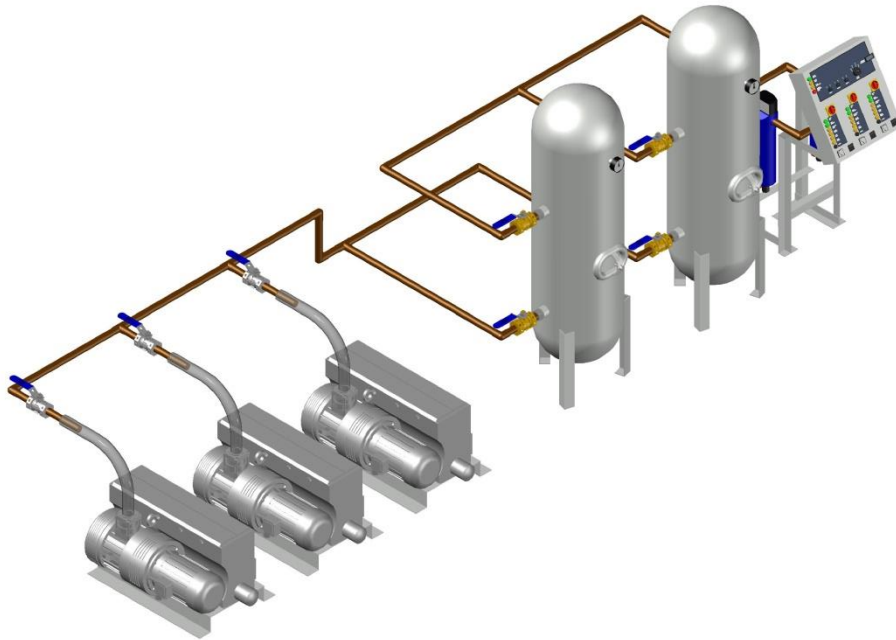
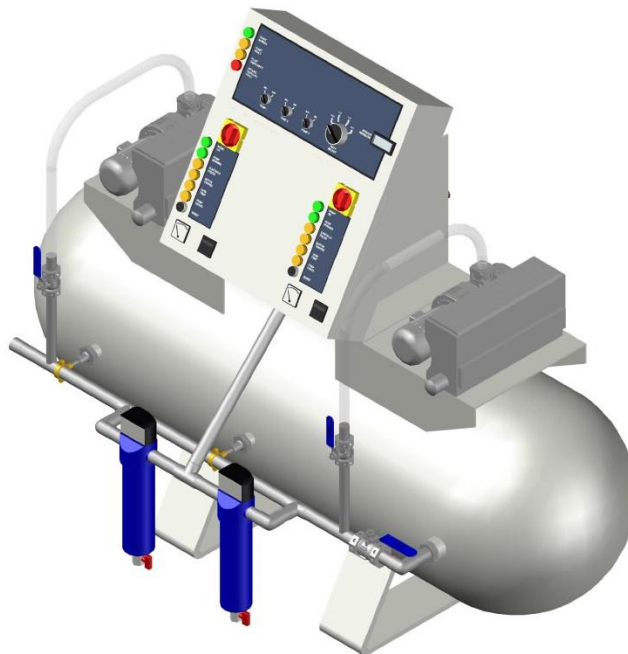


Technical Specification

Modular Medical Vacuum Plant



Packaged Medical Vacuum Plant



Product Description

The CPX medical vacuum plant shall conform to United Kingdom Department of Health (DoH) HTM 02-01 and NHS Model Engineering C11. The medical vacuum plant is manufactured in the UK under ISO13485:2003 quality management system. The entire system shall be duplexed such that any single functional component failure will not affect the integrity of the medical vacuum system. The plant consists of a vertical receiver(s), vacuum pump modules, duplex bacteria filter modules and a plant control system. The CPX medical vacuum plant shall ensure the minimum pipeline vacuum level of 450mmHg is maintained at the plant service connection.

Vacuum Pump Module

The vacuum pump shall be oil lubricated, rotary sliding vane and air cooled, suitable for both continuous and frequent start/stop operation. The vacuum pump shall be directly driven by a 360 - 450V, 3 phase, 50Hz (60Hz available on request) TEFC electric motor. The vacuum pump module comprises of a specified number of these pumps and associated control panels. Options include alternative plant formats designed to suit customer requirements. Acoustic canopies are available to further reduce noise emissions.

Duplex Bacteria Filter Module

The duplex filter system shall incorporate a high efficiency filter element. The filter elements shall not have penetration levels not exceeding 0.005% when tested by sodium flame method in accordance with BS 3928:1969

The duplex bacteria filter shall incorporate a replaceable filter element, a differential pressure gauge and drain tap, as well as manual valves to isolate the filter during maintenance without losing supply. The duplex bacteria filters shall be housed upon the horizontal vessel for package format vacuum plant and or as a separate sub assembly for module format vacuum plant.

Control system

Vacuum pump starter panels incorporate digital display of outlet vacuum pressure, contactors, overloads, ammeter and digital hour meter. The unit also indicates via LED's mains power on, control circuit failed(plant Fault), Overload tripped (Plant Fault) Failure to respond (plant fault) the panel also provides BMS volt free contacts for as compressor running signal.

Each pump motor has a manual motor breaker and contactor, they operate when the motor connected draws excessive current or if a phase is lost.



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Plant control panel control the operation of the whole system and ensures it matches demand. The panel incorporates a central control, which can operate up to four pumps, a pressure transducer controls the cut in and cut out of the compressors.

The unit also displays mains supply on, pump called for, pump operating, pressure (digital display) and plant services.

The panel incorporates the plant alarm interface which provides volt free contacts to a centralised alarm system as well as BMS contacts for the following:- Plant Fault, Plant Emergency, Reserve Cylinder Low and Pressure Fault.

Installation

Medical vacuum plant shall be floor mounted in adequately ventilated area at least 250mm away from any wall to ease any further maintenance. Avoid obstructing the flow of cooling air to the fan end of the motor. The equipment should not be operated in ambient temperatures exceeding 40°C.

Each medical vacuum pump requires a separate 3 phase supply. This should be supplied via a local distribution board and be suitable for the rating of the pump.

Mechanical

Secure the base plate to the floor using suitable fixings. The mounting plate holes provided in the base are Ø12mm. Where possible mount the medical vacuum plant on a plinth.

Connect the inlet pipework and exhaust pipework to the connections provided.

Exhausts should be run as directly as possible to atmosphere and terminate in an elbow pointing downwards to protect against the ingress of water. Avoid air intakes for air conditioning, ventilation systems and windows.

Check the condensate drain flasks are fitted.

Electrical

360-450V three phase supply should be provided to each pump starter panel, connect the electrical power supply from the wall mounted isolator to the terminal blocks provided on the pump starter panel.

Connect multicores to BMS or central area alarms if required.

Pipeline Jointing

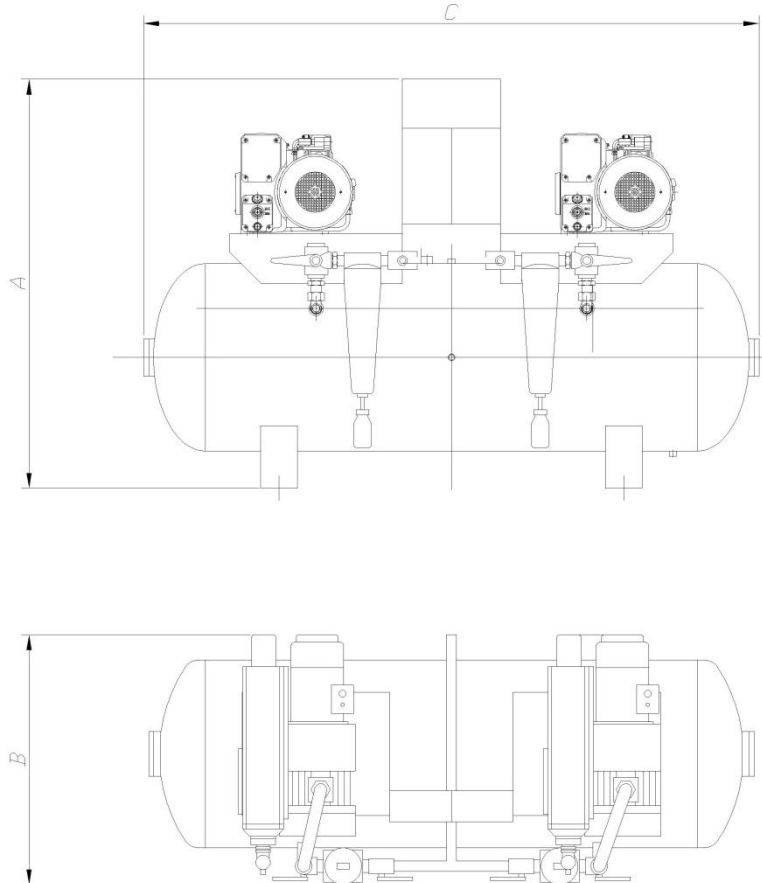
The medical vacuum plant copper stub pipe is manufactured to BS13348 for connection to the pipeline system and joints shall be made on site using copper, phosphorus and silver brazing alloy CuP282 to BS EN 17672:2010. Brazing should be carried out using oxygen free nitrogen as an inert gas shield to prevent the formation of oxides on the inside of the pipe. Copper pipes shall be cut square with the pipe axis using a sharp wheel cutter wherever possible, and be cleaned to get rid of any cuttings or burrs.



Quality

Medical vacuum plant is manufactured in the UK under BS EN 13485 Medical Devices: Quality Management Systems. All tube is manufactured under strict quality control procedures to ISO 9001:2008.

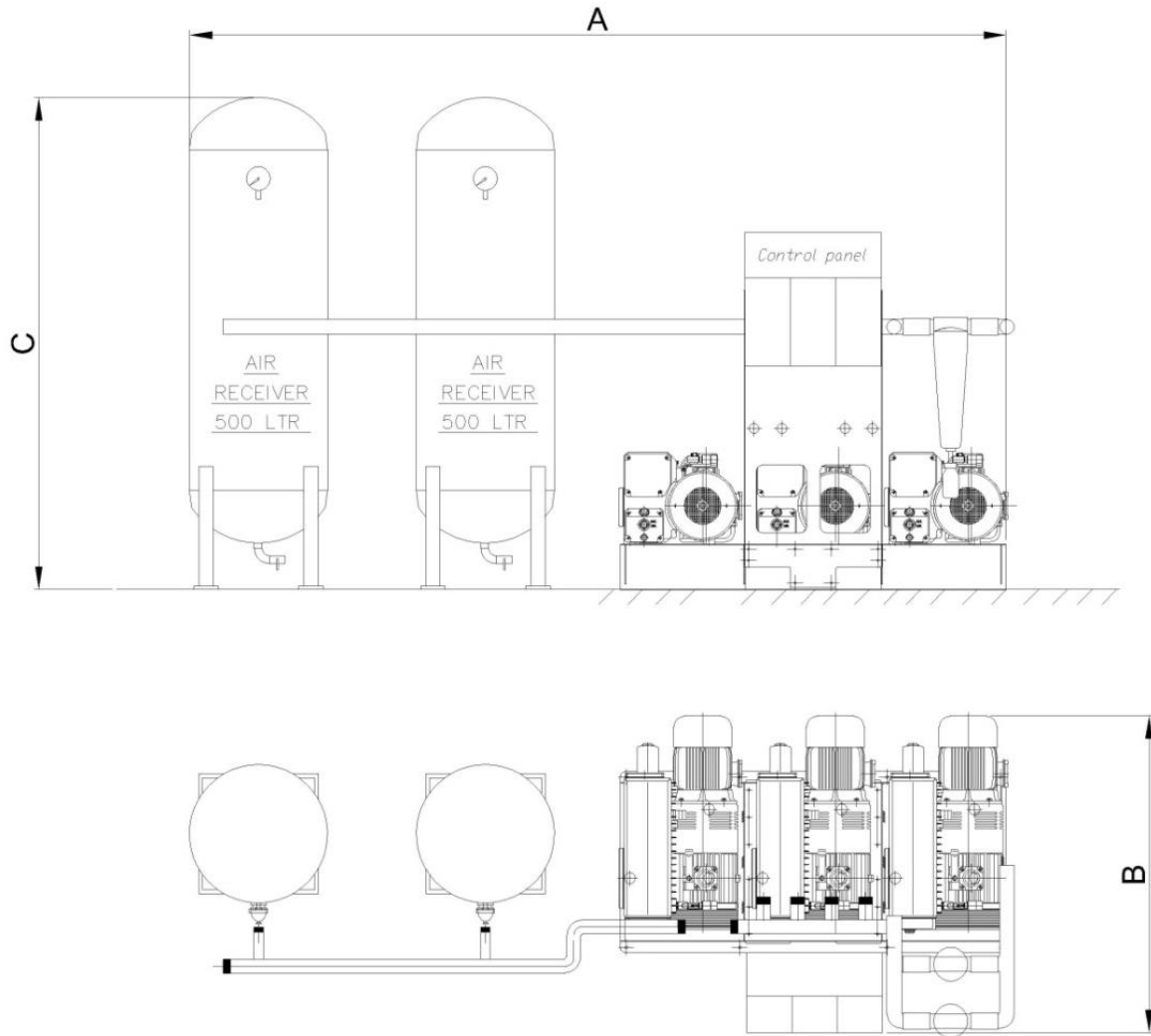
Packaged Duplex Medical Vacuum Plant



Packaged Duplex Medical Vacuum Plant												
Product code	Plant Size	Dim A	Dim B	Dim C	Vessels	kW	Start Type	Start (A)	Run (A)	Fuse (A)	Noise	Weight
MV-110-D	110 l/min	1250mm	700mm	1500mm	1 x 110 l	2 x 0.37	D.O.L.	8.4	1.4	4	60 dB(A)	160 kg
MV-180-D	180 l/min	1250mm	750mm	1900mm	1 x 180 l	2 x 0.75	D.O.L.	11.16	1.86	6	62 dB(A)	225 kg
MV-240-D	240 l/min	1425mm	850mm	1800mm	1 x 240 l	2 X 1.1	D.O.L.	13.2	2.2	6	64 dB(A)	260 kg
MV-425-D	425 l/min	1600mm	950mm	1725mm	1 x 425 l	2 x 1.5	D.O.L.	20.4	3.4	6	65 dB(A)	390 kg
MV-675-D	675 l/min	1700mm	1050mm	1650mm	1 x 675 l	2 x 2.2	D.O.L.	33	5.5	10	67 bB(A)	475 kg
MV-1050-D	1050 l/min	1725mm	1150mm	2500mm	1 x 1050 l	2 x 4.0	D.O.L.	57.6	9.6	20	70 dB(A)	720 kg
MV-1350-D	1350 l/min	1800mm	1250mm	2350mm	1 x 1350 l	2 x 4.0	D.O.L.	57.6	9.6	20	72 dB(A)	820 kg



Packaged Duplex Medical Vacuum Plant



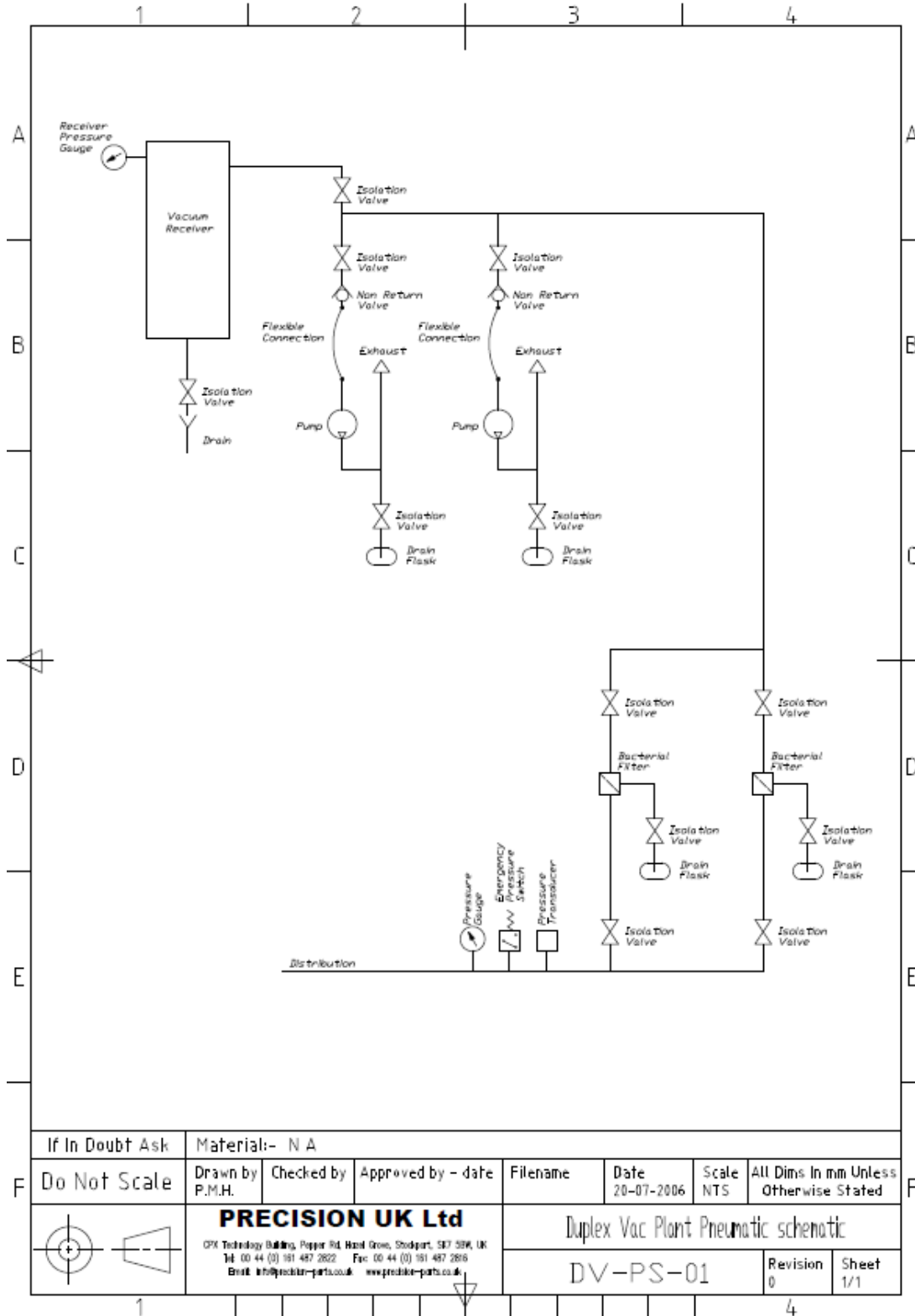
Typical example of Modular Plant Format

Modular Triplex Vacuum Plant												
Product Code	Plant size	Dim A	Dim B	Dim C	Vessels	kW	Start type	Start (A)	Run (A)	Fuse (A)	Noise	Weight
MV-850-T	850 l/min	2350 mm	950 mm	2750 mm	1 x 850 l	3 x 1.5	D.O.L.	23.8	3.4	6	65 dB(A)	570 kg
MV-1350-T	1350 l/min	2550 mm	950 mm	2750 m	1 x 1350 l	3 x 2.2	D.O.L.	38.5	5.5	10	67 dB(A)	760 kg
MV-2000-T	2000 l/min	2750 mm	1250 mm	5200 mm	2 x 1000 l	3 x 4.0	D.O.L.	67.2	9.6	20	72 dB(A)	1450 kg
MV-2700-T	2700 l/min	2550 mm	1250 mm	5500 mm	2 x 1350 l	3 x 4.0	D.O.L.	67.2	9.6	20	72 dB(A)	1600 kg
MV-3400-T	3400 l/min	3050 mm	1250 mm	5500 mm	2 x 1700 l	3 x 5.5	D.O.L.	91	13	25	75 dB(A)	2000 kg
MV-4000-T	4000 l/min	2550 mm	1250 mm	6700 mm	3 x 1350 l	3 x 5.5	D.O.L.	91	13	25	75 dB(A)	2300 kg
MV-5400-T	5400 l/min	3150 mm	1400 mm	7800 mm	3 x 1800 l	3 x 11	S.D.	84	24	25	77 dB(A)	3500 kg



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Duplex Medical Vacuum Plant Schematic diagram



Triplex Medical Vacuum Plant Schematic diagram

