

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:
• MARK 3 MCH-13-16-18/ET

USE AND MAINTENANCE MANUAL
使用保养手册

MARK 3
ELECTRIC

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1 - TECHNICAL DATA

1.1 TECHNICAL CHARACTERISTICS

1.1.1 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.

1.1.2 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.

1.1.3 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.

1.1.4 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.

1.1.5 Lubrication

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

1.1.6 Cooling tubes

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

1.1.7 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.

1.1.8 Pressure gauges



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

1-技术数据

1.1 技术特点

1.1.1 曲轴箱、曲轴、汽缸、活塞

曲轴箱由重力压铸铝合金制成，法兰盘为压铸铝。曲轴是由锻造钢制成的，连杆是由锻造铝制成的。

带有支撑鹅颈的滚子轴承的法兰与气缸体之间通过法兰和气缸体之间的O型圈以及法兰和驱动轴之间的油封进行油密。

曲轴和连杆完全在滚子轴承上旋转。连杆以单一曲柄角度安装在鹅颈上。

气缸采用铝压铸，内层镀镍和硅，第一级和第二级活塞用铝制成，第三级活塞用钢制成。活塞环是由铸铁制成的。第二和第三级活塞是浮动的。

1.1.2 阀门

头部设置有出气和进气阀。第一级阀门为簧片阀类型，包括进气和出气。

第二级的进气阀和排气阀由不锈钢制成，直接放置在机头的各自座位上。

第三级的头部有一个同轴的进气和排气阀。

1.1.3 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	10Bar / 145PSI
第二级安全阀	70Bar / 1015PSI
第三级安全阀或最终阀	200-232-300-330Bar / 2900-3300-4300-4700PSI



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。

1.1.4 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。

1.1.5 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。

1.1.6 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。

1.1.7 框架、防护装置

压缩机和电机安装在一个焊接的钢架上，钢架上涂有环氧树脂。可根据要求提供不锈钢框架。

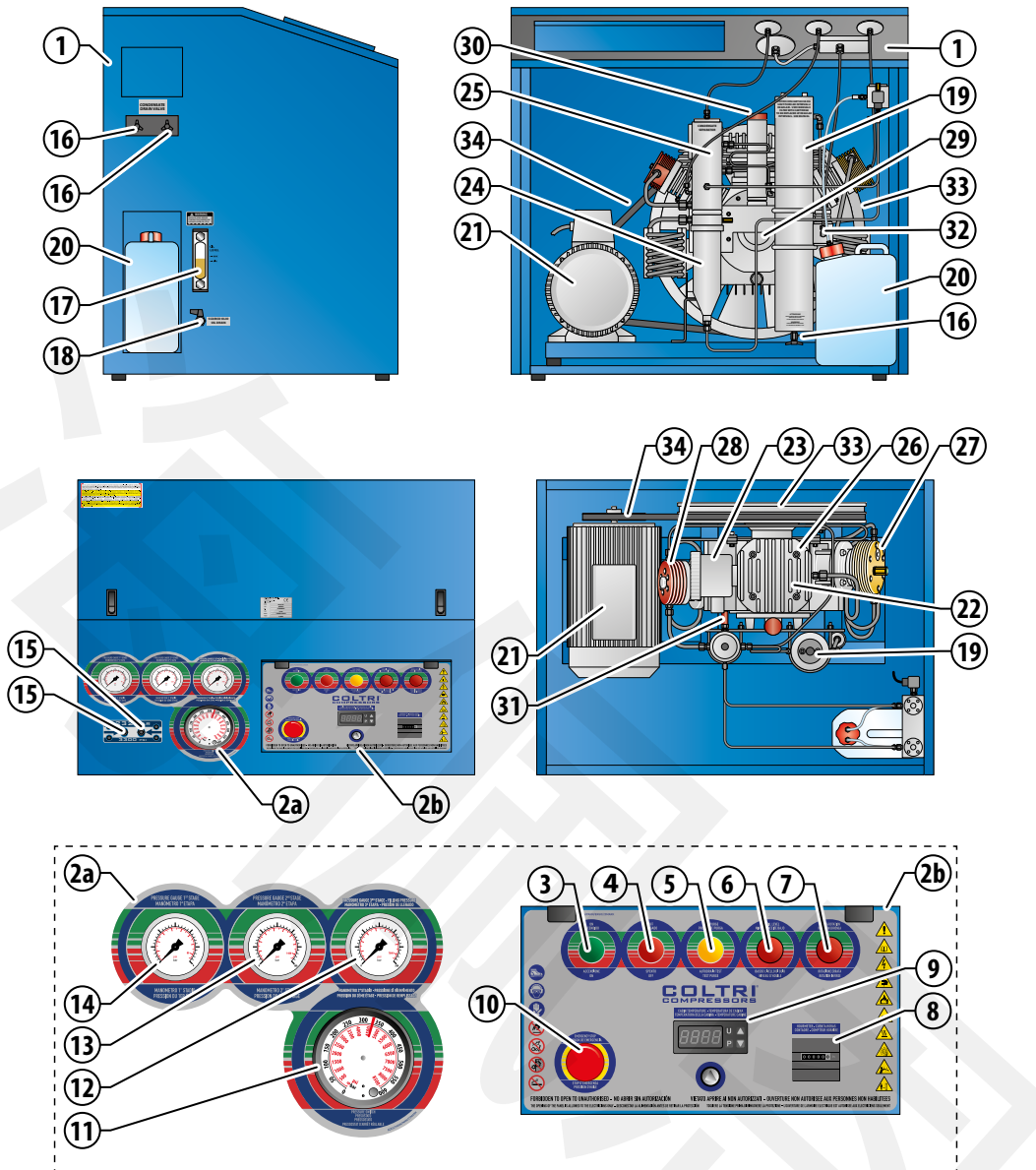
1.1.8 压力表



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%）。

1.2 MACHINE PARTS

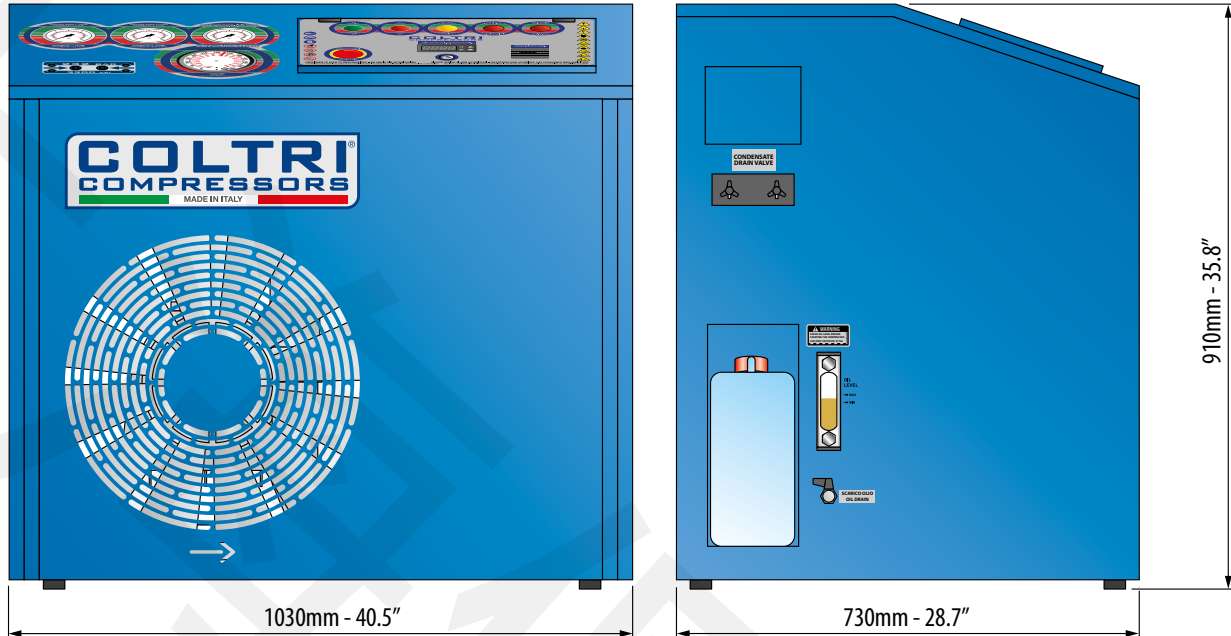
1.2 机器零件



- | | | | |
|--|------------------------------|----------------|-------------|
| 1 Frame | 17 Oil level | 1 框架 | 17 油位 |
| 2 Control pannel | 18 Oil discharge valves | 2 控制面板 | 18 排油阀 |
| 3 ON pushbutton | 19 Purifier filter | 3 开启按钮 | 19 净化器过滤器 |
| 4 Stop pushbutton | 20 Condensate collection can | 4 停止按钮 | 20 冷凝水收集罐 |
| 5 Condensate discharge pushbutton | 21 Motor | 5 冷凝水排放按钮 | 21 马达 |
| 6 Oil level warning light | 22 Compressor | 6 低油位警告灯 | 22 压缩机 |
| 7 Direction of rotation indicator light | 23 Air filter | 7 相序错误指示灯 | 23 空气过滤器 |
| 8 Hour counter | 24 LP condensate separator | 8 时间累计器 | 24 LP冷凝水分离器 |
| 9 Cabinet interior / cooling air temperature | 25 HP condensate separator | 9 机箱内部/冷却空气 温度 | 25 HP冷凝水分离器 |
| 10 Emergency pushbutton | 26 1 st stage | 10 紧急按钮 | 26 第一级 |
| 11 Automatic shutdown pressure switch | 27 2 nd stage | 11 自动关机压力 开关 | 27 第二级 |
| 12 3rd stage pressure gauge | 28 3 rd stage | 12 第三级压力表 | 28 第三级 |
| 13 2nd stage pressure gauge | 29 Monobloc | 13 第二级压力表 | 29 油泵 (选配) |
| 14 1st stage pressure gauge | 30 Oil filler plug | 14 第一级压力表 | 30 注油口 |
| 15 Refill hoses connection | 31 Safety valve | 15 加注软管连接口 | 31 安全阀 |
| 16 Condensate discharge valves | 32 Maintenance valve | 16 冷凝水排放阀 | 32 压力维持阀 |
| | 33 Cooling fan | | 33 冷却风扇 |
| | 34 Belt | | 34 皮带 |

1.3 TECHNICAL CHARACTERISTICS

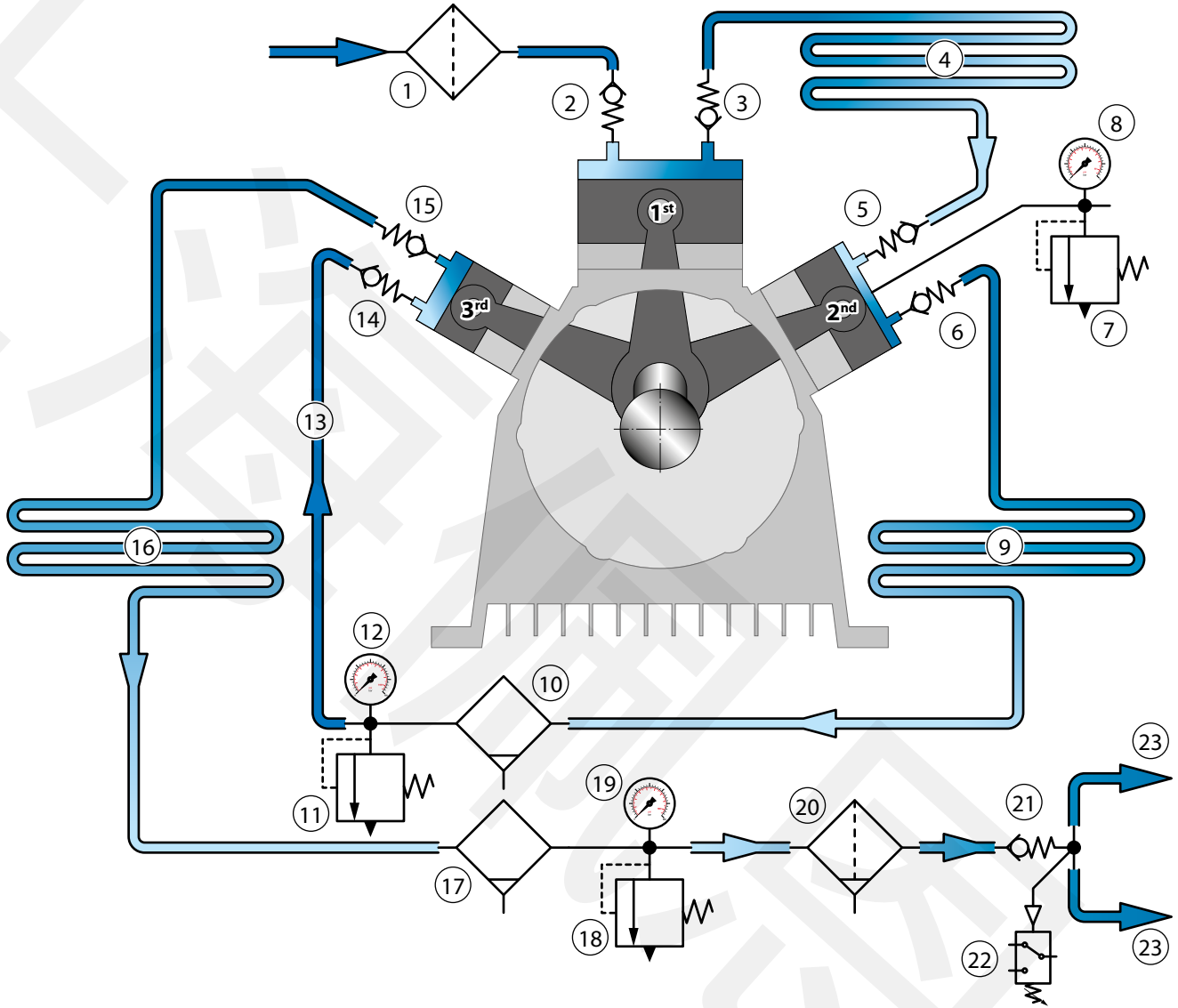
1.3 技术特点



				MARK 3								
				MCH-13			MCH-16			MCH-18		
Electric Engine	电动机		Three phase - Trifase									
Engine power	电机功率	(kW)	4			5,5			7,5			
		(Hp)	5,5			7,5			10			
Engine rpm	电机转速	(giri/min)(rpm)	2850	3420		2840	3410		2850	3420		
Voltage	电压	(V)	230	230	440	230	230	440	230	230	440	
			400	400	480	400	400	480	400	400	480	
Frequency	频率	(Hz)	50	60	60	50	60	60	50	60	60	
Absorption	电流	(A)	16,8/9,7	16,8/9,7	9,7	21,8/12,6	21,8/12,6	12,6	26,8/15,1	26,8/15,1	15,1	
Pumping Unit	压缩机转速	(giri/min)(rpm)	1270			1600			1660			
Working pressure	工作压力	(bar)	232-300-330									
		(PSI)	3300-4300-4700									
Charging rate (*)	排量 (*)	(l/min)	235			315			330			
		m ³ /h	14,1			18,9			19,8			
		CFM (ft ³ /min)	8,3			11,1			11,7			
Refill time	加注时间	10l / 0-200bar (min)	8'30"			6'20"			6'00"			
Noise level	噪声水平	Lwa guaranteed (dB)	86			88			88			
		Lwa measured (dB)	83			85			85			
		Lpa measured (dB)	63			65			65			
Dry weight	干重	(Kg)	162			168			168			
		(lb)	357			370			370			
Dimensions	尺寸	(mm)	1030x730x910									
		(inches)	40.5x28.7x35.8									

1.4 PRESSURE CIRCUIT

1.4 压力回路



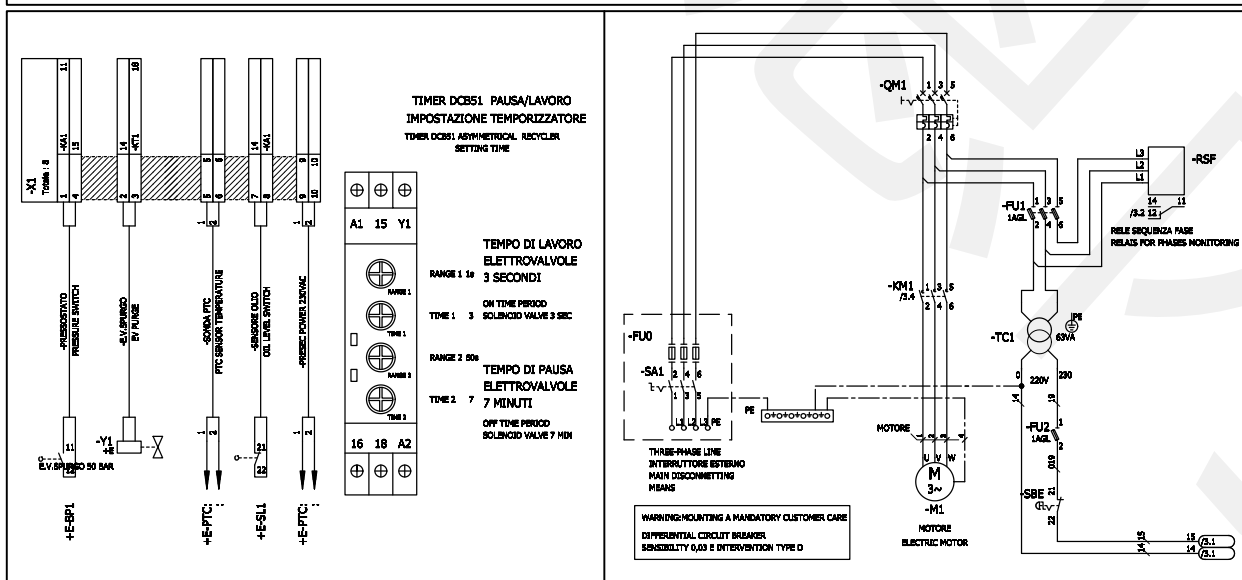
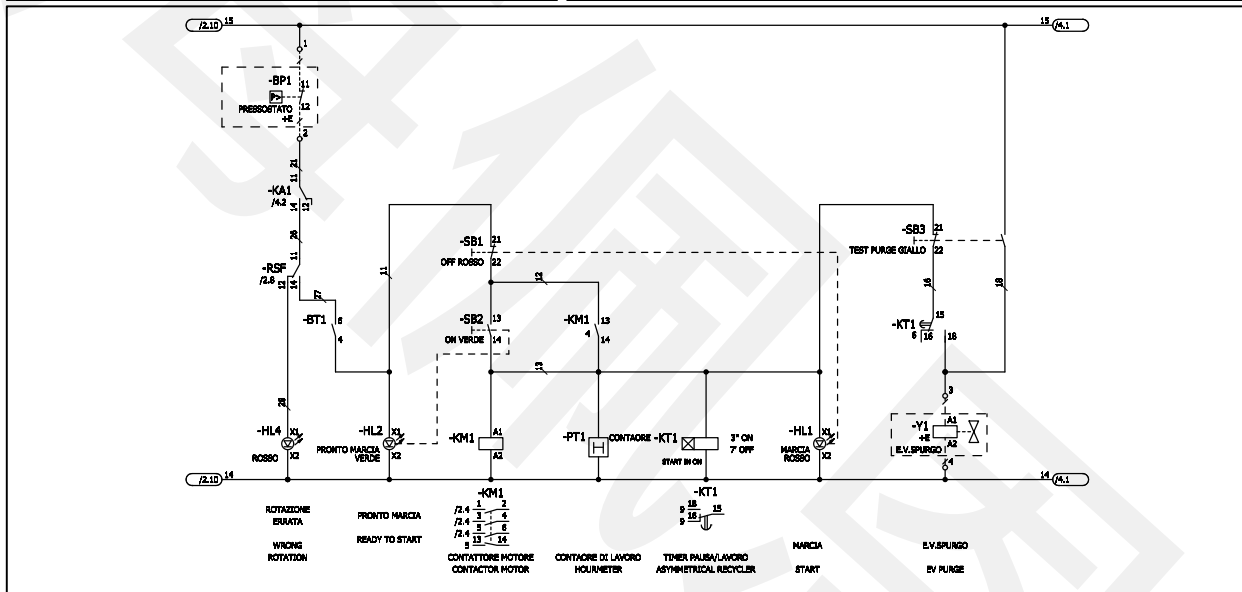
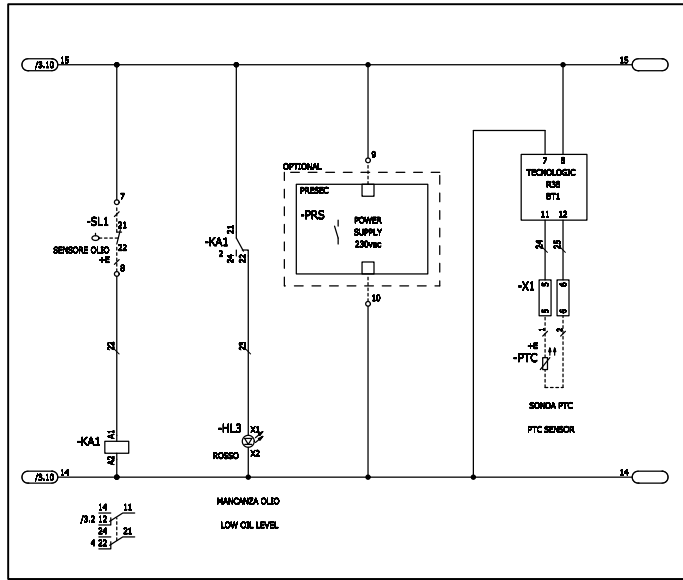
- 1 Intake filter
- 2 Intake valve 1st stage
- 3 Outlet valve 1st stage
- 4 Cooling pipe 1st-2nd stage
- 5 Intake valve 2nd stage
- 6 Outlet valve 2nd stage
- 7 Safety valve 1st stage
- 8 1st stage pressure gauge
- 9 Cooling pipe 2nd/condensate separator LP
- 10 Condensate separator LP
- 11 Safety valve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

- 1 进气过滤器
- 2 第一级进气阀
- 3 第一级出气阀
- 4 第1-2级冷却管
- 5 第二级进气阀
- 6 第二级出气阀
- 7 第一阶段安全阀
- 8 第一级压力表
- 9 第二级冷却管/凝结水分离器 LP
- 10 冷凝水分离器 LP
- 11 第二阶段安全阀
- 12 第二级压力表
- 13 管道分离器/第三级
- 14 第三级进水阀
- 15 第三级出气阀
- 16 三级冷凝管
- 17 冷凝水分离器 HP
- 18 安全阀
- 19 压力表
- 20 净化器过滤器
- 21 压力维持阀
- 22 压力开关
- 23 软管

1.5 WIRING DIAGRAM

1.5 接线图

MCH-13-16-18/ET MARK 3	
Diagram N°	: 18-00009
Number phases end frequency	: 3P+T ...HZ
Power supply control board	:
Voltage command circuit	: 230VAC
Voltage signal circuit	:
Total power control board	:
Total current equipment	:
Higher current equipment	:
Power interruption	: 6KA
Degree of protection	:



2- HANDLING AND INSTALLATION

2.1 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.

2- 搬运 和 安装

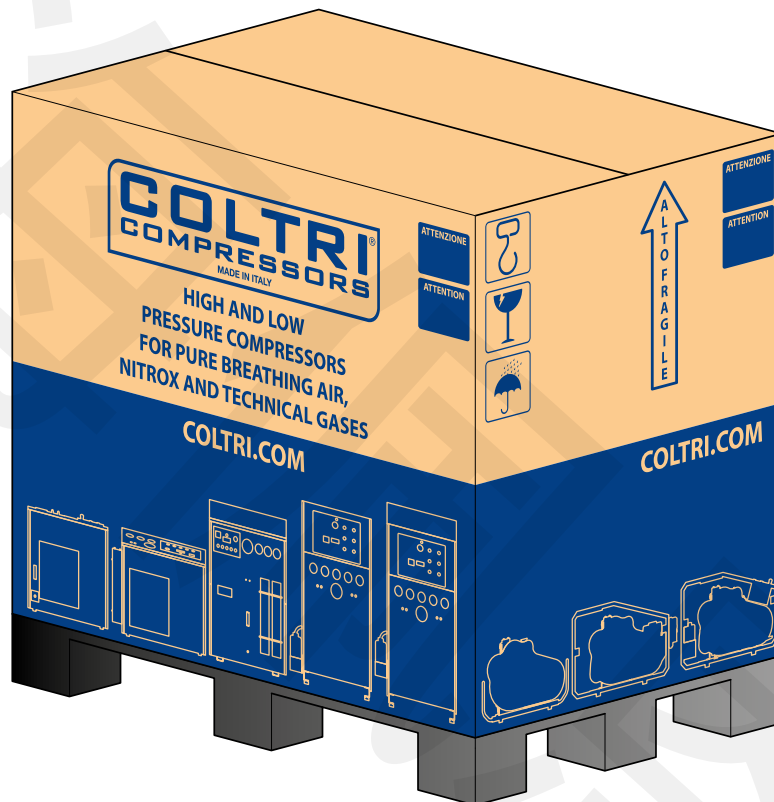
2.1 拆卸包装

压缩机被装在一个纸板箱中，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。
- 2个加注接口。
- 1个活性炭和分子筛滤芯（调试已安装）。
- 1本使用和维护手册。
- 欧共体符合性声明。



2.2 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.



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

2.2 搬运

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。转移时需要使用叉式升降机或转盘（具有适当的承载能力）：叉子必须放在托盘所处的支撑脚中。



重要提示：在抬起、转移和定位压缩机时要极其小心。

2.3 INSTALLATION



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

2.3.1 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.

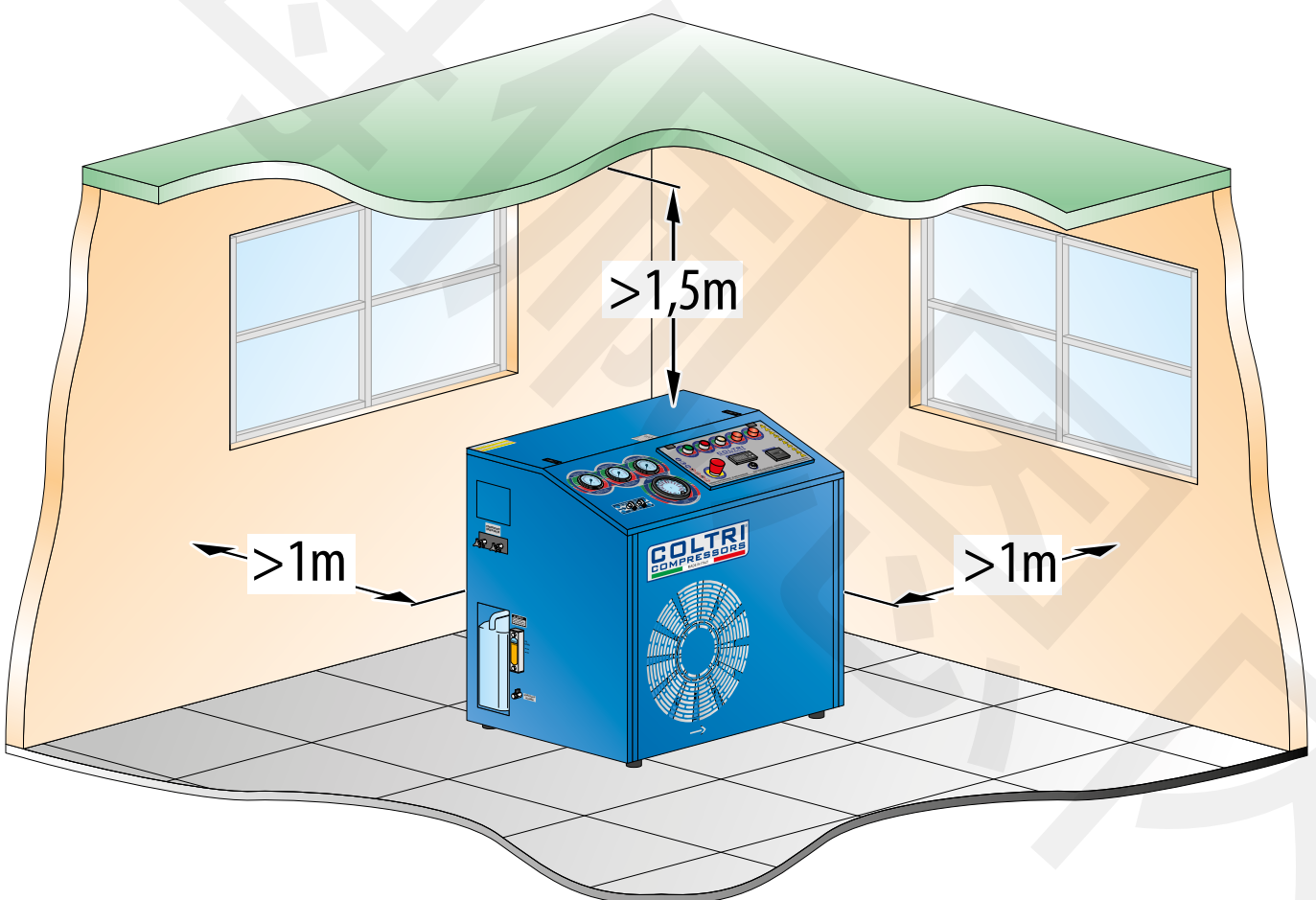
2.3 安装



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"。

2.3.1 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，则需要进行空调降温。
- 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。



2.3.2 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.

2.3.2 进气口延伸连接

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。



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.



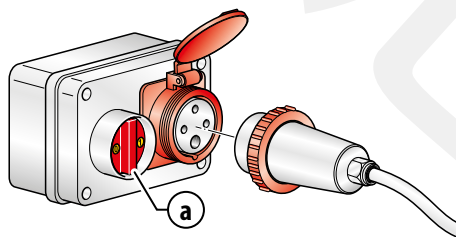
警告: 只能使用内部有钢编织加固的柔性管道, 以防止扭结和随之而来的横截面缩小。
不要吸食有害气体或废气。

2.3.3 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.

2.3.3 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。



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).



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。



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



3 - 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) 发动机功率 (千瓦)	Use (minutes) 使用 (分钟)	Cooling (minutes) 冷却 (分钟)
4 (ET)	80	20
5,5 (ET)	90	25
7,5 (ET)	90	25

3 - 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)。

3.1 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.

3.1.1 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".

3.1.2 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.

3.1.3 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".

3.1 在首次使用前进行初步检查

操作员必须检查压缩机的供货情况:

- 使用和维护手册;

如果压缩机被出售, 客户/用户必须向购买者提供一份完整的、未损坏的使用和维护手册。

3.1.1 插入过滤芯

在交付时, 压缩机没有安装过滤芯: 过滤芯与压缩机一起放在包装内的密封真空包装袋中。(调试, 已安装)。

关于如何插入过滤盒的说明, 见 "7.9 净化器过滤器" 一节。

3.1.2 检查电气连接是否正确

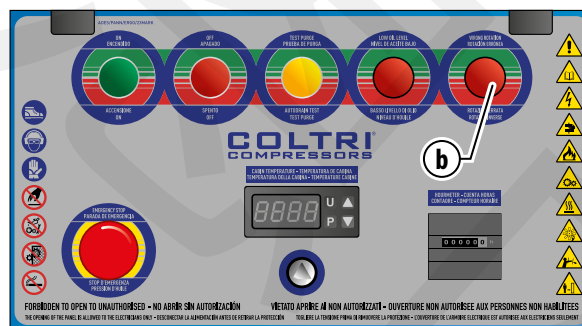
通过检查冷却风扇是否按照风扇盖上的箭头(a)指示的方向旋转, 检查电相的连接是否正确。

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。

风扇产生的气流必须吹向压缩机, 而不是向外。

3.1.3 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。

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

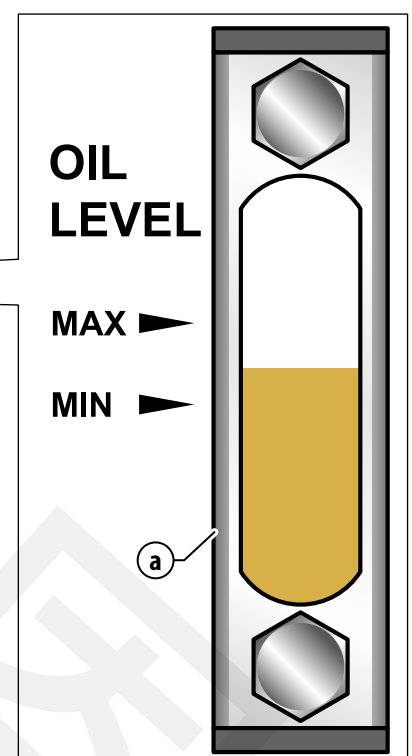
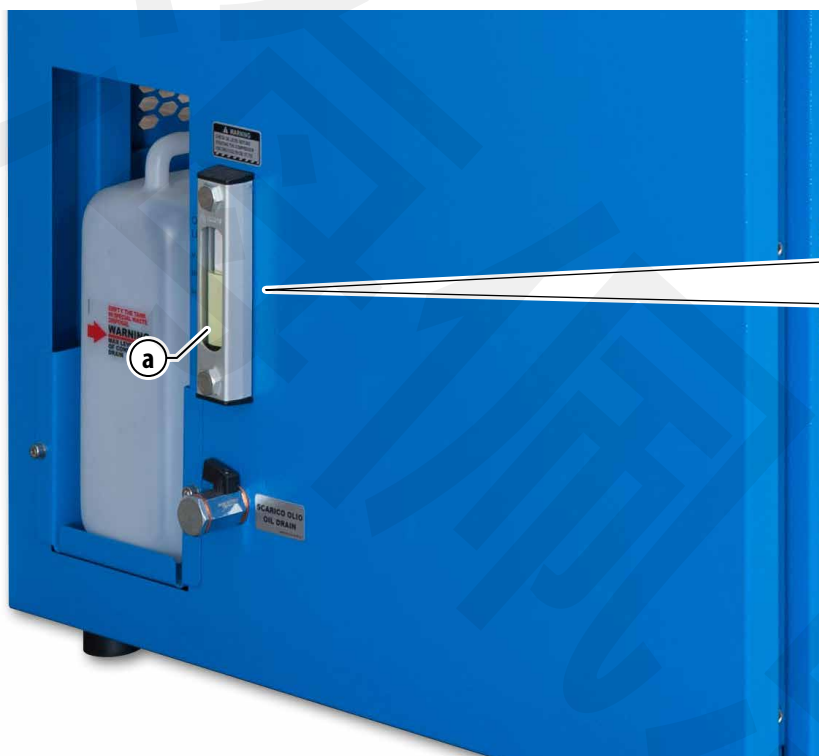
Inspect the exterior of the compressor (couplings, pipes, pneumatic components etc.) and check for any oil leaks. Replace parts where necessary or contact AEROTECNICA COLTRI.

3.2.1 Lubricating oil level check

Check that the lubricating oil level (a) 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".



3.2.2 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.

3.2 在每次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厂家售后。

3.2.1 润滑油油位检查

检查润滑油油位 (a) 是否在可接受的范围内 (下限MIN.-上限MAX.)。需要注意的是，过量的机油会导致气缸内的渗透，并在气门上留下沉积物，而过低的机油水平则会妨碍适当的润滑，并可能导致压缩机被卡死。

如果油位不在最低和最高限度内，请按照 "7.10 更换润滑油" 一节中的描述进行加油或放油。

3.2.2 检查加注软管是否处于良好状态

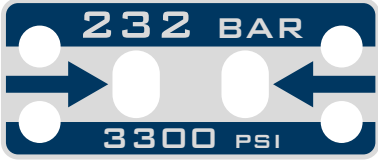

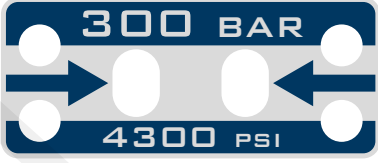



检查加注软管，确保没有切口、孔洞、擦伤和泄漏等。如果有必要，请更换新的软管。

3.2.3 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:

3.2.3 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 - 公称工作压力	Sticker - 贴纸	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.

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.

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:

- 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.



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.

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



重要提示: 安全阀必须每10年或5000小时更换一次。



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，并使保修失效。

如果安全阀不能正常工作，请联系售后援助服务。

3.2.4 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.



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.

3.2.4 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。



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。

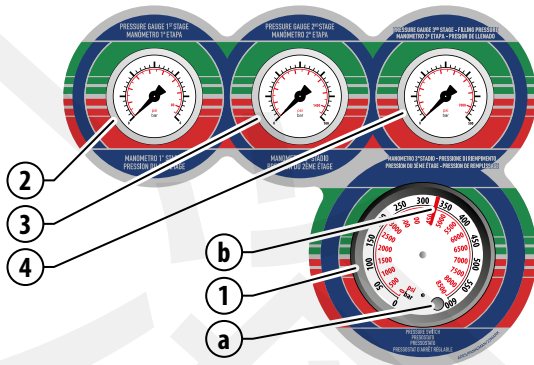
3.3 CONTROL PANEL



WARNING: It is forbidden to alter pressure parameters without authorisation from AEROTECNICA COLTRI. Any unauthorised modifications shall render the warranty null and void.



IMPORTANT: If malfunction situations occur in the command device or control devices, contact AEROTECNICA COLTRI.



1 Automatic shutdown pressure switch

The automatic shutdown pressure switch determines the compressor shutdown pressure.

The shutdown pressure can be set via the regulator (a) and displayed via the indicator (b). When the compressor reaches the set pressure it shuts down automatically.

The compressor can reach a maximum pressure of 232-300-330 bar (3300-4300-4700 PSI).

2 1st stage pressure gauge

Indicates the pressure inside the 1st compression stage.

3 2nd stage pressure gauge

Indicates the pressure inside the 2nd compression stage.

4 3rd stage pressure gauge

Indicates 3rd compression stage pressure and final refill pressure.

5 Direction of rotation warning light

If the light comes on this means that the direction of compressor rotation is incorrect. To restore correct rotation see section "6.1.2 Checking electrical phase connections".

6 Oil level warning light

If the light comes on this means that the oil level is too low; to restore the oil level see section "7.10 Changing lubricating oil".

7 Manual condensate discharge button

Pressing the yellow manual condensate discharge button drains the condensate collected in the special recipient during use of the compressor (no further tasks required: drainage interval managed with the pressure switch timer). To drain the condensate see section "7.6 Condensate discharge".

8 ON pushbutton

To start the compressor press the green ON pushbutton. The compressor will then run until the pressure that has been set on the adjustable pressure switch is reached or until the safety valve release over pressure.

9 OFF pushbutton

Press the red OFF pushbutton to stop the compressor.

10 Emergency pushbutton

The emergency pushbutton it must be used in danger or emergency situations. Pressing the pushbutton shuts down compressor operation and the pushbutton remains press-locked; to reset the pushbutton rotate it anticlockwise.

Check that the emergency pushbutton is working properly at the start of each working day.



WARNING: IT IS ABSOLUTELY FORBIDDEN TO TAMPER WITH THE EMERGENCY PUSHBUTTON.

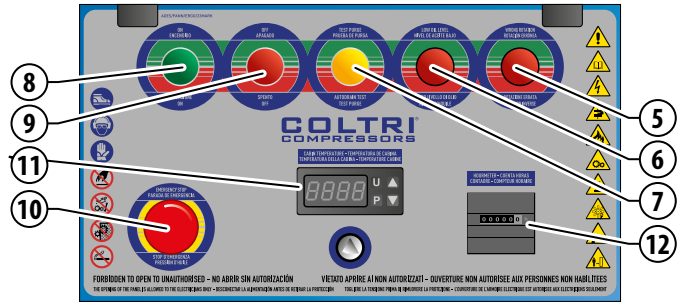
If the compressor fails to shut down immediately after pressing the emergency pushbutton disconnect the compressor from the power supply and contact AEROTECNICA COLTRI.

3.3 控制面板



警告: 未经厂家授权, 严禁改变压力参数。任何未经授权的修改都将导致保修无效。

重要提示: 如果命令设备或控制设备出现故障情况, 请联系售后。



1 自动停机压力开关

自动停机压力开关决定了压缩机的关机压力。

关机压力可以通过调节器 (a) 设定, 并通过指示灯 (b) 显示。当压缩机达到设定的压力时, 它会自动关闭。

压缩机的最大压力可以达到232-300-330巴 (3300-4300-4700 PSI)。

2 第一级压力表

表明第一压缩级内部的压力。

3 第二级压力表

表示第二压缩级内部的压力。

4 第三级压力表

表示第三压缩阶段的压力和最终加注压力。

5 旋转方向警告灯

如果该灯亮起, 说明压缩机的旋转方向不正确。要恢复正确的旋转, 请参见 "6.1.2 检查电气相位连接" 一节。

6 低油位指示灯

如果指示灯亮起, 这意味着油位太低; 要恢复油位, 见 "7.10 更换润滑油" 一节。

7 手动冷凝水排放按钮

按下黄色的手动冷凝水排放按钮, 可以排放压缩机使用过程中收集在特殊容器中的冷凝水 (不需要进一步的工作: 用压力开关定时器管理排放间隔)。排放冷凝水的方法见 "7.6 冷凝水排放" 一节。

8 开启按钮

要启动压缩机, 请按绿色的 "开" 字按钮。然后, 压缩机将运行, 直到达到可调节压力开关上设定的压力, 或者直到安全阀释放超压。

9 关闭按钮

按红色的 "关闭" 按钮, 停止压缩机。

10 紧急按钮

紧急按钮必须在危险或紧急情况下使用。按下该按钮可以关闭压缩机的运行, 并且该按钮一直被按下锁定; 要重置该按钮, 请逆时针旋转该按钮。

在每个工作日开始时, 检查紧急按钮是否正常工作。每个工作日的开始, 检查紧急按钮是否正常工作。




警告: 绝对禁止篡改紧急按钮。

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, 并联系售后。

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.

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：**未经厂家授权，不得改变温度参数。未经厂家事先授权，不得改变温度参数：这样做将导致保修无效（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。


3.4 STARTING AND SHUTTING DOWN

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

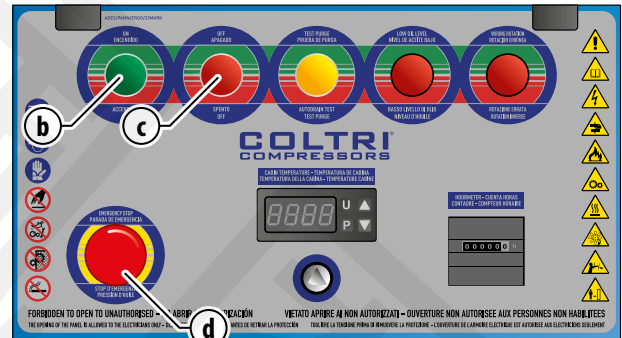
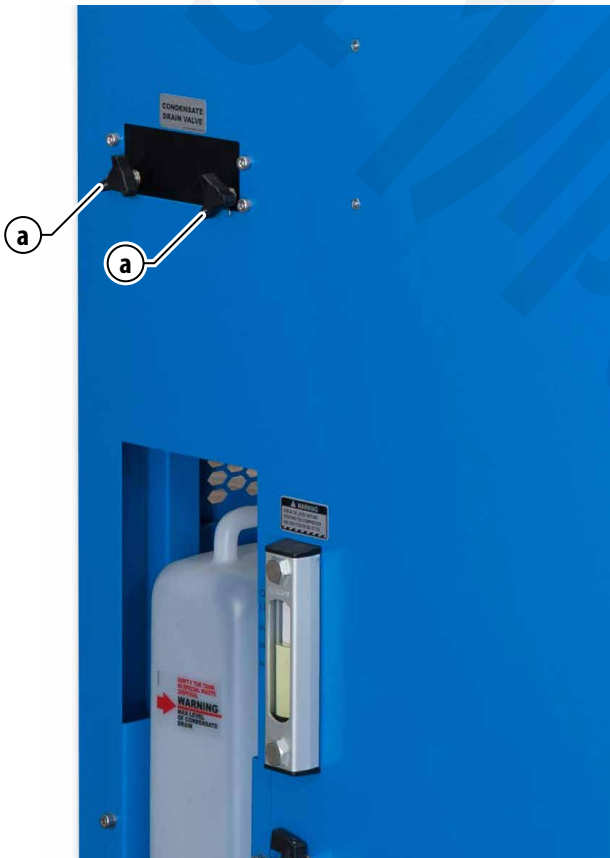
- Before starting the engine open the condensate discharge points (a) to prevent a "strained" start.
- press the start pushbutton (b);
- close the condensate discharge points (a).

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

3.4 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。

- 在启动压缩机之前，打开冷凝水排放点 (a)，防止 "勉强" 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)。

3.5 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:



3.5 容器补给

 **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，当机器处于压力状态时，禁止将软管从接头处或加注阀处断开。


 **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，在以下情况下会自动关闭。

- 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。严禁在大于标示的压力下加注。

 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:

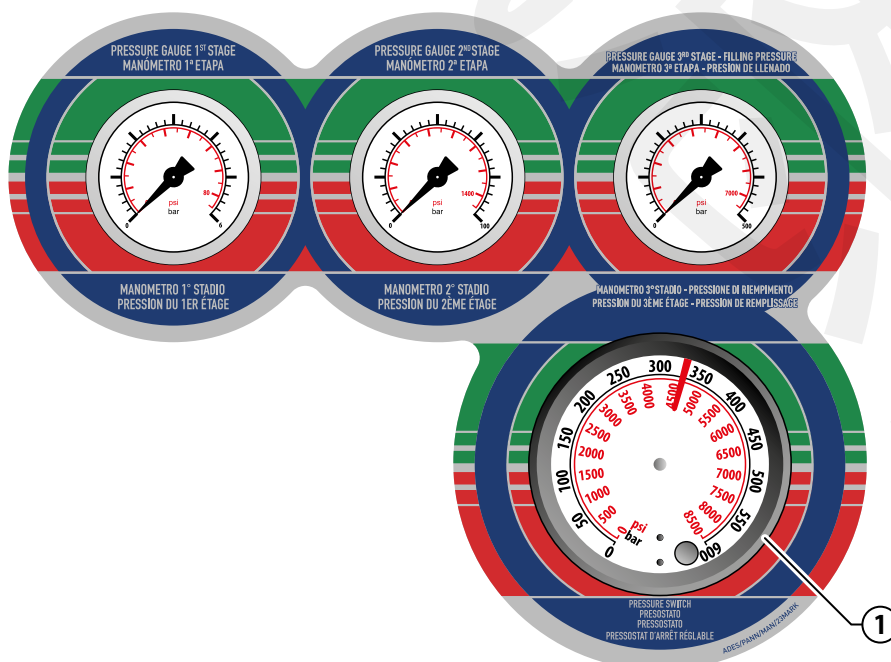
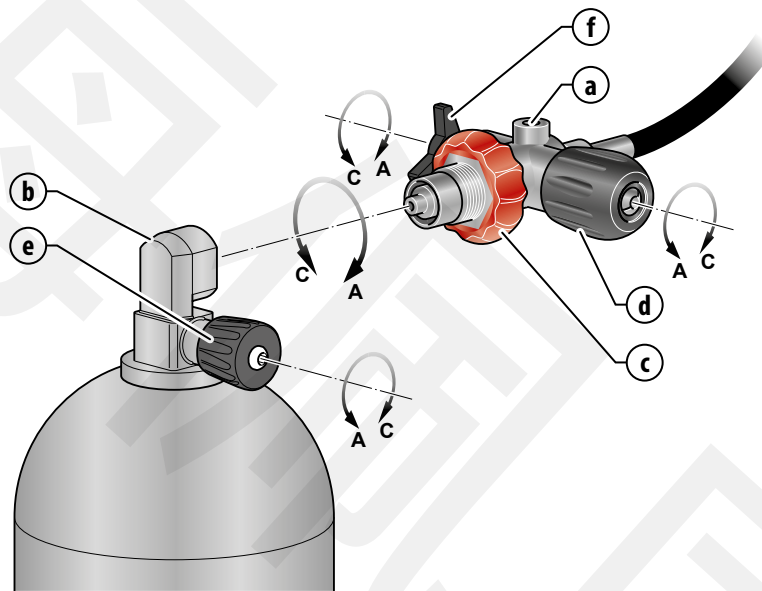


To refill bottles proceed as follows:

- 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。
- 顺时针旋转关闭阀门 (d) 和 (e) 。
- 逆时针旋转放气阀(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。



3.6 OPTIONALS

3.6.1 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:

- psi Display of pressure in psi;
- MPa Display of pressure in Mpa;
- bar Display of pressure in bar;
- Sel Button for changing the unit of measurement
- H Button for displaying of the partial hours
- R Button for return to the menu or reset
- Ok Confirmation button
- Up/Down Selection buttons



Entering of the password

The password consists of 4 numbers.

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



How to view and reset the partial hours of operation

Press the key **H** to display the partial hours:

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



Pressure measurement unit selection

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

3.6 可选类型

3.6.1 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:

- psi 显示压力的单位是psi;
- MPa 以Mpa为单位显示压力;
- bar 以巴为单位显示压力;
- Sel 用于改变测量单位的按钮
- H 用于显示部分时间的按钮
- R 用于返回菜单或复位的按钮
- Ok 确认按钮
- Up/Down 选择按钮



输入密码

该密码由4个数字组成。按键来确定第一个数字的位置。

按键输入第一个数字。

输入所需的数值，然后按移动到下一个数字。

显示屏将依次显示第二、第三和第四位数字。



如何查看和重置部分工作时间操作

按键，**H** 显示部分时间：

要重新设置数值，当部分小时的指示出现在显示屏上时，保持按压键直到重置（0000）。



压力测量单位选择

按键，**Sel** 直到靠近 **psi**，**MPa**，**bar** 字样的LED灯亮起。



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.



如何更改密码 (PASS)

按键 **Ok**，用键 **▲▼** 选择编辑项目，然后按 **Ok**。输入默认密码 (4602)。

或个人密码，如果以前设置过的话 (按照以前提供的说明)。的指示)，然后按 **Ok**。

用键 **▲▼** 选择 **PASS** 项来改变密码，然后按 **Ok**。

在 4001-9999 之间输入所需的密码，然后按 **Ok** 保存。并返回到主菜单。

按 **R** 返回主菜单而不保存。



如何查看最大充气压力 (HPA)

按键 **Ok**，用键 **▲▼** 选择 **HPA** 项目并按下 **Ok**。

这时显示屏显示出所设定的最大充气压力的数值灌装压力。按 **R**，返回主菜单，不保存。



如何设置最大充气压力 (HPA)

按键 **Ok** 用键 **▲▼** 选择 **编辑** 项目并按下 **Ok**。输入默认密码或个人密码，如果之前已经设置过 (按照之前提供的说明)，然后按 **▲▼**。然后用键选择 **HPA** 项目，并按下 **Ok**。

输入与所需压力相对应的数值，然后按 **Ok** 保存并返回到主菜单。按 **R** 返回到主菜单不保存

当达到设定的压力时，压缩机会关闭。

最大的充气压力可以设定在 20 到 400 巴之间 (2 ÷ 40 Mpa, 290 ÷ 5800 psi)。



如何设置压力差 (HtA) ?

压力德尔塔是相对于设定的压力的差异，低于该压力的

例如：最大灌装压力 232 巴，压力 30 巴。压缩机在达到 232 巴的压力时关闭。当压力下降到 202 巴以下时 (232-30 巴=202 巴)，压缩机就可以再次启动。准备再次启动。

按 **Ok**，用键 **▲▼** 选择 **HtA** 项，按 **Ok** 输入所需的压力值，按保存并返回主菜单。所需的压力差，然后按 **Ok** 保存并返回到主菜单。

按 **R** 返回主菜单而不保存。

压力三角可在 10 至 100 巴 (1 ÷ 10 Mpa, 145 ÷ 1450 psi) 之间设置。



如何重置总运行时间 (tHC) ?

按 **Ok**，用 **▲▼** 键选择 **tHC** 项目并按下 **R** 至少 1 秒 (1s)。按 **R** 压以返回到主菜单，不做保存。



如何查看总周期数 (tCC) ?

按键 **Ok**，用键 **▲▼** 选择 **tCC** 项目并按下 **R** 至少 1 秒 (1s)。按 **R** 压以返回到主菜单不做保存。



设置 (Set)

这一功能只能由制造商。

3.6.2 Filling panels

3.6.2 填充板



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

3.6.3 Filling connections

3.6.3 填充连接



DRV232/MANOM
DRV 232 bar WITH PRESSURE



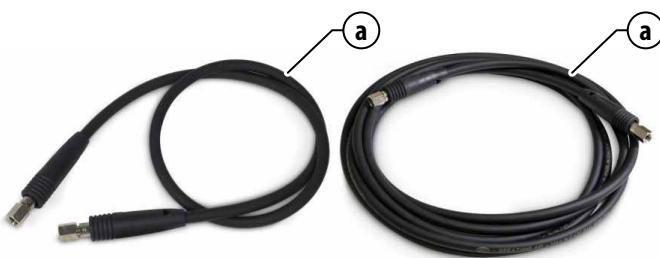
DRV300/MANOM
DRV 300 bar WITH PRESSURE



RE100350
Reducer DIN/INT

3.6.4 Filling hoses

3.6.4 灌装软管



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

3.6.5 C_MONITOR monitoring system

OIL AND FINAL FILTER MONITORING SYSTEM

The interface consists of an LCD display, a button 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%). The symbol (●) indicates an alarm condition while the symbol (○) indicates normal operation.

Press the button 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:

油% 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 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.

电% 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.

电% 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.

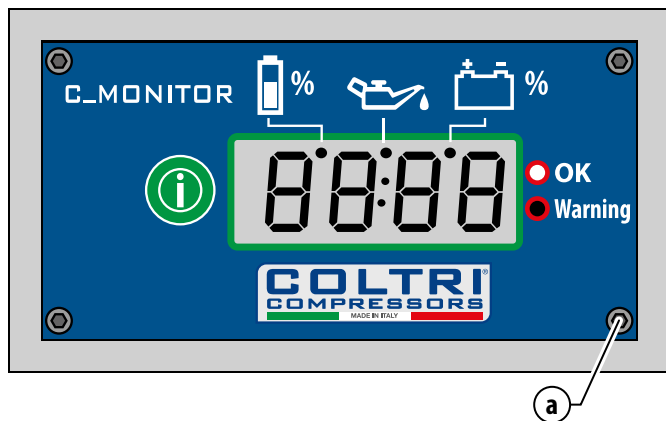
电% Service (expressed in hours)

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 电%. After performing the maintenance, pressing the button 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 电%, 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.



3.6.5 C_MONITOR监控系统

油和最终过滤器监测系统

该界面由一个LCD显示屏、一个按钮 和两个指示灯组成 (●, ○)。数字旁边的小数点是指示灯，表示正在进行的报警或警告。正在进行的警告。每个点都与一个解释性的图标(油%, 滤%, 电%)。符号 (●) 表示报警状态，而符号 (○) 表示正常操作。

按这个按钮 可以滚动浏览各种菜单功能。当时，显示该功能，两 (2) 秒后显示相关数据。

功能的顺序如下。

油% 滤芯饱和度 (以百分比表示)

如果饱和度低于20%，警报 (●) 就会被激活，指示灯 (点) 在图标处亮起 油%。更换盒后，在相应的菜单中按下 按钮至少三(3)秒，同时显示相应的菜单。显示时，报警被重置，数值恢复到100%。警报 油% 图标上的报警指示器被停用，只有符号 (○) 仍然有效激活。

电% 工作时间

当数值 "9999" 被通过时，计数器自动返回到"0000"。工作时间的检测是通过C_Monitor中的振动传感器进行的。

电% 电池充电水平 (以百分比表示)

当液位下降到50%以下时，警报 (●) 被激活，图标处的指示灯 (点) 亮起 电%。更换电池后，警报自动复位，图标旁边的报警指示灯 电% 熄灭，只有符号 (○) 保持有效。

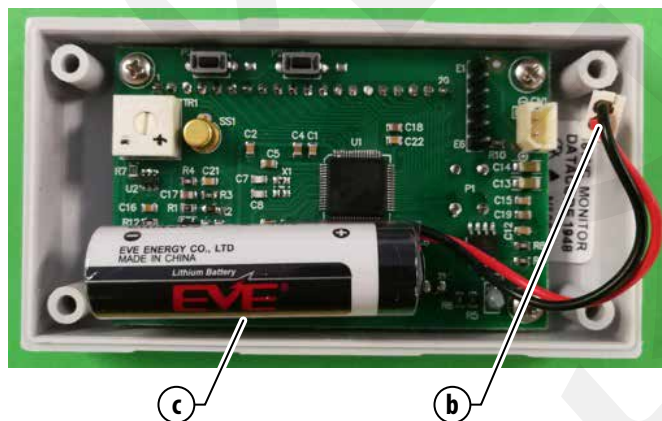
更换电池不会导致其他信息或设置的丢失。

电% 服务 (以小时表示)

它表示在需要更换润滑油之前的剩余小时数。当该值达到零 (0) 时，警报 (●) 被激活，图标处的指示灯 (点) 亮起。在进行维护后，在显示相应的菜单时，按动按钮 至少三 (3) 秒，警报被重置，维护计数器被重置。图标处的报警指示灯 电% 停用，只有符号 (○) 保持有效。

更换电池

用现有的四个螺钉 (a) 打开C_Monitor的盖子。断开连接器(b)，取出耗尽的电池(c)，用新的电池替换，确保用双面胶带将其固定在电子板上，将连接器(b)重新连接到专用插槽中，并关闭盖子。更换电池不会导致其他信息或设置的丢失。电池的平均寿命约为1年。



4 - MAINTENANCE



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

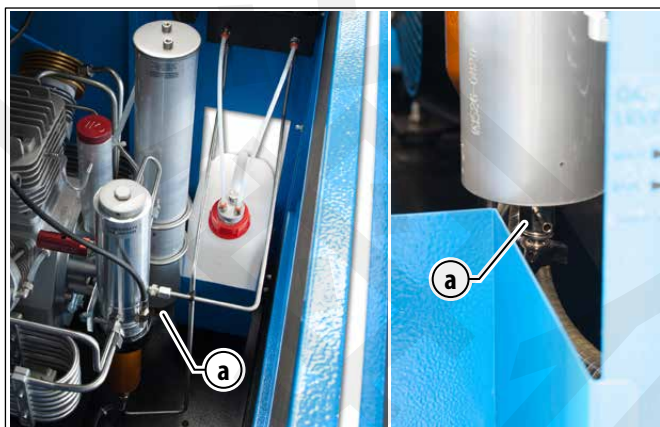


DANGER: Do not carry out maintenance tasks if the compressor has only just shut down; wait for the compressor to cool.

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).



4 - 保养



警告: 维修任务只能由厂家客户援助服务部或合格人员进行。



危险: 如果压缩机刚刚关闭，不要进行维护工作；要等待压缩机冷却。

所有维护工作必须在压缩机关闭、电源线从电源插座上拔下的情况下进行。

在执行任何维护任务之前，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）。



4.1 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**

4.1 前言

为了使压缩机获得最佳性能，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，并在每次出现不便的时候查阅手册。

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**

4.2 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.

4.2 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经授权的人员进行，并记录在本手册的"10维护登记"一章中。

4.3 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.

4.3 不定期的工作

涉及维修和/或更换一个或多个压缩机部件的机械零件：通常只有在使用几年后才需要进行这项工作。如果进行了大量的修改，制造商不能对可能出现的任何危险负责。这项工作必须由援助中心来完成。

4.4 Scheduled maintenance table

4.4 预定维修表

Before every refill - 每次加药前 Maintenance - 维护	Hours - Ore											Years - Anni			
	50	100	250	500	1000	1500	2000	3000	4000	5000	20000	1	5	10	15
Condensate discharge (change sintered filter) 冷凝水排放 (更换烧结过滤器)	○		●												
Intake filter 进气过滤器	○		●									●			
Lubricating oil + oil filter (if present) 润滑油+油过滤器 (如果有的话)	○				●							●			
Belt wear and tension 皮带磨损和张力			○	●								●			
1 st , 2 nd stage valves 第1、2级阀门						●									
3 rd stage valves 第三级阀门						●									
Separator sintered filter 分离器烧结过滤器			○						●				●		
Condensate separator 冷凝水分离器			○								●				●
HP filter HP过滤器			○								●				●
1 st , 2 nd stage piston rings 第一、二阶段活塞环							●								
3 rd stage complete 第三阶段活塞整套						●									
HP flex hoses 软管	○							●					●		
Fitting leakages 配件泄漏			○												
Safety valve 安全阀			○							●				●	
Coolers 冷却器									●						

○ = Checking and cleaning ● = Change

○ = 检查和清洁 ● = 更换



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。

4.5 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

4.5 排除故障

问题	起因	解决
• 电动机不启动	• 阶段性缺失	• 检查保险丝或电容器
• 转速和流速下降	• 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
• 在转速没有下降的情况下，流量会减少	• 阀门不工作	• 联系技术援助
	• 第三级活塞磨损	• 联系技术援助
	• 配件松动/ 泄漏的密封件	• 用肥皂水检查是否有泄漏，并将其消除。
	• 进气过滤器堵塞	• 替换
	• 进气口延长线扭结	• 拉直，使用更硬的管子
	• 活塞或活塞环磨损	• 联系技术援助
	• 空气中弥漫着油味	• 滤芯已用尽
• 活塞环磨损		• 联系技术援助
• 压缩机过热	• 旋转方向错误	• 联系技术援助
	• 冷却管脏了	• 联系技术援助
	• 阀门关闭不完全 (造成另一阶段的过载)	• 联系技术援助

4.6 CONDENSATE DISCHARGE

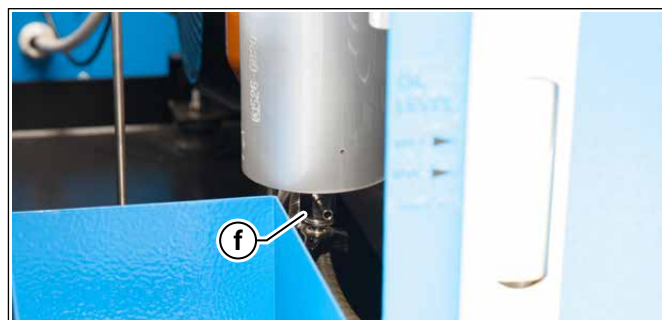
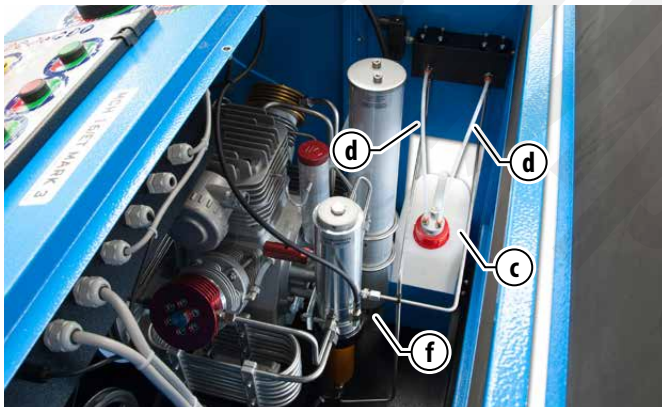
IMPORTANT: The condensate can must be emptied at the end of every working day.
DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the 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".

4.6 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。

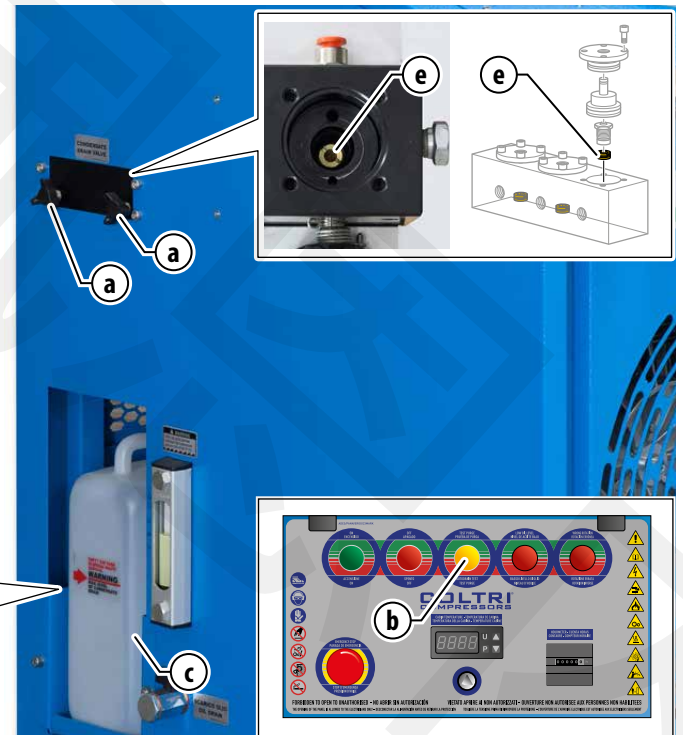
冷凝水在冷凝水分离器中积聚; 每使用10-15分钟就必须排出冷凝水。每7分钟自动排放一次冷凝水。必须每天按下黄色的冷凝水排放按钮 (b), 以确保排放阀工作正常。冷凝液被收集在一个罐子里 (c); 定期检查这个罐子, 以防止过满, 从而导致冷凝液的泄漏。排空罐子时, 将冷凝水排放软管 (d) 取下, 排空罐子, 将冷凝水收集到一个容器中; 重新插入软管 (d), 将罐子放回外壳中。在加注日结束时, 用排放龙头 (f) 排空过滤器的冷凝水。如果需要手动排放冷凝水, 使用排水水龙头 (a), 将冷凝水收集到一个合适的容器中。重新关上水龙头。每250小时更换一次过滤网 (e)。在加注过程中, 冷凝水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

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

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.



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。

重要提示: 每隔5年或每隔3000小时, 就需要更换排水阀。

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坏或伤害。

4.7 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.

4.7 更换进气过滤器

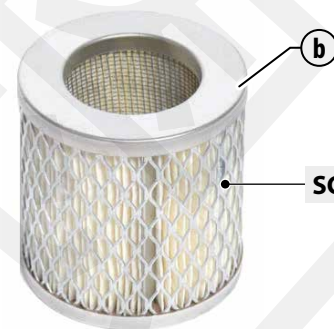
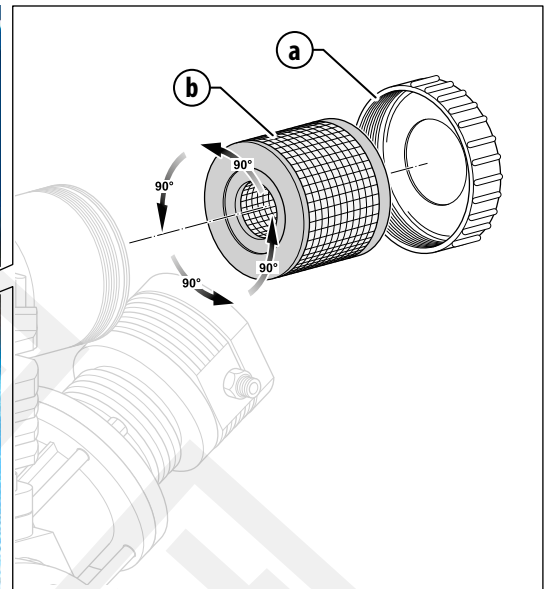


危险: 如果压缩机刚刚关闭，请不要进行这些工作；请等待压缩机冷却。所有维护工作必须在压缩机关闭和电源线从电源插座上拔下的情况下进行。

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。



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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缩短到每50小时一次。

4.8 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.

4.8 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程度是否超过1厘米。

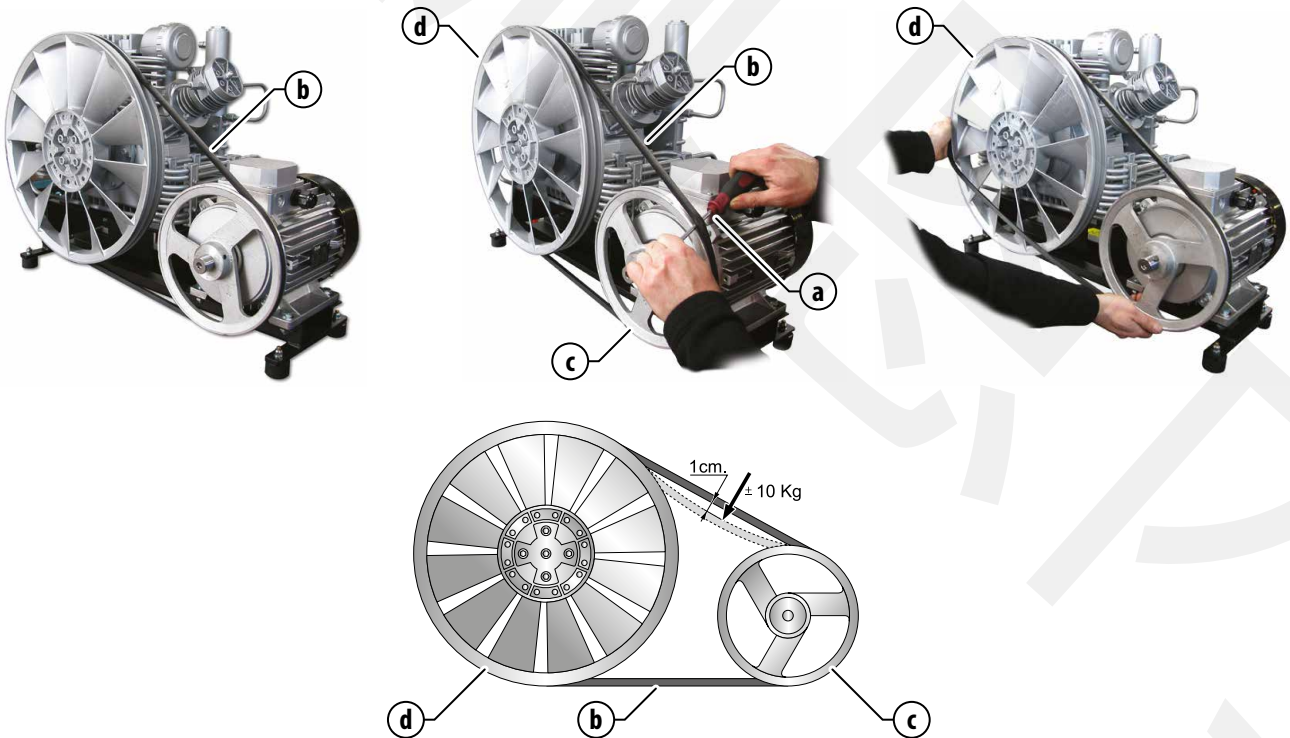
如果弯曲超过这个限度, 请更换皮带。

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, 请联系厂家援助服务。



4.9 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.

4.9 净化器过滤器

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芯。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 (一氧化碳) 的环境中使用, 则必须使用CO固定过滤器; 可按要求提供这些过滤器盒。

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芯。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。每次更换时, 要检查外壳主体是否完好无损, 没有任何缺陷。

Filter cartridge replacement frequency calculation table *

计算过滤器滤芯更换间隔的表格 *

Temperature 温度		Filter duration (work hours) 过滤时间 (工作小时)		
°C	°F	MCH-13	MCH-16	MCH-18
40	104	9	7	6
30	86	15	12	11
20	68	23	19	17
10	50	35	29	26
0	32	64	53	47
-5	23	101	84	75

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

* 表中显示的数值是在压力维持阀校准为200bar时获得的。

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: 过滤器被列为特殊废物: 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) 内必须有一个过滤芯 (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.

更换过滤芯

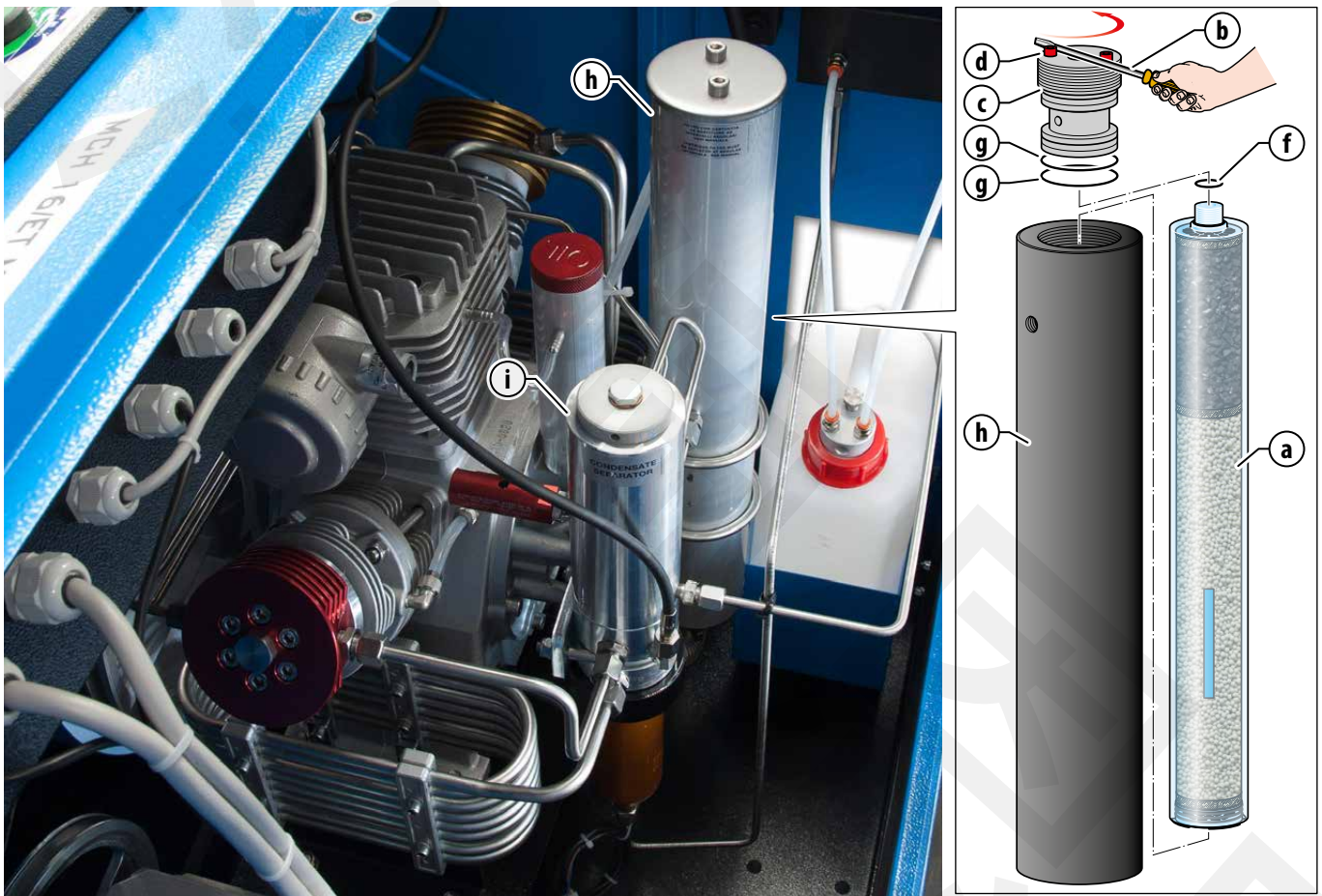
更换过滤芯 (a) 的步骤如下。

- 将气路中的压缩空气全部排出。
- 用工具(b)撬动上盖(c)上的螺丝头(d), 逆时针旋转。
- 卸下过滤器的插头(c)。
- 从上盖(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。
- 关闭过滤器上盖 (c), 用扳手 (b) 拧紧。

过滤器上盖和滤芯上有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。

如果你发现有任何破损现象, 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。



4.10 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.

4.10 检查和更换润滑油

压缩机投入使用后，必须在头50个工作小时后更换润滑油。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实的表面上，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。

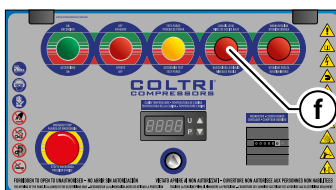
警告: 只能使用COLTRI油ST755。如果无法找到COLTRI OIL ST755，建议使用符合下表中特性的透气式空气压缩机专用油。

Oil table - 油表																					
Sump capacity (litres) 底盘容量 (升)	2																				
Recommended oils 推荐的油品	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
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Viscosity Grade	ISO 150																				
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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 and filter

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

- position a recipient under the drain plug (e) 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 plug (e), open the tap (b) and drain all the oil;
- close 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;
- replace the plug (e).

检查油位

压缩机每工作50小时必须检查一次油位。
油位必须在油位指示器 (a) 上显示的最低和最高之间。

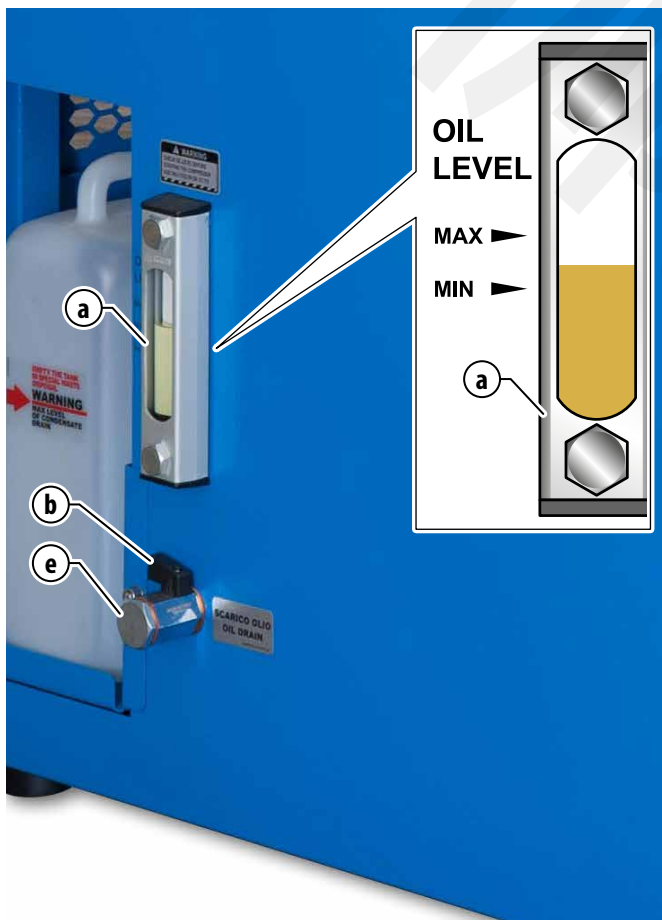
需要注意的是, 过量的油会渗透到气缸中, 并在气门上留下沉积物, 而过低的油量会妨碍正常的润滑, 并可能导致压缩机内部零部件异常磨损。

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, 补足或放掉。

更换润滑油和过滤器

润滑油必须每1000个工作小时或每年更换一次。每次更换润滑油时, 必须同时更换滤油器。换油的步骤如下:

- 在放油塞(e)下放置一个容器, 使油流进排空的容器 (容器容量至少需要2.5升)。
- 打开通风口 (d)。
- 松开加油盖 (c)。
- 卸下油塞 (e), 打开球阀 (b), 放掉所有的油。
- 关闭球阀 (b)。
- 打开加油盖 (c)。
- 从顶部加油口向油底壳注入2升油 (见 "油表")。
- 关闭通风口 (d)。
- 关闭加油盖(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內, 则加满或放掉。
- 拧紧插头(e)。



4.11 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.

4.11 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），或当它们出现磨损/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；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，请将空气从压缩机中排出。

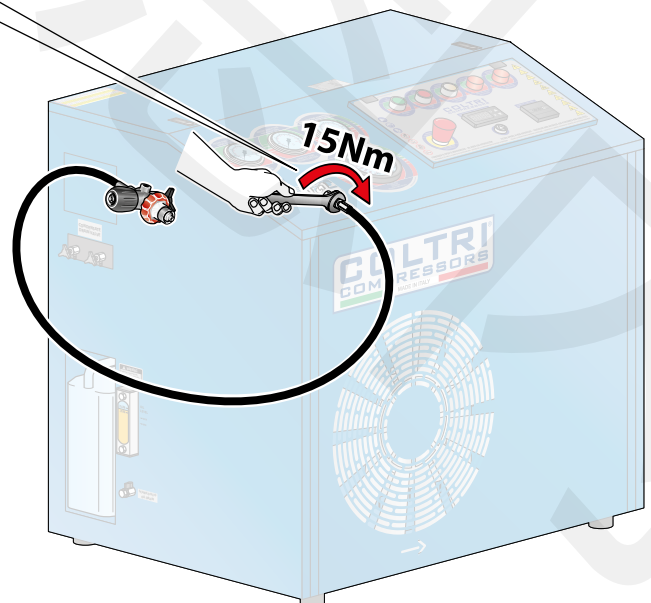
压力容器加注的压力非常高，因此，在加注容器之前，要检查软管是否连接完好，状况是否良好。还要检查任何未使用的软管上的阀门是否正确关闭，以防止软管鞭打所带来的危险。

当压力容器正在加注时，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与接头或加注阀断开。

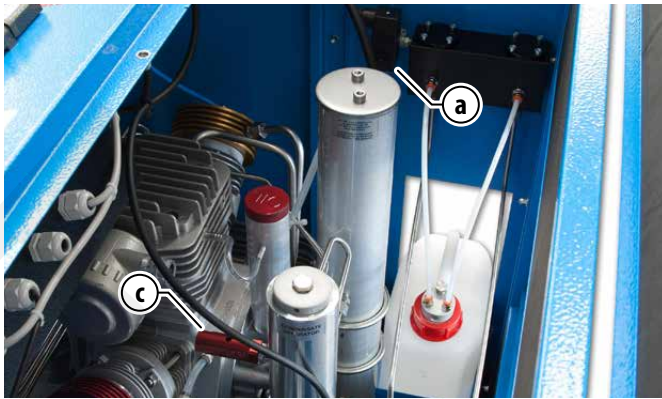
更换加注软管的步骤如下：

- 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。



4.12 SAFETY VALVES

4.12 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。

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

如果安全阀不能正常工作, 请联系厂家援助服务。

上海佩恩内贸易有限公司



上海佩恩内贸易有限公司
上海市浦东新区宁桥路999号
Tel. 021-50321602
www.coltrisub-china.com