

# MicroStep<sup>®</sup> NEWS

spol. s r.o.

## MSF

Powerful fiber laser system

## MasterCut

Compact CNC cutting machine

## ITH

## Intelligent torch holder

with ACTG calibration system\*

\*as option

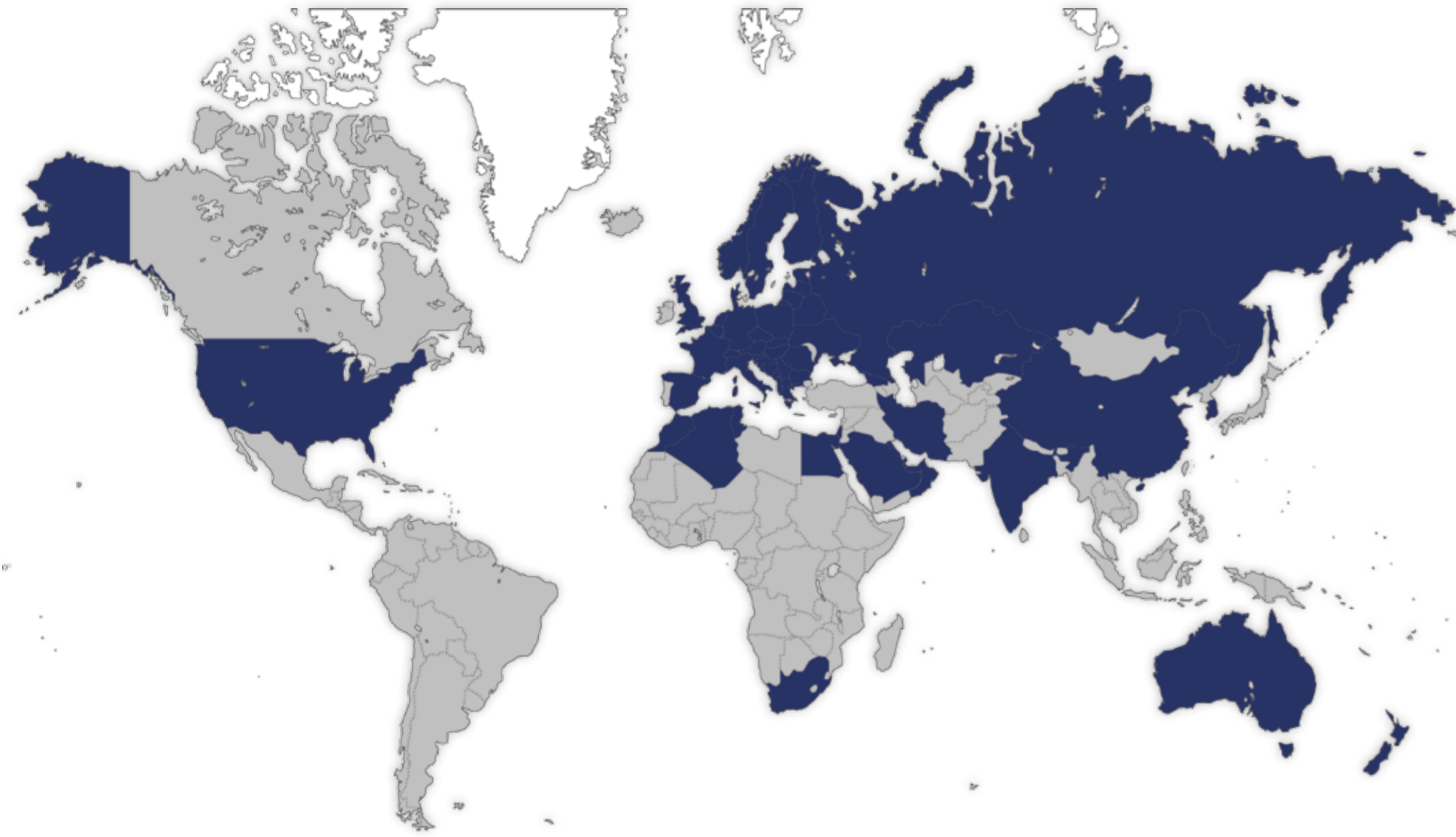


# Dealers

MicroStep, spol. s r.o. as a manufacturer based in Slovakia maintains the policy of selling to foreign countries exclusively via dealers or daughter companies. It has several advantages – a local company has knowledge of the local market which implies good understanding of customers situation, it is closer to its customers (in distance) which ensures good reaction times, it can serve its customers in local language – to name a few.



## MicroStep World



Africa | Asia | Australia | Europe | North America | South America



# Introduction



Ing. Alexander Varga, PhD.  
General manager



to offer the full range of contemporary used cutting technologies along with a great variety of additional equipment and software for drilling, tapping, inkjet or microprecision marking, process synchronization (scanners, CCD cameras, marking of synchronization lines), material handling and enhanced production management. As a producer of not only machine mechanics, but also the control system and CAM

Since its inception in 1991, the company MicroStep, spol. s r.o. has been involved in designing and manufacturing of CNC cutting machines equipped with plasma, laser, oxyfuel and waterjet technologies as well as routing and drilling machines. Over the years the company has become one of the leading suppliers of cutting equipment and has supplied more than 1300 machines worldwide with strong channel partners spread in more than 45 countries. More than 30% of company's products are complex machines which require continuous development and search for new, innovative technical solutions. Today, MicroStep is able

software the company is delivering solutions perfectly fitted to actual customer demands and future-proof with respect to machine extensions in size and additional technologies.

Moreover, MicroStep machines can process several types of materials including plain sheets, pipes, profiles, domes and elbows while implementing advanced processes such as automatic welding seam preparation. All of MicroStep's machines are operated by iMSNC®, a multi-tasking PC-based control system developed and produced in-house.

At present, MicroStep has the total

strength of 290 highly skilled employees, out of which 34 are working in the field of integrated development of mechanical and electronic nodes of CNC machines and control systems software. The company has built up a broad manufacturing base and keeps continuously upgrading it with new CNC machines and technologies such as robot welding. Over a period of time, MicroStep has established good relationships with suppliers of machine components with focus on industry's leading manufacturers: Hypertherm, Kjellberg, Thermal Dynamics, IPG, KMT, PRC, ROFIN, Harris, GCE in the field of cutting technology; Bosch Rexroth, THK, HIWIN in the field of linear motion components; Festo, Asco Joucomatic in the field of pneumatic components; Donaldson, Kemper and Teka in the field of filtration systems.

The cutting equipment is currently seeing a massive change worldwide. New systems bring new opportunities for cutting process so there is a continuous need for integration of these technologies into the CNC machines which puts new demands on machine mechanics and controls. Thanks to the continuous effective R&D in the fields of new mechanical compo-

ponents, electronic modules and control systems software, MicroStep was able to adapt quickly on the new trends. Furthermore, based on experiences from the past, the company now enters a new field of activity – robot applications in cutting, welding and manipulation processes.

MicroStep's strategic objective is to continuously improve the products and the related services in order to deliver – besides the standard state-of-art cutting machines – also high-end customer solutions which respect latest trends in the industry. In line with its strategic goals, MicroStep continually invests in research and development. A new MicroStep administrative and development centre was completed in October 2011. In addition to developing own R&D base, the company is working closely with departments of the Slovak Technical University in Bratislava and the Institute of Materials & Machine Mechanics of the Slovak Academy of Sciences in order to utilize the latest achievements in design and control of modern mechatronic systems. It is actually an endless story of continuous modernization of the entire product portfolio.



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## ACTG: The new performance quality in bevel cutting

The auto-calibration system of tool geometry – ACTG – brings improved accuracy for a long-term continuous performance of bevel tool stations. The self-learning calibration system is a smart solution that detects and compensates geometry inaccuracies which can arise during collisions or other outer manipulations with the torch. Along with the new ITH solution, MicroStep has developed a

system that pushes the boundaries of bevel cutting towards greater effectiveness and reliability.\*

The issue in recently used holders of bevel torches is the occasional inability to return to the correct position after collision and the tedious adjustment procedures for fixing the torch in position after accidental deformation of the rotator. To solve this, MicroStep developed an innovative measurement and calibration system that automatically measures the deviations from the correct torch position and – in spite of mechanically returning the torch to the initial position – adjusts the motion of the machine by software means so that the tip of torch still moves correctly despite its actual displacement in the holder. The system consists of a ball-shaped torch probe, a calibration station located at the end of machine and the corresponding control software. Furthermore, a brand new construction of the torch holder was designed. The patent pending ITH



(Intelligent Torch Holder) is able to detect even small deviations from the correct torch position (e.g. caused by torch sliding on material surface in case of big bevel angles) and has an integrated IHS function – initial height sensing with the torch body instead of external probe.

nodes on CNC machines for cutting of materials by energy-beam technologies” supported by the Ministry of Education, Science, Research and Sport of the Slovak Republic within incentives for research and development provided from the state budget under the Act no. 185/2009 Coll. on incentives for research and development.

\*The system was developed within the project “Research of technology

## MSF: A powerful fiber laser system

MicroStep introduces the MSF series of machines specially developed for cutting with fiber lasers. The machines optimally interconnect the technological advantages of laser technology with those of a modern CNC cutting machine.

Compared to a CO<sub>2</sub> laser system, processing of materials with fiber laser offers a fair amount of advantages concerning the wavelength, the high efficiency, the good beam quality as well as the compact, maintenance-free and insensitive construction. Thanks to the shorter wavelength, the laser beam can be guided by a process fiber in spite of the complicated and sensitive beam guide with numerous optical elements. The fiber guarantees consistent beam quality within the complete working area and thus enables higher cutting speeds and lower kerf along with a low heat impact especially in thin sheet metals, preventing deformation of the cut parts. Maintenance-free operation and construction of the



laser, together with the functional and robust design of the MSF machine, high quality of used components and a high share of in-house produced parts result in an excellent cost/performance ratio, low power requirements and tiny maintenance costs of the complete system.

The machine mechanics is designed for production of highly accurate parts at high cutting speeds whereby cutting of non-ferrous metals such as copper or brass is also possible. The outstanding dynamics of MSF is achieved by a low-seated, gantry, digital AC servo

drives, backlash gears and precise planetary gears. The position of all axes is measured by incremental encoders. Due to the wavelength the complete system is closed in a security cabin which provides good accessibility while preserving the necessary protection. For convenient material handling, the machine is equipped with a MicroStep shuttle table that significantly reduces the idle time during loading and unloading.



# Pipes, profiles, domes, elbows - no problem for MicroStep



Part from standard flat-bed machines, MicroStep offers an exceptional choice of equipment for processing of 3D rotary objects and polygonal profiles. The rotary objects include various sized pipes (diameters reach from Ø 30 mm up to Ø 1500 mm and even more), conical pipes or polygons, torispherical or elliptical domes and elbows.

Standard configuration of a MicroStep machine in sheet and pipe cutting execution consists of a cutting table for placing the sheets and an exhausted shaft for positioning of pipes which is placed along the longitudinal side of table. The pipes are clamped in a rotary pipe cutting device located at the beginning or at the end of the shaft.

In addition, special adapters for clamping of polygonal profiles or elbows can be attached to the pipe cutting device. For cutting of domes, a dome cutting area can be located behind or before the cutting table. Furthermore, for big sized pipes, domes, or for special projects we deliver specialized machines like CPCut or DRM-D, or dedicated pipe cutting machines with optional automatic feeding of pipes.

The range of applications is wide: from precise multiple intersections of pipes, profiles, elbows and domes, creation of constant bevels for V welds and constant welding volumes for welding robots up to pipe intersections cut from plane sheets including bridges that prevent deformation of holes during bending. A special inclinable rotary table for domes was designed for convenient trimming of domes with a standard MicroStep rotator.



For all above applications MicroStep delivers own CAM software – dedicated applications PipeSel, SolidSel, DomeSel, ElbowSel, Profile cutting module – which include functions for advanced communication with MicroStep's proprietary control system iMSNC®.



MG 13501.30 PraGr  
www.tenez.cz

## Tenez a.s. / Czech Republic

The company TENEZ a.s. is a manufacturer of stainless steel and enameled equipments for the food, chemical and pharmaceutical industries. The company has three manufacturing divisions. STAINLESS Division specializes in manufacturing of stainless steel pressure vessels and devices. HEAT Division manufactures different types of heat exchangers. ENAMEL Division focuses on enamel reservoirs, apparatuses, filters and repair of the enamel containers. TENEZ a.s. is a holder of ISO 9001:2000 quality certificate.



Quality. Flexibility. Reliability.  
MasterCut 3001.10 P + CH800P  
www.kotlarek-drewitz.de

## Rüdiger Kotlarek Heizungs- und Sanitäreanlagen, Rohrleitungsbau / Germany

Since its founding in 1988 the company has focused on the installation, service and maintenance of heating and sanitary systems. In 1997 Rüdiger Kotlarek extended the business activities into the field of piping systems for biogas plants. Based on many years of experience in the biogas business, the company has become a reliable partner for designers and builders of biogas pipelines not only as a subcontractor but as well in terms of planning support and service solutions.

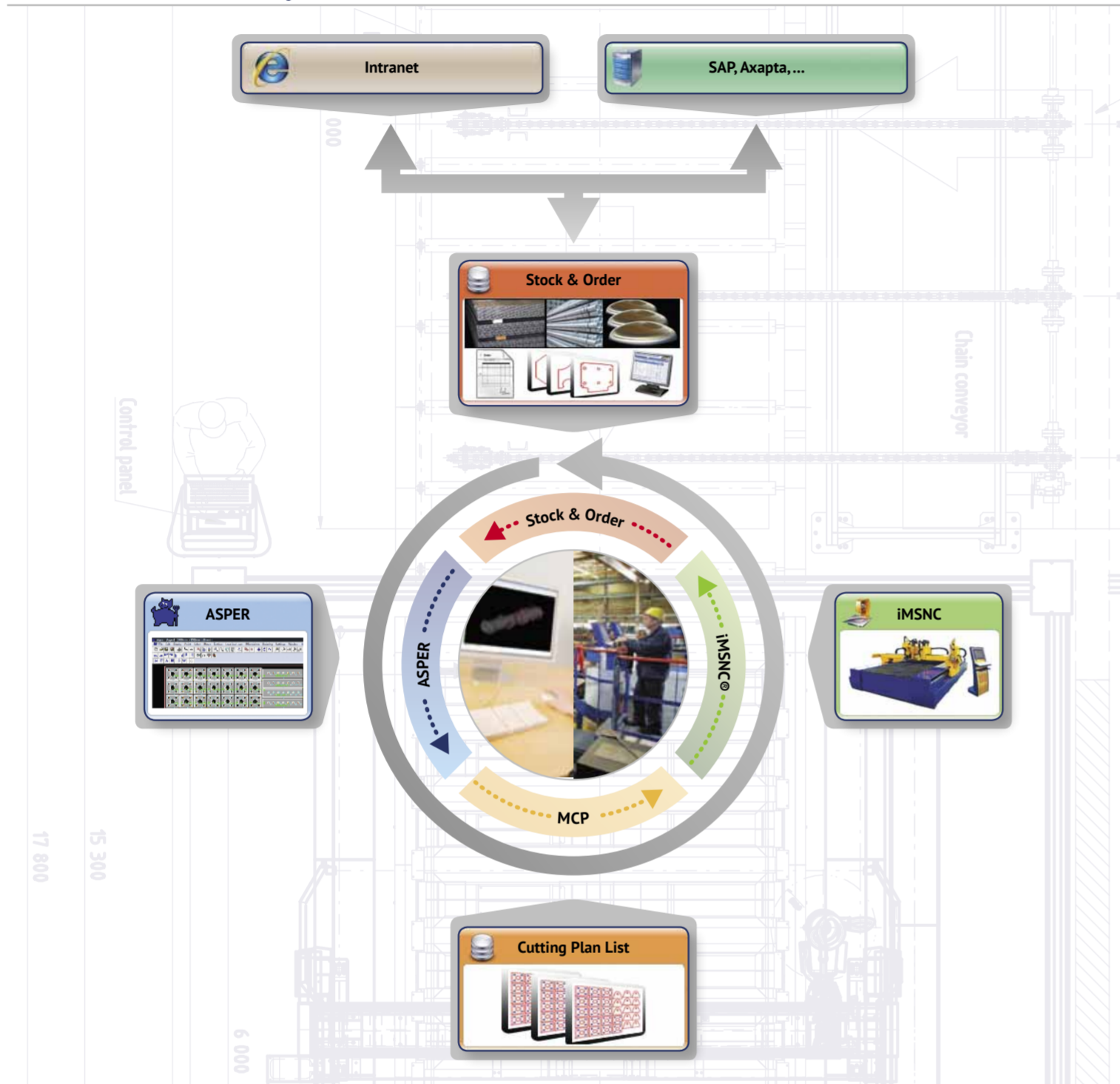


# MPM: The Production Management

MicroStep's solution for automated management of production integrates the production data, control systems of CNC machines and the automatic nesting software AsperWin®.

MicroStep Production Management (MPM) adds computer-aided process planning (CAPP) capabilities to MicroStep solutions. An integrated system of order processing, nesting, stock control, machine operation planning and evaluation helps to reduce work-in-progress, to save material, and to eliminate operator errors. Designed for automation of the workflow on MicroStep machines within AsperWin® and iMSNC®, the system offers as well possibilities for cooperation with other producer's machines. Naturally, the production data can be shared with customer's ERP system (e.g. SAP, AXAPTA). For effective production planning, the system shows weight analysis of particular orders along with weight reports of actual stock resources.

## MPM – Production cycle



### Stock & Order

Managed database of:

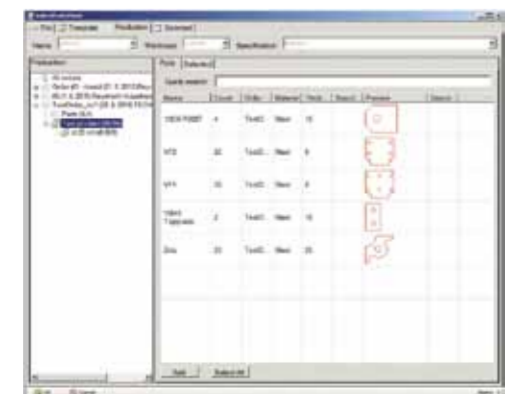
- stock materials – semiproducts (sheets, domes, pipes, elbows) and their rests
- parts and products (=part groups)
- orders

Thanks to the feedback from cutting machines, the database is automatically updated after each cutting. The user is getting an actual overview of all processed orders and stock supplies in the form of order status displays and weight reports. Information can be shared with onsite ERP system.



### AsperWin®

Integrated CAM software: The designer of cutting plans simply selects a machine and picks up a semiproduct from the stock database – the parameters for nesting are set automatically according to the technologies of chosen machine and properties of the semiproduct. Parts for nesting are as well loaded automatically from the order database according to order priorities. Eventually, after the nesting a rest material for stock can be defined.



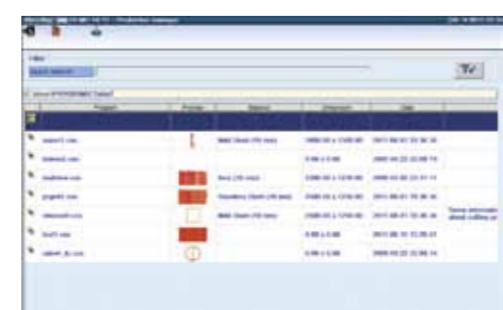
### MCP

Interface for management of connected cutting machines. Cutting plans created by CAM clients are organized according to order priorities and stock availability and automatically distributed to cutting machines according to available technologies and defined priorities of each machine. In case a cutting was not completed for some reason, the cutting plan returns automatically to the queue with highest priority.



### iMSNC®

Integrated control system: The machine operator simply follows the displayed MCP priority joblist for his cutting machine. Thanks to the material information stored in each cutting plan, the machine automatically chooses appropriate technological parameters for each semiproduct (sheet, pipe...) so the machine operation is considerably simplified. After cutting, the operator evaluates the cutting results in an on-screen menu. In case some parts were not cut properly, these parts are returned for the next nesting with highest priority and the order status is updated accordingly.



# MPM: Production automation at KMS

Karl Molin Steel Construction in Denmark is a steel constructor with high automation awareness. One of MicroStep's machines at their plant – a 6 x 2 meter DS machine – is designed for automated production of high precision flanged parts. It is equipped with a 22 kW drill, a tool station for plasma cutting and a micropercussion unit for part marking. The machine runs in a semi-automatic mode managed by the MPM system which allows the whole machine and stock to be operated by one skilled employee. MPM is used for distribution of parts for automatic nesting and for the assignment of nested cutting plans to available materials on stock, as well as for providing feedback about the order statuses.

At the order entry department, orders consisting of drawings of particular parts are put into the database. The machine operator is responsible for loading of the plates from stock and registering them as semiproducts in the MPM database. Afterwards he starts the nesting process in AsperWin® (installed directly on the machine's MMI console), during which the parts from various orders suitable for the particular plate are selected and nested automatically – according to order priorities. The way of operation is following: the operator loads plates one by one on the input chain conveyor of the machine, for each plate is auto-



matically generated a cutting plan which is stored in the database of cutting plans (MCP). The plates are transported on chain conveyors to the working area of the machine.

Once reached the machine's input roller conveyor, a plate is automatically aligned along the longitudinal edge and clamped by hydraulic grippers with integrated thickness

detection sensors. The thickness is measured, and the plate is moved under the gantry for automatic laser measurement of its length and width. Having all the information about the plate, a corresponding cutting plan is automatically loaded from MCP. Part production process begins consequently, which includes marking, drilling and subsequent cutting of parts. The process is optimized to avoid unnecessary movements of the material. Cut parts are unloaded to a conveyor belt which transports them into the container for finished parts. Most importantly, after the cutting the machine automatically updates the stock & order databases and thus provides feedback for the order department about statuses of all orders.



DS 6001.20 APB | HS 6001.30 P | CombiCut 13501.25 PG  
www.karlmolin.dk

## Karl Molin Stålkonstruktioner A/S / Denmark

KMS was founded in 1966 as a small one-man business and it has ever since expanded rapidly. Today the company employs about 100 skilled and very experienced employees, who all follow the same goal: to deliver steel constructions that comply with the requirements of the customer when it comes to quality, price and delivery time. KMS is occupied with planning, manufacturing and erection of steel constructions within the industry and within agriculture. Every year, the company erects app. 8.500 tons of steel, mainly in countries like Sweden, Norway, Germany and Finland.

# Accessories of MicroStep machines

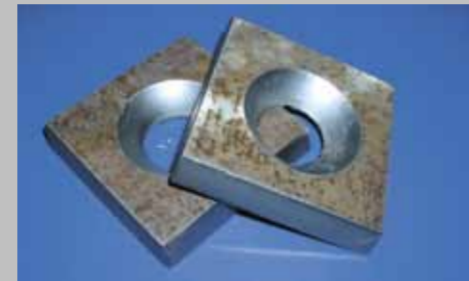
## Plasma

Plasma tool station carries the plasma torch. It is equipped with collision protection, laser pointer, automatic torch height control via plasma arc voltage by default. Plasma marking option is fully supported by iMSNC®.



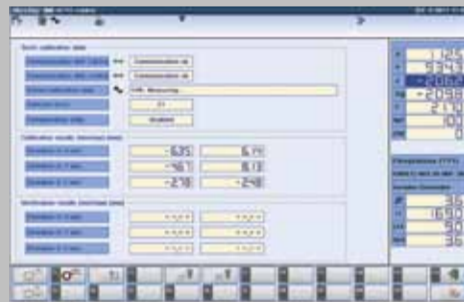
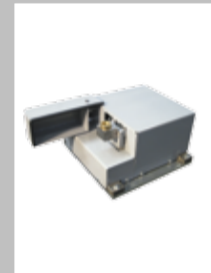
## Plasma rotator

5-axis plasma head with infinite rotation enables bevel cutting of sheets, pipes and profiles with tilting up to 50°. Torch height control for constant angle is provided via plasma arc voltage and for long variable bevels via inductive sensors.



## ACTG

ACTG (Automatic calibration of tool geometry) automatically compensates by advanced motion control any mechanical inaccuracy of the bevel head which can occur e.g. by accidental collision.



## Plasma rotator 90°

Special design with a tilt range up to 90° enables bevel cutting at any point of the dome as well as dome trimming. The variable bevel cutting feature provides a constant welding volume along the contour for robot welding.



## Tilting tool station

Tilting tool station enables automatic setting of torch slope for bevel cutting with plasma in longitudinal direction (X-axis). The bevel range is ± 90°.



## Oxyfuel

Oxyfuel tool station carries the oxyfuel torch. Fully automatic gas console with preset parameters controlled from iMSNC® ensures stable quality of cuts and best efficiency. A holder with additional collision protection or a manual tilting possibility up to 45° can be included as option.



## Oxy triple torch

Oxyfuel triple torch with fully automatic gas console enables complex bevel cutting of V-, Y- and K-cuts with 3 oxyfuel torches within bevel range 20° – 50°. The angle and the span between the torches can be set either manually or automatically.



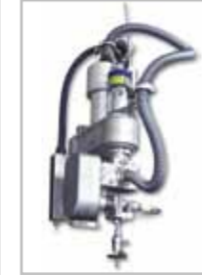
## Multi-tool station

Multi-tool station carries several torches on a single Z lifter. Gm-type is dedicated for cutting of stripes with oxyfuel torches. Wm-type for a waterjet cutting machine can carry up to 4 water jets.



## Waterjet Rotator

5-axis rotation head for waterjet cutting enables fully automatic bevel cutting of conductive and non-conductive materials with bevel up to 40°.



## Pipe cutting device

Pipe cutting device is dedicated for clamping and turning of pipes and profiles. Together with a plasma rotator and dedicated CAM software it offers the full range of pipe based applications.



## MicroPunch

MicroPunch marking unit is designed for fast marking of several types of materials – sheets, tubes, profiles – with differently machined surfaces. The material can range from plastics to hardened steel.



## CCD-Camera

CCD camera can be attached to a tool station (e.g. plasma) or mounted on a separate tool station. It is used for:

- a) scanning of the shape of template for conversion into DXF
- b) scanning of holes on plate for positioning



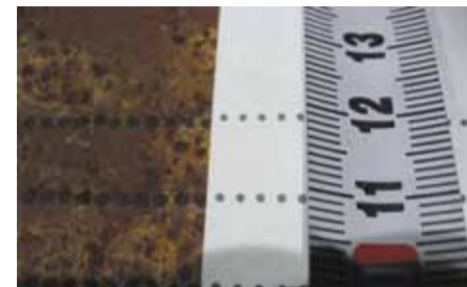
## Drilling tool station

MicroStep offers a variety of drilling and tapping tool stations for several machine types reaching from small drilling heads for soft sandwich materials to big drilling and tapping units with internal cooling of tool and a possibility of automatic tool change.



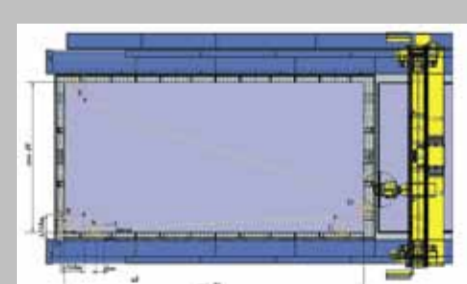
## Inkjet

1, 7, 16 or 32-nozzles inkjet writer is designed for multi-purpose marking applications in industrial environment. It can write lines, characters or even barcodes and 2D matrix in various directions. The marking speed reaches a notable 20m/min.



## Automatic plate alignment

Laser sensor is used to scan plate edges for automatic alignment of the plate with coordinate system. Supported is a 3 point or a 5 point detection whereby the 5 point detection also verifies the plate size.



## Second touchscreen on the gantry

Second touchscreen on the gantry has all functions of a standard touchscreen integrated in the MMI console. It is very helpful especially in case of longer machines because the operator can set all parameters (e.g. for automatic gas console for oxy-fuel) directly on the gantry.



# MG CNC plasma & oxyfuel cutting machine



The MG series is MicroStep's top class CNC cutting machine suitable for long-term industrial use and meeting highest requirements on precision, performance and easy operation. MG

machines provide a wide variety of applications: bevel cutting with plasma and oxyfuel, pipe, profile, dome or elbow cutting, drilling with automatic tool exchange, plate positioning with laser sen-

sor or a CCD camera, inkjet or micropercussion marking. A special heightened version of gantry enables oxyfuel cutting up to 250 mm.

## Options

Plasma	01
Plasma rotator	02
ACTG	03
Tilting tool station	04
Oxyfuel	05
Oxy tripple torch	06
Gm tool station	07
Drilling tool station	08
Pipe cutting device	09
Inkjet	10
MicroPunch	11
Automatic plate alignment	12
CCD camera	13
Second touchscreen on gantry	14



## IHC Metalix BV / The Netherlands

IHC Metalix is one of the biggest and most experienced sub-suppliers of work preparation services and pre-manufactured metals for the shipbuilding and ship repair industry. This, together with their high flexibility, gives the customer the opportunity to change their production easily from long term conversion or new building projects to, for instance, short term small or big size repair projects.



3 x MG 27001.35 PrI | 2 x MG 27001.35 PrkI | CombiCut 18001.30 IGGmGm  
www.metalix.nl | www.ihcmerwede.com



## Klößner Stahl- und Metallhandel GmbH / Germany

Multi Metal Distribution

Klößner Stahl- und Metallhandel GmbH is the German subsidiary of the global Klößner & Co Group. Founded as early as 1906, this is the biggest producer-independent distributor of steel and metal in the combined markets of Europe and America, with 11 000 employees and 290 branch offices in sixteen countries.



klößner & co multi metal distribution

MG 12001.30 PraP | PLS 27001.30 PG  
www.kloeckner-stahlhandel.de

## Konekorjaamo Riikonen Oy / Finland

The Riikonen brothers started a business as a machine repair shop. Uncompromising and determined work have grown the company, over the past 30 years towards the overall comprehensive supplier serving the machine shops. Workshop production, and in particular contract deliveries to the supply of transport and materials handling industries form the bulk of the company's turnover.



MG 21001.45 PrP + 1.45 PP | CombiCut 6001.30 GGG  
www.konekorjaamoriikonen.fi

# DRM-D CNC sheet & dome cutting machine



DRM-D is a heavy-duty CNC cutting machine designed for a wide range of dome, sheet and pipe applications. Its robust gantry allows a vibration-free operation of heavy equipment like automatic oxyfuel triple torches

or the special 90° plasma rotator with a 1000 mm stroke of Z-axis. Along with the full range of sheet and pipe cutting possibilities, DRM-D offers special applications on domes like trimming, separation cuts, cutting of diverse openings, welding seam preparation and cutting of domes placed upside down.



## Options

Plasma	01
Plasma rotator	02
ACTG	03
Plasma rotator 90°	04
Tilting tool station	05
Oxyfuel	06
Oxy tripple torch	07
Gm tool station	08
Drilling tool station	09
Pipe cutting device	10
Inkjet	11
MicroPunch	12
Automatic plate alignment	13
CCD camera	14
Second touchscreen on gantry	15



MG 50001.30 PrkPrk + 1.30 PrkPrk  
www.spfchilo.com

## S.P.F Chilò S.p.a. / Italy

The business was founded in 1965 from an initiative of the Chilò brothers. It rapidly gained a foremost role in the sheet metal sector, specialising in the production of semi-processed heavy gauge material with large dimensions. In 1995 it became one of the first Italian realities in its industrial sector to obtain ISO 9002 certification, as proof of its constant commitment towards achieving high standards in quality.



DRM 7501.65 Pr  
www.tankends.co.za

## Tank Ends / South Africa

Tank Ends is the preferred Dish End manufacturer in Africa, well-known and respected as a specialist company which process and techniques have been developed over the past 40 years. The hi-tech DRM machine adds value to the production line of over 80% of the dish ends required in many of the country's industries, incl. the petrochemicals, mining, road and rail transport, metallurgical and foundry, food and beverage, and the pulp and paper industries.



DAMEN SHIPREPAIR ROTTERDAM

MG 18001.30 PracG  
www.damenshiprepair.com



## Damen Shiprepair Rotterdam BV / The Netherlands

Damen Shiprepair Rotterdam is a Ship Maintenance, Repair and Conversion yard, located strategically in the centre of main port Rotterdam. The yard is easily accessible through the deep draft waterways without any locks, bridges or other obstacles. Another advantage is that all other service providers for shipping are in close proximity. The yard is ISO 9001:2008 and ISO 14001:2004 certified, this enables to render services to all major offshore companies.



# DRM-B CNC drilling machine



**D**RM-B is a special version of DRM machine dedicated to heavy-duty CNC drilling of construction sheets, tube sheets for heat exchangers or other demanding drilling jobs. The machine is equipped with a special drilling table with drill-protective flats and a rotary tool magazine for 16 tools, optionally plate marking by inkjet or micropercussion is possible.

The machine finds its application in bridge or building construction companies.

### Options

Drilling unit	01
Inkjet	02
MicroPunch	03
Automatic plate alignment	04
CCD camera	05
Second touchscreen on gantry	06



06

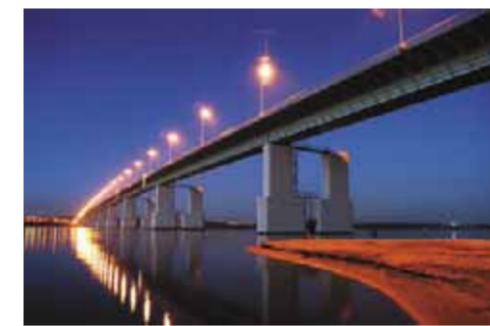


We join the world with quality

MG 15001.40 PraPra | MG 15001.40 PrPr | PLS 15001.25 PPr | PLS 12001.25 PPr  
www.tatravagonka.sk

## Tatravagónka Poprad, a.s. / Slovak Republic

TATRAVAGÓNKA, a.s. presently ranks among the most important producers of rail freight vehicles and bogies in Europe. It has more than 85 years of experience in mechanical engineering where it has found its stable place thanks to modern, still developing technologies, quality constructions, qualified working power and stable trade partners. Due to the ability to construct any kind of wagon the company has become a reliable partner for railways all over Europe.



We find the peace when joining the banks

DRM 28001.36 BI  
www.kurganstalmost.ru

## Kurganstalmost CJSC / Russian Federation

Kurganstalmost CJSC is Russia's leading enterprise in manufacturing of bridge steel constructions. With an annual production output of 65.000 tons the company covers 25% of Russia's bridge constructions market. The basic competitive advantage of the company is manufacturing of complex steel constructions for individual projects. Bridges manufactured at the plant in Kurgan can be found in cities from the Far East to Europe: Germany, Turkey, Afghanistan, Laos, China, Kazakhstan, Belorussia as well as many Russian cities and towns.



MG 13501.25 PrB + 1.25 G/Pe + CH500P  
www.jansteel.co.il

## Jansteel Steel Industry Ltd. / Israel

Jansteel Steel Industry Ltd. is a professional company with great experience in designing, building and marketing vehicle chassis and other automotive products. The company has a sheet metal working department highly skilled in complex CNC sheet metal work, including cutting, punching and bending. In addition, Jansteel is engaged in a variety of special projects, such as production of armored vehicles, armored shelters and other custom structures. The company's modern plant in Israel covers a space of 7,700 square meters and features world's most advanced production machinery.

# CombiCut CNC plasma & oxyfuel cutting machine



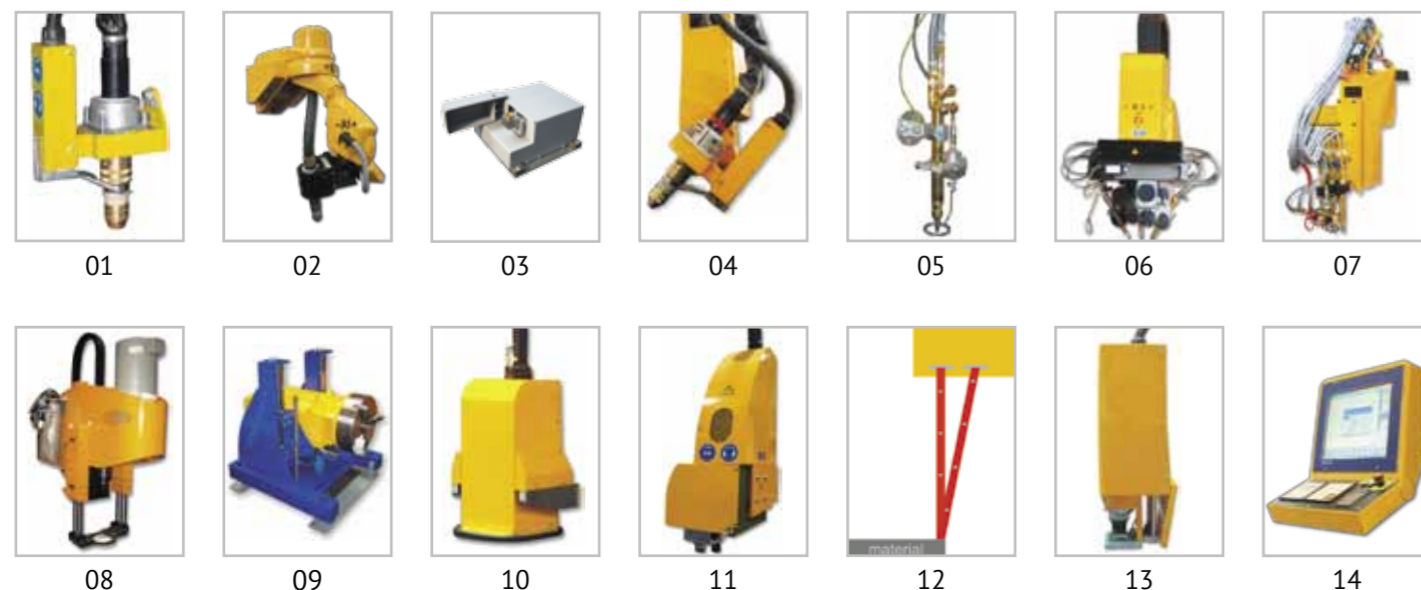
This robust and high-precision CNC machine is designed especially for multiple-shift high-performance plasma and oxyfuel cutting. It allows cutting of steel up to 300 mm, bevel cutting

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.



## Options

Plasma	01
Plasma rotator	02
ACTG	03
Tilting tool station	04
Oxyfuel	05
Oxy tripple torch	06
Gm tool station	07
Drilling tool station	08
Pipe cutting device	09
Inkjet	10
MicroPunch	11
Automatic plate alignment	12
CCD camera	13
Second touchscreen on gantry	14



ЕНЕРГОРЕМОНТ - БОБОВ ДОЛ АД



CombiCut 12001.30 PraBGG + CH1200P  
www.erhold.bg/en/companys/energoremont-bobovdol.html

## Energoremont Bobov Dol JSC / Bulgaria

"Energoremont-Bobov Dol" JSC is one of the leading companies in the energetic repair activities in Bulgaria. The company is active in the following areas:

- repair, service, maintenance and reconstruction of low- and high pressure steam boilers, water heating boilers, high pressure pipelines, lifting machinery
- repair, service and maintenance of low and high-voltage motors, transformers etc.
- non-destructive testing of metals and electrical measurements



CombiCut 16501.35 Pr + CH1500P  
www.cmi-france.com

## CMI Enterprise / France

With more than 30 years experience in the oil, gas, energy, chemical and pharmaceutical industries, CMI is established as a major supplier for: all types of pressure vessels, shell and tube heat exchangers and skidded units (CEC department - Construction of Pressure Vessel Assemblies) as well as turnkey industrial process installations (IPI department) – assembly of materials necessary for chemicals activities (carbon steel, stainless steel, high & low pressure pipes, special alloys, plastics, glass...)



CombiCut 19501.55 Pr  
www.zshcm.com.cn

## SHENGHUI Gas & Chemical Systems (Zhanjiagang) Co., Ltd. / China

SGCS main business is designing, fabrication and sales of non-standard pressure vessels, cryogenic storage tanks and plates formed into spherical tanks for chemical, fertilizer, petroleum and metallurgical industries, power plants or ship building as well as production of steel parts. The company has a broad experience in methanol, formaldehyde, ozonide water and methanol biohydrogen whole set equipments.

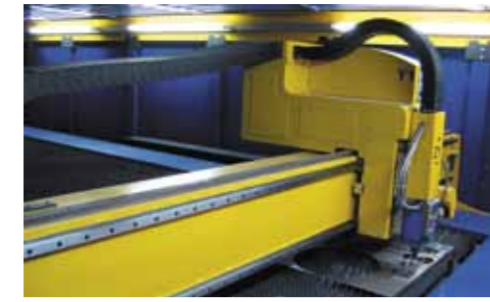
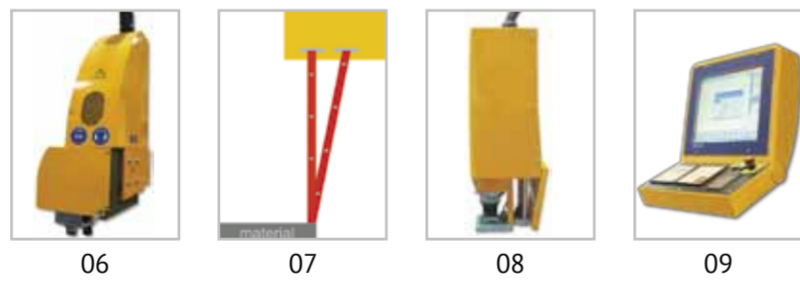
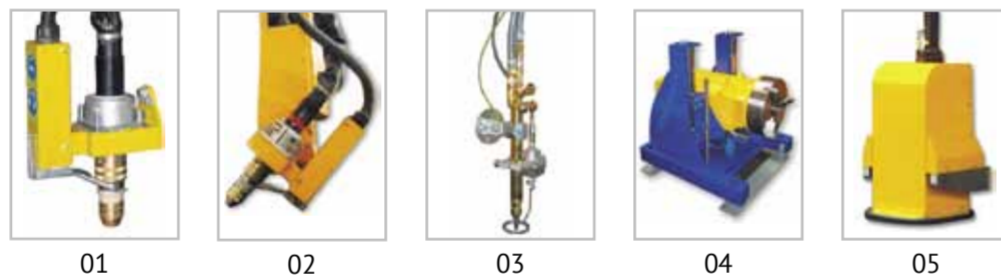
# PLS CNC plasma cutting machine



PLS is a high-precision CNC cutting machine with outstanding dynamic properties and modern design, developed especially for high precision plasma cutting. The excellent dynamics is achieved thanks to a double-side driven gantry, high-precision linear guidelines and a drive system with helical racks and pre-stressed pinions in all axes. Besides standard accessories (plasma, oxyfuel, marking) the machine can be also equipped with a pipe cutting device.

## Options

Plasma	01
Tilting tool station	02
Oxyfuel	03
Pipe cutting device	04
Inkjet	05
MicroPunch	06
Automatic plate alignment	07
CCD camera	08
Second touchscreen on gantry	09



MSF 4001.20 L  
www.mirelta.hu



## Mirelta Holding Kft. / Hungary

TATA-MIRELTA Hütőtechnika was established in 1954. The previous mixed engineering operation changed to clear refrigerating industrial profile in 1968 and was transformed into a company in 1969. Mirelta Holding Kft. are the Hungarian industrial refrigeration specialists possessing an expert team, extensive international markets, manufacturing facilities, offices and industrial sites in an Industrial Park with industrial railways.



MasterCut 4001.20 P + CH800P  
www.watts-specialties.com

## Watts Specialties Inc. / USA

Watts Specialties has been well-known as a premium supplier of plasma pipe cutting equipment for over 25 years. Watts equipment are found in welding shops and welding schools all over North America. The company was started by Don Watts, one of the pioneers of automatic pipe cutting equipment. The Watts cam-arm pipe saddle cutter engineered by Don came to be recognized as one of the great cost-saving devices of the industry.



MSF 3001.15 L + T200  
www.orgeco.sk

## Orgeco, spol. s r.o. / Slovakia

Orgeco, spol. s r.o. based in Nové Zámky (Slovakia) is specializing in development and production of Christmas lighting decorations for exteriors and interiors. The company ranks among Europe's biggest producers in its field, having successfully contributed to Christmas ceremonies in many major European cities. Company's production facility incorporates modern CNC technologies (3D wire bender, fiber laser for cutting of sheets, tubes, wire grids, fan covers) allowing rapid adaptation to market requirements in compliance with high quality of production.

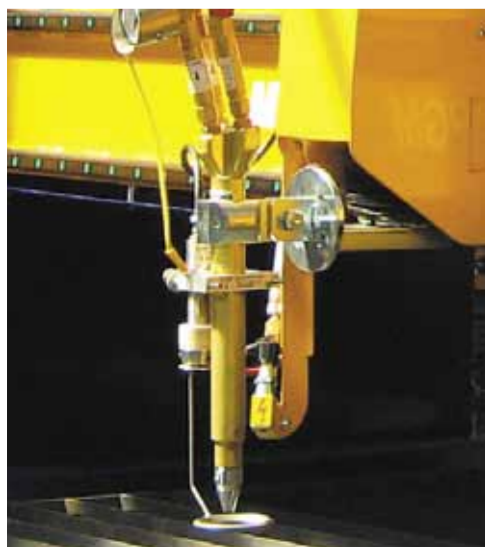
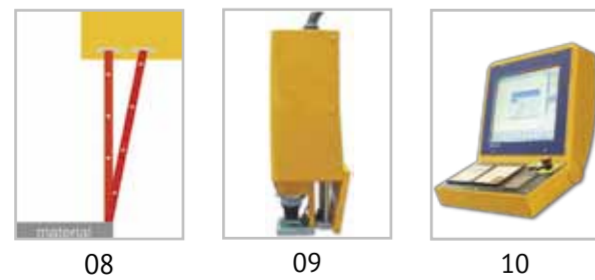
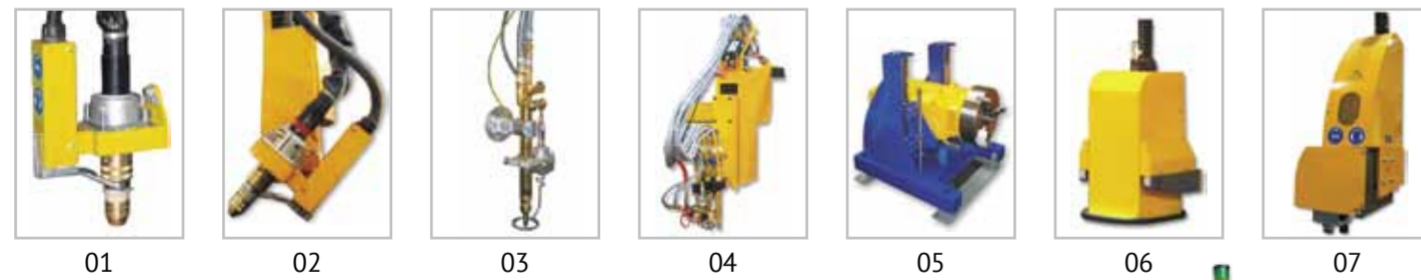
# MasterCut CNC plasma & oxyfuel cutting machine

MasterCut is a versatile CNC cutting machine which can be applied throughout the industry reaching from small workshops to big factories. The application range of the entry version with rails in X direction dedicated to fully automated oxyfuel cutting or cutting with conventional plasma can be enhanced to a variety of high precision plasma cutting applications including pipe, profile or elbow cutting and marking.



## Options

Plasma	01
Tilting tool station	02
Oxyfuel	03
Gm tool station	04
Pipe cutting device	05
Inkjet	06
MicroPunch	07
Automatic plate alignment	08
CCD camera	09
Second touchscreen on gantry	10



## KGS Mekaniska AB / Sweden

KGS MEKANISKA, member of the LKAB group, is a mechanical workshop in the city of Kiruna, north of Sweden. The company is offering laser and waterjet cutting, machining, welding and sandblasting/painting. The complex MicroStep waterjet cutting machine is equipped with 2 waterjet rotators, a straight water jet and a drilling tool station.



Quality first

AquaCut 6001.30 BWRWrW  
www.kgs.se

## Ahmed Mansoor Al-Aali Co. BSC (AMA) / Bahrain

The Ahmed Mansoor Al Aali Group of Companies (AMA Group) is the largest contracting and construction group in the Kingdom of Bahrain. The company provides engineering services in the fields of civil construction, structural and mechanical fabrication and installation, shutdowns and industrial maintenance works etc. The Group has today an annual turnover exceeding US\$ 300 million, over 20 divisions, subsidiaries and joint ventures, employing more than 5,000 people, serving the needs of clients in both the public and private sectors.



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MG 16501.35 PGrGGG + CH1200P | MG 16501.30 PMeGGGG | OxyCut 10501.30 G5  
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www.abb.com

# CPCut CNC pipe and profile cutting machine



CPCut is a pipe and profile cutting line designed for processing of a great range of pipe diameters and lengths. The machine's modular design and variable execution enables a wide range of pipe based applications including trimming, cutting of various openings for multiple pipe and profile intersections or connections, welding seam preparation as well as pipe marking. The application field is in tank, pipeline and power plant constructions.



01

02

03

04

05

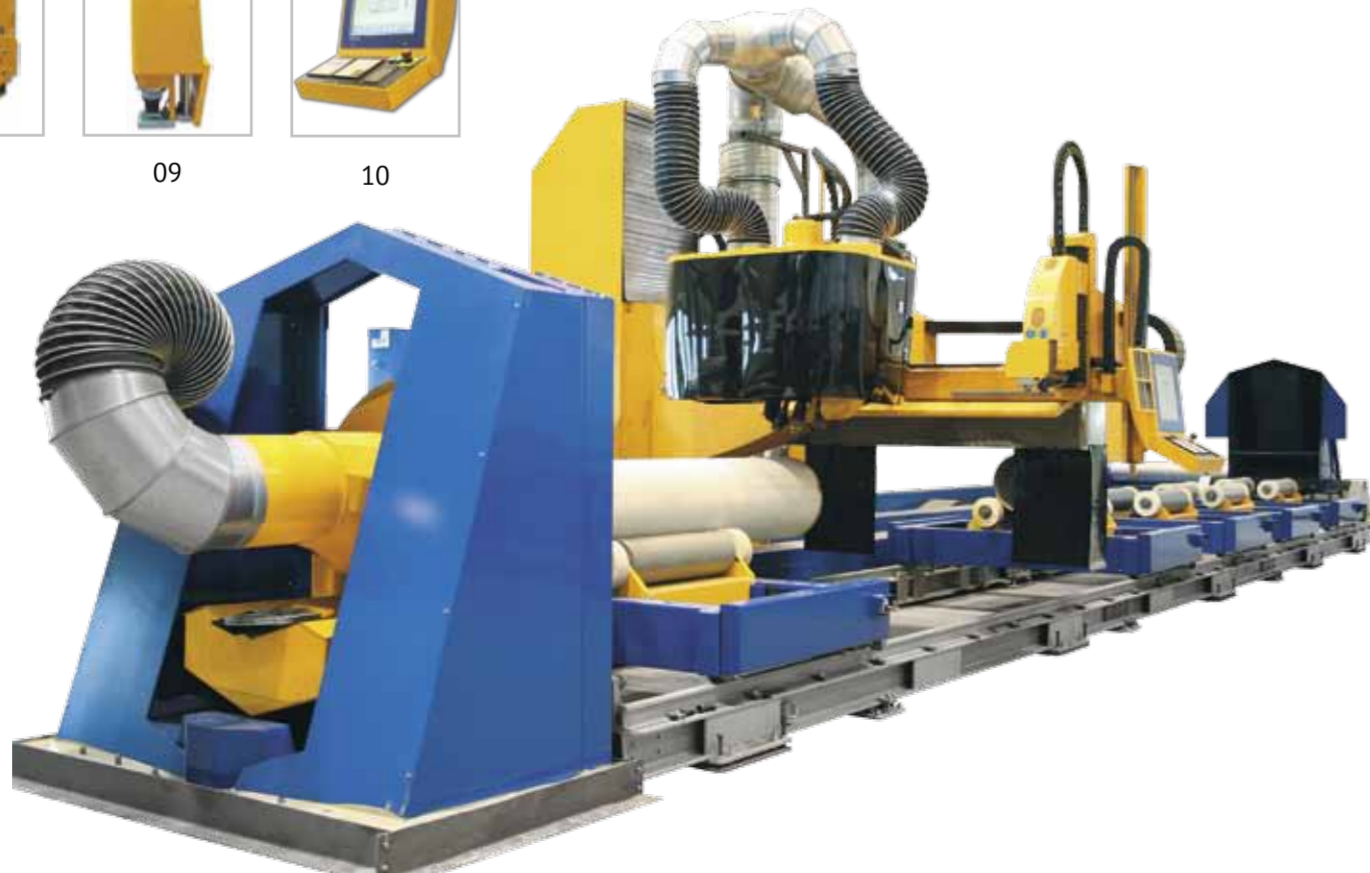
06

07

08

09

10



## Options

Pipe cutting device	01
Plasma	02
Plasma rotator	03
ACTG	04
Plasma rotator 90°	05
Oxyfuel	06
Inkjet	07
MicroPunch	08
CCD camera	09
Second touchscreen on gantry	10



## Hypertherm True Hole™ technology outperforms hole quality better than anything currently possible with plasma.

- Delivers true bolt-quality holes on mild steel
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MANUAL PLASMA | MECHANIZED PLASMA | AUTOMATION | LASER | CONSUMABLES

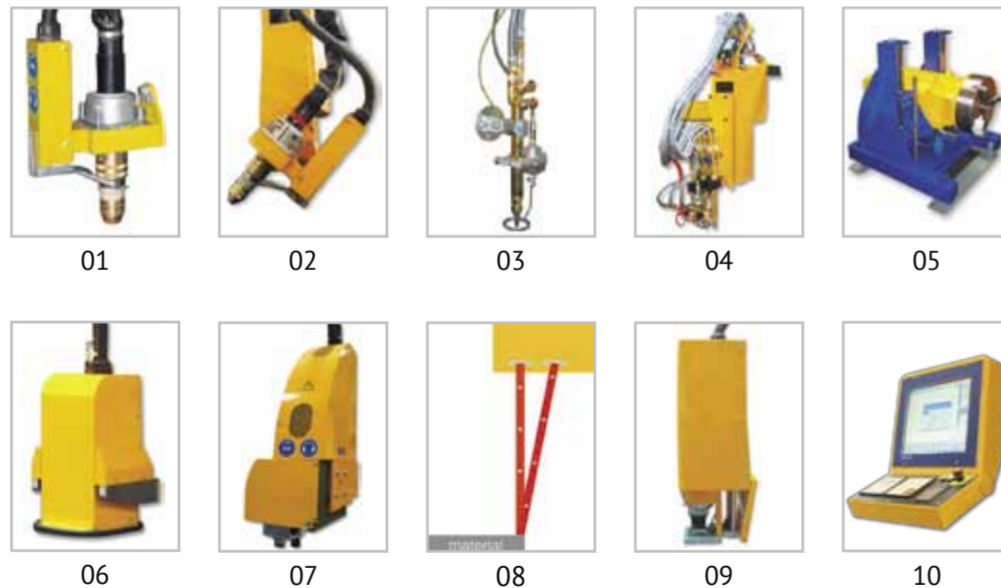
# OxyCut / PlasmaCut CNC plasma & oxyfuel cutting machine



OxyCut is a high-performance and reliable CNC cutting machine designed for fully automatic oxyfuel cutting or a combination of oxyfuel and plasma cutting. The machine is equipped with advanced gas control system with automatic setting of cutting parameters. Optional version of the machine – PlasmaCut – is equipped with high precision linear guide-lines to enable high precision plasma cutting. Both versions can be equipped with a pipe positioner for cutting pipes up to Ø 1000 mm.

## Options

Plasma	01
Tilting tool station	02
Oxyfuel	03
Gm tool station	04
Pipe cutting device	05
Inkjet	06
MicroPunch	07
Automatic plate alignment	08
CCD camera	09
Second touchscreen on gantry	10



Pioneer in Plasma Cutting since 1959

## contour cut

Contour Cut is the further development of the HiFocus technology which has been in use successfully for a long time, for cutting contours in mild steel, in particular small holes as well as fine inner and outer contours. This new development ensures the further improvement of the quality with respect to contour accuracy, perpendicularity and surface quality.



## Precision in Detail

- High cut quality and contour accuracy on inner and outer contours
- Reduced angular deviations and improved quality of cut surface
- Very high repeatability and dimension accuracy
- High productivity at low costs
- No further equipment required
- Standard in all HiFocus systems with the plasma torches PerCut 200/210 and PerCut 440/450

## HiFocus - Plasma Cutting on highest Level

HiFocus is Kjellberg's high-precision range and offers highest flexibility and profitability. These power sources with their various power ranges from 80 A up to 440 A cover the cutting range from 0.5 mm up to 120 mm material thickness. Apart from standard 2D and bevel application up to 50 degree, HiFocus offers furthermore marking and punching with the same consumables. HiFocus is particularly recommendable in case of frequently changing cutting jobs with various materials and thicknesses. HiFocus systems can be integrated in all common CNC guiding- and robot systems.



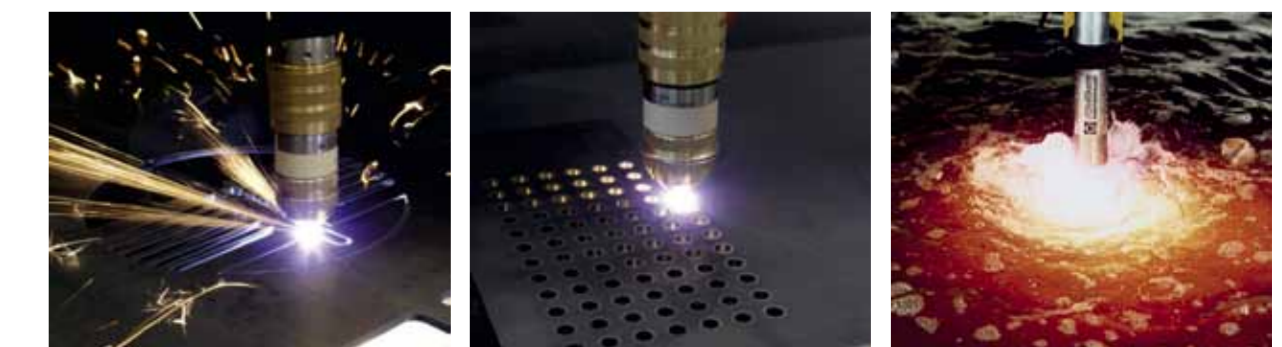
HiFocus 80i • HiFocus 130 • HiFocus 161i • HiFocus 280i • HiFocus 360i • HiFocus 440i

## FineFocus - Reliable and robust

The robust plasma cutting systems of FineFocus range provide highest reliability and cutting quality - even under toughest conditions. Due to their wide cutting range from 5 mm up to 160 mm material thickness, FineFocus systems are ideal for all metal processing branches like fabrication, construction, shipyards or cutting centers. Apart from use of technical gases, FineFocus is also designed for economic use of compressed air. Systems of FineFocus 800 and FineFocus 1600 can be furthermore used for underwater cutting. FineFocus the allrounder available with price-performance-package.



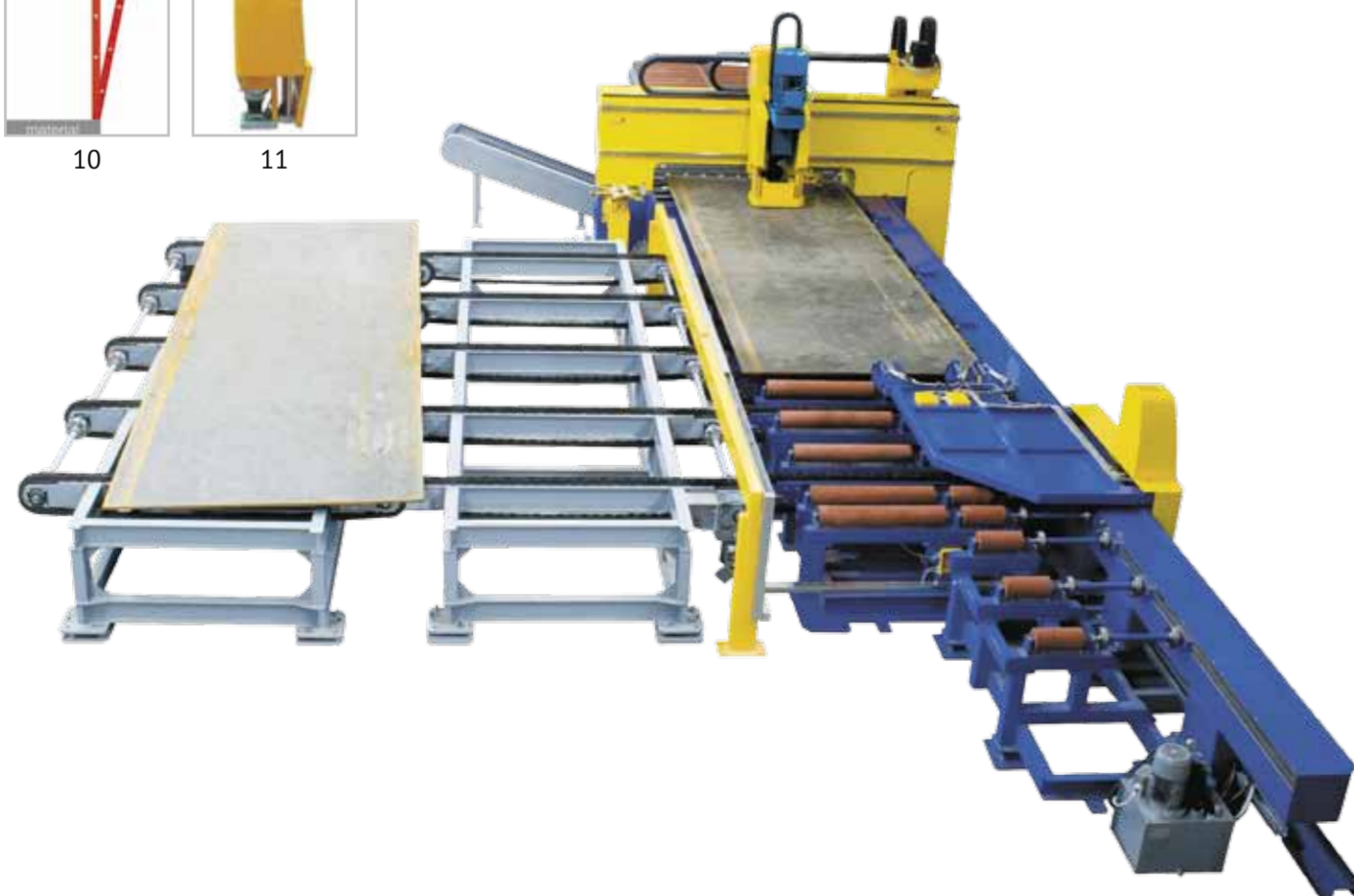
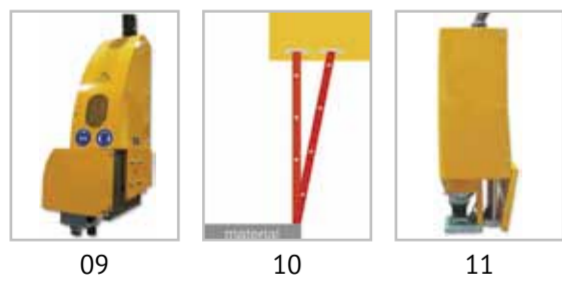
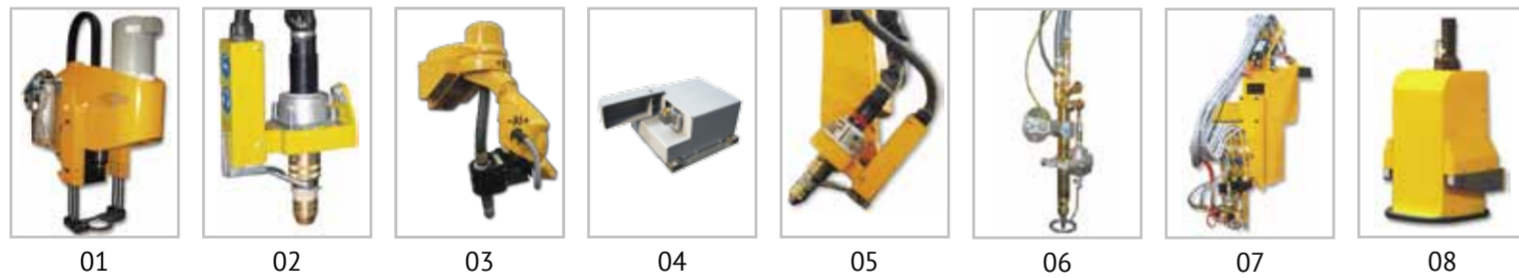
FineFocus 600 • FineFocus 800 • FineFocus 1600



# DS Automated sheet processing line



**D**S is designed for high-efficiency drilling and cutting with the possibility of automatic plate feeding and automatic part sorting on output. The sheet processing line is dedicated to heavy-duty structural steel applications such as high-precision fittings, gussets and endplates. The machine is designed for a high level of automation within the factory workflow as a time – and cost-effective production solution for certain types of flanged parts.



## Options

Drilling unit	01
Plasma	02
Plasma rotator	03
ACTG	04
Tilting tool station	05
Oxyfuel	06
Gm tool station	07
Inkjet	08
MicroPunch	09
Automatic plate alignment	10
CCD camera	11



## More effective Dust Collection for thermal Cutting Applications

When it comes to the use of dust collectors for thermal cutting applications, the DFRPO Cyclopeel range sets a standard that is considerably higher in efficiency and performance. The high performance at low operating costs is a result of the innovative filter media Ultra-Web® in oval, high-performance filter cartridges. The Ultra-Web®-FR\* filter media with its flame resistant attributes meets the BIA classification M. Integrated prepreparation systems provide additional safety against flying sparks. The DFRPO collectors are certified in compliance with ATEX. The range is available for extraction volume flows of 2.000 to 16.000 m³/h.

\*FR = Flame Retardant



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# MSF Fiber laser cutting system

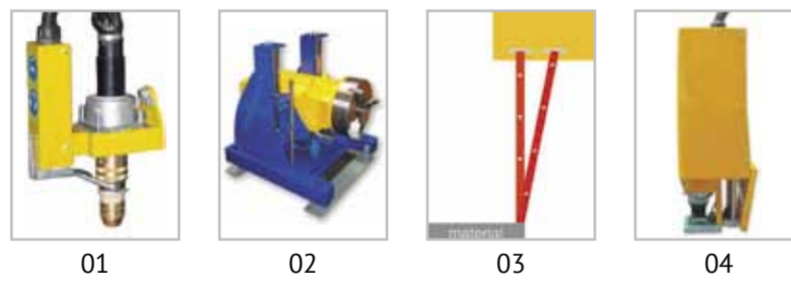


**M**SF machine is a powerful laser cutting system for cutting of materials with a fiber laser, or a combination of fiber laser and plasma. The machine is designed for production of highly accurate parts at high cutting speeds, with surprisingly low maintenance and operational costs. The outstanding dynamics of MSF is achieved by a low-seated

gantry, digital AC drives and precise planetary gears. The machine is by default equipped with an automatic shuttle table.

### Options

Plasma	01
Pipe cutting device	02
Automatic plate alignment	03
CCD camera	04



# Metals prefer Fiber Laser

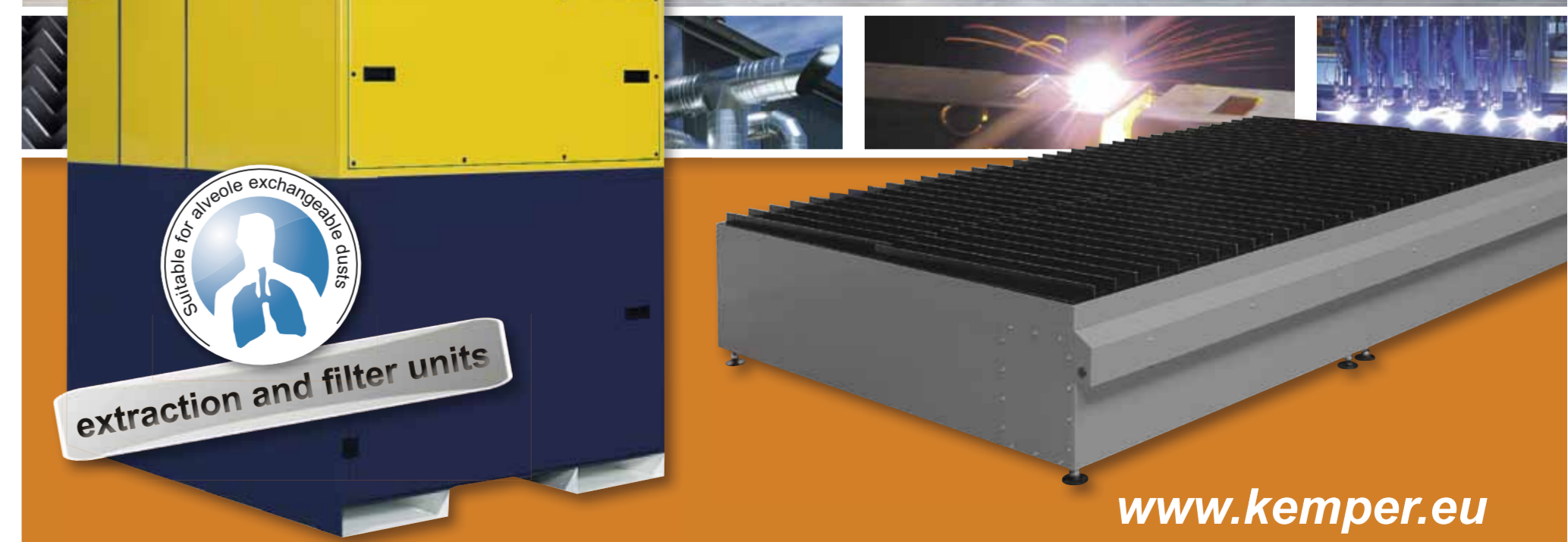
## Fiber Laser Cuts Thin & Thick

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# MicroLas CO<sub>2</sub> laser cutting machine



The CO<sub>2</sub> laser cutting machine MicroLas is designed for applications with highest demands on accuracy and cutting speed in order to achieve minimum production costs for big series of parts. The sturdy machine frame together with linear guidelines and AC drives provide excellent dynamic properties with positioning speeds reaching up to 60 m/min. Default is an automatic shuttle table.



### Options

Pipe cutting device	01
CCD camera	02
Automatic plate alignment	03



## Lasers that definitely suit you.

With over 38,000 systems installed worldwide, ROFIN is one of the leading manufacturers of laser sources and laser-based solutions for industrial materials processing including laser cutting, laser welding, laser marking and surface treatment. ROFIN is your open-minded consultant, supplying the widest range of laser sources including CO<sub>2</sub> lasers, fiber lasers, solid-state, diode and various q-switch lasers.



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In the "high power" range: the "Flexible Workhorse" CH 5000/6000 Watt laser has been added, as well as the FH 7000/8000 W lasers for thick cutting. All PRC lasers can be custom designed for easy integration into any kind of OEM-machine for cutting, welding, surface treatment, etc.



### FEATURES

All lasers are equipped with "oil free" Turbo compressors and Solid State High Voltage power supplies, "virtually" needing no maintenance. The excellent power and mode stability, the different pulse mode capabilities, in combination with the "high speed interface" guarantee perfect performance with the highest production throughput! The GL, PLS and CH series lasers, movable in both axes, offer very flexible and large size cutting and welding machine design!

Lowest Fast-Flow CO<sub>2</sub>-Laser gas consumption in the world.

# AquaCut CNC waterjet cutting machine



AquaCut is a high-precision CNC cutting machine designed for processing of a wide variety of materials including those that cannot be subject to thermal or mechanical stresses.

Pure water or abrasive cutting can be applied to metal, stone, marble, armoured glass, ceramics, plastics, wood, corrugated cardboard, foamed material as well as sandwich materials. The machine can

be equipped with a 5-axis waterjet rotator and also combined with plasma or drilling/tapping units.



## Options

Waterjet	01
Waterjet rotator	02
Wm tool station	03
Plasma	04
Drilling and tapping unit	05
CCD camera	06
Second touchscreen on gantry	07



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## High Pressure Technology up to 10,000 bar

Highest international standards, premium quality and reliability are a matter of course for BHDТ.

BHDТ GmbH is the largest European manufacturer of high pressure pumps for operating pressures between 2,000 and 10,000 bar. The range of products includes pumps and components for waterjet cutting, peroxide dosing pumps for LDPE plants, pressure test units and autofrettage equipment.

High pressure pumps of HYTRON® series are particularly suited for waterjet applications, designed as a turn-key unit. All components required for an efficient operation within a MicroStep waterjet cutting machine are fully integrated into a sound insulated housing.

The high pressure pump comes with touch screen. The pressure set value is continuously adjustable between 500 and 4,000 bar via the proportional valve, installed as standard. All warning and monitoring functions are shown in plain text. Available are pumps with flow rates from 1.9 to 7.6 l/min and corresponding power rating from 18.5 to 75 kW. Highlights of HYTRON® high pressure pumps are the large volume accumulator, the integrated oil/air cooler as well as easy maintenance and high reliability of high pressure components.

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 Phone: +43-3862-303-300  
 Fax: +43-3862-303-304  
 info@bhdт.at, www.bhdт.at



# AirCut CNC plasma cutting machine



**A**irCut is a compact machine designed for cutting of ducting and sheet metals for the HVAC and food industries. Its light construction with integrated fume extraction system fully reflects the requirements of cutting thin sheet materials. Since the machine can be equipped with both arc voltage

height control and a plate rider, it guarantees highly efficient operation from 0,5 mm to 15 mm thickness in mild steel, stainless steel or aluminium.

### Options

Plasma 01



01



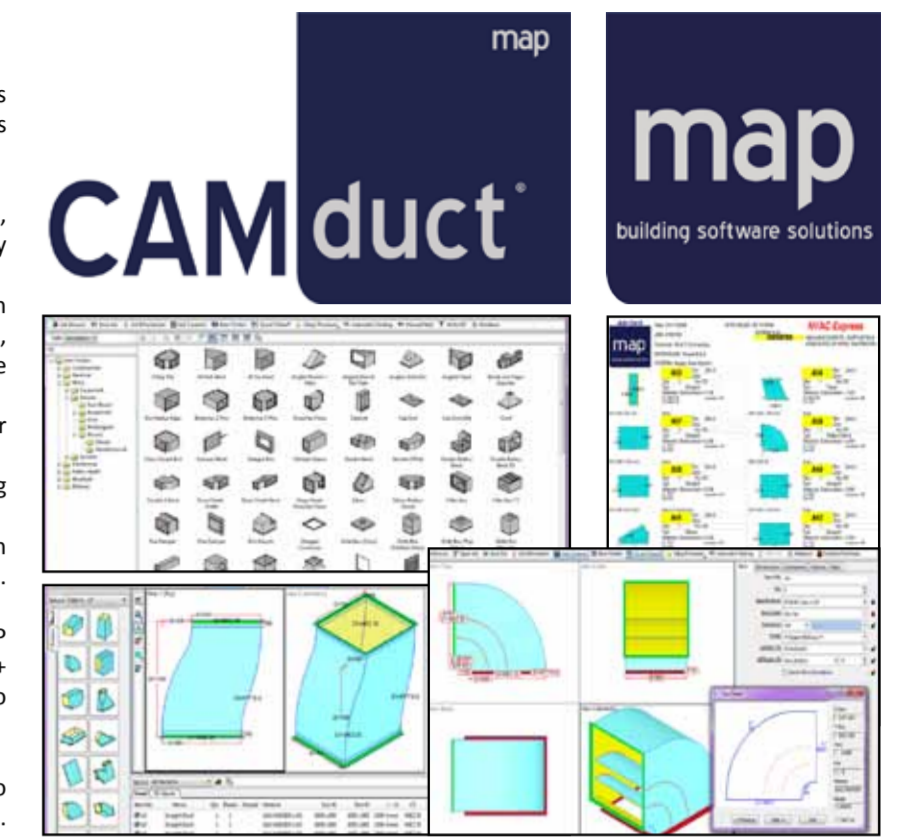
## CAMduct® - the total production solution for duct work manufacturing

Having been established for over 25 years and used in more than 100 countries, MAP's CAMduct is understandably seen as the leading solution for duct work manufacturing. A variety of unique features makes CAMduct the best solution for manufacturers both big and small:

- **Extensive Parametric Parts Library** - CAMduct contains hundreds of rectangular, round and oval patterns, suitable for HVAC, dust extraction and insulation cladding, ready to use. Users can adapt them to any size configuration, add connectors, seams, stiffeners and double wall insulation.
- **Specification/Pressure Class Drive Item Entry** - CAMduct allows item entry to be completely specification driven. Using industry standards such as DW144 and SMACNA, users can have connectors, seams, material thickness and other attributes automatically applied to every item added to the job and the items associated flat sheet developments.
- **Advanced Machine Tool Compatibility** - CAMduct can connect and control with multiple machines for cutting, rolling and forming e.g. plasma and lasers, coil lines and spiral tube formers.
- **Superior Automatic Nesting** - CAMduct uses sophisticated algorithms for fast, efficient nesting, enabling maximum material utilisation.
- **Extensive Reporting Functionality** - a built in report generator allows users to produce as much documentation as required for the job. Bills of Materials, Management Reports, Workshop Reports, Assembly Reports, Labels, Barcodes and Delivery Notes can all be produced easily and efficiently.
- **Interoperability** - for those users with higher requirements, CAMduct is fully interoperable with MAP Software's CAD and Estimating solutions. Based on a single database, BIM models drawn in CAMep+ can be transferred over to CAMduct for automatic manufacture. Integration with ESTduct allows users to fully cost, estimate, value engineer and variation track a job using an advanced feature set.

Flexibility is the key feature of CAMduct; rather than changing the way you work, CAMduct can be tailored to meet your particular manufacturing needs. Visit [www.map-software.com/microstep](http://www.map-software.com/microstep) for more information.

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# MicroCut CNC plasma & oxyfuel cutting machine



MicroCut is designed to satisfy the demands for having advanced plasma technology with respect to limited budgets and/or size requirements of workshops, small enterprises

and schools. With the minimum working area 1000 x 1000 mm and a maximum of 3000 mm x 1500 mm, MicroCut can be equipped with one plasma or one oxyfuel tool station. Maximum thickness of

oxyfuel cutting is 60mm. As option can be included a pipe positioner for cutting pipes up to Ø 100 mm.



## Options

Plasma	01
Oxyfuel	02
Pipe cutting device	03
MicroPunch	04



01



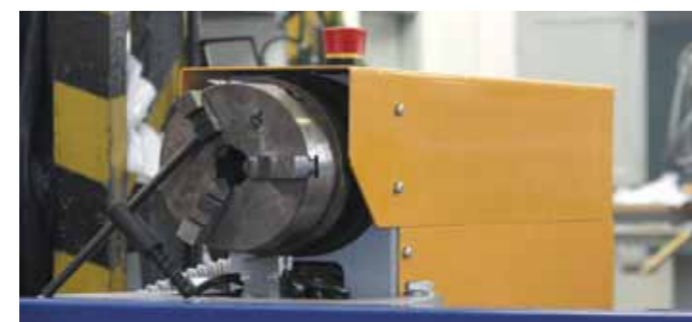
02



03



04



# THERMAL DYNAMICS

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A complete range of powerful High Precision cutting systems flexible enough to fulfil all your cutting needs

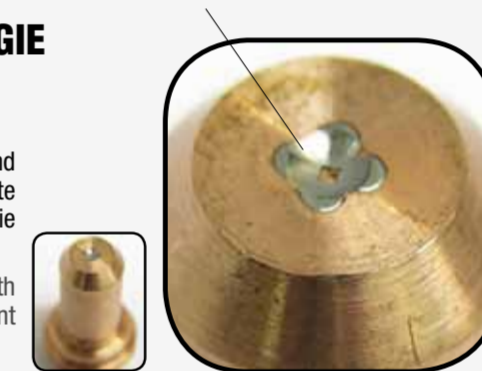
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### NEUE Verschleißteile-TECHNOLOGIE NEW CONSUMABLES TECHNOLOGY

Die neue Elektrode mit Mehrfacheinsätzen aus Hafnium und die neue Düse mit effektiverer Kühlung bieten ausgezeichnete Standzeiten und gleichbleibende Qualitätsschnitte über die gesamte Laufzeit der Verschleißteile an

New electrode with multiple hafnium inserts and new tip with more effective cooling offer outstanding parts life and consistent high quality cuts over the entire lifetime of the consumables.

Mehrfacheinsätze aus Hafnium  
Multiple Hafnium Inserts



## Ultra-Cut 100

High Precision Plasma Cutting System

## Ultra-Cut 200

High Precision Plasma Cutting System

## Ultra-Cut 300

High Precision Plasma Cutting System

## Ultra-Cut 400

High Precision Plasma Cutting System



Ultra-Cut Systeme ermöglichen die besten Schneidergebnisse für all Ihre Metall-Produktions-Anforderungen, einschließlich Hochpräzisions- und Konventionelle Plasma-Zuschneide an Baustahl und Edelstählen. Die Systeme beinhalten folgende Vorteile, einschließlich:

- **Wasser Sekundär Prozess (WMS)** ermöglicht ausgezeichnete Schnittqualität an Edelstahl und Aluminium bis zu 32 mm. Sie schneiden bis zu dreimal schneller als die Konkurrenz und sparen viel Geld durch das Wegfallen von teuren Schutzgasen.
- **Automatische Gas Konsole** für gleich bleibende Schnittqualität, verbesserte Standzeit der Verschleißteile und kürzere Einrichtungszeiten. Ebenso ermöglicht das System ein schnelles Umschalten zwischen Plasmaschneiden und Markieren.
- **XTR Fasenbrenner** - Eine der kürzesten Brenner auf dem Markt für Roboter-Anwendungen und Fasenschneiden. Verfügbar sind speziell gefertigte Verschleißteile und Zubehör, sowie der einfache Einbau an allen Robotern.

Ultra-Cut systems are the premier choice for all your metal fabrication requirements delivering premium precision and heavy duty conventional plasma cutting of mild steel and non-ferrous metals. They offer numerous advantages, including:

- **Water Mist Secondary** technology for extraordinary quality cuts on non ferrous metals up to 32mm. Cut up to 3 times as fast as the competition and save money by eliminating the need for expensive shield gasses.
- **Automatic Gas Console** for consistent cut quality, improved parts life and reduced setup times. Allows for rapid gas and process changeover from cutting to marking.
- **XTR Bevel torch** - One of the shortest profile torches on the market for robotic applications and bevel cutting. A range of dedicated consumables and accessories to allow easy mounting on any robot is also available.

www.thermaldynamicsautomation.com

eumarketing@thermadyne.com

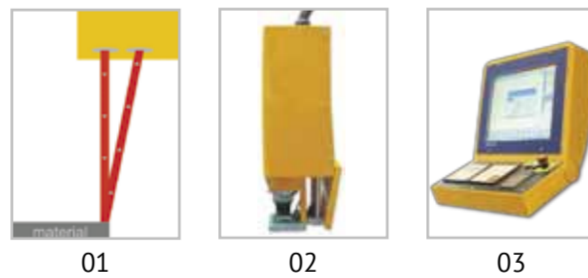
# MicroMill CNC routing machine



MicroMill machines are designed for 3D CNC milling of mild metals, plastics and wood by means of high-revolution spindles. Mechanical construction makes the machines suitable for shape machining of flat parts including parts with bigger dimensions. Utilising MicroMill's rugged frame, double-side driven gantry and linear guideline system, the machine proves its very good dynamic properties in various shaping jobs. The material can be fixed on the table with mechanical clamps, or conveniently locked in position on a MDF pad through a vacuum clamping system.

### Options

Automatic plate alignment	01
CCD camera	02
Second touchscreen on gantry	03



# Special solutions



Besides standard versions of cutting machines, MicroStep offers also special solutions designed to fit non-standard requirements of our customers. It is both non-standard dimensional solutions, as well as special combinations of technologies applied to a single machine. The advantage of combined machines is in concentration of several machining operations to one workplace thus reducing the necessity of moving the material for subsequent processing – a significant time saving.



offers cutting tables with built-in roller conveyors. These systems can be integrated into the existing conveyor lines at the factory and thus optimize the material flow through the machine.

All such systems are designed as custom solutions respecting particular layouts of the workplace.



One example is a combination of plasma and waterjet cutting with additional technology of spindle tapping. This combination enables the machine to cut parts of contours which require high accuracy by water jet and the remaining parts by plasma. Water jet can be also used for cutting of precise holes which are subsequently processed by tapping.

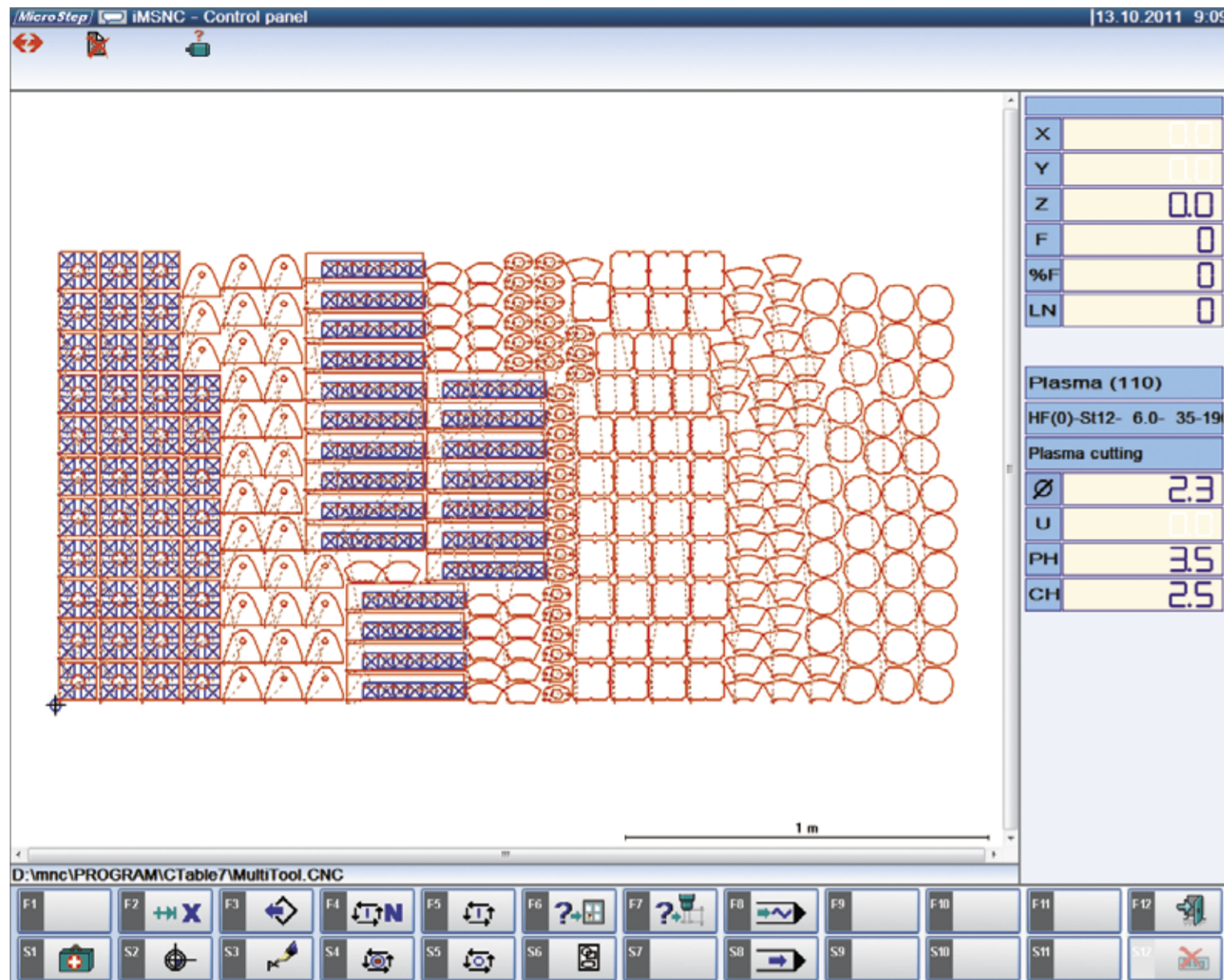
In addition, MicroStep offers engineering solutions for effective

handling of cut material in order to maximize machine productivity – for example machines with automatic shuttle tables, or fork feeders. The advantage is a common location of loading and unloading of the material outside of the machine's working area – the processes of removing cut parts and cutting of the next plate can run simultaneously.

For cases involving cutting of long parts (at least 1 m long), MicroStep



# iMSNC®



MicroStep iMSNC® is one of the most advanced control systems in CNC cutting machinery. The system provides easy, user friendly and thus reliable operation of cutting machines via modern user interfaces: a standalone operator console with TFT touch screen and one or two con-

trol panels with LCD displays on the sides of the gantry. To achieve maximum utilization and flexibility of machine operation, a standalone operator console allows to prepare and edit cutting plans simultaneously with the cutting process. Since the machine, control system iMSNC® and CAM software AsperWin® are

from one producer – MicroStep – it allows to implement also non-standard requests and develop custom solutions.

Integrated technological parameter databases for different technologies ensure high efficiency and stable quality of cutting. The

operation of the machine is quick and intuitive thanks to a touch screen display with interactive elements and bubble help.

Advanced Remote diagnostics tools enable direct remote control of the machine, control system and installed software and thus ensure fast and cost-saving maintenance via internet.

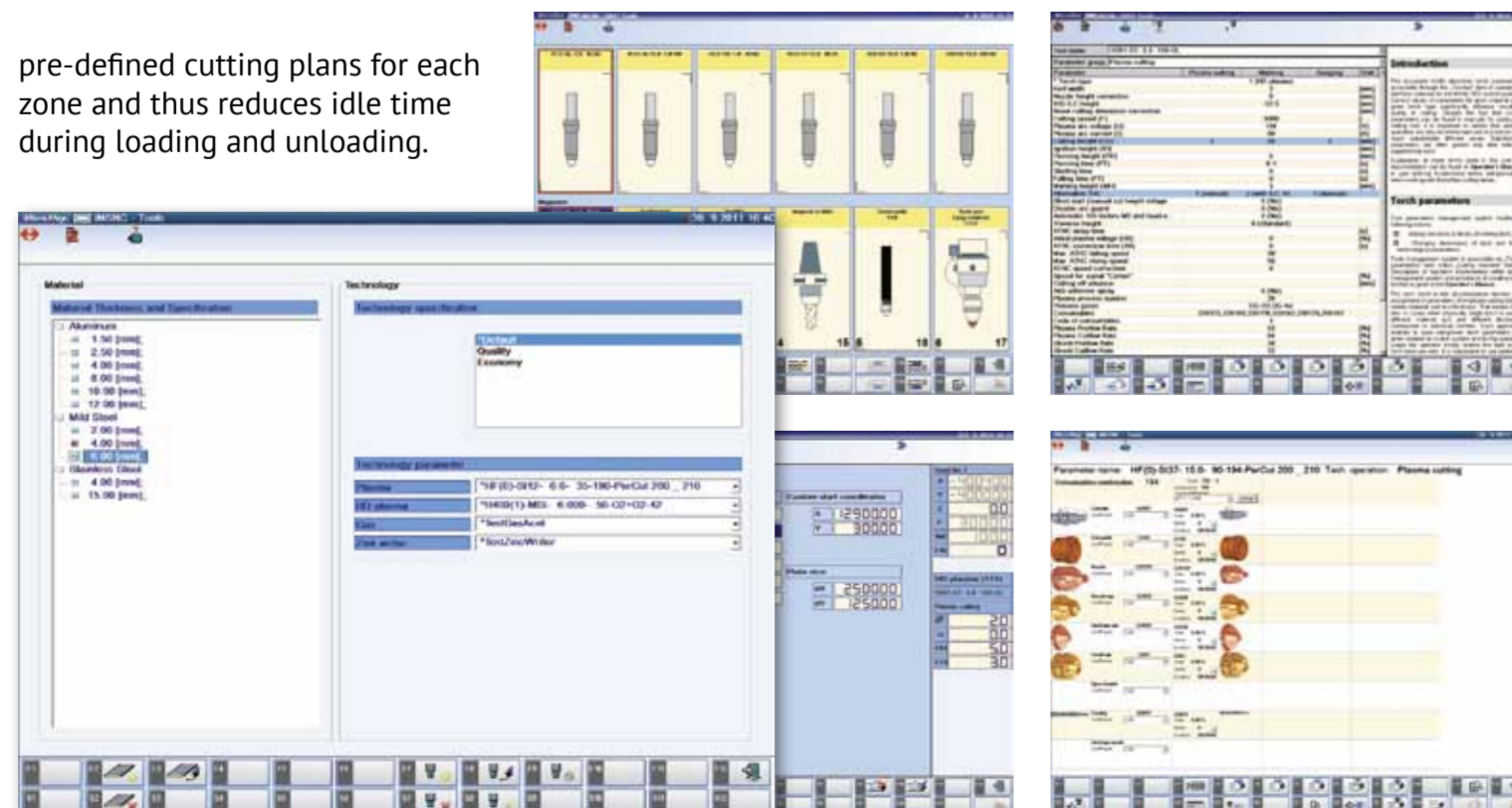
Intranet applications enable comfortable integration into the production workflow and provide access to each machine via SQL databases and web services.



## Features

Besides standard features (automatic setting of cutting parameters, torch height control of plasma via arc voltage, test run, mirroring, scaling, rotation of cutting plans...) iMSNC® incorporates advanced functions: preparation of cutting plans during machine operation, jog mode, reverse motion, global marking, parametrical dynamic piercing, kerf compensation, automatic plate alignment, restart of cutting from point of interruption. The function of automatic setting of technological parameters of the machine according to cut material significantly improves efficiency and simplifies operator work. Batch cutting feature allows division of the cutting table into zones with

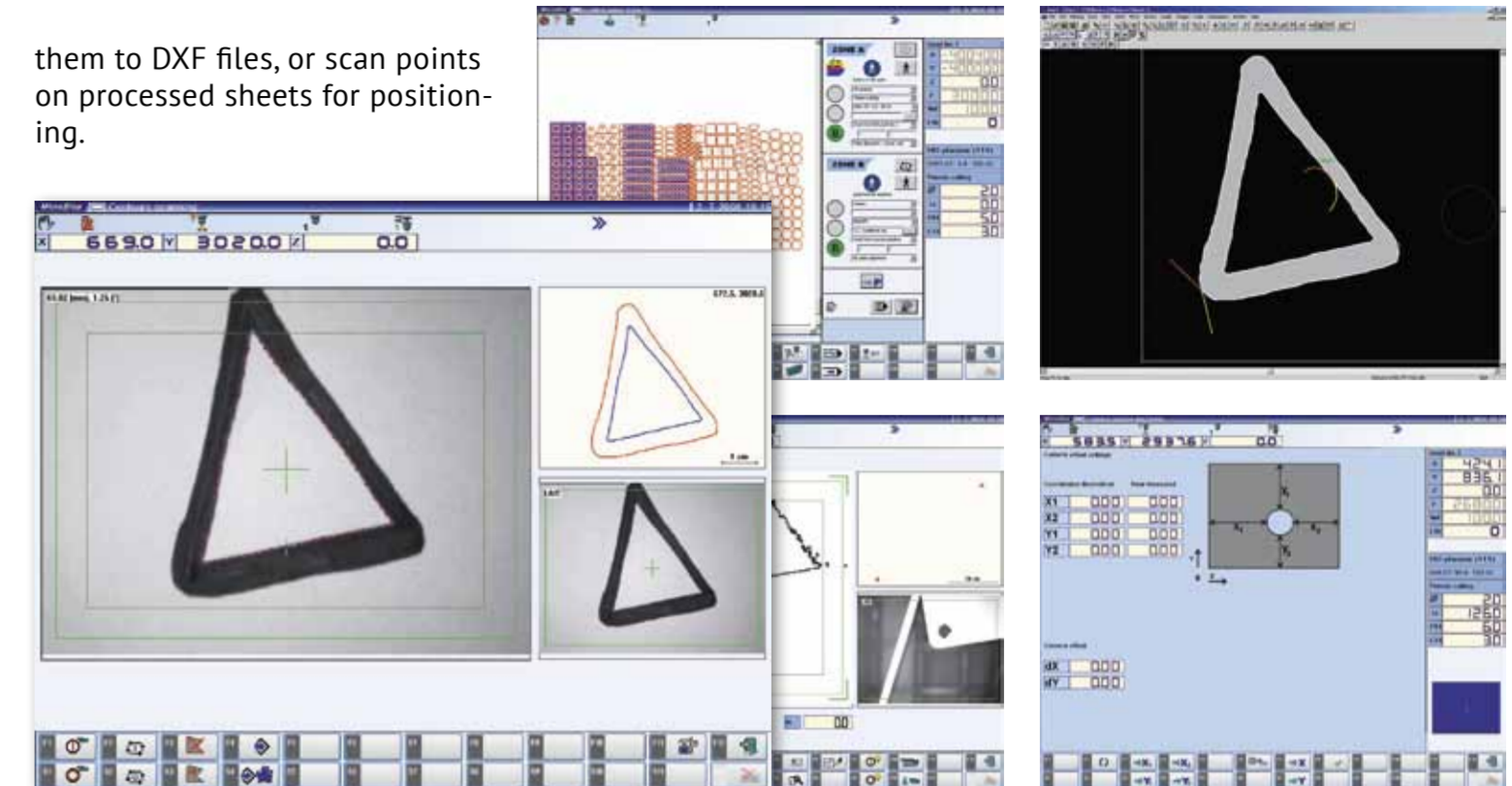
pre-defined cutting plans for each zone and thus reduces idle time during loading and unloading.



## Enhanced functions

Complex and yet unified structure of iMSNC® allows to control a variety of technologies in a very similar manner from the same user interface and also to automatically switch technologies within a single cutting plan (multi-tool operation). Besides controlling machine's own devices (plasma, laser, oxyfuel, waterjet, 3D mill, drill, camera, marking/writing with plasma, inkjet, zinc, water, MicroPunch) it can be equipped with an interface to control various external devices (cranes, exchange tables) in customer's premises. With a CCD camera the system provides capability to scan non-trivial shapes of templates and convert

them to DXF files, or scan points on processed sheets for positioning.



## Intranet applications

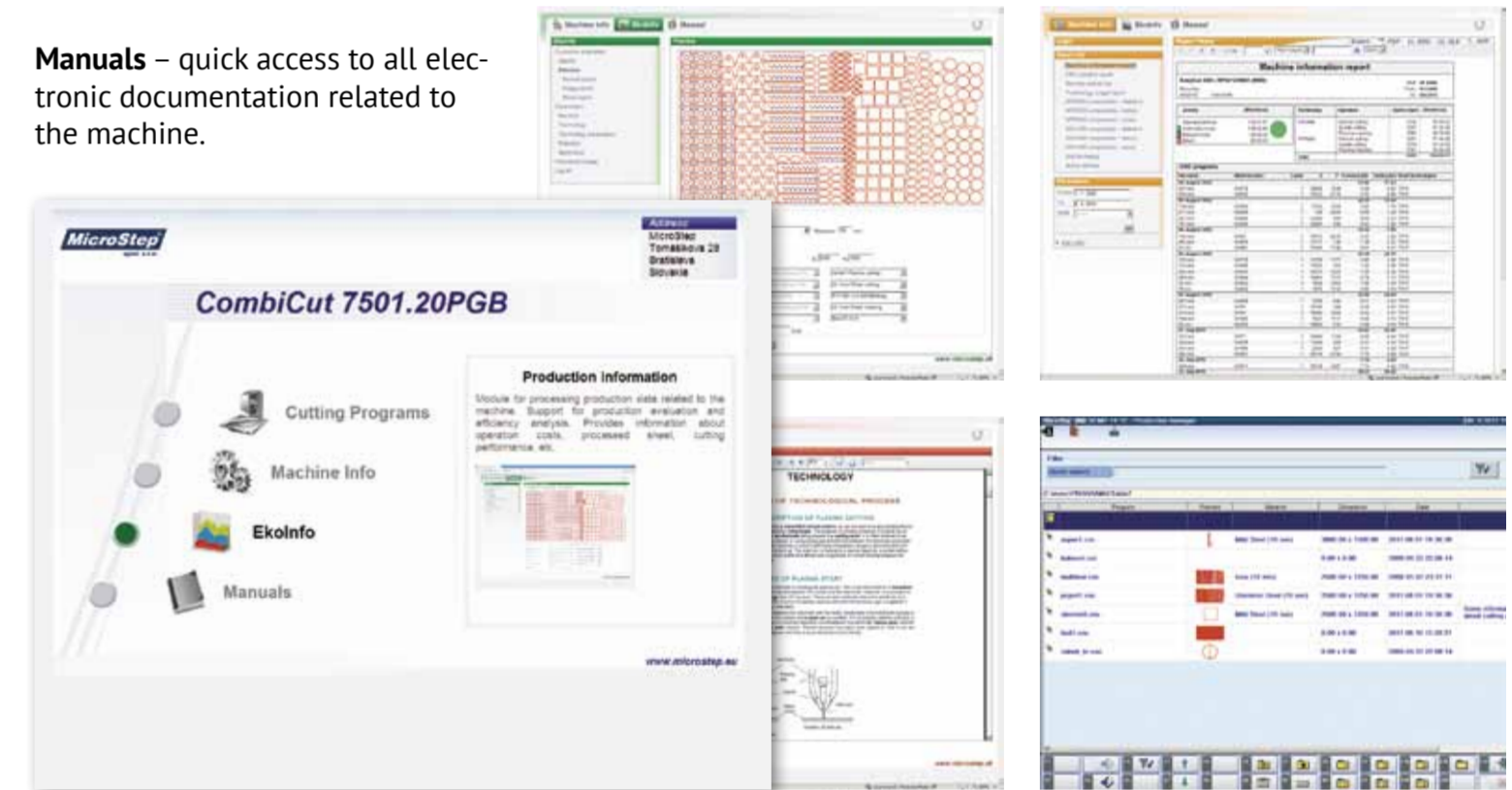
iMSNC® includes a novel web-based interface for accessing each machine from the company intranet via a web browser.

**Manuals** – quick access to all electronic documentation related to the machine.

**Management of Cutting Plans (MCP)** – remote management of cutting programs allows to define priorities and relations between cutting programs and materials, and to distribute the cutting tasks to several machines

**EkolInfo** – evaluation of machine operation costs for a particular cutting program

**Machine Info** – monitoring of machine and operator activities that enables to assign performance information to work shifts and to create specific technological records



## Service applications

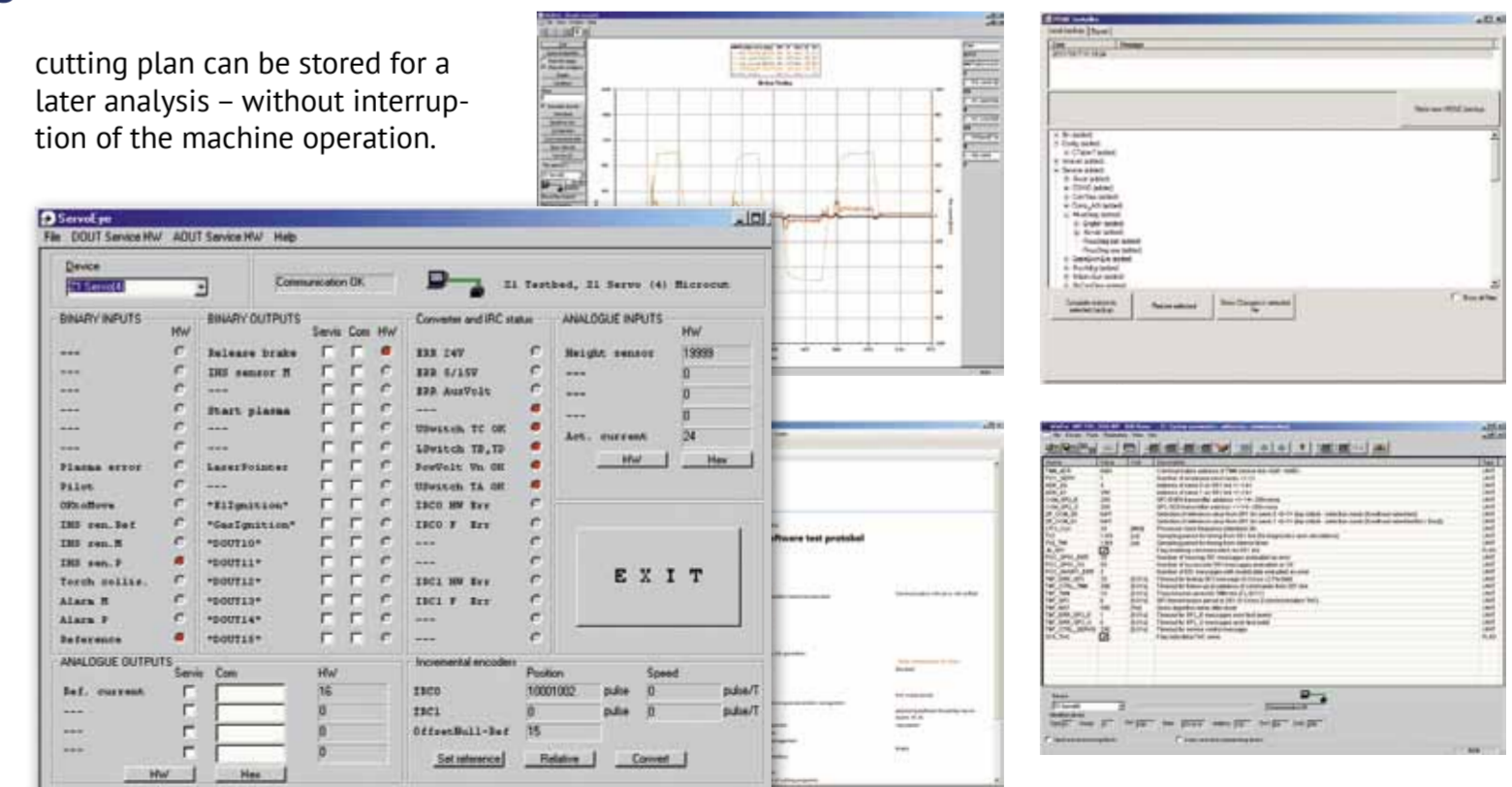
The new advanced backup system of iMSNC®:

cutting plan can be stored for a later analysis – without interruption of the machine operation.

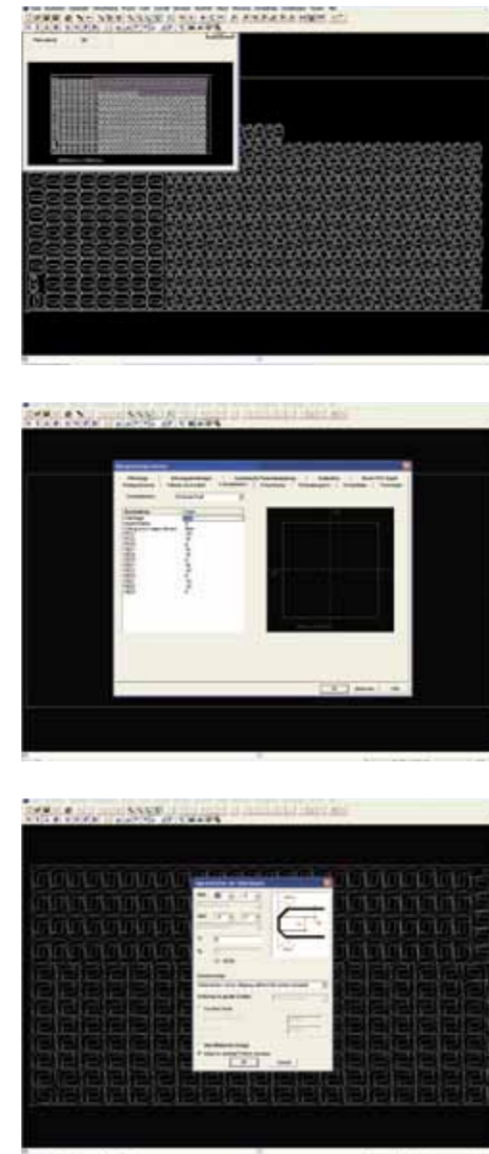
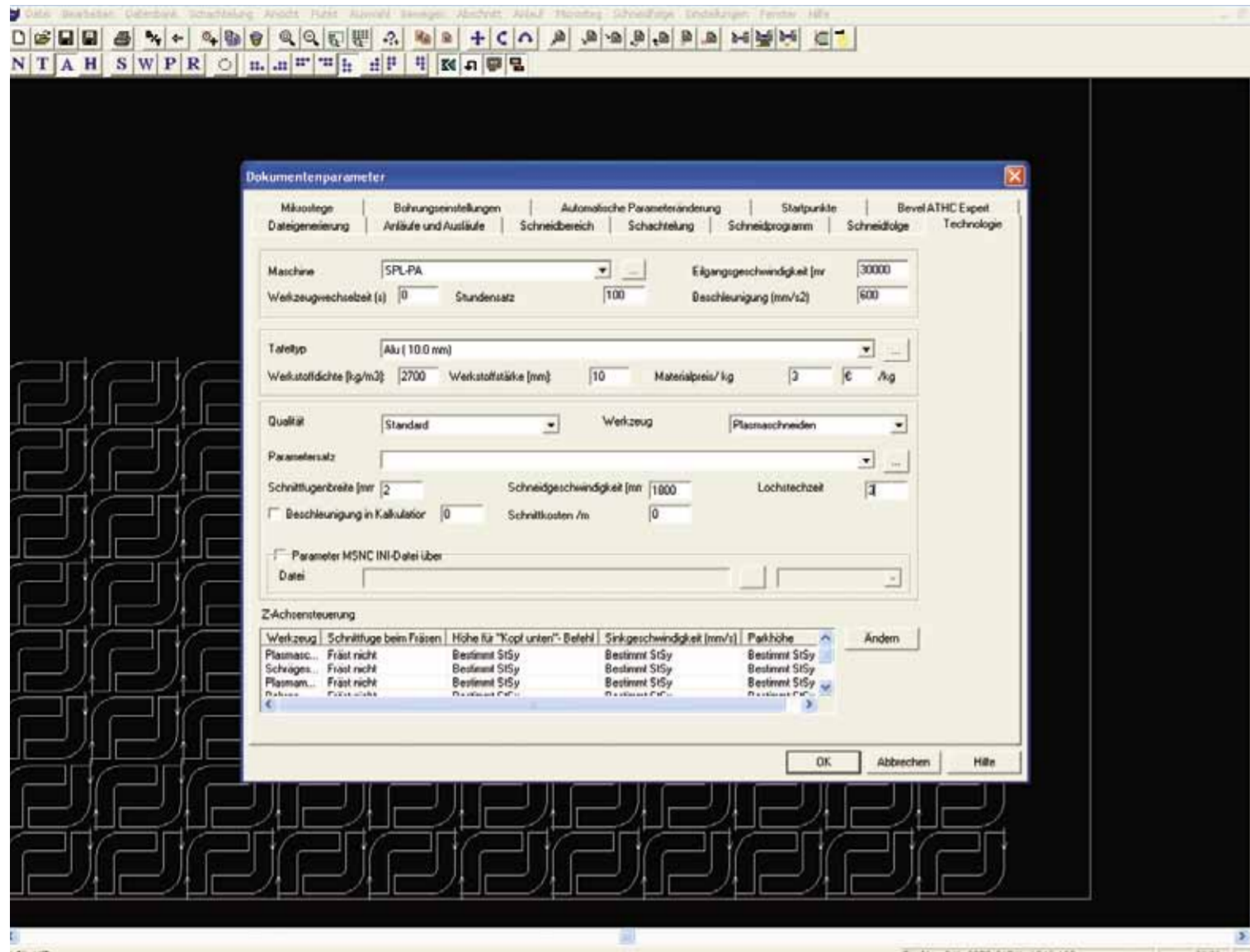
**Local backup** – stored on machine's HDD preserves the history of changes. It can be used for evaluation of changes between the actual state and a history point or between any history points.

**Export backup** - particular configuration files, local backup point or the complete iMSNC® installation can be exported to an external medium and used for a later system restore – including all settings and parameter adjustments made by the operator

**Snapshot** – immediate saving of the actual machine state – all parameters including the executed



# AsperWin® 3.5 Quality hole enabled



MicroStep CAM software *AsperWin* is the result of 15+ years of intense development and continuous customer driven improvement in the area of software applications for CNC machinery. It unifies the practical programming experience with long-term user know-how and an intuitive, transparent way of operation.

*AsperWin* provides tools for easy and fast creation of NC programs for different cutting technologies. Basic pack dedicated to straight cutting can be extended by a variety of specialized modules designed for particular cutting applications (e.g. bevel cutting, pipe cutting, multi-torch cutting) and eventually fitted to special customer requests. With its transparent menu structure

and enhanced functions *AsperWin* represents a modern and powerful tool for NC programming.

A network version allows to install *AsperWin* on a network drive with enabled access from several workstations. Licence is herewith not limited to just one user or computer while cost is significantly reduced.



## AsperWin® Basic

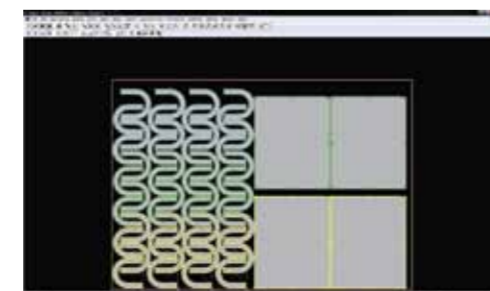
*AsperWin Basic* is the essential CAM module of MicroStep machines. After loading drawings of parts it provides psses drawings of parts in DXF and other formats, interactive nesting function and automatic generation of NC code.

## AsperWin® Basic Net

*AsperWin Network* licence allows to install *AsperWin* on network drive with enabled access from several workstations. Licence is herewith not limited to just one user or computer while cost is significantly reduced.

## Multi-torch cutting

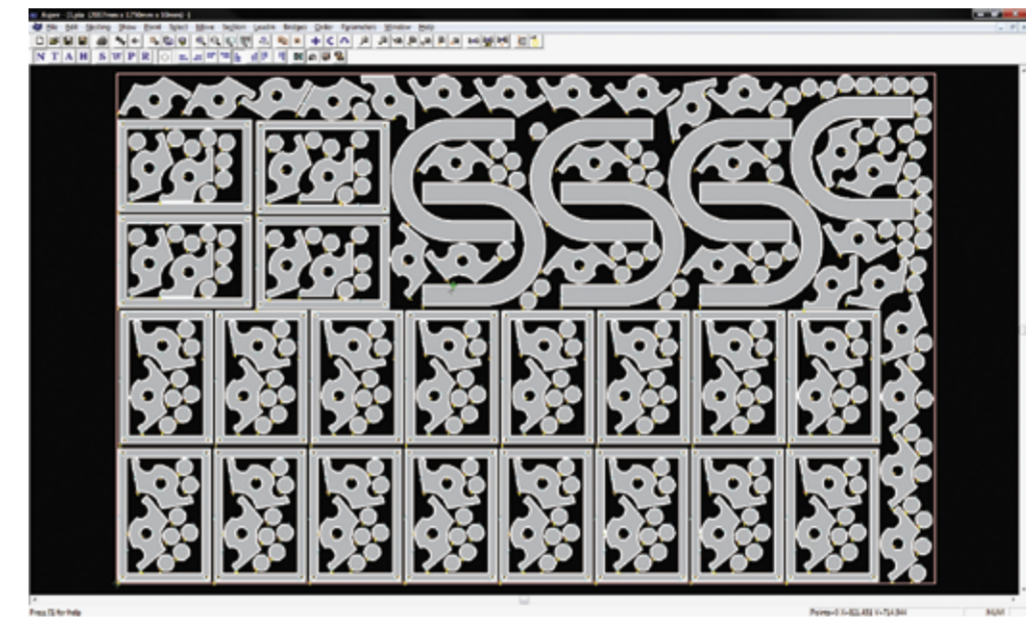
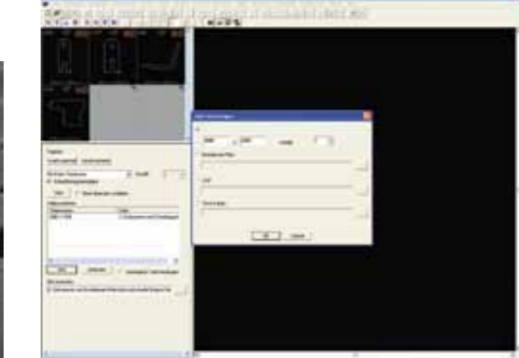
Multi-torch cutting module allows performing of simultaneous cuts with several torches with possibility of parallel, tapered and also non-parallel tapered cutting (in case of long trapeziums).



## Nesting

*AsperWin* automatic nesting module enables effective creation of nests with a big number of different cut parts to achieve best possible utilization of material with minimum waste. The module uses several geometrical nesting

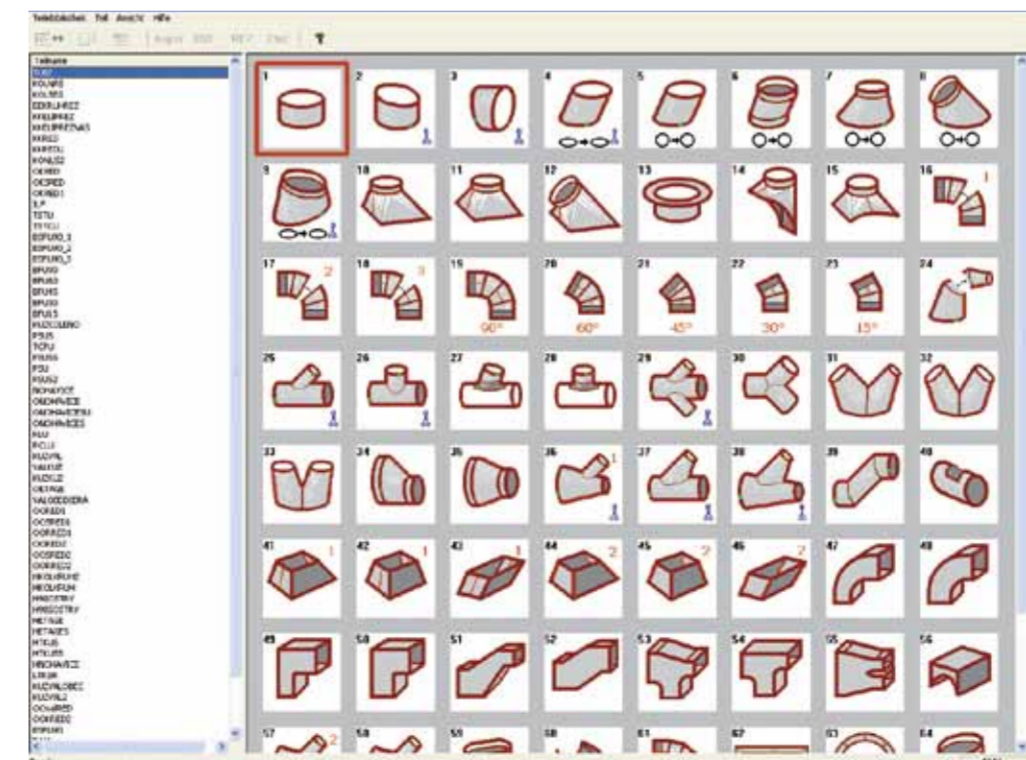
methods and has ability to process separate part groups on defined areas of plate as well as whole sheets while respecting defined criteria like material properties or information from database system.



## AirSelect

Software module *AirSelect* for ductwork manufacturers enables fast and comfortable design of HVAC components. The extensive library contains adjustable shapes of a variety of commonly used parts in the HVAC industry. Besides basic shapes of rectangular and round fittings the library contains also pipe elbows, symmetric and asymmetric toes, offsets etc. Rec-

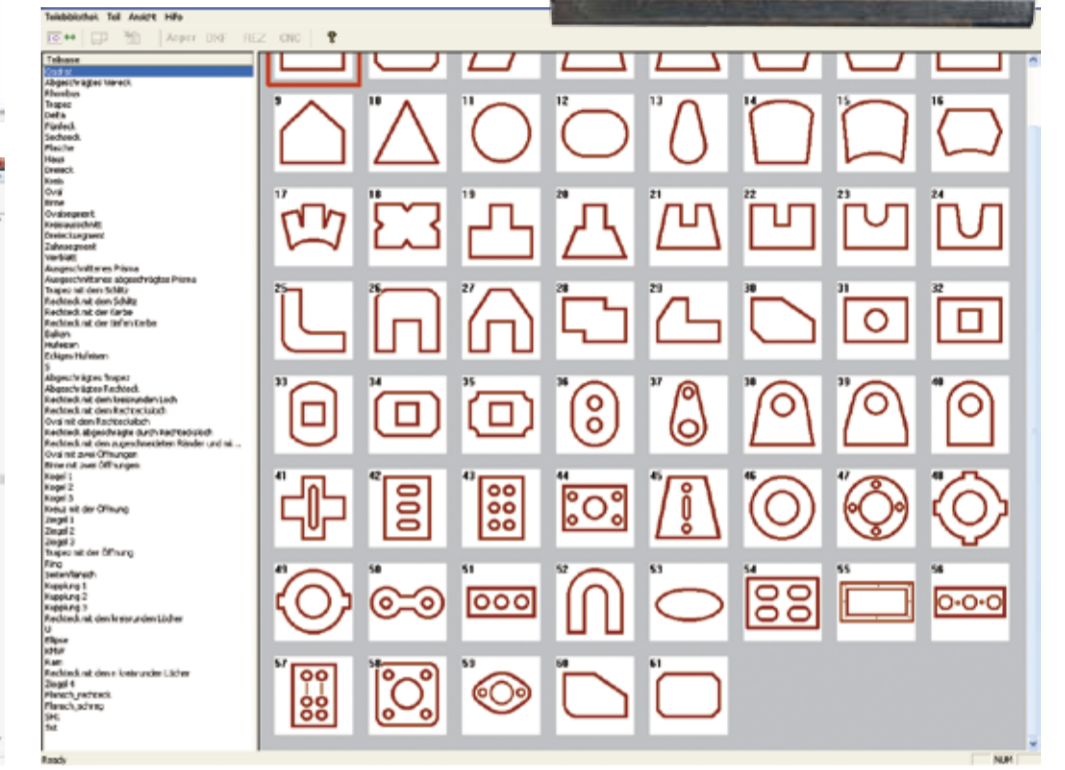
tangular sectional parts are compliant with DIN 18379.



## WSelect

*AsperWin* macro library *WSelect* contains extensive collection of macros of adjustable standard shapes which can be exported to DXF or loaded directly into *Asper* for processing. *WSelect* offers the majority of commonly used components from simple geometrical shapes to complicated flanges, tags a. o. Each macro can be saved in as many configurations

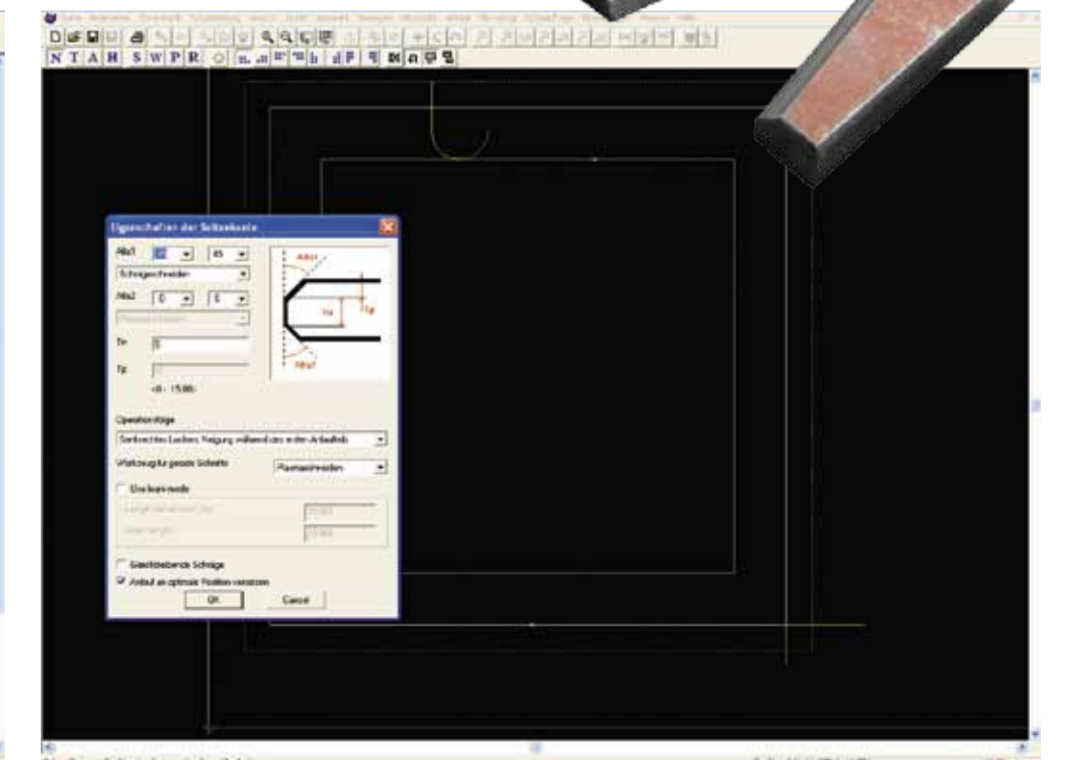
as required for later quick import into CAM, without the necessity of using a CAD program. Furthermore, MicroStep as a producer of control system and all related software is able to supply also customer specific macros on demand.



## Bevel cutting

*AsperWin - Bevel cutting module* is dedicated for machines equipped with a beveling tool station which enables movement in 5 axes: X, Y, Z, A (endless rotation) and B (tilting of torch up to 50°). The module supports 3 methods of starting of the beveled cut: piercing with angle, tilting of torch after piercing at piercing point and tilting of torch during initial part of the lead-in. By

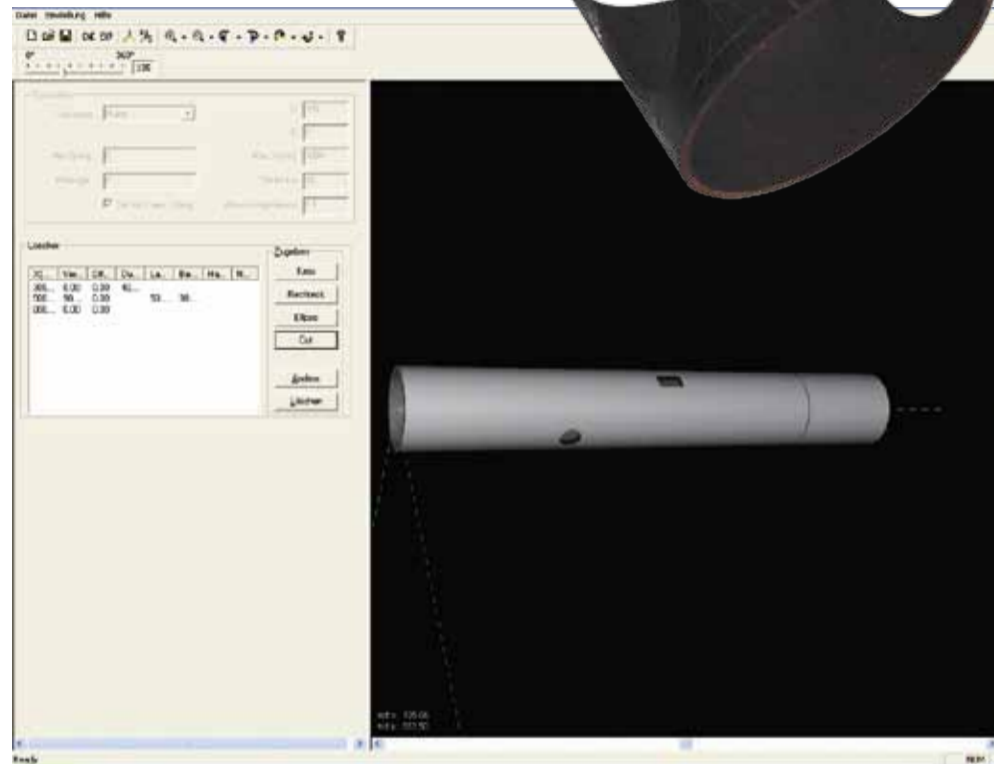
means of a „Bevel ATHC Expert“ the module can select appropriate torch height control methods for individual parts or a group of parts according to their size and shape. Besides simple beveled edges also Y-cuts and variable bevels are supported.



## Pipe cutting

*AsperWin - Pipe cutting module* was designed for machines equipped with a straight tool station and a rotary pipe positioner (RSV). The module provides instruments for convenient dividing of pipes and profiles and easy creation of circular or rectangular holes in 2-axis or 3-axis modes (X, Y- axes and rotation of pipe by RSV). The user simply defines positions and

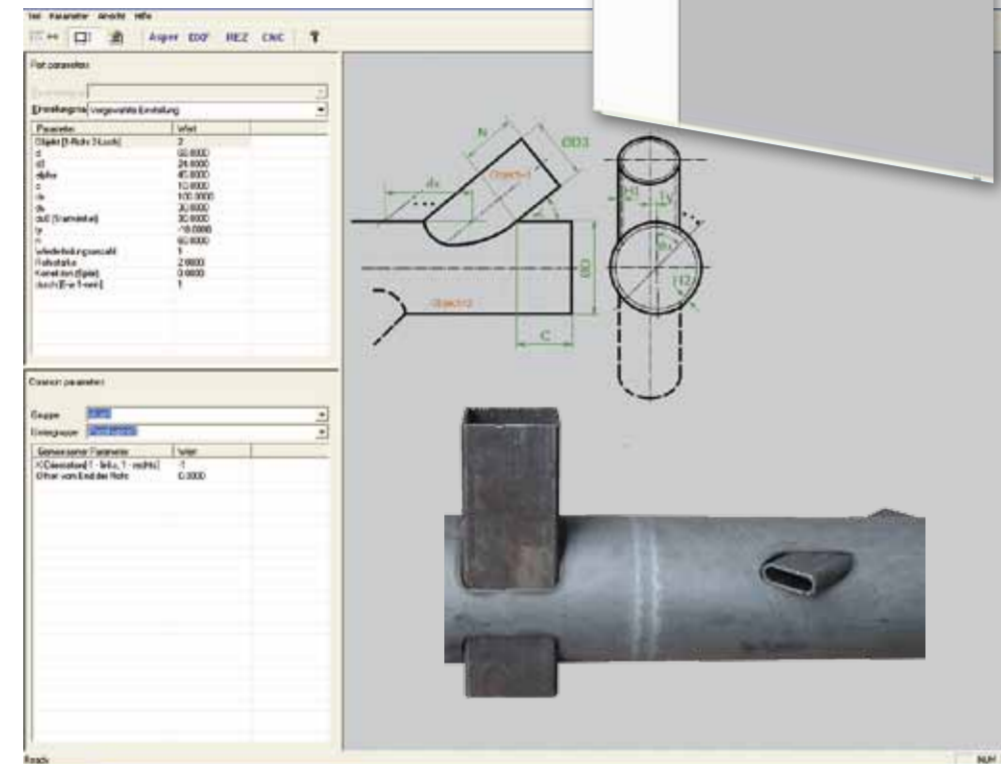
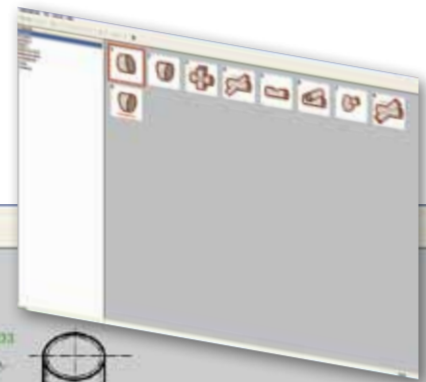
sizes of holes while cutting plans are generated automatically. For a better optical representation of the process, a comfortable step-by-step 3D simulation is available.



## PipeSel

*PipeSel* is a library based application for fast programming of pipe cuts, pipe intersections and transitions developed for machines with straight head and a rotary pipe positioner (RSV). Through a user friendly interface which allows easy input and adjustment of the parameters for defined types of tube connections, it is possible to create repeated intersections of circular pipes or circular

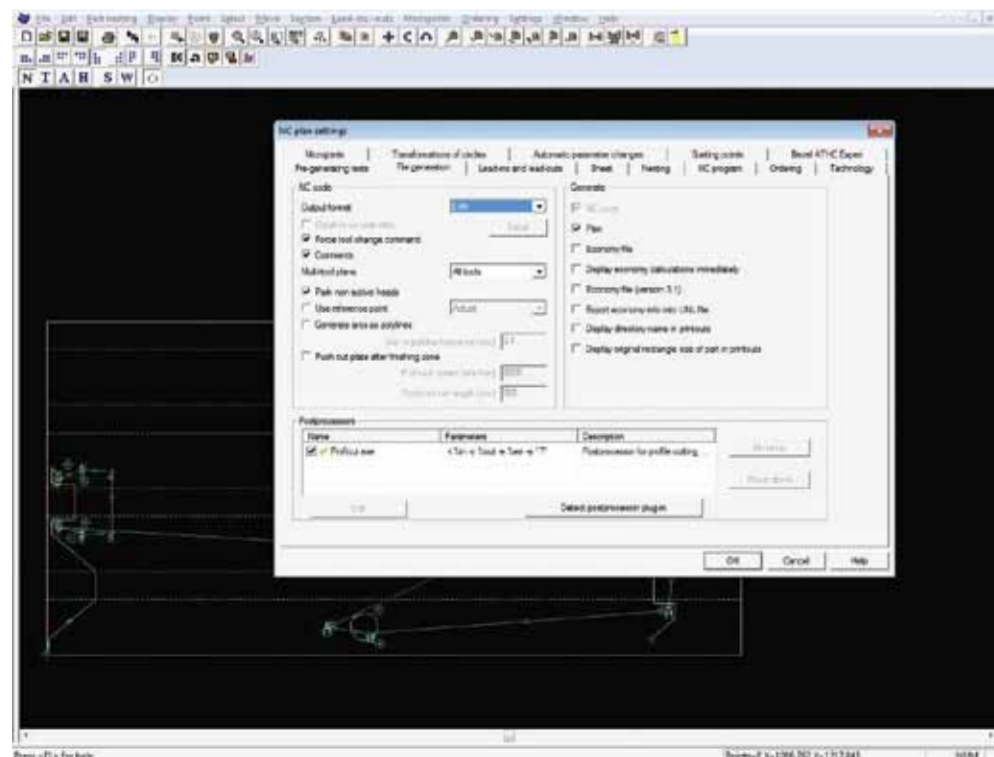
pipes and oval pipes, rectangular profiles, spheres and pipe crossings whereby also programs for branches of several pipes are created automatically. Axis of the intersecting object can be as well shifted against axis of main pipe.



## Profile cutting module

*AsperWin - Profile cutting module* is dedicated to cutting of polygonal profiles. The basic version generates programs for cutting of various shaped openings into the profile walls. The advanced version supports also division of profiles and cutting of openings over the edge of profiles by means of a tilting tool station (profile is static) or a rotator in combination with rotation of profile by the pipe cutting device.

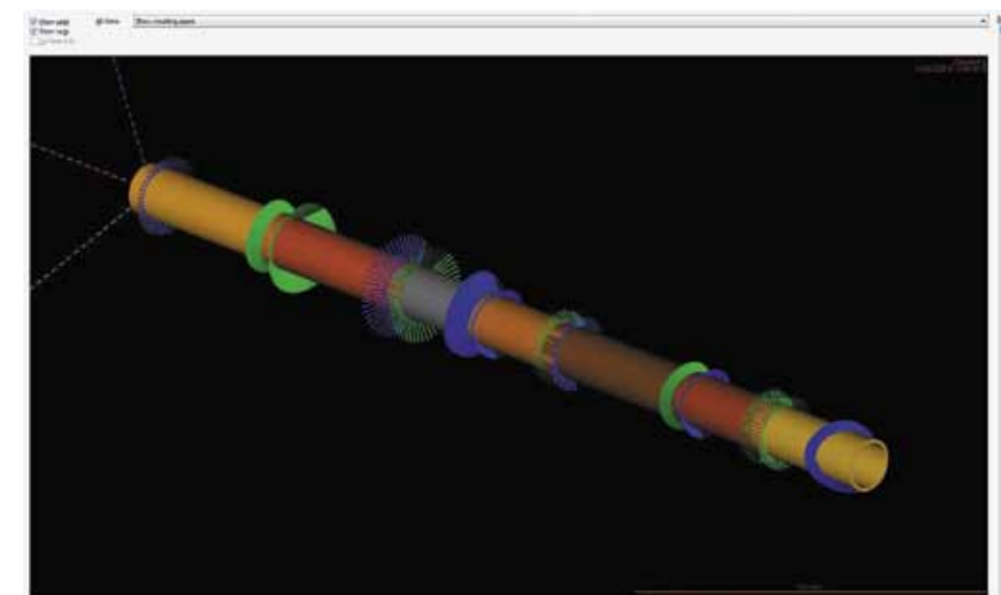
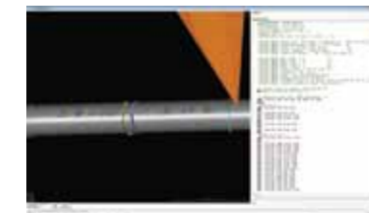
For certain profiles, MicroStep pipe cutting device is able to achieve necessary dynamics so that a rectangle profile can be cut over the edge also by using a straight head.



## PipeNest

Automatic pipe nesting module *PipeNest* is a fast and user friendly tool for nesting of imported pipe cutting programs on selected (fundamental) pipes. The nesting process involves rotation, rearrangement and mirroring of parts whereby machine configuration is taken

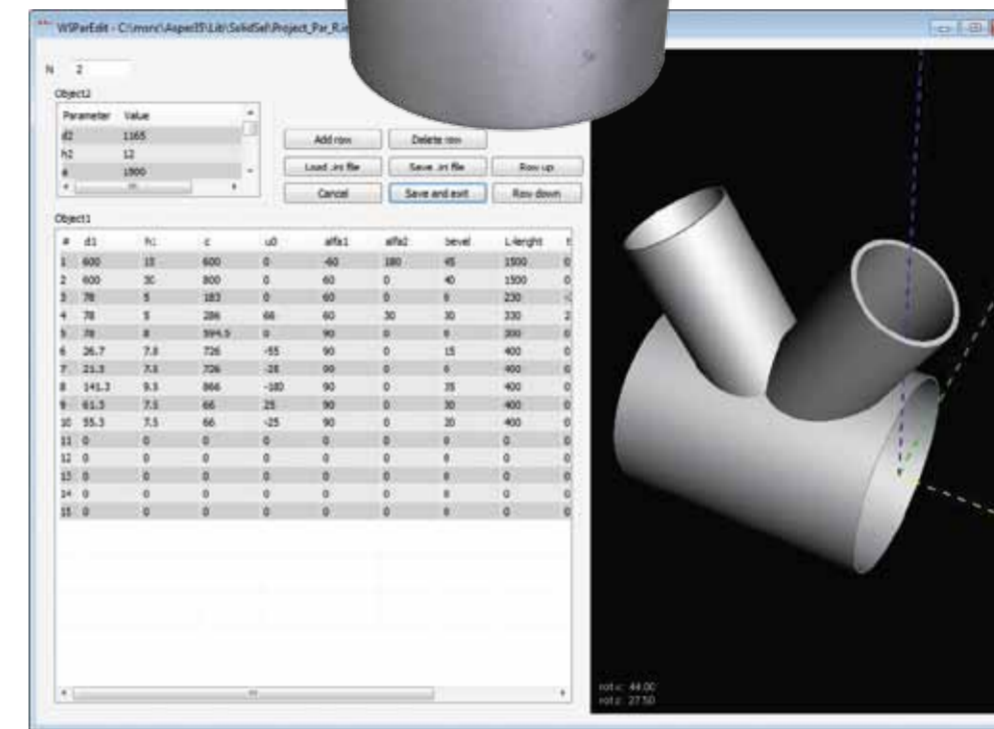
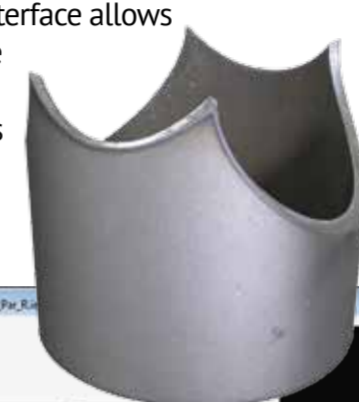
into account (location of pipe positioner - front or rear of the machine, straight or bevel tool station etc.). Cutting tasks can be prepared for several pipes at once. The module supports creation of microjoints to prevent unwanted movement of cut piece during cutting. The convenient 3D visualization serves for a better demonstration of the nesting process.



## SolidSel

The bevel pipe cutting library *SolidSel* is an advanced application which provides the full range of pipe based solutions on machines equipped with a pipe cutting device (RSV) and a plasma rotator. The extensive library with a user friendly interface allows the creation of precise multiple intersections of pipes, or pipes and domes, creation of non-rotary conical

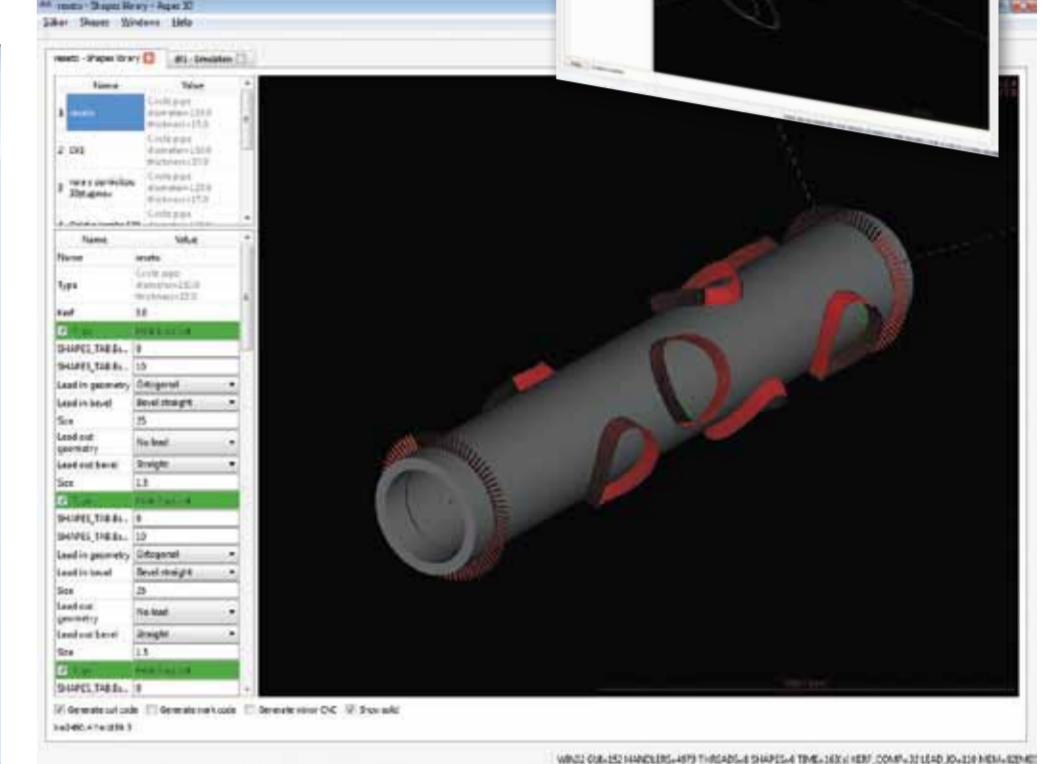
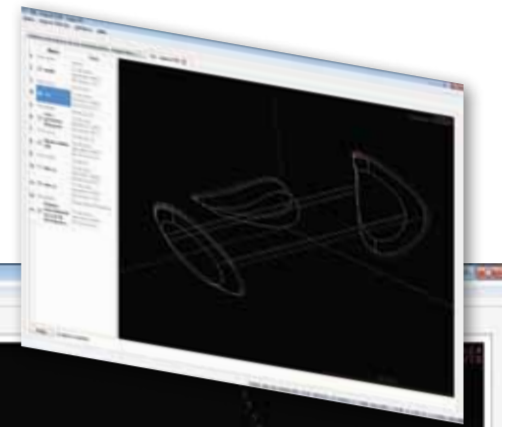
shapes, pipe cross beams as well as marking of synchronization lines and theoretical outlines when a bevel cut above 45° (50°) is required. The program enables the creation of constant bevels for V welds and constant welding volume for welding machines as well as cutting of pipes and pipe intersections from plane sheets for later bending.



## Asper 3D

MicroStep 3D CAM software *Asper3D* is an application dedicated to creating cutting programs for 3D cutting of pipes on MicroStep cutting machines equipped with a pipe cutting device. *Asper3D* provides an interface to advanced CAD programs. The program can process outputs from CAD programs (particular DXF and STEP formats) along with micro-joint function and support of

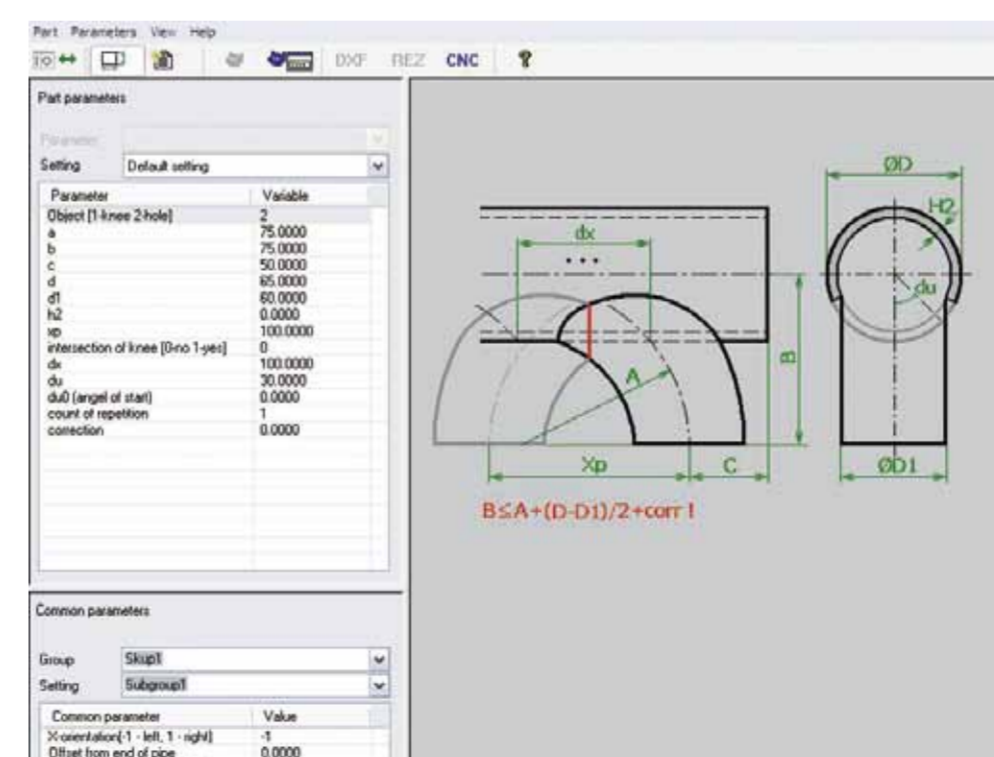
bevel cutting into pipes. Limitation of bevel according to technological possibilities and geometry can be relieved by marking of theoretical cut contours for later processing.



## ElbowSel

*ElbowSel* is a library based application for creation of cutting programs for connections of elbows and pipes for pipeline constructions. The cutting is achieved thanks to MicroStep's unique elbow clamping apparatus which enables clamping of the elbow in a rotary pipe cutting device and its rotation around the device axis. Thanks to this smart construction, the elbow end can be precisely cut also by

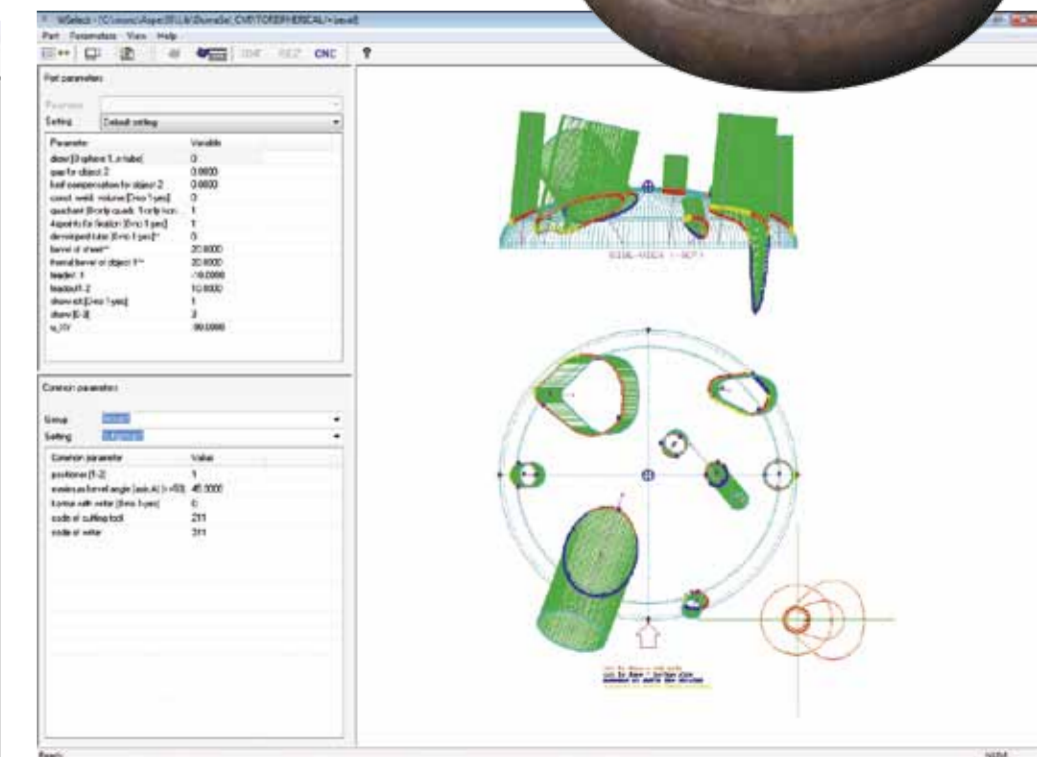
using a straight tool station. A connection of 2 elbows with a pipe in 1 spot is also supported.



## DomeSel

*DomeSel* provides extended possibilities for processing of domes on machines equipped with a plasma rotator and a dome cutting zone. Via unified user interface it offers convenient creating of precise multiple intersections of domes with pipes, creation of beveled welding volumes in domes (also domes placed upside down), creation of diverse cutouts as well as complete dividing of domes. The

library contains several modules with fully adjustable macros for easy and fast preparation of cutting plans in compliance with DIN 28011 and DIN 28013.





# **MicroStep<sup>®</sup> NEWS**

*spol. s r.o.*

## **MPM**

CAPP-capable production management solution

## **Asper 3D**

3D CAM for pipes and profiles

## **CPCut**

CNC bevel pipe cutter

