ReWalk Robotics Ltd.
Form 424B5
February 25, 2019
As filed pursuant to Rule 424(b)(5)

Registration No. 333-209833

PROSPECTUS SUPPLEMENT

(To Prospectus dated May 9, 2016)

ReWalk Robotics Ltd.

19,000,000 Ordinary Shares

We are offering 19,000,000 ordinary shares, par value NIS 0.01 per ordinary share.

Our ordinary shares are listed on the NASDAQ Capital Market under the symbol "RWLK." The last reported sales price of our ordinary shares on February 20, 2019 was $0.30 per ordinary share.

We have retained H.C. Wainwright & Co., LLC to act as our exclusive placement agent, or the placement agent, in connection with the ordinary shares offered by this prospectus supplement. The placement agent has agreed to use its reasonable best efforts to arrange for the sale of the ordinary shares offered by this prospectus supplement. The placement agent is not purchasing or selling any of the ordinary shares we are offering and the placement agent is not required to arrange the purchase or sale of any specific number of shares or dollar amount. We have agreed to pay to the placement agent the placement agent fees set forth in the table below, which assumes that we sell all of the ordinary shares offered by this prospectus supplement. See "Plan of Distribution" on page S-20 of this prospectus supplement for more information regarding these arrangements.

We are an "emerging growth company" as defined by the Jumpstart Our Business Startups Act of 2012 and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus supplement, the accompanying prospectus and future filings.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page S-6 of this prospectus supplement and in the documents incorporated by reference in this prospectus supplement and the accompanying prospectus.

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

	Per Share	*Total*[2]
Public offering price	$0.23000	$4,370,000
Placement agent's fees[1]	$0.01955	$371,450

Proceeds, before expenses, to us	$0.21045	$3,998,550

(1) Includes a cash fee and a management fee, equal to 7.5% and 1%, respectively, of the gross proceeds raised in this offering to be paid to the placement agent. We have agreed to reimburse the placement agent for certain of its offering-related expenses. In addition, we have agreed to issue the placement agent or its designees warrants to purchase 1,140,000 ordinary shares (equal to 6% of the aggregate number of ordinary shares sold in this offering) at an exercise price of $0.2875 per share, which represents 125% of the public offering price per share. Neither these warrants nor the ordinary shares issuable upon exercise of the warrants are being registered hereby. See "Plan of Distribution" for a description of the compensation to be received by the placement agent.

(2) Because there is no minimum offering amount required as a condition to closing in this offering, the actual public offering amount, placement agent fees, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering amounts set forth above. For more information, see "Plan of Distribution."

As of February 20, 2019, the aggregate market value of our ordinary shares held by non-affiliates, or our public float, was $22,154,318. This was based on a total of 73,193,544 ordinary shares outstanding as of that date, of which 65,935,471 were held by non-affiliates (using information on the holdings of affiliates on various dates within the 60-day window permitted by General Instruction I.B.6 of Form S-3), and a price of $0.336 per share, the closing price of our ordinary shares on February 13, 2018. Pursuant to General Instruction I.B.6. of Form S-3, in no event will we sell the securities covered hereby in a public primary offering with a value exceeding $7,384,772, or one-third of the aggregate market value of our ordinary shares in any 12- month period, so long as the aggregate market value of our outstanding ordinary shares held by non-affiliates remains below $75 million. During the 12 calendar months prior to and including the date of this prospectus supplement, we have offered and sold $1,353,355 of ordinary shares pursuant to General Instruction I.B.6 of Form S-3 (excluding the ordinary shares offered and to be sold hereby).

Additionally, as disclosed in a separate prospectus supplement filed on February 20, 2019, to engage in this offering, we have suspended our separate at-the-market offering program under the equity distribution agreement, dated May 9, 2016, with Piper Jaffray & Co. as placement agent, pursuant to which we have made sales of our ordinary shares in a continuous offering from time to time.

Delivery of the ordinary shares is expected to be made on or about February 25, 2019, subject to customary closing conditions.

H.C. Wainwright & Co.

February 21, 2019

Prospectus Supplement	**Page**
ABOUT THIS PROSPECTUS SUPPLEMENT	S-1
PROSPECTUS SUPPLEMENT SUMMARY	S-2
RISK FACTORS	S-6
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	S-9
USE OF PROCEEDS	S-11
DILUTION	S-12
CAPITALIZATION	S-13
MATERIAL TAX CONSIDERATIONS	S-14
PLAN OF DISTRIBUTION	S-20
NOTICES TO INVESTORS	S-24
LEGAL MATTERS	S-25
EXPERTS	S-25
ENFORCEABILITY OF CIVIL LIABILITIES	S-25
WHERE YOU CAN FIND MORE INFORMATION	S-26
INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE	S-26

Prospectus	**Page**
ABOUT THIS PROSPECTUS	1
PROSPECTUS SUMMARY	2
RISK FACTORS	3
FORWARD-LOOKING STATEMENTS	5
RATIO OF EARNINGS TO FIXED CHARGES	6
CAPITALIZATION	7
PRICE RANGE OF ORDINARY SHARES	8
USE OF PROCEEDS	9
SELLING SHAREHOLDERS	10
DESCRIPTION OF ORDINARY SHARES	11
DESCRIPTION OF WARRANTS	15
DESCRIPTION OF DEBT SECURITIES	16
PLAN OF DISTRIBUTION	18
LEGAL MATTERS	21
EXPERTS	21
WHERE YOU CAN FIND MORE INFORMATION	21
INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE	22
ENFORCEABILITY OF CIVIL LIABILITIES	23

Table of Contents

About This Prospectus Supplement

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a "shelf" registration process. The document is in two parts. The first part is the prospectus supplement, which describes the specific terms of this offering. The second part is the prospectus, which provides more general information about securities we may offer from time to time, 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. We urge you to carefully read this prospectus supplement and the prospectus, and the documents incorporated by reference herein and therein, before buying any of the securities being offered under this prospectus supplement. This prospectus supplement may add or update information contained in the prospectus and the documents incorporated by reference therein. As a result:

- to the extent that any statement we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein that were filed before the date of this prospectus supplement, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein;

- any statement contained in a document incorporated by reference in this prospectus supplement or the accompanying prospectus that is inconsistent with information in a document incorporated by reference herein or therein that we filed on an earlier date will be deemed to modify and supersede the statement in the document filed on the earlier date; and

- any information that we file with the SEC incorporated by reference into this prospectus supplement after the date hereof will automatically update and supersede the information herein.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, or contained in any free writing prospectus prepared by or on our behalf. We have not, and the placement agent has not, authorized anyone to provide you with different information. This prospectus supplement is an offer to sell only the securities offered hereby, and only under circumstances and in jurisdictions where it is lawful to do so. The distribution of this prospectus supplement and sale of these securities in certain jurisdictions may be restricted by law. This prospectus supplement and the accompanying prospectus are not, and under no circumstances are to be construed as, an advertisement or a public offering of securities in Israel. Any public offer or sale of securities in Israel may be made only in accordance with the Israeli Securities Law 1968 (which requires, among other things, the filing of a prospectus in Israel or an exemption therefrom). Persons in possession of this prospectus supplement or the accompanying prospectus are required to inform themselves about and observe any such restrictions. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents, regardless of the date of delivery of this prospectus supplement or the accompanying prospectus, or the date of sale of any security.

Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus supplement or the accompanying prospectus to “the Company,” “we,” “us,” “ours” and “ReWalk” refer to ReWalk Robotics Ltd.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

This summary is not complete and does not contain all of the information that you should consider before investing in the securities offered by this prospectus supplement. You should read this summary together with the entire prospectus supplement and the accompanying prospectus carefully, including "Risk Factors" and our consolidated financial statements and the related notes, before making an investment decision. See the "Risk Factors" section of this prospectus supplement beginning on page S-6 for a discussion of the risks involved in investing in our securities.

Overview

We are an innovative medical device company that is designing, developing and commercializing robotic exoskeletons that allow individuals with mobility impairments or other medical conditions the ability to stand and walk once again. We have developed and are continuing to commercialize ReWalk, an exoskeleton designed for individuals with paraplegia that uses our patented tilt-sensor technology and an on-board computer and motion sensors to drive motorized legs that power movement.

We are also developing and intend to commercialize a lightweight soft exo-suit, designed to support mobility and/or therapy for individuals suffering from other lower limb disabilities such as stroke, multiple sclerosis, cerebral palsy, Parkinson's disease and elderly assistance. In June 2017. We unveiled our lightweight exo-suit ReStore system designed initially for rehabilitation of stroke patients. We believe that the ReStore system's soft, lightweight material will facilitate a natural walking pattern for patients using the device. The ReStore system is also designed to provide advantages to stroke rehabilitation clinics and therapists as compared to other traditional therapies and devices by improving the quality and pace of care, supplying real-time analytics to optimize session productivity and generating ongoing data reports to assist with tracking patient progress. We expect the device may also provide other secondary benefits for rehabilitation clinics, including reducing staffing and/ or equipment requirements, staff fatigue and the risk for potential staff injuries. We applied for CE mark for the ReStore system at the beginning of the fourth quarter of 2018 and for United States Food and Drug Administration, or FDA, clearance in the first quarter of 2019. For more information, see "—Recent Developments—Pre-Market Notification Submitted to FDA for Clearance of ReStore Stroke Exo-suit." Following CE mark submission in the fourth quarter of 2018, we anticipate commercializing the ReStore device for use by stroke patients within rehabilitation clinics in Europe in mid-2019. In the United States, a potential launch of the product could occur in the later part of the second quarter of 2019 or in the third quarter of 2019, pending clearance from the FDA.

Recent Developments

Cigna Insurance Coverage Policy Update

Cigna Corporation, a leading global health service company, or Cigna, recently revised its policy regarding coverage of exoskeleton medical devices for persons with spinal cord injury. Cigna, which previously had a non-coverage policy, will now review submissions from beneficiaries on a case-by-case basis to consider providing coverage for exoskeleton medical devices, such as the ReWalk system, based on medical criteria. While the policy change has already taken effect, the formal policy change will be updated in Cigna's next revision cycle, expected to be published in or around the third quarter of 2019.

Pre-Market Notification Submitted to FDA for Clearance of ReStore Stroke Exo-Suit

In February 2019, we submitted our 510(k) pre-market notification, or 510(k), to the FDA relating to the ReStore exo-suit for stroke patients, taking a major step toward commercialization of the device. The FDA must review the notification in order to determine whether it will clear the ReStore exo-suit for gait training during stroke rehabilitation. The 510(k) submission follows the completion of a nationwide clinical study in December 2018, with a total of 44 patients enrolled across five leading rehabilitation centers in the United States.

Proposed Reverse Share Split and Increase in Authorized Share Capital

We are currently soliciting shareholder approval relating to two management proposals: (i) to effect a reverse share split of our outstanding ordinary shares within a range of 1:8 to 1:32; and (ii) assuming the reverse share split is approved by shareholders and implemented by us, to effect an increase in our authorized share capital (currently NIS 2,500,000) by up to NIS 17,500,000, such that the number of authorized but unissued ordinary shares following the reverse share split will increase by approximately 50,000,000 shares. In each case, assuming shareholders approve the corresponding proposal, the exact reverse split ratio and share capital increase amount will be determined by our board of directors within the proposed ranges. Additionally, the exact amount of the increase in our authorized capital to be determined by our board will depend on the number of authorized but unissued shares we will have following the reverse share split. We filed a definitive proxy statement on Schedule 14A on February 19, 2019 containing these proposals, with a vote set to occur at our 2019 annual meeting of shareholders on March 27, 2019. Only those shareholders of record as of the record date of February 19, 2019 will be entitled to vote, and thus new investors in this offering will not be able to vote on these matters.

Table of Contents

Reverse Share Split

The purpose of the proposed reverse split is to increase the market price per share of our ordinary shares and to cure a deficiency under the rules of The Nasdaq Stock Market LLC, or Nasdaq, requiring a minimum bid price of $1.00. We became deficient as of October 26, 2018, as our closing bid price was less than $1.00 per share for 30 consecutive business days, and we have until April 24, 2019 to regain compliance with this Nasdaq rule, which we would accomplish if our ordinary shares had a closing bid price of at least $1.00 per share for ten consecutive business days. For more information on our Nasdaq deficiencies and timeline for a potential delisting, see "Proposal Two—Approval of Amendments to our Articles of Association to Effect a Reverse Share Split—Background" in our definitive proxy statement on Schedule 14A filed on February 19, 2019, or our Proxy Statement, which is incorporated by reference into this prospectus supplement and the accompanying prospectus.

Our board of directors, or our board, intends to effect the reverse share split within the time periods approved by shareholders only if the board believes that a decrease in the number of shares outstanding is likely to improve the trading price of our shares (subject to shareholder approval of the reverse share split at the 2019 annual meeting). For more information on the reasons for this proposed split, see "Proposal Two—Approval of Amendments to our Articles of Association to Effect a Reverse Share Split" in our Proxy Statement, which is incorporated by reference into this prospectus supplement and the accompanying prospectus.

Increase in Authorized Share Capital

The purpose of the increase in authorized share capital is to maintain our current flexibility following the reverse share split to conduct future issuances of our ordinary shares in the ordinary course from time to time to fund our operations, consistent with our historical practice of raising financing through equity and debt issuances. The amount of the increase in our authorized capital to be determined by our board will depend on the ratio we decide for the reverse share split, subject to shareholder approval of the reverse share split and the increase in authorized share capital. For more information on the reasons for this proposed increase, see "Proposal Three—Approval of Amendments to our Articles of Association to Increase our Authorized Share Capital" in our Proxy Statement, which is incorporated by reference into this prospectus supplement and the accompanying prospectus.

Timing, Implementation and Risks

Although we may be eligible for another cure period of 180 days after April 24, 2019 to cure the minimum bid price deficiency, it is likely that, assuming shareholder approval of the reverse share split at the 2019 annual meeting, our board will effect the reverse share split, if it does so at all, shortly after the 2019 annual meeting of shareholders and

before April 24, 2019. Additionally, while the approval of the reverse share split is not contingent on the approval of the increase in authorized share capital, our board of directors will have the ability to increase our authorized share capital only in connection with the split. If the board considers the increase in share capital appropriate after giving effect to the split, it will likely effect the increase shortly after the 2019 annual meeting of shareholders. For more information on the purpose, implementation and effects of each of the reverse share split and the increase in authorized share capital, see "Proposal Two—Approval of Amendments to our Articles of Association to Effect a Reverse Share Split" and "Proposal Three——Approval of Amendments to our Articles of Association to Increase our Authorized Share Capital," respectively, in our Proxy Statement. For more information on the risks associated with the reverse share split and increase in authorized share capital, see "Risk Factors—Risks Related to an Investment in our Ordinary Shares."

Corporate Information

Our legal and commercial name is ReWalk Robotics Ltd. We are a company limited by shares organized under the laws of the State of Israel and were founded in 2001. In September 2014, we listed our shares on the Nasdaq Global Market and transferred our listing to the Nasdaq Capital Market effective May 25, 2017. Our corporate headquarters are located at 3 Hatnufa St., Floor 6, Yokneam Ilit 2069203, Israel, and our telephone number is +972 (4) 959 0123. We also have offices in Marlborough, Massachusetts and Berlin, Germany. Our website address is http://rewalk.com/. Information contained on, or that can be accessed through, our website does not constitute a part of this prospectus supplement or accompanying prospectus and is not incorporated by reference herein or therein. We have included our website address in this prospectus supplement solely for informational purposes. Our agent for service of process in the United States is ReWalk Robotics Inc., located at 200 Donald Lynch Blvd., Marlborough, Massachusetts 01752, and its telephone number is (508) 251-1154.

ReWalk® is our registered trademark in Israel and in the United States. Other trademarks and service marks appearing in this prospectus supplement are the property of their respective holders.

Table of Contents

The Offering

Ordinary shares offered by us	19,000,000 ordinary shares.
Offering price	$0.23 per ordinary share.
Ordinary shares to be outstanding after this offering	89,327,665 ordinary shares (assuming the sale of all shares covered by this prospectus supplement and based on shares outstanding as of December 31, 2018).
Use of proceeds	We intend to use the net proceeds from this offering for the following purposes: (i) sales, marketing and reimbursement expenses related to market development activities and broadening third-party payor coverage; and (ii) research and development costs related to, in the shorter term, our ReStore device designed to assist patients who had stroke, and, in the longer term, expansion of our technological platform to address other medical indications affecting the ability to walk. Because this is a best efforts offering with no minimum, we may not sell all or any of the shares offered hereby. As a result, we may receive significantly less in net proceeds. See “Use of Proceeds.”
Dividend policy	We have never declared or paid any cash dividends on our ordinary shares. We do not anticipate paying any cash dividends in the foreseeable future.
Risk factors	You should carefully consider the risk factors described in the section of this prospectus supplement and the accompanying prospectus titled “Risk Factors,” together with all of the other information included in or incorporated by reference into this prospectus supplement and the accompanying prospectus, before deciding to purchase our ordinary shares.
Nasdaq Capital Market symbol	Our ordinary shares are listed on the Nasdaq Capital Market under the symbol “RWLK.”

Table of Contents

Assumptions Used Throughout This Prospectus Supplement

Unless otherwise stated in this prospectus supplement, the total number of ordinary shares outstanding as of the date of this prospectus supplement and after this offering is based on 70,327,665 shares outstanding as of December 31, 2018 and excludes:

- 4,005,643 ordinary shares reserved for issuance under our equity incentive plans, of which there were (i) outstanding options to purchase 1,817,259 ordinary shares at a weighted average exercise price of $1.91 per share, (ii) 652,750 ordinary shares underlying unvested restricted share units, or RSUs, and (iii) 1,535,634 ordinary shares available for future grant;

- 2,437,500 ordinary shares issuable upon the exercise of warrants to purchase ordinary shares at an exercise price of $4.75, which were issued on November 1, 2016 in a follow-on public offering and are exercisable until November 1, 2021, subject to the terms thereof;

- 167,012 ordinary shares issuable upon the exercise of warrants to purchase ordinary shares at an exercise price of $0.30 per share, which were granted on December 31, 2015 and December 28, 2016 to Kreos Capital V (Expert Fund) Limited, and are currently exercisable (in whole or in part) until the earlier of (i) December 30, 2025 or (ii) an “M&A Transaction,” as defined in the warrant;

- 9,930,382 ordinary shares issuable upon exercise of the pre-funded warrants to purchase ordinary shares at an exercise price of $0.01 per share, which were issued on November 20, 2018 in a follow-on public offering and may be exercised at any time until all of the pre-funded warrants are exercised in full, subject to the terms thereof;

- 44,459,830 ordinary shares issuable upon the exercise of the common warrants to purchase ordinary shares at an exercise price of $0.30 per share, which were issued on November 20, 2018 in a follow-on public offering and may be exercised until November 20, 2023, subject to the terms thereof;

- 2,667,590 ordinary shares issuable upon the exercise of warrants to purchase ordinary shares at an exercise price of $0.375 per share, which were issued to the underwriters of a separate follow-on public offering on November 20, 2018 (including the placement agent of this offering) as compensation and may be exercised until November 15, 2023, subject to the terms thereof;

- 1,140,000 ordinary shares issuable upon the exercise of the placement agent’s warrants, with an exercise price of $0.2875, to be issued to the placement agent in connection with this offering.

The data we provide in this prospectus supplement does not reflect the potential effect of the proposed reverse share split, which may occur shortly after this offering, subject to the approval of shareholders at the 2019 annual meeting of shareholders and the decision of our board of directors to implement such a split. For more information, see "Prospectus Supplement Summary—Recent Developments—Proposed Reverse Share Split and Increase in Authorized Share Capital." Additionally, except as otherwise noted, all information in this prospectus supplement reflects and assumes (i) the sale of all ordinary shares covered by this prospectus supplement and (ii) no exercise of options issued under our equity incentive plans or of warrants, including the placement agent's warrants to be issued to the placement agent in connection with this offering. Additionally, this prospectus supplement does not give effect to the issuance by us of 2,865,879 ordinary shares after December 31, 2018 and until February 20, 2019, pursuant to exercises of warrants issued in our November 2018 follow-on public offering and vesting of restricted share units.

Table of Contents

RISK FACTORS

An investment in our securities involves a high degree of risk. Our business, financial condition and results of operations could be materially and adversely affected by any of these risks. If any of these risks occur, the value of the securities we are offering in this prospectus supplement may decline and you may lose all or part of your investment. Before investing in our securities, you should consider carefully the risk factors set forth in this prospectus supplement, the accompanying prospectus and in any free writing prospectus that we have authorized for use in connection with this offering, along with the risk factors described in "Item 1A. Risk Factors" in our 2018 Form 10-K and other filings subsequently made by us with the United States Securities and Exchange Commission, or the SEC, that are incorporated by reference into this prospectus supplement and the accompanying prospectus.

Risks Related to an Investment in our Ordinary Shares

We have submitted a proposal for consideration by our shareholders at our 2019 annual meeting of shareholders to authorize our board of directors to effect a reverse share split of our ordinary shares. There are risks associated with a reverse share split, if it is approved and effected, and even if a reverse share split is implemented, we may not be able to maintain the listing of our ordinary shares on the Nasdaq Capital Market.

We are currently soliciting shareholder approval to effect a reverse share split of our outstanding ordinary shares within a range of 1:8 to 1:32, the primary purpose of which is to induce the closing bid price of our ordinary shares to be at least $1.00 per share for ten consecutive business days to allow us to cure our non-compliance with Nasdaq's minimum bid price requirement. There can be no assurance that we will receive the requisite shareholder approval for the reverse share split. For risks associated with this deficiency, see "Proposal Two—Approval of Amendments to our Articles of Association to Effect a Reverse Share Split—Background" in our Proxy Statement incorporated by reference into this prospectus supplement and accompanying prospectus. Additionally, even if we do receive such approval, we cannot assure you that the market price of our ordinary shares in the future, even after a reverse share split, will increase in proportion to the reduction in the number of ordinary shares outstanding before the reverse share split or otherwise sustain a level sufficient to maintain compliance with Nasdaq's minimum bid price requirement.

We also cannot assure you that the effects of reverse share split will enable us to meet the investment standards of certain market participants, such as brokers and investors that do not trade in lower-priced stocks, to enhance our ability to attract and retain employees we pay in equity or to remain in compliance with any of the other Nasdaq continued listing standards. For instance, we also are deficient under a separate Nasdaq quantitative listing standard (requiring us to have any of, as of certain dates, (i) a minimum market value of listed securities of $35 million, (ii) a minimum net income of $500,000 or (iii) a minimum shareholders' equity of $2.5 million), and we will become subject to delisting if we do not cure that deficiency by April 24, 2019, independent of our satisfaction of the minimum bid price requirement. We do not expect the consequences of the reverse share split to help us remedy that separate

deficiency, and our shares could be delisted even if we demonstrate compliance with the minimum bid price requirement. Additionally, following the reverse share split, we will continue to be subject to the other Nasdaq continued listing requirements regarding publicly-held shares, including the obligations to have at least 300 public holders and at least 500,000 shares held by public holders. A "public holder" is any holder other than an executive officer, director or beneficial owner (an owner with voting and/or dispositive power over such shares, as defined in Rule 13d-3 under the Exchange Act) of more than 10% of our outstanding ordinary shares. While we believe that we will comply with these requirements effecting a reverse split based on a ratio at the maximum end of the range for the proposed reverse split and our current shareholder base, we can make no assurance as our shareholder base may change as of the split's record date.

Furthermore, the liquidity of our ordinary shares could be adversely affected by the reduced number of shares that would be outstanding after the reverse share split, and this could have an adverse effect on the market price of the ordinary shares. If the market price of our ordinary shares declines subsequent to the effectiveness of the reverse share split, this will detrimentally affect our market capitalization and the market value of our public float. For more information on the potential effects of a drop in market capitalization, see "—A decline in our market capitalization (before or after the proposed reverse share subject to shareholder approval) could result in our being characterized as a passive foreign investment company, which would cause adverse tax consequences for U.S. investors."

Table of Contents

We have submitted a proposal for consideration by our shareholders at our 2019 annual meeting of shareholders to allow our board of directors to increase our authorized share capital. There are risks associated with this increase, if it is approved and effected.

We are currently soliciting shareholder approval relating to, subject to the approval of the reverse share split, an increase in our authorized share capital (currently NIS 2,500,000) by up to NIS 17,500,000, such that the number of authorized but unissued ordinary shares following the reverse share split will increase by approximately 50,000,000 shares. The purpose of the increase in authorized share capital is to maintain our current flexibility following the reverse share split to conduct future issuances of our ordinary shares in the ordinary course from time to time to fund our operations, consistent with our historical practice of raising financing through equity and debt issuances. The amount of the increase in our authorized capital to be determined by our board will depend on the ratio we decide for the reverse share split.

Future issuances of ordinary shares will dilute the voting power and ownership of our existing shareholders, and, depending on the amount of consideration received in connection with the issuance, could also reduce shareholders' equity on a per-share basis. If the board authorizes the issuance of additional shares after the reverse share split, the dilution to the ownership interest of our existing shareholders may be greater than would occur had the reverse share split not been effected. Although the purpose of the increase in authorized share capital is to maintain our capital-raising position, these additional shares may also be issued in the future for other purposes, such as compensation, giving rise to further opportunities for dilution.

We currently do not have any acquisitions or other major transactions planned that would require us to increase our authorized share capital, and our board is not proposing the increase with the intent of using the newly-authorized reserve as an anti-takeover device. However, the authorized shares could, in theory, also be used to resist or frustrate a third-party transaction that is favored by a majority of the independent shareholders (for example, by permitting issuances that would dilute the share ownership of a person seeking to effect a change in the composition of the board or management of our Company or contemplating a tender offer or other transaction for the combination of the Company with another company). The newly available authorized shares resulting from the reverse share split thus may have the potential to limit the opportunity for our shareholders to dispose of their ordinary shares at a premium.

A decline in our market capitalization (before or after the proposed reverse share split subject to shareholder approval) could result in our being characterized as a passive foreign investment company, which would cause adverse tax consequences for U.S. investors.

Generally, if for any taxable year 75% or more of our gross income is passive income, or at least 50% of the average quarterly value of our assets (which may be determined in part by the market value of our ordinary shares, which is subject to change) are held for the production of, or produce, passive income, we would be characterized as a passive

foreign investment company, or PFIC, for U.S. federal income tax purposes. Passive income for this purpose generally includes, among other things, certain dividends, interest, royalties, rents and gains from commodities and securities transactions and from the sale or exchange of property that gives rise to passive income. Passive income also includes amounts derived by reason of the temporary investment of funds, including those raised in an offering. In determining whether a non-U.S. corporation is a PFIC, a proportionate share of the income and assets of each corporation in which it owns, directly or indirectly, at least a 25% interest (by value) is taken into account. Based on our gross income and assets, the market price of our ordinary shares, and the nature of our business, we do not believe that we were a PFIC for the taxable year ended December 31, 2018. However, there can be no assurance that we will not be considered a PFIC for 2019 or any taxable year. PFIC status is determined as of the end of the taxable year and depends on a number of factors, including the value of a corporation's assets and the amount and type of its gross income. Further, because the value of our gross assets is likely to be determined in large part by reference to our market capitalization, there is a significant risk that a decline in our market capitalization (taking into account the total number of shares outstanding and the market price per share, either before or after the proposed reverse share split subject to shareholder approval) could result in our becoming a PFIC.

If we are characterized as a PFIC, U.S. Holders (as defined below, see "—Material Tax Considerations—U.S. Federal Income Tax Considerations) may suffer adverse tax consequences, including the following: (i) having gains realized on the sale of our securities treated as ordinary income, rather than as capital gains; (ii) losing the preferential rate applicable to dividends received on our ordinary shares by individuals who are U.S. Holders; and (iii) having additional taxes equal to the interest charges generally applicable to underpayments of tax apply to distributions by us and the proceeds of sales of our ordinary shares issued in this offering and other offerings. Certain elections exist that may alleviate some of the adverse consequences of PFIC status and would result in an alternative treatment (such as mark-to-market treatment). However, we do not intend to provide the information necessary for U.S. Holders to make qualified electing fund elections if we are classified as a PFIC. See "—Material Tax Considerations—U.S. Federal Income Tax Considerations—Passive Foreign Investment Company Considerations."

Table of Contents

Risks Related to Government Regulation

We have submitted medical device reports, or MDRs, to the FDA for numerous serious injuries relating to use of the ReWalk Personal system, and have initiated a voluntary correction related to certain use instructions in the device's labeling, which the FDA classified as a Class II recall. If our product may have caused or contributed to a death or a serious injury, or if our product malfunctioned and the malfunction's recurrence would be likely to cause or contribute to a death or serious injury, we must comply with the FDA's MDR regulations, which could result in voluntary corrective actions or FDA enforcement actions, such as mandatory recalls.

Under the FDA's MDR regulations, we are required to report to the FDA information that reasonably suggests a product we market may have caused or contributed to a death or serious injury or malfunctioned and our product or a similar device marketed by us would be likely to cause or contribute to death or serious injury if the malfunction were to recur. In addition, all manufacturers placing medical devices in European Union markets are legally bound to report any serious or potentially serious incidents involving devices they produce or sell to the relevant authority in whose jurisdiction the incident occurred. Between 2013 and 2017, we submitted a number of MDRs to report incidents in which ReWalk Personal users sustained falls or fractures. The FDA sent us letters requesting additional information relating to these MDRs submitted in 2017, including a request for a failure analysis. In August 2017, we initiated a voluntary correction for the ReWalk device that related to certain use instructions to reduce the risk of fractures and submitted a report to the FDA under 21 CFR Part 806. Under Part 806, manufacturers and importers are required to make a report to the FDA of any correction or removal of a device if the correction or removal was initiated to reduce a risk to health posed by the device or to remedy a violation of the U.S. Federal Food, Drug, and Cosmetic Act caused by the device that may present a risk to health. In 2018, we submitted additional MDRs for fractures that occurred in foreign countries between 2015 and 2018, and for fractures that occurred in the United States.

In June 2018, we received a letter from the FDA agreeing with our decision to initiate a corrective action for the ReWalk, classifying the recall action as a Class II recall, and requesting that we make regular status reports to the FDA regarding our progress. While FDA has statutory authority to require a recall, most recalls are undertaken voluntarily when a medical device is defective, when it could present a risk to health, or when it is both defective and presents a risk to health. In September 2018, we submitted to the FDA revised labeling that incorporates the revised use instructions intended to prevent fractures as a special 510(k). As of the date hereof, the 510(k) has not yet been accepted by the FDA. In January 2019, we also submitted a recall termination request to the FDA. We are currently considering additional changes to the ReWalk device, which may require submitting a separate 510(k) to the FDA in the near future.

Additional fractures or other adverse events may occur in the future that may require us to report to the FDA pursuant to the MDR regulations, and/or to initiate a removal, correction, or other action. Any adverse event involving our products could result in future voluntary corrective actions, such as recalls or customer letters, or in an FDA enforcement action, such as a mandatory recall, notification to healthcare professionals and users, warning letter, seizure, injunction, or import alert. In addition, failure to report such adverse events to appropriate government authorities on a timely basis, or at all, could result in enforcement action against us. Any action, whether voluntary or involuntary, as well as defending ourselves in a lawsuit, will require financial resources and distract management, and

may harm our reputation and financial results.

Our devices are subject to the FDA's regulations pertaining to marketing and promotional communications, among others. Failure to comply with such regulations may give rise to a number of potential FDA enforcement actions, any of which could have a material adverse effect on our business.

Our sales and marketing efforts, as well as promotions, are subject to various laws and regulations. Medical device promotions must be consistent with and not contrary to labeling, be truthful and not false or misleading, and be adequately substantiated. In addition to the requirements applicable to 510(k) cleared products, we may also be subject to enforcement action in connection with any promotion of an investigational new device. A sponsor or investigator, or any person acting on behalf of a sponsor or investigator, may not represent in a promotional context that an investigational new device is safe or effective for the purposes for which it is under investigation or otherwise promote the device.

Our marketing and promotional materials are subject to FDA scrutiny to ensure that the device is being marketed in compliance with these requirements. If the FDA investigates our marketing and promotional materials and finds that any of our current or future commercial products were being marketed for unapproved or uncleared uses or in a false or misleading manner, we could be subject to FDA enforcement and/or false advertising consumer lawsuits, each of which could have a material adverse effect on our business.

Additional Risks Related to This Offering

Purchasers of shares in this offering will experience immediate dilution in the book value of their investment.

The public offering price per share in this offering is higher than the net tangible book value per share of our ordinary shares before giving effect to this offering. Accordingly, if you purchase ordinary shares in this offering, you will incur immediate dilution of approximately $0.17 per share, representing the difference between the public offering price per share and our as-adjusted net tangible book value as of December 31, 2018. Furthermore, if outstanding options or warrants are exercised, you could experience further dilution. For more information, including how these amounts were calculated, see "Dilution."

Our management will have broad discretion as to the use of the proceeds from this offering, and may not use the proceeds effectively.

Our management will have broad discretion as to the application of the net proceeds from this offering. Currently, we intend to use the net proceeds from this offering for the following purposes: (i) sales, marketing and reimbursement expenses related to market development activities and broadening third-party payor coverage; and (ii) research and development costs related to, in the shorter term, our ReStore device designed to assist stroke patients, and, in the longer term, expansion of our technological platform to address other medical indications affecting the ability to walk.

See “Use of Proceeds.” You will not have the opportunity, as part of your investment decision, to assess whether these proceeds are being used appropriately. Our management may use the net proceeds for corporate purposes that may not improve our financial condition or market value, which could cause the price of our securities to decline.

Table of Contents

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

In addition to historical information, this prospectus supplement, the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995, that are based on our management's beliefs and assumptions and on information currently available to our management. Forward-looking statements include information concerning our possible or assumed future results of operations, business strategies, financing plans, competitive position, industry environment, potential growth opportunities, potential market opportunities and the effects of competition. Forward-looking statements may include projections regarding our future performance and, in some cases, can be identified by words like "anticipate," "assume," "believe," "could," "seek," "estimate," "expect," "intend," "may," "plan," "pot "project," "future," "should," "will," "would" or similar expressions that convey uncertainty of future events or outcomes and t negatives of those terms.

These forward-looking statements are based on our management's current expectations, which are subject to uncertainty, risks and changes in circumstances that are difficult to predict, and many of which are outside of our control. Important factors that could cause our actual results, levels of activity or performance to differ materially from those indicated in the forward-looking statements include, among others:

- our ability to secure capital from equity and debt financings in light of limitations under our effective registration statement on Form S-3 (under which this offering is made), the price range of our ordinary shares and conditions in the financial markets, and the risk that such financings may dilute our shareholders or restrict our business;

- our ability to regain compliance with various continued listing requirements of the Nasdaq Capital Market, our related ability to raise the market price of our ordinary shares sufficiently through the proposed reverse share split to cure one of several Nasdaq listing deficiencies and the risk that our ordinary shares will be delisted unless we regain compliance;

- the risk of decreased liquidity in the market for our ordinary shares and a reduced market capitalization of our Company following the proposed reverse share split, and the risk of dilution following the proposed related increase in authorized share capital;

- our expectations regarding future growth, including our ability to increase sales in our existing geographic markets, expand to new markets and achieve our planned expense reductions;

our management's conclusion, and our independent registered public accounting firm's statement in its opinion relating to our accompanying consolidated financial statements, that there is a substantial doubt as to our ability to continue as a going concern;

our ability to maintain and grow our reputation and the market acceptance of our products;

our ability to achieve reimbursement from third-party payors for our products;

our limited operating history and our ability to leverage our sales, marketing and training infrastructure;

our expectations as to our clinical research program and clinical results;

our ability to improve our products and develop new products;

our ability to repay our secured indebtedness;

the outcome of ongoing shareholder class action litigation relating to our initial public offering;

our compliance with medical device reporting regulations to report adverse events involving our products and the potential impact of such adverse events on our ability to market and sell its products;

Table of Contents

- our ability to gain and maintain regulatory approvals;
- our expectations as to the results of the FDA's potential regulatory developments with respect to our mandatory 522 postmarket surveillance study;
- our ability to maintain adequate protection of our intellectual property and to avoid violation of the intellectual property rights of others;
- the risk of a cybersecurity attack or breach of our information technology systems significantly disrupting our business operations;
- our ability to establish a pathway to commercialize our products in China;
- the risk of substantial dilution resulting from the periodic issuances of our ordinary shares;
- our ability to maintain relationships with existing customers and develop relationships with new customers;
- the impact of our market capitalization on the determination of whether we are a passive foreign investment company; and

other risks discussed in "Part I. Item 1A. Risk Factors" in our 2018 Form 10-K and other documents subsequently filed with the SEC by us, which are incorporated by reference into this prospectus supplement and the accompanying prospectus.

You should not put undue reliance on any forward-looking statements. Any forward-looking statement made in this prospectus supplement and the accompanying prospectus speaks only as of the date hereof. Factors or events that could cause our actual results to differ from the statements contained herein may emerge from time to time, and it is not possible for us to predict all of them. Except as required by law, we undertake no obligation to update any forward-looking statements publicly for any reason after the date of this prospectus supplement to conform these statements to actual results or to changes in our expectations, whether as a result of new information, future developments or otherwise.

Table of Contents

USE OF PROCEEDS

Assuming we sell all ordinary shares offered pursuant to this prospectus supplement, we estimate the net proceeds from this offering will be approximately $3.7 million, after deducting placement agent fees and estimated offering expenses payable by us as described in “Plan of Distribution.” However, this is a best efforts offering with no minimum, and we may not sell all or any of these shares; as a result, we may receive significantly less in net proceeds.

We intend to use the net proceeds from this offering for the following purposes:

(i) sales, marketing and reimbursement expenses related to market development activities and broadening third-party payor coverage; and

(ii) research and development costs related to, in the shorter term, our ReStore device designed to assist stroke patients, and, in the longer term, expansion of our technological platform to address other medical indications affecting the ability to walk.

We may also use net proceeds from this offering to make acquisitions or investments in complementary companies or technologies, although we do not have any agreement or understanding with respect to any such acquisition or investment at this time. We do not currently have more specific plans or commitments with respect to the net proceeds from this offering and, accordingly, are unable to quantify the allocation of such proceeds among the various potential uses. We will have broad discretion in the way that we use the net proceeds of this offering.

Table of Contents

DILUTION

If you invest in our ordinary shares in this offering, your ownership interest will be immediately diluted to the extent of the difference between the public offering price per share and the as-adjusted net tangible book value per ordinary share after this offering. As of December 31, 2018, our net tangible book value per ordinary share was $0.03. Net tangible book value per ordinary share represents our total tangible assets less our total liabilities, divided by the number of ordinary shares outstanding.

As-adjusted net tangible book value per ordinary share reflects the effect of the issuance and sale of ordinary shares that we are offering at the public offering price of $0.23 per share. After giving effect to the issuance and sale of all ordinary shares offered hereby, and after deducting placement agent fees and estimated offering expenses payable by us, our as-adjusted net tangible book value as of December 31, 2018 would have been approximately $5.6 million, or $0.06 per ordinary share. We determine dilution by subtracting the as-adjusted net tangible book value per ordinary share after this offering from the amount of cash that a new investor paid for an ordinary share. The resulting amount represents an immediate increase in net tangible book value of $0.03 per ordinary share to our directors, officers and other existing investors, and immediate dilution in net tangible book value of $0.17 per ordinary share to new investors purchasing ordinary shares in this offering at the public offering price.

The following table illustrates this dilution, and is based on 70,327,665 ordinary shares issued and outstanding as of December 31, 2018 on an as-adjusted basis as described above.

Public offering price per ordinary share		$0.23
Net tangible book value per ordinary share as of December 31, 2018	$0.03	
Increase in net tangible book value per ordinary share attributable to this offering	$0.03	
As-adjusted net tangible book value per ordinary share after this offering		$0.06
Dilution per ordinary share to new investors in this offering		$0.17

The information above does not give effect to (i) the issuance by us of 2,865,879 ordinary shares after December 31, 2018 and until February 20, 2019, pursuant to exercises of warrants issued in our November 2018 follow-on public offering and vesting of restricted share units, (ii) ordinary shares issuable upon the exercise of various outstanding securities or (iii) ordinary shares issuable upon exercise of the placement agent's warrants to be issued to the placement agent in connection with this offering. For other assumptions underlying this table, see "Summary—The Offering—Assumptions Used Throughout This Prospectus Supplement."

To the extent that outstanding securities are exercised, or shares are issued under our investment agreement with Timwell Corporation Limited, or Timwell (as described in our 2018 Form 10-K, incorporated by reference into this

prospectus supplement and the accompanying prospectus), there will be further dilution to new investors. In addition, we may seek 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 shareholders.

Table of Contents

CAPITALIZATION

The following table summarizes our cash and cash equivalents, certain other items from our historical consolidated balance sheet, and capitalization as of December 31, 2018:

- on an actual basis; and
- on an as-adjusted basis to give effect to the sale by us of all 19,000,000 ordinary shares offered hereby at a public offering price of $0.23 per share, after deducting placement agent fees and estimated offering expenses payable by us.

	As of December 31, 2018	
	Actual	As adjusted
	(in thousands) (unaudited)	
Cash and cash equivalents	$9,546	$13,218
Shareholders' equity		
Ordinary shares NIS 0.01 par value - Authorized: 250,000,000; Issued and outstanding: 70,327,665 shares at December 31, 2018; 250,000,000 shares authorized and 89,327,665 shares issued and outstanding, as-adjusted	$193	$245
Additional paid-in capital	$154,670	$158,290
Accumulated deficit	$(152,918)	$(152,918)
Total shareholders' equity	$1,945	$5,617
Total liabilities and shareholders' equity	$14,962	$18,634

The information above does not give effect to (i) the issuance by us of 2,865,879 ordinary shares after December 31, 2018 and until February 20, 2019, pursuant to exercises of warrants issued in our November 2018 follow-on public offering and vesting of restricted share units, (ii) ordinary shares issuable upon the exercise of various outstanding securities or (iii) ordinary shares issuable upon exercise of the placement agent's warrants to be issued to the placement agent in connection with this offering. For other assumptions underlying this table, see "Summary—The Offering—Assumptions Used Throughout This Prospectus Supplement."

Table of Contents

MATERIAL TAX CONSIDERATIONS

The following description is not intended to constitute a complete analysis of all tax consequences relating to the acquisition, ownership and disposition of our ordinary shares. You should consult your own tax advisor concerning the tax consequences of your particular situation, as well as any tax consequences that may arise under the laws of any state, local, foreign or other taxing jurisdiction.

Israeli Tax Considerations

The following is a discussion of the material Israeli tax consequences concerning the ownership and disposition of our securities. This summary does not discuss all the aspects of Israeli tax law that may be relevant to a particular investor in light of his or her personal investment circumstances or to some types of investors subject to special treatment under Israeli law. Examples of such investors include residents of Israel or traders in securities who are subject to special tax regimes not covered in this discussion. Because parts of this discussion are based on new tax legislation that has not yet been subject to judicial or administrative interpretation, we cannot assure you that the appropriate tax authorities or the courts will accept the views expressed in this discussion. The discussion below is subject to change, including due to amendments under Israeli law or changes to the applicable judicial or administrative interpretations of Israeli law, which change could affect the tax consequences described below.

Sale, Exchange or Other Taxable Disposition of Ordinary Shares

A non-Israeli resident who derives capital gains from the sale of shares in an Israeli resident company that were purchased after the company was listed for trading on a stock exchange outside of Israel will be exempt from Israeli tax so long as the securities were not held through a permanent establishment that the non-resident maintains in Israel. A partial exemption may be available for non-Israeli resident holders who acquired their securities prior to the issuer's initial public offering.

However, non-Israeli corporations will not be entitled to the foregoing exemption if Israeli residents: (i) have a controlling interest of more than 25% in such non-Israeli corporation or (ii) are the beneficiaries of, or are entitled to, 25% or more of the revenues or profits of such non-Israeli corporation, whether directly or indirectly. Such exemption is not applicable to a person whose gains from selling or otherwise disposing of the securities are deemed to be a business income.

Additionally, a sale of securities by a non-Israeli resident may be exempt from Israeli capital gains tax under the provisions of an applicable tax treaty. For example, under the United States-Israel Tax Treaty, the disposition of shares by a shareholder who (i) is a U.S. resident (for purposes of the treaty), (ii) holds the shares as a capital asset, and (iii) is entitled to claim the benefits afforded to such person by the treaty, is generally exempt from Israeli capital gains tax. Such exemption will not apply if: (i) the capital gain arising from the disposition can be attributed to a permanent establishment in Israel; (ii) the shareholder holds, directly or indirectly, shares representing 10% or more of the voting capital during any part of the 12-month period preceding the disposition, subject to certain conditions; or (iii) such U.S. resident is an individual and was present in Israel for 183 days or more during the relevant taxable year. In such case, the sale, exchange or disposition of our ordinary shares should be subject to Israeli tax, to the extent applicable; however, under the United States-Israel Tax Treaty, the taxpayer would be permitted to claim a credit for such taxes against the U.S. federal income tax imposed with respect to such sale, exchange or disposition, subject to the limitations under U.S. law applicable to foreign tax credits. The United States-Israel Tax Treaty does not relate to U.S. state or local taxes.

In some instances where our holders may be liable for Israeli tax on the sale of their securities, the payment of the consideration may be subject to the withholding of Israeli tax at source.

If the above exemptions from capital gains tax are not available, individuals will be subject to a 25% tax rate on capital gains derived from the sale of securities, as long as the individual is not a "substantial shareholder" of the corporation issuing the shares (in which case the individual will be subject to a 30% tax rate), and corporations will be subject to a 23% corporate tax rate for 2019 and thereafter. **A "substantial shareholder" is generally a person who alone or together with such person's relative or another person who collaborates with such person on a permanent basis, holds, directly or indirectly, at least 10% of any of the "means of control" of the corporation. "Means of control" generally include the right to vote, receive profits, nominate a director or an executive officer, receive assets upon liquidation, or order someone who holds any of the aforesaid rights how to act, regardless of the source of such right (which source may include shares and rights to shares such as warrants).** A substantial shareholder will be subject to tax at a rate of 30% in respect of capital gains derived from the sale of securities issued by a corporation in which he or she is a substantial shareholder. The determination of whether the individual is a substantial shareholder will be made on the date on which the securities are sold. In addition, the individual will be deemed to be a substantial shareholder if at any time during the12 months preceding the date of sale he or she was a substantial shareholder.

Table of Contents

As of January 1, 2019, holders that are individuals with taxable income exceeding NIS 649,560 in a tax year (linked to the Israeli consumer price index each year) will be subject to an additional tax, referred to as High Income Tax, at the rate of 3% on their taxable income for such tax year which is in excess of such threshold. For this purpose taxable income will also include taxable capital gains from the sale of our securities and taxable income from dividend distributions.

If the above exemptions from capital gains tax are not available, corporations will be subject to the corporate tax rate (23% for 2019 and thereafter) on capital gains derived from the sale of securities.

Taxation of Non-Israeli Shareholders on Receipt of Dividends

Dividends paid on publicly traded shares, like our ordinary shares, to non-Israeli residents are generally subject to Israeli withholding tax at a rate of 25%, unless a lower rate is provided under an applicable tax treaty and that a certificate from the Israeli Tax Authority allowing for a reduced withholding tax rate is obtained in advance. Under the United States-Israel Tax Treaty, the maximum rate of tax withheld at source in Israel on dividends paid to a holder of our ordinary shares who is a U.S. resident (for purposes of the United States-Israel Tax Treaty) is 25%. The United States Israel Tax Treaty provides for reduced tax rates on dividends if (a) the shareholder is a U.S. corporation holding at least 10% of our issued voting power during the part of the tax year that precedes the date of payment of the dividend and held such minimal percentage during the whole of its prior tax year, and (b) not more than 25% of the Israeli company's gross income consists of interest or dividends, other than dividends or interest received from subsidiary corporations or corporations 50% or more of the outstanding voting shares of which is owned by the Israeli company. The reduced treaty rate, if applicable, is 15% in the case of dividends paid from income derived from a Beneficiary or Preferred Enterprise or 12.5% otherwise. We cannot assure you that in the event we declare a dividend we will designate the income out of which the dividend is paid in a manner that will reduce shareholders' tax liability.

If the dividend is attributable partly to income derived from a Beneficiary Enterprise or Preferred Enterprise and partly to other sources of income, the withholding rate will be a blended rate reflecting the relative portions of the two types of income. U.S. residents who are subject to Israeli withholding tax on a dividend may be entitled to a credit or deduction for United States federal income tax purposes in the amount of the taxes withheld, subject to detailed rules contained in U.S. tax legislation.

Israel Innovation Authority

We have received grants from the IIA for research and development programs in the aggregate amount of approximately $2.0 million as of December 31, 2018. For a description of our obligations in connection with the

grants from the IIA under the Israeli Encouragement of Industrial Research and Development Law, 5744-1984, and the related regulations, see "Part I. Item 1A. Risk Factors—Risks Related to our Incorporation and Location in Israel—We have received Israeli government grants for certain of our research and development activities and we may receive additional grants in the future. The terms of those grants restrict our ability to manufacture products or transfer technologies outside of Israel, and we may be required to pay penalties in such cases or upon the sale of our company" and "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Grants and Other Funding" in our 2018 Form 10-K incorporated by reference into this prospectus supplement and the accompanying prospectus.

U.S. Federal Income Tax Considerations

The following is a description of the material U.S. federal income tax consequences relating to the acquisition, ownership and disposition of our ordinary shares by a U.S. Holder (as defined below). This description addresses only the U.S. federal income tax consequences to U.S. Holders that are initial purchasers of our ordinary shares and that will hold such ordinary shares as capital assets. This description does not address tax considerations applicable to U.S. Holders that may be subject to special tax rules, including, without limitation:

banks, financial institutions or insurance companies;

brokers, dealers or traders in securities, commodities or currencies;

tax-exempt entities or organizations, including an "individual retirement account" or "Roth IRA" as defined in Section 408 or 408A of the Code (as defined below), respectively;

Table of Contents

certain former citizens or long-term residents of the United States;

persons that received our shares as compensation for the performance of services;

persons that will hold our shares as part of a “hedging,” “integrated” or “conversion” transaction or as a position in a “straddle” for U.S. federal income tax purposes;

partnerships (including entities classified as partnerships for U.S. federal income tax purposes) or other pass-through entities, or holders that will hold our shares through such an entity;

S corporations;

holders that acquire ordinary shares as a result of holding or owning our preferred shares;

holders whose “functional currency” is not the U.S. Dollar; or

holders that own directly, indirectly or through attribution 10.0% or more of the voting power or value of our shares.

Moreover, this description does not address the U.S. federal estate, gift or alternative minimum tax consequences, or any state, local or foreign tax consequences, of the acquisition, ownership and disposition of our ordinary shares.

This description is based on the U.S. Internal Revenue Code of 1986, as amended, or the Code, existing, proposed and temporary United States Treasury Regulations and judicial and administrative interpretations thereof, in each case as in effect and available on the date hereof. All of the foregoing is subject to change, which change could apply retroactively and could affect the tax consequences described below. There can be no assurances that the U.S. Internal Revenue Service, or the IRS, will not take a different position concerning the tax consequences of the acquisition, ownership and disposition of our ordinary shares or that such a position would not be sustained. Holders should consult their own tax advisors concerning the U.S. federal, state, local and foreign tax consequences of purchasing, owning and disposing of our ordinary shares in their particular circumstances.

For purposes of this description, a “U.S. Holder” is a beneficial owner of our ordinary shares that, for United States federal income tax purposes, is:

a citizen or resident of the United States;

a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States or any state thereof, including the District of Columbia;

an estate the income of which is subject to U.S. federal income taxation regardless of its source; or

a trust if such trust has validly elected to be treated as a United States person for U.S. federal income tax purposes or if (1) a court within the United States is able to exercise primary supervision over its administration and (2) one or more United States persons have the authority to control all of the substantial decisions of such trust.

If a partnership (or any other entity treated as a partnership for U.S. federal income tax purposes) holds our ordinary shares, the tax treatment of a partner in such partnership will generally depend on the status of the partner and the activities of the partnership. Such a partner or partnership should consult its tax advisor as to the particular U.S. federal income tax consequences of acquiring, owning and disposing of our ordinary shares in its particular circumstance.

Table of Contents

You should consult your tax advisor with respect to the U.S. federal, state, local and foreign tax consequences of acquiring, owning and disposing of our ordinary shares.

Distributions

Subject to the discussion below under "Passive Foreign Investment Company Considerations," the gross amount of any distribution made to you with respect to our ordinary shares before reduction for any Israeli taxes withheld therefrom, other than certain distributions, if any, of our ordinary shares distributed pro rata to all our shareholders, generally will be includible in your income as dividend income to the extent such distribution is paid out of our current or accumulated earnings and profits as determined under U.S. federal income tax principles. We do not expect to maintain calculations of our earnings and profits under U.S. federal income tax principles. Therefore, you should expect that the entire amount of any distribution generally will be reported as dividend income to you. Subject to applicable limitations (and assuming that we are not a passive foreign investment company for our taxable year in which the dividend is paid or the preceding taxable year), dividends paid to certain non-corporate U.S. Holders may qualify for the preferential rates of taxation with respect to dividends on ordinary shares if certain requirements, including stock holding period requirements, are satisfied by the recipient and either we are eligible for the benefits of the United States-Israel Tax Treaty or our ordinary shares are readily tradable on an established market in the United States. However, such dividends will not be eligible for the dividends received deduction generally allowed to corporate U.S. Holders. To the extent that the amount of any distribution by us exceeds our current and accumulated earnings and profits as determined under U.S. federal income tax principles, it will be treated first as a return of your adjusted tax basis in our ordinary shares to the extent thereof and thereafter as either long-term or short-term capital gain depending upon whether your holding period for our ordinary shares exceeds one year as of the time such distribution is received.

Subject to certain conditions and limitations, Israeli tax withheld on dividends may be deducted from your taxable income or credited against your U.S. federal income tax liability. Dividends paid to you with respect to our ordinary shares will generally be treated as foreign source income, which may be relevant in calculating your foreign tax credit limitation. However, for periods in which we are a "United States-owned foreign corporation," a portion of dividends paid by us may be treated as U.S. source solely for purposes of the foreign tax credit. We will be treated as a United States-owned foreign corporation if 50% or more of the total value or total voting power of our stock is owned, directly, indirectly or by attribution, by United States persons. To the extent any portion of our dividends is treated as U.S. source income pursuant to this rule, the ability of a U.S. Holder to claim a foreign tax credit for any Israeli withholding taxes payable in respect of our dividends may be limited. You should consult your tax advisor about the impact of, and any exception available to, the special sourcing rule described in this paragraph, and the desirability of making, and the method of making, any applicable elections relating to this rule.

The rules relating to the determination of the foreign tax credit are complex, and you should consult your tax advisor to determine whether and to what extent you will be entitled to this credit.

Sale, Exchange or Other Taxable Disposition of Ordinary Shares

Subject to the discussion below under "Passive Foreign Investment Company Considerations," you generally will recognize gain or loss on the sale, exchange or other taxable disposition of our ordinary shares equal to the difference between the amount realized on such sale, exchange or other taxable disposition and your adjusted tax basis in such shares (determined in a manner consistent with the rules discussed above). Any such gain or loss generally will be long-term capital gain or loss if the U.S. Holder's holding period in the ordinary shares is more than one year at the time of the taxable disposition. Long-term capital gains recognized by certain non-corporate U.S. Holder, (including individuals) may be eligible for preferential rates of taxation. The deductibility of capital losses for U.S. federal income tax purposes is subject to limitations under the Code. Any recognized gain or loss of a U.S. Holder generally will be treated as U.S. source income or loss for foreign tax credit limitation purposes.

Passive Foreign Investment Company Considerations

If we were to be classified as a PFIC in any taxable year, a U.S. Holder would be subject to special rules generally intended to reduce or eliminate any benefits from the deferral of U.S. federal income tax that a U.S. Holder could derive from investing in a non-U.S. company that does not distribute all of its earnings on a current basis.

A non-U.S. corporation will be classified as a PFIC for federal income tax purposes in any taxable year in which, after applying certain look-through rules with respect to the income and assets of subsidiaries, either:

- at least 75% of its gross income is "passive income"; or
- at least 50% of the average quarterly value of its total gross assets (which may be measured in part by the market value of our ordinary shares, which is subject to change as discussed below) is attributable to assets that produce "passive income" or are held for the production of passive income.

Passive income for this purpose generally includes dividends, interest, royalties, rents, gains from commodities and securities transactions, the excess of gains over losses from the disposition of assets which produce passive income, and includes amounts derived by reason of the temporary investment of funds raised in offerings of our ordinary shares. If a non-U.S. corporation owns directly or indirectly at least 25% by value of the stock of another corporation, the non-U.S. corporation is treated for purposes of the PFIC tests as owning its proportionate share of the assets of the other corporation and as receiving directly its proportionate share of the other corporation's income. If we are classified as a PFIC in any year with respect to which a U.S. Holder owns our ordinary shares, we will generally continue to be treated as a PFIC with respect to such U.S. Holder in all succeeding years during which the U.S. Holder owns our ordinary shares, regardless of whether we continue to meet the tests described above.

S-17

Table of Contents

Based on our gross income and assets and the nature of our business, we do not believe that we were a PFIC for the taxable year ended December 31, 2018. There can be no assurance that we will not be considered a PFIC for the taxable year ending December 31, 2019 or any subsequent taxable year. PFIC status is determined as of the end of the taxable year and depends on a number of factors, including the value of a corporation's assets and the amount and type of its gross income. Furthermore, because the value of our gross assets is likely to be determined in large part by reference to our market capitalization, there is a significant risk that a decline in our market capitalization (taking into account the total number of shares outstanding and the market price per share, either before or after the proposed reverse share split subject to shareholder approval) could result in our becoming a PFIC. Even though we have determined that we were not a PFIC for the year ended December 31, 2018, there can be no assurance that the IRS will agree with our conclusion.

Under certain attribution rules, if we are a PFIC, U.S. Holders will be deemed to own their proportionate share of our PFIC subsidiaries, such subsidiaries referred to as "lower-tier PFICs," and will be subject to U.S. federal income tax in the manner discussed below on (1) a distribution to us on the shares of a "lower-tier PFIC" and (2) a disposition by us of shares of a "lower-tier PFIC," both as if the holder directly held the shares of such "lower-tier PFIC."

If an entity is treated as a PFIC for any taxable year during which a U.S. Holder holds (or, as discussed in the previous paragraph, is deemed to hold) its ordinary shares, such holder will be subject to adverse U.S. federal income tax rules. In general, if a U.S. Holder disposes of shares of a PFIC (including an indirect disposition or a constructive disposition of shares of a "lower-tier PFIC"), gain recognized or deemed recognized by such holder would be allocated ratably over such holder's holding period for the shares. The amounts allocated to the taxable year of disposition and to years before the entity became a PFIC, if any, would be treated as ordinary income. The amount allocated to each other taxable year would be subject to tax at the highest rate in effect for such taxable year for individuals or corporations, as appropriate, and an interest charge would be imposed on the tax attributable to such allocated amounts. Further, any distribution in respect of shares of a PFIC (or a distribution by a lower-tier PFIC to its shareholders that is deemed to be received by a U.S. Holder) in excess of 125% of the average of the annual distributions on such shares received or deemed to be received during the preceding three years or the U.S. Holder's holding period, whichever is shorter, would be subject to taxation in the manner described above. In addition, dividend distributions made to you will not qualify for the preferential rates of taxation applicable to long-term capital gains discussed above under "Distributions."

Where a company that is a PFIC meets certain reporting requirements, a U.S. Holder can avoid certain adverse PFIC consequences described above by making a "qualified electing fund," or QEF, election to be taxed currently on its proportionate share of the PFIC's ordinary income and net capital gains. However, we do not intend to comply with the necessary accounting and record keeping requirements that would allow a U.S. Holder to make a QEF election with respect to us.

If we are a PFIC and our ordinary shares are "regularly traded" on a "qualified exchange," a U.S. Holder may make a mark-to-market election with respect to our ordinary shares (but not the shares of any lower-tier PFICs), which may

help to mitigate the adverse tax consequences resulting from our PFIC status (but not that of any lower-tier PFICs). Our ordinary shares will be treated as "regularly traded" in any calendar year in which more than a de minimis quantity of the ordinary shares are traded on a qualified exchange on at least 15 days during each calendar quarter (subject to the rule that trades that have as one of their principal purposes the meeting of the trading requirement are disregarded). The NASDAQ Capital Market is a qualified exchange for this purpose and, consequently, if the ordinary shares are regularly traded, the mark-to-market election will be available to a U.S. Holder; however, there can be no assurance that trading volumes will be sufficient to permit a mark-to-market election. In addition, because a mark-to-market election with respect to us does not apply to any equity interests in "lower-tier PFICs" that we own, a U.S. Holder generally will continue to be subject to the PFIC rules with respect to its indirect interest in any investments held by us that are treated as equity interests in a PFIC for U.S. federal income tax purposes.

Table of Contents

If a U.S. Holder makes the mark-to-market election, for each year in which we are a PFIC, the holder will generally include as ordinary income the excess, if any, of the fair market value of ordinary shares at the end of the taxable year over their adjusted tax basis, and will be permitted an ordinary loss in respect of the excess, if any, of the adjusted tax basis of our ordinary shares over their fair market value at the end of the taxable year (but only to the extent of the net amount of previously included income as a result of the mark-to-market election). If a U.S. Holder makes the election, the holder's tax basis in our ordinary shares will be adjusted to reflect any such income or loss amounts. Any gain recognized on a sale or other disposition of our ordinary shares will be treated as ordinary income. Any losses recognized on a sale or other disposition of our ordinary shares will be treated as ordinary loss to the extent of any net mark-to-market gains for prior years. U.S. Holders should consult their tax advisors regarding the availability and consequences of making a mark-to-market election in their particular circumstances. In particular, U.S. Holders should consider carefully the impact of a mark-to-market election with respect to our ordinary shares if we have "lower-tier PFICs" for which such election is not available. Once made, the mark-to-market election cannot be revoked without the consent of the IRS unless our ordinary shares cease to be "regularly traded."

If a U.S. Holder owns ordinary shares during any year in which we are a PFIC, the U.S. Holder generally will be required to file an IRS Form 8621 (Information Return by a Shareholder of a Passive Foreign Investment Company or Qualified Electing Fund) with respect to the company, generally with the U.S. Holder's federal income tax return for that year. A failure to file such form may result in penalties and may suspend the running of the statute of limitations on the tax return. If our company were a PFIC for a given taxable year, then you should consult your tax advisor concerning your annual filing requirements.

You should consult your tax advisor regarding whether we are a PFIC and the potential application of the PFIC rules.

Medicare Tax

Certain U.S. Holders that are individuals, estates or trusts are subject to a 3.8% tax on all or a portion of their "net investment income," which may include all or a portion of their dividend income and net gains from the disposition of ordinary shares. Each U.S. Holder that is an individual, estate or trust is urged to consult its tax advisors regarding the applicability of the Medicare tax to its income and gains in respect of its investment in our ordinary shares.

Backup Withholding Tax and Information Reporting Requirements

United States backup withholding tax and information reporting requirements may apply to certain payments to certain holders of stock. Information reporting generally will apply to payments of dividends on, and to proceeds from the sale or redemption of, our ordinary shares made within the United States, or by a United States payor or United

States middleman, to a holder of our ordinary shares, other than an exempt recipient (including a payee that is not a United States person that provides an appropriate certification and certain other persons). A payor will be required to withhold backup withholding tax from any payments of dividends on, or the proceeds from the sale or redemption of, ordinary shares within the United States, or by a United States payor or United States middleman, to a holder, other than an exempt recipient, if such holder fails to furnish its correct taxpayer identification number or otherwise fails to comply with, or establish an exemption from, such backup withholding tax requirements. Any amounts withheld under the backup withholding rules will be allowed as a credit against the beneficial owner's U.S. federal income tax liability, if any, and any excess amounts withheld under the backup withholding rules may be refunded, provided that the required information is timely furnished to the IRS.

Foreign Asset Reporting

Certain U.S. Holders are required to report information relating to an interest in our ordinary shares, subject to certain exceptions (including an exception for shares held in accounts maintained by U.S. financial institutions) by filing IRS Form 8938 (Statement of Specified Foreign Financial Assets) with their federal income tax return. U.S. Holders are urged to consult their tax advisors regarding their information reporting obligations, if any, with respect to their ownership and disposition of our ordinary shares.

The above description is not intended to constitute a complete analysis of all tax consequences relating to the acquisition, ownership and disposition of our ordinary shares. You should consult your tax advisor concerning the tax consequences of the acquisition, ownership and disposition of our ordinary shares in your particular situation.

Table of Contents

PLAN OF DISTRIBUTION

Pursuant to an engagement agreement dated February 15, 2019, we have engaged H.C. Wainwright & Co., LLC, or the placement agent, to act as our exclusive placement agent in connection with this offering of ordinary shares pursuant to this prospectus supplement and accompanying prospectus. Under the terms of the engagement agreement, the placement agent has agreed to be our exclusive placement agent, on a reasonable best efforts basis, in connection with the issuance and sale by us of our ordinary shares in this offering.

The terms of this offering are subject to market conditions and negotiations between us, the placement agent and prospective investors. The engagement agreement does not give rise to any commitment by the placement agent to purchase any of the shares offered hereby, and the placement agent will have no authority to bind us by virtue of the engagement agreement. Further, the placement agent does not guarantee that it will be able to raise new capital in any prospective offering. The placement agent may engage sub-agents or selected dealers to assist with the offering.

We have entered into a securities purchase agreement directly with an institutional investor, who has agreed to purchase our shares in this offering. Investors who have not entered into a securities purchase agreement shall rely solely on this prospectus supplement in connection with the purchase of our securities in this offering.

Delivery of the ordinary shares offered hereby is expected to be made on or about February 25, 2019, subject to certain customary closing conditions.

The following table shows, both on a per-share and total basis, the public offering price, placement agent fees and proceeds, before expenses to us, assuming the purchase by investors of all the ordinary shares we are offering hereby.

	Per Share	Total
Public offering price	$0.23000	$4,370,000
Placement agent’s fees	$0.01955	$371,450
Proceeds, before expenses, to us	$0.21045	$3,998,550

We have also agreed to pay the placement agent a cash fee and a management fee equal to 7.5% and 1%, respectively, of the gross proceeds raised in this offering. We estimate the total expenses payable by us for this offering, excluding the placement agent fees, to be approximately $327,000, which includes (i) a $30,000 non-accountable expense allowance payable to the placement agent, (ii) reimbursement of the accountable fees and expenses of the placement

agent up to $80,000, including the legal fees of the placement agent, and $10,000 for the clearing expenses of the placement agent in connection with this offering, and (iii) other estimated expenses totaling approximately $207,000, which include legal, accounting, printing costs and various fees associated with the registration and listing of our securities sold in this offering.

Table of Contents

In addition, we have agreed to issue to the placement agent warrants to purchase up to 1,140,000 ordinary shares, which represents 6% of the aggregate number of ordinary shares sold in this offering, at an exercise price of $0.2875 per share (representing 125% of the public offering price per share of the ordinary shares to be sold to investors in this offering). Neither the placement agent warrants nor the ordinary shares issuable upon exercise of the placement agent warrants are being registered hereby.

The placement agent warrants will be exercisable immediately and for five years from the effective date of this offering. Pursuant to FINRA Rule 5110(g), the placement agent warrants and any shares issued upon exercise of the placement agent warrants shall not be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of this offering, except the transfer of any security: (i) by operation of law or by reason of our reorganization; (ii) to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction set forth above for the remainder of the time period; (iii) if the aggregate amount of our securities held by the placement agent or related persons do not exceed 1% of the securities being offered; (iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund and the participating members in the aggregate do not own more than 10% of the equity in the fund; or (v) the exercise or conversion of any security, if all securities remain subject to the lock-up restriction set forth above for the remainder of the time period.

Right of First Refusal

We have also granted H.C. Wainwright & Co., LLC a right of first refusal for a period of nine months following the closing of this offering to act as sole book-running manager, sole underwriter, sole placement agent or sole agent for each and every future debt financing or refinancing and public or private equity offering by us or any of our successors or subsidiaries. This right does not apply in connection with (i) the offer, grant, issuance or sale by us of equity or debt securities in financings with certain strategic investors, an equity line of credit with certain investors or certain debt modification or refinancing transactions, (ii) the offer, issuance or sale by us of our ordinary shares in our at-the-market offering program with Piper Jaffray & Co., or the ATM Program, or any new program with the same agent with substantially similar terms or (iii) the issuance of ordinary shares under the investment agreement with Timwell, dated as of March 6, 2018, as amended.

Tail Financing Payments

We have also agreed to pay H.C. Wainwright & Co., LLC a tail fee equal to the cash and warrant compensation in this offering, if any investor, who was contacted or introduced to us by H.C. Wainwright & Co., LLC during the term of its engagement, provides us with capital in any public or private offering or other financing or capital raising

transaction during the 12-month period following expiration or termination of our engagement of the placement agent. This right does not apply in connection with the transactions excluded from the right of first refusal as described above under "—Right of First Refusal."

Table of Contents

Lock-up Restrictions

Our officers and directors have agreed with H.C. Wainwright & Co., LLC to be subject to a lock-up period of 30 days following the closing of this offering. This means that, during the applicable lock-up period, such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any of our ordinary shares or any securities convertible into, or exercisable or exchangeable for, ordinary shares. Certain limited transfers are permitted during the lock-up period if the transferee agrees to these lock-up restrictions. The lock-up agreements permit the sale of up to 200,000 ordinary shares pursuant to Rule 10b5-1 plans by two of our directors based on their indirect ownership of funds that directly own shares in us. Otherwise, there are no existing agreements between the placement agent and any of our officers or directors executing a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

We have agreed for a period of 20 days following the closing of this offering not to issue, enter into an agreement to issue or announce the issuance or proposed issuance of our ordinary shares or any other securities convertible into, or exercisable or exchangeable for, ordinary shares. This agreement does not apply to, in addition to certain customary exceptions, the issuance by of us equity or debt securities pursuant to acquisitions or strategic transactions approved by a majority of our disinterested directors, where not for the purpose of raising capital, provided that such securities are issued as “restricted securities” (as defined in Rule 144 under the Securities Act) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the 20-day lock-up period, or the issuance by us of up to 90,000 ordinary shares as compensation to a consultant.

We have also agreed for a period of six months following the closing date of this offering not to (i) issue or agree to issue equity or debt securities convertible into, or exercisable or exchangeable for, ordinary shares at a conversion price, exercise price or exchange price which floats with the trading price of our ordinary shares or which may be adjusted after issuance upon the occurrence of certain events or (ii) enter into any agreement, including an equity line of credit, whereby we may issue securities at a future-determined price. This agreement does not apply to the offer, issuance or sale by us of our ordinary shares in our ATM Program (i) 30 days after the closing of this offering, provided the closing bid price of our ordinary shares exceeds 120% of the price per share of the shares offered hereby for ten consecutive trading days, and (ii) 60 days after the closing of this offering, regardless of the trading price of our shares.

Underwriter Status

The placement agent 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, the placement agent 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 shares of common stock by the placement agent acting as principal. Under these rules and regulations, the placement agent:

may not engage in any stabilization activity in connection with our securities; and

may not 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.

Table of Contents

Indemnification

We have agreed to indemnify the placement agent against certain liabilities, including certain liabilities arising under the Securities Act, or to contribute to payments that the placement agent may be required to make for these liabilities.

Determination of Offering Price

The actual offering price of the ordinary shares we are offering was negotiated between us and the investors in the offering based on the trading of our ordinary shares prior to the offering, among other things.

Electronic Offer, Sale and Distribution of Securities

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

Other Relationships

The placement agent and its respective affiliates have from to time to time in the past engaged and may in the future engage in investment banking and other commercial dealings in the ordinary course of business with us or our affiliates, for which they have received or may receive customary fees and expenses. For instance, the placement agent acted as lead book-running manager of our underwritten follow-on public offering of units consisting of ordinary shares and common warrants and pre-funded units consisting of common warrants and pre-funded warrants in November 2018.

Listing

Our ordinary shares are listed on the Nasdaq Capital Market under the symbol “RWLK.”

Table of Contents

NOTICE TO INVESTORS

Canada

The ordinary shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal in accordance with applicable Canadian securities laws, that are “accredited investors”, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are "permitted clients", as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the ordinary shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus supplement (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the issuer and the placement agent are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

European Economic Area

In relation to each member state of the European Economic Area (the “EEA”) that has implemented the Prospectus Directive (as defined below) (each, a “Relevant Member State”), other than Germany, with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, an offer of securities described in this prospectus supplement may not be made to the public in that Relevant Member State other than:

to any legal entity which is a qualified investor as defined in the Prospectus Directive;

by the placement agents to fewer than 100 or, if the Relevant Member State has implemented the relevant provisions of the 2010 PD Amending Directive (as defined below), 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of H.C. Wainwright & Co., LLC for any such offer; or

in any other circumstances falling within Article 3(2) of the Prospectus Directive;

provided that no such offer of securities shall require us or any placement agent to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an “offer of securities to the public” in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe for the securities, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression “Prospectus Directive” means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State. The expression “2010 PD Amending Directive” means Directive 2010/73/EU.

We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on its behalf, other than offers made by the placement agents with a view to the final placement of the securities as contemplated in this prospectus. Accordingly, no purchaser of the securities is authorized to make any further offer of the securities on behalf of us or the placement agents.

The EEA selling restriction is in addition to any other selling restrictions set out in this prospectus.

Israel

This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968, or the Securities Law, and has not been filed with or approved by the Israel Securities Authority. In the State of Israel, this document is being distributed only to, and is directed only at, and any offer of the shares is directed only at, investors listed in the first addendum, or the Addendum, to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million and "qualified individuals", each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors will be required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same and agree to it.

S-24

Table of Contents

LEGAL MATTERS

The validity of the securities being offered by this prospectus supplement and other legal matters concerning this offering relating to Israeli law will be passed upon for us by Goldfarb Seligman & Co., Tel Aviv, Israel. Certain legal matters in connection with this offering relating to U.S. federal and New York State law will be passed upon for us by White & Case LLP, New York, New York. Certain legal matters in connection with this offering will be passed upon for the placement agent by Haynes and Boone, LLP with respect to U.S. law.

EXPERTS

The consolidated financial statements as of December 31, 2018 and 2017 and for each of the years in the three-year period ended December 31, 2018 included in our 2018 Form 10-K and incorporated by reference into this prospectus supplement, have been audited by Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global, an independent registered public accounting firm, as set forth in its report thereon and appearing therein (which report contains an explanatory paragraph regarding the Company's ability to continue as a going concern as described in Note 1i to the consolidated financial statements), and are included in reliance upon such report given on the authority of such firm as an expert in accounting and auditing. The offices of Kost, Forer Gabbay& Kasierer are located at 144 Menachem Begin Road, Tel Aviv, 6492102.

ENFORCEABILITY OF CIVIL LIABILITIES

We are incorporated under the laws of the State of Israel. It may be difficult to obtain service of process within the United States upon us, upon our directors and executive officers, a majority of whom reside outside of the United States, and upon those Israeli experts named in this prospectus supplement and the accompanying prospectus who reside outside of the United States. Furthermore, because a majority of our assets and a majority of our directors and executive officers are located outside of the United States, any judgment obtained in the United States against us, certain of our directors and executive officers or the Israeli experts named herein may be difficult to collect within the United States.

We have been informed by our legal counsel in Israel, Goldfarb Seligman & Co., Tel Aviv, that it may be difficult to assert U.S. securities laws claims in original actions instituted in Israel. Israeli courts may refuse to hear a claim based on a violation of U.S. securities laws because Israel is not the most appropriate forum in which to bring such a claim. In addition, even if an Israeli court agrees to hear a claim, it may determine that Israeli law and not U.S. law is applicable to the claim. If U.S. law is found to be applicable, the content of applicable U.S. law must be proven as a fact which can be a time-consuming and costly process. Matters of procedure will also be governed by Israeli law.

We have irrevocably appointed our subsidiary, ReWalk Robotics Inc., which is incorporated in Delaware, as our agent to receive service of process in any action against us in any United States federal or state court arising out of this offering or any purchase or sale of securities in connection with this offering. Subject to specified time limitations and legal procedures, Israeli courts may enforce a non-appealable foreign judgment in a civil matter, provided that, among other things:

- the judgment is obtained after due process before a court of competent jurisdiction, according to the laws of the foreign state in which the judgment is given and the rules of private international law currently prevailing in Israel;
- the prevailing law of the foreign state in which the judgment is rendered allows for the enforcement of judgments of Israeli courts;
- adequate service of process has been effected and the defendant has had a reasonable opportunity to be heard and to present his or her evidence;
- the judgment is not contrary to the public policy of Israel, and the enforcement of the civil liabilities set forth in the judgment is not likely to impair the security or sovereignty of Israel;
- the judgment was not obtained by fraud and does not conflict with any other valid judgment in the same matter between the same parties;
- an action between the same parties in the same matter was not pending in any Israeli court at the time the lawsuit was instituted in the foreign court; and
- the judgment is enforceable according to the laws of Israel and according to the law of the foreign state in which the relief was granted.

If a foreign judgment is enforced by an Israeli court, it generally will be payable in Israeli currency, which can then be converted into non-Israeli currency and transferred out of Israel. Traditionally, in an action before an Israeli court to recover an amount in a non-Israeli currency, the Israeli court issues a judgment for the equivalent amount in Israeli currency at the rate of exchange in force on the date of the judgment, but the judgment debtor may make payment in foreign currency. Pending collection, the amount of the judgment of an Israeli court stated in Israeli currency ordinarily will be linked to the Israeli consumer price index plus a per-annum statutory rate of interest set on a quarterly basis by Israeli regulations. Judgment creditors must bear the risk of unfavorable exchange rates. The trend in recent years has increasingly been for Israeli courts to enforce a foreign judgment in the foreign currency specified in the judgment, in which case there are also applicable rules regarding the payment of interest.

Table of Contents

WHERE YOU CAN FIND MORE INFORMATION

As is permitted by the rules and regulations of the SEC, this prospectus supplement, which forms part of our effective registration statement on Form S-3 (File No. 333-209833), omits certain non-material information, exhibits and undertakings otherwise included in the registration statement. For further information about us and the securities offered by this prospectus supplement, refer to our registration statement on Form S-3 (File No. 333-209833) and the exhibits and schedules filed with the registration statement. With respect to the statements contained in this prospectus supplement and the accompanying prospectus regarding the contents of any agreement or any other document, in each instance, the statement is qualified in all respects by the complete text of the agreement or document, a copy of which has been filed as an exhibit to the registration statement.

We are subject to the information reporting requirements of the Exchange Act applicable to U.S. domestic issuers and, as such, file annual, quarterly and current reports, proxy statements and other information with the SEC. Our filings with the SEC are also available to the public through the SEC's website at http://www.sec.gov.

We also maintain a corporate website at www.rewalk.com. Information that we furnish to or file with the SEC, including annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to, or exhibits included in, these reports, are available for download, free of charge, on our website as soon as reasonably practicable after such materials are filed or furnished with the SEC. Information contained on, or that can be accessed through, our website does not constitute a part of this prospectus supplement.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

We file annual and periodic reports and other information with the SEC (File No. 001-36612). These filings contain important information which does not appear in this prospectus supplement or the accompanying prospectus. The SEC allows us to "incorporate by reference" information into this prospectus supplement and the accompanying prospectus, which means that we can disclose important information to you by referring you to other documents which we have filed with the SEC. We are incorporating by reference in this prospectus supplement and the accompanying prospectus the documents listed below and all amendments or supplements we may file to such documents before the time that all of the securities offered by this prospectus have been sold or de-registered:

- our annual report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 8, 2019;
- "Proposal Two—Approval of Amendments to our Articles of Association to Effect a Reverse Share Split" and "Proposal Three—Approval of Amendments to our Articles of Association to Increase our Authorized Share Capital" in our

definitive proxy statement on Schedule 14A filed with the SEC on February 19, 2019, and the portions of such definitive proxy statement that are specifically incorporated by reference into our annual report on Form 10-K for the fiscal year ended December 31, 2018;

our current report on Form 8-K, filed with the SEC on February 11, 2019; and

the description of our ordinary shares contained in our Registration Statement on Form 8-A (File No. 001-36612) filed with the SEC on September 2, 2014, including any subsequent amendment or any report filed for the purpose of updating such description.

In addition, we incorporate by reference into this prospectus supplement and the accompanying prospectus any filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act from the date of this prospectus supplement until the termination of the offering under this prospectus supplement (in each case, except for the information furnished under Item 2.02 or Item 7.01 in any current report on Form 8-K). Notwithstanding the foregoing, no information is incorporated by reference into this prospectus supplement or the accompanying prospectus where such information under applicable forms and regulations of the SEC is not deemed to be “filed” under Section 18 of the Exchange Act or otherwise subject to the liabilities of that section, unless we indicate in the report or filing containing such information that the information is to be considered “filed” under the Exchange Act or is to be incorporated by reference into this prospectus supplement or the accompanying prospectus.

Certain statements in and portions of this prospectus supplement and the accompanying prospectus update and replace information in the above-listed documents incorporated by reference. Likewise, statements in or portions of a future document incorporated by reference in this prospectus supplement and the accompanying prospectus may update and replace statements in and portions of this prospectus supplement and the accompanying prospectus or the above-listed documents.

We will provide you without charge, upon your written or oral request, a copy of any of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, other than exhibits to such documents that are not specifically incorporated by reference into such documents. Please direct your written or telephone requests to ReWalk Robotics Ltd., c/o ReWalk Robotics Inc., 200 Donald Lynch Blvd., Marlborough, MA 01752, Attn: Investor Relations, or ir@rewalk.com, telephone number 508-251-1154.

Table of Contents

PROSPECTUS

$100,000,000 of Ordinary Shares, Warrants
and/or Debt Securities Offered by the Company
and
Up to 4,388,143 Ordinary Shares Offered by Selling Shareholders

ReWalk Robotics Ltd.

We may offer to the public from time to time in one or more series or issuances ordinary shares, warrants to purchase ordinary shares and/or debt securities consisting of debentures, notes or other evidences of indebtedness.

In addition, the selling shareholders may offer to sell up to 4,388,143 ordinary shares. We will not receive any of the proceeds from the sale of ordinary shares by the selling shareholders. We refer to the ordinary shares, warrants and debt securities collectively as “securities” in this prospectus.

Each time we or a selling shareholder sells securities pursuant to this prospectus, we will provide a supplement to this prospectus that contains specific information about the offering and the specific terms of the securities offered. You should read this prospectus and the applicable prospectus supplement carefully before you invest in our securities.

We may, from time to time, offer to sell the securities and selling shareholders may, from time to time, offer to sell the ordinary shares through public or private transactions, directly or through underwriters, agents or dealers, on or off the NASDAQ Stock Market at prevailing market prices or at privately negotiated prices. If any underwriters, agents or dealers are involved in the sale of any of these securities, the applicable prospectus supplement will set forth the names of the underwriter, agent or dealer and any applicable fees, commissions or discounts.

Our ordinary shares are traded on the NASDAQ Global Market under the symbol “RWLK.”

Investing in these securities involves certain risks. Please carefully consider the "Risk Factors" in Item 1A of our most recent Annual Report on Form 10-K, as amended, incorporated by reference in this prospectus and in any applicable prospectus supplement, for a discussion of the factors you should consider carefully before deciding to purchase these securities.

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

The date of this prospectus is May 9, 2016

TABLE OF CONTENTS

	Page
ABOUT THIS PROSPECTUS	1
PROSPECTUS SUMMARY	2
RISK FACTORS	3
FORWARD-LOOKING STATEMENTS	5
RATIO OF EARNINGS TO FIXED CHARGES	6
CAPITALIZATION	7
PRICE RANGE OF ORDINARY SHARES	8
USE OF PROCEEDS	9
SELLING SHAREHOLDERS	10
DESCRIPTION OF ORDINARY SHARES	11
DESCRIPTION OF WARRANTS	15
DESCRIPTION OF DEBT SECURITIES	16
PLAN OF DISTRIBUTION	18
LEGAL MATTERS	21
EXPERTS	21
WHERE YOU CAN FIND MORE INFORMATION	21
INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE	22
ENFORCEABILITY OF CIVIL LIABILITIES	23

Table of Contents

About this Prospectus

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, utilizing a "shelf" registration process. Under this process, we may offer and sell our securities under this prospectus and the selling shareholders referred to in this prospectus and identified in supplements to this prospectus may also offer and sell our ordinary shares under this prospectus.

Under this shelf process, we may sell the securities described in this prospectus in one or more offerings up to a total price to the public of $100,000,000. The selling shareholders may sell up to 4,388,143 ordinary shares in one or more offerings. The offer and sale of securities under this prospectus may be made from time to time, in one or more offerings in any manner described under the section in this prospectus entitled "Plan of Distribution."

This prospectus provides you with a general description of the securities we may offer. Each time we or the selling shareholders sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus, and may also contain information about any material U.S. federal income tax and Israeli tax considerations relating to the securities covered by the prospectus supplement. You should read both this prospectus and any prospectus supplement together with additional information under the headings "Where You Can Find More Information" and "Incorporation of Certain Documents by Reference."

This summary may not contain all of the information that may be important to you. You should read this entire prospectus, including the financial data and related notes incorporated by reference in this prospectus, before making an investment decision. This summary contains forward-looking statements that involve risks and uncertainties. Our actual results may differ significantly from the results discussed in the forward-looking statements. Factors that might cause or contribute to such differences include those discussed in "Risk Factors" and "Forward-Looking Statements."

Table of Contents

Prospectus Summary

Overview

We are an innovative medical device company that is designing, developing and commercializing exoskeletons that allow wheelchair-bound individuals with mobility impairments or other medical conditions the ability to stand and walk once again. We have developed and are continuing to commercialize ReWalk, an exoskeleton that uses our patented tilt-sensor technology, and an on-board computer and motion sensors to drive motorized legs that power movement.

Corporate Information

We are incorporated under the laws of the State of Israel. Our principal executive offices are located at 3 Hatnufa St., Floor 6, Yokneam Ilit 2069203, Israel, and our telephone number is +972 (4) 959-0123. Our website address is *www.rewalk.com*. Information contained on, or that can be accessed through, our website does not constitute a part of this prospectus and is not incorporated by reference herein. We have included our website address in this prospectus solely for informational purposes. We have irrevocably appointed ReWalk Robotics Inc. as our agent to receive service of process in any action against us in any United States federal or state court. The address of ReWalk Robotics Inc. is 33 Locke Drive, Marlborough, MA 01752.

Table of Contents

Risk Factors

An investment in our securities involves a high degree of risk. Our business, financial condition or results of operations could be adversely affected by any of these risks. If any of these risks occur, the value our ordinary shares and our other securities may decline. You should carefully consider the risk factors provided below and the risk factors set forth under the caption "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2015, as amended, and in any other filing we make with the SEC subsequent to the date of this prospectus, each of which are incorporated herein by reference, and in any supplement to this prospectus, before making your investment decision.

The FDA has sent us letters suggesting a potential need for us to seek new pre-market clearance for our ReWalk Personal 6.0 and stating that it may take regulatory action for deficiencies in our mandatory post-market surveillance study on the device.

On September 30, 2015, we received a warning letter (the "September 2015 Letter") from the Food and Drug Administration (the "FDA") citing deficiencies in our protocol for a post-market surveillance study of our ReWalk Personal and our failure to initiate a post-market study by the September 28, 2015 deadline. Between June 2014 and our receipt of the September 2015 Letter, we submitted our post-market study protocol to the FDA, amended the protocol in response to the FDA's subsequent request and proposed additional amendments to enhance the protocol after the FDA notified us that our subsequently-amended protocol was still deficient. While we responded to the FDA's requests throughout this period, we did not submit all of our responses on a timely basis. The September 2015 Letter warned that the FDA could take regulatory action against us for violations of Section 522 of the Federal Food, Drug and Cosmetic Act ("Section 522") based on the late post-market study and allegedly deficient protocol for that study. In February 2016, the FDA sent us an additional information request (the "February 2016 Letter") requesting additional changes to our post-market surveillance study protocol and asking that we comply within 30 days. In the February 2016 Letter, the FDA also expressed its belief that we should submit a new pre-market notification for our ReWalk device stemming from the FDA's review of what it considered to be changes to the device.

We held several discussions with the FDA, including an in-person meeting in March 2016, which based on our understanding of the conclusions reached by the FDA, resulted in the FDA narrowing its request for a new pre-market notification to an abbreviated, special application (the "special 510(k)"). This special 510(k) relates only to a computer included with the ReWalk device and is subject to an approximate 30-day review period, rather than the standard 90-day review period for pre-market applications. In late March 2016, the FDA confirmed that, based on these resolutions, we could continue to market our ReWalk device as long as we submit the special 510(k) and initiate the post-market study by June 1, 2016. Our special 510(k) submission was received by the FDA on April 11, 2016, at which time the FDA commenced its review of the special 510(k). Additionally, we have submitted a protocol for the post-market surveillance study that was approved by the FDA on May 5, 2016 and that we are required to commence within 30 days after that date. We expect to initiate our post-market surveillance study by the end of May 2016. The FDA also confirmed that, based on the public health significance of the ReWalk device, it did not view regulatory

action against us for the late start in or deficient protocol for the post-market study as a priority for the agency, and that it expected to reassess the issues surrounding the pre-market notification and post-market study in June 2016. We have met all deadlines for submission of responses and have communicated regularly with the FDA after receiving each of the September 2015 Letter and the February 2016 Letter.

We expect we will be able to adhere fully to the FDA's timeline and to respond promptly to the FDA's requests based on significant additions in staffing aimed at addressing a need for greater internal clinical and regulatory resources. However, if we are unable to satisfy this timing or if the results of our post-market study are not as favorable as we expect, the FDA may issue additional warning letters to us, may impose limitations on the labelling of our device or may limit us to marketing a previous version of the ReWalk device in the United States. We derived 65% of our revenues in 2015 from sales of the ReWalk device in the United States and, if we are required to market a previous version of the ReWalk device in the United States, we expect that these sales would be adversely impacted, which could materially adversely affect our business and overall results of operations.

The market for medical exoskeletons is new and unproven, and important assumptions about the potential market for our products may be inaccurate.

The market for medical exoskeletons is new and unproven. Accordingly, it is difficult to predict the future size and rate of growth of the market. We cannot be certain whether the market will continue to develop or if medical exoskeletons will achieve and sustain a level of market acceptance and demand sufficient for us to continue to generate revenue and achieve profitability.

We obtained FDA clearance for our ReWalk Personal device in June 2014. This clearance permits us to market the device for use by individuals with spinal cord injury at levels T7 to L5 and for use by individuals in rehabilitation institutions with spinal cord injury at levels T4 to L5. The FDA's clearance requires users of the device to meet the following criteria: healthy hands and shoulders that can support crutches, healthy bone density, no skeletal fractures, in good general health, ability to stand with a stander device, weight of less than 220 pounds/100 kilograms and height between 5 feet 3 inches and 6 feet 2 inches/1.60 meters and 1.88 meters. Additionally, the FDA clearance contraindicates psychiatric or cognitive conditions that could interfere with a user's proper operation of the device and various other clinical conditions, including pregnancy, severe concurrent medical diseases, a history of severe neurological injuries other than spinal cord injury, impaired joint mobility, unhealed limbs or pelvic fractures or unstable spine, severe spasticity and significant and chronic loss of joint mobility due to structural changes in non-bony tissue. Future products for those with paraplegia, quadriplegia or other mobility impairments or spinal cord injuries may have the same or other restrictions.

Table of Contents

Our business strategy is based, in part, on our estimates of the number of mobility impaired individuals and the incurrence of spinal cord injuries in our target markets and the percentage of those groups that would be able to use our current and future products. Limited sources exist to obtain reliable market data with respect to the number of mobility-impaired individuals and the incurrence of spinal cord injuries in our target markets. In addition, there are no third-party reports or studies regarding what percentage of those with limited mobility or spinal cord injuries would be able to use exoskeletons, in general, or our current or planned future products, in particular. Our assumptions may be inaccurate and may change.

The National Spinal Cord Injury Statistical Center estimates as of 2014 that there were 276,000 people in the United States living with spinal cord injury, or SCI. Based on information from a 2013 report by the National Spinal Cord Injury Statistical Center, 41.1% of the total U.S. population of SCI patients suffered injuries between levels T4 and L5. Three published ReWalk trials with respect to such eligible SCI patients had an aggregate screening acceptance rate of 79% considering all current FDA limitations, resulting in an estimated 33% of the total population of SCI patents being candidates for current ReWalk products. Based on the same three studies, we estimate that the percentage of candidates eligible for current and future ReWalk products could increase to approximately 80% of SCI patients as we plan to adapt our ReWalk products for use by individuals with other indications affecting the ability to walk, including quadriplegia. We cannot assure you that our estimate regarding our current products is accurate or that our estimate regarding future products will remain the same. FDA clearance for such products, if received at all, may contain different limitations from the ones the FDA has placed on the device we currently market for paraplegia patients. If our estimates of our current or future addressable market are incorrect, our business may not develop as we expect and our share price may suffer.

Table of Contents

Forward-Looking Statements

This prospectus and the documents incorporated in it by reference contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995, that are based on our management's beliefs and assumptions and on information currently available to our management. Forward-looking statements include information concerning our possible or assumed future results of operations, business strategies, financing plans, competitive position, industry environment, potential growth opportunities, potential market opportunities and the effects of competition. Forward-looking statements include all statements that are not historical facts and can be identified by terms such as "anticipates," "assumes," "believes," "could," "continues," "seeks," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "will," "would" or similar expressions that convey uncertainty of future events or outcomes and the negatives of those terms.

Our ability to predict the results of our operations or the effects of various events on our operating results is inherently uncertain. Therefore, we caution you to consider carefully the matters described under the caption "Risk Factors" and certain other matters discussed in this prospectus, the documents incorporated by reference in this prospectus, and other publicly available sources. Such factors and many other factors beyond the control of our management could cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements that may be expressed or implied by the forward-looking statements. All of the forward-looking statements included in this prospectus are based on information available to us as of the date of this prospectus and speak only as of the date hereof. Unless we are required to do so under U.S. federal securities laws or other applicable laws, we do not intend to update or revise any forward-looking statements, whether as a result of new information, future developments or otherwise.

Table of Contents

Ratio of Earnings to Fixed Charges

The following table sets forth our ratio of earnings to fixed charges for the periods indicated. The ratio of earnings to fixed charges is computed by dividing fixed charges into earnings before income taxes plus fixed charges. Fixed charges consist of interest expense (including financial expenses related to the issuance and revaluation of warrants to purchase convertible preferred shares and financial expenses related to convertible loans) and that portion of rental expense deemed representative of interest. Our earnings have been inadequate to cover fixed charges. The following table sets forth the dollar amount of the deficiency to cover fixed charges for each of the years ended December 31, 2012, 2013, 2014 and 2015. We have derived the deficiency of earnings to cover fixed charges from our historical financial statements. The following should be read in conjunction with our financial statements, including the notes thereto, and the other financial information included or incorporated by reference herein.

	As of December 31,			
	2012	2013	2014	2015
Deficiency of earnings available to cover fixed charges[(a)]	$(6,637)	$(12,155)	$(21,623)	$(25,362)

(a) See Exhibit 12.1 of the registration statement on Form S-3, of which this prospectus is a part.

As of the date of this prospectus, we have no preferred shares outstanding and have not declared or paid any dividends on preferred shares for the periods set forth above.

Table of Contents

Capitalization

The following table sets forth our total capitalization as of December 31, 2015 on an actual basis.

	As of December 31, 2015 (in thousands)
Shareholders' equity:	
Share capital – ordinary shares of NIS 0.01 par value per share 250,000,000 shares authorized; 12,222,583 shares issued and outstanding	33
Additional paid-in capital	94,876
Accumulated deficit	(73,989)
Total shareholders' equity	20,920
Total capitalization	$ 20,920

7

Table of Contents

Price Range of Ordinary Shares

Our ordinary shares began trading publicly on the NASDAQ Global Market on September 12, 2014. The following table sets forth, for the periods indicated, the high and low sales prices of our ordinary shares as reported by the NASDAQ Global Market.

Period	High	Low
Year ending December 31, 2016		
First quarter (through February 26, 2016)	$15.81	$7.91
Year ended December 31, 2015		
Fourth quarter	$17.40	$5.55
Third quarter	$11.90	$7.20
Second quarter	$14.65	$10.35
First quarter	$22.74	$12.03
Year ended December 31, 2014		
Fourth quarter	$34.29	$18.01
Third quarter (beginning on September 12, 2014)	$43.71	$11.50

The closing sale price of our ordinary shares as reported by the NASDAQ Global Market on February 26, 2016 was $10.45 per ordinary share.

Table of Contents

Use of Proceeds

Unless we state otherwise in a prospectus supplement, we will use the net proceeds from the sale of securities we offer pursuant to this prospectus for general corporate purposes.

We will not receive any proceeds from the sales of shares by the selling shareholders.

Table of Contents

Selling Shareholders

This prospectus relates to the offering by selling shareholders of up to 4,388,143 ordinary shares. The ordinary shares being sold by the selling shareholders were issued upon our initial public offering, or our IPO, following the conversion of preferred shares that were purchased by the selling shareholders prior to the consummation of our IPO in a number of transactions exempt from registration under the Securities Act. The transactions closed on March 20, 2006, November 4, 2009, March 9, 2010, June 27, 2011, January 31, 2012, May 10, 2012, August 20, 2012, September 30, 2013 and June 27, 2014. In addition, the selling shareholders acquired a portion of their ordinary shares pursuant to the conversion upon our IPO of preferred shares acquired on August 2, 2014 upon the exercise of warrants.

The selling shareholders are expected to consist of those shareholders who have the right to include their securities in a registration or offering effected by us under the terms of our Amended and Restated Shareholders' Rights Agreement dated July 14, 2014.

Table of Contents

Description of Ordinary Shares

The following description of our ordinary shares is a summary and is qualified in its entirety by reference to our Second Amended and Restated Articles of Association, as amended by the First Amendment thereto, or our Articles of Association. Our Articles of Association are filed as Exhibit 3.1 to this prospectus and are incorporated by reference herein.

Share Capital

Our authorized share capital consists solely of 250,000,000 ordinary shares, par value NIS 0.01 per share, of which 12,371,415 shares were issued and outstanding as of May 2, 2016.

All of our issued and outstanding ordinary shares are validly issued, fully paid and non-assessable. Our ordinary shares are not redeemable and do not have any preemptive rights.

Voting Rights

Pursuant to our Articles of Association, holders of our ordinary shares have one vote for each ordinary share held on all matters submitted to a vote before the shareholders at a general meeting. Shareholders may vote at a general meeting either in person, by proxy or by written ballot.

Quorum requirements

The quorum required for our general meetings of shareholders consists of at least two holders of our ordinary shares present in person or by proxy and holding among them at least 33 1/3% of the total outstanding voting rights.

Vote Requirements

Our Articles of Association provide that all resolutions of our shareholders require a simple majority vote, unless otherwise required by the Israeli Companies Law or by our Articles of Association. Under the Israeli Companies Law, each of (i) the approval of an extraordinary transaction with a controlling shareholder and (ii) the terms of employment or other engagement of the controlling shareholder of the company or such controlling shareholder's relative (even if not extraordinary) requires special approval. For more information, see our Registration Statement on Form 8-A as filed with the SEC on September 2, 2014 under the heading "Item 1. Description of Registrant's Securities to be Registered." Under our Articles of Association, the alteration of the rights, privileges, preferences or obligations of any class of our shares requires the ordinary majority vote of all classes of shares voting together as a single class at a shareholder meeting. Our Articles of Association also require that the removal of any director from office (other than our external directors) or the amendment of the provisions of our amended articles relating to our staggered board requires the vote of 65% of the total voting power of our shareholders. Another exception to the simple majority vote requirement is a resolution for the voluntary winding up, or an approval of a scheme of arrangement or reorganization, of the Company pursuant to Section 350 of the Israeli Companies Law, which requires the approval of holders of 75% of the voting rights represented at the meeting, in person, by proxy or by voting deed and voting on the resolution.

Transfer of Shares; Share Ownership Restrictions

Our fully paid ordinary shares are issued in registered form and may be freely transferred under our Articles of Association, unless the transfer is restricted or prohibited by another instrument, applicable law or the rules of a stock exchange on which the shares are listed for trade. The ownership or voting of our ordinary shares by non-residents of Israel is not restricted in any way by our Articles of Association or the laws of the State of Israel, except for ownership by nationals of some countries that are, or have been, in a state of war with Israel.

Table of Contents

Election of Directors

Our ordinary shares do not have cumulative voting rights for the election of directors. As a result, the holders of a majority of the voting power represented at a shareholders meeting have the power to elect all of our directors, subject to the special approval requirements for external directors.

Under our Articles of Association, our board of directors must consist of not less than five but no more than thirteen directors, including two external directors as required by the Israeli Companies Law. Pursuant to our Articles of Association, other than the external directors, for whom special election requirements apply under the Israeli Companies Law, the vote required to appoint a director is a simple majority vote of holders of our voting shares, participating and voting at the relevant meeting. In addition, our directors, other than the external directors, are divided into three classes that are each elected at a general meeting of our shareholders every three years, in a staggered fashion (such that one class is elected each year), and serve on our board of directors unless they are removed by a vote of 65% of the total voting power of our shareholders at a general or special meeting of our shareholders or upon the occurrence of certain events, in accordance with the Israeli Companies Law and our Articles of Association. In addition, our Articles of Association allow our board of directors to appoint new directors and appoint directors to fill vacancies on the board of directors to serve for a term of office equal to the remaining period of the term of office of the directors(s) whose office(s) have been vacated. External directors are elected for an initial term of three years, may be elected for additional terms of three years each under certain circumstances, and may be removed from office pursuant to the terms of the Israeli Companies Law.

Dividend and Liquidation Rights

We may declare a dividend to be paid to the holders of our ordinary shares in proportion to their respective shareholdings. Under the Israeli Companies Law, dividend distributions are determined by the board of directors and do not require the approval of the shareholders of a company unless the company's articles of association provide otherwise. Our Articles of Association do not require shareholder approval of a dividend distribution and provide that dividend distributions may be determined by our board of directors.

Pursuant to the Israeli Companies Law, a company may make a distribution of dividends out of its profits on the condition that there is no reasonable concern that the distribution may prevent the company from meeting its existing and expected obligations when they fall due. The Israeli Companies Law defines such profit as retained earnings or profits accrued in the last two years, whichever is greater, according to the last reviewed or audited financial statements of the company, provided that the date of the financial statements is not more than six months before the distribution.

In the event of our liquidation, after satisfaction of liabilities to creditors, our assets will be distributed to the holders of our ordinary shares in proportion to their shareholdings. This right, as well as the right to receive dividends, may be affected by the grant of preferential dividend or distribution rights to the holders of a class of shares with preferential rights that may be authorized in the future.

Exchange Controls

There are currently no Israeli currency control restrictions on payments of dividends or other distributions with respect to our ordinary shares or the proceeds from the sale of the shares, except for the obligation of Israeli residents to file reports with the Bank of Israel regarding certain transactions. However, legislation remains in effect pursuant to which currency controls can be imposed by administrative action at any time.

Shareholder Meetings

Under Israeli law, we are required to hold an annual general meeting of our shareholders once every calendar year that must be held no later than 15 months after the date of the previous annual general meeting. All meetings other than the annual general meeting of shareholders are referred to in our Articles of Association as extraordinary general meetings. Our board of directors may call extraordinary general meetings whenever it sees fit, at such time and place, within or outside of Israel, as it may determine. In addition, the Israeli Companies Law provides that our board of directors is required to convene an extraordinary general meeting upon the written request of (i) any two of our directors or one-quarter of the members of our board of directors or (ii) one or more shareholders holding, in the aggregate, either (a) five percent or more of our outstanding issued shares and one percent of our outstanding voting power or (b) five percent or more of our outstanding voting power.

Table of Contents

Subject to the provisions of the Israeli Companies Law and the regulations promulgated thereunder, shareholders entitled to participate and vote at general meetings are the shareholders of record on a date to be decided by the board of directors, which may be between four and 40 days prior to the date of the meeting. Furthermore, the Israeli Companies Law requires that resolutions regarding the following matters be passed at a general meeting of our shareholders:

- amendments to our Articles of Association;
- appointment or termination of our auditors;
- appointment of external directors;
- approval of certain related party transactions;
- increases or reductions of our authorized share capital;
- a merger; and
- the exercise of our board of directors' powers by a general meeting, if our board of directors is unable to exercise its powers and the exercise of any of its powers is required for our proper management.

The Israeli Companies Law and our Articles of Association require that notice of any annual general meeting or extraordinary general meeting be provided to shareholders at least 21 days prior to the meeting and if the agenda of the meeting includes the appointment or removal of directors, the approval of transactions with office holders or interested or related parties, or an approval of a merger, notice must be provided at least 35 days prior to the meeting.

Under the Israeli Companies Law and under our Articles of Association, shareholders are not permitted to take action via written consent in lieu of a meeting.

Access to Corporate Records

Under the Israeli Companies Law, shareholders generally have the right to review: minutes of our general meetings; our shareholders register and principal shareholders register; our Articles of Association; our annual financial statements; and any document that we are required by law to file publicly with the Israeli Companies Registrar or the Israel Securities Authority. In addition, shareholders may request to be provided with any document related to an action or transaction with a related party that requires shareholder approval under the related party transaction provisions of the Israeli Companies Law. We may deny a request to review a document if we believe it has not been made in good faith, that the document contains a trade secret or patent or that the document's disclosure may otherwise impair our interests.

Acquisitions Under Israeli Law

Full Tender Offer. A person wishing to acquire shares of an Israeli public company and who would as a result hold over 90% of the target company's issued and outstanding share capital (or of a class thereof) is required by the Israeli Companies Law to make a tender offer to all of the company's shareholders for the purchase of all of the issued and outstanding shares of the company (or the applicable class). If as a result of a full tender offer the purchaser would own more than 95% of the issued and outstanding share capital of the company or of the applicable class, and more than half of the shareholders who do not have a personal interest in the offer accept the offer, all of the shares that the acquirer offered to purchase will be transferred to the acquirer by operation of law. The law provides for appraisal rights if any shareholder files a request in court within six months following the consummation of a full tender offer, but the purchaser is entitled to stipulate that tendering shareholders forfeit their appraisal rights. If as a result of a full tender offer the purchaser would own 95% or less of the issued and outstanding share capital of the company or of the applicable class, the purchaser may not acquire shares that will cause its shareholding to exceed 90% of the issued and outstanding share capital of the company or of the applicable class.

Table of Contents

Special Tender Offer. The Israeli Companies Law provides that an acquisition of shares of an Israeli public company must be made by means of a special tender offer if as a result of the acquisition the purchaser would become a holder of 25% or more of the voting rights in the company, unless there is already another holder of at least 25% of the voting rights in the company. Similarly, the Israeli Companies Law provides that an acquisition of shares in a public company must be made by means of a special tender offer if as a result of the acquisition the purchaser would become a holder of more than 45% of the voting rights in the company, if there is no other shareholder of the company who holds more than 45% of the voting rights in the company, subject to certain exceptions.

A special tender offer must be extended to all shareholders of a company but the offeror is not required to purchase shares representing more than 5% of the voting power attached to the company's outstanding shares, regardless of how many shares are tendered by shareholders. A special tender offer may be consummated only if (i) at least 5% of the voting power attached to the company's outstanding shares will be acquired by the offeror and (ii) the number of shares tendered in the offer exceeds the number of shares whose holders objected to the offer (excluding the purchaser, controlling shareholders, holders of 25% or more of the voting rights in the company or any person having a personal interest in the acceptance of the tender offer). If a special tender offer is accepted, then the purchaser or any person or entity controlling it or under common control with the purchaser or such controlling person or entity may not make a subsequent tender offer for the purchase of shares of the target company and may not enter into a merger with the target company for a period of one year from the date of the offer, unless the purchaser or such person or entity undertook to effect such an offer or merger in the initial special tender offer.

Merger. The Israeli Companies Law permits merger transactions if approved by each party's board of directors and, unless certain requirements described under the Israeli Companies Law are met, by a majority vote of each party's shares, and, in the case of the target company, a majority vote of each class of its shares, voted on the proposed merger at a shareholders meeting.

For purposes of the shareholder vote, unless a court rules otherwise, the merger will not be deemed approved if a majority of the votes of shares represented at the shareholders meeting that are held by parties other than the other party to the merger, or by any person (or group of persons acting in concert) who holds (or hold, as the case may be) 25% or more of the voting rights or the right to appoint directors of the other party, vote against the merger. If, however, the merger involves a merger with a company's own controlling shareholder or if the controlling shareholder has a personal interest in the merger, then the merger is instead subject to the same special majority approval that governs all extraordinary transactions with controlling shareholders.

If the transaction would have been approved by the shareholders of a merging company but for the separate approval of each class or the exclusion of the votes of certain shareholders as provided above, a court may still approve the merger upon the request of holders of at least 25% of the voting rights of a company, if the court holds that the merger is fair and reasonable, taking into account the value of the parties to the merger and the consideration offered to the shareholders of the company.

Upon the request of a creditor of either party to the proposed merger, the court may delay or prevent the merger if it concludes that there exists a reasonable concern that, as a result of the merger, the surviving company will be unable to satisfy the obligations of the merging entities, and may further give instructions to secure the rights of creditors.

In addition, a merger may not be consummated unless at least 50 days have passed from the date on which a proposal for approval of the merger was filed by each party with the Israeli Companies Registrar and at least 30 days have passed from the date on which the merger was approved by the shareholders of each party.

Anti-takeover Measures Under Israeli Law

The Israeli Companies Law allows us to create and issue shares having rights different from those attached to our ordinary shares, including shares providing certain preferred rights with respect to voting, distributions or other matters and shares having preemptive rights. Upon the closing of our initial public offering, our Articles of Association were amended to provide that no preferred shares are authorized. In the future, if we do authorize, create and issue a specific class of preferred shares, such class of shares, depending on the specific rights that may be attached to it, may have the ability to frustrate or prevent a takeover or otherwise prevent our shareholders from realizing a potential premium over the market value of their ordinary shares. The authorization and designation of a class of preferred shares will require an amendment to our Articles of Association, which requires the prior approval of the holders of a majority of the voting power attaching to our issued and outstanding shares at a general meeting. The convening of the meeting, the shareholders entitled to participate and the majority vote required to be obtained at such a meeting will be subject to the requirements set forth in the Israeli Companies Law as described above in "—Voting Rights."

Transfer Agent and Registrar

The transfer agent and registrar for our ordinary shares is American Stock Transfer & Trust Company, LLC. Its address is 6201 15th Avenue, Brooklyn, New York 11219, and its telephone number is (800) 937-5449.

Table of Contents

Description of Warrants

We may issue warrants to purchase ordinary shares. Warrants may be issued independently or together with any other securities and may be attached to, or separate from, such securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a warrant agent. The warrant agent will act solely as our agent and will not assume any obligation or relationship of agency for or with holders or beneficial owners of warrants. The terms of any warrants to be issued and a description of the material provisions of the applicable warrant agreement will be set forth in the applicable prospectus supplement.

The applicable prospectus supplement will describe the following terms of any warrants in respect of which this prospectus is being delivered:

- the title of such warrants;
- the aggregate number of such warrants;
- the price or prices at which such warrants will be issued and exercised;
- the currency or currencies in which the price of such warrants will be payable;
- the securities purchasable upon exercise of such warrants;
- the date on which the right to exercise such warrants shall commence and the date on which such right shall expire;
- if applicable, the minimum or maximum amount of such warrants which may be exercised at any one time;
- if applicable, the designation and terms of the securities with which such warrants are issued and the number of such warrants issued with each such security;
- if applicable, the date on and after which such warrants and the related securities will be separately transferable;
- information with respect to book-entry procedures, if any;
- any material Israeli and United States federal income tax consequences;
- the antidilution provisions of the warrants, if any; and
- any other terms of such warrants, including terms, procedures and limitations relating to the exchange and exercise of such warrants.

Amendments and Supplements to Warrant Agreement

We and the warrant agent may amend or supplement the warrant agreement for a series of warrants without the consent of the holders of the warrants issued thereunder to effect changes that are not inconsistent with the provisions of the warrants and that do not materially and adversely affect the interests of the holders of the warrants.

15

Table of Contents

Description of Debt Securities

We may issue debt securities together with other securities or separately, as described in the applicable prospectus supplement, under an indenture to be entered into between ReWalk Robotics Ltd. and the trustee identified in the applicable prospectus supplement. The terms of the debt securities will include those stated in the indenture and those made part of the indenture by reference to the Trust Indenture Act of 1939, as in effect on the date of the indenture. The indenture will be subject to and governed by the terms of the Trust Indenture Act of 1939.

We may issue the debt securities in one or more series with the same or various maturities, at par, at a premium, or at a discount. We will describe the particular terms of each series of debt securities in a prospectus supplement relating to that series, which we will file with the SEC.

The prospectus supplement will set forth, to the extent required, the following terms of the debt securities in respect of which the prospectus supplement is delivered:

- the title of the series;
- the aggregate principal amount;
- the issue price or prices, expressed as a percentage of the aggregate principal amount of the debt securities;
- any limit on the aggregate principal amount;
- the date or dates on which principal is payable;
- the interest rate or rates (which may be fixed or variable) or, if applicable, the method used to determine such rate or rates;
- the date or dates from which interest, if any, will be payable and any regular record date for the interest payable;
- the terms and conditions upon which we may, or the holders may require us to, redeem or repurchase the debt securities;
- the denominations in which such debt securities may be issuable, if other than denomination of $1,000, or any integral multiple of that number;
- whether the debt securities are to be issuable in the form of certificated debt securities or global debt securities;

the portion of principal amount that will be payable upon declaration of acceleration of the maturity date if other than the principal amount of the debt securities;

the currency of denomination;

the designation of the currency, currencies or currency units in which payment of principal and, if applicable, premium and interest, will be made;

if payments of principal and, if applicable, premium or interest, on the debt securities are to be made in one or more currencies or currency units other than the currency of denominations, the manner in which exchange rate with respect to such payments will be determined;

if amounts of principal and, if applicable, premium and interest may be determined by reference to an index based on a currency or currencies, or by reference to a commodity, commodity index, stock exchange index, or financial index, then the manner in which such amounts will be determined;

the provisions, if any, relating to any collateral provided for such debt securities;

any events of default;

the terms and conditions, if any, for conversion into or exchange for ordinary shares;

any depositaries, interest rate calculation agents, exchange rate calculation agents, or other agents; and

the terms and conditions, if any, upon which the debt securities shall be subordinated in right of payment to other indebtedness of ReWalk Robotics Ltd.

Table of Contents

One or more debt securities may be sold at a substantial discount below their stated principal amount. We may also issue debt securities in bearer form, with or without coupons. If we issue discount debt securities or debt securities in bearer form, we will describe material U.S. federal income tax considerations and other material special considerations which apply to these debt securities in the applicable prospectus supplement.

We may issue debt securities denominated in or payable in a foreign currency or currencies or a foreign currency unit or units. If we do, we will describe the restrictions, elections, and general tax considerations relating to the debt securities and the foreign currency or currencies or foreign currency unit or units in the applicable prospectus supplement.

The debt securities of a series may be issued in whole or in part in the form of one or more global securities that will be deposited with, or on behalf of, a depositary identified in the prospectus supplement. Global securities will be issued in registered form and in either temporary or definitive form. Unless and until it is exchanged in whole or in part for individual debt securities, a global security may not be transferred except as a whole by the depositary for such global security to a nominee of such depositary or by a nominee of such depositary to such depositary or another nominee of such depositary or by such depositary or any such nominee to a successor of such depositary or a nominee of such successor. The specific terms of the depositary arrangement with respect to any debt securities of a series and the rights of and limitations upon owners of beneficial interests in a global security will be described in the applicable prospectus supplement.

Table of Contents

Plan of Distribution

The securities being offered by this prospectus may be sold:

through agents;

to or through one or more underwriters on a firm commitment or agency basis;

through put or call option transactions relating to the securities;

through broker-dealers (acting as agent or principal);

directly to purchasers, through a specific bidding or auction process, on a negotiated basis or otherwise;

through any other method permitted pursuant to applicable law; or

through a combination of any such methods of sale.

At any time a particular offer of the securities covered by this prospectus is made, a revised prospectus or prospectus supplement, if required, will be distributed which will set forth the aggregate amount of securities covered by this prospectus being offered and the terms of the offering, including the name or names of any underwriters, dealers, brokers or agents, any discounts, commissions, concessions and other items constituting compensation from us and any discounts, commissions or concessions allowed or re-allowed or paid to dealers. Such prospectus supplement, and, if necessary, a post-effective amendment to the registration statement on Form S-3 of which this prospectus is a part, will be filed with the SEC to reflect the disclosure of additional information with respect to the distribution of the securities covered by this prospectus. In order to comply with the securities laws of certain states, if applicable, the securities sold under this prospectus may only be sold through registered or licensed broker-dealers. In addition, in some states the securities may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from registration or qualification requirements is available and is complied with.

Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time.

The distribution of securities may be effected from time to time in one or more transactions, including block transactions and transactions on the NASDAQ Stock Market or any other organized market where the securities may be traded. The securities may be sold at a fixed price or prices, which may be changed, or at market prices prevailing at the time of sale, at prices relating to the prevailing market prices or at negotiated prices. The consideration may be cash or another form negotiated by the parties. Agents, underwriters or broker-dealers may be paid compensation for offering and selling the securities. That compensation may be in the form of discounts, concessions or commissions to be received from us or from the purchasers of the securities. Any dealers and agents participating in the distribution of the securities may be deemed to be underwriters, and compensation received by them on resale of the securities may be deemed to be underwriting discounts. If any such dealers or agents were deemed to be underwriters, they may be subject to statutory liabilities under the Securities Act.

Agents may from time to time solicit offers to purchase the securities. If required, we will name in the applicable prospectus supplement any agent involved in the offer or sale of the securities and set forth any compensation payable to the agent. Unless otherwise indicated in the prospectus supplement, any agent will be acting on a best efforts basis for the period of its appointment. Any agent selling the securities covered by this prospectus may be deemed to be an underwriter, as that term is defined in the Securities Act, of the securities.

If underwriters are used in a sale, securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale, or under delayed delivery contracts or other contractual commitments. Securities may be offered to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. If an underwriter or underwriters are used in the sale of securities, an underwriting agreement will be executed with the underwriter or underwriters, as well as any other underwriter or underwriters, with respect to a particular underwritten offering of securities, and will set forth the terms of the transactions, including compensation of the underwriters and dealers and the public offering price, if applicable. The prospectus and prospectus supplement will be used by the underwriters to resell the securities.

Table of Contents

If a dealer is used in the sale of the securities, we, the selling shareholders or an underwriter will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale. To the extent required, we will set forth in the prospectus supplement the name of the dealer and the terms of the transactions.

We or the selling shareholders may directly solicit offers to purchase the securities and may make sales of securities directly to institutional investors or others. These persons may be deemed to be underwriters within the meaning of the Securities Act with respect to any resale of the securities. To the extent required, the prospectus supplement will describe the terms of any such sales, including the terms of any bidding or auction process, if used.

Agents, underwriters and dealers may be entitled under agreements which may be entered into with us or the selling shareholders to indemnification by us against specified liabilities, including liabilities incurred under the Securities Act, or to contribution by us or the selling shareholders to payments they may be required to make in respect of such liabilities. If required, the prospectus supplement will describe the terms and conditions of the indemnification or contribution. Some of the agents, underwriters or dealers, or their affiliates may be customers of, engage in transactions with or perform services for us or our subsidiaries.

Under the securities laws of some jurisdictions, the securities offered by this prospectus may be sold in those jurisdictions only through registered or licensed brokers or dealers.

Any person participating in the distribution of securities registered under the registration statement that includes this prospectus will be subject to applicable provisions of the Exchange Act, and the applicable SEC rules and regulations, including, among others, Regulation M, which may limit the timing of purchases and sales of any of our securities by that person. Furthermore, Regulation M may restrict the ability of any person engaged in the distribution of our securities to engage in market-making activities with respect to our securities. These restrictions may affect the marketability of our securities and the ability of any person or entity to engage in market-making activities with respect to our securities.

Certain persons participating in an offering may engage in over-allotment, stabilizing transactions, short-covering transactions and penalty bids that stabilize, maintain or otherwise affect the price of the offered securities. These activities may maintain the price of the offered securities at levels above those that might otherwise prevail in the open market, including by entering stabilizing bids, effecting syndicate covering transactions or imposing penalty bids, each of which is described below.

A stabilizing bid means the placing of any bid, or the effecting of any purchase, for the purpose of pegging, fixing or maintaining the price of a security.

A syndicate covering transaction means the placing of any bid on behalf of the underwriting syndicate or the effecting of any purchase to reduce a short position created in connection with the offering.

A penalty bid means an arrangement that permits the managing underwriter to reclaim a selling concession from a syndicate member in connection with the offering when offered securities originally sold by the syndicate member are purchased in syndicate covering transactions.

These transactions may be effected on an exchange or automated quotation system, if the securities are listed on that exchange or admitted for trading on that automated quotation system, or in the over-the-counter market or otherwise.

If so indicated in the applicable prospectus supplement, we will authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase offered securities from us at the public offering price set forth in such prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. Such contracts will be subject only to those conditions set forth in the prospectus supplement and the prospectus supplement will set forth the commission payable for solicitation of such contracts.

Table of Contents

In addition, ordinary shares may be issued upon conversion of or in exchange for debt securities or other securities.

Any underwriters to whom offered securities are sold for public offering and sale may make a market in such offered securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice. The offered securities may or may not be listed on a national securities exchange. No assurance can be given that there will be a market for the offered securities.

Any securities that qualify for sale pursuant to Rule 144 or Regulation S under the Securities Act may be sold under Rule 144 or Regulation S rather than pursuant to this prospectus.

To the extent that we or the selling shareholders make sales to or through one or more underwriters or agents in at-the-market offerings, we or the selling shareholders will do so pursuant to the terms of a distribution agreement between us or the selling shareholders and the underwriters or agents. If we engage in at-the-market sales pursuant to a distribution agreement, we or the selling shareholders will sell our ordinary shares to or through one or more underwriters or agents, which may act on an agency basis or on a principal basis. During the term of any such agreement, we or the selling shareholders may sell ordinary shares on a daily basis in exchange transactions or otherwise as we agree with the underwriters or agents. The distribution agreement will provide that any ordinary shares sold will be sold at prices related to the then-prevailing market prices for our ordinary shares. Therefore, exact figures regarding proceeds that will be raised or commissions to be paid cannot be determined at this time and will be described in a prospectus supplement. Pursuant to the terms of the distribution agreement, we or the selling shareholders also may agree to sell, and the relevant underwriters or agents may agree to solicit offers to purchase, blocks of our ordinary shares or warrants. The terms of each such distribution agreement will be set forth in more detail in a prospectus supplement to this prospectus.

In the event that any underwriter or agent acts as principal, or broker-dealer acts as underwriter, it may engage in certain transactions that stabilize, maintain or otherwise affect the price of our securities. We will describe any such activities in the prospectus supplement relating to the transaction.

Offers to purchase the securities offered by this prospectus may be solicited, and sales of the securities may be made, by us or the selling shareholders directly to institutional investors or others, who may be deemed to be underwriters within the meaning of the Securities Act with respect to any re-sales of the securities. The terms of any offer made in this manner will be included in the prospectus supplement relating to the offer.

In connection with offerings made through underwriters or agents, we or the selling shareholders may enter into agreements with such underwriters or agents pursuant to which we receive our outstanding securities in consideration

for the securities being offered to the public for cash. In connection with these arrangements, the underwriters or agents may also sell securities covered by this prospectus to hedge their positions in these outstanding securities, including in short sale transactions. If so, the underwriters or agents may use the securities received from us under these arrangements to close out any related open borrowings of securities.

We or the selling shareholders may enter into derivative transactions with third parties or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with those derivatives, such third parties (or affiliates of such third parties) may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, such third parties (or affiliates of such third parties) may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of shares, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of shares. The third parties (or affiliates of such third parties) in such sale transactions will be underwriters and, if not identified in this prospectus, will be identified in the applicable prospectus supplement (or a post-effective amendment).

We or the selling shareholders may loan or pledge securities to a financial institution or other third party that in turn may sell the securities using this prospectus. Such financial institution or third party may transfer its short position to investors in our securities or in connection with a simultaneous offering of other securities offered by this prospectus or in connection with a simultaneous offering of other securities offered by this prospectus.

Table of Contents

Legal Matters

Certain legal matters with respect to Israeli law and with respect to the validity of the offered securities under Israeli law will be passed upon for us by Goldfarb Seligman & Co., Tel Aviv, Israel. Certain legal matters with respect to New York law and the validity of the offered debt securities under New York law will be passed upon for us by White & Case LLP, New York, New York.

Experts

The consolidated financial statements of ReWalk Robotics Ltd. and subsidiaries incorporated by reference in this prospectus by reference to ReWalk Robotics Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2015, as amended, have been audited by Kost Forer Gabbay & Kasierer, a member of Ernst & Young Global Limited, an independent registered public accounting firm, as set forth in their report therein, included therein and incorporated herein by reference. Such consolidated financial statements are incorporated by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

Where You Can Find More Information

We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities offered by this prospectus. However, as is permitted by the rules and regulations of the SEC, this prospectus, which is part of our registration statement on Form S-3, omits certain non-material information, exhibits, schedules and undertakings set forth in the registration statement. For further information about us and the securities offered by this prospectus, please refer to the registration statement.

We are subject to the information reporting requirements of the Exchange Act applicable to U.S. domestic issuers and, as such, file annual, quarterly and current reports, proxy statements and other information with the SEC. Prior to January 1, 2016, we were subject to the information reporting requirements of the Exchange Act applicable to foreign private issuers. As a foreign private issuer, we were exempt from the rules under the Exchange Act related to the furnishing and content of proxy statements and we were not required under the Exchange Act to file annual, quarterly and current reports and financial statements with the SEC as frequently or as promptly as U.S. companies whose securities are registered under the Exchange Act. However, we filed with the SEC an annual report on Form 20-F for the year ended December 31, 2014 containing financial statements audited by an independent registered public accounting firm, and we submitted to the SEC, on Form 6-K, unaudited quarterly financial information for the first three quarters of the fiscal year and other current reports on Form 6-K.

You may read and copy the registration statement, including the related exhibits and schedules, and any document we file or have filed with the SEC without charge at the SEC's public reference room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, N.E., Room 1580, Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. The SEC also maintains an Internet website that contains reports and other information regarding issuers that file electronically with the SEC. Our filings with the SEC are also available to the public through the SEC's website at *http://www.sec.gov.*

We maintain a corporate website at *www.rewalk.com.* Information contained on, or that can be accessed through, our website does not constitute a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Table of Contents

Incorporation of Certain Documents by Reference

The SEC allows us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to other documents which we have filed or will file with the SEC. We are incorporating by reference in this prospectus the documents listed below and all amendments or supplements we may file to such documents:

- our annual report on Form 10-K for the fiscal year ended December 31, 2015 filed with the SEC on February 29, 2016 (including portions of our Definitive Proxy Statement on Schedule 14A filed with the SEC on April 7, 2016, to the extent specifically incorporated by reference therein), as amended by the Form 10-K/A filed with the SEC on May 5, 2016;

- our current report on Form 8-K filed with the SEC on January 13, 2016, the information under Item 5.02 of our current report on Form 8-K filed with the SEC on April 5, 2016 and the information under Item 1.01 and in Exhibits 10.1 and 10.2 under Item 9.01 of our current report on Form 8-K filed with the SEC on January 4, 2016; and

- the description of our ordinary shares contained in our registration statement on Form 8-A (File No. 001-33612) filed with the SEC on September 2, 2014, including any subsequent amendment or any report filed for the purpose of updating such description.

In addition, we incorporate by reference into this prospectus any filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial registration statement of which this prospectus is a part and prior to the effectiveness of the registration statement, and any filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act from the date of this prospectus until the termination of this offering (in each case, except for the information furnished under Item 2.02 or Item 7.01 in any current report on Form 8-K). Notwithstanding the foregoing, no information is incorporated by reference in this prospectus or any prospectus supplement hereto where such information under applicable forms and regulations of the SEC is not deemed to be "filed" under Section 18 of the Exchange Act or otherwise subject to the liabilities of that section, unless we indicate in the report or filing containing such information that the information is to be considered "filed" under the Exchange Act or is to be incorporated by reference in this prospectus or any prospectus supplement hereto.

Certain statements in and portions of this prospectus update and replace information in the above-listed documents incorporated by reference. Likewise, statements in or portions of a future document incorporated by reference in this prospectus may update and replace statements in and portions of this prospectus or the above-listed documents.

We will provide you without charge, upon your written or oral request, a copy of any of the documents incorporated by reference in this prospectus, other than exhibits to such documents which are not specifically incorporated by

reference into such documents. Please direct your written or telephone requests to ReWalk Robotics Ltd., 33 Locke Drive, Marlborough, MA 01752, Attn: Investor Relations, or ir@rewalk.com, telephone number 508-251-1154.

Table of Contents

Enforceability of Civil Liabilities

We are incorporated under the laws of the State of Israel. It may be difficult to obtain service of process within the United States upon us, upon our directors and officers, some, but less than a majority, of whom reside outside of the United States, and upon the Israeli experts named in this prospectus, who reside outside of the United States. Furthermore, because a majority of our assets and some, but less than a majority of, our directors and officers are located outside of the United States, any judgment obtained in the United States against us, certain of our directors and officers or the Israeli experts name herein may be difficult to collect within the United States.

We have been informed by our legal counsel in Israel, Goldfarb Seligman & Co., Tel Aviv, that it may be difficult to assert U.S. securities laws claims in original actions instituted in Israel. Israeli courts may refuse to hear a claim based on a violation of U.S. securities laws because Israel is not the most appropriate forum in which to bring such a claim. In addition, even if an Israeli court agrees to hear a claim, it may determine that Israeli law and not U.S. law is applicable to the claim. If U.S. law is found to be applicable, the content of applicable U.S. law must be proven as a fact which can be a time-consuming and costly process. Matters of procedure will also be governed by Israeli law.

We have irrevocably appointed our subsidiary, ReWalk Robotics, Inc., as our agent to receive service of process in any action against us in any United States federal or state court arising out of this offering or any purchase or sale of securities in connection with this offering. Subject to specified time limitations and legal procedures, Israeli courts may enforce a non-appealable foreign judgment in a civil matter, provided that, among other things:

- the judgment is obtained after due process before a court of competent jurisdiction, according to the laws of the foreign state in which the judgment is given and the rules of private international law currently prevailing in Israel;
- the prevailing law of the foreign state in which the judgment is rendered allows for the enforcement of judgments of Israeli courts;
- adequate service of process has been effected and the defendant has had a reasonable opportunity to be heard and to present his or her evidence;
- the judgment is not contrary to the public policy of Israel, and the enforcement of the civil liabilities set forth in the judgment is not likely to impair the security or sovereignty of Israel;
- the judgment was not obtained by fraud and does not conflict with any other valid judgment in the same matter between the same parties;
- an action between the same parties in the same matter was not pending in any Israeli court at the time the lawsuit was instituted in the foreign court; and

the judgment is enforceable according to the laws of Israel and according to the law of the foreign state in which the relief was granted.

If a foreign judgment is enforced by an Israeli court, it generally will be payable in Israeli currency, which can then be converted into non-Israeli currency and transferred out of Israel. Traditionally, in an action before an Israeli court to recover an amount in a non-Israeli currency, the Israeli court issues a judgment for the equivalent amount in Israeli currency at the rate of exchange in force on the date of the judgment, but the judgment debtor may make payment in foreign currency. Pending collection, the amount of the judgment of an Israeli court stated in Israeli currency ordinarily will be linked to the Israeli consumer price index plus a per annum statutory rate of interest set on a quarterly basis by Israeli regulations. Judgment creditors must bear the risk of unfavorable exchange rates. The trend in recent years has increasingly been for Israeli courts to enforce a foreign judgment in the foreign currency specified in the judgment, in which case there are also applicable rules regarding the payment of interest.

Table of Contents

ReWalk Robotics Ltd.

19,000,000 Ordinary Shares

PROSPECTUS SUPPLEMENT

H.C. Wainwright & Co.

February 21, 2019