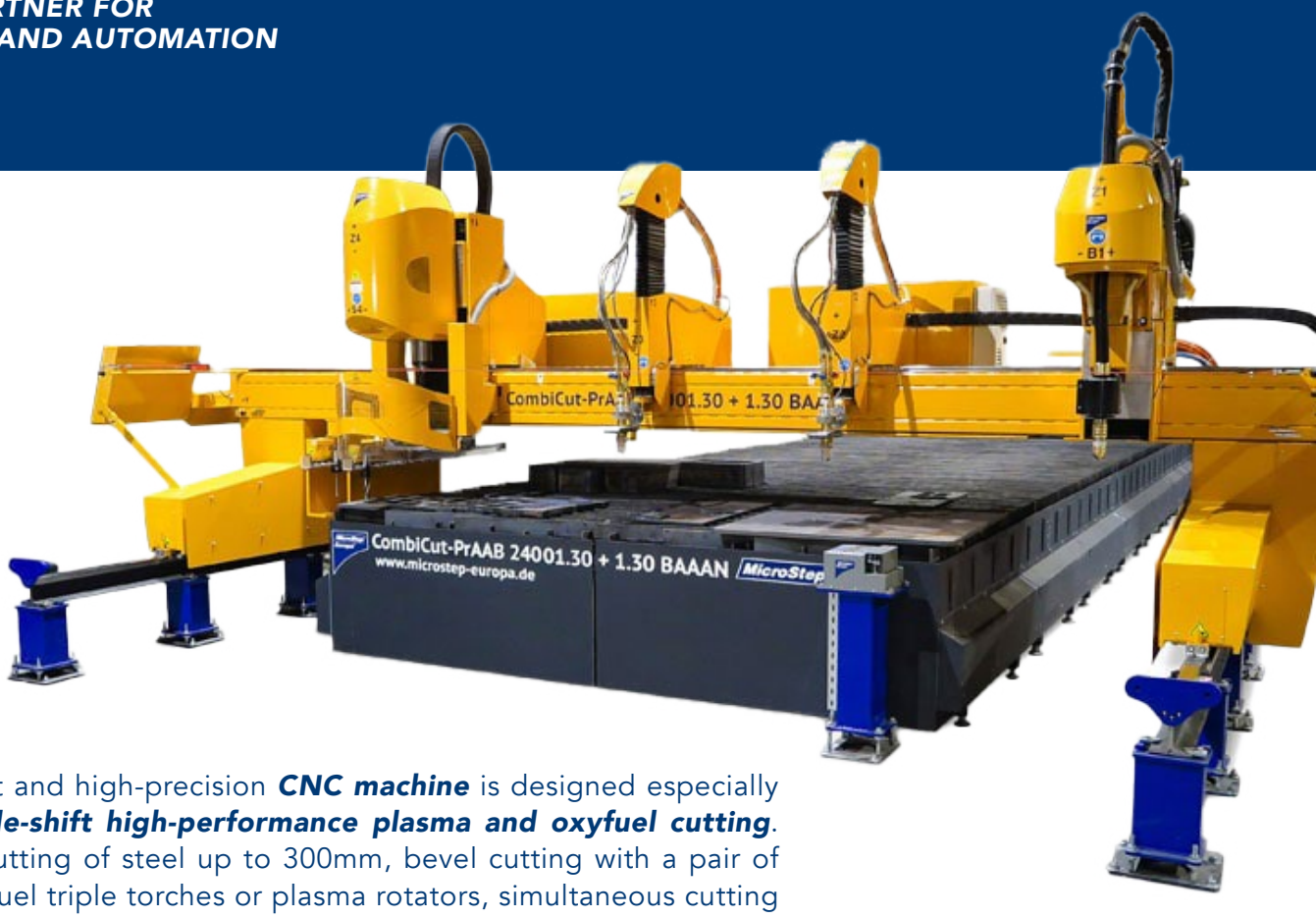
COMBICUTE

YOUR PARTNER FOR CUTTING AND AUTOMATION

MicroStep® South Africa



This robust and high-precision ***CNC machine*** is designed especially for ***multiple-shift high-performance plasma and oxyfuel cutting***. It allows cutting of steel up to 300mm, bevel cutting with a pair of rotary oxyfuel triple torches or plasma rotators, simultaneous cutting with more than ***10 torches, drilling up to Ø 40 mm, inkjet or micropercussion marking, pipe and dome processing.***

The mechanical construction of the ***Mastercut machine*** hasma optimum price/quality ratio. The frame is welded from steel profiles that are anchored to the ground. The steel gantry is dual side driven via a rack and pinion system. Motion is developed by ***Panasonic AC motors*** via precise planetary gearboxes. Applied Deutsche Star linear guides with their accuracy, high load capacity and long service life guarantee that the machine can hold out against static and dynamic stresses. All power cables and gas hoses moving with the gantry are placed in a flexible cable chain. This protects the cables from premature wear and tear.

CombiCut machines can be equipped with a rotary axis for cutting pipes to length or any desired cut-out. Pipes are positioned by a chuck and supported in several areas to keep movement to a minimal. There are different types of rotary axis units for pipe cutting available. This depends on the desired pipe diameters, lengths and total weight.

The cutting table is manufactured and designed to ***high quality standards***. The position accuracy of the machine is not effected even after many years of service as the cutting table is detached from the frame of the machine. As an added option it can also contain a channel for cutting pipes or profiles. Exhaust fumes are extracted through a channel system to which either a filtering device or a ventilator can be attached. This proven design ensures extremely low pollution levels in the working environment.

STANDARD FEATURES:

- Good cutting quality as a result of synchronized tandem drive system in the longitudinal axis
- User-friendly PC-based CNC control system iMSNC500 with a TFT colour monitor with touch screen
- Positioning speed of 20 000 mm/min, with a maximum cutting speed of 10 000 mm/min
- Precision cutting of contours and details is a result of precision rack and pinion drives and high quality CNC-Controls under Windows® 2000™
- Integral remote diagnostics utilities via modem
- Extensive cutting database covering both oxy-fuel and plasma cutting techniques
- Manual control unit on the gantry provide jog positioning and remote operation control functions
- High quality automatic height sensor control for both oxy-fuel and plasma cutting torches
- Laser pointer to help in quicker setting of cutting head position
- Safety and environmental standards are very high and fume extraction is through a sectional system under the working area
- Data can be imported in DXF Format from all standard Auto-CAD/CAM program systems;

WORKING LENGTH :	1500 – 50000 mm
WORKING WIDTH :	1500 – 8000 mm
MAX. NO OF TOOL STATIONS:	8
MAX. THICKNESS OF MATERIAL CUT BY PLASMA:	according to a plasma source
MAX. THICKNESS OF MATERIAL CUT BY OXYFUEL:	300 mm
POSITIONING SPEED:	up to 35 m/min (depends on version)
POSITIONING ACCURACY:	± 0 ,025 according to DIN 28 206

DRIVES

Mechanical constructions of machines are dictated by ultimate requirements on cutting speed and motion accuracy. The gantry is dually driven via racks and a preloaded split pinion with mechanical backlash elimination. Motion is developed by ***AC motors from Panasonic*** via precise planetary gearboxes. Position is measured by rotary incremental encoders mounted on motor shafts.

1.“Deutsche Star” “Manesmann” Industrial Guides

Backlash-free linear guides with their high load capacity and long service life guarantee that the machine can hold out against static and dynamic stresses it is subjected to. All power cables and gas hoses moving with the gantry are placed in a flexible segmental cable duct, which protects the cabling from excessive bending and wear.

2. CNC Cutting Table with Sectional Evacuation

The cutting table is of a sturdy construction, so that it can withstand high loads (plates up to 100mm thickness optionally). A fine grate under the lamellae protects small cutting parts from falling through. The table is detached from the guides, so that the manipulation with plates does not negatively influence the positioning precision of the machine. The exhaust gases are evacuated through a channel system to which a filtering device or a ventilator can be attached. This allows for the evacuation sections (500mm wide) to provide for extremely low pollution levels in the workshop. This filtering unit or ventilator is not included in the delivery.

3. CNC Control System MSNC-500 for Windows® 10™ with Integrated Network Card

MSNC-500 represents a PC based control system. The control system consists of two complete PC's. One of them is used for real-time control and the other one for user interface and application programs. The user-interface PC is equipped with a 256 MB RAM, 40 GB hard disk drive, and TFT colour monitor with touch screen, mouse and industrial keyboard. The control system is integrated into a distribution box, which is located next to the cutting table. The user interface is easy to use, which results in a short training time for machine operators. Optionally, the system can be equipped with a modem, thus enabling remote diagnostics and servicing.

- Processing of NC-Data (ESSI, ISO/DIN standards), and parts from the Macro Library
- Extensive „AsperWin" Macro Library directly in the control system (optionally).
- Loading part programs in compliance with DIN 66025
- Jog modus
- Repeating the work program
- Graphic representation of cutting process
- Breaking and re-starting the cutting process
- Test-Run – Running the NC-program without actually cutting the material (for test purposes)
- Kerf compensation
- "Look Ahead System" with automatic calculation of acceleration and cutting speed curves. This allowing optimal path control, which takes into account permissible machine stressing and required contour precision
- Minimum idle time thanks to fast NC-Program loading
- Background editing.
- Full network support (integrated network card)
- Remote diagnostics and servicing (optional)...

Cutting programs can be sent to a control system through company networks or with a floppy disc or USB (system has free USB port).

LCD- Operator Terminals on Gantry Construction

The operator terminal with LCD display and waterproof keyboard is located on both sides of the gantry construction. Apart from its standard features, the system allows for the possibility to start cutting at any point after a break, test run, reverse run or Jog modus.

Database of Parameters of Control System MSNC-500/Windows® 10

The extensive macro library with a database of parameters directly on the CNC-control system enables a fast transfer of set parameters for different materials and thicknesses. This remarkably reduces the preparation time for the cutting process. This offers, not only an optimal torch parameter for high-quality cutting, but also for it to be extended and changed.

Plasma Arc Marking

The function in the CNC-control system MSNC-500 enables the use of a plasma source for high-precision automatic plasma arc marking. This eliminates a long preparation time for drilling, edge processing and mounting writing. It can be used on wet, rusted and oily plates, which makes it more efficient than powder and inkjet writing. The writing quality depends on the quality of the plasma source. An automatic arc writer is also available.

Laser Pointer

For easier and more efficient operation the torch tool station is equipped with a laser pointer. This is used for visual control of manual torch positioning into specific points over the processed plate. With the help of the laser pointer functions like zero point location or plate rotation the settings are performed much faster.

4. Automatic Torch Height Control based on Plasma Arc Voltage

The initial height sensing is done mechanically. During cutting, the distance between the torch and the plate is kept constant by means of measuring and controlling the plasma arc voltage (via servo motor in Z-axis, which gives the torch tool station the necessary dynamic). Fast and reliable torch height control results in a high cutting quality and long service life of consumables. The torch is mounted into a protective holder, which guarantees that the power switches off in case of a torch collision. This can hinder or reduce machine downtime.

5. Control System

A control system is placed by default, 5 m from the center of the cable chain. Cables between the cutting table and control system are equipped with steel covers. An additional one meter of cable, covers the distance between the operator panel (display, keyboard, mouse – man machine interface). The distance can be extended and for any additional 5 meters for the operator panel and control system, the price of the prolonged plasma torch lead is calculated individually.

6. AsperWin" Software with Macro Library Directly on the Machine

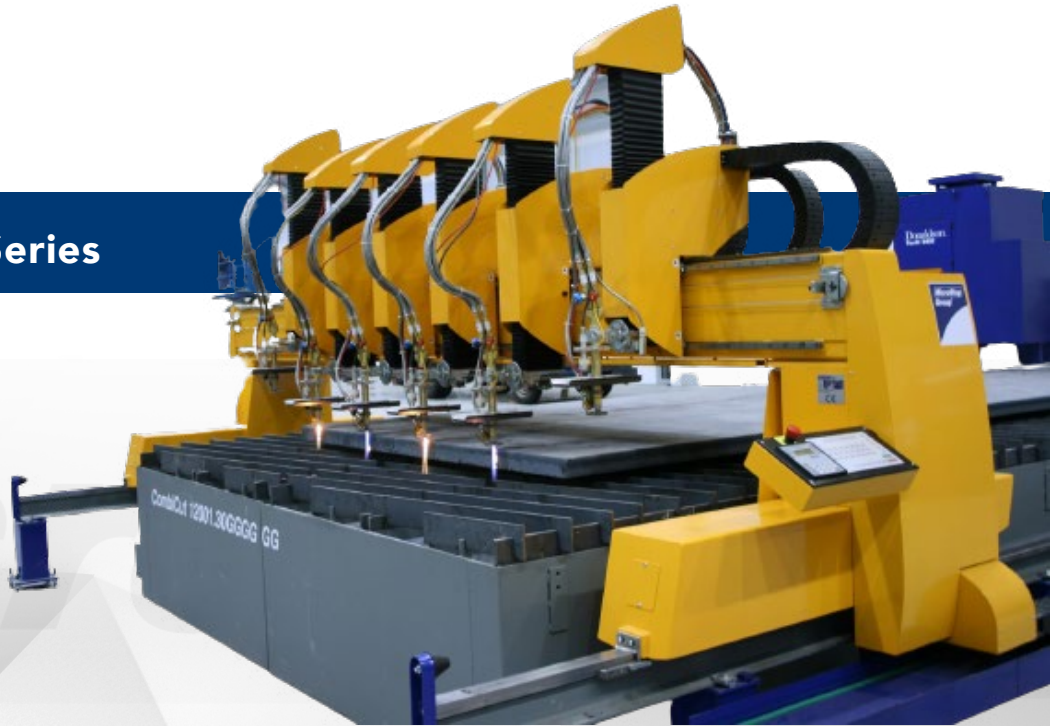
The basic functions of the MSNC-500 system software gives machine operators the possibility to run design programs under Windows directly on the machine while it is cutting. (For the ease of operation, the system is equipped with a mouse). With "AsperWin", you can pick your most commonly designed parts from the ASPER Macro Library and change their dimensions directly on the machine. "AsperWin" makes it possible to develop a cutting plan quickly and easily, not needing a second computer. Apart from that, drawings in a DXF Format can be transferred from all standard CAD/CAM Programs.

ASPERWIN is a software tool dedicated for computer-aided design of cutting plans and subsequent generation of a corresponding cutting code (NC program) for cutting machines. The program provides a variety of functions and settings that assist to optimize parts nesting on the cutting plan area (corresponding to assumed metal sheet). Program functions are accessible via a menu system or hotkeys. Most frequently used functions are also accessible via symbols in the program toolbar.

ASPERWIN is not intended for designing of parts, as it is assumed that a part has already been prepared in a standard CAD system. Input files to ASPERWIN can be also prepared NC programs.

ASPERWIN nests imported parts according to selectable criterion. Chains of entities creating a part can arbitrarily be divided into separately cut parts called sections that define the various attributes.

8 Oxyfuel CombiCut Series



ASPERWIN automatically adds lead-ins and lead-outs to cutting plan sections according to the user specified parameters. Automatically generated lead-ins and lead-outs can be modified manually at a later stage. A section cutting order can be created automatically or manually. The criterion for automatic ordering is the shortest possible traveling path. This is based on the fact that first holes are cut and only then the outer contours. Recognition of holes and outer contours is performed automatically in ASPERWIN. Any part of a cutting plan can be assigned to a selected group. The group can be manipulated as a single item to carry out various operations for optimized nesting, e.g.:

- Movement to arbitrary locations within the cutting plan (positioning use either absolute or relative point definition, or grid with adjustable size, location and slope).
- Rotation around selected points by an angle. Mirroring around generally defined axes, including vertical and horizontal.
- Copying with defined number of copies
- Deletion

Actual settings of the parametrical defined values of ASPERWIN can be saved in form of a so-called template. It is possible to create an arbitrary number of templates that can be saved and distinguished under user-specified names. New cutting plans can be created using already existing templates.

ADDITIONAL USEFUL FEATURES OF ASPERWIN SOFTWARE CAN BE LISTED AS FOLLOWS:

- Commands for beveled cutting form a specific set.
- Selected parts or a group of parts can be viewed in detail using ZOOM functions.
- Designed cutting plans can be printed on printer.
- ASPERWIN also includes simulator software, enabling to simulate generated codes. These are done in either automatic or tracing mode.

Macro Library "AsperWin Select"
An integrated macro library "AsperWin Select" is a useful addition to the many programming possibilities in the MicroStep MSNC-500 control system. It offers more than 80 standard forms which can be easily selected and dimensions can be modified and then transferred into the cutting program.

NC-Simulator "AsperWin NC-Sim"
By means of interpolation with the NC-Simulator, all cutting plans can be tested and modified. Interconnection with the PPS-unit is also possible.

7. AsperWin Automatic Nesting Module
An automatic nesting module provides effective creation of cutting programs with a high number of cutting parts. The operator creates a list of cutting parts that need to be cut out and specifies the list of half-finished products. The nesting process can be interrupted and manually modified anytime.

STANDARD FEATURES:

- Arbitrary number of cutting parts in all formats supported by Asper (DXF, DSTV, IGES, PLA...)
- Arbitrary number of right-angled half-finished products of different dimensions. Parts can be nested on remnant sheets to maximize usage of previously cut material.
- Possibility to place parts in holes
- Various methods of nesting:
- Right-angled nesting – the parts are substituted by circumscribed rectangles
- Extended right-angled – cutting part position created by square algorithm is adjusted according to the real form of the cutting parts. The program groups cutting parts and saves them as rectangles.
- Polygonal nesting – the cutting part is substituted by a polygon
- Possibility to change data anytime (number of cutting parts, number and size of half-finished products)
- Possibility of nesting on partly full half-finished products

OPTIONS, EXCEPT WHERE STIPULATED

Further licences for Asper modules are available at 50% of the original price

8. Remote Service Software MicroStep including Hardware

Diagnostic software is designed to enable control over all important functions of the MicroStep MSNC-500 control system, installed software applications and parameters as well as other important functions of the CNC machine itself (servo regulators, servomotors, end switch...) The package includes a license for the MicroStep diagnostic software FDS-500 Win (including communication software pc) and a modem with an ISDN-card is included. During the guarantee period remote diagnostics can be acquired free of charge. Integration of SecuRemote VPN Client in the CheckPoint-Software provides a high security. Easy access to the equipment from the MicroStep support central unit remarkably reduces service costs as well as unnecessary travel costs and improves productivity of the CNC machine.

The customer must provide a telephone line for the machine.

9. CNC Interface for plasma + Integration into the CNC Control for fine plasma sources

CNC-interface provides an interconnection of plasma to the control system including its cabling.

10. Power distributor for system

The power distributor provides a connection for the equipment (technological table, plasma source and filtering units) to electricity. The power distributor includes a main switch (emergency switch), circuit breaker for separate units and CNC interface.

11. Remote Control for Filtering Extractor

The filtering device is equipped with its own control unit and is remotely controlled by the MSNC500 CNC control system. It saves time, energy and provides high safety for the cutting process.

12. Connection filtering unit to power distributor

13. Installation, Putting in Operation

The machine will be installed and put into operation by 2 technicians from MicroStep. The installation will take approximatly 2 weeks.

- Power, compressed air and gas supplies must be ready before the installation.

In case there is any waiting time, for which the seller is not responsible, the seller has a right to additionally charge with respect to his service rates. The buyer would have to cover all charges related to the installation. (rebooking of hotel, flight tickets, etc).