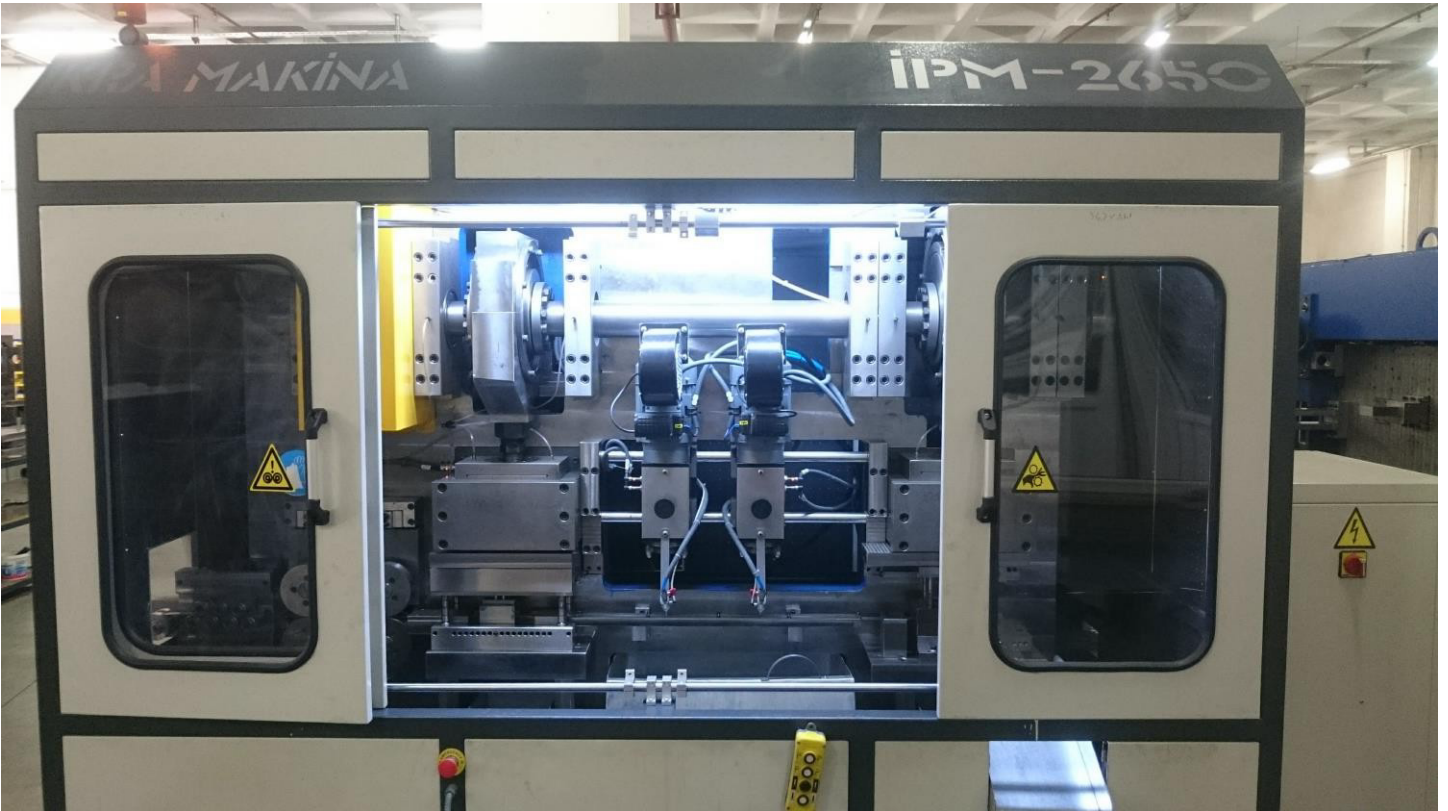


# USER MANUAL

## METAL CLAMPING MACHINE

### IPM 2650





## IPM 2650 – METAL CLAMPING MACHINE

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## **IPM 2650 – METAL CLAMPING MACHINE**

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### **HAKKIMIZDA**

Ikra Makina was established in 2005.

Our company mainly serves the packaging, household appliances, kitchenware, electrical, and textile industries.

Our production range can be listed as follows:

- \* Wire and Sheet Forming Machines
- \* Wire and Sheet Forming Machines
- \* Automatic Tapping Machines
- \* Assembly Machines
- \* Cutting Dies
- \* Automation Systems

In addition to these, we also manufacture special machines tailored to customer requirements.

Besides machine manufacturing, our company also provides die production and automation services for the sector.

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## IPM 2650 – METAL CLAMPING MACHINE

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### 1 OPERATING CONDITIONS

- 1.1. The electrical operating values for the Metal Clamping Machine are as follows:



Phase–Neutral: 240V, 50Hz

Between Two Phases: 400V, 50Hz



- 1.2. Ensure that the covers of the electrical control panels remain closed while the machine is in operation.

- 1.3. Make sure that the working environment is free from water and humidity.

### 2 SAFETY WARNINGS



- 2.1. Do not perform repair or maintenance while the system is under electrical voltage.

- 2.2. Do not step on electrical cables or equipment.



- 2.3. Do not remove the guards of the electric motor, fan, or moving parts, and do not replace them with components that do not comply with standards.



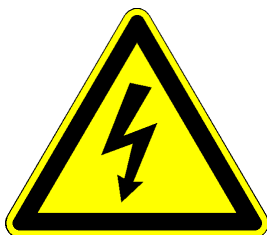
- 2.4. Do not approach moving parts until they have come to a complete stop, and do not perform any work on them.



- 2.5. Always stop the machine before performing product inspection.

- 2.6. Do not perform lubrication while the machine is running.

### 3 SAFETY SIGNS AND DEFINITIONS USED ON THE MACHINE



CAUTION: ELECTRICAL HAZARD



USE HEARING PROTECTION



RISK OF HAND ENTRAPMENT



MOVING PART



USE PROTECTIVE GLOVES



## IPM 2650 – METAL CLAMPING MACHINE

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### 4 GENERAL DESCRIPTION OF THE MACHINE

#### 4.1 Name and Model of the Machine

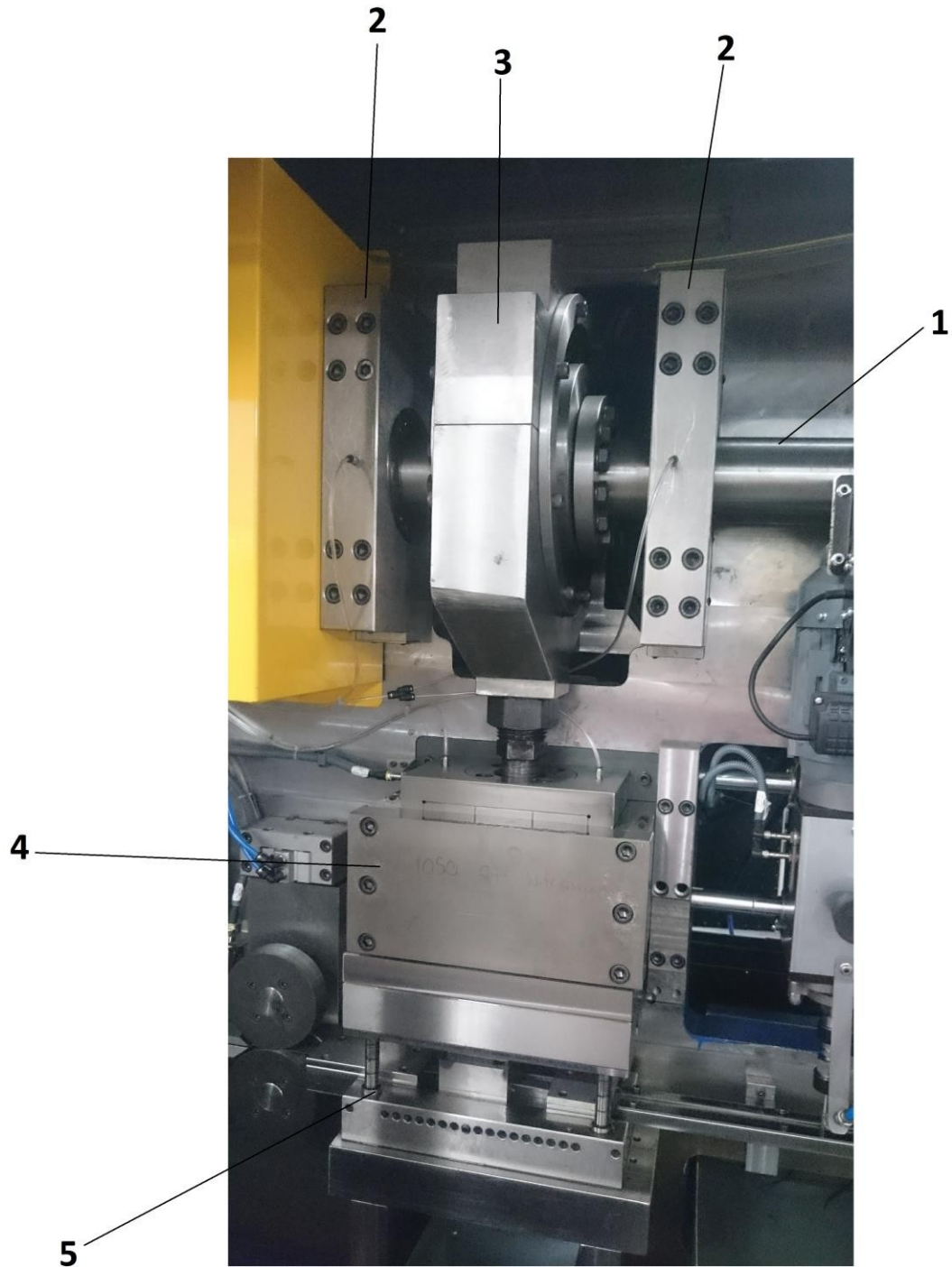
METAL CLAMPING MACHINE – IPM 2650

#### 4.2 Machine Specifications

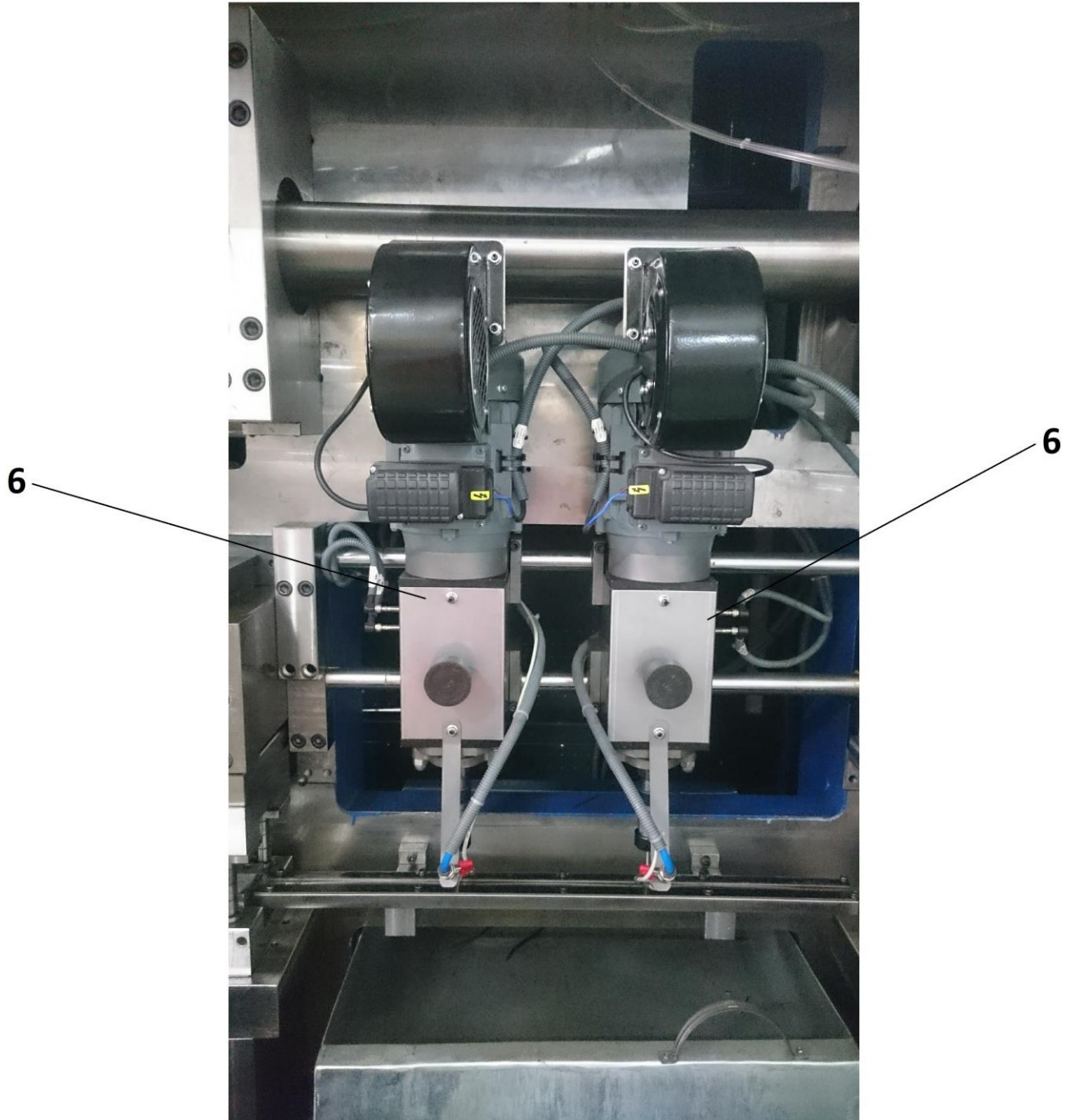
| Model: IPM 2650  |                                                 |
|------------------|-------------------------------------------------|
| Capacity         | 40–60 pieces/minute                             |
| Sheet Dimensions | Thickness: 1.8 mm Width: 30 mm                  |
| Motor Power      | 15 kW                                           |
| Electrical       | 380 V, 50 Hz, 3 Phase                           |
| Noise Level      | 90 dB                                           |
| Sheet Feeding    | Servo Drive                                     |
| Body Material    | ST 44 – 2                                       |
| Lubrication      | Time-Controlled Automatic                       |
| Weight           | 5,500 kg                                        |
| Dimensions       | Length: 270 cm × Height: 240 cm × Width: 135 cm |

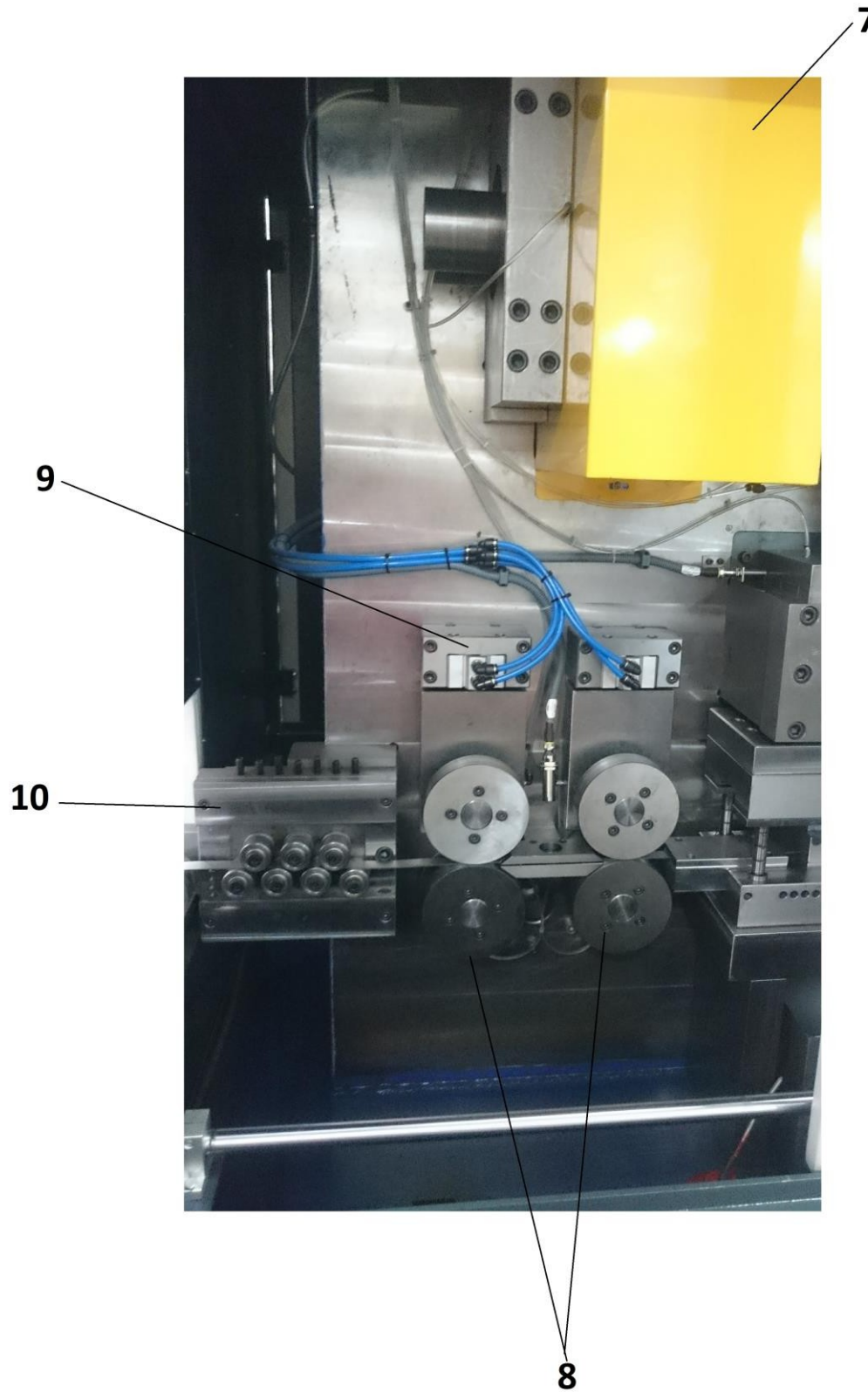
## IPM 2650 – METAL CLAMPING MACHINE

### 4.3 Definitions of the Machine and Its Parts



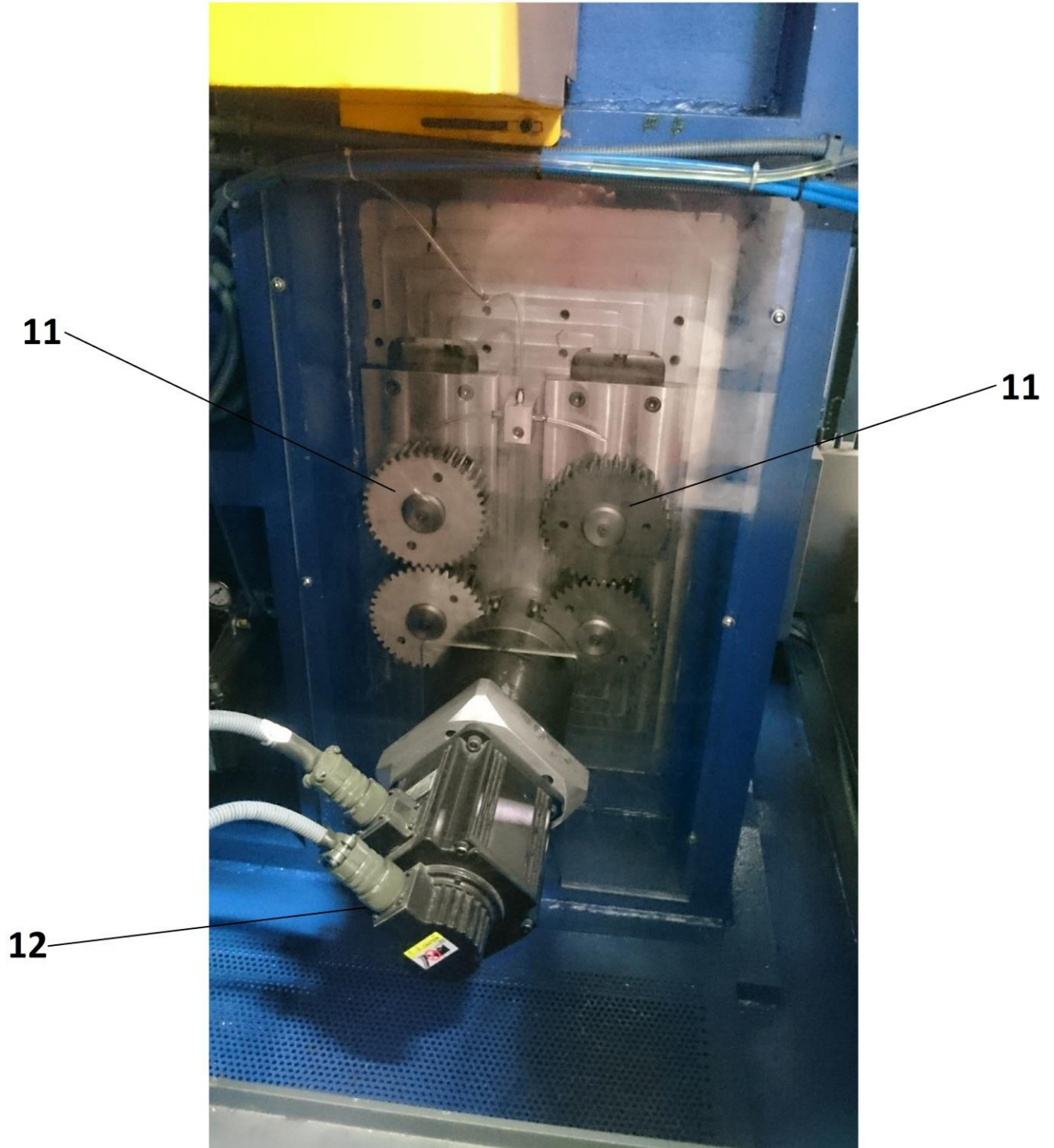






**IPM 2650 – METAL CLAMPING MACHINE**

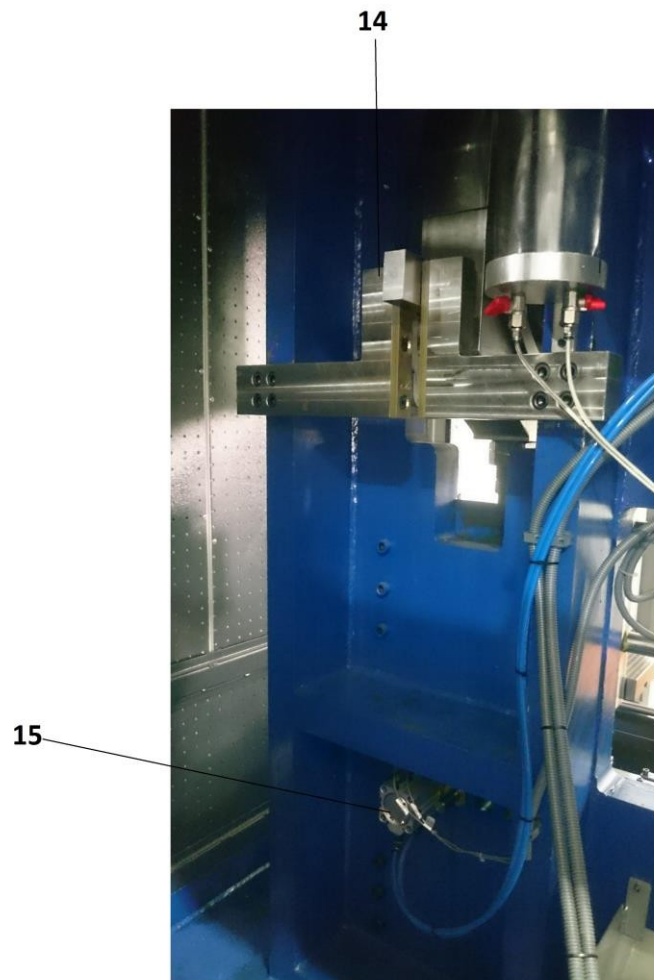
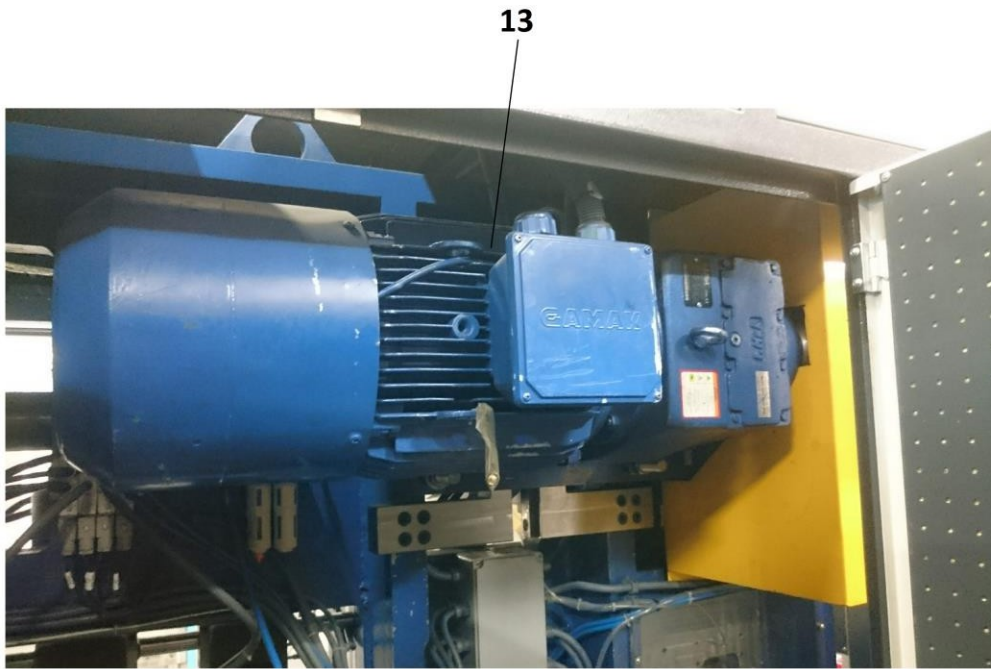
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## IPM 2650 – METAL CLAMPING MACHINE

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## **IPM 2650 – METAL CLAMPING MACHINE**

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1. Main Shaft
2. Main Shaft
3. Eccentric Press Bed
4. Eccentric Press Slide
5. Cutting Die
6. Threading Unit
7. Chain Sprocket Guard Cover
8. Drive Rollers
9. Sheet Pressure Adjustment Pistons
10. Straightening Unit
11. Servo Drive Gears
12. Servo Motor
13. Main Motor
14. Eccentric Press Fixing Components
15. Pusher Piston
16. Coil Decoiler

## **5 GENERAL OPERATING PRINCIPLE OF THE MACHINE**

**Purpose of Use :** By changing the dies on the machine, metal clamps suitable for the machine's capacity can be produced in the desired shapes with the help of the eccentric press and forming and cutting dies.

**Operating Principle :** In this fully automatic system, the operator loads the sheet coil onto the decoiler and passes it through the drive rollers to the press. After attaching the dies, the operator manually performs controlled die adjustments. By entering values such as length and speed from the control unit, the machine is started. The formed and cut material is collected in a container selected by the operator. The operator can stop the machine manually to perform quality control on the produced items. In this way, by changing only the dies and settings, products of the desired quantity and shape can be obtained.

The metal clamping machine has two eccentric press systems mounted on a single shaft. The sheet coming from the rollers reaches the dies, where it is formed and cut into the desired shape by the eccentric presses.

When the oil level decreases, the sheet jams, the door is opened, the servo motor is overloaded, or the material runs out, the machine automatically stops itself. In this way, safety precautions are applied at the highest level. Thanks to its fully automatic operation, one operator can use multiple machines. In addition, the operator can also operate the machine manually via the hand control.

### **5.1 Loading the Sheet Coil onto the Decoiler**

- Always switch off the decoiler before starting to load the sheet.
- Place the sheet coil onto the decoiler using a forklift.
- Pay attention to the rotation direction while positioning the coil.
- Check that the coil is properly wound and not tangled.
- Pass the sheet through the rollers on the decoiler and feed it into the straightening rollers.

### **5.2 Attaching the Die to the Press**

- The dies to be mounted on the machine are placed on the press tables according to the dimensions provided by the manufacturer and fixed with the help of clamps.
- The press stroke adjustment must be carefully set according to the die.
- After every 100,000 press cycles, the cutters of the dies must be ground by 0.10 mm.
- The grinding (sharpening) process must be carried out by a qualified person.

## IPM 2650 – METAL CLAMPING MACHINE

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### 6 TRANSPORT CONDITIONS OF THE METAL CLAMPING MACHINE

#### 6.1 Transport Method

During transportation, the Metal Clamping Machine is divided into the following parts:

- Main Body – 1 piece
- Decoiler – 1 piece

#### 6.2 Transport Conditions



- While lifting the Metal Clamping Machine, the connection points specifically designed for lifting hooks must be used.



- During movement, special transport trolleys (forklift) placed under the machine must be used.



#### 6.3 Shipping Conditions

During transportation, the Metal Clamping Machine must be securely placed and fastened onto the carrier vehicle.

#### 6.4 Storage Conditions

If the machine is to be kept in storage before installation, the following conditions must be observed:

- a) The storage area must have a covered roof.
- b) Contact of the machine with water from above and/or below must be prevented.
- c) Unauthorized persons must be prevented from accessing or interfering with the machine during storage.
- d) The machine must be stored in areas without fire risk.



## **7 COMMISSIONING THE MACHINE**

### **7.1 Positioning the Machine in the Working Area**

The placement of the machine into its final working area shall be carried out by the customer company.

During lifting and transportation, the rules specified in the transport conditions must be followed. Otherwise, the customer company shall be responsible for any problems that may occur.

### **7.2 Assembly**

The initial assembly and commissioning of all machines shall be carried out by Ikra Makina's authorized personnel and/or under their supervision.

If the delivered machines are assembled by the personnel of another company without the knowledge of Ikra Makina, Ikra Makina shall not be held responsible for any malfunctions or accidents that may occur.

### **7.3 Electrical Connections**

It is the responsibility of the customer company to supply electrical power to the main panels of the machines produced by our company in accordance with the required standards.

The connection and installation of electrical cables to the panels and to the consumers on the machine, in compliance with the relevant standards, fall under the responsibility of Ikra Makina.

Ikra Makina shall not accept any responsibility for interventions, modifications, or their consequences carried out by unauthorized persons not appointed by Ikra Makina.

### **7.4 Commissioning**

All adjustments of the assembled machines shall be carried out by Ikra Makina's authorized personnel, and the machine will be commissioned.

Upon commissioning, the Metal Clamping Machine will undergo approximately 1,000 forming cycles and final adjustments by Ikra Makina. If no issues arise, a delivery report will be issued, and the machine will be officially handed over to the customer company.

### **7.5 Operating Instructions of the Metal Clamping Machine**

Before starting the machine, check the surroundings and the machine itself for any unfavorable conditions that may hinder safe operation.

1. Before operating the machine, fill the oil tank with 3 liters of No. 30 oil and switch the main switch on the panel to position 1.
2. Pass the material through the die.
3. After 5–10 press strokes using the hand control, press the Start button on the screen.
4. Enter the required quantity into the screen panel.
5. Adjust the machine speed in the settings menu. It must be minimum 400 rpm and maximum 800 rpm.
6. Enter the oil spray time in the menu to facilitate clamping.
7. Place a plastic container under the die to collect burrs.
8. Place a separate plastic container for the finished products.
9. Use gloves to remove leftover material pieces from inside the machine.
10. Before feeding new material, ensure that there are no burrs inside the die or between moving parts.
11. Place die components into separate boxes.
12. When changing dies, make sure each component belongs to the correct die.
13. Adjust the press stroke distance if necessary according to the die (this is required after grinding the die by approx. 2 mm).
14. When changing dies, carefully follow the die positions and dimensions provided by the manufacturer.
15. After every 100,000 press cycles, the die cutters must be sharpened.
16. Sharpening must be performed on a grinding machine using a coolant.
17. Lubricate the gears with grease once every three days.
18. Replace any worn screws during die installation or removal.
19. Do not make adjustments while the machine is running.
20. Tighten any screws loosened due to vibration.
21. Lubricate the drive roller gears with grease.
22. Ensure that the material used is cut straight and free of burrs. Uneven or burr-cut material will not yield proper products. Inform the supplier if necessary.
23. Check that the oil return hoses and channels of the machine are open.

## IPM 2650 – METAL CLAMPING MACHINE

24. In case of jamming, check the eccentric channels to make sure no burrs or foreign parts are present.
25. Due to voltage fluctuations or other reasons, the motor driver may switch to protection mode. In such cases, turn the panel switch to the OFF position, wait 3–5 minutes, and then switch it back ON.
26. When relocating the machine, use a forklift underneath or the lifting hooks on top of the machine.

The physical properties of the oil to be used must be as follows:

|                                                                                                          |                   |
|----------------------------------------------------------------------------------------------------------|-------------------|
| <b>ISO Viscosity Grade (ISO 3448)</b>                                                                    | 30                |
| <b>Kinematic Viscosity (ISO 3104)</b><br><b>40 °C mm<sup>2</sup>/s</b><br><b>100 °C mm<sup>2</sup>/s</b> | <br>~100<br>~11,2 |
| <b>Viscosity Index (ISO 2909)</b>                                                                        | ~96               |
| <b>Density 15 °C kg/m<sup>3</sup> (ISO 12185)</b>                                                        | ~887              |
| <b>Flash Point °C (ISO 2592)</b>                                                                         | ~256              |
| <b>Pour Point °C (ISO 3016)</b>                                                                          | ~-21              |

- For gears and rollers, use lithium-based grease.

### Physical Properties of Lithium Grease:

|                                                     |         |
|-----------------------------------------------------|---------|
| <b>Color</b>                                        | Yeşil   |
| <b>NLGI</b>                                         | 3       |
| <b>Dropping Point °C (ASTM D 566)</b>               | 95      |
| <b>Worked Penetration 25 °C (ASTM D 217)</b>        | 220-250 |
| <b>Operating Temperature Range °C</b>               | -12/+70 |
| <b>4-Ball Test (DIN 51350:4) KGF, (ASTM D 2596)</b> | 180-200 |

## **7.6 Training**

Personnel who will operate and use the machine shall be trained and authorized by Ikra Makina. Those who complete the training will receive a certificate. If uncertified personnel operate or intervene with the machine, all warranty conditions will be void, and Ikra Makina shall bear no liability for any resulting circumstances.

## **8 SERVICE**

In cases of malfunction or maintenance, upon the request of the customer company, the required spare parts will be supplied by Ikra Makina within the agreed delivery time.

Any interventions carried out by unauthorized persons not appointed by Ikra Makina during the warranty period will render the warranty conditions invalid.

Following the delivery of the machine, Ikra Makina shall provide service and repair support upon the customer company's request, in accordance with the provisions specified in the signed service agreement.

## **9 PLANNED MAINTENANCE SCHEDULE**

### **DAILY MAINTENANCE**

- a) Check the oil level and manually lubricate the entire system before starting operation.
- b) The locking part inside the forming group must be polished with felt every working day.
- c) Inspect the oil hoses and channels.

### **WEEKLY MAINTENANCE**

- a) Repeat daily maintenance.
- b) Lubricate the gears with grease.
- c) Check and tighten any screws loosened due to vibration.
- d) Clean the panel filter with compressed air.

### **MONTHLY MAINTENANCE**

- a) Repeat weekly maintenance.
- b) Inspect and lubricate the bearings.
- c) Clean the electrical panel.

**10 PROBLEMS AND SOLUTIONS OF THE METAL CLAMPING MACHINE**

| <b>PROBLEM</b>                                                 | <b>CAUSE</b>                                     | <b>SOLUTION</b>                                                  |
|----------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------|
| 1- IF THE SHEET TANGLES;                                       | The sheet has not been wound properly.           | Cut the sheet, eliminate the tangle, and feed it again properly. |
| 2- IF THE PRODUCT IS NOT STRAIGHT;                             | The sheet is not straight.                       | Use the straightening unit to obtain a proper sheet.             |
| 3- IF THE SHEET PRODUCES BURRS;                                | The cutters are not sharpened.                   | Sharpen the cutters properly and reattach them to the machine.   |
| 4- IF THE MAIN MOTOR OR SERVO MOTOR FAILS;                     | Voltage fluctuation or overloading has occurred. | Restart the driver inside the panel.                             |
| 5- IF THE PRODUCT DOES NOT COME OUT IN THE DESIRED DIMENSIONS; | The bending parts have not been properly fixed.  | Properly fasten and tighten the parts.                           |



## IPM 2650 – METAL CLAMPING MACHINE

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### 11 APPLIED STANDARDS

#### Relevant Directives

- Machinery Safety Directive, 2006/42/EC

#### Harmonized Standards

- 1) EN ISO 12100:2010
- 2) EN 60204-1:2006
- 3) EN ISO 13857:2008
- 4) EN 349:1993+A1:2008
- 5) EN ISO 13850:2009
- 6) EN ISO 13849-1:2006
- 7) EN/IEC 62061:2005





## IPM 2650 – METAL CLAMPING MACHINE

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### 12 TRAINING RECORD

Date: ...../...../.....

The following personnel from the customer company, whose names are listed below, have received training on the operation and maintenance of the IPM 2650 model "Metal Clamping Machine."

| <u>Trainee (Name &amp; Surname)</u> | <u>Position</u> | <u>Signature</u> |
|-------------------------------------|-----------------|------------------|
|-------------------------------------|-----------------|------------------|

1 .....

2 .....

3 .....

4 .....

Trainer :



## IPM 2650 – METAL CLAMPING MACHINE

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### 13 USER MANUAL DELIVERY RECEIPT

Date /...../.....

One copy of the “User Manual” for the IPM 2650 – Metal Clamping Machine has been delivered to the customer company.

By accepting this manual, the customer company acknowledges that all necessary information regarding the operation of the machine has been provided completely.

**On behalf of the Manufacturer**

**Delivered by**

**Name, Surname, Date, and Signature**

**On behalf of the Customer**

**Received by**

**Name, Surname, Date, and Signature**



## IPM 2650 – METAL CLAMPING MACHINE

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### 14 WARRANTY CERTIFICATE

Machine Type : Metal Clamping Machine

Model : IPM 2650

Warranty Period : 12 months following the delivery of the machine

Warranty Conditions :

- 1) Any malfunction arising from faulty material selection or defective workmanship during the manufacturing of the machines shall be rectified by Ikra Makina free of charge within one year.
- 2) In case of any malfunction, hotel and travel expenses shall be borne by the customer company upon request, while service and spare part costs shall be covered by the manufacturer.
- 3) Any breakage or malfunction occurring during transportation, loading, or unloading of the machines is excluded from the warranty coverage.
- 4) Any breakage, malfunction, or loss resulting from natural conditions or natural disasters at the customer company's installation site is excluded from the warranty.
- 5) Any breakage or malfunction caused by improper or incorrect use of the machines during operation by the operator is excluded from the warranty.
- 6) Any breakage or malfunction resulting from errors in the electrical installation or other requirements provided by the customer company is excluded from the warranty.
- 7) Ikra Makina undertakes and guarantees to provide spare parts and/or service for a period of 10 years.

### 15 SERVICE AGREEMENT

- 1- In cases of malfunction or maintenance, upon the request of the customer company, the required spare parts will be supplied by Ikra Makina to the customer company within the agreed delivery time.
- 2- After the warranty period, hotel and travel expenses in cases of malfunction or maintenance shall be borne by the customer company.
- 3- After the warranty period, personnel service fees shall be borne by the customer company and are charged at 200 EUR per person per day.

16 UYGUNLUK BEYANI



EC - DECLARATION OF CONFORMITY

MANUFACTURER

**NAME** : İKRA MAKİNA SAN. VE TİC. A.Ş.  
**ADDRESS** : İKİTELLİ O.S.B. BAŞAK MH. YİĞİTLER SK. KATMAN İŞ MRK. NO:6/B  
BAŞAKŞEHİR-İSTANBUL/TÜRKİYE  
**PHONE / FAX** : +90 212 485 87 91

We herewith declare that;

Equipment Type / Model:

WIRE PROCESSING MACHINE

İPM 1500                      İPM 1650                      İPM 2000  
İPM 2200                      İPM 2500                      İPM 2650

Related Directives:

MACHINERY DIRECTIVE 2006/42/EC

Harmonized Standards:

EN ISO 12100:2010, EN 60204-1:2006, EN ISO 13857:2008, EN 349:1993+A1:2008, EN ISO 13850 :2009, EN ISO 13849-1:2006, EN/IEC 62061:2005

The described product/machines meet the essential requirements of the above mentioned standards and in our delivered version; comply with the appropriate basic essential health and safety requirements of the based on Machinery Directive 2006/42/EC. In case of alteration of the machine, not agreed upon by us, this declaration will lose its validity.

SIGNED ON BEHALF OF THE MANUFACTURER

**NAME** : SİNAN DURAN  
**POSITION** : GENERAL MANAGER  
**PLACE / DATE** : 03.02.2016 / İSTANBUL  
**SIGNATURE** :

**STAMP:**