

Series:
SMART

rev.05 19/04/2019

TRANSPORTABLE HIGH PRESSURE COMPRESSORS

Breathing air compressor

Types:

MCH 8 EM BASIC | MCH 11 EM BASIC | MCH 16 EM BASIC
MCH 13 ET BASIC | MCH 16 ET BASIC



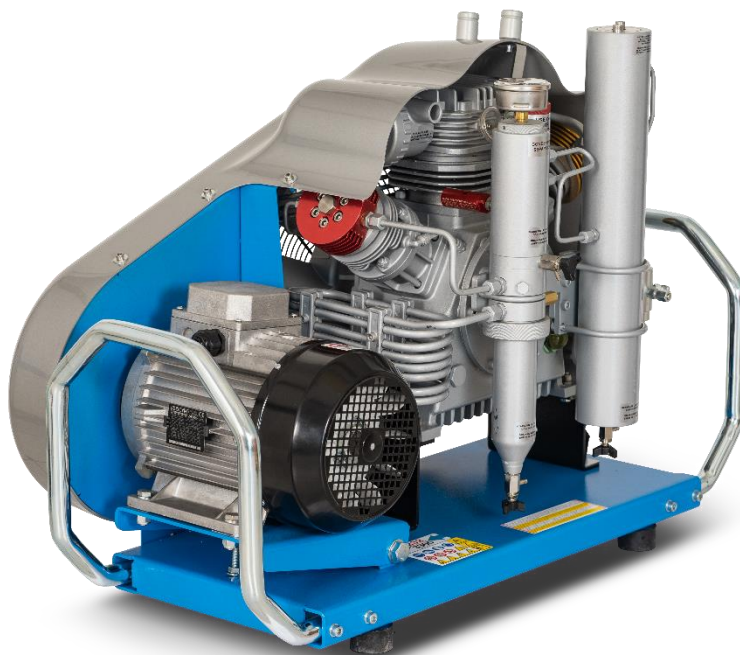
Technical Data Sheet

Series:

SMART



rev.05 19/04/2019



MCH 16 ET BASIC

General	
Type of gas	Air
Intake Pressure	Max 300 mbar
Nominal pressure	250 bar / 330 bar / 360 bar
Filling pressure	232 bar / 300 bar / 330 bar
Max working pressure	420 bar
Permissible ambient temperature range	+5 ÷ +50°C
Permissible altitude	0 ÷ 1,500 m AMSL
Max. permissible tilt	15°
System design	Open
Operating voltage, standard	230 V; 50 Hz SINGLE PHASE / 400 V; 50 Hz THREE PHASE
Other operating voltage	230 V; 60 Hz SINGLE PHASE / 400 V; 60 Hz THREE PHASE
Compressor oil	Coltrioil 157
Oil change interval	every year/ 1,000 h
Frame	Steel 1,5 mm thickness -color RAL 5015 – RAL 7016 Powder coating painting – scratch proof

Technical Data Sheet



Series:

SMART

rev.05 19/04/2019

Compressor system	MCH8 EM BASIC	MCH11 EM BASIC	MCH16 EM BASIC	MCH13 ET BASIC	MCH16 ET BASIC
Charging rate ¹	140 l/min	200 l/min	315 l/min	235 l/min	315 l/min
Purification System	MAXIFILTER				
Cooling air flow, min.	1,710 m ³ /h	1,240 m ³ /h	2,180 m ³ /h	1,440 m ³ /h	2,180 m ³ /h
Weight in kg ²	93 kg	100 kg	105 kg	95 kg	105 kg
Dimensions (LxWxH) ²	1000 x 460 x 700				

¹ Measured during 10 liter cylinder filling from 0-200 bar tolerance +/- 5% at + 20°C ambient temperature.

² Standard model. Weight and dimensions may vary depending on accessories.

Drive system (mono-phases motor)	MCH8 EM BASIC		MCH11 EM BASIC		MCH16 EM BASIC	
Power	3 kW		4 kW		5.5 kW	
Model	MEC 100				MEC 112	
Type of construction	B3					
Type	Single-phase motor with starting capacitor					
Operating voltage / frequency ¹	220 V, 50 Hz	220 V, 60 Hz	220 V, 50 Hz	220 V, 60 Hz	220 V, 50 Hz	220 V, 60 Hz
Speed	2850 rpm	3450 rpm	2850 rpm	3450 rpm	2890 rpm	3470 rpm
Protection class	IP55 (TEFC)					
Pumping group	1440 rpm		1040 rpm		1600 rpm	

Drive system (three-phase motor)	MCH13 ET BASIC	MCH16 ET BASIC	
Power	4 kW	5.5 kW	
Model	MEC 100	MEC 112	
Type of construction	B3		
Type	Three-phase Squirrel-Cage-Motor		
Operating voltage / frequency ¹	400 V, 50 Hz		
Speed	2815 rpm	2910 rpm	
Protection class	IP55 (TEFC)		
Pumping group	1290 rpm	1600 rpm	

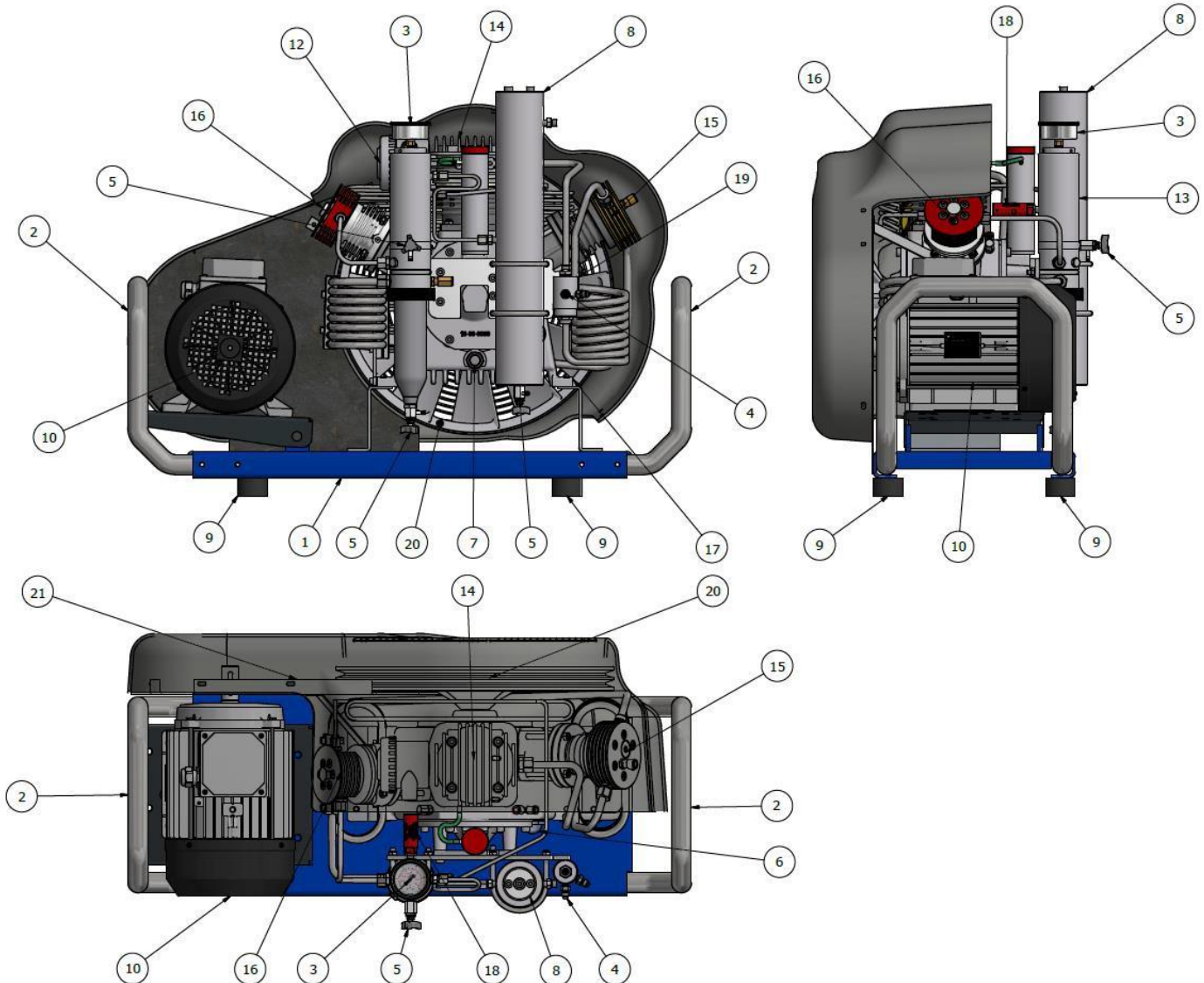
¹ Different voltage / frequency available on request.

Technical Data Sheet

Series:
SMART



rev.05 19/04/2019



- 1 Frame
- 2 Handles
- 3 3rd stage pressure gauge/final pressure
- 4 Refill hoses connection
- 5 Condensate discharge valves
- 6 Oil level
- 7 Oil discharge
- 8 Purifier filter
- 9 Vibration dumpers
- 10 Motor
- 11 Compressor

- 12 Air filter
- 13 Final condensate separator
- 14 1st stage
- 15 2nd stage
- 16 3rd stage
- 17 Monobloc
- 18 Safety valve (final overpressure)
- 19 PMV
- 20 Cooling fan
- 21 Belt

► Compressor block with following features:

- Splash oil lubrication.
- Micronic intake filter: 10 µm
- All coolers and pipes, stainless steel AISI 316 and stainless steel fittings and nuts.
- Outlet temperature approx. 15 °C above cooling air temperature.
- Intermediate separators after 2nd stage and 3rd stage.
- Sealed safety valves after each stage.
- Pressure maintaining and check valve after the final air filter purification.
- Aluminum cylinders with galvanic surface coating.
- Forged aluminum conrods.
- Forged steel crankshaft.
- Stainless steel 2nd-3rd stage valves.
- Heavy duty roller bearing.
- Tempered steel 3rd stage with 5 cast iron piston rings.
- 2nd – 3rd stages with pushing pistons to eliminate side forces.



Compressor block	MCH8	MCH16
Charging rate ¹	140 l/min	200 - 315 l/min
Speed	1,440 rpm (MCH 8)	1,040 rpm (MCH 11) 1,290 rpm (MCH 13) 1,600 rpm (MCH 16)
Number of stages	3	3
Number of cylinder	3	3
Cylinder bore 1st stage	60 mm	95 mm
Cylinder bore 2nd stage	38 mm	38 mm
Cylinder bore 3rd stage	14 mm	14 mm
Stroke	40 mm	40 mm
Direction of rotation (from flywheel side)	Left – counter clockwise	Left – counter clockwise
Drive type	V-belt A type	V-belt A type
Intermediate pressure 1st stage	Approx. 6 bar	Approx. 6 bar
Intermediate pressure 2nd stage	Approx. 45 bar	Approx. 45 bar
Amount of oil	1.8 Liters	1.8 Liters
Intake pressure	1.3 bara – 300 millibar	1.3 bara – 300 millibar

¹ Measured during 10 liters cylinder filling from 0-200 bar tolerance +/- 5% at + 20°C ambient temperature.

» Purification system MAXIFILTER

- MAXIFILTER polypropylene cartridge repackable or disposable



Purification System	MAXIFILTER
Operating pressure (Standard)	250 bar / 330 bar / 360 bar
Operating pressure max. (PS)	420 bar
Processable air capacity (at ambient temperature 20°C and 200 bar) ¹	480 m ³

¹ When using a filter cartridge without hopcalite. When using a cartridge with CO-removal, the processable air capacity is reduced by ca. 20%.

» Separator system

- Interstage separator after 2nd stage, stainless steel AISI 316
- Final separator for the removal of oil-/ water condensate
- final safety valve, fitted to separator housing
- Pressure maintaining / non return valve, fitted to filter bracket

Contamination	Maximum content as per DIN EN 12021:2014	Air quality *
H ₂ O	25 mg/m ³	≤ 10 mg/m ³
CO	5 ppm(v)	≤ 4
CO ₂	500 ppm(v)	≤ 500
Oil	0.5 mg/m ³	≤ 0.5 mg/m ³

¹ Only with special filter cartridge with hopcalite 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 CO₂ in the intake air must not exceed the maximum level of CO₂ as per EN 12021:2014!

* Measured at our facility using ASCO HORA 160 ANALYZE

» Filling connections

1 Filling pressure 232 bar



* Optional not included

Filling device	BC DIN 232
Nominal pressure (PN)	250 bar
Valve design	1 filling valve with integrated ventilation, with cylinder connector G 5/8" according to EN 144-2 and 477 PN232
Filling hose	1200 mm stainless steel fittings – wp 420 bar

2 Cylinder connection yoke clamp



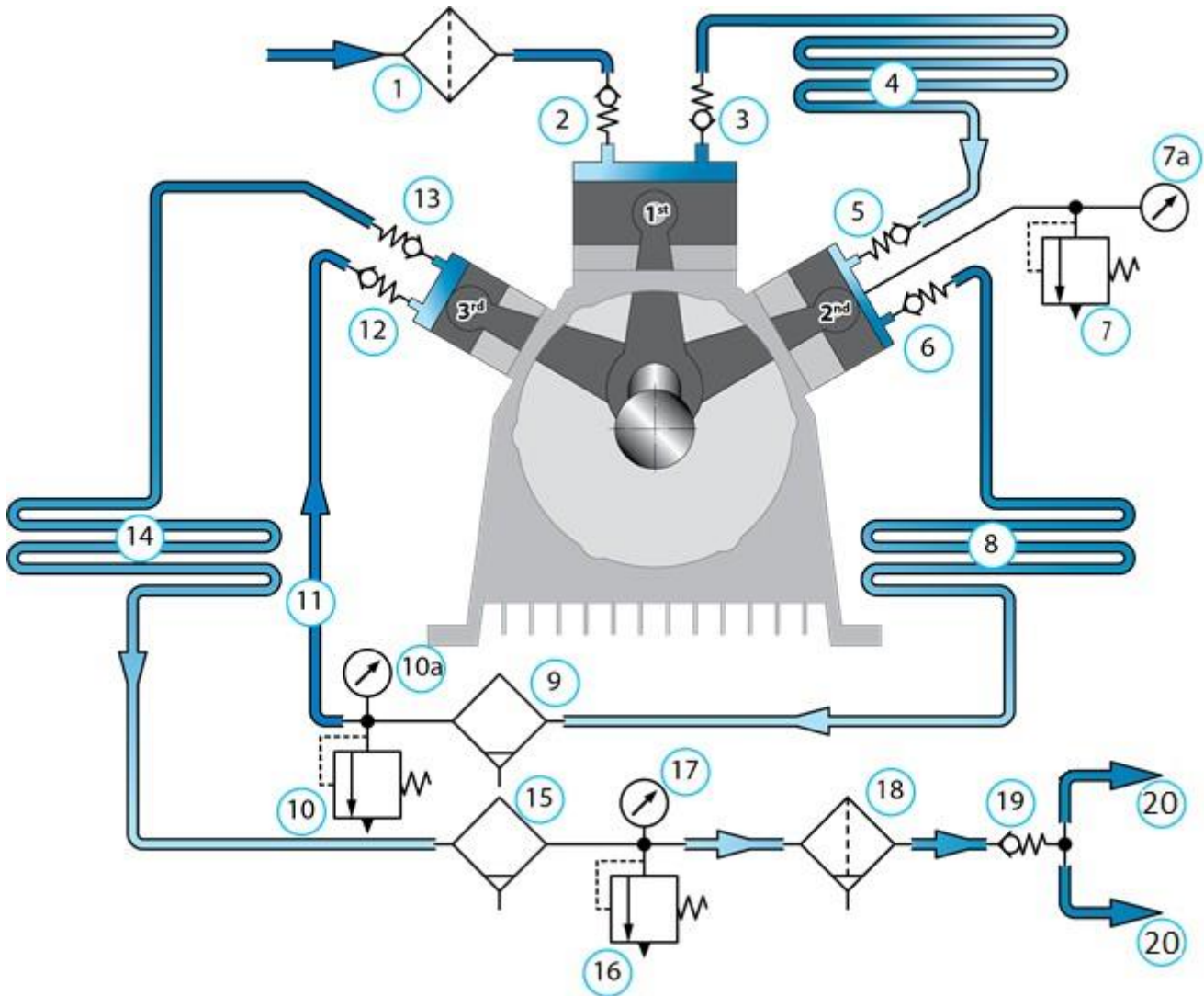
Filling device	BC INT 232
Nominal pressure (PN)	250 bar
Valve design	1 filling valve with integrated ventilation, with cylinder connector G 5/8" yoke clamp PN 232
Filling hose	1200 mm stainless steel fittings – wp 420 bar

3 PN300 filling device



Filling device	BC DIN 300
Nominal pressure (PN)	330 bar
Valve design	1 filling valve with integrated ventilation, with cylinder connector G 5/8" according to DIN EN 144-2 and DIN 477 , PN300
Filling hose	1200 mm stainless steel fittings – wp 420 bar

› Piping and instrumentation diagram

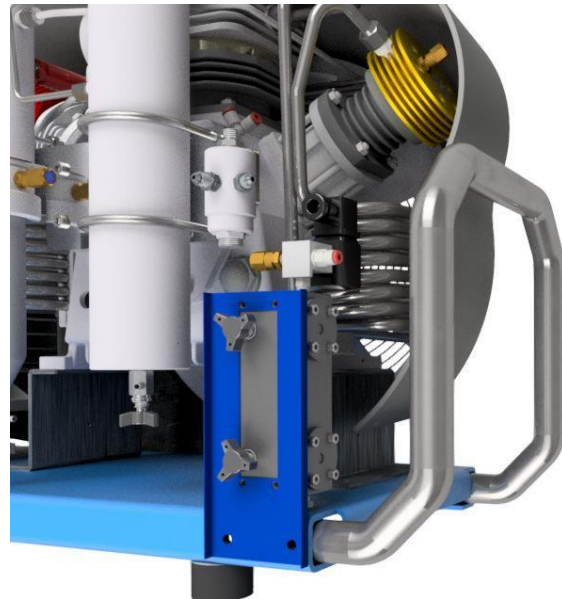


- | | |
|---|---|
| 1 Intake filter | 11 Pipe separator/3 rd stage |
| 2 Intake valve 1 st stage | 12 Intake valve 3 rd stage |
| 3 Outlet valve 1 st stage | 13 Outlet valve 3 rd stage |
| 4 Cooling pipe 1 st -2 nd stage | 14 Aftercooler |
| 5 Intake valve 2 nd stage | 15 Condensate separator HP |
| 6 Outlet valve 2 nd stage | 16 Safety valve |
| 7 Safety valve 1 st stage | 17 Pressure gauge final |
| 7a Interstage pressure/gauge 1 st stage | 18 Pipe separator/filter MAXIFILTER |
| 8 Cooling pipe 2 nd /condensate separator LP | 19 PMV |
| 9 Condensate separator LP | 20 Filling hoses |
| 10 Safety valve 2 nd stage | |
| 10a Interstage pressure/gauge 2 nd stage | |

» Compressor control and automatic condensate drain system



Compressor control



Automatic condensate drain system

- ON/OFF Switch with protective motor switch
- Optional: Autostart at 60 Bar hysteresis
- Transformer
- Pressure switch stops the compressor unit at final pressure
- Drainage of all separators between the individual stages and also the final separator during compressor operation (standard draining interval every 15 minutes for a 6 second period)
- Timer for automatic condensate drain device
- Unloaded start integrated (automatically draining at every shut-down of the unit)
- Condensate collecting tank 5 litre, with silencer; about 3 litre capacity, for the environmentally friendly disposal of the condensate

Technical Data Sheet



Series:

SMART

rev.03 18/09/2018

EC DECLARATION OF CONFORMITY
According to Annex II point A of Directive 2006/42/EC,
Annex IV Directive 2014/30/EU,
Annex II Directive 2000/14/EC (adopted in Italy with D.Lgvo 4/9/02 n. 262)

The firm **AEROTECNICA COLTRI S.p.A.**, as the manufacturer of the **HIGH PRESSURE COMPRESSOR FOR BREATHING AIR**

Model	MCH 16		
Type	SMART		
Code			
Serial number			
Year		Lwa guaranteed	dB(A)
Engine	SINGLE-PHASE	Lwa measured	dB(A)
Power	5,5 kW	Lpa measured	dB(A)

Hereby declares under its sole responsibility that it complies with all the relevant provisions of the Directives:

- **2006/42/EC** (machinery Directive);
- **2014/30/EU** (electromagnetic compatibility Directive);
- **2000/14/EC** (Directive on noise emission in the environment by equipment for use outdoors).

further, declares that the compressor complies with the relevant requirements described in the technical standards:

**EN ISO 12100:2010, EN 1012-1:2010, EN ISO 13857:2008, CEI EN 60204-1:2006,
CEI EN 61000-6-4:2007/A1:2013, CEI EN 61000-6-2:2006**

finally, declares that:

- any modification made to the compressor without written authorization from AEROTECNICA COLTRI S.p.A. shall void this declaration;
- extraordinary maintenance operations and supply of spare parts must always be requested to the manufacturer;
- the user's manual is an integral part of the machine, and a full knowledge and understanding of it are essential for a safe use.

Person authorized to compile the technical file according to the above mentioned Directives: eng. Marco Corsini near Aerotecnica Coltri S.p.A.

Technical Data Sheet

Series:

SMART



rev.03 18/09/2018



AEROTECNICA COLTRI Spa
Via Colli Storici, 177
25015 DESENZANO DEL GARDA (BS) ITALY
Tel. +39 030 9910301 - Fax. +39 030 9910283
www.coltri.com