UNIMACH

Press brakes UNIBEND

AR glasses UNISENSE

2025

unimach.ru

Limited Liability Company
“NPK MORSVYAZAVTOMATICA”

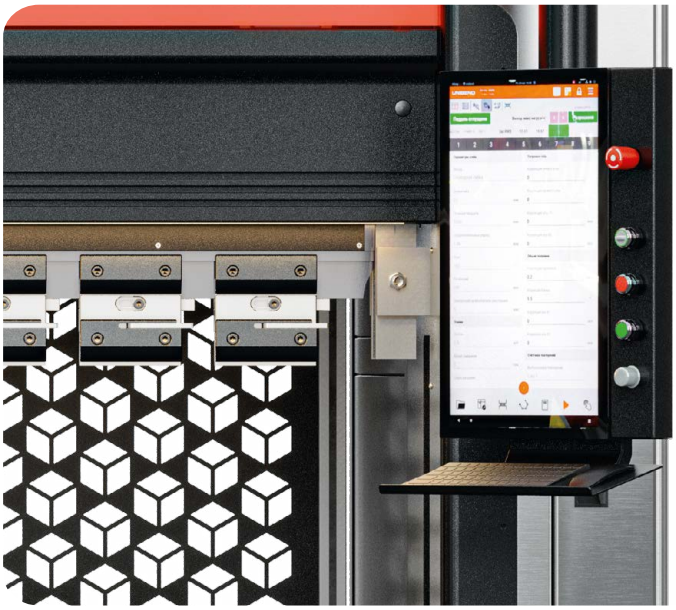
INNOVATIVE SOLUTIONS

In-house CNC: in the Russian language, with Russian-speaking support and free updates from our official website.

Android-based software enables to control a press brake using a control console display and remotely — using a tablet PC connected via WiFi. If the display gets out of order, the control can be restored within minutes.

All images, settings, patterns and other operating data are saved in the remote local archive. Therefore, if a PC is replaced the press brake operation can be restored without repeating adjustments and settings.

Having set the height and speed of the punch, an operator can start a continuous bending cycle just with a single pressing of the pedal. This solution increases machine's performance, improves quality of the products and at the same time makes an operator less occupied.



6-AXIS BACK GAUGE IN THE ENTRY-LEVEL MODEL

85% OF LOCAL MANUFACTURING CONTENT

OPTIMIZED DESIGN

Automatic system ensures lubrication of the equipment at the required time and with the necessary amount of lubricants. It optimizes consumption of lubricants, minimizes expenses for technical maintenance and increases the operating life.

Owing to extra stiff springs, return speed of upper beam becomes higher and, therefore, efficiency of the equipment increases.

CONTROL CONSOLE

Press brake control system functions as a dustproof control console with 21" touch screen. The console is mounted on the machine frame by means of a swing bracket enabling an operator to adjust its height and position along the bending line and select the most convenient configuration.

A touch screen ensures easy integration of UniBend software into manufacturing and facilitates a detail preview as well as creating and editing bending files. In order to make operator's work more convenient an additional monitor can be optionally installed displaying a drawing, lookup table or other necessary information.

TABLET

A tablet with UniBend software is an additional component of control system to make operator's work more convenient. Owing to a magnetic mount the tablet can be placed anywhere on the machine.

Using the tablet an operator can perform the same operations as on the control console. It enables to work in the close vicinity to the working area and control progress of the commands preset in the software environment.

UNIBEND SOFTWARE

Developed by the specialists of Morsvyazavtomatica our software features simple controls and user-friendly interface. A variety of software functions enable to make various stages of press brake work automatic, from the creation of bending file to re-tooling for a workpiece size.

Software touch control significantly facilitates operator's work increasing manufacturing capabilities. Owing to user-friendly panel menu where each icon corresponds with a stage of press brake work, and their layout repeats operator's sequence of operations, it is easy to work in the software interface.

A bending force required for any operation is calculated automatically depending on the size and material of a workpiece. The program automatically sets the bending sequence when several bends are required, and an operator can edit the sequence if necessary.

Press brake is outfitted with a high-performance industrial PC to control the machine, keyboard and mouse. If the CNC tablet is out of order, the machine does not stop because a monitor can be connected to display graphic data.

TOOL-MOUNTING SYSTEM

UniBend press brakes are outfitted with tried-and-tested tool-mounting systems of the international standard Amada-Promecam, Wila.

Press brake punches are mounted by means of wedge adapters on the upper beam that help mount the punches in a perfect line.
Dies are installed using various adapters. Hydraulic clamps Wila and air-driven clamps Amada-Promecam can be installed as an option.

HIGH ERGONOMICS

High ergonomics of the series features low level of noise, convenient layout of controls, simple use and service.
Protective and safety components ensure proper level of the operator's safety during operation and maintenance.

An operator's workplace can be adjusted for a workpiece located on the workbench due to moving parts of the control console mounting system. The tablet as an additional control module enables to control the machine in the close proximity to the working area.

Press brake is outfitted with AR glasses Unisense that help an operator make a bending model of complex details and suggest a proper positioning of the workpiece on the working table without test bending.

Our company has developed a training system that enables to train a press brake operator from zero level for 3 days.

Electromechanical press brakes Unibend provide excellent accuracy, high speed and utmost power.
Servo drives ensure:

- low level of noise
- no vibration
- power consumption is 80% less than for hydraulic presses
- minimal technical maintenance
- high performance
- low operating costs

Unibend H press brakes offer a universal solution that satisfies demand both of Small and Medium enterprise. High performance of the machines opens up opportunities for starting mass production and manufacturing small and large-scale details.

The choice of servohydraulic systems is based on their high dynamics, reliability, reduced level of power consumption and noise (compared with conventional hydraulic equipment) and minimal maintenance costs.

Own-produced servo drives enable to reach bending speed of 15 mm/sec increasing efficiency and significantly decreasing a unit cost compared with conventional hydraulic press brakes. A special mode of continuous bending ensures efficiency of 10 000 bends per shift.

Type	Electromechanical			Servohydraulic	
Model	UniBend E 1600-60	UniBend E 2550-80	UniBend E 3100-100	Unibend H 2550-100	Unibend H 3100-150
General specifications					
Max. bending force, t	60	80	100	100	150
Bending length, mm	1600	2550	3100	2550	3100
Bed	O-shaped	O-shaped	O-shaped	C-shaped	C-shaped
Power supply, V	380	380	380	380	380
Frequency, Hz	50	50	50	50	50
Max. weight, kg	5500	7500	9500	9000	11500
Speed and travels					
Approach speed x.x., mm/sec	130	130	130	200	200
Bending speed, mm/sec	15	15	15	15	15
Return speed, mm/sec	130	130	130	180	180
Stroke length, mm	300	300	300	280	280
Max. open height, mm	600	600	600	537.5	537.5
Accuracy					
Upper beam positioning accuracy, mm	±0.001	±0.001	±0.001	±0.001	±0.001
Backgauge positioning accuracy, mm	±0.01	±0.01	±0.01	±0.005	±0.005

FEATURES OF PRESS BRAKES UNIBEND E

6-axis back gauge in the entry-level model

High speed of upper beam and back gauge

High ergonomics and strengthened design

Automatic lubrication system

Extra stiff springs

Proprietary software

FEATURES OF PRESS BRAKES UNIBEND H

C-SHAPED BED

C-shaped bed with increased jaw opening of 590 mm enables to work with more large-scale and complex workpieces than on the press brakes of conventional models.

AUTOMATIC CROWNING SYSTEM

CNC-controlled automatic crowning system ensures accuracy by equalizing pressure across the bending length and minimal error of bending angle throughout the length of the wokrpiece.

AUTOMATIC BACKGAUGE SYSTEM

Backgauge system is selected depending on the volume and tasks of the manufacturing. The system may have from two to six CNC-controlled axes. It ensures proper level of equipment automation. The entry-level machine is equipped with six independent CNC-controlled axial backgauge.

While in operation, press brake system may be retrofitted increasing a number of backgauge and adding extra CNC-controlled axes. Innovative design of backgauge mounting to the machine frame ensures the correct position relative to the main working planes not depending on the machine position.

SPLIT HYDRAULIC SYSTEMS

The use of servo motors and split hydraulic systems decreases the level of noise and amount of used oil. The split system is more reliable because it does not include connection hoses, and oil flows directly from the tank to the valve unit, and then, to the hydraulic cylinders. This solution also makes the system more reliable because the number of connection points (potential leaks) is reduced.

The split system enables to increase positioning accuracy of upper beam and prevent it from tilt.

Upper beam motion is tracked by two independent optical scales. The split system does not require mechanisms and devices to synchronize operation of hydraulic cylinders from one engine (a classic model).

Servo drives and servo motors ensure the highest accuracy and smooth motion, and keep the ultimate dynamics. Special-purpose proprietary control algorithms perform the motion with minimal mistrack within the whole range of current speed and acceleration.

Mutual synchronization of servo drives is carried out by the motion controllers. High operation speed of controllers ensures unparalleled positioning accuracy and alignment of upper beam motion preventing it from tilt. Positioning accuracy of upper beam is ±0.001 mm.

VIRTUAL TUTOR
TRAINING MODE

Virtual tutor application ensures fully automatic training of employees without participation of a supervisor or other specialists. This solution guarantees minimal training costs and yet compliance with the training standards.

PERSONAL ASSISTANT
OPERATING MODE

Personal assistant application provides employees with necessary information in real time helping them read drawings and choose a sequence of operations. This solution enables to reduce mistakes and significantly improve performance.

10 MIN

TRAINING
Getting acquainted with the glasses and their basic functions

3 DAYS

COURSE
Taking a training course including video lessons, tests and practical tasks

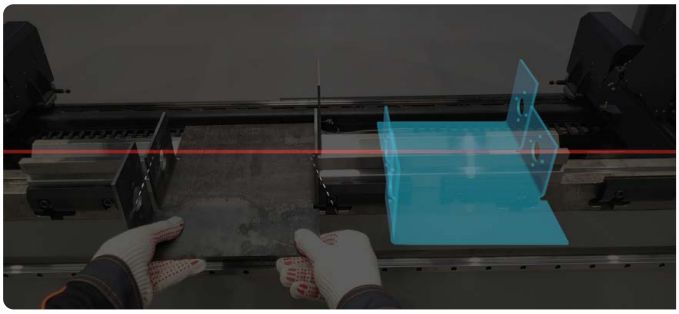
∞

OPERATION
Actual work with a press brake with or without glasses

VISUALIZATION OF WORKPIECE POSITION
HOLOGRAM

The most difficult thing for a beginner is to position a workpiece correctly within the working area. The glasses create a hologram and place it correctly in the augmented reality (AR) mode.

The hologram is created based on CNC data.

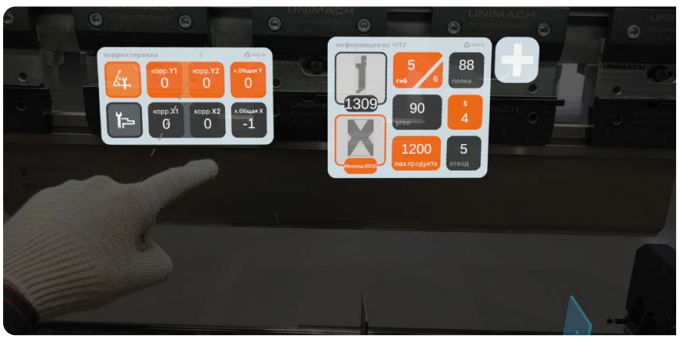


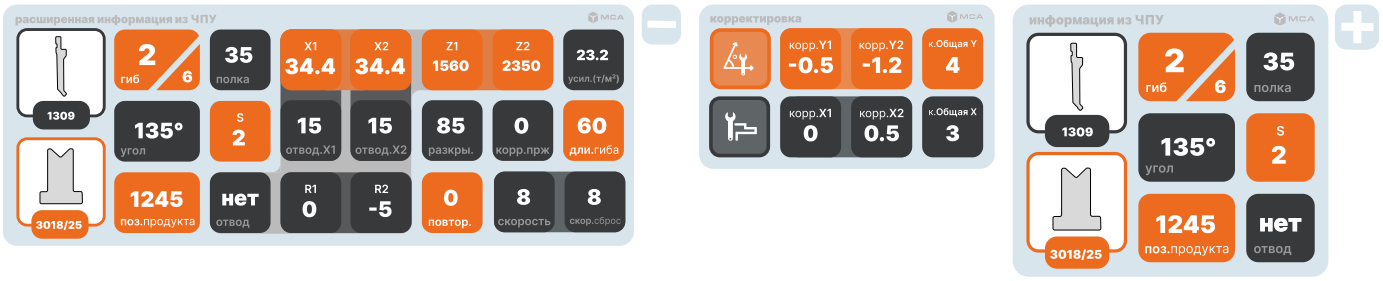
ONLINE SUPPORT

INFORMATION SCREENS

On the information screens, employees can read information on the planned operations that help them choose instruments correctly and check accuracy of input data.

The screens are located within the working area where employees can always see them. One screen can be optionally expanded to display more parameters.





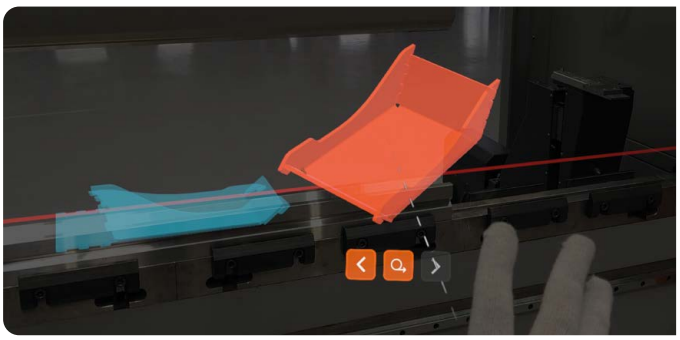
VISUALIZATION OF BENDING

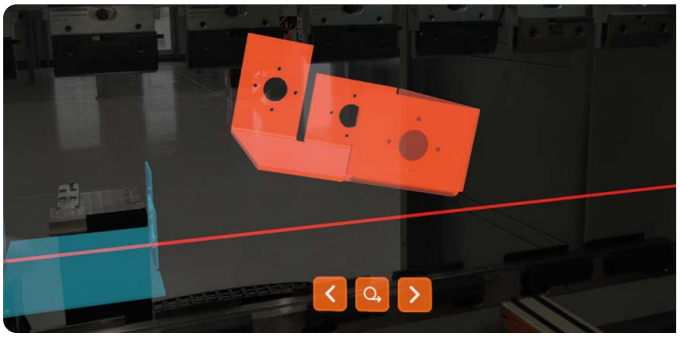
3D-MODEL

Once the program is started on CNC or after scanning a QR-code on a drawing you can see a 3D-model of the ready product.

The model shows to an operator how the product shall look and helps understand the sequence and direction of bending.

Using visualization control keys an operator can place the model in the most convenient place, rotate and scale it. The product can be optionally viewed in a developed view where every bending can be seen separately.

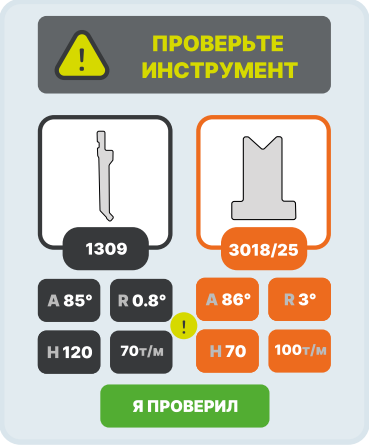




ERROR PREVENTION
REMINDER BEFORE START

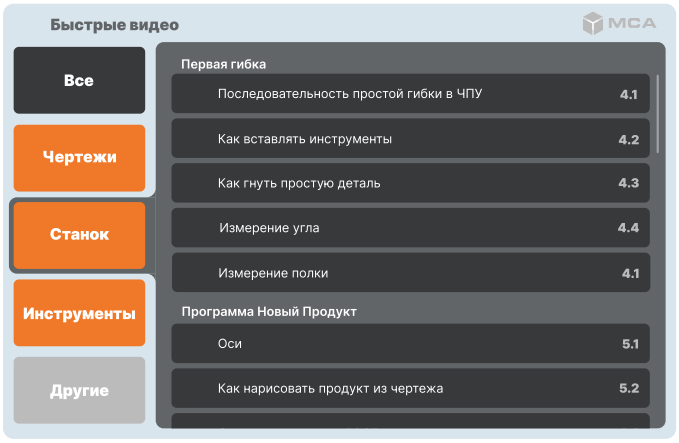
Experience suggests that the most common reasons of defects and various breakdowns are operator's inattentiveness, wrong choice of instrument or sequence.

In order to prevent from these errors before the start, a reminder appears within the operator's field of view displaying the instrument that should be used.



FAQ
SHORT VIDEOS

An operator can watch short videos about all steps of press brake operation such as reading drawings, select of operation sequence, and control system interaction. These videos provide answers for the majority of questions that beginners usually have.



30 MIN

AVERAGE TIME OF RE-TRAINING FOR OPERATORS WITH WORK EXPERIENCE ON OTHER MACHINES

DRAWINGS AND TABLES
HIGH ERGONOMICS

Within the field of view, an operator can additionally display working drawings, tables with tolerances and forces, as well as other data necessary in the working process. It enables an employee to work without paper documents and unnecessary steps.

To display a drawing you just need to scan a QR-code on it.
The drawing can be moved, rotated, zoomed in and out, as well as separate details can be highlighted for better view.

COMPLETE TRAINING
THREE-DAY VIDEO COURSE

50
VIDEO LESSONS

14
PRACTICALS

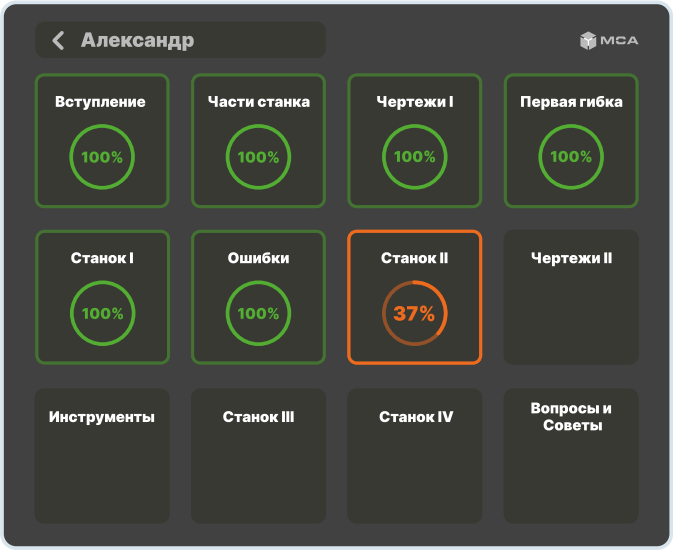
150
QUESTIONS

To train operators of UniBend press brake we have developed a training course based on UniSense augmented reality technology. This course enables to train employees without participation of supervisors and other operators.

The training starts with the description of electromechanical press brake structure and finishes with an in-depth study of special bending subjects. The course includes videos, holograms, and 3D-models that graphically demonstrate principles of workpiece positioning, as well as bending sequences.

Along with 50 video lessons, the training course includes 150 test questions and 14 practical tasks of increasing difficulty level. Trainees get points for each correct answer, and after completion of the task, they should present products suitable for practical use.

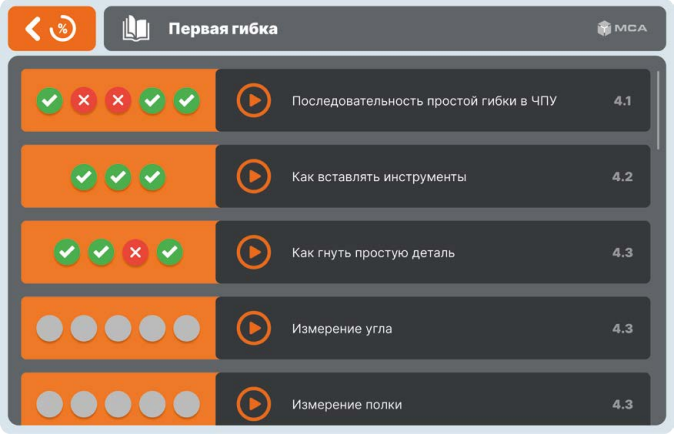
The assessment results of future operators enable to decide if they are ready for working on their own.



BENDER TRAINING FOR

3 DAYS

OF SELF-TRAINING



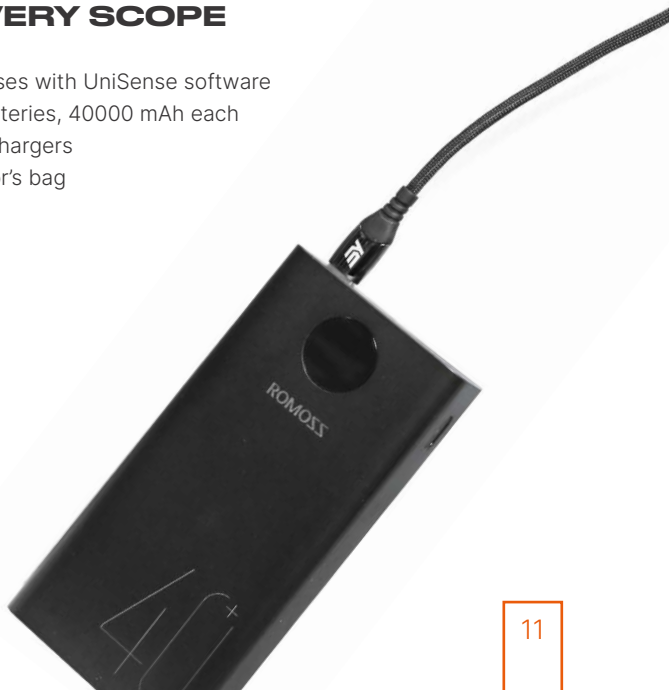
12 HOURS OF OPERATION

The charge enables the glasses to work for 2-3 hours. Owing to two extra batteries the glasses can work for the entire working day.

Resolution	2k 3:2
Head tracking	4 cameras with visual lighting
Eye tracking	2 infrared cameras
Range measurement	Time-of-flight sensor, 1MP
Inertial measuring unit	accelerometer, gyroscope, magnetometer
Camera	Photo resolution 8 MP video resolution 1080p, 30 fps
Microphone array	5 channels
Built-in speakers	Surround sound
RAM	4-GB LPDDR4x DRAM
Storage	64-GB UFS 2.1
USB	Type-C

DELIVERY SCOPE

- AR glasses with UniSense software
- Two batteries, 40000 mAh each
- Set of chargers
- Operator's bag



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