



**PT PINDAD (PERSERO)**  
**DIVISI SENJATA**

**SPEKIFIKASI**  
**PRODUK**

Nomor : SPd-04JT-184  
Edisi : 01  
Tanggal : 12 Juni 2019  
Halaman : 1 dari 7

**DOUBLE COLOUMN FULLY AUTOMATIC**  
**HORIZONTAL BANDSAW MACHINE**

**1. DEFINITION**

The machine shall be suitable for cutting tubes/rods/extrusion discards of different sizes and different grades of material (steel and Aluminium Alloy). The job to be cut will be placed horizontally and the blade direction shall be perpendicular to it i.e., in vertical direction. The machine shall have dual column parallel down feed design or vertical pair of imported heavy duty linear Motion bearing/guide for jerk free & smooth movement.

**2. SPECIFICATION**

Double Coloumn Fully Automatic Horizontal Bandsaw Machine specification are as follows:

NO	ITEM	SPECIFICATION	UNIT	NOTE	NOTE
1	Capacity Rectangle WxH	W	MIN 350	mm	
		H	MIN 350	mm	
2	Capacity Round		MIN 350	mm	
3	Motor	Blade Drive	MIN 5.5	kW	
		Hydrolic Pump	MIN 1.5	kW	
		Coolant Pump	MIN 0.12	KW	
		Brush	90	W	
4	Blade Dimensions L x W x T		MIN L x 41 x 1.3	mm	(L) length is adjusted by machine construction
5	Blade Speeds		Min 15 - 100	Rpm	
3	Cutting Length Accuracy		± 0.1	mm	up to 30 mm
			± 0.2	mm	up to 120 mm
			± 0.3	mm	up to 400 mm
4	Cutting Taper Accuracy		± 0.1	mm	
5	Blade Tension		Hydraulic / Ball Screw		Automatic tension
6	Blade Diameter			mm	Blade Diameter is adjusted by machine construction

17 JUN 2019



	Dibuat / Prepared	Diperiksa / Checked	Disetujui / Approved	Revisi / Revision			
				No.	No. LPE	Tgl / Date	Paraf / Sign
<b>Nama / Name</b>	Fandi Achmadi	Nana Suherman	Yasir Arafat				
<b>Jabatan / Position</b>	AP. Eng Material	Manager Produksi 2	Manager Engineering				
<b>Tanggal / Date</b>	12 Juni 2019	13 Juni 2019	14-6-2019				
<b>Tanda Tangan / Signature</b>							

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**PT PINDAD (PERSERO)**  
**DIVISI SENJATA**

**SPESIFIKASI**  
**PRODUK**

Nomor : SPd-04JT-184

Edisi : 01

Tanggal : 12 Juni 2019

Halaman : 2 dari 7

**DOUBLE COLOUMN FULLY AUTOMATIC**  
**HORIZONTAL BANDSAW MACHINE**

NO	ITEM	SPECIFICATION	UNIT	NOTE
7	Clamping	Hydraulic / Ball Screw		
8	SAW Feeding	Hydraulic / Ball Screw		
9	Control	HMI/PLC		With display
10	Blade Guides	Bimetal or Carbide		
11	Auto Index Single Stroke Min-Max	3 ÷ 500	mm	
12	Auto Index Multiple Stroke Min-Max	1 ÷ 9999	mm	
13	Multiple Feed	9999	mm	
14	Numeric Control Program Capacity	Yes		With display
15	Down feed control			Automatic feed control
16	Coolant Tank Capacity	Min 40	Liter	
17	Flood Coolant System			Included
18	Chip Conveyors			Included
19	Cleaning of the blade	Brush		Driven motor
20	Source Electric	380 V/ 50 Hz		
21	Work Light	led		Included
22	Additional roller Conveyor	MIN 3	m	Included
23	Tool kit	1	set	Included
24	Bimetal Bandsaw Blade	5	bh	For Aluminium Alloy
25	Bimetal Bandsaw Blade	5	bh	For steel
26	Minimum Quantity Lubrication System (MQL)			for band saw
27	Coolant MQL	20	Liter	

**3. AUTOMATIC MATERIAL CUTTING:**

The machine shall automatically cut the job as per program set by the operator. Provision shall be there in the machine to feed data like length of the piece to be cut and number of cut pieces required in the program. The machine shall have provision for precise positioning & feeding of the job being cut in automatic operation. Clamping pressure of job feeding & positioning shall be adjustable for handling regular jobs as well as thin walled jobs. Necessary screen display shall be provided on machine for operator to know the number of jobs set for cutting, number of jobs cut & length of jobs cut etc.

Sequence of operations:

- Automatic feeding of the material by powered roller conveyor.
- Automatic recognition of leading edge of the job for trim cut, if required.
- Automatic positioning of job depending on the length of cut programmed by operator.

17 JUN 2019





**PT PINDAD (PERSERO)**  
**DIVISI SENJATA**

**SPEKIFIKASI**  
**PRODUK**

Nomor : SPd-04JT-184

Edisi : 01

Tanggal : 12 Juni 2019

Halaman : 3 dari 7

**DOUBLE COLOUMN FULLY AUTOMATIC**  
**HORIZONTAL BANDSAW MACHINE**

- d) Once material is positioned accurately automatic clamping of the job by side clamping devices should take place. Safety interlocks shall be provided to avoid cutting operation without job clamping.
- e) After clamping, the machine shall position the blade automatically depending on height of the job.
- f) After height adjustment, the machine shall start cutting operation. Coolant flow through independent nozzles and chip cleaning system should run at the same time along with band saw cutting.
- g) In case of blade jamming/ breakage the machine shall stop and give signal immediately to the operator to take necessary action. After resetting the band saw machine shall start cutting operation from the point where it stopped. Setting the machine to home position shall be under operator's control.
- h) After job cutting gets completed, the blade shall retract to its home position automatically

**4. CONTROLS**

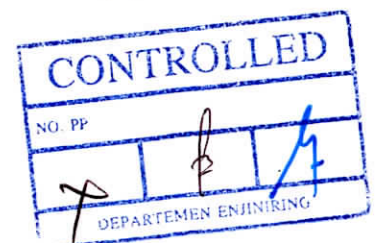
- a) All machine functions shall be controlled by a Programmable logic controller (PLC) with provision for data entry, storage and diagnostic display.
- b) The machine shall have capacity of storing Min 10 programs (piece count plus length) as fixed values which can be recalled for re-use whenever required. The machine shall have provision for both manual and auto mode operation.
- c) Pre-selection of cutting length in steps of 0.01 mm accuracy. The machine shall have computerized controlled multiple feeding device.
- d) The machine shall have display and stepless adjustment of the cutting speed, display of the cutting times, working hours and band saw life time.
- e) The errors and disturbances shall be displayed with suitable error codes.
- f) The machine shall have additional feature of automatic start without trim-cut or with a choice of trim cut length by recognition of leading edge of the material with light barriers.
- g) Licensed PLC programming package, application program in soft copy form (editable version), and Programming package for editing the HMI on LCD display shall be in scope of supply. Any specialized cables/adaptors for connecting LCD display/ PLC with programming device shall be under scope of supply.

**5. DOCUMENTATIONS**

The machine shall be supplied together with documentation and consist of :

- a) Equipment layout and installation drawing with power supply points
- b) Installation instructions
- c) Operation and programming instructions
- d) Safety and preventive maintenance instructions
- e) Complete troubleshooting list with solutions
- f) Diagrams for structure of electric and pneumatic circuits (electrical wiring diagram) and pneumatic
- g) Time moving diagram of the cam control

17 JUN 2019





PT PINDAD (PERSERO)  
DIVISI SENJATA

## SPEKIFIKASI PRODUK

Nomor : SPd-04JT-184

Edisi : 01

Tanggal : 12 Juni 2019

Halaman : 4 dari 7

# DOUBLE COLOUMN FULLY AUTOMATIC HORIZONTAL BANDSAW MACHINE

- h) General machine assembly drawing indicating the structure of the machine including devices, mechanical components and sub components with technical data sheets of auxiliary equipment such as motors, speed controllers, etc
- i) General assembly drawings of spare parts
- j) Detailed list of tools and spare parts and ordering information with identification number
- k) Pneumatic or hydraulic plan
- l) Logic diagram for electric control program
- m) Specification of oil, grease, and other consumable item required to be used in the machines / equipment
- n) PLC program back up (pen drive or CD)
- o) Technical documentation of all the additional equipment

## 6. MARKING

The containers containing machine shall have markings showing the following :

- a) Machine name
- b) Production code of the machine
- c) Manufacturing date and year
- d) Information of producer / manufacturer
- e) Quantity in each container
- f) Contract number / purchase order number



## 7. PRESERVATION AND PACKING

The machine shall be packed in seaworthy packing and shall be able to prevent any damages and corrosion during transportation and storage for 6 months as from date of shipment. The packing details issued by Producer / Supplier and agreed by Buyer.

The supplier shall ensure no short packing of equipment or components.

## 8. QUALITY ASSURANCE PROVISIONS

- a) Conformance to Requirements

The supplier shall be responsible to ensure that the supplied components conform to all the requirements stated in part 2 (Requirements) of this specification and Pindad quality requirements.

- b) Commissioning Procedures

### 1. Visual Inspection

Checking for the completeness (quality and quantity) of parameters as :

- 1) Machine physical conditions, according to part 2 (Requirements) of this machine specification.
- 2) Spare parts, tools and gauges, according to part list from OEM (Original Equipment Manufacturer). All documents supplied together with the machine.



**PT PINDAD (PERSERO)  
DIVISI SENJATA**

**SPEKIFIKASI  
PRODUK**

Nomor : SPd-04JT-184  
Edisi : 01  
Tanggal : 12 Juni 2019  
Halaman : 5 dari 7

**DOUBLE COLOUMN FULLY AUTOMATIC  
HORIZONTAL BANDSAW MACHINE**

**2. Functional Inspection**

Checking for the full functioning of the measuring machine supplied, with steps as following :

- 1) Chek all components of measuring instrument
- 2) Measuring machine calibration after finish in install
- 3) Geometric Verification
- 4) Supplier should conduct and evaluate inspection certificate or calibration certificate verification after installation accompanied with Pindad inspector.
- 5) Machine physical conditions, according to part 2 (Requirements) of this machine
- 6) Inspectiion :

**a. Pre-dispatch Inspection**

- 1) Duration : 5 working days pre-shipping inspection at Manufacturer plant.
- 2) Participator : 2 people
- 3) The Seller will be borne all the costs, including local and international transportation (flight), accommodation, and living costs.
- 4) Pre-shipping inspection at Manufacturer plant consisting of :
  - a. The machine shall be inspected by bidder in presence PT. Pindad engineers at machine manufacturer's works for cutting.  
Cutting accuracy :
    - ± 0.1 mm up to 30 mm
    - ± 0.2 mm up to 120 mm
    - ± 0.3 mm up to 400 mm
  - b. Manufacturer shall cut trial jobs on the machine in presence of our engineer. Raw material and required tooling will be arranged by machine tool builder. Fully machined jobs should be inspected on measuring or any other inspection equipment to measure the accuracy of machine mentioned in Specification.
  - c. Bidder shall demonstrate all the functions of the machine as mentioned in above specifications.

17 JUN 2019



**b. Acceptance criteria**

Following test will be carried out at supplier's work in presence of PT. PINDAD (Divjat) representative.

1. All parameters against machine specification will be verified.
2. Cutting on (MS plate of 50 mm thick at full rated parameters for 8 hours continuously, at the end of this run machine shall be in fully working condition as per this specification. Bidder has to arrange required equipment.
3. Cutting on material usual aluminum alloy profile and stell material in Divjat.



PT PINDAD (PERSERO)  
DIVISI SENJATA

**SPEKIFIKASI  
PRODUK**

Nomor : SPd-04JT-184

Edisi : 01

Tanggal : 12 Juni 2019

Halaman : 6 dari 7

**DOUBLE COLOUMN FULLY AUTOMATIC  
HORIZONTAL BANDSAW MACHINE**

**c. Set up and final acceptance**

Installation and commissioning at Pindad, consisting of :

1. Installation of Double Coloumn Fully Automatic Horizontal Bandsaw Machine and all equipment must be done by the Seller according to the Pindad's layout. Setting up the Double Coloumn Fully Automatic Horizontal Bandsaw Machine process parameters
2. Installation including machine and all equipment, electrical connections, chiller, air and water connection, according to the required machine specification.
3. Machine shall be running without material 24 hours non-stop (3 shifts @8 hours continuously). Within this try run period, the machine will be checked whether it is running without abnormality for 24 hours.
4. Final acceptance test, consisting of :  
The machine shall be inspected at PT. Pindad by bidder in presence PT. Pindad (Divjat) engineers for accuracies, positional deviation & repeatability following the inspection procedure followed at the time of pre-dispatch inspection to verify the reading of pre-dispatch inspection report. Inspection equipment shall be arranged by the machine builder.
5. The second stage of the testing is cutting using the usual aluminum alloy profile and stell material, at full rated parameters for 24 hours continuously.

**9. TRAINING**

Training of all important aspects of honing machine will be held in Pindad including the following aspects :

- a. Operation.
- b. Engineering & programming.
- c. Maintenance.
- d. Alignment and setting of the parameters and tooling.

Any other issues necessary for proper and maintenance of the machine.

**1. Course of Maintenance**

- a. The course operating will remain in minimum 3 days (including mechanical and electrical aspects).
- b. Participator on the course : min. 5 people.
- c. Course documents : operating layout, machine specification, mechanical and electrical aspects.
- d. All document in English language.

Training shall be done in English language, with translator for Indonesia language.



17 JUN 2019



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**DIVISI SENJATA**

**SPESIFIKASI**  
**PRODUK**

Nomor : SPd-04JT-184

Edisi : 01

Tanggal : 12 Juni 2019

Halaman : 7 dari 7

**DOUBLE COLOUMN FULLY AUTOMATIC**  
**HORIZONTAL BANDSAW MACHINE**

**2. Course of Operation, Engineering and Programming**

- a) The course operating will remain in minimum 2 days
- b) Participator on the course : min. 5 people
- c) Task of the course will be :

Explanation of the Double Coloumn Fully Automatic Horizontal Bandsaw Machine,  
the overall machine design

d) Operating of the machine :

- Start the machine – main switch on-auto-good parts
- Start up condition
- Operate machine in manual mode
- Operate machine in automatic mode
- Safety features and how to use them
- Program description
- Diagnostic and how to use it
- Screen information's
- Error search
- Tool set up
- Tool wear compensation

**10. OTHER SPECIFICATIONS**

- a) Export License of the Seller's Country is the responsibility of the Seller.
- b) Availability of spare part for 15 years
- c) After sales warranty :  
Warranty for hardware (mechanical & electrical parts) : 1 year  
Warranty for software (control) : 2 years
- d) Qualified technicians (technical assistant) available in Indonesia
- e) Machine manufacturer from Europe / USA / South Korea / Taiwan
- f) Time line production and shipment and progress report during manufacturing process in the factory plant every once a month.

17 JUN 2019





**PT PINDAD (PERSERO)**  
**DIVISI SENJATA**

**SPESIFIKASI**  
**PENERIMAAN**

Nomor : SPn-04JT-791  
Edisi : 02  
Tanggal : 05 Juli 2019  
Halaman : 1 dari 1

**DOUBLE COLOUMN FULLY AUTOMATED**  
**HORIZONTAL BANDSAW MACHINE**

**1. PEMERIKSAAN DAN PEMASANGAN MESIN**

- Kesesuaian nomor kontrak (PO) dan item yang tertera dalam kontrak.
- Pemeriksaan dokumen *part list* dengan barang terkirim, baik mesin maupun kelengkapannya seperti spare parts, tools, gauges.
- Kesesuaian spesifikasi mesin **Double Coloumn Fully Automated Horizontal Bandsaw** dengan spesifikasi produk SPd-04JT-184.
- Tidak terdapat cacat / kerusakan secara visual maupun yang mempengaruhi fungsi kerja mesin **Double Coloumn Fully Automated Horizontal Bandsaw**.
- Pemasangan mesin **Double Coloumn Fully Automated Horizontal Bandsaw** dan peralatannya sesuai *layout* dan koneksi listrik yang telah ditentukan.

**2. KELENGKAPAN DOKUMEN DARI PRODUSEN / SUPPLIER**

- Dokumen / sertifikat asal produk (Cerificate of Origin).
- Dokumen / sertifikat kesesuaian produk (Certificate of Conformity).
- Dokumen *manual book* atau panduan operasional mesin.
- Dokumen *manual mechanical and electrical maintenance* (panduan pemeliharaan mekanik dan elektrik).
- Dokumen *layout* mesin dan *supply connections*.
- Dokumen garansi.
- Surat jalan.

	<b>Dibuat / Prepared</b>	<b>Diperiksa / Checked</b>	<b>Disetujui / Approved</b>	<b>Revisi / Revision</b>			
				<b>No.</b>	<b>No. LPE</b>	<b>Tgl / Date</b>	<b>Paraf / Sign</b>
<b>Nama / Name</b>	Wulan Noviana	Nana Suherman	Yasir Arafat				
<b>Jabatan / Position</b>	AP Engineering Material	Manager Produksi 2	Manager Engineering	1	SPn-D791-103	5/7/2019	
<b>Tanggal / Date</b>	<b>06-10-2025</b>	<b>06-10-2025</b>	<b>06-10-2025</b>				
<b>Tanda Tangan / Signature</b>							

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**DIVISI SENJATA**

**SPESIFIKASI**  
**PENERIMAAN**

Nomor : SPn-04JT-791

Edisi : 02

Tanggal : 05 Juli 2019

Halaman : 2 dari 2

**DOUBLE COLOUMN FULLY AUTOMATED**  
**HORIZONTAL BANDSAW MACHINE**

**3. PENGUJIAN MESIN**

a) Mesin **Double Coloumn Fully Automated Horizontal Bandsaw** dapat berfungsi dengan baik, mesin dioperasikan oleh teknisi dari produsen / supplier bersama pengguna setelah selesai instalasi.

b) *Functional inspection* :

<b>NO</b> <i>(Nr)</i>	<b>MATA UJI</b> <i>(Inspection Item)</i>	<b>SPESIFIKASI</b> <i>(Specification)</i>	<b>ALAT UKUR</b> <i>(Equipment)</i>	<b>SENSUS/ SAMPLING</b> <i>(Census / Sampling)</i>
1	Try run after installation	Successful machine operation for 24 hours continuously without material.  Machine shall be running without product 24 hours non-stop (3 shifts @8 hours continuously). Within this try run period, the machine will be checked whether it is running without abnormality for 24 hours.	Visual	Sensus
2	Geometric verification (after try run)	Compatible with inspection certificate.  Supplier should conduct and evaluate inspection certificate or calibration certificate verification after installation accompanied with Pindad inspector. Verification should consist item below : <ul style="list-style-type: none"><li>• Automation operation</li><li>• Geometric test result</li><li>• Cutting test</li><li>• Running test</li></ul>	Based on item test	Sensus
3	Production test	Successful machine result the product according the input design and running well.	Visual	Sensus

c) Training pengoperasian dan pemeliharaan mesin **Double Coloumn Fully Automated Horizontal Bandsaw**.

Penandatanganan Berita Acara Pemeriksaan Lapangan (BAPL) dilakukan setelah semua mesin melalui ketiga tahapan pengujian mesin di atas dengan hasil yang baik.

**4. SPESIFIKASI TAMBAHAN**

Mesin berasal dari Pabrik Eropa, Amerika, Korea, atau Taiwan