



# intarSANIT

STERILIZATION | PURIFICATION | VENTILATION



COVID-19  
free



Safety  
and health



Smart  
solution



- ❄ Air cold room filtration, sterilization and purification.
- ❄ Ventilation flow adaptable to occupation, and room overpressure.
- ❄ High energy efficiency with heat recovery from exhaust air.
- ❄ Easy ceiling installation.

**intarSANIT-TCH** is the new air conditioning and supply solution for workrooms, with heat recovery from extract air.

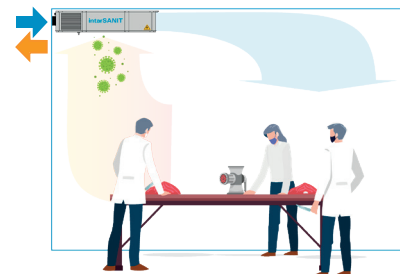
The ventilation unit is specifically designed for the supply of fresh air in workrooms and food processing rooms, which operate at a temperature of 10 to 15 °C.

### Features

- ▶ 230 V-I-50 Hz power supply. Available in 60 Hz. Others voltages by request.
- ▶ Built-in a white coated aluminium frame.
- ▶ Compact and lightweight design.
- ▶ Adjustable ventilation flow from 500 up to 1000 m<sup>3</sup>/h.
- ▶ Compact refrigeration system with natural refrigerant R-290.
- ▶ Static and dynamic heat recovery from exhaust air.
- ▶ Air supply and extraction by centrifugal fan for connection to duct or textile diffuse.
- ▶ G4 pre-filter and F7 new air filter.



### Installation scheme



### Workroom ventilation

The regulations on safety and health at work stipulate a minimum ventilation flow of 50 m<sup>3</sup>/h per worker for non-sedentary work (Directive 89/391/EEC).

UNE-EN 16798 establishes the requirements for air quality. In workrooms, at least medium air quality (IDA3) should be ensured, and high air quality (IDA1) for laboratories and clean rooms.

Cold room type	Indoor air quality UNE-EN 13779	Metabolic activity of the worker at 12°C	Level of CO <sub>2</sub> in the air above the outer level ppm	Ventilation flow / person (m <sup>3</sup> /h)*
Laboratories, clean rooms	IDA 1, high quality	Light work seated 1.5 met	350	80
Workshops, handling rooms	IDA 2, good quality	Light work standing 2 met	500	75
Cutting rooms	IDA 3, medium quality	Moderate work 1.5 met	800	60
Warehouses, packing rooms, loading and unloading	IDA 4, low quality	Moderate work 1.5 met	1 200	50

Table 1.\* Estimated ventilation flow for rooms where contamination is due solely to worker respiration, with good air mixing by dilution.

### 230 V-I-50 Hz | Ventilation | R-290

Series / Model	Recovered power (W)	Cooling capacity (W)	Total cooling power (W)*	Ventilation air flow (m³/h)	Available impulsion static pressure (Pa)	Impulsion temperature	Max. current (A)	Input power (kW)	Weight (kg)	SPL (dBA) from 3 m	
R-290	TCH-1	4 700	4 800	9 500	1 000	50	15.0	16	2.37	110	49
					750	80	13.5				
					500	100	12.0				

### Options

- ▶ CO2 and VOCs level control.

\* Nominal performance for outdoor ambient conditions of 35 °C 40 % RH and indoor conditions of 12 °C.



**intarSANIT-TPD** is the solution for the sterilization and purification of the air in food handling rooms, industrial kitchens, clean rooms and other establishments.

Ultraviolet irradiation renders the DNA of micro-organisms useless, preventing their reproduction. HEPA filtration with 99.995 % efficiency in 300 nm particles.

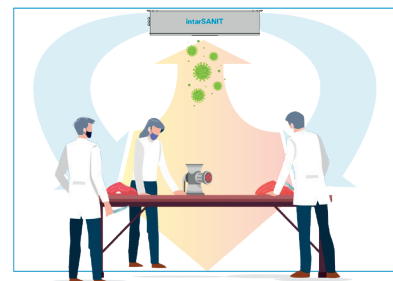
### Features

- ▶ 230 V-I-50 Hz power supply. Available in 60 Hz. Others voltages by request.
- ▶ Built-in a white coated aluminium frame.
- ▶ Compact and lightweight design.
- ▶ G4 pre-filter.
- ▶ UV-C germicidal irradiation.
- ▶ HEPA filters.
- ▶ Radial variable speed EC fan.



- ❄ Air cold room filtration, sterilization and purification.
- ❄ Double sterilizing effect: UV-C radiation and HEPA filtration.
- ❄ Easy ceiling installation.
- ❄ Sterilization system integrated in double flow evaporator unit.

### Installation scheme



### HEPA filtration

The HEPA filters have a retention efficiency of 300 nm particles of 99.995 %. That is, for every 100 000 particles of 0.3 microns in diameter, only 5. As shown in figure 2, the droplet size (1 micron) is greater than the MPPS (300 nm), which allows to conclude that the HEPA filter is effective at retaining aerosols.

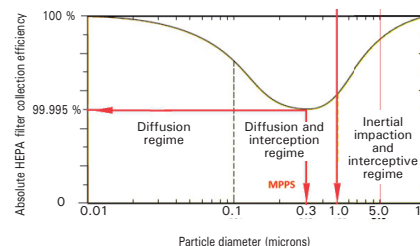


Fig. 1. Filtration efficiency of a HEPA filter. The UNE EN 1822 standard defines the filtration efficiency of a HEPA filter as the filtration performance of the particle with the highest penetration MPPS (Maximum Penetration Particle size). Particles around 0.3  $\mu\text{m}$  are the most difficult for an absolute HEPA filter to trap and are what dictate the efficiency of the filter. The smallest nano-particles are easier to trap through the diffusion phenomenon, the larger ones through the impact, inertial and interception mechanisms.

### 230 V-I-50 Hz | Purification

Series / Model	Flow (m³/h)		Recommended room volume (m³)	Cooling capacity (kW) (optional)		Coil (optional)		Fan		Max. current (A)	Input power (kW)	Range (m)	Weight (kg)	SPL (dBA) from 3 m	
				SC1: 10 °C 85 % RH DT1 = 10 K		Fin spacing (mm)	Surf. (m²)	Vol. (L)	Type						Ø mm
	Min.	Max.		V. Min.	V. Max.										
TPD-3	1 500	3 000	100 - 200	4.0	6.0	5.0	13	5.8	Radial EC	1x Ø 280	2.9	0.7	6	95	49
TPD-6	3 000	6 000	200 - 400	8.0	12.0	5.0	26	7.6	Radial EC	2x Ø 280	5.8	1.3	6	180	52

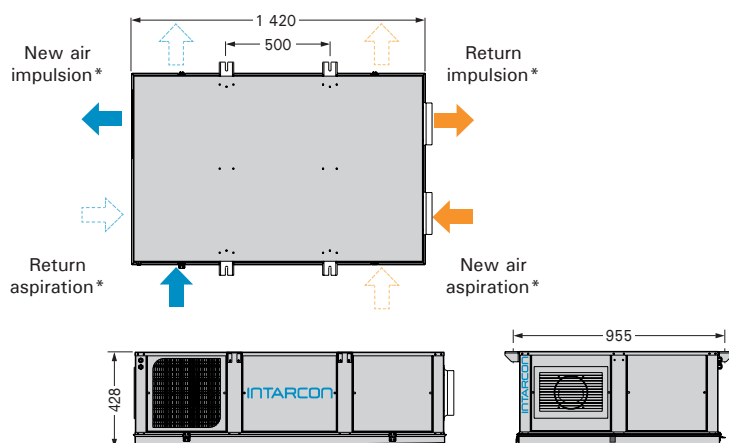
### Options

- ▶ Carbon filter.
- ▶ Evaporator coils and expansion valve (R-134a or R-449A).

\* Nominal performance for outdoor ambient conditions of 35 °C 40 % RH.

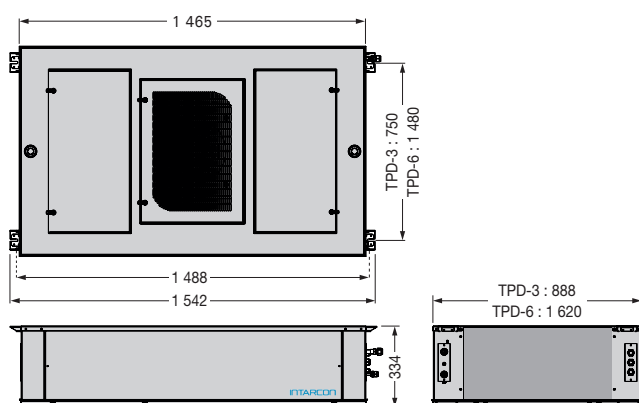
## Dimensions

### TCH series



\* Interchangeable air connection sides.

### TPD series



Dimensions in mm.

## Control

iPro electronic control with distance digital display.

- ▶ Air supply temperature control.
- ▶ Room temperature control.
- ▶ Control option: remote touch display.
- ▶ Serial communication (TCH).
- ▶ Filter status control (TCH).
- ▶ Air flow control (TPD).
- ▶ External communication (TPD).



## Air pathogens transmission

When talking, coughing or sneezing, small droplets are emitted that evaporate quickly and give rise to aerosols of very small particles. These micro-particles can remain in the air for hours and be transported long distances. It has been shown that the survival of viruses and bacteria in these particles is greater the lower the air temperature. The transmission of pathogens by air in closed places is favoured by the recirculation of air without sterilization or filtration treatment and the absence of ventilation with outside air, and it has been shown that these aerosols are the main contagion route of COVID-19.

The simulation of the transmission of aerosols in a process room shows that the probability of contagion in a room without ventilation is 15 times higher than a room equipped with a minimum renewal of outside air and an adequate level of filtration.

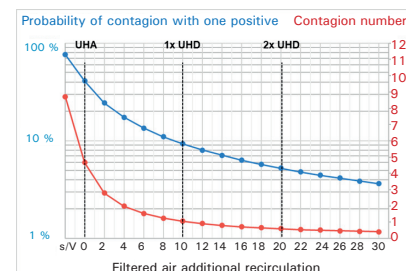


Fig. 2. Simulation of the probability of contagion given a positive in a 200 m<sup>2</sup> workroom with 13 workers at a temperature of 12 °C. Source: Prof. José L. Jiménez, Dept. of Chem. And CIRES, Univ. of Colorado-Boulder.

## Ultraviolet light sterilization

Ultraviolet UV-C radiation of wavelengths of 280 nm - 200 nm damages the DNA of many micro-organisms and prevents them from reproducing. In this way, bacteria, viruses and fungi can be eliminated without leaving residues. The ultraviolet light is placed in the ventilation section to concentrate its biocidal action on the HEPA filters, the G4 pre-filter and the access doors, keeping the interior air treatment section sterile; This guarantees the best hygiene during filter replacement and unit cleaning.



Fig 3. intarSANIT complies with UNE 0048/20 June 2020, on the protection of the health and safety of workers against the risks related to exposure to artificial optical radiation.