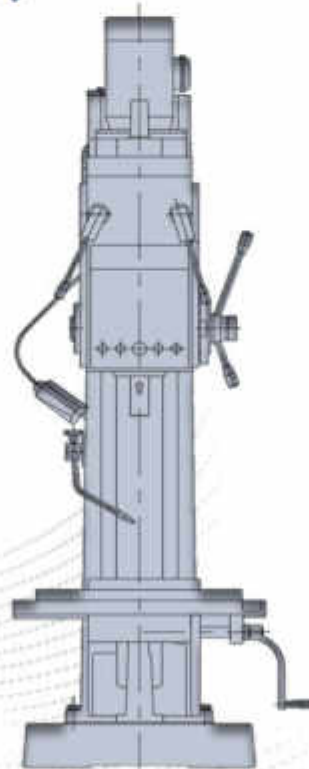


VERTICAL DRILLING MACHINE

Drill models Pro H40

INSTRUCTION MANUAL

Please read the manual before using the machine



Maximum drilling diameter: **Ø40 mm**

Maximum axial force: **16,000 N**

Factory number: _____

Schematic designations



Emergency stop button. When you press the emergency stop button, work stops, but you must remember the moments of inertia of the moving parts of the machine.



Mandatory requirement. Failure to perform a mandatory action is a risk to human safety.



Read the instructions. Be sure to read the manual before starting operation.



Eye protection must be worn. During the operation of the equipment, flying objects/parts are formed. Mandatory eye protection is required.



Wear head protection. There is a possibility of injury to the head by objects or by hanging objects.



Be sure to use a container. Material used or formed may present a tripping or slipping hazard.



It is forbidden to touch. Any physical contact with the object of designation is prohibited. Contact with hands and other objects is prohibited.



It is forbidden to stick your hands inside. Do not insert hands or other objects into the openings. There is a risk of injury.



Do not use gloves. It is not allowed to use gloves during the operation of the equipment. The use of gloves can cause hands to be caught by moving parts of the machine.



Do not work with long hair. Long hair should be covered in a cap or bandana.



It is forbidden. It is forbidden to perform any actions marked with this sign.



Pay attention. Be sure to pay attention to the warning. Failure to do so may result in injury.



Electric current. This symbol indicates that contact may cause electric shock.



Attention, in a suspended state. The load is suspended, do not walk under the load, act carefully to avoid injury.



Flammable substances. This sign warns of a high risk of fire, it is necessary to take measures to prevent fire.



Sharp elements. Parts or objects have sharp elements, possible injury, be careful.



Opposite rotation of moving parts. Moving parts rotate in opposite directions, tightening is possible.



Toxic materials. Handle with care, do not taste, in case of skin contact, wash with running water.

1. **Manufacturer's guarantees**



1 In order to receive a guarantee, you need to present documents that clearly confirm the purchase of the machine from the STH company.

2 The warranty applies only to equipment defects (according to the terms of delivery) and does not cover the costs of delivery, call-out, relocation and the work of technicians, except in cases provided for by the terms of delivery.

3 The manufacturer guarantees the compliance of the product with the technical characteristics when meeting the requirements of transportation and storage, as well as operation in accordance with the requirements of the operating documents supplied with the machine.

4 The warranty period of operation is 12 months. The first day is considered the start of operation of the machine, but not more than 18 months from the moment of receipt of the machine by the buyer. The warranty period may be changed by the terms of supply (according to the terms of the supply contract).

5 The manufacturer does not bear warranty obligations when the conditions and rules of operation of the equipment, current and planned repairs are violated, as well as if the Buyer makes constructive changes to the equipment or operates the equipment in violation of safety regulations.

6 Warranty service is performed in accordance with the legislation of Ukraine and the terms of the equipment supply contract. The warranty period of equipment maintenance can be extended by agreement of the parties.

2. **Security**



Purpose of the machine

The drilling machine is designed for drilling, countersinking, reaming, threading and other operations for processing holes in parts. The machine can be used both in production and for repair operations.

It is allowed to process only reliably installed and securely fastened parts. Only personnel who have undergone safety training are allowed to operate and service the machine. It is necessary to observe the minimum age of the employee established by law.

It is allowed to operate the machine only in good condition in accordance with the technical passport data of the machine.

All protective devices and devices must be in place when using a verst.

Together with the instructions of this manual on the safety of operation, it is also necessary to be guided by the safety features of the legislation of Ukraine for lathes.

Using the machine in violation of the safety instructions and the operating instructions is considered improper, and the manufacturer is not responsible for the resulting damages. All risks are borne by the owner of the equipment.

General safety regulations



Metalworking machines can be dangerous if used incorrectly. Therefore, for the safe operation of the machine, it is necessary to observe safety techniques and the following recommendations.

Please read this manual carefully before putting the machine into operation and starting the machine. Store this manual together with the machine in a place protected from dirt and moisture.



It is forbidden to make changes to the design of the machine and to modify it. Modernization of the machine must be carried out by qualified workers and under the control of the equipment manufacturer.

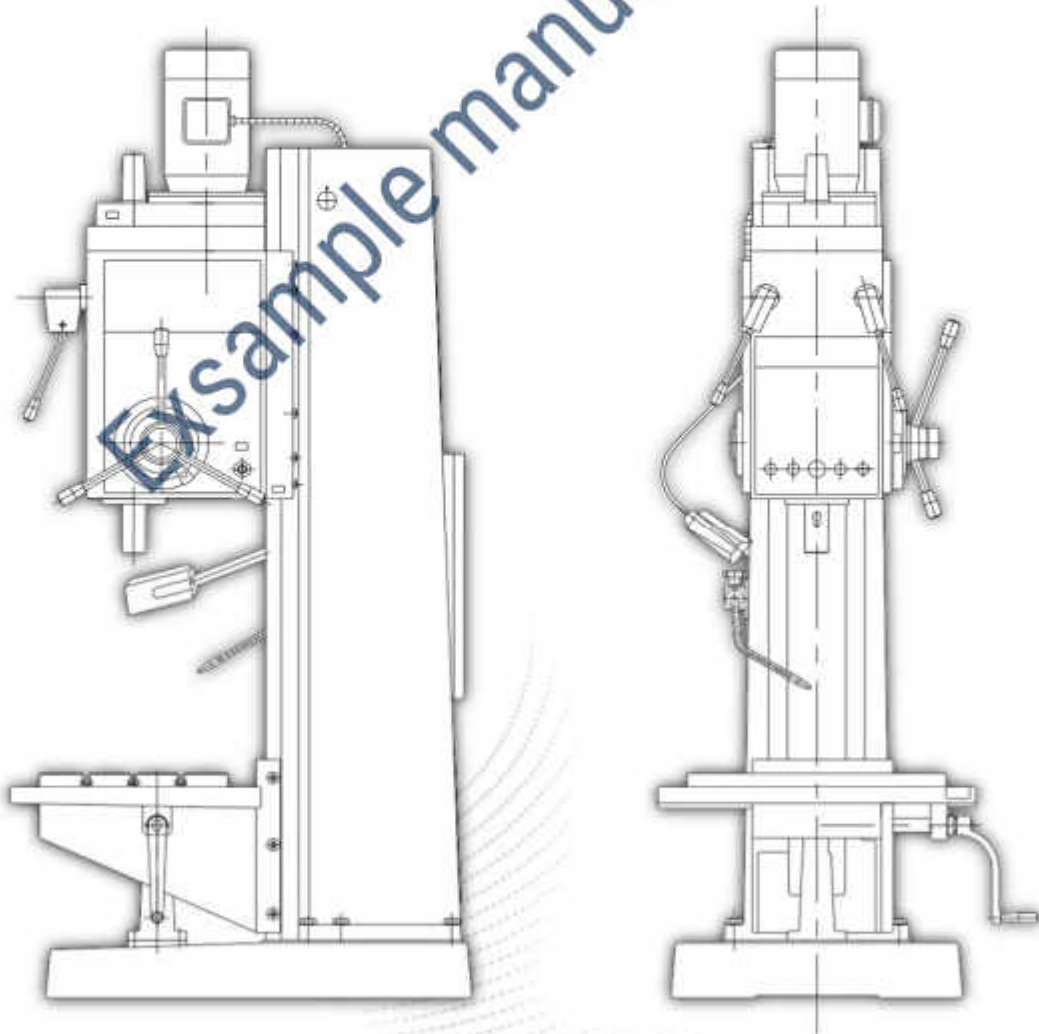
All malfunctions of the machine must be reported to the responsible person. In the event of a malfunction, it is forbidden to use the machine, disconnect the machine from the power supply.



1. Parts of the equipment that can no longer be used or recycled must be transferred to a specialized department for the processing of poisonous, toxic and other non-degradable waste, such as batteries, electrical components, rubber, etc.

2. Fluid that cannot be used or reused, such as lubricant, coolant, etc. should merge into the place provided for this.

4. General appearance of the machine



Picture 4.1 -General appearance of the machine

Vertical drilling machine models S - Drill Pro is a general-purpose machine for machining holes in various materials.

In addition to the operation of drilling holes in a solid material, the machine tool can perform operations of reaming, conical countersinking, countersinking and

opening of holes, thread cutting, and various mechanical processing operations can also be performed on the machine tool, depending on the tool.

The machine has relatively small overall dimensions in height, but has high rigidity, high precision and low noise during operation, a wide range of cutting parameters. The machine also has a centralized control and a good appearance, and has an easy maintenance and use process.

The machine is used in repair, tooling and small-scale production, the machine can be used in the production shops of machine-building enterprises and also in large-scale production, subject to compliance with the recommendations for the maintenance of this machine when working in difficult conditions.

Drill model machine Pro has been tested for geometric accuracy and rigidity of vertical drilling machines in accordance with:

- ISO 2772:2023 – Test conditions for box type vertical drilling machines. Accuracy check
- ISO 230-1:2012 – Norms and rules for testing metal cutting machines, Part 1. Geometric accuracy of machines working at idle speed or in finishing operations
- ISO 230-11:2018 – Norms and rules for testing machine tools. Part 11. Measuring instruments used in the verification of geometric tests of machine tools.

5. Information for users

The machine manufactured by STH can be operated in a two-shift operation mode with a duration of each shift of 8 hours. The time of continuous operation of the machine should not exceed 16 hours. Operating rules must be strictly followed.

6. Important information

6.1. Unpacking and checking



Unpack all parts that are not individually attached and check the "Loose Parts Table" list to ensure that all listed items are present. Do not throw away the packaging material until you are sure.

6.2. Terms of use

- The height of the place of installation and operation should not exceed 2,000 meters above sea level.
- Ambient temperature: from -20° to $+45^{\circ}$ C
- The relative humidity of the operation of the machine should not exceed 85% (at a temperature of $20\pm 5^{\circ}$ C)
- It is forbidden to use the verst in an environment with conductive dust.
- The air must not contain explosive impurities.
- Do not use the machine with signs of corrosion, and do not allow gas and steam to enter the electrical parts of the machine, which may damage the insulation.
- Do not allow the machine to be used if the machine is affected by mechanical or vibrational processes.

Example manual STH

7. The main characteristics of the machine

	S-Drill Pro H40
Max. drilling diameter (steel 600 MPa), mm	Ø40
Max. axial force, N	16,000
Max. torque on the spindle, N×m	350
Engine power, kW	3
Spindle taper	KM4
The distance from the axis of the spindle to the guides of the bed, mm	335
Movement of the spindle sleeve, mm	250
Movement of the drilling head (manual), mm	200
The number of spindle rotation speeds (12 degrees), min ⁻¹	31.5; 45; 63; 90; 125; 180; 250; 335; 500; 710; 1000; 1400
Number of feeds (9 steps), mm/rev	0.056; 0.112; 0.16; 0.224; 0.315; 0.45; 0.63; 0.90; 1.80
Reversible movement of the spindle	Manual button and automatic rotation change mode
Movement of the desktop, mm	300
Table dimensions (L x W), mm	560 x 480
Width of T- shaped groove, mm	18
The distance from the end of the spindle to the working surface of the table, mm	830
Engine power of the MOR system, kW	0.09
Productivity of the MOR system, l/min	25
Overall dimensions: <ul style="list-style-type: none"> • Length, mm • Width, mm • Height, mm 	1,090 950 2,530
Machine weight, kg	1,250

8. Transportation and installation

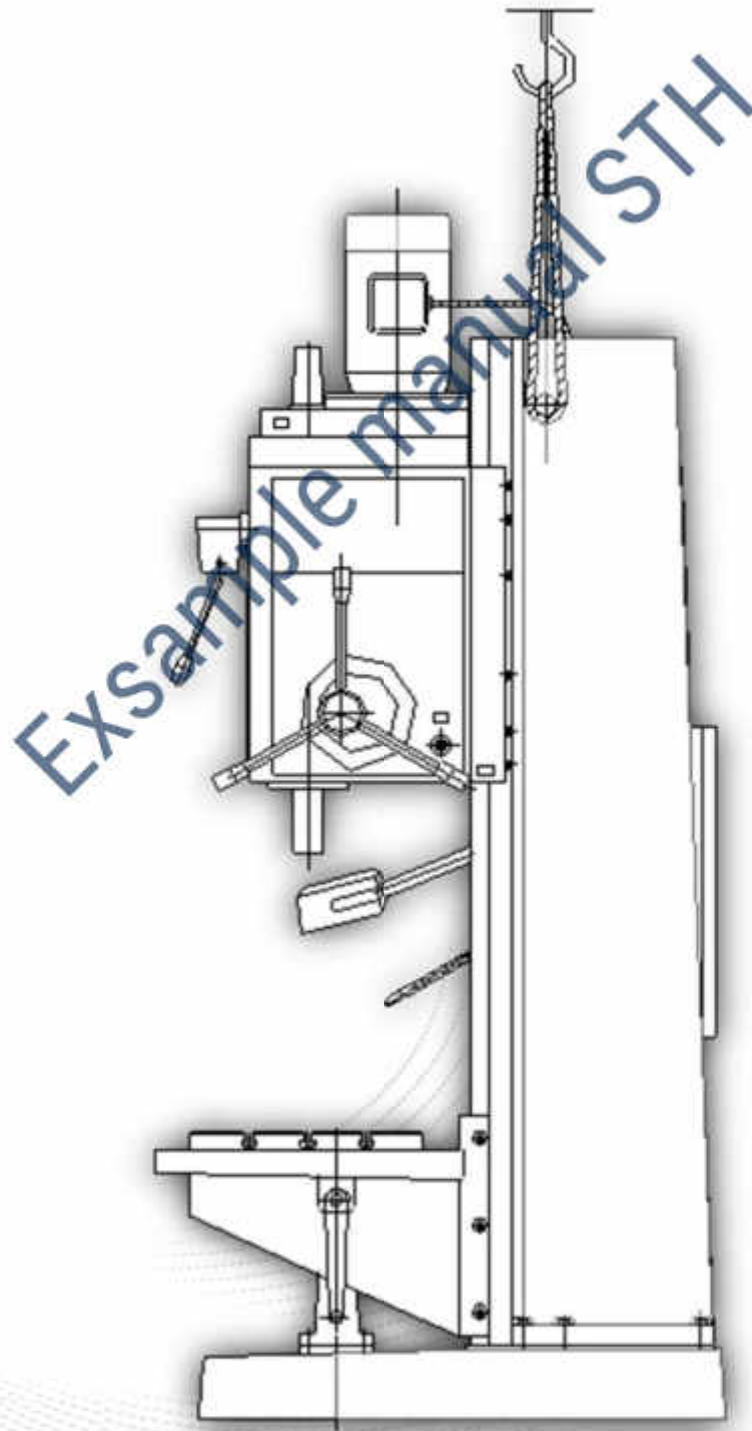
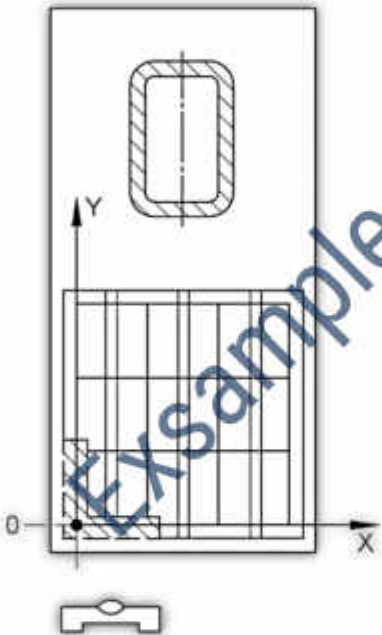
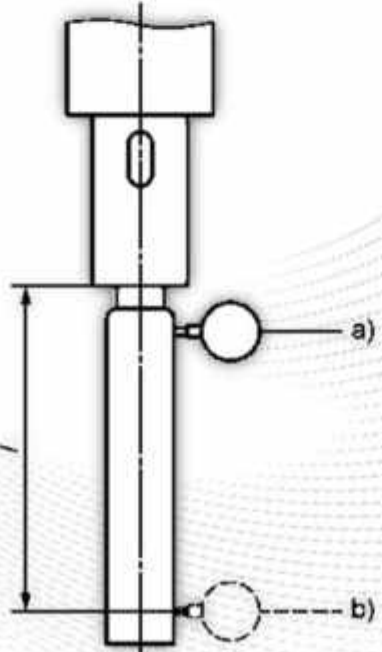


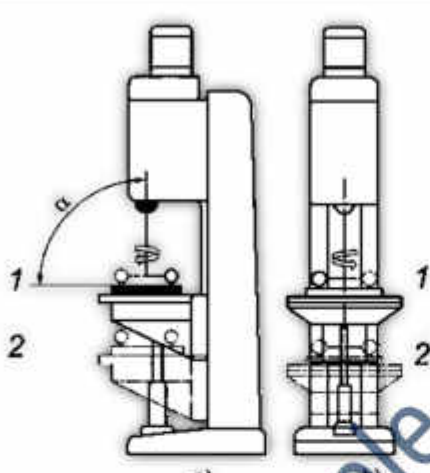
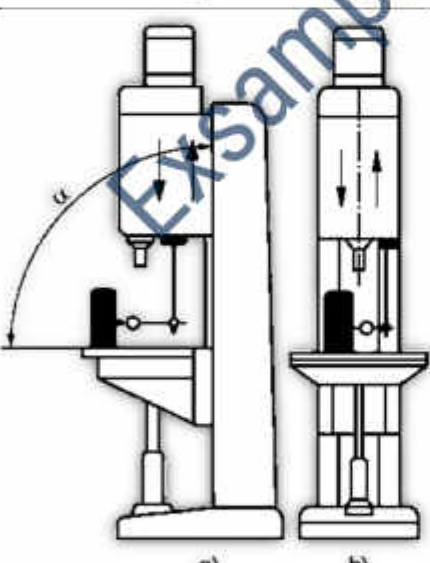
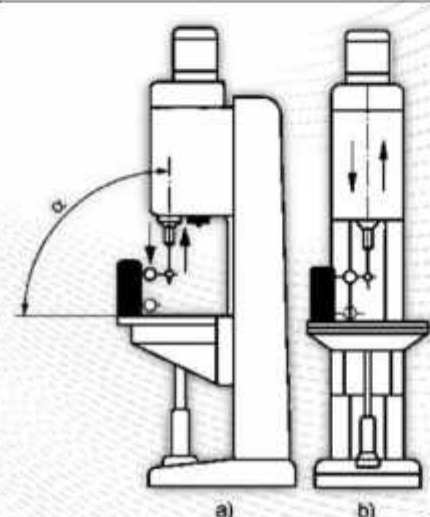
Figure 8. 1- Scheme of transportation of the machine



The transportation of the machine, after removing the packaging, must be carried out strictly according to the transportation scheme (see Figure 8. 1), the diameter of the metal rod should not be

10. Checking the machine for geometric accuracy

Inspection standard			ISO 2772	
No	Picture	Inspection object	Deviation (mm)	
			Permissible e, mm	Fact.
G1		longitudinal accuracy	0.030 / 300	
		transverse accuracy	0.030 / 300	
G2		Spindle beating	a) 0.02 b) 0.035 $l=250$	and) b)

Inspection standard			ISO 2772	
No	Picture	Inspection object	Deviation (mm)	
			Permissible e, mm	Fact.
G3		Perpendicularity of the axis of the spindle to the table 1 - from above 2 - below	1) 0.050 l = 300 $\alpha \leq 90^\circ$ 2) 0.050 l = 300	1) 2)
G4		Perpendicularity of movement of the axis of the spindle to the table	a) 0.100 l = 300 $\alpha \leq 90^\circ$ b) 0.100 l = 300	and) b)
G5		Perpendicularity of the axis of the spindle to the table	a) 0.100 l = 300 $\alpha \leq 90^\circ$ b) 0.100 l = 300	and) b)

11. exposed parts of the machine

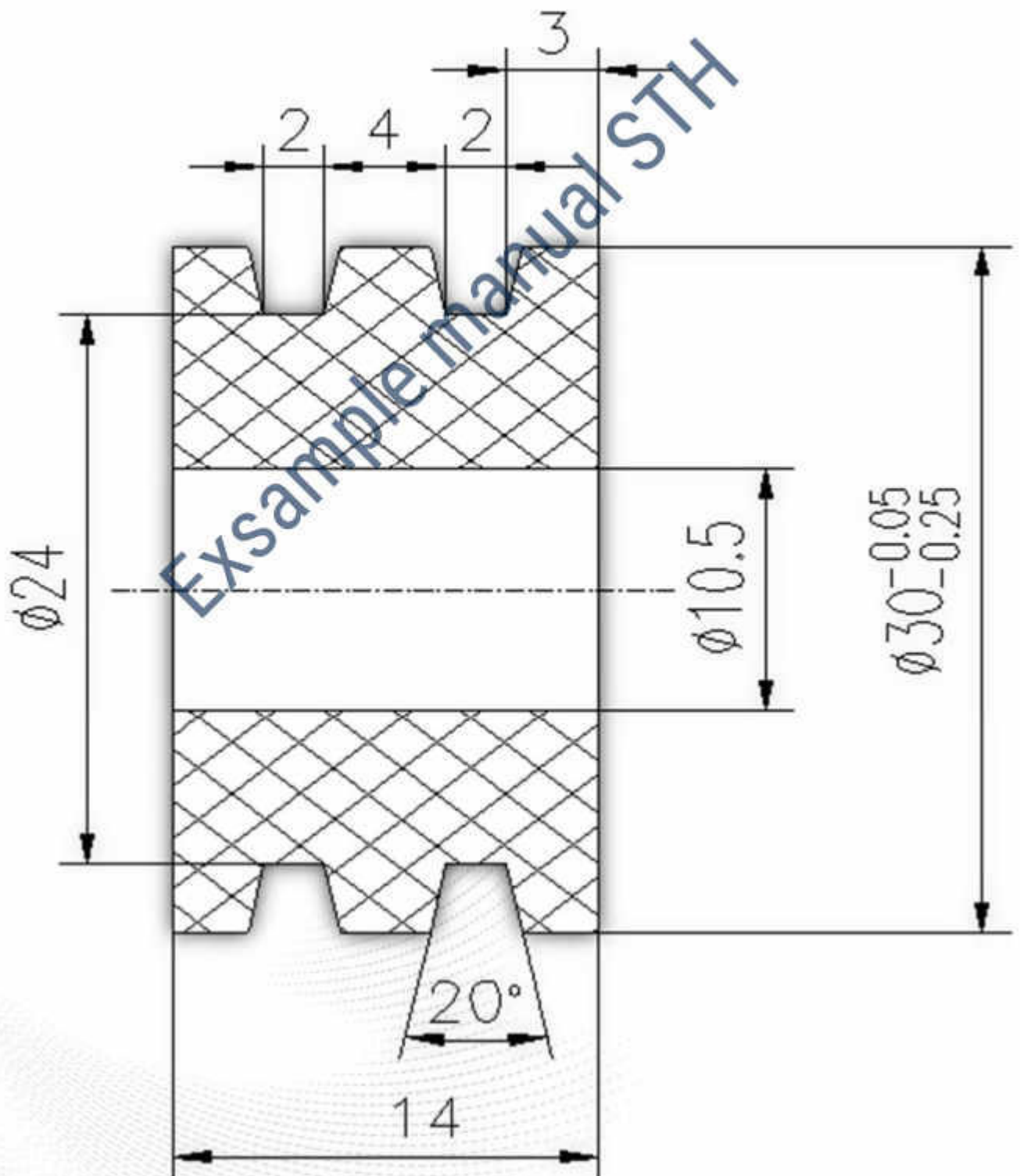


Figure 11. 1- Rubber ring