



## GENERAL CATALOG



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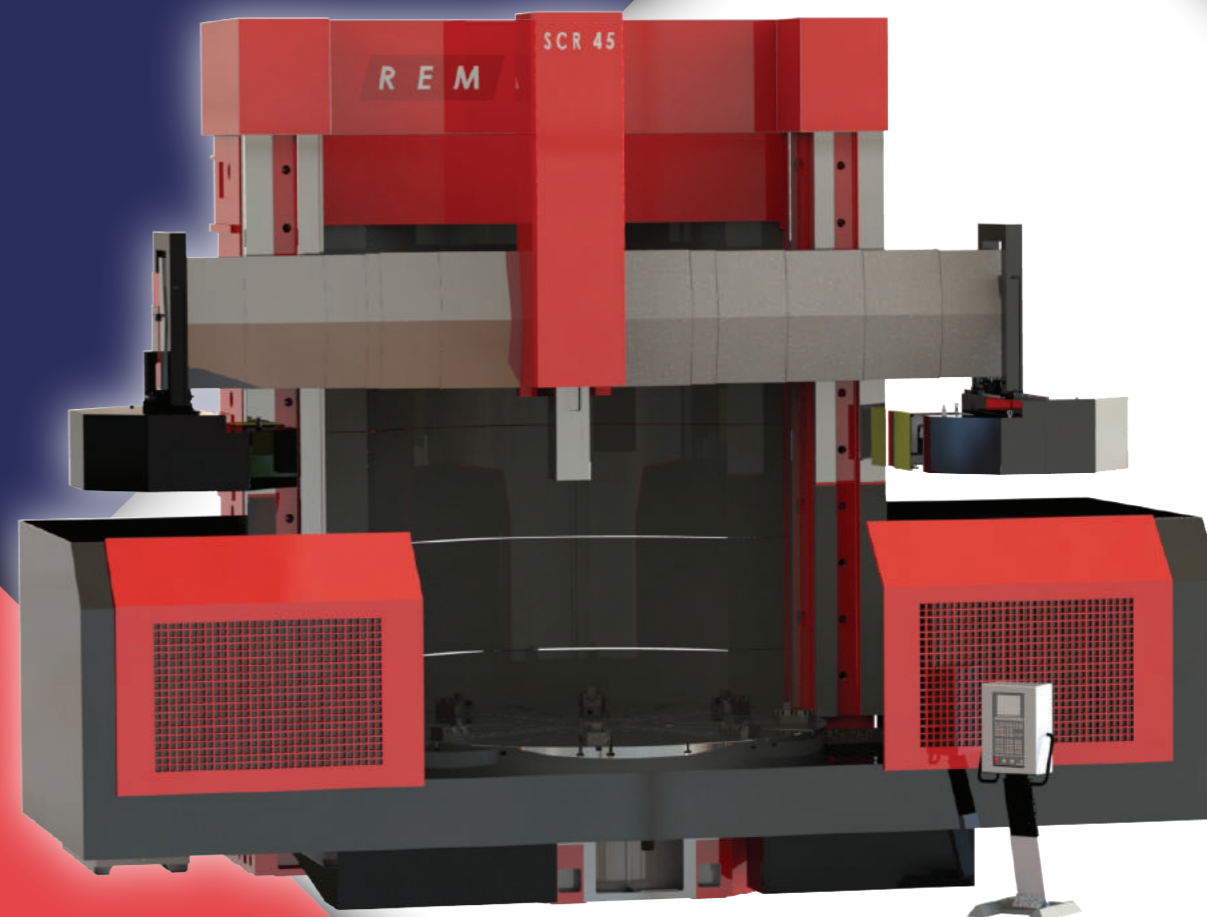


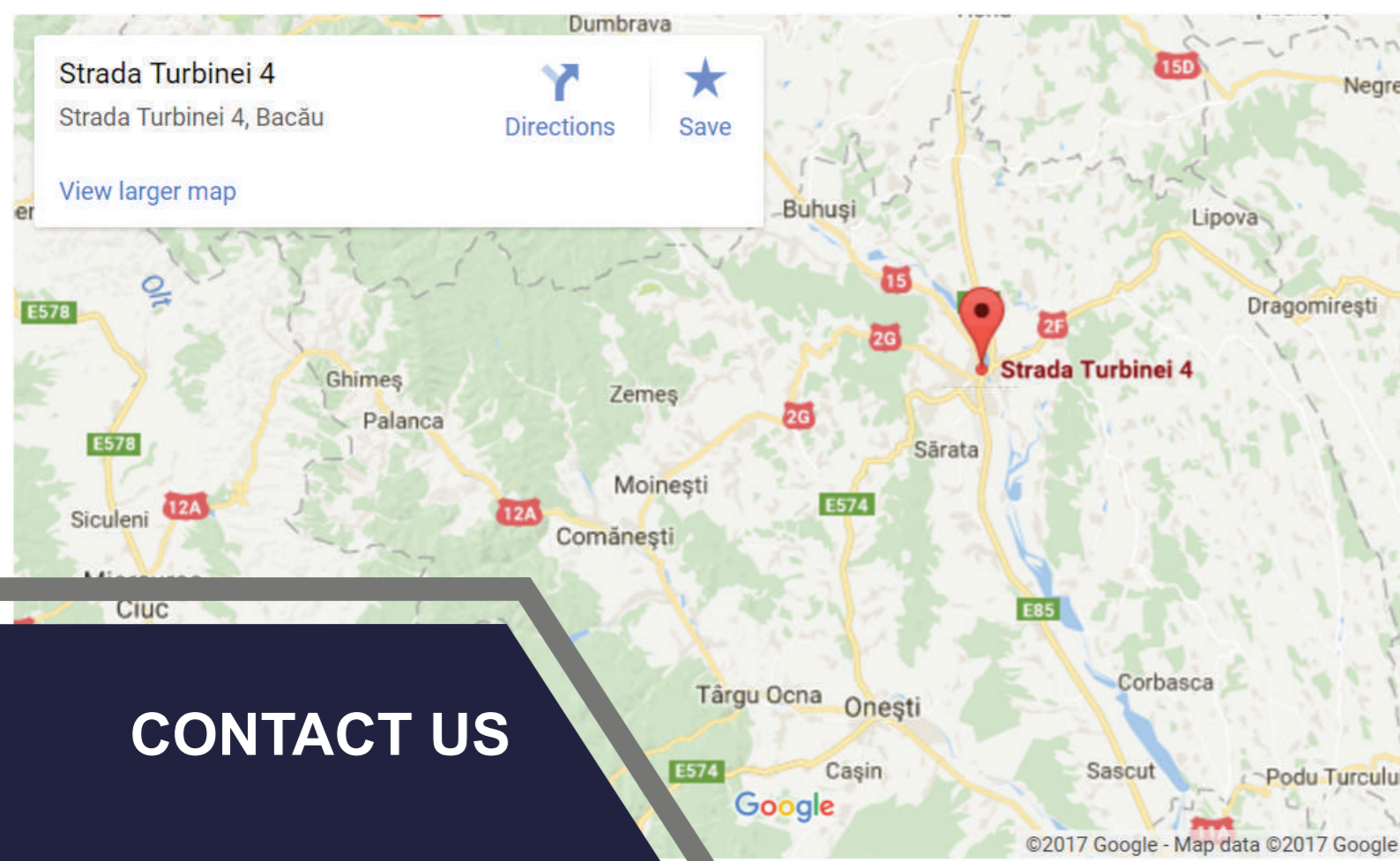
Str. Turbinei nr. 4, Bacau, Romania

- ▶ NEW MACHINE TOOLS
- ▶ RETROFITTED MACHINE TOOLS
- ▶ MACHINING SERVICES



rem-machinetools.com







## CONTACT US



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## About Us

"We live in a quality driven global environment which challenges us to achieve performance in all fields.

At REM, we constantly try to build better, faster and more reliable heavy machineries and, thus, meet all of our clients' requirements.

During the years, with intense research, hard work and applying the latest engineering technologies we consolidated our status as a top provider of heavy machineries around the world.

Meeting international quality standards and offering great customer support will always remain our main objective."

 **REM Retrofit Echipa si Mentenanta SRL**

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## THE COMPANY

REM Retrofit Echipari si Mentenanta is a privately owned company with 100% Romanian capital, a top provider of machine tools and performance solutions for the metal working industry around the world.

### Our Company has 3 main divisions:

The New Machine Tools Division has a key role in our company and we consider it one of the most important. The extended knowledge of our specialists and the continuous acquiring of new technology help us build extremely reliable and high quality products.

The Retrofitted Machine Tools Division offers modernizations / overhauling of precision machine tools, regardless the manufacturing year or the brand of machine.

Some of the retrofitting operations are: Checking Geometrical alignment, Laser linearity and Planarity, Laser compensation, Electrical diagnosis, Hydraulics diagnosis, Covering and Revision of telescopic, Dismontage and Montage, CNC Modernization and Overhauling, CNC Machining, Welding / Cutting / Cold deformation / Linear bend / Roll bending

The Machining Division is an industrial contractor which utilizes precision CNC machining to supply quality for various industries. We can machine prismatic and revolution pieces like beds, columns, cases, saddles, rams and bearings.

We deliver to companies in France, Germany, India, Italy, Mexico, USA, and other foreign countries and have great regard for quality standards and meeting the client's specification to the letter.

### Some of our clients and partners have agreed to share their opinion about working with us and our products:

"REM is a company in full expansion and one of the most important clients of GE Fanuc in Central and Eastern Europe. They are committed to serve all of their end- users and by the professionalism of their specialists they manage to satisfy entirely their customers demands."

**Gabriel Vescan**  
*Application & Sales Engineer - GE Fanuc*

"SC Retrofit Echipari si Mentenanta SRL was working in our Company between Febraury and July 2015. During this time, it was working for the montage and start up of 2 big machine tools. All the people worked very well, cleaning and assembling all the parts and we are very satisfied of the final result."

**Giorgio Ariotti**  
*President - Fonderie Ariotti S.p.A.*

"Since the beginning of our activities we are looking for a full service maintenance and repair company (with relevant mechanical, hydraulic, pneumatic, electrical and automation knowledge) for our CNC machines. After many unsuccessful attempts we found a professional and reliable partner in REM"

**Ioan TOPIRCEAN**  
*Industrial Director - Gonzales Mecanica de Precizie*

"REM Machine Tools are helping Frisa to increase productivity. These machines are solid and reliable and they incorporate the modern technology for the different components like hydraulics and electronics."

**Hector Martinez**  
*General Manager - Frisa Forjados Mexic*

"REM Machine Tools means professional, fast, reliable and customer oriented."

**Volkmar Klaus**  
*General Manager - FLANSCHENWERK Thal GmbH Germany*

"Our objective was to optimise the production time for a workpiece and additional related technology or technological plan, programming and tooling, and required operating staff training. As a result, the machine was delivered, installed, commissioned and tested with 3 (three) test workpieces. We are particularly pleased with this machine and the increased productivity by approximately 160%, or about 3 hours instead of 8 hours before.

I highly recommend the company Retrofit Equipment and Maintenance (REM) Trough Mr. Claudiu Florin Tampu as a partner"

**Ing. Ion Ilie**  
*General Manager - S.C.24 Ianuarie S.A. Ploiesti*

## CNC Horizontal boring and milling machine VHN 13.8 -TOS - 5 axes

FEATURES	VALUES	M.U.
Work Table	1.400 x 1.600	mm
Work Space	1.600x1.800x1.500	mm
Max. weight part	8.000	kg
Main spindle speed	2.500	RPM
No. of controlled axes	5	-
Axes travel:		
X	1.700	mm
Y	1.450	mm
Z	650	Mm
W	1.500	Mm
B	360 infinitely	deg.



## QUALITY

The main objective

Building a strong name on the market can only be done by having a constant regard for quality standards and meeting the client's specification to the letter. We have consolidated that goal by implementing a Quality Management System in compliance with ISO 9001:2008, certified by TUV CERT.

Also, to respect the precision values for the CNC machines, we purchased a REINSHAW type control and compensation system for the linear and rotary axis.

Our design specialists work with tools such as Solidworks, Eplan and Visio because we also attribute great importance to the software used in creating our products.

## THE TEAM

A valuable asset

We believe that a company is as great as its people are. In our company we consider employees to be the most important resource. Their technical capabilities, professional education and flexibility give us the possibility to develop products that achieve the demanded performance. In some departments, such as quality control, there are employees who have 25 years or more experience in the field. This is why we constantly invest in training and motivating our personnel.

The team is structured in 6 departments: Mechanical design, Mechanics, Electric, electronic & software, Sales, Quality Control and Support & Services.

We work with: ATOS, BALUFF, DEUBLIN, GE FANUC, GRAESSNER, HAWE HYDREULIK, HAIDENHAIN, ROMANI GROUP, SIEMENS, SFK, TIMKEN, VOGEL, ZF.



## NEW MACHINE TOOLS

The production of Heavy Duty Machine Tools, especially VTL's (Vertical Turning Lathes) has a key role in our company, being considered one of the most important fields. The extended knowledge of our specialists and the continuous acquiring of new technologies help us build extremely reliable and high quality products.

Besides VTL's, our manufacturing program of heavy duty CNC Machine Tools includes:

- Horizontal lathes
- Horizontal boring mills
- Floor type boring mills
- Special purpose machines

Our Retrofitting/Modernizing/Service Division provides the best modernizations/ overhauling/ service for your precision metal cutting machines, regardless their manufacturing year and brand.

### CNC milling machine STAMA 800x6.000 - 2 Axes

FEATURES	VALUES	M.U.
Work Space	850 x 6.000	mm
Swing Diameter	850	mm
Max. weight part	3.000	kg
Main spindle speed	4.500	RPM
No. of controlled axes	2	-
Axes travel:		
Z	6.200	mm
C	360 infinitely	deg.

### CNC Horizontal milling machine MAHO 1000 - 3 Axes

FEATURES	VALUES	M.U.
Work Table	1.250x800	mm
Work space	1.250x800x600	mm
Max. weight part	800	kg
Main spindle speed	2.000	RPM
No. of controlled axes	3	-
Axes travel:		
X	1.000	mm
Y	560	mm
Z	800	mm
A	+/- 90	deg.
B	360	deg.

## CNC Milling Center STAMA 550/700 - 4 Axes

FEATURES	VALUES	M.U.
Work Table	5.000x700	mm
Work space	5.000x800x700	mm
Max. weight part	3.000	kg
Main spindle speed	4.500	RPM
No. of controlled axes	4	–
Axes travel:		
X	5.100	mm
Y	850	mm
Z	750	mm
U	360 infinitely	deg.

## CNC milling machine – floor type Kloop USF 1000 - 5 Axes

FEATURES	VALUES	M.U.
Work Table	5.000x2.000	mm
Work space	5.000x800x1000	mm
Max. weight part	15.000	kg
Main spindle speed	3.500	RPM
No. of controlled axes	5	–
Axes travel:		
X	5.000	mm
Y	800	mm
Z	1.000	mm
W	900	mm
B	360 infinitely	deg.

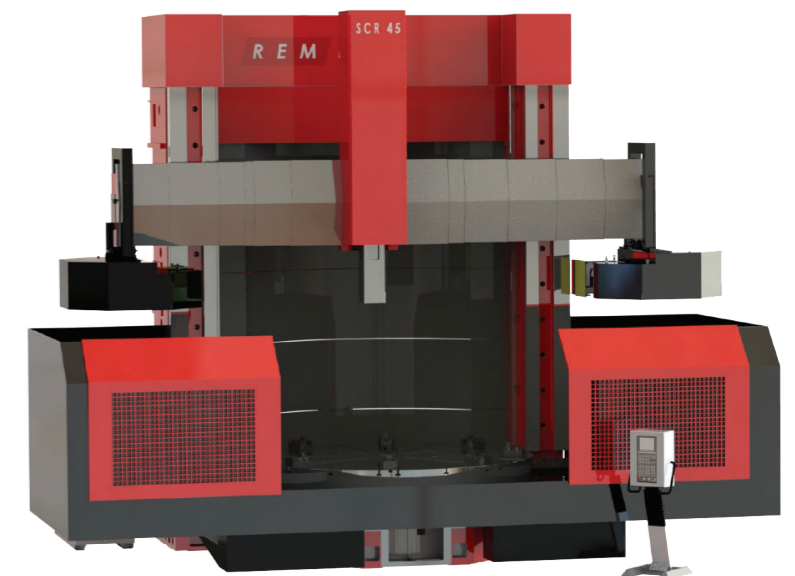
## VERTICAL LATHES (SCR & SCR-W Series)

The REM Vertical Lathes - SCR & SCR-W SERIES - are designed for a high machining accuracy, a very good rigidity and stability, in conditions of heavy machining of metal, including asymmetrical pieces.

The structure of the machine allows it to be used both for rough and finish heavy duty machining, in very good thermo and vibrations stability produced during the processing.

The SCR series has a number of advantages. Among these, the most important are the very good reliability and high versatility. Depending on the established configuration, the machine can do operations like: turning, milling, drilling, tapping, cylindrical and frontal grinding.

The tool magazine may be doped with tools for operations like turning, boring-milling, milling, drilling and milling at 90°, drilling and milling with bi-rotary accessories, boring and tapping.



### Standard features

- Horizontality adjustment devices;
- Telescopic covers for X axis;
- CE certificated machine safety guard;
- Chips conveyor;
- Universal turning tool holder;
- Electrical box cooling system;
- Machine lighting system.

### Optional features

- Complete careening;
- Telescopic covers for W axis;
- Work-piece touch probe – Renishaw made;
- Tool-probe – Renishaw made;
- Hydrostatic faceplate bearing;
- Angular milling head;
- Bi-rotative milling head CNC;
- Grinding device;
- Dressing device;
- ATC disk type 12/16/32/36 tool-stations;
- ATC chain type 16/20/24 tool-stations;
- Cooling system 3/20/40/80 bar.

## Horizontal Boring Mills (Table Type and T-Type)

The TT-HBM & T-HBM series - table type and t-type horizontal boring mills - are designed to process middle size prismatic workpieces made of cast iron, steel, aluminum or other materials. The workpieces can be machined by the same clamping on four or five surfaces by the following rough or finish operations: boring, drilling, milling, threading and counterboring.

The operations available with these machines are: boring, milling, drilling, threading or tapping, counter boring, both in roughing and finishing modes. Through one setting of the work piece, four or five surfaces of it may be machined. The various special accessories available with such machines increase their machining capacity and productivity.

The machine control is achieved for the following working axes:



**TT-HBM series**

- X axis: the rotary table cross displacement
- Z axis: the rotary table longitudinal displacement
- B axis the table rotation
- Y axis the headstock travel along the column guideways
- W axis the boring spindle axial displacement.



**T-HBM series**

- X axis the rotary table cross displacement
- Z axis the under-column saddle transversal displacement
- B axis the table rotation
- Y axis the headstock travel along the column guideways
- W axis the boring spindle axial displacement.

### CNC milling center Gloria Europe System - 3 Axes

FEATURES	VALUES	M.U.
Work Table	1000×420	mm
Work space	1100×500×850	mm
Max. weight part	400	kg
Main spindle speed	6000	RPM
No. of controlled axes	3	–
Axes travel:		
X	1100	mm
Y	500	mm
Z	850	mm

### CNC milling center STAMA MC-550 - 3 Axes

FEATURES	VALUES	M.U.
Work Table	3.500×1.000	mm
Work space	3.500×1.100×700	mm
Max. weight part	5.000	kg
Main spindle speed	4.500	RPM
No. of controlled axes	3	–
Axes travel:		
X	3.600	mm
Y	1.100	mm
Z	750	mm

## REM Milling Machines

### CNC Milling Center Hedelius BC 40 – 3 Axes

FEATURES	VALUES	M.U.
Work Table	2 x 1000x420 (2050x420)	mm
Work space	2100x500x700	mm
Max. weight part	400	kg
Main spindle speed	8000	RPM
No. of controlled axes	3 (2 channels)	–
Axes travel:		
X	2 x 850	mm
Y	450	mm
Z	600	mm

### CNC Milling Center Chiron FZ18S - 3 Axes

FEATURES	VALUES	M.U.
Work Table	800x400	mm
Work space	950x450x450	mm
Max. weight part	400	kg
Main spindle speed	6000	RPM
No. of controlled axes	3	–
Axes travel:		
X	850	mm
Y	420	mm
Z	400	mm

## Plano Milling Machines (FLP Series)

The portal type plano miller model FLP is designed for mechanical machining of various parts made of cast iron or steel, forged steel or welded structures.

This type of machines may perform roughing, finishing and super-finishing milling operations as well as drilling and thread cutting. The machines may be controlled in automatic mode through the CNC equipment or manually (MDI mode) from the central control panel.



### Standard features

- 3D design for custom made machine;
- Automatic lubrication system;
- Quality cast iron parts to avoid vibration;
- Coolant trough spindle;
- Hardened and ground ways box or steel inserts;
- Choice of hydraulic elements;
- Counter ways with anti friction material;
- FANUC, Siemens AC servomotors;
- Ballscrew all linear axis;
- Fanuc, Siemens PLC and electric;
- SKF, FAG high precision bearings;
- Choice of Fanuc, Siemens control;
- Heidenhain linear and rotary scales;
- Motorized spindle with ZF gearbox and AC motors;
- Hydrostatic guide ways for X-axis;
- Double pinion rack mechanism for backlash;
- Automatic tool clamping and unclamping

### Optional features

- High pressure coolant through spindle;
- Outside cooling;
- Universal milling head;
- Angular milling head;
- CNC Bi-rotary milling head;
- 90° milling head;
- Machine enclosure guard;
- Telescopic guide ways cover;
- Grinding device;
- Tool magazine 12/16/20 position;
- Two years warranty;
- Twin table.



## Floor Type Boring Mills (AFP Series)

Floor Type Boring and Milling Machines with horizontal spindle are intended for machining prismatic parts made of cast iron or steel and dimensions and weights within the machine processing capacity.

Such machines are also suitable for machining deep areas located inside the parts due to the cumulated ram (W axis) and boring spindle (Z axis) travels.

The operations available with these machines are: boring, milling, drilling, threading or tapping, flat or taper turning (with attached facing head), both in roughing and finishing modes.

The various special accessories available with such machines increase their machining capacity and productivity.



### Standard features

- 3D design for custom made machine tools;
- Quality cast iron parts to avoid vibrations;
- Hardened and ground ways, box or steel inserts;
- Counter ways with anti friction material;
- Ballscrews on all linear axis;
- SKF, FAG high precision bearings;
- Choice of Fanuc, Siemens, Heidenhain controls;
- Heidenhain linear and rotary scales;
- Automatic tool clamping;
- Automatic lubrication system;
- Coolant trough spindle;
- Choice of hydraulic elements;
- Fanuc, Siemens AC servomotors;
- Fanuc, Siemens, Heidenhain PLC and electronics;
- Motorized spindle with ZF gearbox and AC

### Optional features

- Automatic tool changer 40/60 positions;
- Facing head;
- Vertical milling head;
- Universal head;
- Spindle bearing support;
- Angle fixtures;
- Chip conveyer;
- 2-axis CNC head;
- CNC facing head.



The Machining Division is an industrial pioneer which utilizes precision CNC machining to supply quality for various industries. We can machine prismatic and revolution pieces like beds, columns, cases, saddles, rams and bearings.

### Possible operations with our machine-tools:

- Frontal, external, internal, conical and sectional turning
- Rough and finishing milling
- Drilling, turning, boring, beveling, threading

### Types of shapes that result after machining:

Internal and external cylindrical, conical, plane, rectangular, angular plane, contour, cylindrical like counterbores, boxes, cylindrical bore type with maximum diameter of 800mm.

## Industrial Relocation

The company provides complete services for relocating the industrial production capacities.

Such production capacities may be reinstalled both at local and international level.

The erection commissioning of all machines is assured in compliance with the technical specifications (cahier de charges).

We provide our customers with technical endowment, experience and logistics needed for running any industrial project, especially for the machine tool domain.

The equipment and machine tools submitted to relocation will be assessed geometrically and in terms of accuracy, so that they can be handed over to the customer under at least the same running condition.

### Main Stages of the Industrial Relocation Service:

#### 1. Dismantling and moving equipment to other locations

- Analysis of the relocation design or its drawing-out in compliance with the cahier de charges.
- Project-related planning and technical solutions
- Provision of an efficient logistic plan (transport and lifting means etc.)
- Building the foundation at the new location
- Emptying the liquid tanks and their storage
- Disconnecting the electric equipment and panels
- Dismantling the equipment to components
- Marking and labeling the dismantled elements



#### 2. Installation of Equipment and Machine Tools

- Complete solutions, design and installation of the production equipment
- Technical consultancy for building the equipment foundations
- Layout/location sketches for machines tools
- Marking, positioning and setting the equipment to the foundation
- Complete assemblage- mechanical, hydraulic, electrical
- Bringing the equipment to the positions of horizontality, straightness, parallelism

## Project Based Machinery

### BM 7000 Bending machine

As a testimony of our flexibility, technical ability and continuous improvement, our company has manufactured and delivered a Hot Bending Machine of up to 7000 mm bending width – the biggest in the world. It is also the first Bending Machine manufactured by us.



RETROFITTED MACHINE TOOLS

Laser Optimization and Measurement



RENEWING & PLANT RELOCATION

Our company offers the best modernizations / overhauling of precision metal working machine tools, regardless the manufacturing year or the brand of machine.

Some of the retrofitting operations are:

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Checking:             <ul style="list-style-type: none"> <li>- Geometrical alignment</li> <li>- Laser linearity, planarity</li> </ul> </li> <li>2. Laser compensation</li> <li>3. Electrical diagnosis</li> <li>4. Hydraulics diagnosis</li> </ol> | <ol style="list-style-type: none"> <li>5. Covering and Revision of telescopic</li> <li>6. Dismontage and Montage</li> <li>7. CNC Modernization and Overhauling</li> <li>8. CNC Machining</li> <li>9. Welding / Cutting / Cold deformation / Linear bending / Roll bending</li> </ol> |
|--|--|

For many years the industry standard method of measuring the machine tool or CMM performance has been using a free-standing laser on a tripod, in combination with remote (i.e. separate) interferometers and reflector optics, mounted directly to the machine table and spindle.

Linear, angular (pitch and yaw) or straightness measurements between table and spindle, could then each be performed by means of interferometers, with the appropriate choice of interferometer optics.

The design of the Renishaw ML10 Laser Interferometer System is the peak of modern technology in terms of evaluation and exact calibration of machine tools, coordinate measuring machines and other positioning systems.



Advantages of the laser system:

- Accuracy is  $\pm 0.7$  ppm and is constant throughout the work;
- Fast and safe alignment with a laser mounted on a tripod;
- Portability – the system is easy to carry;
- Error-compensation software can be used with most CNC equipment;
- Optical system designed for use in the workshop production – light and strong optics that quickly adapts thermally to the environment;
- Measure the distance up to 32 m high;
- High precision compensation for temperature, pressure and humidity.

The system provides a number of different measurement options, including:

- Angular pitch and yaw of an axis
- Linear positioning accuracy and repeatability of an axis
- Straightness of an axis
- Flatness of a surface.