

Η ΤΟΡΟΟΓ

Our Business



Topcon was established in September 1932 when the K. Hattori & Co., Ltd. (currently SEIKO HOLDINGS CORPORATION) surveying instruments division The corporate name was changed to Topcon Corporation in April 1989.

Founded in the optical technology we have cultivated since our founding, we have expanded our business domains through M&A and alliances. We have produced numerous world firsts and world No. 1 products.

Topcon operates in three segments, the Positioning Business, which uses high-precision GNSS positing technology to achieve the automation of civil engineering construction and farming, the Smart Infrastructure Business, which applies the surveying technology we have developed since our founding in the fields of infrastructure development and structural maintenance and management, and the Eye Care Business, which offers advanced solutions in the field of ophthalmology. In the fields of healthcare, agriculture and infrastructure, the basic foundations of people lives, Topcon exists as a company that offers solutions that are beneficial to humanity that continues to grow with society.

Positioning

The mission of the Positioning business is simple: Automate the two largest industries in the world construction and agriculture. Our GNSS, machine control, and precision agriculture systems combined with Topcon Enterprise Solutions - our collaborative, cloudenabled data and site management software systems are making this a reality.

The technological background is based on the machine control technology purchased in 1994 and the GPS technology we acquired in 2000.

Our "World's First" technologies, which include highspeed precision grading, hybrid GNSS positioning systems with sub-centimeter accuracy, and advanced crop sensing and nutrition application control, are setting new standards for productivity and conservation.



Η ΤΟΡΟΟΓ

GNSS



Topcon GNSS instruments and software continue to improve the productivity and meet the growing demands of the surveying, civil engineering, construction, and other precision users worldwide. Our GNSS receivers were the world's first to fully employ multi-constellation reception and now are the only ones to use Universal Tracking channel technology, automatically ensuring optimum reception of all GNSS satellite signals.

IT Agriculture

Our IT agriculture solutions bring efficiency and productivity to virtually every phase of the farming operation, which help alleviate global food supply concerns and improve environmental quality with waste reduction. It is our objective to bring IoT (Internet of Things) solutions into the ag business that will link all the mechanics of farming to provide a workflow automation framework.

Topcon IT agriculture solutions span the scope of the entire farming operation to provide the tools necessary to achieve sustainable and profitable agriculture.



Construction



Construction automation depends upon entails Topcon high-precision GPS, total stations, motion sensors and equipment control technology to enable grading and excavation based on pre-configured 3D design data that creates accurate work regardless of the operator's level of skill. Automation increases productivity, conserves energy, resolves labor shortages, reduces costs, and contributes to reducing the environmental load by reducing CO2 emissions. The use of IT also enables realtime project management and data sharing at every phase of a project.

Topcon machine control technology is driving automation throughout the civil engineering market..





ΤΟΡΟΟΛ

Technology Center, Moscow





"TTC" Topcon's headquarters for development of Precise Positioning GNSS/Integrated Solutions







ΤΟΡCON

TTC, Moscow 18 Years of Engineering Excellence

- Over 200 engineers, scientists, programmers, and mathematicians
 - 3 Doctors of Science (highest Russian scientific achievement, above PhD)
 - 23 PhD's
 - 130+ Master degrees in engineering, programming, and science
 - 5 International MBA's
- 121 patents issued since founding in 2001
- 6 TTC leading engineers currently lecturing at universities and institutes
- World recognized leaders in industry committees and working groups

🗲 ΤΟΡΟΟΝ

Why Moscow, Russia?



Moscow: Capital of World Class Technical Education



All tech schools

Moscow State University of Informatics and Instrumentation Russian State Technological University (Tsiolkovskogo) Moscow State Institute of Electronics and Mathematics Moscow State Institute of Electronics and Mathematics Moscow State Technological University (MAMI) Moscow State Technological University (STANKIN) Moscow State Geological Prospecting University Russian Chemical-Technological University (Mendeleev)



TTC Technology

Contraction Man Man Man Man Man Market



TTC Technology

TTC Unique Innovative Technology: Software



1998

•

•

TTC Unique Innovative Technology: ASIC Design



Η ΤΟΡΟΟΛ

TTC Technology

TTC Unique Innovative Technology: Proprietary Radios





2011

TTC Unique Innovative Technology: Antennas





Patents

TTC Unique Innovative Technology: Antennas



Time



TTC Facilities: Tools and Environment for Innovation

- 3000 square meters of state-of-the-art engineering offices
 - Recently acquired additional 800 square meters
 - Currently undergoing complete renovation and modernization
 - Mix of open areas, quiet workspace, and collaborative centers
- Over \$500k invested annually in equipment, software, and tools
 - In-house anechoic chamber, 3-D printer, temperature chamber
 - GPS/Glonass/Galileo signal simulators
 - Bulldozer hydraulic simulator
- Located in the heart of Moscow with easy access to airports and amenities
- Stress free work environment to promote creativity

Η ΤΟΡCOR

TTC Offices/Labs



ΤΟΡCON

TTC Machine Control Test Site: Immediate Results

- Located at Moscow Region Ag Institute
 - A mere 30km from TTC's central office
 - Ample land for construction and agriculture machine testing
 - Multiple simulated environments and landscapes
 - Garages include laboratory, lecture/meeting hall, repair facilities
- Vehicles are added as projects grow. Current vehicles include
 - 2 bulldozers
 - 2 agriculture tractors
 - Skidsteer with excavator and grader attachments
 - Excavator integrated cabin
 - Minivan mobile laboratory
- Ideal grounds for investigative, reliability, and verification testing
- Access to institute's facilities for larger meetings and conferences



TTC MC Test Site

TTC Machine Control Test Site: AG Testing











TTC MC Test Site

TTC Machine Control Test Site: Construction Testing



ΤΟΡΟΟΛ

TTC GNSS Test Range

TTC Remote GNSS Test Range, Concordia Italy: Unrivaled State-of-the Art Compound

- Located in Concordia, Italy
 - Year round testing with easy access to Bologna, Verona, Milan
 - Center for testing, demonstrations, and calibration measurements
- Unique GNSS test facilities
 - One-of-a-kind antenna calibration range
 - One-of-a-kind GNSS test track with remote accessibility and control
 - One-of-a-kind robotic antenna calibration
- Convenient infrastructure for machine control testing
 - Easy access to variety of vehicles from multiple manufacturers
 - In-house testing expertise

ΤΟΡΟΟΓΛ

TTC GNSS Test Facility

Concordia Test Range: GNSS Test Track

- Performance, comparative and accuracy testing in kinematic mode;
- Track loop length is 480 m, carriage speed may range from 0.1-10 mps;
- Controlled from local Control Center, or fully remotely;
- Carries up to 8-10 GNSS receivers simultaneously;



ΤΟΡΟΟΓΛ

Concordia Test Range: Antenna Calibration Field

- 7 permanent geodetic monuments with fortified stability;
- Less than 0.1 mm centering accuracy with precise and adjustable heads;
- Adaptable to any GNSS antenna or other geodetic instrument;



ΤΟΡΟΟΓΛ

TTC GNSS Test Facility

Concordia Test Range: Robot Arm

- Robotic facility for absolute antenna calibration;
- Remotely controlled Staubli TX90 robot;
- Most favorable conditions for offsets and PCV determination;



Contact Us

Svetlana Zhivaykina HR Senior Manager

szhivaykina@topcon.com

For more information about us please visit https://www.topconpositioning.com/ru

