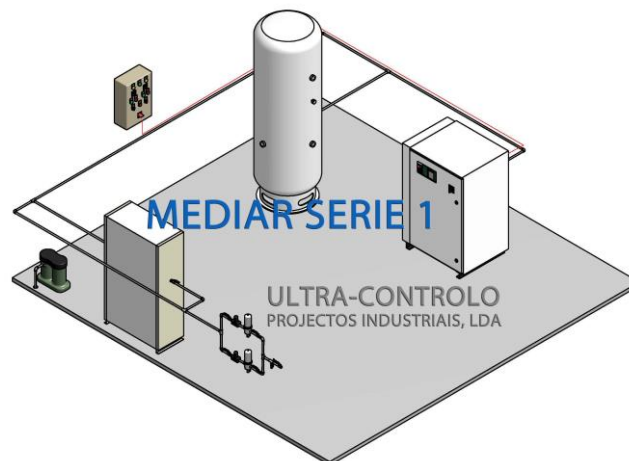


**Medical Compressed Air System - MEDIAR® Série 1**  
**EN ISO 7396-1**  
**208V - 440V / 50Hz – 60Hz , 10 Bar**  
**SIMPLEX**  
**SPECIFICATIONS**

**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 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 950 kPa gauge (9.5 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/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

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 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 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/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 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  $\mu$  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.

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/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 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/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:



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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  $-80^{\circ}\text{C}$  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  $-46^{\circ}\text{C}$  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 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 / 10bar

MEDIAR Standard Models	HP	KW	System Flow			
			m3/h	l/m	l/s	scfm
<b>SIMPLEX</b>						
1.15/500	3	2,2	14	233	3,9	8
1.20/500	4	3	22	360	6	13
1.30/500	6	4	32	530	8,8	19
1.40/500	8	5,5	41	680	11,3	24
1.60/500	10	7,5	64	1060	17,7	37
1.100/800	15	11	96	1602	26,7	57
1.130/1000	20	15	136	2260	37,7	80
1.170/1500	25	18,5	164	2740	45,7	97
1.200/2000	30	22	193	3210	53,5	113
1.300/2000	40	30	302	5028	83,8	177
1.370/2000	50	37	371	6190	103,2	218
1.420/2000	60	45	421	7020	117	248
1.450/2000	60	45	445	7420	123,7	262
1.600/2000	74	55	572	9540	159	337
1.750/2000	100	75	749	12480	208	440

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

Model	System capacity (l/min)	Electric motor power (kW)	MEDIAR				
			10 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>			
1.15/500	233	2,2	303.01.20000	303.01.10000	303.01.00000	303.01.30000	303.01.40000
1.20/500	360	3	303.01.20001	303.01.10001	303.01.00001	303.01.30001	303.01.40001
1.30/500	530	4	303.01.20002	303.01.10002	303.01.00002	303.01.30002	303.01.40002
1.40/500	680	5,5	303.01.20003	303.01.10003	303.01.00003	303.01.30003	303.01.40003
1.60/500	1060	7,5	303.01.20004	303.01.10004	303.01.00004	303.01.30004	303.01.40004
1.100/800	1602	11	303.01.20005	303.01.10005	303.01.00005	303.01.30005	303.01.40005
1.130/1000	2260	15	303.01.20006	303.01.10006	303.01.00006	303.01.30006	303.01.40006
1.170/1500	2740	18,5	303.01.20007	303.01.10007	303.01.00007	303.01.30007	303.01.40007
1.200/2000	3210	22	303.01.20008	303.01.10008	303.01.00008	303.01.30008	303.01.40008
1.300/2000	5028	30	303.01.20009	303.01.10009	303.01.00009	303.01.30009	303.01.40009
1.370/2000	6190	37	303.01.20010	303.01.10010	303.01.00010	303.01.30010	303.01.40010
1.420/2000	7020	45	303.01.20011	303.01.10011	303.01.00011	303.01.30011	303.01.40011
1.450/2000	7420	45	303.01.20012	303.01.10012	303.01.00012	303.01.30012	303.01.40012
1.600/2000	9540	55	303.01.20013	303.01.10013	303.01.00013	303.01.30013	303.01.40013
1.750/2000	12480	75	303.01.20014	303.01.10014	303.01.00014	303.01.30014	303.01.40014

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, 10 Bar**  
**SIMPLEX**

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>			
1.15/500	233	2,2	303.01.20600	303.01.10600	303.01.00600	303.01.40600	303.01.30600
1.20/500	360	3	303.01.20601	303.01.10601	303.01.00601	303.01.40601	303.01.30601
1.30/500	530	4	303.01.20602	303.01.10602	303.01.00602	303.01.40602	303.01.30602
1.40/500	680	5,5	303.01.20603	303.01.10603	303.01.00603	303.01.40603	303.01.30603
1.60/500	1060	7,5	303.01.20604	303.01.10604	303.01.00604	303.01.40604	303.01.30604
1.100/800	1602	11	303.01.20605	303.01.10605	303.01.00605	303.01.40605	303.01.30605
1.130/1000	2260	15	303.01.20606	303.01.10606	303.01.00606	303.01.40606	303.01.30606
1.170/1500	2740	18,5	303.01.20607	303.01.10607	303.01.00607	303.01.40607	303.01.30607
1.200/2000	3210	22	303.01.20608	303.01.10608	303.01.00608	303.01.40608	303.01.30608
1.300/2000	5028	30	303.01.20609	303.01.10609	303.01.00609	303.01.40609	303.01.30609
1.370/2000	6190	37	303.01.20610	303.01.10610	303.01.00610	303.01.40610	303.01.30610
1.420/2000	7020	45	303.01.20611	303.01.10611	303.01.00611	303.01.40611	303.01.30611
1.450/2000	7420	45	303.01.20612	303.01.10612	303.01.00612	303.01.40612	303.01.30612
1.600/2000	9540	55	303.01.20613	303.01.10613	303.01.00613	303.01.40613	303.01.30613
1.750/2000	12480	75	303.01.20614	303.01.10614	303.01.00614	303.01.40614	303.01.30614

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