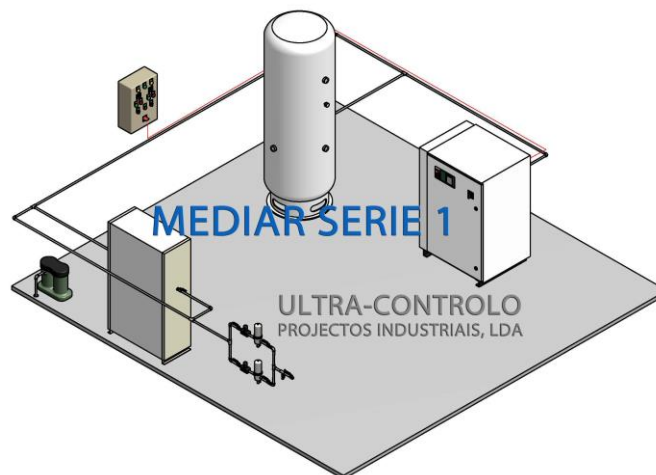


Medical Compressed Air System - MEDIAR® Série 1
EN ISO 7396-1
208V - 440V / 50Hz – 60Hz , 13 Bar
SIMPLEX
SPECIFICATIONS

MEDIAR Combined Air

The MEDIAR Combined Medical Air System shall conform to ISO 7396-1 and ACSS 03/2006 Health Technical Memorandum. Medical quality to the European Pharmacopoeia monograph shall be delivered at a pressure of 1100 kPa (11 bar) gauge for supply of the hospital surgical and medical (via separate regulators) air systems. The system shall have a back-up by compressed air bottles such that any single functional component failure will not affect the integrity of the medical compressed air supply. The compressor will be capable of supplying 100% of the specified volumetric flow.

Typical Simplex Layout



Compressor

Compressor shall be oil injected rotary screw compressors suitable for both continuous and frequent start/stop operation at a nominal outlet pressure of 1250 kPa gauge (12.5 bar). Compressor shall be supplied with a block and fin style aftercooler with a dedicated quiet running fan to maximize cooling and efficiency. A multi-stage oil separator capable of achieving 2ppm oil carry over shall be fitted to minimize contamination and maintenance. High efficiency motors rated TEFC, IP55 class F electric shall be used and incorporate maintenance-free greased for life bearings. Motors with low efficiency ratings are not acceptable. The screw compressor shall be supplied with an intelligent user interface to digitally display service and warning indications, working pressure, operating temperatures, number of motor starts, on-load running hours and total running hours. Compressor is to be individually hard-piped to the receiver manifold as standard.

Air Treatment Unit

MEDIAR must be equipped with one of the following units of air treatment:
 (Choose the unit which better fits in your case)

FD

Comprehensive system of drying compressed air ULTRASEC as refrigeration dryer, capacitive trap without air loss for reducing operating costs with dew point indicator (LCD), dry contact alarm for economical and safe operation construction metal cabinet for optimum protection against mechanical damage and dust. The air/air heat exchanger with low pressure drop through the new technology in Aluminum, no corrosion and efficient heat transfer achieved with the heat exchanger design cross flow air/air valve and hot gas bypass and stainless steel designed to prevent freezing and to provide a constant dew point.



Due to the continuous improvement of our products, the right is reserved to change the specification of the items described herein at any time. Please contact us for further information and up to date specifications.

An effective 1 micron filter to separate drops of oil and solid particles (> 1 micron), effective sub-micro filter UFSM with a high retention capacity for 99.9999% threshold UFM micron filter upstream, high 0.01 micron filtration. Residual oil content of up to 0.01 mg/m³ at 7 bar and 20°C and validated according to ISO 8573, activated carbon filter UCA adsorption of hydrocarbon vapors and oil with an initial residual aerosol oil > 0003 mg/m³ input.

UM

Air processing chains, ULTRAMED, that fully meets the parameters of the European Pharmacopoeia monograph. Each processing air unit is equipped with:

A pre-filter stage for the removal of oil and water aerosols as well as solid particles down to 0.01 μ a high-performance activated charcoal filter for adsorption of oil vapors and odors with a residual oil content of 0.01 mg/m³

A heatless desiccant dryer, that reduces the available water vapor in the air down to a pressure dew point of – 40°C and simultaneously maintains levels of carbon dioxide (CO₂), nitrogen monoxide (NO), nitrogen dioxide (NO₂) and sulphure dioxide (SO₂) below the legally allowed limits

A hopcalite filter at the outlet of the dryer that converts CO by oxidation into CO₂ and abort's CO₂ chemically. A dust filter in the last stage.

UT

Air treatment units type ULTRATECH with a certificate of conformity of the air quality product fully meets the parameters of the monograph of the European Pharmacopoeia. Each processing air system is equipped with:

A high efficient oil mist micro filter FM of 1 micron to separate drops of oil and solid particles (> 1 micron), the residual oil aerosol is 0.01 mg/m³ á 21°C. A sub micro filter SMF 0.01 microns to remove particles (> 0.01 microns) and oil aerosols and water, residual oil aerosol is 0.01 mg/m³ at 21°C.

Adsorption dryer with columns* of molecular shieve works on the principle of reverse pressure with cold adsorption columns connected in parallel process, while the air passes in one hand and dried and degassed, the other side is being regenerated. The dew point provided by the dryer is -46°C /-68°C at the maximum allowable pressure of 16 bar. Each dryer is equipped with an electronic control of relative humidity ULTRAGEST, to save energy.

The ULTRATECH units has a column of activated carbon to remove odors, oil vapors and hydrocarbons. The residual oil aerosol content is less than 0.003 mg/m³ at 21°C. A catalyst consisting of a column* transforms the carbon monoxide (CO) to carbon dioxide (CO₂). The ULTRATECH units can also eliminate much of the CO₂ molecules. The filters are equipped with filter media, without binders, with high contention particles with a very low pressure loss which ensures considerable energy savings.

The filters are equipped with zero loss drains, without loss of air and have test buttons to control the proper operation of the purge units. The monitoring and control system ULTRAGEST makes a drastic reduction in energy consumption using a digital controller linked to a very steady dew point sensor. ULTRATECH is designed with a range of products capable of providing a long-term equipment, 100% operational, without the need for early and frequent maintenance.

The filter and dryer module shall incorporate high efficiency water separators, oil filters, and heatless regenerative desiccant dryer, dust/activated carbon filters, hopcolite filters and sterile filters with autoclavable element. Contaminants in the delivered air downstream of the sterile filters shall be maintained at levels below those shown in the following table:

Contaminant	Threshold
H ₂ O	67 ppm v/v
Dry particulates	Free from visible particulates in a 75 litre sample
Oil (droplet or mist)	Exempt
CO	5 ppm v/v
CO ₂	500 ppm v/v
SO ₂	1 ppm v/v
NO	2 ppm v/v
NO ₂	2 ppm v/v

The dryer control system shall incorporate an dew point controller for energy savings that shuts off purge air when achieved the dew point required.



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FD-UM

Comprehensive system of drying compressed air ULTRASEC as refrigeration dryer, capacitive trap without air loss for reducing operating costs with dew point indicator (LCD), dry contact alarm for economical and safe operation construction metal cabinet for optimum protection against mechanical damage and dust. The air/air heat exchanger with low pressure drop through the new technology in Aluminum, no corrosion and efficient heat transfer achieved with the heat exchanger design cross flow air/air valve and hot gas bypass and stainless steel designed to prevent freezing and to provide a constant dew point.

Air processing chains, ULTRAMED, that fully meets the parameters of the European Pharmacopoeia monograph. Each processing air unit is equipped with:

A pre-filter stage for the removal of oil and water aerosols as well as solid particles down to 0.01 μ a high-performance activated charcoal filter for adsorption of oil vapors and odors with a residual oil content of 0.01 mg/m³

A heatless desiccant dryer, that reduces the available water vapor in the air down to a pressure dew point of -40°C and simultaneously maintains levels of carbon dioxide (CO₂), nitrogen monoxide (NO), nitrogen dioxide (NO₂) and sulphure dioxide (SO₂) below the legally allowed limits

A hopcalite filter at the outlet of the dryer that converts CO by oxidation into CO₂ and abort's CO₂ chemically. A dust filter in the last stage.

FD-UT

Comprehensive system of drying compressed air ULTRASEC as refrigeration dryer, capacitive trap without air loss for reducing operating costs with dew point indicator (LCD), dry contact alarm for economical and safe operation construction metal cabinet for optimum protection against mechanical damage and dust. The air/air heat exchanger with low pressure drop through the new technology in Aluminum, no corrosion and efficient heat transfer achieved with the heat exchanger design cross flow air/air valve and hot gas bypass and stainless steel designed to prevent freezing and to provide a constant dew point.

Air treatment units type ULTRATECH with a certificate of conformity of the air quality product fully meets the parameters of the monograph of the European Pharmacopoeia. Each processing air system is equipped with:

A high efficient oil mist micro filter FM of 1 micron to separate drops of oil and solid particles (> 1 micron), the residual oil aerosol is 0.01 mg/m³ á 21°C. A sub micro filter SMF 0.01 microns to remove particles (> 0.01 microns) and oil aerosols and water, residual oil aerosol is 0.01 mg/m³ at 21°C.

Adsorption dryer with columns* of molecular sieve works on the principle of reverse pressure with cold adsorption columns connected in parallel process, while the air passes in one hand and dried and degassed, the other side is being regenerated. The dew point provided by the dryer is -46°C /-68°C at the maximum allowable pressure of 16 bar. Each dryer is equipped with an electronic control of relative humidity ULTRAGEST, to save energy.

The ULTRATECH units has a column of activated carbon to remove odors, oil vapors and hydrocarbons. The residual oil aerosol content is less than 0.003 mg/m³ at 21°C. A catalyst consisting of a column* transforms the carbon monoxide (CO) to carbon dioxide (CO₂). The ULTRATECH units can also eliminate much of the CO₂ molecules. The filters are equipped with filter media, without binders, with high content particles with a very low pressure loss which ensures considerable energy savings.

The filters are equipped with zero loss drains, without loss of air and have test buttons to control the proper operation of the purge units. The monitoring and control system ULTRAGEST makes a drastic reduction in energy consumption using a digital controller linked to a very steady dew point sensor. ULTRATECH is designed with a range of products capable of providing a long-term equipment, 100% operational, without the need for early and frequent maintenance.

The filter and dryer module shall incorporate high efficiency water separators, oil filters, and heatless regenerative desiccant dryer, dust/activated carbon filters, hopcolite filters and sterile filters with autoclavable element. Contaminants in the delivered air downstream of the sterile filters shall be maintained at levels below those shown in the following table:



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Contaminant	Threshold
H2O	67 ppm v/v
Dry particulates	Free from visible particulates in a 75 litre sample
Oil (droplet or mist)	Exempt
CO	5 ppm v/v
CO2	500 ppm v/v
SO2	1 ppm v/v
NO	2 ppm v/v
NO2	2 ppm v/v

The dryer control system shall incorporate a dew point controller for energy savings that shuts off purge air when achieved the dew point required.

Control System

The central control panel shall operate at extra low voltage and include BMS connections for plant fault, plant emergency, reserve fault and pressure fault. A mechanical back-up facility shall ensure continued operation in the event of malfunction. The control system shall normally employ automatic rotation of lead compressor to maximize compressor life and ensure even wear.

Receiver Assembly

Air receivers shall comply with EN 286-1, supplied with relevant test certificates. Each air receiver shall be hot dip galvanized inside and out and fitted with an electronic time controlled drain valve. Float type drain valves are not acceptable. The receiver assembly shall be fitted with a pressure safety valve and certified pressure gauge. The receiver shall have additional connections available for emergency back-up systems.

Dew Point Monitoring

The dryer shall incorporate a ceramic dew point hygrometer with an accuracy of $\pm 1^{\circ}\text{C}$ in the range -20 to -80°C atmospheric dew point and 4-20mA analogue output for the controller.

Aluminum oxide or palladium wire sensors are not acceptable. An alarm condition shall trigger on the dryer control panel if the dew point exceeds a -46°C atmospheric set point. The plant control unit shall incorporate a multifunction LCD displaying, with alarm signalization of a fault condition in the dryer. Volt free contacts shall be included to enable the dew point alarm signal to be connected to a central medical gas alarm system and/or building management system (BMS). To enable periodic calibration of the dew point sensor element, the hygrometer shall be remotely connected downstream of the dryer via a micro-bore tube. It is not acceptable to install the sensor directly into the medical air supply pipeline.

Reduction Set

The plant should be equipped with a set of pressure reduction, with manometer, and includes air sterilization filter with filter element sterilizable in steam autoclaving. The set should be equipped with sectioning and depressurization valves.

Condensate separator

The plant will have a network of condensate collecting that will be processed by the automatic oil/water separator for environmental protection and accomplish the control regulation about industrial waste and emission of domestic sewage.

Basic Configuration of the Medical Air Plant, MEDIAR serie 1

- 1 Rotary screw compressor oil lubricated, including cyclonic separator
- 1 Air dryer and treatment unit with dew point digital controller
- 1 Vertical tank, galvanized, with security devices
- 1 Reduction set with sterilization filter
- 1 Electrical control panel and control including signaling for remote management
- 1 Automatic oil/water separator for condensate treatment

**System Specifications
MEDICAL COMPRESSED AIR SYSTEM
MEDIAR**

**Construction according to ISO 7396-1 for models with 3 or more compressors
Simplex and duplex systems are prepared to ISO 7396-1
380V - 400V / 50Hz - 60Hz / 13bar**

MEDIAR Standard Models	HP	KW	System Flow			
			m3/h	l/m	l/s	scfm
SIMPLEX						
1.50/800	10	7,5	51	850	14,2	30
1.80/1000	15	11	79	1320	22	46,6
1.110/1000	20	15	108	1800	30	63,5
1.140/1000	25	18,5	140	2340	39	82,6
1.160/1000	30	22	157	2610	43,5	92,1
1.260/1500	40	30	263	4380	73	154,5
1.320/1500	50	37	319	5320	88,7	187,7
1.360/2000	60	45	368	6130	102,2	216,3
1.500/2000	74	55	496	8270	137,8	291,8
1.630/3000	100	75	631	10510	175,2	370,8

Medical Compressed Air System - MEDIAR® Série 1
EN ISO 7396-1
400V / 50Hz, 13 Bar
SIMPLEX

Model	System capacity (l/min)	Electric motor power (kW)	MEDIAR				
			13 BAR Outlet				
			400V 50Hz				
			Article Number				
			Accord. to Air Treatment type				
FD <i>ULTRASEC</i>	UM <i>ULTRAMED</i>	UT <i>ULTRATECH</i>	FD-UM <i>Combined ULTRASEC + ULTRAMED</i>	FD-UT <i>Combined ULTRASEC + ULTRATECH</i>			
1.50/800	850	7,5	304.01.20000	304.01.10000	304.01.00000	304.01.40000	304.01.30000
1.80/1000	1320	11	304.01.20001	304.01.10001	304.01.00001	304.01.40001	304.01.30001
1.110/1000	1800	15	304.01.20002	304.01.10002	304.01.00002	304.01.40002	304.01.30002
1.140/1000	2340	18,5	304.01.20003	304.01.10003	304.01.00003	304.01.40003	304.01.30003
1.160/1000	2610	22	304.01.20004	304.01.10004	304.01.00004	304.01.40004	304.01.30004
1.260/1500	4380	30	304.01.20005	304.01.10005	304.01.00005	304.01.40005	304.01.30005
1.320/1500	5320	37	304.01.20006	304.01.10006	304.01.00006	304.01.40006	304.01.30006
1.360/2000	6130	45	304.01.20007	304.01.10007	304.01.00007	304.01.40007	304.01.30007
1.500/2000	8270	55	304.01.20008	304.01.10008	304.01.00008	304.01.40008	304.01.30008
1.630/3000	10510	75	304.01.20009	304.01.10009	304.01.00009	304.01.40009	304.01.30009

D- with 2 tanks T- with 3 tanks
 Smaller or bigger versions under request

Medical Compressed Air System - MEDIAR® Série 1
EN ISO 7396-1
380V / 60Hz, 13 Bar
SIMPLEX

Model	System capacity (l/min)	Electric motor power(kW)	MEDIAR				
			13 BAR Outlet				
			380V 60Hz				
			Article Number				
			<i>Accord. to Air Treatment type</i>				
FD <i>ULTRASEC</i>	UM <i>ULTRAMED</i>	UT <i>ULTRATECH</i>	FD-UM <i>Combined ULTRASEC + ULTRAMED</i>	FD-UT <i>Combined ULTRASEC + ULTRATECH</i>			
1.50/800	850	7,5	304.01.20600	304.01.10600	304.01.00600	304.01.40600	304.01.30600
1.80/1000	1320	11	304.01.20601	304.01.10601	304.01.00601	304.01.40601	304.01.30601
1.110/1000	1800	15	304.01.20602	304.01.10602	304.01.00602	304.01.40602	304.01.30602
1.140/1000	2340	18,5	304.01.20603	304.01.10603	304.01.00603	304.01.40603	304.01.30603
1.160/1000	2610	22	304.01.20604	304.01.10604	304.01.00604	304.01.40604	304.01.30604
1.260/1500	4380	30	304.01.20605	304.01.10605	304.01.00605	304.01.40605	304.01.30605
1.320/1500	5320	37	304.01.20606	304.01.10606	304.01.00606	304.01.40606	304.01.30606
1.360/2000	6130	45	304.01.20607	304.01.10607	304.01.00607	304.01.40607	304.01.30607
1.500/2000	8270	55	304.01.20608	304.01.10608	304.01.00608	304.01.40608	304.01.30608
1.630/3000	10510	75	304.01.20609	304.01.10609	304.01.00609	304.01.40609	304.01.30609

D- with 2 tanks T- with 3 tanks
 Smaller or bigger versions under request