ErP READY

tecnoclima

ROOF TOP

Ranges CF-XTRIM, SMARTBOXY

EN

since 1973

CF-XTRIM

CONDENSING PREMIX GAS ROOFTOP

EXTREMELY EFFICIENT, RELIABLE, GREEN

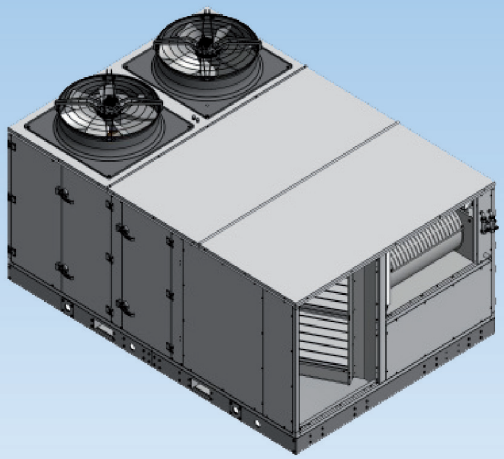
ErP READY

- High energy efficiency
- Flexible installation
- Versatile and easy to use
- Double energy source for heating CF-XTRIM/P
- Gas heat exchanger efficiency up to 106%
- Air renewal
- Heat recovery
- R410A refrigerant

ROOF-TOP CF-XTRIM are packaged autonomous air treatment unit designed for heating with gas or heat pump, cooling, air filtration, and air renewal with recuperation module.

The units **CF-XTRIM** are designed and equipped to simplify, as well as reduce the installation process to a minimum, with high energy efficiency in air conditioning in environments, supported by the intelligent and advanced independent management of thermal or cooling energy depending on the needs of the environment being treated: heating or cooling, only when needed.

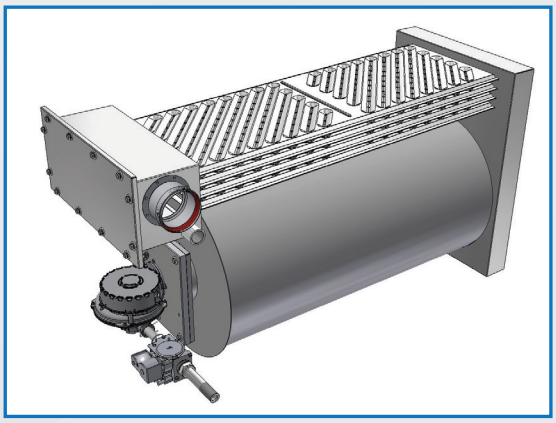
The units **CF-XTRIM** are available in several versions and configurations to respond to a broad range of user needs. Suitable for environments with medium and large volumes, such as shops, showrooms, gyms, supermarkets, shopping centres, cinemas, theatres etc. Designed for high-efficiency heat recovery in applications where air renewal is necessary, guaranteeing excellent air quality and compliance with Laws and Standards of reference.



- Heating capacity – gas heating from 28 to 204 kW
- Cooling capacity from thermodynamic cycle 23 to 170 kW
- Heating capacity in heat pump from 21 to 172 kW
- Air flow rate from 3.500 to 26.000 m³/h

Technology and energy saving

Condensing gas heating with high efficiency (up to 106%), with modulation from 100 to 30% of nominal heating capacity, offering hygienic combustion with low environmental impact (NOx in class 5) and good operational reliability. This technology has been specifically designed and developed to deliver the best solution for time variations in the thermal load, with important advantages in terms of energy savings and a subsequent reduction in running costs.



SCROLL Multi-compressors

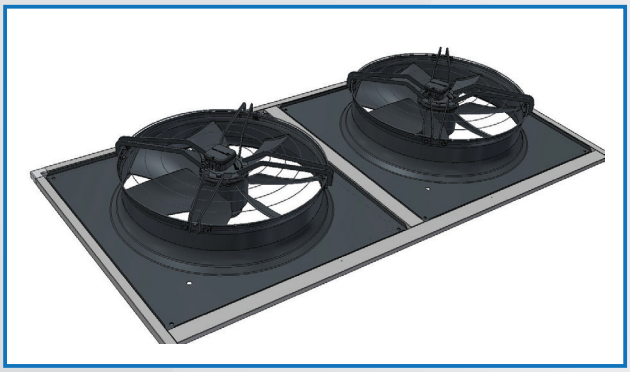
The use of tandem compressors operating in a single cooling circuit, with **R410A**, combined with the use of properly calibrated thermostatic expansion valves, allows the implementation of a high energy efficient solution, mainly at partial loads with maximum seasonal efficiency and a reduction in energy consumption.

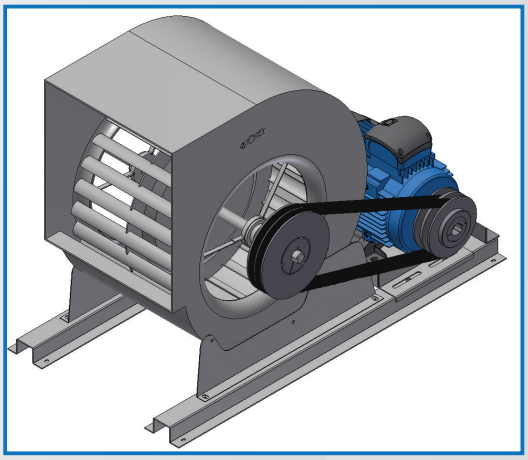
External Fans

These are axial fans with a directly coupled motor, protected by safety grilles and characterised by **high efficiency** and **low noise levels**.

The Speed Control accessory **(CVA)** allows:

- longer operating intervals in cooling mode with low outdoor temperatures
- further noise reduction
- reduced power consumption.





Air return/supply ventilation using centrifugal fans featuring high energy efficiency, with the possibility for air flow rate calibration on-site.

CF-XTRIM

Versions - supplementary modules and functions

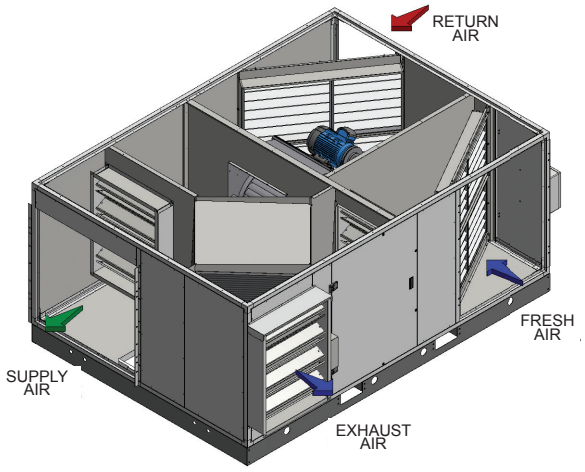
FUNCTIONAL VERSIONS

- **CF-XTRIM** gas heating and thermodynamic cooling
- **CF-XTRIM/P** gas heating and reverse heat pump

CONFIGURATION WITH SUPPLEMENTARY ACCESSORIES AND MODULES

- **S-CFX** mixing box section with motorised air damper to manage air exchange and free-cooling without extraction/expulsion fan.
- **M-CFX** upplementary mixing box module with exhaust air extraction/expulsion fan, mixing section between recirculated and exchange air with three motorised dampers for free-cooling management.
- **M-RCFX** upplementary recovery module allowing energy to be recovered even from exhaust air through a direct thermal exchange with fresh air, and to perform free-cooling when external temperature conditions allow.

All configurations can be personalised with a broad selection of accessories intended to satisfy a diversified range of system needs.



AIR QUALITY, HEAT RECOVERY AND FREE-COOLING

- Standard filtration in class G4 and with accessories up to F7.
- Air renewal with control of CO_2 and VOC (with accessory sensor) for S-CFX and M-CFX configurations.
- Free-cooling for configurations with supplementary modules M-CFX and R-CFX or for S-CFX configuration with exhaust air expulsion not managed by the unit.
- Heat recovery between exhaust air and fresh air, through a configuration with supplementary module M-RCFX.

Main accessories

- **PR-TOUCH remote control panel** with interactive screen (touch screen).
- **Interface cards** for protocols other than MODBUS.
- **S-CFX** mixing kit including motorised dampers for air recirculation and renewal.
- **Sealed air temperature remote probe**.
- **Air quality sensor** (CO_2 e VOC).
- **Smoke detector** and reactive device on dampers.
- **Humidity sensors** in versions for external and duct installations.
- **High and low pressure gauge** for cooling circuits.
- **Axial fan speed regulator CVA** with pressure switch to vary the rotation speed in relation to the condensation/evaporation pressure.
- **SMART-SW software** for remote monitoring and management via PC.
- **Air filters** with efficiency class **F5** and **F7**.
- **Dampers for recirculated air** and **fresh air** (installation in duct for CF-XTRIM 600/700) in manual or motorised versions.
- **Rain protection cap** for external air inlet.
- **Anti-vibration supports** for interface with supporting/resting base.

Control

X-CONTROL

The new generation of control electronics has been designed to ensure the unit's maximum energy efficiency, even with supplementary modules, in various operating conditions, and at the same time guarantee maximum system reliability. With **X-CONTROL** it is possible to manage all unit functions, to control and regulate operating parameters relative to both the air treatment section and the thermodynamic section (cooling circuit).

PR-BASIC

PR-TOUCH

SMART-SW

X-CONTROL includes

- **PID control** for the different functions and operating parameters, guaranteeing an energy optimisation logic when managing the various components comprising the unit, and allowing a reduction in operating costs;
- **safety algorithms and alarms** displays;
- **programming of functions** in different time slots and with different daily profiles;
- **RS485 serial interface – MODBUS communication protocol**;
- **PR-BASIC** base remote panel with keypad and display to remotely manage the single unit, or alternatively the "touch-screen" version **PR-TOUCH** evolved remote panel accessory, to simultaneously **manage up to 12 units**;
- **SMART-SW** software (accessory) for remote monitoring and management via PC.

Main functions of **X-CONTROL**:

- winter-summer automatic switch;
- control and regulation of thermo-hygrometric parameters and air quality in environment being treated;
- dynamic set-point of treated air temperature, based on the external air temperature;
- operation at reduced capacity for all low thermal loads in buildings, or rather during the night when the requested power is minimal;
- intelligent defrosting based on effective thermodynamic needs that arise during heating functions (heat pump);
- differentiated sequential start-up of multiple units serving the same system, in the case of start-up following an interruption to the power supply;
- automatic or manual free-cooling management.

CF-XTRIM

Range CF-XTRIM

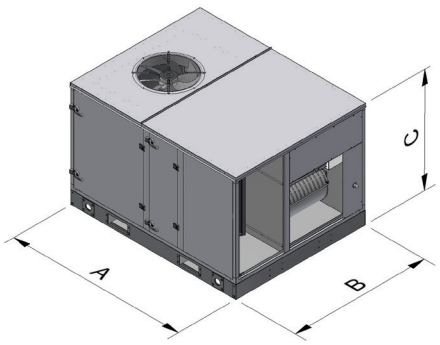
CF-XTRIM GAS HEATING AND THERMODYNAMIC COOLING VERSION

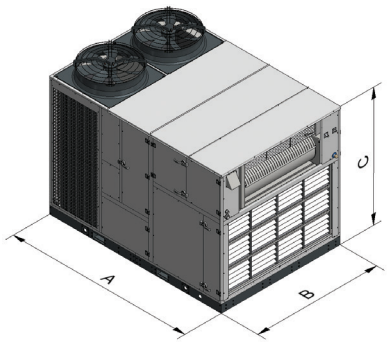
CF-XTRIM		U.M.	100	200	300	400	500	550	600	700
Nominal air flow rate		m^3/h	3.500	6.000	7.500	9.700	12.800	17.000	21.000	26.000
Useful static pressure		Pa	250							
GAS HEATING - HEATING CAPACITY MODULATION										
Heating capacity input	**Max**	kW	29,1	58,2	67,6	99,6	118 (*)	118 (*)	165,8	206,8
	Min	kW	9,4	9,4	9,4	18,4	20	20	18,4	33,3
Heating capacity output	**Max**	kW	28	56	65	96	114	114	163	204
	Min	kW	10	10	10	19	21	21	19	35
Efficiency	**Max**	%	96,1	96,1	96,1	96,4	96,6	96,5	97,5	99,1
	Min	%	106,5	106,5	106,5	103,2	105,1	105,1	105,2	106
Total electrical power		kW	0,96	1,49	2,14	2,16	3,36	5,56	5,35	7,91
THERMODYNAMIC COOLING (1)										
Total cooling capacity Thermodynamic cycle		kW	22,84	34,95	48,00	65,89	92,50	110,63	139,80	171,58
Total cooling capacity		kW	22,40	34,37	46,77	64,89	90,37	106,60	136,20	165,36
Sensible cooling capacity Thermodynamic cycle		kW	17,0	26,2	35,6	47,0	65,0	81,4	102,0	124,0
No. compressors/ Power stages/ No. circuits		-	1/1/1	2/2/1	2/2/1	2/3/1	2/3/1	2/3/1	2/6/2	2/6/2
Gas refrigerant		-	R410A							
Compressors power consumption		kW	5,81	8,78	12,68	15,68	22,45	29,20	35,20	47,90
Total power consumption Nominal conditions		kW	7,43	11,52	16,13	20,95	29,25	38,13	43,66	58,66
EER compressors		-	3,93	3,98	3,79	4,20	4,12	3,79	3,97	3,58
EER European standard EN 14511:2013		-	3,23	3,19	3,04	3,25	3,21	2,90	3,22	2,88
SEER European standard EN 14825:2016		-	3,41	3,88	3,66	3,78	3,74	3,48	4,32	3,52
SOUND LEVEL										
Sound power		dB(A)	77	80	80	80	80	82	82	84

1) Cooling operating conditions: external T 35 °C / U.R. 50% - internal T 27 °C / U.R. 47%

*) On request reducible below to 116 kW

Dimensions CF-XTRIM / CF-XTRIM/P





CF-XTRIM 100÷550

CF-XTRIM 600÷700

CF-XTRIM	U.M.	100	200	300	400	500	550	600	700
A	mm	1.850	2.750	2.750	3.250	3.250	3.250	3.250	3.250
B	mm	1.450	1.700	1.700	2.250	2.250	2.250	2.250	2.250
C	mm	1.180	1.400	1.400	1.400	1.400	1.500	2.270	2.270

Range CF-XTRIM/P

CF-XTRIM/P GAS HEATING AND REVERSE HEAT PUMP VERSION

CF-XTRIM/P	U.M.	100	200	300	400	500	550	600	700
Nominal air flow rate	m³/h	3.500	6.000	7.500	9.700	12.800	17.000	21.000	26.000
Useful static pressure	Pa	250							
GAS HEATING - HEATING CAPACITY MODULATION									
Heating capacity input Max	kW	29,1	58,2	67,6	99,6	118 (*)	118 (*)	165,8	206,8
Min	kW	9,4	9,4	9,4	18,4	20,0	20,0	18,4	33,3
Heating capacity output Max	kW	28	56	65	96	114	114	163	204
Min	kW	10	10	10	19	21	21	19	35
Efficiency Max	%	96,1	96,1	96,1	96,4	96,6	96,6	97,5	99,1
Min	%	106,5	106,5	106,5	103,2	105,1	105,1	105,2	106,0
THERMODYNAMIC HEATING - HEAT PUMP (1)									
Heating capacity	kW	21,03	31,70	47,13	64,90	89,09	110,77	134,57	172,33
Heating capacity Thermodynamic cycle	kW	20,60	31,10	45,90	63,91	86,90	106,74	130,95	166,11
No. compressors/ Power stages/ No. circuits	-	1/1/1	2/2/1	2/2/1	2/3/1	2/3/1	2/3/1	2/6/2	2/6/2
Gas refrigerant	-	R410A							
Compressors power consumption	kW	4,65	6,94	10,16	13,91	19,32	23,70	28,62	38,48
Total power consumption Nominal conditions	kW	6,28	9,75	13,64	19,39	26,17	32,64	37,24	49,48
COP compressors	-	4,52	4,57	4,64	4,67	4,61	4,67	4,70	4,48
COP European standard EN14511:2013	-	3,62	3,75	3,66	3,53	3,55	3,54	3,76	3,58
SCOP European standard EN14825:2016	-	3,10	3,30	3,24	3,10	3,17	3,17	3,43	3,26
COOLING PERFORMANCE (2)									
Total cooling capacity Thermodynamic cycle	kW	21,68	34,00	45,68	63,68	87,16	106,11	133,05	164,63
Total cooling capacity	kW	21,29	33,42	44,60	62,68	85,02	102,07	129,43	158,41
Sensible cooling capacity Thermodynamic cycle	kW	16,4	26,0	34,8	46,0	63,5	79,4	99,8	122,0
Compressor power consumption	kW	5,66	8,04	12,86	15,67	22,45	29,10	35,38	48,70
No. compressors/ Power stages/ No. circuiti	-	1/1/1	2/2/1	2/2/1	2/3/1	2/3/1	2/3/1	2/6/2	2/6/2
Gas refrigerant	-	R410A							
Total power consumption Nominal conditions	kW	7,30	10,78	16,31	20,97	29,23	38,04	43,84	59,46
EER Compressors	-	3,83	4,23	3,55	4,06	3,88	3,65	3,76	3,38
EER European standard EN14511:2013	-	3,12	3,33	2,90	3,14	3,02	2,78	3,05	2,72
SEER European standard EN14825:2016	-	3,08	3,46	3,26	3,38	3,36	3,20	3,54	3,25
SOUND LEVEL									
Sound power	dB(A)	77	80	80	80	80	82	82	84

(1) **Heating**: external T 7 °C / U.R. 87% - internal T 20 °C / U.R. 60%

(2) **Cooling**: external T 35 °C / U.R. 50% - internal T 27 °C / U.R. 47%

(*) On request reducible below to 116 kW

Range M-CFX *MODULE*

M-CFX SUPPLEMENTARY MIXING BOX - AIR RENEWAL AND FREE-COOLING

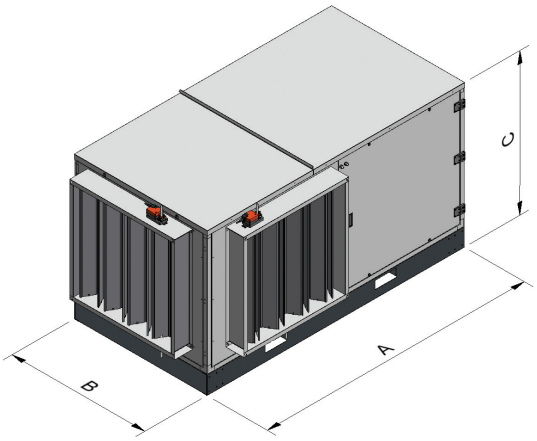
The **M-CFX** module, integrated into the **CF-XTRIM** unit, offers the following additional functions:

- **Air renewal** in environments where regulation is based on air quality control (accessory sensor) or where specific conditions need to be met;
- **Free-cooling** with the total/partial emission of fresh air into environments where the external temperature conditions are favourable.

The **M-CFX** module includes a fan unit to recover air from the environments being treated, and three motorised dampers to manage the intake of fresh air, and the recirculation and expulsion of exhaust air. The three dampers are automatically opened/closed by the **CF-XTRIM (/P)** rooftop unit electronics.

M-CFX	U.M.	100	200	300	400	500	550	600	700
Nominal air flow rate	m^3/h	3.500	6.000	7.500	9.700	12.800	17.000	21.000	26.000
Useful static pressure	Pa	250							
ELECTRICAL DATA									
Supply		400 V – 3 Ph – 50 Hz							
Max electrical power	kW	0,75	1,1	1,5	2,2	3,0	5,5	5,5	5,5

Dimensions MIXING BOX M-CFX



M-CFX	U.M.	100	200	300	400	500	550	600	700
A	mm	1.400	1.700	1.700	2.100	2.100	2.150	2.550	2.550
B	mm	590	750	750	1.100	1.100	1.100	2.250	2.250
C	mm	1.080	1.300	1.300	1.300	1.300	1.400	1.445	1.445

Range **M-RCFX** *MODULE*

M-RCFX SUPPLEMENTARY MODULE FOR AIR RECOVERY, RENEWAL AND FREE-COOLING

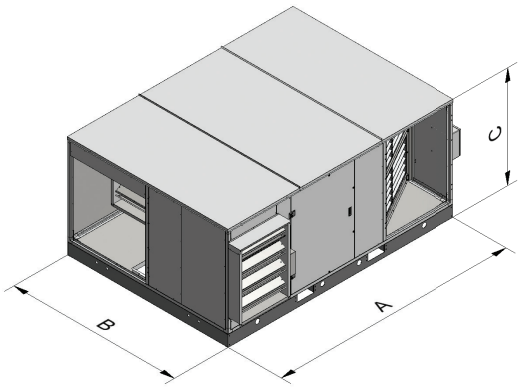
The **M-RCFX** module, integrated into the **CF-XTRIM** unit, offers the following additional functions:

- **Air renewal** in environments where regulation is based on air quality control (accessory sensor) or where specific conditions need to be met;
- **Energy recovery from exhaust air** through a direct heat exchange, in a dedicated exchanger, between the air being expelled and the fresh air;
- **Free-cooling** with the total/partial emission of fresh air into environments where the external temperature conditions are favourable.

The **M-RCFX** module includes heat exchanger (cross-flow plate type) between the exhaust air and fresh air, a fan unit to recover air from the environments being treated, and a set of motorised dampers to manage the intake of fresh air and the recirculation and expulsion of exhaust air. The dampers are automatically opened/closed directly by the **CF-XTRIM (/P)** rooftop unit electronics.

M-RCFX	U.M.	100	200	300	400	500	550	600	700
Nominal air flow rate Fresh / exhaust	m^3/h	3.500	6.000	7.500	9.700	12.800	17.000	21.000	24.000
Useful static pressure air recovery fan	Pa	200							
HEATING PERFORMANCE									
Recovered thermal power	kW	16,3	27,2	33,1	42,7	54,4	76,1	94,0	106,0
Recuperator efficiency	%	55,8	54,2	52,8	52,6	50,8	53,5	53,5	52,6
Reference conditions		External air T. -5°C , U.R. 90% - Exhaust air T. 20 °C , U.R. 50 %							
COOLING PERFORMANCE									
Recovered thermal power	kW	4,7	8,2	10,1	13	16,6	22,2	27,5	30,8
Recuperator Efficiency	%	50,4	51,2	50,0	50,0	48,2	48,8	48,8	48,0
Reference Conditions		External air T. 35°C , U.R. 50% - Exhaust air T. 27 °C , U.R. 47 %							
ELECTRICAL DATA									
Supply		400 V – 3 Ph – 50 Hz							
Max electrical power	kW	1,1	1,5	2,2	2,2	4,0	5,5	7,5	11,0

Dimensions **M-RCFX** RECOVERY MODULE



M-RCFX	U.M.	100	200	300	400	500	550	600	700
A	mm	1.850	2.500	2.500	2.900	2.900	3.550	3.700	3.700
B	mm	1.200	1.700	1.700	2.050	2.050	2.250	2.250	2.250
C	mm	1.100	1.300	1.300	1.480	1.480	1.480	1.450	1.450

SMARTBOXY

PACKAGED AUTONOMOUS AIR CONDITIONING UNIT

TOTALLY SMART AIR CONDITIONING

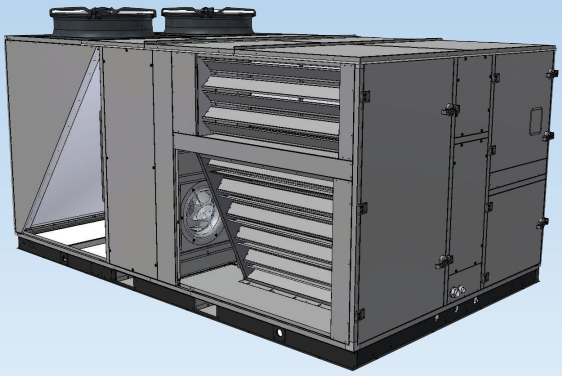
ErP READY

- **Maximum energy efficiency**
- **Versatile and easy to use**
- **Heat recovery**
- **High air quality**
- **Diversified supplementary/alternate heat sources**
- **Gas heat exchanger efficiency up to 106%**
- **R 410A refrigerant**

ROOF-TOP SMARTBOXY Tecnoclima are packaged autonomous air treatment unit designed for cooling, heating in heat pump, air filtration, air renewal and free-cooling.

The **SMARTBOXY** units Tecnoclima are designed and equipped to simplify, as well as reduce the installation process to a minimum, and to deliver high energy savings through high energy efficiency technology, supported by the intelligent and advanced autonomous management of thermal or cooling energy depending on the needs of the environment being treated: heating or cooling, only when needed.

The **SMARTBOXY** units Tecnoclima are available in multiple versions and configurations to respond to a broad range of user needs. Suitable for environments with medium/large volumes, such as shops, showrooms, gyms, supermarkets, shopping centres, cinemas, theatres etc. Designed for high-efficiency heat recovery in applications where air renewal is necessary, guaranteeing excellent air quality and compliance with Laws and Standards of reference.



- **Heating/Cooling capacity from 25 to 230 kW**
- **Air Flow rate from 3.800 to 36.000 m³/h**

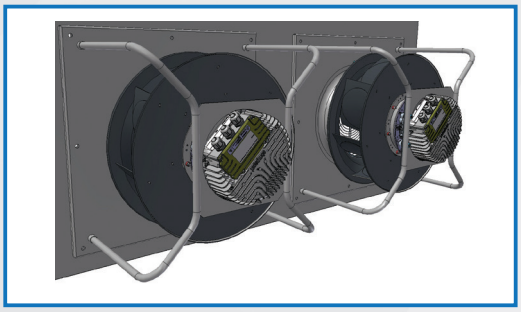
Technology and energy saving

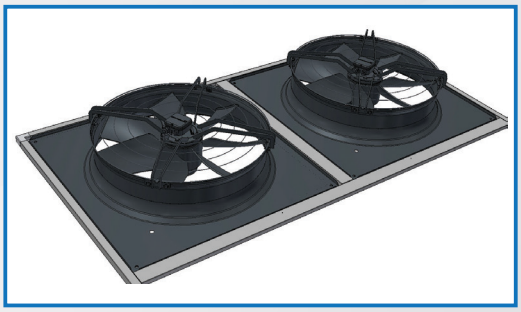
SCROLL Multi-compressors
Electronic expansion valves

The use of tandem compressors operating in single cooling circuits, with liquid **R410A**, combined with the use of properly calibrated thermostatic expansion valves, allows the implementation of a solution offering high energy efficiency, mainly at partial loads with maximum seasonal efficiency and a reduction in energy consumption.

Highly efficient and rationalised air delivery and recovery

The technology of the **PLUG FUN** fans with EC brushless motor, directly coupled to the impeller allows a high energy efficiency and the possibility to regulate the air flow rate based on the conditions and user needs: the airflow can be maintained despite variations of the resistance in the air distribution/diffusion system, and the variable airflow rate can be reduced either to adapt to partial loads or when the temperature needs to be held.





External Fans

These are axial fans with a directly coupled motor, protected by safety grids and characterised by **high efficiency** and **low noise** levels.

The Speed Control accessory **(CVA)** allows:

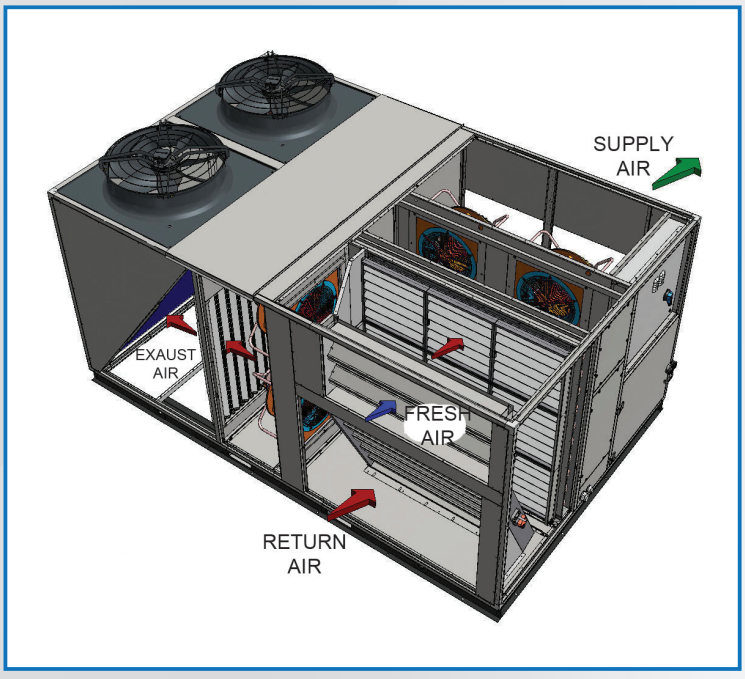
- longer operating intervals in cooling mode with low outdoor temperatures
- further noise reduction
- reduced power consumption.

Air quality

- Standard filtration in class G4 with integration of filters in efficiency classes up to F9 (accessory)
- Air renewal with control of CO_2 and VOC for configurations MSV and MCV
- Humidification and dehumidification with air humidity control (accessory)

Active Thermodynamic Recovery

The MSV and MCV configurations allow energy in expelled air to be recovered through its direct **transfer to the thermodynamic cycle activated by the unit in heating and cooling mode**. In addition to energy recovery, **the operating range of the units also increases** proportionally to the air flow being expelled.



Versions - Configurations - Features

FUNCTIONAL VERSIONS

- SMARTBOXY F cooling only.
- SMARTBOXY reverse heat pump.

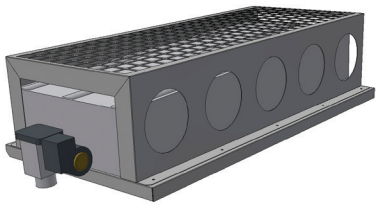
APPLICATION VERSIONS

- **M** Medium crowding - max 30% fresh air
- **B** High crowding up to 60% fresh air
- **A** Very high crowding from 60% to 100% fresh air.

CONFIGURATIONS

- **MR** for recirculation only.
- **MSV** mixing box section inclusive of motorised dampers, air quality sensor and fan (EC plug fan) to expel exhaust air for up to 50% of the unit's nominal airflow rate.
- **MCV 50** mixing box section inclusive of motorised dampers, air quality sensor and fan (EC plug fan) to expel exhaust air for up to 50% of the unit's nominal airflow rate.
  Functions: air renewal, free-cooling and active thermodynamic recovery up for up to 50% of fresh air.
- **MCV 100** mixing box section inclusive of motorised dampers, air quality sensor and fan (EC plug fan) to expel exhaust air for up to 100% of the unit's nominal airflow rate.
  Functions: air renewal, free-cooling and active thermodynamic recovery up for up to 100% of fresh air.

ADDITIONAL FEATURES



- **Condensing gas combustion heating** including high-efficiency heat exchanger and new generation **premix burner** with **continuous modulation** of heating capacity: **efficiency up to 106%,** hygienic combustion with no carbon monoxide (CO) emissions and very low nitrogen oxide emissions. **Low NOx - Class 5**.
- **Hot water heating** with two-row coil made from copper tubes and aluminium wings, which can be supplemented by a 2 or 3-way modulating valve.
- **Electric heating** with battery proposed in different options and with regulator for the modulation of thermal/electric power.
- **Immersed electrode steam humidification** with regulation of steam production based on humidity control in the enviroment
- **Hot gas reheat** using a coil dedicated to the recovery of condensing heat produced during the cooling operating cycle.
- **Constant airflow rate regulator** allows the selected air flow rate to be maintained, even with variations in the resistance of the air distribution system.
- **Variable air flow rate** proportional to system and user needs.

SUPPLEMENTARY RECOVERY MODULES M-RP

The recovery modules, proposed in a dual version **M-RP** and **M-RT** and integrated into SMARTBOXY units, allow energy to be recovered from the exhaust air through a direct heat exchange with fresh air, made by cross-flow plate heat exchangers (**M-RP** modules) or rotary type ones (**M-RT**). The residual energy from the exhaust air outgoing from the recovery module is also transferred to the thermodynamic cycle activated in the SMARTBOXY unit, so as to deliver maximum energy recovery and increase the operating range of the unit itself.

Control

X-CONTROL

The new generation of control electronics has been designed to ensure the unit's maximum energy efficiency in various operating conditions, and at the same time guarantee maximum system reliability. With **X-CONTROL** it is possible to manage all unit functions, to control and regulate operating parameters relative to both the air treatment section and the thermodynamic section (cooling circuit).

PR-BASIC

PR-TOUCH

SMART-SW

X-CONTROL includes:

- **PID control** for the different functions and operating parameters, guaranteeing an energy optimisation logic when managing the various components comprising the unit, and allowing a reduction in operating costs;
- **safety algorithms and alarms** display;
- **programming of functions** in different time slots and with different daily profiles;
- **RS485 serial interface – MODBUS communication protocol;**
- **PR-BASIC** base remote panel with keypad and display to remotely manage the single unit, or alternatively the "touch-screen" version **PR-TOUCH** evolved remote panel accessory, to simultaneously **manage up to 12 units**;
- **MART-SW software** (accessory) for remote monitoring and management via PC.

Main functions of **X-CONTROL**.

- winter-summer automatic switch;
- control and regulation of thermo-hygrometric parameters and air quality in environment being treated;
- dynamic set-point of treated air temperature, based on the external air temperature;
- operation at reduced capacity for all low thermal loads in buildings, or rather during the night when the requested power is minimal;
- intelligent defrosting based on effective thermodynamic needs that arise during heating functions;
- differentiated sequential start-up of multiple units serving the same system, in the case of start-up following an interruption to the power supply;
- automatic or manual free-cooling management.

SMARTBOXY

Range

SMARTBOXY MSV/MCV VERSIONS

Reverse heat pump, performance with 30% fresh air

SMARTBOXY	U.M.	25	35	45	65	85	100	125	150	175	200
Nominal air flow rate	m³/h	3.800	5.800	7.900	11.600	15.000	18.000	21.000	28.000	32.000	36.000
Nominal useful static pressure	Pa	250									
COOLING											
Total cooling capacity	kW	24,8	36,7	49,3	68,5	89,0	106,6	133,1	166,0	182,6	214,4
Sensible cooling capacity	kW	17,4	25,6	33,8	49,5	64,5	77,7	95,9	121,4	135,0	160,0
Compressor power consumption	kW	5,6	8,0	11,2	16,3	20,7	24,2	33,0	35,7	39,9	49,9
EER compressors	-	4,42	4,59	4,38	4,19	4,30	4,40	4,03	4,65	4,58	4,29
HEATING											
Heating capacity	kW	23,3	34,2	46,1	64,4	82,0	98,0	124,9	151,1	167,7	198,0
Compressor power consumption	kW	4,48	6,66	8,38	12,65	14,85	18,20	24,53	26,28	29,76	35,02
COP compressors	-	5,19	5,14	5,50	5,09	5,52	5,39	5,09	5,75	5,64	5,66
No. compressors / No. circuits	-	2/1	2/1	2/1	2/1	2/1	2/1	2/1	3/2	3/2	4/2
Sound power	dB(A)	76	79	81	82	83	83	86	88	89	89

Operating conditions with 30% fresh air. Cooling: external T 35 °C / R.H. 50% - internal T 27 °C / R.H. 47%.
Heating: external T 7 °C / R.H. 87% - internal T 20 °C / R.H. 50%.

SMARTBOXY F MSV/MCV VERSIONS

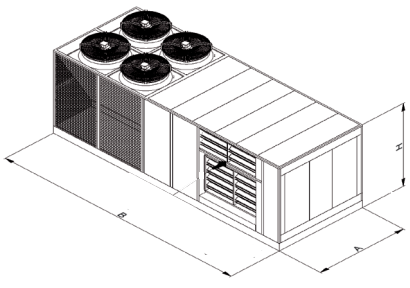
Cooling only, performance with 30% fresh air

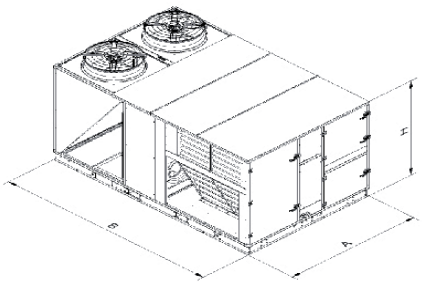
SMARTBOXY F	U.M.	25	35	45	65	85	100	125	150	175	200
Nominal air flow rate	m³/h	3.800	5.800	7.900	11.600	15.000	18.000	21.000	28.000	32.000	36.000
Nominal useful static pressure	Pa	250									
COOLING											
Total cooling capacity	kW	25,5	37,8	50,8	70,2	92,2	115,2	143,6	179,5	197,3	231,3
Sensible cooling capacity	kW	19,1	29,1	39,4	54,5	70,6	89,3	111,1	140,0	150,9	177,4
Compressor power consumption	kW	5,7	8,1	11,2	16,1	19,9	24,2	32,7	35,4	39,5	49,4
EER compressors	-	4,45	4,65	4,54	4,35	4,62	4,76	4,39	5,07	4,99	4,68
No. compressors / No. circuits	-	2/1	2/1	2/1	2/1	2/1	2/1	2/1	3/2	3/2	4/2
Sound power	dB(A)	76	79	81	82	83	83	86	88	89	89

Operating conditions with 30% fresh air: External T 35 °C / R.H. 50% - Internal T 27 °C / R.H. 47.

Dimensions

SMARTBOXY 150÷200



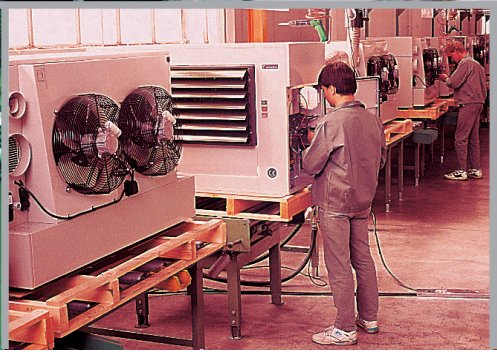


SMARTBOXY 25÷125

SMARTBOXY	U.M.	25	35	45	65	85	100	125	150	175	200
A	mm	2.200	2.200	2.200	2.200	2.300	2.300	2.300	2.300	2.300	2.300
B	mm	2.850	2.850	2.850	3.250	3.850	3.850	3.850	6.200	6.200	6.200
H	mm	1.400	1.400	1.400	1.500	1.820	1.820	1.820	2.200	2.200	2.200

Main accessories

- **PR-TOUCH remote control panel** with interactive screen (touch screen).
- **Interface cards** for protocols other than MODBUS.
- **Air quality sensor** (CO_2 OVOC).
- **Smoke detector** and reactive device on dampers.
- **Humidity sensors** in versions for external and duct installations.
- **Axial fan speed regulator CVA** with pressure switch to vary the rotation speed in relation to the condensation/ evaporation pressure.
- **SMART-SW software** for remote monitoring and management via PC.
- **High and low pressure gauge** for cooling circuits.
- **3-way modulating valve** for hot water heating coil.
- **2-way modulating valve** for hot water heating coil.
- **Supplementary air filters** with efficiency class from **F5** to **F9**.
- **Fresh, recirculated, exhaust air dampers** in manual or motorised versions.
- **Exhaust air excess pressure damper,** to be used as an alternative to the motorised damper for applications where exhaust air may be expelled due to excessive pressure generated inside the treated environment.
- **Rain protection cap** for external air inlet.
- **Protective grille** for external batteries.
- **Anti-vibration supports** for interface with supporting/resting base.



TECNOCLIMA S.p.A.

Tecnoclima S.p.A. was founded in 1973 by Alfonso Vescovi and extends over a surface area of 50.000 square meters.
Its purpose is to produce equipment for air treatment, heating and conditioning.
For more than 40 years the **production takes place entirely in Italy**, in the historic production site near Trento.

TECNOCLIMA GROUP:

TECNOCLIMA S.p.A.	Pergine (Trento) Italia
EMAT S.A.	Genas (Lyon) France
OOO TC Group Energia	Moscow Russia

BRANDS:

TECNOCLIMA	well-known worldwide for its high quality equipment for air heating and air treatment
CLIMA ITALIA	prestigious brand in the air conditioning sector
EMAT	France leader company in the warm air heating and air treatment

PRODUCTS AND TECHNOLOGIES:

Standard products with more than 300 models of warm air heaters, roof top, air treatment units, heat pumps, heat recovery units and hydronic terminal units.

Special products: specifically designed and manufactured according to customer's specifications.

Advanced technologies: condensation with modulating and premix burner, variable air flow with inverter, plug-fans, static and thermodynamic recovery, regulations and controls with dedicated software internally developed.

APPLICATIONS:

Heating, Ventilation and Air Conditioning:

- Halls and warehouses for industrial and commercial use
- Greenhouses and farms
- Places of worships
- Tensostatic structures and air domes
- Temporary structures, tents and rental structures
- Residential sector

Clean high temperature air for process applications:

- Painting
- Drying
- Heat treatment
- Polymerization
- Food industry processes

EXPORT COUNTRIES:

Argentina, Australia, Austria, Azerbaijan, Belgium, Byelorussia, Bulgaria, Bosnia, Chile, China, Cyprus, Colombia, Croatia, Denmark, Egypt, France, Germany, Jordan, Grain Britain, Greece, Hungary, India, Israel, Chorea, Lebanon, Lithuania, Malta, Norway, Nederland, Poland, Portugal, Romania, Chez Republic, Moldova Republic, Slovakia Republic, San Marino Republic, Russia, Serbia, Slovenia, Spain, Sweden, Switzerland, South Africa, Taiwan, Turkey, Ukraine, Uruguay, New Zealand.

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