UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

FORM 6-K

Report of Foreign Private Issuer Pursuant to Rule 13a-16 or 15d-16 under the Securities Exchange Act of 1934

For the Month of January 2010

CAMTEK LTD. (Translation of Registrant's Name into English)

Ramat Gavriel Industrial Zone
P.O. Box 544
Migdal Haemek 23150
ISRAEL
(Address of Principal Corporate Offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F x Form 40-F o

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities and Exchange Act of 1934.

Yes o No x

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SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CAMTEK LTD. (Registrant)

By: /s/ Mira Rosenzweig

Mira Rosenzweig, Chief Financial Officer

Dated: January 5, 2010

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CAMTEK RECEIVES FIRST ORDER FOR ITS NEW FRONT-END SEMICONDUCTOR INSPECTION SYSTEM – THE GANNET

Camtek's GANNET System Chosen by a leading Asian Integrated Device Manufacturer Combines Advanced Performance with Cost Efficiency

MIGDAL HAEMEK, Israel – January 5, 2010 – Camtek Ltd. (NASDAQ and TASE: CAMT) ("Camtek" or the "Company"), today announced its first sale, during December 2009, of the Gannet, Camtek's first new Automatic Optical Inspection (AOI) system for the front-end semiconductor industry, to a leading Asian Integrated Device Manufacturer (IDM).

Camtek's GANNET is a new AOI system designed to provide solutions to a variety of processes in the front-end market, offering a competitive advantage to customers. Designed to address the global trend for multiple resolution inspection at a low cost of ownership, the GANNET system provides high sensitivity defect detection and rapid setup combined with high throughput capabilities.

The Gannet recently completed a successful beta test at a fab in Israel and has now been released for commercial sales.

By leveraging Camtek's accumulated experience as one of the leaders in the semiconductor back-end inspection market, the Gannet is expected to play an important role in a broad range of front-end semiconductor inspection processes such as lithography and CMP, as well as other processes.

Mr. Rafi Amit, Camtek's CEO commented: "The Gannet takes advantage of our accumulated knowledge and expertise in the back-end semiconductor inspection market, and leverages it into the front end inspection market, with almost the same cost structure. By relying on our accumulated experience in developing and building AOI systems, our broad customer base, as well as our leading market position, we have further expanded our addressable markets by offering a new advanced front end inspection system. This new system addresses the market need for cost-effective inspection without compromising on detection capability of fine defects. The estimated annual global size of this new addressable market for Camtek, the front-end semiconductor inspection, is estimated to be in the range of \$150-\$170 million per year."

Mr. Amit concluded: "We are very pleased with our selection by this market leader. For Camtek, this is a milestone, culminating years of development and hard work. We look forward to further strengthening and growing our standing in the semiconductor AOI market, and reaping the rewards of this new and major growth driver, for years to come."

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ABOUT CAMTEK LTD.

Camtek Ltd provides automated solutions dedicated for enhancing production processes and yield, enabling our customers new technologies in three industries; Semiconductors, Printed Circuit Board (PCB) and IC Substrates.

Camtek addresses the specific needs of these industries with dedicated solutions based on a wide and advanced platform of technologies including intelligent imaging, image processing, ion milling and digital material deposition. Camtek's solutions range from micro-to-nano by applying its technologies to the industry-specific requirements.

This press release is available at www.camtek.co.il.

This press release may contain projections or other forward-looking statements regarding future events or the future performance of the Company. These statements are only predictions and may change as time passes. We do not assume any obligation to update that information. Actual events or results may differ materially from those projected, including as a result of changing industry and market trends, reduced demand for our products, the timely development of our new products and their adoption by the market, increased competition in the industry, price reductions as well as due to risks identified in the documents filed by the Company with the SEC.

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