

ENGLISH



中文



HIGH PRESSURE COMPRESSORS FOR PURE BREATHING AIR AND TECHNICAL GASES
纯呼吸空气和工业气体用高压压缩机



EFFICIENT LINE:

- ERGO MCH-16/EM
- ERGO MCH-13-16/ET

USE AND MAINTENANCE MANUAL

使用手册

ERGO
ELECTRIC

CONTENTS	
1- TECHNICAL DATA	2
1.1 Technical characteristics	2
1.1.1 Crankcase, crankshaft, cylinder, pistons	2
1.1.2 Valves	2
1.1.3 Safety valves	2
1.1.4 Pressure maintenance valve	2
1.1.5 Lubrication	2
1.1.6 Cooling tubes	2
1.1.7 Frame, guards	2
1.1.8 Pressure gauges	2
1.2 Machine parts	3
1.3 Technical characteristics	5
1.4 Pressure circuit	5
1.5 Wiring diagram	6
2- HANDLING AND INSTALLATION	7
2.1 Unpacking	7
2.2 Handling	7
2.3 Installation	8
2.3.1 Positioning	8
2.3.2 Air intake extension connection	9
2.3.3 Electrical connection	9
3 - USING THE COMPRESSOR	10
3.1 Preliminary checks before using for the first time	10
3.1.1 Inserting filtration cartridge	10
3.1.2 Checking for proper electrical connection	10
3.1.3 Refill hoses connection	10
3.2 Checks to be run at the start of each working day	11
3.2.1 Lubricating oil level check	11
3.2.2 Checking that the flex hoses are in good condition	11
3.2.3 Checking the safety valves	12
3.2.4 Storing technical documentation	12
3.3 Control panel	13
3.4 Starting and shutting down	14
3.5 Tank refill	15
3.6 OPTIONAL	17
3.6.1 Digital pressure switch	17
3.6.2 Filling panels	19
3.6.3 Filling connections	19
3.6.4 Filling hoses	19
3.6.5 C_MONITOR monitoring system	20
4- MAINTENANCE	21
4.1 Foreword	21
4.2 General	21
4.3 Unscheduled work	22
4.4 Scheduled maintenance table	22
4.5 Troubleshooting	23
4.6 Condensate discharge	24
4.7 Changing the intake filter	25
4.8 Transmission belt	26
4.9 Purifier filter	27
4.10 Checking and changing the lubricating oil	29
4.11 Changing the flex hose	31
4.12 Safety valves	32

目录	
1 - 技术参数	2
1.1 技术特点	2
1.1.1 曲轴箱、曲轴、气缸、活塞	2
1.1.2 阀门	2
1.1.3 安全阀	2
1.1.4 压力维持阀	2
1.1.5 润滑	2
1.1.6 冷却管	2
1.1.7 框架, 防护装置	2
1.1.8 压力表	2
1.2 机器零件	3
1.3 技术特点	4
1.4 压力回路	5
1.5 接线图	6
2- 搬运和安装	7
2.1 拆卸包装	7
2.2 搬运	7
2.3 安装	8
2.3.1 定位	8
2.3.2 进气口扩展连接	9
2.3.3 电气连接	9
3 - 压缩机的使用	10
3.1 首次使用前的初步检查	10
3.1.1 插入过滤盒	10
3.1.2 检查电气连接是否正确	10
3.1.3 加注软管连接	10
3.2 每个工作日开始时都要进行检查	11
3.2.1 润滑油油位检查	11
3.2.2 检查加注软管是否处于良好状态	11
3.2.3 检查安全阀	12
3.2.4 储存技术文件	12
3.3 控制面板	13
3.4 启动和关闭	14
3.5 气瓶加注	15
3.6 可选项目	17
3.6.1 数显压力开关	17
3.6.2 充气面板	19
3.6.3 充气接头	19
3.6.4 充气软管	19
3.6.5 C_MONITOR滤芯监控系统	20
4 - 维护保养	21
4.1 序言	21
4.2 一般情况	21
4.3 不定期的检查	22
4.4 定期维护保养表	22
4.5 排除故障	23
4.6 凝结水排放	24
4.7 更换进气过滤器	25
4.8 传动带	26
4.9 净化过滤器	27
4.10 检查和更换润滑油	29
4.11 更换充气软管	31
4.12 安全阀	32

4 - TECHNICAL DATA

4.1 TECHNICAL CHARACTERISTICS

4.1.1 Crankcase, crankshaft, cylinders, pistons

The crankcase is made of an aluminium alloy cast in gravity shell, the flanges are die-cast in aluminium. The goose neck is made of forged steel, the connecting rods are in forged aluminium.

The flanges with roller bearings that support the crankshaft are kept oil-tight with the crankcase by O-rings between flange and crankcase and the oil retainer between flange and motor shaft.

The crankshaft and the connecting rods run on bearings with roller cages only. The connecting rods are fitted on the crankshaft with a single crank angle.

The cylinders are die-cast in aluminum with internal coating of nickel and silicon, the pistons of the first and second stage are made of aluminum, the piston of the third stage is made of steel. The sealing bands are in cast iron. The pistons of the second and third stages are floating.

4.1.2 Valves

The heads set features outlet and intake valves. The 1st stage head is reed valve type and includes both intake and pressure.


The intake and discharge valves of the second stage, made of stainless steel, are placed directly in the respective seats of the head.

The head of the third stage houses a coaxial intake and discharge valve.

4.1.3 Safety valves

The safety valves are pre-adjusted during assembly of the compressor and prevent it being damaged in the event of a malfunction. The max pressure, as a function of the valve, as follows:

1 st stage safety valve	10Bar / 145PSI
2 nd stage safety valve	70Bar / 1015PSI
3 rd stage safety or final valve	232-300-330Bar / 3300-4300-4700PSI

 **WARNING:** It is strictly forbidden to carry out any adjustments to the valve to raise its factory preset pressure. Tampering with the safety valve can cause serious damage and renders the warranty null and void.

4.1.4 Pressure maintenance valve

This valve is fitted after the final filter. When the compressor is switched on it keeps internal system pressure at 100 ±20 bar so as to remove as much water as possible from the air.

4.1.5 Lubrication

Splash lubrication occurs by oil thrower pin onto the 1st stage connecting rod.


4.1.6 Cooling tubes

The cooling pipes are made of stainless steel. The condensate separators are made of alluminium.

4.1.7 Frame, guards

The compressor and motor are mounted on a welded steel frame that has been painted with epoxy resins. Stainless steel frame available on request.

4.1.8 Pressure gauges

 **IMPORTANT:** The gauges installed on AEROTECNICA COLTRI compressors have a precision class of 1.6 (±1.6% on the full scale value).

4 - 技术参数

4.1 技术特点

4.1.1 曲轴箱、曲轴、气缸、活塞

曲轴箱是由铝合金铸造的重力壳制成的，法兰盘是铝压铸的。鹅颈是由锻钢制成的，连杆是由锻铝制成的。

带滚子轴承的法兰盘支撑着曲轴，通过法兰盘和曲轴箱之间的O型圈以及法兰盘和电机轴之间的挡油器与曲轴箱保持油密。

曲轴和连杆仅在带滚子笼的轴承上运行。连杆安装在曲轴上，只有一个曲柄角。

气缸是铝压铸的，内部有镍和硅的涂层，第一和第二级的活塞是铝制的，第三级的活塞是钢制的。密封带是铸铁的。第二级和第三级的活塞是浮动的。

4.1.2 阀门

该头组具有出口和进气阀。第一级封头为簧片阀类型，包括进气和压力。


第二级的进气阀和排气阀由不锈钢制成，直接放置在封头的各自阀座内。

第三级的封头容纳了一个同轴的进气和排气阀。

4.1.3 安全阀

安全阀在压缩机组装过程中被预先调整好，防止其在发生故障时被损坏。最大的压力，作为阀门的功能，如下所示。

第一级安全阀	10巴/145PSI
第二级安全阀	70巴/1015PSI
第三级安全阀或最终阀	232-300-330Bar / 3300-4300-4700PSI

 **警告:** 严禁对阀门进行任何调整以提高其出厂预设压力。篡改安全阀会造成严重的损坏，使保修失效。

4.1.4 压力维持阀

该阀安装在最终过滤器之后。当压缩机开启时，它将内部系统压力保持在100±20巴，以便尽可能多地从空气中去除水分。

4.1.5 润滑

飞溅的润滑是通过抛油器针头在第一级连杆上进行的。

4.1.6 冷却管

冷却管是由不锈钢制成的。冷凝液分离器是由铝制成的。

4.1.7 框架、防护装置

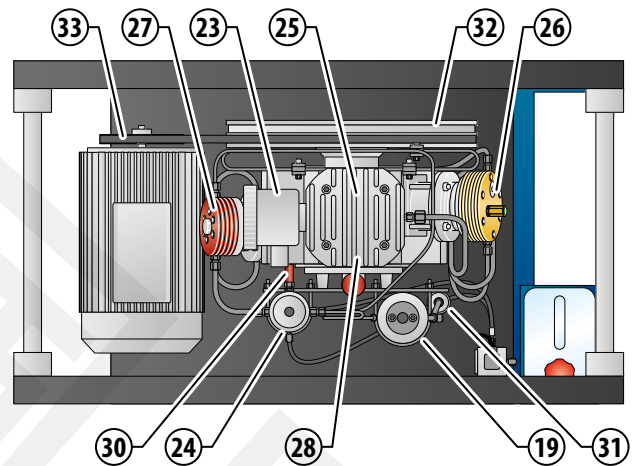
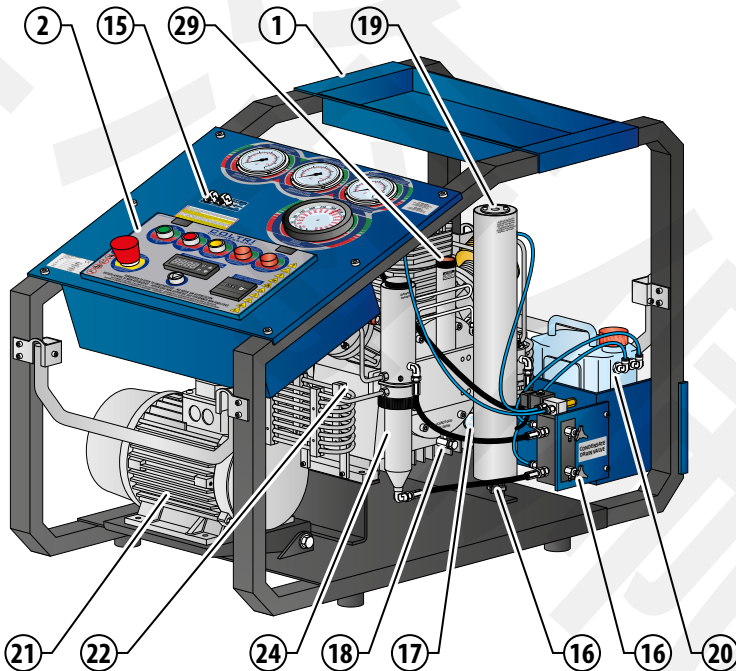
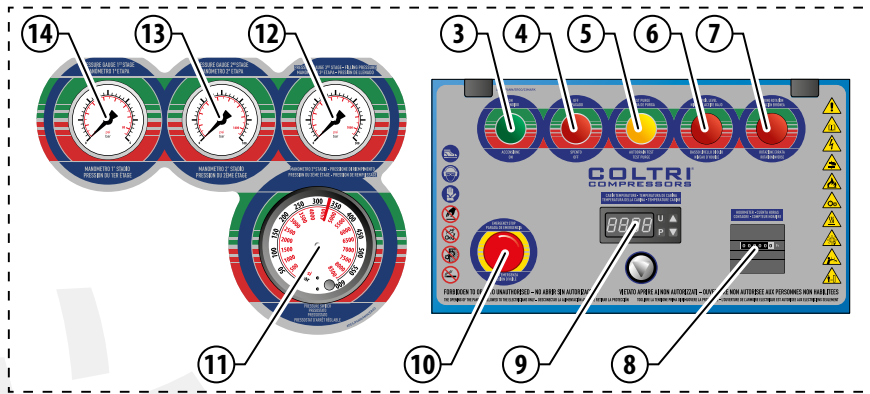
压缩机和电机安装在一个焊接的钢架上，钢架已经用环氧树脂涂过。可根据要求提供不锈钢框架。

4.1.8 压力表

 **重要提示:** 安装在AEROTECNICA COLTRI压缩机上的测量仪的精度等级为1.6（满刻度值的±1.6%）。

4.2 MACHINE PARTS

4.2 机器零件

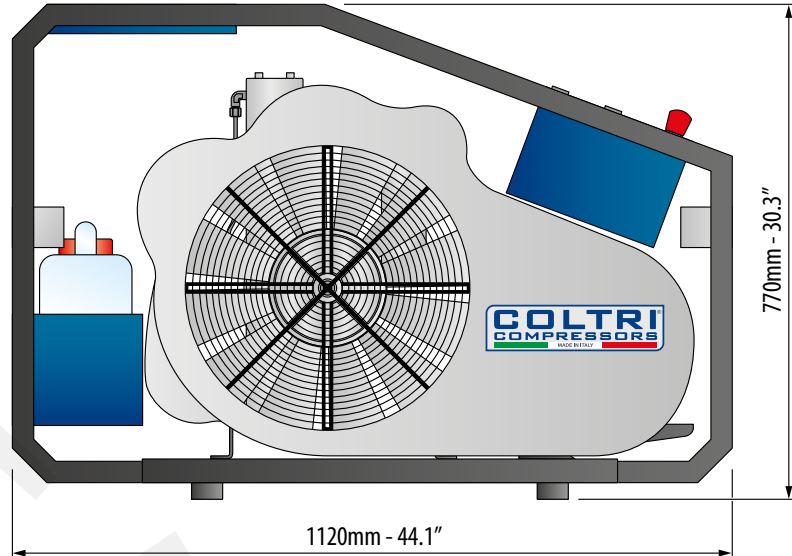
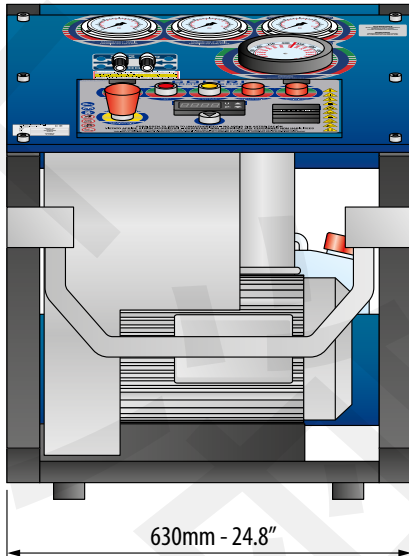


- 1 Frame
- 2 Control pannel
- 3 ON pushbutton
- 4 Stop pushbutton
- 5 Condensatedischargepushbutton
- 6 Oil level warning light
- 7 Directionofrotationindicatorlight
- 8 Hour counter
- 9 Cabinet interior / cooling air temperature
- 10 Emergency pushbutton
- 11 Automatic shutdown pressure switch
- 12 3rd stage pressure gauge
- 13 2nd stage pressure gauge
- 14 1st stage pressure gauge
- 15 Refill hoses connection
- 16 Condensate discharge valves
- 17 Oil level
- 18 Oil discharge valves
- 19 Purifier filter
- 20 Condensate collection can
- 21 Motor
- 22 Compressor
- 23 Air filter
- 24 Final condensate separator
- 25 1st stage
- 26 2nd stage
- 27 3rd stage
- 28 Monobloc
- 29 Oil filler plug
- 30 Safety valve
- 31 Maintenance valve
- 32 Cooling fan
- 33 Belt

- 1 框架
- 2 控制通道
- 3 开启按钮
- 4 停止按钮
- 5 冷凝水排放按钮
- 6 油位警告灯
- 7 旋转方向指示灯
- 8 小时计数器
- 9 柜内/冷却空气温度
- 10 紧急按钮
- 11 自动关机压力开关
- 12 第三级压力表
- 13 第二级压力表
- 14 第一级压力表
- 15 加注软管连接
- 16 冷凝水排放阀
- 17 油位
- 18 排油阀
- 19 净化器过滤器
- 20 冷凝液收集罐
- 21 马达
- 22 压缩机
- 23 空气过滤器
- 24 最终冷凝水分离器
- 25 第一级
- 26 第二级
- 27 第三级
- 28 单片机
- 29 注油口塞
- 30 安全阀
- 31 维修阀
- 32 冷却风扇
- 33 皮带

4.3 TECHNICAL CHARACTERISTICS

4.3 技术特点



		ERGO MCH-16/EM		ERGO MCH-13-16/ET							
		MCH-16		MCH-13			MCH-16				
Electric Engine	电动发动机		Single phase - Monofase		Three phase - Trifase						
Engine power	发动机功率	(kW)	5,5		4			5,5			
			(Hp)	7,5		5,5			7,5		
Engine rpm	发动机转速	(giri/min)(rpm)		2850	3450	2850	3420		2840	3410	
			Voltage	电压	(V)	230	230	230	230	440	230
Frequency	频率	(Hz)				50	60	50	60	60	50
			Absorption	吸收	(A)	25,2	25,2	16,8/9,7	16,8/9,7	9,7	21,8/12,6
Pumping Unit	抽水机	(giri/min)(rpm)				1600		1240			1600
Working pressure	工作压力	(bar)	232-300-330								
			(PSI)	3300-4300-4700							
Charging rate	充电率	(l/min)		315		235			315		
			m ³ /h	18,9		14,1			18,9		
Refill time	加注时间	CFM (ft ³ /min)		11,1		8,3			11,1		
			10l / 0-200bar (min)	6'20"		8'30"			6'20"		
Noise level	噪声水平	Lwa guaranteed (dB)		95		95			95		
			Lwa measured (dB)	92		92			92		
				Lpa measured (dB)	72		72			72	
Dry weight	干重	(Kg)	147		159			152			
			(lb)	324		350			335		
Dimensions	尺寸	(mm)		1120x630x770							
			(inches)	44.1x24.8x30.3							



ATTENTION: For single-phase compressors powered by a current generator, the power of the generator (for reloads at 232bar) must be:

Compressor:	Generator:
MCH-16/EM (230V-5,5kW)	minimum 20 kVA

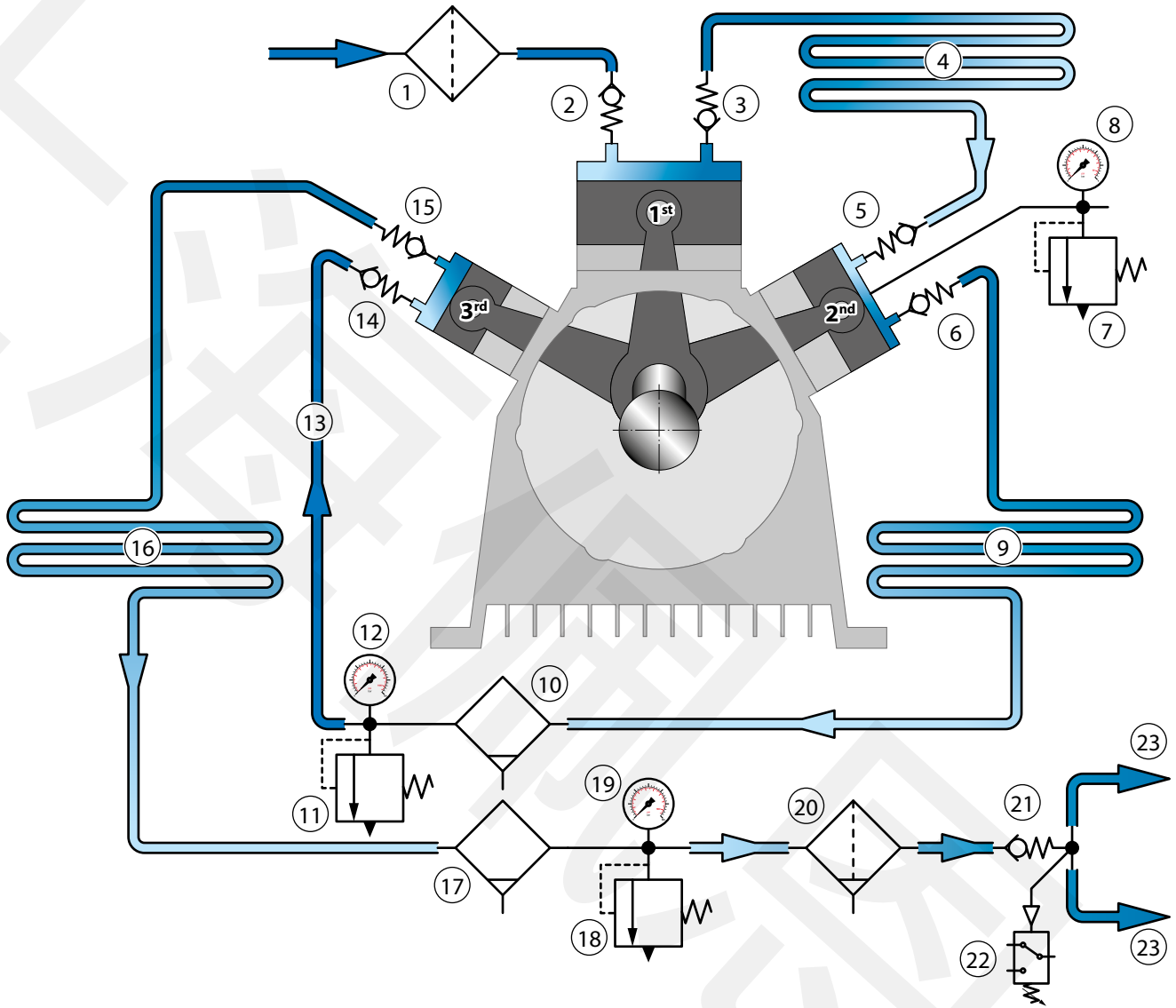


注意：对于由电流发生器供电的单相压缩机，发生器的功率（用于232bar的重载）必须是。

压缩机。	发电机。
MCH-16/EM (230V-5,5kW)	至少20千伏安

4.4 PRESSURE CIRCUIT

4.4 压力回路



- | | |
|---|---------------------------------------|
| 1 Intake filter | 15 Outlet valve 3 rd stage |
| 2 Intake valve 1 st stage | 16 Aftercooler |
| 3 Outlet valve 1 st stage | 17 Condensate separator HP |
| 4 Cooling pipe 1 st -2 nd stage | 18 Safety valve |
| 5 Intake valve 2 nd stage | 19 Pressure gauge |
| 6 Outlet valve 2 nd stage | 20 Purifier filter |
| 7 Safety valve 1 st stage | 21 Pressure maintenance valve |
| 8 1 st stage pressure gauge | 22 Pressure switch |
| 9 Cooling pipe 2 nd /condensate separator LP | 23 Flex hoses |
| 10 Condensate separator LP | |
| 11 Safety valve 2 nd stage | |
| 12 2 nd stage pressure gauge | |
| 13 Pipe separator/3 rd stage | |
| 14 Intake valve 3 rd stage | |

- | | |
|--|-------------|
| 1 进气过滤器 | 14 进气阀第三级 |
| 2 进气阀第一级 | 15 第三级排水阀 |
| 3 第一级出口阀 | 16 最终冷却管 |
| 4 冷却管第1-2阶段 | 17 高压冷凝水分离器 |
| 5 进气阀第二级 | 18 安全阀 |
| 6 第二级出口阀 | 19 压力表 |
| 7 安全阀第一级 | 20 净化器过滤器 |
| 8 第一级压力表 | 21 压力维持阀 |
| 9 冷却管 2/冷凝器 LP separatore di condensa LP | 22 压力开关 |
| 10 冷凝水分离器 LP | 23 条鞭子 |
| 11 第二级安全阀 | |
| 12 第二级压力表 | |
| 13 管道分离器/第三级 | |

5 - HANDLING AND INSTALLATION

5.1 UNPACKING

The compressor is packed in a cardboard box on a pallet to simplify handling and transport.

The box containing the compressor must be moved according to the instructions shown on the box itself.

The machine is supplied with the following as standard:

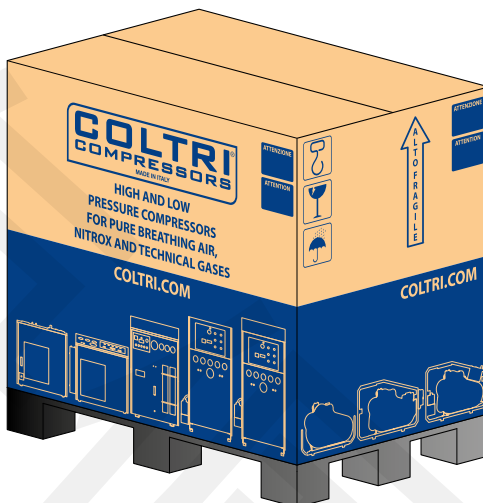
- 2 Refill hoses 1200 mm;
- 2 Filling connection;
- 1 Active carbon and molecular sieve Maxifilter cartridge vacuum;
- 1 Use and maintenance manual;
- EC declaration of conformity.

5 - 处理和安装

5.1 拆卸包装

压缩机被装在一个纸箱中，放在一个托盘上，以简化搬运和运输。装有压缩机的箱子必须按照箱子本身上的说明进行移动。本机的标准配置如下。

- 2条加注软管1200毫米。
- 个加注接口。
- 1个活性炭和分子筛Maxifilter滤芯真空。
- 1本使用和维护手册。
- 欧共体符合性声明。



5.2 HANDLING

After separating the compressor from its packaging it can be transported to the designated placement area.

Transfer will require the use of a fork-lift or transpallet (of suitable load-bearing capacity): the forks must be positioned in the support feet on which the europallet is positioned.

To lift the compressor use the carry handles (a).

If the compressor is to be lifted manually make sure the task is done by two workers, once again using the carry handles (a).

5.2 搬运

- o 将压缩机从包装中分离出来后，可以将其运到指定的放置区域。
- o 搬运时需要使用叉式升降机或转盘（具有适当的承载能力）：叉子必须放在欧式托盘所处的支撑脚中。
- o 抬起压缩机时要使用提手（a）。
- o 如果要手动抬起压缩机，请确保由两名工人完成任务，同样使用提手（a）。



IMPORTANT: Proceeding with the utmost care when lifting, transferring and positioning the compressor.

重要提示: 在抬起、转移和定位压缩机时要极其小心。



WARNING: Manual lifting of the compressor requires at least two workers and in any case no individual worker should lift more than 30 Kg.



警告: 手动搬运压缩机至少需要两名工人，而且在任何情况下，单个工人的搬运量都不能超过30公斤。

5.3 INSTALLATION



WARNING: Before proceeding with the installation tasks described below, read Chapter 3 "SAFETY REGULATIONS" carefully.

5.3.1 Positioning

- Position the compressor in the designated area and check it is level. For compressor dimensions please consult section 4.3 "Technical characteristics".
- Check that the area in which the compressor is to be positioned is adequately ventilated: good air exchange (more than one window), no dust and no risk of explosion, corrosion, fire and absence of harmful or toxic fumes and gases.
- If ambient temperatures exceed +40°C air conditioning will be necessary.
- Position the compressor no closer than 1 m to surrounding walls; the gap between compressor and ceiling should be at least 1.5 m. These distances ensure proper compressor operation and proper cooling of the pumping unit.
- Make sure that lighting in the area is sufficient to identify every detail (such as the writing on the info labels); use artificial lighting where daylight is on its own insufficient.

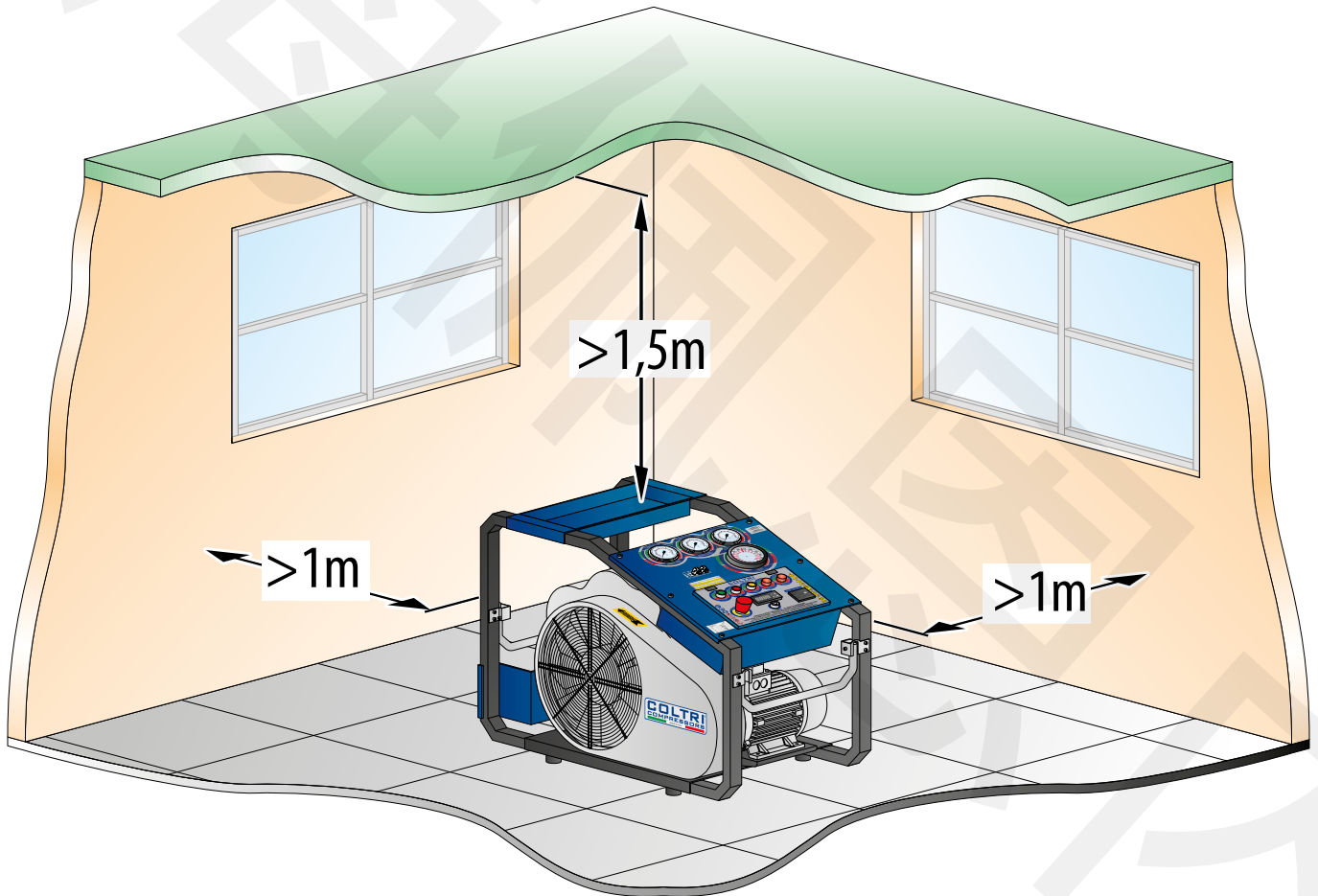
5.3 安装



警告：在进行下面的安装任务之前，请仔细阅读第3章 "安全规定"。

5.3.1 定位

- 将压缩机放置在指定的区域，并检查其是否水平。关于压缩机的尺寸，请参考第4.3节 "技术特性"。
- 检查放置压缩机的区域是否有足够的通风：良好的空气交换（一个以上的窗口），没有灰尘，没有爆炸、腐蚀、火灾的危险，没有有害或有毒的烟雾和气体。
- 如果环境温度超过+40°C，则需要进行空调。
- 将压缩机放置在离周围墙壁不超过1米的地方；压缩机和天花板之间的间隙应至少为1.5米。这些距离可以确保压缩机的正常运行和泵送装置的正常冷却。
- 确保该区域的照明足以识别每个细节（如信息标签上的文字）；在日光本身不足的情况下，使用人工照明。



5.3.2 Air intake extension connection

If the compressor is installed in an area without the necessary ventilation requisites described in section 5.3.1 "Positioning", it will be necessary to install an air intake extension leading in from outdoors or a place with the cited ventilation requisites.

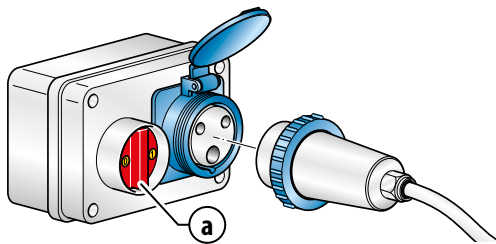
- The extension, supplied as an optional, must be connected to the intake connector (a).
- Connect extension pipe to fitting.
- Fit the supplementary intake filter on the extremity of the extension pipe.
- Position the end of the extension with the air intake filter in a properly ventilated area sheltered from weather and exhaust fumes.
- Point the air intake against the wind.
- Check that there are no kinks or breaks along the pipe. If it is damaged replace it.



WARNING: Use only a flexible pipe with internal steel braiding reinforcement so as to prevent kinks and a consequent reduction of cross-section. Do not aspirate harmful gases or exhaust fumes.

5.3.3 Electrical connection

The compressor is supplied with an electrical lead. To connect up to the power supply just insert the plug in the mains power socket. Check that the data on the compressor ID plate is compatible with mains power supply, especially as regards rated current and voltage. The mains power system must have an efficient ground (earth); check that the earth resistance value complies with the protection / operational requirements of the compressor electrical system.



WARNING: Before inserting the plug, check that the electrical system complies with the standards in force in the country of installation. A proper earth (ground) system is an essential safety requisite. An efficient compressor ground (earth) system is an essential compressor safety requisite. The mains power connection plug must be type-approved in compliance with the relevant standards and have an ON-OFF (a) switch (not supplied).

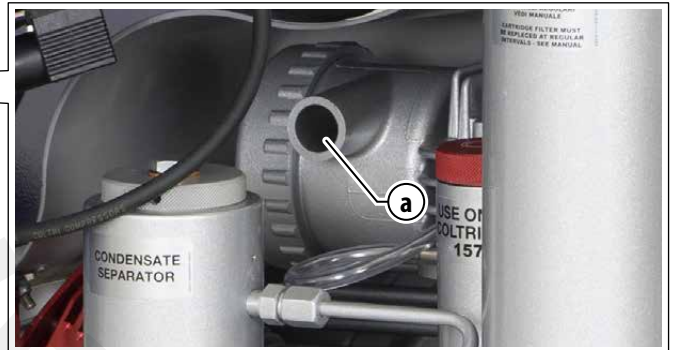


DANGER: Check that the characteristics of the mains power are compatible with those of the compressor.

5.3.2 进气口扩展连接

如果压缩机安装在没有第5.3.1节 "定位" 所述的必要通风条件的区域, 就必须安装一个从室外或具有所述通风条件的地方引来的进气口。

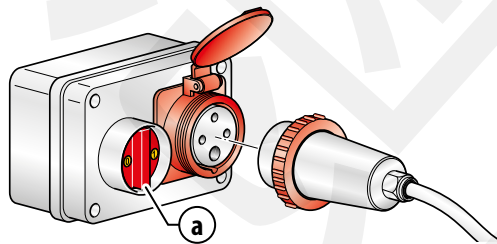
- 作为选配件提供的延长管必须连接到进气接头 (a)。
- 将延长管连接到接头。
- 将辅助进气过滤器安装在延长管的端部。
- 将带有进气过滤器的延长管末端放置在一个适当的通风区域, 避开天气和废气的影响。
- 将进气口对准风向。
- 检查管道上是否有扭结或断裂。如果有损坏, 请更换。



警告: 只能使用内部有钢编织加固的柔性管道, 以防止扭结和随之而来的横截面缩小。不要吸食有害气体或废气。

5.3.3 电气连接

压缩机提供了一条电线。要连接到电源上, 只需将插头插入主电源插座。检查压缩机ID板上的数据是否与主电源兼容, 特别是在额定电流和电压方面。主电源系统必须有一个有效的地线 (接地); 检查接地电阻值是否符合压缩机电气系统的保护/操作要求。



警告: 在插入插头之前, 请检查电气系统是否符合安装国的现行标准。适当的接地 (地线) 系统是必要的安全条件。有效的压缩机接地 (地线) 系统是必不可少的压缩机安全条件。主电源连接插头必须是符合相关标准的型号认证, 并有一个ON-OFF (a) 开关 (不提供)。



危险: 检查主电源的特性是否与压缩机的特性相符。

6 - USING THE COMPRESSOR



IMPORTANT: for optimal use of the compressor is recommended to respect the times of continuous use, and the shutdown time (for cooling) reported in the table.

Engine power (Kw) Potenza motore (Kw)	Use (minutes) Utilizzo (minuti)	Cooling (minutes) Raffreddamento (minuti)
4 (ET)	80	20
5,5 (ET)	90	25

6.1 PRELIMINARY CHECKS BEFORE USING FOR THE FIRST TIME

The operator must check that the compressor is supplied with:
- use and maintenance manual;
If the compressor is sold on the customer/user must provide the purchaser with a complete, undamaged use and maintenance manual.

6.1.1 Inserting filtration cartridge

At the time of delivery the compressor has no filtration cartridge fitted: the cartridge is supplied together with the compressor in a sealed vacuum-packed bag found inside the packaging.
For instructions on how to insert the filtration cartridge see section "7.9 Purifier filter".

6.1.2 Checking for proper electrical connection

Check for proper connection of electrical phases by checking that the cooling fan rotates in the direction indicated by the arrow (a) on the fan cover.

The warning light (b) comes on if direction of rotation is incorrect.
If the direction of rotation is not as indicated by the arrow it will be necessary to disconnect the electrical power supply and invert two of the three phases on the main power lead.



DANGER: Before carrying out this task disconnect the compressor from the mains power supply.
Do not invert or disconnect the ground (earth) wire (yellow/green).



ATTENTION: only invert the phase cables on the plug. Never modify the electrical system of the control panel or of the motor.
The air flow generated by the fan must be directed towards the compressor and not outwardly.

6.1.3 Refill hoses connection

At the time of delivery the compressor has no refill hoses fitted: the refill hose is supplied together with the compressor inside the packaging.
For instructions on connection see section "7.11 Hose replacement".

6 - 使用压缩机



重要提示: 为了优化压缩机的使用, 建议遵守表格中报告的连续使用时间和停机时间 (用于冷却)。

Engine power (Kw) Potenza motore (Kw)	Use (minutes) Utilizzo (minuti)	Cooling (minutes) Raffreddamento (minuti)
4 (ET)	80	20
5,5 (ET)	90	25

6.1 首次使用前的初步检查

操作员必须检查压缩机的供货情况。
- 使用和维护手册。
如果压缩机被转卖, 客户/用户必须向购买者提供完整的、未损坏的使用和维护手册。

6.1.1 插入过滤盒

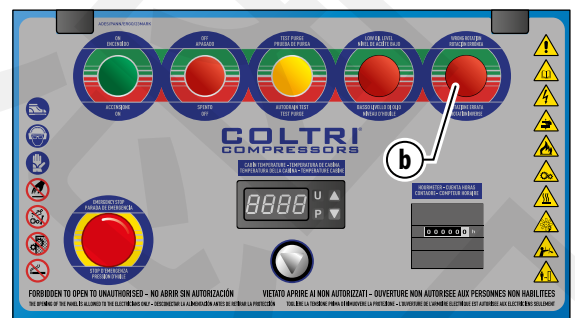
在交付时, 压缩机没有安装过滤盒: 过滤盒与压缩机一起装在包装内的密封真空包装袋中。
关于如何插入过滤盒的说明, 见 "7.9 净化器过滤器" 一节。

6.1.2 检查电气连接是否正确

通过检查冷却风扇是否按照风扇盖上的箭头 (a) 指示的方向旋转, 来检查电相的连接是否正确。
如果旋转方向不正确, 警告灯 (b) 会亮起。
如果旋转方向与箭头所示不同, 则有必要断开电源, 将主电源线上的三相中的两相反转。



危险: 在执行这项任务之前, 请将压缩机与主电源断开。
不要颠倒或断开地线 (黄色/绿色)。



注意: 只能将插头上的相线反转。切勿修改控制板或电机的电气系统。
风机产生的气流必须朝向压缩机, 而不是向外。

6.1.3 加注软管连接

在交付时, 压缩机没有安装加注软管: 加注软管与压缩机一起在包装内提供。
连接说明见 "7.11 软管更换" 一节。

6.2 CHECKS TO BE RUN AT THE START OF EACH WORKING DAY

Inspect the exterior of the compressor (couplings, pipes, pneumatic components etc.) and check for any oil leaks. Replace parts where necessary or contact AEROTECNICA COLTRI.

6.2.1 Lubricating oil level check

Check that the lubricating oil level (a-a1) is within acceptable limits (MIN.-MAX.).

Note that an excessive quantity of oil can cause infiltrations in the cylinders and leave deposits on the valves while too low a level prevents proper lubrication and could cause engine seizure.

If the oil level is not within the minimum and maximum limits top up or drain as described in section "7.10 Changing the lubricating oil".



6.2.2 Checking that the refill flex hoses are in good condition

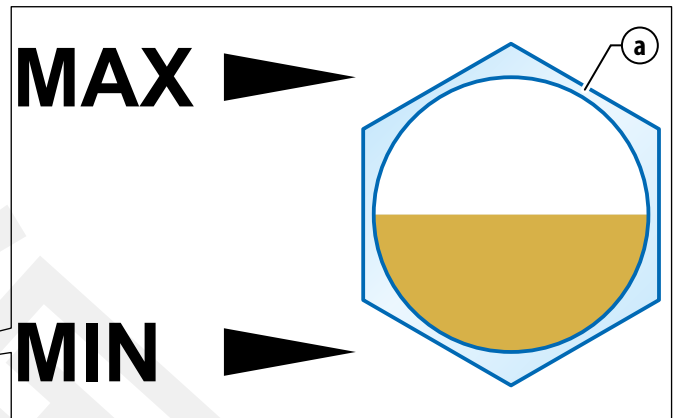
Inspect the refill hoses and make sure there are no cuts, holes, abrasions, leaks etc. If necessary replace with new hoses.

6.2 每个工作日开始时都要进行检查

检查压缩机的外部（联轴器、管道、气动元件等），检查是否有漏油。必要时更换部件或联系AEROTECNICA COLTRI。

6.2.1 润滑油油位检查

检查润滑油油位（a-a1）是否在可接受的范围内（MIN.-MAX.）。请注意，过量的机油会导致气缸内的渗漏，并在气门上留下沉积物，而过低的油位则会妨碍正常的润滑，并可能导致发动机的卡死。如果油位不在最小和最大限度内，请按照“7.10 更换润滑油”一节中的描述进行加油或放油。



6.2.2 检查加注软管是否处于良好状态



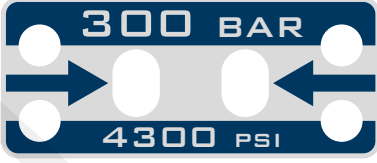



检查加注软管，确保没有切口、孔洞、擦伤和泄漏等。如果有必要，请更换新的软管。

6.2.3 Checking the safety valves

The final safety valve protects bottles and the compressor by excessive pressure; the valve setting is made at the time of testing the compressor. The safety valve are pre-adjusted to:

6.2.3 检查安全阀

最后的安全阀通过过高的压力保护瓶子和压缩机；阀门的设置是在测试压缩机的时候进行的。安全阀都是预先调整好的。

Nominal Operating Pressure - 标称工作压力	Sticker - 标签	SAFETY VALVE - 安全阀
232 bar 3300 PSI	 ADESIVO/232	 6-05-015/3/250
300 bar 4300 PSI	 ADESIVO/300	 6-05-015/3/330
330 bar 4700 PSI	 ADESIVO/330	 6-05-015/3/360

The safety valve must be tested every 250 working hours of the compressor.

压缩机每工作250小时必须对安全阀进行检测。要检查安全阀

To check the safety valve:

- set the pressure to a pressure higher than that of the valve setting;
- after attaching the coupling to the bottle start the compressor with the bottle valves closed;
- once you have checked, using the gauge, that the safety valve trips properly at maximum working pressure.

- 将压力设置为高于阀门设置的压力。
- 将接头连接到瓶子上后，在瓶子阀门关闭的情况下启动压缩机。
- 使用压力表检查安全阀是否在最大工作压力下正常跳动。



IMPORTANT: The safety valves must be replaced every 10 years or 5000 hours.



重要提示：安全阀必须每10年或5000小时更换一次。



DANGER:
Tampering with the safety valve to increase the pressure setting is strictly forbidden.
Tampering with the safety valve can seriously damage the compressor, cause serious injury to personnel and renders the warranty null and void.



危险。
严禁篡改安全阀以提高压力设置。
篡改安全阀会严重损坏压缩机，对人员造成严重伤害，使保修失效。
如果安全阀不能正常工作，请联系AEROTECNICA COLTRI援助服务。

Should the safety valve fail to work properly contact the AEROTECNICA COLTRI assistance service.

6.2.4 Storing technical documentation

The use and maintenance manual and its appendices must be stored carefully and must always be kept where they can be accessed easily for immediate consultation.

6.2.4 储存技术文件

使用和维护手册及其附录必须小心保存，并且必须始终保存在可以方便查阅的地方，以便立即查阅。



WARNING: The use and maintenance manual is an integral part of the compressor and must always be handed over in the event of a change of ownership.



警告：使用和维护手册是压缩机的一个组成部分，在所有权发生变化时，必须随时移交。

11 Thermostat

The thermostat indicates the temperature inside the compressor. If the temperature is higher or lower than the parameters set on the thermostat the compressor shuts down and can only be restarted once temperature has returned within the permitted range.

WARNING: Temperature parameters must not be changed without prior authorisation from AEROTECNICA COLTRI: doing so will render the warranty null and void (where still valid).

12 Hour counter

The hour counter indicates the number of working hours of the compressor: this provides a time reference for scheduled maintenance.

如果压缩机在按下紧急按钮后未能立即关闭，请将压缩机与电源断开，并联系AEROTECNICA COLTRI。

11 温控器

恒温器显示压缩机内部的温度。如果温度高于或低于温控器上设定的参数，压缩机就会关闭，只有当温度恢复到允许的范围时才能重新启动。

警告：未经AEROTECNICA COLTRI事先授权，不得改变温度参数：这样做将使保修失效（如果仍然有效）。

12小时计数器

小时计数器显示压缩机的工作小时数：这为预定的维护提供了时间参考。

6.4 STARTING AND SHUTTING DOWN

IMPORTANT: These tasks must be carried out by qualified personnel who have been trained to use the compressor.

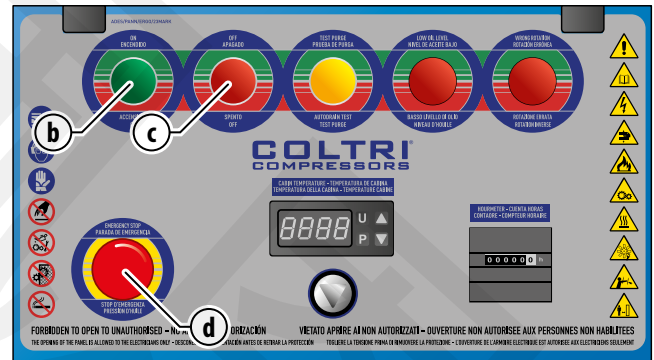
- Before starting the engine open the condensate discharge points (a) to prevent a "strained" start.
- press the start pushbutton (b);
- close the condensate discharge points (a).

To switch off the compressor press the pushbutton (c).

6.4 启动和关闭

重要提示：这些工作必须由经过培训的合格人员来执行，以使用压缩机。


- 在启动发动机之前，打开冷凝水排放点 (a)，防止 "紧张" 的启动。
- 按下启动按钮 (b)。
- 关闭冷凝水排放点 (a)。
- 要关闭压缩机，请按下按钮(c)。





WARNING: If emergency or danger situations occur press the emergency pushbutton (d). To restore normal compressor operation rotate the emergency pushbutton anticlockwise (d).

警告：如果出现紧急情况或危险情况，请按下紧急按钮 (d)。要恢复压缩机的正常运行，请逆时针旋转紧急按钮 (d)。

6.5 TANK REFILL

 **IMPORTANT:** During refill the operator must be in the work area.

 **WARNING:** During bottle refill those not involved in the refill procedure must maintain a safety distance of at least 3 metres. Also, it is forbidden to disconnect the hoses from the fittings or the fill valve while the machine is under pressure.

 **IMPORTANT:** If an emergency situation arises during refill shut down the compressor immediately (see "6.4 Starting and shutting down").

The compressor is nevertheless equipped with a safety system that shuts it down automatically when:


- Comes into operation the safety valve without shutting down the compressor.
- The pressure setting on the pressure switch has been reached.
- The electrical power supply is temporarily cut.
- The electric motor overload device is tripped.

Following an emergency shutdown always make sure the cause of the emergency has been eliminated before proceeding with another refill.

 **WARNING:** Use only tested bottles (as proven by a test stamp and/or certificate).


The working and bottle refill pressures are shown on the bottles themselves.

It is forbidden to refill them at a pressure greater than that indicated.

 Check that the bottles to be refilled are in good condition: they must have been tested by the relevant authorities (stamped and/or certified). Run a visual check on the exterior.

Check that the refill hose and relevant fitting are in good condition.


After being refilled do not empty the bottles completely, not even during winter storage or long periods of inactivity: this will stop humidity getting in.


 **DANGER:** Should bottles show evident signs of internal/external corrosion, do not refill them even if they have been tested.


The available bottle refill connectors are:



6.5 气瓶加注

 **重要提示:** 在加注过程中，操作人员必须在工作区域内。


 **警告:** 在瓶子加注过程中，没有参与加注的人必须保持至少3米的安全距离。另外，当机器处于压力下时，禁止将软管从接头处或灌装阀处断开。

 **重要提示:** 如果在加注过程中出现紧急情况，应立即关闭压缩机（参见 "6.4 启动和关闭"）。


尽管如此，压缩机还是配备了安全系统，在以下情况下自动关闭。

- 在不关闭压缩机的情况下，安全阀开始工作。
- 已经达到了压力开关上的压力设定值。
- 电力供应被暂时切断。
- 电动机过载装置跳闸。
- 在紧急停机后，一定要确保紧急情况的原因已被消除，然后再继续加注。

警告: 只使用经过测试的瓶子（由测试印章和/或证书证明）。

 工作压力和瓶子的填充压力都显示在瓶子本身上。

严禁在超过标示压力的情况下加注。

 检查要加注的瓶子是否处于良好状态：它们必须经过相关部门的测试（盖章和/或认证）。对外观进行目视检查。检查加注软管和相关接头是否完好。在加注后，不要完全清空瓶子，即使是在冬季储存或长期不使用的情况下也不行：这将阻止湿度进入。**危险:** 如果瓶子有明显的内部/外部腐蚀的迹象，即使已经测试过，也不要加注。

 可用的瓶装填充物连接器是。

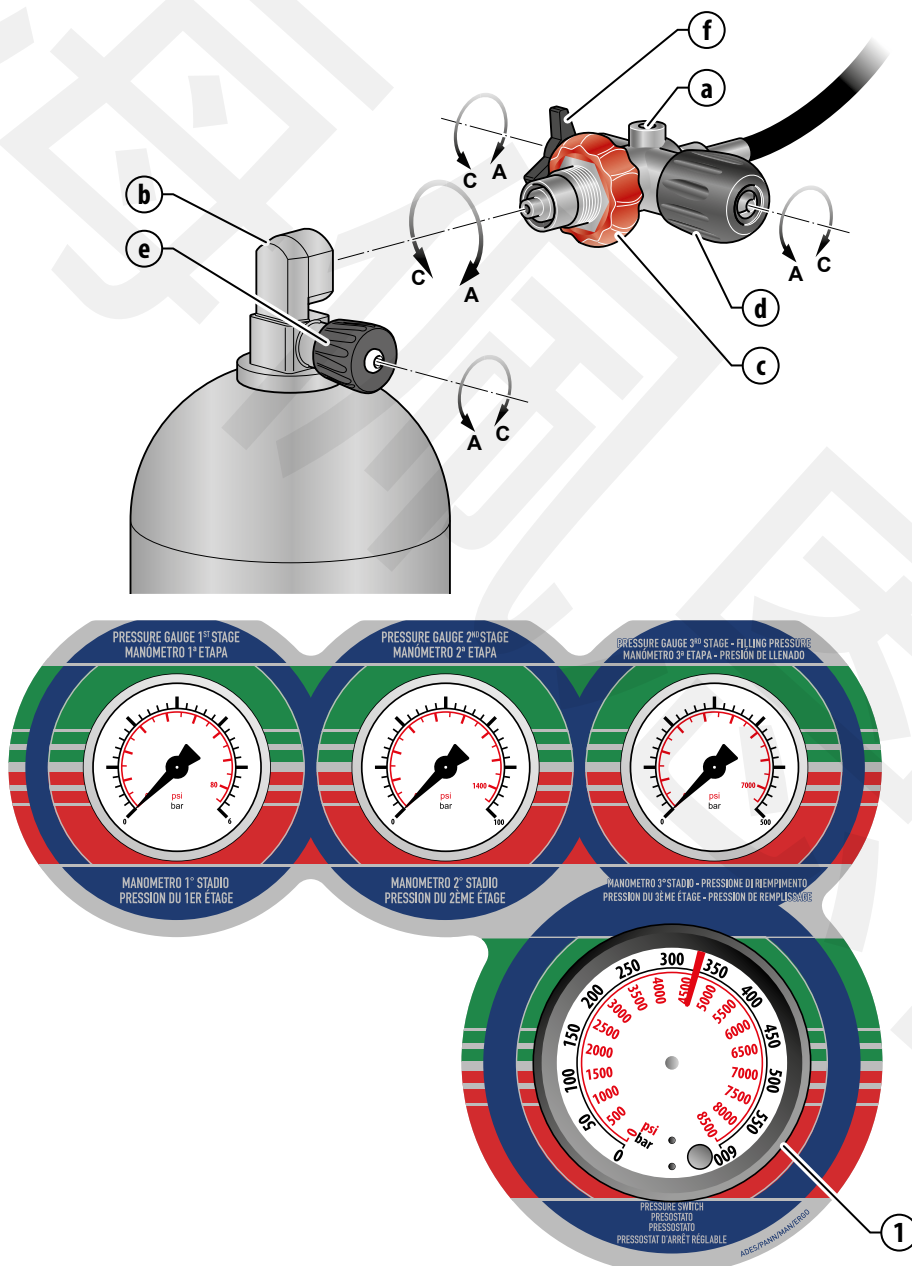


To refill bottles proceed as follows:

- set the refill pressure on the pressure switch (1);
- fit the hose connector (a) to the bottle valve (b);
- screw in the fixing knob (c) until it is completely tightened;
- check that the bleed valve (f) is closed by rotating it clockwise;
- open the valve (d) by rotating it anticlockwise;
- start the compressor;
- open the valve (e) by rotating it anticlockwise;
- once refilling has been completed wait for automatic shutdown of the compressor with the pressure switch;
- close valves (d) and (e) by rotating them clockwise;
- open the bleed valve (f) by rotating it anticlockwise until all the residual air in the fitting has been expelled;
- unscrew the fixing knob (c) by rotating it anticlockwise;
- disconnect the bottle coupling.

加注瓶子的步骤如下

- 在压力开关 (1) 上设定加注压力。
- 将软管接头 (a) 与瓶阀 (b) 相接。
- 拧入固定旋钮 (c)，直到完全拧紧。
- 顺时针旋转变放气阀 (f)，检查其是否关闭。
- 逆时针旋转阀门(d)，将其打开。
- 启动压缩机。
- 逆时针旋转阀门(e)，将其打开。
- 一旦加注完成，等待压力开关自动关闭压缩机。
- 顺时针旋转变关闭阀门 (d) 和 (e)。
- 逆时针旋转变放气阀(f)，将其打开，直到接头中的所有残余空气都被排出。
- 逆时针旋转固定旋钮 (c)，将其拧下。
- 断开瓶子的连接。



6.6 OPTIONAL









6.6.1 Digital pressure switch



ATTENTION: The pressure switch is delivered with a default password **4602**. Upon the first start it is necessary to change the password selecting it between the value **4001** and **9999**.







Digital pressure switch description:

-  Display of pressure in psi;
-  Display of pressure in Mpa;
-  Display of pressure in bar;
-  Button for changing the unit of measurement
-  Button for displaying of the partial hours
-  Button for return to the menu or reset
-  Confirmation button
-  Selection buttons



Entering of the password


The password consists of 4 numbers.

Enter the first digit by pressing the keys  to the desired value, then press  to move to the next digit. The display will show the second, third and fourth digits in sequence. Enter the fourth digit by pressing . The password will be saved. It will be possible to modify the individual parameters of the main menu. Press the key  to return to the menu without saving.




How to view and reset the partial hours of operation

Press the key  to display the partial hours:

To reset the value, when the indication of the partial hours appears on the display, keep the key pressed  until reset (0000).



Pressure measurement unit selection

Press the key  until the LED near the words **psi**, **MPa**, **bar** lights up.









6.6 可选项目

6.6.1 数字压力开关



注意：压力开关交货时有一个默认的密码**4602**。第一次启动时，有必要改变密码，在**4001**和**9999**之间选择。

数字压力开关描述。




-  显示压力的单位是psi。
-  以Mpa为单位显示压力。
-  以巴为单位显示压力。
-  改变测量单位的按钮
-  显示部分时间的按钮
-  返回菜单或复位的按钮
-  确认按钮
-  选择按钮



输入密码


密码由4位数字组成


通过按键输入第一个数字

然后按移动到下一个数字。显示屏将依次显示第二位、第三位和第四位数字。输入第四位数字后按。密码将被保存。可以修改主菜单的各个参数。按键返回菜单且不保存设置。



如何查看和重置部分工作时间

按键显示部分工作时间。

要重置该值，当显示屏上出现部分小时指示时，按住键直到重置（0000）。



How to change the password (PASS)

Press **Ok**, with the keys **▲▼** select the **Edit** item and press **Ok**. Enter the default password (4602) or personal password, if previously set (follow the instructions previously provided) and press **Ok**.

With the keys **▲▼** select the **PASS** item to change the password and press **Ok**.

Enter the desired password between 4001 ÷ 9999 and press **Ok** to save and return to the main menu. Press **R** to return to the main menu without saving.



How to view the maximum filling pressure (HPA)

Press **Ok**, with the keys **▲▼** select the **HPA** item and press **Ok**. At this point the display shows the value of the set maximum filling pressure. Press **R** to return to the main menu without saving.



How to set the maximum filling pressure (HPA)

Press **Ok**, with the keys **▲▼** select the **Edit** item and press **Ok**. Enter the default password or personal password, if already set previously (follow the instructions previously provided) and press **Ok**, then with the keys **▲▼** select the **HPA** item and press **Ok**.

Enter the value corresponding to the desired pressure and press **Ok** to save and return to the main menu. Press **R** to return to the main menu without saving.

When the set pressure is reached, the compressor switches off.

The maximum filling pressure can be set between 20 and 400 bar (2 ÷ 40 Mpa, 290 ÷ 5800 psi).



How to set the pressure delta (HtA)

The pressure delta is the difference in pressure with respect to the one set below which the compressor is ready to restart.

Example: maximum filling pressure 232 bar and pressure delta 30 bar. The compressor shuts down when it reaches the pressure of 232 bar. When the pressure drops below 202 bar (232 - 30 bar = 202 bar) the compressor is ready to start again.

Press **Ok**, with the keys **▲▼** select the **HtA** item, press **Ok** to enter the desired pressure delta and press **Ok** to save and return to the main menu. Press **R** to return to the main menu without saving.

The pressure delta can be set between 10 and 100 bar (1 ÷ 10 Mpa, 145 ÷ 1450 psi).



How to reset the total operating hours (tHC)

Press **Ok**, with the keys **▲▼** select the **tHC** item and press **R** for at least 1 second (1 s). Press **R** to return to the main menu without saving.



How to view the number of total cycles (tCC)

Press **Ok**, with the keys **▲▼** select the **tCC** item and press **R** for at least 1 second (1 s). Press **R** to return to the main menu without saving.



Setup (Set)

This functionality can only be changed by the manufacturer.



压力测量单位选择

按 **Set** 键，直到 psi、MPa、bar 字样附近的 LED 亮起



如何更改密码 (PASS)

按 **Ok**，用 **▲▼** 键选择编辑项，然后按 **Ok**。输入默认密码 (4602) 或个人密码 (如果先前已设置) (按照先前提提供的说明操作)，然后按 **Ok**。

用 **▲▼** 键选择 PASS 项以更改密码，然后按 **Ok**

在 4001-9999 之间输入所需密码，然后按 **Ok** 保存并返回主菜单。

按 **R** 键可返回主菜单而不保存。



如何观察最大充填压力 (HPA)

按 **Ok**，用 **▲▼** 键选择 HPA 项目，然后按 **Ok**。

此时，显示屏显示设定的最大充填压力值。按 **R** 键可返回主菜单而不保存。



如何设定最大充填压力 (HPA)

按 **Ok**，用 **▲▼** 键选择 HPA 项目，然后按 **Ok**。

输入默认密码或个人密码 (如果之前已设置)，然后按 **Ok** 键，然后按 **▲▼** 选择 HPA 项目并按 **Ok** 键。

输入所需压力对应的值，然后按 **Ok** 键保存并返回主菜单。按 **R** 键可返回主菜单而不保存。

当达到设定压力时，压缩机关闭。

最大充填压力可设置为 20 至 400 bar (2-40 Mpa, 290-5800 psi) 之间。



如何设置压力增量 (HtA)

压力增量是相对于压缩机准备重新启动的压力设置的压差。

示例：最大加注压力 232 巴和压力增量 30 巴。当压力达到 232 巴时，压缩机关闭。当压力降至 202 巴以下 (232-30 巴=202 巴) 时，压缩机准备再次启动。

按 **Ok**，用 **▲▼** 键选择 HtA 项目，按 **Ok** 可输入所需的压力增量，按 **Ok** 可保存并返回主菜单。按 **R** 可返回主菜单而不保存。

压力增量可设置为 10 至 100 bar (1-10 Mpa, 145-1450 psi)。



如何重置总工作小时数 (tHC)

按 **Ok**，用 **▲▼** 键选择 tHC 项，然后按 **R** 至少 1 秒 (1s)。按 **R** 可返回主菜单而不保存。



如何查看总周期数 (tCC)

按 **Ok**，用 **▲▼** 键选择 tCC 项，然后按 **R** 至少 1 秒 (1s)。按 **R** 可返回主菜单而不保存。



设置 (Set)

此功能只能由制造商更改。

6.6.2 Filling panels

6.6.2 充气面板



SC000325
4 DRV INT/DIN 232/DIN 300
1 GAUGE



SC000329
2 DRV 232 bar/INT - 2 DRV 300 bar
2 GAUGES



SC000327
4 LEVER VALVES INT/ DIN 232/DIN 300
1 GAUGE



SC000331
2 LEVER VALVES INT/DIN 232 bar
2 LEVER VALVES INT/DIN 300 bar
2 GAUGES
1 PRESSURE REGULATOR

6.6.3 Filling connections

6.6.3 充气接头



DRV232/MANOM
DRV 232 bar WITH PRESSURE



DRV300/MANOM
DRV 300 bar WITH PRESSURE



RE100350
Reducer DIN/INT

6.6.4 Filling hoses

6.6.4 充气软管



Code (a)	Length
SC000461/1500/AIR	1,5 m
SC000461/2000/AIR	2 m
SC000461/3000/AIR	3 m
SC000461/4000/AIR	4 m
SC000461/5000/AIR	5 m
SC000461/8000/AIR	8 m
SC000461/10000/AIR	10 m

6.6.5 C_MONITOR monitoring system

OIL AND FINAL FILTER MONITORING SYSTEM

The interface consists of an LCD display, a button (i) and two indicators (●, ○). The decimal points next to the digits are lights to indicate alarms or warnings in progress. Each dot is associated with an explanatory icon (油% , 滤% , 电% , 维%). The symbol (●) indicates an alarm condition while the symbol (○) indicates normal operation.

Press the button (i) to scroll through the various menu functions. When pressed, the function is displayed and the relative data after two (2) seconds. The sequence of functions is as follows:

SALE Cartridge Saturation (expressed as a percentage)

If the saturation falls below 20%, the alarm (●) is activated and the indicator (dot) lights up at the icon 油%. After replacing the cartridge, by pressing the button for at least three (3) seconds (i) while the corresponding menu is displayed, the alarm is reset and the value returns to 100%. The alarm indicator at the icon 油% is deactivated and only the symbol (○) remains active.

Hour Hours of operation

When the value "9999" is passed, the counter automatically returns to "0000". Detection of operating hours takes place through the vibration sensor contained within the C_Monitor.

BATE Battery charge level (expressed as a percentage)

When the level drops below 50%, the alarm (●) is activated and the indicator (dot) lights up at the icon 电%. After replacing the battery, the alarm automatically resets and the alarm indicator next to the icon 电% turns off and only the symbol (○) remains active.

Changing the battery does not result in the loss of other information or settings.

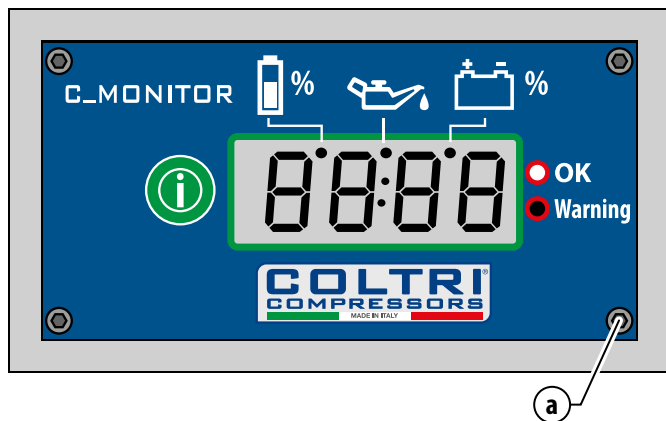
SERH Service (expressed in hours)

It indicates the hours remaining before replacement of the lubricating oil is required. When the value reaches zero (0), the alarm (●) is activated and the indicator (dot) lights up at the icon 维%. After performing the maintenance, pressing the button (i) for at least three (3) seconds while the corresponding menu is displayed, the alarm is reset and the maintenance counter is reset. The alarm indicator, at the icon 维%, is deactivated and only the symbol (○) remains active.

BATTERY CHANGE

Open the cover of the C_Monitor using the four screws (a) present. Disconnect the connector (b), remove the depleted battery (c) replacing it with the new one, being sure to fix it to the electronic board using double-sided adhesive tape, reconnect the connector (b) in the dedicated slot and close the cover.

Changing the battery does not result in the loss of other information or settings. The average life of the battery is approximately 1 year.



6.6.5 C_MONITOR监控系统

机油和最终过滤器监测系统

界面由一个液晶显示器、一个按钮 (i) 和两个指示灯 (●, ○) 组成, 数字旁边的小数点是指示灯, 用于指示正在进行的报警或警告。每个点都与一个解释性图标 (油% , 滤% , 电% , 维%) 相关联。符号 (●) 表示报警状态, 而符号 (○) 表示正常运行。

按下按钮 (i) 可滚动浏览各种菜单功能。长按两 (2) 秒后显示功能和相关数据。

功能顺序如下:

SALE 滤芯饱和度 (以百分比表示)

如果饱和度降到20%以下, ●报警将激活, 油%图标处的指示灯 (点) 亮起。更换滤芯后, 在显示相应菜单的同时按下按钮 (i) 至少三 (3) 秒, 报警将重置, 数值将返回100%。图标上的报警指示灯 油% 被禁用, 只有符号 (○) 保持激活状态。

Hour 运行时间

当传递值“9999”时, 计数器自动返回“0000”。工作时间的检测是通过 C_Monitor 监视器内的振动传感器进行的。

BATE

电池电量 (以百分比表示)

当液位降到50%以下时, ●报警启动, 电%图标处的指示灯 (点) 亮起。更换电池后, 报警自动重置, 电%图标旁边的报警指示灯熄灭, 只有 (○) 符号保持激活状态。

更换电池不会导致其他信息或设置丢失。

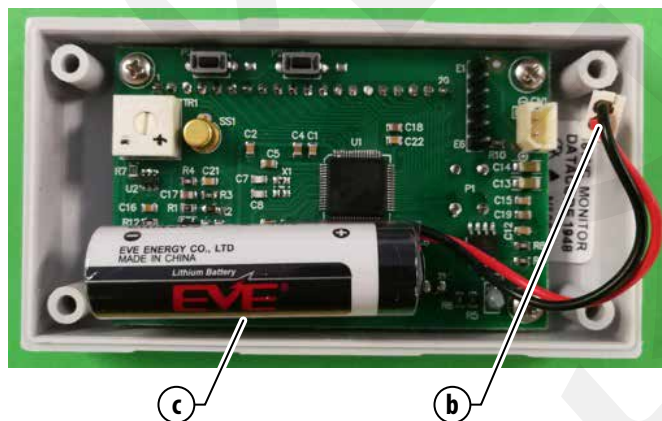
SERH 维保 (以小时表示)

表示需要更换润滑油前的剩余时间。当值达到零 (0) 时, ●报警被激活, 维%图标处的指示灯 (点) 亮起。执行维护后, 按下按钮 (i) 至少三 (3) 秒, 同时显示相应的菜单, 重置报警并重置维护计数器。维%图标处的报警指示灯被禁用, 只有 (○) 符号保持激活状态。

更换电池

使用现有的四个螺钉 (a) 打开 C_Monitor 显示器的盖子。断开连接器 (b), 取下耗尽的电池 (c), 更换新电池, 确保使用双面胶带将其固定到电子板上, 将连接器 (b) 重新连接到专用插槽中, 然后合上盖子。

更换电池不会导致其他信息或设置丢失。电池的平均寿命约为1年。



7 - MAINTENANCE



WARNING: Maintenance tasks must only be carried out by the AEROTECNICA COLTRI Customer Assistance Service or qualified personnel.



DANGER: Do not carry out maintenance tasks if the compressor has only just shut down; wait for the compressor to cool.

All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Depressurise the entire compressor circuit before carrying out any maintenance tasks.

To depressurise the entire compressor circuit open the drain valves (a).

7 - 维护保养



警告: 维护工作只能由AEROTECNICA COLTRI的客户援助服务部门或合格人员进行。

危险: 如果压缩机刚刚关闭, 请不要进行维护工作; 请等待压缩机冷却。

所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

在进行任何维护工作之前, 要对整个压缩机回路减压。

为了给整个压缩机回路减压, 请打开排水阀 (a)。



7.1 FOREWORD

To obtain the best possible performance from the compressor and ensure a long working life for all its parts it is essential that personnel follow the use and maintenance instructions with extreme diligence.

It is thus advisable to read the information below and consult the manual every time an inconvenience arises.

For further information please contact our assistance centre:

**Contact the AEROTECNICA COLTRI SpA.
Maintenance Service Centre
Tel. +39 030 99 10 297
Fax. +39 030 99 10 283
e-mail: info@coltri.com**

7.1 序言

为了从压缩机中获得最佳性能, 并确保其所有部件有较长的工作寿命, 工作人员必须极其认真地遵守使用和维护说明。

因此, 建议阅读以下信息, 并在每次出现不便时查阅手册。

如需进一步信息, 请联系我们的援助中心。

**联系AEROTECNICA COLTRI SpA. 维修服务
中心
电话: +39 030 99 10 297
传真: +39 030 99 10 283
电子邮件: info@coltri.com**

7.2 GENERAL

- Proper preservation of the compressor requires thorough cleaning.
- This type of refill station, designed and built according to the most advanced technological criteria, requires only minimum preventive and routine maintenance.
- Before carrying out any maintenance tasks, run checks and/or controls on the compressor, switch off the compressor, remove the plug from the mains socket.
- The residual pressure present in the compressor (pumping circuit) must be released.
- During disassembly and re-assembly of the compressor, always use suitable wrenches/tools so as not to damage the relevant components.
- Loosen stiff parts with a copper or plastic mallet.
- When refitting parts make sure they are clean and lubricated sufficiently.
- Compressor maintenance tasks must only be carried out by authorised personnel and recorded in the chapter "10 Maintenance register" of this manual.

7.2 一般情况

- 压缩机的适当保存需要彻底清洁。
- 这种加气站是根据最先进的技术标准设计和建造的, 只需要最低限度的预防和日常维护。
- 在执行任何维护任务之前, 对压缩机进行检查和/或控制, 关闭压缩机, 从电源插座上拔下插头。
- 必须释放存在于压缩机 (泵送回路) 中的残余压力。
- 在拆卸和重新组装压缩机时, 一定要使用合适的扳手/工具, 以免损坏相关部件。
- 用铜锤或塑料锤来松开坚硬的部件。
- 在重新安装部件时, 要确保它们是干净的, 并得到充分的润滑。
- 压缩机的维护工作只能由授权的人员进行, 并记录在本手册的 "10维护登记" 一章中。

7.3 UNSCHEDULED WORK

Involves repair and/or replacement of the mechanical parts of one or more compressor components:
 this work normally needs doing only after some years of use. If substantial modifications are made, the manufacturer cannot be held liable for any dangers that might arise.
 This work must be carried out by the assistance centre.

7.3 不定期的检查

涉及维修和/或更换一个或多个压缩机部件的机械零件。
 这项工作通常在使用几年后才需要进行。如果进行了大量修改，制造商对可能出现的任何危险不负责任。
 这项工作必须由援助中心进行。

7.4 SCHEDULED MAINTENANCE TABLE

7.4 定期维护保养表

Before every refill - Prima di ogni ricarica Maintenance - Manutenzione	Hours - Ore											Years - Anni				
	50	100	250	500	1000	1500	2000	3000	4000	5000	20000	1	5	10	15	
Condensate discharge (change sintered filter) Scarico condensa (sostituire filtri sinterizzati)	○		●													
Intake filter Filtro di aspirazione	○		●									●				
Lubricating oil + oil filter (if present) Olio lubrificante + filtro olio (se presente)	○				●							●				
Belt wear and tension Tensione e usura cinghie			○	●								●				
1 st , 2 nd stage valves Valvole 1°, 2° stadio					●											
3 rd stage valves Valvole 3° stadio					●											
Separator sintered filter Filtro sinterizzato separatore			○						●				●			
Condensate separator Separatore di condensa			○								●					●
HP filter Filtro HP			○								●					●
1 st , 2 nd stage piston rings Segmenti 1°, 2° stadio							●									
3 rd stage complete 3° stadio completo					●											
HP flex hoses Tubi HP flessibili	○							●					●			
Fitting leakages Check up di controllo tenute e raccordi			○													
Safety valve Valvola di sicurezza			○								●			●		
Coolers Tubi raffreddamento									●							

○ = Checking and cleaning ● = Change

○ = 检查和清洁 ● = 变化

IMPORTANT: Maintenance interval times are indicative only and may vary according to the conditions under which the compressor is used.

重要提示: 维护间隔时间仅是指示性的，可能因压缩机的使用条件而变化。

7.5 TROUBLESHOOTING

Problem	Cause	Solution
• The electric motor does not start	• Phase missing	• Check fuses or condenser
• Rotation speed and flow rate decrease	• Motor power too low	• Check the motor and the line
	• The belt slips	• Restore proper belt tension
• The flow rate diminishes without rpm decreasing	• Valves not working	• Contact technical assistance
	• 3rd stage piston worn	• Contact technical assistance
	• Fittings loose / leaking seals	• Check for leaks with soapy water and eliminate them
	• Intake filter clogged	• Replace
	• Intake extension kinked	• Straighten, use stiffer pipe
	• Piston or piston rings worn	• Contact technical assistance
• Air smells of oil	• Filter cartridge exhausted	• Replace
	• Piston rings worn	• Contact technical assistance
• Compressor overheats	• Direction of rotation wrong	• Correct direction of rotation
	• Cooling tubes dirty	• Contact technical assistance
	• Incomplete valve closure (causing overload of another stage)	• Contact technical assistance

7.5 排除故障

问题	原因	解决方案
电动机不启动	• bn阶段性缺失	• 检查熔断器或冷凝器
• 旋转速度和流速下降	• 电机功率太低	• 检查电机和线路
	• 皮带滑落	• 恢复适当的皮带张力
• 流速下降而速度不减	• 不工作的阀门	• 联系技术支持
	• 磨损的第三级活塞	• 联系技术支持
	• 松动的配件 o 泄漏的密封垫	• 用肥皂和水检查并消除漏水现象
	• 吸气过滤器堵塞	• 替换
	• 延长弯曲的吸力	• 把它拉直了。 用管半刚性的
	• 活塞或活塞环磨损	• 联系技术支持
• 空气中的油味	• 排出的滤筒	• 替换
	• 磨损的松紧带	• 联系技术支持
• 压缩机过热	• 错误的旋转方向	• 检查旋转的方向
	• 肮脏的冷却软管	• 联系技术支持
	• 阀门关闭不完全 (导致另一阶段的过载)。	• 联系技术支持

7.6 CONDENSATE DISCHARGE

IMPORTANT: The condensate can must be emptied at the end of every working day.

DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

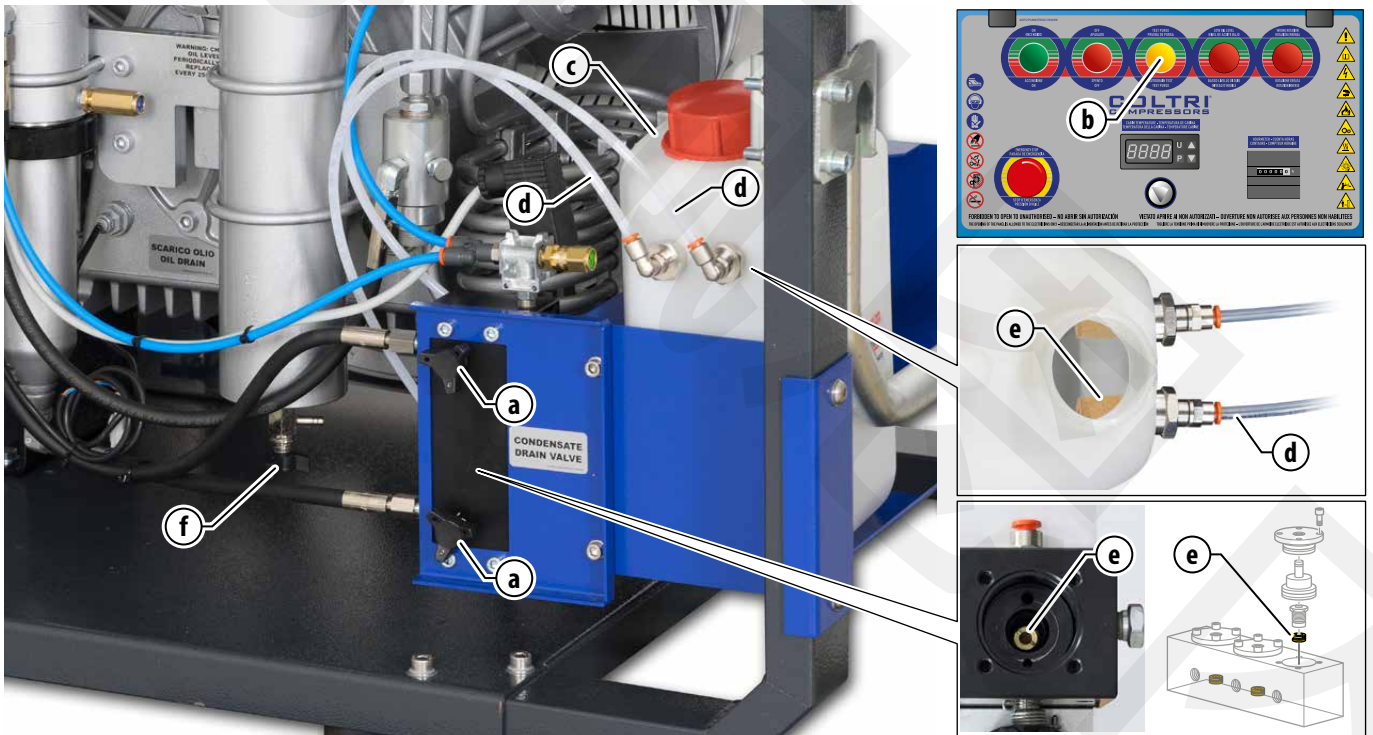
Condensation accumulates in the condensate separator; the condensate must be discharged every 10-15 minutes of compressor use. Condensate discharge occurs automatically every 7 minutes. The yellow TEST PURGE pushbutton (b) must be pressed every day to make sure that the discharge valve is working properly. The condensate is collected in a can (c); periodically check this can to prevent overflow and consequent leakage of the condensate liquid. To empty the can remove the condensate drain hoses (d), empty the can and collect the condensate in a container; re-insert the hoses (d) and put the can back in its housing. At the end of the refill day, empty the filter condensate using the discharge tap (f). If the condensate needs to be drained manually, use the drain taps (a) and collect the condensate in a suitable container. Re-close the taps. Every 250 hours replace the SINTERED FILTER (e). An outflow of condensate water with lubricating oil is normal during refills: the quantity will depend on the level of humidity in the air. Condensate must be disposed of according to the instructions shown in section "9.1 Waste disposal".

7.6 凝结水排放

重要提示: 必须在每个工作日结束时清空冷凝水箱。

危险: 如果压缩机刚刚关闭, 请不要进行这些工作; 请等待压缩机冷却。所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

冷凝水在冷凝水分离器中积聚; 每使用10-15分钟就必须排出冷凝水。每7分钟自动排放一次冷凝水。必须每天按下黄色的TEST PURGE按钮 (b), 以确保排放阀工作正常。冷凝液被收集在一个罐子里 (c); 定期检查这个罐子, 以防止过满, 从而导致冷凝液的泄漏。排空罐子时, 将冷凝水排放软管 (d) 取下, 排空罐子, 将冷凝水收集到一个容器中; 重新插入软管 (d), 将罐子放回外壳中。在加注日结束时, 用排放龙头 (f) 排空过滤器的冷凝水。如果需要手动排放冷凝水, 使用排放水龙头 (a), 将冷凝水收集到一个合适的容器中。重新关上水龙头。每250小时更换一次过滤网 (e)。在加注润滑油时, 有冷凝水流出是正常的: 其数量取决于空气中的湿度水平。冷凝水必须按照 "9.1废物处理" 一节中的说明进行处理。



IMPORTANT: Every 15 years or ever 20000 hours it will be necessary to change the condensate separator body.

重要提示: 每隔15年或每隔20000小时就需要更换冷凝水分离器主体。

IMPORTANT: Every 5 years or ever 3000 hours it will be necessary to change the drain valves.

重要提示: 每5年或每3000小时, 必须更换排水阀。

DANGER: You MUST drain the condensate at the specified intervals. Failure to observe this instruction can place staff in serious danger and could cause serious damage or injury.

危险: 你必须按照规定的时间间隔排放冷凝水。如果不遵守这一指示, 会使工作人员处于严重的危险之中, 并可能造成严重的损害或伤害。

7.7 CHANGING THE INTAKE FILTER



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

After putting the compressor into service the intake filter must be changed after the first 50 working hours.

The air filter must then be changed every 250 working hours or annually. Rotate the filtration cartridge in the filter by 90° every 50 hours.

To change the filter proceed as follows:

- turn the air filter cover (a) by rotating it anticlockwise;
- remove the air filter cartridge (b);
- replace the cartridge with a new one;
- re-close the cover (a): screw it back on clockwise.

7.7 更换进气过滤器

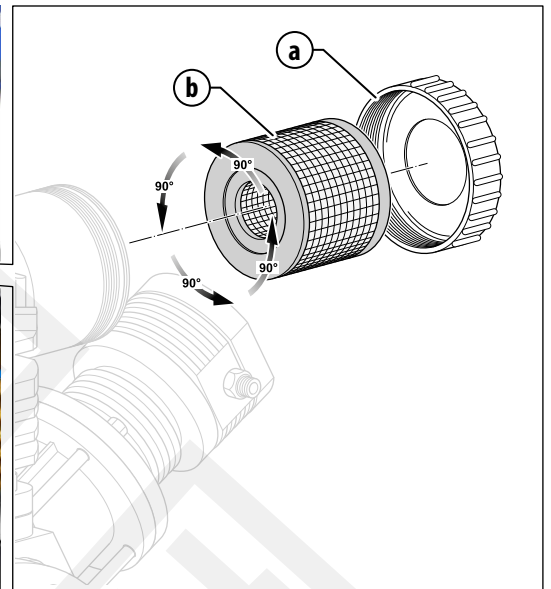


危险: 如果压缩机刚刚关闭, 请不要进行这些工作; 请等待压缩机冷却。所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

压缩机投入使用后, 在最初的50个工作小时后, 必须更换进气过滤器。然后, 空气过滤器必须每250个工作小时或每年更换一次。每50小时将过滤器中的过滤筒旋转90°。

更换过滤器的步骤如下。

- 逆时针旋转空气过滤器盖 (a)。
- 取出空气过滤器的滤芯 (b)。
- 用一个新的滤芯替换。
- 重新关上盖子 (a): 顺时针拧回盖子。



SC000370



IMPORTANT: If the compressor is used in a dusty environment the filter change interval should be reduced to every 50 hours.



重要提示: 如果压缩机在多尘的环境中使用, 过滤器的更换间隔应减少到每50小时一次。

7.8 TRANSMISSION BELT

Belt tension must be checked monthly.
The transmission belts must be replaced every 500 working hours of the compressor or annually.



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool.
All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Checking transmission belt tension

To check the tension on the belt (b) exert a pressure of approximately 10 Kg on the belt; check that the belt does not flex by more than 1 cm with respect to its original position.

Should it flex more than this replace the belt.

Changing transmission belt

To change a belt proceed as follows:

- insert a screwdriver (a) between the belt (b) and the motor pulley (c);
- take the belt out of the pulley groove;
- replace the belt with a new one, making sure that model and length are correct: check that the characteristics of the new belt are identical to the old one;
- insert the belt in the groove of the motor pulley (c);
- insert the belt in the groove of the compressor pulley (d): turn the pulley by hand until the belt slips into the pulley groove perfectly (second diagram);
- check that the belt is inserted perfectly in the grooves of both pulleys and that belt tension is correct.

If the tension of the new belt still fails to comply with the necessary requisites contact AEROTECNICA COLTRI assistance service.

7.8 传动带

必须每月检查皮带张力。
传动皮带必须在压缩机每工作500小时或每年更换一次。



危险: 如果压缩机刚刚关闭, 请不要进行这些工作; 请等待压缩机冷却。
所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

检查传动带的张力

检查皮带的张力 (b), 对皮带施加大约10公斤的压力; 检查皮带相对于其原始位置的弯曲不超过1厘米。

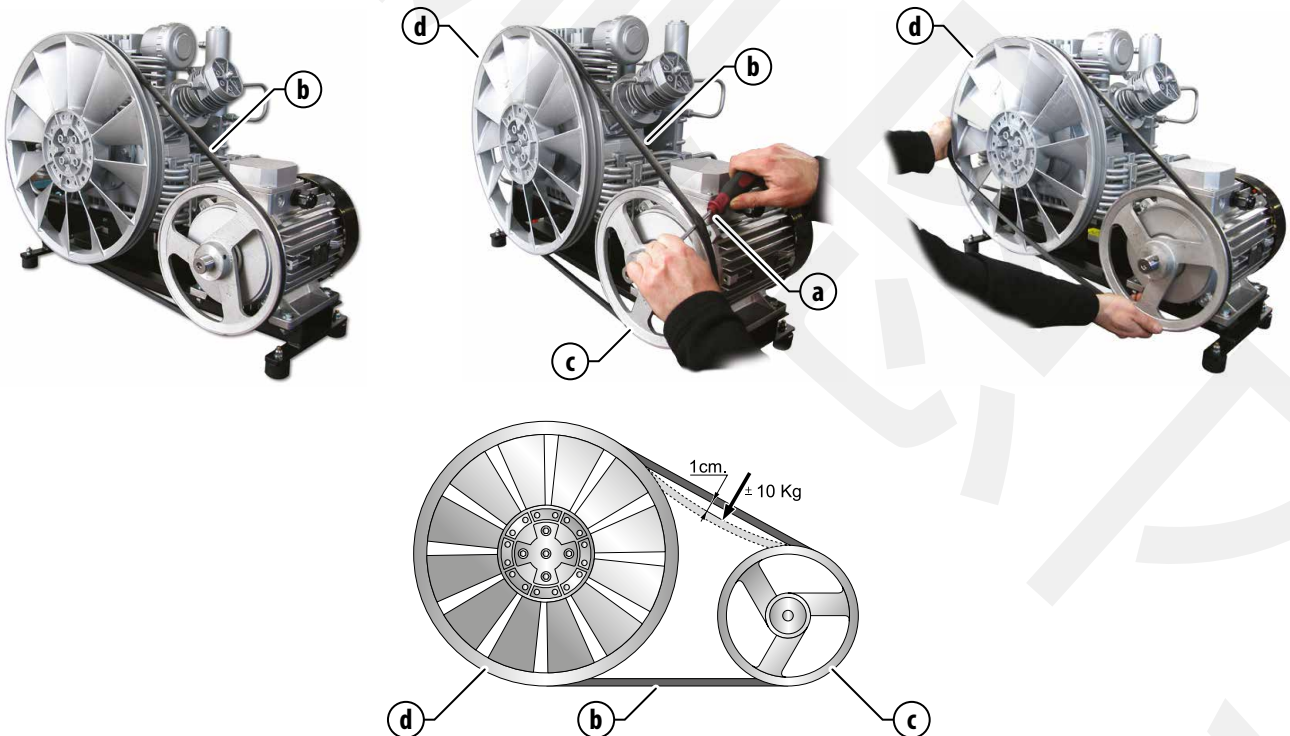
如果弯曲超过这个范围, 请更换皮带。

更换传动带

更换皮带的步骤如下。

- 将一把螺丝刀 (a) 插入皮带 (b) 和电动滚筒 (c) 之间。
- 将皮带从滑轮槽中取出。
- 用新的皮带替换, 确保型号和长度正确: 检查新皮带的特性是否与旧皮带相同。
- 将皮带插入电动滚筒的凹槽中 (c)。
- 将皮带插入压缩机滑轮 (d) 的凹槽中: 用手转动滑轮, 直到皮带完全滑入滑轮凹槽 (第二张图)。
- 检查皮带是否完全插入两个滑轮的凹槽中, 皮带张力是否正确。

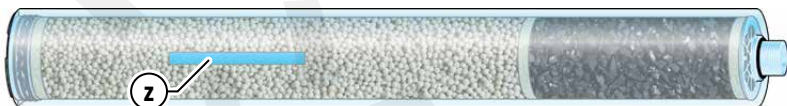
如果新皮带的张力仍然不符合必要的要求, 请联系AEROTECNICA COLTRI援助服务。



7.9 PURIFIER FILTER

WARNING: Constant and precise maintenance on the components of the filtering system, as described in this manual, guarantees that the quality of the air exiting the compressor is in compliance with the requirements specified by the EN12021 standard.

The filtration cartridge must be replaced at intervals calculated on the basis of the characteristics of the environment in which the compressor is located. To calculate these intervals refer to the table below. The filter cartridge must in any case be replaced before the air develops an unpleasant smell or when the litmus test (z) inside the cartridge turns white or a colour other than blue.



IMPORTANT: If the compressor is used in an environment where CO (exhaust fumes) may be present it is compulsory to use CO-fixing filtration cartridges; these can be supplied on request.



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket. Depressurise the entire compressor circuit before carrying out any maintenance tasks. To depressurise the entire compressor circuit proceed as follows in the section "7 - Maintenance".



DANGER: You MUST replace the filtration cartridge at the specified intervals. Failure to observe this instruction can place staff in serious danger and could cause serious damage or injury.



IMPORTANT: If cartridges are renewed by replacing their internal components it will be necessary to change the outer covering every 10 renewals. Upon each refill, check that the cartridge body is intact and without any defect.

7.9 净化过滤器

警告: 按照本手册的描述, 对过滤系统的部件进行持续和精确的维护, 可以保证离开压缩机的空气质量符合 EN12021 标准规定的要求。

必须根据压缩机所处环境的特点计算出的间隔来更换过滤筒。要计算这些间隔, 请参考下面的表格。在任何情况下, 当空气中出现难闻的气味, 或者当滤芯内的石蕊试纸 (z) 变成白色或蓝色以外的颜色时, 必须更换滤芯。



重要提示: 如果压缩机在可能存在 CO (废气) 的环境中使用时, 则必须使用 CO 固定过滤盒; 可按要求提供这些过滤盒。



危险: 如果压缩机刚刚关闭, 请不要进行这些工作; 请等待压缩机冷却。所有维护工作必须在压缩机关闭且电源线从电源插座上拔下的情况下进行。在进行任何维护工作之前, 要对整个压缩机电路减压。为整个压缩机回路减压的步骤见 "7-维护" 一节。



危险: 您必须按照规定的时间间隔更换过滤盒。如果不遵守本说明, 会使工作人员处于严重的危险之中, 并可能造成严重的损害或伤害。
重要提示: 如果通过更换内部组件来更新滤芯, 那么每更新 10 次就必须更换外罩。每次加注时, 要检查墨盒主体是否完好无损, 没有任何缺陷。

Filter cartridge replacement frequency calculation table *
Tabella calcolo intervalli di sostituzione cartuccia filtrante *

Temperature Temperatura		Filter duration (work hours) Durata filtri (ore di lavoro)	
°C	°F	MCH-13	MCH-16
40	104	9	7
30	86	15	12
20	68	23	19
10	50	35	29
0	32	64	53
-5	23	101	84

* The values shown in the table were obtained with pressure maintenance valve calibrated at 200bar.

* I valori indicati in tabella sono stati ottenuti con valvola di mantenimento della pressione tarata a 200bar.



WARNING: The filtration cartridge are classified as special waste: they must be disposed of in compliance with the anti-pollution standards in force.



IMPORTANT: It is essential that there be a filtration cartridge (a) inside the purifier filter (h) every time the compressor is used.



WARNING: Every 15 years or every 20,000 hours the filter body (h) and the condensate separator (i) must be replaced.



警告: 过滤盒被列为特殊废物: 必须按照现行的反污染标准进行处理。



重要提示: 每次使用压缩机时, 净化器过滤器 (h) 内必须有一个过滤盒 (a)。



警告: 每 15 年或每 20,000 小时, 必须更换过滤器主体 (h) 和冷凝水分离器 (i)

Changing the filtration cartridge

To change the filtration cartridge (a) proceed as follows:

- vent all the compressed air inside the circuit;
- use the tool (b) to lever the screw heads (d) on the plug (c) and rotate counter clockwise;
- remove the filter plug (c);
- unscrew the cartridge (a) from the plug (c);
- replace the cartridge (a) with a new one;
- screw the new cartridge (a) onto the plug (c);
- close the filter plug (c) and tighten with the wrench (b).

There are O-rings on the filter plug and cartridge (f-g). If these O-rings deteriorate air is vented through the cap (c).

If you notice any venting replace the O-rings.

When changing the O-rings observe the precautions described at the beginning of the relevant section of the manual.

更换过滤筒

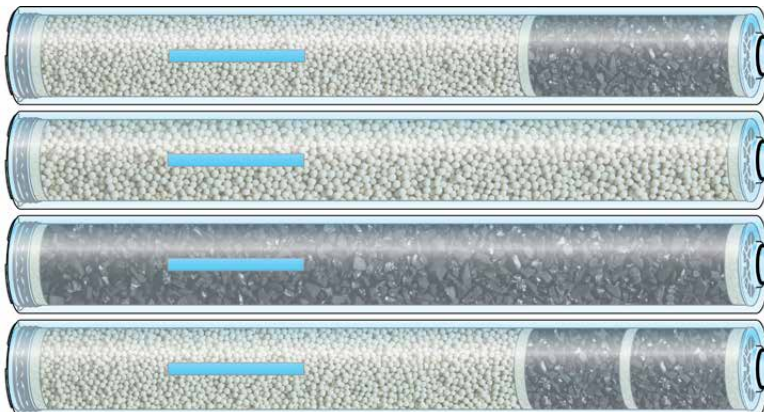
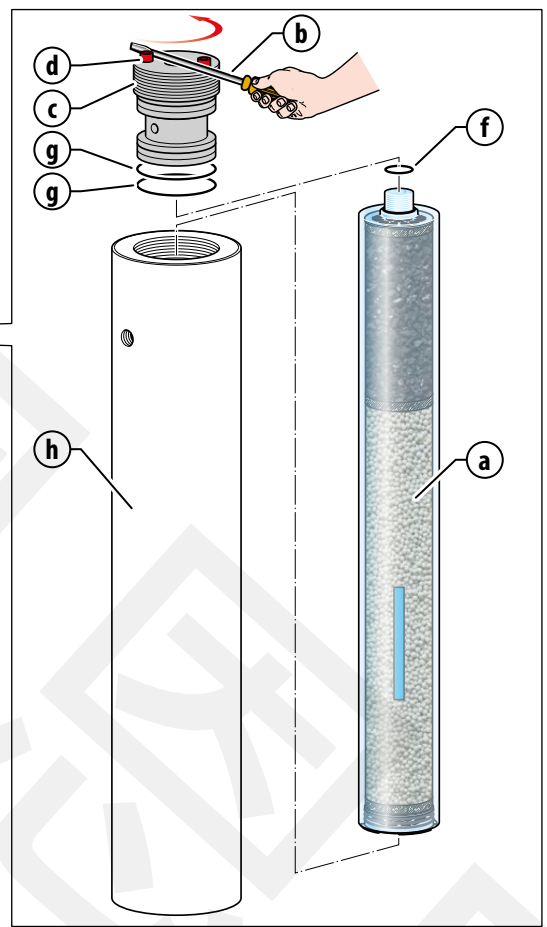
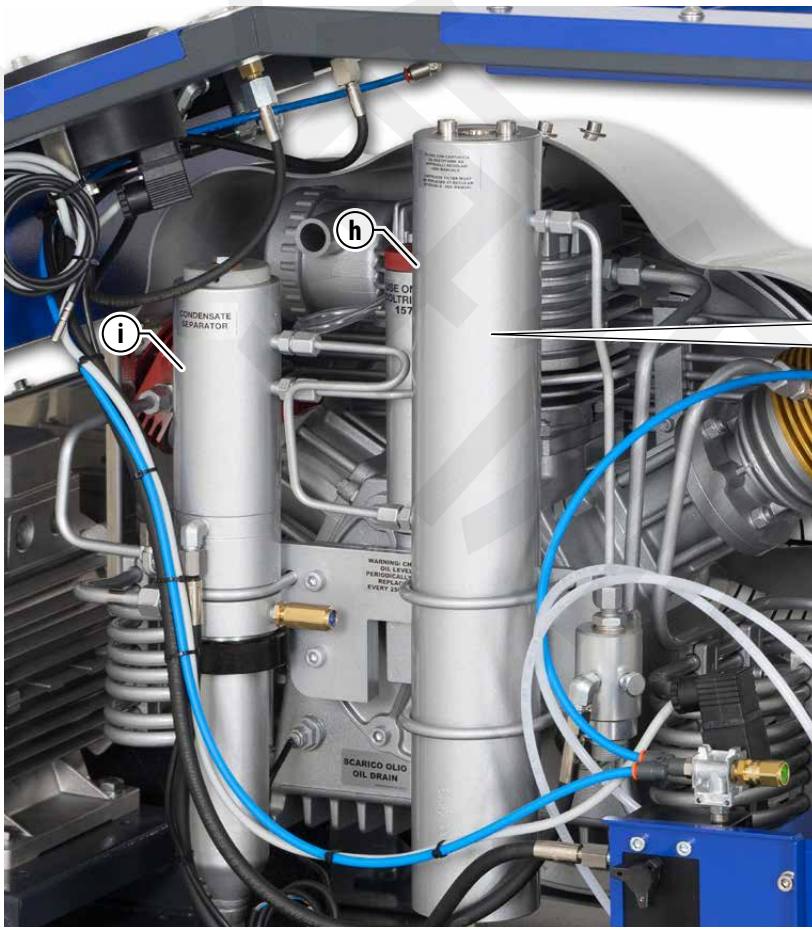
更换过滤筒 (a) 的步骤如下。

- 将电路中的压缩空气全部排出。
- 用工具(b)撬动塞子(c)上的螺丝头(d), 逆时针旋转。
- 卸下过滤器的插头(c)。
- 从塞子(c)上拧下滤芯(a)。
- 用一个新的滤芯(a)替换。
- 将新的滤芯 (a) 拧到插头 (c) 上。
- 关闭过滤器插头 (c), 用扳手 (b) 拧紧。

过滤器插头和滤芯上有O型环 (f-g)。如果这些O型环变质, 空气就会通过盖子 (c) 排出。

如果你发现有任何通风现象, 请更换O型环。

在更换O型环时, 请遵守本手册相关章节开头所述的预防措施。



SC000440/PP
Active carbon/Molecular sieve
Carboni attivi/Setaccio molecolare

SC000440/PP/SM
Molecular sieve
Setaccio molecolare

SC000440/PP/CARB
Active carbon
Carboni attivi

SC000440/PP/CO-CATALYST
Hopkalite/Active carbon/Molecular sieve
Hopkalite/Carboni attivi/Setaccio molecolare

7.10 CHECKING AND CHANGING THE LUBRICATING OIL

After putting the compressor into service the lubricating oil must be changed after the first 50 working hours. The lubricating oil must be changed every 1000 hours working hours or annually.

IMPORTANT: The compressor must be placed on a solid surface with a tilt of no more than 5°.

DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. Any oil spilt during the oil change could cause personnel to slip; wear protective garments and anti-slip footwear and remove any traces of oil immediately. Both oil and filter are classified as special wastes and must therefore be disposed of in compliance with the anti-pollution laws in force. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

WARNING: Use only COLTRI OIL ST755. If it is impossible to find COLTRI OIL ST755 it is advisable to use a specific oil for breathable air compressors that complies with the characteristics of the table below.

7.10 检查和更换润滑油

压缩机投入使用后，在最初的50个工作小时后必须更换润滑油。润滑油必须每1000小时工作时间或每年更换一次。

重要提示: 压缩机必须放置在一个坚固的表面上，倾斜度不超过5°。

危险: 如果压缩机刚刚关闭，请不要进行这些工作；请等待压缩机冷却。在换油过程中溅出的任何油都可能导致人员滑倒；穿上防护服和防滑鞋，并立即清除任何油迹。油和过滤器都被归类为特殊废物，因此必须按照现行的反污染法进行处理。所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

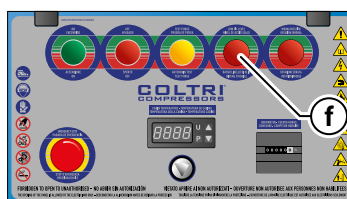
警告: 只能使用COLTRI油ST755。如果无法找到COLTRI OIL ST755，建议使用符合下表中特性的透气式空气压缩机专用油。

Oil table - Tabella per la scelta degli oli																					
Sump capacity (litres) Capacità della coppa (litri)	2																				
Recommended oils Oli consigliati	COLTRI OIL ST 755																				
	RECOMMENDED OIL																				
	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Requirement</th> </tr> </thead> <tbody> <tr> <td>Viscosity Grade</td> <td>ISO 150</td> </tr> <tr> <td>Base Oil</td> <td>Synthetic</td> </tr> <tr> <td>Base type</td> <td>Ester</td> </tr> <tr> <td>Performance level</td> <td>DIN 51506-VLD</td> </tr> <tr> <td>Primary applications</td> <td>Lubricant suitable for: Breathing air (ISO EN 12021), Nitrox, Oxygen enriched air up to max 40% O2</td> </tr> <tr> <td>Foaming (ASTM D892)</td> <td>0/0 (all three sequences)</td> </tr> <tr> <td>Flash Point (ASTM D92)</td> <td>250°C</td> </tr> <tr> <td>Pour Point (ASTM D97)</td> <td>< -30°C</td> </tr> <tr> <td>Additives content</td> <td>Antiwear, Antioxidant, Antirust, Antifoam</td> </tr> </tbody> </table>	Parameter	Requirement	Viscosity Grade	ISO 150	Base Oil	Synthetic	Base type	Ester	Performance level	DIN 51506-VLD	Primary applications	Lubricant suitable for: Breathing air (ISO EN 12021), Nitrox, Oxygen enriched air up to max 40% O2	Foaming (ASTM D892)	0/0 (all three sequences)	Flash Point (ASTM D92)	250°C	Pour Point (ASTM D97)	< -30°C	Additives content	Antiwear, Antioxidant, Antirust, Antifoam
Parameter	Requirement																				
Viscosity Grade	ISO 150																				
Base Oil	Synthetic																				
Base type	Ester																				
Performance level	DIN 51506-VLD																				
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Foaming (ASTM D892)	0/0 (all three sequences)																				
Flash Point (ASTM D92)	250°C																				
Pour Point (ASTM D97)	< -30°C																				
Additives content	Antiwear, Antioxidant, Antirust, Antifoam																				



WARNING: If the red light (f) comes on this means that the oil level is below the permitted minimum; stop the compressor immediately and restore the correct oil level.

警告: 如果红灯(f)亮起，这意味着油位低于允许的最低限度；立即停止压缩机并恢复正确的油位。



Checking the oil level

The oil level must be checked every 50 working hours of the compressor. The oil level must be between the minimum and the maximum shown on the oil level indicator (a).

Note that an excessive quantity of oil can cause infiltrations in the cylinders and leave deposits on the valves while too low a level prevents proper lubrication and could cause engine seizure.

If the oil level is not within the minimum and maximum limits top up or drain as described in "Changing the lubricating oil".

Changing the lubricating oil

The lubricating oil must be changed every 1000 working hours or annually. To change the oil proceed as described:

- position a recipient under the drain plug (b) so that the oil flows into the exhausted oil recipient (recipient capacity of at least 2,5 litres required);
- open the air vent (d);
- loosen the top-up plug (c);
- remove the drain plug (b) and drain all the oil;
- replace the drain plug (b);
- open the top plug (c);
- fill the oil sump with 2 litres of oil from top oil plug (see "Oil table");
- close the air vent (d);
- close the oil top plug (c);
- switch on the compressor and run it depressure area for 30 seconds;
- switch off the compressor and remove the plug from the power socket;
- check the oil level (a); if the oil level is not within the allowed limits top up or drain.

检查油位

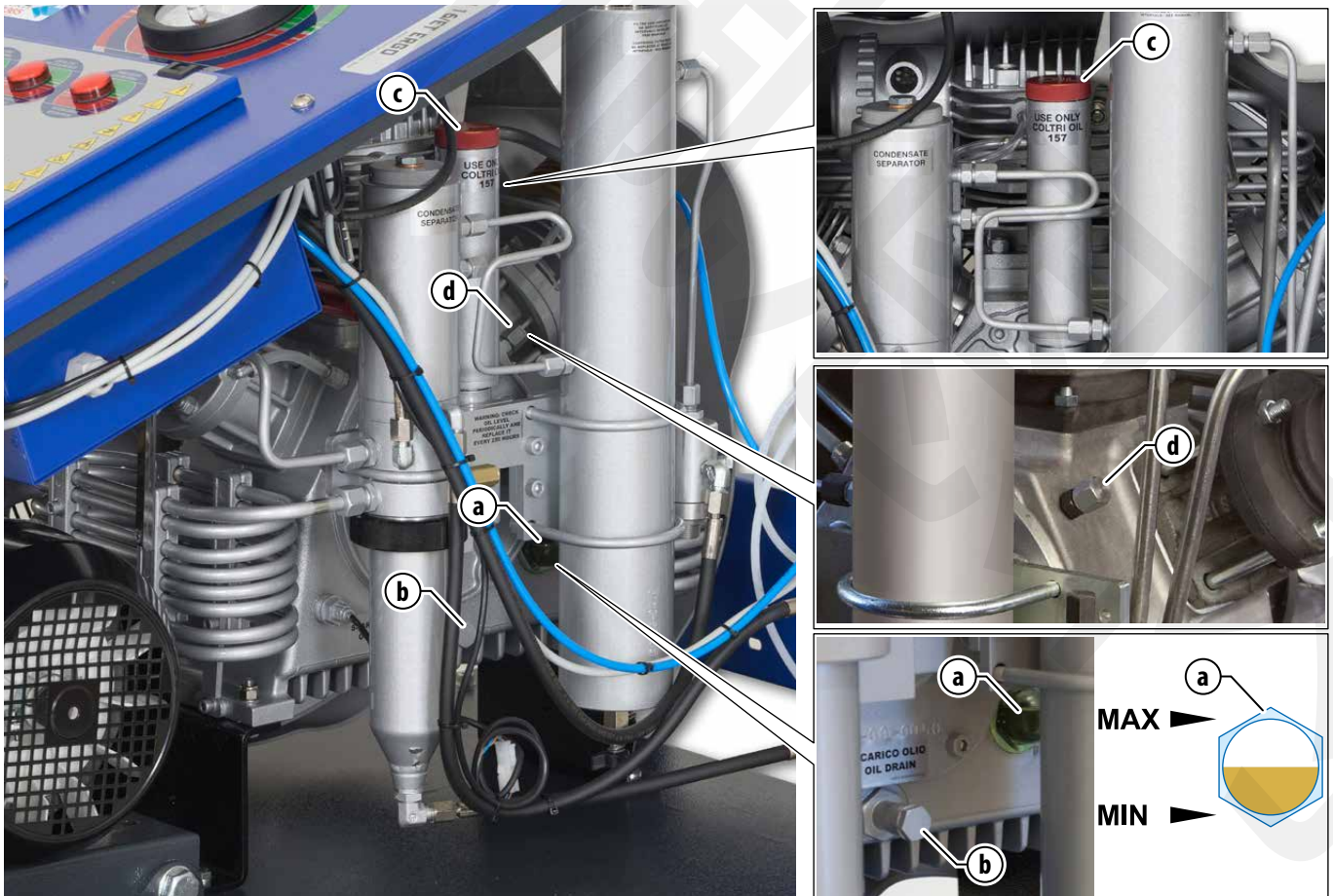
压缩机每工作50小时必须检查油位。油位必须在油位指示器 (a) 上显示的最低和最高之间。

请注意, 过量的油会导致气缸内的渗透, 并在阀门上留下沉积物, 而过低的油位则会妨碍适当的润滑, 并可能导致发动机卡死。如果油位不在最低和最高限度内, 请按照 "更换润滑油" 中的描述进行加油或放油。


更换润滑油

润滑油必须每1000工作小时或每年更换一次。换油的步骤如下。

- 在放油塞(b)下放置一个收油器, 使油流入排油器 (收油器容量至少需要2.5升)。
- 打开通风口 (d)。
- 松开加注插头 (c)。
- 卸下放油塞 (b), 放掉所有的油。
- 更换放油塞 (b)。
- 打开顶部插头 (c)。
- 从顶部油塞向油底壳注入2升油 (见 "油表")。
- 关闭通风口 (d)。
- 关闭顶部油塞(c)。
- 开启压缩机, 在减压区运行30秒。
- 关闭压缩机并从电源插座上拔下插头。
- 检查油位(a); 如果油位不在允许的范围内, 则加满或放掉。



7.11 CHANGING THE FLEX HOSES

 **IMPORTANT:** The hoses must be changed periodically (every 5 years or ever 3000 hours) or when they show signs of abrasion/wear/damage.

The bending radius of the hoses must not be less than 250 mm.



DANGER:

Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool.

All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Vent the air from the compressor before carrying out any maintenance tasks.

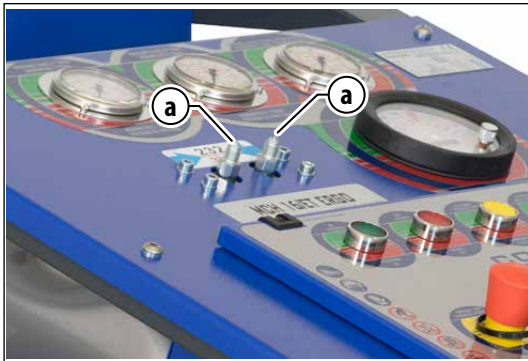
Tank refill pressure is very high; therefore, before refilling the tanks check that the hoses are perfectly connected and in good condition. Check also that the valves on any unused hoses are closed properly so as to prevent the dangers that derive from hose whiplash.

When the tanks are being refilled unauthorised personnel must remain at a distance of at least 3 metres.


It is strictly forbidden to disconnect the hoses from the fittings or refill valve when the machine is under pressure.

To change the bottle refill hoses proceed as follows:

- disconnect the bottle refill hoses by unscrewing the fittings (14mm wrench).
- replace the old hoses with new ones.
- screw the hoses onto the connectors (a).
- use a dynamometric wrench to tighten the hoses on the compressor with a torque of 15 Nm.



7.11 更换柔性软管

 **重要提示:** 软管必须定期更换（每5年或每3000小时）或当它们显示出磨损/磨蚀/损坏的迹象时。
软管的弯曲半径不得小于250毫米。



危险。

如果压缩机刚刚关闭，请不要进行这些工作；要等待压缩机冷却。

所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

在进行任何维护工作之前，请将空气从压缩机中排出。油箱加注压力非常高；因此，在加注油箱之前，要检查软管是否连接完好，是否处于良好状态。还要检查任何未使用的软管上的阀门是否正确关闭，以防止软管鞭打带来的危险。

当油箱正在加注时，未经授权的人员必须保持至少3米的距离。

严禁在机器受压时将软管从接头或加注阀上断开。

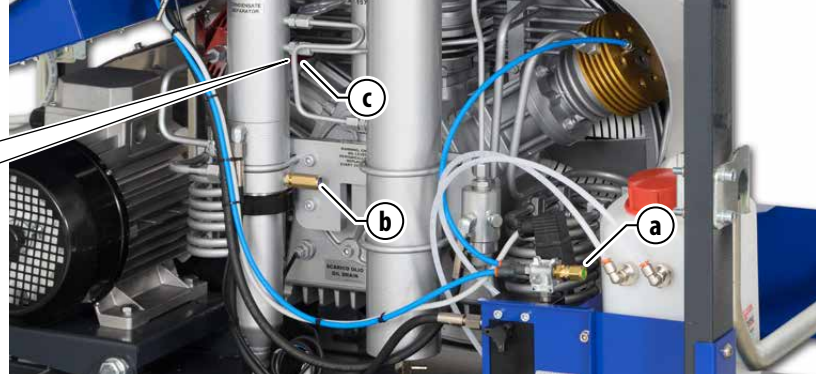
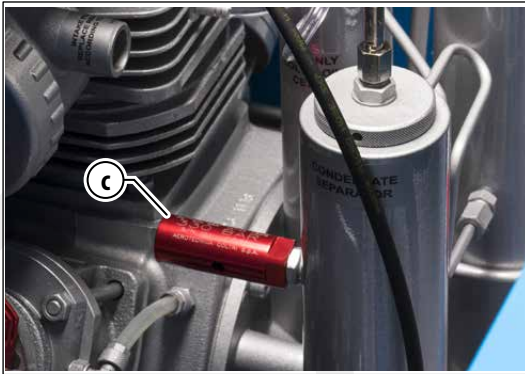
更换瓶子加注软管的步骤如下。

- 拧开接头（14毫米的扳手），断开瓶子的加注软管的连接。
- 用新的软管替换旧的软管。
- 将软管拧到连接器（A）上。
- 用测力扳手将软管拧紧在压缩机上，扭矩为15Nm。



7.12 SAFETY VALVES

7.12 安全阀



a	b	c
10 bar / 145 psi	70 bar / 1015 psi	232-300-330 bar / 3300-4300-4700 psi

IMPORTANT: The safety valves (a-b-c) must be replaced every 10 years or 5000 hours.

重要提示: 安全阀 (a-b-c) 必须每10年或5000小时更换一次。

DANGER:
 Tampering with the safety valve to increase the pressure setting is strictly forbidden.
 Tampering with the safety valve can seriously damage the compressor, cause serious injury to personnel and renders the warranty null and void.

危险。
 严禁篡改安全阀以提高压力设置。
 篡改安全阀会严重损坏压缩机，对人员造成严重伤害，使保修失效。
 如果安全阀不能正常工作，请联系AEROTECNICA COLTRI援助服务。

Should the safety valve fail to work properly contact the AEROTECNICA COLTRI assistance service.

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