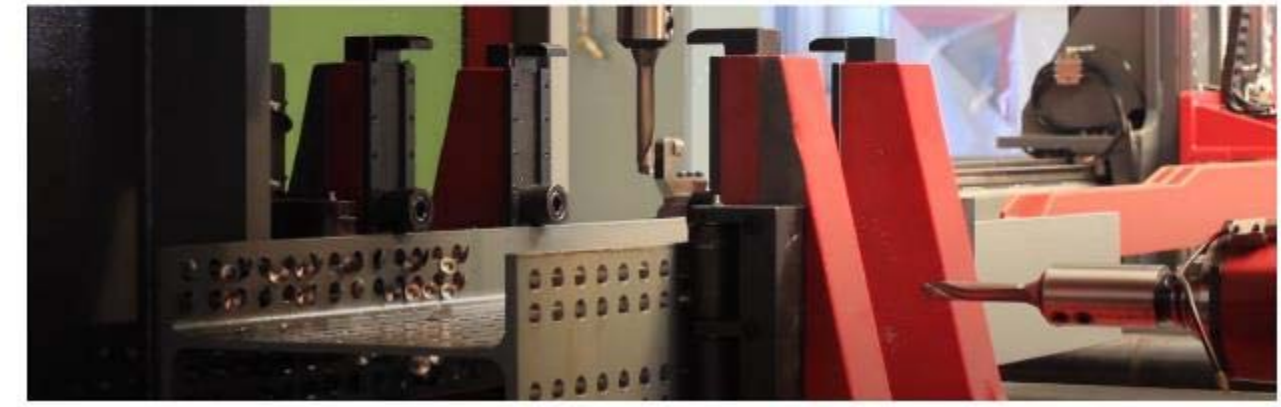
AKYAPAK®
METALWORKING TECHNOLOGIES

3 ADM ECO 1200

THREE SPINDLE 7-AXIS CNC BEAM DRILL LINE

ADM series making a difference in structural steel processing

Akyapak has become pioneer in all metal forming fields its operating with the innovations it has made. Akyapak now comes to the forefront as one of the world's unique manufacturers for high technology ADM Drill Lines for structural steel processing. Akyapak's premium engineering solutions and customer-oriented culture makes it customers' first choice for structural steel processing worldwide.



Engineering & Design

Akyapak also serves as a consultant to the customers who want to expand and advance equipment pool and enrich processes. Akyapak offers "tailor-made" steel processing lines and customized layout solutions with its strong engineering and design expertise and ready to guide you through maximizing your productivity and make the most out of your shop floor.

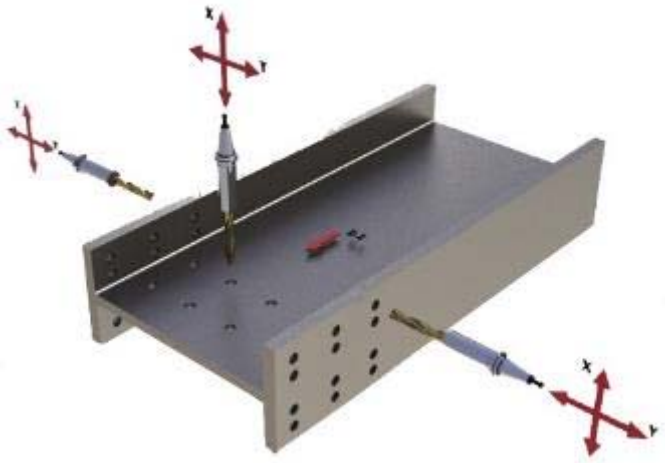
STANDARD FEATURES

CAPABILITIES

PROCESSING ON THREE SIDES

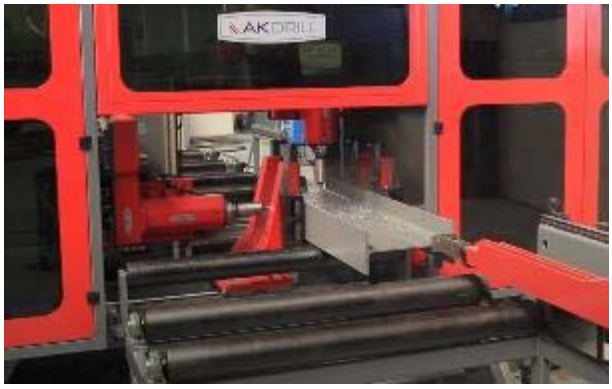
3 ADM ECO is a budget-friendly drill line with 3 spindles for the fabricators with limited source but who also want to stay competitive. On the 3 ADM ECO model, material is repositioned after each horizontal drilling operation (z-axis). The high-speed drill heads process materials independently on three sides with accuracy.

The independent motion ability enables for combined operations: While processing one side of the flange and material is fixed, it is possible to perform other operations (drilling, tapping and countersinking) independently on the web and counter flange.



FEEDING ARM

The feeding arm with gripper carries out longitudinal positioning of beams. The precise motion ability is guaranteed with a servo driven rack and pinion system. Positioning accuracy in 12 m is only ±1,0 mm and in 500 mm sub-axis is ±0.2 mm.



Positioning weight is max. 22 Tons and the profiles can either be driven forward and backward. Gripping thickness is max. 30mm.

Short beams can also be processed with the feeding arm system compared to roller measurement systems. The positioning system is not affected by scale, rust and weather conditions and is therefore more accurate.

There is no need for an additional unit to drive the beams towards the saw station. The feeding arm can be turned 90 degree in order to grab the beam in a different position.

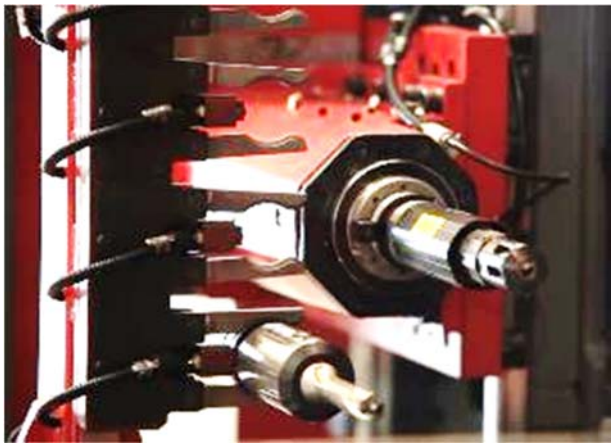
Max. speed	**25 m/min**

FRAME

The base frame of the machine consists of robust steel profiles and frames of the motion axes consist of cast iron. The frame of the machine is designed with FEM simulation and thus mechanical solidity is guaranteed, optimizing suitable material selection, vibration and tension damping, and dimensional stability

ATC - AUTOMATIC TOOL CHANGER

Three automatic tool changing units are provided; one for each spindle and each unit has four tool stations.



The ATC system enables the machine to change tools quickly and automatically, thus eliminating manual intervention and reducing downtime of the machine.

Capacity	8 kg for each station 4 tools per spindle; 12 tools in total

AXIS MOTIONS

The roller linear guidance system, which provides high rigidity and a load carrying capacity, is employed in the motion axes. This system supports all loads and moments from all directions. These components are chosen from high quality INA - Schaeffler Group® (Germany) products or the equivalents. Accurate positioning and high feed rates are guaranteed with servo motor driven ball screws. The components of the feeding arm are chosen from Atlanta® (UK), Schneeberger® (Germany), WHM Herion® (Germany) or the equivalents.

SCHAEFFLER GROUP

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SPINDLE MOTORS

3 ADM ECO is equipped with servo motors which provide precise motion capability. The 3 ADM also includes 3 high speed, powerful spindle motors. Mitsubishi (standard) or Siemens brands can be chosen.

EMENS

HYDRAULIC POWER SYSTEM

7,7 kW hydraulic power unit generates high working pressure. Hoses and connections used are resistant under high pressure hydraulic circuit. Easy intervention and troubleshooting are carried out thanks to the power hydraulic units from Parker (USA), Brevini (Italy), or equivalent.

Parker

brevini hydraulics

ELECTRICAL COMPONENTS

All critical electrical components used in the system such as thermic, contactor, relay, etc. are chosen high quality products by well-known brands.

Telemecanique Schneider Electric SIEMENS legrand

All components and drivers are kept at a constant temperature in the electrical enclosure with a standard air-conditioner.

INFEED AND OUTFEED CONVEYORS

The heavy steel conveyors provide a steady structure for processing. The height of conveyors can be adjusted to the same level with each other. The outfeed steel conveyor rolls are motor driven, while the infeed conveyors are idler.

Height	800 mm (± 20 mm height adjustment)
Max. speed	15 m/min
Length	12m (Standard)

MATERIAL CLAMPING SYSTEM

Beams are clamped on the horizontal plane between rollers hydraulically and vertical clamping is performed hydraulically by pressure arms. Deflections and vibrations generated during drilling operation are prevented thanks to 4 hardened rollers that come in contact with the beam from both sides.

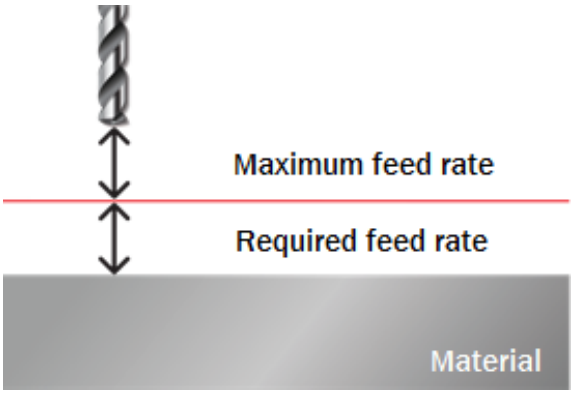
MINIMUM QUANTITY LUBRICATION (MQL)

MQL minimizes the environmental impact using 100% natural, vegetable oil-based mixture and eliminating the need for cleaning coolant liquid. Almost-dry processing allows the machine to proceed to the next operation (welding, marking, etc.) without wasting time for coolant liquid disposal.

The 5-liter capacity coolant system for internal cooling of drilling tools and 2 liters of lubricant for installation of the machine are provided. More lubricants can also be provided upon request (5 lt. or 25 lt.).

INTELLIGENT DRILLING PROCESS

Spindle speed can be adjustable stepless. The spindle approaches material with a maximum feed rate until it reaches the safety distance from the material. It is decreased to a required feed rate in safety distance and in this way, the drilling cycle time is reduced. AKYAPAK recommends Kennametal KSEM series tools.



AUTO-LUBRICATION

The central lubrication system consists of a grease pump and main and intermediate distributors. All the linear movement systems are on the machine are lubricated automatically and periodically by this system. It is of 1 liter capacity and designed to resist 250 bar oil pressure. All movable components work smoothly and have a longer lifetime thanks to auto-lubrication system from SKF (Sweden) Company.

SAFETY FENCES AND INTERLOCKING DOORS

A safety fence is provided to prevent entering dangerous areas*. The safety fence has various types and dimensions.

The interlocking door is integrated with safety fencing. When the sensor notices that the interlocking door is opened, all systems of the relevant zone will be shut down immediately.

*The scope of the fencing system depends on the project, it might include additional charges based on the scope of supply.

SAFETY SWITCHES

If the doors are opened during production, the machine stops automatically to provide a safe working environment.

WIRELESS REMOTE CONTROL

The remote control enables the operator to control some of the machine's functions remotely and check process in safe. The remote controls vary in models and features.

CE AND INTERNATIONAL STANDARDS

All Akyapak Drill Lines are in compliance with CE regulations and meet the following international standards.

Related Directives and Annex: Machinery Directive 2006/42/EC/Annex VIII, Low Voltage Directive 2014/35/EU.

> EN ISO 12100:2010,

> EN 12717:2001+A1:2009

> EN 60204-1:2018

SERVICE AND SPARE PARTS

With dedicated, specialized and experienced teams, Akyapak is with you even it cannot be with you to provide unparalleled technical and spare part services whether on-site or remote:

- On-site installation, training and consultancy service by qualified teams of expert
- Quick solutions without loss of time thanks to spare part stocks
- Instant error diagnosis, data analysis and support*
- Remote support with augmented reality technology through smart phone, tablet and smart glasses**

For technical service and spare part inquiries, reach us at service@akyapak.com.tr and 0850 221 58 69.

** Broadband internet connection is required for online services. The ethernet connection shall be provided by the customer to where the machine is installed.*

*** Remote service with wearable augmented reality AUG is optional.*

Remote service option with wearable augmented reality technology AUG

OPTIONAL FEATURES

AUTOMATIC TOOL AND MATERIAL MEASUREMENT

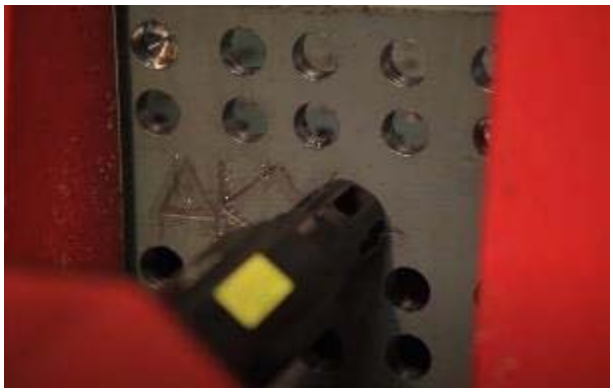
Material length, width and height are measured automatically by independent measurement systems provided on the machine. An operator sets the material type with dimensions in the program so that the software determines as to how many points the measurement of material height will be performed.

The flanges and web heights are measured automatically with a measurement probe. When a beam is clamped horizontally, the width of the beam is measured automatically with a measurement probe. Material length is measured by means of a laser sensor at the exit of the machine. The software stores those dimensions and thus determines the required real dimensions to start the process and more accurate results are obtained.

The tool length can also be measured automatically by a laser sensor, when a new tool is placed in the tool changer.

In this way, material dimensions and drill length are measured automatically, thus saving time and providing operating safety

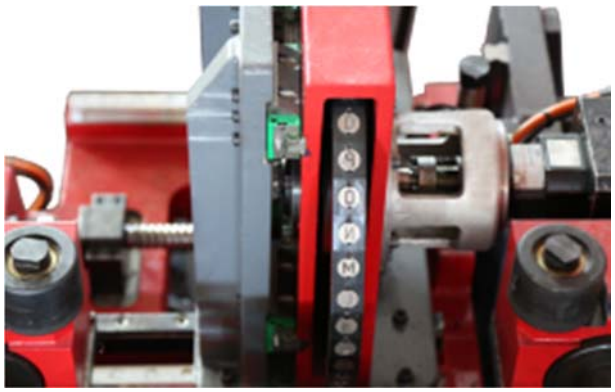
SCRIBE MARKING TOOL



Marking with scribing tools is available on only one side (the fixed clamping side). The marking results are of high readable quality even after painting or blasting processes.

Two different tool options are available. Please look at the options section for details.

DISC MARKING TOOL



Hydraulic press marking unit is provided as an option. Marking can be made on only an exterior surface of beams by hydraulic cylinder pressure. 40 characters which including letters and numbers are available on the rotating disk and is positioned by servo motor.
The marking results are of high readable quality even after painting or blasting processes.

Characters height	15 mm

TRANSFER TABLES

Transfer tables are integrated into the infeed and outfeed systems to ensure that the material is at the most suitable position for starting the operation and to remove the processed material from the working area safely besides eliminating the need for crane operations. The work-flow safety and continuity are also guaranteed with transfer tables.

LIGHT CURTAINS

Light curtains are provided upon request to detect approaches in a dangerous area **as an alternative to the safety fences.** The multiple curtains cover the dangerous are instead of fence so it has less footprint in the shop and easy for in-shop handling operations. When a light curtain is crossed, all systems of the relevant area will be shut down immediately.

CHIP CONVEYOR

The chips that pile-up in the machine during drilling operations can be disposed with an optional chip conveyor.

CNC SYSTEM AND SOFTWARE

MITSUBISHI ELECTRIC

Mitsubishi C70 Series CNC iQ Platform CNC CPUs

The Q173NCCPU enables CNC Control to be integrated with Sequence, Motion, and Robot automation systems. Also known as the C70 Series CNC Controller, an iQ CNC CPU system uses multi-purpose GOT1000 HMIs and on-rack I/O cards to minimize TCO on CNC line solutions.

Key Features

- Up to 16 axes with 4 simultaneously controlled axes per CPU, 2 CPUs per system
- 16.8k Block/min processing speed
- Streamlined production with reduced Tact Time and host information system linkage
- Uses GOT1000 HMI and iQ rack-based I/O card interfaces
- SSCNETIII benefits, including noise free, 50Mbps, fiber optic communication.
- 15" Mitsubishi Touch Screen Monitor
- 2000 KB or 1000 programs memory capacity
- Continuous to operation in case of electric power cut-off
- Available Languages; English, French, Deutsch

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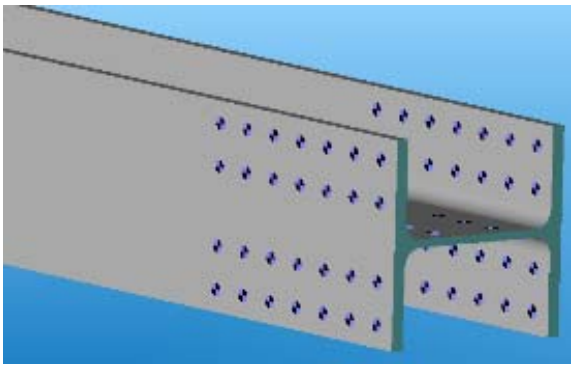
PROGRAMMING SOFTWARE

lantek Sheet Metal Solutions



Lantek Flex3d SteelWork is a new module in the family of Lantek Flex3d products focused on designing and machining of standard profiles.
Lantek Flex3d SteelWork is a stand-alone product and it does not require any other additional Lantek software. Thanks to more than 20 years of experience in the sheet metal market, Lantek has been able to create a powerful off-line design and programming system for profile cutting machines in all their different versions: Sawing and drilling.

Easy and Flexible Design

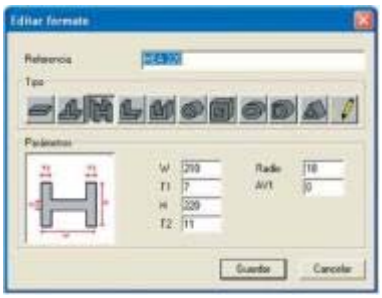
Lantek Flex3d SteelWork allows for 3D design in an intuitive and simple way, giving a real vision of the result that the user will obtain when drilling and sawing the profile on the machine. The user can create any type of standard profile in a very flexible way. It is a parametric system allowing the user to change the values of any of the operations made previously, including the possibility of changing the initial parameters of each profile (enlarge, shorten, etc.). Once the design process is complete, the user can simulate in 3D the head movement of the machine displaying each machining operation that is processed along the tube or the profile (profiling, drilling, and sawing). The user can also generate the NC file to send directly to the machine. Lantek Flex3d SteelWork, can be adapted to work with any profile or tube machine.

Technical Characteristics

Lantek Flex3d SteelWork displays the exact profile and simulates in 3D each process, reducing to a minimum the possibility of errors. It offers the user the possibility to create standard sections. This eliminates the need for the user to duplicate the entry of information to create a profile. It is only necessary to select one of the standard base sections and insert the length and material. The system is based on database technology, allowing for the complete management of the different profile products and remnants and gaining really quick access to them.

It allows the user to import different formats including machining operations and make any modification for production. The system converts the DSTV, SAT, and CAM files into the native format for Lantek Flex3d which allows the user to apply modifications in a natural and easy way. It also has the possibility to modify, add, and delete any machining operation required for the profile. Lantek Flex3d can easily interpret the various properties of each file such as material thickness, material type, and quantity if supported by the imported format.

Tekla NC files can easily be imported to Lantek.



Flex3D to create CNC programs

Simulation of Operations

Lantek Flex3d SteelWork allows you to simulate each profile operation such as drilling, cutting, and the work zone. Lantek Flex3d SteelWork will automatically generate the NC file for each machine from the machined contours on each profile. Lantek Flex3d SteelWork detects any potential collisions automatically and gives the user the tools to modify them manually. The system will automatically avoid collisions where possible. Where collisions occur, the system will display them on the screen during the simulation phase. User can also make zoom, movements, rotations, and different axis positioning on the profile while viewing the simulation. The operator also can make drawings on Tekla and transfer it to Lantek Flex3d SteelWork.

Specification	**Lantek Flex 3D SteelWork**	**Lantek Flex 3D* Steel Work SD Plus**
Single Nesting	✓	✓
Multi Nesting	×	✓
Inventory Management	×	✓
		***Strongly Recommended Especially With Bandsaw**

DSTV, SAT & CAM FILE IMPORT

Lantek Flex3d SteelWork can import data generated by 3rd party CAD systems used for designing structures such as DSTV, SAT, and CAM files. **The DSTV file import is a standard feature for any Lantek packages**. Importing feature for all of other files such as SAT and CAM is optional.

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TECHNICAL SPECIFICATIONS

DRILL UNIT		
Number of drill heads		3
Drill diameter - Ø	mm	(Carbide) 10 – 32
Drill Holder		BT40 or ISO40*
Thread Tapping	mm	M10 – M24
Max. tool length	mm	320
Spindle power	kW	11
Spindle speed	rpm	50 – 3000 stepless
Spindle torque	Nm	280
SIZE		
Max. beam height	mm	500
Max. beam width	mm	1200
Weight per linear meter	kg/m	750
Machine dimensions	mm	2300 x 5400 x 3050
Weight	kg	11000

*BT40 is supplied as standard if ISO40 not requested.

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CAPACITY TABLE

ANGLE	minimum*	mm	80 x 80 x 8
		inch	3.15" x 3.15" x 1/3"
	maximum	mm	250 x 250 x 28
		inch	9.84" x 9.84"x 1.1"
U CHANNEL	minimum*	mm	80 x 45 x 6
		inch	3.15" x 1.77" x 1/4"
	maximum	mm	400 x 110 x 14
		inch	15.74" x 4.33" x 0.55"
HEA	minimum	mm	96 x 100 x 5
		inch	3.77" x 3.93" x 0.19"
	maximum	mm	990 x 300 x 16,5
		inch	38.9" x 11.8" x 0.64"
HEB	minimum	mm	100 x 100 x 6
		inch	3.93" x 3.93" x ¼"
	maximum	mm	1000 x 300 x 19
		inch	39.3" x 11.8" x 0.74"
HEM	minimum	mm	120 x 106 x 12
		inch	4.7" x 4.1" x 0.47"
	maximum	mm	1008 x 302 x 21
		inch	39.6" x 11.8" x 0.82"
H WELDED PROFILE	maximum	mm	1200 x 500 x 50
		inch	47.2" x 19.68" x 2"
IPE	minimum*	mm	80 x 46 x 3,6
		inch	3.14" x 1.81" x 0.14"
	maximum	mm	770 x 268 x 15,6
		inch	30.3" x 10.5" x 0.61"
IPN	minimum*	mm	80 x 42 x 3,9
		inch	3.14" x 1.65" x 0.15"
	maximum	mm	550 x 200 x 19
		inch	21.6" x 7.87"x 0.74"

*** With welded extension. It is 100 mm if there is no welded extension.**

SOLID BAR	minimum*	mm	100
		inch	4"
	maximum	mm	1200
		inch	47.2"
SQUARE TUBE	minimum*	mm	80 x 80
		inch	3.15" x 3.15"
	maximum	mm	500 x 500
		inch	19.68" x 19.68"
RECTANGULAR TUBE	minimum	mm	40 x 80
		inch	1,57" x 3.15"
	maximum	mm	1200 x 500
		inch	47.2" x 19.68"

The referenced materials are in accordance with the following standards:

> **EN 10024:1995** Hot rolled taper flange I sections-Tolerances on shape and dimensions
> **EN 10034:2009** Structural steel I and H sections – Tolerances on shape and dimensions
> **EN 10056-1:2017** Structural steel equal and unequal leg angles - Part 1: Dimensions
> **EN 10056-2:2017** Structural steel equal and unequal leg angles - Part 2: Tolerances on shape and dimensions
> **EN 10059:2005** Hot rolled square steel bars for general purposes - Dimensions and tolerances on shape and dimensions
> **EN 10279:2005** Hot rolled steel channels- Tolerances on shape, dimensions and mass
> **EN 10365:2017** Hot rolled steel channels, I and H sections - Dimensions and masses
> **EN 1090-2:2018** Execution of steel structures and aluminum structures – Part 2: Technical requirements for steel structures-Tol. Class 2

Please send us your material specifications if not listed above.

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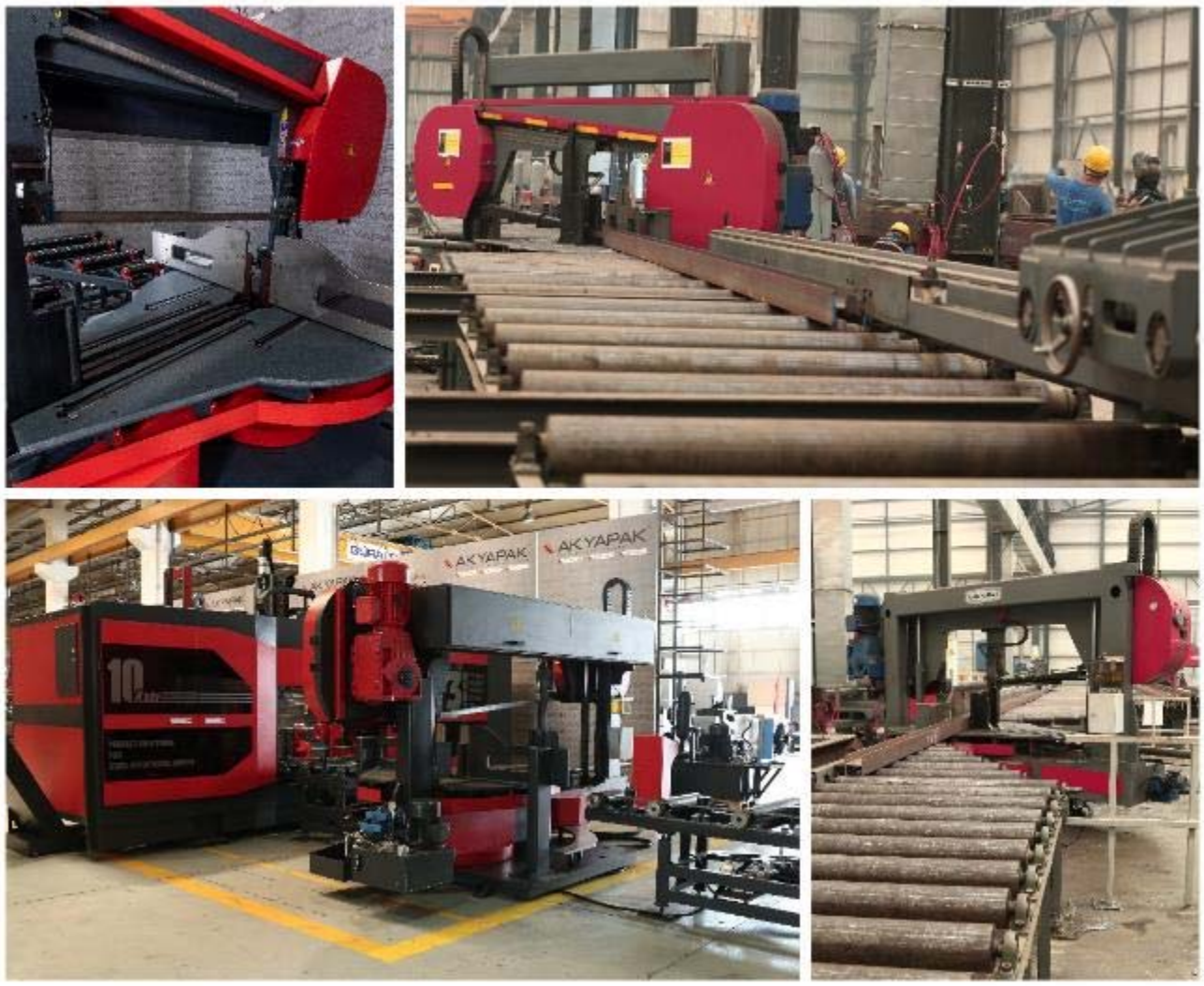
AST 1200-500

CNC MITER BANDSAW

Advanced sawing

AST Miter Bandsaws are designed with rigid frame structure to cut through materials automatically with accuracy. With the increased cutting speed, AST Miter Bandsaw can cut materials at 0° or at miters.



The AST series is equipped with high quality components to minimize friction and boost performance. The AST Bandsaw can be installed in tandem with an Akyapak Beam Drilling Line or as a separate line.

STANDARD FEATURES

FEATURED

Accurate sawing is ensured with hydraulically controlled automatic blade tensioning system (Pic. 1). The blade approaches to material with speed until a laser sensor detects the material in a safe proximity from the material. Afterwards, the speed of the blade is reduced to a pre-set feeding rate, thus the sawing cycle time is reduced.

Pic. 2

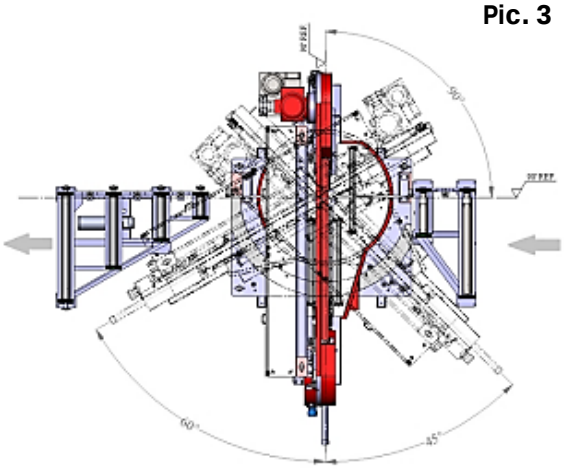
The blade remains always clean thanks to a chip brush (Pic. 2) which is driven by electric motor. The chip brush that is placed only to clean the blade turns constantly, thus longer blade life is achieved and high cutting performance is remained.

The material is fed through the saw in a straight position. The saw can carry out miter sawing operation up to an angle of 45° to the left and 60° to the right (Pic. 3).

The saw is turned to the required position by a servo motor via CNC. After it reaches the required position, the main frame is clamped by compact hydraulic cylinders.

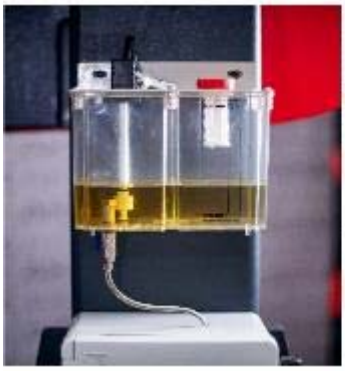
When the saw frame is turning, rollers on both sides of the saw rise by 10 mm. Thus easy and fast turning of the saw is guaranteed, reducing wear on the table of the saw.

Pic. 3



MINIMUM QUANTITY LUBRICATION (MQL)

MQL minimizes enviromental impact, using an 100% natural, vegetable oil-based mixture and eliminating the need of cleaning coolant liquid. Almost-dry processing allows the machine to proceed to the next operation (welding, marking, etc.) without wasting time for coolant disposal and also eliminates works such as tank cleaning, filter changing. etc.



The lubricants reduce friction better than conventional oils, thus longer blade life is guaranteed, resulting in shorter downtime of the machine.

INTEGRATED HYDRAULIC POWER UNIT

Required hydraulic power is ensured by 5,5 kW electric motor. All the hoses and connections are chosen from high quality components that can even resistable to peak pressures. The meticulously designed hydraulic system ensures work safety and easy intervention and maintenance.

CLAMPING VICE

The material is clamped by a powerful hydraulic cylinder. With miter cutting, thanks to this system which clamps material from both sides tight, the risk of collision is eliminated when the cut short scrap and workpiece fall apart.

INTEGRATED CHIP CONVEYOR

The helix chip conveyor is integrated with the bandsaw and provided as standard. The chip conveyor is driven by a AC motor.

ELECTRICAL CABINET PLACED ON THE BODY

The electrical cabinet is mounted on the body and compact size is achieved, which improves working ergonomic and allows for easier maintenance.

ELECTRICAL COMPONENTS

All critical electrical components used in the system such as thermic, contactor, relay, etc. are chosen high quality products by well-known brands such as Siemens, Legrand, Schneider Electric or equivalents.

CE AND INTERNATIONAL STANDARDS

All Akyapak Bandsaws are in compliance with CE regulations and meet the following international standards.

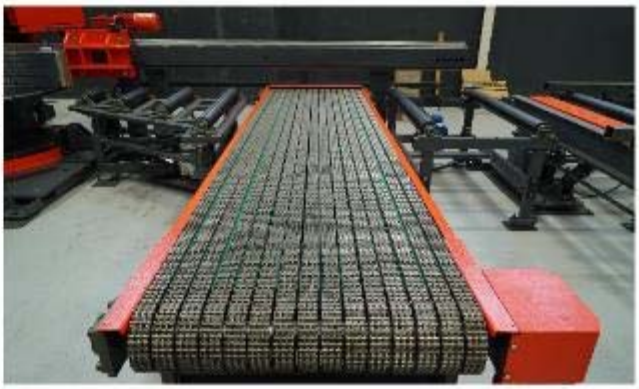
Related Directives and Annex: Machinery Directive 2006/42/EC Annex-VII, Low Voltage Directive 2014/35/EU

EN ISO 12100:2010 - EN 13898:2003+A1:2009/AC:2010 - EN60204-1:2018

OPTIONAL FEATURES

MAGNETIC MATERIAL DISCHARGE SYSTEM

The cut short products are transported to the discharging conveyor by a special magnetic plate and then transferred out of the conveyor system.



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TECHNICAL SPECIFICATIONS

SAWING UNIT		
Total Power	kW	18
Cutting speed	m/min	20-115
Mitering angle	°	+60/-45
Max. sawing capacity (WxH)	mm	1200 x 500
Min. sawing capacity (WxH)	mm	(Integrated with ADM) 80 x 80 (Single line) 10 x 10
MATERIAL AND SIZE		
Blade length	mm	9010
Recommended blade type	mm	ArmorRx+ 54x1,6 TPI:2/3 (Bi-Metal)
Size (Length x Width x Height)	mm	4740 x 2350 x 2500
Working height	mm	800

CUTTING CAPACITIES

AST 1200-500

0°		Square	mm	500
		Flat	mm	1200x500
±45°		Square	mm	500
		Flat	mm	800x500
±60°		Square	mm	500
		Flat	mm	500x500
±15°		Square	mm	500
		Flat	mm	1100x500
±30°		Square	mm	500
		Flat	mm	1000x500

Max. room distance (without processing)	mm	Max. width: 1250 Max. height: 530

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MODEL COMPARISON

AST	1200-500	1300-600
Cutting capacity	80 – 1250 0 – 500 Blade moves up	80 – 1300 0 – 600 Blade does not move up
Cutting angle	45°/60°	60°/60°
Upper pressure cylinders*	No	Yes
Cutting feed ↓	Free fall with hydraulic valve control	Electronically controlled free fall
Horizontal clamping	Single	Independent - double
Blade	54 x 1,6 mm	67 x 1,6 mm
Total Power	18 kW	18 kW
Blade speed	20 – 115 m/min	20 – 115 m/min

*Upper pressure cylinders allow for batch cutting.

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SCOPE OF SUPPLY

- **3 ADM ECO 1200 CNC DRILL LINE**
  - Infeed conveyors *(standard, 12 m)*
  - Outfeed conveyor *(standard, 12 m)*
  - Feeding Arm
  - Safety fences
  - Wireless remote control
  - Auto-lubrication system
  - ATC – Automatic Tool Changer *(one unit for each spindle, each unit has 4 tool stations)*
  - BT40 Tool Holder
  - MQL (Minimum Quantity Lubrication)
  - Mobile control panel
  - Lantek Flex 3D Steel Work
  - DSTV file import
  - Online connection hub
  - 15" Touch Screen Mitsubishi C70 CNC System

- **AST 1200-500 CNC MITER BANDSAW**
  - Automatic blade tensioning system
  - Chip brush for blade
  - Integrated chip conveyor
  - MQL
  - Clamping device