



Your Cooling Needs ...
Our Expertise



ROOF TOP UNITS

Tecnoclima Range — Product Catalogue

< RANGE / ROOF-TOP UNITS

CF-XTRIM

Packaged autonomous air treatment units roof-top (Gas Heating & Thermodynamic Cooling)



THERMAL POWER (GAS MODULE)

29 to 206 kW

High thermal efficiency condensing burner up to 106%

COOLING CAPACITY

22 to 171 kW

Thermodynamic direct expansion refrigeration cycle (R410A)

AIR FLOW RATE

3,500 to 26,000 m³/h

Centrifugal supply/return fans with inverter calibration

SYSTEM OVERVIEW & BENEFITS

The CF-XTRIM series represents Tecnoclima's flagship packaged autonomous air handling roof-top solution, engineered for commercial, industrial and large-volume buildings requiring independent climate control.

- **Direct Exchange Technology:** Eliminates water circuits and heat exchangers, drastically reducing energy losses and maintenance needs.
- **Modulating Gas Heating:** Continuous output modulation from 100% down to 30%, ensuring stable room temperature and optimized fuel consumption.
- **Low Environmental Impact:** Class 5 low-NOx premix burner ensuring clean, hygienic combustion compliant with strict European standards.

ADVANCED CONTROL & VENTILATION

Equipped with X-CONTROL microprocessor management system for seamless seasonal switching and dynamic energy optimization.

- **Variable Airflow:** High-efficiency plug-fans and centrifugal fans arranged for variable flow rates via integrated inverters.
- **Free-Cooling Capability:** Integrated automatic dampers utilize outside cool air to condition spaces without running compressors.
- **Smart Connectivity:** RS485 serial interface with Modbus RTU protocol, compatible with PR-TOUCH central management panel.

CF-XTRIM TECHNICAL SPECIFICATIONS

Operating Modes	Gas Heating + Thermodynamic Cooling + Ventilation + Filtration
Thermal Power Range	29.0 kW – 206.0 kW (Thermal efficiency up to 106%)
Cooling Capacity Range	22.0 kW – 171.6 kW (Standard conditions: Ext 35°C, Int 27°C)
Nominal Air Flow	3,500 – 26,000 m³/h (Available useful static pressure up to 450 Pa)
Refrigerant Gas	Ecological R410A with high-efficiency scroll compressors
Installation & Supply	Outdoor Roof-Top Installation Electric 400V/3ph/50Hz + Natural Gas / LPG

TECNOCLIMA DRY SYSTEM TECHNOLOGY

Direct exchange significantly improves seasonal system efficiency by transferring thermal energy directly to the treated space, eliminating water circuit pump losses, freezing risks and high operational costs.

**Efficiency up to 106%
Condensing Ready**

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SMARTBOXY F

Advanced packaged autonomous air treatment units roof-top (Cooling Only)



FUNCTION & CYCLE

Cooling Only F-Version

High-volume summer air treatment and thermodynamic cooling

COOLING CAPACITY RANGE

22.5 to 325 kW

Multi-compressor circuit with high EER seasonal efficiency

AIR FLOW RATE

4,500 to 61,200 m³/h

High-capacity ventilation for large halls and sports facilities

KEY ADVANTAGES & INDUSTRIAL DESIGN

The SMARTBOXY F is engineered for high-demand commercial and industrial spaces requiring massive airflow rates and dedicated cooling without heating cycles.

- **Extreme Air Handling:** Delivers up to 61,200 m³/h, providing unmatched air volume distribution for supermarkets, exhibition centres and logistics hubs.
- **Sturdy Construction:** Self-supporting galvanized steel framework with double-wall insulated sandwich panels to minimize acoustic and thermal transmission.
- **Optimized Energy Ratio:** Maximum cooling output during peak summer conditions while reducing power absorption.

AIR FILTRATION & FREE-COOLING

Supports demanding indoor air quality standards with customizable modular air treatment sections.

- **Multi-Stage Filtration:** Pre-filtration class Coarse 60% with optional high-efficiency ePM1 85% (F9) fine particle filtration modules.
- **Thermodynamic Enthalpy Free-Cooling:** Automatic economizer mode utilizes cool night/outdoor ambient air for free building cooling.
- **EC Fans Technology:** Plug-fans with brushless electronically commutated motors for ultra-quiet and power-efficient operation.

SMARTBOXY F TECHNICAL SPECIFICATIONS

Operating Function	Thermodynamic Cooling + Air Filtration + Full Air Treatment (Cooling Only)
Cooling Capacity Range	22.5 kW – 325.0 kW (R410A high seasonal efficiency)
Air Flow Range	4,500 – 61,200 m³/h across 16 scalable frame sizes
Useful Static Pressure	330 Pa to 920 Pa according to duct network design
Operating Temperature Range	Cooling operation certified from -15°C up to +50°C outdoor ambient
Control Architecture	SMART-B CONTROL micro-processor with Modbus BMS integration

HIGH AIRFLOW ENGINEERING

Specifically tailored for large spaces, sports centres and logistics warehouses requiring massive ventilation volumes, rapid cooling response and automated fresh air renewal control.

**Air Flow up to
61,200 m³/h**

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CF-XTRIM/P

Packaged autonomous air treatment units roof-top (Reversible Heat Pump & Gas Module)



THERMAL POWER (GAS CONDENSING)

29 to 206 kW

High-efficiency condensing gas heating up to 106%

HEAT PUMP HEATING CAPACITY

21 to 172 kW

Reversible thermodynamic heat pump for mild winter conditions

AIR FLOW RATE

3,500 to 26,000 m³/h

Modulating air treatment and dynamic thermal recovery

DUAL-SOURCE HYBRID EFFICIENCY

The CF-XTRIM/P is the ultimate hybrid roof-top solution, featuring two independent heating technologies integrated inside a single compact packaged cabinet.

- **Smart Bivalent Operation:** Operates as a high-COP heat pump during mild outdoor conditions, automatically activating condensing gas heating when temperatures drop below zero.
- **Peak Economic Optimization:** Continuously selects the most cost-effective energy source (Gas vs Electricity) depending on ambient temperatures and energy tariffs.
- **Zero Comfort Disruption:** Heat pump defrost cycles are instantly compensated by the gas burner without causing room temperature drops.

HEAT RECOVERY & FRESH AIR MODULES

Fully compatible with accessory modules to maximize energy conservation and indoor hygiene.

- **M-RCFX Recovery Module:** Supplementary thermodynamic or plate heat exchanger recovering energy from exhaust air before expulsion.
- **Demand Controlled Ventilation (DCV):** Regulates outdoor fresh air intake automatically based on real-time indoor CO2 and VOC levels.
- **X-CONTROL Logic:** Intelligent automated summer-winter changeover and sequential multi-unit cascade management.

CF-XTRIM/P TECHNICAL SPECIFICATIONS

Operating Principle	Reversible Heat Pump + Condensing Gas Module (Hybrid Dual-Fuel Heating)
Gas Heating Power Range	29.0 kW – 206.0 kW (Modulating condensing burner with 106% efficiency)
Heat Pump Heating Range	21.0 kW – 172.0 kW (Operating down to -5°C outdoor temperature)
Cooling Capacity Range	21.0 kW – 172.0 kW (Thermodynamic direct expansion cooling)
Air Flow Range	3,500 – 26,000 m³/h (Available static pressure 250 / 450 Pa)
Energy Sources	Dual Supply: Three-phase Electric 400V/50Hz + Natural Gas or LPG

DUAL-ENERGY BIVALENT ARCHITECTURE

Combines the clean eco-efficiency of heat pump technology with the high thermal punch of condensing gas, delivering uninterrupted comfort and supreme energy savings even during freezing winters.

**Dual Heating Source
Gas + Heat Pump**

< RANGE / ROOF-TOP UNITS

CF-XTRIM/F

Packaged autonomous air treatment units roof-top (Only Cooling, without gas module)



CONFIGURATION

Cooling Only No Gas

Compact autonomous air conditioning and dehumidification

COOLING CAPACITY RANGE

22 to 171 kW

Direct expansion cycle with high EER hermetic scroll compressors

AIR FLOW RATE

3,500 to 26,000 m³/h

Continuous ventilation, filtration and air distribution

PURPOSE-BUILT FOR COOLING & HOT CLIMATES

The CF-XTRIM/F model is designed specifically for projects where gas supply is unavailable or heating is not required — the perfect choice for Middle Eastern climates and process spaces.

- **Lighter & More Compact:** Eliminating the gas combustion chamber reduces overall unit footprint and operating weight on roof structures.
- **High-Temperature Durability:** Engineered to deliver stable cooling performance even in elevated outdoor ambient conditions up to +48°C.
- **Direct Dehumidification:** Precision control over cooling coils provides active moisture removal for demanding comfort and industrial requirements.

ACOUSTIC COMFORT & RELIABILITY

Built with low-noise axial condensing fans and robust refrigeration circuits.

- **Low-Noise Axial Fans:** Direct-drive aerodynamically shaped blades with external safety grilles and optional EC electronic speed modulation.
- **Double-Skinned Panels:** Corrosion-resistant pre-painted steel panels insulated with polyurethane or mineral wool for superior thermal and acoustic containment.
- **Simplified Maintenance:** Wide hinged access doors with quarter-turn handles provide rapid access to filters, motors and electrical panels.

CF-XTRIM/F TECHNICAL SPECIFICATIONS

Operating Cycle	Thermodynamic Cooling + Constant / Variable Ventilation + Class G4/F7 Air Filtration
Cooling Capacity Range	22.0 kW – 171.6 kW (High seasonal EER rating)
Nominal Airflow	3,500 – 26,000 m³/h
External Static Pressure	Up to 450 Pa (Customizable according to ductwork)
Compressor Technology	Scroll tandem / trio configuration on independent refrigerant circuits
Electrical Power Supply	400V / 3ph / 50Hz (Pure electric supply without gas connections)

STREAMLINED PURE-ELECTRIC ARCHITECTURE

Eliminates gas piping, chimneys and gas burner maintenance while delivering high-efficiency cooling, active dehumidification and advanced indoor air filtration.

**100% Electric
Cooling Specialist**

< RANGE / ROOF-TOP UNITS

CF-XTRIM/HP

Packaged autonomous air treatment units roof-top (Heat Pump without gas module)



HEATING CAPACITY (HEAT PUMP)

21 to 172 kW

High seasonal COP reversible cycle heating

COOLING CAPACITY RANGE

21 to 172 kW

Direct expansion summer air conditioning

AIR FLOW RATE

3,500 to 26,000 m³/h

Continuous year-round air volume regulation

ALL-ELECTRIC YEAR-ROUND CLIMATE CONTROL

The CF-XTRIM/HP delivers 100% electrified heating and cooling utilizing a high-efficiency reversible thermodynamic circuit, completely eliminating fossil fuels.

- **Fossil-Fuel Free:** Zero on-site CO2 or gas emissions — the ideal selection for green buildings and LEED / BREEAM certified facilities.
- **Reversible 4-Way Valve:** Smooth, automated switching between cooling and heating modes managed by the intelligent onboard microprocessor.
- **Adaptive Defrosting Logic:** Dynamic sensor monitoring triggers defrost only when frost builds up on outdoor coils, maximizing winter heat production.

ENERGY RECOVERY & FREE-COOLING MODULES

Supports extensive modular upgrades to minimize running costs throughout transitional seasons.

- **Free-Cooling Economizer:** Uses outdoor ambient air during spring and autumn to cool internal spaces without compressor activation.
- **M-CFX Mixing Box:** Integrates fresh air dampers with proportional motorized actuators for precise ventilation renewal.
- **Comprehensive Protection:** High/low pressure switches, phase monitors, crankcase heaters and thermal overload protections.

CF-XTRIM/HP TECHNICAL SPECIFICATIONS

Operating Cycle	Reversible Thermodynamic Heat Pump (Heating & Cooling) + Ventilation + Filtration
Heating Power Range	21.0 kW – 172.0 kW (Heat Pump mode down to -5°C ambient)
Cooling Capacity Range	21.0 kW – 172.0 kW (High EER thermodynamic cycle)
Nominal Air Flow	3,500 – 26,000 m³/h (Centrifugal or Plug-Fan options)
Power Supply	Electric 400V / 3ph / 50Hz (No gas supply or chimney required)
Control System	X-CONTROL electronic board with RS485 Modbus RTU communication

ECO-FRIENDLY ALL-ELECTRIC SOLUTION

Combines high seasonal COP heat pump heating with powerful summer cooling in a single autonomous roof-top unit, lowering carbon footprint and completely eliminating combustible fuels.

**100% Electric
Eco Heat Pump**

< RANGE / ROOF-TOP UNITS

SMARTBOXY

Advanced packaged autonomous air treatment units roof-top (Reversible Heat Pump)



THERMAL POWER (HEAT PUMP)

22 to 322 kW

Heavy-duty reversible heat pump heating capacity

COOLING CAPACITY RANGE

22.5 to 325 kW

Multi-compressor staged thermodynamic cooling

AIR FLOW RATE

4,500 to 61,200 m³/h

Wide operating range from -15°C up to +50°C

FLAGSHIP HEAVY-DUTY ARCHITECTURE

The SMARTBOXY series represents Tecnoclima's most powerful packaged autonomous air handling platform, designed to meet the toughest technical requirements in modern architecture.

- **Unmatched Capacity Range:** 16 standard models offering cooling capacities up to 325 kW and massive airflows up to 61,200 m³/h.
- **Wide Thermal Envelope:** Certified operating capability across extreme outdoor temperature variations from -15°C in winter up to +50°C in scorching summer.
- **Multi-Circuit Reliability:** Independent refrigeration circuits ensure redundancy and continuous partial-load operation if maintenance is required on one circuit.

CUSTOMIZABLE MODULAR CONFIGURATIONS

Engineered with modular flexibility to match specific facility occupancy profiles.

- **Applicative Setups:** Standard total recirculation, Medium crowding (up to 30% fresh air), High crowding (up to 50% fresh air) and Total outdoor air.
- **Thermodynamic Energy Recovery:** Optional MCV modules extract energy from exhaust air before discharge, saving up to 40% in compressor runtime.
- **SMART-B CONTROL:** Multi-tiered BMS integration, predictive defrosting algorithms and PR-TOUCH central management for up to 8 units simultaneously.

SMARTBOXY TECHNICAL SPECIFICATIONS

Operating Principle	Autonomous Reversible Heat Pump + Fresh Air Renewal + Multi-Stage Air Treatment
Thermal Power Range	22.1 kW – 321.6 kW (High seasonal COP heating)
Cooling Capacity Range	22.5 kW – 325.0 kW (R410A direct expansion thermodynamic cycle)
Air Flow Range	4,500 – 61,200 m³/h across 16 frame sizes (Static pressure up to 920 Pa)
Filtration Standards	Class Coarse 60% standard, upgradable to ePM1 85% (F9) high-efficiency filters
Operating Temperature	Wide operating range certified from -15°C up to +50°C outdoor ambient

THE ULTIMATE INDUSTRIAL ROOFTOP PLATFORM

Combines maximum seasonal efficiency, massive airflow capacity, multi-circuit redundancy and advanced air renewal management for shopping malls, sports arenas, airports and factories.

**Top Capacity
Up to 325 kW**



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