

Condensate Drain

FCT 3+160

FCT models are fitted with an electronic system to drain the condensate interfaced to the DMC34 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.

FCT 180+1500

FCT dryer and larger are equipped with a zero loss drain system, interfaced to the DMC24, to assure the drainage of the condensed water only with no air loss.



ENERGY SAVING

R513A Eco-friendly refrigerant

The FCT refrigeration dryer series uses the environmentally friendly R513A refrigerant gas with low GWP, which is non-toxic and non-flammable, and makes it possible to install FCT units indoors. The FCT dryers wide operating limits meet the most diverse industrial demands.

OZONE FRIENDLY

ODP (ozone depletion potential) = 0

NON-FLAMMABLE GAS

ASHRAE category A1

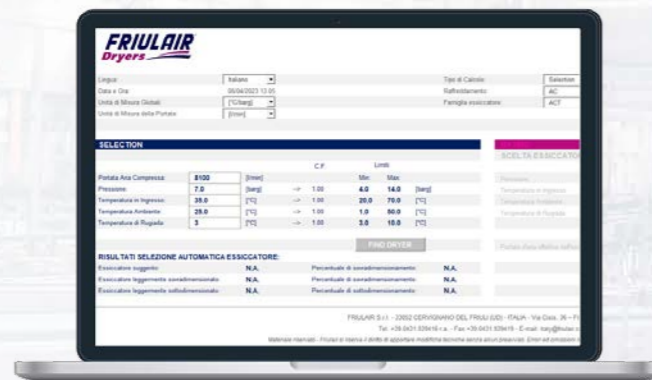
VERY LOW GWP

GWP (global warming potential)

REFRIGERANTS	GWP
R404A	3922
R410A	2088
R407C	1774
R134A	1430
R32	675
R513A	631

Selection software

The selection software developed to support the FCT series makes it possible to calculate the energy consumption (and achievable savings compared to the standard version) based on the dryer's operating conditions.



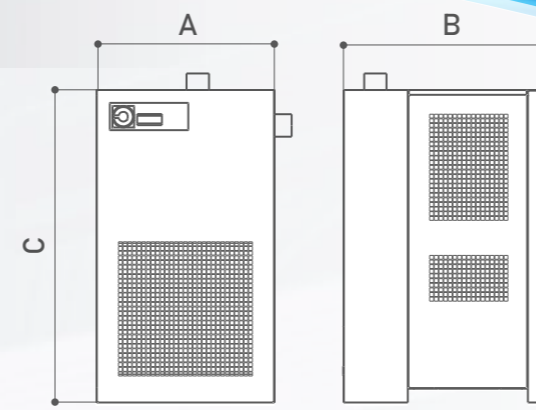
Mandatory filters

It is mandatory to install a filter of LF, FT or FW series (with filtration grade not higher than 5 micron) on the dryer inlet side to prevent that rust, scale or other pollutants could clog the ALU-DRY module and the condensate drain.



Technical characteristics

Data refer to the following nominal conditions: ambient temperature of 25°C, with inlet air at 7 barg and 35°C and 3°C pressure Dew Point (-22°C atmospheric pressure Dew Point). Max. working conditions: ambient temperature 50°C, inlet air temperature 70°C and inlet air pressure 14 barg (16 barg FCT 3 to FCT 12).



Model	Refrigerante	Flow-Rate			Pressure Drop [bar]	Connections [Ø]	Power Supply [Ph/V/Fr]	Dimensions [mm]			Weight [kg]
		[m³/h]	[l/min]	[scfm]				A	B	C	
FCT 3	R513A	21	350	12	0.02	G 1/2"	1/230/50-60	345	420	740	28
FCT 5	R513A	33	550	19	0.03	G 1/2"	1/230/50-60	345	420	740	29
FCT 8	R513A	51	850	30	0.08	G 1/2"	1/230/50-60	345	420	740	30
FCT 12	R513A	72	1200	42	0.11	G 1/2"	1/230/50-60	345	420	740	34
FCT 18	R513A	108	1800	64	0.13	G 1"	1/230/50-60	345	420	740	35
FCT 23	R513A	138	2300	81	0.17	G 1"	1/230/50	345	420	740	36
FCT 30	R513A	186	3100	109	0.15	G 1 1/4"	1/230/50	485	455	825	48
FCT 40	R513A	240	4000	141	0.20	G 1 1/4"	1/230/50	485	455	825	49
FCT 55	R513A	330	5500	194	0.15	G 1 1/2"	1/230/50	555	580	885	65
FCT 60	R513A	372	6200	219	0.18	G 1 1/2"	1/230/50	555	580	885	73
FCT 80	R513A	486	8100	286	0.09	G 2"	1/230/50	555	625	975	89
FCT 100	R513A	630	10500	371	0.13	G 2"	1/230/50	555	625	975	103
FCT 120	R513A	750	12500	441	0.07	G 2 1/2"	3/400/50	645	920	1105	168
FCT 140	R513A	870	14500	512	0.13	G 2 1/2"	3/400/50	645	920	1105	170
FCT 160	R513A	960	16000	565	0.08	G 2 1/2"	3/400/50	645	920	1105	175
FCT 180	R513A	1080	18000	636	0.10	DN 80-PN 16	3/400/50	790	1000	1465	241
FCT 210	R513A	1260	21000	742	0.08	DN 80-PN 16	3/400/50	790	1000	1465	263
FCT 250	R513A	1500	25000	883	0.08	DN 80-PN 16	3/400/50	790	1000	1465	265
FCT 300	R513A	1800	30000	1060	0.12	DN 80-PN 16	3/400/50	790	1000	1465	270
FCT 360	R513A	2208	36800	1300	0.13	DN 80-PN 16	3/400/50	790	1000	1465	290
FCT 400	R513A	2400	40000	1413	0.09	DN 100-PN 16	3/400/50	1135	1205	1750	503
FCT 500	R513A	3000	50000	1766	0.08	DN 100-PN 16	3/400/50	1135	1205	1750	583
FCT 600	R513A	3600	60000	2119	0.12	DN 100-PN 16	3/400/50	1135	1205	1750	588
FCT 720	R513A	4416	73600	2600	0.13	DN 100-PN 16	3/400/50	1135	1205	1750	660
FCT 900	R513A	5400	90000	3178	0.12	DN 150-PN 16	3/400/50	1300	1750	1810	990
FCT 1100	R513A	6624	110400	3900	0.13	DN 150-PN 16	3/400/50	1300	1750	1810	1100
FCT 1200	R513A	7200	120000	4238	0.12	DN 200-PN 16	3/400/50	1400	2200	1870	1320
FCT 1500	R513A	8832	147200	5200	0.13	DN 200-PN 16	3/400/50	1400	2200	1870	1500

On request models FCT23 ÷ 1500 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	50		
Factor	1.00	0.96	0.90	0.82	0.72	0.60		
Correction factor for inlet air temperature changes:								
Inlet air temperature [°C]	≤ 25	30	35	40	45	50	55	60
Factor	1.20	1.12	1.00	0.83	0.69	0.59	0.50	0.44
							0.39	0.37
Correction factor for dew point changes:								
Dew Point [°C]	3	5	7	10				
Factor	1.00	1.09	1.19	1.37				

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FRIULAIR® Dryers

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FCT

REFRIGERATION DRYERS WITH R513A REFRIGERANT

ECO-FRIENDLY



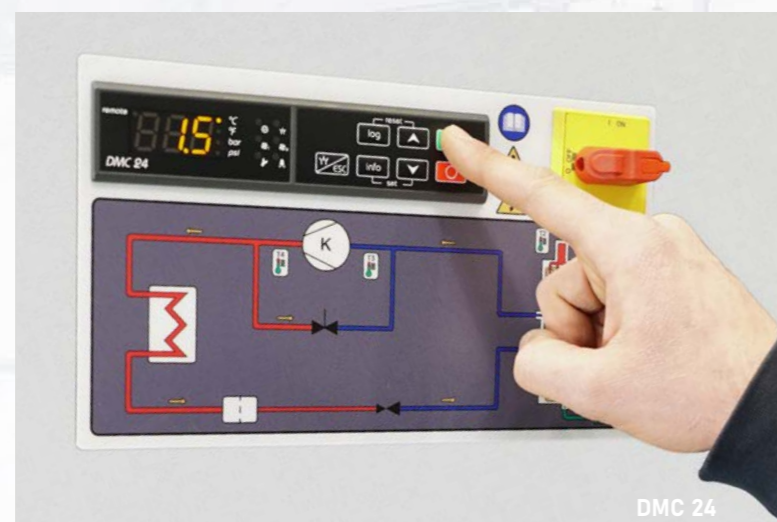


FCT 3÷1500
Flow rate: 21 ÷ 8 830 m³/h

The FCT ECO-FRIENDLY range of refrigerant cycle dryers has been developed recently to replace traditional refrigerants with the latest generation ones. The R513A refrigerant gas has a **low environmental impact** (GWP = 631 CO₂ ton/eq), under applicable European and international regulations. Based on the tried and tested ACT range, it has a **low energy consumption**, even under extreme load conditions. This is due to the ALU-DRY exchanger with reduced pressure drop, latest generation compressors, control valve, hot gas by-pass and capacitive drains (standard from FCT180 and optional for lower sizes). The +3°C dew point is maintained even when operating conditions change. The range standard electronic controllers are equipped with an RS485 port for connectivity to the company's management system (**INDUSTRY 4.0 ready**). Water-cooled version on demand from FCT55.

Easy Maintenance

The FCT series has been designed and built to facilitate any inspection and maintenance operations that may prove necessary. The hoods are easily removed and offer immediate access to all parts of the system. The clear layout of the components, the simple composition of the refrigerant circuit and the numbering of the wires in the electrical system, facilitate the operator when carrying out standard controls.



CONTROL PANEL AND PROTECTION DEVICES



FCT 3÷160 DMC 34

Operation of all models FCT3÷160 is controlled and monitored by DMC34 digital controller. Featuring a 3-digit display for the visualization of the DewPoint temperature (in °C or °F) and the dryer total operating hours. DMC34 includes as well the condenser fan control (with a pressure switch installed as standard), scheduled maintenance reminder, timer for the condensate drain valve and detection of any dryer malfunction (also reported on the potential free alarm contact). Depending on the model, FCT is equipped with some specific devices to protect the components of the unit: re-set high/low refrigerant pressure cut-out and re-set high temperature cut-out (which stops the refrigerating compressor when discharge temperature is too high).

FCT 180÷1500 DMC 24

In addition to the characteristics already present in the DMC34 model, this new controller features a new client-protection function, which allows the user to plan maintenance operations, a working hour-meter and a RS485 interface for connection to a PC. The working values of the four temperatures probes and the pressure transducer are shown on the display of the dryer when in use and enable the functions AFC (Advanced Fan(s) Control*) for the control of refrigerant condensing, and the ASW (Advanced Service Warning) to receive advance warning of defects.

Control and protective devices are now included in the DMC24 controller and interfaced to the operator through the functions ADS (Advanced Draining System) for the control of the zero loss drain and AAL (Advanced Alarm Log). The DMC24 includes the protection for monitoring the sequence of the supply phases and the stopping of the compressor in conditions of high or low refrigerant pressure and/or high discharge temperature.

* FCT180÷1500 models are equipped with automatic control of the double speed fan.

Compressor

FCT 3÷40 Reciprocating type

Models FCT 3÷40 are fitted with high efficiency piston compressors sourced from major producers.



FCT 55÷160 1~ Rotary

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.

FCT 180÷3000 Scroll

From model FCT 180 on, the type of compressor used is the scroll. Widely used in the air conditioning and refrigeration sectors, the scroll compressor performs well and has low energy consumption.

Compression of the refrigerant is achieved by way of two concentric coils: one fixed and the other mobile. The scrolls are wear-resistant, highly reliable and guarantee a high level of noise reduction.



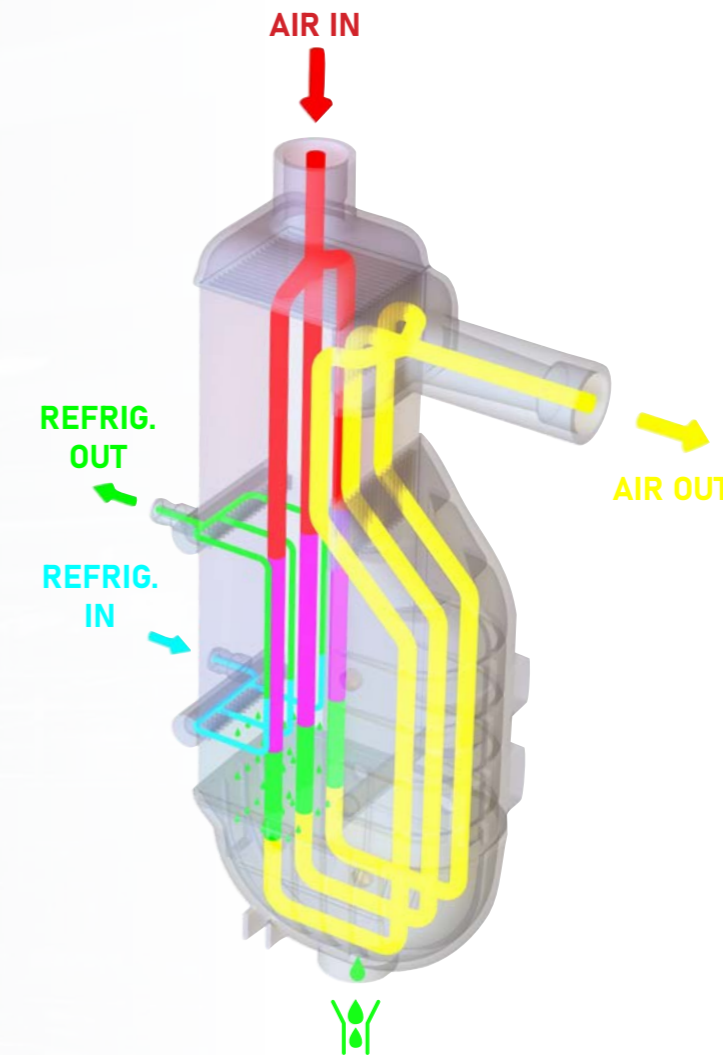
"Hot gas" by-pass valve

The precise and accurate hot gas by-pass valve, which prevents the formation of ice inside the 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.



Alu-dry heat exchanger

The air-to-air and the air-to-refrigerant heat exchangers plus the demister type condensate separator are housed in an unique module. The module has a vertical flow layout ensuring a natural facilitated down flow of the wet compressed air to the condensate drain. The counter flows of compressed air ensure maximum heat transfer.



Condenser

Generous sizing of the condenser ensures maximum performance of the refrigerant circuit and the ability to operate with changes in ambient conditions. Access to the condenser for cleaning and maintenance is straightforward. FCT 180÷3000 condensers are equipped with a stainless steel protective filter. It can be removed and cleaned. Water cooling option available with water regulating valve included.

Main standard equipments and accessories

	FCT 3÷23	FCT 30÷40	FCT 55÷60	FCT 80÷160	FCT 180÷1500
ALU-DRY aluminium heat exchanger	●	●	●	●	●
High efficiency compressor	●	●	●	●	●
Air condenser	●	●	●	●	●
shell & tube condenser			●	●	●
Condenser protection filter					●
High efficiency fan(s)	●	●	●	●	●
R 513A Eco-friendly refrigerant	●	●	●	●	●
Automatic hot gas by-pass control device	●	●	●	●	●
Automatic condensing pressure control	●	●	●	●	●
High and low refrigerant safety pressure switch				●	●
High discharge temperature switch protection	●	●	●	●	●
Zero loss drain	●	●	●	●	●
8,000 hours maintenance kit for electronic drain	●	●	●	●	●
Electronic controller - Modbus RS485	●	●	●	●	●
TAC Anti corrosion treatment	●	●	●	●	●
By-pass Group	●	●	●	●	●

● Standard ● Optional



[*] The TAC consists in covering the refrigerant circuit components surfaces exposed to ambient air. The treatment, combined with the characteristics of the ALU-DRY heat exchanger, enables the FCT dryer to operate in adverse installation conditions.