



Drilling motors and tools  
**SOKOL**

## OUR COMPANY

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Right from the start in 2006 SOKOL` has been engineering and developing positive-displacement motors for use in today's most complex and challenging drilling conditions.

With large manufacturing base and service center, equipped with advanced equipment, CNC machining centers and quality control measure laboratory SOKOL can deliver over 600 motors, 1200 rotors and 900 stators each year to ship throughout Russia, CIS countries and abroad. By having a direct dialog with the drilling companies and understanding their problems and needs, we successfully developed and implemented new engineering solutions and gained the trust of our partners.

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# HIGH-PERFORMANCE MUD MOTORS

[www.Sokol-Motors.com](http://www.Sokol-Motors.com)

## WIDE PRODUCT RANGE

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SOKOL provides high-performance and reliable technologies to our value customers.

Research and Engineering Departments are continuously working to improve and develop new products to withstand your most demanding applications.

The wide range of our products include:

- | Drilling motors
  - | Power sections
  - | Rotors and Stators
  - | Jars
  - | Shock tools
  - | Damp and Float valves
  - | Column filters
  - | Centering elements
  - | Drill stem subs and Safety joints
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## NEW CAPABILITIES

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Conventional and unconventional drilling projects are getting more and more difficult and SOKOL engineering team successfully takes this challenge by finding innovative, reliable and cost-effective solutions.

Our high-performance CNC machinery from leading global producers give new manufacturing opportunities and help us meet the highest industry requirements for the variety of applications in directional and horizontal drilling.

The latest technologies include: new stator rubber compounds, special steel grades from aerospace industry, new coatings for all types of mud, latest design techniques and modern testing equipment.

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# LATEST TECHNOLOGIES

# STATOR PRODUCTION

## High-quality steel

Cold drawn / Hot rolled seamless steel tubes of 4130 / 4140 steel grades from the world leading steel mills

## Industry-standard Injection process

High-performance horizontal injection molding machine provides fast, reliable and precise injection process

## High-quality rubber compounds

Developed with Russian Academy of Science with high physical and mechanical properties from the world leading producers

## State-of-the-art Rubber laboratory

Equipped with Prescott instruments guarantees each stator meets the highest standard requirements

## PRECISION-ENGINEERED STATORS

SOKOL runs the latest long stator production line covering all the stator sizes and lengths for your specific project applications.

Stators are available with Nitrile Butadiene Rubber (NBR) for standard requirements and Hard Rubber (HR) for higher torque requirements. Stators with a uniform elastomer profile are also available to give you even more ultimate performance. Every stator is carefully verified by proprietary contour measurement instruments and industry-standard software. Our well equipped service center facility provides reline services in a timely and cost effective manner.

SOKOL has large inventory and experienced personnel to help you with any of your service concerns and provide immediate delivery.

## PRECISION-ENGINEERED ROTORS

CNC multiaxis machines which combine sidemilling and peeling operations provide SOKOL with the latest and reliable technology to machine high-precision Rotors and Stator-cores exactly to the design specification within  $\pm 0.001''$  and reduced cycle times by 30-40%.

Special software package used to calculate the geometries and to design any combination of Rotor and Stator in order to get the best fitting drilling motor.

# ROTOR PRODUCTION

### High-quality steel

Rotors are made of 17-4PH or AISI 420 corrosion resistant steel grades from the world leading steel mills

### CNC multiaxis machines

Guarantees the requirements of design specification within  $\pm 0.001''$  and reduce cycle time by 30-40 %. The better profile tolerances the better drill motor performance.

### Special software package

To calculate the geometries and to design any combination of Rotor and Stator in order to get the best fitting drilling motor

### Corrosion-resistant coatings

Used in salt-saturated and aggressive muds for ultimate performance and longer operation time

# PROTECTIVE COATINGS

## NEW COATINGS SOLUTIONS

Depending on your drilling project requirements SOKOL can offer Hard Chrome Plating or Tungsten Carbide coating by High-Velocity-Oxygen-Fuel (HVOF) / High-Velocity-Air-Fuel (HVOF) process.

Electro-deposited Chrome is extremely hard, with very low coefficient of friction, high corrosion and wear resistance. It is a cost-effective solution for chloride-free drilling fluids.

HVOF / HVOF coatings are the densest and most well-bonded coatings available by thermal spray, which give the ultimate performance in salt-saturated and aggressive muds. Such coatings have proven field data showing extended rotor and stator life solving wash-out problem with more consistent Rate of Penetration (ROP).

## HEAT TREATMENT CAPABILITIES

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Our partnership with the expert provider of special heat treatment services help us to handle all of our heat treatment needs in accordance with our unique specifications. The main processes include Annealing, Normalizing, Quench & Temper, Thermal Stress Relieving and others.

We carefully manage our heat treatment processes and control all the parameters to guarantee high reliability and performance of our products.

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# HEAT TREATMENT

### Annealing

Alters the physical and sometimes chemical properties of a material to increase its ductility and reduce its hardness, making it more workable

### Normalizing

Makes the steel harder and stronger than when it is annealed. Improves machinability, grain structure refinement, homogenization and modification of residual stresses

### Quench & Temper

Achieves an extremely fine-grained and homogeneous microstructure. Quenched and tempered steel is characterized by high strength and good ductility with improved toughness

### Thermal Stress Relieving

Removes residual stresses, restores mechanical properties of the steel and prevents distortion

# SUPPLY CHAIN POLICY

## CHOOSING THE RIGHT SUPPLIER

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We know it is important to build a strong, fully integrated supply chain and developing and nurturing partnerships with our key suppliers is a central part of SOKOL strategy.

At SOKOL all the raw materials from our suppliers are subjected to an intense and systematic quality control in our laboratory. The raw materials used in our products go through strict testing to ensure that they meet the latest industry standards and requirements of our engineering team.

What do we look for in a supplier?

- | Reliability
  - | Quality
  - | Value for money
  - | Strong service and clear communication
  - | Financial security
  - | A Partnership approach
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## IN TIME SERVICE

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The service center of Sokol is equipped with advanced equipment for the repair and maintenance of mud motors, jars, shock tools, valves and other drilling tools. Here is the list of services Sokol provides at the moment:

- | Maintenance, repair and testing of drilling motors, jars, shock tools, valves and drill stem elements
  - | Inspection of new and repair drilling motors, jars and shock tools
  - | Operational support of drilling motors, jars, shock tools and other drilling tools
  - | Repair and redress of centering elements;
  - | Repair of drill stem connections and drill pipe connections
  - | Repair and inspection of non-magnetic drill stem elements and MWD
  - | Visual, ultrasonic, magnetic particle and dye penetrant inspection methods
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# SERVICE CENTER

## QUALITY ASSUARANCE

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Quality is important to our business because we value our customers. We strive to provide our customers with quality, reliable and high performance products and services which meet and even exceed their expectations.

SOKOL is committed to continuous improvement and has established a Quality Management System which provides a framework for measuring and improving our performance.

Though the General Director has ultimate responsibility for Quality all employees have a responsibility within their own areas of work so helping to ensure that Quality is embedded within the whole of the company.

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# QA/HS&E

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## HS&E

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The Health, Safety and Environment Policy (HS&E) is just as important to our success as operational and financial performance, government relations, ethical behavior, corporate reputation, social responsibility, customer focus and employee involvement and commitment.

It is a top priority our processes and practices are in line with HS&E standards, our people practice HS&E compatible operating procedures with awareness of applicable requirements, and we avoid any pollution to the environment reducing risks in general with no damage in the event of accident. We shall strive to make our facilities safer and better places in which to work and our attention to detail and focus on HS&E will ensure high standards of performance.

SOKOL is committed to a process of continuous improvement in all we do and to the adoption of international industry standards and codes wherever practical.

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# OUR TEAM





## READY FOR CHALLENGE

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SOKOL is an independent and trusted partner who understands your needs and will provide the expert advice every step of the way. We are that reliable drilling motors and tools provider that will make everything or even more to guarantee you meet your goals. All orders at SOKOL start with the design phase and are closely followed through delivery. Our sales team, manufacturing and service experts will get you the required product on time and exactly in accordance with your specification. You can count on us to not only meet all of your expectations, but to regularly surpass them.

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