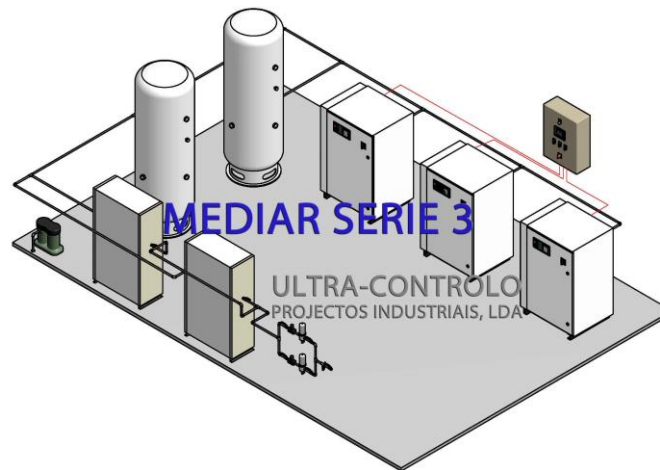


Medical Compressed Air System - MEDIAR® Série 3
EN ISO 7396-1
208V - 440V / 50Hz – 60Hz , 13 Bar
TRIPLEX
SPECIFICATIONS

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 1100 kPa (11 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 two compressors compressors. Each compressor will be capable of supplying 100% of the specified volumetric flow.

Typical Triplex 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 1250 kPa gauge (12.5 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
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 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 $0.01 \mu\text{m}$. A high-performance activated charcoal filter for adsorption of oil vapors and odors with a residual oil content of 0.01 mg/m^3 .

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 (CO_2), nitrogen monoxide (NO), nitrogen dioxide (NO_2) and sulphur dioxide (SO_2) below the legally allowed limits.

A hopcalite filter at the outlet of the dryer that converts CO by oxidation into CO_2 and abort's CO_2 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 ($> 1 \mu\text{m}$), the residual oil aerosol is 0.01 mg/m^3 at 21°C . A sub micro filter SMF 0.01 microns to remove particles ($> 0.01 \mu\text{m}$) and oil aerosols and water, residual oil aerosol is 0.01 mg/m^3 at 21°C .

Adsorption dryer with columns* of molecular sieve 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/m^3 at 21°C . A catalyst consisting of a column* transforms the carbon monoxide (CO) to carbon dioxide (CO_2). The ULTRATECH units can also eliminate much of the CO_2 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, hopcalite 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 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 3

- 3 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 / 13bar**

MEDIAR Standard Models	HP	KW	System Flow			
			m3/h	l/m	l/s	scfm
TRIPLEX						
3.50/800D	10	7,5	51	850	14,2	30
3.80/1000D	15	11	79	1320	22	46,6
3.110/1000D	20	15	108	1800	30	63,5
3.140/1000D	25	18,5	140	2340	39	82,6
3.160/1000D	30	22	157	2610	43,5	92,1
3.260/1500D	40	30	263	4380	73	154,5
3.320/1500D	50	37	319	5320	88,7	187,7
3.360/2000D	60	45	368	6130	102,2	216,3
3.500/2000D	74	55	496	8270	137,8	291,8
3.630/3000D	100	75	631	10510	175,2	370,8

Medical Compressed Air System - MEDIAR® Série 3
EN ISO 7396-1
400V / 50Hz, 13 Bar
TRIPLEX

Model	System capacity (l/min)	Electric motor power(kW)	MEDIAR				
			13 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>			
3.50/800D	850	7,5	304.01.20200	304.01.10200	304.01.00200	304.01.40200	304.01.30200
3.80/1000D	1320	11	304.01.20201	304.01.10201	304.01.00201	304.01.40201	304.01.30201
3.110/1000D	1800	15	304.01.20202	304.01.10202	304.01.00202	304.01.40202	304.01.30202
3.140/1000D	2340	18,5	304.01.20203	304.01.10203	304.01.00203	304.01.40203	304.01.30203
3.160/1000D	2610	22	304.01.20204	304.01.10204	304.01.00204	304.01.40204	304.01.30204
3.260/1500D	4380	30	304.01.20205	304.01.10205	304.01.00205	304.01.40205	304.01.30205
3.320/1500D	5320	37	304.01.20206	304.01.10206	304.01.00206	304.01.40206	304.01.30206
3.360/2000D	6130	45	304.01.20207	304.01.10207	304.01.00207	304.01.40207	304.01.30207
3.500/2000D	8270	55	304.01.20208	304.01.10208	304.01.00208	304.01.40208	304.01.30208
3.630/3000D	10510	75	304.01.20209	304.01.10209	304.01.00209	304.01.40209	304.01.30209

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

Medical Compressed Air System - MEDIAR® Série 3
EN ISO 7396-1
380V / 60Hz, 13 Bar
TRIPLEX

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>			
3.50/800D	850	7,5	304.01.20800	304.01.10800	304.01.00800	304.01.40800	304.01.30800
3.80/1000D	1320	11	304.01.20801	304.01.10801	304.01.00801	304.01.40801	304.01.30801
3.110/1000D	1800	15	304.01.20802	304.01.10802	304.01.00802	304.01.40802	304.01.30802
3.140/1000D	2340	18,5	304.01.20803	304.01.10803	304.01.00803	304.01.40803	304.01.30803
3.160/1000D	2610	22	304.01.20804	304.01.10804	304.01.00804	304.01.40804	304.01.30804
3.260/1500D	4380	30	304.01.20805	304.01.10805	304.01.00805	304.01.40805	304.01.30805
3.320/1500D	5320	37	304.01.20806	304.01.10806	304.01.00806	304.01.40806	304.01.30806
3.360/2000D	6130	45	304.01.20807	304.01.10807	304.01.00807	304.01.40807	304.01.30807
3.500/2000D	8270	55	304.01.20808	304.01.10808	304.01.00808	304.01.40808	304.01.30808
3.630/3000D	10510	75	304.01.20809	304.01.10809	304.01.00809	304.01.40809	304.01.30809

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