

**Anaesthetic Gas Scavenging System  
ULTRASEG® DUPLEX  
EUROPEAN STANDARD EN ISO 7396-2  
TECHNICAL SPECIFICATION**

**ULTRASEG® DUPLEX SERIES**

**With electric control box STANDARD**

The Anaesthetic Gas Scavenging (AGS) System comply with EN ISO 7396-2. The AGS system shall be a dedicated, specifically designed active extraction and disposal system for waste anaesthetic gas. It shall provide a maximum flow rate of 80 l/min (EN ISO 7396-2) or 130 l/min (BS 6834) with a 1 kPa resistance to flow, and a minimum of 50 l/min (EN ISO 7396-2) or 80 l/min (BS 6834) with a 2 kPa (EN ISO 7396-2) or 4 kPa (BS 6834) resistance to flow at each terminal unit, irrespective of the number of terminal units in use.

The AGS system shall use dedicated side channel vacuum blowers in a simplex or duplex configuration. The AGS pump assemblies shall be skid mounted and included on the skid shall be the simplex or duplex pump(s), motor control unit(s) with starter/isolator, moisture drain flask and flexible connector(s) to connect the plant to the pipeline. Each pump shall include an electric motor (in the case of BS standards) or one electric motor (in case of EN ISO 7396-2) and directly coupled impeller assembly. Impeller bearings in the pump(s) shall not require lubrication. The pump(s) shall be air cooled and rated for continuous operation.



**Vacuum/Flow Regulating Valve**

A vacuum/flow regulating valve shall be provided and positioned at the pump, comprised of a spring-loaded plate valve and inlet silencer. The valve should be changeable with the pipeline inlet in order to provide flexibility on site. The plate shall control air ingress into the pipeline system, thereby controlling the vacuum level within. An air inlet filter shall be available should the air quality be dusty offering further



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protection against dirt ingress into the pump. Additional in line vacuum regulating valve may be installed if required and shall be determined by the pipeline designer. The vacuum regulating valve shall ensure a maximum vacuum of 200mb below atmospheric pressure is not exceeded and shall be factory pre-set at 150mb.

## Control System

The control panel shall incorporate an emergency panel isolation switch facility, which controls all electrical power to the exhauster unit, remote start switch panels and system indication lights. All control and status indication circuitry shall be limited to 24V a.c. A green 'POWER ON' indicator shall be fitted to the starter/ isolator panel, and shall illuminate whenever power is available to the 24V control and indication circuit. A 'HAND/OFF/AUTO' switch shall be provided to control operation of the pump, running the pump continuously when selected to 'HAND'. When selected to 'AUTO', control of the pump shall be passed to the remote start switch panels. Operation of any of the remote start switches shall activate the pump. The pump shall continue to run until all remote switches are selected 'OFF'.

The starter/isolator panel shall incorporate a thermal protection overload device. The thermal protection overload device shall also monitor the electrical power supply and phase input.

In the event of a fault, the overload device shall break the circuit to the pump, preventing operation until the system is manually re-set. Operation of the overload device shall also break the circuit to the remote start switch panels, extinguishing the green running indicator.

Simplex starter/isolator panels c/w alarm pressure switch and duplex units incorporate line pressure switch. This line pressure switch monitors vacuum levels and provides an additional control of the remote start switch and starter/isolator panel green 'RUNNING' indicators. The pressure switch shall also include a digital display providing an accurate readout of the vacuum level in the pipeline in order to assist with installation/commissioning and annual re-commissioning.

Simplex installations shall use remote start switches that include a red 'PLANT EMERGENCY' indicator. This indicator shall illuminate on all remote start switch panels if the vacuum level falls below the pressure switch set point level when the pump has been called, or if the overload trips. The on/off rocker switch shall include a green illuminated surround to indicate 'mains on'.

Duplex installations shall use remote start switches that include an amber 'PLANT FAULT' indicator. This shall illuminate, if either pump is set to 'HAND', or if one of the overloads trip. A red 'PLANT EMERGENCY' indicator shall also be provided and shall illuminate on all remote start switch panels if the vacuum level falls below the pressure switch set point level when the pump has been called. The on/off rocker switch shall include a green illuminated surround to indicate 'mains on'. Where a duplex system is installed the pumps shall be controlled by a separate motor control selector to enable servicing of either pump or control gear whilst maintaining system operation.

Volt free relay kits for replicating alarm conditions to BMS shall be available as an optional extra. To be either installed either at factory or as a retro-fit kit for onsite installation.

## Terminal Units

Terminal unit shall be provided with an adjustable orifice to allow balancing of the terminal unit flows during commissioning. Venturi style terminal units are not acceptable. Terminal units shall not be connected to the medical vacuum system.

## CE Marking

The standard range of ULTRASEG AGS 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.



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**Anaesthetic Gas Scavenging System  
ULTRASEG®  
EUROPEAN STANDARD EN ISO 7396-2  
400V 50Hz  
DUPLEX**

<b>ULTRASEG</b>						
400V 50Hz						
<b>Model</b>	<b>Motor power</b>	<b>System flow</b>	<b>Vacuum Connections</b>		<b>Weight</b>	<b>Article Number</b>
	<b>Kw</b>	<b>m3/h</b>	<b>dP(kPa)</b>	<b>IN/OUT</b>	<b>Kg</b>	
H 50D	0,55	50	23 / 27	1 1/4"	112	306.01.00100
H 65D	0,55	65	28 / 34	1 1/4"	114	306.01.00101
H 90D	1,1	90	30 / 38	1 1/4"	124	306.01.00102
H 120D	1,5	120	31 / 34	1 1/4"	138	306.01.00103
H 170D	2,2	170	30 / 32	1 1/4"	148	306.01.00104
E 50D	0,2	50	9/12	1 1/4"	98	306.01.00105
E 80D	0,4	79	12/15	1 1/4"	100	306.01.00106
E 100D	0,4	103	12/15	1 1/4"	102	306.01.00107
E 140D	0,85	143	16 / 16	1 1/2"	106	306.01.00108
E 180D	1,3	180	18 / 18	1 1/2"	116	306.01.00109
E 200D	1,6	210	20 / 22	2"	126	306.01.00110
E 300D	2,2	315	19 / 19	2"	134	306.01.00111

Dimensions (L x W x H) Simplex: 800x1100x650 mm

Motor voltage (V) at 50 Hz: 200 - 240 Δ / 345 - 415 Y



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**Anaesthetic Gas Scavenging System  
ULTRASEG®  
EUROPEAN STANDARD EN ISO 7396-2  
380V 60Hz  
DUPLEX**

<b>ULTRASEG</b>						
380V 60Hz						
Model	Motor power	System flow	Vacuum Connections		Weight	Article Number
	Kw	m3/h	dP(kPa)	IN/OUT	Kg	
H 50D	0,63	58	23 / 27	1 1/4"	112	306.01.00500
H 65D	0,63	80	28 / 34	1 1/4"	114	306.01.00501
H 90D	1,3	105	30 / 38	1 1/4"	124	306.01.00502
H 120D	1,75	145	31 / 34	1 1/4"	138	306.01.00503
H 170D	2,55	195	30 / 32	1 1/4"	148	306.01.00504
E 50D	0,23	60	9/12	1 1/4"	98	306.01.00505
E 80D	0,5	98	12/15	1 1/4"	100	306.01.00506
E 100D	0,5	120	12/15	1 1/4"	102	306.01.00507
E 140D	0,95	174	16 / 16	1 1/2"	106	306.01.00508
E 180D	1,5	220	18 / 18	1 1/2"	116	306.01.00509
E 200D	2,05	251	20 / 22	2"	126	306.01.00510
E 300D	2,55	376	19 / 19	2"	134	306.01.00511

Dimensions (L x W x H) Simplex: 800x1100x650 mm

Motor voltage (V) at 60 Hz: 220 - 275 Δ / 380 - 480 Y