

RELIABLE

REFRIGERATION AIR DRYERS

Flow capacity from 20 cfm to 6350 cfm
Eco-friendly, non CFC Refrigerants



TECHNICAL LITERATURE – REFRIGERATED AIR DRYER

Godrej Compressed Air Solutions presents Air-Drying solution in the form of the advanced GRD range of refrigeration dryers. The GRD range of air dryers use the refrigeration circuit to cool the compressed air and then efficiently remove the condensate which has been separated from the compressed air during the cooling process. GRD dryers guarantee a low and steady dew point in tropical ambient Indian conditions. The outlet air quality satisfies the needs of all but the most critical industrial application.

Precise Control:

The GRD dryer's refrigerant circuit has been designed to offer a precise 3-7°C dew point performance, under varying air loads (full load and partial load) and also under varying ambient conditions (seasonal change and location change).

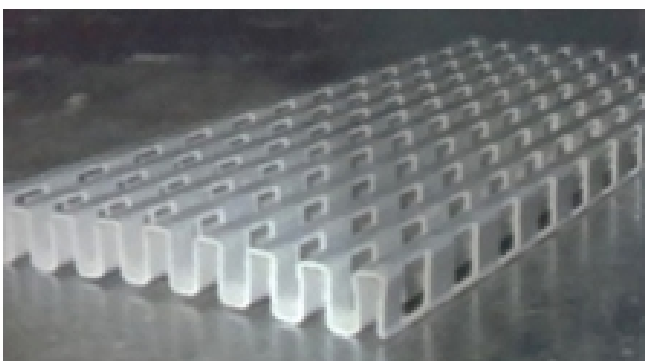
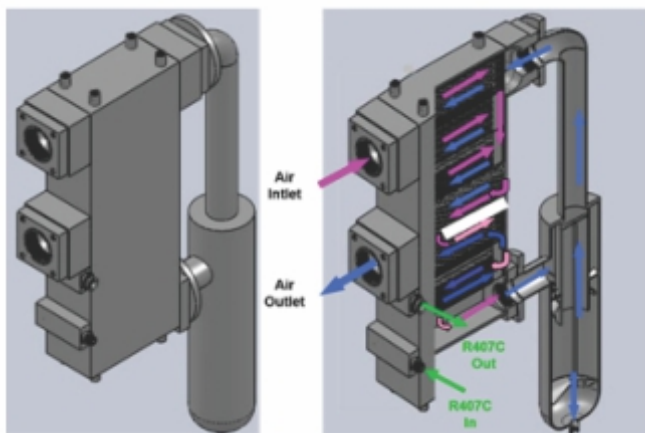
Sized for Asian Conditions:

GRD dryers have been designed for typical Asian conditions of 38°C ambient temperatures.

High Operating Limits:

GRD dryers can operate in extreme conditions of

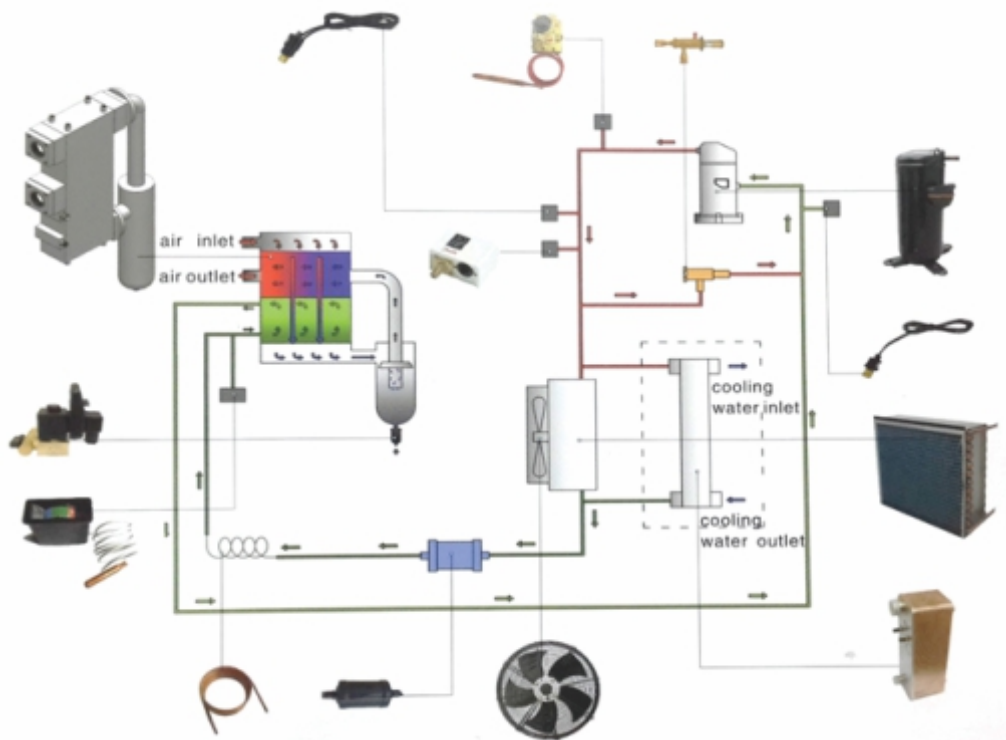
- 1) Air Inlet Temperature of up to 60°C.
- 2) Ambient Temperature of Minimum 5°C up to maximum 50°C.
- 3) Maximum working Pressure of up to 15 barg air pressure.



Cross flow Heat Exchanger:

1. GRD series uses a patented 3-in-1 modular structure of Pre-cooler + Evaporator + Water separator. The Pre-cooler and the Evaporator forms the single structure heat exchanger.
2. Cross flow arrangement causes the air flow to directly enter the Evaporator from Pre-cooler (Air to Air heat exchanger) without any intermediate pipes / channels to direct the flow, thereby resulting in size, weight and pressure drop reduction.
3. The heat exchanger uses a Aluminium Alloy plate-fin type international design having large air channels which leads to low air flow velocity resulting in very low pressure drop and increasing the heat exchange rate by 10-15%.
4. This cross flow heat exchanger is made up of thickened aluminium alloy having twice the corrosion resistance than similar competitor Dryer products.
5. The unique 3-in-1 design ensures that the pre-cooler makes sufficient heat transfer, and greatly reduces the evaporator load thereby ensuring @ 30% energy savings in refrigerant compressor power consumption.
6. The high heat efficiency of the cross flow heat exchanger made from aluminium alloy can guarantee the inlet and outlet temperature difference of 5-8°C, and low relative humidity at the compressor outlet facilitating no dewing (no-icing) phenomenon.
7. The air condenser adopts nanometre hydrophilic membrane materials ensuring good hydrophilia, corrosion resistance and self-cleaning.
8. The outer Water Separator design is generously oversized there by offering optimum condensate separation at partial air flows and ensuring excellent PDP.
9. The evaporator can be leak tested separately thereby greatly reducing leaking risks.

SCHEMATIC WORKING DIAGRAM OF GODREJ REFRIGERATED AIR DRYER



Reliable Operation

In order to ensure the reliable operation of the GRD series dryers, the following features are equipped:

1. Using world renowned brand of compressors Copeland/ Sanyo/ Manurop with reliable performance and low noise and inbuilt over heat protector to ensure that the compressor works steadily.
2. Refrigerant compressor is protected against refrigerant leak or overload of the equipment. They have quadruple compressor protection.
 - a. Refrigerant High Pressure Alarm
 - b. Refrigerant Low Pressure Alarm
 - c. Refrigerant High Temperature Alarm
3. Condenser pre-filter: The condensate pre-filter reduces the risk of the dryer malfunction. The easy to clean filter protects the condenser from blockage, thus assuring correct dryer operation.
4. Using high performance fan with low noise motor.
5. Using Danfoss pressure switch as fan motor controller.
6. Using Schneider make electrical accessories.
7. Using Jork electronic drain (with manual safety valve) to remove condensate from water separator.

Humanized Structure Design

1. GRD series dryers are designed with smart industry appearance, armoured panel is not only aesthetic but also ergonomically easy for site service and uses less space.
2. All labels and indications are following international universal signs and words, in case of wrong operations, warning signs and brief descriptions are all used inside for main dryer parts.
3. **Commissioning Ready:** Dryers are commissioning ready when despatched from factory.
4. **Air Condenser is built on top or back of the dryer above the refrigerant compressor:**
This complies with the principle of hot air going from bottom to top or from inside to outside and also ensures that the compressor can discharge the thermal easily.
5. **Colour Due Point Indicator:** It ensures the operation aspect of the design.
6. **Drain Niche:** It allows easy access to condensate drain, without the need to remove any panels.

GRD Series Refrigerated Dyer Benefits:

1. Compact and light weight.
2. Energy efficient and low running cost.
3. Reliable operation.
4. Simple circuit design and use of high quality components.
5. Ease to remove casing and access condensate drain simplifies, cleaning and maintenance.
6. Simple design of capillary expansion device with no moving parts offers increased reliability over automatic expansion valve.
7. The hot-gas bypass valve is pressure operated thereby providing a quicker response as compared to temperature controlled valves.

Godrej GRD refrigerated dryers models and specifications

Model	Air Flow		Power Supply	Air Connection	Dimension (H x L x W) in mm			Weight Kg	Refrigerant
	m ³ /min	cfm			V/Ph/HZ	A	B		
GRD-0020	0.6	21	220V / 1 PH / 50 HZ	Rc 1/2"	500	250	500	25	R134a
GRD-0030	0.9	32		Rc 1/2"	500	250	500	25	
GRD-0040	1.2	42		Rc 1/2"	600	310	500	30	
GRD-0050	1.5	53		Rc 1/2"	600	310	500	30	
GRD-0060	1.8	64		Rc 1/2"	600	310	500	30	
GRD-0080	2.4	85		Rc 3/4"	750	360	550	50	
GRD-0100	3.0	106		Rc 3/4"	750	360	550	50	
GRD-0125	3.6	127		Rc 3/4"	750	360	550	55	
GRD-0140	4.0	141		Rc 3/4"	750	360	550	55	
GRD-0225	6.5	229		Rc 1-1/2"	750	550	880	78	
GRD-0280	8.0	282	Rc 1-1/2"	750	550	880	80		
GRD-0390	11.0	388	Rc 1-1/2"	750	550	880	85		
GRD-0460	13.0	459	Rc 2"	1000	670	1030	130		
GRD-0600	17.0	600	Rc 2"	1000	670	1030	140		
GRD-0775	22.0	776	Rc 2"	1000	670	1030	150		
GRD-0950	27.0	953	Rc 2-1/2"	1000	820	1600	250		
GRD-1150	33.0	1164	Rc 2-1/2"	1000	820	1600	260		
GRD-1300	37.0	1305	Rc 2-1/2"	1000	820	1600	270		
GRD-1600	45.0	1588	Dn100	1150 / 1100	1120/900	1750	500		
GRD-2000	55.0	1940	Dn100	1150 / 1100	1120/900	1750	510		
GRD-2300	65.0	2293	Dn100	1150 / 1100	1120/900	1750	550		
GRD-2600	73.0	2575	Dn125	1150 / 1100	1120/900	1750	580		
GRD-2800	80.0	2822	Dn150	1850	1200	2350/1800	800		
GRD-3200	90.0	3175	Dn150	1850	1200	2350/1800	810		
GRD-3500	100.0	3528	Dn150	1850	1200	2350/1800	850		
GRD-4200	120.0	4234	Dn150	1850	1200	2350/1800	870		
GRD-5300	150.0	5292	Dn200	2200	1300	2350/1800	1200		
GRD-6350	180.0	6350	Dn200	2200	1300	2350/1800	1250		

- 0.6 m³/min - 4 m³/min in Stainless Steel, Working pressure upto 20 bar(g)
- Maximum Ambient Temperature: 50°C

- Maximum Working Pressure: 15 bar(g)
- Maximum Inlet Temperature: 60°C



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