

LOYALMAK[®]



INNOVATIVE
CUTTING SOLUTIONS

04.09.2020

SUBJECT	CNC PLASMA CUTTING MACHINE
MACHINE MODEL	PRO CUT
COMPANY	
CONTACT PERSON	
TELEPHONE	
E-MAIL	



ABOUT LOYAL MACHINERY

Loyal Machinery is well known and reputable leading manufacturer of sheet metal working machines, such as CNC Plasma Cutting, CNC Fiber Laser cutting as well as Drilling Machines with 10.000sqm closed production area in Bursa, Turkey.

The machines produced by Loyal Machinery have a simple interface which allows ease of use, thus you save time as well as Money.

More than 10-year of manufacturing experience, remaining loyal at its quality with eupean safety standards and quality control management system, implementing international production standart and norms, well equipped technicians and following technological developments, Loyal Makina presents cost-efficient machinaries in sheet metal working and fabricating industry.

We also serve all customer from every country with a extensive technical service network and wide range of spare parts of metal working machines.

Loyal Machinery has been a rapid growth during the recent years by considering customer needs, R&D studies, applying marketing strategies and teamwork. Due to these considerable developments, today Loyal Machinery exports %99 of production all over the world.

We hope to hear from you soon.



STANDARD EQUIPMENT



PLASMA
POWER SOURCE
XPR300
HYPERTHERM USA



CNC CONTROLLER
EDGE CONNECT
HYPERTHERM USA



LINEAR RAIL
35mm
SCHNEEBERGER
GERMANY



TOUCH SCREEN
19,5"
ELO
USA



RACK&PINION SYSTEM
HELICAL
GAMBINI
ITALY



AC DIGITAL SERVO
MOTORS & DRIVERS
MITSUBISHI
JAPAN



ELECTRICAL SYSTEM
WAGO GERMANY



SCHNEIDER GERMANY



OMRON JAPAN



REDUCER
EISELE
GERMANY

GENERAL FEATURES

- 2000 mm x 6000 mm cutting area
- Solid steel construction designed for higher speeds
- Fume extraction table with pneumatic switch control, exchangeable grills, dross collecting system which allows clean, safety and healthy working environment by vacuuming dust and fume which raises during plasma cutting process
- High precise positioning possibility with linear sledge system in all axis'
- Synchronised drive allows a smoothly and vibration free motion
- Brushless AC servo motors (on all axis')
- Pinion and gearrack drive system facilitates smooth and fast motion
- Automatic height control and automatic ignition torch system
- Torch collision protection
- Windows based CNC control unit
- Vestige plate stock management database with optional auto-nesting programme which provides economy on material and saves time
- In comparison to laser cutting, plasma cutting decreases the cost of the process by 25%. With similar cutting quality, plasma is a preferable alternate to laser cutting.
- Cutting surface is close to 90 degrees and the vertical roughness tolerance is in minimum level.
- Instruction Manual

TECHNICAL FEATURES

Machine Model	PROCUT		
Power Source	Hypertherm XPR300		
Cutting Thicknesses		Piercing	Severance (Edge Start)
Mild Steel		45mm	80mm
Stainless Steel		38 mm	75mm
Aluminium		38 mm	50mm
Working table size	3000X6000 mm		
Working table height	800 mm		
Working table extraction system	Pneumatic switch controlled fume extraction system		
Maximum Loading Capacity	750 kg/m ²		
Axial Movements	X- Axis	3.100 mm	
	Y- Axis	6.200 mm	
	Z- Axis	170mm	
Positioning Accuracy	± 0.01mm		
Transvers speed	30mt/dk.		
Z axis Distance Control	LOYAL THC with SERVO MOTOR		

PLASMA POWER SOURCE
XPR300 CORE - HYPERTHERM



Unmatched performance
Unbeatable operating cost

The new XPR300™ represents the most significant advance in mechanized plasma cutting technology, ever. This next generation system redefines what plasma can do by expanding its capabilities and opportunities in ways never before possible. With unmatched X-Definition™ cut quality on mild steel, stainless steel and aluminum, the new XPR300 increases cut speed, dramatically improves productivity and slashes operating costs by over 50%. New ease-of-use features and engineered system optimization make the XPR300 easier to run with minimal operator intervention, while also ensuring optimal performance and unmatched reliability.

Optimized productivity and reduced operating costs

- 300 amps and 63 kW of output power deliver higher cut speeds; up to 15% on thicker materials
- Consumable life increases of over 40% compared with previous systems
- 20% thicker piercing capability on stainless steel and 30% thicker on mild steel
- Operating costs reduced by over 50%

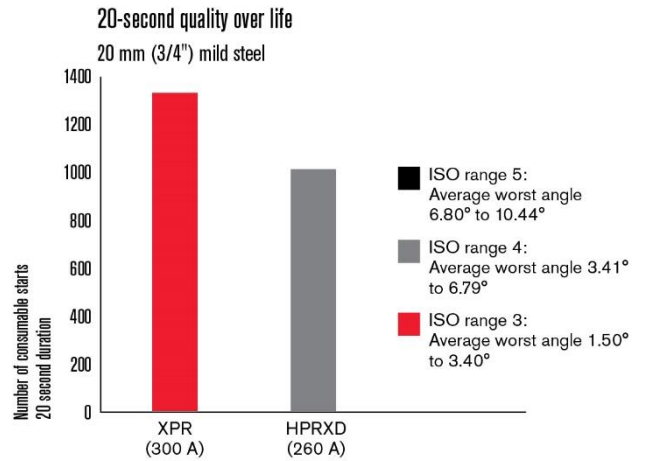
Engineered system optimization

- Increases consumable life 3 times that of competitor's systems by eliminating the impact of ramp down errors
- Reduces the impact of catastrophic electrode blowouts which can damage the torch at high current levels

Ease of use

XPR™ sets the new standard for achieving advanced system performance easily. From system set up and installation to connectivity and process optimization, XPR's intuitive operation and automatic system monitoring redefine easy plasma cutting.

- Intuitive operation and automatic monitoring redefine ease of use
- Full control of all functions and settings via the CNC
- Automatic system monitoring and specific troubleshooting codes for improved maintenance and service prompts
- EasyConnect™ torch lead and one hand torch-to-receptacle connection for fast and easy change-outs
- QuickLock™ electrode for easy consumable replacement
- WiFi in power supply can connect to mobile devices and LAN for multiple system monitoring and service



- Built in WiFi connects operating and monitoring abilities to the mobile device dashboard.
- Easy to navigate and read.
- Allows the selection of cutting processes and the monitoring of multiple systems from most mobile devices and laptops.

- Hypertherm's easiest and fastest torch disconnect design enables a rapid, one handed torch change.



Optimized productivity and reduced operating costs



Building on Hypertherm's industry-leading productivity technologies, XPR™ delivers faster cut speeds, higher quality cuts that reduce or eliminate secondary operations and increased consumable life with quicker set up time. These combine to further slash plasma system operating costs.

Technology benefits

- 300 amps and 63 kW of output power deliver higher cut speeds for superior productivity.
- A valve in the torch receptacle delivers more rapid and precise control over gas flows for significantly longer oxygen process life and a greatly accelerated ramp down process. This elimination of ramp down errors in most applications enables a consumable life span nearly 3 times longer than any other system.
- New Cool nozzle™ flow technology contributes to consumable life increases of over 40% with greater ISO range 3 results than ever before.
- Increased power and argon-assist piercing delivers 30% thicker piercing capacity on mild steel for further productivity benefits.

Engineered system optimization

XPR™ is engineered to deliver the highest quality cuts and optimal system performance automatically. Advanced power supply technology delivers highly responsive, rapid system feedback, and automatically intervenes to eliminate events that negatively impact system efficiency and consumable life.

Improved operating and troubleshooting information

Sensors in the power supply deliver refined diagnostic codes and significantly enhanced system monitoring information. This reduces troubleshooting time and provides proactive system maintenance data for improved system optimization.

XPR's cutting-edge power supply features advanced chopper circuitry that instantaneously senses and responds to changes in arc voltage and current settings. This sophisticated Arc response technology™ delivers important benefits that reduce operating costs and increase productivity.

Arc response technology™

Automatic torch protection

The chopper module senses the onset of catastrophic electrode blowout failure and shuts down the system, protecting the torch from potential damage and enabling improved consumable utilization.

- Prevents torch failure
- Reduces operating cost

Automatic ramp-down error protection

The chopper module senses when a cut is about to end in an uncontrolled manner – without proper ramp down of current and gas flow. It automatically initiates a rapid ramp-down sequence protecting the electrode, dramatically extending consumable life – over 3 times that of systems that don't have this feature.

- Protects electrode
- Improves realized consumable life
- Reduces operating cost

GAS CONSOLE OPTIONS

Process control and delivery.

State-of-the-art process control through a completely new concept in gas and fluid delivery. Three console options – Core™, Vented Water Injection™ (VWI) and OptiMix™ –offer unmatched mild steel cut quality with each console delivering successively enhanced cutting capabilities on stainless steel and aluminum. All consoles can be fully controlled through the CNC for high productivity and ease of use.

Gas-connect console gases/fluids			
	Core	Vented Water Injection (VWI)	OptiMix
O ₂ /N ₂ /Air	•	•	•
F5/Ar/H ₂ O		•	•
H ₂ -N ₂ -Ar mixing			•

Core™ console - Standard

Unmatched mild steel cutting performance and superior angularity and edge finish on stainless steel up to 12 mm (1/2"). This is delivered through a new N2 HDi™ process that prevents the mixing of air into the plasma gas, creating an improved, brighter edge finish. It comes as a standard with XPR300.

Vented Water Injection™ (VWI) console - Optional

All Core console capabilities plus a more than 10% increase in piercing thickness with argon-assist. Significantly enhanced stainless steel and aluminum capabilities are delivered with the addition of F5 HDi processes and patent pending Vented Water Injection (VWI).

OptiMix™ console - Optional

All the capabilities of the Core and VWI consoles plus discrete 3-gas mixing – Ar, H2, and N2 – for the world’s most flexible, premium stainless steel and aluminum cutting capability.



Torch and consumable technology

Industry leading X-Definition cut quality

X-Definition™ improves cut quality and consistency on mild steel, expands the application of Hypertherm's pioneering HyDefinition® process to a broad range of non-ferrous applications and greatly enhances it with a number of critical new cutting technologies.

Expanded HyDefinition technology

Hypertherm's pioneering HyDefinition® technology, featuring a unique two-piece vented nozzle design, aligns and focuses the plasma arc, increasing arc stability and energy density for more consistent, precise cut quality.

Previously used primarily on mild steel applications, this foundational technology is now applied to the full range of non-ferrous cutting processes for cleaner, sharper, more consistent edge quality on stainless steel and aluminum.

Vented Water Injection (VWI)

This patent pending process features a vented N2 plasma and an H2O shield. Edges are square, angularity is reduced and surface finish is excellent on non ferrous materials, especially aluminum.

Vent-to-shield technology

This new technology mixes hydrogen reclaimed from the vented plasma gas with the shield gas to reduce angularity and deliver more consistent edge color on stainless steel up to 12 mm (1/2").

Plasma dampening

Patent pending plasma dampening delivers increased arc density and cut speeds on thin stainless while maintaining arc stability and smoother cut edges.

PowerPierce

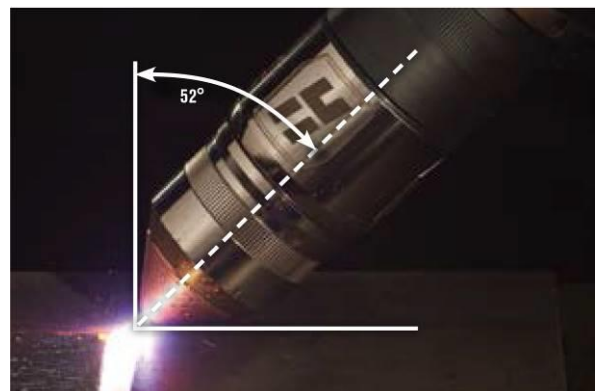
Patented PowerPierce® liquid cooled shield technology repels molten metal during piercing allowing production piercing of 45 mm (1-3/4") on mild steel all the way up to 50 mm (2") when using Hypertherm's exclusive argon-assist process.

Advanced arc stability

Superior arc steadiness from a modified shield gas impingement improves arc stability when coming out of a pierce hole or out of an acute angle delivering reduced lead-in lengths and improved cut quality.

Improved torch geometry

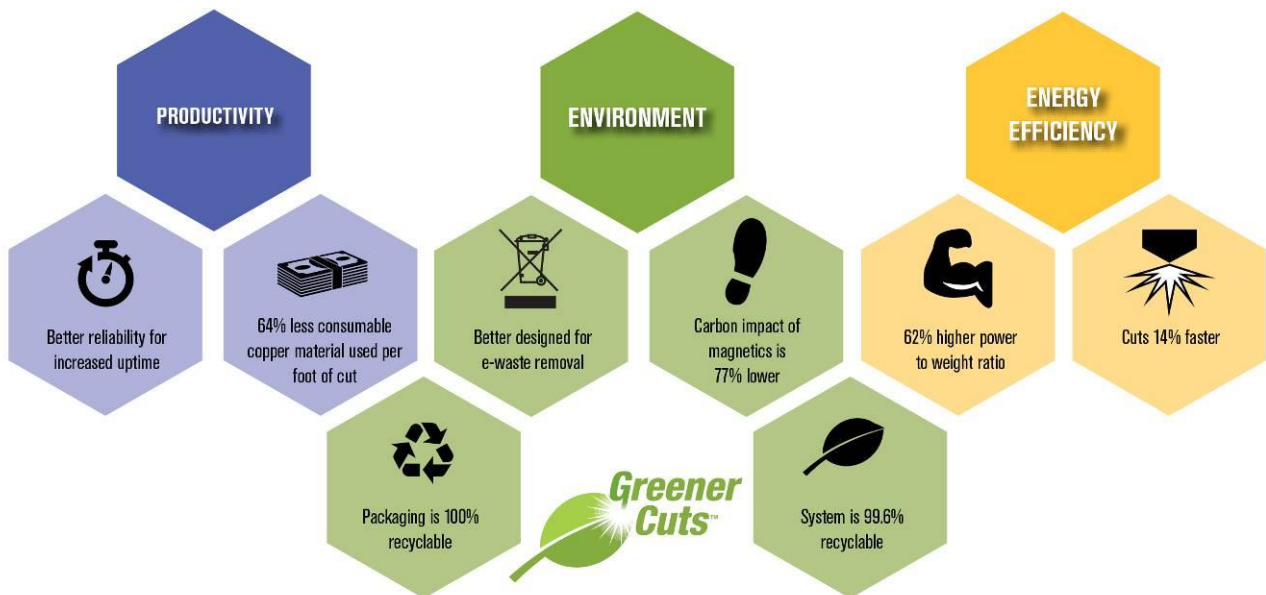
Superior bevel capability and performance thanks to an enhanced tapered torch design that features a 76° included angle and bevel rotation of up to 52°





Environmental benefits

The engineering mission at Hypertherm is to develop innovative technologies, products, and solutions that provide superior value to our customers, our owners, and our planet. We consider it critical to our success to reduce the environmental impact of everything we do. The XPR300 system has been designed to be more efficient and less wasteful by reducing consumable use, energy and the carbon footprint.



CNC CONTROLLER

EDGE CONNECT – HYPERTHERM



EDGE Connect is the next generation of Hypertherm's industry leading automated control systems. EDGE Connect uniquely combines Hypertherm's embedded expertise with OEM customization. Cutting-machine OEMs can create greater differentiation leveraging Hypertherm's embedded cutting expertise foundation. EDGE Connect offers many new software features, enhanced hardware, and field based system configuration capabilities.

New with EDGE® Connect CNC

- Hypertherm's Phoenix® version 10 CNC software
- Microsoft Windows 10 embedded operating system
- ProNest® CNC automatic nesting with process optimization
- Internal software Programmable Logic Controller (PLC) and software-based operator's console that enable unique cutting machine features
- EtherCAT machine interface for easy connectivity and superior motion
- Integrated 482 mm (19") projected capacitive touchscreen.

Easy to use

Hypertherm's proprietary Phoenix software is common across the entire family of CNCs. This software is designed specifically for the X-Y and bevel cutting market. Through years of cutting experience, Hypertherm® engineers have learned the critical parameters to achieve superior cut quality on every part. Phoenix CNC software improves cut quality and productivity by delivering our expertise directly to your factory, making it as if you have your best operator on every shift.

- Using the patented CutPro® Wizard, even new operators can be ready to cut production parts in less than five minutes
- On-screen Software Operator's Console (Soft OpCon) for easy setup and operation of cutting station and manual motion
- One touch access to supporting documentation including cutting optimization tips, consumable change instructions and diagnostic tools in multiple languages
- Integrated communications with plasma and torch height control systems deliver automated and expert control using installed factory or custom cut charts
- Custom cut charts can be created and controlled in the part program or made available to the CutPro Wizard
- Configurable Watch Windows™ enable on-screen real-time monitoring of key process performance parameters while cutting

Reliable

- High-speed digital EtherCAT machine interface and communications with single wire connectivity
- Low power, fan-less quad core processor PC requires no active cooling
- Solid state hard drive with no moving parts for increased data access speed and reliability
- Projected Capacitive (PCAP) touch technology offers pristine optical clarity, high-touch durability, resistance to water, and long-term stability over temperature in industrial applications
- Designed and stress tested to ensure reliable and consistent operation in harsh cutting environments

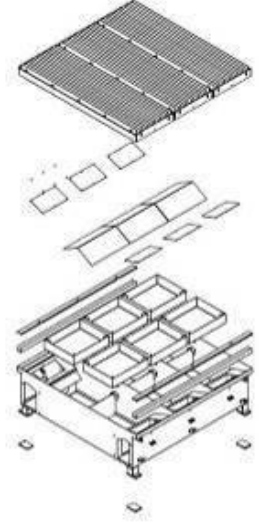
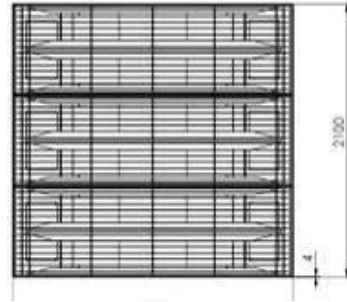
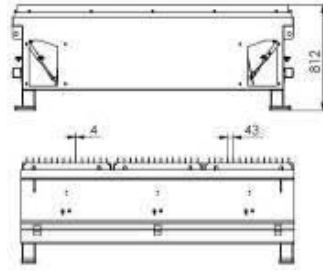
Serviceability

- Remote Help™ quickly enables CNC, plasma system and cutting machine diagnosis and repair over the internet reducing the need for on-site visits.
- Hypertherm® plasma, CNC, and THC manuals are available in multiple languages at the touch of a button.
- Worldwide network of Hypertherm service engineers available as needed to support cutting machine manufacturer service personnel.



TABLE WITH PNEUMATIC SWITCH CONTROL

- Pneumatic switch control system for each zone of table by CNC.
- Hold weight up to 750kgs/m²
- Thickness of table material is 4mm
- Thickness of table grill is 4mm
- Height of table is 812mm
- Height of table grill is 10mm
- Gap between grills is 43mm



TORCH HEIGHT CONTROL WITH SERVO CONTROL UNIT

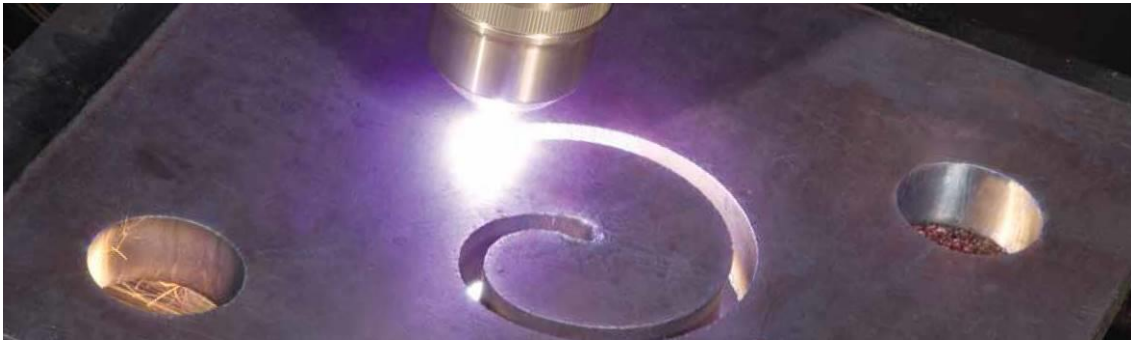
- Torch height control can be adjusted easily by arc voltage feedback control which effects the cutting quality positively.
- Torch height control system through voltage divider board by Hypertherm.
- All values and also errors could be found easily through the relating indicators.
- System control can be reviewed or can be transfered to the CNC control.



TORCH MAGNETIC BREAK-AWAY SYSTEM

- Magnetic breakaway is designed in order to reduce or eliminate damage on the torch due to accidental collisions in all axis.

OPTION-TRUEHOLE TECHNOLOGY BY HYPERTHERM USA



As part of Hypertherm's Built for Business Integrated Cutting Solutions, patented True Hole® technology for mild steel produces significantly better hole quality than what has been previously possible using plasma. Equally important, True Hole technology is delivered automatically without operator intervention, to produce unmatched hole quality.



Benefits

- Bolt hole quality is delivered automatically without operator intervention
- Narrows the gap with laser hole quality making the plasma process suitable for many jobs previously cut with laser
- Virtual elimination of hole taper
- Ding is reduced and biased to the outside of the hole
- Delivers true "bolt-hole" quality.



Revolutionary plasma performance: True Hole cut quality

True Hole technology for mild steel is exclusively available for use in conjunction with Hypertherm's HPRXD auto gas plasma systems. True Hole is automatically applied by the nesting software or CNC software to holes up to 25 mm (1inch) diameter and hole diameter to thickness ratios from 2.5 to as low as 1:1.

***** Truehole technology will be activated with Pronest.**

OPTIONAL – AUTOMATIC BEVEL HEAD AND LIFTER
IMATECNO-ITALY



It is offering angle cutting by $\pm 45^\circ$ with a perfect finish and hole for bolt. BevelCut allows alternative results such as Y, X, V, K welding preparations.

High quality provides higher performance. BevelCut increases your capability of production with HyDefiniton power source. BevelCut enables the customers to convert traditional plasma cutting to more complicated cutting solutions.

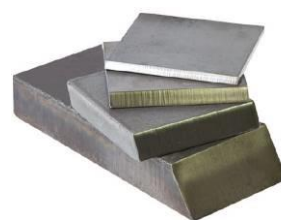
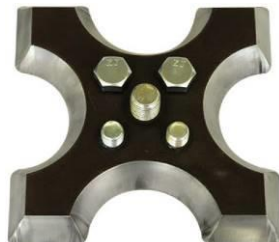
TECHNICAL SPECIFICATION

	"A" Axis	"B" Axis	"Z" Axis
Servomotor	MITSUBISHI	MITSUBISHI	MITSUBISHI
Drive	MITSUBISHI	MITSUBISHI	MITSUBISHI
Axes rotation	$\pm 50^\circ$ (Max $\pm 90^\circ$)	$\pm 50^\circ$ (Max $\pm 90^\circ$)	
Gear ratio	1/89	1/89	
Pulley	-	26 teeth	
Driven pulley	-	60 teeth	
Total reduction	1/89	1/205.3846154	
Max torque of continuous work	115 Nm to Axis	131 Nm to Axis	
Axis speed	Max. 5.88°/s	Max. 2.55°/s	
(Max work speed)	56,17 RPM of the axis	24,34 RPM of the axis	Max.1.5 m/s
Angular rotation axes	1 Tour mot.= Degrees 4.04494382	1 Tour mot. Degrees = 1.752808989	
Axes stroke			300mm
Load capability dynamic Fx	2200 N		

The vertical axis of rotation on the electrohead is called "A" axis

The horizontal axis of rotation on the electrohead is called "B" axis

The vertical axis on the lifter is called "Z" axis



OPTIONAL – TUBE/PROFILE CUTTING

Transforming raw pipes to unique parts of daily life by cutting in excellence.

Possibility of different designs makes TubeCut more versatile and can be used with ProCut, BevelCut as well as sole pipe cut design.

it is possible to cut round pipe and square pipe.



Tube cutting option comes with RTP software for designing and cutting the tubes.

Rotary Tube Pro offers a complete design and cut solution for tube and pipe parts in mechanized cutting applications including plasma, laser, waterjet, and oxyfuel. There is no 3D CAD experience required. Tubes and branches are easily created using parametric input. Side-wall cut outs can be selected from a list of pre-defined shapes, or added from CAD. And, if necessary, users can import 3D CAD files. This flexibility allows fabricators and manufacturers to work more efficiently, boost productivity, and reduce operating costs.

In addition, Rotary Tube Pro supports virtually all brands of tube cutting machine, including stand-alone units and cutting table add-ons. It supports perpendicular cutting as a standard feature and bevel cutting as an optional module.



Part creation and development

- Create round or rectangular tube parts with parametric input
- Standard tube sizes and schedule pipe parameters (including wall thickness, corner radius, etc.) are provided for common materials, or input your own custom sizes
- 3D model of tube is updated in real time as you work, can be freely moved and rotated
 - 2D layout view is also available
- Branches can be added to define interiors using standard or custom tube sizes
 - Set branch intersection type: front outer, front inner, pass-through
 - New main tubes can be created from existing branches
- Edit lead-in/out position and properties

OPTIONAL – OXY HEAD – TANAKA JAPAN

Piercing	: 80 mm
Standart Cutting Thickness	: 100 mm
Max. Cutting Thickness	: 300 mm

- Manufacturer must be informed above 100mm cutting thickness.
- Cutting thickness above 100mm will affect the price of machine.



IHT CAPACITIVE SENSOR SYSTEM – GERMANY

- Built-in collision protection, if ring electrode touches the workpiece, an automatic vertical movement protects the torch.
- Adjustable piercing height.
- Contact-free accurate clearance control.
- Remote setting of clearance distance.
- Splash repellent finish for increased ring electrode lifetime.



OPTIONAL - LOYAL JET PULSE FILTER WITH DONALDSON CARTRIDGES

Leak free, Moduler and easy cleaning

It is designed to enable absorption of fume and dust during the cutting process. Automatic cleaning system ensures efficiency and long-lasting performance. All dust is collected in dust bucket and it is easy to unload it. The short cycle time to change cartridges reduces the operating cost.



MODEL	Pressure (PA)	Motor Power (kw)	Filter Space (m ²)	Cartridge No.	Noise (dB)	Inlet Pressure (bar)	Pulse System
4000m ³	2500	4	105	5	75	7+1	Ok
8000m ³	2500	7,5	189	9	75	7+1	Ok
12000m ³	2500	11	252	12	75	7+1	Ok

CNC PROCUT PLASMA CUTTING MACHINE

- > 2000x6000mm CUTTING TABLE WITH EXTRACTION SYSTEM
 - > XPR300 POWER SOURCE
 - > CORE GAS CONSOLE
 - > EDGE CONNECT CNC
- PIPE CUTTING LENGHT 6 METER DIA 50X500 MM WITH RTP SOFTWARE
AUTO BESTING SOFTWARE PRONEST
SNAIL FAN

Included
Included
Included
Included



WARRANTY

Unless otherwise specified a twelve (12) month warranty is given for parts and labor for all parts supplied by LOY-MAK. Warranty will commence 12 weeks from date of shipment or on commissioning of machine. Whichever is the earliest?

In all circumstances unless otherwise agreed to explicitly in writing by “LOY-MAK” the warranty period will officially begin from the Date of completion of machine commissioning as signed off by our commissioning engineer or from the time of commencement by the purchaser in producing product for sale, if commissioning is not complete. In the case that commissioning is delayed for any reason what so ever, the warranty will commence no later than 12 weeks after the delivery of the equipment. The warranty will be for the period as confirmed in our written confirmation of order.

The following is excluded from the warranty:

- All parts and components which are subject to normal wear due to operation.
- Damages due to non-observance of the operating and maintenance instructions.
- Plasma torch and all consumable items such as nozzles, electrode etc. , flexible hoses, belts, dust or protective bellows, coolants, oils, filters, etc,
- Any damage caused by external services e.g. electrical, gas, air water etc, being supplied or connected to the system, being incorrect, out of tolerance in supply ranges and or pressures, contamination or in any way being not as recommended by LOY-MAK.
- Any damaged caused by negligence, abuse or incorrect operation including specifically any damage caused by incorrect cutting settings, beam mis-alignment, back reflection or improper use. This refers directly to damage caused by untrained or improperly trained personal.
- Fair wear and tear subject to normal conditions of use.
- Any damage due to lack of maintenance and proper care. In particular failure to follow recommended service schedules and procedures.
- Any items serviced other than by LOY-MAK or its nominated suppliers. Any service work carried out by the customer or third parties without the express written permission of LOY-MAK could void any items affected by said interference.

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