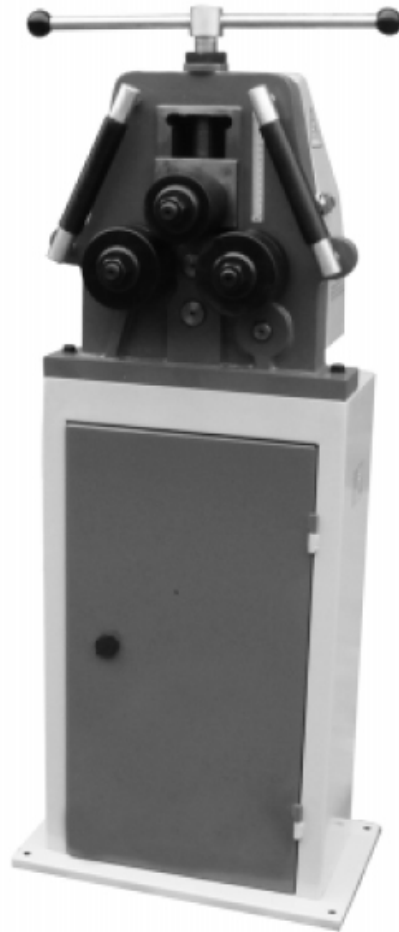


SECTION ROLL BENDER

Model: RBM-10



Operation Manual

GENERAL NOTES

1. Introduction

This manual is for your safety and is essential information for a long production life. As long as you keep up with our manual, you will be able to run your machine smoothly and safely. Keep in mind that the machine is designed for maximum safety and efficiency.

In this manual you can find instructions and information about:

- ① Correct installations of the machine
- ① Description of the functional parts of the machine
- ① Set-up and start-up adjustments
- ① Correct standard and scheduled maintenance
- ① Simple safety regulations and accident prevention

Possible risks connected with machine operation are pointed out as follows:

Attention: Shows the risks of accident, if instructions are not followed.

Warning: Shows the probable damages to the machine or equipment, if the instructions are not strictly followed.

Note: It gives useful information.

It is certainly necessary that the operator should read and understand all the ATTENTION, WARNING notes specified in this manual before operating machine and before any lubrication or maintenance intervention.

Safety must be your first concern during all steps of installation, operation and maintenance for the protection of yourself, other users and the service of the machine.

In case of any failure please first refer to this manual, and then if a solution can not be found contact first of all the distributor where you purchased our product. Do not forget to refer to the drawings and the number for any spare part needed or to define any problem. Make sure you have the serial number and production year of the machine. Our technical staff will do their best to help you in the most convenient way.

2. Transport

Remove any protective crates around the machine and read the instructions on related chapters of this manual carefully to set up the machine. If the machine is damaged in transport, immediately take photographs for insurance claims.

Take precautions while loading / unloading or moving the machine to avoid any injuries. Refer also to the related chapter of this manual for the best way of handing the machine.

3. Maintenance

Your machine is designed and produced to work efficiently and smoothly. To achieve this, you should also take care while operating the machine. Take heed of the maintenance sections to give your machine the longest possible life. Try and use original spare parts where necessary and most importantly do not overload the machine or do not make any unauthorized modifications.

4. Safety

Take all precautions possible to avoid any personal injury while using the machine. Keep in mind to protect the third party people around the machine. Refer to safety instructions.

GENERAL WARRANTY TERMS

ⓘ Your machine is covered by manufacturer's guarantee for a period of 12 months from the date of production against manufacture defects.

ⓘ The warranty covers only manufacture defective parts and / or components that are reported as "defective" by distributor, technician or the agent technician and must be reported to distributor in writing by fax or e-mail.

ⓘ The manufacturer is responsible for the supply of free of charge spares only and can not be held responsible for loss of work.

ⓘ Shipping and customs fees for the spare part must be paid by the end-user.

ⓘ A warranty claim does not relieve the customer from payment obligations.

ⓘ The customer can not ask or demand any reimbursement of damage nor the customer will have the right to extend or delay payment obligations nor the cancellation of order and the refunding of damages as the guarantee is given for the defective parts of the machine and not for the job.

Note: all warranty claims must include the model, serial number and the manufacture year of the machine.

GENERAL SAFETY TERMS

1. Machine's safety accessories and accident prevention terms

ⓘ No other persons except for a qualified and well-trained operator should be allowed to use the machine and be present in the working area of the machine

ⓘ Before making any modifications to change the machine's use, please contact to distributor, and ask their written approval.

2. Abnormal conditions

In order to avoid unusual working conditions, several recommendations to the operator are listed. Also, do not forget that this machine can be used only in the conditions presented in this operation and maintenance handbook.

ⓘ Avoid approaching the operator while the machine is running.

ⓘ Loading and unloading of the material should be done according to the instructions of this handbook.

ⓘ During the bending process avoid holding material by hand.

ⓘ Never wear garments with loose parts, which may become caught in the machine parts like necklaces, ring etc, and avoid long loose hair.

ⓘ Never use materials outside the operational specifications of the machine.

ⓘ Never run the machine without safety devices.

ⓘ Don't climb on the machine.

ⓘ If the customer wants to install a piece of equipment on the RBM-10, which has not been supplied

by us. compliance with the safety conditions explained here must be checked.

- ⚠️ The machine can not be installed and used in corrosive environments.
- ⚠️ The machine must always be operated with one qualified operator who has the required knowledge to use this machine properly.

TRANSPORTING, LIFTING AND CARRYING

Before preparing the machine for installation and start-up, a detailed visual account is required in order to detect any possible damages that occurred during transporting and handing. The distributor has to be informed of unexpected occurrence straight away.

If one or several parts of the machine have been damaged while shipping, the installation of the machine has to be suspended.

While lifting take care of these points:

- ⚠️ Always lift and carry the machine from the handles.
- ⚠️ Use a steel rope capable of carrying 167 kg.
- ⚠️ Take precautions for handing and lifting.
- ⚠️ Check if the load is properly balanced by lifting it an inch or two.
- ⚠️ Lift the machine, proceeding with care, without sudden accelerations or quick changes of directions.
- ⚠️ Place the machine where it must be installed lower the machine slowly till it touches the floor.

Figure 1 shows a way of carrying the machine. You can use a crane with hook or a forklift for handing operation.

Attention: Lifting and carrying operations should be carried out by skilled workers, such as truck operator, crane operator, etc. Also, it is necessary to keep in mind that having a large clearance area around the machine is important for efficient and safe working conditions.

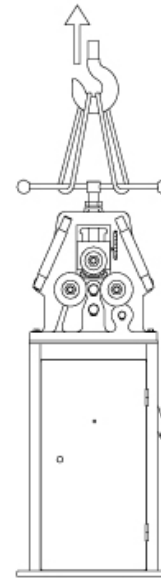


Figure 1

FOUNDATION AND MAIN DIMENSIONS OF THE MACHINE

For good operation, the machine needs to be bolted to the floor with anchor bolts as shown in figure 1. However, since the RBM-10 does not run at high operational speeds, it is not necessary to use technical devices to reduce the transmission of vibrations.

Note: for a correct operation the machine must be placed on a flat, preferably concrete base and even floor. Also, it must perfectly vertical.

Figure 1 and figure 2 show the main dimensions of the machine. Figure 3 shows the area into which anyone except for operator is forbidden to enter.

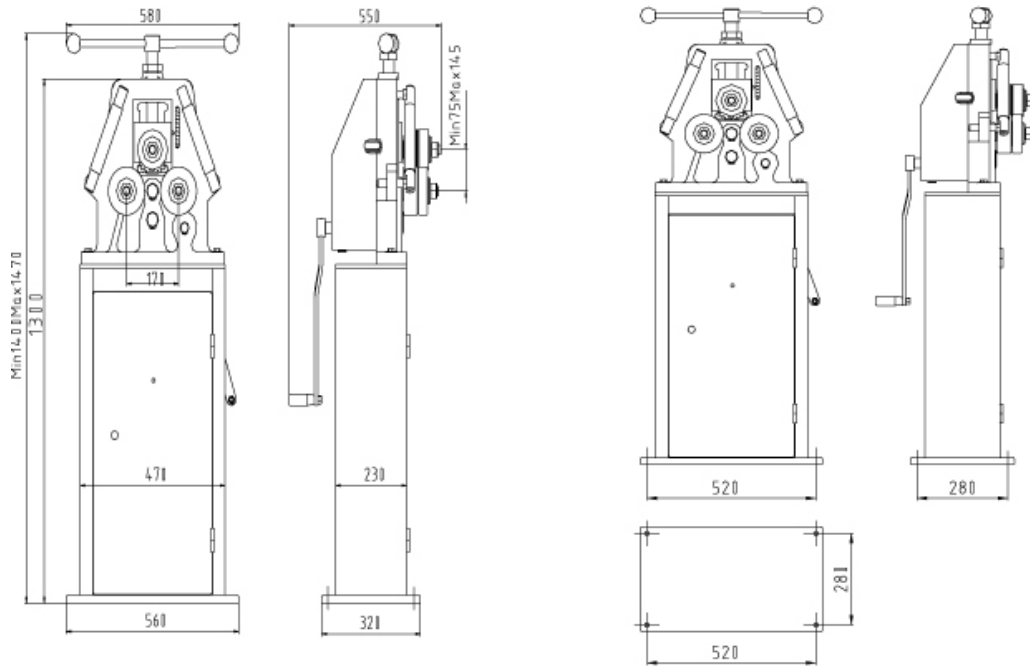


Figure 2

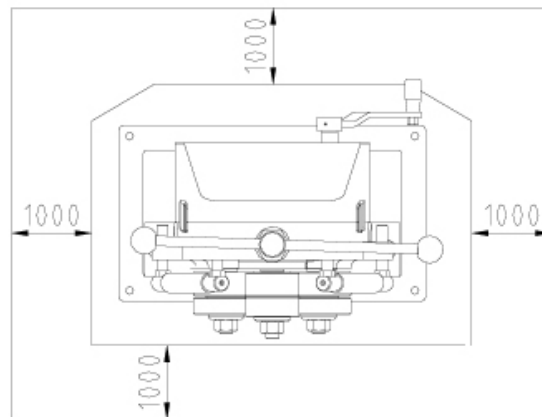


Figure 3

Note: The manufacturer does not accept any responsibility for damages due to the nonobservance of the listed specifications.

Note: All machines must be carefully adjusted before operation with a water gauge.

RBM-10's TECHNICAL PROPERTIES

Shaft diameters: 1.18"

Lower rolls diameters: 4.65"

Upper roll diameters: 3.86"

Weight: 167.00 kg

Length: 58.00 cm

Width: 55.00 cm

Height: 147.00 cm

1. STANDARD SPECIFICATIONS

- 1. Two rollers are manually powered
- 1. Special cast frame
- 1. Rolls shafts are special hardened steel
- 1. Standard rolls, guide rolls
- 1. Solid cast gears
- 1. User's manual book

2. SPECIAL FEATURES















- 1. Special rolls for pipe, tube and profile bending
- 1. Extended roll shafts]

3. SAFETY UNITS

- 1. Various DANGER signs around the machine

Note: Due to various safety regulations, the specifications presented here can change without prior notice. Above dimensions and other characteristics can also change without prior notice due to our constant improvements on our products.

CAPACITY CHART FOR RBM-10

NO	Profile Type	Max	Min	Notes
1		0.78x0.19 1.18x0.39	7.5 19.685	Standard rools
2		0.78x0.19 1.96x0.39	6.25 15.748	Standard rools
3		0.39 0.78	6.28 19.685	Standard rools
4		0.39 0.78	6.28 19.682	Optional rools
5		0.984x0.59 1.18x0.78	15.748 31.496	Optional rools
6		3 4 1	19.685 27.559	Optional rools
7		1.18x0.59x0.59 1.5x0.78x0.78	23.622 39.37	Optional rools
8		0.787x0.787x0.078 1.181x1.181x0.078	23.622 35.433	Optional rools
9		1.181x1.181x0.157 1.37x1.37x0.157	15.748 31.496	Optional rools
10				Optional rools
11		1.181x1.181x0.157 1.37x1.37x0.177	15.748 23.622	Standard rools
12		1.181x1.181x0.157 1.37x1.37x0.177	15.748 23.622	Standard rools
13		1.181x1.181x0.177 1.574x0.787x0.196	19.685 27.559	Standard rools
14		1.181x0.59x0.177 1.574x0.787x0.196	19.685 27.559	Standard rools

Capacities are given for ST 42 material.

We reserve the right to make changes without notices.

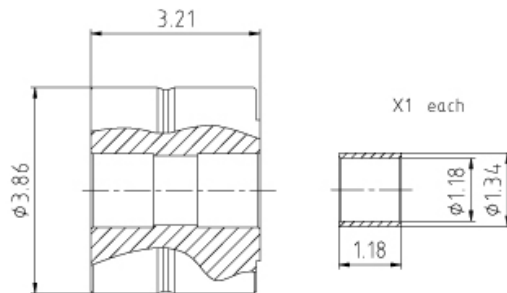
Warning: Do not feed profiles having a higher thickness than specified for the capacity of the machine.

Do not feed more than one piece at a time.

Do not use the machine for any other scope the one for which it has been designed.

STANDARD ROLLER DIMENSIONS FOR RBM-10

TOP ROLL



BOTTOM ROLLS

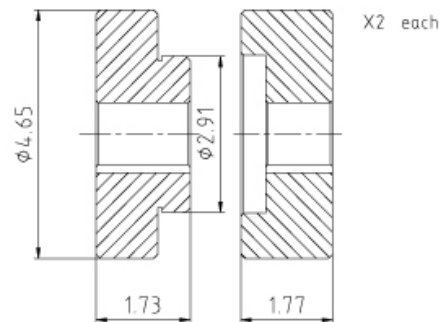


Figure 4

Roll material SAE 1050 hardened to > 56 HRC

Note: Special rollers are available from us.

START-UP INSTRUCTIONS

1. Materials and products

Although the machine is mainly steel, it is not designed for handling flammable or detrimental products. It is duty of the customer to check if the materials to be processed are potentially hazardous. Also, it is duty of the customer to check if the processed materials can be dangerous for the operator working nearby.

When selecting the most appropriate operation material you should keep in mind those instructions:

Material choice:

- ⓘ Material must be clean of oil and dry. (without oil)
- ⓘ Material should have a smooth surface so it processes correctly and easily.
- ⓘ Material diameter must be regular and match the values explained in the instructions.
- ⓘ Chemical structure of material must be homogenous and the hardness value must always be same throughout the material.
- ⓘ We recommend you buy certificated steel.
- ⓘ Material should also be bought from the same place when possible.

Note: The thorough cleaning of the rolls is absolutely necessary in order to avoid possible sliding of the profile due to grease residues on the rolls.

2. Operating the machine

The following rules must be applied for better productivity

- ⓘ Select the relevant roll for material to be bent
- ⓘ Place the material on lower rolls

- ⌚ Move the upper roll down, by rotating hand-level placed at the top of machine, until the upper roll contacts to the material which will be bended.
- ⌚ Begin rotating the lower rolls, by turning the hand lever arm that rotates the main powering shaft.
- ⌚ Bending diameter is adjusted by positioning the upper roll at desired level.
- ⌚ In the case of any distressed condition, you can immediately stop rotating the turning.
- ⌚ It is possible to rotate lower rolls in two directions with the turning arm.

OPERATION

1. Operating instructions

Place the material on the roll flatly as shown in the figure 1. Make sure that material is place parallel to the ground and touching all three rolls at the same time. This position is called "zero position".

Move the upper roll down like in figure 2 and position it to apply enough force to bend the material. Do not apply force more than necessary. If you apply too much force you may deflate the material during bending operation.

To get desired diameter make more than one pass by gradually lowering the upper roll after each pass. After a pass if the diameter value is bigger than expected, move the upper roll down to apply more force. If the opposite is the case, than move the upper roll upward using the milimetric ruler as a guide. (look at figure 3).

It is likely that the material will tend to bend right or left. To prevent this, you must adjust the guide rolls as shown in the figures 4 and 5.

As the guides are adjustable on top and bottom, you can arrange them to the opposite of material directional inclination.

Note: To get a circular profile, side guide joints must be parallel to the machine surface. Otherwise, you just get spiral profiles. Figure 6 shows bending operations for different kind of sections with special rolls.

In case of bending long materials, material feeder is advised to use in order to keep work piece parallel to the base ground (see figure 7). This will make it easier to bend such work pieces.

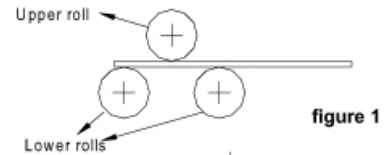


figure 1

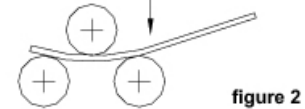


figure 2

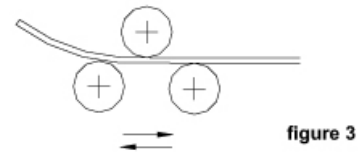


figure 3

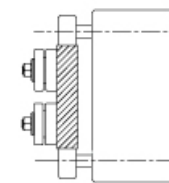


figure 4

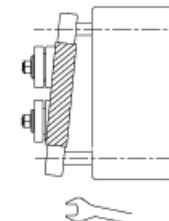


figure 5

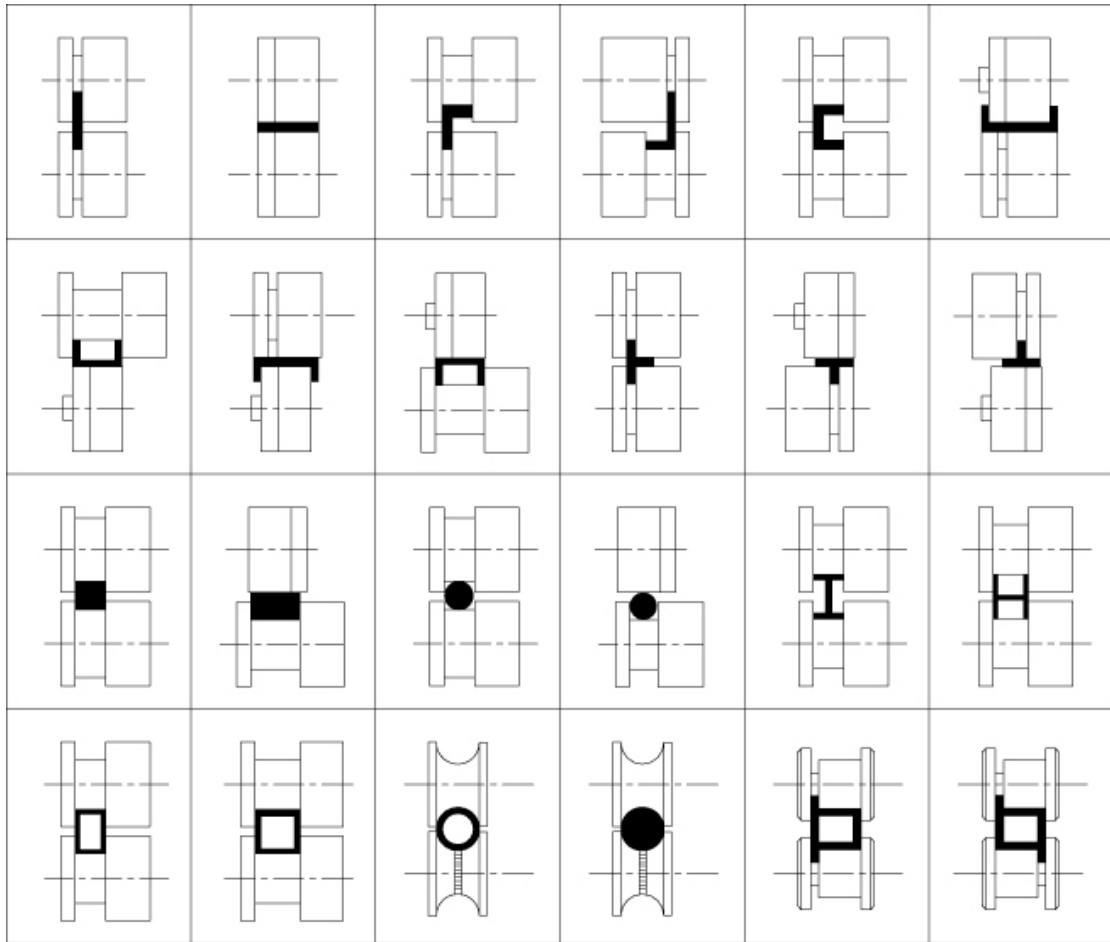


Figure 6

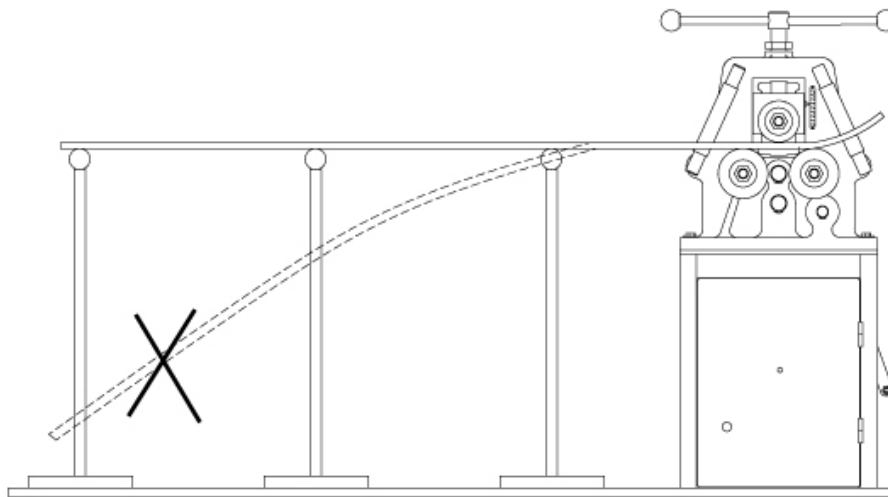


Figure 7

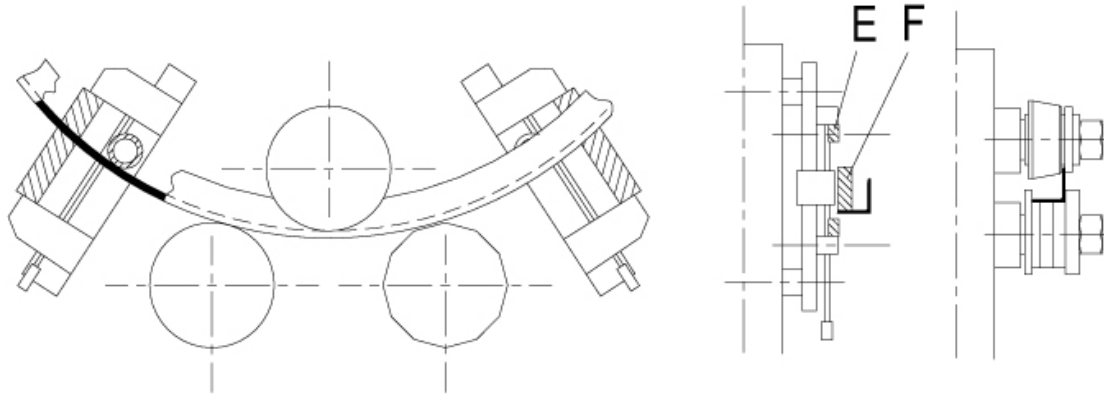


Figure 8

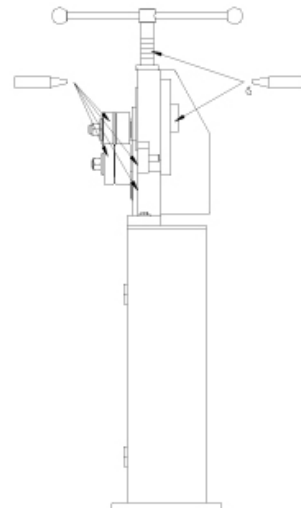
Figure 8 shows the use of "leg-in bending guide rolls". These guide rolls are an optional accessory for bending leg-in (angle) material. They are adjustable for any size of material and easy to use. Special rolls are recommended for any batch jobs of leg-out material. Some of the angle materials can be bent with standard rolls.

2. Operational hints

- ⓘ Always clean the rolls and the material of dust, dirt and grease for bending.
- ⓘ If you are bending a pipe do not rotate the pipe while bending.
- ⓘ We advise you to fill the profiles or pipe with sand or any similar material if they have a wall thickness of less than 0.079".
- ⓘ Do not overload the machine and use special rolls for profiles as well as pipes
- ⓘ Operate safety keeping in mind the third party people around the machine
- ⓘ Leave enough workspace around the machine.

MAINTENANCE

Regular maintenance should be performed by a well-trained mechanical engineer. Gears, shafts, parts under friction stress, and bearings should be greased once a month. Periodic lubricating can help the machine to have a long life and high productivity.



PART LIST

Part number	Description	Qty	Part number	Description	Qty
1	Stand	1	30	Middle bedding slide	2
2	Door	1	31	Lower roll	1
3	Washer 12	2	32	Bearing bushing	2
4	Bolt M12x45	2	33	Washer	3
5	Body	1	34	Nut M24	3
6	Lock buckle	2	35	Bolt M8x30	4
7	Shield	1	36	Washer	3
8	Spring pin 6x35	4	37	Main gear	2
9	Body	1	38	Retaining ring 35	4
10	Nut M36	1	39	Graphite bearing(1)	8
11	Bolt M5x10	4	40	Graphite bearing(2)	2
12	Side guide joint	4	41	Graphite bearing(2)	2
13	Side guide bolt	4	42	Key 8x30	4
14	Bearing	4	43	Key 8x63	2
15	Powering gear shaft	2	44	Lower roll	2
16	Side guide shaft	2	45	Middle gear shaft	1
17	Lever ball M12x50	4	46	Middle gear	1
18	Rotating lever	1	47	Washer	1
19	Turning shaft	1	48	Lower gear shaft	1
20	Bolt M12x30	1	49	Gear	1
21	Washer	1	50	Washer 25	1
22	Bolt	1	51	Graphite bearing(1)	2
23	Bolt M10x60	4	52	Graphite bearing(2)	1
24	Top roll shaft	1	53	Turning hand lever	1
25	Middle bedding	1	54	handle	1
26	Bolt M5x10	1	55	Bolt M6x12	1
27	Nut M8	4	56	Nut M12	1
28	Bolt M8x25	4	57	Hand bar holder	1
29	Finger	1	58	Scale	1

