

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



HEAVY DUTY LINE:

- MCH-22-30-36-45/OPEN
- MCH-22-30-36-45/SILENT

USE AND MAINTENANCE MANUAL

使用和维护手册

HEAVY DUTY

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	4
1.4 Pressure circuit	5
1.5 Wiring diagram	7
2 - HANDLING AND INSTALLATION	8
2.1 Unpacking	8
2.2 Handling	8
2.3 Installation	9
2.3.1 Positioning	9
2.3.2 Air intake extension connection	10
2.3.3 Electrical connection	10
3 - USING THE COMPRESSOR	11
3.1 Preliminary checks before using for the first time	11
3.1.1 Inserting filtration cartridge	11
3.1.2 Checking for proper electrical connection	11
3.1.3 Refill hoses connection	12
3.2 Checks to be run at the start of each working day	12
3.2.1 Lubricating oil level check	12
3.2.2 Checking that the flex hoses are in good condition	12
3.2.3 Checking the safety valves	13
3.2.4 Storing technical documentation	13
3.3 Control panel	14
3.4 Starting and shutting down	17
3.5 Tank refill	17
3.6 Optionals	19
3.6.1 Presec system	19
3.6.2 Filling panels	19
3.6.3 Filling connections	19
3.6.4 Filling hoses	20
3.6.5 C_MONITOR monitoring system	20
3.6.6 Chiller	21
4 - MAINTENANCE	23
4.1 Foreword	23
4.2 General	23
4.3 Unscheduled work	24
4.4 Scheduled maintenance table	24
4.5 Troubleshooting	25
4.6 Changing the intake filter	26
4.7 Purifier filter	27
4.8 Checking and changing the lubricating oil and filter	29
4.9 Transmission belts	31
4.10 Condensate discharge	32
4.11 Changing the flex hose	33
4.12 Safety valves	34

INDICE

1 - DATI TECNICI	2
1.1 Caratteristiche tecniche	2
1.1.1 Monoblocco, collo d'oca, pistoni, cilindri	2
1.1.2 Valvole	2
1.1.3 Valvole di sicurezza	2
1.1.4 Valvola di mantenimento della pressione	2
1.1.5 Lubrificazione	2
1.1.6 Tubi di raffreddamento	2
1.1.7 Telaio, carter di protezione	2
1.1.8 Manometri	2
1.2 Nomenclatura	3
1.3 Tabella caratteristiche tecniche	4
1.4 Circuito di pressione	5
1.5 Schema elettrico	7
2 - MOVIMENTAZIONE ED INSTALLAZIONE	8
2.1 Imballaggio	8
2.2 Movimentazione	8
2.3 Installazione	9
2.3.1 Posizionamento	9
2.3.2 Collegamento prolunga per presa d'aria	10
2.3.3 Collegamento elettrico	10
3 - USO DEL COMPRESSORE	11
3.1 Controlli preliminari della prima messa in servizio	11
3.1.1 Inserimento cartuccia filtrante	11
3.1.2 Verifica collegamento fasi elettriche	11
3.1.3 Collegamento fruste di ricarica	12
3.2 Controlli prima dell'inizio di ogni giornata lavorativa	12
3.2.1 Verifica livello olio lubrificante	12
3.2.2 Controllo dell'integrità delle fruste di ricarica	12
3.2.3 Verifica valvole di sicurezza	13
3.2.4 Custodia documentazione tecnica	13
3.3 Pannello di comando	14
3.4 Avviamento e spegnimento	17
3.5 Ricarica bombole	17
3.6 Optional	19
3.6.1 Sistema presec	19
3.6.2 Pannelli di ricarica	19
3.6.3 Attacchi bombola	19
3.6.4 Fruste di ricarica	20
3.6.5 Sistema di monitoraggio C_MONITOR	20
3.6.6 Raffreddatore	21
4 - MANUTENZIONE	23
4.1 Premessa	23
4.2 Norme generali	23
4.3 Interventi straordinari	24
4.4 Tabella manutenzioni programmate	24
4.5 Tabella guasti e anomalie	25
4.6 Sostituzione filtro di aspirazione	26
4.7 Filtro depuratore	27
4.8 Controllo e sostituzione filtro e olio lubrificante	29
4.9 Cinghie di trasmissione	31
4.10 Scarico condensa	32
4.11 Sostituzione frusta	33
4.12 Valvole di sicurezza	34

1- TECHNICAL DATA

1.1 TECHNICAL CHARACTERISTICS

1.1.1 Crankcase, crankshaft, cylinders, pistons

The crankcase is made of aluminium alloy; the flange with the roller bearings that support the crankshaft is kept oil-tight with the crankcase by O-rings. 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 made of cast iron, the pistons are made of aluminium and feature traditional multiple piston rings. The high pressure stage piston has a special anti-wear lining. The relative cylinder is self-lubricating.

1.1.2 Valves

The 1st, 2nd and 3rd stage valves are inserted in the head seats and held in place by a bracketing system.

The 4th stage valves are disassembled by removing the head.

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	5Bar / 73PSI
2 nd stage safety valve	22Bar / 319PSI
3 rd stage safety valve	100Bar / 1450PSI
4 th stage safety or final valve	232-300-330-420Bar / 3300-4300-4700-6000PSI



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

Lubrication with low pressure oil pump, delivery distributor and oil filter.

1.1.6 Cooling tubes

The cooling pipes are made of stainless steel.

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

曲轴箱由铝合金制成；带有支撑曲轴的滚柱轴承的法兰通过O形圈与曲轴箱保持油密。曲轴和连杆仅在带滚柱保持架的轴承上运行。连杆以单曲柄角安装在曲轴上。

汽缸由铸铁制成，活塞由铝制成，具有传统的多活塞环。高压级活塞有一个特殊的耐磨衬里。相关汽缸是自润滑的。

1.1.2 阀门

一级、二级和三级阀门插入头座，并通过支架系统固定到位。

通过拆下阀头拆卸第四级阀。

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。

一级安全阀	5Bar / 73PSI
二级安全阀	22Bar / 319PSI
三级安全阀	100Bar / 1450PSI
四级安全阀	232-300-330-420Bar / 3300-4300-4700-6000PSI



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

使用低压油泵、输送分配器和机油滤清器进行润滑。

1.1.6 冷却管

冷却管是由不锈钢制成的。

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。

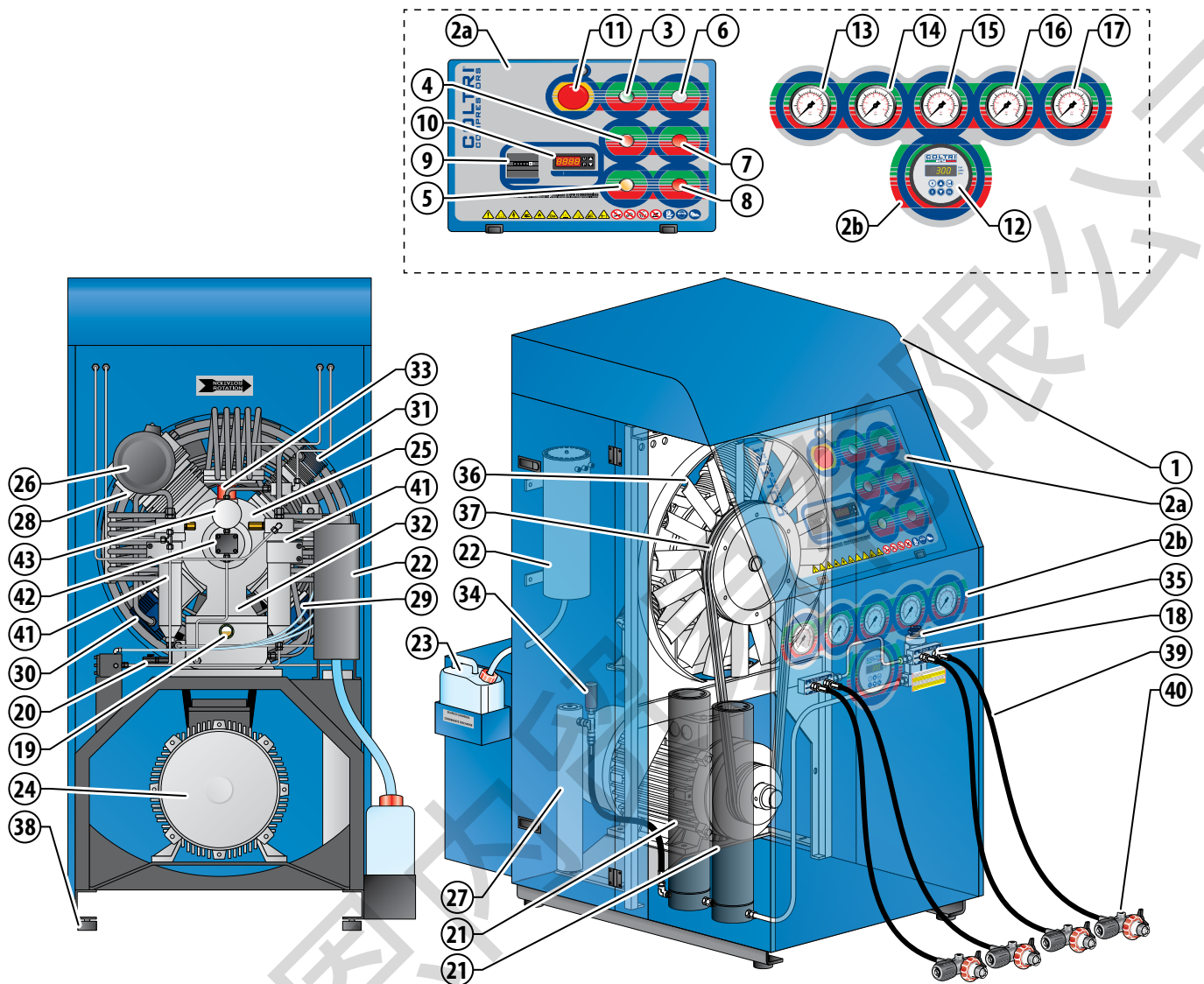
1.1.8 压力表



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
- 2 Control pannel
- 3 ON pushbutton
- 4 Stop pushbutton
- 5 Condensate discharge pushbutton
- 6 Power indicator light
- 7 Direction of rotation indicator light
- 8 Oil level warning light
- 9 Hour counter
- 10 Cabinet interior / cooling air temperature
- 11 Emergency pushbutton
- 12 Automatic shutdown pressure switch
- 13 Oil pressure gauge
- 14 1st stage pressure gauge
- 15 2nd stage pressure gauge
- 16 3rd stage pressure gauge
- 17 4th stage pressure gauge/working pressure
- 18 Refill hoses connection
- 19 Oil level
- 20 Oil discharge valves
- 21 Purifier filter
- 22 Condensate collection container
- 23 Condensate collection can
- 24 Motor
- 25 Compressor
- 26 Air filter
- 27 Final condensate separator
- 28 1st stage
- 29 2nd stage
- 30 3rd stage
- 31 4th stage
- 32 Monobloc
- 33 Oil filler plug
- 34 Safety valve
- 35 Maintenance valve
- 36 Cooling fan
- 37 Belt
- 38 Anti-vibration device
- 39 Refill hose
- 40 Refill valves
- 41 Condensate separator
- 42 Oil pump
- 43 Oil filter

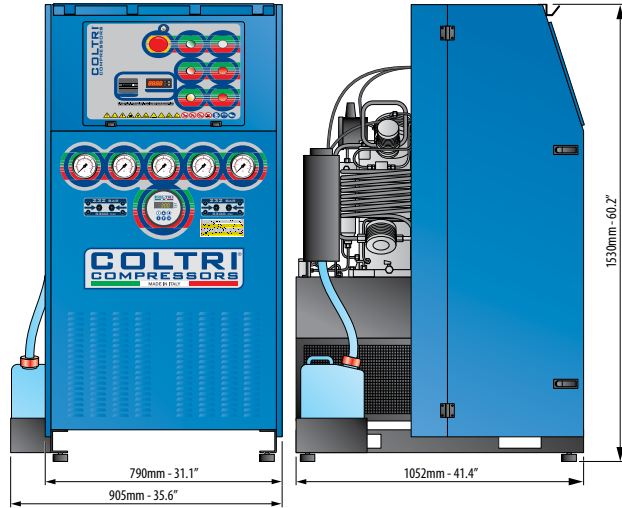
- 1框架
- 2控制面板
- 3打开按钮
- 4停止按钮
- 5冷凝水排放按钮
- 6电源指示灯
- 7旋转方向指示灯
- 8油位警告灯
- 9小时计数器
- 10机柜内部/冷却空气温度
- 11紧急按钮
- 12自动停机压力开关
- 13机油压力表
- 14一级压力表
- 15第二级压力表
- 16第三级压力表
- 17第四级压力表/工作压力
- 18加注软管连接
- 19油位
- 20排油阀
- 21净化器过滤器
- 22冷凝液收集容器
- 23冷凝液收集罐

- 24马达
- 25压缩机
- 26空气过滤器
- 27最终冷凝分离器
- 28一级缸
- 29二级缸
- 30三级缸
- 31四级缸
- 32缸体
- 33机油加注口
- 34安全阀
- 35压力维持阀
- 36冷却风扇
- 37皮带
- 38减震脚
- 39加注软管
- 40充气阀
- 41冷凝分离器
- 42油泵
- 43机油滤清器

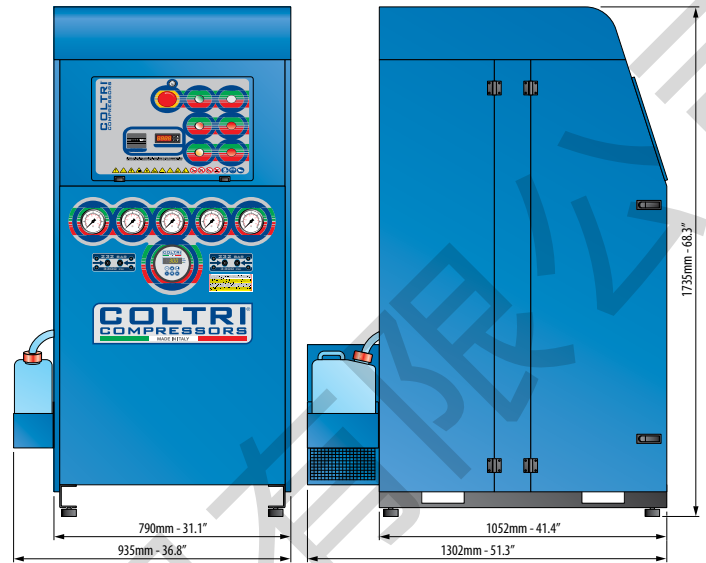
1.3 TECHNICAL CHARACTERISTICS

1.3 技术特点

OPEN



SILENT



		MCH-22		MCH-30		MCH-36			MCH-45			
Electric Engine	电动机	Three phase - 三相电										
Engine power	电机功率	(kW)	7,5		9		11			15		
		(Hp)	10		12,5		15			20		
Voltage	电压	(V)	230/400	400/690	230/400	400/690	230/400	230/400	400/690	230/400	400/690	400/690
Frequency	频率	(Hz)	50/60	50/60	50/60	50/60	50	60	50/60	50/60	50	60
Absorption	电流		26/15	15/8,7	33/18,8	18,8/11	39,8/23	36,5/21,1	23/13,3	53,7/31	31/17,9	28,5/16,5
Pumping Unit	压缩机转速	(giri/min)(rpm)	1050		1250		1250			1420		
Working pressure	工作压力	(bar)	232-300-330-420		232-300-330-420		232-300-330-420			232-300-330-420		
		(PSI)	3300-4300-4700-6100		3300-4300-4700-6100		3300-4300-4700-6100			3300-4300-4700-6100		
Charging rate (*)	充气速度 (*)	(l/min)	450		550		650			750		
		m ³ /h	27,0		33,0		39,0			45,0		
		CFM (ft ³ /min)	15,9		19,4		23,0			26,5		
Refill time	充气时间	10l / 0-200bar (min)	4'30"		4'00"		3'00"			2'40"		
Noise level	噪音水平	Lwa guaranteed (dB)	95	90	95	90	95	90	95	90	95	90
		Lwa measured (dB)	92	87	92	87	92	87	92	87	92	87
		Lpa measured (dB)	72	67	72	67	72	67	72	67	72	67
Dry weight	干重	(Kg)	356	446	361	451	365	455	373	463		
		(lb)	784	983	796	994	804	1003	943	1020		
Dimensions	尺寸	(mm)	905x1052x1530	935x1302x1735	905x1052x1530	935x1302x1735	905x1052x1530	935x1302x1735	905x1052x1530	935x1302x1735		
		(inches)	35.6x41.4x60.2	36.8x51.3x68.3	35.6x41.4x60.2	36.8x51.3x68.3	35.6x41.4x60.2	36.8x51.3x68.3	35.6x41.4x60.2	36.8x51.3x68.3		

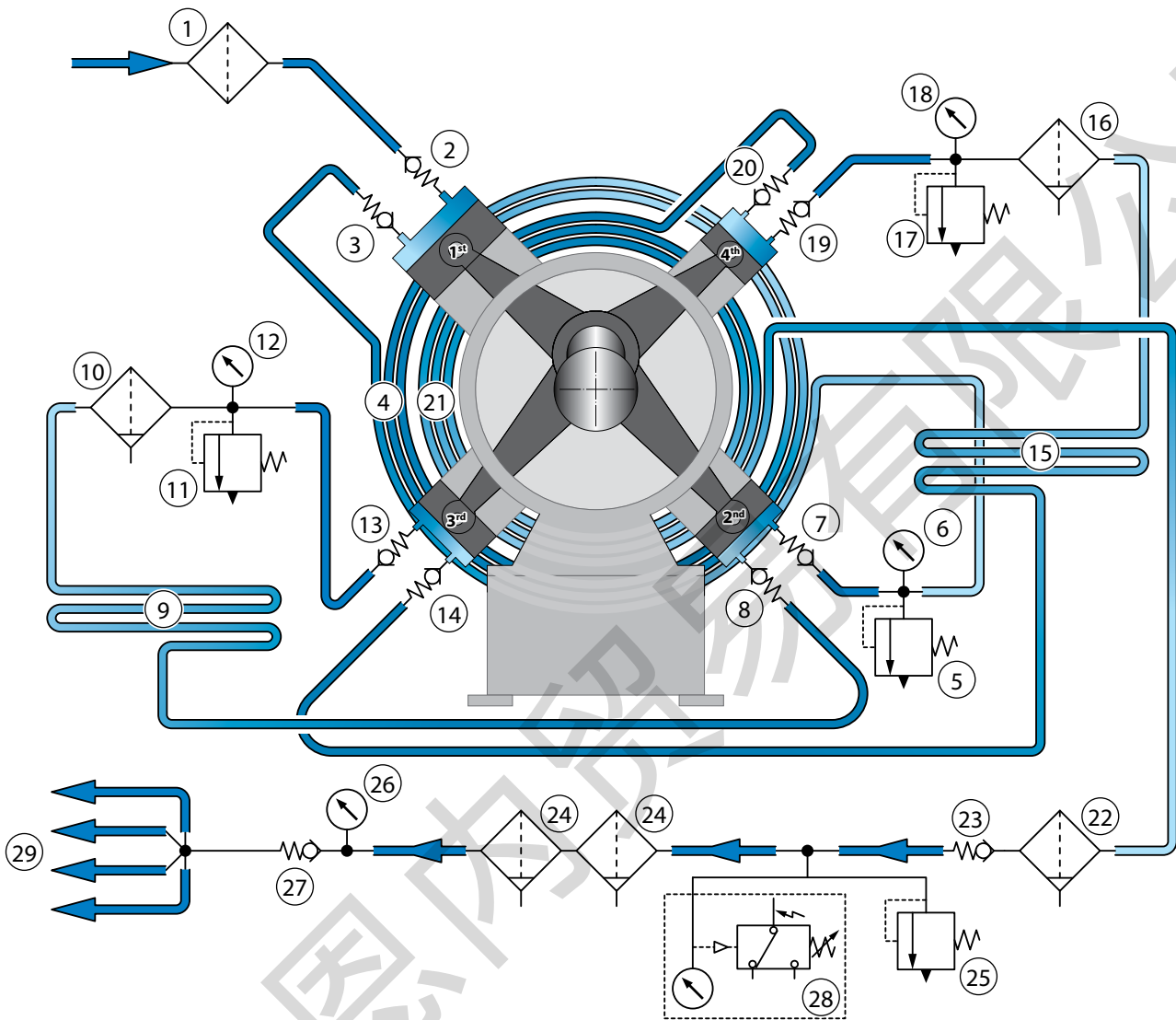
(*) : WARNING: For compressors fitted with dryer (optional), the charging rate is 5% lower than the values shown in the table.

(*) : 警告：对于装有干燥器（可选）的压缩机，充气率比表中所示值低5%。

1.4 PRESSURE CIRCUIT

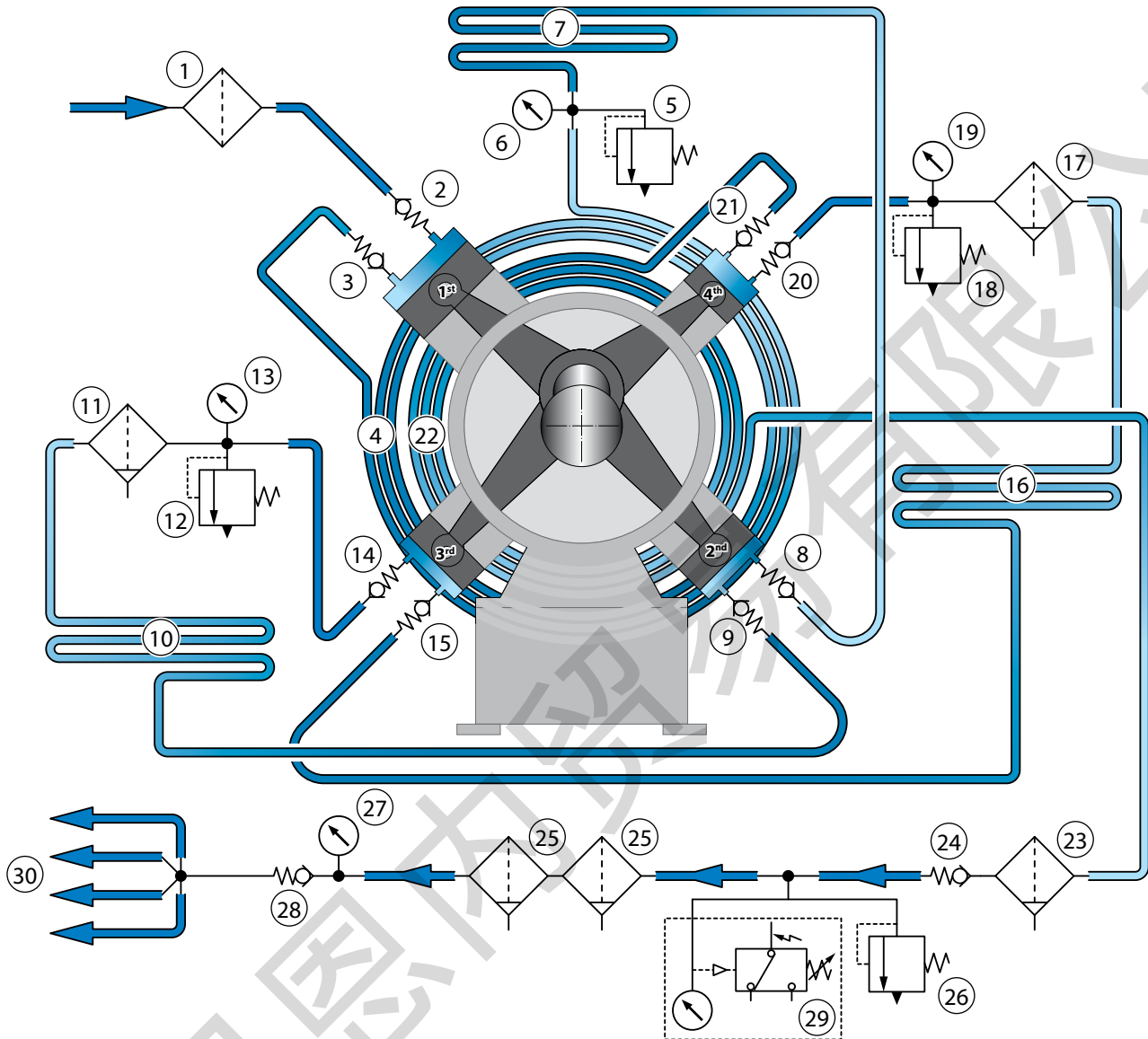
1.4 压力回路

MCH-22



- | | | | |
|--|--|------------|-------------|
| 1 Intake filter | 20 Outlet valve 4 th stage | 1 进气滤清器 | 20 第四级排气阀 |
| 2 Intake valve 1 st stage | 21 Final cooling pipe | 2 进气阀1级 | 21 最终冷却管 |
| 3 Outlet valve 1 st stage | 22 Condensate separator HP | 3 出口阀一级 | 22 冷凝分离器高压 |
| 4 Cooling pipe 1 st -2 nd stage | 23 Non return valve | 4 冷却管1-2级 | 23 止回阀 |
| 5 Safety valve 1 st stage | 24 Active carbon air filter/
molecular sieve air filter | 5 安全阀一级 | 24 活性炭分子筛滤网 |
| 6 Pressure gauge 1 st stage | 25 Safety valve | 6 压力表一级 | 25 安全阀 |
| 7 Intake valve 2 nd stage | 26 Pressure gauge 4 th stage | 7 进气阀2级 | 26 第四级压力表 |
| 8 Outlet valve 2 nd stage | 27 Pressure maintaining valve | 8 出口阀2级 | 27 泄压阀 |
| 9 Cooling pipe 2 nd -3 rd stage | 28 Pressure switch | 9 冷却管2-3级 | 28 压力开关 |
| 10 Condensate separator | 29 Flex hoses | 10 凝结水分离器 | 29 加注软管 |
| 11 Safety valve 2 nd stage | | 11 第二级安全阀 | |
| 12 Pressure gauge 2 nd stage | | 12 第二级压力表 | |
| 13 Intake valve 3 rd stage | | 13 进气阀第三级 | |
| 14 Outlet valve 3 rd stage | | 14 出口阀第三级 | |
| 15 Cooling pipe 3 rd -4 th stage | | 15 冷却管3-4级 | |
| 16 Condensate separator | | 16 凝结水分离器 | |
| 17 Safety valve 3 rd stage | | 17 第三级安全阀 | |
| 18 Pressure gauge 3 rd stage | | 18 第三级压力表 | |
| 19 Intake valve 4 th stage | | 19 第四级进气阀 | |

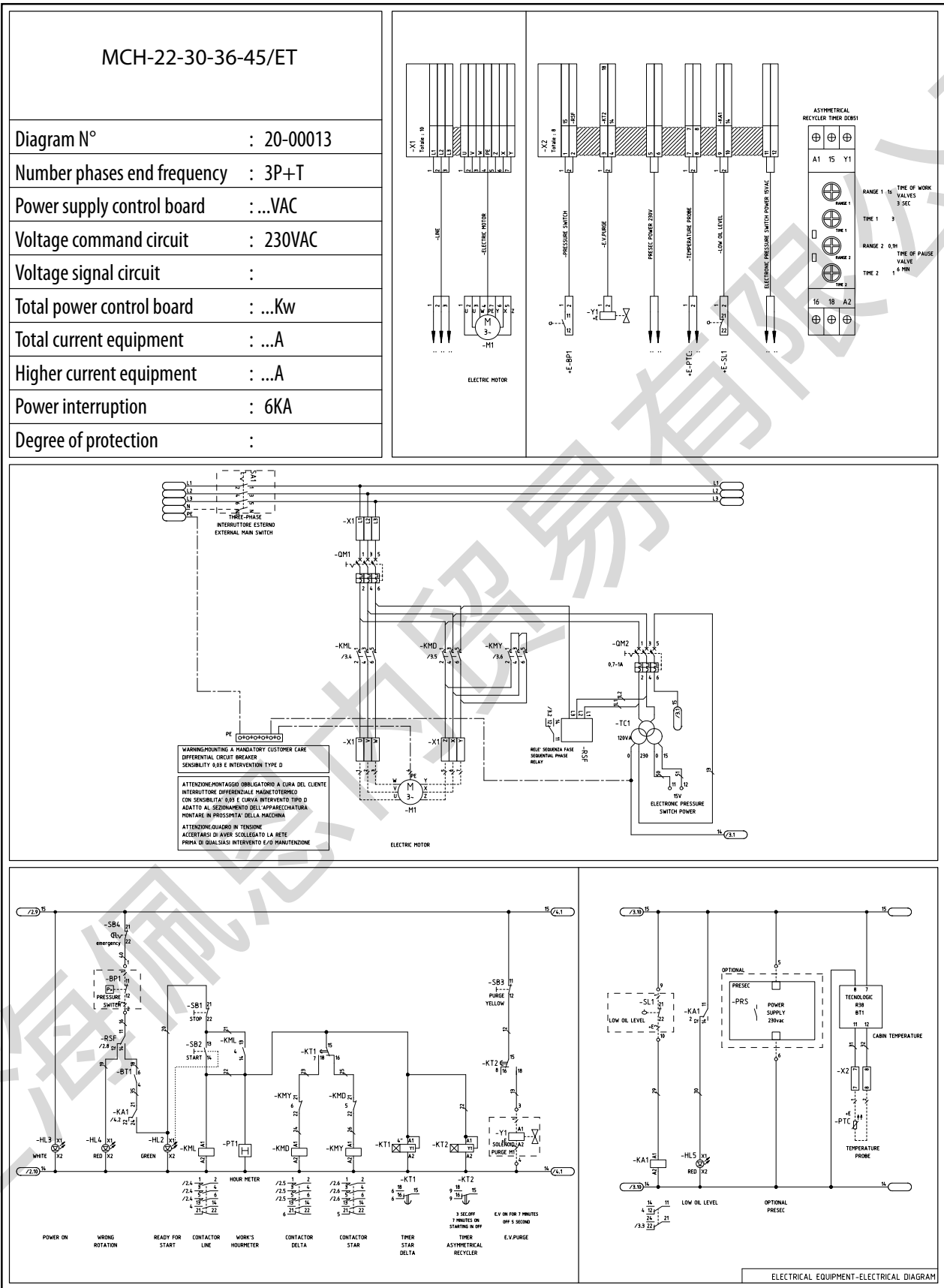
MCH-30-36-45



- | | | | |
|--|--|------------|-------------|
| 1 Intake filter | 20 Intake valve 4 th stage | 1 进气滤清器 | 20 第四级排气阀 |
| 2 Intake valve 1 st stage | 21 Outlet valve 4 th stage | 2 进气阀1级 | 21 最终冷却管 |
| 3 Outlet valve 1 st stage | 22 Final cooling pipe | 3 出口阀一级 | 22 冷凝分离器高压 |
| 4 Cooling pipe 1 st -2 nd stage | 23 Condensate separator HP | 4 冷却管1-2级 | 23 止回阀 |
| 5 Safety valve 1 st stage | 24 Non return valve | 5 安全阀一级 | 24 活性炭分子筛滤网 |
| 6 Pressure gauge 1 st stage | 25 Active carbon air filter/
molecular sieve air filter | 6 压力表一级 | 25 安全阀 |
| 7 Cooling pipe 1 st -2 nd stage | 26 Safety valve | 7 冷却管1-2级 | 26 第四级压力表 |
| 8 Intake valve 2 nd stage | 27 Pressure gauge 4 th stage | 8 进气阀2级 | 27 泄压阀 |
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| 11 Condensate separator | 30 Flex hoses | 11 冷凝分离器 | |
| 12 Safety valve 2 nd stage | | 12 安全阀2级 | |
| 13 Pressure gauge 2 nd stage | | 13 第二级压力表 | |
| 14 Intake valve 3 rd stage | | 14 进气阀第三级 | |
| 15 Outlet valve 3 rd stage | | 15 出口阀第三级 | |
| 16 Cooling pipe 3 rd -4 th stage | | 16 冷却管3-4级 | |
| 17 Condensate separator | | 17 冷凝分离器 | |
| 18 Safety valve 3 rd stage | | 18 第三级安全阀 | |
| 19 Pressure gauge 3 rd stage | | 19 第三级压力表 | |

1.5 WIRING DIAGRAM

1.5 接线图



2 - HANDLING AND INSTALLATION

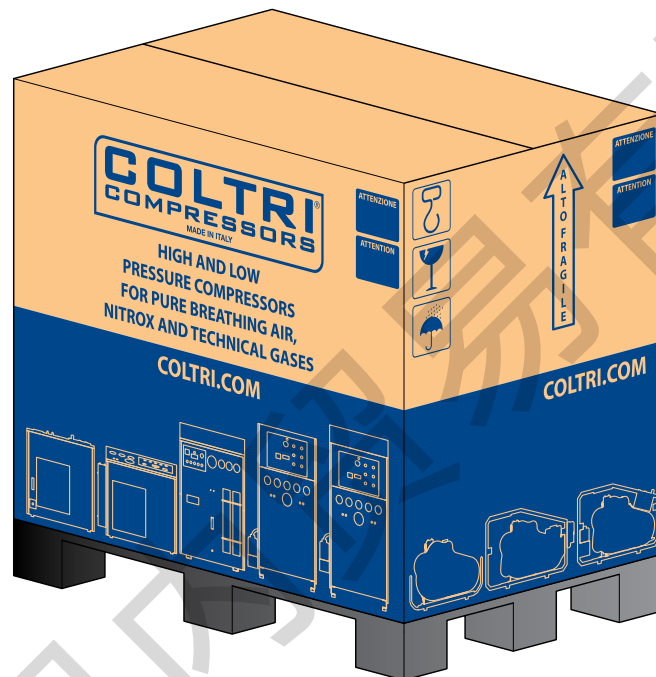
2.1 UNPACKING

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:

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



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 - MOVIMENTAZIONE ED INSTALLAZIONE

2.1 搬运和安装

压缩机包装在托盘上的纸板箱中，以简化搬运和运输。

必须按照盒子上的说明移动装有压缩机的盒子。

本机器的标准配置如下：

- -4个1200毫米的加注软管；
- -4个充气接头；
- -1根活性炭分子筛超滤；
- -1根分子筛超滤；
- -1本使用和维护手册；
- -1本冷干机使用和维护手册；
- -欧共体符合性声明。

2.2 搬运

将压缩机与其包装分离后，可以将其运输到指定的放置区域。

转移需要使用叉车或运输车（具有适当的承载能力）：叉车必须放置在支撑脚上，支撑脚上是欧式运输车所在的位置。



重要事项：在提升、转移和定位压缩机时要格外小心。

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.

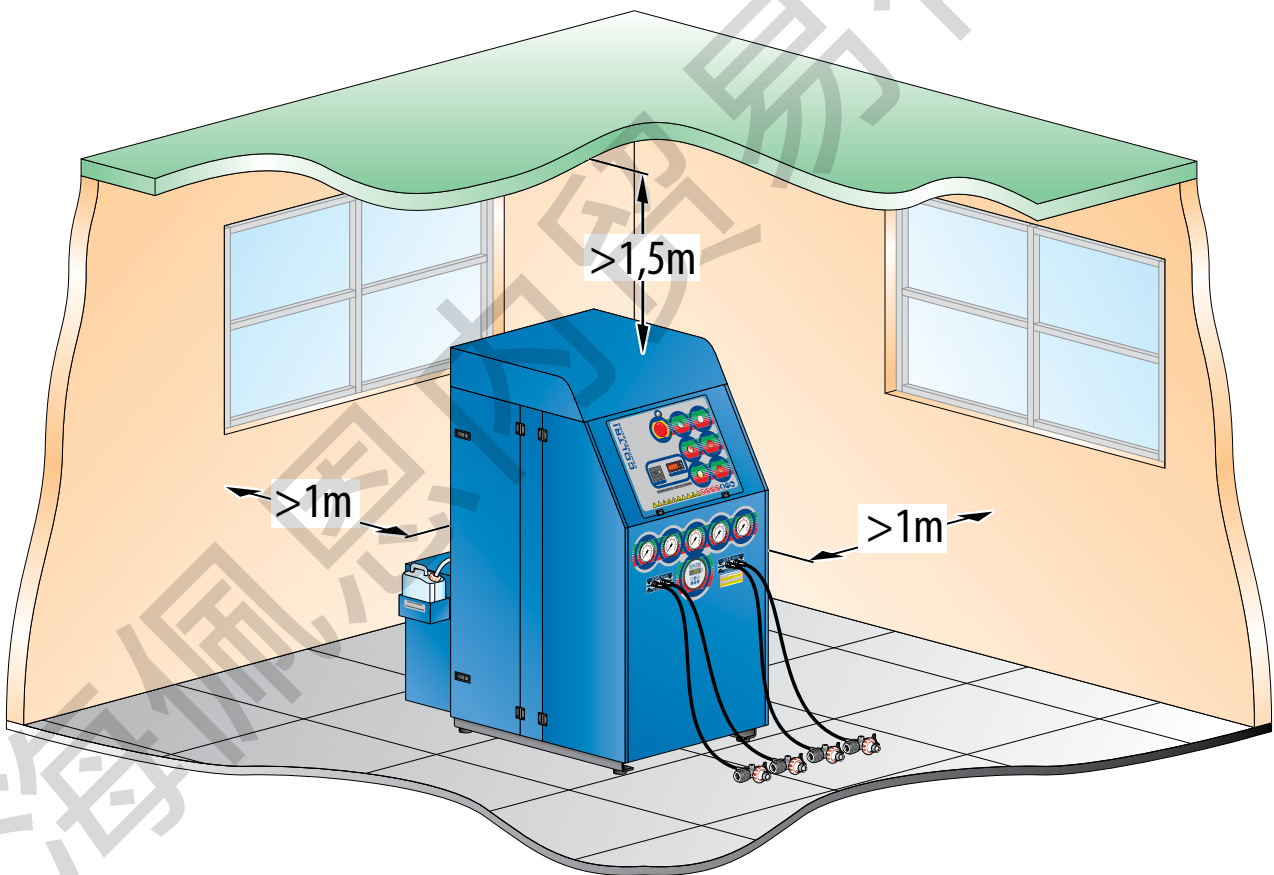
2.3 安装



警告：在继续执行下述安装任务之前，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区域，并检查其是否水平。有关压缩机尺寸，请参考第1.3节“技术特性”。
- 检查压缩机所在区域是否充分通风：良好的空气交换（不止一个窗口）、无灰尘、无爆炸、腐蚀、火灾风险，且无有害或有毒烟雾和气体。
- 如果环境温度超过+40°C，则需要空调。
- 将压缩机放置在离周围墙壁不小于1m的位置；压缩机和天花板之间的间隙应至少为1.5 m。这些距离可确保压缩机的正常运行和泵机组的正确冷却。
- 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）；在日光不足的地方使用人工照明。



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.

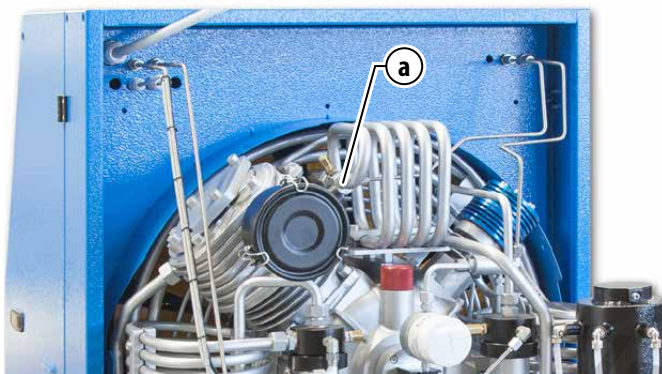
- The extension, supplied as an optional, must be connected to the intake connector (a).
- Connect extension pipe to fitting.
- Pass the pipe through the hole on the side panel (b) (Silent version).
- Fit the supplementary intake filter on the extremity of the extension pipe.
- Position the end of the 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 进气加长接头

如果压缩机安装在没有第2.3.1节“定位”中所述必要通风条件的区域，则有必要安装从室外或具有所述通风条件的地方引入的进气口延长件。

- 作为选装件提供的加长件必须连接到进气接头 (a)。
- 将延伸管连接到接头上。
- 将管道穿过侧板 (b) 上的孔 (静音型)。
- 将补充进气滤清器安装在延伸管的末端。
- 将带有进气滤清器的加长件末端放置在通风良好的区域，避免天气和废气影响。
- 将进气口对着风。
- 检查管道上是否有扭结或断裂。如果损坏，请更换。

OPEN



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.

2.3.3 Electrical connection

The compressor is supplied with an electrical lead and plug three-phase 32A 3P+G.

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 grounding; check that the grounding resistance value complies with the protection / operational requirements of the compressor electrical system.

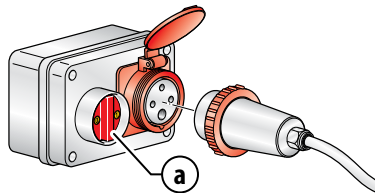


WARNING: Before inserting the plug, check that the electrical system complies with the standards in force in the country of installation. A proper grounding system is an essential safety requisite.

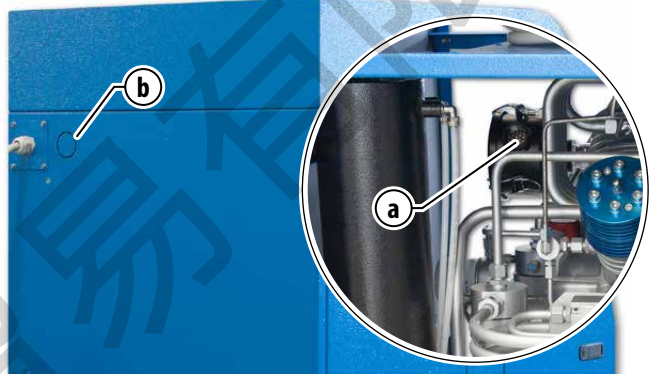
An efficient compressor grounding system is an essential compressor safety requisite.

The mains power connection plug must be type-approved in compliance with the relevant standards and have an ON-OFF switch (a) (not supplied).

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



SILENT



警告: 仅使用带有内部钢编织钢筋的软管，以防止扭结和随后的横截面减小。

不要吸入有害气体或废气。

2.3.3 电气连接

压缩机配有三相32A 3P+G导线和插头。

要接通电源，只需将插头插入电源插座。

检查压缩机铭牌上的数据是否与主电源兼容，尤其是额定电流和电压。

主电源系统必须有有效的接地；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，检查电气系统是否符合安装所在国的现行标准。正确的接地系统是必要的安全要求。

高效的压缩机接地系统是压缩机安全的必要条件。

电源连接插头必须是符合相关标准的型式认证插头，并带有开关 (a) (未提供)。



危险: 检查主电源的特性是否与压缩机的特性兼容。

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) 电机功率 (Kw)	Use (minutes) 使用时间(分钟)	Cooling (minutes) 冷却时间(分钟)
7.5	90	25
9	90	25
11	100	30
15	120	40

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 cartridges 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 "7.7 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 on 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 grounding 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 - 使用压缩机



重要事项: 为了优化压缩机的使用, 建议考虑连续使用的次数, 以及表中报告的停机时间 (用于冷却)。

3.1 首次使用前的初步检查

操作员必须检查压缩机是否配备:

-使用和维护手册。

如果压缩机出售给客户/用户, 则必须向买方提供完整、无损的使用和维护手册。

3.1.1 插入滤芯

在交付时, 压缩机未安装过滤筒: 过滤筒与压缩机一起装在包装内的密封真空包装袋中。

有关如何插入滤芯的说明, 请参阅“4.7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) 所示的方向旋转, 检查电气相位是否正确连接。

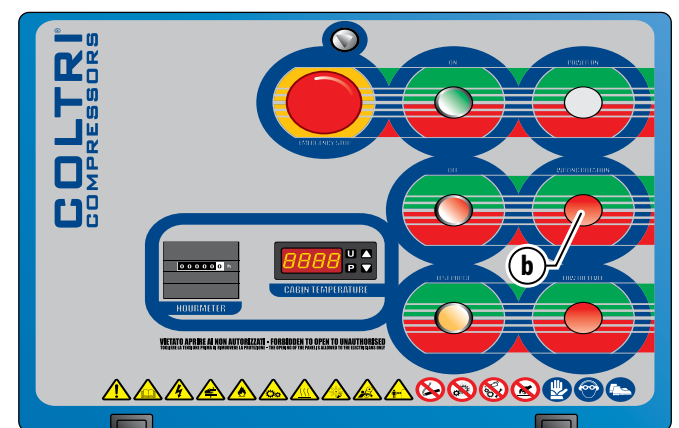
如果旋转方向不正确, 警告灯 (b) 将点亮。

如果旋转方向与箭头所示不同, 则有必要断开电源, 并将主电源线上的三相中的两相反转。



危险: 执行此任务前, 请断开压缩机与主电源的连接。

不要倒置或断开接地线 (黄色/绿色)。



注意: 仅将插头上的相位电缆倒置。切勿修改控制面板或电机的电气系统。

风扇产生的气流必须流向压缩机, 而不是向外。

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".

3.2 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 "7.8 Changing the lubricating oil".

3.1.3 填充软管连接

交付时，压缩机未安装加注软管：加注软管与包装内的压缩机一起供应。

有关连接说明，请参见“4.11软管更换”一节。

3.2 在每个工作日开始时进行的检查

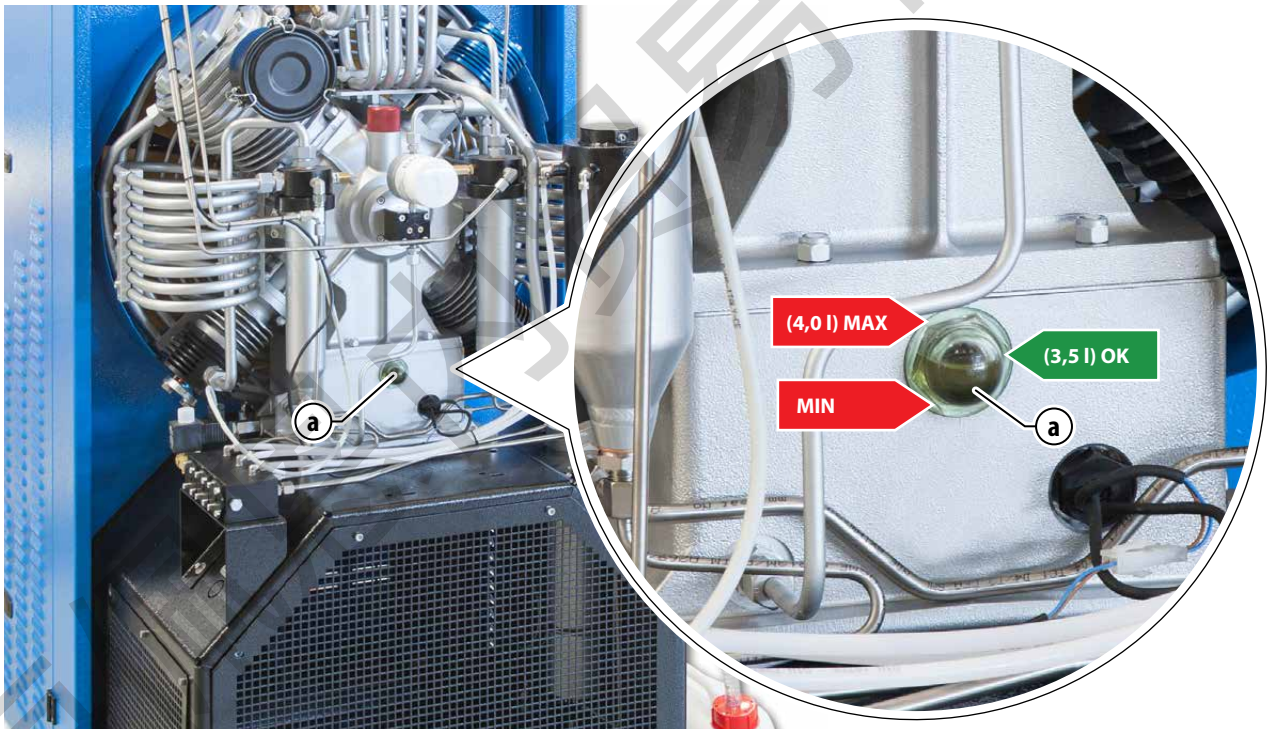
检查压缩机的外部（联轴器、管道、气动部件等），并检查是否有漏油。必要时更换零件或联系AEROTECNICA COLTRI。

3.2.1 润滑油油位检查

检查润滑油油位 (a) 是否在可接受范围内 (最低-最高)。

请注意，过量的机油可能会导致气缸渗透，并在气门上留下沉积物，而油位过低会妨碍正确润滑，并可能导致发动机卡滞。

如果油位不在最低和最高限值范围内，则按照“7.8更换润滑油”一节所述加注或排放。



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.

3.2.2 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、磨损、泄漏等。如有必要，更换新软管。

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


最终安全阀通过过压保护瓶子和压缩机；在测试压缩机时进行阀门设置。将安全阀预调整为：

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
420 bar 6000 PSI	 ADESIVO/420	 6-05-015/3/450

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.

安全阀必须每250个压缩机工作小时测试一次。
要检查安全阀：
 - 将压力设置为高于阀门设置的压力；
 - 将联轴器连接到瓶子上后，在瓶子阀门关闭的情况下启动压缩机；
 - 一旦使用压力表检查安全阀是否在最大工作压力下正确跳闸。

 **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.


 **重要事项：**安全阀必须每10年或5000小时更换一次。
危险：
 严禁篡改安全阀以增加压力设定值。
 篡改安全阀可能会严重损坏压缩机，对人员造成严重伤害，并导致保修无效。
 如果安全阀无法正常工作，请联系AEROTECNICA COLTRI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.

3.2.4 存储技术文档

使用和维护手册及其附录必须小心保存，并始终保存在便于查阅的地方，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不可分割的一部分，在所有权发生变化时必须始终移交。

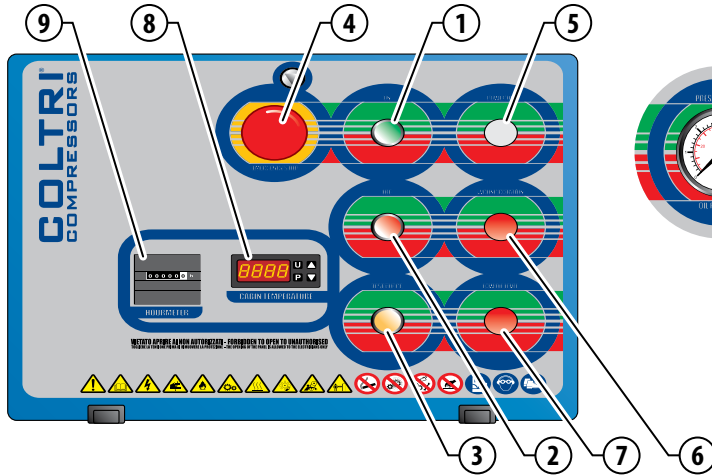
3.3 CONTROL PANEL



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 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.

2 Stop pushbutton

Press the stop pushbutton to shut down the compressor. Check that the stop pushbutton is working properly at the start of each working day.

3 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).

4 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.

5 Power indicator light

When the power indicator light is on the compressor is powered.

6 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".

7 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 "7.8 Changing lubricating oil".

8 Thermostat cabinet interior temperature

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).

3.3 控制面板

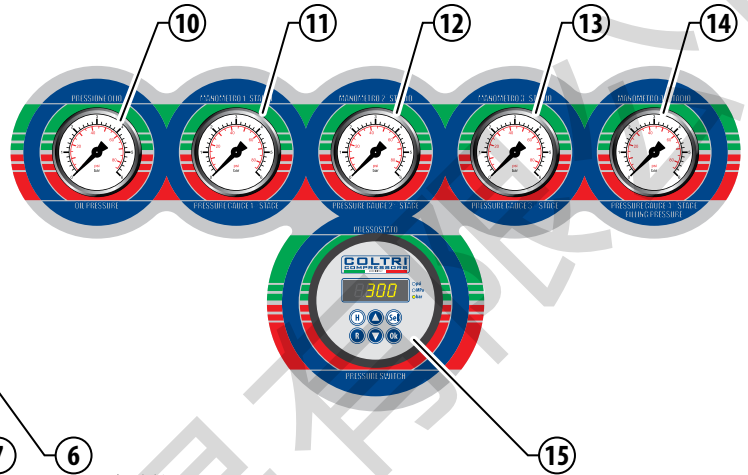


警告: 未经AEROTECNICA COLTRI授权, 禁止更改压力参数。

任何未经授权的修改将导致保修无效。



重要事项: 如果命令设备或控制设备出现故障, 请联系AEROTECNICA COLTRI。



1 启动按钮

要启动压缩机, 按下绿色ON (开启) 按钮。然后, 压缩机将运行, 直到达到可调压力开关上设定的压力, 或者直到安全阀释放过压。

2 关闭按钮

按下停止按钮关闭压缩机。

在每个工作日开始时, 检查停止按钮是否正常工作。

3 手动冷凝水排放按钮

在使用压缩机期间, 按下黄色手动冷凝液排放按钮, 排放收集在专用接收器中的冷凝液 (无需执行其他任务: 使用压力开关定时器管理排放间隔)。

4 急停按钮

紧急按钮必须在危险或紧急情况下使用。按下按钮关闭压缩机运行, 按钮保持按下锁定状态; 要重置按钮, 逆时针旋转按钮。

在每个工作日开始时, 检查紧急按钮是否正常工作。



警告: 绝对禁止篡改紧急按钮。

5 电源指示灯

当电源指示灯亮起时, 压缩机通电。

6 旋转方向警示灯

如果灯亮起, 这意味着压缩机旋转方向不正确。要恢复正确的旋转, 请参阅"3.1.2检查电气相位连接"一节。

7 油位警示灯

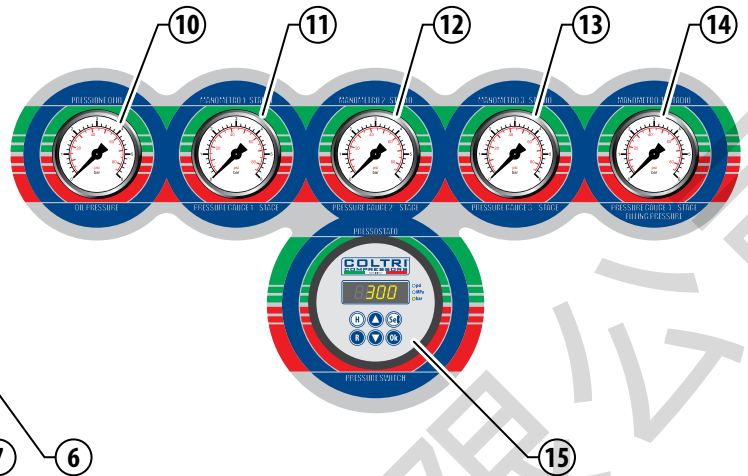
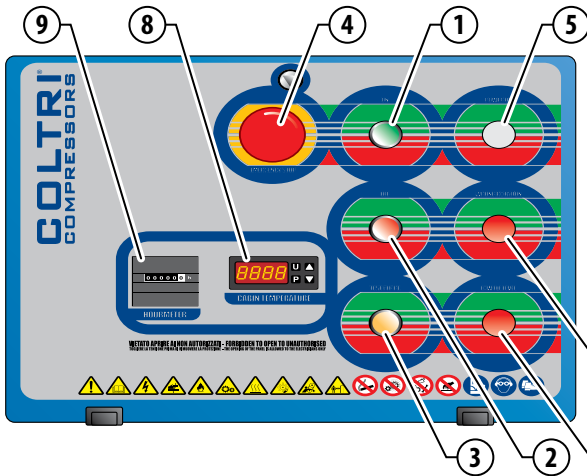
如果灯亮, 则表示油位过低; 要恢复油位, 请参阅"4.8更换润滑油"一节。

8 柜内温度显示

恒温器指示压缩机内部的温度。如果温度高于或低于节温器上设置的参数, 压缩机将关闭, 只有在温度恢复到允许范围内后才能重新启动。



警告: 未经AEROTECNICA COLTRI事先授权, 不得更改温度参数: 这样做将导致保修无效 (如果仍然有效)。



9 Hour counter

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

10 Lubricating oil circuit pressure gauge

The gauge indicates the pressure inside the lubricating oil circuit.

11 1st stage pressure gauge

Indicates the pressure inside the 1st compression stage. The pressure must be between by 3 bar (45 PSI) to 4 bar (60 PSI).

12 2nd stage pressure gauge

Indicates the pressure inside the 2nd compression stage. The pressure must be between by 16 bar (230 PSI) to 20 bar (290 PSI).

13 3rd stage pressure gauge

Indicates the pressure inside the 3rd compression stage. The pressure must be between by 65 bar (940 PSI) to 80 bar (1200 PSI).

14 4th stage pressure gauge or working pressure

Indicates 4th compression stage pressure and final refill pressure. If the compressor fails to reach the pressure set on the pressure switch, switch off the compressor and contact AEROTECNICA COLTRI.
Working pressure:

232-300-330-420 bar / 3300-4300-4700-6000 PSI

15 Automatic shutdown digital pressure switch

The automatic shutdown pressure switch determines the compressor shutdown pressure. 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).

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;
- Ⓢ Button for changing the unit of measurement
- Ⓜ Button for displaying of the partial hours
- Ⓡ Button for return to the menu or reset
- Ⓞk 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 Ⓞk to move to the next digit. The display will show the second, third and fourth digits in sequence.

Enter the fourth digit by pressing Ⓞk. 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:

9 计时器

小时计数器指示压缩机的工作小时数：这为定期维护提供了时间参考。

10 油压表

仪表指示润滑油回路内的压力。

11 一级缸压力表

指示第一压缩级内的压力。压力必须介于3巴（45PSI）到4巴（60PSI）之间。

12 二级缸压力表

指示第二压缩级内的压力。压力必须介于16巴（230PSI）到20巴（290PSI）之间。

13 三级压力表

指示第三压缩级内的压力。压力必须介于65巴（940PSI）到80巴（1200PSI）之间。

14 四级缸压力表

指示第四压缩级压力和最终再加注压力。如果压缩机未能达到压力开关上设定的压力，关闭压缩机并联系 AEROTECNICA COLTRI。
工作压力：

232-300-330-420 bar / 3300-4300-4700-6000 PSI

15 自动关机数字压力开关

自动停机压力开关确定压缩机停机压力。当压缩机达到设定压力时，它会自动关闭。压缩机的最大压力可达232-300-330巴（3300-4300-4700PSI）。



注意：压力开关出厂时默认密码为**4602**。第一次启动时，需要更改密码，选择**4001**和**9999**之间的值。

数字压力开关描述:

- psi 显示压力的单位是psi;
- MP 以Mpa为单位显示压力;
- b a 以巴为单位显示压力;
- Ⓢ 用于改变测量单位的按钮
- Ⓜ 用于显示部分时间的按钮
- Ⓡ 用于返回菜单或复位的按钮
- Ⓞk 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 Ⓞk 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 Ⓞk。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）。

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



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。

3.4 STARTING AND SHUTTING DOWN


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

To starting the compressor:

- press the start pushbutton (b).

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

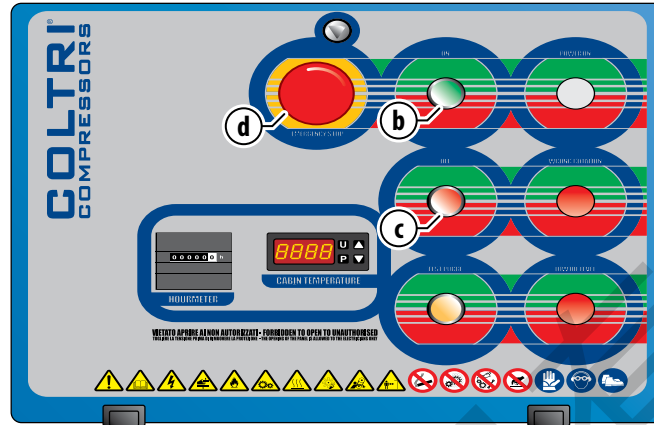
3.4 启动和关闭

 **重要事项:** 这些任务必须由经过压缩机使用培训的合格人员执行。

要启动压缩机:

- 按下启动按钮 (b)。

要关闭压缩机, 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: 如果发生紧急或危险情况, 按下紧急按钮 (d)。

要恢复正常压缩机操作, 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.



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

3.5 容器充填

 **重要事项:** 加注期间, 操作员必须在工作区域。



警告: 在瓶子填充过程中, 未参与填充程序的人员必须保持至少3米的安全距离。此外, 禁止在机器处于压力下时将软管从接头或加注阀上断开。



重要事项: 如果在加注过程中出现紧急情况, 请立即关闭压缩机 (参见"3.4启动和关闭")。

然而, 压缩机配备了一个安全系统, 在以下情况下自动关闭:

- 在不关闭压缩机的情况下启动安全阀。
 - 已达到压力开关上的压力设定值。
 - 电源暂时切断。
 - 电动机过载装置跳闸。
- 紧急停机后, 务必确保紧急原因已消除, 然后再进行另一次加注。



警告: 仅使用经过测试的瓶子 (经测试印章和/或证书证明)。

工作压力和瓶子填充压力显示在瓶子上。

禁止在高于规定压力的情况下重新加注。



危险: 如果瓶子显示出明显的内部/外部腐蚀迹象, 即使已经过测试, 也不要重新填充。

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.

检查要重新填充的瓶子是否完好：它们必须经过相关机构的测试（盖章和/或认证）。对外部进行目视检查。

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

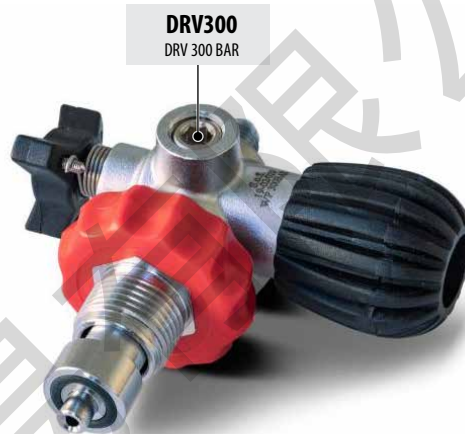
检查加注软管和相关接头是否处于良好状态。

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.

重新灌装后，不要完全清空瓶子，即使是在冬季储存或长时间不活动的情况下也不行：这会阻止湿气进入。

The available bottle refill connectors are:

可用的瓶子加注接头有：

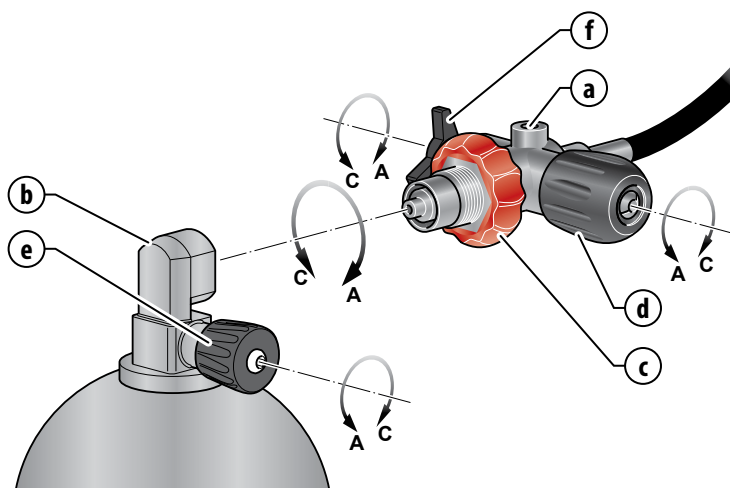
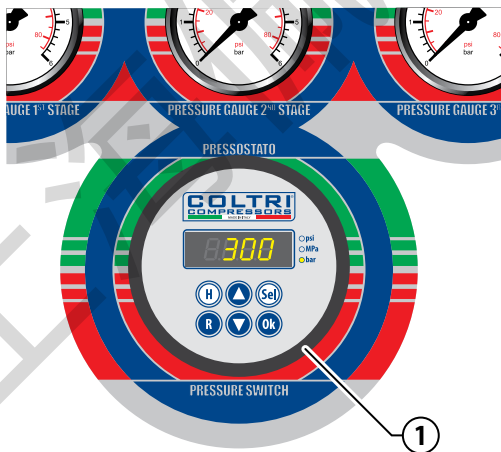


To refill bottles proceed as follows:

按以下步骤重新加注瓶子：

- 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.

- 设置压力开关 (1) 上的加注压力；
- 将软管接头 (a) 安装到瓶阀 (b) 上；
- 拧入固定旋钮 (c)，直至完全拧紧；
- 顺时针旋转排气阀 (f)，检查其是否关闭；
- 逆时针旋转阀门 (d)，打开阀门；
- 启动压缩机；
- 逆时针旋转阀门 (e)，打开阀门；
- 加注完成后，用压力开关等待压缩机自动关闭；
- 顺时针旋转阀门 (d) 和 (e) 关闭；
- 逆时针旋转排气阀 (f)，直到配件中的所有残余空气排出；
- 逆时针旋转固定旋钮 (c)，将其拧松；
- 断开瓶接头。



3.6 OPTIONALS

3.6.1 Presec system

The presec system is connected with a probe with the first filtering cartridge. Such device displays the saturation level of the cartridge and transmits the proper commutation signals based on the cartridge's status.

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

- 1 Stable green light (a):
System is operational; cartridge OK
- 2 Pulsing yellow light (b):
Prealarm; cartridge is getting exhausted and it needs to be replaced in short time.
- 3 Pulsing red light (c):
Alarm; empty cartridge, replace it immediately.
- 4 Pulsing red light (c):
Alarm; the filtering cartridge is missing or the filtering system is interrupted; compressor turns off and it is not possible to turn it on again without inserting a new cartridge or finding out the source of the alarm.

While the yellow light is pulsing (b), the green stable light (a) will be still turned on because the filtering cartridge will not be totally saturated. If no led is turned on, it means that the PRESEC is missing electric tension or the electrical system is faulty.

3.6 选配

3.6.1 滤芯饱和监测系统 (Presec系统)

presec系统与带有第一滤筒的探头连接。这种设备显示墨盒的饱和水平，并根据cartridge的状态发送正确的换向信号。

presec系统通过连接到3个LED的3个继电器显示墨盒的4个饱和级别：

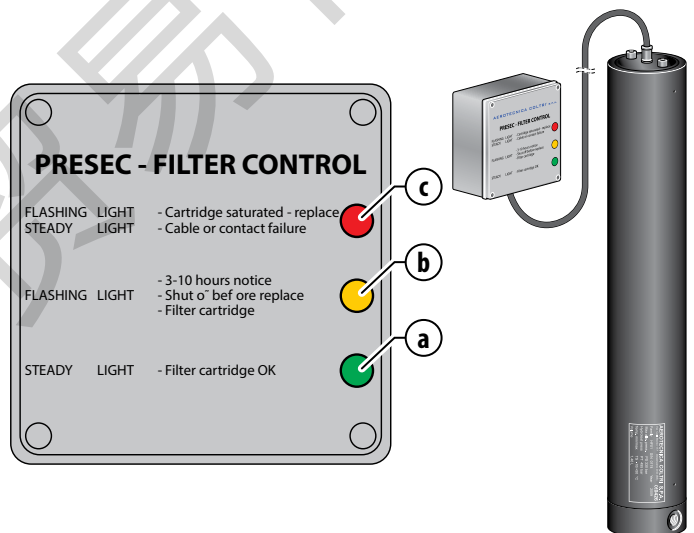
- 1稳定绿灯 (a) :
系统可运行；墨盒正常
- 2脉冲黄灯 (b) :
前翅；墨盒快用完了，需要在短时间内更换。
- 3脉冲红灯 (c) :
报警；清空墨盒，立即更换。
- 4脉冲红灯 (c) :

报警；滤筒缺失或过滤系统中断；压缩机关闭，如果不插入新的墨盒或不找出报警源，就无法再次打开压缩机。

当黄灯脉冲 (b) 时，绿色稳定灯 (a) 仍亮，因为滤筒不会完全饱和。

如果没有LED亮起，则表示PRESEC缺少电压或电气系统有故障。

SATURATION FILTER VALUES - 饱和滤波值		
Light Luz	Humidity 湿度	Volt
	(Mg/m ³)	(V)
Green 绿色	15 - 20	1,5 - 1,8
Yellow 黄色	20 - 25	1,81 - 8,8
Red 红色	> 25	> 8,8



3.6.2 Filling panels



3.6.2 充气面板



3.6.3 Filling connections



3.6.3 充气接头



3.6.4 Filling hoses



3.6.4 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

3.6.5 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 (🔧%, 📊%, 🛢️%). 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:

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 📊%. 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 📊% 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.

Battery 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 🔋%. After replacing the battery, the alarm automatically resets and the alarm indicator next to the icon 🔋% turns off and only the symbol (○) remains active.

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

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 🛢️%. 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 🛢️%, 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

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 (🔧%, 📊%, 🛢️%) 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：

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，📊%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 📊% 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。

Battery

电池电量 (以百分比表示)

当液位降到50%以下时，●报警启动，🔋% 图标处的指示灯 (点) 亮起。更换电池后，报警自动重置，🔋% 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。

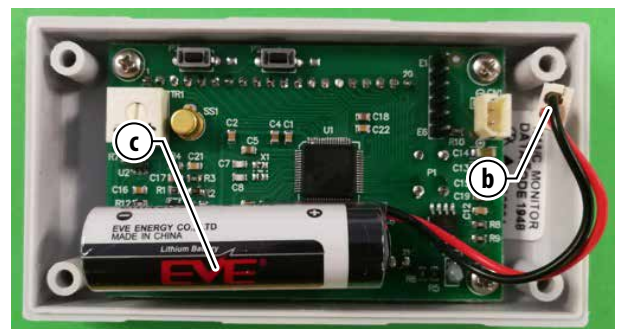
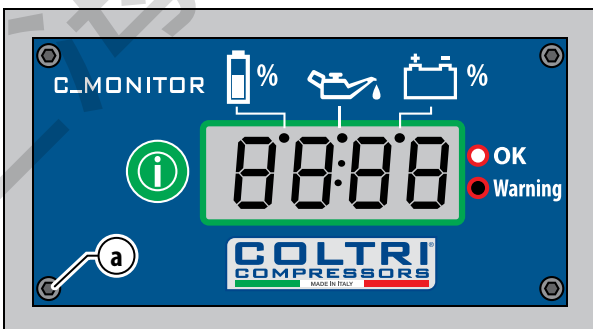
Service (以小时表示)

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，🛢️% 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。🛢️% 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。



3.6.6 Chiller

IMPORTANT: Should you need to carry out use and maintenance tasks not specified in this manual or should faults or malfunctions occur, please consult the manufacturer directly.

DANGER: Verify that the operating parameters match with the nominal values reported on the data plate of the dryer (voltage, frequency, air pressure, air temperature, ambient temperature, etc.).

The MCH-13-16-21-23 SUPER SILENT TPS compressors can, on request, be equipped with a dryer (optional). The dryer separates out any water or oil particles in the air. The dryer is not suitable for the treatment of dirty air or air containing solid particles.

3.6.6 冷干机

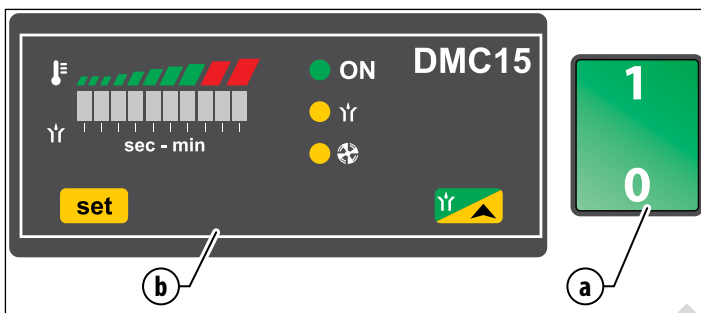
重要事项: 如果您需要执行本手册中未规定的使用和维护任务, 或者发生故障或故障, 请直接咨询制造商。

危险: 验证操作参数与干燥器数据板上报告的标称值 (电压、频率、气压、空气温度、环境温度等) 匹配

MCH-13-16-21-23超静音TPS压缩机可根据要求配备干燥器 (可选)。

干燥器将空气中的水或油颗粒分离出来。

干燥器不适合处理脏空气或含有固体颗粒的空气。



Control panel

- a Main switch
 - b Analog thermometer
- This thermometer, through its analog display, shows the DewPoint detected by the probe positioned in the evaporator. While the dryer is operating, the display indicates the current operating DewPoint, shown by means of a three colour (blue-green-red) analog bar over the display itself.
- Blue section - the dryer is working with very low load conditions, the DewPoint of the dryer is quite low;
 - Green section - operating conditions ensuring an optimal DewPoint;
 - Red section - DewPoint of the dryer too high, the dryer is working with elevated thermal load (high inlet air temperature, high ambient temperature, etc.). The treatment of the compressed air may be improper.

控制面板

- a 总开关
 - b 模拟温度计
- 该温度计通过其模拟显示器显示蒸发器中探头检测到的露点。
- 当冷干机运行时, 显示屏通过显示屏上的三色 (蓝绿红) 模拟条显示当前运行露点。
- 蓝色部分-冷干机在非常低的负荷条件下工作, 干燥器的露点非常低;
 - 绿色部分-确保最佳露点的操作条件;
 - 红色部分-冷干机露点过高, 冷干机工作时热负荷升高 (进气温度高、环境温度高等)。压缩空气的处理可能不合适。

First start-up:

- Ensure that all the steps of the "Installation" chapter have been observed.
- Ensure that the connection to the compressed air system is correct and that the piping is suitably fixed and supported.
- Ensure that the condensate drain pipe is properly fastened and connected to a collection system or container.
- Switch on the dryer by pressing the main switch (a) on the control panel.
- Ensure the consumption matches with the values of the data plate.
- Allow the dryer temperature to stabilise at the pre-set value.
- Start-up the air compressor.
- Check the piping for air leakage.
- Check the proper operation of the condensate drains - wait for their first interventions.

首次启动:

- 确保遵守“安装”一章的所有步骤。
- 确保与压缩空气系统的连接正确, 管道适当固定和支撑。
- 确保冷凝水排放管正确固定并连接至收集系统或容器。
- 按下控制面板上的主开关 (a), 打开干燥器。
- 确保消耗量与铭牌上的值相匹配。
- 使干燥器温度稳定在预设值。
- 启动空气压缩机。
- 检查管道是否漏气。
- 检查冷凝水排放管是否正常工作-等待其首次干预。



IMPORTANT: This procedure should be followed on first start-up, after periods of extended shutdown or following maintenance procedures.
Qualified personnel must perform the start-up.

Starting:

- Check the condenser for cleanliness.
- Verify that the system is powered.
- Activate the main switch (a) on the control panel.
- Wait a few minutes; verify that the thermometer is correct temperature and that the condensate is regularly drained.
- Start the air compressor.

Shut down :

- Shut down the air compressor.
- After a few minutes, Shut down the dryer with the switch (a).

A DewPoint included in the green operating area is correct.

During the operation, the refrigeration compressor will run continuously.

The dryer must remain ON when ever compressed air is being used, even if the air compressor only loads intermittently.



重要事项: 首次启动时、长时间停机后或遵循维护程序时，应遵循本程序。

必须由合格人员进行启动。

启动:

- 检查冷凝器的清洁度。
- 确认系统已通电。
- 启动控制面板上的主开关 (a)。
- 等几分钟；检查温度计的温度是否正确，冷凝水是否定期排出。
- 启动空气压缩机。

关闭:

- 关闭空气压缩机。
- 几分钟后，用开关 (a) 关闭冷干机。

绿色操作区域中包含的露点是正确的。

在运行过程中，制冷压缩机将连续运行。使用压缩空气时，干燥器必须保持开启，即使空气压缩机只是间歇加载。



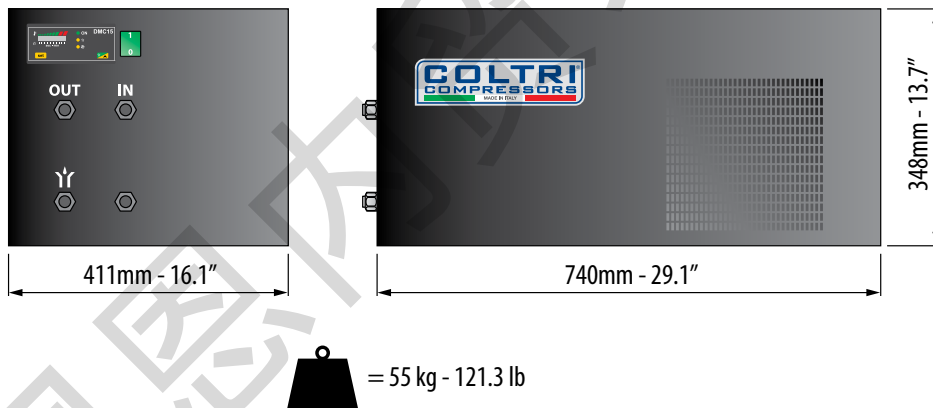
WARNING: The number of starts must be no more than 6 per hour. The dryer must stop running for at least 5 minutes before being started up again.

The user is responsible for compliance with these rules. Frequent starts may cause irreparable damage.



警告: 每小时启动次数不得超过6次。再次启动前，冷干机必须停止运行至少5分钟。

用户有责任遵守这些规则。频繁启动可能会造成无法修复的损坏。



4 - MAINTENANCE



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

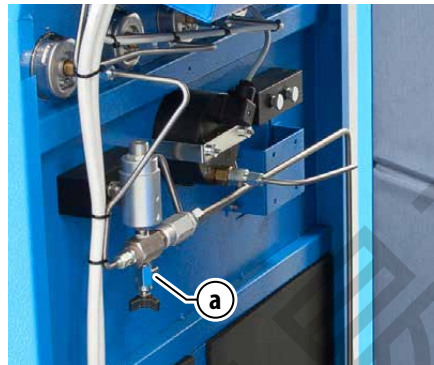


DANGER: Do not carry out maintenance tasks if the compressor has only just shut down; wait for the compressor to cool.

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 valve (a).



4 - 维护保养



警告: 维护任务只能由AEROTECNICA COLTRI客户援助服务或合格人员执行。



危险: 如果压缩机刚刚关闭, 不要执行维护任务; 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。

在执行任何维护任务之前, 对整个压缩机回路进行减压。

要对整个压缩机回路减压, 请打开排放阀 (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, 并确保其所有部件具有较长的使用寿命, 工作人员必须极其谨慎地遵守使用和维护说明。

因此, 每次出现不便时, 最好阅读以下信息并查阅手册。

欲了解更多信息, 请联系我们的援助中心:

**AEROTECNICA COLTRI SpA 维修服务中心联系方式
Tel. +39 030 99 10 297
Fax. +39 030 99 10 283
e-mail: 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 总则

- 压缩机的妥善保存需要彻底清洁。
- 这种类型的加油站, 根据最先进的技术标准设计和建造, 只需要最低限度的预防和日常维护。
- 执行任何维护任务之前, 运行压缩机上的检查和/或控制装置, 关闭压缩机, 从电源插座上拆下插头。
- 必须释放压缩机 (泵送回路) 中存在的残余压力。
- 在压缩机拆解和重新组装期间, 务必使用合适的扳手/工具, 以免损坏相关部件。
- 用铜或塑料锤松开硬件。
- 重新安装零件时, 确保零件清洁和润滑充分。
- 压缩机维护任务必须由授权人员执行, 并记录在本手册中。

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 计划外工作

包括修理和/或更换一个或多个压缩机部件的机械部件：这项工作通常只有在使用几年之后才需要做。如果进行了实质性修改，制造商对可能出现的任何危险概不负责。这项工作必须由援助中心进行。

4.4 SCHEDULED MAINTENANCE TABLE

4.4 定期维护表

Maintenance - Manutenzione	Hours - Ore												Years - Anni				
	25	50	100	250	500	1000	1500	2000	3000	4000	5000	20000	1	5	10	15	
Condensate discharge 冷凝水排放 (更换烧结过滤器)	○			●													
Intake filter 进气滤芯		○		●									●				
Lubricating oil + oil filter 润滑油+机油滤清器	○					●							●				
Belt wear and tension 皮带磨损和张力				○	●								●				
1 st , 2 nd , 3 rd stage valves 一、二、三级阀呢						●											
4 th stage valves 四级阀门						●											
Condensate separator + separator filter 冷凝水分离器+冷凝水分离器滤芯				○								●					●
Hyperfilter complete 过滤桶				○													●
1 st , 2 nd , 3 rd stage segments 一、二、三级活塞环								●									
4 th stage 四级缸						●											
HP flex hoses 高压软管		○							●					●			
Fitting/hose leak 密封件检查				○													
Safety valve 安全阀				○							●				●		
Coolers tube 冷凝器										●							

○ = Checking and cleaning ● = Change

○ = 检查并清洁 ● = 更换

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

重要事项: 维护间隔时间仅供参考，并可能根据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
	• 4th 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 故障排除

问题	原因	解决方案
• 电动机不能启动	• 缺相	• 检查保险丝或冷凝器
• 转速和流量降低	• 电机功率过低	• 检查电机和线路
	• 皮带打滑	• 恢复正确的皮带张力
• 流速减小, 转速不降低	• 阀门不工作	• 联系技术支持
	• 三级活塞磨损	• 联系技术支持
	• 连接件松动/密封泄漏	• 用肥皂水检查泄漏并消除
	• 进气过滤器堵塞	• 更换
	• 进气延长扭结	• 伸直, 使用较硬的管道
	• 活塞或活塞环磨损	• 联系技术支持
• 空气中有油的气味	• 滤芯饱和	• 更换
	• 活塞环磨损	• 联系技术支持
• 压缩机过热	• 旋转方向错误	• 调整正确的旋转方向
	• 冷却管脏	• 联系技术支持
	• 阀门关闭不全(造成另一段过载)	• 联系技术支持

4.6 CHANGING THE INTAKE FILTER



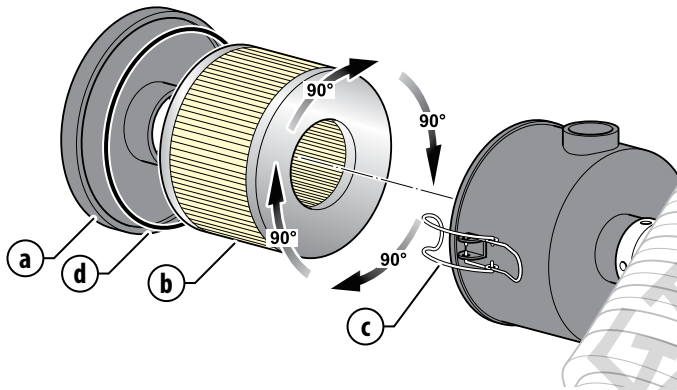
DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

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:

- opening the clips (c) and remove the air filter cover (a);
- remove the air filter cartridge (b);
- replace the cartridge with a new one;
- replace the O-ring (d) with a new one;
- re-close the cover (a) and close the clips (c).



4.6 更换进气滤芯



危险: 如果压缩机仅关闭, 则不要执行这些任务; 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拔下的情况下进行。

压缩机投入使用后, 必须在前50个工作小时后更换进气滤清器。

然后, 必须每250个工作小时或每年更换一次空气滤清器。每50小时将过滤器中的滤芯旋转90°。

要更换过滤器, 请按以下步骤进行:

- 打开夹子 (c) 并拆下空气滤清器盖 (a);
- 拆下空气滤清器滤芯 (b);
- 更换新的滤芯;
- 将O形圈 (d) 更换为新的O形圈;
- 重新合上盖子 (a) 并合上夹子 (c)。

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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.



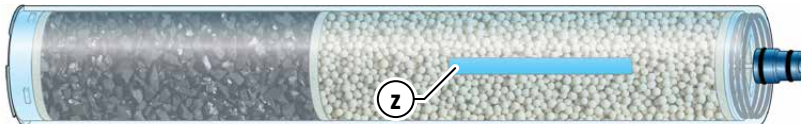
重要事项: 如果压缩机在多尘环境中使用, 则过滤器更换间隔应缩短为每50小时一次。

4.7 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 to beginning of chapter "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.

WARNING: If using compressors with TORNADO coolers, the filter cartridges can be replaced at intervals up to 5 times longer than the duration indicated in the table.

4.7 净化器过滤器

警告: 如本手册所述, 对过滤系统的部件进行持续和精确的维护, 可确保排出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更换滤芯的间隔时间。要计算这些间隔, 请参阅下表。

在任何情况下, 必须在空气产生难闻气味或滤芯内的石蕊试验 (z) 变为白色或蓝色以外的颜色之前更换滤芯。

重要事项: 如果压缩机在可能存在CO (废气) 的环境中使用, 则必须使用CO固定滤筒; 可按要求提供。

危险: 如果压缩机刚刚关闭, 不要执行这些任务; 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。

在执行任何维护任务之前, 对整个压缩机回路进行减压。

要对整个压缩机回路减压, 请按照"7-维护"一节中的步骤进行。

危险: 必须按规定的时间间隔更换滤芯。不遵守本说明会使员工处于严重危险中, 并可能造成严重损坏或伤害。

重要事项: 如果墨盒是通过更换其内部部件进行更新的, 则每10次更新就必须更换一次外壳。每次加注后, 检查筒体是否完好无损。

警告: 如果使用带旋风冷却器的压缩机, 滤芯的更换间隔可比表中所示的时间长5倍。

Filter cartridge replacement frequency calculation table *
滤芯更换频率计算表*

Temperature 温度		Filter duration (work hours) 过滤持续时间 (工时)			
°C	°F	MCH-22	MCH-30	MCH-36	MCH-45
40	104	33	25	21	19
30	86	56	42	35	32
20	68	88	65	54	50
10	50	132	98	81	75
0	32	244	180	150	138
-5	23	388	287	238	219

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

* 表中所示的数值是在压力维持阀校准为200bar时获得的。

WARNING: The filter body (h) must be replaced every 15 years or after the maximum number of cycles according to the following table:

Refill pressure (bar)	Maximum number of cycles
140-232	87000
200-330	26000
250-423	23000

警告: 过滤器体 (h) 必须每15年更换一次, 或在下表规定的最大循环次数后更换一次:

Pressione di ricarica (bar)	Numero massimo di cicli
140-232	87000
200-330	26000
250-423	23000

Changing the filtration cartridges (d1-d2)

- vent all the compressed air inside the circuit;
- use the wrench (a) to apply leverage on the screw heads (b) of the plug (c) and rotate counter clockwise;
- remove the filter plug (c);
- remove the molecular sieve cartridge (d1) and the active carbon/molecular sieve cartridge (d2) and replace them with a new ones;
- replace the O-ring (e) on the plug (c) every time the filter is changed;
- close the filter and screw it on with the wrench (a).

There are sealing O-rings (e-f) on the plug and the filter cartridge; if these O-rings deteriorate, the air is released via the venting hole (g).

If you notice any venting from this hole replace the O-rings.

When replacing the O-rings observe the precautions described at the start of the section.

更换滤筒 (d1-d2)


- 排出回路内的所有压缩空气;
- 用扳手 (a) 在塞子 (c) 的螺钉头 (b) 上施加杠杆, 并逆时针旋转;
- 取下过滤器塞 (c);
- 取下分子筛筒 (d1) 和活性炭/分子筛筒 (d2), 更换新的;
- 每次更换过滤器时, 更换塞子 (c) 上的O形圈 (e);
- 关闭滤清器并用扳手 (a) 拧紧。


塞子和滤芯上有O形密封圈 (e-f); 如果这些O形圈损坏, 空气将通过通风孔 (g) 释放。


如果注意到此孔有任何排气, 请更换O形圈。


更换O形圈时, 请遵守本节开头所述的预防措施。



 **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 (d1-d2) inside the purifier filter (h) every time the compressor is used.

 **重要事项:** 每次使用压缩机时, 净化器过滤器 (h) 内必须有一个滤筒 (d1-d2)。

 **警告:** 滤筒属于特殊废物: 必须按照现行的防污染标准进行处理。

4.8 CHECKING AND CHANGING THE LUBRICATING OIL AND FILTER

Periodically check the oil pressure in the pressure gauge (a). For correct lubrication, during the use of the compressor, the pressure gauge must mark a pressure higher than zero.



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 working hours or annually. Every time the lubricating oil is changed the oil filter must be changed too.

4.8 检查并更换润滑油和过滤器

定期检查压力表 (a) 中的油压。为了正确润滑, 在使用压缩机期间, 压力表必须标记高于零的压力。

压缩机投入使用后, 必须在前50个工作小时后更换润滑油。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, 也必须更换机油滤清器。

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

重要事项: 压缩机必须放置在倾斜不超过5°的固体表面上。

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 is 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.

危险: 如果压缩机刚刚关闭, 不要执行这些任务; 等待压缩机冷却。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。机油和滤清器都属于特殊废物, 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且电源线从电源插座上拔下的情况下进行。

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.

警告: 只能使用COLTRI机油ST755。如果找不到COLTRI机油ST755, 建议使用符合下表特性的可呼吸空气压缩机专用机油。

Oil table - 润滑油选择表	
Sump capacity (litres) 容量(升)	3.5
Recommended oils 推荐用油	COLTRI OIL ST 755
	RECOMMENDED OIL (推荐用油)
Parameter (参数)	Requirement (要求)
Viscosity Grade (粘度等级)	ISO 150
Base Oil (类别)	Synthetic (合成)
Base type (类型)	Ester (酯)
Performance level (性能等级)	DIN 51506-VLD
Primary applications (主要应用)	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) (闪点)	250°C
Pour Point (ASTM D97) (凝点)	< -30°C
Additives content (性能)	Antiwear, Antioxidant, Antirust, Antifoam



SC000872
PUMPING GROUP OIL
OLIO PER GRUPPO POMPANTE

Checking the oil level

The oil level must be checked every 5 working hours of the compressor. The oil level must be between the minimum and the maximum shown on the oil level indicator (h).

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 valve (a) so that the oil flows into the exhausted oil recipient (recipient capacity of at least 5 litres required); if necessary it is possible to use the supplied oil drain pipe (d), connecting the pipe fitting to the condensate drain tap (a);
- open the top plug (b);
- remove the plug (i), open the tap (a) and drain all the oil;
- unscrew the filter (c) being sure to recover the oil inside it;
- replace the filter (c) with a new one;
- wet the gasket (g) of the filter with a little oil and firmly tighten the filter doing so manually;
- close the drain valve (a);
- remove the top-up plug (b);
- fill the oil sump with 3.5 litres of oil from top oil plug (see "7.6.1 Oil table");
- close the oil top plug (b);
- switch on the compressor and run it depressure area for 30 seconds;
- switch off the compressor and remove the plug from the mains socket;
- check the oil level (h); if the oil level is not within the allowed limits top up or drain;
- replace the plug (i).

检查油位

压缩机每工作5小时必须检查一次油位。机油油位必须在机油油位指示器 (h) 上显示的最小值和最大值之间。

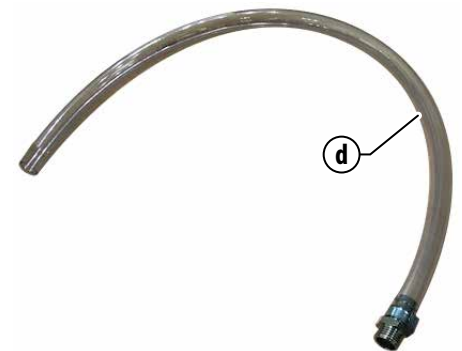
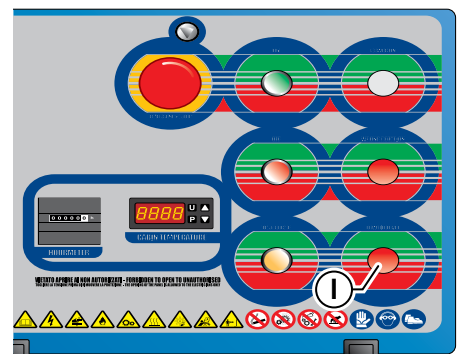
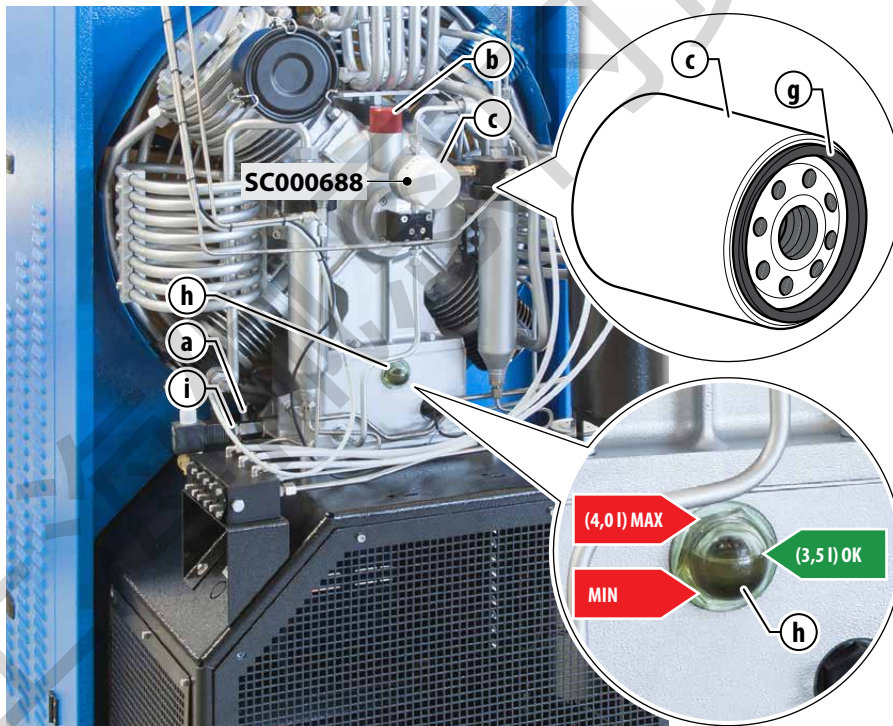
请注意, 过量的机油可能会导致气缸渗透, 并在气门上留下沉积物, 而油位过低会妨碍正确润滑, 并可能导致发动机卡滞。

如果油位不在最低和最高限值范围内, 则按照“更换润滑油”中的说明加注或排放。

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, 也必须更换机油滤清器。要更换机油, 请按照说明进行:

- 将接受器放置在排放阀 (a) 下方, 使油流入排气接受器 (接受器容量至少为5升); 如有必要, 可使用供应的排油管 (d), 将管件连接至冷凝水排放龙头 (a);
- 打开顶部插头 (b);
- 取下塞子 (i), 打开龙头 (a) 并排空所有机油;
- 拧下过滤器 (c), 确保回收其中的油;
- 更换新的过滤器 (c);
- 用少量油湿润过滤器的垫片 (g), 并用手拧紧过滤器;
- 关闭排水阀 (a);
- 取下加注塞 (b);
- 从顶部油塞向油底壳中注入3.5升油 (见“7.6.1油表”);
- 关闭油顶塞 (b);
- 打开压缩机, 在减压区运行30秒;
- 关闭压缩机并从电源插座上拨下插头;
- 检查油位 (h); 如果油位不在允许范围内, 则加满或排放;
- 更换插头 (i)。



WARNING: If the red light (l) 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 (l) 亮起, 则表示油位低于允许的最低油位; 立即停止压缩机并恢复正确的油位

4.9 TRANSMISSION BELTS

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 belts tension

To check the tension on the belts (g) exert a pressure of approximately 10 Kg on the belts; 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 belts.

Changing transmission belts

To replace the transmission belts proceed as follows:

- insert a screwdriver (a) between the first belt (b) and the pulley (c) of the cooling fan (d);
- rotate the fan (d) anticlockwise until the belt comes out of the pulley groove;
- repeat the procedure on the second belt;
- change the belts with new ones: make sure the belt model and length are exact, check that the characteristics of the new belt are identical to those of the old one;
- insert the new belt on the internal groove of the electric motor pulley (e);
- insert the belt on the internal groove of the fan pulley while simultaneously turning the fan by hand until the belt slips perfectly into the groove of the pulley;
- check that the belt is inserted perfectly in the grooves of the two pulleys and that belt tension is correct;
- insert the second belt and carry out the same procedure described for the first belt.

If belts (g) tension is not correct contact the AEROTECNICA COLTRI technical assistance service.

4.9 传动带

必须每月检查皮带张力。

压缩机每工作500小时或每年必须更换一次传动带。



危险: 如果压缩机刚刚关闭, 不要执行这些任务; 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拔下的情况下进行。

检查传动带张紧度

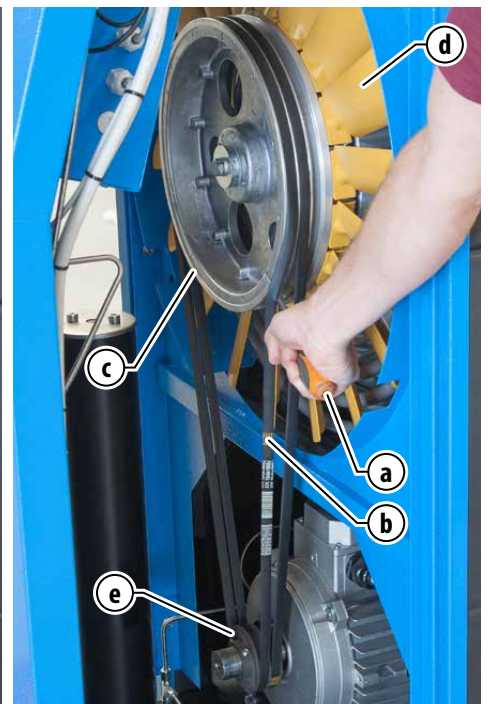
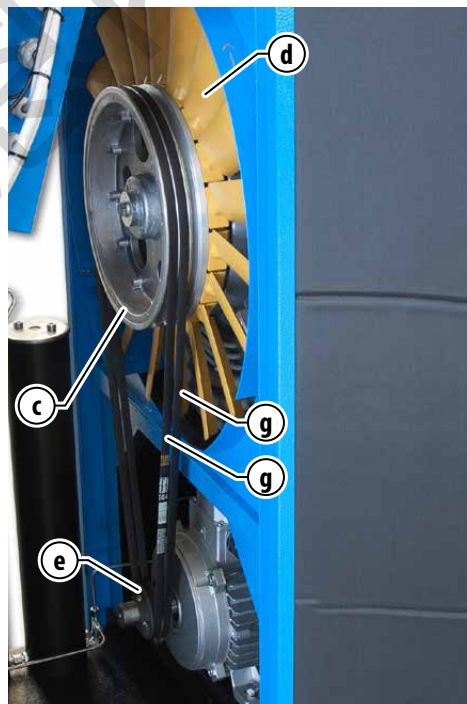
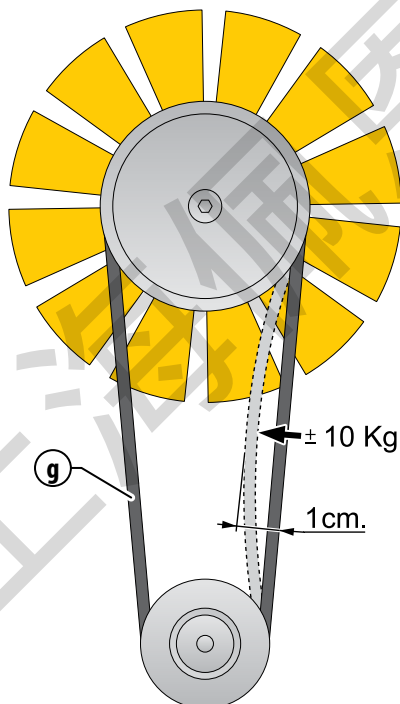
为检查皮带 (g) 上的张力, 在皮带上施加约10 Kg的压力; 检查皮带相对于其原始位置的弯曲度是否不超过1厘米。如果弯曲度超过此值, 请更换皮带。

更换传动带


要更换传动带, 请按以下步骤进行:


- 在第一根皮带 (b) 和冷却风扇 (d) 的皮带轮 (c) 之间插入螺丝刀 (a);
- 逆时针旋转风扇 (d), 直到皮带从皮带轮槽中出来;
- 在第二条皮带上重复该步骤;
- 更换新皮带: 确保皮带型号和长度准确, 检查新皮带的特性与旧皮带相同;
- 将新皮带插入电机皮带轮 (e) 的内槽;
- 将皮带插入风扇皮带轮的内槽, 同时用手转动风扇, 直到皮带完全滑入皮带轮的槽中;
- 检查皮带是否完全插入两个皮带轮的槽中, 以及皮带张力是否正确;
- 插入第二条皮带, 并执行与第一条皮带相同的步骤。

如果皮带 (g) 张力不正确, 请联系AEROTECNICA COLTRI技术援助服务。



4.10 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.

Condensate discharge occurs automatically every 7 minutes. The yellow TEST PURGE pushbutton (a) must be pressed every day to make sure that the discharge valve is working properly.


The condensate is collected in a can (b); periodically check this can to prevent overflow and consequent leakage of the condensate liquid. To empty the can remove the condensate drain hose (c), empty the can and collect the condensate in a container; re-insert the hose (c) and put the can back in its housing.

An outflow of condensate water with lubricating oil is normal during refills: the quantity will depend on the level of humidity in the air.

4.10 冷凝水排放

 **重要事项:** 必须在每个工作日结束时清空冷凝液。

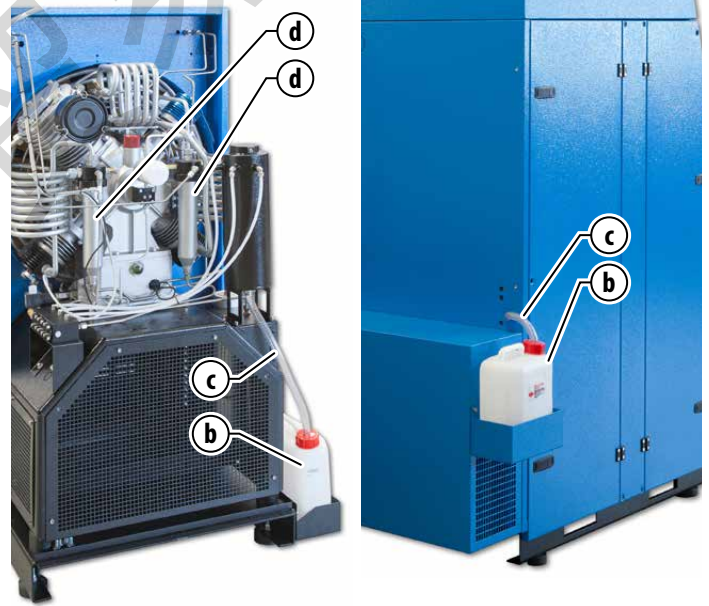
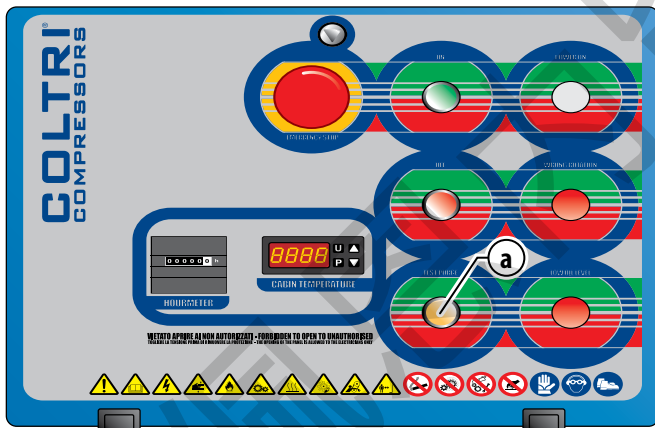
 **危险:** 如果压缩机仅关闭，则不要执行这些任务；等待压缩机冷却。


 所有维护工作必须在压缩机关闭且电源线从电源插座拔下的情况下进行。


冷凝水每7分钟自动排放一次。必须每天按下黄色测试吹扫按钮 (a)，以确保排放阀正常工作。


冷凝液收集在一个罐 (b) 中；定期检查此罐，以防止过量加注和冷凝液泄漏。要排空罐，拆下冷凝水排放软管 (c)，排空罐并将冷凝水收集到容器中；重新插入软管 (c) 并将罐放回壳体中。


在加注过程中，冷凝水和润滑油的流出是正常的：流出量将取决于空气中的湿度水平。





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

 **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.

 **重要事项:** 每隔15年或20000小时，必须更换冷凝液分离器体 (d)。

 **重要事项:** 每隔5年或3000小时，必须更换排水阀。

 **危险:** 必须按规定的间隔时间排放冷凝液。不遵守本说明可能会使员工处于严重危险中，并可能造成严重损坏或伤害。

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 (17 mm 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



重要事项: 软管必须定期更换（每5年或每3000小时更换一次），或在出现磨损/磨损/损坏迹象时更换。

软管的弯曲半径不得小于250 mm。



危险:

如果压缩机刚刚关闭，不要执行这些任务；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拔下的情况下进行。

在执行任何维护任务之前，排出压缩机中的空气。

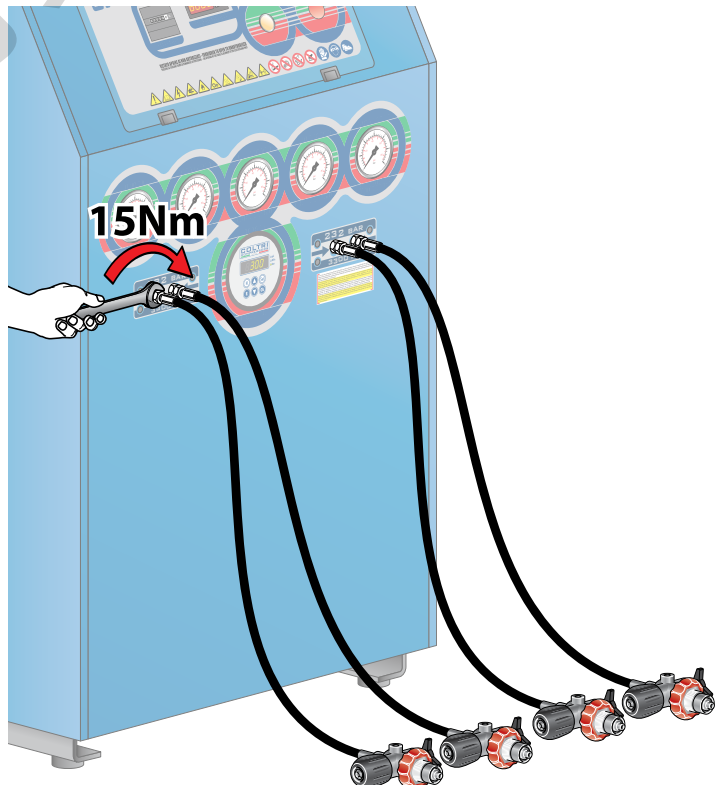
油箱加注压力非常高；因此，在重新加注油箱之前，检查软管是否完全连接且状况良好。还要检查所有未使用软管上的阀门是否正确关闭，以防止软管扭伤带来的危险。

加油时，未经授权的人员必须保持至少3米的距离。

当机器处于压力下时，严禁将软管从接头或加注阀上断开。

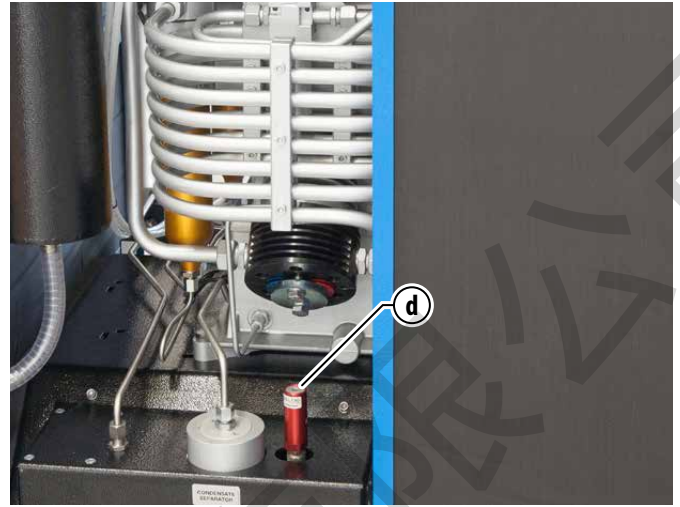
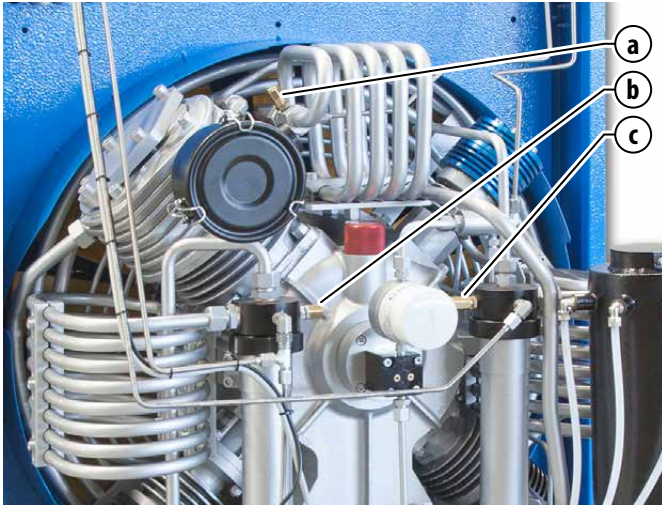
更换瓶子加注软管的步骤如下：

- 拧下接头（17 mm扳手），断开瓶子加注软管。
- 用新软管更换旧软管。
- 将软管拧到接头（a）上
- 使用测力计扳手拧紧软管，以15 Nm的扭矩拧紧软管。




4.12 SAFETY VALVES


4.12 安全阀




a	b	c	d
5 bar / 73 psi	22 bar / 319 psi	100 bar / 1450 psi	232-300-330-420 bar / 3300-4300-4700-6000 psi

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

 **重要事项:** 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:**
 严禁篡改安全阀以增加压力设定值。
 篡改安全阀可能会严重损坏压缩机，对人员造成严重伤害，并导致保修无效。

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

如果安全阀无法正常工作，请联系AEROTECNICA COLTRI援助服务。

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