HeartWare® Ventricular Assist System
Product Data Sheet

HeartWare System Implantables

HVAD® PUMP

General Characteristics
- Continuous flow
- Displaced volume = 50cc, Weight = 160g
- Device size and integrated inflow cannula allow for pericardial placement, which eliminates the need for abdominal surgery and device pockets
- Can provide up to 10L/min of flow*

Impeller
- Magnetically and hydrodynamically suspended
- Wide-bladed
- Operates at speeds ranging from 1800 to 4000 rpm
- Provides multiple blood flow paths

Market Approvals
European Commercial approval in January 2009.
US ADVANCE Bridge-to-Transplant (BTT) approval in November 2012.

DRIVELINE
- Percutaneously connects the HVAD pump to an external controller
- Length = 119cm
- Diameter up to 4.8 mm
- Constructed with conductor wires similar to those used in pacemakers
- Six individually insulated, fatigue-resistant cables each encased within a silicon lumen with an outer sheathing
- Contains a portion that is wrapped with woven polyester fabric to encourage tissue in-growth at the skin exit site
HeartWare System Implantables (continued)

OUTFLOW GRAFT WITH STRAIN RELIEF

- 10mm gel impregnated polyester
- Articulating strain relief designed to prevent kinking

SEWING RING

- Designed to secure the HVAD pump to the myocardium
- Composed of titanium and polyester

HeartWare System Peripherals

PATIENT PACK

- Designed to support an ambulatory lifestyle
- Patient-worn controller and batteries weigh about 2.5 pounds (1.1 kg)

HEARTWARE® BATTERIES AND CHARGER

- Lithium ion battery pack
- Each battery allows up to 6 hours of operation when fully charged*
- Battery charger has capacity to charge 4 batteries simultaneously

HEARTWARE® CONTROLLER

- Microprocessor unit that regulates pump function and monitors the system
- Contains 2-line LCD screen that displays parameters, alarms and recommended troubleshooting
- Each alarm has a unique sound, color coded prioritization, visual display and message
- Requires power from 2 sources at all times
  - Two batteries OR one battery and electricity from the wall (AC) or car outlet (DC)

HEARTWARE® MONITOR

- Used by clinicians to set system parameters
- Touchscreen tablet PC computer
- Uses proprietary software to display real-time pump information, historical pump information and alarm conditions

*Bench test on file with HeartWare, Inc.

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CAUTION: Federal Law (USA) restricts this device to sale by or on the order of a physician. Refer to the “Instructions For Use” for complete Indications for Use, Contraindications, Warnings, Precautions, Adverse Events and Instructions prior to using this device.