HEARTWARE™ HVAD™ SYSTEM
PROVEN VERSATILITY AND RELIABILITY
ADVANCING VAD THERAPY THROUGH PARTNERSHIP AND EXPERIENCE

For over a decade, the HeartWare™ HVAD™ System has restored life for more than 18,000 patients.

The HeartWare HVAD Pump is the world’s smallest, commercially available, full-support centrifugal VAD designed to be implanted completely within the pericardial space. And the only full-support durable VAD with clinical evidence to prove its safety and effectiveness when used in a less-invasive thoracotomy approach.

Survival never looked so good

Latest clinical evidence from the HVAD LATERAL trial demonstrated 95% freedom from disabling stroke, 87% unprecedented survival and 30% reduced length of stay at 2 years.

“When you think about this less invasive approach, it is less about the small incision and more about protecting the heart.”

Jan Schmitto, MD
Hannover Medical School, Hannover, Germany
EXCELLENT SURVIVAL AND SAFETY PROFILE
HVAD is closing the gap on the gold standard of heart transplantation.

EXCELLENT EXTENDED SURVIVAL ON AN HVAD SYSTEM WITH OVER 30 PATIENTS ON SUPPORT FOR MORE THAN 5 YEARS, AND 7 YEAR SURVIVAL OF 51%\(^4\)

![Survival Graph]

ReVOLVE analysis represents the longest formal multicenter analysis of reliability and durability of patients on support with the HVAD System.

Providing smart, reliable and accurate information; the HVAD System helps you manage your MCS program and gives your patients greater mobility.

AUTOLOGS 1.2

Our evolved on-demand data platform to enhance and simplify VAD patient management now includes:

- **Variable report timescales (3, 7, 14, 30, 60, and 90-days)** to focus in on recent events or analyze long-term trends.
- **Custom zoom window** to provide additional context or enhanced detail to your report.
- **Numerical pulsatility and mean and range summary statistics** to more quickly interpret the VAD’s current and historical performances.
- **Actionable equipment diagnostics** to more conclusively troubleshoot equipment.

Waveforms:
Real-time data for advanced device management

LAVARE™ Cycle:
Designed to increase washing of the left ventricle and pump.\(^5\)
ENGINEERED FOR RELIABILITY AND DURABILITY

Passive maglev with hydrodynamic bearings means there is no need for electronic sensors or mechanical bearings – resulting in a less complex system eliminating friction, heat, and component wear.6

Dual motor stators enhance efficiency and provide redundancy to rotate the impeller.6

Enhanced Driveline offers greater flexibility, increased durability, and trusted performance.*

HVAD Controller gives your patients mobility and provides clinicians with easily accessible and actionable data to help streamline patient management.

*Medtronic data on file as of January 2018

“The HVAD System has been really a game changer for the management of advanced heart failure patients. We use the pump to help patients with very sick heart failure states and left ventricular dysfunction. We’ve had a large number of patients, many of whom have experienced improved quality of life and significant survival as bridge to transplant, as well as destination therapy.”

Gregory Macaluso, M.D.
Heart Failure and Transplant Cardiology
Advocate Christ Hospital
WE CONTINUALLY LEARN AND INNOVATE, FURTHER ADVANCING THE TREATMENT OF END-STAGE HEART FAILURE, STRIVING TO IMPROVE PATIENT OUTCOMES AND THE CLINICAL EXPERIENCE OF YOUR PRACTICE.

Offering Surgical Versatility for Your Patient and You.

Proven advantages of less-invasive thoracotomy

- 87% unprecedented survival at 2 years
- 30% reduced length of stay
- Less bleeding requiring re-operation
- Significantly improved quality of life
- Preserved sternum for your heart transplant patients

30% reduced length of stay in patients implanted with HVAD via thoracotomy

Less-invasive thoracotomy approach on the rise

Based on a third-party survey, 1 in 4 implants globally are performed via thoracotomy & volume will double by 2020.

**United States | n=39**

<table>
<thead>
<tr>
<th>Past 12 Months</th>
<th>Thoracotomy</th>
<th>Sternotomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2020</td>
<td>33%</td>
<td>65%</td>
</tr>
</tbody>
</table>

**Europe | n=29**

<table>
<thead>
<tr>
<th>Past 12 Months</th>
<th>Thoracotomy</th>
<th>Sternotomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2020</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>
References:
4. Presented at EACTS, 2018, Milan, Italy, manuscript submitted for publication.

Brief Statement: HeartWare™ HVAD™ System

Indications for Use
The HeartWare™ HVAD™ System is indicated for hemodynamic support in patients with advanced, refractory left ventricular heart failure; either as a Bridge to Cardiac Transplantation (BTT), myocardial recovery, or as Destination Therapy (DT) in patients for whom subsequent transplantation is not planned.

Contraindications
The HeartWare System is contraindicated in patients who cannot tolerate anticoagulation therapy.

Warnings/Precautions
Proper usage and maintenance of the HVAD™ System is critical for the functioning of the device. Serious and life threatening adverse events, including stroke, have been associated with use of this device. Blood pressure management may reduce the risk of stroke. Never disconnect from two power sources at the same time (batteries or power adapters) since this will stop the pump, which could lead to serious injury or death. At least one power source must be connected at all times. Always keep a spare controller and fully charged spare batteries available at all times in case of an emergency. Do not disconnect the driveline from the controller or the pump will stop. Avoid devices and conditions that may induce strong static discharges as this may cause the VAD to perform improperly or stop. Magnetic resonance imaging (MRI) could cause harm to the patient or could cause the pump to stop. The HVAD™ Pump may cause interference with automatic implantable cardioverter-defibrillators (AICDs), which may lead to inappropriate shocks, arrhythmia and death. Chest compressions may pose a risk due to pump location and position of the outflow graft on the aorta – use clinical judgment. If chest compressions have been administered, confirm function and positioning of HVAD Pump post-CPR.

Potential Complications
Implantation of a VAD is an invasive procedure requiring general anesthesia and entry into the thoracic cavity. There are numerous known risks associated with this surgical procedure and the therapy including, but not limited to, death, stroke, neurological dysfunction, device malfunction, peripheral and device-related thromboembolic events, bleeding, right ventricular failure, infection, hemolysis and sepsis.

Refer to the “Instructions for Use” for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions and potential adverse events prior to using this device. The IFU can be found at www.heartware.com/clinicians/instructions-use.

Caution: Federal law (USA) restricts these devices to sale by or on the order of a physician.