COAX Technology

WIN Equipments

WIN EQUIPMENTS
Save Water & Power

Refrigeration Air Dryer

WRD Series

- Low pressure drop
- Lowest operating cost
- Maintenance free
- Compact design
- Power saving
- Constant dew point at varying load condition
- Eco friendly refrigerant

capacity	:	10 to 2000 cfm
Inlet Air Pressure	:	3 to 16 bar g
Inlet Air Temperature	:	10 to 60^{0}C
Pressure Dew Point	:	+ 3^{0}C

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Working Principle

Compressed air is the most powerful & useful, portable, easy to use economical source of energy. In manufacturing processess, almost at all stages the compressed air is required and 30% of electrical energy is used for conversion of pnematic energy, the compressed air.

Air contains contaminants like solid (dust particles) liquid (moisture) an oil (few traces), which contaminates the compressed air. this untreated wet compressed air enters into the equipments causing failures and affects the production process. Thus, compressed air is to be treated to make it Dry Air, free from contaminants.

Saturated compressed air enters the Pre-cooler / Re-heater, where it is pre-cooled by exchanging heat with the outgoing cold air, which reduces heat load to evaporator. The inlet air is further cooled in the evaporator to the required dew point. The cold air is then reheated when it passes back through the air-to-air heat exchanger. A refrigerant compressor and condenser supply low-temperature refrigerant to the evaporator. The thermostatic expansion valve and the hot gas bypass valve match the operation of the refrigerant system to the compressed air cooling load. The process cools the air, reducing its capacity to hold water vapor and resulting in moisture condensation.

Product Features

Heat Exchanger :

- Our evaporator is a CO-AXIAL Heat Exchanger.
- It performs as a Precooler and Evaporator.
- Our design maximizes exchanger efficiency by using Copper tubes in a coiled TUBE-IN-TUBE arrangement.
- Heat exchangers are fully encapsulated by PUF insulation to prevent the loss of cooling effect.

Refrigeration Compressor :

- Rugged & Reliable hermetically sealed Reciprocating / Scroll compressor
- Suitable for eco friendly gases
- Less noise level
- Low power consumption
- Better COP

Thermostatic Expensive Device :

- Customized selection according to cooling load and operation condition
- Ensures constant dew point on varying load conditions
- Ensures constant dew point on varying load conditions
- Sensible to suction pressure
- Sensible to both suction pressure and temperature

Temperature Controller

- Dedicated Programmed micro controller, integrated with temperature controllers and sensors to indicate the dew point, inlet & condensing temperature with following alarms
- On delay time to protect the compressor due to sudden failure

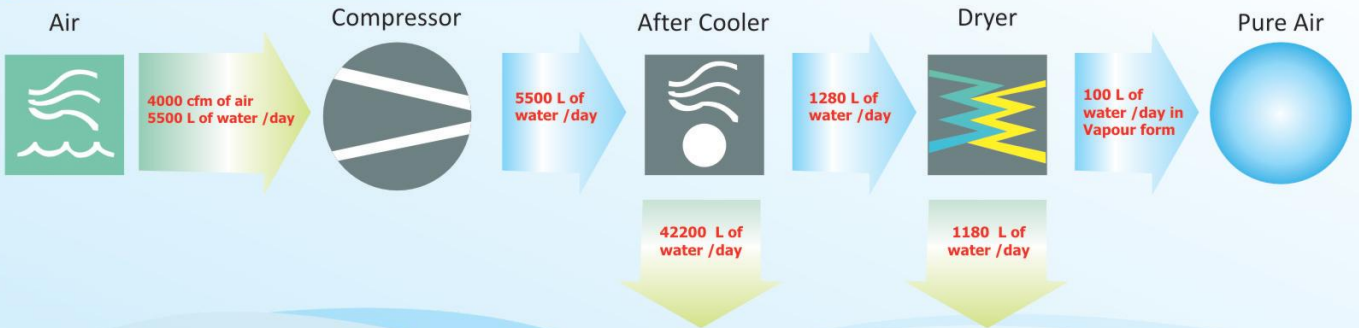
Water Cooled Condenser

- Aluminum plate finned cross flow Heat exchanger Optimized fin density considering Heat transfer and fan power
- Spigot construction to reduce pressure across condenser and hence reduced compressor power

Hot Gas Bypass Valve

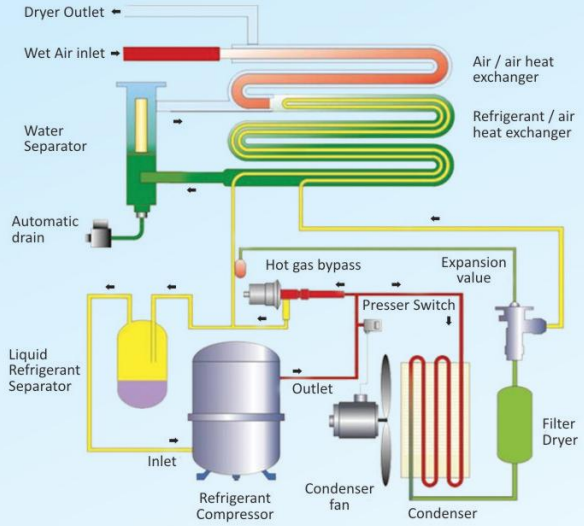
- It is fitted in between the compressor discharge and the evaporator.
- Evaporator temperature drops below 5°C
- HGV feeds the hot gas from the compressor outlet to the evaporator
- Optional to be provided manually and automatically

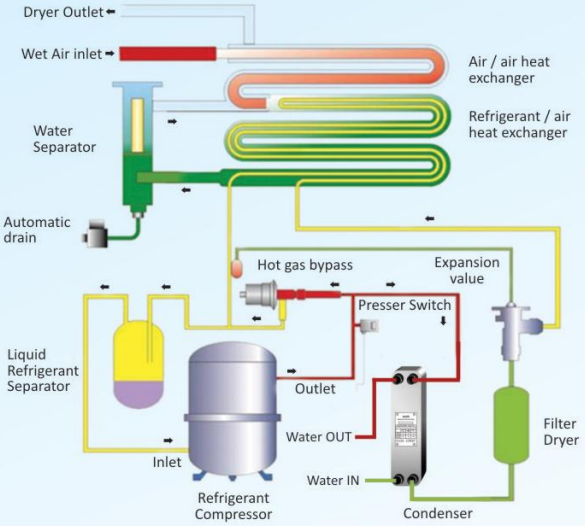
How moisture is removed from Compressed air ?



1180 liters of water/day is thrown additionally to the compressed air network if not dried by a Refrigerant Dryer; this may result in damaged Pneumatic Equipment and Contaminated End Products !

Schematic Diagram





Technical Specifications

Model	Capacity		Ref Comp.	Electrical Connection			Dimensions			Condenser	End connections	Weight
	Cfm	m3/hr	Power/ kw	V	Ph	Hz	L	W	H	Air / water	BSP/NB	Kgs
WRD 20 S	20	34	0.13	230	1	50	550	400	600	A	½"	½"
WRD 40 S	40	68	0.21	230	1	50	550	400	600	A	½"	½"
WRD 50 S	50	85	0.28	230	1	50	540	500	600	A	¾"	¾"
WRD 60 S	60	102	0.32	230	1	50	540	500	800	A	¾"	¾"
WRD 80 S	80	136	0.4	230	1	50	540	500	800	A	1''	1''
WRD 100 S	100	170	0.67	230	1	50	700	500	800	A	1''	1''
WRD 150 S	150	255	0.85	230	1	50	700	500	1000	A	1 ½"	1 ½"
WRD 200 S	200	340	1.2	230	1	50	700	750	1000	A	1 ½"	1 ½"
WRD 250 S	250	425	1.35	230	1	50	900	750	1000	A	2"	2"
WRD 300 T	300	510	1.7	440	3	50	900	750	1200	A	2''	2''
WRD 400 T	400	680	2.0	440	3	50	950	1700	1200	A	2 ½"	2 ½"
WRD 500 T	500	850	2.3	440	3	50	1450	1700	1250	A	2 ½"	2 ½"
WRD 600 T	600	1020	2.72	440	3	50	1450	1700	2100	A/W	2 ½"	2 ½"
WRD 750 T	750	1275	3.3	440	3	50	1450	1700	2100	A/W	3''NB Flg	3''NB Flg
WRD 1000 T	1000	1700	4.5	440	3	50	1450	1700	2100	A/W	4"NB Flg	4"NB Flg
WRD 1500 T	1500	2550	6.2	440	3	50	1450	1700	2100	A/W	5"NB Flg	5"NB Flg
WRD 2000 T	2000	3400	7.8	440	3	50	1450	1700	2100	A/W	6"NB Flg	6"NB Flg

Model Nomenclature XXX XXXX X

- Product Series, Win Make, Air Dryer, Refrigeration
- Capacity in cfm x 1, eg: 20 means 20cfm Working Pressure, 16 bar g max.
- X type of Single phase, T types of Three Phase

- Voltage range 180 to 260V for 1 Ph & 380 to 420V for 3 ph
- Flow capacities in accordance with ISO 7183, air suction of FAD 20°C (68°F), 1 bar (14.5 psi) at the operating conditions mentioned below
- Pressure drop with in 0.2 bar g max
- Rated power is the max power consumed at conditions

Selection Chart of Air Dryers

Inlet Temperature Correction Factor (C1)

Inlet Temp Deg C	30	35	40	45	50	55	60
Correction Factor	1.2	1.15	1.05	1	0.85	0.8	0.7

Ambient Temperature Correction Factor (C2)

Inlet Temp Deg C	25	30	35	40	45	50
Correction Factor	1.2	1.15	1	0.91	0.87	0.78

Inlet Pressure Correction Factor (C3)

Pressure	bar g	4	5	6	7	8	9	10.5	11	12	13	14	15
	psi	58	73	87	100	116	131	150	160	174	189	200	218
Correction Factor		0.75	0.85	0.93	1	1.06	1.11	1.15	1.18	1.2	1.22	1.23	1.25

Dew Point Correction Factor (C4)

Dew Point Temp Deg C	3	5	7	8	10
Correction Factor	1	1.09	1.15	1.18	1.3

The new flow rate value can be obtained by dividing the compressor actual capacity by the value of multiplication of correction factors to the operating actual condition

Dryer Nominal Capacity = Compressor Actual Capacity / C1 x C2 x C3 X C4

Typical Installation

Application

Automobile Industry, Cement Industry, Chemical Industry, CMC Machine Shop, Electronics Industry, Food Processing Industry, Foundry, Glass Industry, Leather Industry, Textile Industry, Paper Mills, Rice Mill, Power Plants, Printing Industry etc...

Cooling Towers | C.A.Filters | Auto Drain Valves | AC with MS | Receiver –V&H | Chillers

Specifications are subject to change due to up gradation in all industries

Authorized Dealer :

Manufacturers :

WIN EQUIPMENTS

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