Swift-Cut

SWIFT-JET PRO

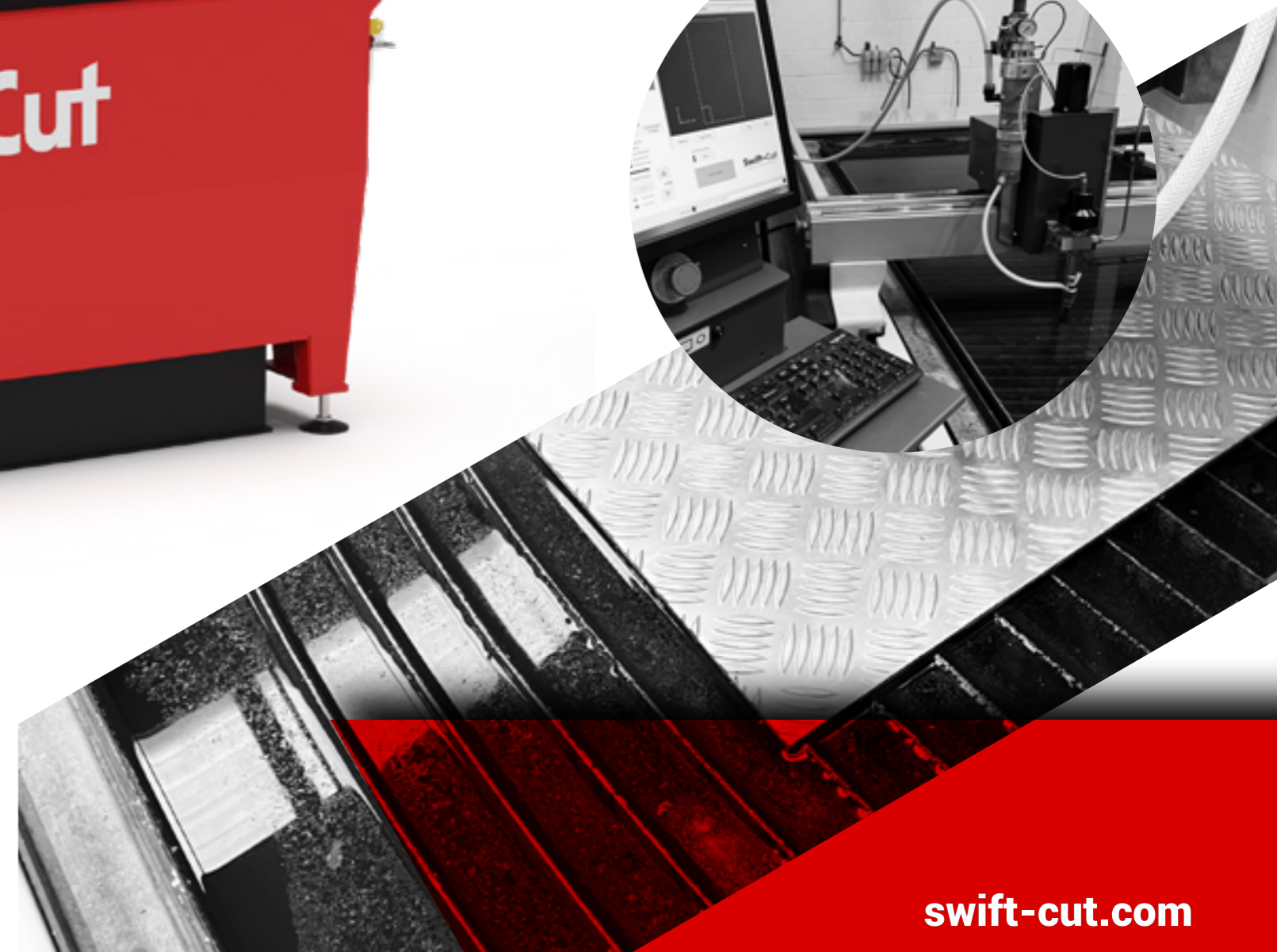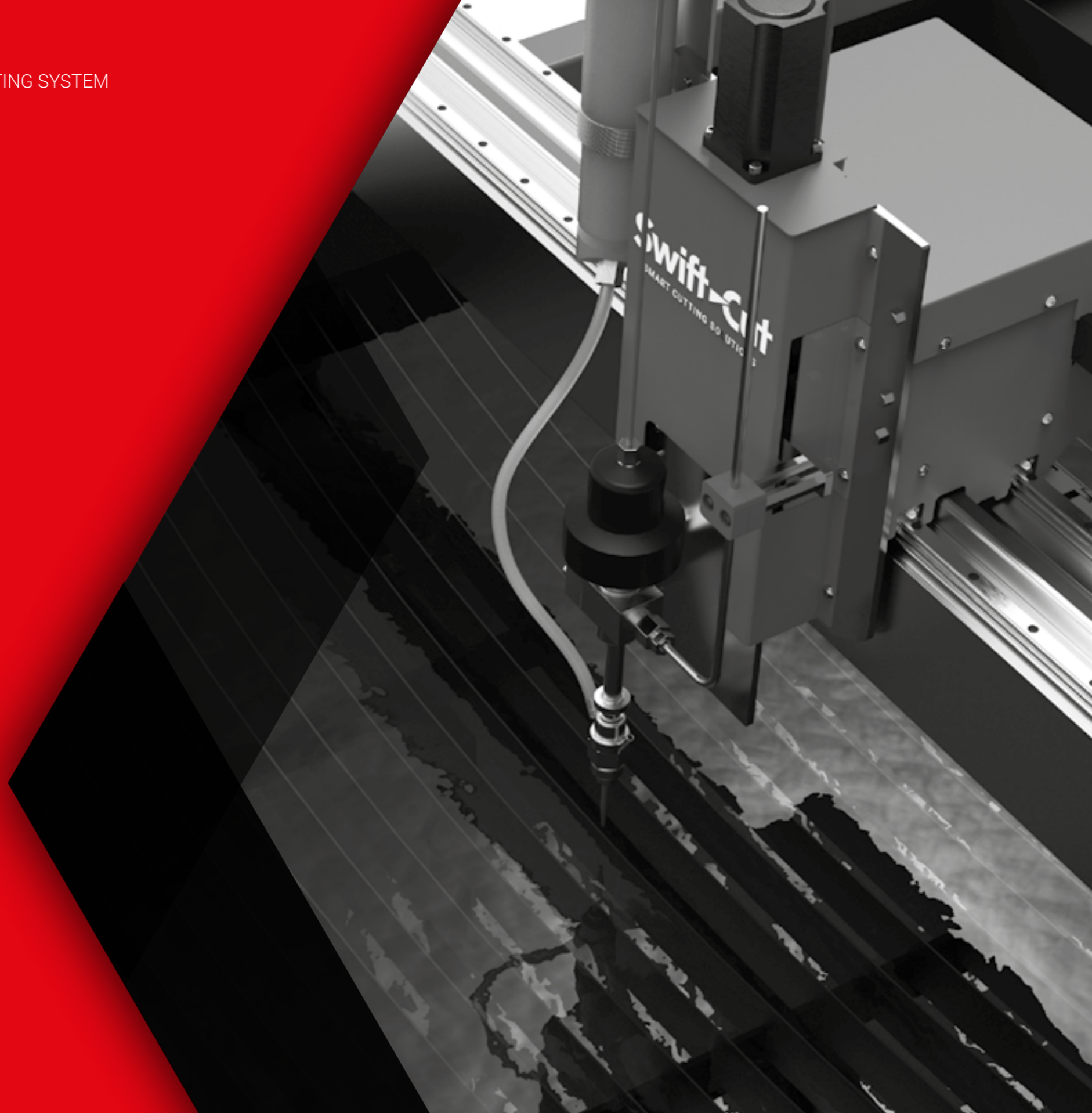CNC WATERJET CUTTING SYSTEM

Swift-Cut

Introducing the Swift-Jet Pro

The Swift-Jet Pro is a feat of incredible engineering; a package that combines the ability to cut a wide range of materials with superb accuracy and repeatability, to create excellent results. Exceptional quality, phenomenal value for money, and the robust build of our CNC plasma tables have all come together to create the Swift-Jet Pro, the waterjet table that is setting the new standard.

Why choose a Swift-Jet Pro?

The Swift-Jet Pro is made by engineers, for engineers. We understand the needs of our customers and we translate what it is that will improve the user-experience into the table that fabricators want. It is built by them and for them. Undisputedly Swift-Cut, the Swift-Jet Pro is bringing the incredible capabilities of waterjet cutting to the masses — a table that has combined high-quality software with our robust table build and made it affordable. If you never thought you could cut anything but metal within your budget, that is all about to change.

Key
Features

Swift-Cut

> "Swift-cut tables are ruggedly built, easy to use, have great accuracy and most importantly, give an excellent cut.
>
> *Alan Bradford, Plasmatech*

With its build based on our Swift-Cut Pro table, Europe's number one selling CNC plasma table in its class, the Swift-Jet Pro is set to become the benchmark in quality waterjet cutting.

Sticking to our tried and tested formula for strong and sturdy fully welded base design means that our customers can expect the same robust build when they purchase the Swift-Jet Pro – a table designed to outperform all its competitors at this price point.

ABRASIVE REGULATOR
Mini hopper with abrasive metering system controls the flow of garnet into the nozzle, improving flow consistency and reducing the likelihood of blockages caused by surges and fluctuations in the garnet feed

ENCLOSED Z AXIS
Precision Z axis ball screw drive protected by metal enclosure and rubber bellow

HIGH PRESSURE TUBING
Stainless steel high pressure tubing delivers water directly to the cutting head

RACK AND PINION DRIVE SYSTEM
Rack and pinion drive system on X and Y axis provide superior control and easy maintenance

CUTTING HEAD OPTIONS
The table is available with the option of water only; for cutting foam, textiles, PVC, vinyl and more. Or as water and abrasive for cutting nearly everything else

SOFTWARE
IGEMS industry leading waterjet programming software combined with Swift-Cut's easy to use CNC package

ADJUSTABLE WATER LEVEL
Water level can be raised and lowered by up to 60mm (2.3") allowing cutting underwater which reduces noise as well as airborne moisture and particulate

SEALED LINEAR BEARINGS
Triple sealed linear bearings with scrapers on X and Y axis protect against moisture and cutting particulate ingress

HYBRID SERVO MOTORS
Repeatable positional accuracy, monitored torque delivery and smooth motion

HEAVY DUTY GANTRY
Heavy duty gantry end castings with machined faces, together with the lightweight but rigid gantry, provide a precise and stable platform for the cutting head and abrasive regulator (optional). It also supports twin X-axis linear rails and allows materials up to 100mm/4" in thickness (water only) to be cut

FULLY ENCLOSED DRAG CHAINS
Fully enclosed drag chains protect cables against abrasion and damage

LINEAR RAIL ON ALL AXES
Straight, accurate and repeatable movements, they also deliver a smoother motion compared to other guide systems

FULLY WELDED BASE & TANK
Heavy duty base and tank provides support and rigidity

OPERATORS CONSOLE
Ergonomic operators console with touchscreen, wireless keyboard & mouse inputs

Main Key Features:

- Underwater cutting system (adjustable water level) - means less noise and less mess

- Cutting area of 2500mm x 1250mm (8' x 4')

- IGEMS software - Industry leading software has a fantastic material library which saves you time by cutting materials at the optimum feed rate every time, and with the best finish

- High/Low pressure control for piercing brittle materials

- Lower cost running – The quality German built direct drive pump is more energy efficient than intensifier pumps and the service life can be up to **four times** longer

- Space and time saving – The pump requires less filtration (than intensifier setups) potentially eliminating the need for an expensive and bulky water purifier

- Available as water only; for cutting foam, textiles, PVC, vinyl and more. Or as water and abrasive for cutting everything else! *

- Price – The Swift-Jet Pro is the ultimate in affordable, value for money waterjet cutting

* Full list of materials suitable for cutting with waterjet will be available from our website

HAMMELMANN®
direct drive pump

The quality of the German designed and built Hammelmann pump is indisputable. The stainless-steel pump head is free of alternating stress and the crank section calculation by 'Finite element method' ensures its long working life under continuous load. The Hammelmann plunger pump converts 93% to 98% of the shaft power to hydraulic energy making it energy efficient. In fact, it is up to 30% more energy efficient than compared to other waterjet systems and has much longer service intervals (up to 2000 hours)

IGEMS Software

IGEMS is the industry standard for waterjet cutting. This software offers advanced speed optimisation allowing the user to combine fast production with an excellent cutting result on a huge variety of materials. Features include a built-in abrasive water toolset, 3-axis CAM and a 53-shape parametric library that comes as standard. The Swift-Jet Pro will not only make estimations for cutting and material costs, but also allows the user to create new tools and customise toolsets.

Adjustable water level

Underwater cutting creates less noise and less mess, which in turn saves time. The Swift-Jet Pro comes with an Adjustable Water Level feature as standard (+/- 60mm/2.3").

Easy to use and feature packed

Swift-Cut are renowned for making feature rich, yet easy to use cutting tables, and our Swift-Jet Pro is no exception. With our touchscreen HMI with optical mouse and wireless keyboard + standard and advanced screens for operators with varying experience, you will be cutting with confidence in no time. Features like cut recovery, plate alignment, sheet trim and the abrasive cost calculator all come as standard.
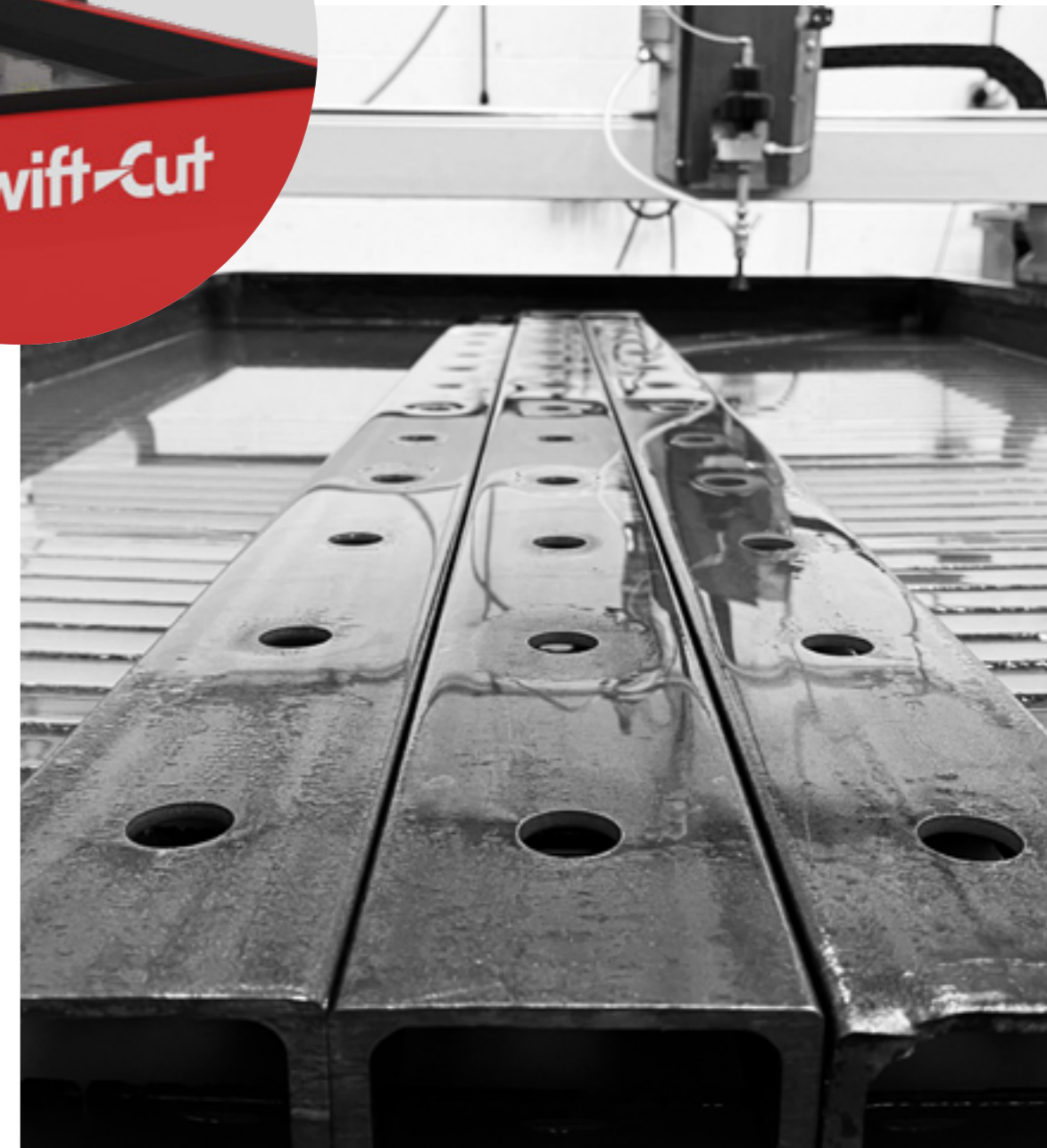
Swift-Cut

How have we built a waterjet cutting machine that is so affordable?

From the design and manufacture of the very first Swift-Cut CNC plasma table to now, the evolution of our Swift-Jet Pro, we have always maintained our ethos that CNC metal-cutting should provide ultimate value for money. We believe that all businesses should be afforded the opportunity to see just how beneficial automating their processes could be. We have stuck to that founding principle; choosing to charge fairly for the machine as opposed to what the industry dictates, and as a result the Swift-Jet Pro is game-changing in terms of value for money and the expected ROI.

Why choose Swift-Cut?

We are one of the prominent suppliers of CNC plasma cutting tables in Europe and our reputation for providing value for money, quality machinery and exceptional service is first class. Each machine goes through rigorous testing before leaving our facilities, to ensure our customers get the table they have been promised. Swift-Cut's name is synonymous with quality cutting, and we're proud of the contribution we are making to the global CNC cutting industry.

> "
> Very few companies are who they say they are, but Swift-Cut promised a quality product and then backed it up
>
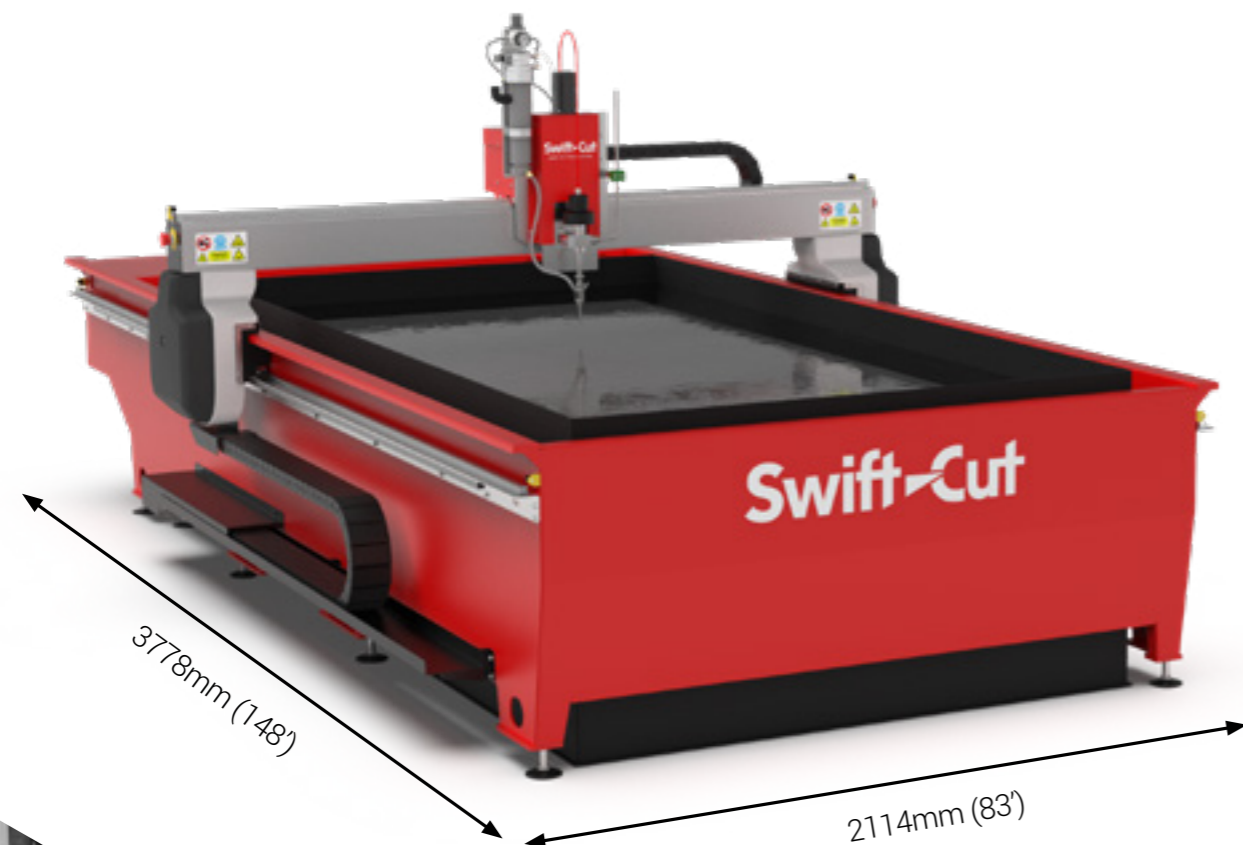> *Full Metal Solutions*
> "

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Technical
Specifications

Table Specifications & Features

The Swift-Jet Pro has been designed by our skilled team of engineers to provide an all-encompassing waterjet cutting solution with industry leading features as standard.

Our most competitive waterjet table yet. Fantastic price point/value for money. Cut almost anything. Cold process (no heat affected zone). Precise. Repeatable. Versatile. Economical (compared to other waterjet solutions).

3778mm (148')

2114mm (83')

Table Specifications

Footprint	3778mm x 2114mm (148" x 83")
Table weight	410kg (904 lbs)
Tank weight	680kg (1500lbs)
Operating weight (table, tank and water)	3590kg (7900lbs)
Height	Water only – 1362mm (53") (allow 3000mm (118") of height for the HP whip)
	Water with abrasive – 1600mm (63") (allow 3000mm (118") of height for the HP whip)
Cutting envelope	2500mm x 1250mm (8' x 4')
Z-Axis travel	110mm (4.3")
Maximum supported material load	400kg/m^2 (274lbs/sq. ft)
Input voltage	110-230v (6A-4A)
Speed	1800mm/m max rapid (708ipm)
Linear positional accuracy	0.2mm/m (0.002"/ft)
Repeatability	0.4mm/m (0.005"/ft)
Ballbar circularity	0.3mm/m (0.003"/ft)
Drive description	Triple sealed linear bearings with scrapers on x and y axis and bellow on z axis ball screw (to keep out garnet and cutting particulate) – Dual drive Y-axis incorporating hybrid servo motors – Linear rail on all axis
Gantry height	230mm (9")
Maximum material thickness	Water only 100mm (4")
	Abrasive 50mm (2")
Input air pressure	6 bar (90psi)

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SWIFT-JET PRO

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# Swift-Cut

CNC control features

- G-Code Browser - Allows the user to start cutting from any individual profile within the G-code.

- Cut recovery - This function allows the user to start from any position along the cut path whilst maintaining cut accuracy and reducing material waste.

- Manual height control - Allows you to adjust the head height via the touchscreen or mouse during the cutting process.

- Sheet alignment - Simply use the jet nozzle to reference the two bottom corners of the sheet and the software will automatically adjust your part(s) or nest to the new angle meaning the jet nozzle will not 'run off' the material as it travels up the table

- Sheet trim - Easily trim off scrap material. Options to go between 2 or 3 points

- Abrasive cost calculator - Accurately manage your abrasive cost live on screen at any time

- Consumable wear tracker - Tracks consumable life.

- High/Low pressure control - For piercing brittle materials

- Basic and advanced displays - Basic view for beginners and advanced view for more experienced operators

- G-Code favourites - Save up to 5 G-Codes for quick loading of you most popular/common parts

- G-Code queue - Queue up to 5 G-Code files for quick loading

- Datum store - Don't lose a datum point again, this system stores your last datum point so even if you lose power, you will not lose your position

- Configurable datum points - Set up to 5 datum points anywhere on the cutting bed. This can be used to reduce setup times when using jig fixtures or to set custom parking positions

- Feed rate override - Increase or decrease the feed rate whilst cutting to optimise cutting times

- Dry-run mode - View the jet nozzle movement, cutting order and speed in real time before you switch on the pump, so any problems are found and corrected without wasting material unnecessarily

- Touchscreen display - Seamlessly switch between the wireless keyboard and mouse or the touchscreen display

- Graphical toolpath display - Visual representation of where you are on the toolpath

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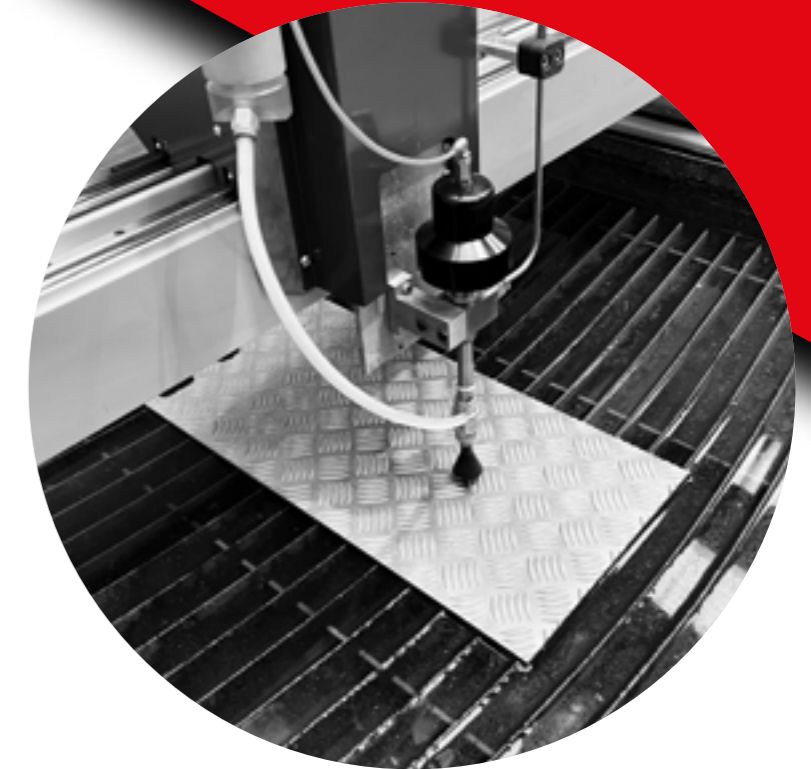
Garnet hopper

- Dimensions – 735mm x 800mm (29" x 31")
- Footprint – 1000mm^2 (39in^2)
- Pressurised abrasive delivery system
- Input air pressure – 2 bar
- Weight – 150kg (330 lbs)
- Capacity – 200kg (440 lbs)

Air Spec

- Clean, dry air supply that should meet ISO8573-1 class 1.2.2.

Tank (with Adjustable water level)

- Footprint –3095mm x 1500mm (121" x 59")
- Height – 750mm (30")
- Weight – 680kg (1500 lbs)
- Input air pressure – 1 bar
- Overflow drain – ½"
- Adjustable water level – +/- 60mm (2.3")

Abrasive Spec

- Abrasive should be sized at 80 grit or finer
- Store in dry conditions as moisture will stop the abrasive flowing reliably

Accessories

- Honeycomb Sheet cutting bed for small part cutting (brick)

HAMMELMANN®

High Pressure Pump

- Output pressure – 3400 bar (50000 psi)
- Motor speed – 600-1450 rpm
- Motor rating – 15 kW
- Input voltage – 3 phase 380v-480v (40A-30A) @ 50/60hz
- Cutting Head Consumables – 30thou (0.762mm) mixing tube, 10thou (0.254mm) orifice
- Max flow rate – 2lpm (0.5gpm)
- Footprint –1035mm x 720mm (40" x 28")
- Height – water only - 1453mm (56") – Water with abrasive – 1860mm (73")
- Built in water filter
- Weight – 500kg (1100 lbs)
- Drain – ½"
- Stainless steel pump head free of alternating stress
- Bellows form hermetic seal between the suction chamber and crank section
- Solid ceramic or tungsten carbide plungers
- Crank section calculation by 'Finite element method' ensures long working life under continuous load
- Pressurised oil lubrication system
- Energy efficient - Hammelmann plunger pumps convert 93 to 98% of the shaft power to hydraulic energy

Water Spec (for Hammelmann pump)

- Input water supply – 3 bar, 4lpm
- Suitable for tap water quality – No RO required as long as water meets the correct specification. Sample testing always recommended.

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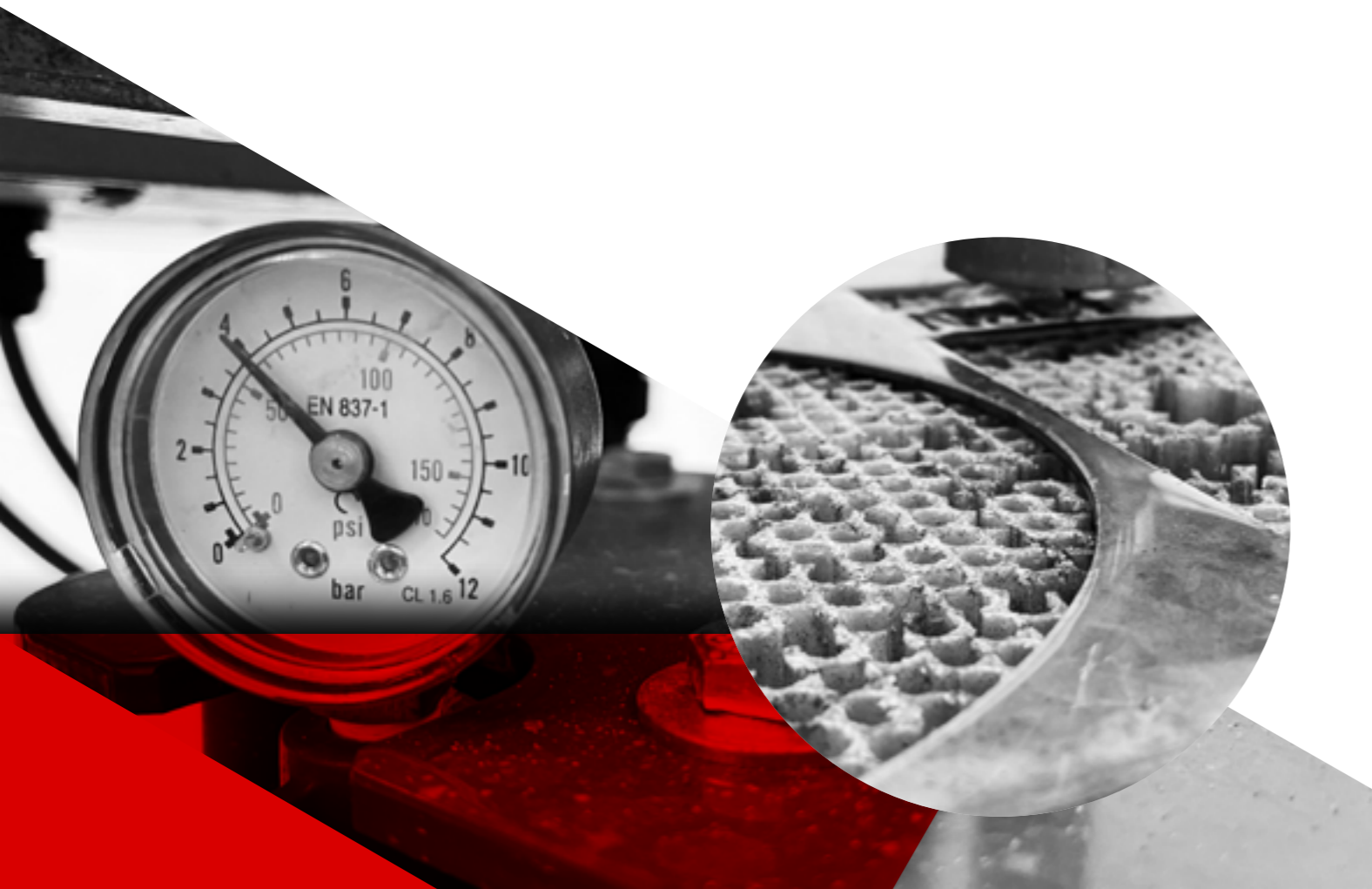
IGEMS Waterjet Programming Software (features)

Standard

- Simply the industry standard for waterjet cutting
- Software offers advanced speed optimization allowing the user to combine fast production with an excellent cutting result on a wide range of materials
- The Kerf width is dynamically changed depending on actual speed to help maintain incredible accuracy no matter what you are cutting
- Machinability calculator - use to determine the optimum cutting speeds on materials not held in the material library
- Abrasive toolsets built in
- 3-axis CAM
- Customisable cutting rules - Optimise cutting parameters for best cutting performance
- 53 shape parametric library comes as standard
- Make estimations for cutting cost and material cost
- View job reports in Word or PDF formats
- Customisable toolsets - Modify or create toolsets for new materials
- Create quick access commands for personalised fast navigation within the software
- https://igems.se/cadcam/

Options

- Dynamic nesting
- Ability to convert all TrueType fonts to usable geometrical information using the ImageTracer command
- Also generate new geometry from a camera or scanner device or import a picture then create a new layer and draw over the picture to create new geometry
- Create geometry from an old CNC file with the NC-Reader
- Geometry clean up corrects double lines, overlapped objects or gaps between objects

Operator console spec

- Touchscreen HMI with optical mouse control
- Wireless keyboard
- Footprint – 550mm x 600mm (21" x 23")
- Height – 1595mm (62")
- Weight – 40kg (88 lbs)
- Operating system – Windows 10, 64 bit
- Software included – IGEMS, Swift-CNC, Solid Edge
- Requires internet connection – Wi-Fi or LAN

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Frequently
Asked Questions

Swift-Cut

How much does it cost to run?

Although traditionally waterjets are expensive to buy and run, the Swift-Jet Pro was designed from the start to break this trend. Based on the hugely successful Pro plasma table design, specific upgrades to the drive and gantry system have meant the base design remains incredible value for money. On top of this, our direct drive high pressure pump is 30% more efficient than intensifier setups and has much longer service intervals (up to 2000 hours). Average running cost including abrasive, water, power, and consumables are much lower compared to other waterjet systems.

Does waterjet cutting create a lot of mess?

Waterjet is known for making a mess however we have designed our tank with higher sides, and the adjustable water level reduces spray by a considerable amount keeping the machine and surrounding workplace cleaner for longer.

Is waterjet cutting noisy?

Water and garnet cutting materials at over 3000 bar (43000 psi) are always going to create a reasonable level of noise. However, with our adjustable water level system, cutting under water dramatically reduces noise by up to 25%. Combine that with our low RPM direct drive pump means its quieter than other waterjet solutions.

Is it complicated to run?

Swift-Cut are renowned for making feature rich, yet easy to use cutting tables, and our new Swift-Jet Pro is no exception. From the feedback we have received on the first tables to go out, customers could not believe how user friendly and simple the machine was to operate. And as always, you have our skilled team of technical support engineers on hand for any questions or queries you might have.

Realistically what tolerances can I achieve?

Some materials cut cleaner than others and thinner less dense materials will generally have a higher cutting tolerance than thicker dense materials. The linear positional accuracy of the table is 0.2mm/m (0.002"/ft) of travel and the repeatability is 0.4mm/m (0.004"/ft) of travel. If you have a particular part in mind, please get in touch and we will carry out a test cut for you.

Can I cut literally any material?

The Swift-Jet Pro is designed to cut a wide variety of materials. From expanded foam for packaging materials, to granite slabs for kitchen worktops, our machine can do them all. The only materials you cannot cut are tempered glass, diamond, certain ceramics and brittle plastics.

Is the garnet easy to buy? And where from?

Garnet is readily available, and we have a special deal with GMA who are the trusted global leader in industrial garnet, and when you place your first order with them you will receive a ton of garnet free of charge.

How high does the nozzle need to be off the material?

As a general rule, the nozzle should stand approximately 2mm off the material being cut. If it's too close then the nozzle risks getting blocked. If it's too far away, then the jet will widen along with the kerf, and the part accuracy can be affected.

What happens if I run out of garnet during a cut?

The Swift-Jet Pro is designed to stop cutting in the event it runs out of garnet. Should this happen, simply refill the hopper and begin cutting from exactly where it stopped. No fuss and no material wasted.

What happens if there is an interruption to my water supply during a cut?

In the event the Swift-Jet Pro detects a drop in water pressure, it will automatically stop cutting and present the operator with an error message on the pump screen. Simply locate the problem, re-start the water supply, and then use the built-in software cut recovery feature to begin cutting from exactly where it stopped.

What happens to the garnet abrasive in the tank?

All the used abrasive will enter the tank and settle to the bottom until it is removed. This can be done by using an abrasive removal system (aftermarket options available) or manually removing it out. Waste abrasive can be disposed of either into waste drums or directly into bins. The garnet itself is not considered hazardous if none of the material you have been cutting with your waterjet is considered hazardous. It can even be recycled. We recommend the tank is emptied after every two tons of garnet used.

Where do I need to store my garnet before use?

The garnet must be kept dry and away from sources of moisture. This includes buildings susceptible to damp and condensation such as non-insulated steel-clad buildings, as well as cold, damp floors. Garnet is normally delivered on a pallet and it is recommended to keep it on there until it is used.

How fast is waterjet?

Like all cutting processes, speed is determined by the type and thickness of material being cut, the power of the machine, and the quality of cut required. Our Swift-Jet Pro table can cut at speeds up to 10m/min (390ipm) for soft materials like foam however 25mm (1")thick granite will cut at 20mm/min.(¾"/min)

Can I get sharp internal corners?

The new Swift-Jet Pro incorporates IGEMS CAD/CAM software. As the industry standard for waterjet cutting, this software automatically adjusts cutting speeds and parameters for internal and external cornering as well as considering kerf compensation, pressure, abrasive flow and cutting head consumables. Together with the Swift-Cut's smooth and powerful drive system, internal corners will remain as sharp as the rest.

Can I setup the Swift-Jet Pro myself?

Yes, all our tables are designed to be installed by the end user with the remote assistance of one of our technical support team. Alternatively, you can request for one of our skilled support team or authorised installers to come on site and install it for you.

What power is required?

The table (inc. console) requires a single phase 110-230v (6A-4A) supply and the pump requires a three phase 380v-480v (40A-30A) @ 50/60hz.

What are my options?

We have designed the Swift-Jet Pro to come with a fantastic specification as standard. This means no hidden surprises and just a few simple options to choose. These are water only or water and abrasive cutting. And IGEMS software upgrade modules inc;

- Nest Level 1 – Semi automatic nesting
- Nest Level 2 – Fully automatic nesting
- CAM Tools – Geometry optimisation for damaged drawings
- Data Exchange – For importing even more file types including NC
- SignMaker – Use fonts and images in your drawings
- Tilemaker – Designed for the stone industry for cutting inlays and tiles

Do I need any specialist lifting equipment?

Yes, a forklift capable of lifting 3 ton is required, along with lifting chains or straps rated at 1 ton or more.

Do I get any consumables with it?

Yes, you will receive two sets of consumables with your table. If you specify water only cutting you will receive two ruby orifices. If you specify water and abrasive cutting you will also receive two mixing tubes and two additional ruby orifices.

How often do consumables generally last?

There are no guarantees on how long consumables will last however we typically expect between 15-20 hours per ruby orifice and 30-40 hours per mixing tubes. This is based on your water quality matching the required standard.

Does the water recirculate?

The water entering the table through the cutting head does not recirculate and instead flows down the overflow pipe built into the table. This pipe will need to be plumbed into a drainage system (providing you are not cutting hazardous material). If you are cutting hazardous material you will need filtration.
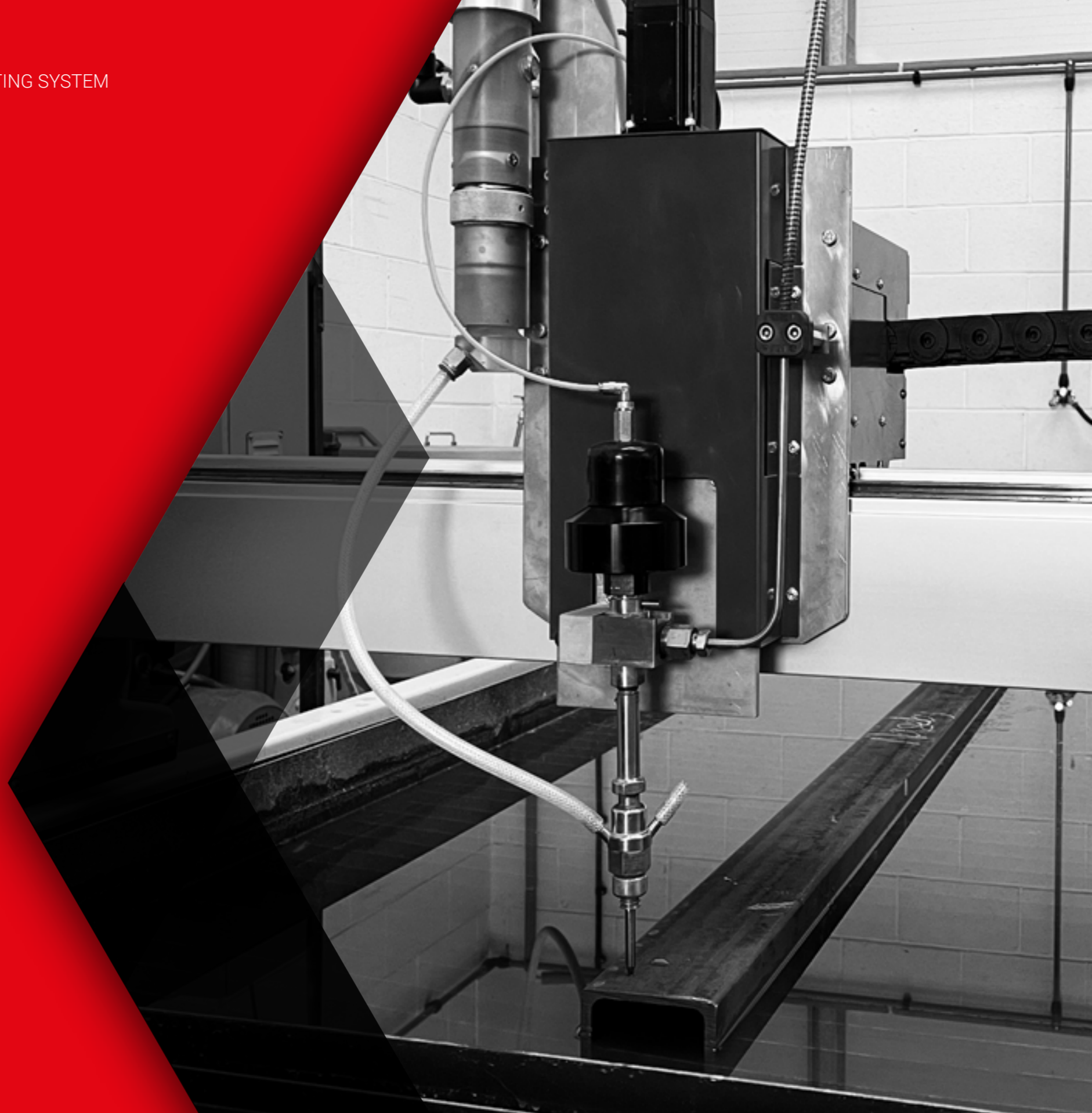
Can I reuse the garnet?

Technically yes, garnet can be reused. Swift-Cut do not offer a product or service to do this but there are companies out there who can help you with this. It is worth mentioning that garnet reuse should be approached with caution. When new, garnet is chosen for its exact properties, edge sharpness and particle size. Once it's been used, the quality and size changes which could slow down cutting speeds, cause damage to the workpiece and/or irregular abrasive flow.

If you require any further help or information please visit swift-cut.com

Aftercare
& Support

Swift-Cut

> "Swift-Cut has enabled us to diversify from our primary business into an area we would never have ventured into.
>
> *Leightec*

Swift-Cut aftercare is second to none

We take as much pride in helping our customers after the sale as we do when we are making the sale, and every aspect of the user being able to get the absolute best from their Swift-Jet Pro has been thought about. Whether you need remote assistance, advice, or an engineer's visit, we will always make sure that you are getting the very best in aftercare.

There are a number of options to choose from when you come to decide how you wish to maintain your machine, and with over forty years combined experience in plasma and waterjet cutting, we have great knowledge when it comes to cutting on many different grades and types of material.

To enable us to support and train our global customers and sales partners, Swift-Cut has invested heavily in technology that allows us to provide remote services by using Smartphone, Tablet and Wearable

Technology via collaborative software tools to train, assist and diagnose the problem with precision and in less time. The My Swift-Cut app allows us to provide real-time video support which minimises time spent on the job and keeps machine downtime to a minimum.

We offer interactive online service kits which are designed to keep your cutting table running at its best, with the minimal amount of downtime. As part of the package, our support team will dial in remotely and talk you through the service procedure, step-by-step.

In addition to the standard warranties that come with all our cutting tables, if you feel you need more, you can purchase extended warranties which can cover all aspects of support, parts or both, giving you even more peace of mind. Contact a member of our team for further details.

Swift cutter CNC family

Here at Swift-Cut we build long-standing relationships with our customers, with many buying multiple machines from us over time.

Once you buy a Swift-Cut table, you become part of our family, we'll share what you do and let you know what other Swift-Cutters are up to.

Our social media pages are an interactive platform where we hope our customers feel at home, or check out our Swift-Cutters Case Studies page on our website for more idea of what your fellow Swift-Cutters are up to and how they get the very best from their machines.

If you require any further help or information please visit swift-cut.com

Swift-Cut

SWIFT-JET PRO

For more information contact

swift-cut.com