water-kut X4

The **AKS Cutting Systems "water-kut" X4** is industry standard in premium, high accuracy, high performance, high production, waterjet cutting.

The **AKS "water-kut" X4** is a CNC x-y programmable waterjet cutting system that combines the highest technology, precision and performance with over **100 years of AKS** superior machine building experience. **AKS "water-kut" X4** was originally designed by **MC Machinery**, a subsidiary of **MITSUBISHI**, and improved upon by **AKS** engineers in the **U.S.A.**

MADE IN THE U.S.A.

The **AKS "water-kut" X4** is designed and manufactured to the highest machine tool standards as the premium platform for industry leading high precision, high performance and durability. The **AKS "water-kut" X4** uses all premium ball screw drives on all axes achieving the highest positioning accuracies of motion of any waterjet cutting system on the market. The **AKS "water-kut" X4** provides superior motion accuracy and precision resulting in the most accurate cut parts available using waterjet cutting technology.

The **AKS "water-kut" X4** uses **standard** all **KMT Waterjet** High Pressure technology including:

- **KMT** High Pressure Pump (Intensifier or Direct Drive)
- **KMT** High Pressure Abrasive Cutting Head and Consumables

The **AKS "water-kut" X4** uses **standard** all **MITSUBISHI** Controls technology including:

- **MITSUBISHI** CNC Controller
- **MITSUBISHI** Smart Motors and Drives for X-Y-Z axes

The **AKS "water-kut" X4** includes many premium standard features like:

- Independent Tank
- Automatic Touch Probe
- Submerged Cutting Water Raise/Lower
- Pre-Plumbed for GRS
- Collision Sensor Bracket
- Laser Pointer

aks CUTTING SYSTEMS

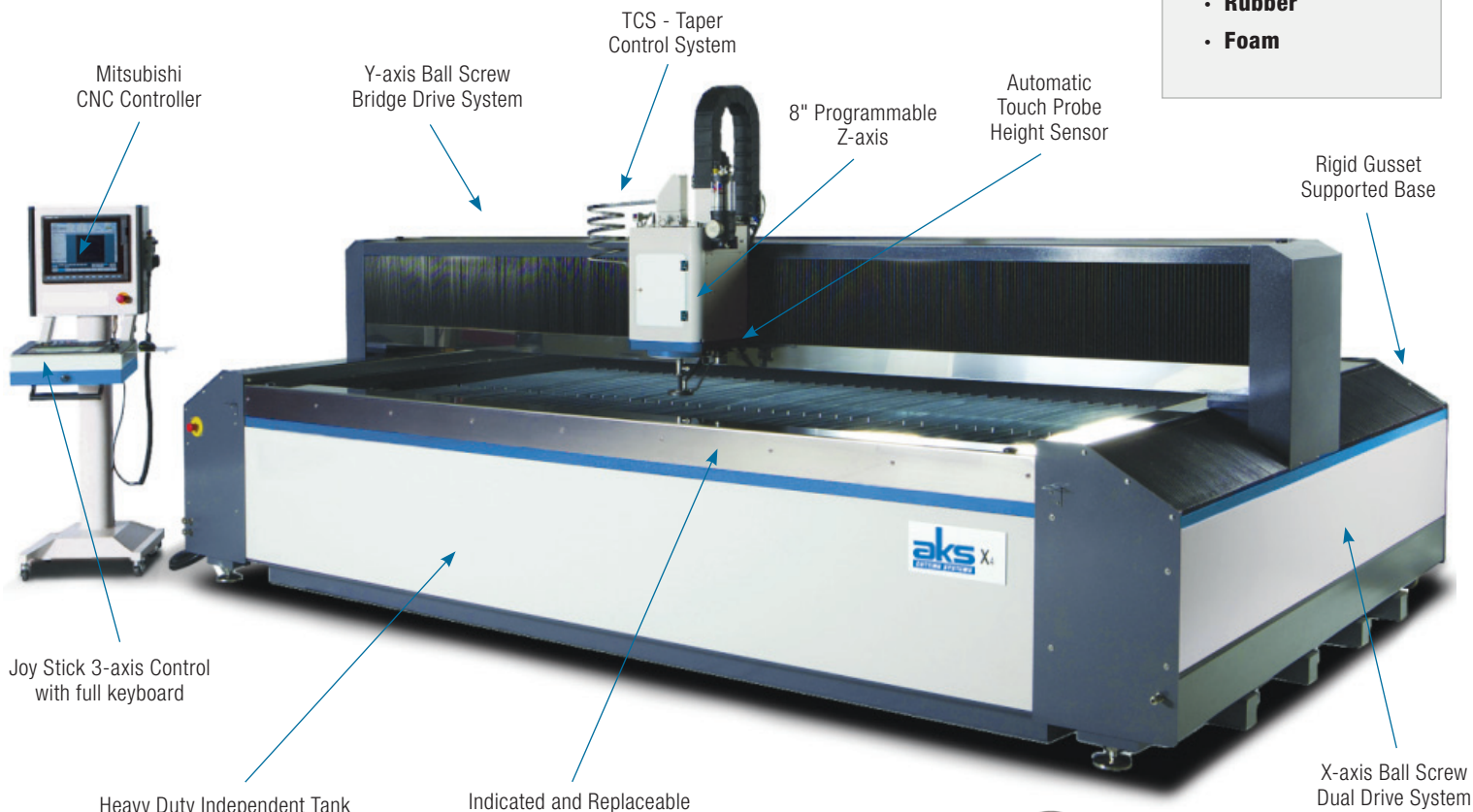
AKS "water-kut" X4:

The AKS "water-kut" X4 consists of a traditional bridge gantry with Dual X-Axis Rails with Ball Screw Drives, and a Single Y-axis Bridge Ball Screw Drive, and offers these unique features & benefits:

- Dual X-Axis Ball Screw Drives on both sides
- Bridge Y-axis Ball Screw Drive
- Independent Work Table—isolate thermal distortion and prevent crash/bump damage
- Laser Calibrated and Software Compensated
- Built-In Submerged Underwater Cutting with Water Level Raise/Lower Control
- 8" Programmable Z-axis Travel
- Automatic Touch Probe—ensure nozzle consistent stand-off height above material
- Collision Protection Bracket (standard on TCS unit)
- 670 lb Abrasive Bulk Feeder Hopper
- Adjustable Abrasive Regulator Mini-Hopper on Bridge
- MITSUBISHI CNC Controller, Motors, Drives and Components
- Metamation MetaJet CAD, CAM and "True-Shape" Auto Nesting
- Patented Joystick for x-y-z manual motion control
- +/-.001" per 3' Accuracy of Motion
- 800 ipm travel speed

Cut Virtually Any Material:

- **Mild Steel**
- **Tool Steel**
- **Stainless Steel**
- **Aluminum**
- **Titanium**
- **Copper**
- **Brass**
- **Inconel**
- **Hastelloy**
- **Armor Plate**
- **Alloys**
- **Composites**
- **Laminates**
- **Ceramic**
- **Stone**
- **Marble**
- **Granite**
- **Plastic**
- **Rubber**
- **Foam**



100 YEARS A TRADITION IN EXCELLENCE

The AKS "water-kut" X4 offers these optional accessory items:

TCS – Taper Control System – allows the user to achieve the highest accuracy parts by angling and rotating the inherent waterjet taper "away" from the part straight edge. The TCS uses two additional axes of motion—angular and rotational – to maximize part edge quality and wall straightness. The result is a final part that is produced faster and with straighter walls, regardless of the thickness or composition of the material being cut. The X4 is capable of having dual TCS Cutting Heads for maximum production.

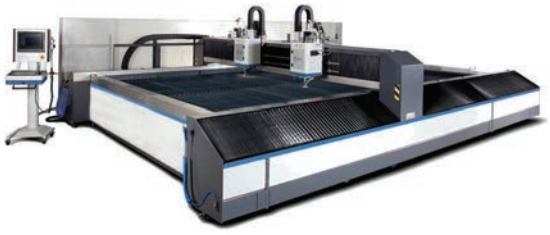
AKS "robo-kut" – offers 5-axis waterjet bevel cutting, including countersinking, chamfers, weld prep cutting, taper compensation capability and more. The AKS waterjet "robo-kut" uses the same superior technology as the AKS plasma "robo-kut" incorporating robotic style precision gearing and planetary gearboxes that can be incremented in arc-seconds or fractions of degrees for tightest precision and accuracy. It includes a magnetic breakaway head to prevent component damage upon a crash. It is capable of +/-45 degrees and offers continuous unlimited rotation without interruption for cutting of the most complex 5-axis parts without having to stop and unwind. It includes an automatic touch probe to provide correct, accurate and consistent stand-off distance from material, which is particularly important in 5-axis cutting to insure correct part geometry.

GRS – Garnet Removal System – automatically and continuously removes the used spent abrasive from the main catcher tank without downtime associated with cleanout. The GRS includes a sweeper package inside the tank which pumps the abrasive out of the tank into a settlement tank liner bag which is easily removed to a waste dumpster.

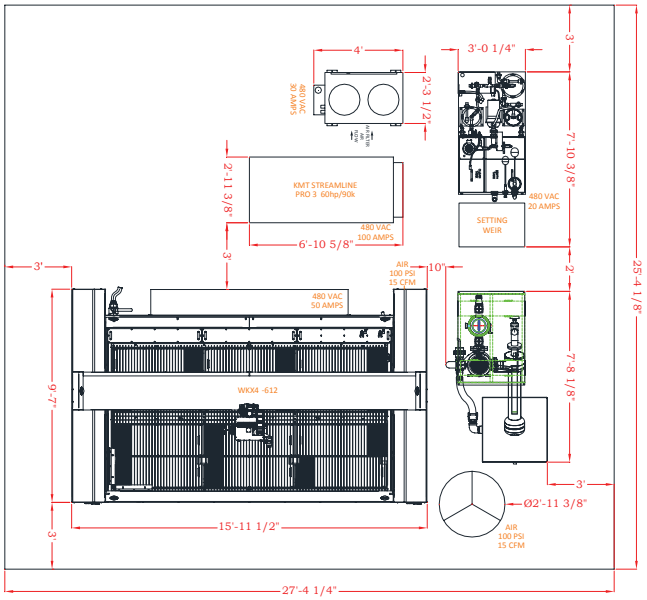
CLS – Closed-Loop Water Filtration & Recycling System – cleans, filters and recycles all discharge water from both cooling and cutting. This meets or exceeds the recommended water quality specification as required by the KMT high pressure intensifier pump. The CLS includes a bag filter vessel, a hurricane filter vessel and a resin bag chemical exchange vessel for three-stage filtration of cutting water, plus it also includes a chiller unit for recycling of cooling water.

Upgrade to 90,000 psi – waterjet cutting with ultra-high pressures of 90,000 psi offers users the latest technology to maximize cutting speeds. For example, 90,000 psi cutting of 1" aluminum is 15-25 ipm while 60,000 psi cutting of 1" aluminum is 5 -10 ipm. With the latest technology from KMT in high pressure seals, cylinders and check valves, operating costs of the 90,000 psi operation have never been lower, and usually cost only a few dollars more per hour than a 60,000 psi operation.

Smaller and Larger Systems Available – the same "water-kut" X4 chassis is designed into a smaller or larger work envelope. Standard sizes include: X4-45, X4-1213, X4-1220, X4-1230 and X4-1240. The longer lengths are achievable using precision ground helical rack and pinion drive system. The water-kut X4 also offers an optional enclosure system to fully contain the waterjet operation.



RECOMMENDED MACHINE LAYOUT



MITSUBISHI CNC CONTROLLER

The **AKS "water-kut" X4** utilizes the MITSUBISHI M8 Series CNC Controller for the world's fastest and next generation of Super Smooth Surface (SSS-4G) control. The M8 Series CNC control platform ensures faster, smooth operation, along with a better finish and less scrap resulting in higher productivity and profitability.

Key Benefits:

- CNC-dedicated CPU - Improved cycles times from faster program processing with more accurate machining due to a faster CNC to drive communication network
- Intuitive Touch Screen Operation - Icon-based navigation improves usability for experienced and novice operators. 19" screen offers improved visibility and includes pinch, flick and scroll abilities like a smart phone or tablet. Capacitive touch-screen panel has easy operation and longer service life
- Improved SSS Control - Reduces machine vibration during high speed cutting and optimizes acceleration/ deceleration times for each axis. This allows for shorter cutting times with a high degree of accuracy
- Large Capacity SD Card Expansion
- High-speed, High-accuracy Mode
- User Level Based Data Protection - M8 series allows for multiple levels of permissions for operators depending on their role
- No-fan structure

MITSUBISHI ELECTRIC

Metamation
Leading the Industry in Innovative CAD/CAM Software

METAMATION CAD/CAM NESTING SOFTWARE

- Compatible with most drawing formats including .dxf, .dwg, and IGES
- The Auto “True-Shape” Nesting feature allows the user to select types and quantities of parts, optimizing material utilization and reducing waste and time. Auto Nesting includes manual setting and 3 different advanced algorithms for optimum performance
- The Auto “True-Shape” Nesting feature includes nesting multiple parts in specified sheet layout with control of rotation and spacing to maximum utilization and sheet database management. No need for 3rd party offline nesting
- The Estimating feature generates specific machining cycle time estimates and cost estimates prior to the actual cutting process
- Includes technology database tables for the user to easily select the specific material, thickness, and edge quality finish from 5 different quality of cuts. There is also complete independent control of offset and taper for each cut quality. Metamation Metajet is expressly developed for processing parts for waterjet cutting operation

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100 YEARS

A TRADITION IN EXCELLENCE FOR OVER 100 YEARS