

**23,809,524 Shares of Common Stock****Common Warrants to Purchase up to 23,809,524 Shares of Common Stock****Up to 23,809,524 Shares of Common Stock Underlying the Common Warrants**

We are offering 23,809,524 shares of our common stock, par value \$0.001 per share, together with warrants to purchase up to 23,809,524 shares of our common stock, or the common warrants pursuant to this prospectus supplement and the accompanying base prospectus. Each share of our common stock is being sold together with a common warrant to purchase one (1) share of our common stock in a unit. The shares of common stock and common warrants comprising the units are immediately separable and will be issued separately in this offering, but must be purchased together in this offering. Each common warrant has an exercise price of \$0.42, will be exercisable at any time on or after the date of issuance and will expire five (5) years after the date of issuance.

Each unit consisting of one share of common stock and one common warrant will be sold to investors in this offering at a purchase price of \$0.42 per unit. The units will not be issued or certificated. We refer to the shares of common stock issued in this offering and the common warrants to purchase shares of common stock issued in this offering, collectively, as the securities. The shares of common stock issuable from time to time upon exercise of the common warrants are also being offered pursuant to this prospectus supplement and the accompanying base prospectus.

Our common stock is listed on the NYSE American under the symbol "ASXC." On July 26, 2023, the last reported sale price of our common stock on the NYSE American was \$0.51 per share. The shares offered hereby and the shares issuable upon exercise of the common warrants offered hereby will be listed on the NYSE American. However, there is no established public trading market for the common warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the common warrants on any national securities exchange. Without an active trading market, the liquidity of the common warrants will be limited.

Investing in our securities involves risks. You should review carefully the risks and uncertainties described under the heading "Risk Factors" on page S-7 of this prospectus supplement, page 5 of the accompanying base prospectus and under similar headings in the other documents that are incorporated by reference in this prospectus supplement and the accompanying base prospectus.

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

We have engaged H.C. Wainwright & Co., LLC, or the placement agent, as our exclusive placement agent in connection with this offering. The placement agent has agreed to use its reasonable best efforts to arrange for the sale of the securities offered by this prospectus supplement and the accompanying base prospectus. The placement agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of securities. We have agreed to pay the placement agent the placement agent fees set forth in the table below, which assumes that we sell all of the securities we are offering. See "Plan of Distribution" beginning on page S-19 of this prospectus supplement for more information regarding these arrangements.

| | Per Share and Common Warrant | Total |
|--------------------------------------|---------------------------------------------|------------------|
| Offering price | \$ 0.42 | \$ 10,000,000.08 |
| Placement Agent Fees(1) | \$ 0.0294 | \$ 700,000.01 |
| Proceeds, before expenses, to us (2) | \$ 0.3906 | \$ 9,300,000.07 |

(1) In addition, we have agreed to pay certain expenses of the placement agent. See "Plan of Distribution" beginning on page S-19 of this prospectus supplement for additional information with respect to the compensation we will pay the placement agent.

(2) The amount of proceeds to us assumes none of the common warrants are exercised for cash.

Delivery of our securities being offered pursuant to this prospectus supplement and the accompanying base prospectus is expected to be made on or about July 31, 2023, subject to satisfaction of customary closing conditions.

H.C. Wainwright & Co.

The date of this prospectus supplement is July 27, 2023.

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PROSPECTUS

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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.

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying base prospectus are part of a “shelf” registration statement on Form S-3 (File No. 333-263711). This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of securities and also adds to and updates information contained in the accompanying base prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying base prospectus. The second part, the accompanying base 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 base 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 base prospectus. We have not, and the placement agent has not, authorized anyone to provide you with different or additional information. You should assume that the information in this prospectus supplement and the accompanying base 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 base 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 “Asensus,” “Company,” “we,” “our,” or “us” each includes Asensus Surgical, Inc. and its subsidiaries, Asensus Surgical US, Inc., 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 base 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 base prospectus are the property of their respective owners.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and information appearing elsewhere in this prospectus supplement and in the accompanying base 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 our securities. 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 base prospectus and the documents incorporated by reference herein and therein. Before you decide to invest in our securities, to fully understand this offering and its consequences to you, you should read the entire prospectus supplement and the accompanying base prospectus carefully, including the “Risk Factors” beginning on page S-7 of this prospectus supplement and on page 5 of the accompanying base prospectus and the documents incorporated by reference herein and therein.

Asensus Surgical, Inc.

Overview

Asensus Surgical, Inc. is a medical device company that is digitizing the interface between the surgeon and patient to reimagine surgery and pioneer a new era of surgery that we refer to as, Performance-Guided Surgery™ (PGS), by unlocking clinical intelligence to enable surgeons to deliver consistently superior outcomes to patients and establish a new standard of surgery. Built upon the foundation of laparoscopic minimally invasive surgery, that remains the gold standard of surgery today, with the Senhance® Surgical System, combined with the Intelligent Surgical Unit™ (ISU™), the Company is pioneering this new standard of surgery, PGS, to increase surgeon control and reduce surgical variability. With the addition of machine vision, augmented intelligence, and deep learning capabilities throughout the surgical experience delivered via the ISU, we intend to holistically address the current clinical, surgeon performance (fatigue and ergonomics), and the economic shortcomings that drive surgical outcomes in a value-based healthcare environment.

Our mission is focused on leveraging robotic technologies, in combination with real-time computer vision and machine learning capabilities, or Augmented Intelligence, to: reduce variability in surgery, drive more predictable outcomes, optimize resources and costs, and work with hospital systems that strive to employ innovative healthcare strategies. By leveraging advanced digital technologies, we aim to enable surgeons to take the best surgical practices and techniques from everywhere and utilize them to help improve outcomes, reduce variability, control the unexpected, reduce costs, as well as reduce cognitive and physical fatigue for surgeons, and provide patients with the best care possible. We believe that by digitizing the interface between the surgeon and patient, we can unlock clinical intelligence to pioneer PGS, and believe that it is the missing element in surgery today.

Our Products in Development

In March 2023, we received clearance from the U.S. Food and Drug Administration, or FDA, for pediatric indications using the Senhance System. On July 14, 2023, we issued a press release announcing that we had signed an agreement with a leading U.S. hospital to initiate a Senhance System placement for use within its pediatric surgery department.

On February 21, 2023, we held an investor day to describe our focus on developing a next generation robotic system we call the LUNA™ Surgical System and the ongoing developments in our PGS platform. Performance-Guided Surgery is comprised of three strategic pillars:

- enhanced robotic precision and manipulation capabilities, via the Senhance System today and, when developed and approved, the LUNA System;
- expanded intra-operative Augmented Intelligence clinical decision support guidance for the surgeon via the ISU; and
- integration of cloud and big data to harness best practices across pre-, intra- and post-operative settings, and make it available to surgeons around the world via the Asensus Cloud.

In the LUNA System we are developing a “best in class” robot that will use 3mm and 5mm instruments (as contrasted with current systems available that use 8mm instruments), TrueWrist™ fully wristed 5mm instruments, monopolar and bipolar electrosurgery capabilities, rapid instrument exchange with our proprietary instrument drive system, an open platform with a smaller footprint in the OR, as compared to the Senhance System, up to four-arm configuration with enhanced manipulation and dexterity, a surgeon console with 4K-3D capabilities without the need to wear 3D glasses, and unconstrained handles with improved digital features while retaining haptic feedback.

The LUNA System will continue our tradition of providing instruments that are reusable and can be re-sterilized and re-processed, and, with improvements in manufacturing, are expected to have lower costs per procedure.

We also clarified our focus areas for our future development efforts with the ISU, including:

- an analytical feature set, which includes intra-operative surgical planning that will allow surgeons to map out and plan for specific surgical actions intraoperatively using the ISU's Augmented Intelligence;
- a safety feature set, which includes real-time notifications that will enable the identification and marking of potential hazards during the operation, and optionally restrict access to these structures or areas by simultaneously controlling the robotic arm; and
- a training and education set, allowing multiple team members to work together in real time by annotating, highlighting and drawing on a shared visual display of the surgical field to communicate and provide expert support in real-time.

The Asensus Cloud is being designed to assist in pre-operative surgical planning, post-surgical performance analytics and best practices guidance, and enable the extraction and aggregation of insights from surgical data. We believe that the collection and analysis of surgical data transformed into insights, and when shared with our physicians, will enhance surgical planning, surgeon education and training, and promote better patient outcomes.

We anticipate that, although we have been working on aspects of the LUNA System for four years, we will spend the rest of 2023 refining and finalizing the design builds, and conducting testing on the ISU enhancements for standalone use. We anticipate completing integration testing in the third quarter of 2023, completing pre-clinical studies in the fourth quarter of 2023, reaching design freeze on the LUNA System in the first quarter of 2024 and making regulatory notices and submissions by the end of 2024. We anticipate a commercial pilot launch of the LUNA System in the second half of 2025. For the ISU enhancements and standalone configuration, we anticipate finalizing partnering arrangements for the stand-alone ISU in the last half of 2023, making regulatory notices and submissions in the first quarter of 2024 and beginning commercial activities by mid-2024.

2022 Senhance Surgical System Programs

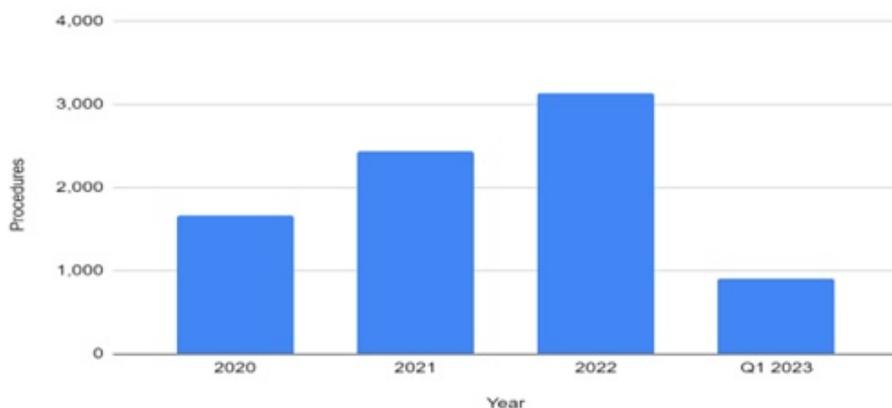
We define the initiation of a Senhance Surgical program as entering into an agreement to purchase or lease, and subsequently utilizing a Senhance System. Throughout 2022, we initiated nine Senhance System programs, four in Germany, three in Japan and two in the CIS region. We initiated five Senhance System programs in the fourth quarter of 2022 and one in the first quarter of 2023.

In February 2021, we announced an agreement with the Amsterdam Skills Centre establishing the second European surgical training site for Senhance System digital laparoscopy. This site serves surgeons and staff throughout Europe with basic and advanced training on the Senhance System. The Amsterdam Skills Centre also provides Asensus with a world-class facility to engage European surgeons in technology and clinical development studies.

We now have six global training sites, including three in the United States at the Advent Health Nicholson Center in Celebration, Florida, at LSU Health Sciences Center, New Orleans, and our office in Research Triangle Park North Carolina; two in Europe at Amsterdam Skills Centre, and our office in Milan, Italy; and one in Asia at our office in Tokyo, Japan.

Procedure Volumes

We track the surgical procedures performed utilizing the Senhance System as one important measure of the adoption of our products. The following graph shows the number of procedures and year over year increase. Over 900 procedures were performed globally in the first quarter of 2023, representing 20% year-over-year growth.



Our focus over the last few years has been on seeking regulatory approvals and clearances for the Senhance System and related product offerings and instruments and pursuing commercialization of our products. The following chart describes our success in achieving regulatory clearances and approvals to date.

| Product/Indications | FDA Clearance | CE Mark | Other Approvals |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Senhance System | October 2017 | January 2012 | Taiwan – April 2018 Japan – May 2019 Russian Federation – December 2020 |
| Indications for Use of Senhance System | | | |
| <ul style="list-style-type: none"> Initial general surgery indications for laparoscopic colorectal and gynecologic surgery procedures | October 2017 | N/A | N/A |
| <ul style="list-style-type: none"> Extended to cholecystectomy and inguinal hernia repair | May 2018 | N/A | N/A |
| <ul style="list-style-type: none"> Extended to hiatal and paraesophageal hernia, sleeve gastrectomy, and sacrocolpopexy | March 2021 | N/A | N/A |
| <ul style="list-style-type: none"> General surgery indications | General laparoscopic surgical procedures and laparoscopic gynecologic surgery including a total of 31 indicated procedures, including benign and oncologic procedures, laparoscopic inguinal, hiatal and paraesophageal hernia, sleeve gastrectomy and laparoscopic cholecystectomy | For adult and pediatric laparoscopic abdominal and pelvic surgery, as well as limited thoracic surgeries excluding cardiac and vascular surgery and surgeries in direct contact with central nervous systems | Japan – regulatory approval and reimbursement for 98 laparoscopic procedures – July 2019 Additional 26 laparoscopic procedures approved for reimbursement in Japan during 2022 |
| <ul style="list-style-type: none"> Pediatric indications | March 2023 | February 2020 | Taiwan – April 2018 Japan – July 2019 |
| <ul style="list-style-type: none"> Intelligent Surgical Unit, or ISU | Initial - March 2020 Expansion of Augmented Intelligence in August 2021 | January 2021 Expansion of Augmented Intelligence in January 2023 | Japan - December 2020 |
| Instruments and Other Products | | | |
| <ul style="list-style-type: none"> 5mm articulating instruments | July 2021 | September 2018 | Japan - October 2022 |
| <ul style="list-style-type: none"> 3mm diameter instruments | October 2018 | July 2017 | Taiwan - November 2018 Japan - October 2019 |
| <ul style="list-style-type: none"> Senhance ultrasonic system | January 2019 | September 2018 | Japan - October 2020 |
| <ul style="list-style-type: none"> 3mm and 5mm hooks | 5mm July 2019 3mm November 2019 | December 2019 | Japan - December 2020 |

We also focused on expanding the indications for use of the Senhance System. As of July 2023, the Senhance System is FDA cleared for use in general laparoscopic surgical procedures and laparoscopic gynecologic surgery including a total of 31 indicated procedures, including benign and oncologic procedures, laparoscopic inguinal, hiatal and paraesophageal hernia, sleeve gastrectomy and laparoscopic cholecystectomy for adult and pediatric (over two years of age and greater than 10kg weight) patients. We continue to make additional submissions for clearance or approval for enhancements to the Senhance System and related instruments and accessories.

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. As a result, we will need to generate significant revenue in order to achieve profitability.

Corporate 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 to be offered by us: | 23,809,524 units, with each unit consisting of one share of common stock and one common warrant to purchase one (1) share of common stock at an initial exercise price of \$0.42 per share. The shares of common stock and common warrants comprising the units are immediately separable and will be issued separately in this offering, but must initially be purchased together in this offering. Each common warrant has an exercise price of \$0.42, will be exercisable at any time after the date of issuance and will expire five (5) years after the date of issuance. This prospectus supplement also relates to the offering of 23,809,524 shares of common stock issuable upon exercise of the common warrants. For additional information, see “Description of Securities We Are Offering” below. |
| Common stock outstanding prior to this offering (1) | 239,341,570 shares |
| Common stock to be outstanding after this offering: (1) | 263,151,094 shares (assuming none of the common warrants issued in the offering are exercised). |
| Use of proceeds: | We expect the net proceeds from this offering to be approximately \$9.1 million, after deducting the placement agent fees and estimated offering expenses payable by us. We currently intend to use the net proceeds of this offering for general corporate purposes, including working capital, product development and capital expenditures. See “Use of Proceeds” on page S-12 of this prospectus supplement. |
| Markets for common stock and warrants: | Our common stock is listed on the NYSE American under the symbol “ASXC.” The shares offered hereby and the shares issuable upon exercise of the common warrants will be listed on the NYSE American. However, there is no established public trading market for the common warrants, and we do not expect a market to develop. In addition, we do not intend to apply to list the common warrants on any national securities exchange. Without a public trading market, the liquidity of the common warrants will be limited. The common warrants are immediately separable from the shares of our common stock, being offered in a unit. |
| Risk Factors: | Investing in our securities involves a high degree of risk. See “Risk Factors” beginning on page S-7 of this prospectus supplement and on page 5 of the accompanying base prospectus and the other information included or incorporated by reference in this prospectus supplement and the accompanying base prospectus. |

(1) The number of shares of our common stock to be outstanding immediately before this offering and immediately after this offering is based on 239,341,570 shares outstanding as of March 31, 2023. This number of shares excludes as of such date:

- 10,319,169 shares of common stock issuable upon the exercise of outstanding options granted under our stock option plans at a weighted average exercise price of \$3.30 per share;
- 1,021,076 shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$0.77 per share;
- 23,809,524 shares of common stock issuable upon the exercise of common warrants issued in this offering;
- 12,657,094 shares of common stock issuable upon vesting of outstanding restricted stock units;
- 23,035,365 shares of common stock available for future issuance under our stock option plans; and
- 698,298 shares of common stock issued subsequent to March 31, 2023, and prior to July 26, 2023.

Unless otherwise stated, all information contained in this prospectus supplement assumes no exercise of common warrants issued in this offering.

RISK FACTORS

Investing in our securities 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 I, Item 1A—Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the U.S. Securities and Exchange Commission, or SEC, on March 2, 2023 which is incorporated by reference in this prospectus supplement and the accompanying base prospectus in their entirety, together with the other information contained in this prospectus supplement, the accompanying base prospectus and the documents we have 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 securities.

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. Substantial doubt exists about our ability to continue as a going concern as a result of anticipated capital needs as well as past recurring losses and an accumulated deficit. Our net loss for the quarter ended March 31, 2023 was \$22.2 million, our accumulated deficit as of March 31, 2023 was \$883.2 million and as of March 31, 2023, the Company had cash, cash equivalents, short-term investments and long-term investments, excluding restricted cash, of approximately \$57.4 million. We believe that our existing cash and cash equivalents, together with cash received from sales of our products, will not be sufficient to meet our anticipated cash needs for the next 12 months.

If our products fail in development or do not gain regulatory clearance or approval, or if our products do not achieve market acceptance, we may never become profitable. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods.

Our recurring operating losses and negative cash flows raise substantial doubt about our ability to continue as a going concern. We will need additional financing to execute our business plan and fund our operations.

Since inception, we have experienced recurring operating losses and negative cash flows and we expect to continue to generate operating losses and consume significant cash resources in the foreseeable future, particularly as we increase our research and development spending as we develop and seek regulatory approval for the LUNA System and enhancements to our digital surgery and Performance-Guided Surgery product offerings.

Management has concluded that substantial doubt exists about our ability to continue as a going concern as a result of anticipated capital needs in conjunction with past recurring losses and an accumulated deficit. Our independent registered public accounting firm also included an explanatory paragraph in its report on our consolidated financial statements as of and for the year ended December 31, 2022 with respect to this uncertainty. We believe that our existing cash, cash equivalents, short-term investments and long-term investments, together with cash received from product, service, and lease sales will be sufficient to meet our anticipated cash needs into the first quarter of 2024, which we further believe will be extended into the second quarter of 2024 with this offering. We will need additional financing to implement our next generation products strategy. We also believe we will need to raise capital in order to fully implement the LUNA System program. Substantial doubt about our ability to continue as a going concern may materially and adversely affect the price per share of our common stock and we may have a more difficult time obtaining financing.

If we fail to implement and maintain an effective system of internal controls, we may be unable to accurately report our results of operations or prevent fraud, and investor confidence and the market price of our common stock may be materially and adversely affected.

As a publicly traded company in the United States, we are subject to the reporting requirements under the U.S. securities laws. The SEC, as required under Section 404 of the Sarbanes-Oxley Act of 2002, has adopted rules requiring every public company to include a report of management on the effectiveness of such company’s internal control over financial reporting in its annual report. In prior years, management has identified material weaknesses in the internal control over financial reporting. If any of our prior material weaknesses recurs, or if we identify additional weaknesses or fail to timely and successfully implement new or improved controls, our ability to assure timely and accurate financial reporting may be adversely affected, and we could suffer a loss of investor confidence in the reliability of our financial statements, which in turn could negatively impact the trading price of our shares of common stock, result in lawsuits being filed against us by our stockholders, or otherwise harm our reputation. If material weaknesses are identified in the future, it could be costly to remediate such material weaknesses, which may adversely affect our results of operations. In addition, our auditor is not required to attest to the effectiveness of our internal controls over financial reporting due to our status of a smaller reporting company. As a result, current and potential investors could lose confidence in our financial reporting, which could harm our business and have an adverse effect on the price of 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.

There is no public market for the common warrants to purchase common stock in this offering.

There is no established public trading market for the common warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing the common warrants on any national securities exchange or other trading market. Without an active market, the liquidity of common warrants will be limited.

Holders of the common warrants offered hereby will have no rights as holders of common stock with respect to the shares of common stock underlying the common warrants until such holders exercise their common warrants and acquire our common stock, except as otherwise provided in the common warrants.

Until holders of the common warrants acquire our common stock upon exercise thereof, such holders will have no rights with respect to the shares of common stock underlying such common warrants, except to the extent that holders of such common warrants will have certain rights to participate in distributions or dividends paid on our common stock as set forth in the common warrants. Upon exercise of the common warrants, the holders will be entitled to exercise the rights of a holder of common stock only as to matters for which the record date occurs after the exercise date.

The exercise of our outstanding options and warrants will dilute shareholders and could decrease our stock price.

The exercise of our outstanding options and warrants, including any common warrants to be issued pursuant to this offering, may adversely affect our stock price due to the issuance of a large number of shares or the perception that such issuances could occur. These factors also could make it more difficult to raise funds through future offerings of common stock or warrants, and could adversely impact the terms under which we could obtain additional equity capital. Exercise of outstanding options and warrants, or any future issuance of additional shares of common stock or other equity securities, including but not limited to options, warrants or other derivative securities convertible into our common stock, may result in significant dilution to our shareholders and may decrease our stock price.

If you purchase units in this offering, you will experience immediate dilution as a result of this offering.

Because the price per unit being offered is higher than the 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 unit you pay in this offering and the as adjusted net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of March 31, 2023, was approximately \$78.2 million, or \$0.33 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. Based on an offering price of \$0.42 per unit, if you purchase securities in this offering, you will have immediate dilution of \$0.09 per share with respect to the as adjusted net tangible book value per share of the common stock. In addition, if the common warrants are exercised by the holders, you will experience further dilution upon such exercises.

If you purchase units 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 will 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 other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, 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 this offering.

In addition, we have a significant number of stock options outstanding. To the extent that outstanding stock options have been or may be exercised or other shares issued, you may experience further dilution. 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.

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.

During the two years ended March 31, 2023, the market price of our common stock fluctuated from a high of \$3.75 per share to a low of \$0.28 per share, and our stock price continues to fluctuate. 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 new products or product enhancements 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 the medical device industry;
- the results of product liability or intellectual property or federal securities 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.

Further, the stock market in general, and the market for medical device companies in particular, has recently experienced extreme price and volume fluctuations. The volatility of our common stock is further exacerbated due to its low trading volume. Continued market fluctuations could result in extreme volatility in the price of our common stock, which could cause a decline in the value of our common stock and the loss of some or all of your investment.

Trading volume of our common stock is limited, making it difficult for our stockholders to sell their shares; and future issuances of common stock could reduce our stock price.

Trading of our common stock is currently conducted on the NYSE American. The liquidity of our common stock is limited, not only in terms of the number of shares that can be bought and sold at a given price, but also as it may be adversely affected by delays in the timing of transactions and reduction in security analysts' and the media's coverage of us, if at all. These factors may result in different prices for our common stock than might otherwise be obtained in a more liquid market and could also result in a larger spread between the bid and ask prices for our common stock. In addition, without a large public float, our common stock is less liquid than the stock of companies with broader public ownership, and, as a result, the trading prices of our common stock may be more volatile. In the absence of an active public trading market, an investor may be unable to liquidate his investment in our common stock. Trading of a relatively small volume of our common stock may have a greater impact on the trading price of our stock than would be the case if our public float were larger. We cannot predict the prices at which our common stock will trade in the future, if at all.

Sales by stockholders of substantial amounts of our shares of common stock, the issuance of new shares of common stock by us or the perception that these sales or issuances may occur in the future could materially and adversely affect the market price of our common stock, and you may lose all or a portion of your investment in our common stock.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying base prospectus and the documents we have filed with the SEC that are incorporated by reference herein and therein contain 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 supplement 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 this prospectus supplement and in the reports incorporated by reference herein and therein. These factors and the other cautionary statements made in this prospectus supplement or incorporated by reference herein should be read as being applicable to all related forward-looking statements whenever they appear in this prospectus supplement 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 supplement 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.

USE OF PROCEEDS

We estimate that the net proceeds to us from this offering, based on the sale of 23,809,524 units at the offering price of \$0.42 per unit, after deducting placement agent fees and estimated offering expenses payable by us, will be approximately \$9.1 million.

We currently intend to use the net proceeds of this offering for general corporate purposes, including working capital, product development and capital expenditures. While we have identified the particular uses for the net proceeds of this offering, we have not determined the amounts we plan to spend on any of the areas listed above or the timing of these 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. We expect that, after giving effect to this offering, as well in consideration of our current cash on hand, and the strategic management of inventory and expenses, we will be able to fund operations into the second quarter of 2024.

CAPITALIZATION

The following table sets forth our consolidated cash and cash equivalents and our capitalization as of March 31, 2023:

- on an actual basis; and
- on an adjusted basis after giving effect to our sale of an aggregate of 23,809,524 units for an aggregate purchase price of \$0.42.

You should read this table along with our historical consolidated financial statements and related notes and the other financial information included and incorporated by reference in this prospectus supplement and the accompanying base prospectus.

| | As of March 31, 2023 | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| | Actual | As Adjusted |
| <i>(In thousands except share and per share data)</i> | | |
| Cash, cash equivalents and restricted cash(1): | \$ 19,879 | \$ 28,954 |
| Stockholders' equity(2): | | |
| Common stock \$0.001 par value, 750,000,000 shares authorized at March 31, 2023; 239,341,570 shares issued and outstanding at March 31, 2023, actual; 263,151,094 shares issued and outstanding at March 31, 2023, as adjusted | 239 | 263 |
| Additional paid-in capital | 964,162 | 973,213 |
| Accumulated deficit | (883,153) | (883,153) |
| Accumulated other comprehensive loss | (1,531) | (1,531) |
| Total stockholders' equity | \$ 79,717 | \$ 88,792 |

(1) Includes restricted cash of \$1.1 million

(2) The number of shares of our common stock to be outstanding immediately after this offering is based on 239,341,570 shares outstanding as of March 31, 2023, and excludes as of such date:

- 10,319,169 shares of common stock issuable upon the exercise of outstanding options granted under our stock option plans at a weighted average exercise price of \$3.30 per share;
- 1,021,076 shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$0.77 per share;
- 23,809,524 shares of common stock issuable upon the exercise of common warrants issued in this offering;
- 12,657,094 shares of common stock issuable upon vesting of outstanding restricted stock units;
- 23,035,365 shares of common stock available for future issuance under our stock option plans; and
- 698,298 shares of common stock issued subsequent to March 31, 2023, and prior to July 26, 2023.

DILUTION

If you invest in our securities, your interest will be diluted immediately to the extent of the difference between the offering price per share and the as adjusted net tangible book value per share of common stock after this offering.

The net tangible book value of our shares of common stock as of March 31, 2023 was approximately \$78.2 million, or approximately \$0.33 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 unit paid by purchasers in this offering and the as adjusted net tangible book value per share of our common stock immediately following the completion of this offering.

After giving effect to the sale of units offered by this prospectus supplement at an offering price of \$0.42 per unit, and after deducting placement agent fees and estimated aggregate offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2023 would have been approximately \$87.3 million, or approximately \$0.33 per share. This represents no change in as adjusted net tangible book value per share to our existing stockholders and an immediate dilution in as adjusted net tangible book value of approximately \$0.09 per share to purchasers of our units in this offering, as illustrated by the following table:

| | | | |
|---------------------------------------------------------------------------------------------------------|----|------|------|
| Offering price per unit | | \$ | 0.42 |
| Net tangible book value per share at March 31, 2023 | \$ | | 0.33 |
| Increase in net tangible book value per share after giving effect to this offering | | 0.00 | |
| | \$ | 0.00 | |
| As adjusted net tangible book value per share as of March 31, 2023 after giving effect to this offering | | \$ | 0.33 |
| Dilution per share to investors purchasing our units in this offering | | \$ | 0.09 |

The number of shares of our common stock to be outstanding immediately after this offering is based on 239,341,570 shares outstanding as of March 31, 2023. This number of shares excludes as of such date:

- 10,319,169 shares of common stock issuable upon the exercise of outstanding options granted under our stock option plans at a weighted average exercise price of \$3.30 per share;
- 1,021,076 shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$0.77 per share;
- 23,809,524 shares of common stock issuable upon the exercise of common warrants issued in this offering;
- 12,657,094 shares of common stock issuable upon vesting of outstanding restricted stock units;
- 23,035,365 shares of common stock available for future issuance under our stock option plans; and
- 698,298 shares of common stock issued subsequent to March 31, 2023, and prior to July 26, 2023.

To the extent that outstanding options or warrants are exercised or restricted stock units vest, 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.

DESCRIPTION OF SECURITIES WE ARE OFFERING

We are offering up to 23,809,524 shares of our common stock along with common warrants to purchase up to shares of common stock. Each share of common stock is being sold together with a common warrant to purchase one (1) share of common stock. The shares of common stock and accompanying common warrants will be issued separately. We are also registering the shares of common stock issuable from time to time upon exercise if any, of the common warrants. Units will not be issued or certificated. The shares of common stock and common warrants will be issued separately but can only be purchased together in units in this offering. This description of the units in this prospectus supplement is qualified in its entirety by reference to the common warrants.

Common Stock

The material terms and provisions of our common stock offered by this prospectus supplement and the accompanying base prospectus is incorporated herein by reference to the description of such common stock included in our Annual Report on Form 10-K for the year ended December 31, 2022. Our common stock is listed on the NYSE American under the symbol "ASXC." Our transfer agent is Continental Stock Transfer and Trust Company.

Common Warrants

The material terms and provisions of the common warrants being offered pursuant to this prospectus supplement and the accompanying base prospectus are summarized below. This summary is subject to and qualified in its entirety by the form of common warrant, which will be filed as an exhibit to a Current Report on Form 8-K to be filed by us with the SEC in connection with this offering. You should review a copy of the form of common warrants for a complete description of the terms and conditions applicable to the common warrants.

Form

The common warrants will be issued in physical certificate form to the investors.

General Terms of the Common Warrants

Each common warrant to be issued in this offering represents the right to purchase one (1) share of common stock at an initial exercise price of \$0.42 per share. Each common warrant may be exercised, in cash at any time beginning on the date of issuance and from time to time thereafter through and including the five (5)-year anniversary of the issuance date.

Exercisability

The common warrants will be exercisable upon issuance and will expire on the five (5)-year anniversary of the issuance date. The common warrants will be exercisable in whole or in part by delivering to Continental Stock Transfer and Trust Company, as warrant agent for us, a completed instruction form for exercise and complying with the requirements for exercise set forth in the common warrant. If a registration statement registering the issuance of the shares of common stock underlying the common warrants under the Securities Act of 1933, as amended, or the Securities Act, is not effective or available for the issuance of such shares, then a holder of common warrants may, in its sole discretion, elect to exercise any such common warrant through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the common warrant.

No Fractional Shares

No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the common warrants. Rather, the number of shares of common stock to be issued will, at our election, either be rounded up to the nearest whole number or we will pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price.

Failure to Timely Deliver Shares

If we fail to deliver to the holder a certificate representing shares issuable upon exercise of a common warrant or to credit the holder's balance account with Depository Trust Company for such number of shares of common stock to which the holder is entitled upon the holder's exercise of the common warrant, in each case, by the delivery date set forth in the common warrant, and if after such date the holder is required by its broker to purchase (in an open market transaction or otherwise) or the holder's brokerage firm otherwise purchases, shares of common stock to deliver in satisfaction of a sale by the holder of the warrant shares which the holder anticipated receiving upon such exercise, or a Buy-In, then we shall (A) pay in cash to the holder the amount, if any, by which (x) the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of warrant shares that we were required to deliver to the holder in connection with the exercise at issue, times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the holder, either reinstate the portion of the applicable warrant and equivalent number of warrant shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the holder the number of shares of common stock that would have been issued had we timely complied with our exercise and delivery obligations. In addition, if we fail to deliver to the holder any common stock pursuant to a validly-exercised common warrant, we will be required to pay liquidated damages in the amount of \$10 per trading day for each \$1,000 of the shares of common stock exercised but not delivered (and rising to \$20 per trading day beginning the third trading day after the common warrant share delivery date) until such time the shares of common stock are delivered or the holder rescinds such exercise.

Exercise Limitation

In general, a holder will not have the right to exercise any portion of the common warrant if the holder (together with its Attribution Parties (as defined in the common warrants)) would beneficially own in excess of 4.99% (or, at the election of the purchaser, 9.99%) of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the common warrant. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99% upon notice to us, provided that any increase in this limitation will not be effective until 61 days after such notice from the holder to us and such increase or decrease will apply only to the holder providing such notice.

Adjustment for Stock Splits

The exercise price and the number of shares of common stock purchasable upon the exercise of the common warrants are subject to adjustment upon the occurrence of specific events, including sales of additional shares of common stock, stock dividends, stock splits, and combinations of our common stock.

Dividends or Distributions

If we declare or make any dividend or other distribution of our assets (or rights to acquire its assets) to holders of shares of our common stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property, options, evidence of indebtedness or any other assets by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) at any time after the issuance of the common warrants, then, in each such case, the holders of the common warrants shall be entitled to participate in such distribution to the same extent that the holders would have participated therein if the holders had held the number of shares of common stock acquirable upon complete exercise of the common warrants.

Purchase Rights

If we grant, issue or sell any shares of our common stock or securities exercisable for, exchangeable for or convertible into our common stock, or rights to purchase stock, common warrants, securities or other property pro rata to the record holders of any class of shares of our common stock, referred to as Purchase Rights, then each holder of the common warrants will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the holder could have acquired if the holder had held the number of shares of common stock acquirable upon complete exercise of the common warrants immediately before the record date, or, if no such record is taken, the date as of which the record holders of shares of common stock are to be determined, for the grant, issue or sale of such Purchase Rights.

Fundamental Transactions

If a Fundamental Transaction (as defined below) occurs, then the successor entity will succeed to, and be substituted for us, and may exercise every right and power that we may exercise and will assume all of our obligations under the common warrants with the same effect as if such successor entity had been named in the common warrant itself. Additionally, upon consummation of a Fundamental Transaction pursuant to which holders of shares of our common stock are entitled to receive securities or other assets with respect to or in exchange for shares of our common stock, we will make appropriate provision to insure that the holder will thereafter have the right to receive upon an exercise of the common warrant at any time after the consummation of the Fundamental Transaction but prior to the expiration date of the common warrant, in lieu of shares of our common stock (or other securities, cash, assets or other property) purchasable upon the exercise of the common warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the holder would have been entitled to receive upon the happening of such Fundamental Transaction had the common warrant been exercised immediately prior to such Fundamental Transaction. If holders of our common stock are given a choice as to the securities, cash or property to be received in a Fundamental Transaction, then the holder shall be given the same choice as to the consideration it receives upon any exercise of the common warrant following such Fundamental Transaction. These provisions apply similarly and equally to successive Fundamental Transactions and other corporate events described in the common warrant and will be applied without regard to any limitations on the exercise of the common warrant. In addition, upon a Fundamental Transaction, at the request of the holder, we or the successor entity shall purchase the unexercised portion of the common warrant from the holder by paying to the holder, on or prior to the second trading day after such request (or, if later, on the effective date of the Fundamental Transaction), cash in an amount equal to the Black-Scholes Value (as defined below) of the remaining unexercised portion of the common warrant on the date of such Fundamental Transaction. However, in the event of a Fundamental Transaction which is not in our control, including a Fundamental Transaction not approved by our board of directors, the holders of the common warrants will only be entitled to receive from us or our successor entity, as of the date of consummation of such Fundamental Transaction the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of the common warrant that is being offered and paid to the holders of our common stock in connection with the Fundamental Transaction, whether that consideration is in the form of cash, stock or any combination of cash and stock, or whether the holders of our common stock are given the choice to receive alternative forms of consideration in connection with the Fundamental Transaction.

Authorized Shares

During the period the common warrants are outstanding, we will reserve from our authorized and unissued shares of common stock a sufficient number of shares to provide for the issuance of 100% of the shares of common stock underlying the common warrants upon the exercise of the common warrants.

Transferability

Subject to applicable laws, the common warrants may be offered for sale, sold, transferred or assigned. There is currently no trading market for the common warrants and a trading market is not expected to develop.

Rights as a Shareholder

Except as otherwise provided in the warrants or by virtue of a holder's ownership of shares of our common stock, the holders of the common warrants do not have the rights or privileges of holders of our common stock, including any voting rights, unless and until they exercise their common warrants.

Amendments

Each common warrant may be amended with the written consent of the holder of such common warrant and us.

Listing

There is no established public trading market for the common warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the common warrants on any national securities exchange.

Definitions

“Black Scholes Value” means the value of the common warrants based on the Black-Scholes Option Pricing Model obtained from the “OV” function on Bloomberg, L.P. (“Bloomberg”) determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the trading day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the trading day prior to the public announcement of such fundamental transaction and ending on the date of the holder’s request for purchase of the unexercised portion of the common warrant and (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, and (E) a zero cost of borrow.

“Fundamental Transaction” means (i) we, directly or indirectly, in one or more related transactions effect any merger or consolidation with or into another person, (ii) we or any subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of our assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by us or another person) is completed pursuant to which holders of common stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding common stock or 50% or more of the voting power of the common equity, (iv) we, directly or indirectly, in one or more related transactions effect any reclassification, reorganization or recapitalization of our common stock or any compulsory share exchange pursuant to which our common stock is effectively converted into or exchanged for other securities, cash or property, or (v) we, directly or indirectly, in one or more related transactions consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another person or group of persons whereby such other person or group acquires 50% or more of the outstanding shares of our common stock or 50% or more of the voting power of the common equity.

PLAN OF DISTRIBUTION

Pursuant to an engagement letter dated as of July 11, 2023, we have retained H.C. Wainwright & Co., LLC, or Wainwright, to act as our exclusive placement agent in connection with this offering. Under the terms of the agreement with Wainwright, Wainwright is not purchasing the securities offered by us in this offering, and is not required to sell any specific number or dollar amount of securities, but will assist us in this offering on a reasonable best efforts basis. Wainwright will have no authority to bind us by virtue of our agreements with them. The terms of this offering were subject to market conditions and negotiations between us, Wainwright and prospective investors. Wainwright may engage sub-agents or selected dealers to assist with this offering. This is a best efforts offering.

We entered into a securities purchase agreement directly with the investors who purchased our securities in this offering. The form of securities purchase agreement will be included as an exhibit to a Current Report on Form 8-K that we will file with the SEC and that will be incorporated by reference into the Registration Statement of which this prospectus supplement forms a part.

We will deliver the shares of common stock being issued to the investors electronically and will mail such investors physical warrant certificates for the common warrants sold in this offering, upon receipt of investor funds for the purchase of the shares of common stock and common warrants offered pursuant to this prospectus supplement and the accompanying base prospectus. We expect to deliver the shares of common stock and the common warrants to investors on or about July 31, 2023, subject to satisfaction of certain customary closing conditions.

The following table shows the per share and total cash fees we will pay to the placement agent in connection with the sale of the common stock and related common warrants pursuant to this prospectus supplement, which assumes that we will sell all of the securities we are offering.

| | Per Share and Common Warrant | Total |
|--------------------------------|-----------------------------------------|------------------|
| Offering price | \$ 0.42 | \$ 10,000,000.08 |
| Placement agent fees | \$ 0.0294 | \$ 700,000.01 |
| Proceeds before expenses to us | \$ 0.3906 | \$ 9,300,000.07 |

Fees and Expenses

We have agreed to pay Wainwright a cash fee equal to 7.0% of the gross proceeds received from investors purchasing our securities in the offering. We will also pay Wainwright \$25,000 for non-accountable expenses, up to \$50,000 for fees and expenses of legal counsel and other out-of-pocket expenses and \$15,950 for certain clearing fees. We estimate the total offering expenses of this offering that will be payable by us, excluding the placement agent's fees, but including the expenses described above, will be approximately \$225,000.

Right of First Refusal

We have granted Wainwright a 6-month right of first refusal to act as our sole book-running manager, sole underwriter, sole placement agent or sole manager for certain future debt financing transactions and public offerings, private placements or capital raising transactions undertaken by us, provided that this offering is consummated, subject to certain exceptions.

Tail

In the event that any investors that had back and forth correspondence in connection with an offering with the placement agent during the term of our engagement agreement with the placement agent provide any capital to us in a public or private offering or other financing or capital-raising transaction of any kind, each, a “Tail Financing,” within six (6) months following the termination or expiration of our engagement agreement with the placement agent, we shall pay the placement agent the cash compensation and expense reimbursement provided above on the gross proceeds raised in such Tail Financing from such investors.

Other Relationships

From time to time, Wainwright may provide in the future various advisory, investment and commercial banking and other services to us in the ordinary course of business, for which they have received and may continue to receive customary fees and commissions. However, except as disclosed in this prospectus supplement, we have no present arrangements with Wainwright for any further services.

Determination of Offering Price and Warrant Exercise Prices

The offering price per share of common stock and common warrant we are offering pursuant to this prospectus supplement and the accompanying base prospectus and the exercise prices and other terms of the common warrants were negotiated between us and the investors, in consultation with the placement agent based on the trading of our common stock prior to this offering, among other things. Other factors considered in determining the offering price of the securities we are offering and the exercise prices and other terms of the warrants include the history and prospects of our Company, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, general conditions of the securities markets at the time of the offering and such other factors as were deemed relevant.

Lock-up Agreements

Pursuant to the securities purchase agreement with the investors, we have agreed to not issue, enter into any agreement to issue or announce the issuance or proposed issuance of any common stock or securities convertible, exercisable or exchangeable into shares of common stock for forty five (45) days following the closing date, subject to certain exceptions., and we have agreed to not issue any securities that are subject to a price reset based on the trading prices of our common stock or upon a specified or contingent event in the future, or enter into any agreement to issue securities at a future determined price for six (6) months following the closing date of this offering, subject to an exception. Each of our officers and directors have agreed to be subject to a lock-up period of sixty (60) days following the date of closing of this offering.

Transfer Agent

Our transfer agent and register is Continental Stock Transfer & Trust Company. The transfer agent’s address is 1 State Street, 30th Floor, New York, New York 10004.

Listing

Our common stock is listed on the NYSE American under the symbol “ASXC”. There is no established public trading market for the common warrants and we do not expect a market to develop. We do not intend to apply for listing of the common warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the common warrants will be limited.

Indemnification

We have agreed to indemnify Wainwright and specified other persons against certain liabilities, including liabilities under the Securities Act, relating to or arising out of Wainwright's activities under the engagement letter and to contribute to payments that Wainwright may be required to make in respect of such liabilities.

Regulation M

Wainwright may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the securities sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, Wainwright would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of common shares by Wainwright acting as principal. Under these rules and regulations, Wainwright may not (i) engage in any stabilization activity in connection with our securities and (ii) bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until it has completed its participation in the distribution.

Electronic Offer, Sale and Distribution of Securities

A prospectus in electronic format may be made available on the websites maintained by the placement agent and the placement agent may distribute prospectuses electronically. Other than the prospectus in electronic format, the information on any such websites is not part of this prospectus supplement and the accompanying base prospectus or the registration statement of which this prospectus supplement and the accompanying base prospectus forms a part, has not been approved or endorsed by us or the placement agent, and should not be relied upon by investors.

LEGAL MATTERS

Certain legal matters with respect to the securities offered hereby have been passed upon by Ballard Spahr LLP. Ellenoff Grossman & Schole LLP is acting as counsel to H.C. Wainwright & Co., LLC in connection with this offering.

EXPERTS

The consolidated financial statements as of December 31, 2022 and 2021, 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 (n/k/a BDO USA, P.A.), an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting. The report on the consolidated financial statements contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

WHERE CAN YOU FIND MORE INFORMATION

This prospectus supplement and the accompanying base 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 base 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 base 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 base 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 base 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 base prospectus:

- our [Annual Report on Form 10-K for the year ended December 31, 2022](#), filed with the SEC on March 2, 2023;
- our [Quarterly Report on Form 10-Q for the quarter ended March 31, 2023](#), filed with the SEC on May 11, 2023;
- our Current Reports on Form 8-K filed with the SEC on [January 12, 2023](#) (Items 8.01 and 9.01), [February 21, 2023](#) (Items 8.01 and 9.01), [June 6, 2023](#) (Items 5.02, 5.07 and 9.01), [June 30, 2023](#) (Item 8.01) and [July 28, 2023](#) (Items 1.01, 8.01 and 9.01);
- our [definitive proxy statement on Schedule 14A](#), filed with the SEC on April 27, 2023; and
- the description of the Company’s 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

PROSPECTUS



\$150,000,000
Common Stock
Preferred Stock
Warrants
Units

We may offer and sell from time to time, in one or more offerings, up to \$150,000,000 of any combination of common stock, preferred stock and warrants, either individually or in units consisting of any two or more of such securities. We may also offer securities upon the exercise of warrants.

Each time we sell securities pursuant to this prospectus, we will provide the specific terms of the securities offered in a supplement to this prospectus. The prospectus supplements will also describe the specific manner in which we will offer these securities and may also supplement, update or amend information contained in this prospectus. You should read this prospectus and any related prospectus supplement carefully before you invest in our securities.

The securities may be sold on a delayed or continuous basis directly by us, through dealers, agents or underwriters designated from time to time, or through any combination of these methods. If any dealers, agents or underwriters are involved in the sale of the securities in respect of which this prospectus is being delivered, we will disclose their names and the nature of our arrangements with them in any prospectus supplement. The net proceeds we expect to receive from any such sale will also be included in the applicable prospectus supplement.

Our common stock is traded on the NYSE American under the symbol "ASXC." On March 14, 2022 the closing price of our common stock was \$0.53 per share.

Investing in our securities involves a high degree of risk. See "RISK FACTORS" on page 5.

This prospectus may not be used to offer or sell securities unless accompanied by a prospectus supplement for the securities being sold.

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

The date of this Prospectus is April 28, 2022

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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 (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). All statements, other than statements of historical fact, included or incorporated in this prospectus 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. These important factors include those referenced under the heading “Risk Factors.” These factors and the other cautionary statements made 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 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.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in, or incorporated by reference into, this prospectus. This summary does not contain all of the information you should consider before investing in our securities. You should read this entire prospectus carefully, especially the “Risk Factors” section beginning on page 5 and our consolidated financial statements and the related notes and risk factors incorporated by reference into this prospectus, before making an investment decision.

Company Overview

Asensus Surgical, Inc. 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 clinical intelligence for surgeons to enable consistently superior outcomes and a new standard of laparoscopic surgery. This builds upon the foundation of Digital Laparoscopy with our Senhance® Surgical System powered by the Intelligent Surgical Unit™ (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.

Our mission is focused on leveraging robotic technologies, augmented intelligence, and machine learning capabilities to: reduce variability in surgery, drive more predictable outcomes, optimize resources and costs, and work with hospital systems that strive to employ innovative healthcare strategies. By leveraging advanced digital technologies, we aim to enable surgeons to take the best surgical practices and techniques from everywhere and utilize them to help improve outcomes, reduce variability, control the unexpected, reduce costs, reduce cognitive and physical fatigue of surgeons, and provide patients with the best care possible. We believe that by digitizing the interface between the surgeon and patient, we can unlock clinical intelligence to pioneer a new era of surgery, which we are calling Performance-Guided Surgery.

Historical advances in surgery have largely focused on bringing tools and techniques into the operating room to reduce the invasiveness of procedures. When we introduced Digital Laparoscopy, our intention was to help surgeons minimize surgical variability in a cost-effective manner. The next logical step in the progression is looking for ways to deliver clinical intelligence and analytics, which we believe can be enabled by what we refer to as Performance-Guided Surgery.

Performance-Guided Surgery builds upon our foundation of Digital Laparoscopy by adding machine vision, augmented intelligence, and deep learning capabilities through all surgical phases to help guide improved decision making, enriched collaboration, and enhanced predictability for all surgeons (independent of skill level and experience). Our Performance-Guided Surgery strategy is composed of the following framework:

- Pre-operative - in what we call “intelligent preparation,” our machine learning models will take data from all 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, but we also believe it will ultimately help reduce the cognitive load of the surgeons.
- Post-operative – finally, by tapping into the vast amount of data captured during procedures, surgeons and operating room staff will be able to get “performance analytics” with actionable assessments of their performance giving them the information needed to improve performance over time. We intend to establish a new standard of analytics to improve not only the skills of all surgeons but move towards best-practice-sharing that bridges the global surgeon community.

We continue 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 multi-port, digital laparoscopy platform designed to maintain laparoscopic MIS standards while providing digital benefits such as haptic feedback, robotic precision, comfortable ergonomics, advanced instrumentation including 3mm microlaparoscopic instruments, 5mm articulating instruments, eye-sensing camera control and fully-reusable standard instruments to help maintain per-procedure costs similar to traditional laparoscopy.

We believe that future outcomes of minimally invasive surgery will be enhanced through our combination of more advanced tools and robotic functionality which are designed to:

- empower surgeons with improved precision, ergonomics, dexterity and visualization;
- offer high patient satisfaction and enable a desirable post-operative recovery; and
- provide a cost-effective robotic system, compared to existing alternatives today, for a wide range of clinical applications and operative sites within the healthcare system.

Our strategy is to focus on the market development, commercialization, and further development of the Senhance System. We further believe that:

- laparoscopic robotic surgery will need to continue to evolve given the pressures of value-based healthcare and existing operating room inefficiencies, surgical variability, and workforce challenges;
- with the Senhance System, surgeons can benefit from the haptic feedback, enhanced three-dimensional, high definition, or 3DHD, vision, and open architecture consistent with current laparoscopic surgery procedures; and
- patients will continue to seek a minimally invasive option, offering minimal scarring and fewer incisions, for many common general abdominal and gynecologic surgeries, which desires are addressed by the Senhance System.

The Senhance System addresses these key challenges for laparoscopic surgeons and hospitals by delivering the benefits of robotics with improved control of the surgical field, enhanced visualization and camera control and improved ergonomics, coupled with the familiarity of laparoscopic motion and consistent per-procedure costs.

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, we have 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, we have received regulatory approval and reimbursement for 98 laparoscopic procedures.
- The Senhance System 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 (which we refer to as a Lease Buyout). In the first quarter of 2021, we completed one Lease Buyout of a Senhance System.

Our focus over the last few years has been on seeking regulatory approvals and clearances for the Senhance System and related product offerings and instruments and pursuing commercialization of our products. The following chart describes our success in achieving regulatory clearances and approvals to date.

| Product/Indications | FDA Clearance | CE Mark | Other Approvals |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Senhance System | October 2017 | January 2012 | Taiwan – April 2018 Japan – May 2019 Russian Federation – December 2020 |
| Indications for Use of Senhance System | | | |
| <ul style="list-style-type: none"> Initial general surgery indications for laparoscopic colorectal and gynecologic surgery procedures | October 2017 | N/A | N/A |
| <ul style="list-style-type: none"> Extended to cholecystectomy and inguinal hernia repair | May 2018 | N/A | N/A |
| <ul style="list-style-type: none"> Extended to hiatal and paraesophageal hernia, sleeve gastrectomy, and sacrocolpopexy | March 2021 | N/A | N/A |
| <ul style="list-style-type: none"> General surgery indications | 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 | For adult and pediatric laparoscopic abdominal and pelvic surgery, as well as limited thoracic surgeries excluding cardiac and vascular surgery | Japan – regulatory approval and reimbursement for 98 laparoscopic procedures – July 2019 |
| <ul style="list-style-type: none"> Pediatric indications | N/A | February 2020 | N/A |
| Instruments and Other Products | | | |
| <ul style="list-style-type: none"> Intelligent Surgical Unit, or ISU | Initial - March 2020 Expansion of augmented intelligence in August 2021 | January 2021 | Japan - December 2020 |
| <ul style="list-style-type: none"> 5mm articulating instruments | July 2021 | September 2018 | N/A |
| <ul style="list-style-type: none"> 3mm diameter instruments | October 2018 | April 2019 | Taiwan - November 2018 Japan - October 2019 |
| <ul style="list-style-type: none"> Senhance ultrasonic system | January 2019 | September 2018 | Japan - October 2020 |
| <ul style="list-style-type: none"> 3 and 5mm hooks | 5mm July 2019 3mm November 2019 | December 2019 | Japan - December 2020 |

On January 19, 2021, we announced that we received CE Mark for the ISU, allowing us to expand our augmented intelligence capabilities to all global areas accepting CE Marks. In addition, in August 2021, we received FDA clearance for expanded augmented intelligence features on the ISU. The ISU enables machine vision-driven control of the camera for a surgeon by responding to commands and recognizing certain objects and locations in the surgical fields and allows a surgeon to change the visualized field of view using the movement of their instruments. The newest ISU features expand upon these capabilities and introduce more advanced features including 3D measurement, digital tagging, image enhancement, and enhanced camera control based on real-time data from anatomical structures while performing surgery. We acquired the assets used in the development of the ISU as part of our October 2018 acquisition of the assets, intellectual property and highly experienced multidisciplinary personnel of Medical Surgical Technologies, Inc., or MST, an Israeli-based medical technology company.

On July 28, 2021, we announced that we received FDA clearance for 5mm diameter articulating instruments, offering better access to difficult-to-reach areas of the anatomy by providing two additional degrees of freedom. These instruments previously received CE Mark for use in the EU.

We also focused on expanding the indications for use of the Senhance System. As of March 2021, the Senhance System is FDA cleared for use 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. We continue to make additional submissions for clearance or approval for enhancements to the Senhance System and related instruments and accessories, including additional filings and approvals sought in Japan.

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. As a result, we will need to generate significant revenue in order to achieve profitability.

As used herein, the terms “Company,” “we,” “our,” or “us” each includes Asensus Surgical, Inc. and its subsidiaries, Asensus Surgical US, Inc., 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.

We operate in one business segment.

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 and does not constitute a part of this prospectus.

ABOUT THIS PROSPECTUS

This prospectus is part of a “shelf” registration statement that we filed with the U.S. Securities and Exchange Commission, or the SEC. By using a shelf registration statement, we may, from time to time, issue any combination of the securities described in this prospectus in one or more offerings up to an aggregate maximum offering price of \$150,000,000 in one or more offerings. Each time we sell any of our securities, we will provide a prospectus supplement that will contain more specific information about the offering and the terms of the securities being sold. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus or the documents incorporated by reference.

This prospectus provides you with a general description of our company and our securities. For further information about our business and our securities, you should refer to the registration statement and the reports incorporated by reference in this prospectus, as described in “Where You Can Find More Information.”

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.

RISK FACTORS

Investing in our securities involves substantial risks. In addition to other information contained in this prospectus and any accompanying base 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, none of which are outstanding.

Common Stock

Of the authorized common stock, as of December 31, 2021, there were 235,218,552 shares outstanding, and as of December 31, 2021, there were 9,599,990 shares of our common stock reserved for the exercise of outstanding stock options, warrants and restricted stock units. As of March 14, 2022, there were approximately 60 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 December 31, 2021, we had common stock warrants to purchase 1,120,300 shares outstanding at exercise prices ranging from \$0.68 to \$40.30 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, in which we issued, as part of units, after exercise by the underwriter of an over-allotment option, Series C Warrants to purchase 25,367,646 shares of our Common Stock and Series D Warrants to purchase 25,367,646 shares of our Common Stock, each at an exercise price of \$0.68 per share. As of December 31, 2021, all Series C Warrants have been exercised or expired and there were 1,013,383 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.

Over-allotment 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, 2021 and 2020 and for each of the three years in the period ended December 31, 2021 and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2021 incorporated by reference in this Prospectus and in the Registration Statement have been so incorporated in reliance on the reports 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” in this prospectus the information in other documents that we file with it, which means that we can disclose important information to you by referring you to those documents containing such information. This prospectus is part of a registration statement we filed with the SEC. You should rely on the information incorporated by reference in this prospectus and the registration statement. The information incorporated by reference is considered to be part of this prospectus and information we file later with the SEC will automatically update and supersede this information and information contained in documents filed earlier with the SEC. We incorporate by reference the documents listed below and any future filings made with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of the offering; provided, that we are not incorporating by reference any documents or information deemed to have been furnished and not filed in accordance with SEC rules. The documents we are incorporating by reference are:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2021, filed with the SEC on February 28, 2022;
- our Current Reports on Form 8-K filed with the SEC on [March 15, 2022](#) and on [March 18, 2022](#);
- our definitive proxy statements on Schedule 14A, filed with the SEC on [April 25, 2022](#); and
- the description of the Company’s 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 file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website at www.sec.gov that contains periodic and current reports, proxy and information statements, and other information regarding registrants that are filed electronically with the SEC. These documents are also available, free of charge, through the Investors section of our website, which is located at www.asensus.com. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus.

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.

23,809,524 Shares of Common Stock

Common Warrants to Purchase up to 23,809,524 Shares of Common Stock

Up to 23,809,524 Shares of Common Stock Underlying the Common Warrants



PROSPECTUS SUPPLEMENT

H.C. Wainwright & Co.