

HEAVY DUTY LINE

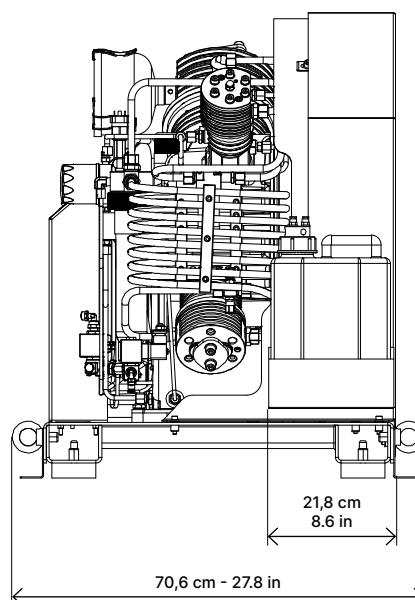
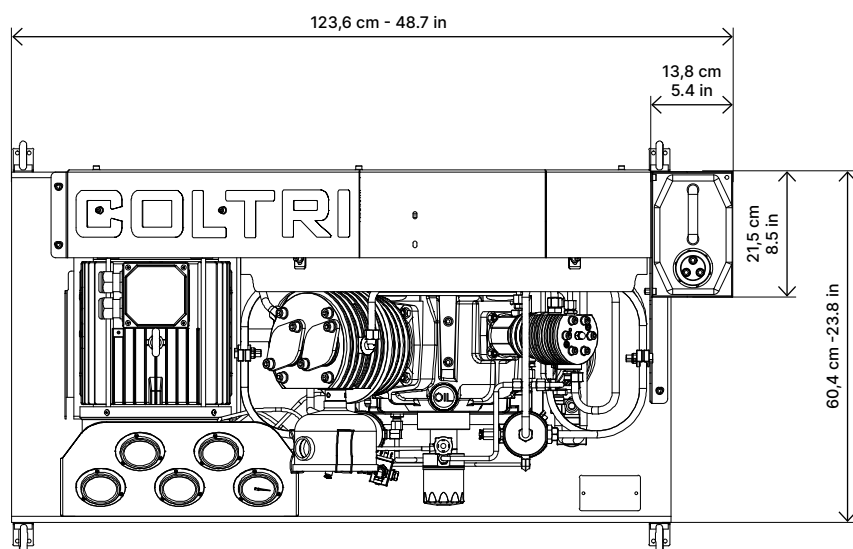
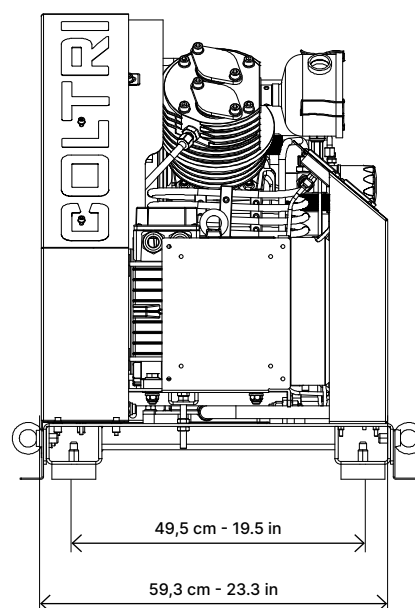
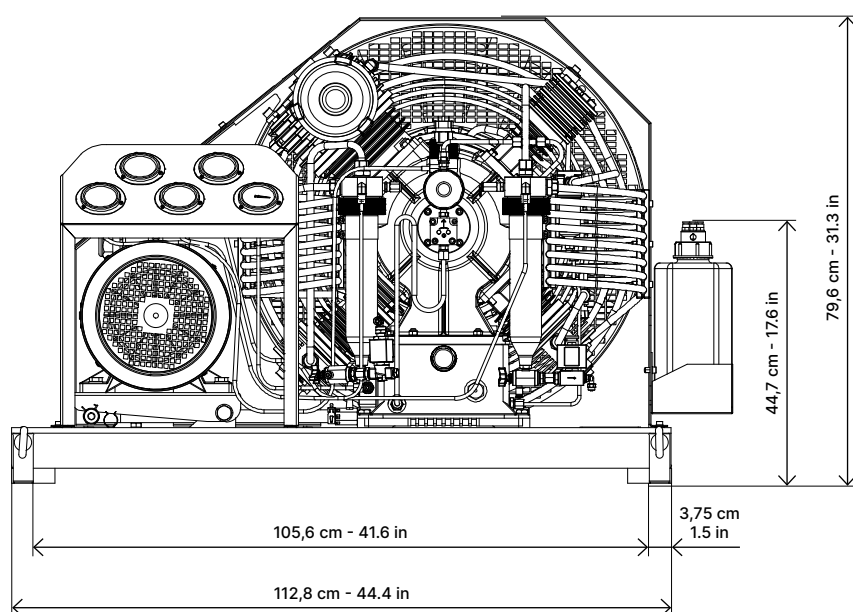
FORCE FOUR



Contact

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.



Technical data

Type of gas	Breathing air EN 12021
Intake pressure	Atmospheric / max 300 millibar
Working pressure	232 bar / 300 bar / 330 bar
Max working pressure	232 bar (Single-phase electric) / 420 bar (Three-phase electric)
Permissible ambient temperature range	-10° C ÷ +40° C
Permissible altitude	0 ÷ 1.500 m SLM
Max permissible tilt	15°
Oil	Synthetic Coltri Oil ST 755
Oil change interval	1 year / 1.000 h
Frame	Steel - Colour Black RAL 9005 - Powder coating painting - Scratch proof

Compressor

	400 EM	450 ET	650 ET
Charging rate Measured during 10 liters cylinder filling from 0-200 bar tolerance +/- 5% at + 20 ° C ambient temperature.	400 l/min 24 m³/h 14,1 cfm	450 l/m 27 m³/h 15,9 cfm	650 l/m 39 m³/h 23 cfm
Purification System	Hyperfilter x 2		
Cooling air flow	4.050 m³/h		4.820 m³/h
Weight¹	250 kg - 551 lb		260 kg - 573 lb
Dimensions (W x D x H)¹	123,6 × 70,6 × 79,6 cm - 48.7 × 27.8 × 31.3 in		

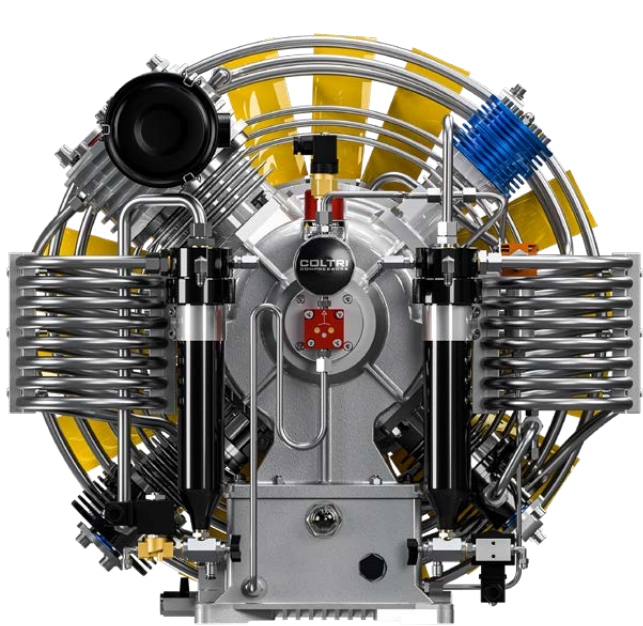
¹ Standard model. Dimensions and weight may vary depending on accessories.

Electric motor

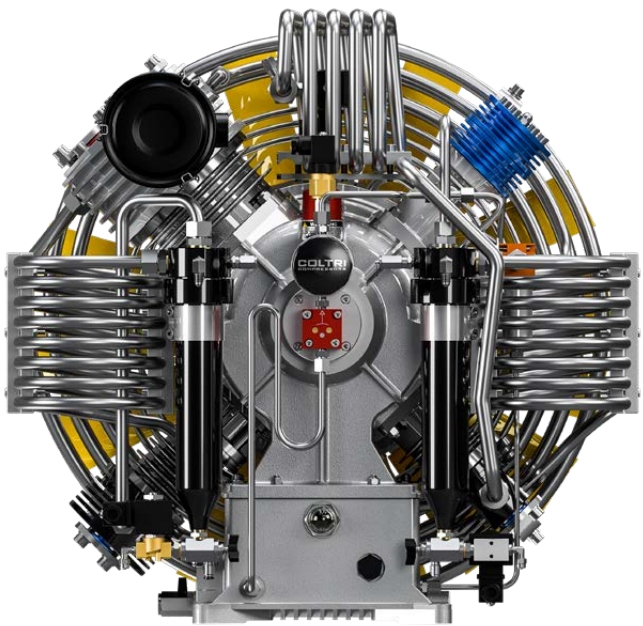
	400 EM	450 ET		650 ET	
Type	Single-phase electric	Three-phase electric			
Power		7,5 kW - 10 hp		11 kW - 15 hp	
Operating voltage/frequency Different voltage / frequency available on request.	230 V, 60 Hz	400 V, 50 Hz	440 V, 60 Hz	400 V, 50 Hz	440 V, 60 Hz
Rated current	41,3 A	15 A		23 A	
Speed (RPM)	3.525	2.870	3.440	2.910	3.500
Protection class	IP55				

Technical data pumping unit MCH 22/36

	400 EM	450 ET	650 ET
Charging rate Measured during 10 liters cylinder filling from 0-200 bar tolerance +/- 5% at + 20 ° C ambient temperature.	400 l/min 24 m³/h 14,1 cfm	450 l/m 27 m³/h 15,9 cfm	650 l/m 39 m³/h 23 cfm
Speed (RPM)	950	1.050	1.250
Number of stages	4		
Number of cylinders	4		
Cylinder bore 1st stage	120 mm		130 mm
Cylinder bore 2nd stage	60 mm		
Cylinder bore 3rd stage	32 mm		
Cylinder bore 4th stage	15 mm		
Stroke	50 mm		
Direction of rotation (from flywheel side)	Counter clockwise (left)		
Drive type	V-belt A type		
Intermediate pressure 1 st stage	~ 3,2 bar		
Intermediate pressure 2 nd stage	~ 16 bar		
Amount of oil	4 liters		
Max intake pressure	1,3 bar (absolute) / 300 millibar - 4,35 psi		



MCH 22



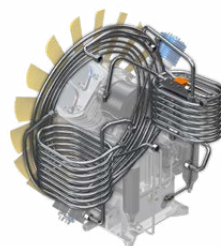
MCH 36



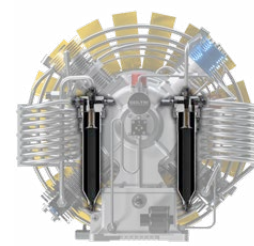
Forced lubrication with low pressure gear pump



Suction filter: 10 µm



Pipes, fitting and nuts in stainless steel AISI 316



Interstage condensate separators



Low oil pressure switch



Safety valves after each stage of compression



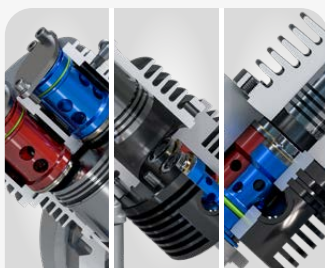
Special cast iron cylinders with low roughness lapping



Aluminum connecting rods



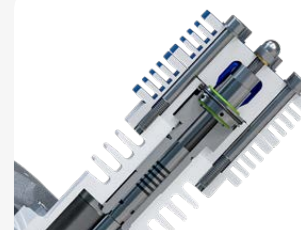
Forged steel crankshaft



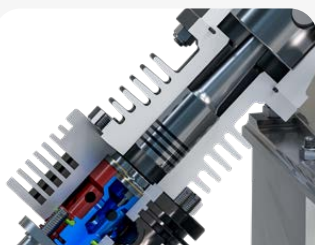
High-flow first, second and third stage valves



Roller Bearings for intensive work



Fourth stage in tempered steel with 6 piston rings in special cast iron



Second, third and fourth stages with pushing pistons to eliminate lateral forces on the pistons



CE certification

Standard equipment

Purification system Hyperfilter

DOUBLE HYPERFILTER regenerable or disposable cartridge

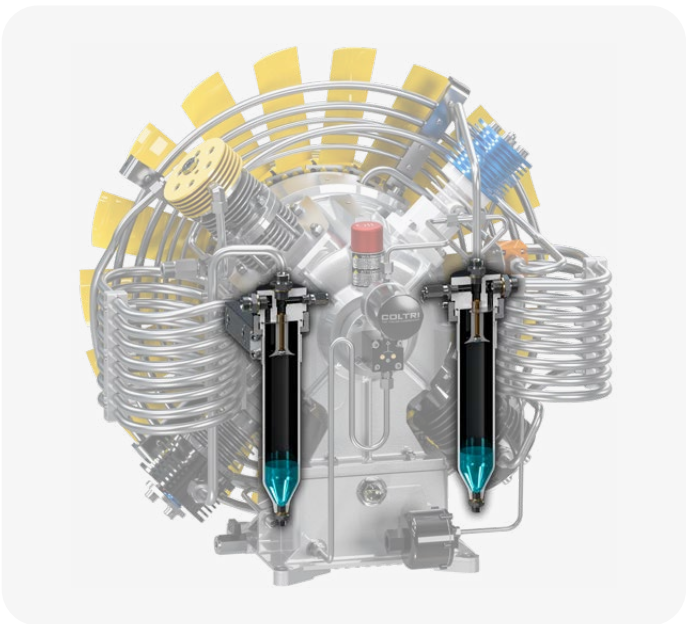


Purification system	Hyperfilter x 2
Operating pressure (Standard)	250 bar / 330 bar / 360 bar
Operating pressure max. (PS)	420 bar
Processable air capacity (air inlet temperature in the filter 20° C at 300 bar) ¹	3.050 m ³

¹ When using a filter cartridge without HOPCALITE CO CATALYST.
If a cartridge with CO removal is used, the process air capacity is reduced by about 20%.

Condensate separation system

- Interstage separator after 2nd stage, forged and anodized aluminum
- Double final separator for removal of oil/water condensate
- Final safety valve, mounted on the separator housing
- Pressure maintenance valve / non-return valve



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

* Measured at our facility using ASCO HORA 160 ANALYZER.

- 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.
- The level of CO₂ in the intake air must not exceed the maximum level of CO₂ as per EN 12021:2014.
- Reported values exceed standards:
 - ISO 8573-1 class 3 for particles
 - ISO 8573-1 class 1 for humidity
 - ISO 8573-1 class 1 for oil



**Stand-alone kit with
Hyperfilter**



**Automatic condensate
drain**



**High pressure final
condensate separator
double effect**



**Compressor control
and automatic
condensate drain
system**



Filling connection

4 Filling connection to choose from: DRV DIN 232 bar, INT/YOKE DRV 232 bar and DRV DIN 300 bar.



Filling hose

Optional



**Presec. Filter control
system**

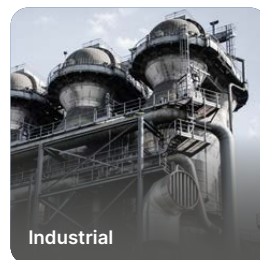
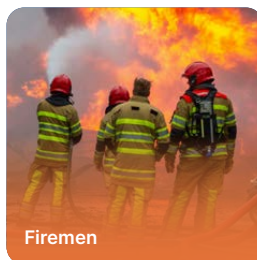
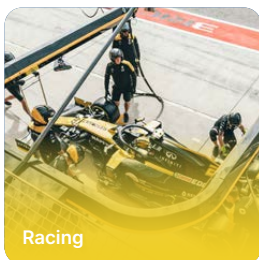
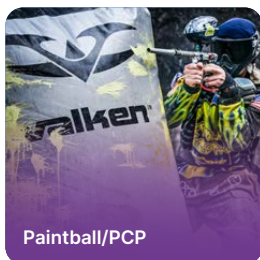
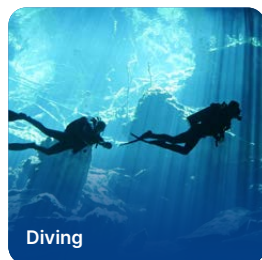


C-Monitor



**Tornado refrigerator -
Dryer**

Application fields



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