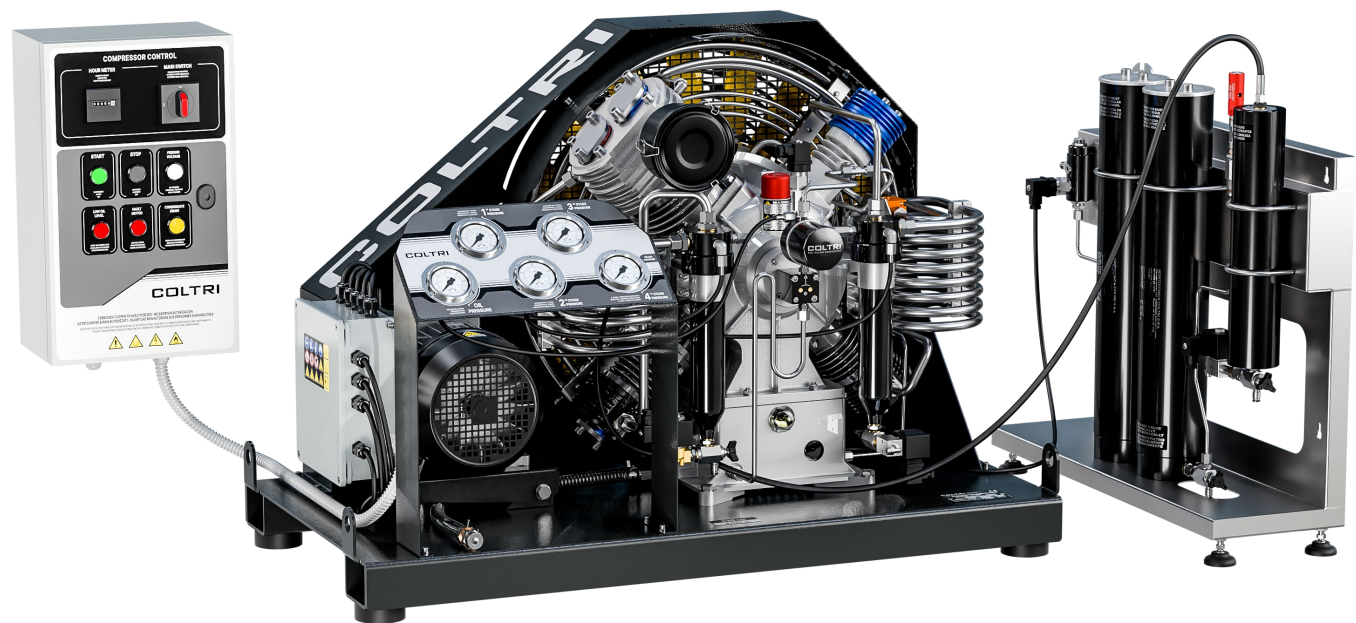


# FORCE FOUR

## Electric



	FORCE FOUR 400 EM <sup>1</sup>	FORCE FOUR 450 ET	FORCE FOUR 650 ET
Charging rate	<b>400</b> l/min	<b>450</b> l/min	<b>650</b> l/min
Filling time <sup>2</sup>	<b>5</b> min	<b>4.30</b> min	<b>3</b> min
Engine power	<b>7,5</b> kW Single-phase electric 230 V, 60 Hz	<b>7,5</b> kW Three-phase electric	<b>11</b> kW Three-phase electric
Dimensions <sup>3</sup> (L x D x H)		115 × 60 × 79,6 cm 45,3 × 23.6 × 31.3 in	
Weight <sup>3</sup> (dry weight)		250 kg 551 lb	260 kg 573 lb

1 Data referred to the maximum pressure of 232 bar

2 Filling time 10 l empty cylinder - 0/200 bar (tolerance ±5%)

3 Standard model. Weight and dimensions may vary depending on accessories.

# It goes out of its way to give you the best

The **FORCE FOUR** model meets professional needs that require large charging capacities in hot, poorly ventilated environments or tropical countries. It is equipped with an intuitive control panel and electric motor. The pumping unit, a choice of 4 most powerful, is exposed to ensure a better cooling cycle. It is equipped with the Hyperfilter purification system mounted on a stand-alone system, with automatic condensate drainage. For longer filter life, the Tornado high-pressure dryer is recommended. Available as options: the Presec system for filter saturation control, Megafilter oversized filter cartridges, and 2- or 4-outlet remote refill panel.

**Working pressure from 232 to 420 bar**

## Standard equipments



2 filling connections  
DRV DIN 232 bar



2 filling connections  
DRV DIN 300 bar



2 filling connections  
DRV INT/YOKE 232 bar



2 filling hoses of 1.2 m  
length



Pressure maintaining  
valve



Interstage control  
gauges



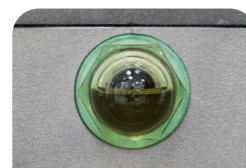
Double filtering system  
Hyperfilter certified  
PED



Purification system on  
"stand-alone" structure



Automatic condensate  
drain



Oil sight glass with  
autostop



Oil pump



Frame color Black  
RAL 9005

## Optional



Presec, filter  
control system



MEGAFILTER  
purification system



**Tornado refrigerator**  
Available in 350 bar  
or 420 bar.  
Only "stand-alone".



Single pressure  
remote charging  
panel



Single pressure  
remote charging  
panel with lever tap

# OPEN

## Electric



	OPEN 400 EM <sup>1</sup>	OPEN 450 ET	OPEN 550 ET	OPEN 550 ET	OPEN 750 ET
Charging rate	<b>400</b> l/min	<b>450</b> l/min	<b>550</b> l/min	<b>650</b> l/min	<b>750</b> l/min
Filling time <sup>2</sup>	<b>5</b> min	<b>4.30</b> min	<b>4</b> min	<b>3</b> min	<b>2.40</b> min
Engine power	<b>7,5</b> kW Single-phase electric 230 V, 60 Hz	<b>7,5</b> kW Three-phase electric	<b>9</b> kW Three-phase electric	<b>11</b> kW Three-phase electric	<b>15</b> kW Three-phase electric
Dimensions <sup>3</sup> (L x D x H)	<b>90,5 × 105,2 × 153</b> cm <b>35.6 × 60.2 × 41.4</b> in	<b>90,5 × 105,2 × 153</b> cm <b>35.6 × 60.2 × 41.4</b> in			
Weight <sup>3</sup> (dry weight)	<b>356</b> kg <b>784</b> lb	<b>356</b> kg <b>784</b> lb	<b>361</b> kg <b>796</b> lb	<b>365</b> kg <b>804</b> lb	<b>373</b> kg <b>943</b> lb

<sup>1</sup> Data referred to the maximum pressure of 232 bar

<sup>2</sup> Filling time 10 l empty cylinder - 0/200 bar (tolerance ±5%)

<sup>3</sup> Standard model. Weight and dimensions may vary depending on accessories.

# Top performance, even when charging

The **OPEN** model meets professional needs that require large charging capacities in hot, poorly ventilated environments or tropical countries. It has 4 front filling connections for high pressure hoses, an intuitive control panel and an electric motor. The pumping group, chosen from the 4 most powerful, is exposed in the rear housing to ensure a better cooling cycle. For longer filter life, we recommend the Tornado high pressure dryer. Available option: Presec system for filter saturation control or the SAM system for multigas analysis and remote charging panel.

**Working pressure from 232 to 420 bar**

## Standard equipments



4 filling connections  
DRV DIN 232 bar



4 filling connections  
DRV DIN 300 bar



4 filling connections  
DRV INT/YOKE 232 bar



4 filling hoses of 1.2 m  
length



Pressure maintaining  
valve



Interstage control  
gauges



Double filtering system  
Hyperfilter certified  
PED



Cabin temperature with  
automatic switch-off



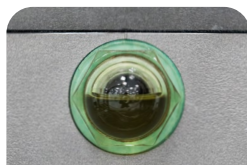
Automatic condensate  
drain



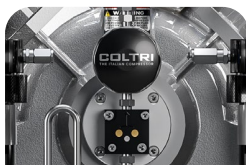
Phase controller that  
prohibits reverse  
rotation



Electronic pressure  
switch with automatic  
switch-off



Oil sight glass with  
autostop



Oil pump



Auto-drain Condensate  
System with condensate  
collection tank



Frame color black  
RAL 9005

## Optional



Presec, filter  
control system



SAM sensors  
CO + CO<sub>2</sub> + H<sub>2</sub>O.  
Available in version  
with VOC



Tornado  
refrigerator  
Available in 350  
bar or 420 bar

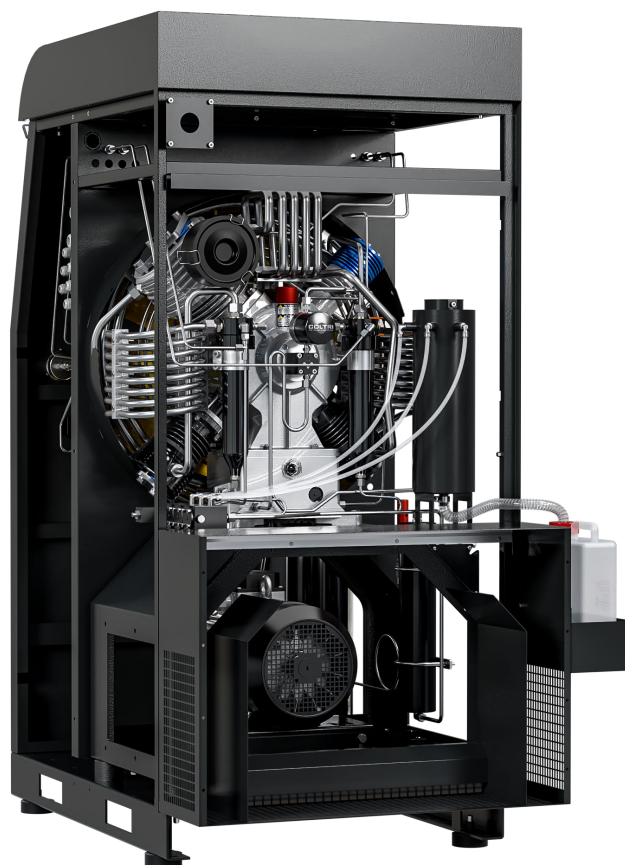


Touch screen



# SILENT

## Electric



	SILENT 400 EM <sup>1</sup>	SILENT 450 ET	SILENT 550 ET	SILENT 650 ET	SILENT 750 ET
Charging rate	<b>400</b> l/min	<b>450</b> l/min	<b>550</b> l/min	<b>650</b> l/min	<b>750</b> l/min
Filling time <sup>2</sup>	<b>5</b> min	<b>4.30</b> min	<b>4</b> min	<b>3</b> min	<b>2.40</b> min
Engine power	<b>7,5</b> kW Single-phase electric 230 V, 60 Hz	<b>7,5</b> kW Three-phase electric	<b>9</b> kW Three-phase electric	<b>11</b> kW Three-phase electric	<b>15</b> kW Three-phase electric
Dimensions <sup>3</sup> (L x D x H)	93,5 × 130 × 173,5 cm 36.8 × 51.3 × 68.3 in				
Weight <sup>3</sup> (dry weight)	<b>446</b> kg <b>983</b> lb	<b>446</b> kg <b>983</b> lb	<b>451</b> kg <b>994</b> lb	<b>455</b> kg <b>1.003</b> lb	<b>463</b> kg <b>1.020</b> lb

<sup>1</sup> Data referred to the maximum pressure of 232 bar

<sup>2</sup> Filling time 10 l empty cylinder - 0/200 bar (tolerance ±5%)

<sup>3</sup> Standard model. Weight and dimensions may vary depending on accessories.

# What you don't feel is his greatest performance

The **SILENT** model reaches new heights in terms of soundproofing, falling below the 70 dB operating threshold. Built to meet the demands of intensive use when large refill capacities are required, it has 4 front filling connections with high pressure hoses and an intuitive control panel. It also has an electric motor and powerful pumping units. For longer filter life, we recommend the Tornado high pressure dryer. Available option: Presec system for filter saturation control or the SAM system for multigas analysis and remote charging panel.

**Working pressure from 232 to 420 bar**

## Standard equipments



4 filling connections  
DRV DIN 232 bar



4 filling connections  
DRV DIN 300 bar



4 filling connections  
DRV INT/YOKE 232 bar



4 filling hoses of 1.2 m  
length



Pressure maintaining  
valve



Interstage control  
gauges



Double filtering system  
Hyperfilter certified  
PED



Cabin temperature with  
automatic switch-off



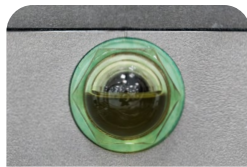
Automatic condensate  
drain



Phase controller that  
prohibits reverse  
rotation



Electronic pressure  
switch with automatic  
switch-off



Oil sight glass with  
autostop



Oil pump



Auto-drain Condensate  
System with condensate  
collection tank



Frame color black  
RAL 9005

## Optional



Presec, filter  
control system



SAM sensors  
CO + CO<sub>2</sub> + H<sub>2</sub>O.  
Available in version  
with VOC



Tornado  
refrigerator  
Available in 350  
bar or 420 bar



Touch screen

# hyperfilter purification system



**A** ① Activated carbon  
② Molecular sieve  
(Standard equipment)

**B** ① Molecular sieve  
(Standard equipment)

**C** ① Activated carbon  
② CO-catalyst  
③ Molecular sieve  
(Suggested for applications  
with diesel/gasoline engines)

HYPERFILTER X 2

Operating pressure (Standard)

**232** bar / **330** bar / **360** bar

Operating pressure max. (PS)

**420** bar

Processable air capacity  
(air inlet temperature in the filter 20° C  
at 300 bar)<sup>1</sup>

**3.050** m<sup>3</sup>

<sup>1</sup> When using a filter cartridge without HOPCALITE CO CATALYST.  
When using a cartridge with CO-removal, the processable air capacity is reduced by ca. 20%.

# HYPERFILTER condensate separation system

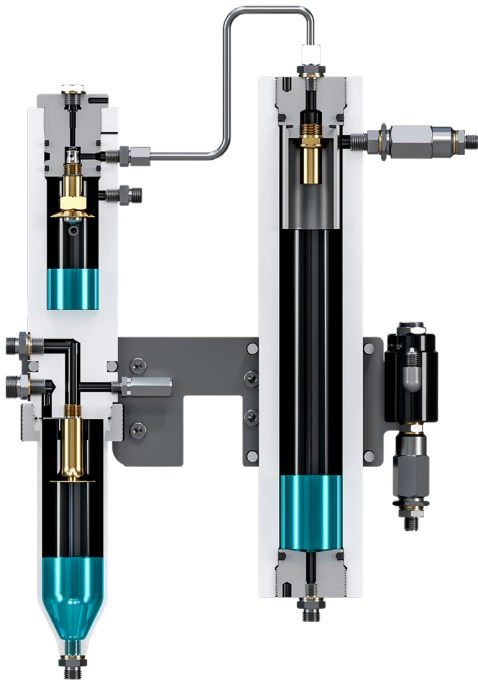
Used on Prime line (TPS) and Heavy duty line models.

- Interstage separator after the 2nd stage, forged and anodized aluminum.
- High-pressure final separator for removal of oil/water condensate.
- Final safety valve, PED certified, mounted on the separator housing.
- Pressure maintaining valve/check valve.

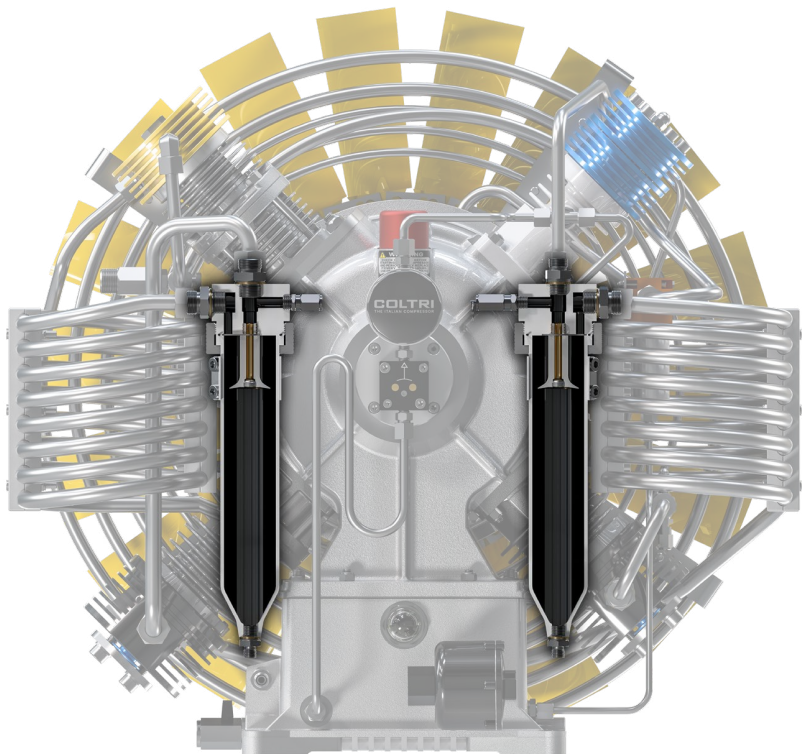
Contamination	Maximum content as per DIN EN 12021:2014	Air quality*
H <sub>2</sub> O	25 mg/m <sup>3</sup>	≤ 10 mg/m <sup>3</sup>
CO	5 ppm(v)	≤ 4
CO <sub>2</sub>	500 ppm(v)	≤ 500
Oil	0,5 mg/m <sup>3</sup>	≤ 0,5 mg/m <sup>3</sup>

\* Measured at our facility using ASCO HORA 160 ANALYZER.

1. Only with special filter cartridge with HOPCALITE CO CATALYST. and up to a maximum concentration of 25 ppm CO in intake air.  
The compressed clean breathing air then contains a maximum of 5 ppm CO.
2. The level of CO<sub>2</sub> in the intake air must not exceed the maximum level of CO<sub>2</sub> as per EN 12021:2014
3. Reported values exceed ISO 8573-1 standards.



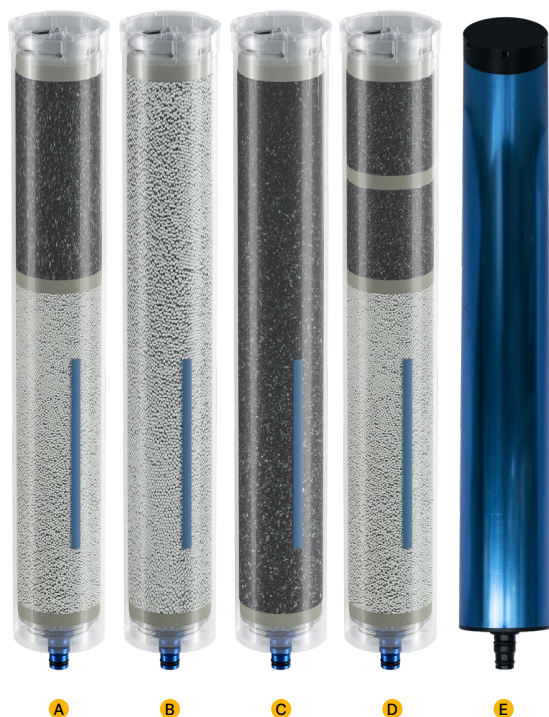
Prime line (TPS)



Heavy Duty line



# HYPERFILTER Cartridges



A

B

C

D

E

- A With molecular sieve and activated carbon
- B With molecular sieve
- C With activated carbon
- D With molecular sieve, activated carbon and CO-catalyst
- E Hyperfilter Presec cartridge

Hyperfilter cartridge  
caps and discs kit



Hyperfilter cartridge  
felts



# Lubricants

## Synthetic Coltri Oil ST 755

A fully synthetic oil specifically developed for long lasting lubrication of process gas compressors and especially for breathing air. It provides outstanding performance in all types of compressors.



## Activated carbon

Activated carbon is a material containing mainly **amorphous carbon**. Due to its high specific area, activated carbon is able to hold many molecules of other substances within it, being able to accommodate these molecules on its large internal surface area.



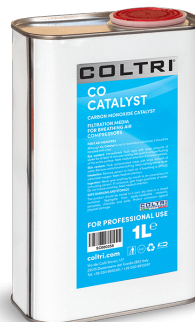
## Molecular sieve

Molecular sieves are materials that can separate molecules based on size. This capability is based on the presence in the material of tiny pores of exact and uniform size, ranging in diameter **from 3 to 10 Å** depending on the material.



## CO Catalyst

The trade name for a series of mixtures consisting primarily of copper and manganese oxides, used as catalysts for the conversion of carbon monoxide to carbon dioxide when exposed to oxygen in air at room temperature.



# Standard equipments

## Digital pressure switch (Prime line (TPS) / Heavy Duty)

The instrument allows to visualize the pressure expressed in bar, psi or MPa.

Through the programming buttons it allows to set the intervention pressure of the relay contact (SPDT) and hysteresis. The settings are protected by passwords at 3 levels: manufacturer, customer and end user. The instrument also has the function of Hour Meter for hours of operation and nr. cycles of separator intervention, ensuring a general improvement of the operation of the re-charge station over time and the longevity of its filters. Standard equipment for Prime and HD lines.



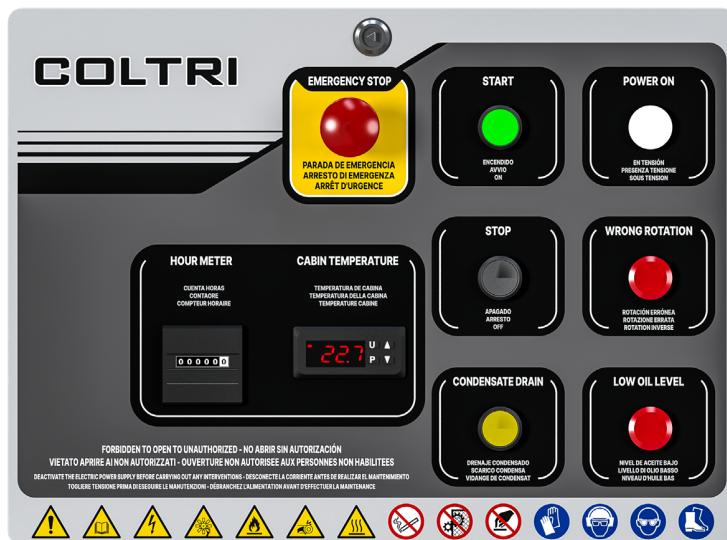
## According to EN 10204 Type 2.1

N.	Caratteristiche / Characteristics	Valori richiesti / requested values	Tolleranze / Tolerances	Strumento di controllo / Test equipment	Esito verifiche / Test Result
1	Setpoint alarm	300 bar	err.max 1,5% vfs	Elect. load 16V/10mA max	<b>OK</b>
2	Setpoint hysteresis	10 bar	err.max 1,5% vfs	Elect. load 16V/10mA max	<b>OK</b>
3	Range	0 – 400 bar	err.max 1,5% vfs	Pressure gauge cl. 0,25% vfs	<b>OK</b>
4	Process connection	G1/4"	Tab ISO228	Ring ISO228	<b>OK</b>

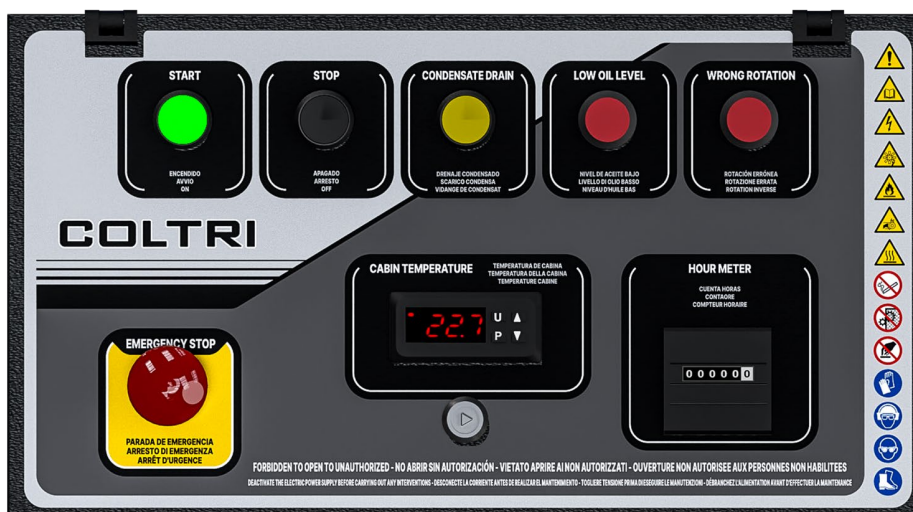
## Compressor control and automatic condensate drain system

- ON/OFF switch with motor protection switch.
- Optional: autostart at 60 bar hysteresis.
- Transformer.
- Pressure switch stops compressor at final pressure.
- Drainage of all separators between the individual stages and also of the final separator during compressor operation (standard drain interval every 8 minutes for a period of 6 seconds).
- Timer for automatic condensate drainage device.
- Integrated vacuum start-up (automatic drain when the unit is switched off).
- Condensate collection tank 5 liters, with silencer; capacity approx. 5 liters, for environmentally friendly disposal of condensate.
- Interstage pressure gauges display the operating pressure for the individual compression stages. This pressure information allows you to check the tightness of the valves (inlet and outlet) of each stage and quickly identify potential sources of failure.

The interstage pressure gauges are mounted in the compressor frame.



Prime line (TPS)



Heavy Duty line



# Optional

## Tornado refrigerator - Dryer

Used on Heavy Duty and Super Silent TPS line.  
Cooler, dryer for high pressure compressed air.  
Up to 3 times longer filter service life.

- Higher air quality
- Less corrosion of mechanical parts
- Refilling of cylinders with constant percentage of humidity

The **TORNADO** refrigerator is an accessory for our recharge stations dedicated to professional use that operates between the separators and the filtering system. **Available in 350 or 420 bar versions.**

### How Tornado works

The incoming warm, moist air passes into the evaporator of this machine, inside which it cools. This allows the moisture to condense. Condensation is then easily removed from the separator, ensuring an overall improvement in the operation of the charging station over time and the longevity of its filters.



## Presec. Filter control system

Includes:

Filter cap with sensor + control unit + cartridge.

**To be installed with the Hyperfilter filter system on compressor.**

The Presec system is connected through a probe with the first filter cartridge and detects its saturation status transmitting to the indicator the relevant switching signals according to the status. If the filter cartridge is exhausted, the compressor is switched off and cannot be started until the cartridge is replaced.

The presec system displays 4 levels of cartridge saturation through 3 relays connected to 3 leds:

### Stable green light (a):

- The system is operational; OK cartridge

### Yellow light button (b):

- Pre-alarm; cartridge is running low and must be replaced soon.

### Red light button (c):

- Alarm; remove cartridge, replace immediately.

### Red light button (c):










- Alarm; filter cartridge is missing or filter system is interrupted; compressor shuts down and cannot be turned back on without inserting a new cartridge or discovering the source of the alarm.

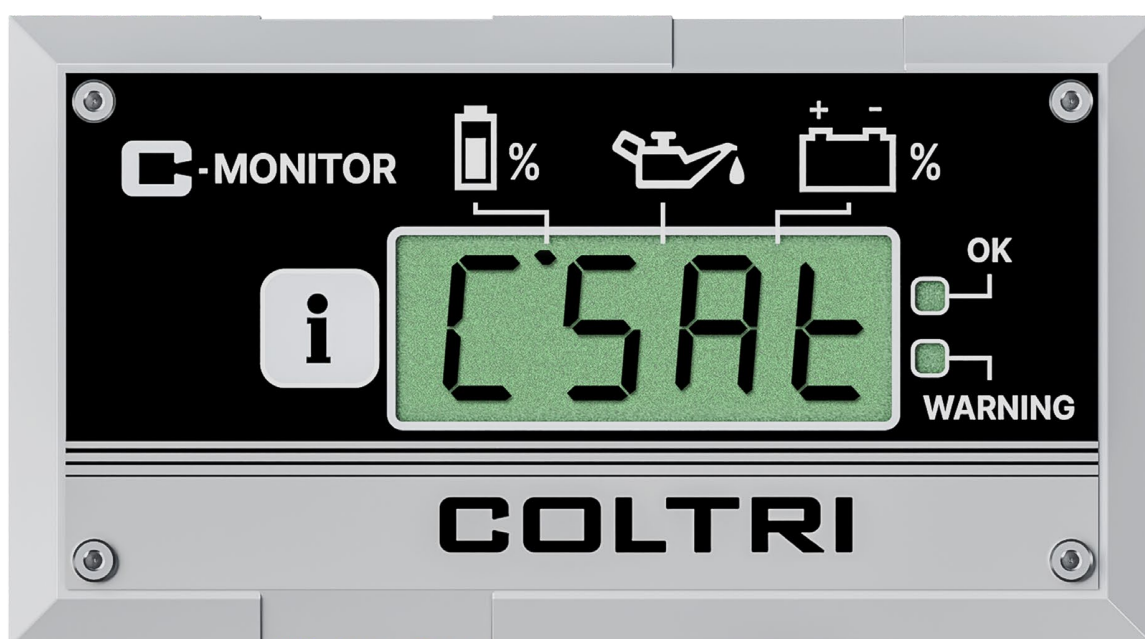
While the yellow light is pulsing (b), the steady green light (a) will still be on because the filter cartridge will not be fully saturated. If no LED lights up, it means that the PRESEC lacks power or that the electrical system is faulty.



## C-Monitor

Final filter monitoring system, oil change and technical interface.

The interface consists of an LCD display, a button  and two indicators (, ). The decimal points next to the digits are indicator lights to indicate alarms or warnings in progress. Each dot is associated with an explanatory icon ( , ,  ). The icon  indicates an alarm condition while the symbol  indicates normal operation. Press the button  to scroll through the different functions of the menu. When pressed, the function is displayed and after two 2 seconds the corresponding data is displayed.



# Multi-Gas Analysis System (SAM)

Choosing the SAM Multigas Analysis System cannot also install the Presec system.

The Coltri Multi-Gas Analysis System is a measuring instrument capable of monitoring air quality. Its application includes continuous monitoring of environmental gases, hyperbaric chambers, safety, medical, air quality.

Available sensors:

- Oxygen O<sub>2</sub>
- Carbon dioxide CO<sub>2</sub>
- Carbon Monoxide CO
- Humidity H<sub>2</sub>O
- Gas Temperature
- VOC (Volatile Organic Compound)
- Helium in Air



## General specifications

Input voltage requirement	10-35 Vdc
Internal Battery	Rechargeable lithium-ion battery. One cell 1400 mAh Li ion 3.7 V
Sensors	Up to 6 sensors
Output	Acoustic alarm
Serial Connection	1 RS232 interface. Transmission speed up to 115000 baud, on request RS485 interface
Measurement resolution	Bipolar 24-bit A/D converter. Drift in automatic temperature compensation.
Conversion rate	10 ms
Sampling time	100 ms (min) for each channel
Signal measurement accuracy	0.1% Full scale +/- 1/2 LSB
Input device	Rotary knob with central push
Color Display	TFT 320 × 240 dot resolution, LED backlighting
Display light intensity	600 nits (cd/m2)
Memory	Micro SD card writer/reader
Microprocessor	Cortex M4