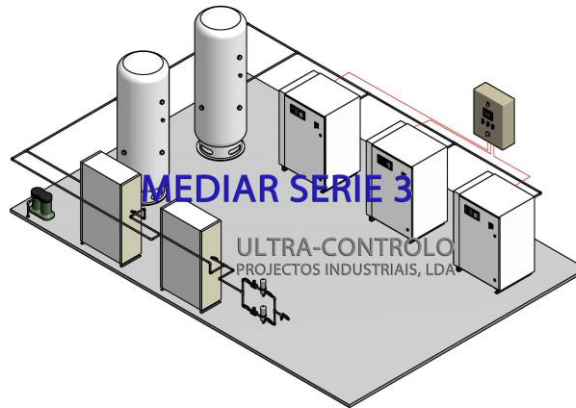


**Medical Compressed Air System - MEDIAR® Série 3**  
**EN ISO 7396-1**  
**208V - 440V / 50Hz – 60Hz , 10 Bar**  
**TRIPLEX**  
**SPECIFICATIONS**

**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 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 two 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 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/m<sup>3</sup> 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/m<sup>3</sup> 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/m<sup>3</sup>

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<sub>2</sub>), nitrogen monoxide (NO), nitrogen dioxide (NO<sub>2</sub>) and sulphure dioxide (SO<sub>2</sub>) below the legally allowed limits

A hopcalite filter at the outlet of the dryer that converts CO by oxidation into CO<sub>2</sub> and abort's CO<sub>2</sub> 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/m<sup>3</sup> 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/m<sup>3</sup> 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/m<sup>3</sup> at 21°C. A catalyst consisting of a column\* transforms the carbon monoxide (CO) to carbon dioxide (CO<sub>2</sub>). The ULTRATECH units can also eliminate much of the CO<sub>2</sub> 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 <sub>2</sub> 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 <sub>2</sub>	500 ppm v/v
SO <sub>2</sub>	1 ppm v/v
NO	2 ppm v/v
NO <sub>2</sub>	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  $\mu$  A high-performance activated charcoal filter for adsorption of oil vapors and odors with a residual oil content of 0.01 mg/m<sup>3</sup>

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<sub>2</sub>), nitrogen monoxide (NO), nitrogen dioxide (NO<sub>2</sub>) and sulphure dioxide (SO<sub>2</sub>) below the legally allowed limits

A hopcalite filter at the outlet of the dryer that converts CO by oxidation into CO<sub>2</sub> and abort's CO<sub>2</sub> 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.

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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/m<sup>3</sup> 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/m<sup>3</sup> 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/m<sup>3</sup> at 21°C. A catalyst consisting of a column\* transforms the carbon monoxide (CO) to carbon dioxide (CO<sub>2</sub>). The ULTRATECH units can also eliminate much of the CO<sub>2</sub> 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 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  $-80^{\circ}\text{C}$  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  $-46^{\circ}\text{C}$  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 / 10bar**

MEDIAR Standard Models	HP	KW	System Flow			
			m3/h	l/m	l/s	scfm
<b>TRIPLEX</b>						
3.15/500D	3	2,2	14	233	3,9	8
3.20/500D	4	3	22	360	6	13
3.30/500D	5,5	4	32	530	8,8	19
3.40/500D	7,5	5,5	41	680	11,3	24
3.60/500D	10	7,5	64	1060	17,7	37
3.100/800D	15	11	96	1602	26,7	57
3.130/1000D	20	15	136	2260	37,7	80
3.170/1500D	25	18,5	164	2740	45,7	97
3.200/2000D	30	22	193	3210	53,5	113
3.300/2000T	40	30	302	5028	83,8	177
3.370/2000T	50	37	371	6190	103,2	218
3.420/2000T	60	45	421	7020	117	248
3.450/2000T	60	45	445	7420	123,7	262
3.600/2000T	74	55	572	9540	159	337
3.750/2000T	100	75	749	12480	208	440



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**Medical Compressed Air System - MEDIAR® Série 3**  
**EN ISO 7396-1**  
**400V / 50Hz, 10 Bar**  
**TRIPLEX**

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>			
3.15/500D	233	2,2	303.01.20200	303.01.10200	303.01.00200	303.01.40200	303.01.30200
3.20/500D	360	3	303.01.20201	303.01.10201	303.01.00201	303.01.40201	303.01.30201
3.30/500D	530	4	303.01.20202	303.01.10202	303.01.00202	303.01.40202	303.01.30202
3.40/500D	680	5,5	303.01.20203	303.01.10203	303.01.00203	303.01.40203	303.01.30203
3.60/500D	1060	7,5	303.01.20204	303.01.10204	303.01.00204	303.01.40204	303.01.30204
3.100/800D	1602	11	303.01.20205	303.01.10205	303.01.00205	303.01.40205	303.01.30205
3.130/1000D	2260	15	303.01.20206	303.01.10206	303.01.00206	303.01.40206	303.01.30206
3.170/1500D	2740	18,5	303.01.20207	303.01.10207	303.01.00207	303.01.40207	303.01.30207
3.200/2000D	3210	22	303.01.20208	303.01.10208	303.01.00208	303.01.40208	303.01.30208
3.300/2000T	5028	30	303.01.20209	303.01.10209	303.01.00209	303.01.40209	303.01.30209
3.370/2000T	6190	37	303.01.20210	303.01.10210	303.01.00210	303.01.40210	303.01.30210
3.420/2000T	7020	45	303.01.20211	303.01.10211	303.01.00211	303.01.40211	303.01.30211
3.450/2000T	7420	45	303.01.20212	303.01.10212	303.01.00212	303.01.40212	303.01.30212
3.600/2000T	9540	55	303.01.20213	303.01.10213	303.01.00213	303.01.40213	303.01.30213
3.750/2000T	12480	75	303.01.20214	303.01.10214	303.01.00214	303.01.40214	303.01.30214

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



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**Medical Compressed Air System - MEDIAR® Série 3**  
**EN ISO 7396-1**  
**380V / 60Hz, 10 Bar**  
**TRIPLEX**

Model	System capacity (l/min)	Electric motor power(kW)	MEDIAR				
			10 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>			
3.15/500D	233	2,2	303.01.20800	303.01.10800	303.01.00800	303.01.40800	303.01.30800
3.20/500D	360	3	303.01.20801	303.01.10801	303.01.00801	303.01.40801	303.01.30801
3.30/500D	530	4	303.01.20802	303.01.10802	303.01.00802	303.01.40802	303.01.30802
3.40/500D	680	5,5	303.01.20803	303.01.10803	303.01.00803	303.01.40803	303.01.30803
3.60/500D	1060	7,5	303.01.20804	303.01.10804	303.01.00804	303.01.40804	303.01.30804
3.100/800D	1602	11	303.01.20805	303.01.10805	303.01.00805	303.01.40805	303.01.30805
3.130/1000D	2260	15	303.01.20806	303.01.10806	303.01.00806	303.01.40806	303.01.30806
3.170/1500D	2740	18,5	303.01.20807	303.01.10807	303.01.00807	303.01.40807	303.01.30807
3.200/2000D	3210	22	303.01.20808	303.01.10808	303.01.00808	303.01.40808	303.01.30808
3.300/2000T	5028	30	303.01.20809	303.01.10809	303.01.00809	303.01.40809	303.01.30809
3.370/2000T	6190	37	303.01.20810	303.01.10810	303.01.00810	303.01.40810	303.01.30810
3.420/2000T	7020	45	303.01.20811	303.01.10811	303.01.00811	303.01.40811	303.01.30811
3.450/2000T	7420	45	303.01.20812	303.01.10812	303.01.00812	303.01.40812	303.01.30812
3.600/2000T	9540	55	303.01.20813	303.01.10813	303.01.00813	303.01.40813	303.01.30813
3.750/2000T	12480	75	303.01.20814	303.01.10814	303.01.00814	303.01.40814	303.01.30814

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