

9. Technical Specification

Pump Specification

PUMP							
Model	<i>Flowtron ACS900</i>						
Part Numbers	Part Number	Configuration ^(a)	Country	Supply Voltage (V)	Supply Frequency (Hz)		
	526000-01	STD	Americas	100 - 230	50 - 60		
	526000-02	OR					
	526000-03	STD	United Kingdom				
	526000-04	OR					
	526000-05	STD	Australia				
	526000-06	OR					
	526000-07	STD	Europe				
	526000-08	OR					
	526000-09	STD	Switzerland				
	526000-10	OR					
	526000-11	STD	Japan				
	526000-12	OR					
	526000-13	STD	China				
	526000-14	OR					
	526000-15	STD	South Africa/ India				
	526000-16	OR					
	526000-17	STD	Kingdom of Saudi Arabia	230	60		
	526000-18	OR					
	526000-19	STD	Brazil	100 - 230	50 - 60		
	526000-20	OR					
	526000-21	STD	International				
	526000-22	OR					
	526000-23	STD	Middle East				
	526000-24	OR					
	526000-25	STD	Asia				
526000-26	OR						
Power Input	10 - 40 VA						
Size	230 x 228 x 190 mm (9.1 x 9.0 x 7.5 in.)						
Weight	4.1 kg (9.0 lb)						

a. Configuration:

STD is the Standard pump which has a standard length tubeset (2.1 m / 7 ft).

OR is the Operating Room pump which has a longer tubeset (4 m / 13 ft long).

PUMP (continued)	
Case Material	Flame Retardant ABS Plastic
Mains Power Plug Fuse Rating	5A to BS1362 (UK ONLY)
Degree of protection against electric shock	Class II, Double Insulated Type BF
Degree of protection against liquid ingress	IPX3 - Protected against spraying water
Mode of operation	Continuous
Pressure Range	Foot Garment: 130 ± 10 mmHg Uniform (DVT) Calf and Calf & Thigh Garments: Range: 35 - 65 ± 5 mmHg Factory Default: 40 ± 5 mmHg Sequential (Tri Pulse) Calf and Calf & Thigh Garments: 45 ± 5 mmHg

ENVIRONMENTAL INFORMATION			
Condition	Temperature Range	Relative Humidity	Atmospheric Pressure
Operating	+10 °C to +40 °C (+50 °F to +104 °F)	30% to 75% (non-condensing)	700 hPa to 1060 hPa
Storage and Transport (Long Term)	+10 °C to +40 °C (+50 °F to +104 °F)	20% to 95% (non-condensing)	700 hPa to 1060 hPa
Storage and Transport (Short Term)	-20 °C to +50 °C (-4 °F to +122 °F)	20% to 95%	500 hPa to 1060 hPa



If the pump is stored in conditions outside of the “Operating” ranges, it should be allowed time to stabilise at normal operating conditions before use.

Electromagnetic Compatibility

Guidance and manufacturer's declaration - electromagnetic emissions		
The pump is intended for use in the electromagnetic environment specified below. The customer or the user of the pump should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The pump uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The pump is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Recommended separation distances between portable and mobile RF communications equipment and the pump			
The pump is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the pump can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the pump as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	2.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
Note: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
Note: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Guidance and manufacturer's declaration - electromagnetic immunity

The pump is intended for use in the electromagnetic environment specified below. The customer or the user of the pump should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic environment - guidance
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 61000-4-3</p>	<p>3 Vrms 150 kHz to 80 MHz</p> <p>3 V/m 80 MHz to 2.5 GHz</p>	<p>3 V</p> <p>3 V/m</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the pump, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> <p>$d = 1.2\sqrt{P}$</p> <p>$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz</p> <p>$d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz</p> <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey^(a), should be less than the compliance level in each frequency range^(b).</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div style="text-align: center;">  </div>

Note: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

- a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the pump is used exceeds the applicable RF compliance level above, the pump should be observed to verify normal operation. If abnormal operation is observed, additional measures may be necessary, such as reorientating or relocating the pump.
- b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

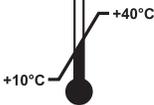
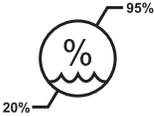
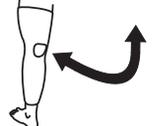
Guidance and manufacturer's declaration - electromagnetic immunity

The pump is intended for use in the electromagnetic environment specified below. The customer or the user of the pump should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV ±8 kV	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV ±1 kV	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV ±2 kV	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the pump requires continued operation during power mains interruptions, it is recommended that the pump be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Note: U_T is the a.c. mains voltage prior to the application of the test level.

Symbols

	<p>Conforms to the Medical Device Directive (93/42/EEC). Supervised by Notified Body BSI.</p>	 CLASSIFIED E348583 CAN/CSA-C22.2 No 60601-1 (2008)	<p>With respect to electric shock, fire and mechanical hazards only in accordance with CAN/CSA-C22.2 No. 60601.1 (2008). MEDICAL EQUIPMENT</p>		<p>Serial Number</p>
	<p>The operator must read this document (Instructions for Use) before use. Note: This symbol is blue on the product label.</p>		<p>Refer to this document (Instructions for Use) for a description of the product classification (3rd Edition).</p>		<p>Model Number</p>
<p>Rx Only</p>	<p>Caution: US Federal law restricts this device to sale by or on the order of a physician. Note: Applicable to the USA market only.</p>	<p>IPX3</p>	<p>Degree of protection against liquid ingress: Protected against spraying water.</p>		<p>Type BF</p>
	<p>Refer to this document (Instructions for Use) for a description of the product classification (2nd Edition).</p>		<p>Power Note: Pump is not isolated from mains power supply.</p>		<p>Double Insulated^(a)</p>
	<p>Manufacturer: This symbol is accompanied by the name and the address of the manufacturer.</p>		<p>Date of Manufacture in Year-Month-Day format.</p>		<p>Do not dispose of in the domestic refuse.</p>
	<p>Temperature Limits (Typically +10°C minimum to +40°C maximum).</p>		<p>Non-ionising electromagnetic radiation.</p>		<p>Alternating Current</p>
	<p>Humidity Limits (Typically 20% minimum to 95% maximum).</p>		<p>Do not use if package is damaged.</p>		<p>Batch code.</p>
	<p>Sterilised using ethylene oxide.</p>		<p>Shows position on calf for garment size measurement.</p>		<p>Do not stand or walk.</p>
	<p>When the garment is placed on the leg, the arrow must point to the heel.</p>		<p>Shows position on foot for garment size measurement.</p>		<p>Latex free</p>
	<p>Indicates that the cutout in the garment must be positioned behind the knee.</p>		<p>Shows position on thigh for garment size measurement.</p>		<p>Single Patient Use.</p>
	<p>Use by date.</p>				

- a. Based on the UL mark, this pump is considered to be electrically safe. Double insulated products rely on two independent electrical insulation systems that are isolated from metal parts. Grounding is not required, and the pump shall not be modified to ground the pump.