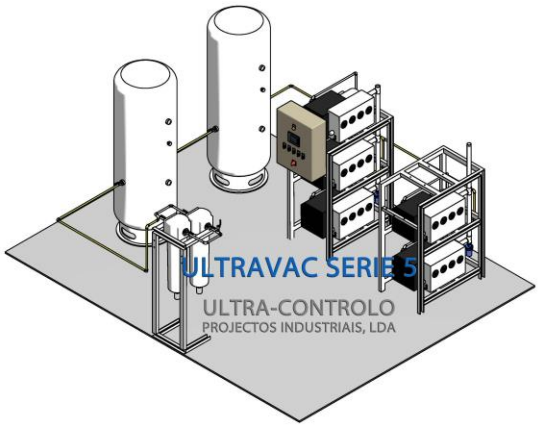
ULTRA CONTROLO INTERNATIONAL, LDA

Medical Vacuum System - ULTRAVAC® series 5
EN ISO 7396-1:2007
208V - 480V / 50Hz – 60Hz
PENTAPLEX

TECHNICAL SPECIFICATION

ULTRAVAC®

The ULTRAVAC® Medical Vacuum System shall conform to EN ISO 7396-1, and Technical Requirements shall conform to ACSS 03/2006. The Medical Vacuum System shall ensure the minimum pipeline vacuum level of 450mmHg is maintained at the plant service connection point at the rated volumetric 'free air' flow rate with one pump in standby. The bacteria filtration system shall be 'duplexed' such that each filter can be isolated for replacement of the filter cartridge. The vacuum flow rate should be assured by 3 pumps capable to guarantee 100% of the calculated to the installation, leaving 2 other pumps in standby.



Vacuum Pumps

Vacuum pumps shall be air-cooled, oil lubricated rotary vane type suitable for both continuous and frequent start/stop operation at nominal inlet vacuum levels of between 578mmHg and 728mmHg (between -0,77 and -0,97bar). Solid aluminum rotor blades shall be fitted to minimize the need for maintenance and shall be supplied with a 5-year or 30.000 hours of continuous service warranty. Rotor shall be driven by directly coupled TEFV electric motor with pin and bush couplings. Electric engines should meet the standard EN 60034-30 and be classified as IE2 or CT45. There are available versions with single-phase motor (between 208V and 255V) and three-phase motor (between 208V and 480V). Pump inlet shall include a wire mesh filter and integral non-return valve to prevent oil suck back and pressure increases in the vacuum system. An integral gas ballast valve shall be fitted to filter atmospheric air, preventing oil emulsification and ensuring a high water vapor tolerance.
The vacuum pump shall have oil separators cartridges mounted outside of the oil separator housing for easy replacement. The oil separator system shall have three separation stage filtration to ensure a virtually oil-free exhaust. The pump shall be fitted with anti-vibration pads between the pump foot and mounting frame. It is intended to ensure that the pumps have no oil leaks or who may have grinded threads, preventing their Stop with consequent breakdown of system redundancy and increased costs for repairs. Each pump should come equipped with respective check valve and isolating valve. The suction capacity and the curve of flow / pressure characteristics must follow the PNEUROP's standards and the effective pump flow calculated at normal operating temperature.

Bacteria Filters

The duplexed bacteria filter system shall incorporate high efficiency filter element. A differential vacuum indicator shall be installed across the filter to indicate blockage. Additional pressure sensors shall be

available to be installed at the inlet and outlet of the filter to measure the pressure drop across the filters. Each filter shall be designed and sized to carry the full plant design flow capacity with a pressure drop not exceeding 30mbar (24mmHg). Bacteria Filter elements shall have penetration levels not exceeding 0.005% when tested by the sodium flame method in accordance with BS 3928:1969 and utilizing particles in the 0.02 to 2 micron size range. Drain flask shall be connected to the filter. Drain flask shall be manufactured from transparent Pyrex®. The drain flask shall be suitable for sterilization and be connected via a manual isolating valve.

Control System

The control system shall be able to work as stand alone unit or through central control system. In case a central control system it shall provide an intelligent human machine interface incorporating on board flash memory and real-time clock for recording operational parameters in the in built event log. The central control system shall operate at low voltage and include BMS connection for common fault. Visualization of plant inputs, outputs and status through a web browser, using a simple Ethernet connection shall be available. The central control unit shall incorporate a user friendly 5.7" high-definition color display with clear pictograms and touch screen communication and light indicators, providing easy access to system operational information.
Cascading of vacuum pumps shall be achieved by measuring the vacuum level at the plant inlet with a pressure transducer. A mechanical back-up facility shall ensure continued operation in the event of a control system malfunction. The control system shall normally employ automatic rotation of the lead pump to maximize pump life and ensure even wear. The control system shall be able to record at least one year of all events occurred in the system and transfer the data to a computer. The system shall be able to anticipate maintenance information providing alerts to the technical staff.

Optional Control Equipment

An advanced monitoring system through ModBus or ProfiBus communication shall be available to give immediate access to valuable information such as system status, trends, historical data and system performance. Data collected from all pumps shall be made available in real-time visualization pages and shall be accessed through the hospital's LAN, such that total data security is assured.
The QuVAC monitoring system shall also include :

- Logging and trending for an accurate performance status of your system.
- Remote access via Ethernet
- Desktop event notification to avoid constant status checking.
- E-mail and SMS event notification for additional convenience.

Vacuum Receiver(s)

Vacuum receiver(s) shall be supplied with relevant test certificates and have a total volume of at least 100% of the plant output in 1 minute in terms of free air aspired at normal working pressure. Pyrex® is a registered trademark of Corning Glass.
The receivers should preferably be hot dip galvanized, with primary treatment and finish in epoxy painting. The system should possess additional connections available and free for connecting emergency groups.

Condensate Collector

The medical vacuum plant shall be equipped with one or more condensate collectors and shall have a transparent flask for easy inspection and service.

CE Marking

The standard range of Ultra Controlo Medical Vacuum plant systems are 'CE' marked under the Medical Devices Directive 93/42/EEC with approval from notified body no. 0120 (SGS-UKAS). Under this directive, the specified products are classified as Class IIb Medical Devices.

Basic composition of ULTRAVAC®, series 5:

5 Vacuum pump rotary vane oil lubricated
2 Vacuum tank
2 Bacterial filters with shutoff valves

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1 Electrical Control panel. Optional: with digital control system QuVAC
1 Cup condensation drain

Medical Vacuum System - ULTRAVAC®
EN ISO 7396-1
200V - 480V / 50Hz
PENTAPLEX

ULTRAVAC						
400V 50Hz						
Model	**System capacity**			**Electric power** (per unit)		**Article Number**
	l/m	**l/s**	**scfm**	**Kw**	**hP**	
5.10/200	500	8,3333	17,6	0,4	0,5	300.01.00400
5.15/200	750	12,5	26,5	0,6	0,75	300.01.00401
5.15/300	750	12,5	26,5	0,6	0,75	300.01.00402
5.20/300	1000	16,667	35,3	0,8	1	300.01.00403
5.25/500	1250	20,833	44,1	0,8	1	300.01.00404
5.50/500	2500	41,667	88,2	1,3	1,75	300.01.00405
5.75/500	3500	58,333	123	1,9	2,5	300.01.00406
5.100/800D	5500	91,667	194	2,2	3	300.01.00407
5.100/1000	5500	91,667	194	2,2	3	300.01.00408
5.150/800D	7500	125	265	3	4	300.01.00409
5.150/1000	7500	125	265	3	4	300.01.00410
5.200/800D	10000	166,67	353	4	5,5	300.01.00411
5.200/1000D	10000	166,67	353	4	5,5	300.01.00412
5.200/1500	10000	166,67	353	4	5,5	300.01.00413
5.300/1000D	15000	250	529	5,5	7,5	300.01.00414
5.300/2000	15000	250	529	5,5	7,5	300.01.00415
5.400/1500D	20000	333,33	706	9	12	300.01.00416
5.400/1000T	20000	333,33	706	9	12	300.01.00417
5.500/2000D	27500	458,33	970	11	15	300.01.00418
5.700/2000T	35000	583,33	1235	15	20	300.01.00419
5.900/2000T	41500	691,67	1464	19	25	300.01.00420
5.1100/2000Q	55000	916,67	1940	30	40	300.01.00421
5.1300/2000P	64000	1066,7	2258	30	40	300.01.00422

D- with 2 tanks T- with 3 tanks Q– with 4 tanks P- with 5 tanks
To single-phase engine versions the tension range is between 208V – 255V, to 50Hz

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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.

Medical Vacuum System - ULTRAVAC®
EN ISO 7396-1
200V - 480V 60Hz
PENTAPLEX

ULTRAVAC						
380V 60Hz						
Model	**System capacity**			**Electric power** (per unit)		**Article Number**
	l/m	**l/s**	**scfm**	**Kw**	**hP**	
5.10/200	600	10	21,2	0,4	0,8	300.01.01000
5.15/200	900	15	31,8	0,7	1	300.01.01001
5.15/300	900	15	31,8	0,7	1	300.01.01002
5.20/300	1200	20	42,3	0,9	1	300.01.01003
5.25/500	1310	21,833	46,2	0,9	1	300.01.01004
5.50/500	3000	50	106	1,5	2	300.01.01005
5.75/500	4200	70	148	2,2	3	300.01.01006
5.100/800D	6000	100	212	2,6	4	300.01.01007
5.100/1000	6000	100	212	2,6	4	300.01.01008
5.150/800D	9000	150	318	3,6	5	300.01.01009
5.150/1000	9000	150	318	3,6	5	300.01.01010
5.200/800D	12000	200	423	5,5	7,5	300.01.01011
5.200/1000D	12000	200	423	5,5	7,5	300.01.01012
5.200/1500	12000	200	423	5,5	7,5	300.01.01013
5.300/1000D	18000	300	635	7,5	10	300.01.01014
5.300/2000	18000	300	635	7,5	10	300.01.01015
5.400/1500D	24000	400	847	11	15	300.01.01016
5.400/1000T	24000	400	847	11	15	300.01.01017
5.500/2000D	33000	550	1164	13	18	300.01.01018
5.700/2000T	42000	700	1482	18	25	300.01.01019
5.900/2000T	49750	829,17	1755	22	30	300.01.01020
5.1100/2000Q	66000	1100	2328	36	50	300.01.01021
5.1300/2000P	76750	1279,2	2708	36	50	300.01.01022

D- with 2 tanks T- with 3 tanks Q– with 4 tanks P- with 5 tanks
To single-phase engine versions the tension range is between 208V – 255V, to 60Hz