

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, par value \$0.001 per share	-	-	\$100,000,000	\$10,910.00

PROSPECTUS SUPPLEMENT
(To Prospectus dated May 19, 2021)



Asensus Surgical, Inc.

Up to \$100 Million
Common Stock

We are offering, through this prospectus supplement and the accompanying prospectus, up to \$100 million of shares of our common stock, \$0.001 par value per share in this offering pursuant to the Controlled Equity OfferingSM Sales Agreement, or the Sales Agreement, among us and Cantor Fitzgerald & Co., or Cantor, Robert W. Baird & Co. Incorporated, or Baird, and Oppenheimer & Co. Inc., or Oppenheimer. We refer to each of Cantor, Baird and Oppenheimer individually as an “Agent” and collectively as the “Agents”.

In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock at any time and from time to time through or to Cantor, Baird or Oppenheimer as sales agent or principal. Sales of the common stock, if any, will be made at market prices by any method that is deemed to be an “at the market offering” as defined in Rule 415 under the Securities Act of 1933, as amended, or the Securities Act.

The aggregate compensation payable to the Agents shall be up to 3.0% of the gross sales price of the shares sold pursuant to the Sales Agreement. In connection with the sale of the common stock on our behalf, each Agent will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of each Agent will be deemed to be underwriting commissions or discounts.

Subject to the terms and conditions of the Sales Agreement, each Agent will use its commercially reasonable efforts consistent with its normal trading and sales practices to sell on our behalf any shares to be offered by us under the Sales Agreement. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Our common stock is listed on the NYSE American under the symbol “ASXC.” On May 17, 2021, the last reported sale price of our common stock on the NYSE American was \$1.76 per share.

Investing in our common stock involves risks. You should review carefully the risks and uncertainties described under the heading “Risk Factors” beginning on page S-5 of this prospectus supplement and under similar headings in the other documents that are incorporated by reference in this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

Cantor

Baird

Oppenheimer & Co.

The date of this prospectus supplement is May 19, 2021.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus, dated May 19, 2021, are part of a “shelf” registration statement on Form S-3. This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of shares of our common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus, including the documents incorporated by reference, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained in, or incorporated by reference into, this prospectus supplement and the accompanying prospectus. We have not, and no Agent has, authorized anyone to provide you with different or additional information. You should assume that the information in this prospectus supplement and the accompanying prospectus is accurate only as of the date on the front of the respective document and that any information that we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus supplement or the accompanying prospectus or the time of any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.

As used in this prospectus supplement, the terms “we,” “our,” “us,” or the “Company” refer to Asensus Surgical, Inc., including its subsidiaries Asensus Surgical US, Inc., SafeStitch LLC, Asensus International, Inc., Asensus Surgical Italia S.r.l., Asensus Surgical Europe S.à.r.l., Asensus Surgical Taiwan Ltd., Asensus Surgical Japan K.K., Asensus Surgical Israel Ltd., Asensus Surgical Netherlands B.V., and Asensus Surgical Canada, Inc.

This prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this prospectus supplement, or incorporated by reference into this prospectus supplement, are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements, other than statements of historical fact, included or incorporated in this prospectus supplement regarding our strategy, future operations, collaborations, intellectual property, cash resources, financial position, future revenues, projected costs, prospects, plans, and objectives of management are forward-looking statements. The words “believes,” “anticipates,” “estimates,” “plans,” “expects,” “intends,” “may,” “could,” “should,” “potential,” “likely,” “projects,” “continue,” “will,” and “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated or implied by forward-looking statements, including, but not limited to:

- our history of operating losses;
- our ability to successfully transition from a research and development company to a company focused on market development activities and sales and distribution of our products;

- our ability to successfully implement our Performance-Guided Surgery™ strategy and grow our business as a result;
- our ability to successfully develop, clinically test and commercialize our products;
- our ability to identify and pursue development of additional products;
- the timing and outcome of the regulatory review process for our products;
- competition from existing and new market entrants;
- our ability to successfully acquire new technologies and successfully use such acquisitions to advance our business and product offerings;
- our ability to fund our operations until break even;
- the impact of foreign currency fluctuations on our financial results;
- our ability to attract and retain key management, marketing and scientific personnel;
- our ability to successfully prepare, file, prosecute, maintain, defend and enforce patent claims and other intellectual property rights;
- changes in the health care and regulatory environments of the United States, Europe, Japan, Russia and other jurisdictions in which the Company operates; and
- the impact of the COVID-19 pandemic, or future pandemics, on our operations.

These factors and the other cautionary statements made or incorporated by reference in this prospectus should be read as being applicable to all related forward-looking statements whenever they appear in this prospectus. In addition, any forward-looking statements represent our estimates only as of the date that this prospectus is filed with the SEC, and should not be relied upon as representing our estimates as of any subsequent date. We do not assume any obligation to update any forward-looking statements. We disclaim any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

You should rely only on the information contained in this prospectus supplement (including in any documents incorporated by reference herein). We have not authorized anyone to provide you with any different information. We are offering to sell our securities, and seeking offers to buy, only in jurisdictions where offers and sales are permitted.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and information appearing elsewhere in this prospectus supplement and in the accompanying prospectus and in the documents we incorporate by reference. This summary is not complete and does not contain all of the information that you should consider before investing in shares of our common stock. The following summary is qualified in its entirety by, and should be read in conjunction with, the more detailed information appearing elsewhere in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein. Before you decide to invest in shares of our common stock, to fully understand this offering and its consequences to you, you should read the entire prospectus supplement and the accompanying prospectus carefully, including the risk factors beginning on page S-5 of this prospectus supplement and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, as such risk factors may be amended, updated or modified periodically in our quarterly reports filed on Form 10-Q with the SEC, and any amendment or update thereto reflected in subsequent filings with the SEC incorporated by reference in this prospectus, and the documents incorporated by reference herein and therein.

Company Overview

Asensus Surgical is a medical device company that is digitizing the interface between the surgeon and the patient to pioneer a new era of Performance-Guided Surgery by unlocking the clinical intelligence to enable consistently superior outcomes and a new standard of surgery. This builds upon the foundation of Digital Laparoscopy with the Senhance® Surgical System powered by the Intelligent Surgical Unit, or ISU, to increase surgeon control and reduce surgical variability. With the addition of machine vision, augmented intelligence, and deep learning capabilities throughout the surgical experience, we intend to holistically address the current clinical, cognitive and economic shortcomings that drive surgical outcomes and value-based healthcare. The Company is focused on the market development for and commercialization of the Senhance Surgical System, which digitizes laparoscopic minimally invasive surgery, or MIS. The Senhance System is the first and only digital, multi-port laparoscopic platform designed to maintain laparoscopic MIS standards while providing digital benefits such as haptic feedback, robotic precision, comfortable ergonomics, advanced instrumentation including 3 mm microlaparoscopic instruments, eye-sensing camera control and fully-reusable standard instruments to help maintain per-procedure costs similar to traditional laparoscopy.

The Senhance System is available for sale in Europe, the United States, Japan, Taiwan, Russia and select other countries.

- The Senhance System has a CE Mark in Europe for adult and pediatric laparoscopic abdominal and pelvic surgery, as well as limited thoracic surgeries excluding cardiac and vascular surgery.
- In the United States, the Company has received 510(k) clearance from the FDA for use of the Senhance System in general laparoscopic surgical procedures and laparoscopic gynecologic surgery in a total of 31 indicated procedures, including benign and oncologic procedures, laparoscopic inguinal, hiatal and paraesophageal hernia, sleeve gastrectomy and laparoscopic cholecystectomy (gallbladder removal) surgery.
- In Japan, the Company has received regulatory approval and reimbursement for 98 laparoscopic procedures.
- The Senhance System has received its registration certificate by the Russian medical device regulatory agency, Roszdravnadzor, allowing for its sale and utilization throughout the Russian Federation.

We also enter into lease arrangements with certain qualified customers. For some lease arrangements, the customers are provided with the right to purchase the leased Senhance System during or at the end of the lease term, or a Lease Buyout. In the first quarter of 2021, we completed a Lease Buyout of a Senhance System.

In February 2021, we changed our name from TransEnterix, Inc. to Asensus Surgical, Inc. as part of our strategy to utilize the Senhance System and ISU capabilities, along with our other augmented intelligence related offerings and instrumentation to unlock clinical intelligence to enable consistently superior outcomes and a new standard of surgery we are calling Performance-Guided Surgery. We believe our product offerings, and our digitization of the interface between the surgeon and the patient allows us to assist the surgeon in all aspects of laparoscopic surgery including:

- Pre-operative - in what we call “intelligent preparation,” our machine learning models will take data from all of the procedures done utilizing our current Senhance System with the ISU, such as tracking surgical motion and team interaction, to create a large and constantly improving database of surgeries and their outcomes to enable surgeons to best inform their approach and surgical setup.
- Intra-operative – we believe the Senhance System provides perceptive real-time guidance for intra-operative tasks, allowing any surgeon performing a procedure with the Senhance System to perform multiple tasks and benefit from the collective knowledge and rules-based performance of thousands of other successful Senhance-based procedures. Not only will this provide the surgeon with a pathway to better outcomes, we believe it will ultimately help reduce the cognitive load of the surgeons.
- Future use post-operative – finally, by tapping into the vast amount of data captured during procedures, surgeons and operating room staff will be able to get actionable assessments of their performance giving them the information needed to improve performance over time. We intend on building a new standard of analytics to improve not only the skills of all surgeons but moving towards best-practice-sharing that bridges the global surgeon community.

We received FDA clearance in March 2020 for our Intelligent Surgical Unit. We believe it is the only FDA-cleared device for machine vision technology in abdominal robotic surgery. On September 23, 2020, we announced the first surgical procedures successfully completed using the ISU. In January 2021, we received CE Mark for the ISU.

In February 2020, we received CE Mark for the Senhance System and related instruments for pediatric use indications in CE Mark territories. In 2020, we obtained regulatory clearance for the Senhance ultrasonic system in both Taiwan and Japan. We also received clearance for the ISU in both the U.S. and Japan. Finally, in the EU, we expanded our claims for the Senhance System to include pediatric patients, allowing accessibility to more surgeons and patients, as well as expanding our potential market to include pediatric hospitals in Europe. We anticipate the robotic precision provided by the Senhance System, coupled with the already available 3 mm instruments will prove to be an effective tool in surgery with smaller patients.

We believe that future outcomes of minimally invasive laparoscopic surgery will be enhanced through our combination of more advanced tools and robotic functionality, which are designed to: (1) empower surgeons with improved precision, dexterity and visualization; (2) improve patient satisfaction and enable a desirable post-operative recovery; and (3) provide a cost-effective robotic system, compared to existing alternatives today, for a wide range of clinical indications.

From our inception, we devoted a substantial percentage of our resources to research and development and start-up activities, consisting primarily of product design and development, clinical studies, manufacturing, recruiting qualified personnel and raising capital. We expect to continue to invest in research and development and market development as we implement our strategy.

Since inception, we have been unprofitable. As of March 31, 2021, we had an accumulated deficit of \$740.3 million.

We operate in one business segment.

Risks and Uncertainties

We are subject to risks similar to other similarly sized companies in the medical device industry. These risks include, without limitation: potential negative impacts on our operations caused by the COVID-19 pandemic; our ability to continue as a going concern; the historical lack of profitability; our ability to raise additional capital; the liquidity and capital resources of our customers; our ability to successfully implement our strategy and increase utilization of the Senhance System; the timing and outcome of the regulatory review process for our products; changes in the health care and regulatory environments of the United States, the United Kingdom, the European Union, Japan, Taiwan and other countries in which we operate or intend to operate; our ability to attract and retain key management, marketing and scientific personnel; our ability to successfully prepare, file, prosecute, maintain, defend and enforce patent claims and other intellectual property rights; competition in the market for robotic surgical devices; and our ability to identify and pursue development of additional products.

Material Changes

There have been no material changes in our affairs since the end of the latest fiscal year for which audited financial statements were included in the latest Annual Report on Form 10-K and that have not been described in a Quarterly Report on Form 10-Q or Current Report on Form 8-K filed under the Securities Exchange Act of 1934, as amended.

Company Information

We were organized as a Delaware corporation on August 19, 1988. Our principal executive offices are located at 1 TW Alexander Drive, Suite 160, Durham, NC 27703. Our phone number is (919) 765-8400 and our Internet address is www.asensus.com. The information on our website or any other website is not incorporated by reference in this prospectus supplement and does not constitute a part of this prospectus supplement.

THE OFFERING

Securities Offered:	Up to an aggregate of \$100,000,000 of shares of our common stock pursuant to the Sales Agreement with Cantor, Baird and Oppenheimer, as sales agents. See “Plan of Distribution” beginning on page S-15 of this prospectus supplement.
Common Stock Outstanding:	As of March 31, 2021, we had 232,716,797 shares of common stock outstanding.
Manner of Offering:	“At the market offering” made from time to time through or to the Agents as sales agents or principals. See “Plan of Distribution” beginning on page S-15 of this prospectus supplement.
Use of Proceeds:	We currently intend to use the net proceeds of this offering, if any, for general corporate purposes, including working capital, marketing, product development and capital expenditures. See “Use of Proceeds” on page S-12 of this prospectus supplement.
Risk Factors:	Investing in our common stock involves a high degree of risk. See “Risk Factors” beginning on page S-5 of this prospectus supplement and the other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus.
NYSE American symbol:	Our common stock is listed on the NYSE American under the symbol “ASXC.”

The number of shares of common stock outstanding as of March 31, 2021, excludes, as of such date:

- 504,021 shares of common stock we have issued between April 1, 2021 and May 14, 2021;
- 4,731,249 shares of common stock issuable upon the exercise of outstanding options granted under our equity incentive plans at a weighted average exercise price of \$9.81 per share;
- 1,323,995 shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$1.78 per share;
- 2,688,342 shares of common stock issuable upon vesting of outstanding restricted stock units; and
- 1,265,038 shares of common stock available for future issuance under our equity incentive plans.

Unless otherwise stated in this prospectus supplement, all information in this prospectus supplement, including share and per share amounts, gives effect to a 1-for-13 reverse stock split effected in December 2019 and assumes that there were no exercises of outstanding options or warrants after March 31, 2021.

RISK FACTORS

Investing in our common stock involves a high degree of risk. For a discussion of the factors you should carefully consider before deciding to purchase any of our securities, please review “Part II, Item 1A – Risk Factors” in our Quarterly Report on Form 10-Q for the period ended March 31, 2021, filed with the U.S. Securities and Exchange Commission, or SEC, on May 11, 2021, and “Part I, Item 1.A - Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on March 11, 2021, each of which are incorporated by reference in this prospectus supplement and the accompanying prospectus in its entirety, together with the other information contained in this prospectus supplement, the accompanying prospectus and the documents we have filed or will subsequently file that are incorporated by reference. The risks and uncertainties described in the documents incorporated by reference are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. If any of those risks actually occurs, our business, financial condition and results of operations would suffer. In that event, the market price of our common stock could decline, and you may lose all or part of your investment in our common stock.

We have a history of operating losses, and we may not be able to achieve or sustain profitability.

We have a limited operating history. We are not profitable and have incurred losses since our inception. Our accumulated deficit was \$740.3 million and our working capital was \$172.8 million as of March 31, 2021. We believe that cash on hand, are sufficient to fund our operations more than 12 months from the date of this prospectus supplement, but cannot assure you that our cash needs will not change over time.

We expect to continue to incur losses for the foreseeable future, and these losses will likely increase as we continue to develop and commercialize our products. We will continue to incur research and development and general and administrative expenses related to our operations, and sales and marketing expenses to support our commercial activities, as restructured. Even if we are successful in reducing our expenses or achieving profitability in the future, we may not be able to sustain profitability in subsequent periods.

The coronavirus (COVID-19) pandemic continues to negatively impact our operations.

We have facilities and/or customers located in the United States, Israel, Japan, and Italy and a few other locations. All of our facilities are in locations that are subject to, or have been subject to, stay-at-home or shelter-in-place orders that have been reinstated from time to time as pandemic surges occur. A variety of travel restrictions continue to cause delays in our product installation and training activities, and are expected to continue. In the first quarter of 2021, elective surgeries were significantly reduced in Europe, Japan, and to some extent in different locations in the United States. These pandemic-related events have negatively impacted our implementation of new leasing arrangements, performance of surgical procedures using the Senhance System in some locations, and our product installation and training activities. Although we believe such disruptions may be temporary, we cannot assure you that the impact of the COVID-19 pandemic will not have a material impact on our business and financial results.

There are new entrants in the surgical robotics market, which can negatively impact our commercial opportunities.

There are an increasing number of new entrants in the surgical robotics market who are researching, developing, seeking regulatory approval for, and in a few instances, marketing robotic-assisted surgical devices. We believe a few of these entrants have been able to raise significant capital to pursue their development efforts. We are also expanding the potential market for robotic surgical systems with our focus on laparoscopic surgery and Performance-Guided Surgery. Such expansion may lead to additional competition with companies with sufficiently higher resources than ours. We continue to evaluate new entrants in the surgical robotics market and believe the increase in companies, while accelerating the use of surgical robotic devices, may have a negative impact on our business and future opportunities.

In order to compete successfully within the highly competitive surgical robotics industry, we need to continue to advance and innovate the Senhance System, including the innovations associated with the assets we acquired from Medical Surgery Technologies, Ltd. in 2018. Our focus currently is on harnessing the image technology acquired in the MST acquisition to advance the intelligence of the Senhance System through the ISU to provide meaningful real-time data to surgeons. We have developed and received CE Mark for articulating instruments in Europe. We are developing articulating instruments and will seek FDA 510(k) clearance in the US. These assets are also vital to our Performance-Guided Surgery strategy. If we fail to continue to develop such innovations, or fail to obtain regulatory approval or clearance for or successfully commercialize such innovations, such failure could have a material adverse effect on our business and financial position.

We believe that our ability to successfully compete will depend on, among other things:

- the efficacy, safety and reliability of our products;
- our ability to commercialize and market our cleared or approved products;
- the completion of our development efforts and receipt of regulatory clearance or approval for instruments and accessories to support the use of the Senhance System;
- the cost of ownership and use of our products in relation to alternative devices;
- the timing and scope of regulatory clearances or approvals, including any expansion of the indications of use for our products;
- whether our competitors substantially reduce the cost of ownership and use of an alternative device;
- our ability to protect and defend intellectual property rights related to our products;
- our ability to have our partners manufacture and sell commercial quantities of any cleared or approved products to the market;
- the availability of adequate coverage and reimbursement by third-party payors for the procedures in which our products are used;
- our ability to adapt to changes in the regulatory environment;
- the effectiveness of our sales and marketing efforts; and
- acceptance of future products by physicians and other health care providers.

If other companies market products that are more effective, safer, easier to use or less expensive than our products or future products, or that reach the market sooner than our products, we may not achieve commercial success. In addition, the medical device industry is characterized by rapid technological change. It may be difficult for us to stay abreast of the rapid changes in each technology. If we fail to stay at the forefront of technological change, we may be unable to compete effectively. Technological advances or products developed by our competitors may render our technologies or products obsolete or less competitive.

We anticipate that the highly competitive surgical robotics environment can lead other companies to attempt to slow or derail our commercial progress. We are using our best efforts to enter the commercial markets effectively and efficiently while maintaining compliance with all regulatory and legal requirements. Responding to the actions of other companies will require the attention of our management and may distract the management team from its focus on our commercial operations and lead to increased costs of commercialization, which could have a negative impact on our financial position.

We also anticipate that the competitive surgical robotics environment will become more intense because of increased consolidation by companies in the health care industry looking to achieve cost reductions. Such consolidation may have an adverse effect on our business operations.

We are currently highly dependent on a single product, the Senhance System. We cannot give any assurance that the Senhance System can be successfully commercialized.

We are currently highly dependent on the Senhance System, which is FDA cleared for sale in the United States, CE marked for sale in the European Union and other countries, registered for sale in the Russian Federation, and approved for sale and reimbursement in Japan. We began our selling efforts for the Senhance System in the fourth quarter of 2015 in Europe, in the fourth quarter of 2017 in the United States and in the second quarter of 2018 in Asia. We have had limited commercial success to date, particularly in 2019, 2020 and 2021 to date. We have determined to focus our energies on market development and increased usage of the Senhance Systems that have been purchased and placed, as well as on our Performance-Guided Surgery strategy. We cannot assure you that we will be able to successfully improve the commercialization of the Senhance System, for a number of reasons, including, without limitation, failure in our market development and sales efforts, the long sales cycle associated with the purchase of capital equipment, and the potential introduction by our competitors of more clinically effective or cost-effective alternatives. Failure to successfully commercialize the Senhance System would have a material and adverse effect on our business.

The sales cycle for the Senhance System has been lengthy and unpredictable, leading us to refocus our energies on entering into placement and leasing arrangements with hospitals, which has had an impact on our revenue.

Purchase of a surgical robotic system such as the Senhance System represents a capital purchase by hospitals and other potential customers, which is a time-intensive process involving adoption by surgeons and approval of the capital purchase by administration. We are also expanding the potential market for robotic surgical systems with our focus on laparoscopic surgery. Such expansion requires a different sales and marketing approach than a focus on open procedures. We have found that sales are extremely difficult and take substantial effort. In late 2019, we began leasing Senhance Systems to hospitals with lease terms ranging from twelve to twenty-four months or more. In 2020 we placed ten Senhance Systems under this program. We cannot assure you that these lease arrangements will lead to longer term placements or result in sales of our Senhance System.

We currently have limited marketing, sales and distribution capabilities. We are focusing on market development efforts and have curtailed our sales force in the United States, and are focusing on select countries in Europe, the Russian Federation and in Japan. Sales efforts elsewhere are conducted through the use of independent contractor and distribution agreements with companies possessing established sales and marketing operations in the medical device industry. There can be no assurance that we will be successful in building our sales capabilities after this period of market development. To the extent that we enter into additional distribution, co-promotion or other arrangements, our product revenue is likely to be lower than if we directly market or sell our products. In addition, any revenue we receive will depend in whole or in part upon the efforts of such third parties, which may not be successful and are generally not within our control. If we are unable to enter into such arrangements on acceptable terms or at all, we may not be able to successfully commercialize our products. If we are not successful in commercializing our existing and future products, either on our own or through collaborations with one or more third parties, our future product revenue will suffer and we may incur significant additional losses.

We have procedures in place to require our distributors and sales agents to comply with applicable laws and regulations governing the sales of medical devices in the jurisdictions where they operate. Failure to meet such requirements could subject us to financial penalties or the suspension or termination of the ability to sell our products in such jurisdiction.

Negative publicity, whether true or not, concerning us or our products could reduce market acceptance of our products and could result in decreased demand for the Senhance System.

There have been social media and other publications regarding us and the Senhance System published from time to time since we started selling the Senhance System. Negative media and social media coverage, whether true or not, concerning our products or us could reduce market acceptance of the Senhance System and increase volatility in our stock price.

Fluctuations in foreign currency exchange rates may adversely affect our financial results.

We conduct operations in several different countries, including the United States and throughout Europe, and portions of our revenues, expenses, assets and liabilities are denominated in U.S. dollars, Euros, and other currencies. Since our consolidated financial statements are presented in U.S. dollars, we must translate revenues, income and expenses, as well as assets and liabilities, into U.S. dollars at exchange rates in effect during or at the end of each reporting period. We have not historically hedged our exposure to foreign currency fluctuations. Accordingly, increases or decreases in the value of the U.S. dollar against the Euro and other currencies could materially affect our net operating revenues, operating income and the value of balance sheet items denominated in foreign currencies.

Our global operations expose us to additional risks and challenges associated with conducting business internationally.

The international nature of our business, particularly in Europe, Israel, Asia and the Russian Federation, may expose us to risks inherent in conducting foreign operations. These risks include:

- challenges associated with managing geographically diverse operations, which require an effective organizational structure and appropriate business processes, procedures and controls;
- the high cost of doing business in foreign jurisdictions, including compliance with international and U.S. laws and regulations that apply to our international operations;
- currency exchange and interest rate fluctuations and the resulting effect on our revenue and expenses, and the cost and risk of entering into hedging transactions, if we chose to do so in the future;
- changes in a specific country's or region's political or economic environment;
- trade protection measures, import or export licensing requirements or other restrictive actions by U.S. or non-U.S. governments;
- potentially adverse tax consequences;
- complexities and difficulties in obtaining protection and enforcing our intellectual property;
- compliance with additional regulations and government authorities in a highly regulated business;
- difficulties associated with staffing and managing foreign operations, including differing labor relations; and
- general economic and political conditions outside of the U.S.

The risks that we face in our international operations may continue to intensify as we further develop and expand our international operations.

We may require substantial additional funding to advance our current plans.

We are focused on our market development efforts and commercialization of the Senhance System and other products, as well as research and development activities for advancements for the Senhance System and our other products. We intend to advance multiple additional products through clinical and pre-clinical development in the future. We may need to raise additional capital in the future in order to fund these priorities and achieve our business objectives. We cannot assure you that we will be successful in obtaining additional financing in the future on terms acceptable to the Company or at all.

Our future funding requirements will depend on many factors, including, but not limited to:

- the costs of our Senhance System market development, commercialization and development activities;
- the costs and timing of seeking and obtaining FDA and other non-U.S. regulatory clearances and approvals for our products in development;
- the costs associated with our manufacturing capabilities;
- our need to expand our research and development activities;
- the costs of acquiring, licensing or investing in businesses, products and technologies;
- the economic and other terms and timing of our existing licensing arrangement and any collaboration, licensing or other arrangements into which we may enter in the future;
- the effect of competing technological and market developments;
- our need to implement additional internal systems and infrastructure, including financial and reporting systems, quality systems and information technology systems; and
- our ability to maintain, expand and defend the scope of our intellectual property portfolio.

Until we generate a sufficient amount of revenue to finance our cash requirements, which may never occur, we expect to finance future cash needs primarily through public or private equity offerings, debt financings or strategic collaborations. We do not know whether additional funding will be available on acceptable terms, or at all. If we are not able to secure additional funding when needed, we may have to delay, reduce the scope of or eliminate one or more of our research and development programs. To the extent that we raise additional funds by issuing equity securities, our stockholders may experience significant dilution; and debt financing, if available, may involve restrictive covenants that limit our operations. To the extent that we raise additional funds through collaboration and licensing arrangements, it may be necessary to relinquish some rights to our products or grant licenses on terms that may not be favorable to us.

We expect our gross margins to vary over time, and changes in our gross margins could adversely affect our financial condition or results of operations.

We began selling the Senhance System in 2015. Our gross margins have fluctuated from period to period, and we expect that they will continue to fluctuate in the future. Our gross margins have been and may continue to be adversely affected by numerous factors, including:

- service costs;
- changes in customer, geographic, or product mix;
- introduction of new products, which may have lower margins than our existing products;
- our ability to maintain or reduce production costs;
- changes to our pricing strategy;
- changes in competition;
- changes in production volume driven by demand for our products;
- changes in material, labor or other manufacturing-related costs, including impact of foreign exchange rate fluctuations for foreign-currency denominated costs;

- fluctuations in foreign currency exchange rates and changes to U.S. and foreign trade policies, including the enactment of tariffs on goods imported into the U.S.;
- inventory obsolescence and product recall charges; and
- market conditions.

If we are unable to offset the unfavorable impact of the factors noted above by increasing the volume of products shipped, reducing product manufacturing costs or otherwise, our business, financial condition, results of operations or cash flows may be materially adversely affected.

Our stock price has been volatile and may experience additional volatility and fluctuation in the future.

The market price of our common stock has been, and may continue to be, volatile, and the market price of our common stock could decrease further and could cause you to lose some or all of your investment in our common stock. During the two-year period ended March 31, 2021, the market price of our common stock fluctuated from a high of \$82.94 per share to a low of \$0.28 per share, after giving effect to the one-for-thirteen reverse stock split we effected on December 11, 2019. The market price of our common stock may continue to fluctuate significantly in response to numerous factors, some of which are beyond our control, such as:

- the announcement of favorable or unfavorable news regarding us, including our product development efforts and regulatory clearance activities;
- the achievement of commercial sales and leases of our products;
- the announcement of new products or product enhancements or collaborations by us or our competitors;
- developments concerning intellectual property rights and regulatory approvals;
- variations in our and our competitors' results of operations;
- changes in earnings estimates or recommendations by securities analysts, if our common stock is covered by analysts;
- developments in surgical robotics;
- the results of product liability or intellectual property lawsuits;
- future issuances of common stock or other securities;
- the addition or departure of key personnel;
- announcements by us or our competitors of acquisitions, investments or strategic alliances; and
- general market conditions and other factors, including factors unrelated to our operating performance.

Our common stock may become the target of a "short squeeze."

In 2021, the securities of several companies experienced significant and extreme volatility in stock price due to short sellers of common stock and buy-and-hold decisions of longer investors, resulting in what is sometimes described as a "short squeeze." Short squeezes have caused extreme volatility in those companies and in the market and have led the price per share of those companies to trade at a significantly inflated rate that is disconnected from the underlying value of the company. Sharp rises in a company's stock price may force traders in a short position to buy the shares to avoid even greater losses. Many investors who have purchased shares in those companies at an inflated rate face the risk of losing a significant portion of their original investment as the price per share has declined steadily as interest in those shares have abated. We may be a target of a short squeeze, and investors may lose a significant portion or all of their investment if they purchase our shares at a rate that is significantly disconnected from our underlying value.

Our stockholders have experienced dilution of their percentage ownership of our stock and may experience additional dilution in the future.

We have raised significant capital through the issuance of our common stock and warrants, particularly in the common stock offerings that occurred in the first quarter of 2021, and anticipate that we will need to raise additional capital in the future in order to continue our operations and achieve our business objectives. We cannot assure you that we will be able to sell shares or other securities in any offering at a price per share that is equal to or greater than the price per share paid by investors in previous offerings, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in previous offerings. The future issuance of the Company's equity securities will further dilute the ownership of our outstanding common stock. The market price of our common stock has been, and may continue to be, highly volatile, and such volatility could cause the market price of our common stock to decrease and could cause you to lose some or all of your investment in our common stock.

Management will have broad discretion as to the use of the net proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion as to the application of the net proceeds and could use them for purposes other than those contemplated at the time of this offering. Our stockholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. Moreover, our management may use the net proceeds for corporate purposes that may not increase our results of operations or the market value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development and approval of our products and cause the price of our common stock to decline.

If you purchase shares of our common stock in this offering, you will experience immediate dilution as a result of this offering.

Because the price per share being offered may be higher than net tangible book value per share of our common stock, you will experience dilution to the extent of the difference between the offering price per share of common stock you pay in this offering and the net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of March 31, 2021 was approximately \$187.3 million, or \$0.80 per share of common stock. Net tangible book value per share is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding. See "Dilution" on page S-14 of this prospectus supplement for a more detailed illustration of the dilution you may incur if you participate in this offering. Because the sales of the shares offered hereby will be made directly into the market or in negotiated transactions, the prices at which we sell these shares will vary and these variations may be significant. Purchasers of the shares we sell, as well as our existing stockholders, will experience significant dilution if we sell shares at prices significantly below the price at which they invested.

If you purchase shares of our common stock in this offering, you may experience future dilution as a result of future equity offerings or other equity issuances.

In order to raise additional capital, we may in the future offer and issue additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any offering at a price per share that is equal to or greater than the price per share paid by investors in previous offerings, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in previous offerings. Further, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. In addition, the exercise of outstanding stock options and warrants or the settlement of outstanding restricted stock units would result in further dilution of your investment.

It is not possible to predict the actual number of shares we will sell under the Sales Agreement, or the gross proceeds resulting from those sales.

Subject to certain limitations in the Sales Agreement and compliance with applicable law, we have the discretion to deliver a placement notice to the Agents at any time throughout the term of the Sales Agreement. The number of shares that are sold through the Agents after delivering a placement notice will fluctuate based on a number of factors, including the market price of the common stock during the sales period, the limits we set with the Agents in any applicable placement notice, and the demand for our common stock during the sales period. Because the price per share of each share sold will fluctuate during the sales period, it is not currently possible to predict the number of shares that will be sold or the gross proceeds to be raised in connection with those sales, if any.

The common stock offered hereby will be sold in “at the market offerings,” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so they may experience different levels of dilution and different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares sold in this offering. In addition, there is no minimum or maximum sales price for shares to be sold in this offering. Investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

We do not currently intend to pay dividends on our common stock, and any return to investors is expected to come, if at all, only from potential increases in the price of our common stock.

At the present time, we intend to use available funds to finance our operations. Accordingly, while payments of dividends is within the discretion of our board of directors, no cash dividends on our common stock have been declared or paid by us, and we have no intention of paying any such dividends in the foreseeable future. Any return to investors is expected to come, if at all, only from potential increases in the price of our common stock.

USE OF PROCEEDS

The amount of proceeds from this offering will depend on the number of shares sold, if any, and the market price at which they are sold. We currently intend to use the net proceeds of this offering for general corporate purposes, including working capital, product development and capital expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering for any purpose, and investors will be relying on the judgment of our management with regard to the use of these net proceeds. Pending use of the net proceeds as described above, we intend to invest the net proceeds in money-market funds or U.S. treasuries until we use them for their stated purpose.

These expected uses of proceeds represent our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including those described in “Special Note Regarding Forward-Looking Statements” on page S-ii of this prospectus supplement. As a result, our management will have broad discretion in the application of the net proceeds from this offering, and investors will be relying on the judgment of our management regarding the application of the net proceeds from this offering. The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business.

DESCRIPTION OF SECURITIES WE ARE OFFERING

The material terms and provisions of our common stock are described under the caption “Description of Capital Stock” beginning on page 6 of the accompanying base prospectus. Our common stock is listed on the NYSE American under the symbol “ASXC.” Our transfer agent is Continental Stock Transfer and Trust Company.

PRICE RANGE OF OUR COMMON STOCK

Our common stock began trading on the NYSE American on April 2, 2014 under the symbol “TRXC.” Our symbol changed to “ASXC” on March 5, 2021.

The closing price of our common stock as reported on the NYSE American on May 17, 2021 was \$1.76 per share. As of May 17, 2021, there were approximately 148 record holders of our common stock (counting all shares held in single nominee registration as one stockholder). This does not include the number of persons whose stock is in nominee or “street name” accounts through brokers.

DILUTION

If you purchase common stock in this offering, your interest may be diluted to the extent of the difference between the offering price of the common stock offered hereby and the as-adjusted net tangible book value per share of common stock after this offering.

The net tangible book value of our common stock as of March 31, 2021 was approximately \$187.3 million, or approximately \$0.80 per share. Net tangible book value per share represents the amount of our total tangible assets less total liabilities divided by the total number of shares of our common stock outstanding.

Dilution per share to new investors represents the difference between the amount per share paid by purchasers for our common stock in this offering from time to time and the net tangible book value per share of our common stock immediately following the completion of this offering.

After giving effect to the sale of shares of common stock offered by this prospectus supplement at an assumed offering price of \$2.00 per share, and after deducting commissions and estimated aggregate offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2021 would have been approximately \$284.4 million, or approximately \$1.01 per share. This represents an immediate increase in net tangible book value of approximately \$0.21 per share to our existing stockholders and an immediate dilution in as adjusted net tangible book value of approximately \$0.99 per share to purchasers of our common stock in this offering, as illustrated by the following table:

Assumed offering price per share		\$	2.00
Net tangible book value per share at March 31, 2021	\$	0.80	
Increase in net tangible book value per share attributable to existing shareholders	\$	0.21	
As adjusted net tangible book value per share as of March 31, 2021 after giving effect to this offering		\$	1.01
Dilution per share to investors purchasing our common stock in this offering		\$	(0.99)

The number of shares of common stock outstanding as of March 31, 2021, excludes, as of such date:

- 504,021 shares of common stock we have issued between April 1, 2021 and May 14, 2021;
- 4,731,249 shares of common stock issuable upon the exercise of outstanding options granted under our equity incentive plans at a weighted average exercise price of \$9.81 per share;
- 1,323,995 shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$1.78 per share;
- 2,688,342 shares of common stock issuable upon vesting of outstanding restricted stock units; and
- 1,265,038 shares of common stock available for future issuance under our equity incentive plans.

Unless otherwise stated in this prospectus supplement, all information in this prospectus supplement, including share and per share amounts, gives effect to a 1-for-13 reverse stock split effected in December 2019 and assumes that there were no exercises of outstanding options or warrants after March 31, 2021.

To the extent that outstanding options or warrants are exercised, you will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

PLAN OF DISTRIBUTION

We have entered into the Sales Agreement with Cantor Fitzgerald & Co., Robert W. Baird & Co. Incorporated and Oppenheimer & Co. Inc., pursuant to which we may issue and sell shares of our common stock having an aggregate gross sales price of up to \$100,000,000 from time to time through or to the applicable Agent, acting as sales agent or principal. The Sales Agreement has been filed as an exhibit to a report filed under the Exchange Act and incorporated by reference into this prospectus supplement.

Following delivery of a placement notice and subject to the terms and conditions of the Sales Agreement, the Agents may offer and sell our common stock by any method permitted by law deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act. We may instruct the Agents not to sell our common stock if the sales cannot be effected at or above the price designated by us from time to time. We or the Agents may suspend the offering of our common stock upon notice and subject to other conditions.

We will pay the Agents commissions, in cash, for their respective services in acting as agents in the sale of our common stock. The Agents will be entitled to compensation under the terms of the Sales Agreement at a fixed commission rate of up to 3.0% of the gross proceeds from each sale of our common stock. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. We have also agreed to reimburse the Agents for certain specified expenses, including the fees and disbursements of its legal counsel, in an amount not to exceed \$50,000. We estimate that the total expenses for this offering, excluding compensation and reimbursements payable to the Agents under the terms of the Sales Agreement, will be approximately \$150,000.

Settlement for sales of our common stock will occur on the second trading day following the date on which any sales are made, or on some other date that is agreed upon by us and the applicable Agent in connection with a particular transaction, in return for payment of the net proceeds to us. Sales of our common stock as contemplated in this prospectus supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and the applicable Agent may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement. The Agents will use commercially reasonable efforts consistent with their respective normal trading and sales practices to solicit offers to purchase the shares of our common stock under the terms and subject to the conditions set forth in the Sales Agreement. In connection with the sales of our common stock on our behalf, each of the Agents will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of the Agents will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contributions to the Agents against certain liabilities, including liabilities under the Securities Act and the Exchange Act.

This offering of our common stock pursuant to the Sales Agreement will terminate as permitted therein. We, on the one hand, and each of the Agents with respect to itself only, on the other hand, may terminate the Sales Agreement at any time upon ten days’ prior notice.

Each of the Agents and their respective affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees and compensation. To the extent required by Regulation M, neither of the Agents will engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement.

This prospectus supplement in electronic format may be made available on websites maintained by the Agents, and the Agents may distribute this prospectus supplement electronically.

Transfer Agent and Registrar

The transfer agent of our common stock is Continental Stock Transfer & Trust Company. The transfer agent and registrar’s address is 1 State St 30th Floor, New York, NY 10004, and the telephone number is (212) 509-4000.

LEGAL MATTERS

Certain legal matters with respect to the securities offered hereby have been passed upon by Ballard Spahr LLP, Philadelphia, Pennsylvania. The Agents are being represented in connection with this offering by Duane Morris LLP, New York, New York.

EXPERTS

The consolidated financial statements as of December 31, 2020 and 2019, and for the years then ended, incorporated by reference in this prospectus supplement have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 that we filed with the SEC under the Securities Act. This prospectus supplement and the accompanying prospectus do not contain all of the information included in the registration statement. We have omitted certain parts of the registration statement in accordance with the rules and regulations of the SEC. For further information, we refer you to the registration statement, including its exhibits and schedules. Statements contained in this prospectus supplement and the accompanying prospectus about the provisions or contents of any contract, agreement or any other document referred to are not necessarily complete. Please refer to the actual exhibit for a more complete description of the matters involved.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings, including the registration statement and exhibits, are available to the public at the SEC's website at <http://www.sec.gov>. You may also read, without charge, and copy the documents we file, at the SEC's public reference rooms at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for further information on the public reference rooms.

We maintain an Internet site at www.asensus.com. We have not incorporated by reference into this prospectus supplement or the accompanying prospectus the information on our website, and you should not consider any of the information posted on or hyper-linked to our website to be a part of this prospectus supplement or the accompanying prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with the SEC, which means we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus supplement, and certain information that we will later file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below as well as any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement until we sell all of the securities under this prospectus supplement, except that we do not incorporate any document or portion of a document that is "furnished" to the SEC, but not deemed "filed." The following documents filed with the SEC are incorporated by reference in this prospectus supplement and the accompanying prospectus:

- our Annual Report on [Form 10-K](#) or the year ended December 31, 2020, filed with the SEC on March 11, 2021;
- our Quarterly Report on [Form 10-Q](#) for the quarter ended March 31, 2021, filed with the SEC on May 11, 2021;
- our Current Reports on Form 8-K filed with the SEC on [January 6, 2021](#) (Items 8.01 and 9.01), [January 14, 2021](#) (Items 1.01, 8.01 and 9.01), [January 19, 2021](#) (Items 8.01 and 9.01), [January 28, 2021](#) (Items 1.01, 8.01 and 9.01), [February 12, 2021](#) (Item 5.02), [February 23, 2021](#) (Item 8.01), [February 25, 2021](#) (Items 5.03 and 9.01), [March 3, 2021](#) (Item 8.01 and 9.01) and [April 30, 2021](#) (Items 1.01 and 9.01);
- our definitive proxy statement on [Schedule 14A](#), filed with the SEC on April 22, 2021; and
- the description of our common stock contained in the Registration Statement on [Form 8-A](#) filed on April 7, 2014, and any amendments to each such Registration Statement filed subsequently thereto, including all amendments or reports filed for the purpose of updating such description.

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We will furnish to you, on written or oral request, a copy of any or all of the documents that have been incorporated by reference, including exhibits to these documents. You may request a copy of these filings at no cost by writing or telephoning our Secretary at the following address and telephone number:

Asensus Surgical, Inc.
Attention: Joshua Weingard, Chief Legal Officer and Secretary
1 TW Alexander Drive, Suite 160
Durham, NC 27703
Telephone No.: (919) 765-8400

PROSPECTUS



Common Stock
Preferred Stock
Warrants
Units

Asensus Surgical, Inc. may, from time to time, in one or more offerings, offer and sell common stock, preferred stock, warrants and units. The preferred stock may be convertible into or exchangeable or exercisable for other securities. We will provide specific terms of any offering and the offered securities in supplements to this prospectus. The prospectus supplements may also add, update or change information contained in this prospectus.

We may offer and sell these securities to or through underwriters, dealers or agents, directly to purchasers or through a combination of these methods. If an offering of securities involves any underwriters, dealers or agents, then the names of the underwriters, dealers or agents and the terms of the arrangements with such entities will be stated in an accompanying prospectus supplement.

Our common stock is listed on the NYSE American under the symbol "ASXC." We have not yet determined whether any of the other securities that may be offered by this prospectus will be listed on any exchange, inter-dealer quotation system or over-the-counter market. If we decide to seek listing of any such securities upon issuance, an accompanying prospectus supplement will disclose the exchange, quotation system or market on which the securities will be listed.

The prospectus may not be used to sell our securities unless it is accompanied by a prospectus supplement.

Investing in our securities involves risk. Before you invest, you should carefully read and evaluate the risk factors and other information included in this prospectus and any applicable prospectus supplement, including the documents incorporated by reference. See "[Risk Factors](#)" on page 2 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is May 19, 2021.

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ABOUT THIS PROSPECTUS

This document is called a prospectus and is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf process, we may, from time to time, in one or more offering, offer and sell common stock, preferred stock, warrants and units. This prospectus provides you with a general description of the securities we may offer. Each time we sell any securities under this prospectus, we will provide a prospectus supplement that will contain specific information about the terms of that offering and the offered securities. That prospectus supplement may include a discussion of any risk factors or other special considerations applicable to those securities. The prospectus supplement also may add, update or change information contained in this prospectus. You should read both this prospectus and the applicable prospectus supplement and the exhibits filed with our registration statement together with the additional information described below under the heading “Where You Can Find More Information” before you decide whether to invest in the securities.

The registration statement (including the exhibits) of which this prospectus is a part contains additional information about us and the securities we may offer by this prospectus. Specifically, we have filed certain legal documents that control the terms of the securities offered by this prospectus as exhibits to the registration statement. We will file certain other legal documents that will control the terms of the securities we may offer by this prospectus as exhibits to the registration statement or to reports we file with the SEC. The registration statement and the reports can be read at the SEC website or at the SEC offices mentioned under the heading “Where You Can Find More Information.”

We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus, any prospectus supplements or any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this document is accurate only as of the date on the front cover of this document. Our business, financial condition, results of operations and prospects may have changed since that date.

As used in this prospectus, “we,” “our,” “us,” or the “Company” refer to Asensus Surgical, Inc., including its subsidiaries Asensus Surgical US, Inc., SafeStitch LLC, Asensus International, Inc., Asensus Surgical Italia S.r.l., Asensus Surgical Europe S.à.r.l., Asensus Surgical Taiwan Ltd., Asensus Surgical Japan K.K., Asensus Surgical Israel Ltd., Asensus Surgical Netherlands B.V., and Asensus Surgical Canada, Inc.

This prospectus and the information incorporated by reference herein and therein include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements, other than statements of historical fact, included or incorporated by reference in this prospectus regarding our strategy, future operations, collaborations, intellectual property, cash resources, financial position, future revenues, projected costs, prospects, plans and objectives are forward-looking statements. The words “believes,” “anticipates,” “estimates,” “plans,” “expects,” “intends,” “may,” “could,” “should,” “potential,” “likely,” “projects,” “continue,” “will,” and “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated or implied by forward-looking statements. These important factors include those set forth above under the heading “Risk Factors” in the reports incorporated by reference herein. These factors and the other cautionary statements made in this prospectus or incorporated by reference herein should be read as being applicable to all related forward-looking statements whenever they appear in this prospectus or in the reports incorporated by reference herein. In addition, any forward-looking statements represent our estimates only as of the date that this prospectus is filed with the SEC, and should not be relied upon as representing our estimates as of any subsequent date. We do not assume any obligation to update any forward-looking statements. We disclaim any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

You should rely only on the information contained in this prospectus and in any prospectus supplement (including in any documents incorporated by reference herein or therein). We have not authorized anyone to provide you with any different information. We are offering to sell our securities, and seeking offers to buy, only in jurisdictions where offers and sales are permitted.

ASENSUS SURGICAL, INC.

Asensus Surgical is a medical device company that is digitizing the interface between the surgeon and the patient to pioneer a new era of Performance-Guided Surgery™ by unlocking the clinical intelligence to enable consistently superior outcomes and a new standard of surgery. This builds upon the foundation of Digital Laparoscopy with the Senhance® Surgical System powered by the Intelligent Surgical Unit, or ISU, to increase surgeon control and reduce surgical variability. With the addition of machine vision, augmented intelligence, and deep learning capabilities throughout the surgical experience, we intend to holistically address the current clinical, cognitive and economic shortcomings that drive surgical outcomes and value-based healthcare. The Company is focused on the market development for and commercialization of the Senhance Surgical System, which digitizes laparoscopic minimally invasive surgery, or MIS. The Senhance System is the first and only digital, multi-port laparoscopic platform designed to maintain laparoscopic MIS standards while providing digital benefits such as haptic feedback, robotic precision, comfortable ergonomics, advanced instrumentation including 3 mm microlaparoscopic instruments, eye-sensing camera control and fully-reusable standard instruments to help maintain per-procedure costs similar to traditional laparoscopy.

The Senhance System is available for sale in Europe, the United States, Japan, Taiwan, Russia and select other countries.

- The Senhance System has a CE Mark in Europe for adult and pediatric laparoscopic abdominal and pelvic surgery, as well as limited thoracic surgeries excluding cardiac and vascular surgery.
- In the United States, the Company has received 510(k) clearance from the FDA for use of the Senhance System in general laparoscopic surgical procedures and laparoscopic gynecologic surgery in a total of 31 indicated procedures, including benign and oncologic procedures, laparoscopic inguinal, hiatal and paraesophageal hernia, sleeve gastrectomy and laparoscopic cholecystectomy (gallbladder removal) surgery.
- In Japan, the Company has received regulatory approval and reimbursement for 98 laparoscopic procedures.
- The Senhance System has received its registration certificate by the Russian medical device regulatory agency, Roszdravnadzor, allowing for its sale and utilization throughout the Russian Federation.

We also enter into lease arrangements with certain qualified customers. For some lease arrangements, the customers are provided with the right to purchase the leased Senhance System during or at the end of the lease term, or a Lease Buyout. In the first quarter of 2021, we completed a Lease Buyout of a Senhance System.

In February 2021, we changed our name from TransEnterix, Inc. to Asensus Surgical, Inc. as part of our strategy to utilize the Senhance System and ISU capabilities, along with our other augmented intelligence related offerings and instrumentation to unlock clinical intelligence to enable consistently superior outcomes and a new standard of surgery we are calling Performance-Guided Surgery. We believe our product offerings, and our digitization of the interface between the surgeon and the patient allows us to assist the surgeon in all aspects of laparoscopic surgery including:

- Pre-operative - in what we call “intelligent preparation,” our machine learning models will take data from all of the procedures done utilizing our current Senhance System with the ISU, such as tracking surgical motion and team interaction, to create a large and constantly improving database of surgeries and their outcomes to enable surgeons to best inform their approach and surgical setup.
- Intra-operative – we believe the Senhance System provides perceptive real-time guidance for intra-operative tasks, allowing any surgeon performing a procedure with the Senhance System to perform multiple tasks and benefit from the collective knowledge and rules-based performance of thousands of other successful Senhance-based procedures. Not only will this provide the surgeon with a pathway to better outcomes, we believe it will ultimately help reduce the cognitive load of the surgeons.

- Future use post-operative – finally, by tapping into the vast amount of data captured during procedures, surgeons and operating room staff will be able to get actionable assessments of their performance giving them the information needed to improve performance over time. We intend on building a new standard of analytics to improve not only the skills of all surgeons but moving towards best-practice-sharing that bridges the global surgeon community.

We were organized as a Delaware corporation on August 19, 1988. Our principal executive offices are located at 1 TW Alexander Drive, Suite 160, Durham, NC 27703. Our phone number is (919) 765-8400 and our Internet address is www.asensus.com. The information on our website or any other website is not incorporated by reference in this prospectus and does not constitute a part of this prospectus.

RISK FACTORS

Investing in our securities involves substantial risks. In addition to other information contained in this prospectus and any accompanying prospectus supplement, before investing in our securities, you should carefully consider the risks described under the heading “Risk Factors” in our most recent Annual Report on Form 10-K, as it may be amended, and subsequent Quarterly Reports on Form 10-Q, and in any other documents incorporated by reference into this prospectus, as updated by our future filings. These risks are not the only ones faced by us. Additional risks not known or that are deemed immaterial could also materially and adversely affect our financial condition, results of operations, our products, business and prospects. Any of these risks might cause you to lose all or a part of your investment.

USE OF PROCEEDS

Unless otherwise indicated in the applicable prospectus supplement, we intend to use the net proceeds from the sale of the securities under this prospectus, if any, together with our existing cash resources, for working capital and other general corporate purposes, including research and development, commercialization and regulatory clearance activities for our products. We may also use a portion of the net proceeds that we receive to acquire or invest in complementary businesses, products, services, technologies, or other assets. At this time, we have not determined the specific uses of any offering proceeds, or the amounts we plan to spend on any particular use or the timing of such expenditures, which may vary significantly depending on various factors such as our research and development activities, regulatory approvals, competition, marketing and sales, and the market acceptance of any products introduced by us or our partners. Pending application of the net proceeds from any particular offering, we intend to invest such proceeds in short-term, interest-bearing, investment-grade securities.

Each time we issue securities, we will provide a prospectus supplement that will contain information about how we intend to use the proceeds from each such offering.

We cannot guarantee that we will receive any proceeds in connection with any offering hereunder because we may choose not to issue any of the securities covered by this prospectus.

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 750,000,000 shares of common stock, par value \$0.001 per share, and 25,000,000 shares of preferred stock, par value \$0.01 per share, including 7,937,057 shares designated as Series A Convertible Preferred Stock, none of which are outstanding.

Common Stock

Of the authorized common stock, as of March 31, 2021, there were 232,716,797 shares outstanding, and as of March 31, 2021, there were 6,700,679 shares of our common stock reserved for the exercise of outstanding stock options, warrants and restricted stock units. As of May 17, 2021, there were approximately 148 record holders (counting all shares held in single nominee registration as one stockholder). This does not include the number of persons whose stock is in nominee or “street name” accounts through brokers. The par value of our common stock is \$0.001 per share.

Subject to the prior rights of the holders of any shares of preferred stock which may be issued in the future, the holders of our common stock are entitled to receive dividends from our funds legally available therefor when, as and if declared by our Board of Directors, and are entitled to share ratably in all of our assets available for distribution to holders of our common stock upon the liquidation, dissolution or winding-up of our affairs, subject to the liquidation preference, if any, of any then outstanding shares of preferred stock. Holders of our common stock do not have any preemptive, subscription, redemption or conversion rights. Holders of our common stock are entitled to one vote per share on all matters which they are entitled to vote upon at meetings of stockholders or upon actions taken by written consent pursuant to Delaware corporate law. The holders of our common stock do not have cumulative voting rights, which mean that the holders of a plurality of the outstanding shares can elect all of our directors. All of the shares of our common stock currently issued and outstanding are fully-paid and nonassessable. No dividends have been paid to holders of our common stock since our incorporation, and no cash dividends are anticipated to be declared or paid in the reasonably foreseeable future.

Transfer Agent

The transfer agent for our common stock is Continental Stock & Transfer Company.

Listing

The shares of our common stock are currently listed on the NYSE American under the symbol “ASXC.”

Preferred Stock

Our Board of Directors has the authority, without further action by the holders of the outstanding common stock, to issue preferred stock from time to time in one or more classes or series, to fix the number of shares constituting any class or series and the stated value thereof, if different from the par value, as to fix the terms of any such series or class, including dividend rights, dividend rates, conversion or exchange rights, voting rights, rights and terms of redemption (including sinking fund provisions), the redemption price and the liquidation preference of such class or series.

Anti-Takeover Effects of Certain Provisions of our Certificate of Incorporation, our Bylaws and Delaware Law

Delaware Statute

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to such date, our board of directors approves either the business combination or the transaction that resulted in the stockholder’s becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owns at least 85% of our outstanding voting stock, excluding shares held by directors, officers and certain employee stock plans; or
- on or after the consummation date, the business combination is approved by our board of directors and by the affirmative vote at an annual or special meeting of stockholders holding at least two-thirds of our outstanding voting stock that is not owned by the interested stockholder.

For purposes of Section 203, a “business combination” includes, among other things, a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and an “interested stockholder” is generally a person who, together with affiliates and associates of such person:

- owns 15% or more of outstanding voting stock; or
- is an affiliate or associate of ours and was the owner of 15% or more of our outstanding voting stock at any time within the prior three years.

Certificate of Incorporation and Bylaw Provisions

Our amended and restated certificate of incorporation and amended and restated bylaws include provisions that, among others, could have the effect of delaying, deferring or discouraging potential acquisition proposals and could delay or prevent a change of control of our company. The provisions in our certificate of incorporation and bylaws that may have such effect include:

- Preferred Stock. As noted above, our board of directors, without stockholder approval, has the authority under our certificate of incorporation to issue preferred stock with rights superior to the rights of the holders of common stock. As a result, we could issue preferred stock quickly and easily, which could adversely affect the rights of holders of our common stock and could be issued with terms calculated to delay or prevent a change of control or make removal of management more difficult.
- Stockholder Meetings. Under our certificate of incorporation, as amended, and bylaws, special meetings of our stockholders may be called only by the vote of a majority of the entire board of directors or the chairman of the board of directors. Our stockholders may not call a special meeting of the stockholders.
- Requirements for Advance Notification of Stockholder Nominations and Proposals. Our bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee thereof.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase preferred stock or common stock. We may offer warrants separately or together with one or more additional warrants, shares of preferred stock or common stock, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the warrants’ expiration date. We may issue the warrants under warrant agreements to be entered into between us and a bank or trust company, as warrant agent, all as described in the prospectus supplement. If we issue the warrants under warrant agreements, the warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

We will describe the particular terms of any warrants that we offer in the prospectus supplement relating to those warrants. Those terms may include the following:

- the specific designation and aggregate number of warrants, and the price at which we will issue the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which the right will expire or, if the warrants are not continuously exercisable throughout that period, the specific date or dates on which they are exercisable;

- whether the warrants will be issued in fully registered form or bearer form, in definitive or global form or in any combination of these forms;
- any applicable material United States federal income tax considerations;
- the identity of the warrant agent, if any, for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the designation, amount, currency, denominations and terms of any preferred stock or common stock purchasable upon exercise of the warrants;
- if applicable, the designation and terms of the preferred stock or common stock with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and the related preferred stock or common stock will be separately transferable;
- the number of shares of preferred stock or common stock purchasable upon exercise of any warrant and the price at which those shares may be purchased;
- provisions for changes to or adjustments in the exercise price;
- if applicable, the minimum or maximum number of warrants that may be exercised at any one time;
- information with respect to any book-entry procedures;
- any anti-dilution provision of the warrants;
- any redemption or call provisions; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

As of March 31, 2021, we had common stock warrants to purchase 1,323,995 shares outstanding at exercise prices ranging from \$0.68 to \$52.20 per share. These common stock warrants were issued to various lenders and other third parties.

On March 10, 2020, we closed an underwritten public offering, or the March 2020 Public Offering, and sold an aggregate of 14,121,766 Class A Units at a public offering price of \$0.68 per Class A Unit and 7,937,057 Class B Units at a public offering price of \$0.68 per Class B Unit. Each Class A Unit consists of one share of the Company's common stock, one warrant to purchase one share of common stock that expired on the first anniversary of the date of issuance, or the Series C Warrants, and one warrant to purchase one share of common stock that expires on the fifth anniversary of the date of issuance, or the Series D Warrants. Each Class B Unit consisted of one share of Series A Convertible Preferred Stock, par value \$0.01 per share convertible into one share of common stock, a Series C Warrant to purchase one share of common stock and a Series D Warrant to purchase one share of common stock. In addition, the underwriter for the public offering exercised an over-allotment option and purchased 3,308,823 additional Series C Warrants and 3,308,823 additional Series D Warrants at the closing. As of March 31, 2021, all Series C Warrants have been exercised and there were 1,216,274 Series D Warrants outstanding with an exercise price of \$0.68 per share and an expiration date of March 10, 2025.

DESCRIPTION OF UNITS

We may issue units consisting of one or more of the other securities that may be offered under this prospectus, in any combination. These units may be issuable as, and for a specified period of time may be transferable only as, a single security, rather than as the separate constituent securities comprising such units. The statements made in this section relating to the units are summaries only and are not complete. When we issue units, we will provide the specific terms of the units in a prospectus supplement. To the extent the information contained in the prospectus supplement differs from this summary description, you should rely on the information in the prospectus supplement.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby from time to time in one or more of the following ways:

- through one or more underwriters;
- through dealers, who may act as agents or principals (including a block trade in which a broker or dealer so engaged will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction);
- directly to one or more purchasers;
- through agents;
- through registered direct offerings;
- as part of a collaboration with a third party;
- through “at the market offerings”, within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market on an exchange or otherwise;
- in privately negotiated transactions; and
- in any combination of these methods of sale.

We will set forth in a prospectus supplement the terms of the offering of securities, including:

- the name or names of any agents, underwriters or dealers;
- the terms of the securities being offered, including the purchase price and the proceeds we will receive from the sale;
- any underwriting discounts and commissions or agency fees and other items constituting underwriters’ or agents’ compensation;
- any over-allotment options under which underwriters may purchase additional securities from us; and
- any discounts or concessions allowed or reallocated or paid to dealers.

The distribution of the securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, at prices related to the prevailing market prices, or at negotiated prices.

Underwriters, dealers, agents and others that participate in the distribution of the securities may be underwriters as defined in the Securities Act and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act. In no event will the total amount of cash compensation paid to underwriters, placement agents, dealers or brokers exceed 10% of the gross proceeds of the offering. We will identify in the applicable prospectus supplement any underwriters, dealers, agents and others and will describe their compensation. We may have agreements with underwriters, dealers, agents and others to indemnify them against specified civil liabilities, including liabilities under the Securities Act. Underwriters, dealers, agents and others may engage in transactions with or perform services for us in the ordinary course of their businesses.

If required under applicable state securities laws, we will sell the securities only through registered or licensed brokers or dealers. In addition, in some states, we may not sell securities unless they have been registered or qualified for sale in the applicable state or unless we have complied with an exemption from any registration or qualification requirements.

Agents

We may designate agents who agree to solicit purchases for the period of their appointment or to sell securities on a continuing basis. Unless the prospectus supplement provides otherwise, agents will act on a best efforts basis for the period of their appointment. Agents may receive compensation in the form of commissions, discounts or concessions from us. Agents may also receive compensation from the purchasers of the securities for whom they sell as principals. Each particular agent will receive compensation in amounts negotiated in connection with the sale, which might be in excess of customary commissions.

Underwriters

If we use underwriters for a sale of securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. Unless the prospectus supplement provides otherwise, underwriters will be obligated to purchase all of the securities offered by the prospectus supplement. We may change from time to time any initial public offering price and any discounts or concessions the underwriters allow or reallow or pay to dealers. We may use underwriters with whom we have a material relationship, and we may offer the securities to the public through an underwriting syndicate or through a single underwriter. We will describe in the prospectus supplement naming the underwriter the nature of any such relationship and underwriting arrangement.

Dealers

We also may sell securities to a dealer as principal. If we sell our securities to a dealer as a principal, then the dealer may resell those securities to the public at varying prices to be determined by such dealer at the time of resale. The name of the dealer and the terms of the transactions will be set forth in the applicable prospectus supplement.

Direct Sales and Institutional Purchases

We may also sell securities directly to one or more purchasers, in which case underwriters or agents would not be involved in the transaction.

Further, we may authorize agents, underwriters or dealers to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in an applicable prospectus supplement.

Stabilization Activities

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act.

Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions. Such activities may cause the price of the securities to be higher than they would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. These transactions may be effected on the NYSE American or otherwise.

Passive Market Making

Any underwriters who are qualified market makers on the NYSE American may engage in passive market making transactions on the NYSE American in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Costs

We will bear all costs, expenses and fees in connection with the registration of the securities, as well as the expense of all commissions and discounts, if any, attributable to sales of the securities by us.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the securities that may be offered hereby will be passed upon for us by Ballard Spahr LLP, Philadelphia, Pennsylvania. If legal matters in connection with the offering made by this prospectus are passed on by counsel for the underwriters, dealers or agents, if any, that counsel will be named in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements as of December 31, 2020 and 2019 and for the years then ended incorporated by reference in this prospectus have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with the SEC, which means we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus supplement, and certain information that we will later file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below as well as any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement until we sell all of the securities under this prospectus supplement, except that we do not incorporate any document or portion of a document that is "furnished" to the SEC, but not deemed "filed." The following documents filed with the SEC are incorporated by reference in this prospectus supplement and the accompanying prospectus:

- our Annual Report on [Form 10-K](#) or the year ended December 31, 2020, filed with the SEC on March 11, 2021;
- our Quarterly Report on [Form 10-Q](#) for the quarter ended March 31, 2021, filed with the SEC on May 11, 2021;
- our Current Reports on Form 8-K filed with the SEC on [January 6, 2021](#) (Items 8.01 and 9.01), [January 14, 2021](#) (Items 1.01, 8.01 and 9.01), [January 19, 2021](#) (Items 8.01 and 9.01), [January 28, 2021](#) (Items 1.01, 8.01 and 9.01), [February 12, 2021](#) (Item 5.02), [February 23, 2021](#) (Item 8.01), [February 25, 2021](#) (Items 5.03 and 9.01), [March 3, 2021](#) (Item 8.01 and 9.01) and [April 30, 2021](#) (Items 1.01 and 9.01);
- our definitive proxy statement on [Schedule 14A](#), filed with the SEC on April 22, 2021; and
- the description of our common stock contained in the Registration Statement on [Form 8-A](#) filed on April 7, 2014, and any amendments to each such Registration Statement filed subsequently thereto, including all amendments or reports filed for the purpose of updating such description.

We will furnish to you, on written or oral request, a copy of any or all of the documents that have been incorporated by reference, including exhibits to these documents. You may request a copy of these filings at no cost by writing or telephoning our Secretary at the following address and telephone number:

Asensus Surgical, Inc.
Attention: Joshua Weingard, Chief Legal Officer and Secretary
1 TW Alexander Drive, Suite 160
Durham, NC 27703
Telephone No.: (919) 765-8400

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act to register our securities being offered in this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all the information set forth in the registration statement or the exhibits and schedules filed thereto. For further information about us and our securities offered by this prospectus, we refer you to the registration statement and the exhibits and schedules filed with the registration statement. Any statement contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement is not necessarily complete and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement. You may read and copy any materials we file with the SEC, including the registration statement, at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549, on official business days during the hours of 10:00 a.m. to 3:00 p.m. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet website that contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is <http://www.sec.gov>. You may also inspect our SEC reports and other information at our website at www.asensus.com. Information on or accessible through our website is not a part of this prospectus. We are subject to the information reporting requirements of the Exchange Act, and file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information are available for inspection and copying at the public reference room and website of the SEC referred to above.



Up to \$100 Million
Common Stock

PROSPECTUS SUPPLEMENT

Cantor

Baird

Oppenheimer & Co.

May 19, 2021