



DFRA 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.

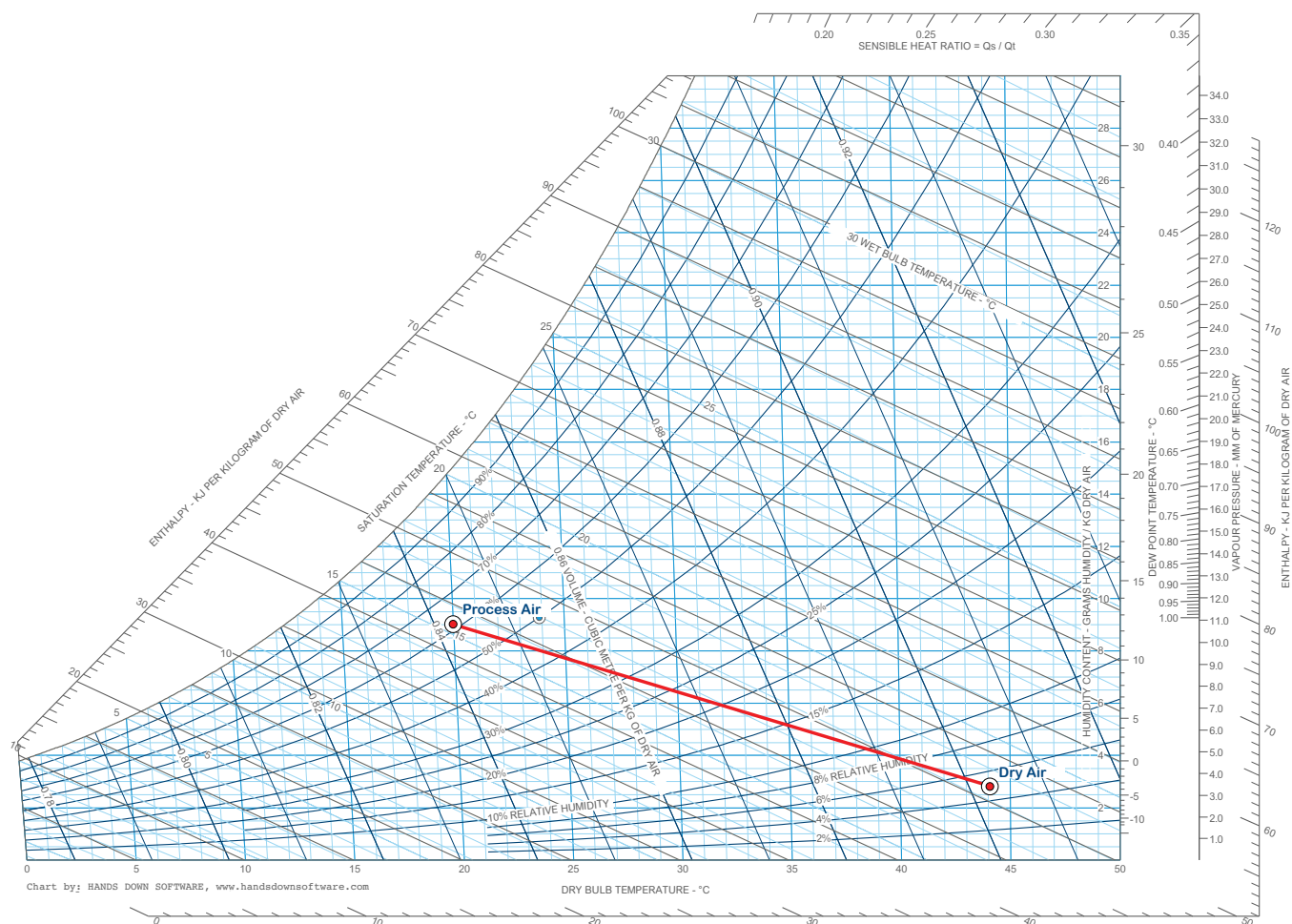
FISAIR

PSYCHROMETRIC CHART

NORMAL TEMPERATURE

SI units SEA LEVEL

Barometric pressure: 101.325 Kpa





Desiccant rotor operating principle

Fisair DFRA 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.

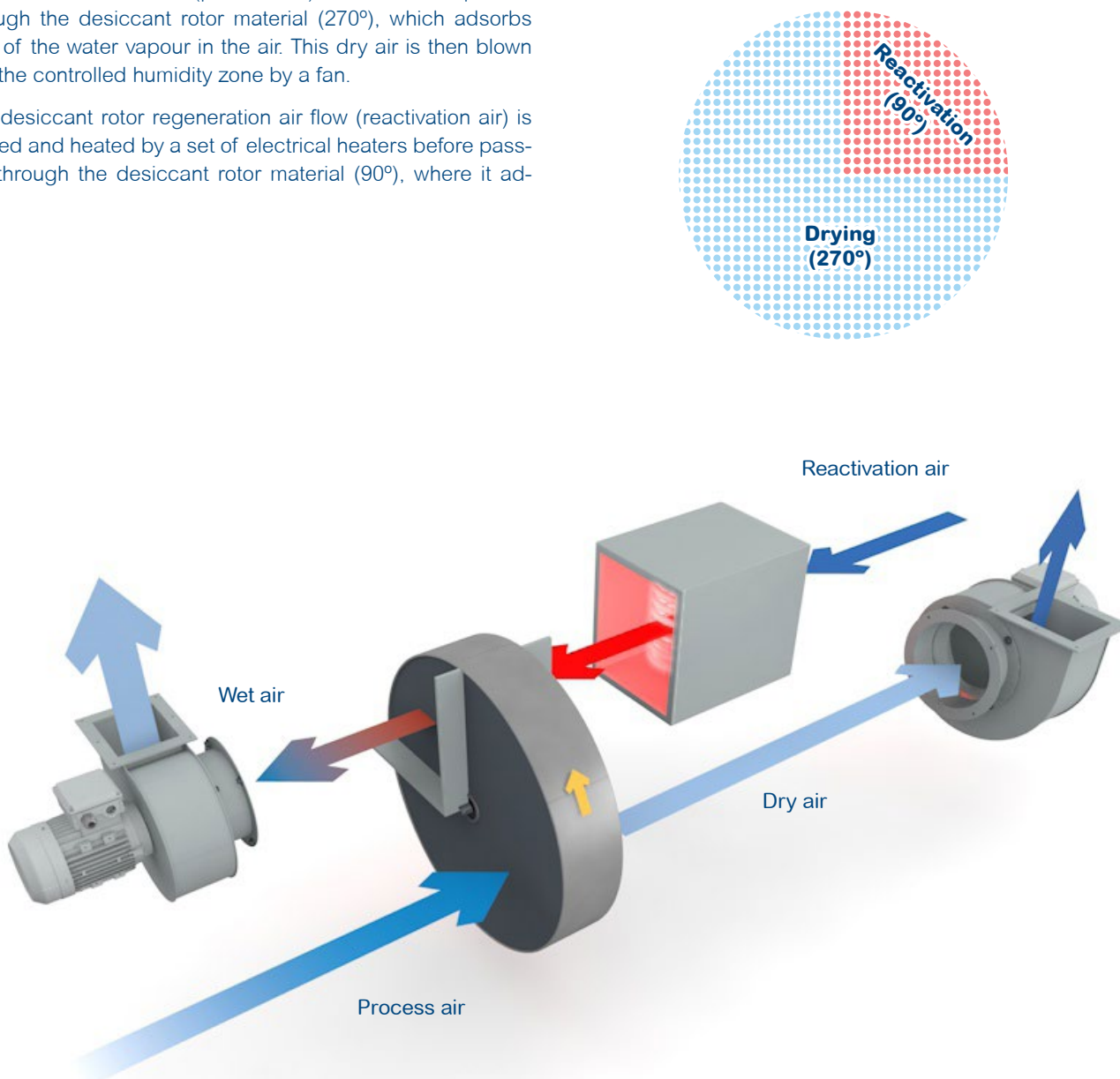
The air flow to be dried (process air) is filtered and passes through the desiccant rotor material (270°), which adsorbs part of the water vapour in the air. This dry air is then blown into the controlled humidity zone by a fan.

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

DFRA

DFRA series	DFRA-0900	E	GF	GF	WS	WS	WS	WS	SF	SF	H14	R	KR	405	AE0021	0
		Syst. Reactiv.	Process Air Initial Filter	Reactiv. Air Initial Filter	POST coils		POST coils		Fans		Final filter Dry Air	Heat Recovery Unit	Finishing	Electrical power supply	Control	Other options

models

0100
0130
0160
0175
0200
0230
0300
0400
0500
0650
0900

Reactivation system

E = Electric coil
V = Coil for saturated steam
H = Stainless steel coil for saturated steam
G = Direct Gas

Process Air Filters

G0 = 1 Filters stage class G4 (EN779:2012)
GF = First stage class G4 filters
and second stage class F9 (EN779:2012)

Reactivation Air Filters

GF = First stage class G4 filters
and second stage class F9 (EN779:2012)
C0 = 1 stage of filters of a specific class other than G4
(EN779:2012)

Pre-Heating

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



Product coding

DFRA

DFRA series		Syst. Reactiv.	Process Air Initial Filter	Reactiv. Air Initial Filter	POST coils		POST coils		Fans		Final filter Dry Air	Heat Recovery Unit	Finishing	Electrical power supply	Control	Other options
DFRA-0900		E	GF	GF	WS	WS	WS	WS	SF	SF	H14	R	KR	405	AE0021	0

models: 0100 / 0130 / 0160 / 0175 / 0200 / 0230
0300 / 0400 / 0500 / 0650 / 0900

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 = POWERED fan
- PS = Plug Fan for DFRA

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 H13 (EN 1822:2011) filter fitted after the process air/dry air fan (requires a Plug-Fan ventilator)
- H14 = HEPA H14 (EN 1822:2011) filter fitted after the process air/dry air fan (requires a Plug-Fan ventilator)
- FH3 = F9 EN 779 filter: 2012 / ePM1 80 < ISO16890 + HEPA H13 (EN 1822:2011) filter fitted after the process air / dry air fan (requires Plug Fan type)
- FH4 = F9 EN 779 filter: 2012 / H14 80 < ISO16890 + H14 (EN 1822:2011) 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 moist air load

Product coding

DFRA

DFRA series		Syst. Reactiv.	Process Air Initial Filter	Reactv. Air Initial Filter	POST coils		POST coils		Fans		Final filter Dry Air	Heat Recovery Unit	Finishing	Electrical power supply	Control	Other options
DFRA-0900		E	GF	GF	WS	WS	WS	WS	SF	SF	H14	R	KR	405	AE0021	0

models: 0100 / 0130 / 0160 / 0175 / 0200 / 0230 / 0300 / 0400 / 0500 / 0650 / 0900

Finishing

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

Supply options (not included in mechanical diagrams)

405 = Standard electrical power supply at 400V $\pm 5\%$ /III/50Hz

N05 = Electrical power supply at 400V $\pm 5\%$ /III+N/50Hz

406 = Electrical power supply at 400V $\pm 5\%$ /III/60Hz

N06 = Electrical power supply at 400V $\pm 5\%$ /III+N/60Hz

445 = Electrical power supply at 440V $\pm 5\%$ /III/50Hz

N45 = Electrical power supply at 440V $\pm 5\%$ /III+N/50Hz

446 = Electrical power supply at 440V $\pm 5\%$ /III/60Hz

N46 = Electrical power supply at 440V $\pm 5\%$ /III+N/60Hz

466 = Electrical power supply at 460V $\pm 5\%$ /III/60Hz

N66 = Electrical power supply at 460V $\pm 5\%$ /III+N/60Hz

235 = Electrical power supply at 230V $\pm 5\%$ /III/50Hz

236 = Electrical power supply at 230V $\pm 5\%$ /III/60Hz

For other supplies, please consult us

Control options (not included in mechanical diagrams)

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]

Not all code options
are shown in technical data.

Example: DFRA-0500V GFGF 00WS WE00 SFSF 000 R00 405BV00000



Specification

Desiccant rotor air dehumidifier, DFRA 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 | **E** Electric

S	<p>Cabinet designed as a compact self-supporting unit in galvanised steel with phosphating primer and enamel finish according to RAL 7035, with removable gaskets, covers and access holes for inspection and maintenance. Insulation of panels (thickness > 25mm) in reactivation / moist air zone in contact with process / dry air. Corrosion resistance C3 according to ISO 12944. Option in stainless steel.</p> <p>Desiccant rotor made of inert, fireproof material containing high performance, thermally and chemically stable silica gel, to prevent deliquescence. Includes radial and perimeter gaskets.</p> <p>Gear motor rotation rotor with pulley drive system and perimeter transmission V-belt with tensioner.</p> <p>Process air inlet flow manual regulation damper made of aluminium. Differential pressure taps for manual regulation of exact air flow.</p> <p>V-type process air filter, made of G4 class synthetic fibre (according to EN 779:2012/-ePM1 80<ISO16890).</p>
O	<p>Rigid bag process air filter, glass microfibre filter element with plastic frame, class F9 (according to EN 779:2012).</p> <p>Pre-heating coils using hot water. Manufactured in copper tubes with aluminium fins. 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 fins. 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 fins. 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 fins. Condensates tray with threaded drainage coils and stainless-steel frame in contact with wet parts..</p>
S	<p>Process 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.</p> <p>V-type reactivation air filter, made of class G4 synthetic fibre (according to EN 779:2012/-ePM1 80<ISO16890).</p>

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

O	Rigid bag process air filter, glass microfibre filter element with plastic frame, class F9 (according to EN 779:2012).
S	Reactivation air inlet flow manual regulation damper made of galvanised steel. Differential pressure taps for manual regulation of exact air flow.
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 DN16.
O	Reactivation air heater in stainless steel tube with aluminium fins, for steam at 8 kg/cm (7 bar [g]) maximum operating pressure. Flanged connections, DIN2633 DN16.
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 max. • Double safety valve in series • Gas flow regulation servo valve with modulating servomotor via 0-10 V signal
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

SIZE DFRA XXXX												
Performance (*)		0100	0130	0160	0175	0200	0230	0300	0400	0500	0650	0900
Drying capacity	Kg/h lb/h	4,28 9,42	5,78 12,72	6,13 13,49	7,66 16,85	9,43 20,75	11,20 24,64	14,70 32,34	16,05 35,31	23,19 51,02	27,28 60,02	40,93 90,05
Drying capacity (with heat recovery)	Kg/h lb/h	5,26 11,5	6,8 14,96	7,22 15,88	8,14 17,91	10,02 22,04	11,85 26,07	16 35,2	19,22 42,28	27,29 60,04	32,57 71,65	45,70 100,54
[Process / Dry air] Δx	°C °F	19,7 67,5	20,5 68,9	20,9 69,62	23,1 55,1	23,2 73,6	23,2 73,6	21,7 71,1	20,5 68,9	20,5 68,9	20,5 68,9	21,4 70,5
Airflow Process / Dry	m³/h CFM	700 412	900 529	1100 647	1200 706	1400 824	1600 941	2100 1235	2700 1588	3600 2118	4500 2647	6000 3529
Available pressure Dry air	Pa in w.c.	346 1,39	602 2,42	424 1,70	347 1,39	666 2,68	586 2,35	828 3,33	858 3,45	211 0,85	453 1,82	678 2,72
Airflow Reactivation / Wet	m³/h CFM	210 124	270 159	330 195	360 212	420 248	480 283	630 373	810 476	1080 635	1350 794	1800 1059
Available pressure Wet Air	Pa in w.c.	295 1,19	296 1,19	158 0,64	284 1,14	178 0,72	107 0,43	145 0,58	433 1,74	291 1,17	452 1,82	565 2,27
Electric power BR installed	kW Mbh	7,4 25,3	9,8 33,4	12,3 42	14,8 50,5	17,2 58,7	19,7 67,2	24,6 83,9	29,5 100,7	39,4 134,4	49,2 167,9	68,9 235,1

Equipment nomenclature selected for calculation:

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

(*)

1. Air inlet conditions, process and reactivation 20°C and 60% RH. For other conditions, consult appropriate model technical catalogue.
2. Performance under nominal installed heating power from electric reactivation heaters.
3. Technical data subject to change without prior notice.
4. Dimensions, weight, total installed power from electrical reactivation heaters. Consult us for steam coil or gas burner.
5. Electrical connection 400 / III / 50 Hz and operating voltage 24 Vac.

Componentes mecánicos opcionales



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 DFRA there are 2 different configurations available with water post-cooled coils.



High efficiency FILTERS

As an option, DFRA 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 DFRA units' advanced control.

Filters can be supplied with the following kinds of filtering:

G4 ----- **F9** ----- **H14**
(standard)



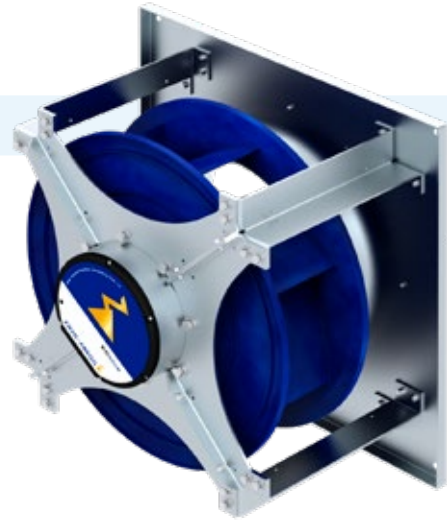


Optional mechanical components

Plug-Fan DRY AIR FANS

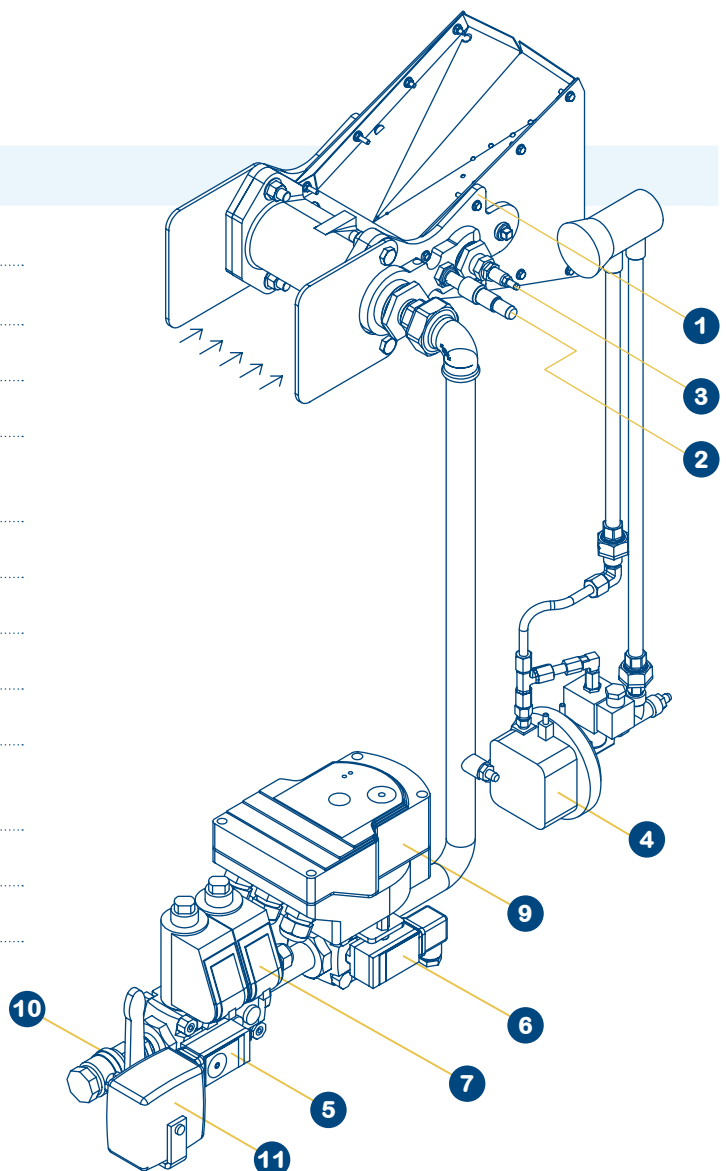
These fans make equipment start-up very easy and maintain a constant flow/pressure even as process filters become clogged (they include a differential pressure probe as standard to control fan electronics).

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



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



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

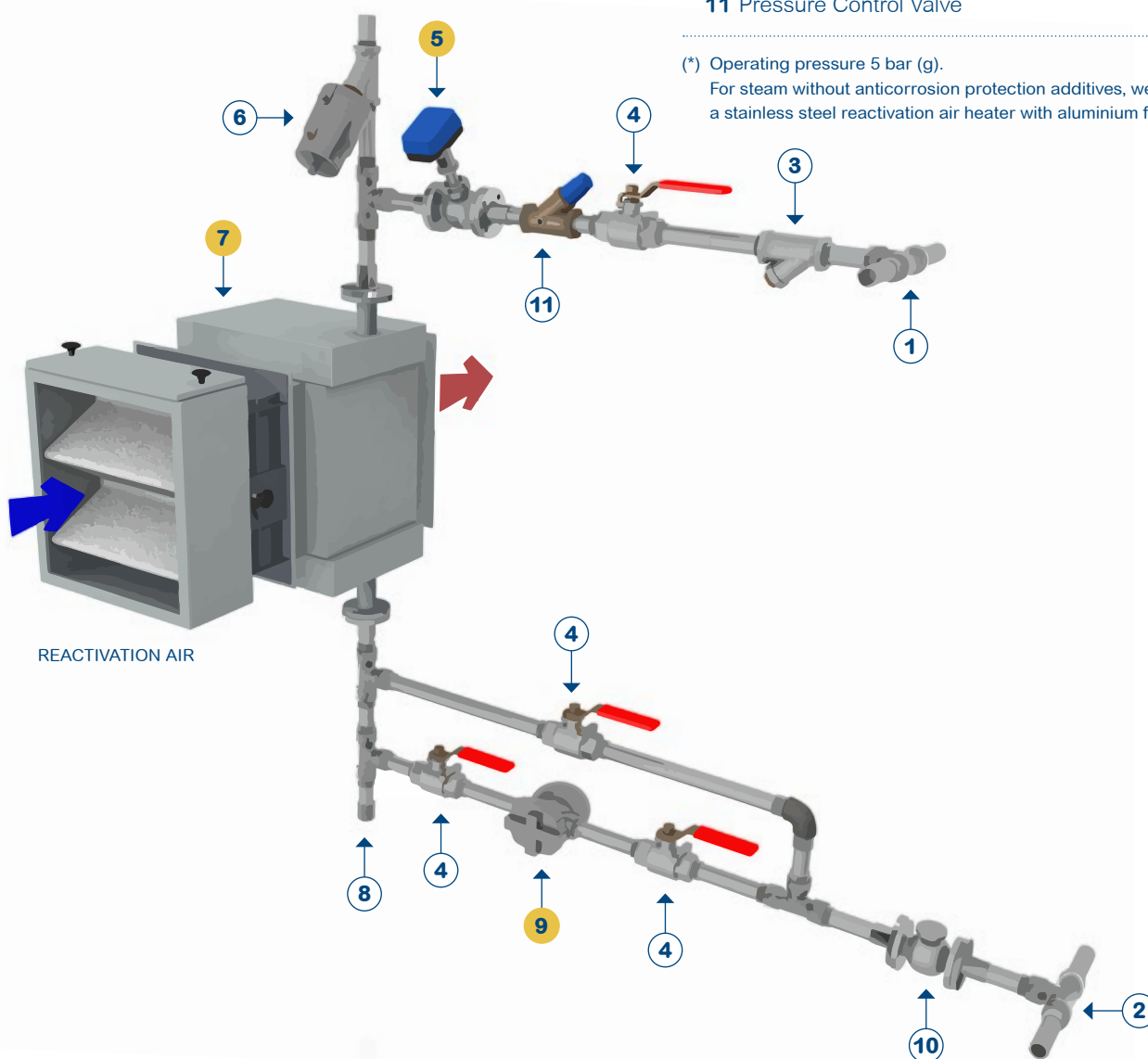
8 Drip leg

10 Retention Valve

11 Pressure Control Valve

(*) Operating pressure 5 bar (g).

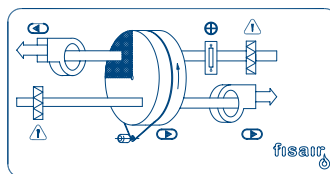
For steam without anticorrosion protection additives, we recommend a stainless steel reactivation air heater with aluminium fins.





Control options

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

Elementos de campo opcionales



Description
Relative humidity sensor (0-10 Vdc) for duct (1)
Measurement range: 0...100% HR. Measurement accuracy $\pm 2\%$ at 23°C
Combined relative humidity and temperature sensor (0-10 Vdc) for duct (1)
Measurement range: 0...100% HR, -40... +70°C TBS
Measurement accuracy for RH $\pm 2\%$ at 23°C
Measurement accuracy for TBS ± 0.8 K
Temperature sensor (0-10 Vdc) for duct (1) Measurement range: -50... +50°C. Measurement accuracy ± 0.9 K
Combined relative humidity and temperature sensor (0-10 V)
% RH Measurement accuracy:
-15...40°C (5...104°F) = 90% RH $\pm (1.3 + 0.003 \cdot \text{measured value})$ % RH
-15...40°C (5...104°F) >90% RH ± 2.3 % 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 0...10V analogue outputs
RS485 BACnet MS/TP or Modbus RTU communication
Dew point temperature sensor 4-20 mA for duct (1)
Measurement range: -60...+60°C TPR
Measurement accuracy: $\pm 2^\circ\text{C}$
4-20 mA dew point temperature sensor for duct (1)
Measurement range: -100...+20°C TPR
Measurement accuracy: $\pm 2^\circ\text{C}$
Differential pressure switch for clogged process filter alarm. Measurement range: 50,500 Pa
Differential pressure switch for clogged reactivation filter alarm. Measurement range: 50,500 Pa
Differential pressure probe for dry air flow control in plug fans. Range 0-2500Pa, DC 0...10V
Valve + proportional actuator pre-heating coil
Valve + proportional actuator pre-cooling coil
Valve + proportional actuator post-cooling coil
Valve + proportional actuator post-heating coil
2-stage room humidistat for duct or wall mounting. IP54. Setpoint 10-100% RH, Hysteresis 3% RH to 45% RH
Calibration certificate for any component

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



Operating limits (1)

Parameter	DFRA
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/131°F for units with pre-heating coils.
- (3) Available for DFRA series. Specify when ordering.

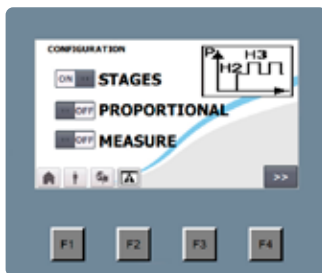
Functions provided by the PLR microprocessor



CONFIGURATIONS FOR DIFFERENT OPERATIONS (CONF)

1ª) STAGES (S)

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



S

2ª) PROPORTIONAL (P)

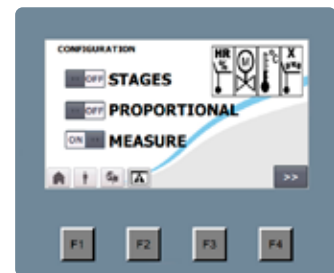
To control the BR reactivation coil by an external 0-10 Vdc analogue signal from a humidity regulator/controller.



P

3ª) MEASUREMENT SIGNAL (M)

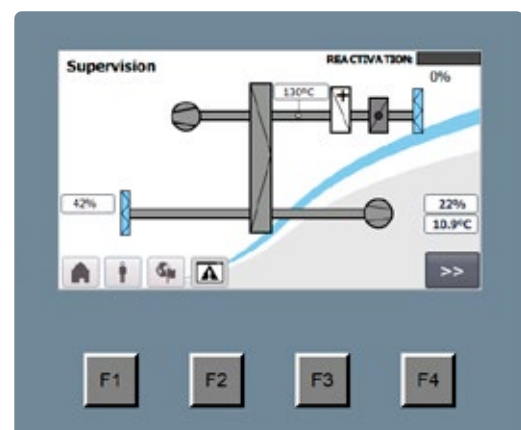
To act as a regulator/controller of the BR reactivation coil and the possible pre-post-cooling or heating coils (*on request*); via analogue 0-10 Vdc signals from the humidity and temperature probes.



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*)

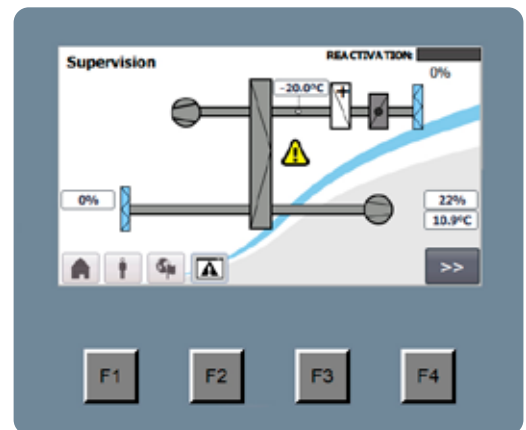




Functions provided by the PLR microprocessor

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)

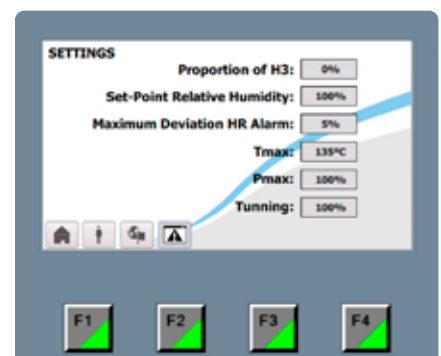
- 1) Settings for power delivered by each stage when the stage configuration (S) is selected.
- 2) Humidity set point adjustment when the measurement signal configuration (M) is selected.
- 3) Setting the maximum deviation of maximum humidity alarm when the configuration by measurement signal (M) is 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



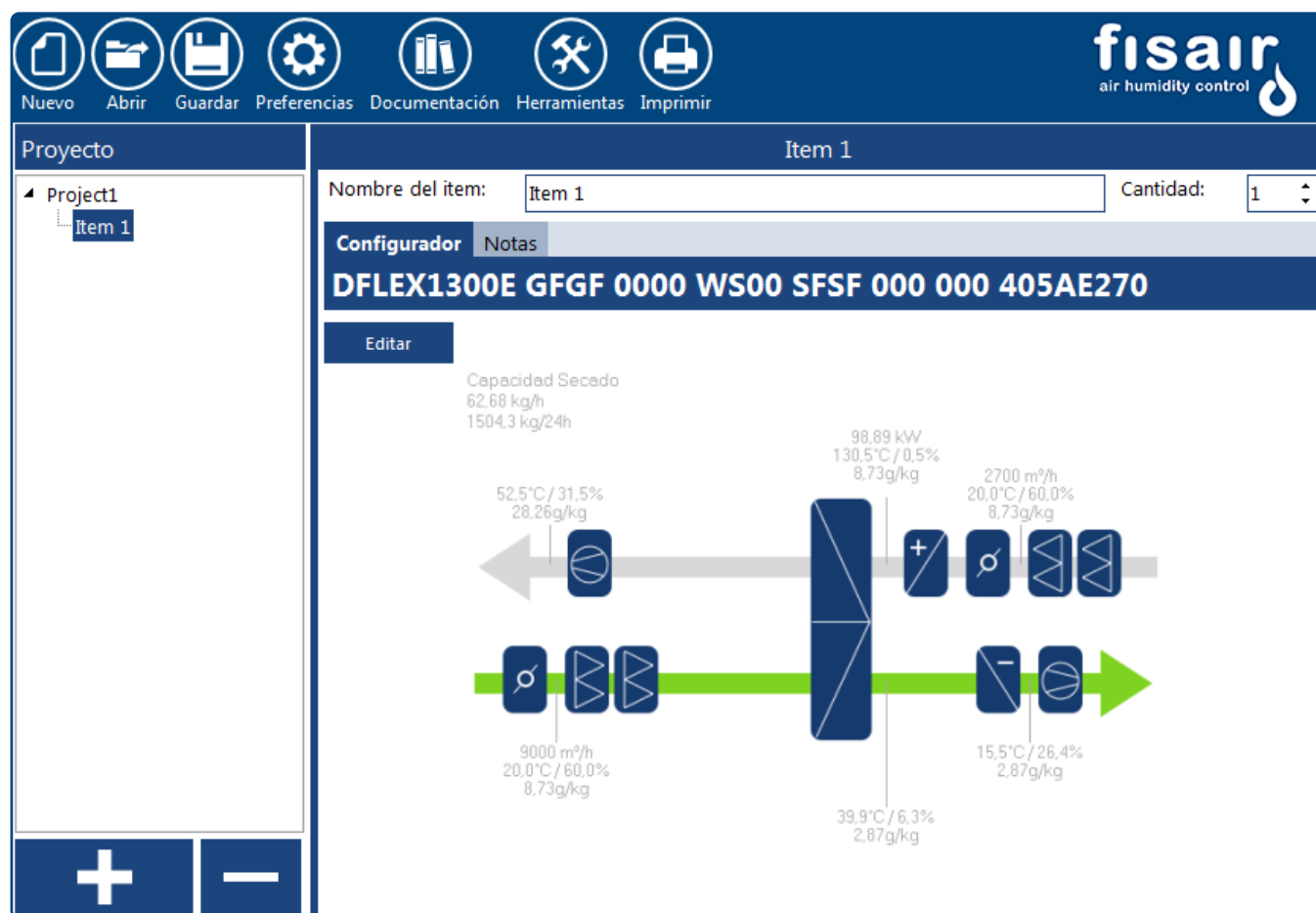
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4

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.





DFRA series

Technical Catalogue

CTSA-EN-21-2(EU)



fisair.com