



PT. PINDAD

MACHINE SPECIFICATION

CNC PROFILE GRINDER MACHINE

(FOR PRODUCER)

Doc Nr. MS-006-7.62-PMN2023

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<p>1. SCOPE This specification covers the requirements and conditions of admission to the gauging machine.</p> <p>2. APPLICABLE DOCUMENTS The following lists the documents referred to in this specification. These documents shall form part of this specification to the extent specified herein. In the case of requirements in these documents differing from the requirements indicated in this specification, this specification shall always have precedence.</p> <p>2.1 <u>Applicable Drawings</u> 12,7-CT4.100 - Drill profiles for dies assembly (MU3-TJ). 12,7-CH4.20406 - 1st stretch stamp (MU-3P).</p> <p>3. REQUIREMENTS 3.1 <u>Physical Characteristics</u> 3.1.1 <u>Basic Machine Equipment</u></p> <table border="1"> <thead> <tr> <th>1</th> <th colspan="2">Table</th> </tr> </thead> <tbody> <tr> <td>1.1</td> <td>Working surface (L x W)</td> <td>400 x 250mm (min)</td> </tr> <tr> <td>1.2</td> <td rowspan="4">Travel</td> <td>Traverse feed</td> </tr> <tr> <td>1.3</td> <td>Cross feed</td> </tr> <tr> <td>1.4</td> <td>Minimum input increment</td> </tr> <tr> <td>1.5</td> <td>Position detection system</td> </tr> <tr> <td>2</td> <td colspan="2">Wheel Head</td> </tr> <tr> <td>2.1</td> <td>Reciprocating slide stroke</td> <td>0 ~ 155mm</td> </tr> <tr> <td>2.2</td> <td>Reciprocation speed</td> <td>30 ~ 400 min⁻¹</td> </tr> <tr> <td>2.3</td> <td rowspan="4">Travel</td> <td>Traverse feed</td> </tr> <tr> <td>2.4</td> <td>Cross feed</td> </tr> <tr> <td>2.5</td> <td>Minimum input increment</td> </tr> <tr> <td>2.6</td> <td>Position detection system</td> </tr> <tr> <td>2.7</td> <td rowspan="2">Relief angle</td> <td>Radial direction of wheel</td> </tr> <tr> <td>2.8</td> <td>Axial direction of wheel</td> </tr> <tr> <td>2.9</td> <td>Swivel slide swiveling angle</td> <td>±15°</td> </tr> <tr> <td>3</td> <td colspan="2">Projector</td> </tr> <tr> <td>3.1</td> <td>Screen size (W x H)</td> <td>540 x 420 (min)</td> </tr> <tr> <td>3.2</td> <td>Magnification</td> <td>20X , 50X</td> </tr> <tr> <td>4</td> <td colspan="2">Wheel spindle</td> </tr> <tr> <td>4.1</td> <td>Size (O.D x Width x Bore)</td> <td>∅120 ~ 180 x 3 ~ 10 x ∅31.75mm (min)</td> </tr> <tr> <td>4.2</td> <td>Wheel spindle speed</td> <td>1000 ~ 6000 min⁻¹</td> </tr> <tr> <td>4.3</td> <td>Motor capacity</td> <td>1.5 ~ 4 kW-P</td> </tr> <tr> <td>5</td> <td colspan="2">CNC controller</td> </tr> <tr> <td>5.1</td> <td>CNC unit model</td> <td>FANUC / SIEMENS / SETARA</td> </tr> <tr> <td>5.2</td> <td>Display</td> <td>10.4 inches (min)</td> </tr> <tr> <td>5.3</td> <td>Manual handle</td> <td>2 : X,Y (Z ,V)</td> </tr> <tr> <td>5.4</td> <td>Pitch error modification</td> <td>Standard</td> </tr> <tr> <td>5.5</td> <td>Number of axis</td> <td>4 axis (simultaneous 2 axis)</td> </tr> </tbody> </table>			1	Table		1.1	Working surface (L x W)	400 x 250mm (min)	1.2	Travel	Traverse feed	1.3	Cross feed	1.4	Minimum input increment	1.5	Position detection system	2	Wheel Head		2.1	Reciprocating slide stroke	0 ~ 155mm	2.2	Reciprocation speed	30 ~ 400 min ⁻¹	2.3	Travel	Traverse feed	2.4	Cross feed	2.5	Minimum input increment	2.6	Position detection system	2.7	Relief angle	Radial direction of wheel	2.8	Axial direction of wheel	2.9	Swivel slide swiveling angle	±15°	3	Projector		3.1	Screen size (W x H)	540 x 420 (min)	3.2	Magnification	20X , 50X	4	Wheel spindle		4.1	Size (O.D x Width x Bore)	∅120 ~ 180 x 3 ~ 10 x ∅31.75mm (min)	4.2	Wheel spindle speed	1000 ~ 6000 min ⁻¹	4.3	Motor capacity	1.5 ~ 4 kW-P	5	CNC controller		5.1	CNC unit model	FANUC / SIEMENS / SETARA	5.2	Display	10.4 inches (min)	5.3	Manual handle	2 : X,Y (Z ,V)	5.4	Pitch error modification	Standard	5.5	Number of axis	4 axis (simultaneous 2 axis)
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<p style="text-align: center;">Cnc Profile Grinder Machine</p> <ul style="list-style-type: none"> ● Operation for manufacturing molds, dies, formed tools and rollers. ● Frequency controlled motor. ● Automatic centralized lubrication system for the drawing operation consisting of a lubrication tank with recycling unit. ● Control panel with touch function like HMI with motion arm. ● Safety devices such as safety switches and emergency stop. ● Sensors and actuators on the machine to control and monitor ● English language on the display. ● Sound insulating housing, the working area is secured with an adequate protection in form of moveable covers with safety glass. ● Doors are electrical secured (locked) and in case of opening the machine stops automatically. ● Complete protection device above the working stations by translucent covers. ● Direction of input material is opposite with output material. ● One set of production tools. ● One set of alignment / centering tools for each operation. ● Sparepart : Mechanical & Elctrical parts. ● Color of all machine / equipment shall be agree upon contract (according RAL standard). ● Stabilizer 3 phase 380 Volts. ● Set of Operator Tools. ● Automatic Work Swivel Unit (mounts to Ø1.26" [32 mm] hole). ● Circular Grinding Attachment. ● Screen Loupe (P.A.T.). ● Auto balancer. <p>3.1.2 <u>Electrical Power Supply</u> All electrical equipment is suitable for an ambient temperature between 18-40°C</p> <ul style="list-style-type: none"> ● Three phase current 380 Volts / 50 Hz / AC ● Control voltage 24 VDC <p>3.1.3 <u>Noise Level</u> The machine shall have a noise level at a maximum of 85 dB.</p> <p>3.1.4 <u>Compressed Air Supply</u> The machine shall be operating normally with compressed air supply at a maximum pressure of 6 bar.</p> <p>3.1.5 <u>Mechanical Tool Kit</u> The machine shall be supplied together with mechanical tool kit consisting of:</p> <ul style="list-style-type: none"> ● Hand tool like wrenches. ● Special tools. ● Special maintenance tools essential for removal of assembly / sub-assembly parts or tools (for maintenance or setting of the machine). <p>3.1.6 <u>Gauges</u></p> <ul style="list-style-type: none"> ● One (1) set Working Gauges in the form of a micrometer (equivalent to mitutoyo brand). 	-	26 March 2024
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<p>3.1.7 <u>Manual Book</u> Two (2) sets of technical documentation in English language supplied in print (hard copies) as well as two (2) copies saved on CD and constituting of :</p> <ul style="list-style-type: none"> ● Equipment layout and installation drawings with power supply points. ● Installation instructions. ● Operation and programming instructions. ● Safety and preventive maintenance instructions. ● Complete trouble-shooting list with remedies. ● Diagrams for structure of electric and pneumatic circuits. ● Time moving diagram of the cam control. ● General machine assembly drawings indicating the structure of the machine Incl. devices, mechanical components and sub. components with technical data sheets of ancillary equipment, such as motors, speed controller etc. ● Detailed list of tools and spare parts specifications and ordering information with identification number (manufacturing drawings for spare part are not in the scope of documentation). ● Logic diagram (FUP or AWL) for electrical control program. ● Specification of oil, grease, etc. required to be used in the machines / equipment. ● CE Declaration of Conformity. ● Pneumatic Plan. ● Technical documentation of all the additional equipment. <p>3.2 <u>Performance characteristic</u></p> <p>3.2.1 <u>Efficiency</u></p> <ul style="list-style-type: none"> ● With good quality of input materials, the expected machine capacity shall be 5 tools per-hours. The efficiency of 85% shall be calculated on good tool only. ● The efficiency factor does not include down time due to non-availability of utilities (electrical power, compressed air, water and other service facilities) as well as non-availability of materials (input materials quantity, quality and consumables) and breakdown time of the machine due handling mistake by the operator. <p>3.2.2 <u>Product Output</u> The product output shall meets Pindad's requirements (Tool drawing)</p> <p>3.3. <u>Marking</u> The containers containing primed case each lot shall have markings showing the following:</p> <ol style="list-style-type: none"> a) Machine name b) The production code of the machine c) The manufacturing date and year of the machine d) The producer e) The quantity in each container f) The contract number <p>3.4 <u>Preservation and Packaging</u> The cartridge 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.</p>		
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<p>4. QUALITY ASSURANCE PROVISIONS</p> <p>4.1 <u>Conformance to requirements</u> The supplier shall be responsible to ensure that the supplied components conform to all the requirements stated in paragraph 3 of this specification and Pindad quality requirements.</p> <p>4.2 <u>Commissioning Procedures</u></p> <p>4.2.1 Visual Inspection Checking for the completeness (quality and quantity) of parameters as :</p> <ol style="list-style-type: none"> 1. Machine physical conditions, according to part 3 (requirements) of this machine specification. 2. Spare part, tools and gauges, according to part list from OEM (Original Equipment Manufacturer). 3. Documents supplied together with the machine. <p>4.2.2 Functional Inspection Checking for the full functioning of the machine supplied, with steps as following::</p> <ul style="list-style-type: none"> ● Try out / production test Machine shall be running with product feeding to produce try out lots. This sample product will be inspected to check whether it conforms to pindad's requirements (product drawing). <ol style="list-style-type: none"> 1. Tryout for making Drill profile 12,7-CT4.100(Tool 1) : 22 pcs 2. Tryout for making 1st stretch stamp step12,7-CH4.20406(Tool 2) : 22 pcs <p>Note : 2 pcs tools of each variant tool shall be done in producer place, 20 tools of each variant tool will be done in pindad. With the hope that the time spent on the tool making tryout between the first and second tryouts is the same(5Tools/Hour)</p> 		
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No (Nr)	Mata Uji (Inspection Item)	Spesifikasi (Specification)	Alat Ukur (Equipment)	Frekuensi (Frequency)	Prosedur/Dokumen (Reference/Document)	Sensus/Sampling Censur/Sampling	Kriteria Mutu (K/MA/MI) Criteria (C/Ma/Mi)
A	Visual Inspection						
	Visual Conditions	<ul style="list-style-type: none"> ● Physical Machine ● Sparepart ● Tools & Gauge ● Document : <ul style="list-style-type: none"> ➤ Manual Book ➤ Technical Data ➤ Specification 	Visual	100%	N/A	Census	C
B	Function Inspection						
1	Try Out: 1st step : 22 pcs 2nd step : 22 pcs	Product results according to specifications 1. Drill profile 12,7-CT4.100 2. 1 st stretch stamp step 12,7-CH4.20406	Caliber, Digital scale, Optical profile projector	100%	-	Census	MA
2	Efficiency	Min. 85%(4 Tools/Hour)	SPC	100%	-	Census	MA
3	Machine	Completely Good	Visual	100%	-	Sampling	MA
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