

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>11. A system for assisting blood circulation of a heart, the system comprising:</p>	<p>HeartMate 3 is a system for assisting the blood circulation of a heart, as recited by claim 11.</p> <p>As shown in the images below from Abbott's documentation for the HeartMate 3 products, the HeartMate 3 is configured such that when implanted and assembled, it "assumes some or all of the workload of the left ventricle" to assist the heart in circulating blood.</p> <div data-bbox="994 437 1807 737"><p>Overview</p><p>The HeartMate 3™ Left Ventricular Assist System (LVAS) is a set of equipment and materials that together comprise a medical device designed to provide therapeutic benefit to those affected with advanced heart failure. In service, the LVAS assumes some or all of the workload of the left ventricle, thereby restoring the patient's systemic perfusion while palliating the underlying pathology. The LVAS features a Left Ventricular Assist Device (LVAD), a blood pump intended for long-term implantation in such patients, an extracorporeal Controller, plus all of the features, controls, attachments, interfaces, power sources, supporting equipment, labeling, and tools required to achieve the desired therapeutic benefit. The HeartMate 3 Left Ventricular Assist System is intended for use inside or outside the hospital, or for transportation of LVAD patients via ground ambulance, airplane, or helicopter.</p></div>  <p>Exemplary Source: Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007567.</p> <p><i>See also</i> the evidence and analysis for claim 1 above and the claim elements discussed below.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>a heart assist pump device deliverable to the heart and comprising:</p>	<p>The HeartMate 3 include a heart assist pump device deliverable to the heart.</p> <p>For example, the HeartMate 3 products include a Left Ventricular Assist Device (LVAD), a heart assist pump device configured to be delivered to a patient's heart, as shown in the image below:</p> <div data-bbox="1128 403 1644 711" data-label="Image"> </div> <p>Exemplary Source: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmpIKzmKe0.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>
<p>an inflow tube defining a blood inflow path along an inflow axis and being insertable into a left ventricle;</p>	<p>The HeartMate 3 includes a heart assist pump device deliverable to the heart that comprises an inflow tube, which Abbott calls the “Inflow Cannula,” defining a blood inflow path along an inflow axis and being insertable into a left ventricle, as shown in the images below.</p>

EXHIBIT D

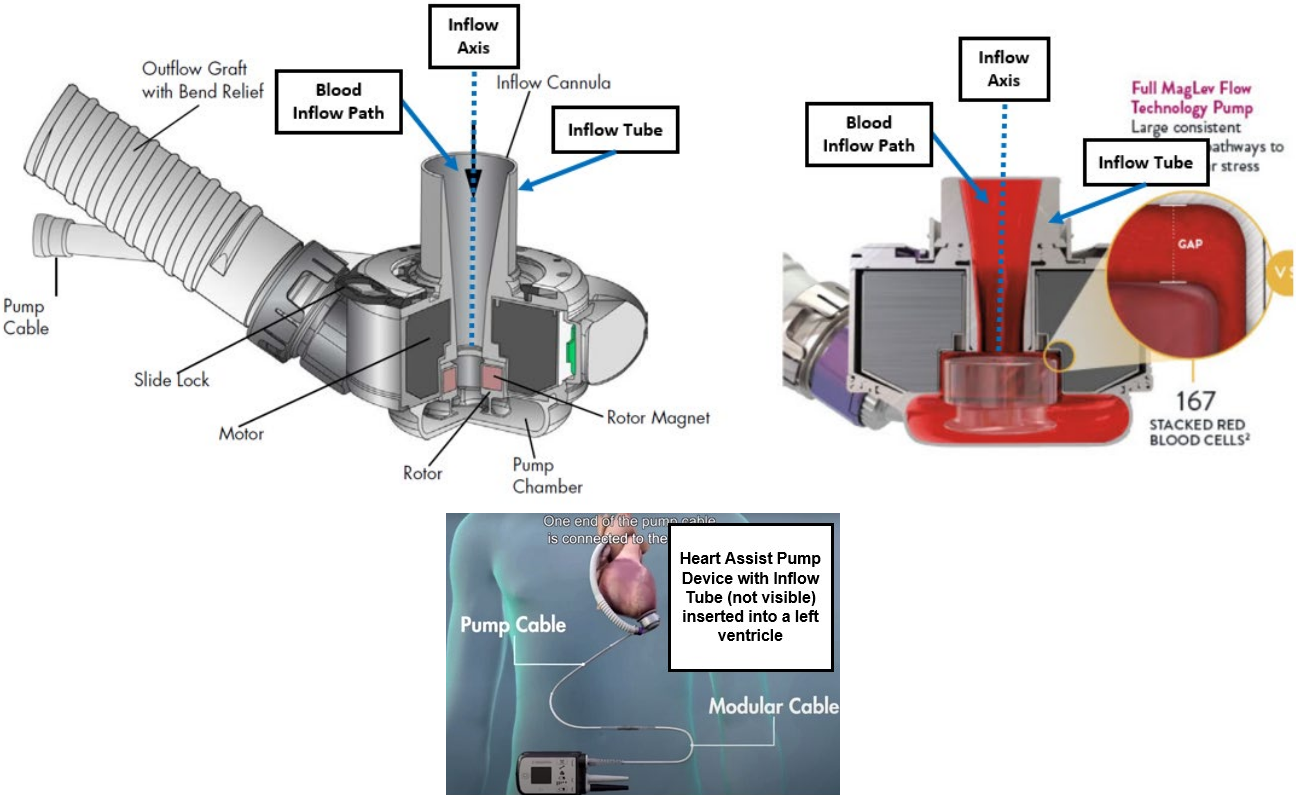
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<div style="text-align: center;">  </div> <p>Exemplary Sources: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmmpIKzmKe0; HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>one or more walls at least partially defining a chamber to receive blood from the inflow tube;</p>	<p>The HeartMate 3 includes a heart assist pump device deliverable to the heart that comprises one or more walls at least partially defining a chamber to receive blood from the inflow tube.</p> <p>For example, Abbott's HeartMate 3 pump includes walls around the magnetically driven rotor that at least partially define a chamber that receives blood from the inflow tube, which Abbott calls the Inflow Cannula, as shown in the image below.</p> <div data-bbox="1068 507 1742 1018" data-label="Image"> <p>The diagram illustrates the internal structure of the HeartMate 3 pump. It shows a central 'Inflow Axis' with a red 'Inflow Tube' leading into a chamber. The chamber is defined by 'One or More Walls at least partially defining a Chamber'. A circular inset provides a detailed view of the chamber's interior, showing a 'GAP' and '167 STACKED RED BLOOD CELLS'. A text box next to the inset states: 'Full MagLev Flow Technology Pump Large consistent blood flow pathways to reduce shear stress'.</p> </div> <p>Exemplary Source: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>

EXHIBIT D

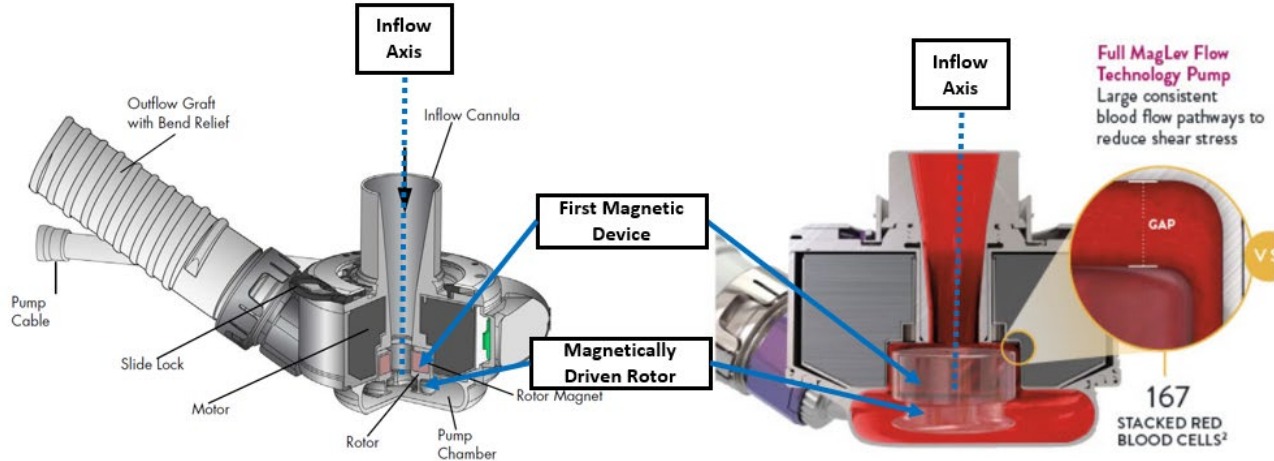
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>a magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to a first magnetic device that is axially aligned with the inflow axis,</p>	<p>The HeartMate 3 includes a heart assist pump device deliverable to the heart that comprises a magnetically driven rotor axially aligned with the inflow axis and being rigidly coupled and axially adjacent to a first magnetic device that is axially aligned with the inflow axis.</p> <p>For example, as shown in the exemplary annotated images below, the HeartMate 3 pump comprises a magnetically driven rotor having a central axis that is aligned with the inflow axis. Further, the HeartMate 3 comprises a first magnetic device, axially aligned with the inflow axis, and rigidly coupled to and axially adjacent to the rotor.</p>  <p>Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>the magnetically driven rotor and first magnetic device being rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube;</p>	<p>In the HeartMate 3, both the magnetically driven rotor and the first magnetic device are rotatable about an axis of rotation aligned with the inflow axis to drive the blood flowing from the inflow tube;</p> <p>For example, the rotor and the first magnetic device are rotatable within the HeartMate 3 to act upon blood flowing from the inflow tube, which Abbott calls the Inflow Cannula, toward the rotor. The magnetically driven rotor, first magnetic device, inflow tube, inflow axis (aligned with the axis of rotation of the rotor and first magnetic device), and chamber are shown in the annotated images below.</p> <div data-bbox="831 539 1982 962" data-label="Image"> </div> <p>Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>

EXHIBIT D

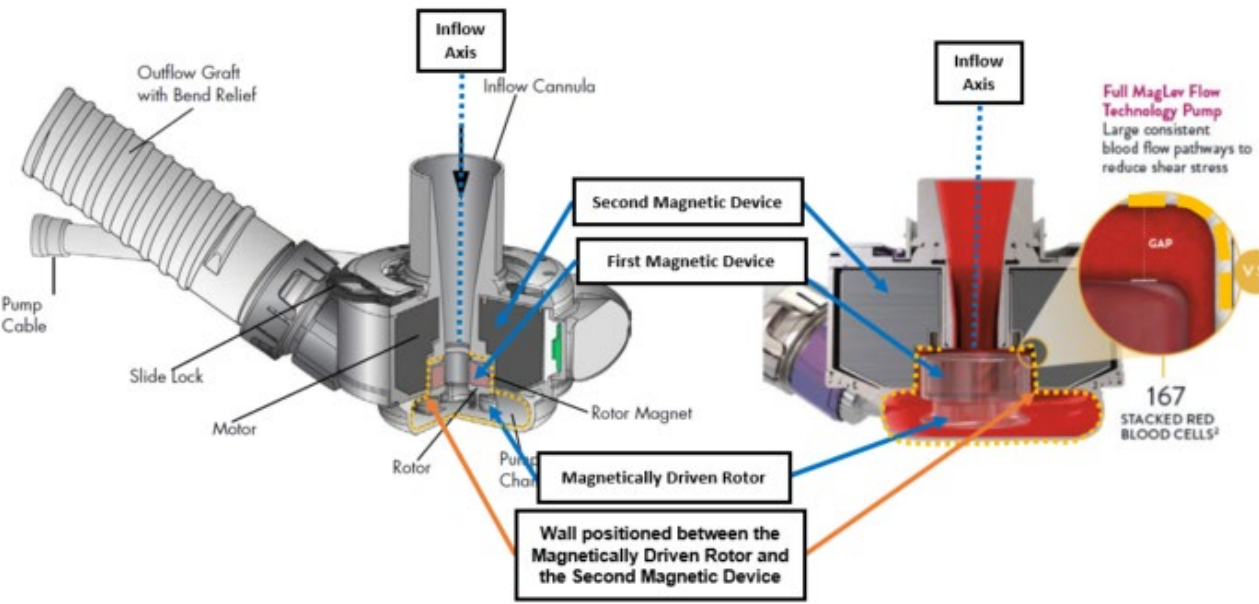
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>a magnetic drive system comprising a second magnetic device axially aligned with the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device,</p>	<p>The HeartMate 3 includes a heart assist pump device deliverable to the heart that comprises a magnetic drive system comprising a second magnetic device axially aligned with the inflow axis and spaced apart from the magnetically driven rotor such that a wall of the one or more walls defining the chamber is positioned between the magnetically driven rotor and the second magnetic device.</p> <p>For example, the HeartMate 3 pump includes a magnetic drive system that magnetically drives the magnetically driven rotor to rotate via a magneto coupling with the first magnetic device, and which includes a second magnetic device that Abbot calls a Motor, Stator, and/or MagLev Flow technology. This second magnetic device is axially aligned with the inflow axis. Further, the second magnetic device is spaced apart from the magnetically driven rotor by one or more walls of the chamber, the one or more walls being positioned between the magnetically driven rotor and second magnetic device as shown in the annotated images below.</p>  <p>Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; Abbott, Heartmate 3™ Left Ventricular Assist</p>

EXHIBIT D

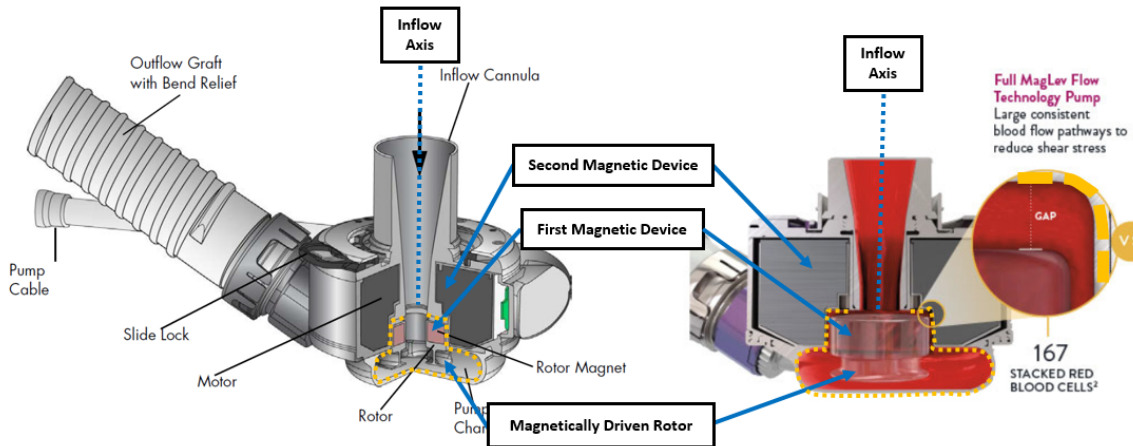
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<p>System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568; Video titled "Abbott's HeartMate 3™ LVAD" at https://youtu.be/1hcw9114DrY?si=GjOWVzmOQlhmTcGq; video titled “Abbott’s HeartMate 3 LVAD” at https://youtu.be/IbHN8e_OGJw?si=zNGPCWWTqjc9q7Xn.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>
<p>the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device; and</p>	<p>In the HeartMate 3, the second magnetic device is positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to magnetically drive rotation of the magnetically driven rotor relative to the one or more walls via a magneto coupling with the first magnetic device.</p> <p>For example, the HeartMate 3 includes a second magnetic device which Abbot calls a Motor, Stator, and/or MagLev Flow technology. This second magnetic device is positioned to magnetically drive the magnetically driven rotor to rotate relative to the one or more walls via a magneto coupling with the first magnetic device. Further, the second magnetic device is positioned axially closer to the first magnetic device than to the rotor, as shown in the images below.</p>  <p>The diagrams illustrate the internal structure of the HeartMate 3 LVAD. The left diagram is a perspective view showing the 'Inflow Axis' at the top, leading into an 'Inflow Cannula'. Below this is the 'Second Magnetic Device' (labeled as Motor, Stator, and/or MagLev Flow technology), followed by the 'First Magnetic Device'. At the bottom is the 'Magnetically Driven Rotor' (labeled as Rotor) which is coupled to a 'Rotor Magnet'. An 'Outflow Graft with Bend Relief' is shown on the left, connected to a 'Pump Cable'. A 'Slide Lock' is also indicated. The right diagram is a cross-sectional view showing the 'Inflow Axis' and the 'Full MagLev Flow Technology Pump' which provides 'Large consistent blood flow pathways to reduce shear stress'. It highlights a 'GAP' and '167 STACKED RED BLOOD CELLS' within the flow path.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<div data-bbox="1048 256 1760 644" data-label="Image"> </div> <div data-bbox="806 703 1991 1000" data-label="Text" style="border: 1px solid black; padding: 10px;"> <p>The Rotor is fully supported by magnetic levitation, obviating mechanical or fluid bearings and essentially eliminating Rotor mechanical wear as a reliability factor. Both drive (i.e. rotation) and levitation of the Rotor is accomplished using a single Stator comprising iron pole pieces, a back-iron, copper coils, and position sensors. By measuring the position of a permanent magnet in the Rotor and appropriately controlling the current in the drive and levitation coils, the radial position and rotational speed of the Rotor is actively controlled. Because of the permanent magnet's attraction to the iron pole pieces, the rotor passively resists excursion in the axial direction, whether such excursion is translation or tilting.</p> </div> <p data-bbox="672 1018 2114 1270">Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; <i>see also</i> video titled “Abbott’s HeartMate 3 LVAD,” available at https://www.youtube.com/watch?app=desktop&v=IbHN8e_OGJw; Video titled "Abbott's HeartMate 3™ LVAD" at https://youtu.be/1hcw9114DrY?si=GjOWVzmOQlhmTcGq; video titled “Abbott’s HeartMate 3 LVAD” at https://youtu.be/IbHN8e_OGJw?si=zNGPCWWTqjc9q7Xn; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p data-bbox="672 1305 2018 1337"><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>

EXHIBIT D

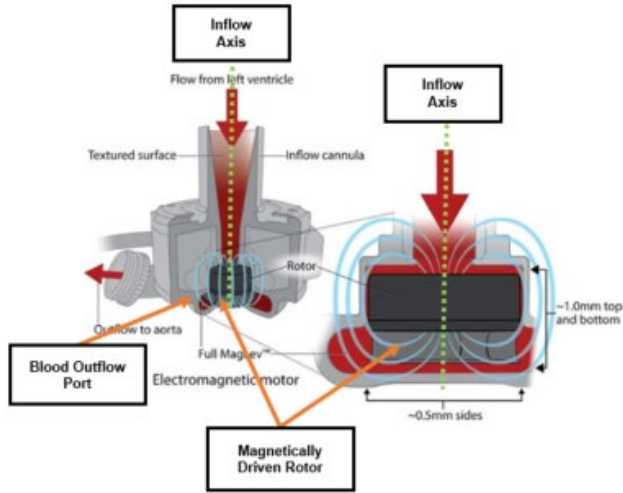
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis,</p>	<p>The Heartmate 3 includes a heart assist pump device deliverable to the heart comprising a blood outflow port positioned such that the blood driven by the magnetically driven rotor exits the chamber in a direction substantially perpendicular to the inflow axis,</p> <p>For example, the HeartMate 3 heart assist pump device includes a port for blood outflow to the aorta, as shown in the images below. This port is adjacent to the magnetically driven rotor, such that blood driven by the rotor exits the chamber housing through the port in a direction substantially perpendicular to the inflow axis of the inflow tube, which Abbott calls the Inflow Cannula.</p>  <p>The diagram illustrates the HeartMate 3 heart assist pump device. It shows a cross-section of the device with an inflow cannula at the top, labeled 'Inflow Axis' and 'Flow from left ventricle'. The cannula has a 'Textured surface'. Below the cannula is a 'Rotor' and a 'Full Maglev' section. An 'Electromagnetic motor' is shown at the bottom, connected to the rotor. A 'Blood Outflow Port' is located on the side, with an arrow indicating 'Outflow to aorta'. The rotor is labeled 'Magnetically Driven Rotor'. Dimensions are provided: '~1.0mm top and bottom' for the rotor's height and '~0.5mm sides' for its width.</p>

EXHIBIT D

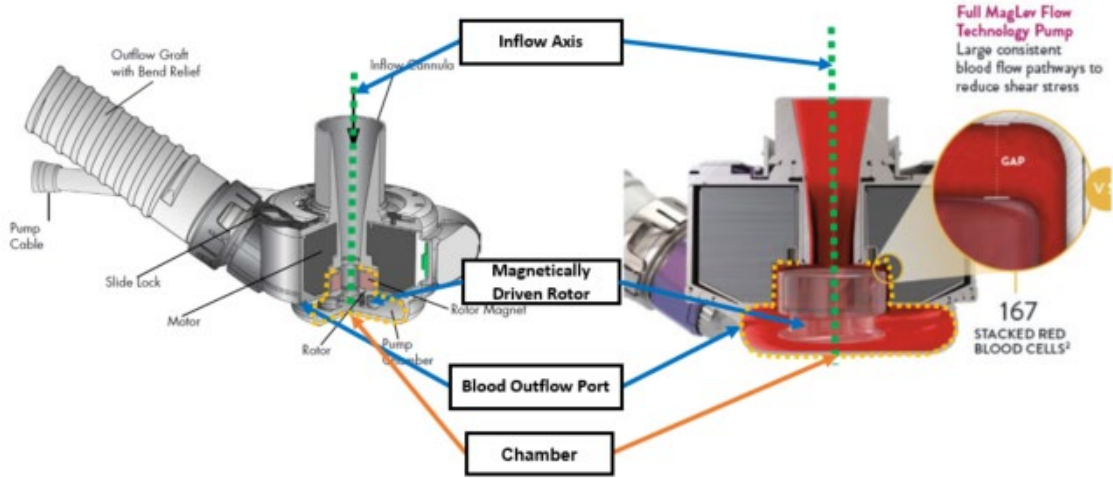
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	 <p>Exemplary Source: Figure 1 from “HeartMate 3 in Lowest INTERMACS Profile Cohort: The Swiss Experience,” available at https://www.researchgate.net/publication/317276467_HeartMate_3_in_Lowest_INTERMACS_Profile_Cohort_The_Swiss_Experience; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568; https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>
<p>wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain spaced apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor; and</p>	<p>The Heartmate 3 includes a heart assist pump device deliverable to the heart wherein the magneto coupling orients the magnetically driven rotor so that both the magnetically driven rotor and the first magnetic device remain spaced apart from the one or more walls by the blood in response to rotation of the magnetically driven rotor;</p> <p>For example, the second magnetic device of the HeartMate 3 (which Abbott calls a Motor, Stator, and/or MagLev Flow Technology) is configured to orient the magnetically driven rotor in its housing via the magneto coupling between the second magnetic device and the first magnetic device. And in response to rotation of the</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<p>magnetically driven rotor, the second magnetic device orients the rotor via the magneto coupling so that it remains spaced apart from the one or more walls by the blood, as shown in the image below.</p> <div data-bbox="1086 375 1713 853" data-label="Image"> </div> <p>Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; <i>see also</i> video titled “Abbott’s HeartMate 3 LVAD,” available at https://www.youtube.com/watch?app=desktop&v=IbHN8e_OGJw; vVideo titled "Abbott's HeartMate 3™ LVAD" at https://youtu.be/1hcw9114DrY?si=GjOWVzmOQlhmTcGq; video titled “Abbott’s HeartMate 3 LVAD” at https://youtu.be/IbHN8e_OGJw?si=zNGPCWWTqjc9q7Xn.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products						
<p>an external control unit configured to control operation of the second magnetic device based on a fixed value to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.</p>	<p>The HeartMate 3 comprises an external control unit configured to control operation of the second magnetic device based on a fixed value to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.</p> <p>For example, Abbott's HeartMate 3 includes an external control unit, which Abbott calls the System Controller. This external control unit is configured to be connected to the heart assist pump device. The external control unit is also configured to control the operation of the second magnetic device, which Abbott calls the Motor, Stator, or MagLev Flow technology, to magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device, as explained above.</p> <div data-bbox="1151 598 1653 965" data-label="Image"> <p>The diagram illustrates the HeartMate 3 system. A heart is shown with a pump cable connected to it. The pump cable is connected to a heart assist pump device. The heart assist pump device is connected via a modular cable to an external control unit. The external control unit is shown as a small device with a screen and buttons.</p> </div> <div data-bbox="714 994 1426 1174" data-label="Table"> <table> <tr> <th data-bbox="723 1000 1227 1023">ITEM</th><th data-bbox="1227 1000 1417 1023">CATALOG NUMBER</th></tr> <tr> <td data-bbox="723 1023 1227 1168"> <p>HeartMate 3™ System Controller Supplied sterile. A small computer that controls and monitors system operation. Uses lights, sounds, and on-screen messages to communicate with users about operating status and alarm conditions. Includes 11 Volt Lithium-Ion System Controller Backup Battery. Includes Patient Handbook.</p> </td><td data-bbox="1227 1023 1417 1168"> <p>106531US</p> </td></tr> </table> </div> <div data-bbox="1451 994 2085 1174" data-label="Table"> <table> <tr> <td data-bbox="1460 1000 1688 1168"> <p>System Controller</p>  </td><td data-bbox="1688 1000 2076 1168"> <p>The System Controller is a small computer that controls and monitors system operation. The System Controller uses lights, sounds, and on-screen messages to communicate with users about operating status and alarm conditions. A Driveline, which passes through the patient's abdomen, connects the implanted pump to the System Controller.</p> <p>For more information, see page 2-8.</p> </td></tr> </table> </div>	ITEM	CATALOG NUMBER	<p>HeartMate 3™ System Controller Supplied sterile. A small computer that controls and monitors system operation. Uses lights, sounds, and on-screen messages to communicate with users about operating status and alarm conditions. Includes 11 Volt Lithium-Ion System Controller Backup Battery. Includes Patient Handbook.</p>	<p>106531US</p>	<p>System Controller</p> 	<p>The System Controller is a small computer that controls and monitors system operation. The System Controller uses lights, sounds, and on-screen messages to communicate with users about operating status and alarm conditions. A Driveline, which passes through the patient's abdomen, connects the implanted pump to the System Controller.</p> <p>For more information, see page 2-8.</p>
ITEM	CATALOG NUMBER						
<p>HeartMate 3™ System Controller Supplied sterile. A small computer that controls and monitors system operation. Uses lights, sounds, and on-screen messages to communicate with users about operating status and alarm conditions. Includes 11 Volt Lithium-Ion System Controller Backup Battery. Includes Patient Handbook.</p>	<p>106531US</p>						
<p>System Controller</p> 	<p>The System Controller is a small computer that controls and monitors system operation. The System Controller uses lights, sounds, and on-screen messages to communicate with users about operating status and alarm conditions. A Driveline, which passes through the patient's abdomen, connects the implanted pump to the System Controller.</p> <p>For more information, see page 2-8.</p>						

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<div data-bbox="696 252 1391 644"> <p>In Run Mode, the Pump Running symbol is illuminated green (🟢) and the System Controller is:</p> <ul style="list-style-type: none"> Connected to a power source (the Power Module, the Mobile Power Unit, or two HeartMate™ 14 Volt Lithium-Ion batteries). Connected to the Left Ventricular Assist Device via the Driveline. Sending power to the pump via the Driveline. Controlling and monitoring physiological and operating conditions. Displaying data about physiological and operating conditions. Using user interface indicators to reflect System Controller and pump conditions. Responding to user interface button pushes. Charging the 11 Volt Lithium-Ion backup battery inside the System Controller. Communicating with the HeartMate Touch™ Communication System, if connected. Able to perform a System Controller self test. <p>For instructions on switching from Run Mode to Sleep Mode, see <i>Switching Operating Modes</i> on page 2-36.</p> </div> <div data-bbox="723 675 1261 871"> <p>Pump Flow</p> <p>The System Controller provides an estimate of blood flow out of the pump. This estimate is based on pump speed and the amount of power being provided to the pump motor. The relationship between power and flow at any particular speed is mostly linear.</p> <div data-bbox="943 762 1037 834"> <p>FLOW</p> <p>4.9 LPM</p> </div> <p style="text-align: right; font-size: small;">Figure 4.51 Pump Flow Display</p> </div> <div data-bbox="1279 675 2078 871"> <p>System Controller Overview</p> <p>The HeartMate 3™ System Controller acts as the central power and communication hub for the HeartMate 3 LVAS. It passes power from the Power Module, the Mobile Power Unit, Lithium-Ion Batteries, or its own integrated emergency backup supply, down to the LVAD via the Driveline. The HeartMate 3 System Controller constantly monitors system performance through communication with the implanted LVAD and Controller internal measurements and alerts the user to any alarm conditions by activating membrane panel LEDs and integrated audio annunciators. Further information on alarm</p> </div> <div data-bbox="927 911 1877 1145"> <p>The Rotor is fully supported by magnetic levitation, obviating mechanical or fluid bearings and essentially eliminating Rotor mechanical wear as a reliability factor. Both drive (i.e. rotation) and levitation of the Rotor is accomplished using a single Stator comprising iron pole pieces, a back-iron, copper coils, and position sensors. By measuring the position of a permanent magnet in the Rotor and appropriately controlling the current in the drive and levitation coils, the radial position and rotational speed of the Rotor is actively controlled. Because of the permanent magnet's attraction to the iron pole pieces, the rotor passively resists excursion in the axial direction, whether such excursion is translation or tilting.</p> </div> <div data-bbox="1413 244 2107 624"> <p>Power</p> <p>Device power is a direct measurement of pump motor voltage and current. Changes in pump speed, flow, or physiological demand can affect pump power. Gradual power increases (over hours or days) may signal thrombus deposits inside the pump, aortic or insufficiency. Gradual power decreases may indicate an obstruction of flow and should be evaluated. Depending on the speed of the pump, power values greater than 10 to 12 watts (W) also can indicate the presence of a thrombus. Abrupt changes in power should be evaluated for cause.</p> <p>Flow</p> <p>Device flow and power generally retain a linear relationship at a given speed. However, while power is directly measured by the System Controller, the reported flow is estimated, based on power. Since the flow displayed on the System Controller is a calculated value, it somewhat underestimates actual flow at high flows.</p> <p>Any increase in power not related to increased flow (such as thrombus) causes erroneously high flow readings. Conversely, an occlusion of the flow path decreases flow and causes a corresponding decrease in power. In either situation, pump output should be assessed.</p> </div> <p>Further, Abbott's HeartMate 3 products are configured to control the operation of the second magnetic device based on a fixed value, such as what Abbott calls a "fixed speed."</p>

EXHIBIT D

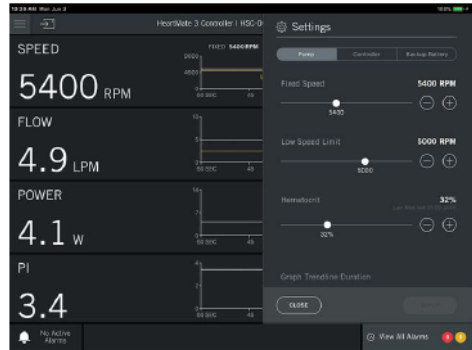
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<div data-bbox="1032 236 1767 868" style="border: 1px solid black; padding: 10px;"> <p>Fixed Speed</p> <p>The fixed speed is adjustable in increments of 100 rpm, with a range of 3,000 to 9,000 rpm. A low speed advisory alarm appears if either the fixed speed has been set 200 rpm or more below the low speed limit, or the System Controller is unable to maintain the speed at or above the low speed limit. This low speed advisory alarm notification is always provided on the HeartMate Touch™ App (Figure 4.26).</p> <p>Set the Fixed Speed</p> <ol style="list-style-type: none"> 1. Tap — or + or move the slider to decrease or increase the fixed speed. 2. Tap APPLY to confirm changes.  <p style="text-align: right; font-size: small;">Figure 4.26 Settings Panel with Pump Parameters</p> </div> <p>Exemplary Sources: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmpIKzmKe0; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007567-7568, -7574, -7583, -7592, -7618, -7764, -7767, -7791, -8143.</p> <p><i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.</p>
<p>12. The system of claim 11, wherein the magnetically driven rotor includes a guide surface to produce centrifugal flow components.</p>	<p>The HeartMate 3 comprises the system of claim 11.</p> <p><i>See</i> the evidence and analysis for claim 11 above.</p> <p>Further, in the HeartMate 3, the magnetically driven rotor includes a guide surface to produce centrifugal flow components.</p>

EXHIBIT D

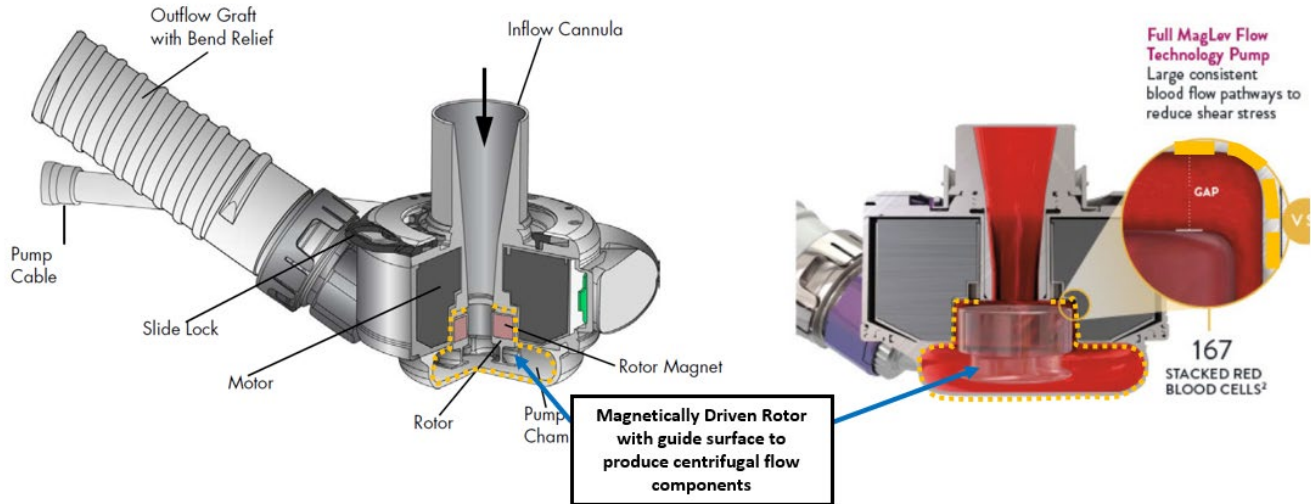
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<p>For example, the magnetically driven rotor of the HeartMate 3 heart assist pump device includes a guide surface, configured to produce centrifugal flow components, as shown in the images below.</p>  <p>Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p><i>See also the evidence and analysis for claim 11 above and the other claim elements discussed herein.</i></p>
<p>14. The system of claim 11, wherein the one or more walls and the magnetically driven rotor define a gap separating the magnetically driven rotor from the one or more walls, the gap configured to be occupied by the blood when the second magnetic device drives the rotation of the magnetically driven rotor.</p>	<p>The HeartMate 3 comprises the system of claim 11.</p> <p><i>See the evidence and analysis for claim 11 above.</i></p> <p>In the HeartMate 3, the one or more walls and the magnetically driven rotor define a gap separating the magnetically driven rotor from the one or more walls, the gap configured to be occupied by the blood when the second magnetic device drives the rotation of the magnetically driven rotor.</p>

EXHIBIT D

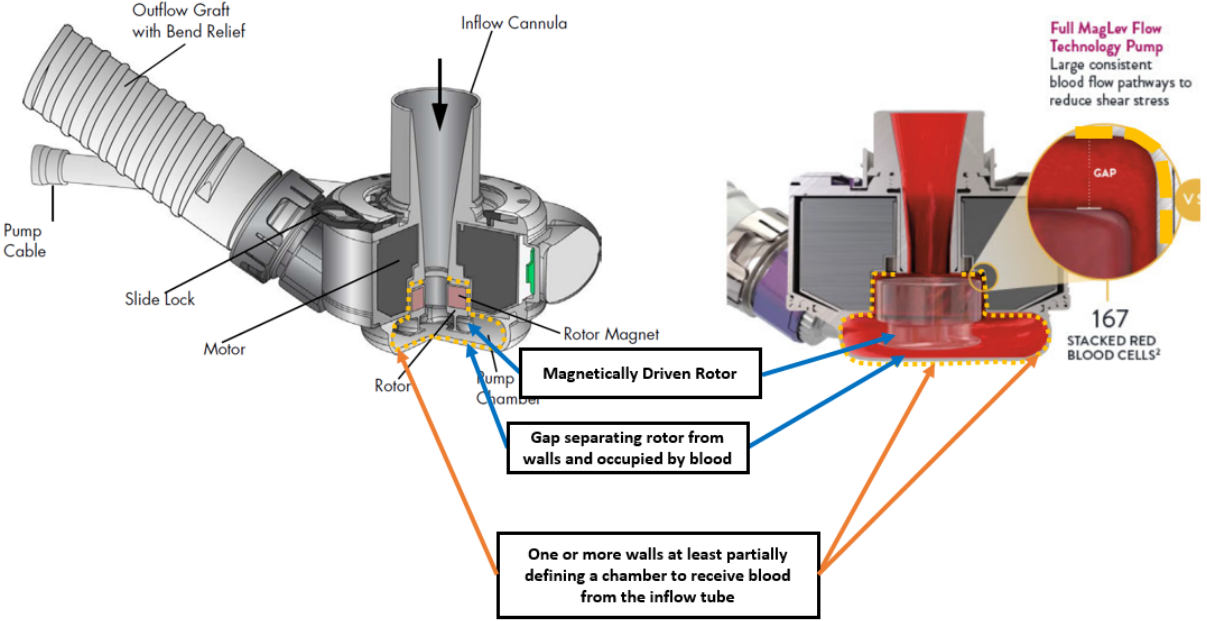
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<p>For example, the HeartMate 3 includes a gap defined by – and separating – (i) the one or more walls (which at least partially define a chamber to receive blood from the inflow tube) and (ii) the magnetically driven rotor. The HeartMate 3's heart assist pump device is configured such that blood occupies the gap when the second magnetic device (which Abbot calls a Motor, Stator, and/or MagLev Flow technology) drives the rotation of the magnetically driven rotor, as shown in the images below.</p>  <p>Exemplary Sources: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmmpIKzmKe0; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p><i>See also</i> the evidence and analysis for claim 11 above and the other claim elements discussed herein.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
<p>16. The system of claim 14, wherein at least part of the gap extends along a first axis substantially perpendicular to the inflow axis.</p>	<p>The HeartMate 3 comprises the system of claim 14.</p> <p><i>See the evidence and analysis for claims 11 and 14 above.</i></p> <p>In the HeartMate 3, at least part of the gap extends along a first axis substantially perpendicular to the inflow axis.</p> <p>For example, in the HeartMate 3, parts of the gap extend along an axis substantially perpendicular to the inflow axis, as shown in the annotated image below.</p> <div data-bbox="1030 616 1747 1286" data-label="Image"> <p>The diagram illustrates a cross-section of the HeartMate 3 pump assembly. A vertical dashed blue line at the top is labeled 'Inflow Axis'. To the left, a box labeled 'First Magnetic Device' has a blue arrow pointing to a component on the left side of the pump. Below it, a box labeled 'Magnetically Driven Rotor' has a blue arrow pointing to the central rotating part. At the bottom, a box labeled 'Parts of gap that each extend along an axis substantially perpendicular to the inflow axis' has four orange arrows pointing to different segments of the gap. On the right, a circular inset shows a close-up of the gap, with a label 'Full MagLev Flow Technology Pump' and text 'Large consistent blood flow pathways to reduce shear stress'. Inside this inset, the word 'GAP' is written, and below it, '167 STACKED RED BLOOD CELLS²' is indicated. A yellow arrow labeled 'V' points from the gap towards the right.</p> </div>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	<p>Exemplary Sources: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmpIKzmKe0; Abbott, Heartmate 3™ Left Ventricular Assist System Instructions for Use (Document ARTEN600200959 A, 2022-5 produced at, e.g., ABT-MIR-00007556-8187) at ABT-MIR-00007568.</p> <p><i>See also</i> the evidence and analysis for claims 11 and 14 above and the other claim elements discussed herein.</p>
<p><i>18. The system of claim 11, wherein the chamber is a first chamber within which the magnetically driven rotor is positioned, and the magnetic drive system is positioned within a second chamber sealed from the first chamber.</i></p>	<p>The HeartMate 3 comprises the system of claim 11.</p> <p><i>See</i> the evidence and analysis for claim 11 above.</p> <p>Further, in the HeartMate 3, the chamber is a first chamber within which the magnetically driven rotor is positioned, and the magnetic drive system is positioned within a second chamber sealed from the first chamber.</p> <p>For example, in the heart assist pump device of the HeartMate 3, the chamber is a first chamber within which the magnetically driven rotor is positioned. And the magnetic drive system, which includes what Abbott calls a Motor, Stator, and/or MagLev Flow technology, is positioned within a second chamber. The second chamber (in which blood does not flow) is sealed from the first chamber (in which blood flows).</p>

EXHIBIT D

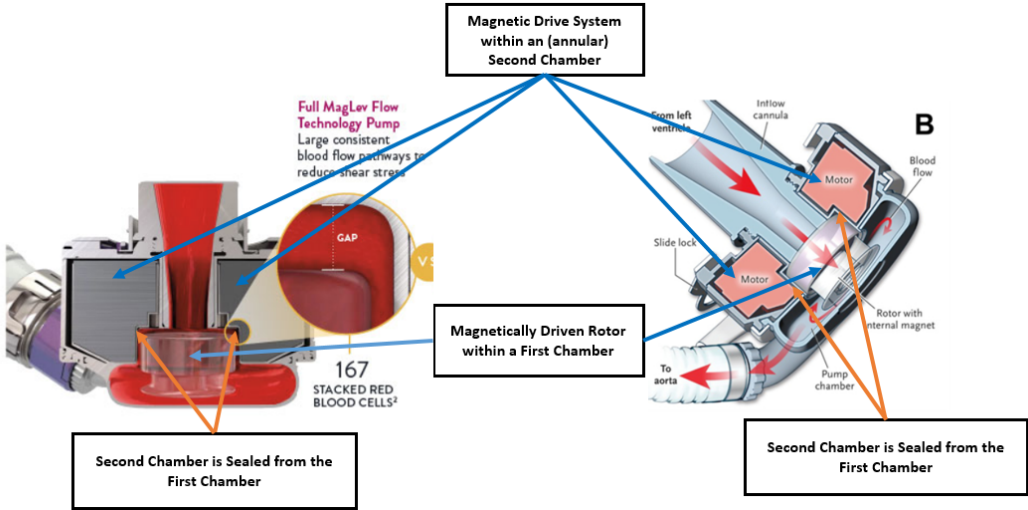
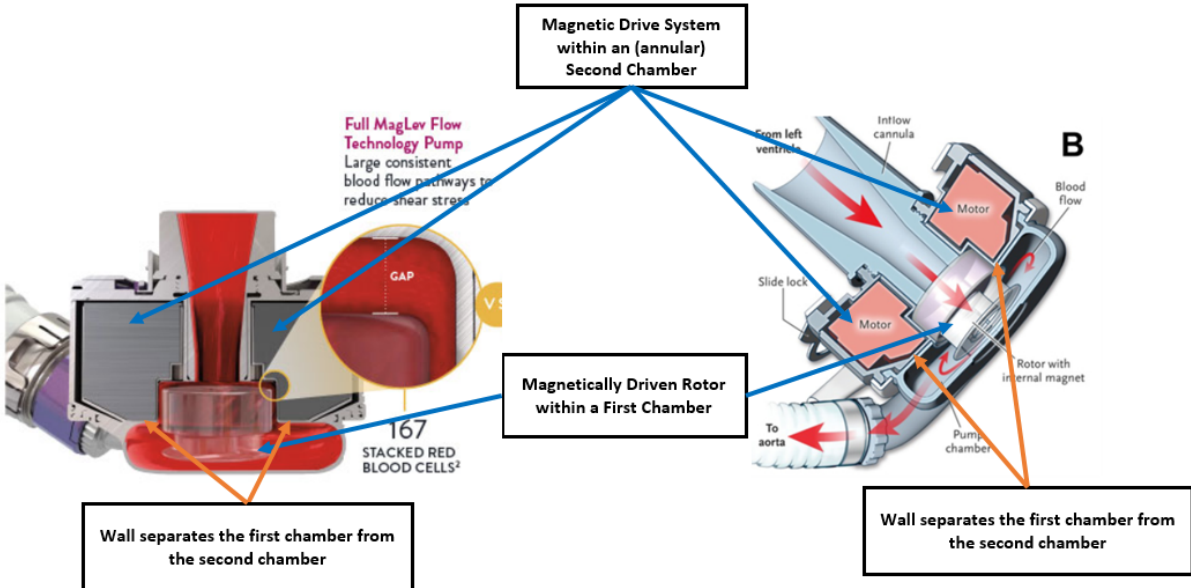
U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	 <p>The diagram illustrates the HeartMate 3 LVAD system. It shows a cross-section of the device with two main chambers: a first chamber and a second chamber. The first chamber contains a magnetically driven rotor. The second chamber is sealed from the first chamber and contains a magnetic drive system within an annular structure. Blood flow is shown entering from the left ventricle through an inflow cannula into the first chamber, passing through the rotor, and then being pumped into the second chamber. The second chamber is sealed from the first chamber. Labels include: 'Magnetic Drive System within an (annular) Second Chamber', 'Full MagLev Flow Technology Pump Large consistent blood flow pathways to reduce shear stress', 'GAP', '167 STACKED RED BLOOD CELLS', 'Magnetically Driven Rotor within a First Chamber', 'Second Chamber is Sealed from the First Chamber', 'Inflow cannula', 'From left ventricle', 'Motor', 'Slide lock', 'Rotor with internal magnet', 'Blood flow', 'To aorta', 'Pump chamber', and 'Second Chamber is Sealed from the First Chamber'.</p> <p>Exemplary Sources: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmplKzmKe0; Heartmate 3 Review By Pablo Motta, MD, FAAP at https://www2.ccasociety.org/newsletters/2020summer/HM3.html.</p> <p><i>See also</i> the evidence and analysis for claim 11 above and the other claim elements discussed herein.</p>
<p>19. The system of claim 18, wherein the wall of the one or more walls separates the first chamber from the second chamber.</p>	<p>The HeartMate 3 comprises the system of claim 18.</p> <p><i>See</i> the evidence and analysis for claims 11 and 18 above.</p> <p>In the HeartMate 3, the wall of the one or more walls separates the first chamber from the second chamber.</p> <p>For example, in the HeartMate 3, the wall of the one or more walls (at least partially defining a chamber to receive blood from the inflow tube) separates the first chamber (in which blood flows, and within which is positioned the magnetically driven rotor) from the second chamber (in which blood does not flow, and within which is positioned the magnetic drive system, which includes what Abbott calls a Motor, Stator, and/or MagLev Flow technology), as shown in the annotated images below.</p>

EXHIBIT D

U.S. Patent No. 11,572,879 Claim	Abbott's Accused Products
	 <p>The diagram illustrates the HeartMate 3 LVAD system. It features a Magnetic Drive System within an (annular) Second Chamber and a Magnetically Driven Rotor within a First Chamber. The system includes an Inflow cannula from the left ventricle, a Slide lock, and a Pump chamber leading To aorta. A Rotor with internal magnet is shown within the pump chamber. The diagram also highlights the Full MagLev Flow Technology Pump with large consistent blood flow pathways to reduce shear stress, and a GAP between the rotor and the chamber wall. A callout labeled 167 shows STACKED RED BLOOD CELLS². Two labels indicate that the Wall separates the first chamber from the second chamber in different views.</p> <p>Exemplary Sources: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmpIKzmKe0; Heartmate 3 Review By Pablo Motta, MD, FAAP at https://www2.ccasociety.org/newsletters/2020summer/HM3.html.</p> <p><i>See also</i> the evidence and analysis for claims 11 and 18 above and the other claim elements discussed herein.</p>