

# Purestream *Dryers*

BY FRIULAIR



*Compressed air is an effective and reliable source of power which is used in many operations and processes in industry. However, compressed air does have some inherent problems, which, if not treated properly, will create more trouble than it's worth.*

*Atmospheric air contains a substantial amount of water vapour. Atmospheric air is ingested by the air compressor to produce compressed air. Due to the laws of physics, the compression process increases air pressure and subsequently increases the volume of water for a given volume of air. At the same time, the air temperature rises, increasing the air's ability to retain water in vapour form. As the moisture-laden air travels along the compressed air line, the temperature of the air drops and the water vapour condenses and liquid water is formed.*

*Liquid water can cause considerable problems for compressed air lines and pneumatic tools and equipment. The harmful effects of water in a compressed air system include rust and corrosion of distribution piping and tools; removal of vital lubricants from tools; spoilage of spray paint applications; and cause pneumatic valves and instruments to malfunction.*

*The solution to all these problems is a refrigerated compressed air dryer package designed and manufactured by a company with extensive knowledge and experience. The Purestream by Friulair, is a reliable, high efficiency compressed air dryer, using a state-of-the-art refrigeration system which provides a pressure dewpoint of +3°C (+37°F) at 100 PSIG working pressure. Since most production processes operate at temperatures well above these levels, your compressed air will be cool and dry at all times.*



**TDF PRESSURE VESSEL**

## STANDARD FEATURES ON ALL MODELS

- Conforms with CSA standards
- R134A/R404A environmentally friendly refrigerant
- Compact cabinet design complete with easily removable steel panels, wall mount slots on DFE 3-23 models
- Powder paint coated finish
- Electronic capacity sensing drains (Bekomat) fitted as standard on TDF models
- Electric solenoid drains complete with manual isolation valve and strainer fitted as standard on DFE models
- Electronic controls (see electronic controls section)
- Illuminated on/off switch
- Hot gas bypass solenoid valve
- Fully hermetically sealed refrigerant compressor includes thermal overload protection and anti-vibration mountings
- Robust heavy gauge steel construction with over specified fastening devices
- Air to air heat exchanger and evaporator
- Thermally protected condenser cooling fan
- High efficiency centrifugal moisture separator
- Neat and readily serviceable layout of components
- Insulated electrical wiring
- 6 foot 3 prong cord on DFE 3-23 models
- Water proof electrical junction box
- Robust inlet/outlet connections

### DFE 3 to 43

- Copper tube in copper pipe air to air heat exchanger
- Copper tube in tube evaporator

### DFE 52 to 118

- Copper tube in steel pipe air to air heat exchanger
- Copper tube in tube evaporator DFE 52-75
- Copper tube in steel pipe evaporator DFE 98-118

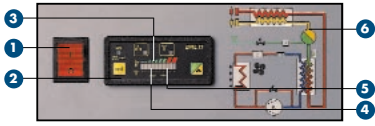
### TDF 145 to 2000

- Single pressure vessel design containing air to air heat exchanger and evaporator, utilizing copper piping and enclosed in a carbon steel vessel
- Removable flange on pressure vessel allowing for easy access for cleaning and annual replacement of stainless steel demister. This cleanable design improves the lifespan of the dryer vessel and helps maintain the rated dryer performance over many years
- TDF pressure vessels are manufactured in accordance to ASME VIII and are CRN approved
- Compact space-saving slim cabinet design
- Main disconnect switch with safety features
- Alarm light with audible signal
- Standard bilingual microprocessor controller on all TDF models

# ELECTRONIC CONTROLS

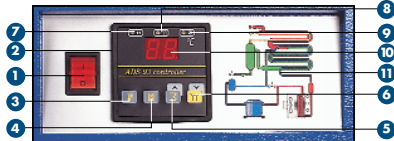
In order to achieve optimized performance of dryers, Friulair has set up a range of very reliable and precise instruments, which constantly control the dryers and all its functions and guarantee a dew point within  $3^{\circ}\text{C}\pm 1^{\circ}\text{C}$ .

## DFE 3 to 23 Standard Controller



1. On/Off switch
2. Electronic thermostat
3. Dew point indicator in green and red LED graph
4. LED to indicate line voltage
5. LED to indicate hot gas bypass valve is on
6. Air freon flow schematic

## DFE 31 to 118 Standard Controller



1. On/Off switch
2. ADS 93 electronic controller
3. Displays activation temperature of hot gas bypass valve
4. Display time between condensate drain discharge
5. Dew point temperature display button
6. Condensate drain test button
7. LED to indicate hot gas bypass valve is on
8. LED to indicate condensate drain on
9. LED to indicate condenser fan is on
10. LED display
11. Air freon flow schematic

1. Backlit LCD display
2. LED compressor on
3. LED fan on
4. LED hot gas by-pass solenoid valve on
5. LED evaporator condensate drain solenoid valve on

6. LED condensate separator drain solenoid valve on
7. LED oil carter heater on
8. LED dryer in stand-by
9. LED alarm occurrence
10. Condensate drain test button
11. Button to access programming

The DMC 20 microprocessor controller controls all the operations, the alarms and the operational settings of the dryer. By means of a 32 character LCD display it displays all the operational settings of the dryer. The DMC 20 has two levels of programming, level 1 is accessible by anyone and level 2 is reserved for authorized personnel with the access password. In case of any unit malfunctions a visual and audible alarm is activated and a message is displayed in the selected language (French or English) which allows for quick detection of the fault and provides the relevant solution. The cause of the alarm will be displayed on the upper line of the LCD panel. The controller is also equipped with remote alarm contacts allowing for remote signals in order to respond to any alarm conditions. The controller can be programmed to turn the dryer on or off from a remote location by means of a switch and two leads connected to the DMC 20. The DMC 20 also features a RS486 serial port allowing for connection to a PC or PLC controller. The communication protocol is MODICON MODBUS 1 (MB1).

## TDF 145 to 2000 Standard DMC 20 Controller



## Insuring Reliability and Quality

All Friulair dryers are carefully tested to ensure that each dryer performs as rated.



Pre-vacuum tested by an electronic Pirani system

Final vacuum and charge tested by an automatic evacuating and charging unit which controls the vacuum and amount of refrigerant to be charged in the system for each individual dryer model



A working test is performed on each dryer at the stated nominal capacity and then an air temperature reading is taken at the unit outlet connection to insure rated performance

Dewpoint readings are taken with a hygrometer which insure that each dryer produces the stated dewpoint of  $37.4^{\circ}\text{F}$

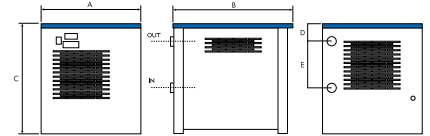


A final test for possible gas leaks is taken with a freon leak detector

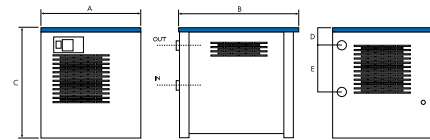
# DATA SHEET PURESTREAM SERIES (R 134a, R 404a)

ENVIRONMENTALLY FRIENDLY

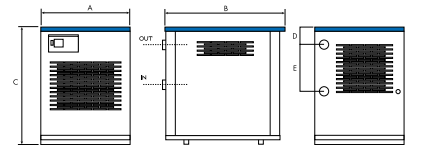
MODEL	AIR FLOW	POWER CONS. AMPS		COMPRESSOR HP	VOLTAGE	CONNECTION	PRESSURE	FREON	DIMENSIONS (INCHES)					WEIGHT lbs
	CFM	NOM	MAX						A	B	C	D	E	
DFE 3	12	2.2	2.9	1/4	115/1/60	1/2" NPT	174	R134a	17.7	21.3	19.9	3.3	8.3	68
DFE 5	17	2.7	3.4	1/3	115/1/60	1/2" NPT	174	R134a	17.7	21.3	19.9	3.3	8.3	68
DFE 8	27	3.3	4.3	1/3	115/1/60	3/4" NPT	174	R134a	17.7	21.3	19.9	3.3	8.3	75
DFE 11	35	4.3	5.6	1/2	115/1/60	3/4" NPT	174	R134a	17.7	21.3	19.9	3.3	8.3	77
DFE 18	56	5.9	7.8	3/4	115/1/60	3/4" NPT	174	R134a	17.7	21.3	19.9	3.3	8.3	80
DFE 23	75	6.1	8.0	3/4	115/1/60	1" NPT	174	R134a	17.7	21.3	19.9	3.3	8.3	82



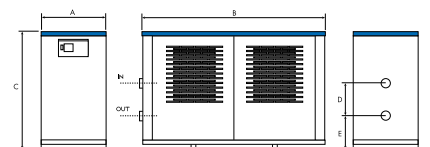
MODEL	AIR FLOW	POWER CONS. AMPS		COMPRESSOR HP	VOLTAGE	CONNECTION	PRESSURE	FREON	DIMENSIONS (INCHES)					WEIGHT lbs
	CFM	NOM	MAX						A	B	C	D	E	
DFE 31	100	4.4	5.7	1	230/1/60	1" NPT	174	R134a	21.3	26.4	25	3.1	10.2	126
DFE 43	137	5.1	6.5	1 1/4	230/1/60	1-1/4" NPT	174	R134a	23.2	32.3	31.7	3.5	11.4	168
DFE 52	168	6.3	8.2	1 1/2	230/1/60	1-1/2" NPT	174	R134a	23.2	32.3	31.7	3.5	11.4	207
DFE 61	200	7.2	10.4	1 3/4	230/1/60	2" NPT	174	R134a	23.2	32.3	31.7	3.5	11.4	227
DFE 75	235	7.5	10.7	1 3/4	230/1/60	2" NPT	174	R134a	23.2	32.3	31.7	3.5	11.4	232



MODEL	AIR FLOW	POWER CONS. AMPS		COMPRESSOR HP	VOLTAGE	CONNECTION	PRESSURE	FREON	DIMENSIONS (INCHES)					WEIGHT lbs
	CFM	NOM	MAX						A	B	C	D	E	
DFE 98	310	8.2	11.4	2	230/1/60	2" NPT	174	R134a	23.6	42.3	34.4	11.8	15.7	462
DFE 118	400	8.5	11.7	2	230/1/60	2-1/2" NPT	174	R134a	23.6	42.3	34.4	11.8	15.7	528



MODEL	AIR FLOW	POWER CONS. AMPS		COMPRESSOR HP	VOLTAGE	CONNECTION	PRESSURE	FREON	DIMENSIONS (INCHES)					WEIGHT lbs
	CFM	NOM	MAX						A	B	C	D	E	
TDF 145	510	5.2	6.0	2.3	575/3/60	2-1/2" NPT-F	174	R404a	23.6	72.7	55.1	19.25	19.7	950
TDF 185	650	5.8	6.6	2.7	575/3/60	2-1/2" NPT-F	174	R404a	23.6	72.7	55.1	19.25	19.7	1100
TDF 210	740	7.2	8.1	3.5	575/3/60	FLANGE 3" 150	174	R404a	23.6	72.7	55.1	19.25	19.7	1120
TDF 285	1000	8.1	9.1	4	575/3/60	FLANGE 3" 150	174	R404a	23.6	72.7	55.1	19.25	19.7	1300
TDF 340	1200	9.0	10.2	4.6	575/3/60	FLANGE 3" 150	174	R404a	23.6	72.7	55.1	19.25	19.7	1320
TDF 420	1480	12.3	13.8	6	575/3/60	FLANGE 4" 150	174	R404a	27.6	78.75	68.8	21.25	19.7	1600
TDF 520	1800	14.4	16.3	8.5	575/3/60	FLANGE 4" 150	174	R404a	27.6	78.75	68.8	21.25	19.7	1750
TDF 680	2400	18.2	20.8	10	575/3/60	FLANGE 4" 150	174	R404a	27.6	78.75	68.8	21.25	19.7	1980
TDF 800	2820	19.2	21.7	23	575/3/60	FLANGE 6" 150	174	R404a	31.5	98.5	72.5	23.6	23.6	2500
TDF 1100	3880	22.5	24.2	17	575/3/60	FLANGE 6" 150	174	R404a	31.5	98.5	72.5	23.6	23.6	2900
TDF 1500	5290	35.0	39.2	24	575/3/60	FLANGE 6" 150	174	R404a	55.2	102.3	82.6	21.6	23.6	4300
TDF 2000	7060	38.3	43.3	26	575/3/60	FLANGE 8" 150	174	R404a	55.2	102.3	82.6	21.6	23.6	4600



Capacities are based on 100°F entering air temperature, 100°F ambient air temperature, 100 PSIG operating pressure.

Larger sizes available upon request.



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