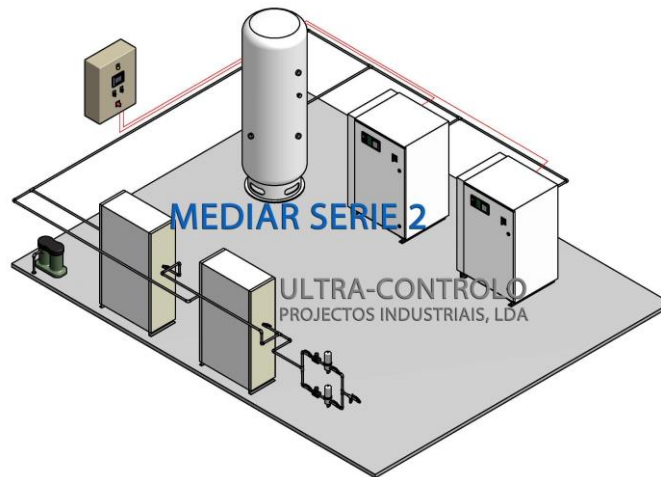


Medical Compressed Air System - MEDIAR® Série 2
EN ISO 7396-1
208V - 440V / 50Hz – 60Hz , 10 Bar
DUPLEX
SPECIFICATIONS

MEDIAR

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 700 kPa (7 bar) gauge for supply of the hospital surgical and medical (via separate regulators) air systems. The entire system shall be 'duplexed' such that any single functional component failure will not affect the integrity of the medical compressed air supply. The secondary supply will be made up of one compressor. Each compressor will be capable of supplying 100% of the specified volumetric flow.

Typical Duplex Layout



Compressors

Compressors shall be oil injected rotary screw compressors suitable for both continuous and frequent start/stop operation at a nominal outlet pressure of 950 kPa gauge (9.5 bar). Compressors 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. Each 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. Compressors are 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

Duplicated 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, in double, 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 processed, 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
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.



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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 shieve works on the principle of reverse pressure with cold adsorption columns connected in parallel processes, 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:



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NO	2 ppm v/v
NO2	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.

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 galvanised inside and out and fitted with a 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.

Aluminium 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 series 2

- 2 Rotary screw compressor oil lubricated, including cyclonic separator
- 2 Air dryer and treatment unit with dew point digital controller
- 2 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 / 10bar**

MEDIAR Standard Models	HP	KW	System Flow			
			m3/h	l/m	l/s	scfm
DUPLEX						
2.15/500	3	2,2	14	233	3,9	8,232
2.20/500	4	3	22	360	6	12,701
2.30/500	5,5	4	32	530	8,8	18,698
2.40/500	7,5	5,5	41	680	11,3	23,99
2.60/500	10	7,5	64	1060	17,7	37,397
2.100/800	15	11	96	1602	26,7	56,507
2.130/1000	20	15	136	2260	37,7	79,733
2.170/1500	25	18,5	164	2740	45,7	96,667
2.200/2000	30	22	193	3210	53,5	113,25
2.300/2000	40	30	302	5028	83,8	177,4
2.370/2000	50	37	371	6190	103,2	218,38
2.420/2000	60	45	421	7020	117	247,67
2.450/2000	60	45	445	7420	123,7	261,78
2.600/2000	74	55	572	9540	159	336,57
2.750/2000	100	75	749	12480	208	440,29

Medical Compressed Air System - MEDIAR® Série 2
EN ISO 7396-1
400V / 50Hz, 10 Bar
DUPLEX

Model	System capacity (l/min)	Electric motor power(kw)	MEDIAR				
			10 BAR Outlet				
			400V 50Hz				
			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>
2.15/500	233	2,2	303.01.20100	303.01.10100	303.01.00100	303.01.40100	303.01.30100
2.20/500	360	3	303.01.20101	303.01.10101	303.01.00101	303.01.40101	303.01.30101
2.30/500	530	4	303.01.20102	303.01.10102	303.01.00102	303.01.40102	303.01.30102
2.40/500	680	5,5	303.01.20103	303.01.10103	303.01.00103	303.01.40103	303.01.30103
2.60/500	1060	7,5	303.01.20104	303.01.10104	303.01.00104	303.01.40104	303.01.30104
2.100/800	1602	11	303.01.20105	303.01.10105	303.01.00105	303.01.40105	303.01.30105
2.130/1000	2260	15	303.01.20106	303.01.10106	303.01.00106	303.01.40106	303.01.30106
2.170/1500	2740	18,5	303.01.20107	303.01.10107	303.01.00107	303.01.40107	303.01.30107
2.200/2000	3210	22	303.01.20108	303.01.10108	303.01.00108	303.01.40108	303.01.30108
2.300/2000	5028	30	303.01.20109	303.01.10109	303.01.00109	303.01.40109	303.01.30109
2.370/2000	6190	37	303.01.20110	303.01.10110	303.01.00110	303.01.40110	303.01.30110
2.420/2000	7020	45	303.01.20111	303.01.10111	303.01.00111	303.01.40111	303.01.30111
2.450/2000	7420	45	303.01.20112	303.01.10112	303.01.00112	303.01.40112	303.01.30112
2.600/2000	9540	55	303.01.20113	303.01.10113	303.01.00113	303.01.40113	303.01.30113
2.750/2000	12480	75	303.01.20114	303.01.10114	303.01.00114	303.01.40114	303.01.30114

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

Medical Compressed Air System - MEDIAR® Série 2
EN ISO 7396-1
380V / 60Hz, 10 Bar
DUPLEX

Model	System capacity (l/min)	Electric motor power(kw)	MEDIAR				
			10 BAR Outlet				
			380V 60Hz				
			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>			
2.15/500	233	2,2	303.01.20700	303.01.10700	303.01.00700	303.01.40700	303.01.30700
2.20/500	360	3	303.01.20701	303.01.10701	303.01.00701	303.01.40701	303.01.30701
2.30/500	530	4	303.01.20702	303.01.10702	303.01.00702	303.01.40702	303.01.30702
2.40/500	680	5,5	303.01.20703	303.01.10703	303.01.00703	303.01.40703	303.01.30703
2.60/500	1060	7,5	303.01.20704	303.01.10704	303.01.00704	303.01.40704	303.01.30704
2.100/800	1602	11	303.01.20705	303.01.10705	303.01.00705	303.01.40705	303.01.30705
2.130/1000	2260	15	303.01.20706	303.01.10706	303.01.00706	303.01.40706	303.01.30706
2.170/1500	2740	18,5	303.01.20707	303.01.10707	303.01.00707	303.01.40707	303.01.30707
2.200/2000	3210	22	303.01.20708	303.01.10708	303.01.00708	303.01.40708	303.01.30708
2.300/2000	5028	30	303.01.20709	303.01.10709	303.01.00709	303.01.40709	303.01.30709
2.370/2000	6190	37	303.01.20710	303.01.10710	303.01.00710	303.01.40710	303.01.30710
2.420/2000	7020	45	303.01.20711	303.01.10711	303.01.00711	303.01.40711	303.01.30711
2.450/2000	7420	45	303.01.20712	303.01.10712	303.01.00712	303.01.40712	303.01.30712
2.600/2000	9540	55	303.01.20713	303.01.10713	303.01.00713	303.01.40713	303.01.30713
2.750/2000	12480	75	303.01.20714	303.01.10714	303.01.00714	303.01.40714	303.01.30714

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