



# JET FANS AND PRESSURISATION CONTROL SYSTEMS

FOR CAR PARKS, STAIRCASES, FIRE FIGHTING  
LOBBIES AND ESCAPE ROUTES



EN-12101-3  
Powered smoke and  
heat exhaust ventilators  
for use in Construction Works





## OUR COMMITMENT TO THE ENVIRONMENT

Sodeca has begun a new stage of study and design of new trends in ventilation which will help to preserve the environment and to make the energy saving which so much concerns today's society.



### EFFICIENT WORK

SODECA is pleased to present its new efficient, high performance "**Efficient Work**" fans, equipped with high-tech motors for greater energy savings. These new products exceed the requirements of the Ecodesign ErP Directive of 2009/125/CE and the (EU) regulation 327/2011 governing fans and adhere to the KYOTO goals adopted by the EU for cutting greenhouse gas emissions.

**SODECA** has concentrated its activity on the production of industrial fans, ventilation systems and extractors for the removal of smoke in case of fire since 1983, when it was founded.

**SODECA's** fans and extractors are present in all European countries and in many parts of the world, thanks to the quality of the product and the methods of research and development used.

Our quality procedures, used and certified by BUREAU VERITAS, in accordance with ISO 9001:2015, are another of the reasons which make **SODECA** one of the best and most renowned fan manufacturers in Europe.

Without a doubt, the most important factor for achieving our objectives is the human factor, the great professionals who work at your service, offering not only ventilation equipment but also solutions to any ventilation need required by our customers.

We offer you the possibility of visiting our facilities in Sant Quirze de Besora, with over 16,000<sup>2</sup> square metres of built area, where you will be able to see our fans being manufactured to the highest standards of quality, complying with the ISO and AMCA standards.

This catalogue only represents a small part of our product and services offering. Do not hesitate to contact us. We will put all our experience and our human resources at your disposal.



SODECA S.L.U. main facilities in E-08580 SANT QUIRZE DE BESORA



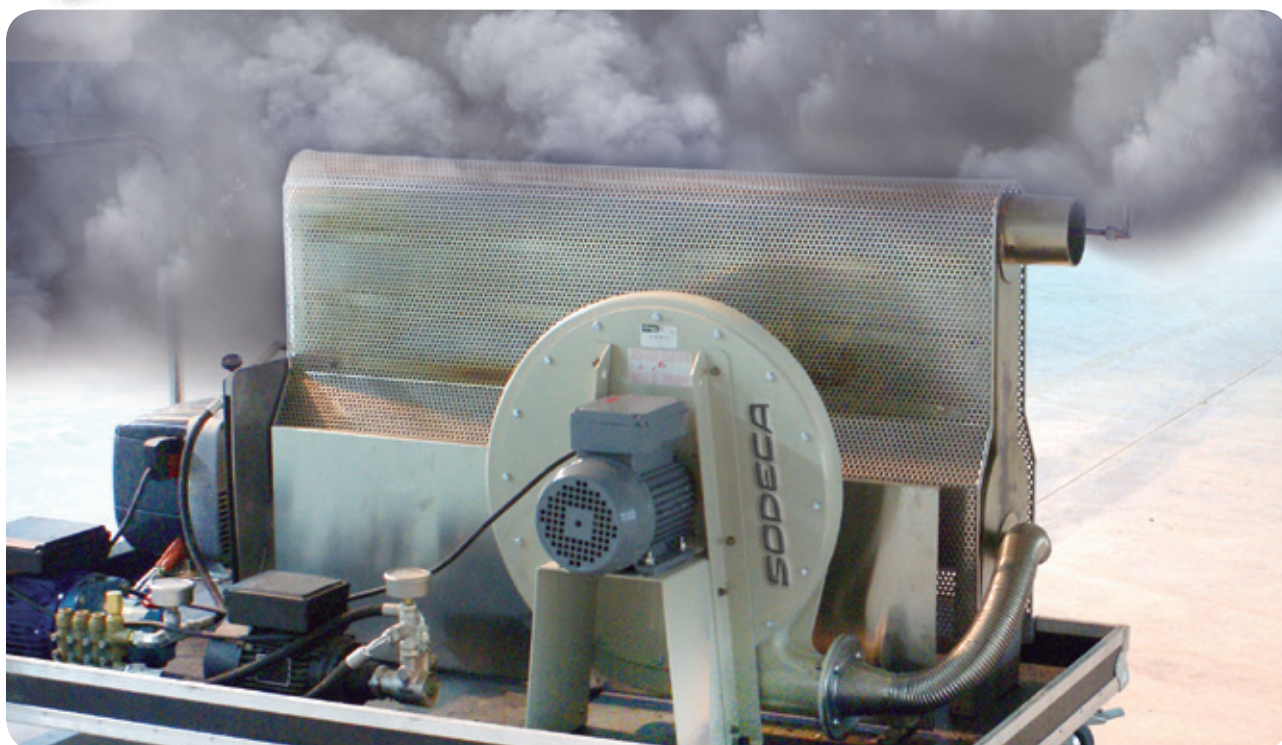
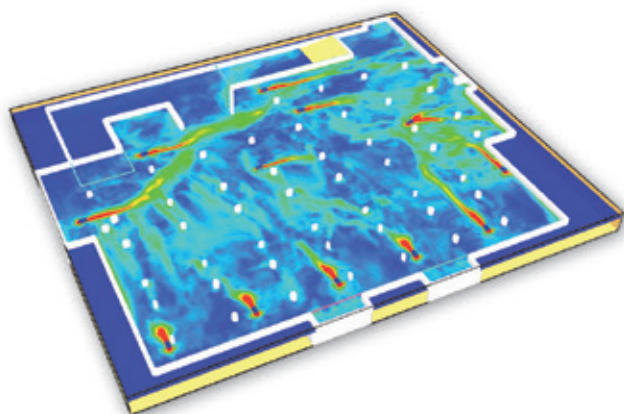
# SPECIALISTS IN JET FAN VENTILATION

SODECA has extensive experience in manufacturing and installing jet fans throughout the world.

Our Projects Department, which has technicians specialised in the design of ventilation and smoke control systems, **can advise on the design of your projects**, providing you with a complete **technical study**, including sizing calculations and drawings showing the location of the equipment.

We can carry out the system checks necessary for the Competent Authorities' approval by calculation methods which use Sodeca's own design tools with **CFD computational simulations**. This can also be done by using software which has been extensively proven at an international level, and displays the ventilation system's operating parameters, such as the behaviour of the smoke and the values of temperature, visibility, air speed and CO concentrations.

Sodeca also offers you the option of having our technicians perform **real smoke tests**, once the installation is complete.





# JET FANS

## VENTILATION FOR CAR PARKS



*CI installed in a car park*



*CI installed in a car park*



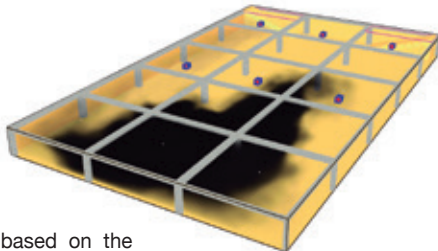
*Smoke Machine for performing real smoke tests*



*THT/IMP installed in a car park*

### JET FAN VENTILATION

In recent years, horizontal ventilation systems, also known as impulsion or induction ventilation systems, have been established as an alternative to the traditional ones which were based on networks of ducts for extracting and supplying air.



This technology is based on the longitudinal ventilation systems used in tunnels, which create a flow of air at sufficient speed to sweep the area to be ventilated.

Fans at air entry and exit points create the induction phenomenon, extracting the air and smoke from the area.

This ventilation system is based on the impulsion of a small amount of air at a high speed, which homogenises the rest of the air.

The system also makes it possible to keep polluting gases at low concentration levels without the need to start up the whole of the car park's ventilation system.

By starting up just the induction fans, in combination with designing zoned or staged ventilation systems and a gas detection system, it is possible to reduce power consumption and noise levels, and to extend the useful life of the equipment.

With impulsion ventilation, it is possible to design smoke control systems to be used when there is a fire and which satisfy the three standards enshrined in British and Belgian regulations. These regulations form the basis on which the European Committee for Standardisation is drafting the future European Smoke Control in Car Parks Standard - EN 12101-11:

- Extract the smoke during and after the fire (smoke clearance)
- Facilitate the work of the fire service (fire fighting)
- Facilitate the safe evacuation of occupants (means of escape)

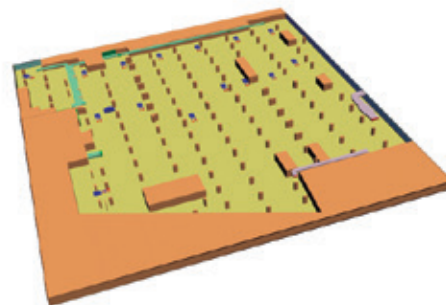
### ADVANTAGES OF THE SYSTEM

The two most important advantages of the impulsion or induction ventilation system are:

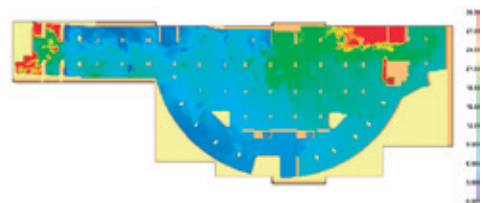
- They keep contaminating gases at low concentration levels.
- They are better at controlling smoke during a fire and therefore safer.

These systems also have the following additional benefits.

- Quicker and easier to install, and interfere less with other facilities (sprinkler networks, electrical ducting, drains)
- Occupy less space within the building's framework, allowing a ventilation system to be installed in car parks with low ceilings, thus reducing the cost of excavation.
- Wider field of view available within the car park, allowing the CCTV systems to function more efficiently.
- The ventilation system consumes less power since: (a) the fans do not have to compensate for losses of pressure in the ducts and (b) the system is started up less frequently, and operates for fewer hours.



*Examples of studies using CFD computational simulations.*





# THT/IMP

## Long-range one-way or reversible 400 °C/2h and 300 °C/2h jet fans

Long-range one-way or reversible 300 °C/2h and 400 °C/2h jet fans with a circular (THT/IMP-C), octagonal (THT/IMP-L) or octagonal painted (THT/IMP-O) design.

### Fan:

- One-way or reversible fan unit including fan, silencers, deflectors and support, approved for smoke extraction in accordance with standard EN 12101-3, with certification no.: 0370-CPR-0394
- Adjustable rotors made of cast aluminium and designed to produce great thrusts.
- Anti-contact protective grille pursuant to standard UNE-EN ISO 12499.
- Deflector to increase the air range on the discharge side. Reversible models are fitted with deflectors on both sides.
- High attenuation silencers with thermal and acoustic insulation.
- IAT series safety switch built into the fan (THT/IMP-L and THT/IMP-O) or on request (THT/IMP-C).
- Motor-rotor air direction or 100 % reversible.
- THT/IMP-C: Circular casing in painted sheet steel.
- THT/IMP-L: Galvanised sheet steel casing.
- THT/IMP-O: Painted steel casing.
- THT/IMP-LS: Short length galvanised sheet steel casing.

### Motor:

- Class H motors, S1 continuous operation and S2 emergency use, with ball bearings, IP55 protection and 2 speeds.
- Three-phase 400V-50Hz. DHALANDER.
- Maximum temperature of air to be carried: S1 continuous operation -20 °C +40 °C, S2 operation 300 °C/2h, 400 °C/2h

### Finish:

- Anticorrosive finish of polyester resin polymerised at 190 °C, previously degreased with phosphate-free nanotechnological treatment (THT/IMP-C, THT/IMP-O) or with a galvanised sheet steel anticorrosive finish (THT/IMP-L)

### On request:

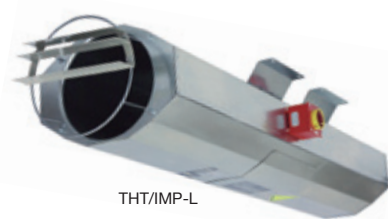
- Thrust features different from those indicated.



THT/IMP-C



THT/IMP-O



THT/IMP-L



Deflector for increasing range



## CI

### **Long-range 300 °C/2h and 400 °C/2h centrifugal induction jet fans for use in fire risk zones with a low profile**



Long-range 300 °C/2h and 400 °C/2h centrifugal induction jet fans for use in fire risk zones with a low profile.

#### Fan:

- Sheet steel casing.
- Turbine with reaction blades in extremely robust sheet steel.
- IAT series safety switch built into the fan.
- Support feet included.

#### Motor:

- Class H motors, S1 continuous operation and S2 emergency use, with ball bearings, IP55 protection and with 1 or 2 speeds, depending on model.
- Three-phase 230/400V-50Hz.
- Maximum temperature of air to be carried: S1 continuous operation -20 °C +40 °C, S2 operation 300 °C/2h, 400 °C/2h.

#### Finish:

- Anti-corrosive finish of polyester resin polymerised at 190 °C, previously degreased with phosphate-free nanotechnological treatment.



## THT

### **400 °C/2h and 300 °C/2h tubular axial extractor fans with short housing**



Tubular axial fans with short housing for working in fire risk zones.

#### Fan:

- Tubular sheet steel casing.
- Variable angle rotors made of cast aluminium.
- Approved in accordance with standard EN 12101-3. With certifications no.: 0370-CPR-0305 (F400) and 0370-CPR-0973 (F300).
- Motor-rotor airflow direction.

#### Motor:

- Class H motors for S1 continuous operation and S2 emergency use. With ball bearings, IP55 protection and 1 or 2 speeds, depending on model.
- IE2 or IE3 efficiency motors depending on model, except 2 speed and 8 poles.
- Three-phase 230/400V-50Hz (up to 3kW) and 400/690V-50Hz (powers greater than 3kW).
- Maximum temperature of air to be carried: S1 continuous operation -20 °C +40 °C, S2 operation 300 °C/2h, 400 °C/2h.

#### Finish:

- Anti-corrosive finish of polyester resin polymerised at 190 °C, previously degreased with phosphate-free nanotechnological treatment.

#### Available versions:

- THT/CL: tubular axial fans with long housing fitted with an inspection hatch.

#### On request:

- Motor-rotor airflow direction.
- Rotors 100 % reversible.



# PRESSURISATION CONTROL SYSTEMS FOR STAIRCASES, FIRE-FIGHTING LOBBIES AND ESCAPE ROUTES



## KIT SOBREPRESIÓN

STAIRCASE OVERPRESSURE KIT  
For three-phase equipment



### STAIRCASE OVERPRESSURE KIT

Staircase overpressure kit comprised of a control panel (BOXPRES KIT) and discharge units (CJHCH or CJBD), for pressurising staircases and escape routes. Also available for NEOLINEO and CJBC single-phase equipment.

### OVERPRESSURE KIT WITH RESERVE FAN

Overpressure kit with reserve fan comprised of a control panel (BOXPRES KIT II) with a built-in automatic switching system that maintains the overpressure in the event of a failure in the main fan and air discharge units with a TWIN or CJHCH/DUPLEX series reserve fan.

The correct operation of the pressurisation systems depends not only on their sound design, but on the correct regulation performed by the system. For this reason, it is extremely important to have calibrated, high precision regulation elements that will permit both situations present in the event of a fire to be maintained simultaneously, quickly and stably.

The BOXPRES control panel not only complies with the strictest requirements, it simplifies the work for the installer.

It includes:

- A frequency changer programmed at 50 Pa.
- A differential pressure sensor.
- A magnetothermal switch.
- A line and failure led lamp.
- A check push button.

STAIRCASE OVERPRESSURE KIT  
For three-phase equipment



All the BOXPRES equipment interconnections have been made and tested. Ready to operate and execute its function of controlling the installation pressure. Option of checking the installation to prevent failures. Only the power supply line, discharge fan and fire signal need to be connected.

The single-phase panels include:

- A voltage adjuster programmed at 50 Pa.
- A differential pressure sensor outside the equipment.

OVERPRESSURE KIT WITH  
RESERVE FAN



- Easy to install.
- A compact, autonomous solution.
- Preventive maintenance.
- Easy start-up.
- Safe, functional installation.







# KIT BOXPDS

**Pressurisation equipment for staircases, escape routes and firefighting lobbies, pursuant to European standard EN 12101-6**

Pressurisation equipment for escape routes in the event of a fire, pursuant to the requirements of European standard EN 12101-6. The BOXPDS KIT automatically regulates the air flow and is able to maintain the 50 Pa overpressure, even in the presence of leakages in the installation. The system can maintain the overpressure (pressure criteria) and a speed of 0.75 m/s in an open door situation (airflow criteria) almost immediately.

## KIT BOXPDS

- It is comprised of the BOXPDS control panel, a CJHCH ventilation unit and a Damper Kit with a built-in optical smoke sensor.

## BOXPDS

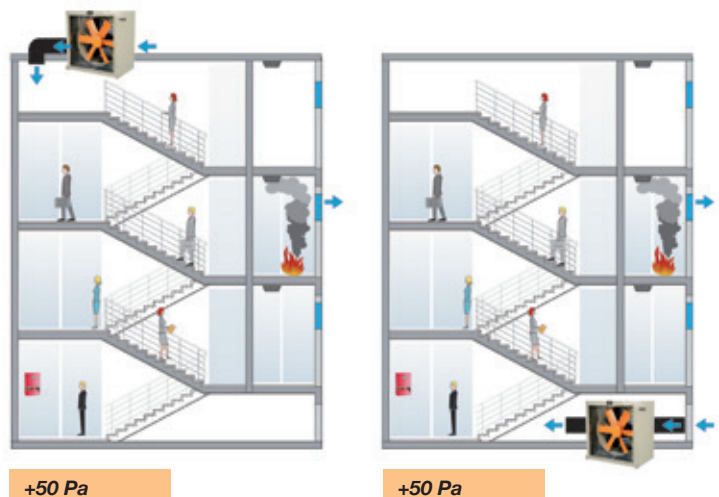
- Variable Frequency Drive. High precision differential pressure sensor. Electric panel with magneto thermal protections and general power supply failure indication.
- Electronic control for the management of alarms, maintenance, ModBUS RTU port for BMS (Building management systems) connection and DAMPER control.
- Certified power supply with batteries to ensure power supply to control equipment in the event of a power failure.

## Control panel:

- External control panel for real-time viewing of pressure, alarm pilot lamps and manual system activation



- Easy to install.
- A compact, autonomous solution.
- Preventive maintenance.
- Easy start-up.
- Safe, functional installation.

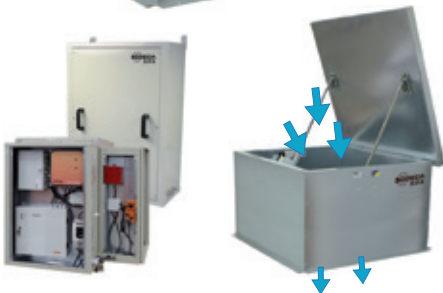


+50 Pa

+50 Pa



# HATCH PDS



+50 Pa

Pressurisation equipment for escape routes in the event of a fire, pursuant to the requirements of European standard EN 12101-6. The HATCH PDS automatically regulates the air flow and is able to maintain the 50 Pa overpressure, even in the presence of leakages in the installation. The system can maintain the overpressure (pressure criteria) and a speed of 0.75 m/s in an open door situation (airflow criteria) almost immediately.

## HATCH PDS

It is formed by a HATCH-S ventilation unit with a motorised hatch opening function and a BOXPDS control panel.

- An extremely robust structure that is able to withstand severe weather changes.
- Equipment structure made of corrosion-proof galvanised sheet steel.
- Water-tight design to prevent the entry of water.
- Heat insulation to prevent hot air loss in the winter.
- Adaptable skirting for correct, easy installation on the roof.

## Opening system:

- Motorised opening arms, with encapsulated IP-65 mechanism.
- Supply voltage 230V AC 50Hz or 24V DC.
- Reinforced, guaranteed system with more than 10,000 operations at maximum load.
- Maximum load 1000 Nw.
- Automatic opening via external control system signal (fire station, smoke detector, manual switch...).
- Control systems not included in the supply.
- Manual opening for environmental ventilation via switch.
- Limit switch to signal the hatch position.

## Fan:

- HCT series extractor fans.
- Tubular wrap in sheet steel with polyester resin anti-corrosive treatment.
- Cast aluminium rotors.

## Motor:

- IE3 efficiency motors for powers equal to or greater than 0.75kW except single-phase, 2-speed and 8-pole.
- Class F motors with ball bearings and IP55 protection.
- Three-phase 230/400V-50Hz (up to 4kW) and 400/690V-50Hz (power higher than 4kW).
- Operating temperature: -25 °C +50 °C

## Finish:

- Corrosion-proof galvanised sheet steel.

## On request:

- Fitted with F-300 and F-400 rated fans.
- Reversible pressurisation equipment for smoke evacuation in case of need.
- Polyester resin anti-corrosive paint finish.

## BOXPDS

- Variable Frequency Drive.
- High precision differential pressure sensor.
- Electric panel with magneto thermal protections and general power supply failure indication.
- Electronic control for the management of alarms, maintenance, ModBUS RTU port for BMS (Building management systems) connection and DAMPER control.

- Certified power supply with batteries to ensure power supply to control equipment in the event of a power failure.

## Control panel:

- External control panel for real-time viewing of pressure, alarm pilot lamps and manual system activation.



# PRESSKIT

The PRESSKIT equipment is comprised of one or more fans. In the case of fire they are activated to exert an overpressure of 50Pa in safe zones and to prevent the entry of smoke in escape routes for the evacuation of people.

## Common characteristics:

- Self-regulation of pressure throughout the lobby.
- Brushless 24VDC E.C. fans with a maximum flow rate of 2,100m<sup>3</sup>/H.
- An overpressure of 50Pa is maintained in the lobby.

## Equipment control:

- S models: Simplified regulation of the ventilation unit via a pressure sensor with a built-in PID signal adjuster.
- P models: PLC control with multiple inputs, outputs, alarms and fan regulation via PID signal.
- Delay in equipment connection depending on the fire door status.
- Power supply panel with autonomy of more than 2 hours through 18Ah batteries.
- Ease in connecting equipment.
- Fast configuration and adjustment of all the parameters via LCD display and keyboard.
- MANUAL system activation button.
- Viewing of pressure in safe zone and equipment status in real time.



## PRESSURISATION FAN

- Brushless 24VDC fan, 0-10V analogue control input.
- Maximum flow rate 2,100m<sup>3</sup>/h.
- Mural fan for conduits with a diameter of 310mm.
- ROTOR-MOTOR air direction.
- Useful life in continuous operation of more than 20,000 hours.
- Rotor made of painted sheet steel.
- Protective anti-contact grille.

## CONTROL PANEL

- System control panel through small PLC that is easy to install. Power supply 230VAC.
- Digital input for detecting open door.
- Digital outputs indicating fire alarm activated, through visual and acoustic indicator light that flashes with configurable times.
- Configurable connection delay times in the event of detecting a fire alarm and fire doors open.
- Configuration of all the PID output parameters.
- Manual system activation button.
- Viewing of pressure in Pa in real time, indication of equipment status STANDBY/ PRESSURISING.
- Possibility of controlling 2 fans with a single panel and power source. (PRESSKIT TWIN).
- Regulation through a single control panel of 1 or 2 ventilation units.
- Key lock.

## Control panel characteristics

Total voltage (V): 1x230	Max. current Output 2 (A): 7
Total current (A): 0.3	Protection (IP): 44
Output Voltage 1 (V): 19.7-28VDC	Operating temperature (°C): -25 to +60
Output Voltage 2 (V): 19.7-28VDC	Weight (Kg): 30.5
Max. current Output 1 (A): 6	

## PRESSURE SENSOR WITH DISPLAY (BUILT INTO CONTROL PANEL)

- 0-100 Pa preconfigured differential pressure sensor.
- 0..10V analogue output.
- LCD display.
- Calibrated high precision analogue sensor.



Certified: NR331151



## SODECA'S PROJECTS IN THE WORLD



**Commercial Mall SAAR**  
Kingdom of Bahrain



**Center Point Mall of the Emirates**  
United Arab Emirates



**Mine Ventilation Sierra Gorda**  
Chile



**Emirates Garden Phase 1**  
United Arab Emirates



**Cinemas and Commercials Mall of Costanera Center**  
Chile



**Kazakistan Lojistik Center**  
Kazakhstan



**Hotel Grand Hyatt**  
Chile



**Isik University**  
Iraq



**Bashra Sports City**  
Iraq



**Car park of Somacampagna University**  
Italy



**Van Schaek Mathonsingel (BAM) Carpark in Nijmegen**  
Netherlands



**Cora Bacau Supermarket and Carpark**  
Romania



**National Theatre**  
Romania



**Consum Supermarket car park**  
Spain



**Centro Comercial Puerto Venecia**  
Spain



**Shopping Mall Constanta**  
Romania



**Uprise Elite Towers**  
Turkey



**Discovery Mall**  
Kuwait



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