



DFLEX series

Desiccant rotor air dehumidifiers





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General description

The quality and efficiency requirements demanded by today's society, both for human comfort and control and stability of production processes, make environmental humidity control more necessary and even essential every day.

The water vapour content in air and thus its relative humidity is highly variable. If the water vapour content is higher

than the moisture content required for a process, a dehumidification system is required to reduce and control this value.

Thus Fisair, a manufacturer since 1994, designs air dehumidifiers to obtain the required degree of humidity, easily and permanently, with moderate investment and operating costs.

FISAIR

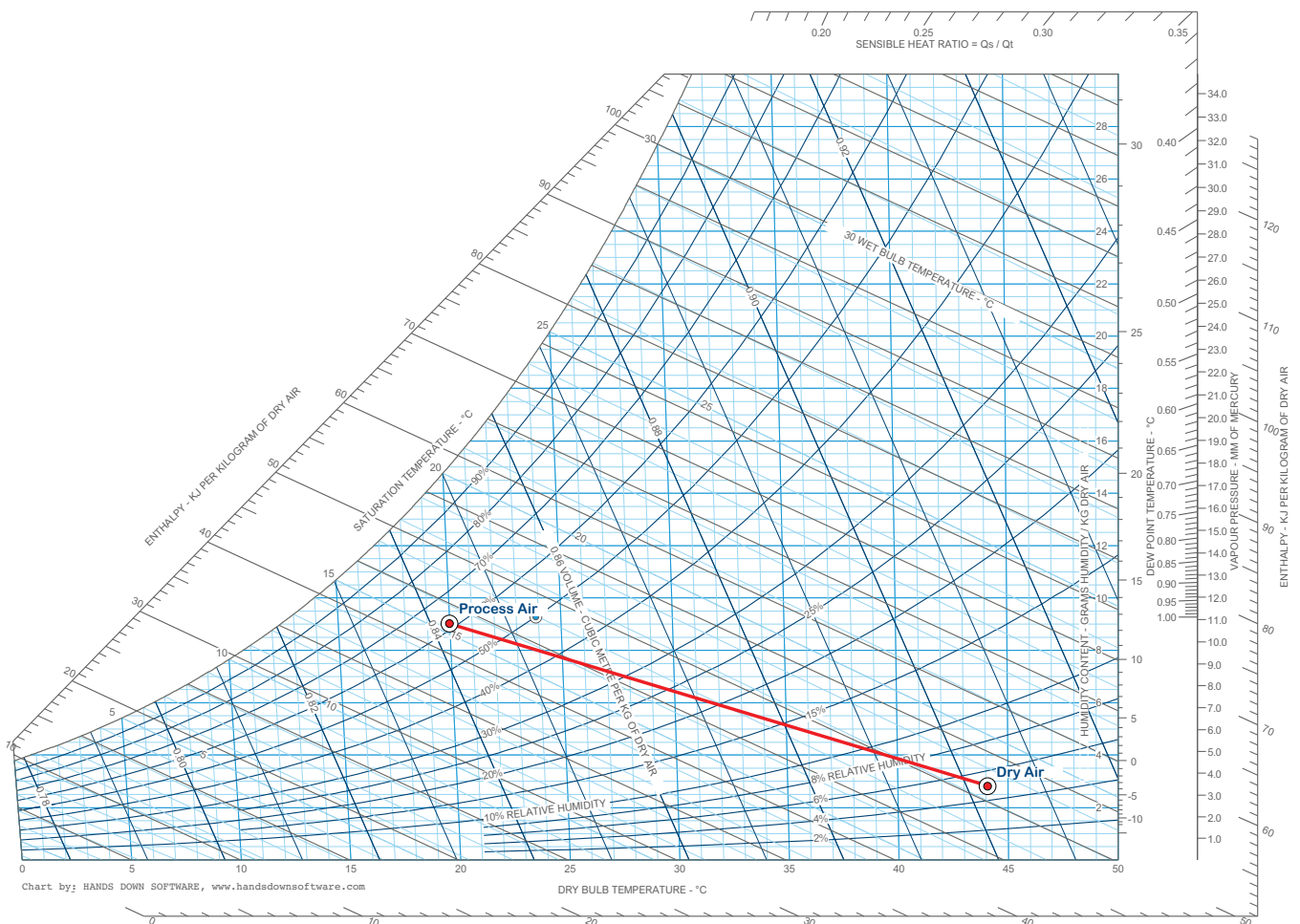
PSYCHROMETRIC CHART

NORMAL TEMPERATURE

SI units

SEA LEVEL

Barometric pressure: 101.325 Kpa





Desiccant rotor operating principle

Fisair DFLEX air dehumidifiers work based on a high performance, chemically and thermally stable silica gel desiccant rotor, whose material does not deliquesce, as happens in other desiccant materials. Its cylinder configuration with a multitude of small channels provides a large contact surface for air and desiccant material, giving it a high dehumidification capacity, with a minimum volume of material.

The simple operation consists of passing two countercurrent air flows continuously and simultaneously through the desiccant rotor. A rotating device and a set of desiccant rotor perimeter gaskets make the drying process continuous, uniform, providing optimum performance.

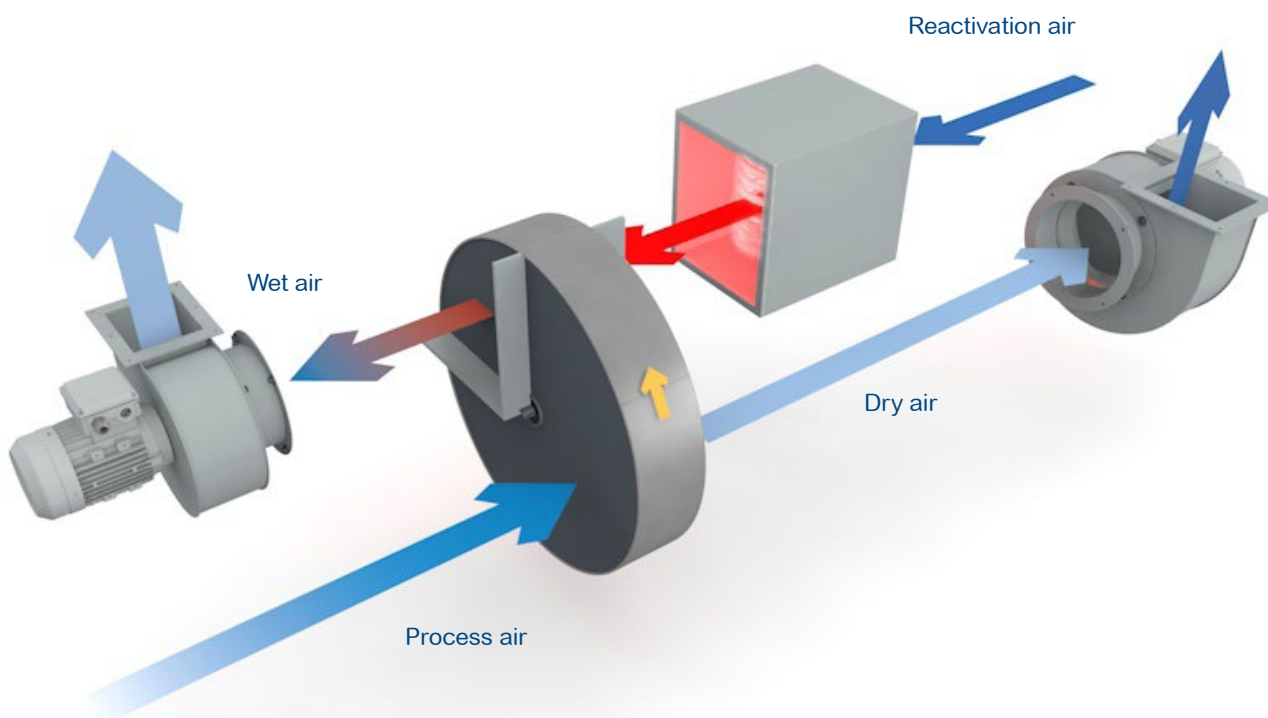
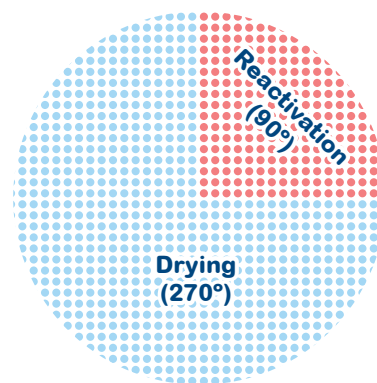
The air flow to be dried (process air) is filtered and passes through the desiccant rotor material (270°), which adsorbs part of the water vapour in the air. This dry air is then blown into the controlled humidity zone by a fan.

The desiccant rotor regeneration air flow (reactivation air) is filtered and heated by a set of electrical heaters before passing through the desiccant rotor material (90°), where it ad-

sorbs the water vapour retained in the rotor desiccant; thus, regenerating it for a new drying cycle. This moist air is blown out of the controlled humidity area by a fan.

Fisair dehumidifiers have a long operating life due to the chemical resistance of the rotor and its ability to be washed with water.

Standard dehumidifiers reduce the humidity in dry air to reach dew temperatures as far as -30°C , and even lower on demand.



Product coding
DFLEX

			Syst. Reactiv.	Process Air Initial Filter	Reactiv. Air Initial Filter	PRE coils	POST coils		Fans	Final filter Dry Air	Heat Recovery Unit	Finishing	Electrical power supply	Control	Other options	
DFLEX series	DFLEX-3500	E	GF	GF	WS	WS	WS	WS	SF	SF	H14	R	KR	405	AE0021	0

models

- 1100
- 1300
- 1700
- 2100
- 2900
- 3500

Reactivation system

- E = Electric coil
- V = Coil for saturated steam
- H = Stainless steel coil for saturated steam
- G = Direct Gas
- I = Indirect Gas (only available for US market)

Process Air Filters

- G0 = 1 Filters stage class MERV 8 (ASHRAE 52.2:2012)
- GF = First stage class MERV 8 filters and second stage class MERV 15 (ASHRAE 52.2:2012)

Reactivation Air Filters

- GF = First stage class MERV 8 filters and second stage class MERV 15 (ASHRAE 52.2:2012)
- C0 = 1 stage of filters of a specific class other than MERV 8 (ASHRAE 52.2:2012)

Pre-Heating

- 00 = No pre-heating
- WE = ECO pre-heating coils using hot water
- WS = STANDARD pre-heating coil using hot water



Product coding

DFLEX

DFLEX series	DFLEX-3500	E	GF	GF	WS	WS	WS	WS	SF	SF	H14	R	KR	405	AE0021	0
		Syst. Reactiv.	Process Air Initial Filter	Reactv. Air Initial Filter	PRE coils		POST coils		Fans		Final filter Dry Air	Heat Recovery Unit	Finishing	Electrical power supply	Control	Other options

models: 1100 / 1300 / 1700 / 2100 / 2900 / 3500

Pre-Cooling

- 00 = No pre-cooling
- WE = ECO pre-cooling coil using cold water
- WS = STANDARD pre-cooling coil using cold water
- WH = High-power pre-cooling coil using cold water

Post-Cooling

- 00 = No post-cooling
- WE = ECO post-cooling coil for cold water
- WS = STANDARD post-cooling coil using cold water
- WH = High-power post-cooling coil using cold water

Post-Heating

- 00 = No post-heating
- WE = ECO post-heating coil using hot water
- WS = STANDARD post-heating coil using hot water

Process Air / Dry Air Fan

- 00 = No process/dry air fan
- SF = STANDARD fan
- PF = Plug Fan for DFLEX

Reactivation Air / Moist Air Fan

- SF = STANDARD fan
- PF = POWERED fan

Dry Air Filter

- 000 = NO Final Filter in Dry Air
- F00 = F9 EN 779 filter: 2012 / ePM1 80 < ISO16890 placed after process air / dry air fan (requires Plug Fan type)
- H13 = HEPA 99.99%(MIL-STD-282) filter fitted after the process air/dry air fan (requires a Plug-Fan ventilator)
- H14 = HEPA 99.99%(MIL-STD-282) filter fitted after the process air/dry air fan (requires a Plug-Fan ventilator)
- FH3 = MERV15(ASHRAE 52.2:2012) filter + HEPA 99.99%(MIL-STD-282) filter fitted after the process air / dry air fan (requires Plug Fan type)
- FH4 = MERV15(ASHRAE 52.2:2012) filter + HEPA 99.99%(MIL-STD-282) filter fitted after the process air/dry air fan (requires Plug Fan type)

Sensitive Heat Recovery Unit

- 0 = No heat recovery. No by-pass in desiccant rotor
- R = Static heat recovery unit installed in the wet air

Product coding

DFLEX

DFLEX series	DFLEX-3500	Syst. Reactiv.	Process Air Initial Filter	Reactv. Air Initial Filter	PRE coils	POST coils	Fans	Final filter Dry Air	Heat Recovery Unit	Finishing	Electrical power supply	Control	Other options		
		E	GF	GF	WS	WS	WS	SF	SF	H14	R	KR	405	AE0021	0

models: 1100 / 1300 / 1700 / 2100 / 2900 / 3500

Finishing

00 = Standard production of components. Protection grade IP50 and finished with RAL7035 colour

Supply options (not included in mechanical diagrams)

466 = 460V±5%/III/60Hz (MEX / USA / CAN 1*)

N66 = 460V±5%/III+N/60Hz (MEX / USA / CAN 1*)

586 = 580V±5%/III/60Hz (CAN 2*)

N86 = 580V±5%/III+N/60Hz (CAN 2*)

For other supplies, please consult us

Opciones de Control (no se incluye en planos mecánicos)

A E 0 0 2 1

B = Basic

A = Advanced

E = Electric reactivation coil control

V = Saturated vapour coil control
(Either Fe or Stainless steel finish)

G = Duct heater to Gas control

I = Indirect heater to Gas control

0 = No communication

S = OPC server

T = Communication by Modbus TCP/IP

R = Modbus RTU-RS485 communication

B = Bacnet TCP/IP communication

00 = No analogue inputs

02 = 1 analogue voltage input 0..10V available

06 = 5 analogue voltage inputs 0..10V available

10 = 9 analogue voltage inputs 0..10V available

14 = 13 analogue voltage inputs 0..10V available

0 = No analogue outputs

1 = 1 analogue voltage output 0..10V installed

2 = 2 analogue voltage outputs 0..10V installed

3 = 3 analogue voltage outputs 0..10V installed

4 = 4 analogue voltage outputs 0..10V installed

5 = 5 analogue voltage outputs 0..10V installed

6 = 6 analogue voltage outputs 0..10V installed

Other Special Options

0 = No special option

[Note]

* CAN 1: Ontario Zone / CAN 2: Quebec Zone

Not all code options are shown in technical data.

Example: DFLEX-3500V GFG0 0000 0000 SFSF 000 000 405AE01040



Specification

Desiccant rotor air dehumidifier, DFLEX series, made of high-performance silica gel of long service life and low energy consumption.

Main features

S Standard | **O** Optional | **V** Vapour | **G** Gas | **I** Indirect | **E** Electric

S	<p>Structure consisting of cast aluminium corners and extruded aluminium profiles.</p> <p>Structure supported on UPN bench according to UNE 36-525-72, bench provided with a means to make lifting the equipment easier. Each module is prepared for simple assembly on site, and each has anchor points for lifting.</p> <p>Sandwich type panels mounted on the structure made of internal and external galvanised steel sheets. The outer sheet also according to RAL 7035. Assembled together and to the structure with neoprene gaskets to improve sealing. Access holes are included for easy maintenance and inspection. Corrosion resistance C3 according to ISO 12944. Option in stainless steel. Panels with thermal insulation using 50 mm thick glass wool.</p> <p>Process air inlet flow manual regulation damper made of aluminium. Differential pressure taps for manual regulation of exact air flow. Additional check with the frequency inverter.</p> <p>V-type process air filter, made of class synthetic fibre MERV 8 (ASHRAE 52.2:2012).</p>
O	<p>Rigid bag process air filter, glass microfibre filter element with plastic frame, class MERV 15 (ASHRAE 52.2:2012).</p> <p>Pre-heating coils using hot water. Manufactured in copper tubes with aluminium wings. Condensates tray with threaded drainage coils and stainless-steel frame in contact with wet parts.</p> <p>Pre-cooling coil using cold water. Manufactured in copper tubes with aluminium wings. Droplet separator on a built-in fibre-glass panel. Condensates tray with threaded drainage coils and stainless-steel frame in contact with wet parts.</p>
S	<p>High-performance silicon gel dryer rotor. Inert, fire resistant, hygienic material, thermally and chemically stable to prevent deliquescence. Includes perimeter and radial gaskets.</p> <p>Desiccant rotor, rotation by gear motor, belt and tension correction system for perimeter drag.</p>
O	<p>Process air bypass section via aluminium damper with 2-point servomotor: (drying/summer) - (not drying/winter).</p> <p>Post-cooling coil using cold water. Manufactured in copper tubes with aluminium wings. Condensates tray with threaded drainage coils and stainless-steel frame in contact with wet parts.</p> <p>Post-heating coil using hot water. Manufactured in copper tubes with aluminium wings. Condensates tray with threaded drainage coils and stainless-steel frame in contact with wet parts.</p>
S	<p>Process fan: Plug-Fan type simple suction centrifugal fan, according to the European Eco-Design directive. Impeller blades backward facing. High efficiency motor (IE3). Includes variable frequency drive, C-Less technology, THDi < 30%, MODBUS communication, BACnet, Apogee and Metasys. Protection class IP54. EMC filters class C2. Pressure probe is included to regulate dry air flow.</p> <p>V-type reactivation air filter, made of class synthetic fibre MERV 8 (ASHRAE 52.2:2012).</p>
O	<p>Rigid bag process air filter, glass microfibre filter element with plastic frame, class MERV 15 (ASHRAE 52.2:2012).</p>
S	<p>Reactivation air inlet flow manual regulation damper made of galvanised steel. Differential pressure taps for manual regulation of exact air flow.</p>

S Standard | **O** Optional | **V** Vapour | **G** Gas | **I** Indirect | **E** Electric

V	Reactivation air heater in steel tube with aluminium fins, for steam at 8 kg/cm (7 bar [g]) maximum operating pressure. Flanged connections, DIN2633.
O	Reactivation air heater in steel tube with aluminium fins, for steam at 8 kg/cm (7 bar [g]) maximum operating pressure. Flanged connections, ASME B16.5.
E	Rotor reactivation air heating via reinforced electrical heating elements in stainless steel tube with operating and safety thermostat.
G	<p>Rotor reactivation heater consisting of a linear type gas burner composed of cast iron or aluminium bodies and divergent stainless steel air baffles. Includes modular combustion ramp with:</p> <ul style="list-style-type: none"> • Gas injection rail in special cast iron • Ignition electrode with angled connector • Ionisation probe for flame monitoring with angled connector • Safety pressure switch for air circulation control with nozzle <p>Gas valve train, consisting of:</p> <ul style="list-style-type: none"> • Gas safety pressure switch min. • Gas safety pressure switch min. • Double safety valve in series • Gas flow regulation servo valve with modulating servomotor via 0-10 V signal
I	<p>Indirect fire air heater for regenerative heating:</p> <ul style="list-style-type: none"> • Heat exchanger made of AISI 304 stainless steel for a longer service life and less maintenance. • Individual ovens are rated for a maximum rise of 125°F with inlet air temperatures up to 125°F (maximum discharge air temperature of 250°F). Tandem furnace installations are rated up to 250°F rise with 75°F inlet air temperature (325°F maximum discharge air temperature). • HP (A, G) Duct Furnace Models are listed in IAS 9-90 Gas Desiccant Dehumidifiers and the applicable sections of ANSI Z83.8 / CAS 2.6 Gas Duct Furnaces and Z21.47 / Central Furnaces CSA 2.3 by Intertek Testing Services (ITS / ETL), for operation with natural gas or propane. • Indirect heaters are listed for installation on the positive or negative pressure side of the blower circulating air.
S	Reactivation fan: Single suction centrifugal fan designed to work with air up to 110°C, with forward blades impeller, made of galvanised steel sheet with corrosion protection polyester paint coating, equipped with a 3-phase motor.
S (depending on model)	<p>Advanced control panel via a controller with HMI screen for supervision and control in real time of all dehumidifier components, designed for the required external and internal signals; regulating humidity proportionally by acting on the power applied to the electric heater or via a fluid control valve for reactivation by steam, gas, water or thermal oil. IP54 electrical panel with epoxy finish integrated in the equipment. Includes disconnecter and magneto-thermal switches suitable for protection of consumer components, as well as all the internal wiring connecting them to the panel. All electrical installation according to local safety, electrical installation and electromagnetic compatibility regulations. Complete status monitoring for easy maintenance: includes manual / auto switch, voltage-free card for remote signalling of voltage, on/off (remote start enabled) and fault (including rotor stop) status. Intelligent shutdown on electrical reactivation for heat dissipation. Operating voltage 24 V</p> <p>Basic control panel via an LED-based diagram with real-time status of the main components, ready to receive the signals required for external humidity regulation. IP54 electrical panel with epoxy finish integrated in the equipment. Includes disconnecter and magneto-thermal switches suitable for protection of consumer components, as well as all the internal wiring connecting them to the panel. All electrical installation according to local safety, electrical installation and electromagnetic compatibility regulations. includes manual / auto switch, voltage-free card for remote signalling of voltage, on/off (remote start enabled) and fault status. Intelligent shutdown on electrical reactivation for heat dissipation. Operating voltage 24 V</p>



Features table for standard units

		DFLEX					
Performance (*)		1100	1300	1700	2100	2900	3500
Drying capacity	Kg/h	49,8	63,4	78,0	102,3	125,7	152,3
	lb/h	109,8	139,8	172,0	225,6	277,2	335,8
Drying capacity (with heat recovery)	Kg/h	54,9	68,1	88,3	114,3	148,1	182,5
	lb/h	121,1	150,2	194,7	252,0	326,6	402,4
[Process / Dry air] Δx	°C	22,2	22,5	21,6	21,4	24,4	24,3
	°F	72,0	72,5	70,9	70,52	75,92	75,74
Airflow Process / Dry	m ³ /h	7500	9000	12000	15000	20000	24000
	CFM	4414	5297	7063	8829	11772	14126
Available pressure Dry air	Pa	923	733	825	563	971	759
	in w.c.	3,71	2,94	3,31	2,25	3,88	3,05
Airflow Reactivation / Wet	m ³ /h	2250	2700	3600	4500	6000	7200
	CFM	1324	1589	2119	26649	3532	4238
Available pressure Wet Air	Pa	709	455	121	219	422	213
	in w.c.	2,85	1,83	0,49	0,88	1,70	0,86
Electric power BR installed	kW	90	108	126	168	240	240
	MBH	307	369	430	573	819	819

Equipment nomenclature selected for calculation:

- DFLEX-XXXXE G0G0 0000 0000 SFSF 000 000 405BE00000 (without recovery)
- DFLEX-XXXXE G0G0 0000 0000 SFSF 000 R00 405BE00000 (with heat recovery)

(*)

- | | | | | |
|--|---|--|--|---|
| <p>1. Air inlet conditions, process and reactivation 20°C and 60% RH. For other conditions, consult appropriate model technical catalogue.</p> | <p>2. Performance under nominal installed heating power from electric reactivation heaters.</p> | <p>3. Technical data subject to change without prior notice.</p> | <p>4. Dimensions, weight, total installed power from electrical reactivation heaters. Consult us for steam coil or gas burner.</p> | <p>5. Electrical connection 460 / III / 60 Hz and operating voltage 24 Vca.</p> |
|--|---|--|--|---|

Optional mechanical components



PRE-HEATING coils

Pre-heating coils using hot water. Manufactured in copper tubes with aluminium wings.

Housing constructed using aluminium profiles, insulated by sandwich-type panels.



POST-HEATING coils

Post-heating coils using hot water. Manufactured in copper tubes with aluminium wings. Housing constructed using aluminium profiles, insulated by sandwich-type panels



PRE-COOLING coils

Pre-cooling coils for cold water. Manufactured in copper tubes with aluminium wings. Housing constructed using aluminium profiles, insulated by sandwich-type panels. Droplet separator on a built-in fibre-glass panel. Condensates tray with threaded drainage coils and stainless-steel frame in contact with wet parts.

For each size of DFLEX there are 3 different configurations available with water pre-cooled coils.



POST-COOLING coils

Post-cooling coils using cold water. Manufactured in copper tubes with aluminium wings. Housing constructed using aluminium profiles, insulated by sandwich-type panels.

For each size of DFLEX there are 2 different configurations available with water post-cooled coils.

High efficiency FILTERS

As an option, DFLEX series dehumidifiers can be supplied with highly efficient reactivation and process filters. These filters are installed on specific frames that ensure maximum sealing from water, and are supplied with an aluminium profile cabinet insulated by sandwich-type panels.

The high-efficiency filters have built-in pressure switches for filter clogging as standard, so that they can connect to the DFLEX units' advanced control.

Filters can be supplied with the following kinds of filtering:

MERV 8 ----- **MERV 15** ----- **HEPA 99.99%**
(standard)





Optional mechanical components

Plug-Fan DRY AIR FANS

(As standard in DFLEX)

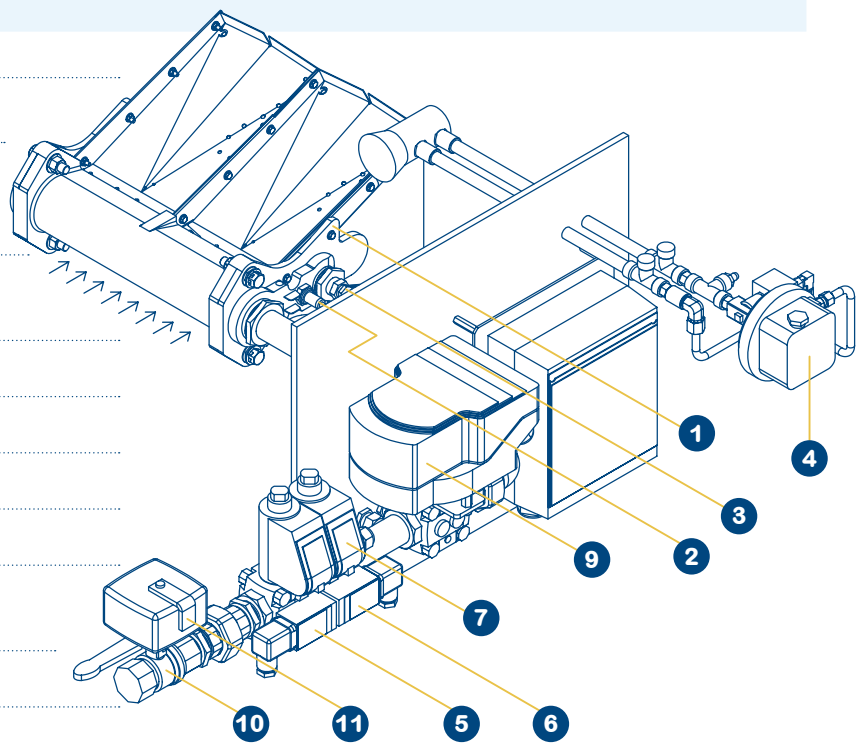
These fans make equipment start-up very easy and maintain a constant flow/pressure even as process filters become clogged (they include a differential pressure probe as standard to control fan electronics).

This control option is only available for units with advanced control.



DIRECT GAS burners

- 1 Optional mechanical components
- 2 Ignition electrode
- 3 Ionisation probe for checking the flame
- 4 Safety pressure switch for air circulation control with nozzle
- 5 Gas safety pressure switch min.
- 6 Gas safety pressure switch max.
- 7 Double safety valve in series
- 8 Pilot solenoid valve
- 9 Gas flow regulation valve with modulating servomotor via 0-10V signal
- 10 Shutoff valve
- 11 Locking device



INDIRECT GAS burners



Steam coil installation diagram

Fisair supply

5 Proportional Control Valve
(supply optional)

7 Steam Heater
Coil for saturated steam. Available in two varieties. Fe/Al and SST/Al.
(FISAIR supply for V H and X reactivation heaters)

9 Steam Trap ()**
(supply optional)

(**) A float type, thermostatic trap or one with an inverted cover is recommended; safety factor for condensate loading. 3 to 1.

Installation outside Fisair supply

1 Steam supply (*)

2 Condensate Return

3 Filter in Y

4 Manual Shut-off Valves

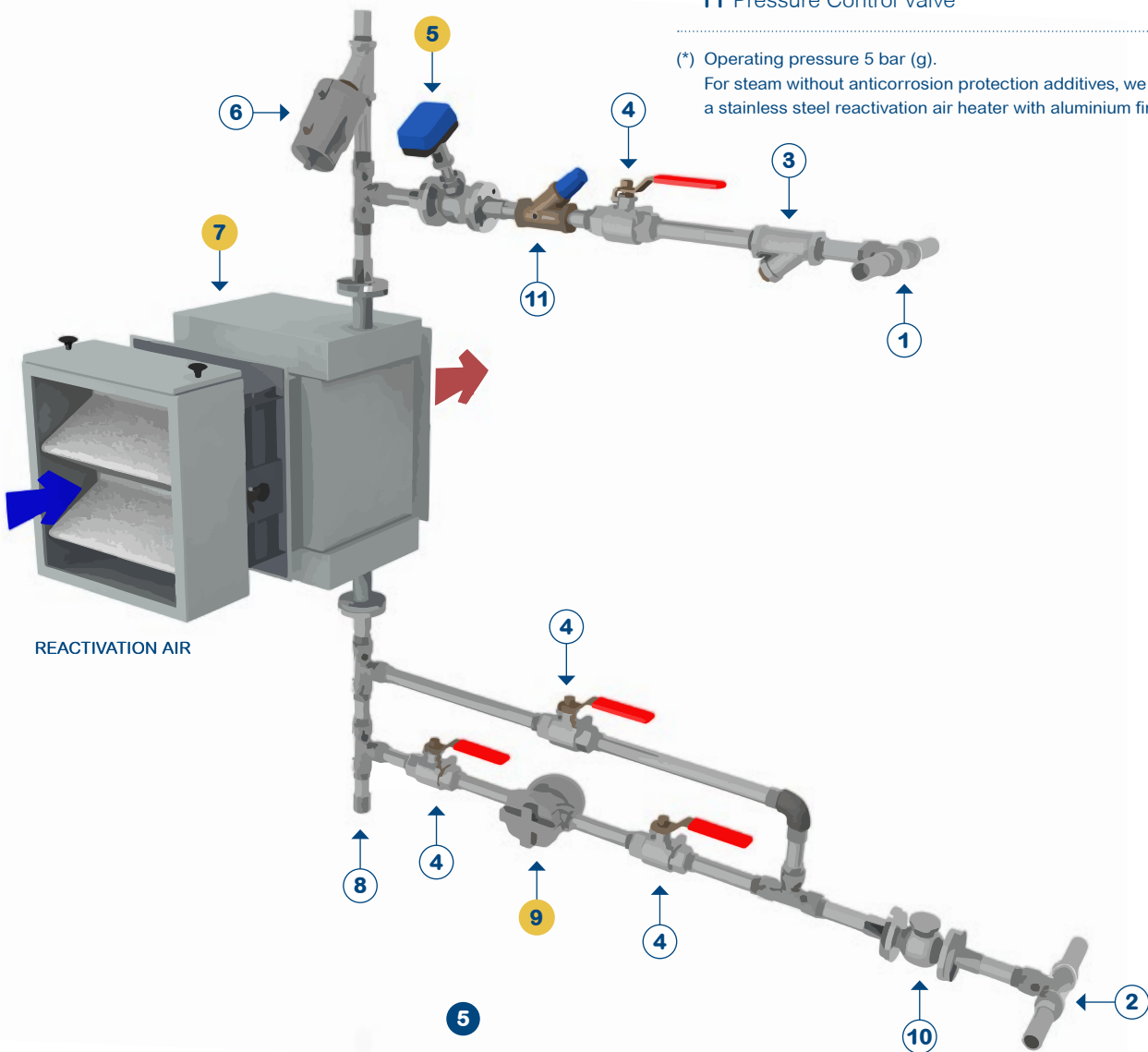
6 Thermostatic deaerator

8 Drip leg

10 Retention Valve

11 Pressure Control Valve

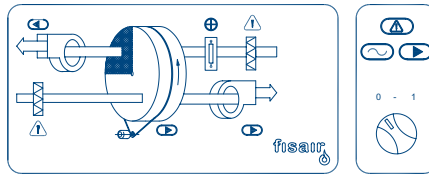
(*) Operating pressure 5 bar (g).
For steam without anticorrosion protection additives, we recommend a stainless steel reactivation air heater with aluminium fins.





Control options

DFLEX series dehumidifiers can have a basic or advanced control. The main differences between the two are shown in the following table:



Function	Basic control	Advanced control
On/Off		
Manual	yes	yes
Remote via voltage-free external digital signal	yes	yes
Drying capacity control		
Digital via external single or multi-stage hygrosat	yes	yes
Analogue proportional via external 0-10 Vdc signal	no	yes
Via analogue signal from optional sensor	no	yes (1)
Filter status control		
Process filter replacement alarm	yes (2)	yes (3)
Reactivation filter replacement alarm	yes (2)	yes (3)
Pre treatment coil control		
Possibility of controlling pre-heating coils	no	yes (4)
Possibility of controlling pre-cooling coils	no	yes (4)
Post-treatment coil control		
Possibility of controlling post-cooling coils	no	yes (4)
Possibility of controlling post-cooling coils	no	yes (4)
Process / dry air fan flow or pressure regulation		
Possibility of maintaining constant air flow or pressure	no	yes (5)
Peripheral circuits connection		
Temperature probe connection 0-10 Vdc	no	yes (6)
Relative humidity probe connection 0-10 Vdc	no	yes (6)
Absolute humidity probe connection 0-10 Vdc	no	yes (6)
Rotor rotation detectors connection	no	yes (6)
Assistance in detecting equipment failures		
Detection of probe-related problems	no	yes (7)
Detection of equipment motor-related problems	yes	yes
Detection of electrical connection-related problems	no	yes
Communication with BMS systems		
Modbus TCP/IP • Modbus RTU-R5485 • Profibus DP • Servidor OPC • Bacnet	no	yes (8)
Other functions / features		
Desiccant rotor rotation detector	no	yes
Smart shutdown system	yes	yes
Hour meter	no	yes
Basic diagram of unit with LEDs	yes	no
HMI with advanced unit diagram with probe values	no	yes (7)

(1) Requires the optional humidity sensor 0-10Vdc and an analogue input available in the advanced control system.

(2) Requires an optional pressure switch. LED alarm display.

(3) Requires an optional pressure switch. Alarm can be viewed in the advanced control display.

(4) Requires an analogue outlet which is available in the advanced control. In the case of water coils, a valve is required + 0-10VDC (optional) For other coil types please contact us.

(5) Requires 1 analogue input available in the advanced control version, a plug-fan ventilator and optional differential pressure probe.

(6) Requires an analogue output which is available in the advanced control.

(7) Requires the optional probes to display its values

(8) Must be specified in the order.

Optional field components



Description

Relative humidity sensor (DC 0...10V) for duct **(1)**

Measurement range: 0...100% RH. Measurement accuracy $\pm 2\%$ at 23°C

Combined relative humidity and temperature sensor (4...20mA) for duct **(1)**

Measurement range: 0...100% RH, -40...80°C/-40...176°F

Measurement accuracy for $\pm 1.5\%$ at 0...40°C/32...104°F

Measurement accuracy for TBS $\pm 0.1^\circ\text{C}$

Temperature sensor (DC 4...20mA) for duct **(1)**. Measurement range: -50...+50 C. Measurement accuracy ± 0.9 K...

Combined relative humidity and temperature sensor (4...20mA)

% RH Measurement accuracy:

0...40°C/32...104°F < 90% $\pm 1.5\%$

0...40°C/32...104°F < 90% $\pm 2.5\%$ RH

Temperature measurement accuracy: Pt1000 (tolerance B, DIN EN 60751)

Execution of duct or environment

Integrated calculation of related quantities: Humidity ratio (g/kg), Tpr (°C) etc

Active transmitter with analogue outputs 4...20mA

communication RS485 BACnet MS/TP or Modbus RTU

Dew point temperature sensor 4-20mA for duct **(1)**

Measurement range: -40...+80°C/-40...176°F TPR

Measurement accuracy: $\pm 2^\circ\text{C}/3.6^\circ\text{F}$

Differential pressure switch for clogged process filter alarm. Measurement range: 50...500 Pa/0.2...2.0 in w.c.

Differential pressure switch for clogged reactivation filter alarm. Measurement range: 50...500 Pa/0.2...2.0 in w.c.

Differential pressure probe for dry air flow control in plug fans. Range 0-2500Pa/0.2...2.0 in w.c., 4...20 mA

Valve + proportional actuator pre-heating coil 4-20mA

Valve + proportional actuator pre-cooling coil 4-20mA

Valve + proportional actuator post-cooling coil 4-20mA

Valve + proportional actuator post-heating coil 4-20mA

2-stage room humidistat for duct or wall mounting. IP54. Setpoint 10...100% RH, Histéresis 3%HR a 45% RH

Calibration certificate for any component

(1) Also available for surroundings/room measurement. Specify when ordering.



Operating limits (1)

Parameter	DFLEX-E
Temperature range for the process intake	2°C to 55°C (2) 35,6°F to 131°F (2)
Relative humidity range for the process intake	Without restrictions
Temperature range of the reactivation intake dry bulb.	-10°C to 55°C 14°F to 131°F
Relative humidity range for the reactivation intake	Without restrictions
Designed to be installed in locations exposed to sunlight and rain.	(3)
Temperature range in the area where the unit is to be installed	-10°C to 50°C 14°F to 131°F
Relative humidity range in the area where the unit is to be installed	< 95%

- (1) Unit performance will be affected depending on the working conditions. If your unit needs to work under other operating limits, please contact FISAIR.
- (2) It is possible to work with process temperatures below 5°C/31°F for units with pre-heating coils.
- (3) Available for DFLEX series. Specify when ordering.

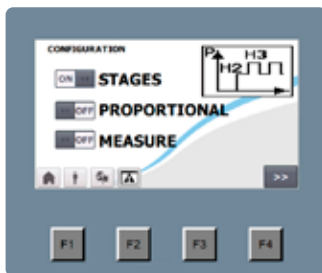
Functions provided by the PLR microprocessor



CONFIGURATIONS FOR DIFFERENT OPERATIONS (CONF)

1^a) STAGES (S)

To control the BR reactivation coil via 1/2 external digital signals as on/off (in 2 stages).



S

2^a) PROPORTIONAL (P)

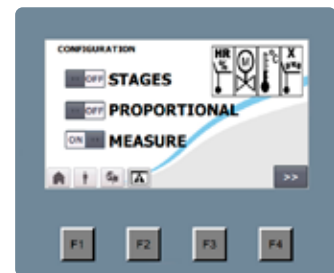
To control the BR reactivation coil by an external 0-10 Vdc analogue signal from a humidity regulator/controller.



P

3^a) MEASUREMENT SIGNAL (M)

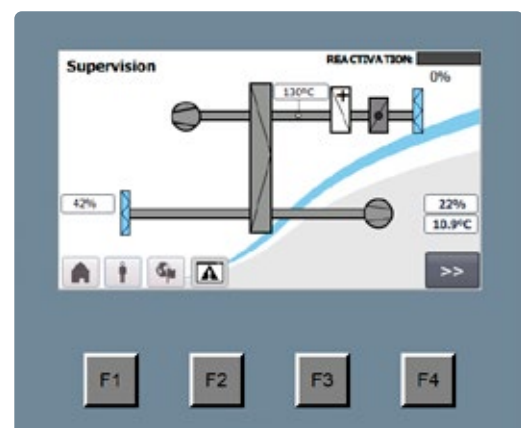
To act as a regulator/controller of the BR reactivation coil and the possible pre-post-cooling or heating coils (*on request*); via analogue 0-10 Vdc signals from the humidity and temperature probes..



M

MEASUREMENT AND MONITORING (SUP)

- Reactivation air temperature measured after BR reactivation coil.
- On-screen diagram of component operation (motor fans and gear motor).
- Monitoring the power delivered by the reactivation coil BR.
- Monitoring humidity probe measurement.
- Monitoring humidity and temperature set point.
- Monitoring maximum humidity alarm set point.
- Rotation of rotor.
- Minimum reactivation air flow.
- SSR temperature monitoring.
- Process air temperature measured after pre- or post- coil (cooling or heating). (*on demand*)
- Monitoring of proportional valve opening for pre- or post- coil (cooling or heating). (*on demand*)
- Filter pressure switches (*on demand*)

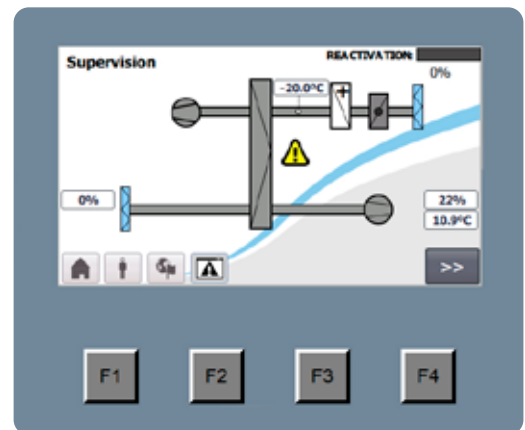




Functions provided by the PLR microprocessor

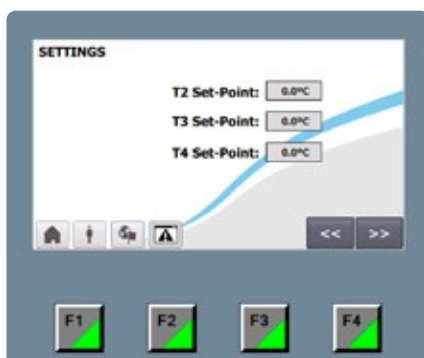
SAFETY AND ALARMS

- Timing at the disconnection of the humid-air motor fan and the gearmotor for cooling the equipment.
- BR heater shutdown due to excessively high temperature on reactivation.
- Alarm and equipment shutdown due to lack of air on reactivation.
- Alarm and equipment shutdown due to lack of rotation of the desiccant rotor.
- Alarm and equipment shutdown due to triggering any motor thermal cut-off.
- Alarm and equipment shutdown due to triggering electrical protective devices of the heaters.
- Alarm and shutdown of the BR heater for continuously exceeding the maximum SSR temperature.
- Clogged process and reactivation filters alarm. *(on demand)*
- Alarm for maximum humidity set point deviation being exceeded.
- Heater alarm and shutdown due to electromechanical failure of the BR contactors or excessive temperature on reactivation.



SETTINGS (ADJ)

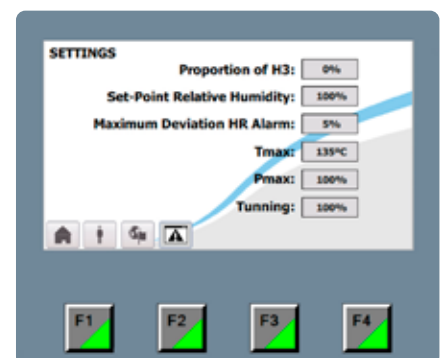
- 1) Settings for power delivered by each stage when the stage configuration (S) is selected.
- 2) Humidity set point adjustment when the measurement signal configuration (M) is selected.
- 3) Setting the maximum deviation of maximum humidity alarm when the configuration by measurement signal (M) is selected.
- 4) Adjustment of the temperature set point of the different pre / post-cooling coils (BF1 and/or BF2) or pre/post-heating (BC1 and/or BC2), (on request).



1



2 3



4

Fisair Selection Tool Software



Fisair uses advanced selection software: the Fisair Selection Tool, which, from version 3.0 up, also allows you to select from the whole range of FISAIR dehumidifiers for different operating conditions.

The screenshot displays the Fisair Selection Tool software interface. At the top, there is a menu bar with icons for 'Nuevo', 'Abrir', 'Guardar', 'Preferencias', 'Documentación', 'Herramientas', and 'Imprimir'. The 'fisair air humidity control' logo is in the top right corner.

The main window is titled 'Proyecto' and shows a tree view with 'Project1' and 'Item 1'. The 'Item 1' configuration panel includes:

- Nombre del ítem:** Item 1
- Cantidad:** 1
- Configurador:** DFLEX1300E GFGF 0000 WS00 SFSF 000 000 405AE270
- Editar** button
- Capacidad Secado:** 62,68 kg/h, 1504,3 kg/24h
- Process Flow Diagram:**
 - Input (Left):** 52,5°C / 31,5%, 28,26g/kg
 - Output (Right):** 15,5°C / 26,4%, 2,87g/kg
 - Intermediate State (Bottom):** 39,9°C / 6,3%, 2,87g/kg
 - Refrigerant State (Top):** 98,89 kW, 130,5°C / 0,5%, 8,73g/kg
 - Flow Rates:** 9000 m³/h, 20,0°C / 60,0%, 8,73g/kg (input); 2700 m³/h, 20,0°C / 60,0%, 8,73g/kg (output)



DFLEX series

Technical Catalogue

CTSX-EN-21-1(US)

