

EXHIBIT 9

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
1. A system for assisting the blood circulation of a heart, comprising:	Abbott has made, used, sold, offered for sale, and/or imported into the United States and is currently making, using, selling, offering for sale and/or importing into the United States products that infringe one or more claims of the '357 patent (the "'357 Accused Products"). Abbott's '357 Accused Products include, but are not necessarily limited to, Abbott's HeartMate 3 Left Ventricular Assist System (LVAS) system ("HeartMate 3")², and any other Abbott products, either alone or in combination, that operate in a reasonably similar manner. For example, and to the extent that Abbott argues that the preamble is a limitation, HeartMate 3 is a system for assisting the blood circulation of a heart, as recited by claim 1. As shown in the exemplary 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. Overview 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.

¹ These allegations are exemplary. Discovery from Abbott has not yet begun, and may uncover additional Abbott products that infringe the '357 patent literally or under the doctrine of equivalents. The Court has also not yet construed any terms from any claims of the '357 patent. Thus, Plaintiff reserves the right to supplement these allegations as the case progresses through discovery and the claim construction process.

² The claim chart herein cites to exemplary evidence regarding Abbott's HeartMate 3 products, as products that infringe the '357 patent.

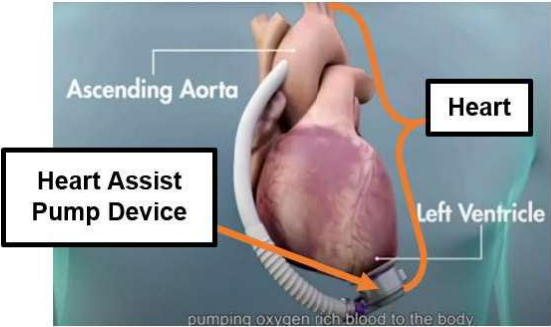
EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	Exemplary Sources³: “HeartMate 3™ Left Ventricular Assist System Instructions for Use” at pages marked “1-3” – available for download at https://manuals.sjm.com/Search-Form?re=North-America&cc=US&ln=EN&ct=professional&qry=heartmate&ipp=10⁴ via https://manuals.sjm.com/~media/manuals/product-manual-pdfs/5/7/571a1818-2da2-4c1a-b454-f6f5a3bc39b6.pdf. <i>See also</i> the evidence and analysis for the claim elements discussed below.

³ The sources identified herein are merely exemplary.

⁴ All hyperlinks cited herein were last accessed 20 November, 2023.

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products¹
a heart assist pump device deliverable to the heart and comprising:	Abbott's '357 Accused Products include a heart assist pump device deliverable to the heart. 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 exemplary annotated⁵ image below:  Exemplary Source: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmpIKzmKe0. <i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.
an inflow tube defining a blood inflow path;	Abbott's '357 Accused Products include a heart assist pump device comprising an inflow tube defining a blood inflow path. For example, as shown in the annotated image below, HeartMate 3's LVAD heart assist pump device comprises an inflow tube, which Abbott calls an inflow cannula, which defines the blood inflow path from from the left ventricle of a patient's heart.

⁵ All annotations in black text boxes herein have been added by Plaintiff, to supplement the existing annotations (if any).

EXHIBIT 9

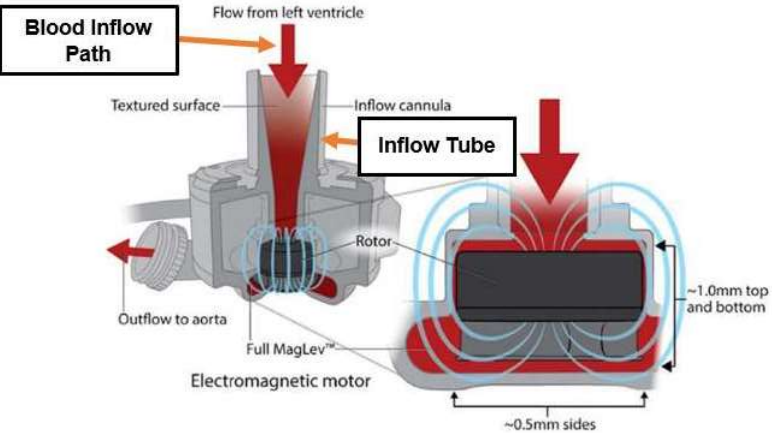
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	 Exemplary Source: Figure 1 from “HeartMate 3 in Lowest INTERMACS Profile Cohort: The Swiss Experience,” available at https://www.researchgate.net/publication/317276467_HeartMate_3_in_Lowest_INTERMACS_Profile_Cohort_The_Swiss_Experience. <i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.
a magnetically driven rotor axially aligned with the inflow tube and being rotatable within a surrounding rotor housing to act upon blood flowing from the inflow tube toward the magnetically driven rotor,	Abbott's '357 Accused Products include a heart assist pump device comprising a magnetically driven rotor axially aligned with the inflow tube and being rotatable within a surrounding rotor housing to act upon blood flowing from the inflow tube toward the magnetically driven rotor. For example, as shown in the annotated images below, HeartMate 3's LVAD heart assist pump device comprises a magnetically driven rotor, which has a central axis. This axis is configured to be aligned with an axis of the inflow tube, which Abbott calls the inflow cannula. This magnetically driven rotor is rotatable within a

EXHIBIT 9

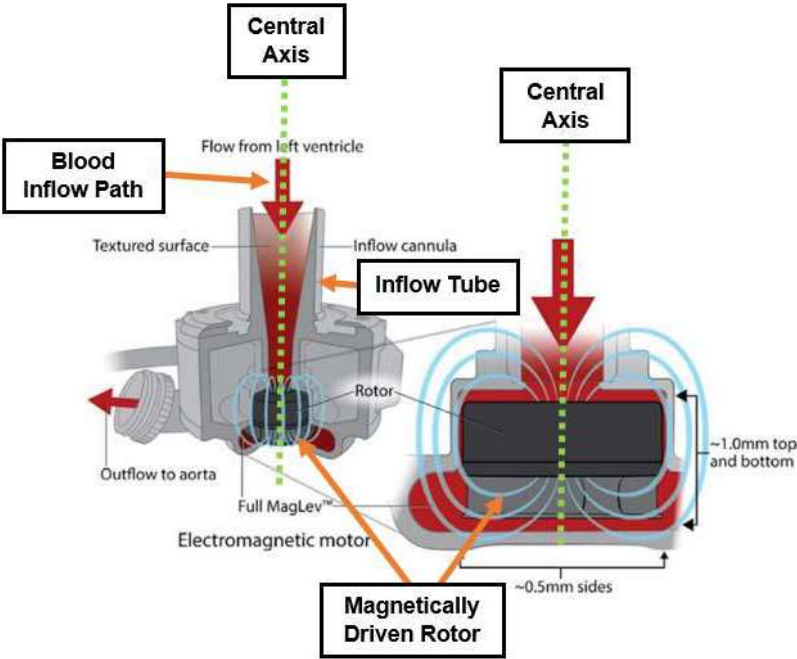
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	surrounding housing within the HeartMate 3 LVAD heart assist pump device, to act upon blood flowing from the inflow cannula toward the rotor.  The diagram illustrates the internal components of the HeartMate 3 LVAD. It shows a cross-section of the device with a central axis running vertically. Blood flows from the left ventricle through an inflow cannula into an inflow tube. The inflow tube has a textured surface. The blood then flows into a rotor, which is part of a Full MagLev™ system. The rotor is driven by an electromagnetic motor. The diagram also shows the outflow to the aorta. Dimensions are indicated: ~1.0mm top and bottom, and ~0.5mm sides. Labels include: Central Axis, Blood Inflow Path, Flow from left ventricle, Textured surface, Inflow cannula, Inflow Tube, Rotor, Outflow to aorta, Full MagLev™, Electromagnetic motor, and Magnetically Driven Rotor.

EXHIBIT 9

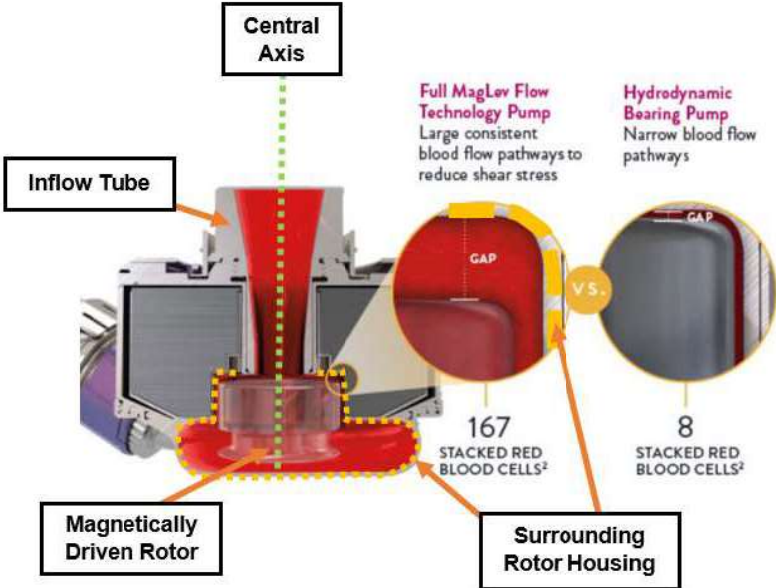
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	 The diagram illustrates the internal components of the HeartMate 3 pump. It features a central axis with an inflow tube at the top and a magnetically driven rotor at the bottom. The rotor is surrounded by a rotor housing. Two circular insets compare the flow paths: the left inset shows the 'Full MagLev Flow Technology Pump' with 'Large consistent blood flow pathways to reduce shear stress' and '167 STACKED RED BLOOD CELLS²'; the right inset shows the 'Hydrodynamic Bearing Pump' with 'Narrow blood flow pathways' and '8 STACKED RED BLOOD CELLS²'. A 'VS.' label is placed between the two insets. Labels with arrows point to the 'Central Axis', 'Inflow Tube', 'Magnetically Driven Rotor', and 'Surrounding Rotor Housing'. Exemplary Sources: 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; 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> the evidence and analysis for the Preamble above and the other claim elements discussed herein.

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products¹
the magnetically driven rotor being rotatable about a central axis and being rigidly coupled to a first magnetic device that is located within the surrounding rotor housing, wherein both the magnetically driven rotor and first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap during rotation of the magnetically driven rotor;	The magnetically driven rotor of Abbott's '357 Accused Products is rotatable about a central axis and rigidly coupled to a first magnetic device that is located within the surrounding rotor housing, wherein both the magnetically driven rotor and first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap during rotation of the magnetically driven rotor. For example, the magnetically driven rotor of the HeartMate 3 heart assist pump is rotatable a central axis, and is rigidly coupled to a first magnetic device, as shown in the exemplary annotated image below. Further, the HeartMate 3 heart assist pump device is configured such that during roatation of the magnetically driven rotor, the rotor and the first magnetic device are entirely spaced apart from the surrounding rotor housing by a gap. The magnetically driven rotor, first magnetic device, surrounding rotor housing, and gap are all shown in the exemplary annotated image below.

EXHIBIT 9

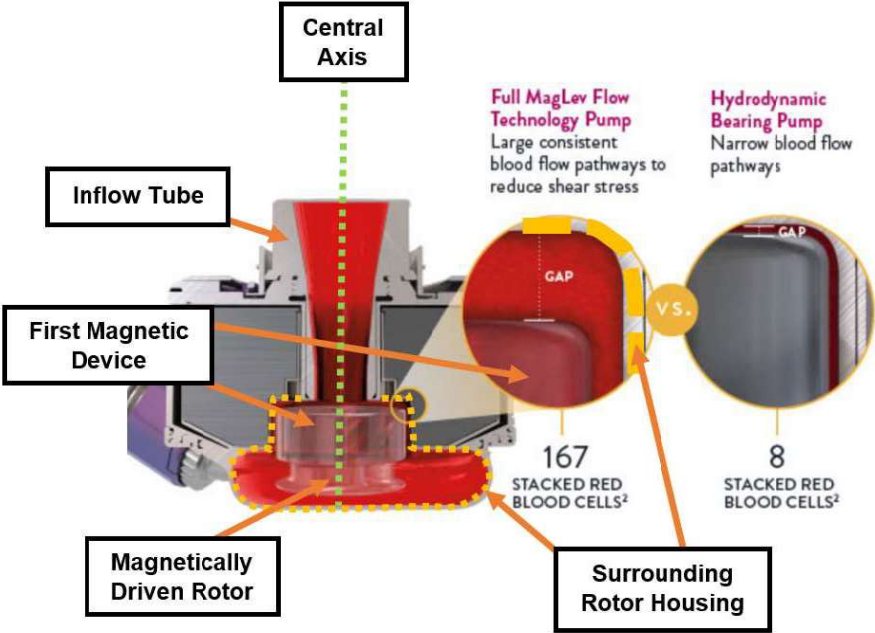
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	 The diagram illustrates a comparison between two pump technologies. On the left, a cross-section of a pump assembly is shown with labels: 'Central Axis' (indicated by a green dashed line), 'Inflow Tube', 'First Magnetic Device', and 'Magnetically Driven Rotor'. To the right, two circular insets compare flow pathways. The top inset, labeled 'Full MagLev Flow Technology Pump', shows 'Large consistent blood flow pathways to reduce shear stress' and '167 STACKED RED BLOOD CELLS²'. The bottom inset, labeled 'Hydrodynamic Bearing Pump', shows 'Narrow blood flow pathways' and '8 STACKED RED BLOOD CELLS²'. A 'V.S.' (versus) symbol is placed between the two insets. A 'Surrounding Rotor Housing' label points to the outer casing of the pump assembly. Exemplary Source: 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> the evidence and analysis for the Preamble above and the other claim elements discussed herein.

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products¹
a magnetic drive system comprising a second magnetic device axially aligned with the central axis of the magnetically driven rotor and spaced apart from the magnetically driven rotor such that a wall of the surrounding rotor housing is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to provide a magneto coupling with the first magnetic device to drive rotation of the magnetically driven rotor;	Abbott's '357 Accused Products include a second magnetic device axially aligned with the central axis of the magnetically driven rotor and spaced apart from the magnetically driven rotor such that a wall of the surrounding rotor housing is positioned between the magnetically driven rotor and the second magnetic device, the second magnetic device positioned axially closer to the first magnetic device than to the magnetically driven rotor so as to provide a magneto coupling with the first magnetic device to drive rotation of the magnetically driven rotor. For example, the HeartMate 3 heart assist pump device includes a second magnetic device which Abbot calls a Motor, Stator, and/or MagLev Flow technology. This second magnetic device is configured to be aligned with the central axis of the magnetically driven rotor, and is positioned axially closer to the first magnetic device than to the rotor in order to magnetically drive the magnetically driven rotor to rotate via a magneto coupling with the first magnetic device. Further, the second magnetic device is configured to be spaced apart and sealed from the magnetically driven rotor and first magnetic device by a wall of the surrounding housing positioned between the magnetically driven rotor and the second magnetic device, as shown in the exemplary annotated images below.

EXHIBIT 9

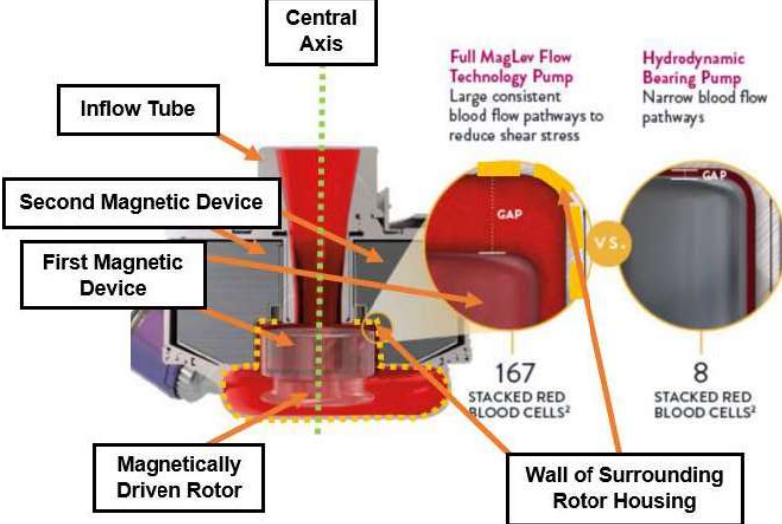
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	 Exemplary Source: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html.

EXHIBIT 9

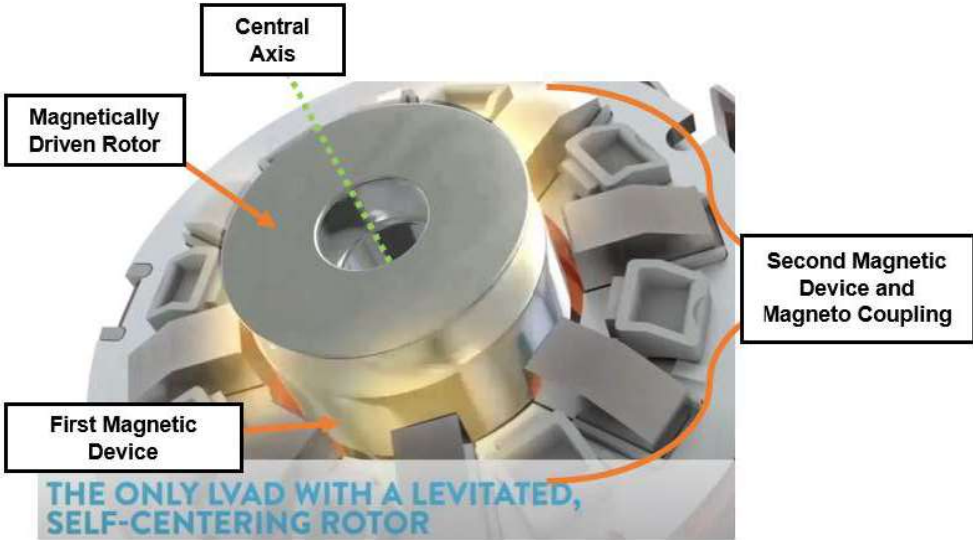
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	 Exemplary Source: Video titled “HeartMate 3 LVAD Peer-to-Peer Video Presentation” at https://youtu.be/_C-K-DCINbl. <i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.
a blood outflow port positioned radially adjacent the magnetically driven rotor such that blood driven by the magnetically driven rotor is configured to exit the surrounding rotor housing in a direction substantially perpendicular from the blood inflow path and the central axis of the magnetically driven rotor,	Abbott's '357 Accused Products include a blood outflow port positioned radially adjacent the magnetically driven rotor such that blood driven by the magnetically driven rotor is configured to exit the surrounding rotor housing in a direction substantially perpendicular from the blood inflow path and the central axis of the magnetically driven rotor. For example, the HeartMate 3 heart assist pump device includes a port for blood outflow to the aorta, as shown in the annotated image below. This port is radially adjacent to the magnetically driven rotor, such that blood driven by the rotor is configured to exit the housing through the port in a direction substantially perpendicular

EXHIBIT 9

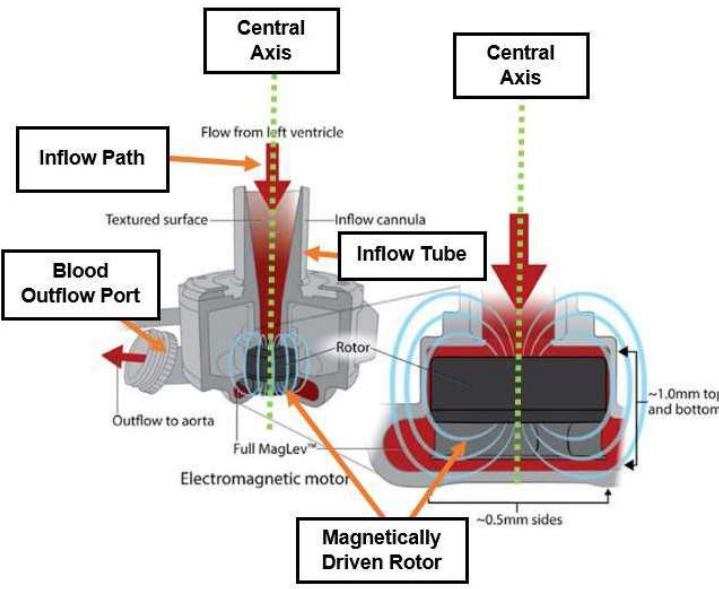
U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	from the inflow path for the inflow cannula. This outflow direction is also substantially perpendicular to the central axis of the magnetically driven rotor, as its central axis is substantially parallel to the inflow path for the inflow cannula.  The diagram illustrates the internal components of the HeartMate 3 ventricular assist device. It shows a cross-section of the device with the following labeled parts: 'Central Axis' (indicated by a dashed green line), 'Inflow Path' (indicated by an orange arrow), 'Flow from left ventricle' (indicated by a red arrow), 'Textured surface' (on the inflow cannula), 'Inflow cannula', 'Inflow Tube', 'Blood Outflow Port' (indicated by an orange arrow), 'Outflow to aorta' (indicated by a red arrow), 'Rotor' (a central rotating component), 'Full MagLev™' (magnetic levitation system), 'Electromagnetic motor' (surrounding the rotor), and 'Magnetically Driven Rotor' (a box highlighting the rotor assembly). Dimensions are noted as '~1.0mm top and bottom' and '~0.5mm sides' for the rotor area. 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. <i>See also</i> the evidence and analysis for the Preamble above and for the other claim elements discussed herein.

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
wherein the magneto coupling orients the magnetically driven rotor so that, in response to rotation of the magnetically driven rotor, the magnetically driven rotor is spaced apart from the surrounding rotor housing by the blood flowing in the gap and to the blood outflow port;	The magneto coupling of Abbott's '357 Accused Products orients the magnetically driven rotor so that, in response to rotation of the magnetically driven rotor, the magnetically driven rotor is spaced apart from the surrounding rotor housing by the blood flowing in the gap and to the blood outflow port. 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 magnetically driven rotor, the second magnetic device orients the rotor via the magneto coupling so that it remains entirely spaced apart from the surrounding rotor housing by the blood flowing in the gap and to the outflow port that leads to the aorta. Exemplary Sources: HeartMate 3 Website at https://www.cardiovascular.abbott/us/en/hcp/products/heart-failure/left-ventricular-assist-devices/heartmate-3/about.html; see also video titled “Abbott’s HeartMate 3

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	LVAD,” available at https://www.youtube.com/watch?app=desktop&v=IbHN8e_OGJw; video titled “HeartMate 3 LVAD Peer-to-Peer Video Presentation” at https://youtu.be/_C-K-DCINbI. <i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.
and an external control unit configured to regulate operation of the second magnetic device, the external control unit connectable to the heart assist pump device for controlling the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device.	Abbott's '357 Accused Products include an external control unit configured to regulate operation of the second magnetic device, the external control unit connectable to the heart assist pump device for controlling the second magnetic device to thereby magnetically drive the rotation of the magnetically driven rotor via the magneto coupling with the first magnetic device. For example, Abbott's HeartMate 3 products include 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, which Abbott calls the HeartMate 3 LVAD, such that the external control unit regulates 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 as discussed above.

EXHIBIT 9

U.S. Patent No. 11,351,357 Claim	Abbott's '357 Accused Products ¹
	The diagram illustrates the HeartMate 3 LVAD system. A human torso is shown with a heart. A 'Heart Assist Pump Device' is attached to the heart. A 'Pump Cable' connects the pump device to an 'External Control Unit' located outside the body. A 'Modular Cable' also connects the pump device to the external control unit. Text labels with leader lines identify each component: 'Heart Assist Pump Device', 'Pump Cable', 'External Control Unit', and 'Modular Cable'. A note at the top states: 'One end of the pump cable is connected to the pump.' Exemplary Source: Video titled “HeartMate 3 LVAD Patient Education Program – (2) System Overview,” available at https://www.youtube.com/watch?v=hmmpIKzmKe0; see also “HeartMate 3™ Left Ventricular Assist System Instructions for Use” at pages marked “1-3” and “1-10” – available for download at https://manuals.sjm.com/Search-Form?re=North-America&cc=US&ln=EN&ct=professional&qry=heartmate&ipp=10 via https://manuals.sjm.com/~media/manuals/product-manual-pdfs/5/7/571a1818-2da2-4c1a-b454-f6f5a3bc39b6.pdf. <i>See also</i> the evidence and analysis for the Preamble above and the other claim elements discussed herein.