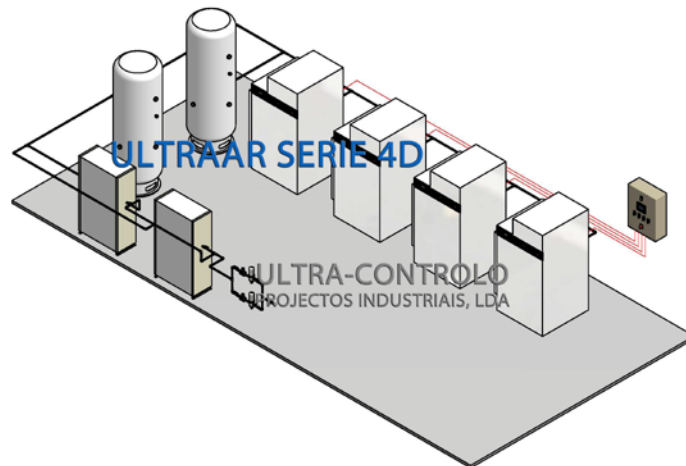


**Medical Air System Totally Oil Free
ULTRAAR®
EN ISO 7396-1 400V 50Hz
QUADRUPLEX
SPECIFICATION**

ULTRAAR® Combined Air

The ULTRAAR® Combined Medical Air System Totally Oil Free 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 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 50% of the specified volumetric flow.

Typical Duplex Layout



Compressors

Compressors shall be oilless double stage piston compressors suitable for both continuous and frequent start/stop operation at a nominal outlet pressure of 1000 kPa gauge (10 bar).

Compressors shall be supplied with a block and fin style aftercooler with a dedicated quiet running fan to maximize cooling and efficiency. A pre-filter of 5 microns shall be integrated in the inlet port of the compressor, capable to carry the dust before entering into the compressor. Compressor shall have an air suction connection enable to collect fresh air from outside of compressor room. No idle running is acceptable in order to save energy. High efficiency motors rated TEFC, IP55 class F electric shall be used and incorporate maintenance-free greased for life bearings. Each piston 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.

Dryer/Filter/Regulator System

The duplexed filter and dryer module shall incorporate high efficiency water separators, oil filters, 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°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.

System Specifications

MEDIAR Model	HP	KW	System Flow				Tank Size L
			m3/h	l/m	l/s	scfm	
4.24/800D	5,5	4,0	48	800	13,3	28,2	800
4.48/1000D	10	7,5	96	1600	26,6	56,4	1000
4.50/1000D	15	11	100	1667	27,8	58,8	1000
4.70/1500D	15	11	128	2134	35,6	75,2	1500
4.80/1500D	20	15	80	2667	44,4	94,0	1500
4.100/2000D	25	18,5	200	3334	55,6	117,6	2000
4.130/2000D	30	22	260	4334	72,2	152,8	2000
4.160/2000D	40	30	320	5334	88,8	188,0	2000

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