



May 25, 2023

Q230032-R4

**Mr. JOHN DOE**  
Business , LLC  
14255 Road St.  
City, STATE 00000

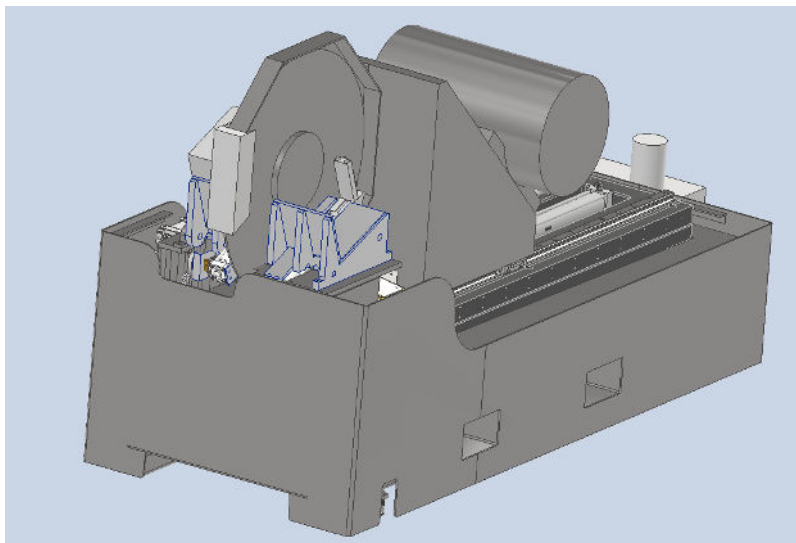
Dear John:

Based upon our recent discussions about a 36" alloy saw, we are pleased to present the following preliminary quote for a custom engineered Everett Industrial Solutions, fully enclosed, 36" wheel, 75HP, non-oscillating, wet cut-off SaferCut® saw as set forth below:

### Everett Industrial Solutions SS:36SD Saw System: 36" Standard Duty Bar Saw

The 36" (915 mm) diameter wheel, 75HP (56kW), single-axis abrasive cutoff saw is equipped with a work envelope for economic production cutting of solid round bars from 2" to 6" diameter (machine travels will allow cutting an 11" round with a new wheel). Horizontal axis (saw blade in/out) motion is achieved through PLC-operated proportional valve and hydraulic cylinder based on pre-programmed feed rates or operator entered speeds.

Everett Industrial Solution systems are machine tools...not tool-room or catalog saws. They are designed and built to be dynamically stiff to meet international machine tool standards for a minimum of 15-years of productive life and aggressive, productive hands-off, cutting of aerospace alloy bars.



*Figure 1: Typical Wheel Axis Arrangement of Horizontal Axis Saw(Guarding Not Shown)*

## Machine Axes

- **Y-Axis: Wheel in/out.** Travel distance is 660mm (26") such that a new 36" cutoff wheel can clear a 279mm/11" diameter part in the work holding clamp. Minimum usable wheel diameter is 21"

This is a heavy-duty production bar cut saw designed for injury free operations in a modern manufacturing environment. It has a fully lighted and enclosed work area protected by guarding and wheel zero-speed interlocks. In-line, heavy bar material handling conveyors are available as are programmable cut-to-length systems.

The electrical, hydraulic, and safety systems are fully documented for ease of maintenance and trouble shooting. Components are located out of the cutting debris zones where possible for long life and reliability. Where not possible, ways and moving devices are fully protected by way covers and shields. Dust/mist collector ports are located on the wheel guard and around the base of the cutting zone to keep work area clean and to make clean up easy.

The machine is designed for 480V/3P/60hz power; an appropriate transformer can be quoted to accommodate alternate power supplies. A demonstration and runoff for your personnel at Everett for written approval of the system prior to shipping, is included.

## Machine Construction and Standard Components

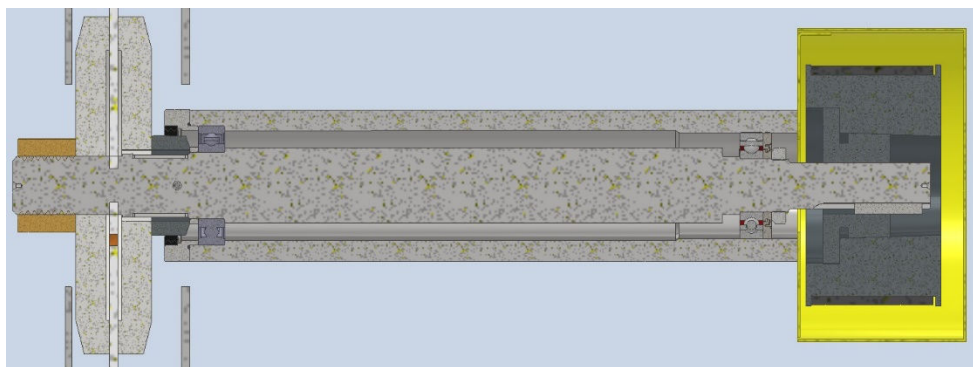
**Machine Base.** The saw is built on a structural weldment in the horizontal cylindrical grinder orientation. The Y-axis saw head weldment slide travels on ground linear ways and bearing cars for rigidity and alignment. All ways exposed to falling objects or cutting debris are protected with impact-resistant way covers. Ways behind the cutting zone are covered with traditional bellows to protect them from incidental dust and debris. The base is concrete filled for mass damping to provide dynamic stiffness.



*Figure 2: Typical Base Ready for Assembly*

**Saw Head.** The saw head is designed for cutting with a nominal 36"/914mm-diameter abrasive wheel at up to 14,200sfm or 72m/sec wheel speed (Vc) fixed, or if the variable frequency drive option is purchased, at up to 16,000sfm/80m/s with constant Vc based on wheel diameter tracking. The Y-axis hydraulic cylinder actuates the saw spindle in/out motion perpendicular to the work axis.

**Cutting Wheel Spindle.** The 3,500-rpm rated main wheel spindle drives the 12" (305mm) cast iron wheel flange. The abrasive cutoff wheel is mounted on a 1.75" (44.5mm) arbor shaft and clamped by the outer wheel flange. The wheel flanges are assembled on the shaft and faced and trued as an assembly for balance and straightness. The inner wheel flange is equipped with a 0.437" (11mm) diameter drive pin on a 5.5" (140mm) bolt circle diameter. The wheel spindle is self-contained, fully protected with labyrinth seals and held in the housing with a precision, bolt-in cap for ease of repair/replacement as shown below.



*Figure 3: Typical Wheel Spindle Cross Section*

**Spindle Motor and Variable Frequency Drive.** A 75HP (55kW), severe duty, cast iron, 1780rpm, NEMA premium efficiency induction motor with a tachometer and thermistor protection is provided as standard. The spindle motor speed is infinitely variable and rated to 3,200 RPM to be able to achieve constant Vc of 16,000sfm/80m/s at a wheel diameter down to 22" or at 12,000sfm/60m/s at 16.5". The drive includes standard VFD features as well as ProfiSafe communications, Safe Torque Off ("STO"), Safe Stop One ("SS1"), Safe Limited Speed (SLS) and other safety-related functionality. Motor control system also includes a stand-alone "zero-speed" safety monitoring relay. The drive and PLC monitor cutting power and actual wheel speed and can abort overly aggressive cuts to protect the operator and machine.

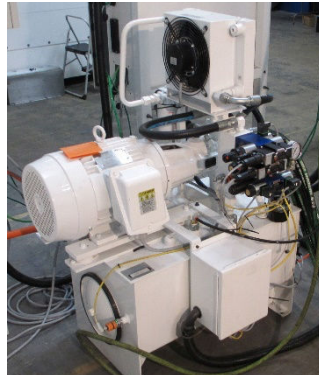
Using dynamic braking, the main spindle motor is rapidly stopped at the end of cut by the VFD. Braking is important for productivity since the door interlocks will not unlock until the zero-speed safety relay detects that the wheel is no longer spinning. For automated installations, the wheel "hovers" over the work piece and remains running during part repositioning to minimize cycle time.

**CutSense Process Feedback.** The saw control system provides your operator process feedback in real time to protect the operator, wheel, work, and saw from overly aggressive cutting. A LED indicator flashes colored and audible codes during the cutting cycle. Green for a moderate process (<80% of drive current use), yellow/magenta during moderately aggressive cutting (>80% but less than 100%) and red for very aggressive cutting (>100%). This feedback helps train the operator to use the power available for fast cutting cycles, but not so much as to shorten the life of the saw and motor...or to shatter the wheel and damage the work or machine.

**Axes Actuation and Hydraulic Power Unit.** For setup and wheel change, the Y-axis is positioned by the operator jogging buttons on the operator station which actuates a proportional directional valve

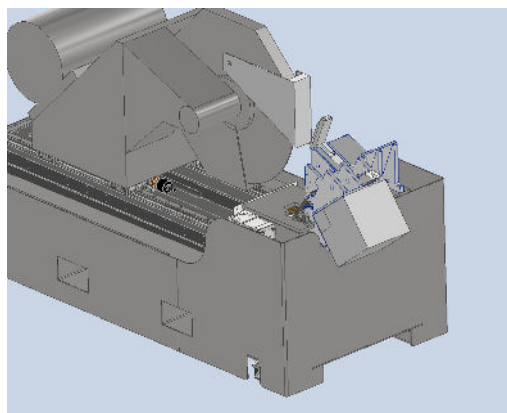
(provided safety interlock conditions are met). For semi-automatic cutting cycles, the PLC controls all clamping and axis movement according to the selected speed settings.

The hydraulic system is energized by an appropriately sized power unit complete with variable displacement pump, reservoir, pressure relief valve, proportional-directional valves, counterbalance circuits, pressure override circuits, and associated control switches and safety valving. The power unit also controls hydraulic work clamping, if so equipped.



*Figure 4 Typical Hydraulic Power Unit (HPU)*

**Work Holding/Clamping.** Depending on final material handling option selection, bars to be cut would be clamped in a vise by a hydraulically or pneumatically actuated clamp on the appropriate side and the cutting wheel depending on the cut type i.e. leading/trailing end trim, middle cut, etc. The outfeed side of the vise is typically set 0.020-0.040" low to the infeed side to minimize potential blade pinching. With the possibility of 500-pound stub pieces an extraction system is included to assist an operator with removal.



*Figure 5 Scrap Ejection System and Vise*

**PLC Control System.** The saw system's safety system, motors, hydraulics, operations, and ladder logic are controlled by a failsafe PLC and associated failsafe I/O cards. Hydraulic motion is coordinated by the PLC through a proportional-directional valve as commanded by the PLC.



*Figure 6: Typical PLC Control Cabinet*

**Automatic Cut-Length Conveyor System.** System allows operator to program the finish part lengths and process multiple cuts on a bar. An up to 25' (7.6m) working length raw stock canted infeed roller conveyor and programmable bar positioner is provided for automatic bar processing. Includes a hand-held touch screen HMI for base loader/positioner and for interface with the saw operations. Allows operator to program cut lengths and number of cuts. Saw system will then cut bar to programmed lengths and keep track of number of good pieces (ignores stub ends).

Roller conveyor is made up of replaceable 2.75" Dx0.3" wall rollers on A80 double-shielded bearing on 1" hex axles on 7.5" centers set 1-5/8" low in 8" @11.5# channel frames. Conveyor sized for stock weighing up to 5,000 lbs (2,275 kg) and is rated for rolling 4,300#/ft. When a raw bar is manually or automatically loaded, the AC, absolute encoder, servo motor and gear box driven pusher advances the raw bar to a flip-up stop to establish overall length. The stop then retracts, and the bar is advanced into the cut position. Once at cut position, the bar is clamped, and cut. The bar then advances to the next cut position thereby



*Figure 7: Infeed Conveyor and Pusher/Gripper Assembly*

pushing the cut piece out of the cut zone and on to the exit conveyor. The operator controls the part length, stub end disposition, and number of cut pieces through job menu entries on the touchscreen HMI. The system can be programmed to flash a light and make audible sounds when saw blade needs to be changed, when bar feeder is empty, or when a short bar-end needs to be manually extracted.



*Figure 8 Typical Exit Conveyor with Escapement*

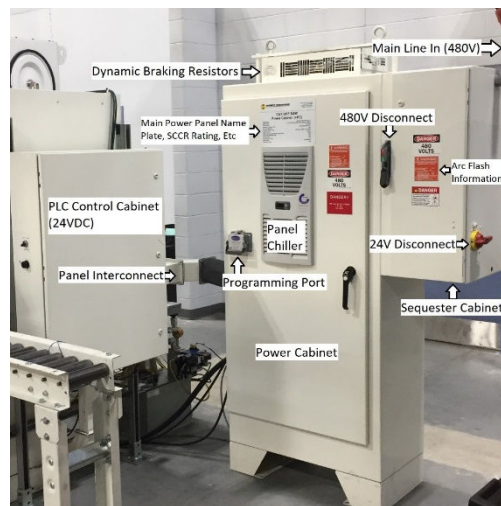
**Exit Conveyor.** Provide 16' working length outside machine of chain driven live roller conveyor to accept cut product. Cut parts will be transported to far end of exit conveyor and escaped into bundling trough. Bundling trough to be equipped with spring shock absorbers to disperse load of falling bars. Trough surfaces to be lined with replaceable, anti-mar material.

**Health, Safety, and System Protection:** This is a production saw designed to promote injury-free operations in a modern manufacturing environment. The system is designed to adhere to the best functional safety practices (ISO13849) and to be EN Machinery Directive compliant. The safety systems were designed based on a detailed and comprehensive formal risk assessment. The work envelope and cutting area are fully protected in the interlocked machine enclosure for safety and to contain smoke and debris. Easy access, interlocked doors allow for easy wheel change and clean up yet protect your operator from the common dangers of an open, tool room chop saw originally designed for skilled operators. Safety interlocks prevent automatic operation of the saw if the guarding is not secured or if the wheel is turning. Cycle start and power work clamping, if so equipped, requires two-handed control for operator safety.

## Machine Utilities, Auxiliaries, and Documentation

**Documentation.** English language Operator Manual and Control Configuration and Schematics Manual is provided in PDF format. Full assembly and electrical drawings as well as I/O, pneumatic, and hydraulic system documentation is provided. Commercial component documentation is provided electronically on USB drive.

**Electrical System.** Complete three-phase, 60-cycle electrical system in watertight enclosure with sequester box is designed to accommodate customer's incoming supply at 480 volts. System includes low voltage control circuits. Step up/down and/or isolation transformer available based on installation site requirements. All work in full compliance with NEMA requirements. Customer to provide a dedicated earth ground for noise suppression. Full electrical documentation as well as error code reporting makes electrical troubleshooting easy for your maintenance personnel.



**Guarding.** Work area enclosure guarding installed to provide for operator safety and dust/smoke/mist containment. Optional Donaldson/Torit dust, smoke, or mist filtration systems are available as set forth below. Large, removable, monitored access panel(s) provide easy access for maintenance when required.

## Machine Runoff, Installation and Training

**Demonstration and Pre-Dispatch Machine Qualification ("MQ1"):** Everett will demonstrate the machine and the cutting processes we developed for preliminary acceptance by authorized customer personnel prior to shipment. Wheels, tooling, and fixtures that are included with the purchase order will be used for debug and runoff.

**Installation, Training, and Final Machine Qualification.** Everett service technicians will start-up, commission, and qualify the machine system at customer's plant ("MQ2") after delivery and placement by customer as set forth in the pricing schedule. Customer is responsible for preparation of the site/floor, the running of utility services (air/electric), placement, and rough level. Customer to provide reasonable skilled trades assistance and personnel to assist Everett's technicians. Everett personnel will finalize assembly, wire interconnections, and start up the system for final demonstration, qualification, and approval by you. Specific MQ1 and MQ2 criteria are to be agreed upon at time of order.

***Operator, maintenance, and manufacturing engineer training is available at Everett without charge during MQ1. Additional operator and maintenance personnel training is available at customer's plant as set forth in the pricing schedule.***

### SS:36SD Typical Specifications

Description	Value
Maximum Workpiece Diameter Under New Wheel	11" (279 mm)
Maximum Economical Workpiece Diameter	7" (175mm)
Maximum Workpiece Diameter w/o Oscillation	6" (150mm)
Minimum Workpiece Diameter Cut Through w/Spent Wheel	1.75" (48 mm) Standard Configuration
Minimum Workpiece Cut Length (with dual sided clamping)	6" (150mm)
Typical Inconel Cutting Speed (<4.5" diameter) Wet	2-3 sec/square in
Typical Inconel Cutting Speed (>5.5" diameter) Wet	5 sec/square in
Oscillation Stroke Length (Half Cycle Length)	n/a
Oscillation Speed Range (Cycles per Minute)	n/a
Wheel Spindle Power	75 hp (56kW)
Wheel Peripheral Speed (if wheels rated accordingly)	14,200 sfm (72 m/s)
VFD Option Wheel Peripheral Speed (if wheels rated accordingly)	≤16,000sfm/80m/s
Standard Cutoff Wheel Range:	
Outside Diameter	36" (914 mm)
Width	0.250" (5.8 mm)
Bore	1.75" (44.45 mm)
Wheel Flange Drive Pin (Diameter, Bolt Circle)	0.437", 5.5" (11, 140mm)
Rapid Return Speed	> 10"/sec (254mm/sec)
Total Elect. Requirements (standard saw)	65 kVA
Voltage (transformers available for other voltages)	480 V
Typical Shipping Weight	7,000 lbs
Machine Dimensions	72"W x 120"D (2.5m x 3m)
Workholding Height	39" (1 m) above floor
Guards	Painted Steel



## Recommended Configuration Pricing

**SS:36SD Semi-Automatic Dry Cutoff Saw (75HP) ..... \$345,960**

Complete fully guarded turnkey dry cutoff machine with full ISO13849 safety compliance based on an ISO12100 detailed risk assessment. Other included features:

- Cut Sight Laser for Manual Cut Alignment
- Hydraulic Part Clamping
- Cartridge Wheel Spindle Assembly for Easy Change Out
- Documentation, Risk Assessment, Project Management
- VFD Option for constant SFM cutting, CutSense, and motor dynamic braking
- Wet Cutting Option

Recommended additions to saw based on your heavy bar cutting application:

**Integrated Automatic Cut-to-Length System (20' in; 15' out)..... \$133,900**

Integrated cut-to-length system as defined above with full ISO13849 safety compliance based on an ISO12100 detailed risk assessment to interface with your existing automatic cut cycle saw.

**Exit Conveyor Automation/Accumulator (16' )..... \$33,600**

Upgrade exit conveyor to include chain driven live rollers, add hydraulic/pneumatic escapement, fabricate/integrate U-shaped part catcher/accumulator, add safety devices as appropriate.

**Machine Qualification ("MQ") and training at Everett Industries (MQ1)..... Included**

In addition to required FAT by your representative, take advantage of free training, process development, and uninterrupted, dedicated time for your process/mfg engineers to get comfortable with the saw operation at our site.

**Install, Startup, Training, and MQ2, at customer site (Reno, NV)..... \$32,400**

Everett to provide software and hardware personnel to install, interface, commission, and prove out operation of cut-to-length system with customer's saw on-site. Customer is responsible for preparation of the site/floor, the running of utility services (air/electric), placement, and rough level of new components as instructed by Everett. Customer to provide reasonable skilled trades assistance and personnel to assist Everett's technicians. Estimated duration is 7-12 days depending on accuracy of documentation of existing saw and reliability of saw's operations.

## Delivery and Invoicing

**Terms (Incoterms 2010)** ..... **FCA Warren, OH.**

**Payment:**

- 30% down payment to confirm order,
- 25% at layout, MQ1 & MQ2 acceptance criteria, and configuration approval,
- 35% payment upon written acceptance at Everett and prior to shipping, and
- 10% at final acceptance, net 30 for final payment

**Lead Time to Runoff** at Everett Industries is currently 30-45 weeks ARO, subject to prior sale and crazy supply chain disruptions we are all experiencing. Motor, drive, and PLC are current lead time drivers.

This quotation is subject to the attached Everett "Terms and Conditions of Sale". Thank you for your interest in our products. If you have any questions, please don't hesitate to call.

Best Regards,  
**EVERETT INDUSTRIES, LLC**



James L. Vosmik  
President

EVERETT INDUSTRIES, LLC  
TERMS AND CONDITIONS OF SALE

This offer firm for thirty (30) days from date of quotation.

**Orders for USA machinery** sold FCA, Warren, Ohio, loaded at Everett Industries, LLC, subject to written acceptance by authorized customer personnel. Shipment by dedicated carrier at buyer's risk, loaded at Everett facility, buyer's responsibility thereafter.

**Orders for non-USA machinery** sold FCA, Warren, Ohio (INCO terms), at Everett Industries, LLC, subject to written acceptance by authorized customer personnel. Containerized shipment at buyer's risk by dedicated carrier to port of buyer's choice, then by ocean carrier to buyer's port of entry.

All designs and software are and shall remain proprietary to Everett Industries, LLC.

**CANCELLATION:** Cancellation up to sixty (60) days prior to scheduled shipment billed at Cost plus 20%, later cancellation at full price. Notwithstanding anything in the standard Everett or Customer purchase order or Terms and Conditions to the contrary, if Customer cancels an order for this equipment at any time up to 60 days prior to scheduled acceptance trials at Everett Industries, as Everett's sole recourse and remedy for such cancellation, Customer will pay Everett for its Costs incurred up to the time of such cancellations plus 20%, but in no event in an amount greater than the purchase order amount. As used in the previous sentence, "Costs" shall mean all direct purchases, subcontracting costs, and direct labor and labor burden (at the rate Everett applies in the normal course of business), in each case directly related to Everett's work under the purchase order on the machine(s), and as reasonably documented and delivered to Customer in writing in connection with such cancellation claim. Customer shall have the right to audit all such claimed Costs with Everett's cooperation, and Everett and Customer will agree on the final amount of all Costs covered hereby. The intent of the aforementioned cancellation charges is to cover the costs incurred and the opportunity costs Everett foregoes in accordance herewith. Everett agrees to use its best efforts to mitigate any such costs.

**WARRANTY:** Everett warrants that the product sold will meet contract specifications and will be free from defects in materials and workmanship and will possess the characteristics represented in writing by Everett. Claim for breach of the above warranty must be made within twelve (12) months from date of delivery to original user. Upon satisfactory proof of a claim, Everett will, within reasonable time, make any necessary repairs or additions; or, at Everett's option, replace defective parts free of charge. Everett will not allow any charges for repairs or additions, nor will Everett accept products returned for credit unless such action has been authorized by Everett in writing. This warranty is terminated immediately if product is relocated or modified by customer without the prior written approval of Everett.

**DISCLAIMER OF ADDITIONAL WARRANTIES: THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED.**

**LIMITATION OF DAMAGES: Repair or replacement of defective parts is buyer's sole and exclusive remedy for any claim against Everett arising hereunder. IN NO EVENT SHALL EVERETT BE LIABLE FOR CONSEQUENTIAL DAMAGES OF ANY NATURE, INCLUDING BUT NOT LIMITED TO ATTORNEY FEES, LOST PROFITS, INCREASED EXPENSES OR ANY COSTS ATTRIBUTABLE TO DELAYS OR NON-DELIVERY, WHETHER BASED ON TORT OR CONTRACT.**