

DR. LEONID KASHCHENEVSKY

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EMPLOYMENT:

LK Consulting, ISRAEL

October 1, 2019 to present

Founder and Sole Owner of Company

Company provides consulting and Technology Transfer in the field of Ultra-High Speed and Ultra-High Accuracy Hydrostatic Spindles. Developed and designed several hydrostatic spindles for the company TDM (Switzerland). Was developed and designed an ultra-high precision hydrostatic spindle for SUSTECH university in China. Provided 6 lectures to PhD students in SUSTECH university. Was invited to give the 4 hours lecture on hydrostatic bearings theory during the annual conference of American Society for Precision Engineering (ASPE).

TDM SA, Motor Spindle Technology, SWITZERLAND

March 2014 to March 2019

Manager of Ultra Precision Spindle Department

Responsibilities included development, design, manufacturing, theoretical analysis and testing of ultra-high precision hydrostatic spindles and further market development for these spindles.

During the tenure were established business contacts with more than 30 potential customers in the USA, Europe, Japan, Korea and China.

Have been received Purchase Orders from some leading machine tools manufacturers from Japan, USA, Spain, Switzerland, Germany, Korea and China.

During this time hydrostatic spindles have been exhibited at machine tool shows GRINDTEC (Germany), BIMU (Italy), JIMTOF (Japan), EMO (Italy) and EMO (Germany).

Has been developed a wide range of high-speed hydrostatic spindles with high frequency axial oscillations for grinding and milling applications.

Has developed a range of ultra-high accuracy hydrostatic spin tables.

Has developed a new theoretical approach to calculate required preloads for motor integration in high-speed spindles.

Has developed an ultra-high accuracy 40,000 RPM special hydrostatic spindle for razor blades grinding. Spindles have been sold to a South Korean company.

Has been developed a special hydrostatic spindle for hard turning of large components. Spindles have been sold to Spain machine tool manufacturer.

Has been developed a special hydrostatic work head spindle for fuel injectors components grinding.

Were developed an air static Headstock and Tailstock for laser applications. Spindles were sold to a Swiss company. Has been developed a theoretical approach to estimate stiffness and stability for these spindles.

A hydrostatic milling spindle for ultra-high precision milling of dies and molds made of solid carbide was developed. Spindle has been sold to one of Japan's leading machining centers manufacturers.

Was developed a 140,000 RPM spindle for a Japanese manufacturer of ultra high precision machine tools.

ELKA Precision LLC, USA

2007 to February 2014

Co-owner, Founder and President

Company developing prototyping and manufacturing unique hydrostatic spindles that effectively combines ultra-high speed and ultra-high precision. The patented technology is particularly valuable for mass production of small components requiring extreme accuracy as fuel injectors, precision bearings, fiber optics connectors, optical lenses etc. Product was delivered to a number of leading machine tool builders and end users in Europe and Asia.

In 2011 and in 2012, ELKA Precision participated in the largest world machine tool shows in Hannover (Germany) and in Tokyo (Japan). Sales and service agreements have been made with agents in Germany, Switzerland, Japan, China and Taiwan.

Seven patent applications were submitted.

Four different grants were received from Federal and Connecticut agencies.

PRECITECH-AMETEK, USA

2006 to 2007

Chief Researcher of Hydrostatic Spindles

Responsibilities included development, design and manufacturing, assembling and testing of ultra-high precision hydrostatic spindles for large copper drums diamond turning. These spindles showed extremely high rotational accuracy and excellent cutting performance. One paper has been published.

GROS-ITE Precision Spindles, USA

2003 to 2006

Hydrostatic Spindles Product Manager

Responsibilities included development, design, and manufacturing of ultra-high precision hydrostatic spindles, and further market development for these spindles. Responsibilities included development, design, and manufacturing of ultra-high precision hydrostatic spindles,

and further market development for these spindles. During tenure, personally developed, assembled and tested numerous hydrostatic spindles including:

- Hydrostatic Spindle for Jig Grinding Machine built by Moore Precision Tools (USA). Spindle has been successfully integrated in machines and has increased grinding accuracy 500% to 600%. Moore is using this spindle as a standard component for customers who have extremely high requirements for grinding accuracy;
- Work head grinding spindle for grinding machines used for fuel injectors built by BAHMUELLER (Germany). Prototype was successfully tested in Germany at customer's facilities. Since 2004 is used as a standard component for BAHMUELLER'S grinding machines;
- Wheel head grinding spindle for Telescope Lenses Grinding Machine at Cranfield University (UK). This machine was built to grind lenses for world biggest telescope in Europe.
- High speed wheel head grinding spindle for machine built by Nanotechnology Systems (USA), one of the world's most accurate machines for optics grinding for customer in UK.
- Ultra-High speed wheel grinding spindle for internal grinding of valve seats for fuel injectors;
- Large hydrostatic spin table for special machine built by Moore to grind long shafts for vessel engines with extremely tight requirements for shaft roundness.

Moore Tool Company, USA
Hydrostatic Spindles Product Manager

2000 to 2003

During this time a new generation of ultra-high speed hydrostatic spindles was developed. Received three patents and one paper was published. Hydrostatic spindles were demonstrated at International Machine Tool Shows in Chicago, Hannover (Germany) and Tokyo (Japan).

Personally developed, assembled, and tested hydrostatic spindles for companies as ZEISS (Germany), Hitachi Seiki (Japan), YASDA (Japan), General Electric (USA) and others.

BOOLAN Industries, ISRAEL
Technical Director, Co-founder and Co-owner

1995 to 1999

During this time the engineering team under my management developed more than twenty new types of hydrostatic spindles for turning, milling and grinding applications. Spindles have been shipped to customers as Toshiba (Japan), Bosch (Germany), Cranfield Precision (UK) and Nanotechnology Systems (USA).

ISCAR Ltd, ISRAEL

1991 to 1995

Project Manager

Worked as project manager for one of the world's largest manufacturers of high precision cutting tools.

KOMUNARAS Precision Machine, LITHUANIA

1973 to 1990

Manager of Machine Tool Laboratory

During this tenure, I was employed in increasingly responsible positions starting from Engineer/Designer to Manager of Machine Tool Laboratory. Responsibilities included assembling and testing of prototype Machine Tools, developing design and manufacturing of hydrostatic spindles for ultra-high precision horizontal boring machines.

EDUCATION

- **PHD in Metal Machining** **1981**
Experimental Research Institute for Machine Tools (ENIMS), Moscow
- **Master Degree in Theoretical Physics – First Class Diploma** **1973**
Vilnius State University
- **High School Matriculation – Awarded Gold Medal** **1968**
School #6 in Vilnius, Lithuania

PUBLICATIONS

Published more than 30 papers in professional journals and magazines, primarily related to hydrostatic spindles and slides, and non-linear oscillations theory.

PATENTS

More than 25 patents have been received. The last 4 have been received in the United States. As founder of ELKA Precision, have applied for seven provisional patents and six non-provisional patents in two key areas: Hydrostatic Spindles and Hydrostatic Slides.

AWARDS

Phase I – SBIR Award from Defense Logistics Agency, DLA **2007**

To develop an ultra-high precision and speed hydrostatic spindle with axial oscillations of rotating shaft. Contract W9113M-08-C-0038

Phase II - SBIR Award, DLA **2008**

To manufacture a prototype spindle theoretically developed in Phase I and to test it. Contract W9113M-09-C-0047

Innovation Pipeline Company to Watch Award **2009**

Connecticut Technology Council

SBIR Founding deal of the Year **2009**

Connecticut Technology Council	
Small Business Innovation and Diversification Program Grant	2010
Connecticut SBIR Office and Connecticut Innovations	
Small Business Incubator Program Grant	2011
Connecticut Center for Advanced Technology	
Grant form Connecticut Department for Economic and Community Development	2012
May 2022	