
Air Inlet Temperature : < 80°C

THANK YOU

At ROBUST AIR, a proud brand of K.B. Polytech Pvt. Ltd., we are dedicated to engineering excellence and customer satisfaction. As leading manufacturers, suppliers, and dealers, we specialize in providing premium quality products and comprehensive solutions for all your compressed air needs. From our industry-renowned Compressed Air Aluminium Piping to advanced Desiccants/Heatless Dryers, PSA Nitrogen/Oxygen Plants, and Reciprocating Compressors, each product embodies our commitment to innovation and quality. Additionally, our offerings include Air Receivers, Line Filters, PU Fittings, and Auto Drain Valves, meticulously designed to integrate seamlessly into your operations. Backed by a skilled team and a dedication to exceeding expectations, ROBUST AIR is poised to optimize system performance, enhance productivity, and improve operational efficiency. Experience the ROBUST AIR difference today and elevate your compressed air solutions to new heights of excellence.

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