

# **Blitzer 285 MG Gravity Feed Mitre Cutting Bandsaw 240v Single Phase**



***OPERATION MANUAL***

# CONTENTS

<b>1 SAFETY .....</b>	<b>7</b>	<b>5 OPERATION .....</b>	<b>11</b>
1.1.SAFETY RULES .....	7	5.1. CONTROL PANEL .....	11
1.2.DANGER ZONE ON THE MACHINE .....	7	5.2. BLADE CHANGING PROCEDURE .....	11
1.3.SAFETY EQUIPMENTS AND ASSIGNMENTS .....	8	<b>6 MAINTENANCE.....</b>	<b>13</b>
1.3.1.BREAK-OFF SWITCH .....	8	6.1.DAILY MAINTENANCE .....	13
1.3.2.COVER SWITCH .....	8	6.2.WEEKLY MAINTENANCE .....	13
1.3.3.DOWN LIMIT SWITCH .....	8	6.3.MONTHLY MAINTENANCE .....	13
1.3.4.EMERGENCY STOP BUTTON .....	8	6.4.SIX-MONTHLY MAINTENANCE .....	13
1.4.WARNING LABEL AND ASSIGMENTS.....	8	6.5.PERIODIC MAINTENANCE .....	13
1.4.1.GLOVE LABEL.....	8	<b>7 TROUBLESHOOTING .....</b>	<b>14</b>
1.4.2.ELECTRICITY NEUTRAL WARNING LABEL.....	8	<b>8 DISMANTLING .....</b>	<b>15</b>
1.4.3.HIGH VOLTAGE LABEL .....	8	<b>9 SPARE PART LIST .....</b>	<b>16</b>
1.4.4.SAFETY EQUIPMENTS LABEL .....	8	9.1.MACHINE BASE ASSEMBLY .....	17
1.4.5.ARROW LABEL .....	8	9.1.1. MACHINE BASE UPPER FRAME .....	18
<b>2 DESCRIPTION AND PROPERTIES.....</b>	<b>9</b>	9.2.FLANGE JOINT ASSEMBLY .....	19
2.1 TECHNICAL PROPERTIES OF THE MACHINE .....	9	9.3.CLAMP ASSEMBLY .....	20
2.2 STANDARD EQUIPMENT.....	9	9.4.BOW ASSEMBLY .....	21
2.3 NOISE LEVEL.....	9	9.5.GEARBOX ASSEMBLY .....	22
2.4 MACHINE DIMENSION .....	9	9.6.BLADE TENSIONING ASSEMBLY .....	23
2.5 MACHINE CUTTING CAPACITY .....	9	9.7.BOW LIFT CYLINDER ASSEMBLY .....	24
2.6 PROPERTIES TABLE ACCORDING TO METAL SAWDUST .....	9	9.8.BLADE GUIDE ASSEMBLY .....	25
<b>3 TRASPORTATION AND INSTALLATION.....</b>	<b>10</b>	9.9.MOBILE BLADE GUIDE COMPLETE .....	25
3.1.HANDLING THE UNPACKED MACHINE .	10	9.10.FIXED BLADE GUIDE COMPLETE.....	26
3.2.AFTER UNPACKING THE MACHINE.....	10	9.11.SPRING ASSEMBLY.....	27
3.3.ENVIRONMENTAL CONDITIONS .....	10	9.12.CLAMP COMPLETE .....	28
3.4.MACHINE PLACEMENT AND POSITION .	10	<b>10 CONTROL CIRCUIT DIAGRAM .....</b>	<b>29</b>
<b>4 PREPARATION BEFORE OPERATION.....</b>	<b>10</b>	<b>11 POWER CIRCUIT DIAGRAM.....</b>	<b>30</b>
4.1.CLEANING.....	10		
4.2.LUBRICATING .....	10		
4.3.COOLANT .....	10		
4.4.ELECTRICAL POWER CONNECTION .....	10		
4.5.FINAL INSPECTION CHECKLIST BEFORE OPERATION.....	11		

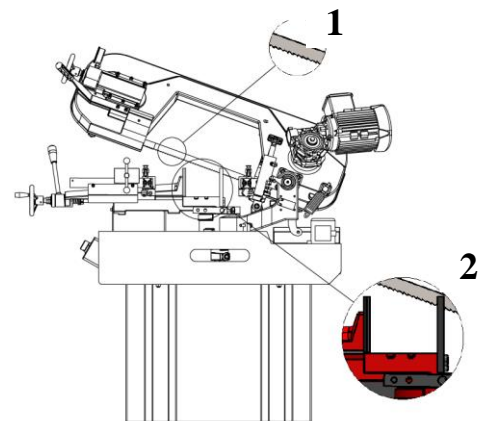
# 1 SAFETY

## 1.1 . Safety Rules

- Never allow unqualified persons to operate or interfere with the machine
- It is important to develop personal safety awareness. Observe all related safety regulations and pay attention for hazardous conditions. Discuss these conditions with your supervisor.
- You must use personal protective equipment, like safety glasses, gloves, safety work shoes.
- Do not remove warning signs and/or instruction plates off the machine.
- Make sure that all machine controls are set for the desired mode of operation, whenever the setting of the machine control is changed, run the machine in slow mode to make sure it operates as expected.
- Never disable any safety device to avoid its assigned function. These devices are intended to protect both the machine and its operator.
- Do not load, unload, operate or adjust the machine without proper instructions.
- This machine is specifically designed for cutting general metal material. Do not cut wood and analogous material, meat, fishery, food and agriculture products, combustible and radioactive materials.
- Enough space should be provided around the machine to avoid hitting and provide a convenient operation.
- Do not leave any tool on the machine after use. Do not put work stock or tools around the machine, to avoid injury.
- Do not operate the machine with its safety guards removed.
- Do not wear gloves when operating through control panel.
- Wear gloves only when loading/unloading the material, changing the blade and chip brush.

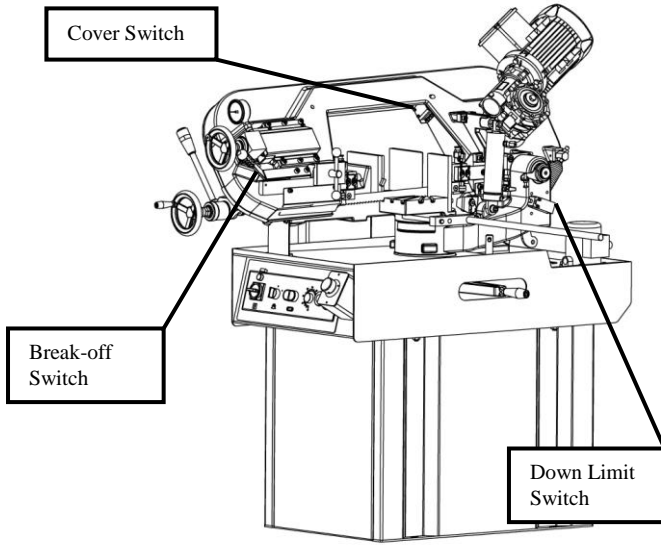
- Never touch the blade, moving work stock, nor put your hands into the vise area or chip conveyor unit until the machine halts completely.
- When selecting blade, blade speed and coolant, please refer to the operation manual or related documents.
- Before installation and operate the machine check the sufficiency of the earth of the machine to your electrician. Do not operate the machine without the earth.
- Determined and declared bench life of the machine by the Ministry of Industry and Trade is 10 years.
- For longevity please follow the maintenance directions at the manual.

## 1.2 . Danger Zones on the Machine



- Do not open the guards/covers during operation.
- During cutting process keep your hands and fingers away from running blade which should on number one.
- During cutting process keep away from zone number two. It may cause hitting and dropping injury.
- Do not Touch electrical panel if you are not expert on electric

### **1.3. Safety Equipments and Assignments**



#### **1.3.1. Break-off Switch**

This switch is used for to stop the machine while the blade pressure gets smaller than adjusted ones. The main causes of decrease in pressure are; dulling, cracking or breaking of blade. Operating the machine under these conditions endanger the operator.

#### **1.3.2. Cover Switch**

This switch provides to shut down the machine while the bow cover is open. Running the machine may cause wounding and serious gashes. Machine gives aural warning while the cover is open.

#### **1.3.3. Down Limit Switch**

This switch is used to adjust the bow's nadir to goes down. Down limit switch is a factory setting. Please do not tinker with the down limit switch.

#### **1.3.4. Emergency Stop Button**

Emergency stop button, places on the operator control panel- near the main switch, is red button and you can see it easily. In emergency cases, press to this button to stop the machine. Machine does not run while the button is pressed. To rerun the machine, please turn left and release the button.

### **1.4. Warning Labels and Assignments**

#### **1.4.1. Glove Label**



Please use personal protective equipment, like glove, during operation and while changing the blade.

#### **1.4.2. Electricity Neutral Warning Label**



In this label, we declared the instructions how to make the electric connection before installing machine or after handling the machine.

#### **1.4.3. High Voltage Label**



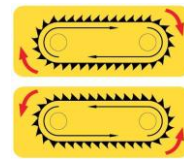
This label shows high voltage risk parts. All electrical connections should be done by a qualified electrician.

#### **1.4.4. Safety Equipments Label**



All the safety devices and guards are designed to intend to protect the operator. Please do not remove these safety guards.

#### **1.4.5. Arrow Label**



Blade's direction of rotation belongs to machine. Arrow label on the machine shows blade's direction of rotation. Please pay attention on direction of rotation while changing blade.

## 2 DESCRIPTION AND PROPERTIES

### 2.1. Technical Properties of the Machine

MAIN MOTOR	1,1 kW, 1400 rpm
COOLANT PUMP	0,09 kW, 2800 rpm
CUTTING SPEED	25-90 m/min
BLADE DIMENSION	2500x27x0,9
BLADE TENSION	Min. 30 bar -Max. 50 bar
BLADE QUALITY	Bi Metal
HEIGHT OF VISE BED	915 mm
WEIGHT	260 Kg.
MACHINE DIMENSION	800 x1560 x 1500 mm
NUMBER OF PHASE	3
FREQUENCY	60 Hz
MAIN VOLTAGE	380 V

### 2.2. Standard Equipment

- 1 Bandsaw Blade
- Hydromechanical Band Tension
- Invertor
- Adjustable Tension Band Wheel
- Double way miter cutting ( Right side 60°, Left side 45° )
- Fast Clamping Arm
- Adjustable Length Setting Bar

### 2.6. Properties Table According to Metal Sawdust

Filling								
Shape of the Filling	Thick, hard and short	Thick, hard and brittle	Thick, hard and curled	Thick, hard and curled	Thin, spiral and curled	Thin, spiral and curled	Like dust	Thin and very curled
Colour of the Filling	Blue or brown	Blue or brown	Silver or yellow	Silver	Silver	Silver	Silver	Silver
Bandsaw Speed	Decrease	Decrease	Suitable	Increase	Suitable	Suitable	Decrease	Suitable
Advance Speed	Decrease	Decrease	Decrease a little	Decrease	Suitable	Increase	Increase	Decrease
The others	Control lubricant coolant level	Control lubricant coolant level	Control number of teeth	Control number of teeth				Use thick pitch saw

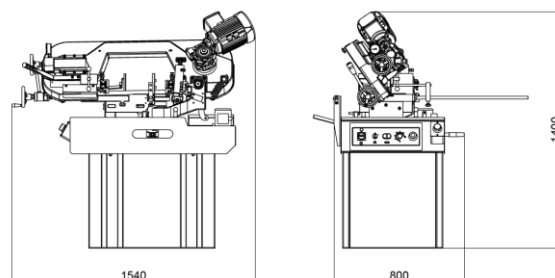
### 2.3. Noise Level

In accordance with the Machinery Directive 2006/42/EC

- The A-weighted continuous acoustic pressure does not exceed 70 dB (A).
- The maximum level of the C-weighted instantaneous acoustic pressure is always less than 130 dB.

**NOTE:** With the machine operating, the noise level will vary according to the different materials being processed and setting up. The user must therefore assess the intensity and if necessary provide the operators with the necessary personal protection.

### 2.4. Machine Dimensions

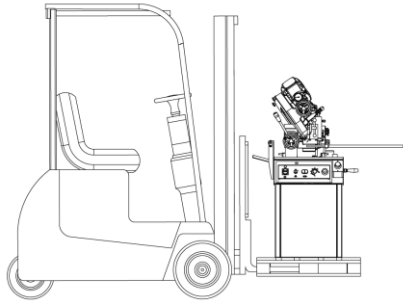


### 2.5. KMT 220 Craft DM Bandsaw Machine Cutting Capacity

	0°	45°	60°	-45°
	220 mm	160 mm	95 mm	140 mm
	200 mm	140 mm	95 mm	120 mm
	180 x 250 mm	140 x 150 mm	75 x 95 mm	90 x 150 mm

## 3 TRANSPORTATION AND INSTALLATION

### 3.1. Handling the Unpacked Machine



Make sure the machine is safely loaded and balanced when moving it with a forklift, failing to do so may cause personal injury or damage to the machine.

### 3.2. After Unpacking the Machine

Put the machine in a dry and sheltered place to prevent damage to the electrical and mechanical components. Apply appropriate lubricant (machine oil or grease) on the slide ways and non-painted areas to prevent rust.

### 3.3. Environmental Conditions

- Mains voltage and frequency complying with the machine motor characteristics.
- Environment temperature from  $-10^{\circ}\text{C}$  to  $50^{\circ}\text{C}$
- Relative humidity %10 to %90

### 3.4. Machine Placement and Position

The followings should be considered when positioning the machine:

**The floor:** The machine should be placed on a levelled concrete floor.

**Working Area:** Sufficient space should be allocated around the machine for comfortably loading and unloading work stock and for easy access during maintenance and repair. When necessary, all doors and access panels should be opened without interference.

**Lighting:** The machine and its surroundings should be well lit for operator's safety and for a convenient operation and maintenance.

## 4 PREPARATION BEFORE OPERATION

### 4.1. Cleaning

Unpainted and uncoated machine surfaces were coated with a rust inhibitor prior to shipment. - The rust inhibitor should be cleaned with an appropriate solvent. To prevent rust on unpainted surfaces, a light coat of machine oil can be applied.

### 4.2. Lubricating

Lubricate all the sliding parts before starting.

### 4.3. Coolant

The machine is shipped with the coolant reservoir empty. Fill the reservoir with coolant until it is full. A sight gauge is mounted on the machine base to check coolant level.

***Caution:*** Do not run the coolant pump without coolant in the reservoir. Otherwise, the coolant pump will be damaged.

### 4.4. Electrical Power Connection

1. Electrical connection must be done by a qualified electrician, in conformance with the required electrical standards of your area.

2. Turn off the main circuit breaker of the area in which the machine will be located.

3. Machine's power cord should be connected to an appropriate power source; make sure the voltage rate matches the one required for the machine.

4. It is important that the shipping brace should be removed from the saw before taking any further step.

***Note:*** If the 'emergency stop button' is depressed, it must be released for the machine to run.



#### 4.5. Final Inspection Checklist before Operation

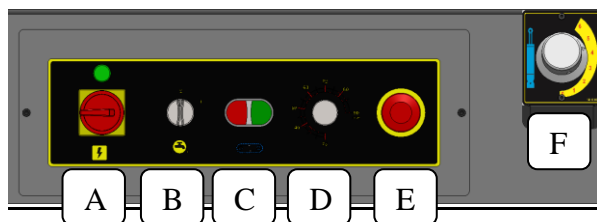
After installing the machine, a final inspection should be performed by considering the following checklist;

- Any missing components, guards or panels
- Removal of the shipping brace
- Lost fasteners and fittings, hoses and conduit
- Missing or damaged items
- Coolant, oil, or hydraulic leads
- Tools and others materials left on saw
- Safety measures, general condition and readiness for use

### 5 OPERATION

In this section, the functions of the machine will be described to guide the operator to become familiar with the machine and its components.

#### 5.1 Control Panel



##### A) Main Power Switch

The machine is ready when the main power switch is turned on.

##### B) Coolant Pump On/Off

Coolant pump switch on/off via this button.

**Caution:** Do not operate the coolant motor while coolant tank empty. Otherwise, the coolant motor will be damaged.

##### C) Open/Close Switch

Cutting process can be started and stopped with these buttons.

##### D) Blade Speed Arrangement Button

Blade speed can be adjusted 25-90 m/min by this button.

##### E) Emergency Stop Button

The "Emergency stop" push button stops *all functions* of the machine. The machine will not function until "Emergency stop button" is released. To release the emergency button, turn it in the direction indicated on its hub.

**Caution:** The "Emergency stop" push button does not disconnect the machine from the main power supply. To avoid from serious injury or death due to electricity shock, turn the main power switch off or disconnect the machine from the main supply before servicing it.

##### F) Bow Down Speed Valve

Bow down speed can be adjusted by this button.

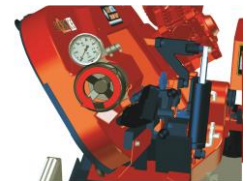
#### 5.2. Blade Changing Procedure

In order to achieve accurate and efficient cuts, it is important to use a sharp and correct blade for the material being cut.

- 1- Raise the saw frame to its highest position



- 2- Turn the hand-wheel to left to loosen the blade.



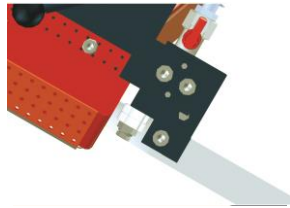
- 3- Switch off the main power switch of the machine.

**Caution:** Avoid serious injury by turning the machine's power off at the main switch before adjusting, servicing, or cleaning the saw.

- 4- Open all the wheel covers on the saw frame.



- 5- Loosen the bolts on the carbide blade guides. Lower the blade from bandsaw guides.



- 6- Lower the chip brush away from the blade by loosening the chip brush locking lever.

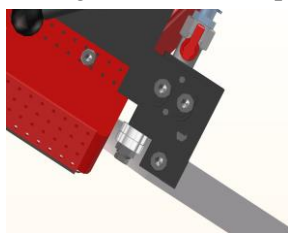
**Caution:** Wear heavy protective work gloves and safety glasses when handling blades to avoid injury.

- 7- Carefully remove the blade from the saw.

- 8- Uncoil the new blade and insert the blade around the band wheels.

**Warning:** New blades are generally shipped in a coiled form. This puts them under tension and can suddenly be uncoiled. Take extreme caution to prevent injury when uncoiling the new blade. Make sure you wear safety gloves and glasses. Locate back of edge the blade into the carbide inserts (pressure pads) and guide bearings so the teeth point in downward direction.

- 9- Press the back edge of the blade firmly against the back-up of the carbide guides



- 10- Turn on the main switch of the machine.

- 11- Turn the hand-wheel to right (to tensioning position) to apply a *light pressure*.



- 12- Press the back edge of the blade firmly against the flange of each band wheel.



- 13- Turn the hand-wheel to right (tensioning position) to exert sufficient tension on the saw blade.



- 14- Turn off the main switch of the machine.

- 15- Turn the bolts clockwise to tighten the carbide pressure pads against the blade. Tighten the carbide guides by hand only.

**Note:** Do not over-tighten the carbide pressure guides.

- 16- Adjust the position of the chip brush so that the bristles reach fully into the gullet of the blade without extending beyond. Then lock the chip brush in place.

**Important:** Improper positioning of the chip brush will result in excessive blade or chip brush wear.

- 17- Make sure that you close and secure the band wheel covers and blade guards at the end of this process.



## 6 MAINTENANCE

The maintenance schedule is listed below on the basis of daily, weekly, monthly and six-monthly intervals. Utmost care should be given to the maintenance. Poor maintenance or neglecting some of its requirements will result in premature machine failure and/or unsatisfactory performance.

### **6.1.Daily Maintenance**

- Clean/empty the chip reservoir whenever necessary.
- Use suitable brush with soft bristles. Do not use hard materials to clean the machine.
- Check whether the emergency stop button functions properly. Check that the entire wheel covers other safety guards are in place and fixed properly.
- Check the wear on the teeth of the saw blade.
- Check the level of coolant.
- Don not use pressured air for cleaning the machine; expect for unblocking the coolant pipes.

### **6.2.Weekly Maintenance**

- Clean the wheels, vise, slides and bearings.
- Pull the movable jaws of the vise back and clean the slides, beds and other moving components and lubricate with thin grease.
- Apply grease to the main vise roller drive mechanisms gearbox and vise roller bearings. Check the condition of these mechanisms and clean them if necessary before applying grease. Use EP type grease for vise roller drive mechanisms gearbox.
- Test the quality/condition of the coolant and water/boron oil ratio; if necessary renew it.
- Non-painted parts should be wiped with a clean cloth and oiled with protective machine oil to prevent rust.

- Coolant tank should be cleaned against chips to prevent them accumulating onto the floor of the tank.

### **6.3.Monthly Maintenance**

- Check the level of hydraulic oil from the site gauge. If the level drops below indicated min. line, add hydraulic system oil of grade 46.
- Check the conditions of saw blade guide bearings and carbide pressure pads at the ends of guide arms. They should be replaced when they become worn or loose.
- Check the gaps in the bearings of the wheels. Replace them if they are worn.
- Check the condition of hydraulic systems (cylinder/pistons, pipes/hoses, sealants and hydraulic couplings.)

### **6.4.Six-Monthly Maintenance**

- Perform all monthly maintenance checks for six-monthly maintenance too. And replaces those parts of the machine that do not function as expected or that are excessively worn.
- Check the work stock feeding rollers for wear and renew them if necessary.
- Check the vise roller drive mechanisms gearbox; renew the worn gear wheels if necessary.

### **6.5.Periodic Maintenance**

- Renew the wheel bearings.
- Renew the carbide pressure pads and the saw blade guide bearings.
- Check the viscosity/condition of the hydraulic oil. Renew if it is necessary.
- Check the worn/damaged/malfunctioning components that do not function properly.

## 7 TROUBLESHOOTING

Some of the generally faced troubles and their possible causes and/or remedies are presented in the following table.

PROBLEMS/FAULTS	POSSIBLE CAUSES AND REMEDIES
<b>Non-straight cuts</b>	<ul style="list-style-type: none"><li>• Insufficient blade tension</li><li>• Incorrect or loose work stock clamping</li><li>• Use coarser blade pitch</li><li>• High feed rate or pressure</li><li>• Tooth set damage</li><li>• Guide arms are loose or set too far apart</li></ul>
<b>Premature blade breakage, premature tooth wear and chipped tooth</b>	<ul style="list-style-type: none"><li>• Feed rate too high or too low</li><li>• Check your coolant</li><li>• Check/adjust carbide blade pressure pads</li><li>• Check wheel alignment</li><li>• Allow enough clearance before starting cut</li><li>• Reduce band tension when the machine isn't operated</li><li>• Cutting speed too high</li><li>• Wrong tooth pitch</li><li>• Incorrect or loose work stock clamping</li><li>• Ineffective coolant application</li><li>• Improper break-in period</li><li>• Perform scheduled maintenance</li></ul>
Despite taking all necessary action, if a fault persists, you should call the service	

## **8 DISMANTLING**

If the machine is to be scrapped;

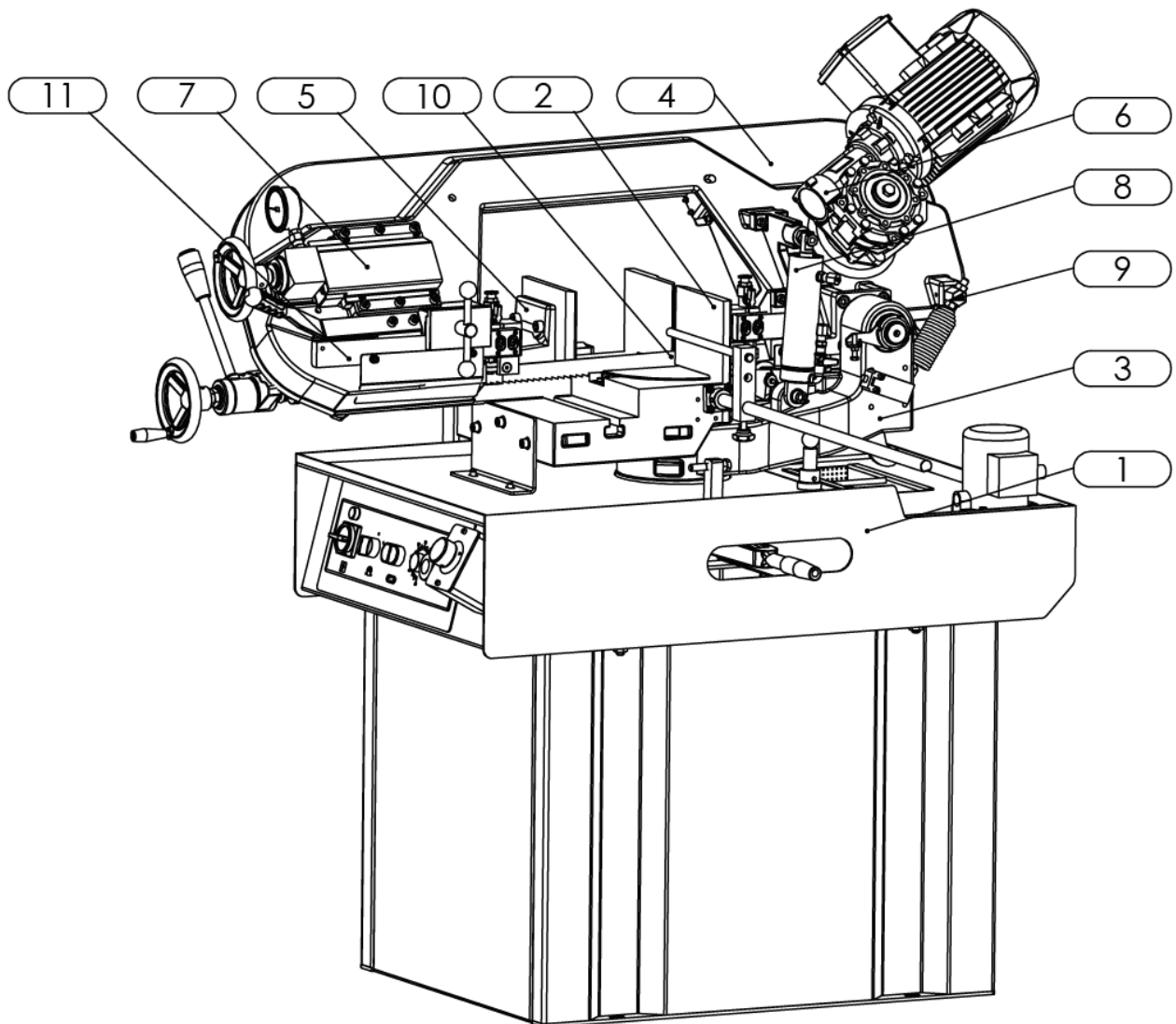
1. Qualified personnel should carry out all dismantling process.
2. Switch the machine off and disconnect the power supply.
3. Drain the hydraulic oil and coolant.
4. Revert the preceding setting procedure for dismantling the machine.
5. Separate the material to be disposed of depending on their types and composition and have them collected and/or recycled by waste disposal services.

## **ORDERING SPARE PARTS**

When ordering spare parts, you must state;

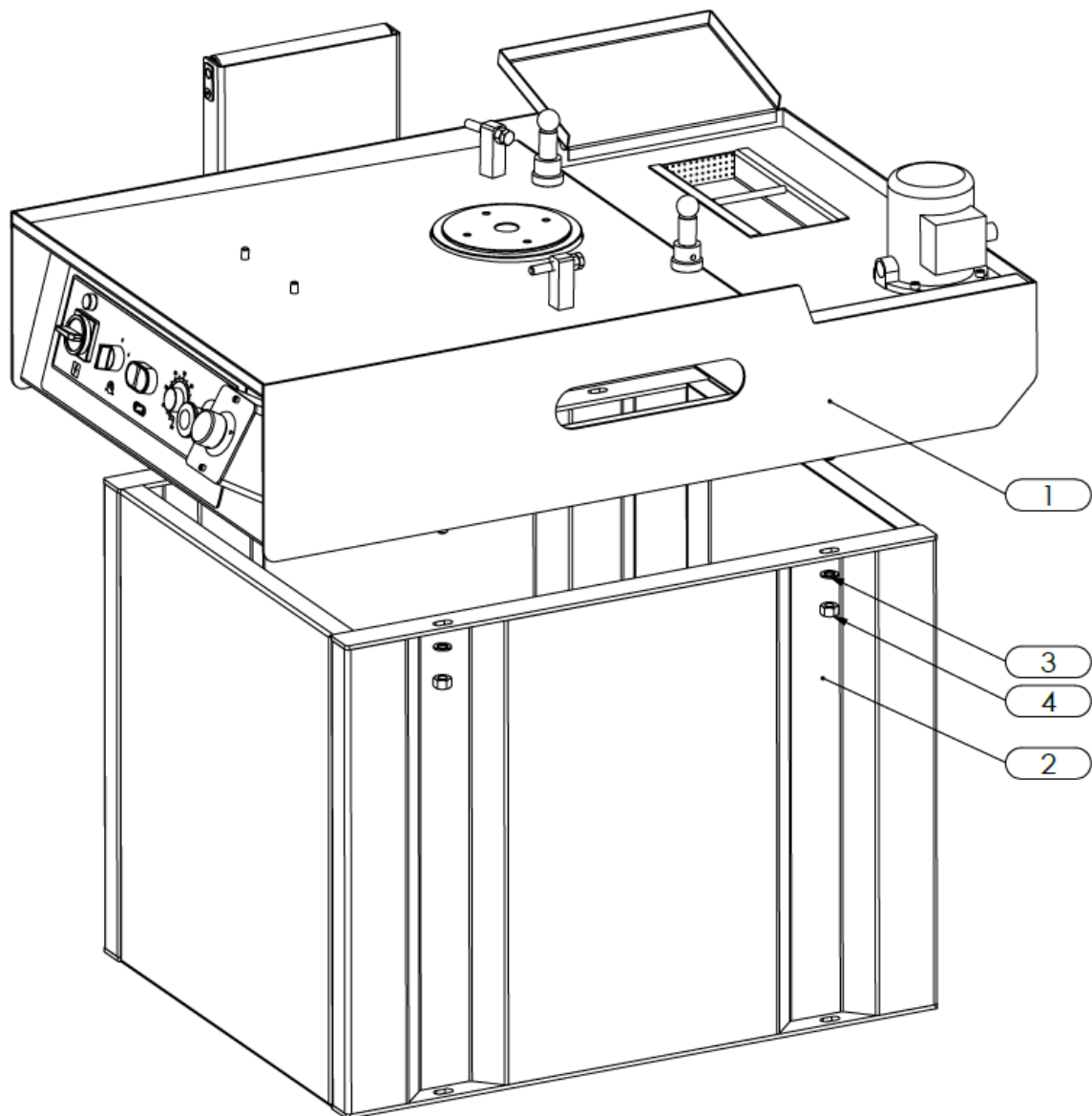
MACHINE MODEL	:
SERIAL NUMBER	:
PART REFERENCE NUMBER	:
PART NAME	:

Without these references we will not supply the spare parts.



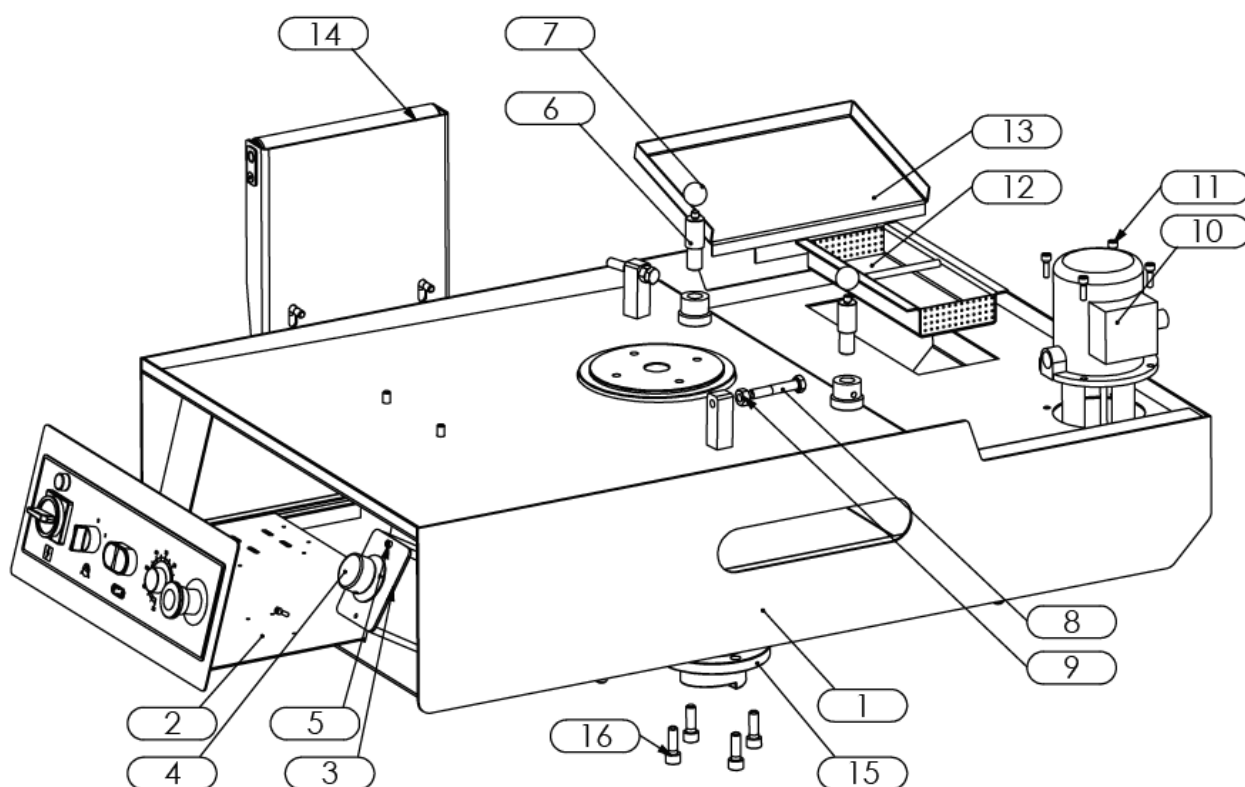
Part No	Part Name	Q.ty	Description	Part Code
11	Blade Guide Assembly	1		151 02 15 000
10	Band Saw	1		153 03 2010
09	Spring Assembly	1		151 02 16 000
08	Bow Lift Cylinder Assembly	1		151 02 12 100
07	Blade Tensioning Assembly	1		151 02 11 000
06	Gearbox Assembly	1		151 02 08 000
05	Clamp Complete	1		151 02 06 400
04	Bow Assembly	1		151 02 04 000
03	Flange Joint Assembly	1		151 02 23 200
02	Clamp Assembly	1		151 02 06 700
01	Machine Base Assembly	1		151 02 01 003
PART NAME: KMT 220 CRAFT DM			PART CODE: 154 03 108	

## 9.1. MACHINE BASE ASSEMBLY



Part No	Part Name	Q.ty	Description	Part Code
04	Nut	4		150 06 375
03	Shim	4		150 06 235
02	Machine Base Lower Group	1		151 02 01 460
01	Machine Base Upper Group	1		151 02 01 650
<b>PART NAME: MACHINE BASE ASSEMBLY</b>			<b>PART CODE: 151 02 01 003</b>	

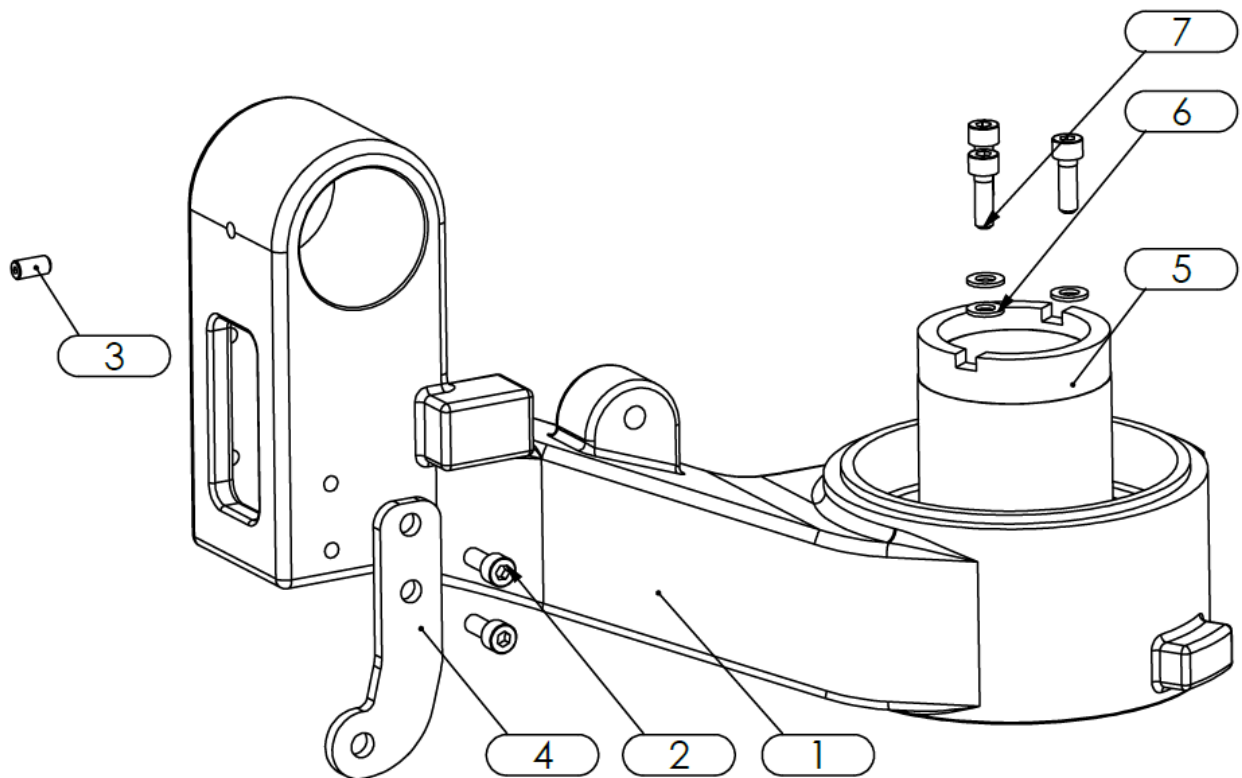
### 9.1.1. MACHINE BASE UPPER GROUP



Part No	Part Name	Q.ty	Description	Part Code
16	Bolt	4		150 06 020
15	Pressure Arm Flange	1		151 02 06 667
14	Roller Group	1		151 02 01 300
13	Coolant Cover Plate Complete	1		151 02 01 190
12	Swarf Hamper	1		151 02 01 180
11	Bolt	4		150 06 241
10	Coolant Pump	1		150 02 017
09	Nut	2		150 06 317
08	Bolt	2		150 06 1328
07	Bakalite Nut	2		150 06 298
06	Lock Pin	2		151 02 01 172
05	Bolt	2		150 06 934
04	Cylinder Throttle Valve	1		151 02 12 121
03	Upper Shimmer	1		151 02 01 615
02	Drawer Group	1		151 02 01 611
01	Base Upper Frame	1		151 02 01 630
<b>PART NAME: MACHINE BASE UPPER GROUP</b>			<b>PART CODE: 151 02 01 650</b>	

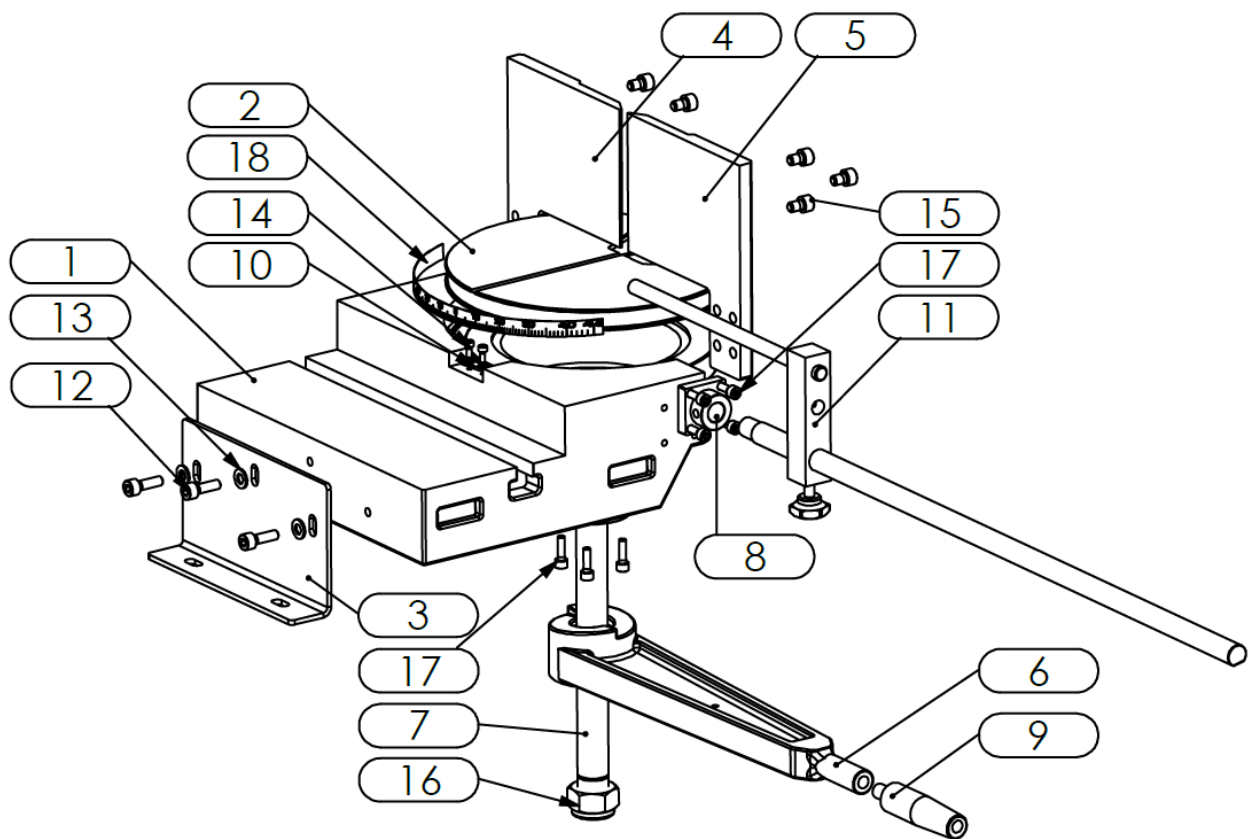


## 9.2. FLANGE JOINT ASSEMBLY



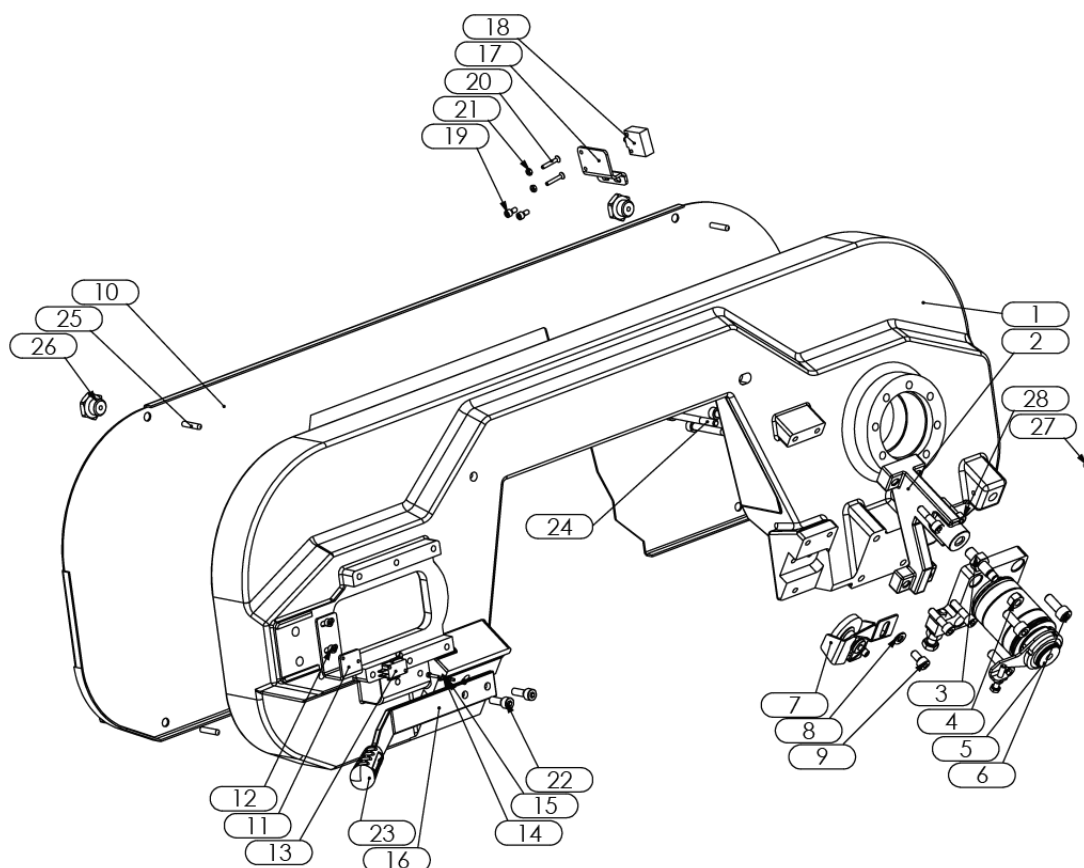
Part No	Part Name	Q.ty	Description	Part Code
07	Bolt	3		150 06 201
06	Shim	3		150 06 176
05	Connection Flange Complete	1		151 02 23 201
04	Spring Connection Lama	1		151 02 23 112
03	Stay Bolt	1		150 06 168
02	Bolt	2		150 06 200
01	Flange Joint Moulding	1		151 02 23 101
PART NAME: FLANGE JOINT ASSEMBLY			PART CODE: 151 02 23 200	

### 9.3. CLAMP ASSEMBLY



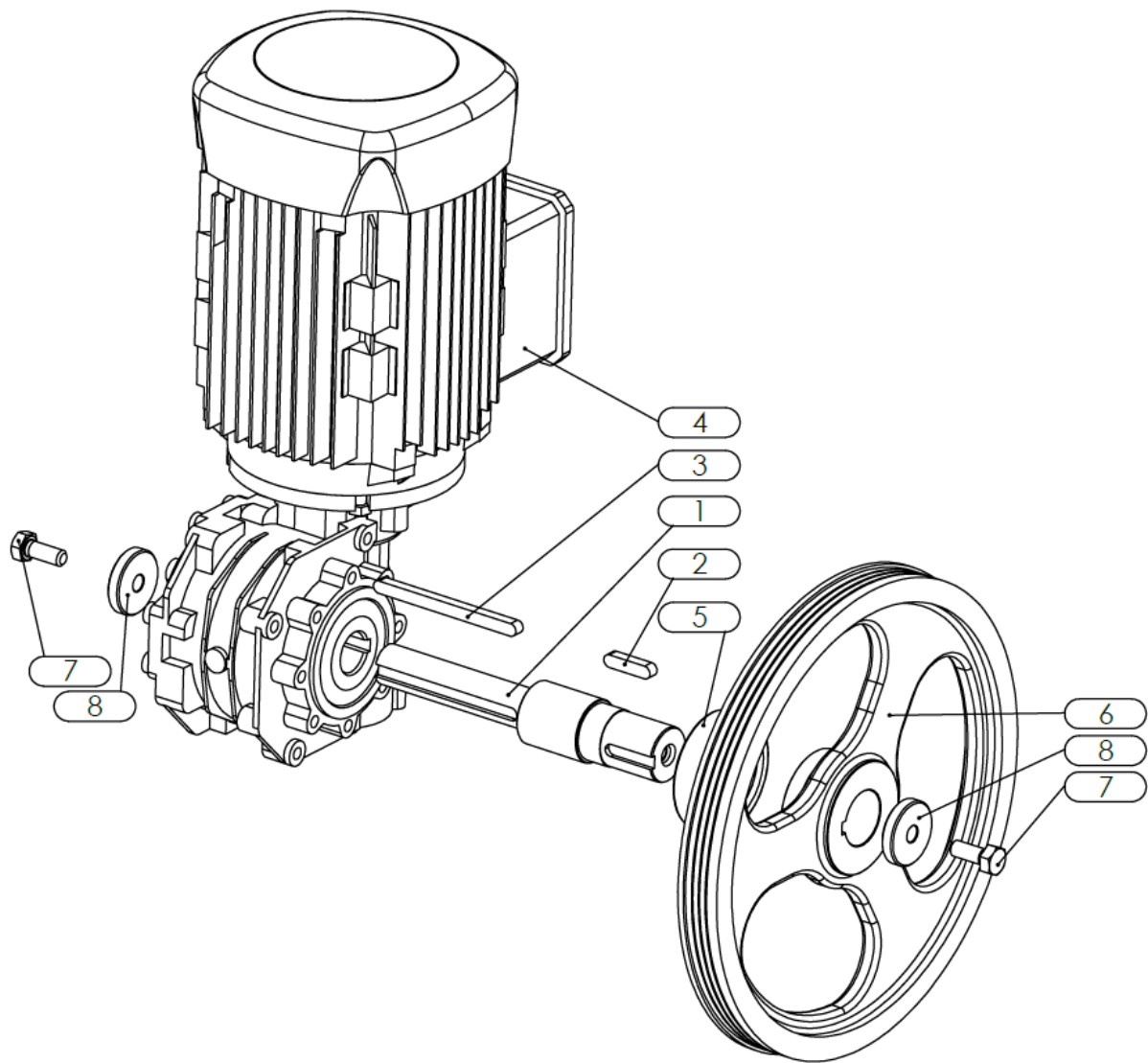
Part No	Part Name	Q.ty	Description	Part Code
18	Angle Indicator	1		150 10 368
17	Bolt	8		150 06 241
16	Nut	1		150 06 058
15	Bolt	6		150 06 199
14	Bolt	2		150 06 133
13	Shim	3		150 06 176
12	Bolt	3		150 06 201
11	Lenght Adjustment Group	1		151 02 06 250
10	Ordinal	1		151 03 23 092
09	Bakalite Knob	1		151 02 06 668
08	Ruler Fixing	1		151 02 06 665
07	Mile	1		151 02 06 660
06	Pressure Arm	1		151 02 06 659
05	Fixed Right Plate	1		151 02 06 657
04	Fixed Left Plate	1		151 02 06 656
03	Fixing Plate	1		151 02 06 655
02	Rotary Table	1		151 02 06 651
01	Clamp Lower Table	1		151 02 06 650
PART NAME: CLAMP ASSEMBLY			PART CODE: 151 02 06 700	

## 9.4. BOW ASSEMBLY



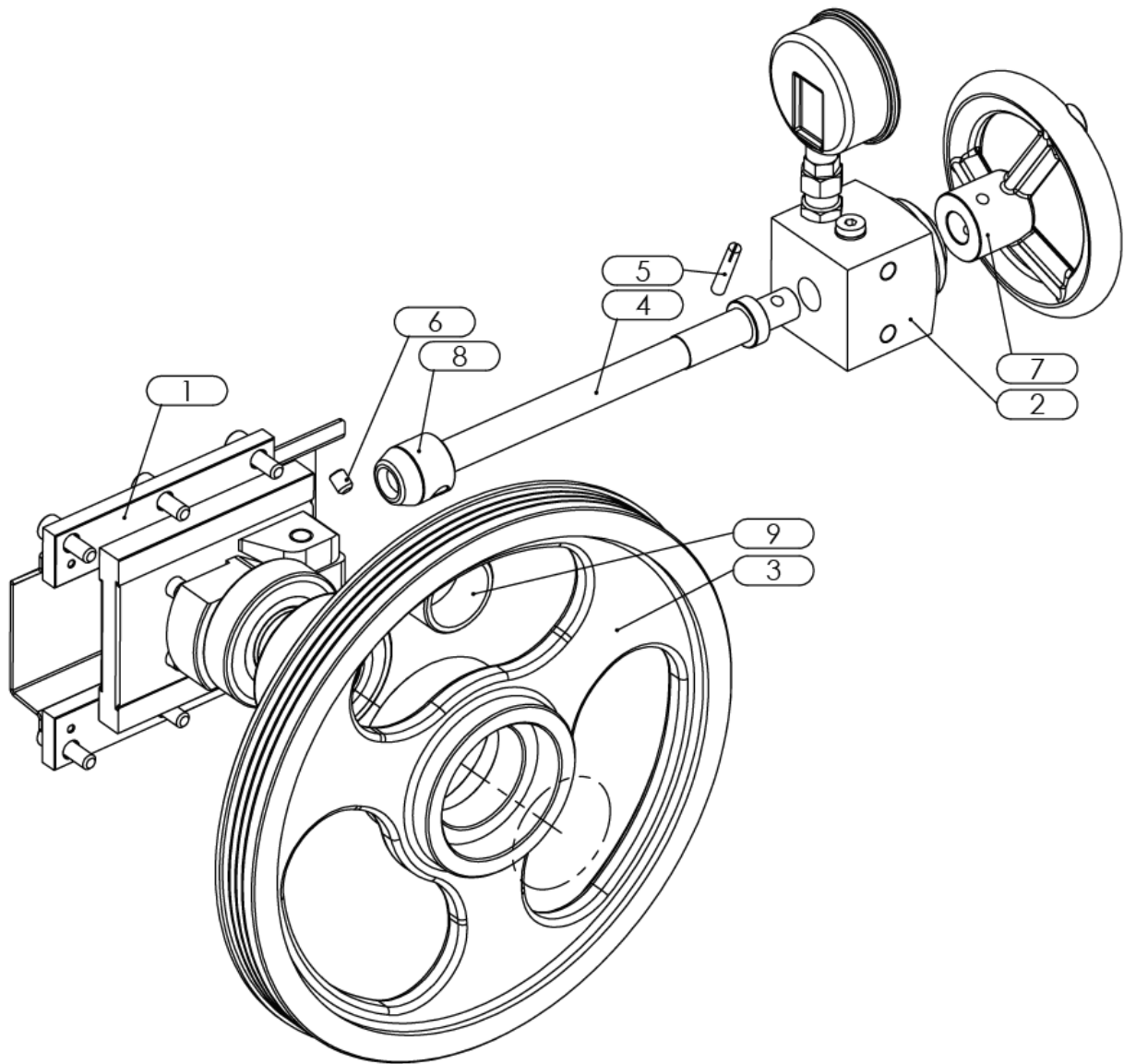
Part No	Part Name	Q.ty	Part Code	Part No	Part Name	Q.ty	Part Code
14	Bolt	2	150 06 988	28	Bolt	4	150 06 042
13	Switch	1	150 01 050	27	Stay Bolt	1	150 06 563
12	Bolt	2	150 06 353	26	Nut	4	150 06 380
11	Switch Plate	1	151 02 11 158	25	Stay Bolt	4	150 06 463
10	Cover Complete	1	151 02 04 110	24	Bolt	8	150 06 1327
09	Bolt	1	150 06 948	23	Knob	1	150 06 1440
08	Shim	1	150 06 176	22	Bolt	2	150 06 201
07	Swarf Brush Assembly	1	151 02 04 200	21	Nut	2	150 06 817
06	Bolt	4	150 06 003	20	Bolt	2	150 06 1339
05	Connector Complete	1	151 02 04 105	19	Bolt	2	150 06 336
04	Nut	1	150 06 317	18	Switch	1	150 01 020
03	Body Lift Mile	1	151 02 04 103	17	Cover Switch Plate	1	151 02 04 120
02	Body Lift Part	1	151 02 04 102	16	Lift Arm	1	151 02 04 121
01	Body Part	1	151 02 04 101	15	Nut	2	150 06 814
PART NAME: BOW ASSEMBLY				PART CODE: 151 02 04 000			

## 9.5. GEARBOX ASSEMBLY



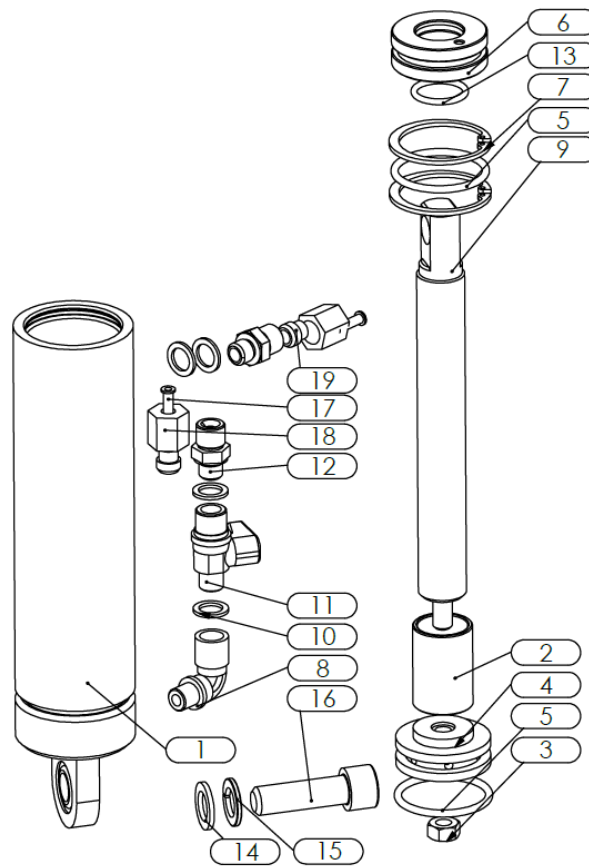
Part No	Part Name	Q.ty	Description	Part Code
08	Gearbox Mile Shim	2		151 02 08 105
07	Bolt	2		150 06 029
06	Gearbox Side Blade Wheel	1		151 02 08 101
05	Bearing	1		150 06 112
04	Gearbox With Motor	1		SW 63 90S MOTOR
03	Gearbox Wedge	1		150 06 763
02	Wheel Wedge	1		150 06 762
01	Gearbox Mile	1		151 02 08 102
<b>PART NAME:</b> GEARBOX ASSEMBLY			<b>PART CODE:</b> 151 02 08 000	

## 9.6. BLADE TENSIONING ASSEMBLY



Part No	Part Name	Q.ty	Description	Part Code
09	Wheel Bushing	1		151 02 11 153
08	Tensioning Shaft Bushing	1		151 02 11 116
07	Plastic Wheel	1		151 02 11 111
06	Bolt	1		150 06 253
05	Split Pin	1		150 06 180
04	Hydromechanic Tension Shaft	1		151 02 11 106
03	Wheel	1		151 02 11 104
02	Pressure Indicator Assembly	1		151 02 11 107
01	Blade Tensioning Group	1		151 02 08 102
<b>PART NAME:</b> BLADE TENSIONING ASSEMBLY			<b>PART CODE:</b> 151 02 11 000	

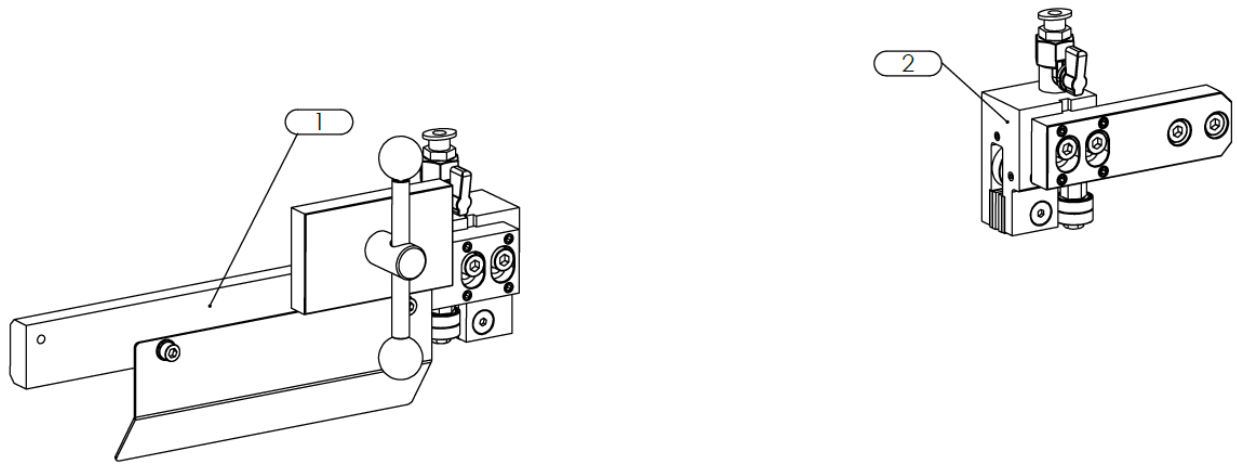
## 9.7. BOW LIFT CYLINDER ASSEMBLY



Part No	Part Name	Q.ty	Description	Part Code
19	Collet	2		150 04 756
18	Nut	2		150 04 755
17	Capsule	2		150 04 754
16	Bolt	1		150 06 041
15	Copper Shim	1		150 06 247
14	Shim	1		150 06 235
13	O-ring	2		150 04 639
12	Fitting	2		150 04 710
11	Valve	1		150 06 1292
10	Shim	4		150 06 810
09	Cylinder Shaft	1		151 02 12 105
08	Yellow Elbow Fitting	1		150 04 412
07	Segment	2		150 06 1263
06	Cylinder Upper Cover	1		151 02 12 106
05	O-ring	2		150 04 670
04	Seal Bushing	1		151 02 12 104
03	Nut	1		150 06 292
02	Cylinder Bushing	1		151 02 12 107
01	Cylinder Frame	1		151 02 12 101
<b>PART NAME: BOW LIFT CYLINDER ASSEMBLY</b>			<b>PART CODE: 151 02 12 100</b>	

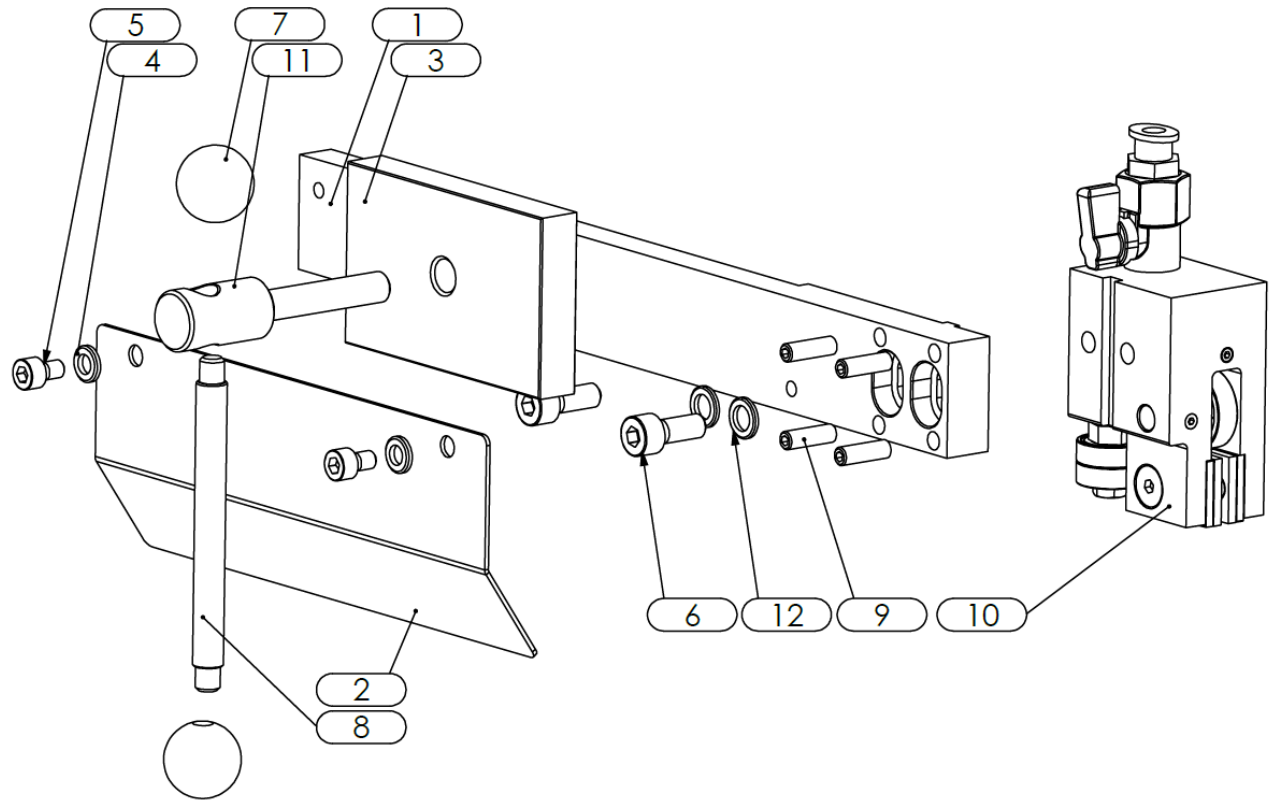


9.8. BLADE GUIDE ASSEMBLY



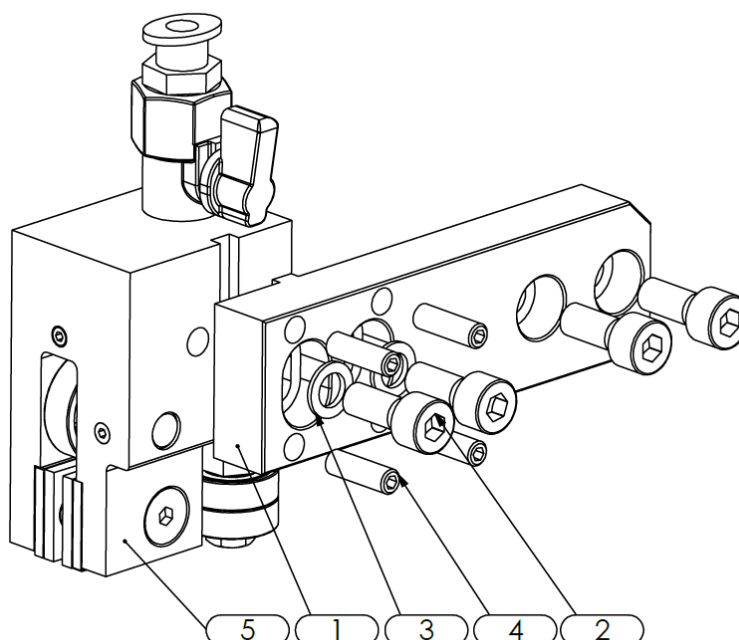
Part No	Part Name	Q.ty	Description	Part Code
02	Fixed Blade Guide Complete	1		151 02 15 100
01	Mobile Blade Guide Complete	1		151 02 15 200
PART NAME: BLADE GUIDE ASSEMBLY			PART CODE: 151 02 15 000	

9.9. MOBILE BLADE GUIDE COMPLETE



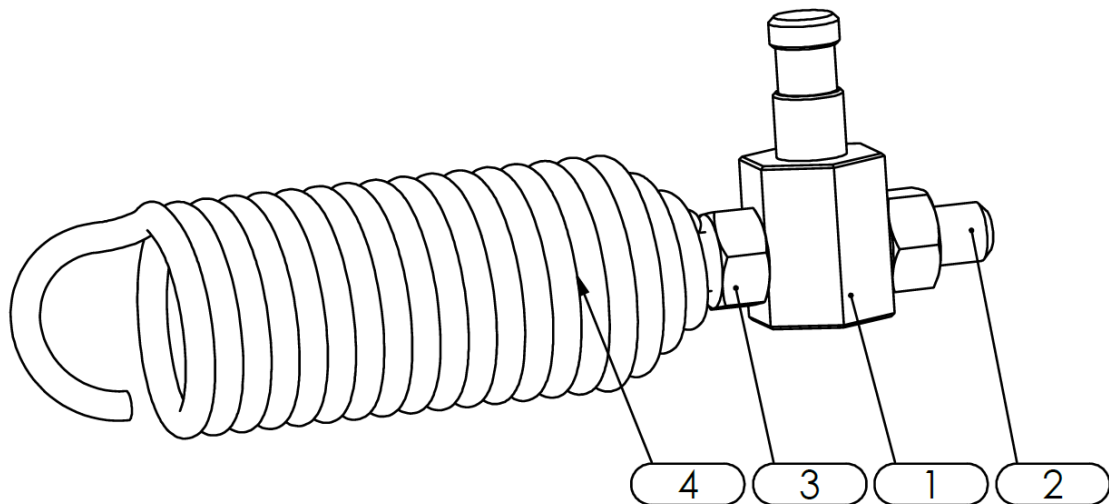
Part No	Part Name	Q.ty	Description	Part Code
12	Copper Shim	2		150 06 359
11	Locking Arm	1		151 09 15 700
10	Left Block Complete	1		151 03 15 111
09	Stay Bolt	4		150 06 256
08	Pressure Arm Mile	1		151 09 15 800
07	Bakalite Nut	2		150 06 298
06	Bolt	2		150 06 200
05	Bolt	2		150 06 134
04	Shim	2		150 06 055
03	Blade Slide Fixed	1		151 03 15 500
02	Blade Protection Cover	1		151 02 15 202
01	Mobile Blade Guide	1		151 02 15 201
<b>PART NAME: MOBILE BLADE GUIDE COMPLETE</b>			<b>PART CODE: 151 02 15 200</b>	

## 9.10. FIXED BLADE GUIDE COMPLETE



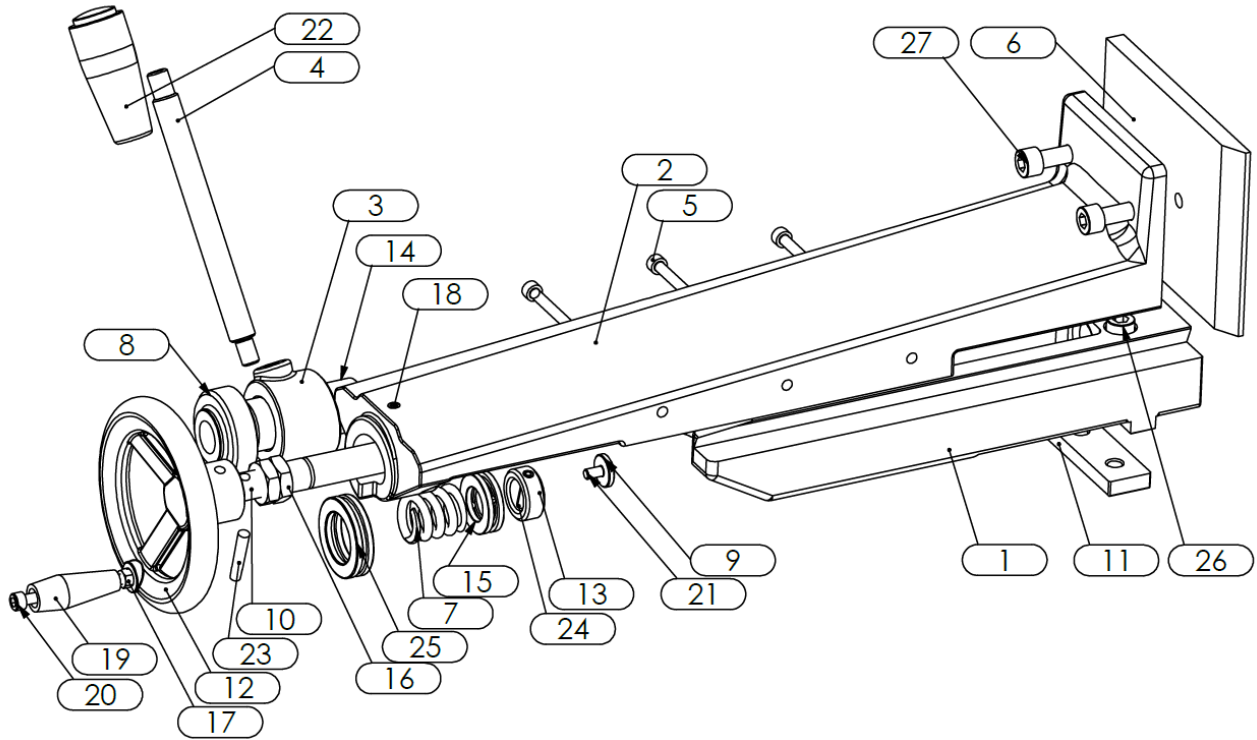
Part No	Part Name	Q.ty	Description	Part Code
05	Right Block Complete	1		151 03 15 112
04	Stay Bolt	4		150 06 256
03	Copper Shim	2		150 06 359
02	Bolt	4		150 06 200
01	Fixed Blade Guide	1		151 02 15 101
<b>PART NAME: FIXED BLADE GUIDE COMPLETE</b>			<b>PART CODE: 151 02 15 100</b>	

## 9.11. SPRING ASSEMBLY



Part No	Part Name	Q.ty	Description	Part Code
04	Conical Spring	1		151 02 16 151
03	Nut	2		150 06 317
02	Bolt	1		150 06 891
01	Tension Shaft	1		151 02 16 102
PART NAME: SPRING ASSEMBLY			PART CODE: 151 02 16 000	

## 9.12. CLAMP COMPLETE



Part No	Part Name	Q.ty	Part Code	Part No	Part Name	Q.ty	Part Code
14	Bearing Bush	1	151 02 06 306				
13	Spring Shim	1	151 02 06 305	27	Bolt	2	150 06 003
12	Plastic Wheel	1	151 02 11 111	26	Bolt	2	150 06 1213
11	Tespit Laması	1	151 02 06 409	25	Bearing	1	150 06 1273
10	Clamp Shaft	1	151 02 06 405	24	Pin	1	150 06 094
09	Clamping Shim	1	151 02 06 340	23	Pin	1	150 06 180
08	Bearing Cover	1	151 02 06 309	22	Bakalite Nut	1	150 06 1331
07	Vise Pressure Spring	1	151 02 06 308	21	Bolt	1	150 06 1340
06	Vise Jaw	1	151 02 06 408	20	Bolt	1	150 06 1507
05	Bolt	3	150 06 1303	19	Bakalite Knob	1	150 06 1366
04	Vise Pressure Mile	1	151 02 06 320	18	Stay Bolt	2	150 06 253
03	Pressure Arm	1	151 02 06 307	17	Nut	1	150 06 392
02	Top Body	1	151 02 06 402	16	Nut	2	150 06 828
01	Vise Sledge	1	151 02 06 401	15	Bearing	1	150 06 398
PART NAME: CLAMP COMPLETE				PART CODE: 151 02 06 400			



11 POWER CIRCUIT DIAGRAM

