

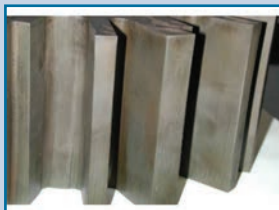
Proudly Made in the USA

Waterjet Maximum Production with High Performance & High Accuracy

AKS water-kut X4

Setting the standard for precision waterjet cutting

The AKS water-kut combines precision waterjet cutting technology with over 100 years of superior machine building experience. The AKS water-kut was originally designed by *MC Machinery*, a subsidiary of *Mitsubishi*, and improved upon by AKS engineers in the US. It is manufactured to machine tool standards as the premium platform for precision, high performance, waterjet systems.



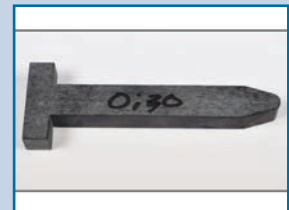
4" mild steel cut with 90K and Taper Control System



1" aluminum with 1/2" slots and 1 inch hole cut with 90K



3/4" stainless steel cut with 60K with smoothest edge



1/2" carbon fiber cut with 60K in 30 seconds

AKS water-kut

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:

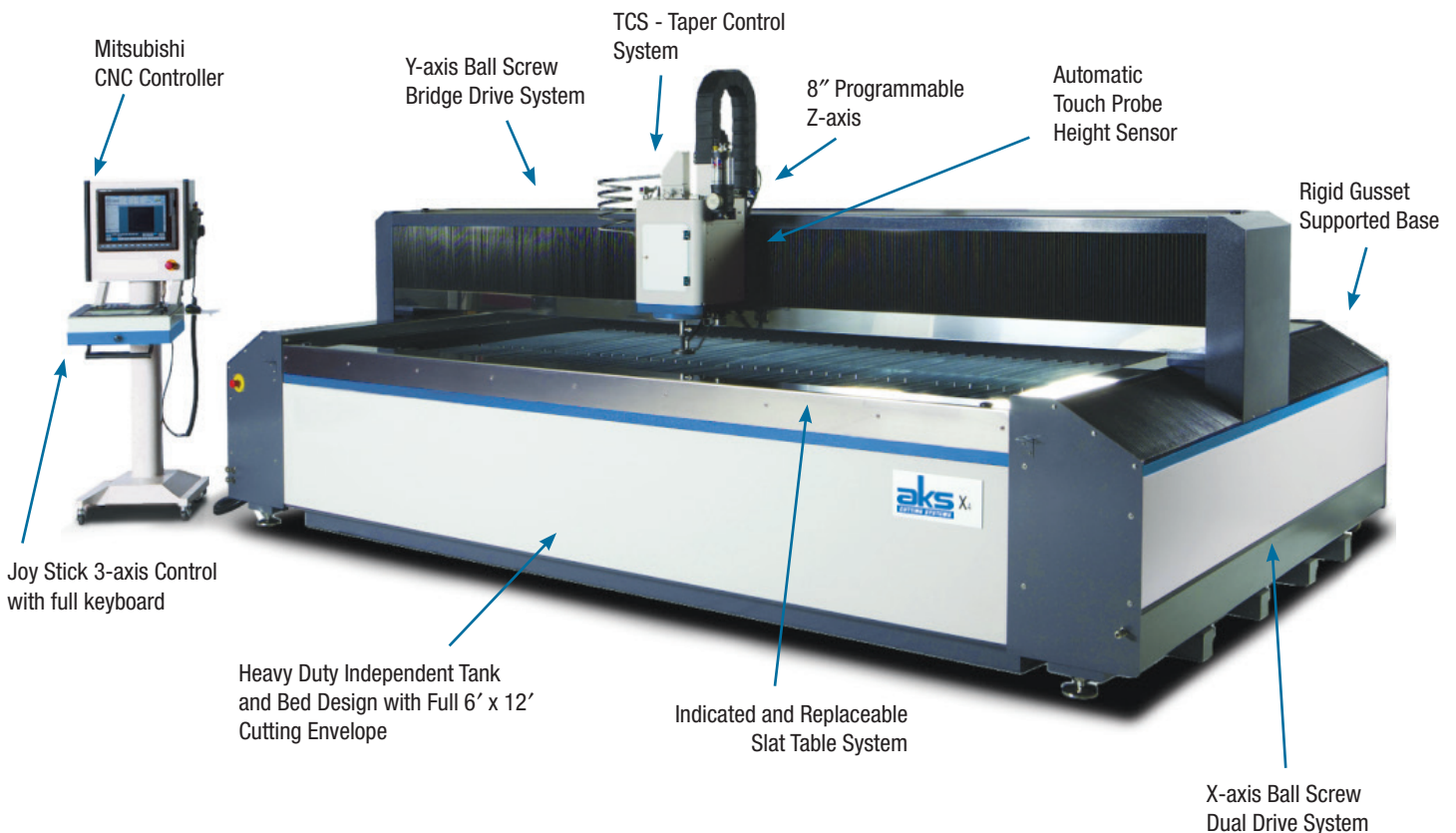
- Dual X-Axis Ball Screw Drives on both sides
- Bridge Y-axis Ball Screw Drive
- Independent Work Table — isolate thermal distortion and prevent crash/bump damage
- Laser Calibrated and Software Compensated
- Built-In Submerged Underwater Cutting with Water Level Raise/Lower Control
- 8" Programmable Z-axis Travel
- Automatic Touch Probe — ensure nozzle consistent stand-off height above material
- Collision Protection Bracket (standard on TCS unit)
- 670lb 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
- $\pm .001"$ 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



A TRADITION IN EXCELLENCE



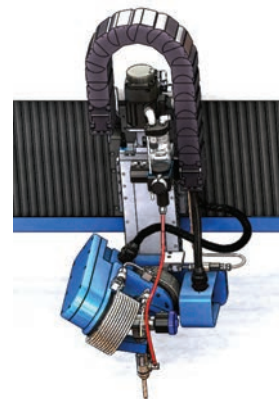
AKS water-kut options



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.



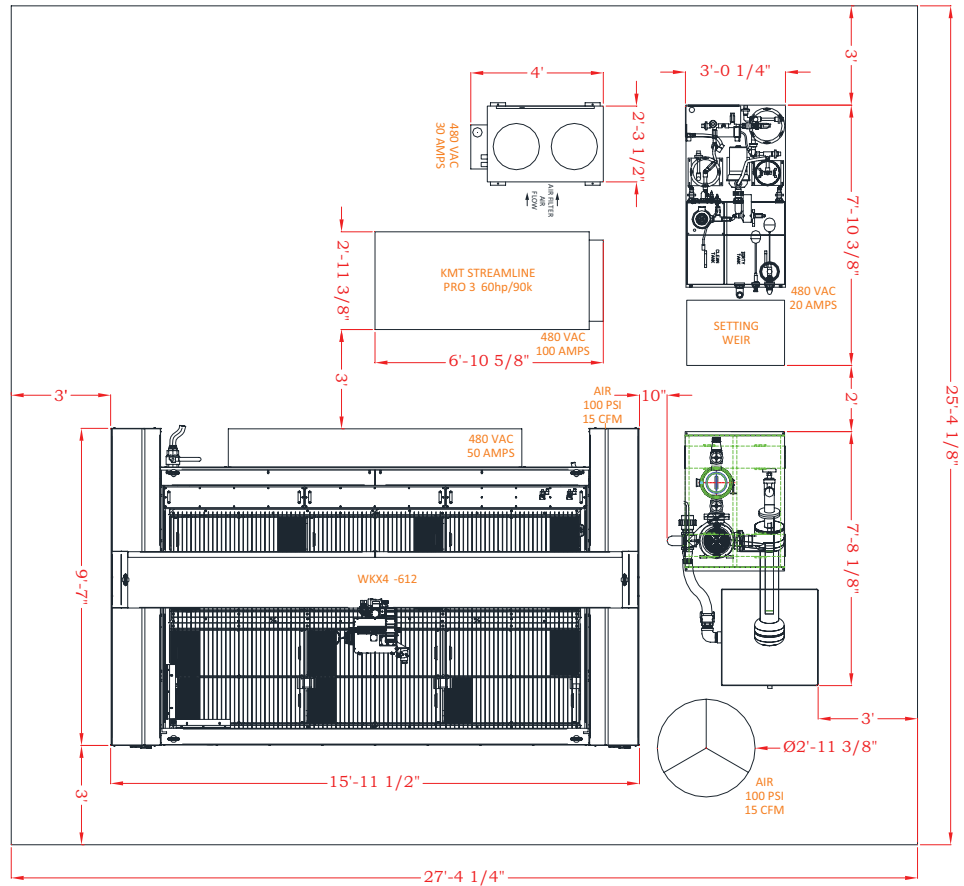
Upgrade to 90,000psi— waterjet cutting with ultra-high pressures of 90,000psi offers users the latest technology to maximize cutting speeds. For example, 90,000 psi cutting of 1” aluminum is 15-25ipm while 60,000 psi cutting of 1” aluminum is 5-10ipm. With the latest technology from KMT in high pressure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



AKS technical data

RECOMMENDED MACHINE LAYOUT



MITSUBISHI CNC CONTROLLER

The AKS water-kut utilizes the MITSUBISHI CNC Controller for a cost-effective, versatile, accurate and precise, solution for users to take their waterjet to the next level by producing more accurate and complex parts. Competitive waterjet machines with PC-based controls can't touch the sophistication, power and capability of the MITSUBISHI CNC. The Mitsubishi Controller implements new nanotechnology for finer, faster interpolation with greater power and offers the following benefits:

- Dedicated nano control for highest precision machining and Newest RISC-CPU and high-performance ASIC
- Faster Processing and More RAM Memory with Improved Graphics and Superior NC creation
- Network function adaptable for diverse factory environments including ethernet, USB, etc.
- Full Standard Keyboard with Joystick jogging all 3 axis simultaneously



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. Metamotion Metajet is expressly developed for processing parts for waterjet cutting operation.



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