# Product Catalogue

2020

**Creating ‘Uni-Kue’ solutions for your business:**

- Laser cutters
- Plasma & oxy-fuel cutters
- Waterjet cutters
- Glue applicators
- Robotic and automatic manufacturing solutions

**www.uni-kat.pl**

More than **500** machines produced

More than **300** satisfied customers

Over **60** specialists and engineers

Over **15** years of experience

# Solutions tailored to your needs

Uni-Kat was established with a mission to provide commercially available, digitally controlled processing machines tailored to the manufacturing needs of Uni-Kat's customers. Over the last 15 years, we have become experts in thermal and waterjet cutting with a wide selection of machines for cutting and chamfering metals, plastics, and wood.

With unique engineering solutions and a highly qualified team of experts and engineers, we have launched **over 500 machines and 15 full production lines at customers in 14 countries.**

**The mission**

With the passion and commitment of our staff, we will continue to build perfect and innovative processing machines to drive the business growth of our customers.

**The vision**

We want work for Uni-Kat to be inspiring. We want to develop our products by marketing state of the art, innovative solutions. We want to become a business with a well-established market position and a global reach. We want our employees to feel proud saying: "I work at UNI-KAT".

**The values**

"It's worth being honest, though it doesn't always pay. It pays to be dishonest, but it's not worth it." – Władysław Bartoszewski

## Reliability guaranteed

With years of experience and the continuous development of our machines, they have evolved into products with nearly 100-percent reliability. Defects, if any, are extremely rare, **and 99% of them are resolved within 24 hours.**

## Various financing options

We provide different financing options for the machines purchased from us to support your budget: our offering includes manufacturer leasing to make your purchase easier and faster.

# Fibre and CO2 laser cutters

**High quality of cutting**

Laser cutting is a heat treatment process by which the workpiece surface exposed to the laser beam is melted and blown away or completely evaporated, leaving clean cutting lines that do not require finishing. The cut gap is just a little wider than the laser beam spot. This process allows the cutting of very complex geometric shapes and extremely small holes with a low HAZ (heat-affected zone).

**Fibre or CO2 lasers?**

With almost 4 times the efficiency and a wavelength **10 times shorter**, fibre lasers have been conquering the market as a better alternative to CO2 lasers. Fibre laser cutting is much cheaper to operate and faster in processing. However, its main drawback is the applications limited to only cutting metals. CO2 lasers are perfect for high-quality cutting of thick-gauge steel and a wide selection of organic materials, including plywood and plastics.

**The fastest processing technology**

A laser beam focuses a very high energy density on a very small surface area, which makes laser cutting the fastest processing technology of all thermal cutting processes. The same material can be processed with a fibre laser **up to 5 times faster** than with a plasma cutter and **over 50 times faster** than with abrasive water jets or traditional machining. A laser cutter can provide perfect quality and efficiency of work when it is endowed with a highly dynamic motion system, a high structural rigidity, a high precision of operation and a great mechanical strength.

# Qubo fibre cutter

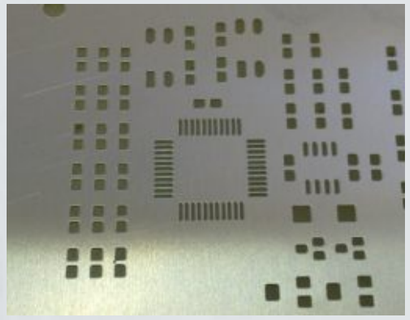
## A compact solution for cutting 0.05 to 8 mm thick steel workpieces

A compact cutting machine compatible with low-power fibre laser sources. It is a special-purpose variant of a laser cutter with a granite baseplate and linear actuators, intended for processing ultra-precision cut workpieces of thin sheet metal (from 0.05 mm in thickness), like solder paste masks in PCB processing.

| | |
|---|---|
| Width | **1000 mm** |
| Length | **800 - 2000 mm** |
| Stroke rate | **85 m/min** |
| Laser power output | **1.5 kW max.** |
| Resolution | **0,01 mm** |
| Accuracy | **0,05 mm** |


## Compact design

The machine has been designed to require no special foundation work at the installation area. It can be readily removed and deployed in a different part of the manufacturing floor. The hand-operated sliding laser slag table provided for easy loading of workpieces and convenient replacement of the baseplate grating.



## Ultra-high precision

The first of the Qubo series was created as a unique edition. The specifications for the machine included an extreme accuracy level of 1 nm with an astounding repeatability of processing of solder paste masks. Solder paste masks are templates for precise deposition of solder pastes on PCBs in large-scale electronic manufacturing. The machine was built exactly to spec by the application of linear actuators and a granite baseplate which cancels all vibrations generated by its motion.

## Huge durability and precision

**We focus on reliability**, which is why we use state of the art components from global leaders in the industry. Linear guides from Bosch-Rexroth and hardened helical racks from Güdel are just some of the components we employ to guarantee reliability and precision.

## Pipe cutting

optional accessories

The machine can be optionally expanded with a special fixture for square cutting of pipes within a diameter of 15-120 mm, a wall thickness of up to 5 mm, and a maximum workpiece length of 700 mm. This configuration can be applied in machine engineering, manufacturing of furniture hardware, ventilation components, piping components, automotive parts processing, and more.

Qubo laser fiber

State of the **art systems**

FrogJump

FlyCut

Smart machines from **Uni-Kat**

industry 4.0 ready

# Fobia laser cutter

## An all-rounder solution for laser cutting of steel

Fobia is a high-performance thermal cutting machine for steel, powered by a fibre laser source. This series of machines stands out with heavy-duty, industrial-grade design and a high accuracy of processing. The welded, annealed and milled structure of the machine is crowned with an ultra-light and rigid composite bridge beam to fully unleash all the potential of laser cutting.

| | |
|---|---|
| Width | **1500 - 2000 mm** |
| Length | **3000 - 6000 mm** |
| Stroke rate | **120 m/min max.** |
| Laser power output | **6 kW max.** |
| Resolution | **0,01 mm** |
| Accuracy | **0,05 mm** |


## A heavy-duty processing solution

Fobia is an industrial fibre laser cutter designed for multi-shift operation. As with any industrial-grade machine, Fobia is provided with guards on all mechanical components and a central lubrication system for maximum service life. The machine provides a full protective enclosure to prevent eye damage from extremely hazardous reflections of the laser beam.

## Proprietary control software

Our software developed created an easy and intuitive graphic interface with a complete visualisation of the cutting process. The process on the machine can be halted and resumed at any motion vector, while the processing parameters are hot-modifiable while a cutting program is already running. The control solution supports the latest processing solutions, like laser head motion optimizing or **Frog Jump**, and **Fly Cut**. The optimisation helps reduce the cutting cycle time by **up to 25%**, which means a throughput improved **by 15% over a single work shift.**

## Automatic workpiece table optional accessories

To speed up the processing on this machine, it can be provided with an interchangeable and fully automatic workpiece table. The automatic workpiece table allows simultaneous cutting and removal of finished workpieces with automatic replacement of the metal sheet once the cutting cycle is complete. This provides an uninterrupted processing flow without any standstill or time lost on workpiece unloading.

## Laser safety curtains optional accessories

Laser safety curtains are advanced perimeter protection sensors. The perimeter is formed by a series of infra-red beam sensor pairs and the perimeter breach is detected as an interruption of the beam between the beam transmitter and its receiver. The laser safety curtains form an invisible ‘sensor wall’ around the machine; if breached, the safety curtain triggers a safe stop of the machine.

Fobia laser fiber

State of the **art systems**

FrogJump

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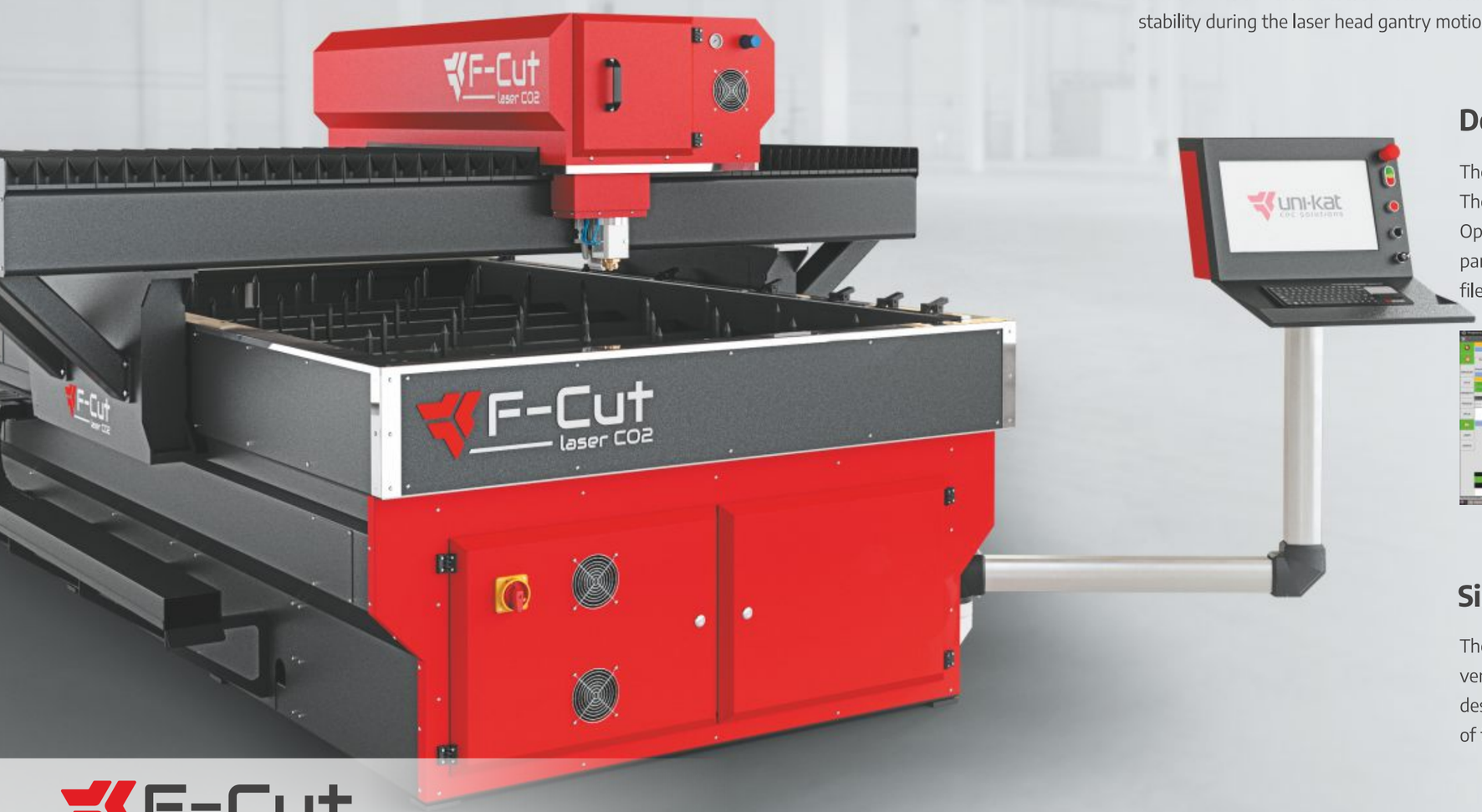
industry 4.0 ready

# F-Cut laser cutter

## High-ergonomics organic material cutter

F-Cut is a compact machine designed for cutting organic materials, such as plywood, plastics and laminates. The precision of the CO2 laser applied in the machine helps with accurate processing of slots in plywood workpieces, which is very handy in production of blanking tools for printing applications. The machine is excellent for small manufacturing floor areas.

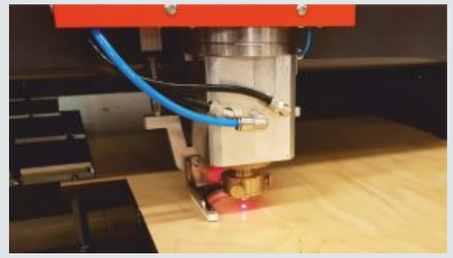
| | |
|---|---|
| Width | **1500 mm** |
| Length | **1500 - 2500 mm** |
| Stroke rate | **15 m/min** |
| Laser power output | **1.2kW max.** |
| Resolution | **0,01 mm** |
| Accuracy | **0,05 mm** |




F-Cut laser CO2

## Ideal laser beam performance

The best effects of CO2 laser beam cutting require a steady gap between the laser head and the workpiece surface. The number of optical components is reduced to the necessary minimum in the F-Cut laser cutter for virtually zero laser energy losses from beam reflector: 100 percent of the resonator output is focused in the spot that travels along the cutting trajectory. The resulting cutting quality is nothing short of perfection.

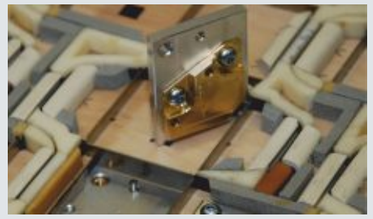


## Ergonomic features

The laser source resonator is installed on a robust steel gantry operated with high-precision, zero-play ball screws in tandem. The annealed steel structure features a refractory-ceramic lined slag table for easy cleaning and superior stability during the laser head gantry motions.

## Dedicated controls

The laser cutter control solutions is dedicated to the cutting of blanking tools. The laser cutter provides 4-axis correction of velocity and gap distance. Operation is easier with a system for automatic pre-selection of processing parameters by the processing line type and loading of cutting process program files in the most popular industry formats, like CF2, PLT and DXF.



## Simple optical pathway configuration

The laser's optical path includes the laser source, one reflector, and a lens for a very easy alignment. The laser cutting head developed by Uni-kat engineers is designed for 4" and 5" laser focal lenses with easy replacement and calibration of these components for a superior quality of laser cutting.

# Impression laser cutter

## Supports a wide range of workpiece materials

The Impression CO2 laser cutter is specifically designed to cut plywood workpieces into blanking tools with high-output laser sources. The machine can be applied in medium and large-scale manufacturing facilities that require high quality cutting with a high throughput, multi-shift production.

| | |
|---|---|
| Width | **1500 mm** |
| Length | **1500 - 3000 mm** |
| Stroke rate | **60 m/min** |
| Laser power output | **4 kW max.** |
| Resolution | **0,01 mm** |
| Accuracy | **0,05 mm** |


## Dynamic flying laser optical system

Impression is built to work with high-power laser sources that are heavy. The light-weight design of the workpiece table and the light-weight laser head carriage are combined with a heavy duty servo unit for excellent motion speed and acceleration. This reduces the processing cycle time and improves the quality of cut.

## Perfect engraving

The CO2 laser technology ensures that every design can be laser-engraved on most industrially applied materials. The dedicated fume extractor installed at the laser head removes pollutants efficiently while engraving. The advantages of Impression include extremely high positioning accuracy for high-precision travel to subsequent work areas and the production of high-precision engraving.

## More options are standard

The penetration of a plywood material with a laser beam leaves a bottom spot larger than the entry penetration of the laser beam on the top surface. The effect is pronounced especially with high-power lasers. We developed a **laser pulse cutting system** that largely eliminates the effect. The laser cutting process runs through a laser pulse stage to improve the quality of the slot. The machine includes a **4-axis slot width correction feature** to produce perfect lines and geometry of cuts.

## Professional and intuitive control software

Not unlike the F-Cut laser cutter, this machine provides intuitive controls with a full visualisation of the cutting process. The control system features a 4-axis correction of velocity and gap distance between the laser nozzle and the workpiece surface with **automatic pre-selection of processing parameters** from CF2 files for easy and efficient setting up and operation.

Impression laser CO2

Smart machines from **Uni-Kat**

industry 4.0 ready

# 2D and 3D cutting machines

Air plasma cutting is the oldest and yet extremely popular plasma cutting process. It provides a satisfactory quality of cut workpieces, while the commercially available air plasma cutting systems provide a current range of up to 200 A, which is enough to pierce 25 mm of steel and cut from the edges of 60 mm thick workpieces. However, the thicker the workpiece is, the cut edge chamfer is bigger.

To improve the quality of cuts in thick materials, the so-called Long Life plasma sources were developed. The plasma gas fuel is oxygen, which markedly reduces the effect of cut edge chamfer while improving smoothness. The Long Life plasma generator amperage ratings range up to 400 A.

One of the latest plasma cutting solutions is the HD class: the acronym stands for two features, High Density plasma flux generators and High Definition of cutting provided by the plasma beam. The most important benefit of the HD-class technology is the minimum cut gap for precise fabrication of holes and sharp corners with a minimum edge profile chamfer which does not exceed 2%. This technology is good for cutting structural steel, stainless steel, acid-resistant steel and aluminium.

**Oxy-fuel cutting** is a thermal-working process that works by oxidation and high-pressure blowout of the preheated workpiece material from the cut line. Oxy-fuel cut edges are smooth and highly true to square thanks to the oxygen fuelling of the process. Since the cutting process works by self-generation, its drawbacks include a low cutting speed, bevelling of cut edges, and a very narrow application: it is only good for black steel grades. The preheating gas is most often propane-butane or acetylene. The oxy-fuel cutting systems from Uni-Kat can process steel up to 200 mm thick.

# Just the cutting quality you need

We carry a selection of plasma cutting generators from Hypertherm and Kjellberg to choose from for the customer-specific applications. Our sales engineers will clarify every question you may have and advise on the best processing technology for your industry.

| Generator designation | Breakthrough thickness limit | Cutting (recommended / max) | Operating cycle | Required connections | Technical gases |
|---|---|---|---|---|---|
| **Hypertherm POWERMAX series** | | | | | |
| Powermax45 XP | 12 mm | 22/29 mm | 50% @ 45 A<br>100% @ 32 A | 10kW | Air, nitrogen, argon, F5 |
| Powermax65 | 16 mm | 25/32 mm | 50% @ 65 A<br>100% @ 46 A | 15kW | Air, nitrogen |
| Powermax85 | 20 mm | 32/38 mm | 60% @ 85 A<br>100% @ 66 A | 20kW | Air, nitrogen |
| Powermax105 | 22 mm | 38/50 mm | 80% @ 105 A | 30kW | Air, nitrogen |
| Powermax125 | 25 mm | 44/57 mm | 100% @ 125 A | 40kW | Air, nitrogen |
| **Hypertherm MAXPRO series** | | | | | |
| MAXPRO200 | 32 mm | 50/75 mm | 100% @ 200 A | 33kW | Air, oxygen, nitrogen |
| **Hypertherm XPR series** | | | | | |
| XPR170 | Black steel - up to 40 mm<br>Stainless steel - 22 mm<br>Aluminium - 25 mm | Black steel - 60 mm<br>Stainless steel - 38 mm<br>Aluminium - 38 mm | 100% @ 170 A | 35,7kW | Air, oxygen, nitrogen, argon, H35, H2O |
| XPR300 | Black steel - up to 50 mm<br>Stainless steel - 38 mm<br>Aluminium - 38 mm | Black steel - 80 mm<br>Stainless steel - 75 mm<br>Aluminium - 50 mm | 100% @ 300 A | 63kW | Air, oxygen, nitrogen, argon, H35, H2O |
| **Kjellberg Smart Focus series** | | | | | |
| SF130 | 25 mm | 32/40 mm | 100% @ 130 A | 22,5kW | Air, oxygen, nitrogen, argon, hydrogen, F5 |
| SF200 | 30 mm | 40/60 mm | 100% @ 200 A | 40,8kW | Air, oxygen, nitrogen, argon, hydrogen, F5 |
| SF300 | 40 mm | 60/80 mm | 100% @ 300 A | 63,2kW | Air, oxygen, nitrogen, argon, hydrogen, F5 |
| SF400 | 50 mm | 70/100 mm | 100% @ 400 A | 92,8kW | Air, oxygen, nitrogen, argon, hydrogen, F5 |
| **Kjellberg Q series** | | | | | |
| Q3000<br>Q3000 plus | 40 mm | 80 mm | 100% @ 300 A | 57,6kW | Air, oxygen, nitrogen, argon, hydrogen, F5 |

# Spark 1 plasma & oxy-fuel cutter

## Industrial class with an attractive price

A compact, single-cantilever thermal cutter for steel workpieces. The machine is intended for small and medium steel structure processors and repair and fabrication shops in large manufacturing enterprises. The cutter is available with a plasma torch and/or an oxy-fuel torch (fed with oxygen and propane or oxygen and acetylene).

| | |
|---|---|
| Width | **1000 - 2000 mm** |
| Length | **3000 - 12000 mm** |
| Stroke rate | **23 m/min** |
| Accuracy | **+/- 0,5 mm** |


Spark 1 plasma/oxygen

## Chamfering system

With its dedicated torch holder, the machine can fabricate straight-line welding chamfers along the selected axis of motion with the chamfer steps of 15°, 30° and 45°. The feature can be used both with plasma and oxy-fuel torches. Chamfering does away with downstream preprocessing for fusion welding, which reduces the overall production time.

## Easy grating replacement

We always listen to the feedback of our customers and we have plenty of capabilities in the improvement of our products, for we make them. The grate was improved by customer feedback. Usually, the only components replaceable in this case are the flat bars. At the request of our customers, we designed the grate with easily removable segments for servicing, which takes only the standard time required to change the workpiece.

## Three-side loading

Spark1 is a cutting machine with a design unlike any other thermal cutter. The unique structure is based on a single-sided, heavy-duty motion system that provides access to the workpiece table from three sides. This way the cutting process can be easily monitored along the whole work area length. Loading of thick and heavy workpieces is much easier than in classic cutting solutions.

## Low costs of purchase

The Spark1 cutter provides a unique balance between the costs of purchase and the expected quality cutting. The machine is intended mainly for metal fitting shops, coppersmithing, repair shops, mining and railway maintenance. Fitted with plasma and oxy-fuel torches, the machine provides perpendicular cutting of a large selection of sheet metal materials in a very wide range of thickness with low operating costs.

# Spark2 plasma & oxy-fuel cutter

## An all-round solution for all manufacturing types

Spark2 is a high-performance machine for thermal cutting of steel and other metals with plasma and gas-fuel torches. It is compatible with air-plasma generators, HD plasma generators, and gas torches (fed with oxygen and propane or oxygen and acetylene). This model is a perfect choice for medium sized manufacturing and service shops where a friendly buying price and life of the machine matter most.

| | |
|---|---|
| Width | **1500 - 3000 mm** |
| Length | **3000 - 12000 mm** |
| Stroke rate | **40 m/min** |
| Accuracy | **+/- 0,2 mm** |


## Magnetic torch holder

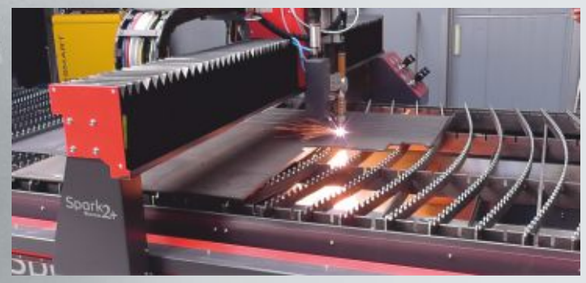
The dedicated design of the magnetic torch holder protects the torch upon impact against a protrusion or a warped workpiece feature. When the torch strikes an obstacle, the neodymium holder socket will release the torch to protect it from costly damage. The collision sensor is triggered at the same time to stop the machine without delay. The magnetic holder allows torch installation at an orientation of +/- 45°. This feature allows chamfering for downstream fusion welding operations.

## Slag table drawers

Spark2, like other machines in this series, features slag drawers for easy cleaning of the slag removal tables and removal of small workpiece parts should they fall down during processing. **This saves a lot of time** on cleaning and maintenance without time-consuming removal of the slag table grate.

## Low purchase costs of HD plasma generator machines

Spark 2 is a perfect solution for businesses that seek HD plasma cutting of holes and where a tight budget is critical to the selection and configuration of the thermal cutter solution. The Spark2 plasma cutting machine is a good balance of high throughput and the cost of the machine purchase. The machine provides high-quality plasma cutting of workpieces with a thickness from 2 mm.



## Heavy-duty structure

Spark2, not unlike other machines in the plasma and oxy-fuel cutting range, features a heavy-duty motion system that is anchored to the installation foundation. The workpiece table is designed to withstand metal sheets and slabs up to 150 mm thick and several tonnes in weight.

# Glimmer plasma & oxy-fuel cutter

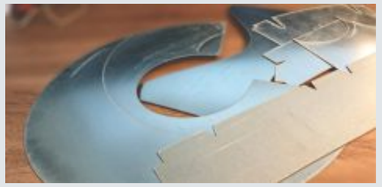
## Performance and speed proven by HVAC industry testing

Glimmer is a high-performance thermal cutter for processing steel and other metals with a plasma torch and/or an oxy-fuel torch (fed with oxygen and propane or oxygen and acetylene). This series of thermal cutters provides high speed of motion and vector change control with a high accuracy of processing. This true all-rounder with a rigid frame and high-precision servos will work great in all production scenarios. The cutting machine is also easy and intuitive to operate.

| | |
|---|---|
| Width | **1000 - 3000 mm** |
| Length | **3000 - 12000 mm** |
| Stroke rate | **85 m/min** |
| Accuracy | **+/- 0,1 mm** |


## The fastest plasma cutter built in Poland

With the high-speed motion system, Glimmer is perfect for cutting thin sheet metal where the speed of cutting provides a high quality of finished workpieces. It is excellent for fabrication applications in the HVAC industry.



## Automatic interchangeable workpiece tables

optional accessories

The machine can accommodate an optional automatic workpiece table. The automatic workpiece table allows simultaneous cutting and removal of finished workpieces with **automatic replacement of the metal sheet** once the cutting cycle is complete. This provides an uninterrupted processing flow **without any standstill or time lost on workpiece unloading.**

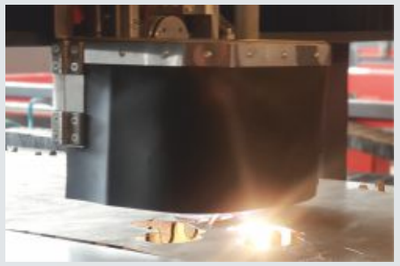
## High-precision helical motion gear

The motion drive system in the Glimmer series is based on superior quality helical gear racks. The physical performance of helical gear provides an excellent precision of high speed motion transmission with at an incredible level of positioning precision. The machine can reach travel rates of **up to 85 m/min** without any dimensional deviation even in 12-meter long motions.

## Automatic UV shield

optional accessories

The automatic UV shield is an optional accessory that improves the operator's comfort and safety. The UV shield cuts off the hazardous radiation and stops the metal spatter from leaving the machine during processing, so the operator is free not to wear protective glasses.



Glimmer plasma/oxygen

# Glimmer HD plasma & oxy-fuel cutter

## Superior quality of high-speed cutting

This thermal cutter is designed for the most demanding users that expect nothing short of the best in processing precision and cycle speed. It can be configured with the CNC PRODUKTMTY PLUS control software, which provides many options for processing customisation. The machine can accommodate several cutting head carriages or several pneumatically-controlled torches on a single carriage to combine the processes of plasma and gas-fuel cutting with engraving on the same machine.

| | |
|---|---|
| Width | **1500 - 5000 mm** |
| Length | **3000 - 24000 mm** |
| Stroke rate | **50 m/min** |
| Accuracy | **+/- 0,1 mm** |

**Poland's first CNC cutter**
**with Frog Jump**


## Up to 120 m2 of workpiece table area

The special design of the machine can provide the largest work area of all cutting machines from Uni-Kat. With the worktable surface area this large, the machine can operate several independent cutting head portals to cut 2 or 3 workpieces in the same cycle. This solution is dedicated to large manufacturing facilities and shipyards. The processing capabilities can be expanded further with the portal bridge extension for cutting of large workpieces, like milled sections, HEBs and pipes.

Comparison of the cutting speed after 4 minutes of processing identical workpieces with Frog Jump (see right) and without it.

## Frog Jump

Glimmer HeavyDuty is the **first Polish cutting machine** to feature the latest **Frog Jump** motion control technology, which optimises the torch travel between the cutting vectors. The feature helps reduce the cutting cycle time by up to 25%, which means a throughput improved by **15%** over a single work shift.

## Multiple carriage unit

Each portal of the machine can have more than one separate tooling carriage for multiple processing applications and cutting technologies.

## MultiTool carriage

optional accessories

With the dedicated engineering of the MultiTool carriage, two torches can be installed for alternate operation within a cutting cycle. This way the cutting machine can combine different cutting processes in a single processing program, like plasma engraving with oxy-fuel cutting and plasma cutting. **This solution is the only one of its kind on the market.**

Glimmer HD plasma/oxygen

State of the **art systems** | FrogJump | MultiTool | Smart machines from **Uni-Kat** | industry 4.0 ready

# Thunder3D plasma & oxy-fuel cutter

## Cutting and edge chamfering for downstream fusion welding

Thunder3D is our answer for the popular demand of the market segment for high-performance, high-end 2D and 3D plasma and oxy-fuel cutters. Thunder3D is considered to be the fastest cutting machine built in Poland. The axis motion accelerate rates are close to those of sports cars.

| | |
|---|---|
| Width | **1500 - 4000 mm** |
| Length | **3000 - 12000 mm** |
| Stroke rate | **50 m/min** |
| Accuracy | **+/- 0,1 mm** |
| Chamfer type | **V, X, Y, K** |


## 5-axis 3D cutting head

The 3D swivel head features a design that enables simultaneous **cutting and chamfering of sheet metal**. The cutting head is compatible with plasma and oxy-fuel torches. This provides immense processing capabilities in every industry and manufacturing profile.

The cutting head is design to **prevent twisting of the cables**, which no longer require a standstill to be untangled after every processing cycle, and the risk of shearing the wiring is finally no more.

**Supported chamfer types:**

**V**-chamfer **X**-chamfer **Y**-chamfer **K**-chamfer

## Pipe turning gear

optional accessories

The cutting machine can be optionally integrated with a turning gear for cutting of piping and profiles. The portal bridge extension can accommodate a peripheral tool for cutting beyond the workpiece table limits. The turning gear is unique in that it can work with pipes and profiles to expand the applications of the machine.

## 2-axis torch head swivel

An additional advantage of the torch head is the +/- 90° swivel motion in axis A and B. This allows cutting holes in upright walls, like profiles and I-beam webs.

## Heavy-duty structure

Thunder3D features an innovative portal bridge beam with a thick cross-section. This solution reduces the thermal stress from cutting at an angle towards the portal bridge beam.

Thunder 3D plasma/oxygen

State of the **art systems** | Cutting ±90° | FrogJump | Smart machines from **Uni-Kat** | industry 4.0 ready

# Waterjet cutters with up to 4200 bars of jet pressure

**Cutting of all materials:**
Waterjet cutting is a cold-working process by which a high-pressure jet of water or water with abrasive garnet grit cuts through the workpiece. The jet feed rate can be three times the speed of sound. Waterjet cutting is feasible with virtually all material types (except for diamonds, which is often the material of the jet nozzle for waterjet cutters). It is perfect for cutting metals, glass, plastics and stone. Waterjet cutting enables fabrication of very complex forms in very thick materials.

**The smallest cut gap:**
Soft materials can be cut with high-pressure jets of pure water. Here, the material is separated along the impingement line of the water jet, which provides the smallest cut gap. Or is it a gap anyway?

**What jet pressure?**
It depends on the workpiece material hardness. For rubber, foam, and soft plastics, pure water output at a pressure of 1500 bars is sufficient. Harder materials require the addition of an abrasive grit to the water jet, which must be brought to a higher pressure. The cutting speed and quality improve as the jet pressure becomes higher. Metals, stone, glass and similar hard materials require a jet pressure above 4000 bars and garnet grit as the abrasive medium.

# Streamer waterjet cutter

## Excellent cutting quality in all soft materials

The streamer waterjet cutter is designed for processing of soft materials, like rubber, cork, foam and plastics without any abrasive grit. The pressurized water jet provides a high cutting precision with a very small cut gap. The machine is a great choice for the rubber processing industry, advertising media production, model-making, and printing blanking die manufacturers.

| | |
|---|---|
| Width | **1000 mm** |
| Length | **1000 - 2000 mm** |
| Stroke rate | **10 m/min** |
| Operating pressure | **2000 bar** |


## Low total costs of ownership

The cost of one operating hour of the machine is less than 4 PLN, or less than 20 PLN when processing with abrasive grit. The low costs are achieved by an innovative high-pressure booster system that provides excellent efficiency. **The average energy usage is just 3.5 kWh, while the water consumption is limited to 3 l/min.** The Streamer waterjet cutter also means low costs of purchase: it is nearly two times cheaper than other waterjet cutters.

## Versatile in application

The machine easily cuts soft materials, like cork, rubber, foam and soft plastics with a jet of pure water. The selection of compatible workpiece materials can be expanded easily by the addition of abrasive grit to the water jet for cutting of aluminium, steel, stone and glazed ceramic materials, including tiles.

## A reliable compact solution

This is a compact and robust machine with a small footprint. The high-pressure booster system was developed and built by our highly experienced engineers for low maintenance demands and costs. The air treatment system with suitable water systems help ensure years of reliable operation.

## Simple installation

The machine requires access to electrical mains, running water, a drainage connection and a low-output compressed air supply. If necessary, the machine can be delivered with an optional integrated air compressor.

Streamer waterjet

# Xstream waterjet cutter

## Excellent cutting quality in all materials

The Xstream industrial-grade waterjet cutter is designed for processing of all materials that can be cut with water jets: metals and stones, which require abrasive grit jets and softer workpieces of rubber, cork, foam and plastics, which do not require abrasive grit. The pressurized water jet provides a high cutting precision with a very small cut gap and a high finish quality of the edges. The machine is intended for medium to large manufacturing operations.

| | |
|---|---|
| Width | **1500 - 3000 mm** |
| Length | **1500 - 6000 mm** |
| Stroke rate | **40 m/min** |
| Operating pressure | **4200 bar** |


## Unlimited cutting applications

Xstream is an industrial-grade waterjet cutter for all types of materials. The cutting machine is designed to work with high-pressure booster pumps. It is an all-round cutting solution excellent for machine prototyping, industrial processing services and stoneworking.

## Processing aid systems

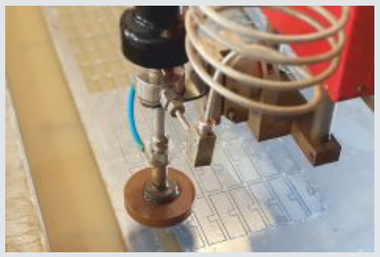
The system for waste abrasive removal and sludge from the tank and automatic abrasive grit feeding line effectively reduce the effort of the operators to increase the production output. The automatic abrasive grit feeding to the water jet head improves the quality of cuts and optimises the grit yield.

## Controlled water level tank

High-pressure waterjet cutting generates high noise levels. The noise can be reduced by processing with the workpiece submerged in water. The cutter tank is designed with an adjustable water level to adapt the immersion depth to the workpiece thickness.

## For many years of operation

The central lubrication system serves all mechanical components to enjoy their perfect condition for years of reliable operation.



# Hmuk roller glue applicator

## Perfect adhesive layer deposition across the gluing area

The Hmuk series of glue applicators deposit thin layers of hot-melt adhesive to the substrates of the workpieces. They are perfect for adhesive bonding of foams, cardboard, wood and other substrates that do not melt in exposure to hot-melt glue.

| | |
|---|---|
| Glue roller width | **250 - 1000 mm** |
| Glue temp. | **20 - 250 °C** |
| Roller speed | **0 - 50 obr/min** |
| Glue tank capacity | **4,5 - 18 L** |
| Power rating | **3 - 15 kW** |


## Next generation of adhesive bonding

Hot-melt glue has found many applications in the modern industry. Hot-melt adhesives grow in popularity also in home and DIY applications. Hot-melt glueing has the benefit of extremely quick bonding. Hot-melt adhesives are easy to store and handle with a very long shelf life.

## Optional accessories

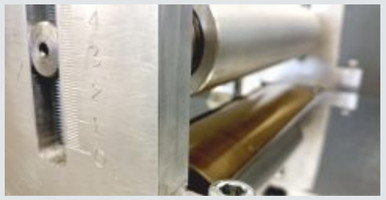
Depending on your application needs, the glue applicators can feature optional features like glue roller preheating, glue roller speed control, glue roller rotation foot switch, or a remote timer control.

## Easy cleaning

The body of the Hmuk glue applicator is made of stainless steel sheet for easy removal of production residues and other dirt. The simple structure helps with fast replacement of the machine body if damaged.

## Precise roller height adjustment

The guiding nip roller is installed in precision-made adjustment rails for easy adjustment of the nip clearance from the glue roller.



## Versatile application

Around the world, the Hmuk glue applicator series has found different production applications with its easy and quick glue deposition from the roller. The glue applicators are used in mass production of packaging containers, construction tools, footwear, luggage cases, filters and bed mattresses. The machine can be integrated with an automated production line with an industrial robot.

Hmuk
hot melt aplicator

# End-to-end production lines

## Durability, high performance and low costs of operation

The end-to-end production lines from Uni-Kat are uncompromising and comprehensive solutions for manufacturing operations that require high throughput and low costs of operation. The Glimmer and Fobia cutters can be integrated with unwinding and lay-flat units for coiled sheets, complete with a system of interchangeable workpiece tables. This configuration helps build high-capacity automatic thermal cutting lines with a very high speed of cutting and vector change without compromising high accuracy. These solutions are perfect for large-scale manufacturing where the product quality is of a high concern, like in HVAC component production.

### 1 A single custom-built machine

Uni-Kat cooperates with Simmech Engineering. Together we developed a dedicated integration system to combine Uni-Kat cutting machines with coiled sheet unwinders and lay-flat machines. **We are the only manufacturer in Poland that provides these solutions.**

### 2 Unwinding, lay-flat and feeding systems for coiled sheet metal

**Products from Simmech Engineering**

Cutting and fabrication straight from coiled sheet metal reduces the stock purchasing costs and greatly reduces in-production waste. Coiled sheet metal feeding does not require continuous feeding of separate sheets to the cutting line. This greatly improves the processing throughput.

### 3 Fan-powered filters

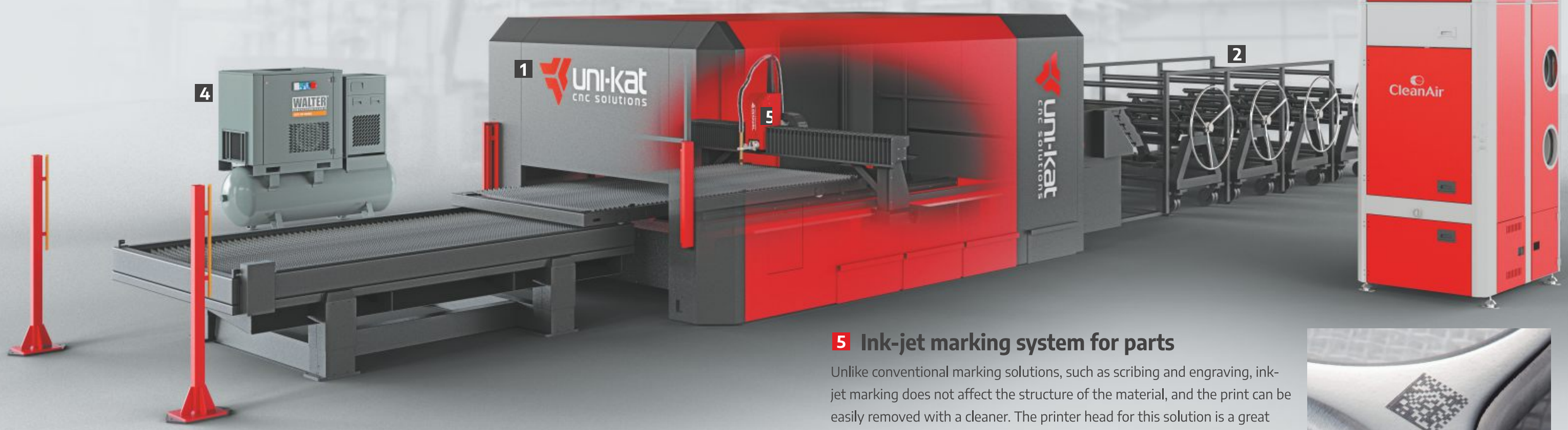
**Products from Clean Air Factory**

We carry state of the art fan-powered filter systems adapted to the workpiece tables of the machines in our range of solutions. The airborne particulate removal efficiency is 99.8% to recycle the treated air back to the manufacturing shop floor.

### 4 Air compressors with dryers and pressure buffer tanks

**Products from WALTER Kompressortechnik and Atlas Copco**

We carry the latest solutions in piston and scroll air compression technology to significantly reduce the costs of plasma and laser cutting operations. Metals up to 3 mm thick can be cut with compressed air at the same speed as provided with nitrogen gas, at a negligible difference in cutting quality.


### 5 Ink-jet marking system for parts

Unlike conventional marking solutions, such as scribing and engraving, ink-jet marking does not affect the structure of the material, and the print can be easily removed with a cleaner. The printer head for this solution is a great choice for manufacturers who make diverse products. The solution eliminates the need for manual marking of parts. This greatly reduces the time of pre-processing for downstream manufacturing steps.

# Robotic and automatic manufacturing solutions

## Smart manufacturing to drive up your profits

We have developed and deployed 15 end-to-end production lines with KUKA industrial robots. The extraordinary precision and quality of the components make the robots by KUKA Germany a hallmark of reliability and limitless applications of robotics.

The advantage of Uni-Kat is not just our professional experience in robotic applications; we understand many different robotic processes by which we can expand the capabilities of each robot and provide an entire robotised environment to streamline the manufacturing operations of our customers.

### 1 Plasma or laser cutting

A plasma torch or a laser cutting head provides nearly limitless cutting applications. The excellent kinematic performance of industrial robots helps fabricate all types of welding chamfers and cutting of finished products, like shipping containers, ship's sides, and complete steel structures.

### 2 Laser or MIG/MAG welding

The welding fixture installed on a robotic manipulator helps weld all types of seams. The steady speed of stepless motions provide a high processing and finish quality of welds. The working range can be improved by deploying the robot on an additional linear motion axis.


### 3 Machining

A milling spindle drive installed on a robotic manipulator enables complex machining of different materials. A properly programmed work cell with a good hardware configuration and an extensive magazine of automatically changed tools converts the robot into a fully automated machining centre.

### 4 Packing and handling

A robotic manipulator is not only an ultra-precise and repeatable processing tool. It is also great for lifting and handling objects up to 1300 kg in weight. A robot can provide handling, palletizing and packing of products without any risk of dropping or damaging the pieces. The manipulator adapters dedicated for your production specifications can enable packing of groups of products in one cycle to reduce the processing time and eliminate the risk of human error.

### 5 Spray coating (of paint, adhesives or gel coats)

The spray coating robots are most often applied in automotive production, hydraulic component and welding processing applications. Robots apply different coating types on surfaces in different configurations and in hard to reach areas that are often inaccessible to human workers. The robots provide consistent and superior coating quality with great repeatability in production runs.

# Custom machines

Project examples

## Ventilation duct assembly line

Uni-Kat designed and built an assembly line on custom order for production of large-diameter ventilation ducts for nuclear power plants. The processing line components include: a sheet metal loading station that handles workpieces up to 2000 x 6000 mm in size and 4 mm thick, a sheet mill station for cold-forming of sheet metal into a custom cross-sectional shape, a duct unloading station and a dedicated linear welding machine.

## Automatic tack welding machine

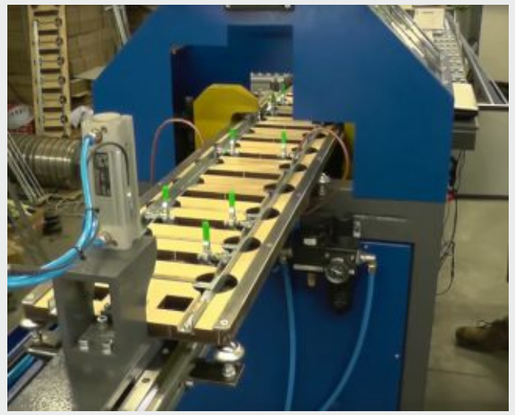
With a dedicated design solution, the machine makes 50 tack welds per minute, a throughput not seen before. With a system of replaceable moulds, the operator fills the mould to fabricate the next workpiece while the machine is still tack-welding the previous workpiece; next, the finished mould is swapped for the new one. The software interface provides easy programming of the processing parameters that markedly reduces the costs of pre-production costs. Other advantages of the machine include reduced human exposure to EM fields, sound and physical loads.

## Autonomic pallet foot fabrication line

This production line was born from several custom machines, which were followed with the design and development of an ultra-fast and economical production of pallet feet. The number of the machine units in the production line was gradually increased, while the machines were continuously improved to raise their production capacity. The production line is comprised of conveyor belts that link glue applicators, dust-free sawing machines, formers, depalletizers and palletizers. In the last production step along this line, the pallet feet are handled to the pallet gluing machine, which builds the finished products, or environmentally-friendly paper pallets. In 2018, the production line was retrofitted with a ultra-high-speed pallet gluing machine with robotised intermediate product handling and finished product collection stations.

## Automatic snow fence production line

The TOX snow fence production line was designed, engineered and manufactured as per the customer's specifications for production capacity, quality, ease of operation and stock material parameters, to name a few of the requirements for the project. The production line is comprised of a bending brake, which makes angle bars, and a TIX process-based machine which joins the angle bars with the rungs. The stock material is a coiled flat bar. The finished product is a snow fence. The operating concept, machine design, handling methods, cutting and bending, as well as the applied actuators, transmission gears, handling units, controllers and software are all proprietary deliverables of Uni-Kat.



Haven't found the machine you were looking for?

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