INSTRUCTION MANUAL

ROSCAMAT® 500

TECNOSPIRO MACHINE TOOL, S.L.
P.I Pla dels Vinyats I, s/n nau 1
08250 - Sant Joan de Vilatorrada. Barcelona - España
Telf. +34 938 76 43 59
E-mail: roscamat@roscamat.com

ISO 9001
BUREAU VERITAS
Certification

TECNOSPIRO
MACHINE TOOL SL

DESIGN & QUALITY
ROSCAMAT
Made in Barcelona

www.roscamat.com

TABLE OF CONTENTS

1 INTRODUCTION

Dear Customer,

We congratulate you on your choice and look forward to continuing our work to provide our customers with a simple, reliable and versatile way to perform thread cutting and other mechanical manufacturing operations.

We hope these simple instructions will help you commission and operate the machine you have selected. We suggest you pay special attention to the pages on the concepts of installation, maintenance and safety.

We hope your machine will have a long life and that you can reaffirm the very good investment you have made in acquiring a ROSCAMAT©.

2 ABOUT THIS MANUAL

This document is the instruction manual for the ROSCAMAT© 500 thread cutting machine.

-ORIGINAL MANUAL-

Intellectual/Industrial Property Information:

Tecnospiro Machine Tool, S.L. (the Company) informs that all content in this document including, for example, the text, images, graphic designs, brands, trading and company names (hereinafter, the Intellectual/Industrial Property), belong to the Company and that the Company is the exclusive owner of their use. Copying, reproduction, distribution, public communication and total or partial use of the Intellectual/Industrial Property, in any form or manner, even quoting the sources, is prohibited, unless expressly agreed in writing by the Company. The use of any content that due to its characteristics is similar to the Industrial/Intellectual Property is also considered an infringement of the Company's Industrial/Intellectual Property rights.

2.1 CONSIDERATIONS

- ✓ Before using the equipment, be sure to read this instruction manual and follow the instructions for use and safety correctly.
- ✓ All the instructions listed in this manual refer to the individual unit. It is the end user's responsibility to analyse and apply all the necessary safety measures required for the end use.
- ✓ This manual must be kept in a place close to the equipment for the entire life of the equipment for future consultations.
- ✓ If any part of this manual is unclear, confusing or inaccurate, please contact your 3arm® and/or Roscamat® distributor.
- ✓ The content of this manual may be subject to change without prior notice.
- ✓ If the manual is lost or damaged, contact TECNOSPIRO MACHINE TOOL, S.L. for a replacement.
- ✓ Reproducing or sharing this documentation – or part of it – to third parties is only permitted with express written authorisation from TECNOSPIRO MACHINE TOOL, S.L.
- ✓ The illustrations shown in this manual may differ in some details from its specific configuration and should be understood as a standard representation.

Paragraphs indicating assembly, adjustment, installation or maintenance steps are framed with a brown background.

Paragraphs with highlighted information are framed with a grey background.

2.2 VERSION

Document	Revision date
Roscamat 500 Instruction Manual	14/04/2021

3 SAFETY INFORMATION

3.1 SCOPE OF APPLICATION

This chapter contains very important information related to the safety of your equipment; it is aimed at all staff involved in any of the stages of the life of this equipment (transport, assembly, installation, commissioning, adjustment, training, operation, cleaning, maintenance, troubleshooting, dismantling/removal from service).

3.2 ALERTS AND GENERAL CONSIDERATIONS

- ✓ The equipment described in this document has been built in accordance with the current technological level and in accordance with the applicable technical standards in terms of safety. However, improper use, or incorrect integration by the end user can generate risk of injury.
- ✓ The equipment must only be used in perfect technical condition, respecting the safety regulations and the instructions provided in this document.
- ✓ Any breakdown that may affect safety must be corrected immediately.
- ✓ Do not use it for any purpose that is not considered in this manual.
- ✓ Without the proper authorisation of TECNOSPIRO MACHINE TOOL, S.L. No modification of equipment should be made.
- ✓ The equipment must only be operated for its intended use. Any other use is strictly prohibited. Any use other than that indicated is considered misuse and is prohibited. The manufacturer assumes no responsibility for any damage that may arise from it.
- ✓ It is the responsibility of the integrator, owner and/or end user to determine the suitability of the product for each use, as well as its place of installation and the specific definition of the task to be carried out with this product within the limits stated in this manual.
- ✓ The operator must only use the equipment after having received the instructions for its use.
- ✓ It is recommended that only one operator use the equipment at a time, any other use must be evaluated by the integrator/end user.
- ✓ When it is not in use, it must be left in the retracted or parking position.
- ✓ Workpieces (parts to be threaded) must be properly secured.
- ✓ The materials used for thread cutting must be in accordance with the manufacturer's instructions.
- ✓ The operator must remain outside the vertical path of the tilting arms.
- ✓ The operator may only use the equipment for safe movements, accompanying the movement of the equipment at all times, and thus

reducing the risk of uncontrolled or involuntary movements of the equipment.

- ✓ Although the parts with a higher risk of possible shearing or mechanical gripping are protected and have guards, it is forbidden to manipulate the moving components and joints when it is in use.

- ✓ The work area of the equipment and its surrounding area must respect conditions of safety, health and hygiene at work. It is the integrator/end user's responsibility to conduct a study to guarantee safety.

- ✓ The presence of third parties in the work area of the equipment should be restricted as much as possible, thus avoiding any impact on safety. For any other use, an additional study of the hazards derived from this way of working must be carried out.

- ✓ It is important that the users who operate this equipment are familiar with and sufficiently trained to use this product or similar products.

- ✓ In any case, the operator must read and understand this manual before use regardless of their knowledge, training or experience with similar equipment, especially the sections dedicated to installation, operation and safety.

- ✓ If you have questions about handling or maintenance procedures, please contact your 3arm® and/or Roscamat® distributor.

3.3 EXCLUSIONS

The following is beyond the scope of use of this equipment:

- ✓ Operation in severe conditions (e.g. extreme environmental conditions such as freezing, high temperatures, corrosive environment, strong magnetic fields).
- ✓ Use in areas with risk of explosion.
- ✓ Installation in outdoor areas.
- ✓ Handling of any component or functions of the equipment outside of those specified in this manual.
- ✓ Use by people with some type of disability or by animals.

3.4 SYMBOLOGY AND ICONS

- ✓ Throughout this manual and in the structure of the machine, different symbols and pictograms can be observed, the meaning of which is summarised below.

	Hazard. General hazard symbol. This symbol is usually accompanied by another symbol, or a more detailed description of the danger.
	Trapping hazard

3.5 SYSTEM INTEGRATOR

The system integrator or end user is responsible for integrating the machine in the installation, respecting all the relevant safety measures.

The integrator/end user is responsible for the following tasks:

- ✓ Location and correct installation.
- ✓ Connections.
- ✓ Risk assessment.
- ✓ Facilities with the necessary safety and protection functions.
- ✓ Issue of the EC statement of compliance.
- ✓ Placement of the CE marking.
- ✓ Preparing the machine's service instructions.

3.6 PERSONAL PROTECTION EQUIPMENT (PPE)

Personal protective equipment required during the transport, assembly and installation, commissioning and dismantling of this machine: **safety boots, safety helmet, safety goggles and safety gloves**.

Safety footwear, safety gloves and safety goggles for set-up and training, operation and troubleshooting.

It is the responsibility of the integrator/end user to define the personal protection equipment required based on the final application of the machine, in order to comply with the essential health, safety and hygiene requirements.
Operators should not wear loose clothing, rings or bracelets that may fall into the mechanism of the machine.

It is also mandatory to wear hair tied back to avoid snags with the moving parts of the machine.

3.7 TRAINING LEVEL OF THE STAFF INVOLVED

All people working with the machine must have read and understood the safety chapter of the documentation.
The minimum training level required to use the equipment is:

- Production operators: occupational risk prevention course, full training on the workstations and on the residual risks of the equipment. Minimum of one year's experience in similar facilities.
- Maintenance workers: Occupational risk prevention course, complete training in handling, operation, maintenance and conservation of equipment and residual risks. Minimum of two years' experience in similar facilities and with the technical level necessary to perform tasks without problems.
- Cleaning operators: Occupational risk prevention course, training on products and procedures for carrying out cleaning tasks.
- Apprentices/students: They may only work on the equipment if supervised at all times by one of the facility's suitably qualified employees.
- Public (non-operators): Visitors or passers-by must maintain a minimum safety distance of two metres from the edges of the perimeter of the equipment.

4 GENERAL DESCRIPTION AND TECHNICAL INFORMATION

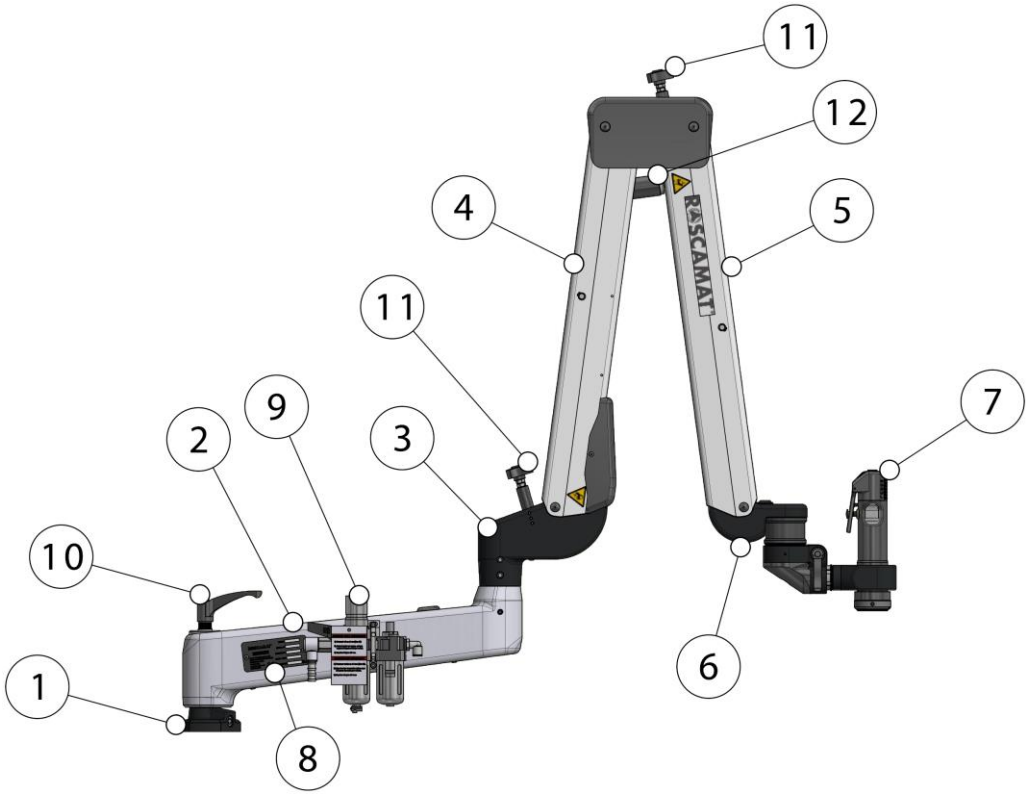
The machine consists of a radial parallelogram, plus two gas spring-balanced pendulum parallelograms and a head with double pivot axis (in the RHM I RHC configuration), all of which fix the motor and keep it perpendicular to the working area.

The motor is fitted with a quick-change system and is supplied with pressurised air, previously filtered and lubricated by equipment provided for this purpose.

A modular system consisting of seven quick-change planetary gears allows speed and torque to be adapted to the thread cutting requirements.

The tool holder (or tap holder) with or without safety clutch, is also coupled to the motor by means of a quick-change system.

4.1 MAIN PARTS



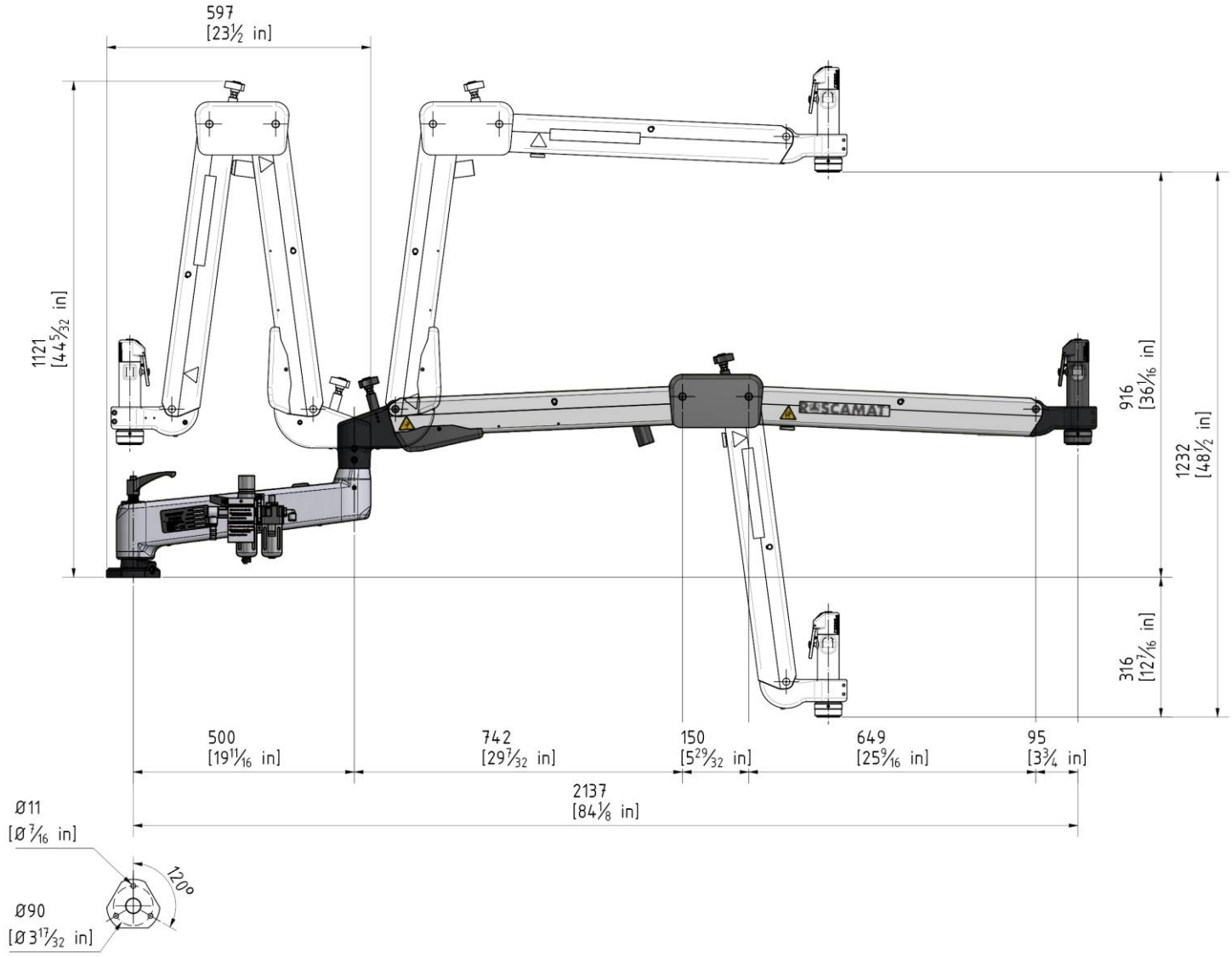
1.- Base	7.- Motor
2.- Radial arm	8.- CE marking plate
3.- Cross	9.- Air Unit
4.- Rear Arm	10.- Locking handle
5.- Front arm	11.- Arm adjustment
6.- Head	12.- Magnet - parking lock

4.2 CONFIGURATIONS

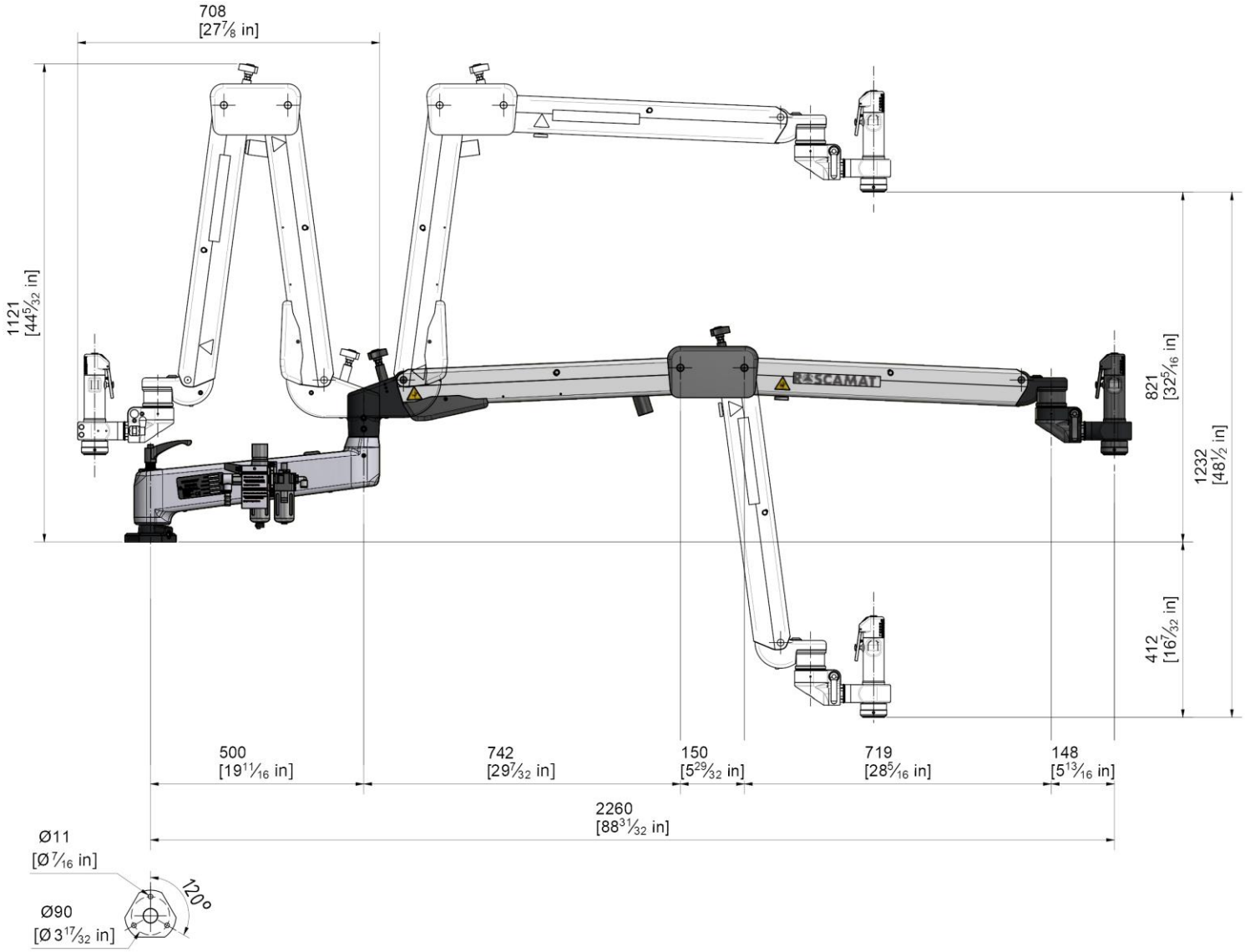
All machine configurations are equipped with:

- 2 types of heads: vertical or articulated.
- Model with integrated tap lubrication or without lubrication.
- Chain or radial arm drive.

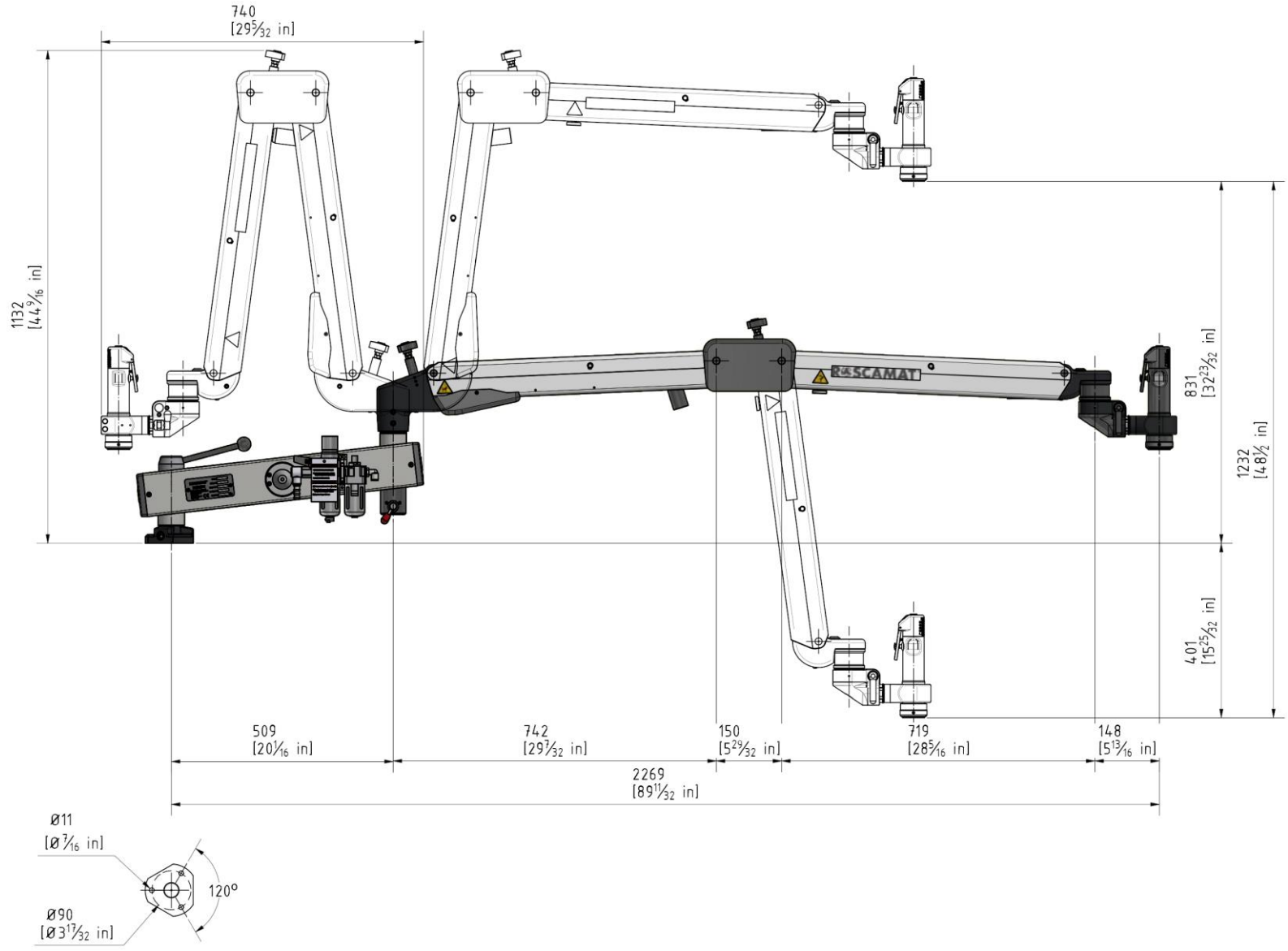
4.3 DIMENSIONS



Roscamat 500 – V



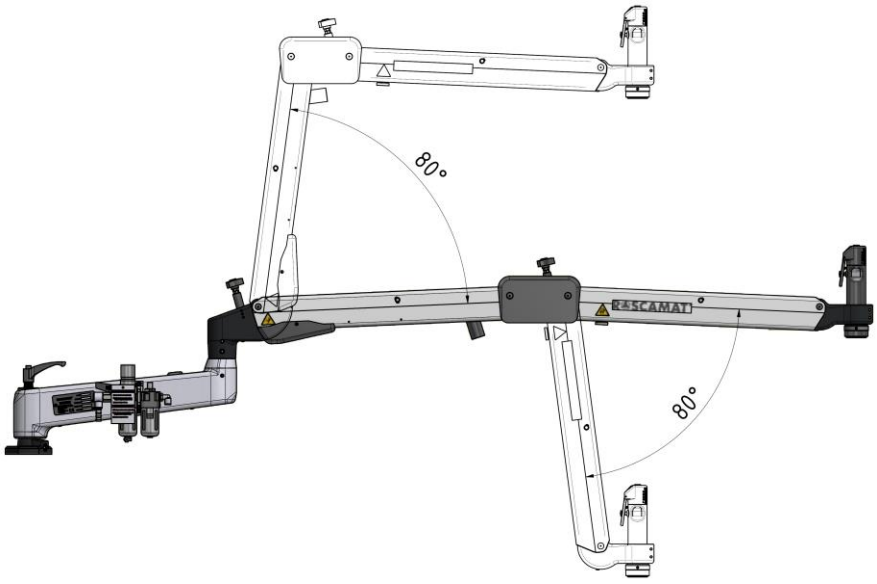
Roscamat 500 – RHM



Roscamat 500 – RHC

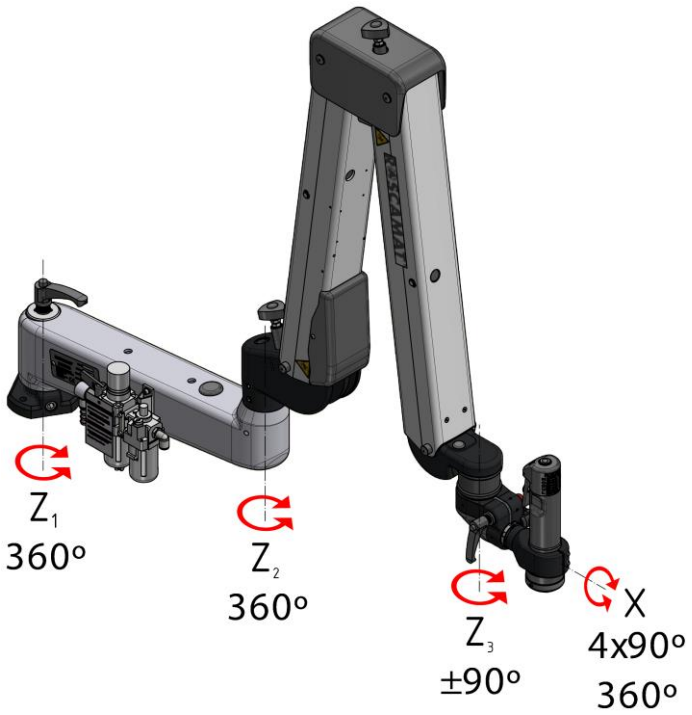
4.4 MOVEMENTS

4.4.1 ASCENDING AND DESCENDING MOVEMENTS



The tilting movement in the ZX plane is 80° for each arm, giving a total vertical stroke of 1,232 mm.

4.4.2 ROTATION MOVEMENTS



- Parallel-base rotation movement: 360º (Axis Z_1)
- Parallel-cross rotation movement: 360º (Axis Z_2)
- Head rotation movement: ±90º (Axis Z_3)[1]
- Motor rotation movement: 360º (Axis X)[1]

[1] Only in articulated head, the vertical is fixed.

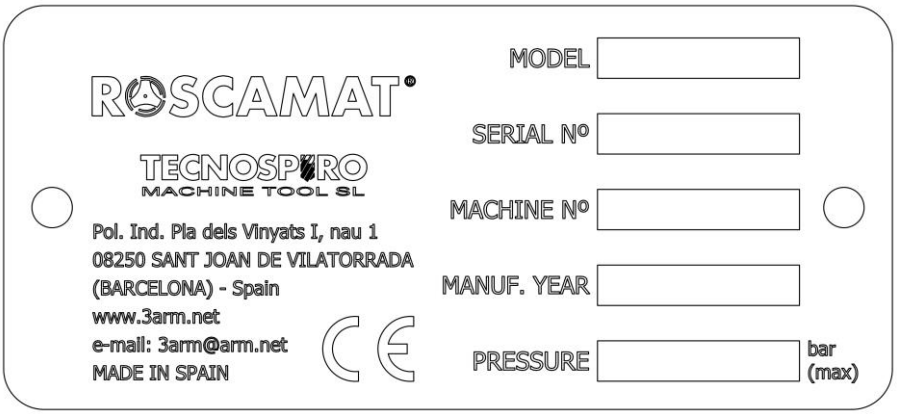
4.5 TECHNICAL SPECIFICATIONS

GENERAL TECHNICAL SPECIFICATIONS		
Thread cutting capacity[2]		M2-M24
Materials suitable for thread cutting[3]		Metals and metallic and plastic materials
Speed Range		90-2100 rpm
Weight	Vertical	33 kg (73 lb)
	RHM	35 kg (77 lb)
	RHC	41 kg (90 lb)
Pneumatic specifications		
	Operating pressure	6 – 8 bar
	Motor power	0.73 kW
	Consumption	300 – 900 l/min
	Intake filter	5 Um
Operating conditions		
	Temperature	-10 to +50 ºC (14 – 122 ºF)
	Relative humidity	Max. 70%
	Environment	Industrial environments

4.6 IDENTIFICATION

A metal plate on the radial arm of your machine identifies it and indicates the following characteristics.

Manufacturer (name, address and company name), date of manufacture, serial number, model, supply pressure and CE marking.



[2] Minimum and maximum thread values corresponding to threading work with steel of 90 kg/mm^2

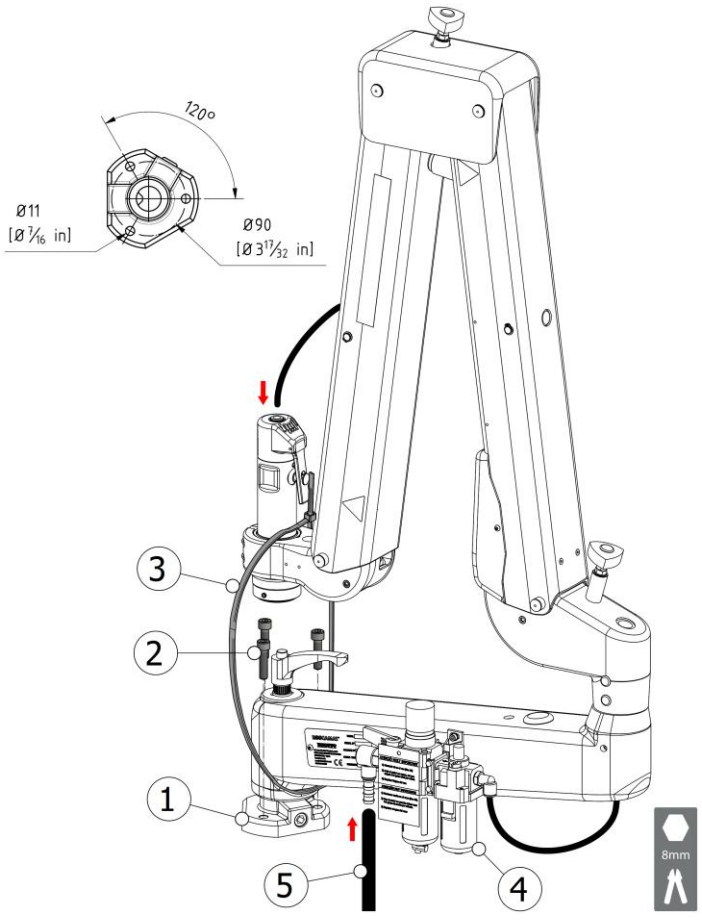
[3] In general, all types of metals and plastics can be worked with. Special attention should be paid to materials such as magnesium and similar (high risk of ignition) and certain plastics. Any other type of material should be submitted to an additional risk identification study by the integrator/end-user.

5 INSTALLATION

GENERAL CONSIDERATIONS ABOUT THE INSTALLATION

- ✓ The work bench or installation location must be a horizontal surface, thus avoiding shifts and deviations.
- ✓ The steps to follow for the installation will depend on the fastening method and the alternatives available in the selected location. In any case, the integrator, owner and/or end user is responsible for determining the product's suitability for each use, the installation location, specifically defining the task to be performed within the limits set forth in this manual and the issue of the statement of compliance.

1. **Remove the equipment from its original packaging.**
2. **Secure the base of the equipment** (1) using the three M10 screws (2) (8mm Allen key).
3. **Connect the air hose** to the motor.
4. **Cut the safety flanges** (3).
5. **Fill the oil reservoir** (4) with SAE-10 lubricating oil.
6. **Make the air connection** (5) ($Ø_{int}$ 12 mm tube)[4].
7. **Check that the connection has been made properly** and that there is no risk of leaks or anomalies in the supply.



[4] If the supply pipe is longer than 8m, use a $Ø_{int}$ 14mm tube.

INSTALLATION SITE

Do not install the equipment in environments such as:

- ✓ Areas with explosion or fire hazards
- ✓ Exterior areas
- ✓ Corrosive areas
- ✓ Areas with extreme temperatures (very high or very low)
- ✓ Areas with high humidity
- ✓ Dusty areas
- ✓ Areas with high electromagnetic emissions

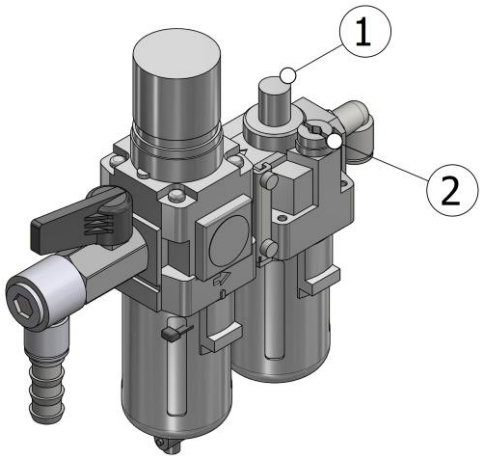
SUPPLY AIR

- ✓ The supply air must meet the specifications shown in [See TECHNICAL SPECIFICATIONS page15].
- ✓ Use clean air. If the compressed air contains chemicals, organic solvents, synthetic oil or corrosive gases, the parts may be damaged or may cause malfunction [See COMPRESSED AIR MAINTENANCE UNIT page30].
- ✓ When there is excessive condensation, install a device that removes water, for example, a dryer or water dryer (condensate collector), on the inlet side of the air filter.

CAUTION

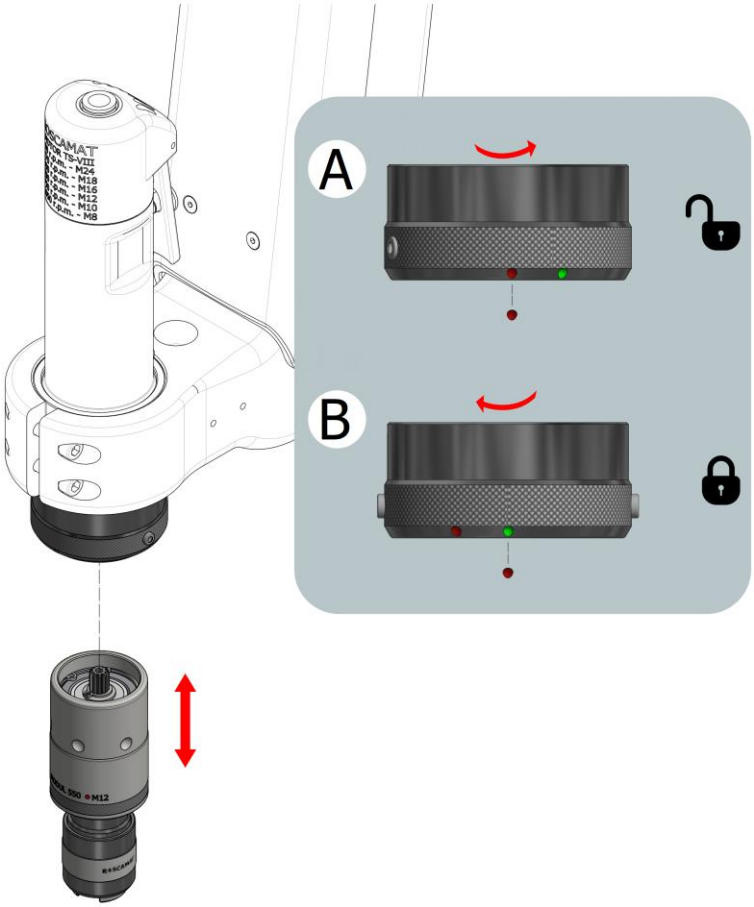
Once the installation is complete, check the following points:

1. A supply pressure of 6-8 bar corresponds to the maximum power.
2. The pressure gauge pressure may drop by 0.5 to 1.5 bar (maximum) when the engine is running. If the supply falls below 2 bar, the supply flow will be insufficient.
3. Check the sight glass (1) for 2 to 3 drops of oil per minute. It is adjusted using the controller (2).



5.1 CHANGING MODULES

1. Move the machine to its folded or parked position.
2. To remove the module:
   - Turn the locking ring **(A)** anti-clockwise (red with red)
   - Remove the module
3. To insert the module:
   - Insert module (red with red)
   - Turn the locking ring **(B)** clockwise (close, green with red)
   - Check that the module is self-supporting
4. Readjust the arms [See BALANCING THE ARM page 20].



CAUTION

✓ When the module is removed, there may be a sudden jerk of the arm.

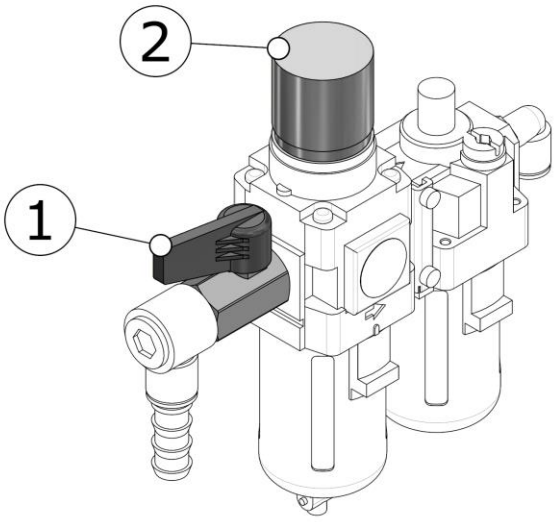
6 ADJUSTMENTS

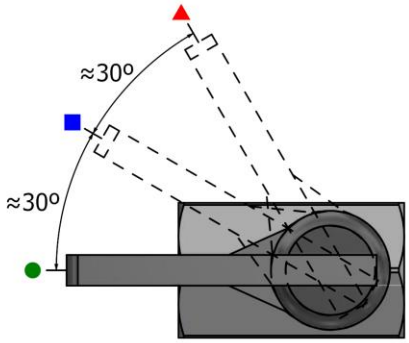
6.1 MOTOR ROTATION SPEED

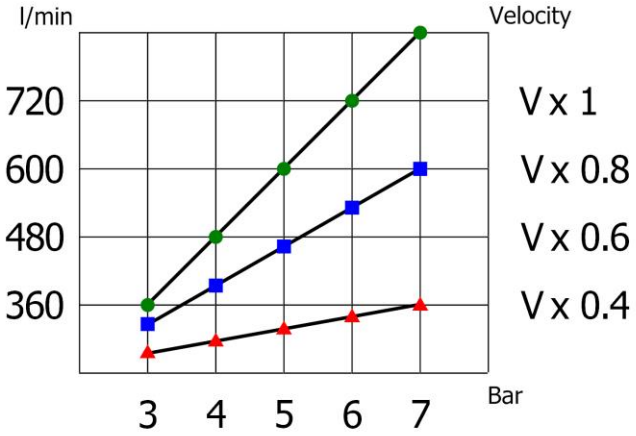
The pneumatic motor "self-regulates" speed and torque when threading (if more resistance is encountered, the torque increases, but the speed is reduced). The motor speed can be adjusted via the flow control valve (1) and the pressure regulator (2).

To increase or decrease the thread cutting speed:

1- Adjust the flow control valve (1) and the pressure regulator (2) until the desired ratio is found. Observe the Consumption-Pressure-Speed relationship as an approximation.







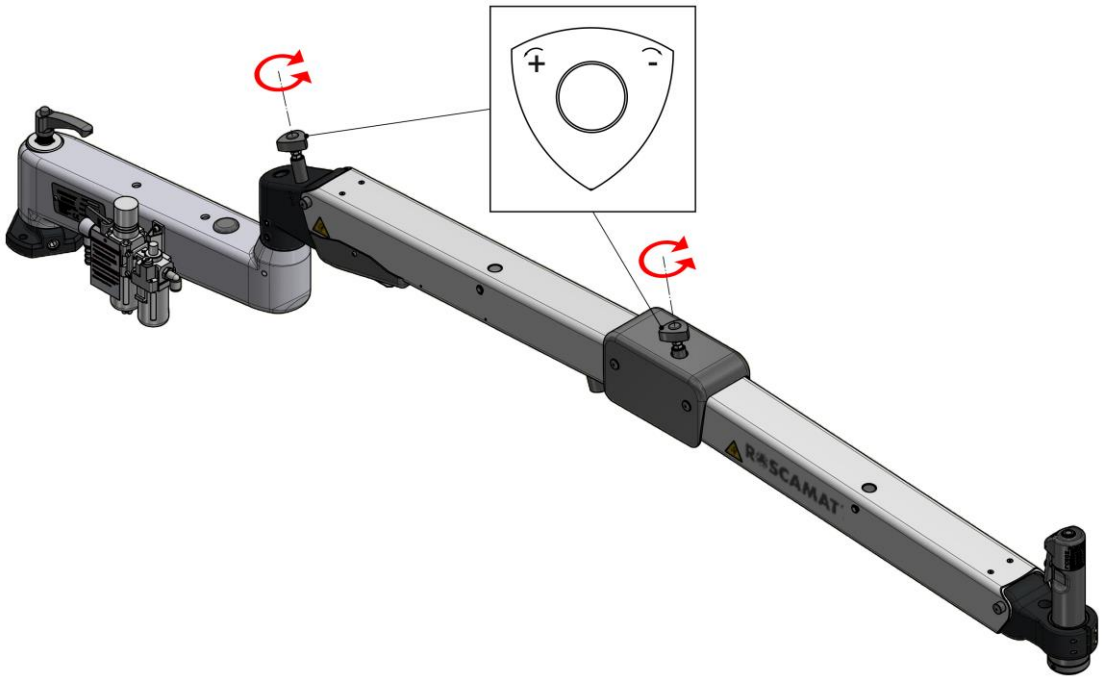
For more information about thread cutting speeds and torques [See ACCESSORIES FOR THREAD CUTTING page 36].

6.2 BALANCING THE ARM

Regulate the tension of internal shock absorber if the arm drops or has a lot of upward force.

1- Maintain the tilting arm in an approximately horizontal position to facilitate the task.
2- Use the adjusting screw provided for this purpose and turn as required.

- **Anti-clockwise rotation:** Increases the tension in the spring.
- **Clockwise rotation**: Reduces the tension in the spring.



BALANCING THE ARM

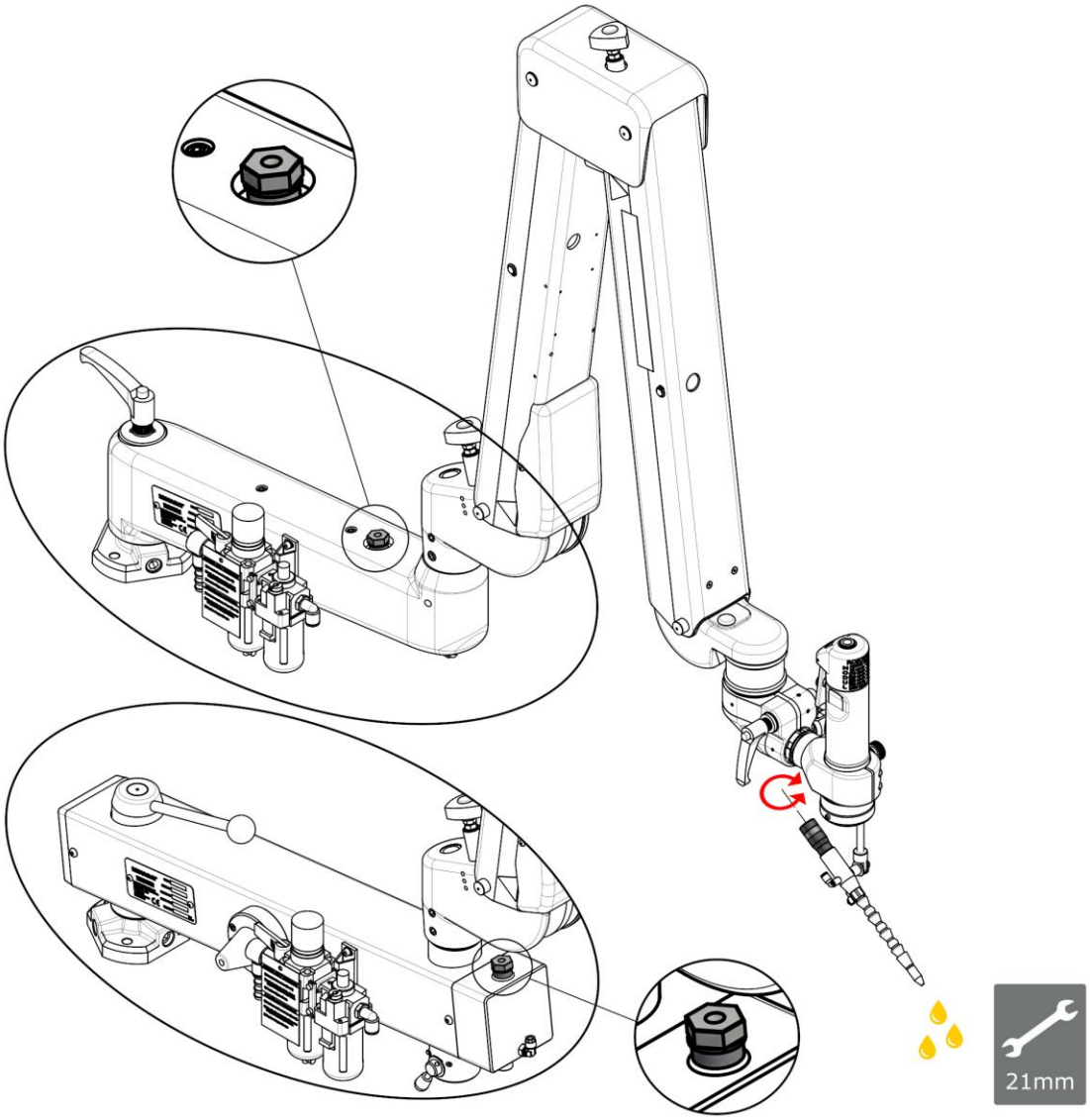
✓ Balancing of the arm must be carried out each time the module is changed.

6.3 LUBRICATION

The buttons controlling the motor will also activate the lubrication pump, and thus the oil supply.

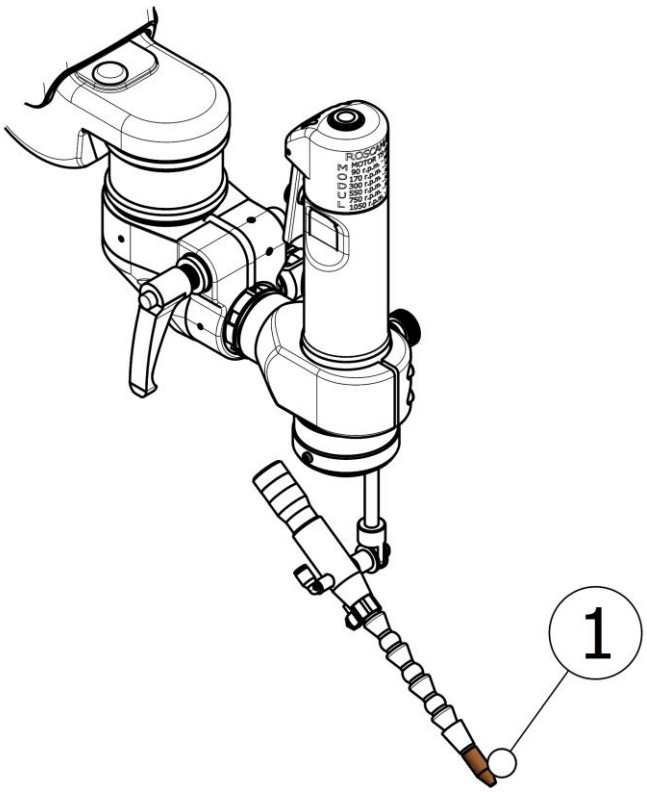
The lubrication time is adjusted as follows

1. In order to increase the lubrication time, turn the potentiometer clockwise.
2. In order to reduce the lubrication time, turn the potentiometer anti-clockwise.



If the reservoir remains empty, it is possible that the tubes have filled with air, so after filling the equipment, it must be bled.

1. Unscrew the end (1) 2 turns (anti-clockwise).
2. Increase the lubrication time to the maximum and activate the motor several times (until bleeding occurs).
3. Re-screw the end (1) 2 turns (clockwise).



The reservoir filler cap is located on top of the radial arm (Vertical and RHM) and at the end of the radial arm (RHC). To remove it, use a 21 mm spanner.

OIL SPECIFICATION

- ✓ *Oil to be used: Viscosity 20-40 cSt EP Additives – extreme pressure – (inactive sulphur, phosphorus and chlorine).*
- ✓ *Only pure cutting oil with NO SOLVENTS should be used. Certain types of lubricants with tricolours or alcohols can severely damage some equipment components.*

MAINTENANCE

- ✓ *The oil reservoir should be cleaned regularly to remove swarf.*

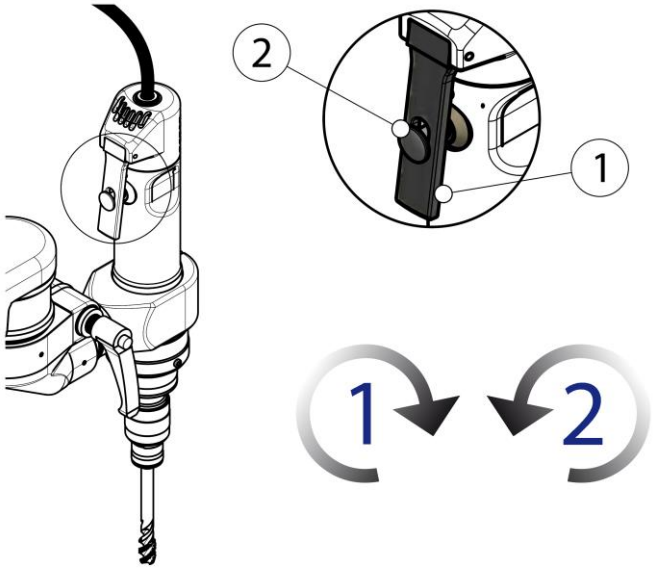
7 OPERATIVE

WARNING

- ✓ The sequence described below is for information only and assumes that the installation, adjustments such as arm balancing and installation of the module, gearboxes (if applicable), tap holder (with or without clutch) and tap have been carried out beforehand.
- ✓ Use the necessary personal protective equipment described in [See PERSONAL PROTECTION EQUIPMENT (PPE) page 8].
- ✓ Ensure that you have a machine configuration suitable for the characteristics of the thread cutting operation.
- ✓ Ensure that the necessary adjustments have been made to suit the nature of the work to be carried out.
- ✓ Make sure that the materials with which you are going to work (cutting threads), meet the requirements described [See TECHNICAL SPECIFICATIONS page 15].
- ✓ The parts to be worked on must be properly secured.
- ✓ At the end of the task or during prolonged periods of inactivity, return the machine to its folded or parked position.

7.1 THREAD CUTTING

1- Open the flow control valve.
2- Press and hold lever[5] (1) for thread cutting operations (clockwise rotation).
3- Press and hold down the reversing button (2), for unscrewing operations (anti-clockwise rotation).
4- Move the machine to its folded or parked position.



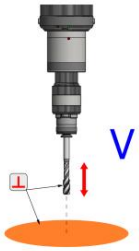
[5] Buttons (1) and (2) are of the hold-to-run type, preventing the machine from operating without the intervention/supervision of an operator.

7.2 VERTICAL THREAD CUTTING

Follow the steps below to ensure precise and safe thread cutting operations in the vertical position.

1- Move the machine to a position close to the thread cutting position.
2- Lock the handle at the base of the radial arm (for threads larger than M8).
3- Carry out the thread cutting operation [See THREAD CUTTING page 23].

The machine positions the tap vertically, but the operator must ensure that the tap is perpendicular to the workpiece.

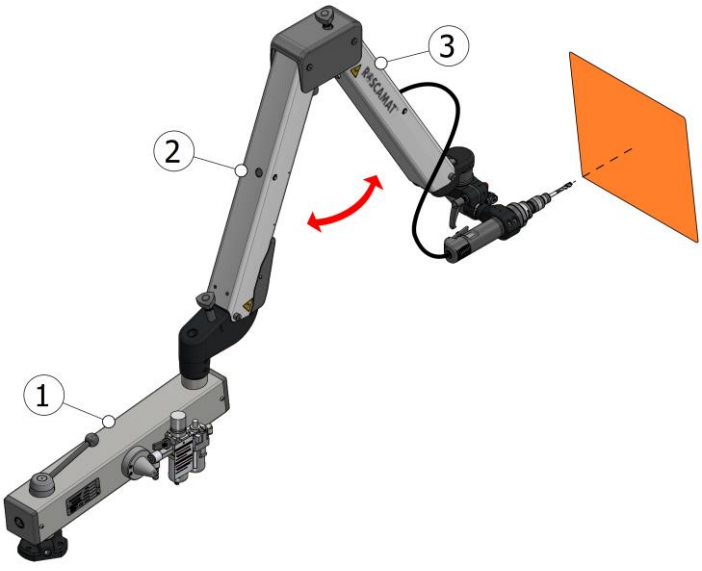


7.3 HORIZONTAL AND INCLINED THREAD CUTTING

Only for RHM and RHC versions.

Follow the steps below to ensure precise and safe thread cutting operations in the horizontal or inclined position.

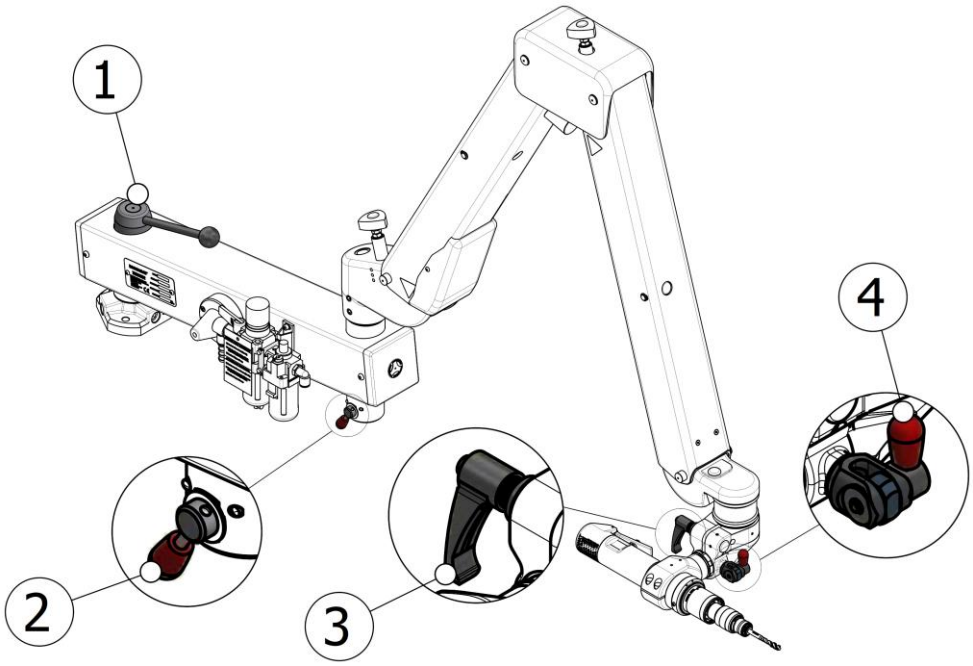
1- Position Parallel (1) and the arms (2 and 3) approximately aligned and perpendicular to the workpiece.
2- Insert the probe[6].
3- Arms (2 and 3) semi-extended with the probe in contact with the workpiece.



[6] Two probes, size 19 and 31, are supplied with your machine

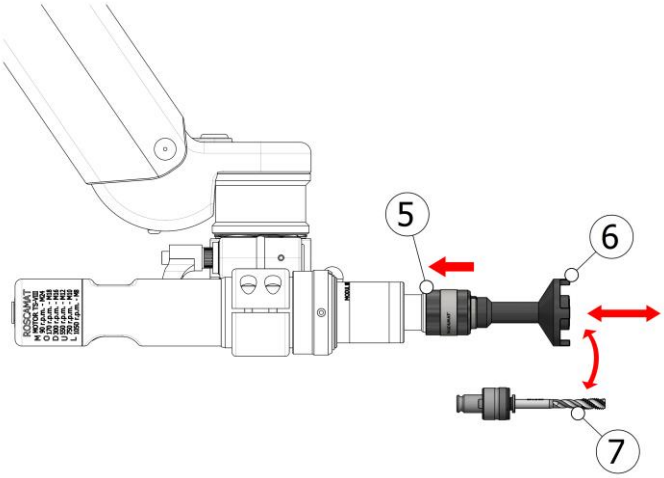
4- With the probe in contact with the part to be threaded, lock or unlock the locking handles corresponding to the operation to be performed (vertical, horizontal or inclined) according to [See VERTICAL, HORIZONTAL AND INCLINED THREAD CUTTING page 26].

WARNING! When locking the handle (3) Make sure that the probe remains completely perpendicular to the workpiece.



5- Pull the quick-release lever (5) towards the motor and replace the probe (6) with the tap (7).

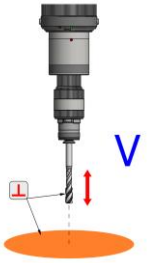
6- Proceed to the threading of the part [See THREAD CUTTING page 23].



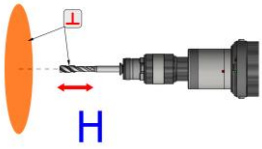
NOTE: Operation of RHM versions requires some skill and practice. This information is supplemented by a series of documents and supplementary material available from your ROSCAMAT® distributor.

7.4 VERTICAL, HORIZONTAL AND INCLINED THREAD CUTTING

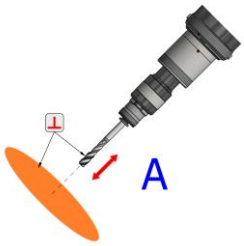
Depending on the working position (vertical, horizontal or inclined), the head must be positioned in one way or another, and the locking mechanisms (1- Base handle 2- RHC cross handle 3- Handle, 4-Positioner) must be locked or released as described in the following table.



VERTICAL (V)



HORIZONTAL (H)

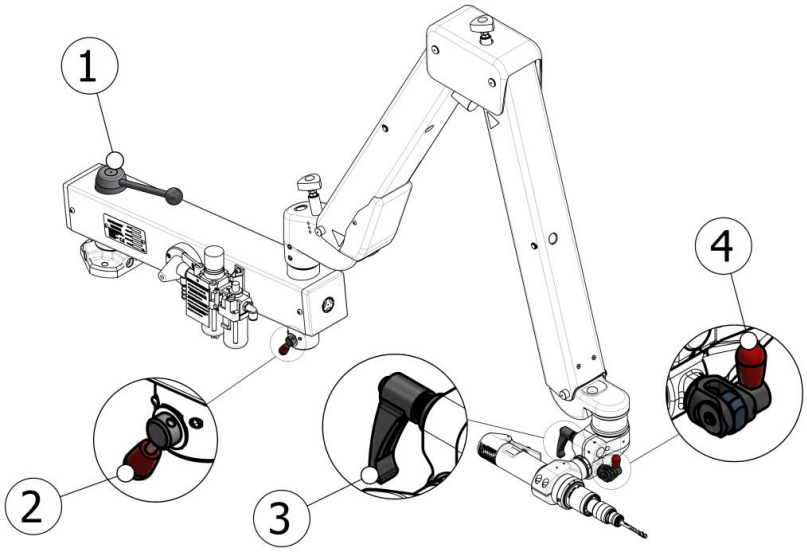


INCLINED (A)

	PARALLEL		HEAD	
	BASE (1)	CROSS AXIS (2)	HANDLE (3)	POSITIONER (4)
VERTICAL (V) (RHM)	Locked*		Locked	Locked
HORIZONTAL (H) (RHM)	Locked*		Free	Locked
INCLINED (A) (RHM) Warning!!!**	Locked*		Locked	Free
VERTICAL (V) (RHC)	Locked*	Free	Locked	Locked
HORIZONTAL (H) (RHC)	Free	Locked	Locked	Locked
INCLINED (A) (RHC)	Free	Locked	Locked	Free

*** Threads larger than M8.**

**** The RHM model can perform oblique threading operations but does not incorporate the guidance system perpendicular to the threading axis (incorporated in the RHC model), for oblique operations. Therefore, the user's care and expertise are required for this type of operation.**



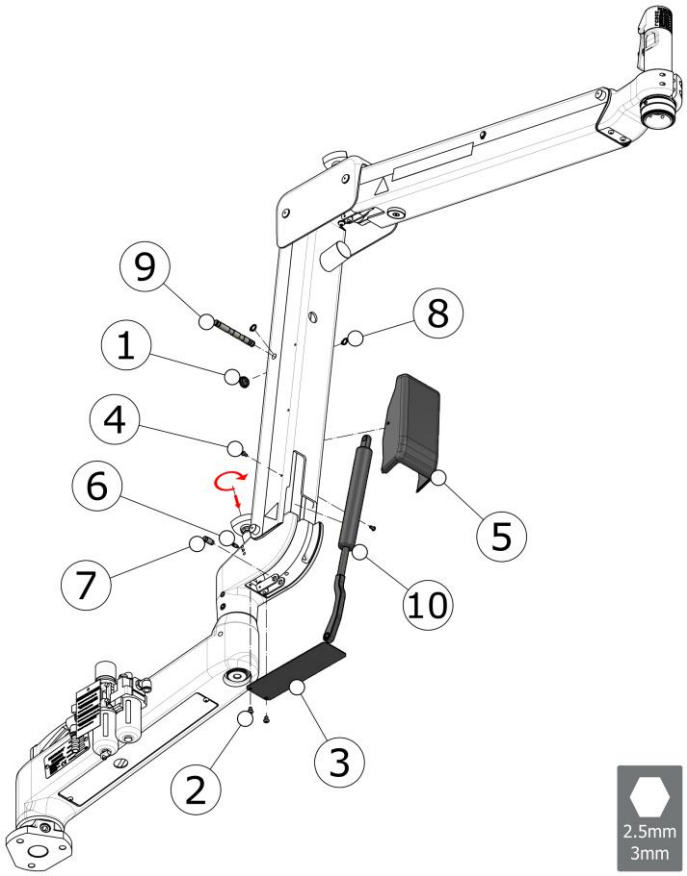
8 MAINTENANCE

8.1 REPLACING THE GAS SPRING AND CYLINDER

BEFORE REPLACING THE GAS SPRING

- ✓ The equipment must be duly installed and integrated.
- ✓ Close the flow control valve.
- ✓ It is advisable to dedicate two operators to this task.

The procedure for replacing the rear arm spring is described below. To replace the front arm spring, proceed in the same way after first removing the protective cover located at the junction of the two tilting arms.



1- Remove the cap (1), remove the screws (2) and (4) (Allen key 2.5 mm) and the protective caps (3) and (5).

2- Remove all tension from the gas spring. Bring the arm to its horizontal position and turn the adjusting screw clockwise.

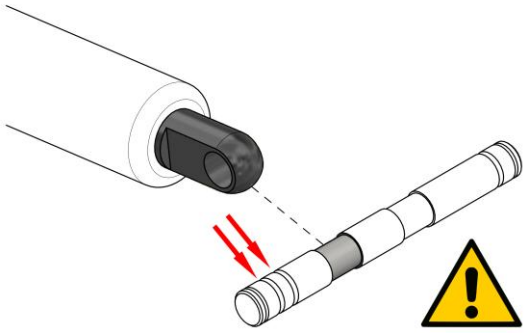
3- Loosen the stud (6), bring the arm to its highest possible position and keep it in this position. The adjustment piece will lower slightly, leaving the pin (7) visible on the underside of the cross.

4- Pull out the pin (7) in the direction shown. The lower end of the spring will descend, guide it as it falls.

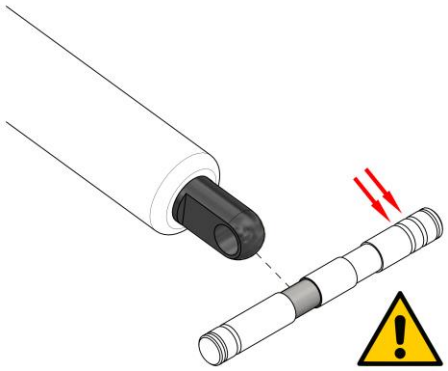
5- Remove the retaining rings (8) and then remove the shaft (9). Then remove the spring (10) and replace it with the new one.

6- Proceed in reverse order for assembly.

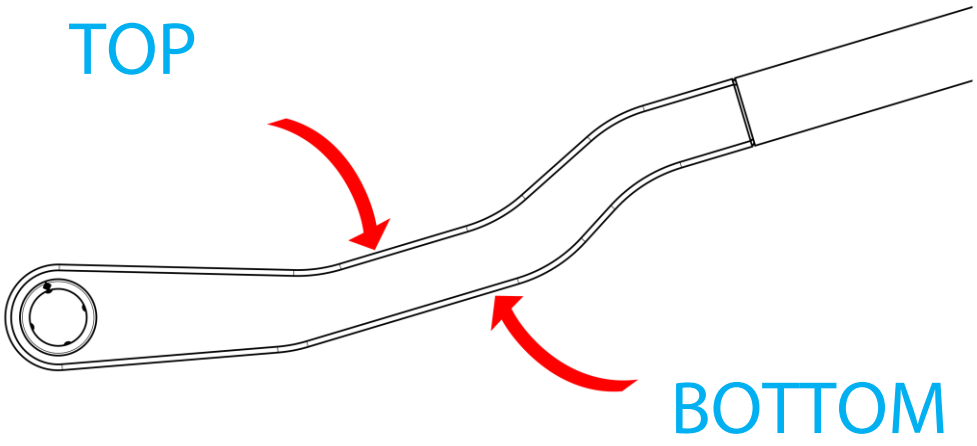
Pay particular attention to the position of the spring inside the groove of the arm shaft, it must be positioned as shown below.



Mounting position for rear arm spring

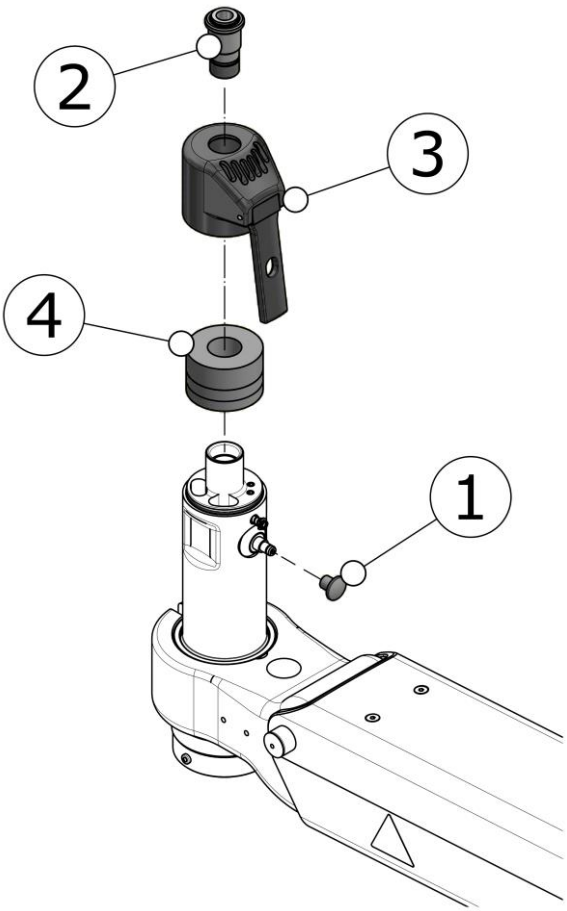


Mounting position for front arm spring



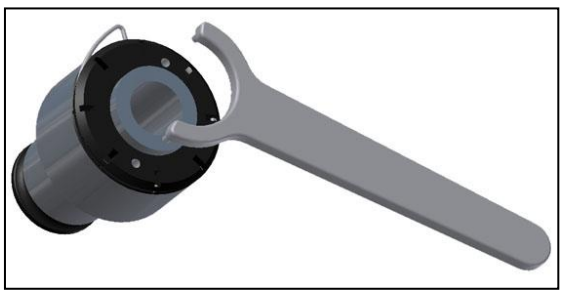
8.2 REPLACING THE EXHAUST FILTER

1. Shut off the air supply and operate the motor lever to expel the compressed air from inside the motor.
2. Remove the intake tube and the reversing button (1).
3. Unscrew the fitting (2) from the top of the motor, remove the housing (3).
4. Remove the exhaust filter (4).
5. Replace the exhaust filter with a new one.
6. Proceed in reverse order for assembly.



8.3 ADJUSTING THE CLUTCH

1. Remove the fixing ring.
2. Turn the slotted nut clockwise or anti-clockwise to tighten or loosen the clutch.
3. Push the ring back into the groove.



8.4 COMPRESSED AIR MAINTENANCE UNIT

For good functioning of the compressed air unit, an air quality level of class 1.4.1 is recommended, according to the table attached. ISO 8573-1 2010.

ISO 8573-1:2010 CLASS	PARTICLES				WATER		OIL
	Maximum number of particles of the following size [µm]/m³ of compressed air			Mass Concentration	Vapour Pressure Dewpoint	Content of liquid	Total content (liquid, aerosol, gas)
	0.1 - 0.5 µm	0.5 - 1 µm	1 - 5 µm	[mg/m³]	[°C]	[g/m³]	[mg/m³]
0	By definition of the user, less contamination than class 1						
1	≤ 20000	≤ 400	≤ 10	-	≤ -70	-	≤ 0.01
2	≤ 400000	≤ 6000	≤ 100	-	≤ -40	-	≤ 0.1
3	-	≤ 90000	≤ 1000	-	≤ -20	-	≤ 1
4	-	-	≤ 10000	-	≤ +3	-	≤ 5
5	-	-	≤ 100000	-	≤ +7	-	-
6	-	-	-	≤ 5	≤ +10	-	-
7	-	-	-	5 - 10	-	≤ 0.5	-
8	-	-	-	-	-	0.5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 5

Periodically check the water level accumulated in the reservoir, and bleed if it has reached the limit.

9 COMMON PROBLEMS

9.1 PROBLEM: TILTING ARM DROPS DOWN

Possible Causes		Solution
1.- Unbalanced arm	=	Balance arm according to weight to be supported. [See BALANCING THE ARM page 20]
2.- Defective shock absorber	=	Replace with a new one [See REPLACING THE GAS SPRING AND CYLINDER page 27]

9.2 PROBLEM: THE CLUTCH SLIPS AND THE TAP DOES NOT ROTATE WHEN THE MOTOR IS RUNNING

Possible Causes		Solution
1- Loose clutch	=	Adjust the clutch [See ADJUSTING THE CLUTCH page 29]
2.- Lack of tool lubrication	=	Use an oil or emulsion suitable for the material
3.- Inappropriate tap for the material	=	Use taps appropriate to the material in accordance with the manufacturer's instructions.
4.- Tap in bad condition (blunt)		
5.- Misaligned hole		
6.- Small hole diameter		

9.3 PROBLEM: THE LUBRICATION SYSTEM DOES NOT WORK

Possible Causes		Solution
1.- Oil reservoir empty	=	Fill the reservoir [See LUBRICATION page 21]
2.- Clogged grease nozzle	=	Unscrew the end of the nozzle and clean it (Caution: do not remove the spring and ball from inside the nozzle).

10 ACCESSORIES

BENCHES

(1)

(2)

(3)

Four wheels (two with brake)

Slots for fastening parts or tools.

Supports for tap holder or tools.

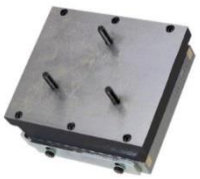
CODE	DESCRIPTION	DIMENSIONS		MAX. LOAD
TP0001A0	Small bench (1)	500 x 500 x 900 mm	19 11/16" x 19 11/16" x 35 7/16"	100 kg
TF0001A0	Medium bench (2)	850 x 850 x 850 mm	33 7/16" x 33 7/16" x 33 7/16"	200 kg
907B00A0	Large bench (3)	1100 x 850 x 850 mm	43 5/16" x 33 7/16" x 33 7/16"	500 kg

SUPPORTS

(1)

Tie for securing the machine

Magnetic support for placing it on a metal surface and securing the machine



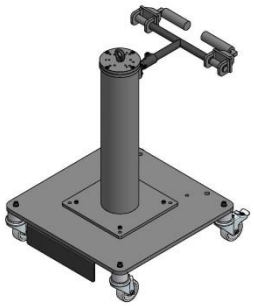
(3)

(2)

CODE	DESCRIPTION	DIMENSIONS
BR000100	Small tie (1)	N/A
BR100100	Large tie (2)	N/A
IA000100	Magnetic support (3)	150x150
IB000100	Magnetic support (4)	Ø200
IC000100	Magnetic support (5)	Ø250

(4)(5)

TROLLEY

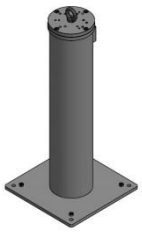


To move the work unit.
It has four orientable wheels.

DESCRIPTION	DIMENSIONS	
Forklift 700	700x700 mm	27 9/16" x 27 9/16"
Forklift truck 900	900 x 900 mm	35 7/16" x 35 7/16"
Electrical forklift truck	900 x 900 mm	35 7/16" x 35 7/16"
Electrical forklift truck	800x800 mm	31 1/2" x 31 1/2"

*Code according to load

FIXED COLUMN



To secure to the floor using four metal studs.

CODE	DESCRIPTION/DIMENSIONS	
CL115400	Column 375 mm	14 3/4"
CL002700	Column 400 mm	15 3/4"
CL106800	Column 500 mm	19 11/16"
CL101100	Column 630 mm	24 13/16"
CL122800	Column 640 mm	25 3/16"
CL000100	Column 740 mm	29 1/8"
CL005300	Column 850 mm	33 7/16"
CL002500	Column 940 mm	37"
CL002400	Column 1000 mm	39 3/8"
CL002600	Column 1200 mm	47 1/4"
CL004500	Column 1500 mm	59 1/16"

LIFTER

It consists of a telescopic column and a pneumatic cylinder with anti-rotation.

CODE	DESCRIPTION	VERTICAL TRAVEL
EA101500	Lifter 300	300 mm – 11 7/8"
EA0001B0	Lifter 500	500 mm – 19 7/8"
EA103800	Lifter 750	750 mm – 29 17/32"

COLUMN D63

Pneumatic lift. The vertical position can be locked at any point, it has a pneumatic cylinder. It can be secured to the ground, on a trolley or on the ground rail to have movement on two shafts.

CODE	DESCRIPTION	VERTICAL TRAVEL
CL103400	Column 1500 D63	940 mm – 37"
CL017500	Column 2000 D63	1440 mm – 56 11/16"
CL013500	Column 2500 D63	1940 mm – 76 3/8"

EXTENSION

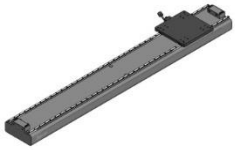
(1)

Extender that enables the arm's working area to be increased. It can also be installed on other accessories, such as column, lift, beam, etc.

(2)

CODE	DESCRIPTION	ADDITIONAL WORK AREA
ER0010C0	Extension 500 (1)	500 mm – 19 11/16"
ER000100	Extension 1000 (2)	1000 mm – 39 3/8"

FLOOR RAIL



Rail to fasten to the floor and on which the different columns and lifts can be fastened. Several sections can be joined from a base section 2 m. The horizontal position can be locked at any point.

CODE	DESCRIPTION	TRAVEL
CL040000	Floor rail	1520 mm – 59 13/16"

LINEAR GUIDE

Guide for the horizontal movement of the arm. Several sections can be joined from a base section 2 m. This may be bench-top, fixed to the wall or ceiling, or on pillars of various heights that can be selected. The horizontal position can be locked at any point.

CODE	DESCRIPTION	TRAVEL
CL023300	Linear guide 1000	635 mm – 25"
CL020000	Linear guide 2000	1635 mm – 64 3/8"
CL023000	Linear guide 3000	2635 mm – 103 3/4"

BASE ROTATION LIMITER

Support that limits the rotation of the radial arm of the equipment. The stops can be moved to adjust the range of rotation.

CODE	DESCRIPTION
LG000104	Rotation Limiter

10.1 ROSCAMAT COMPATIBILITY TABLE

ACCESSORY	SERIES – ROSCAMAT						
	200	400	500	Mosquito	Tiger	Shark	Dragon
EXTENSION 500	●	●	●	●	●	●	●
EXTENSION 1000	●	●	●	●	●	●	●
TROLLEY+FIXED COLUMN	●	●	●	□700x20	□700x25	□700x30	□700x35
FIXED COLUMN	●	●	●	●	●	●	●
LIFTER 500	●	●	●	●	●	●	●
COLUMN D63	●	●	●	●	●	●	●
FLOOR RAIL	●	●	●	●	●	●	●
LINEAR GUIDE	●	●	⊘	●	⊘	⊘	⊘
SMALL BENCH (500x500)	●	●	⊘	●	⊘	⊘	⊘
MEDIUM BENCH (850 x 850)	●	●	●	●	●	*	*
LARGE BENCH (1100 x 850)	●	●	●	●	●	●	●
SMALL TIE	●	●	⊘	●	⊘	⊘	⊘
LARGE TIE	●	●	●	●	●	●	●
MAGNETIC SUPPORT	Ø150	Ø200	Ø250	Ø200	Ø250	Ø250	Ø250

● = Compatible
⊘ = NOT Compatible
* = Please ask

11 ACCESSORIES FOR THREAD CUTTING

QUICK-CHANGE TOOL HOLDERS

Includes a wide range of tap holders with and without clutches, as well as other tools for rapid clamping of different tools, such as drills, countersinks, dies, socket spanners, etc.

Tap holder with safety clutch
(so that it slips when it reaches the bottom of the hole)

Tap holder without safety clutch
(for clamping of various tools with cylindrical shank and square drive)

Type 1 - Ø19 mm: capacity M2-M16
(for modules 300, 550, 750, 1050)

Type 2 - Ø 31 mm: capacity M14-M30
(for modules 90, 170)

STANDARDISED MEASURES

Metric	Ø Coupling	Ø Shank	□	Standard
M3	19	3.5	2.7	DIN 371
M4	19	4.5	3.4	DIN 371
M5	19	6	4.9	DIN 371
M6	19	6	4.9	DIN 376
M7	19	7	5.5	DIN 376
M8	19	8	6.2	DIN 376
M10	19	10	8	DIN376
M12	19	9	7	DIN 376
M14	19/31	11	9	DIN 376
M16	19/31	12	9	DIN 376
M18	31	14	11	DIN 376
M20	31	16	12	DIN 376
M22	31	18	14.5	DIN 376
M24	31	18	14.5	DIN 376
M27	31	20	16	DIN 376
M30	31	22	18	DIN 376

DIE STOCK

For threading with dies
Capacity: M5-M27

LONG DIE HOLDER

For guided threading with dies.

Types:
-Long die stock 19/1 M5-M6
-Long die stock 19/1 M8
-Long die stock 19/1 M10
-Long die stock 19/1 M12-M14
-Long die stock 31/2 M16-M18-M20

Other sizes: please ask
Capacity: M6-M27

QUICK-CHANGE EXTENSION

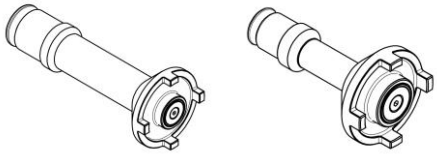
For 80 mm spacing of the tool from the head and for access to difficult areas
Ø coupling = Ø19 mm

REDUCING BUSH

For adapting different tap holder coupling diameters to modules with different output diameters.

PROBES

Two models available 19 and 31. Tools for thread cutting in inclined positions



11.1 MODULES

MODULE	Max. Vel. (rpm)	Max. torque		Ø Adapter	Thread cutting capacity - Steel <90kg	
		Nm	Ft · lb		Metric	Inches
90	90	150	110	Ø31	M16-M24	$^5/_8" - ^7/_8$
170	170	79	58	Ø31	M16-M20	$^5/_8" - ^3/_4"$
300	300	44	32	Ø19	M2-M16	$^1/_8 - ^5/_8"$
550	550	24	15	Ø19	M2-M12	$^1/_8 - ^1/_2"$
750	750	17	13	Ø19	M2-M10	$^1/_8 - ^3/_8"$
1050	1050	12.5	9	Ø19	M2-M8	$^1/_8 - ^3/_8"$
2100	2100	6	4	B-16 Cone	Drilling up to Ø8 aluminium, cast iron, etc.	

11.2 ROTATION TORQUE CLUTCH ADJUSTMENT FOR THREAD CUTTING (Nm)

Metric thread	Steel > 100 kg.	Steel 80-100 kg.	Steel < 80 kg.	Aluminium F. Grey
3	0.9	0.6	0.5	0.4
4	2	1.3	1.2	0.8
5	3	2	2	1.3
6	5	4	4	2.4
8	11	8	8	5
10	20	15	14	9
12	33	24	23	14
14	50	36	35	22
16	57	42	40	26
18	101	73	70	45
20	112	81	78	50
22	123	90	86	55
24	194	140	135	86
27	218	158	152	97
30	330	240	230	150

11.3 TABLE OF TORQUE - METRIC TO THREAD - MODULES

TORQUE	METRIC	WHITWORTH	GAS	STEEL>80	STEEL<80 CASTING BRONZE<40	ALUMINIUM PLASTIC
0.5 0.6 0.8	M3	1/8”		1050	1050	1050
1 1.2 1.6 2 2.5	M4 M5	5/32”				
3 4 5	M6	3/16” 7/32” 1/4”				
6			G 1/8”	750		
8	M8					
10		5/16”		550	750	750
12 16	M10	3/8”		300		
18 20			G 1/4”		550	
22	M12	7/16”	G 3/8”			
25 28 32 36	M14	1/2”			300	550
40	M16	9/16”		170		300
45 50		5/8”	G 1/2”	90	170	170
56 63	M18		G 5/8”			
70 80	M20 M22	3/4”	G 3/4” G 7/8”		90	
90 100 110		7/8”				90
125	M24					
140	M27	1”	G 1”			
220	M30	1 1/8”	G 1 1/2”			

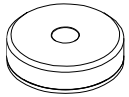
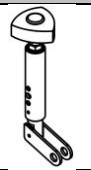
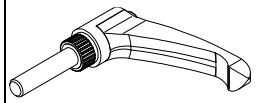
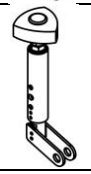
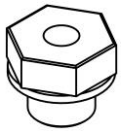
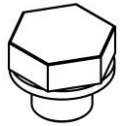
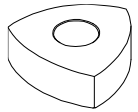
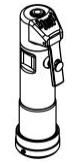
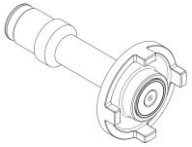
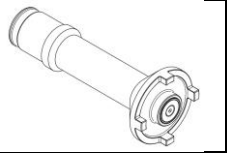
11.4 TAPS FOR THREAD CUTTING BY MACHINE

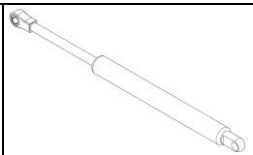
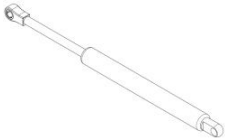
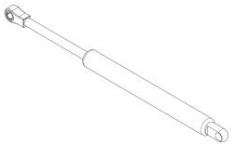
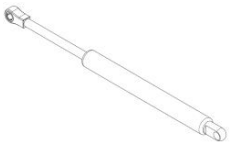
Blind hole	Spiral grooved tap.	Lubrication.
Through hole	Tap with straight grooves and helix inlet.	
Steel > 80 kg.	Angle of Breakout 8-10.	Cutting oil with additives.
Steel < 80 kg.	Angle of Breakout 12-14.	Cutting oil.
Steel < 50 kg. Stainless steel	Angle of Breakout 14-16. Treatment of Surface.	
Grey casting	Tap with straight grooves. Treatment of Surface Nitrided. Angle of Breakout 5.	Petroleum, Cutting fluid, dry.
Duraluminium	Angle of Breakout 12-15.	Cutting fluid, dry.
Aluminium	Angle of Breakout 17-25.	Cutting oil with additives.
Plastics		Cutting fluid, dry.

12 WARRANTY

See attached guarantee document.

13 SPARE PARTS

CODE	DESCRIPTION	PICT.	CODE	DESCRIPTION	PICT.
MV30I505	BASE COLLAR WITH PAD		**DR100405**	FORK ADJUSTMENT REAR ARM	
AC060516	BASE HANDLE		**DR200305**	FORK ADJUSTMENT FRONT ARM	
40400903	FILLER CAP		**CL050566**	DRAIN CAP	
402012A5	SUB-ASSEMBLY LOCKING RING MODULE		**AC020056**	ADJUSTING SCREW	
DR203105	TIE		**NH110915**	AIR UNIT	
40402104	LUBRICATION PUMP ASSEMBLY		**40200102R**	PNEUMATIC MOTOR	
DR302704	PROBE 19		**DR302904**	PROBE 31	

DR102000	FRONT SHOCK ABSORBER REPLACEMENT KIT DRAGON V – 900N		**DR102200**	REAR SHOCK ABSORBER REPLACEMENT KIT DRAGON V – 1300N	
DR102100	FRONT SHOCK ABSORBER REPLACEMENT KIT DRAGON RH – 1300N		**DR102300**	REAR SHOCK ABSORBER REPLACEMENT KIT DRAGON RH – 1500N	

14 GUIDELINES FOR PACKAGING, TRANSPORT AND DISMANTLING

14.1 PACKAGING

Follow the instructions below for packing the equipment for location changes or shipments for repair and maintenance.

14.1.1 Preparatory measures

The equipment must be placed out of service.
Assembling the "transport safety elements" will prevent movement during transport and thus possible damage to the installation.

14.1.2 Choice of packaging

For long transport distances, the components of the equipment must be packed in such a way that they are protected from atmospheric conditions.

14.1.3 Inscription on the packaging

Observe the specific provisions of the country in which the equipment is transported. In fully closed packaging, an indication must be placed on the packaging indicating where the top is.

14.1.4 Packaging procedure

The equipment must be placed on manufactured wooden pallets. Use lashing straps to ensure the components are secured against possible falls. Attach all the technical documentation that should accompany the equipment.

14.2 TRANSPORT

The following data must be taken into account for transport.
External dimensions depending on the segment (approx. 1,360 mm x 410 mm x 960 mm).
Total weight depending on the model: approx. 37.5 kg.

14.3 DISASSEMBLY

- ✓ The equipment must be taken out of service by duly trained and authorised personnel.
- ✓ The equipment must be dismantled taking the safety instructions, waste disposal and recycling into account.
- ✓ Protect the environment. The equipment must be disposed of pursuant to current regulations and guidelines on safety, noise prevention, environmental protection and accident prevention.

NOTES

DATE	DESCRIPTION

CE STATEMENT OF COMPLIANCE

The manufacturer:

Company:	TECNOSPIRO MACHINE TOOL, S.L.
Address:	P.I. Pla dels Vinyats I, s/n nau 1
City:	Sant Joan de Vilatorrada - 08250
Country:	Spain - EU

Declares that this product:

Designation:	ROSCAMAT 500
Model:	V, V E, RHM, RHM E, RHC, RHC E
From the serial number:	020-009 - Consecutive

It is classified as a machine according to the Machinery Directive 2006/42/EC and to which this Declaration refers, and complies with the following European EC Directives, and their applicable Essential Health and Safety Requirements (EHSR):

2006/42/EC – Machinery Directive

2014/68/EU – Pressure Equipment Directive

Authorised for documentation:

Mr Ramon Jou Parrot of TECNOSPIRO MACHINE TOOL, S.L

Sant Joan de Vilatorrada, Wednesday, 14 April 2021

Ramon Jou Parrot, Technical Director