



III~PLUS

MRD Dryer Series

BY **FRIULAIR**
Dryers



 **ALU-DRY**
HEAT EXCHANGER

STANDARD AIR DRYER

Refrigeration Air Dryer 'MRD series'

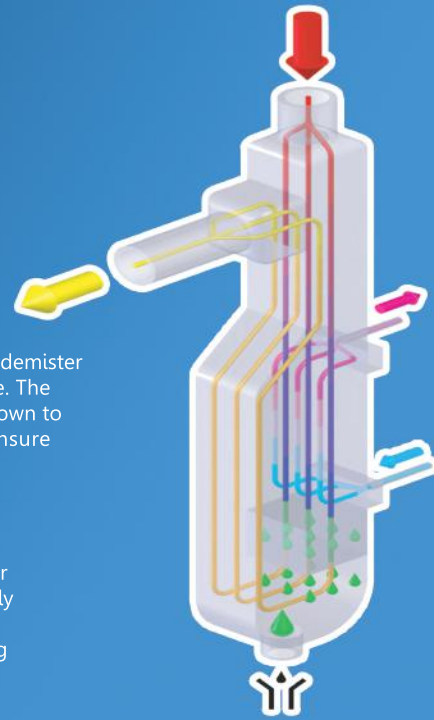
The MRD series has been designed and built to expedite inspection and maintenance operations. The easily removed panels offer immediate access to the operating components of the unit. The cleaning of the solenoid drain valve does not require the usage of service tools thanks to the quick "bayanet" valve stem and the innovative coil clamp.



The air-to-air and the air-to-refrigerant heat exchangers plus the demister type condensate separator are housed in a unique module. The vertical arrangement ensures the wet compressed air flows down to the automatic drain. The counter flows of compressed air ensure maximum heat transfer.

AIR/AIR HEAT EXCHANGER

Or economizer, pre-cools the air entered into the dryer, in order to reduce the cooling power required when the air subsequently passes into the evaporator. The air exiting the dryer is heated in the same way in order to prevent condensation from forming in the factory pipes.

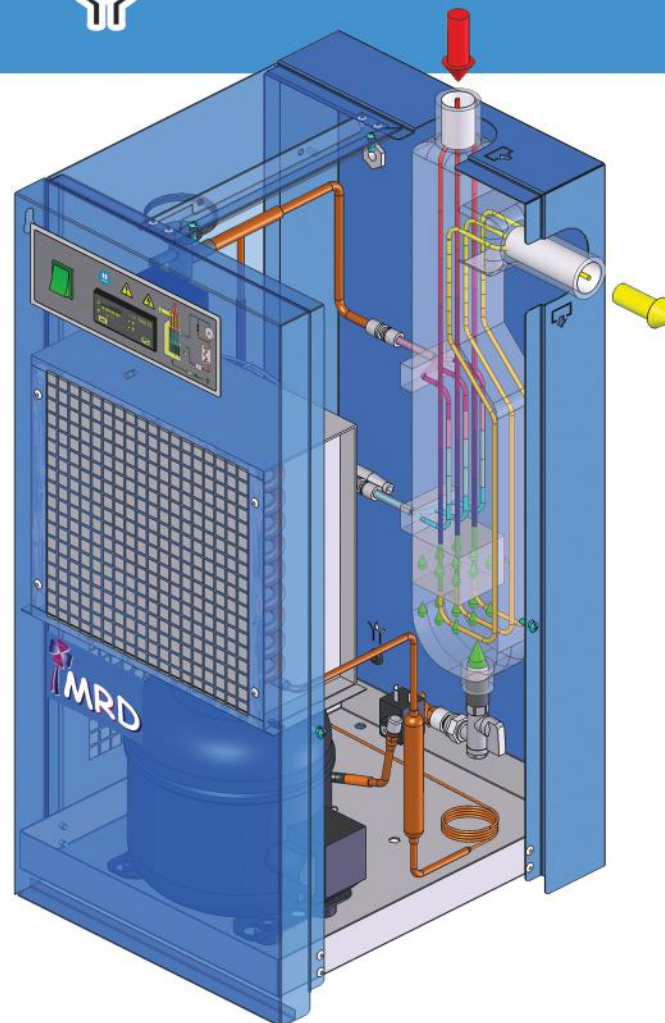


EVAPORATOR

The generous dimensions of the air-to-refrigerant heat exchanger plus the counter flow gas streams allow full and complete evaporation of the refrigerant (preventing liquid returning to the compressor).

DEMISTER TYPE CONDENSATE SEPARATOR

The high efficiency condensate separator is located within the heat exchanger modules. No maintenance is required and the coalescing effect results in a high degree of moisture separation.



CONTROL PANEL TECHNICAL DETAILS



DMC15 CONTROLLER (Standard)

Operation of the MRD dryer is monitored by DMC15 electronic controller which indicates the Dew Point temperature digitally, controls the condensate drain valve via a timer and the condenser fan via a probe.



DMC14 CONTROLLER (Optional)

Operation of the MRD is controlled and monitored by DMC14 digital controller. Features a 3 digit display for the visualization of the Dew Point temperature in °C °F, an electric contact alert for detection of eventual irregularities concerning the Dew Point, and full management of the condensate drain systems.



CONTROL AND PROTECTION DEVICES

All models are fan control with thermal protection. MRD52 and largers fitted with a fan pressure switch designed to control the condensing of refrigerant. MRD105 and largers, come equipped with some specific devices to protect the components of the unit:

- high refrigerant pressure cut-out with re-set is standard on models MRD105 and largers
 - low refrigerant pressure cut-out with re-set is standard on models MRD168 and largers
 - high temperature cut-out c/w with re-set is standard on models MRD75 and largers
- Designed to stop the refrigerant compressor when discharge temperature is too high (e.g. clogged or blocked condenser).



ECOLOGY Dryer

All materials used in the constructions of MRD dryers have a high recycling factor and in compliance with the M-PLUS by FRIULAIR environmental policy, only environmentally friendly refrigerants are used. Components conform with 2002/95/CE "RoHS" (Restriction of Hazardous Substances) and 2002/96/CE "WEEE" (Waste Electrical and Electronic Equipment) European Directives.



ENVIRONMENTAL RESPECT

The FRIULAIR quality programme is also aimed at environmental protection. We eliminated CFCs from our dryers by using only very efficient and environment-friendly refrigerant gases such as R134a, R407C and R410A in line with the Montreal Protocol. Friulair is also certified according to CE Regulation 303/2008 about installation, maintenance and repair of stationary refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases, and avails himself of personnel holding the refrigeration operator licence according to the same Regulation. Moreover, all our packing materials are also totally recyclable.



COMPRESSOR

PISTON COMPRESSOR

Models MRD3 to MRD43 are fitted with high efficiency piston compressors sourced from major producers.

ROTARY COMPRESSOR

For models MRD52 and largers. This is a new technology applied to refrigerants as an alternative to the traditional piston compressor. Compression of the refrigerant is achieved by way of interaction between a cylindrical stator and a rotating eccentric nucleus. In this method, the parts which come into contact with one another are wear-resistant and therefore more reliable.



"HOT GAS" BY-PASS VALVE

The precise and accurate hot gas by-pass valve, which prevents the formation of ice inside evaporator at any load condition, is a recent development unavailable in the past. The valve is set during final test and no further adjustments are necessary.

CONDENSATE DRAIN

All models are fitted with an electronic system to drain the condensate interfaced to the controller. Discharge and pause times are adjustable. Drainage group includes also a ball isolation valve and a strainer. A zero loss drain is available as an option.

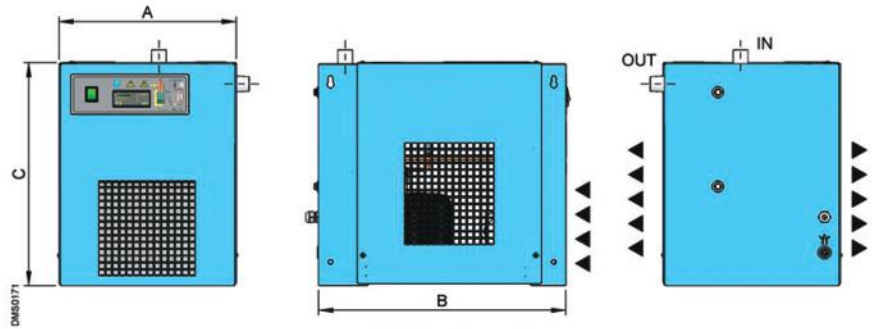
TECHNICAL FEATURES

Data refers to the following nominal conditions

Ambient temperature: $\leq 25^{\circ}\text{C}$
 Inlet air temperature: 35°C
 Inlet air pressure: 7barG
 Pressure Dew Point: 5°C

Maximum working conditions

Ambient temperature: 45°C
 Inlet air temperature: 55°C
 Inlet air pressure: 14barG (16barG for MRD 3 to MRD18)



Model	Refrig Type	Flow-rate			Connections IN-OUT [Ø]	Power Supply [Ph/Volt/Fr]	Dimensions [mm]			Weight [kg]
		[L/min]	[m³/h]	[scfm]			A	B	C	
MRD 3	R134.a	350	21	12	G 3/8"	1/230/50-60	310	345	435	21
MRD 6	R134.a	600	36	21	G 1/2"	1/230/50-60	370	515	475	25
MRD 9	R134.a	950	57	34	G 1/2"	1/230/50-60	370	515	475	26
MRD 12	R134.a	1200	72	42	G 1/2"	1/230/50-60	370	515	475	28
MRD 18	R134.a	1800	108	64	G 1/2"	1/230/50-60	370	515	475	32
MRD 25	R134.a	2500	150	88	G 1"	1/230/50-60	345	420	740	34
MRD 32	R134.a	3200	192	113	G 1-1/4"	1/230/50	345	445	740	39
MRD 43	R407C	4300	258	152	G 1-1/4"	1/230/50	345	445	740	40
MRD 52	R407C	5200	312	184	G 1-1/4"	1/230/50	485	455	825	49
MRD 61	R407C	6100	366	216	G 1-1/2"	1/230/50	555	580	885	54
MRD 75	R407C	7500	450	265	G 1-1/2"	1/230/50	555	580	885	56
MRD 105	R407C	10500	630	371	G 2"	1/230/50	555	625	975	94
MRD 130	R407C	13000	780	459	G 2"	1/230/50	555	625	975	96
MRD 168	R407C	16800	1008	594	G 2-1/2"	1/230/50	665	725	1105	144
MRD 190	R407C	19000	1140	671	G 2-1/2"	3/400/50	645	920	1100	189
MRD 220	R407C	22000	1320	777	G 2-1/2"	3/400/50	645	920	1100	212

On request models MRD 32 to MRD 220 with 60Hz power supply

Correction factor for operating pressure changes:										
Inlet air pressure	barG	4	5	6	7	8	10	12	14	
Factor		0.77	0.86	0.93	1.00	1.05	1.14	1.21	1.27	

Correction factor for ambient temperature changes:						
Ambient temperature	°C	≤ 25	30	35	40	45
Factor		1.00	0.95	0.88	0.79	0.68

Correction factor for inlet air temperature changes:							
Inlet air temperature	°C	≤ 30	35	40	45	50	55
Factor		1.11	1.00	0.81	0.67	0.55	0.45

Correction factor for Dew Point changes:					
Dew Point	°C	3	5	7	10
Factor		0.91	1.00	1.10	1.26



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