
INSTRUCTION MANUAL

TS-VIII PNEUMATIC MOTOR

ROSCAMAT®



TECNOSPIRO MACHINE TOOL, S.L.U.
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



TECNOSPIRO
MACHINE TOOL SLU



www.roscamat.com

TABLE OF CONTENTS

1	ABOUT THIS MANUAL	4
1.1	CONSIDERATIONS.....	4
1.2	VERSION	5
2	SAFETY INFORMATION.....	5
2.1	SCOPE OF APPLICATION.....	5
2.2	WARNINGS AND GENERAL CONSIDERATIONS	5
2.3	EXCLUSIONS	6
2.4	DECLARATION OF INCORPORATION	6
2.5	SYMBOLOLOGY AND ICONS.....	6
2.6	SYSTEM INTEGRATOR.....	7
2.7	PERSONAL PROTECTIVE EQUIPMENT (PPE).....	7
2.8	LEVEL OF TRAINING OF PERSONNEL INVOLVED	8
3	GENERAL DESCRIPTION AND TECHNICAL INFORMATION	9
3.1	MAIN PARTS.....	9
3.2	DESCRIPTION AND PRINCIPLE OF OPERATION	10
3.3	DIMENSIONS.....	10
3.4	TECHNICAL SPECIFICATIONS	11
3.5	IDENTIFICATION	11
4	INSTALLATION, ADJUSTMENTS AND OPERATION	12
4.1	INSTALLATION	12
4.2	CHANGING MODULES.....	12
5	OPERATION	13
5.1	THREADING OPERATIONS.....	13
6	MAINTENANCE.....	14
6.1	EXHAUST FILTER REPLACEMENT	14
6.2	MOTOR PLATES REPLACEMENT	15
6.3	CLUTCH ADJUSTMENT	16
7	COMMON PROBLEMS	17
7.1	PROBLEM: THE CLUTCH SLIPS AND THE TAP DOES NOT ROTATE WHEN THE MOTOR IS RUNNING.....	17
8	WARRANTY.....	17
9	SPARE PARTS.....	18
10	GUIDELINES FOR PACKAGING, TRANSPORT AND DISMANTLING	19
10.1	PACKAGING	19
10.1.1	Preparatory measures.....	19

10.1.2	Choice of packaging	19
10.1.3	Inscription on the packaging	19
10.2	TRANSPORT.....	19
10.3	DISASSEMBLY.....	19
11	ACCESSORIES AND ADJUSTMENTS	20
11.1	MODULE SYSTEM.....	20
11.2	TORQUE RELATION - METRIC THREAD - MODULES.....	20
11.3	TURNING TORQUE (Nm) FOR THREADING	21
11.4	TAPS FOR THREAD CUTTING BY MACHINE	21
11.5	THREADING ACCESSORIES.....	22
	DECLARATION OF INCORPORATION.....	24

1 ABOUT THIS MANUAL

This document is the instruction manual for the TS-VIII pneumatic motor.

-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.

1.1 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.

1.2 VERSION

Document	Revision date
Instruction manual	18/02/2022

2 SAFETY INFORMATION

2.1 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).

2.2 WARNINGS 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.
- ✓ 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 this. This is solely at the user's own risk.
- ✓ 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.
- ✓ Do not use the equipment in any way that is not considered in this manual and pay special attention to the uses mentioned in section 2.3 EXCLUSIONS, which must not be carried out.
- ✓ 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.
- ✓ 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 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.
- ✓ For tasks regarding maintenance, adjustment, cleaning, etc. there must be the spaces necessary for these tasks.
- ✓ If you have questions about handling or maintenance procedures, please contact your 3arm® and/or Roscamat® distributor.

2.3 EXCLUSIONS

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

- ✓ 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.
- ✓ Use by people who have not completed the occupational risk prevention course.

It should not be installed:

- ✓ Installation in corrosive areas.
- ✓ Installation in dusty areas.

- ✓ Installation in areas with high electromagnetic emissions.
- ✓ Installation in areas with extreme temperatures (very high or very low).
- ✓ Installation in areas with high humidity.
- ✓ Installation in outdoor areas.

2.4 DECLARATION OF INCORPORATION

Pursuant to the European Directive on construction of machinery, the equipment is considered quasi machinery. It can only be commissioned when the following requirements are met:

- ✓ The equipment is integrated for a specific application.
- ✓ The equipment is integrated with all the safety functions and protective devices necessary to be considered a machine for a specific application, pursuant to the European directive for machine construction.
- ✓ Once integrated, it complies with the requirements of the European directive for machine construction, which is proven with a conformity assessment process.
- ✓ The integrator/end user must draft an EC statement of compliance pursuant to the applicable machinery directive.

2.5 SYMBOLY AND ICONS

Throughout this manual and on the machine structure, different symbols and pictograms can be observed, the meanings of which are summarised below.

	Warning. General warning symbol. This symbol is usually accompanied by another symbol, or a more detailed description of the danger.
	Crushing hazard.

It is the responsibility of the integrator/end user to define the personal protective 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 within the mechanism of the equipment.

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

2.6 SYSTEM INTEGRATOR

The system's 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.

2.7 PERSONAL PROTECTIVE 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.

2.8 LEVEL OF TRAINING OF PERSONNEL INVOLVED

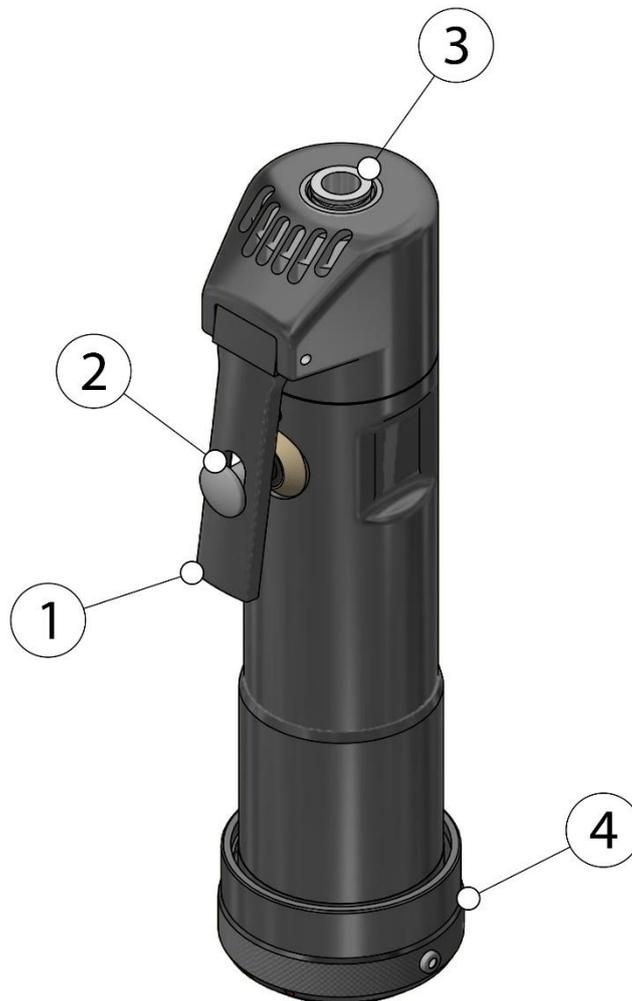
All people working with the equipment must have read and understood the safety chapter of the documentation.

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 operators:* 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.
- *Trainees / Students:* May only work on the equipment while supervised at all times by a person in charge of the installation.
- *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.

3 GENERAL DESCRIPTION AND TECHNICAL INFORMATION

3.1 MAIN PARTS



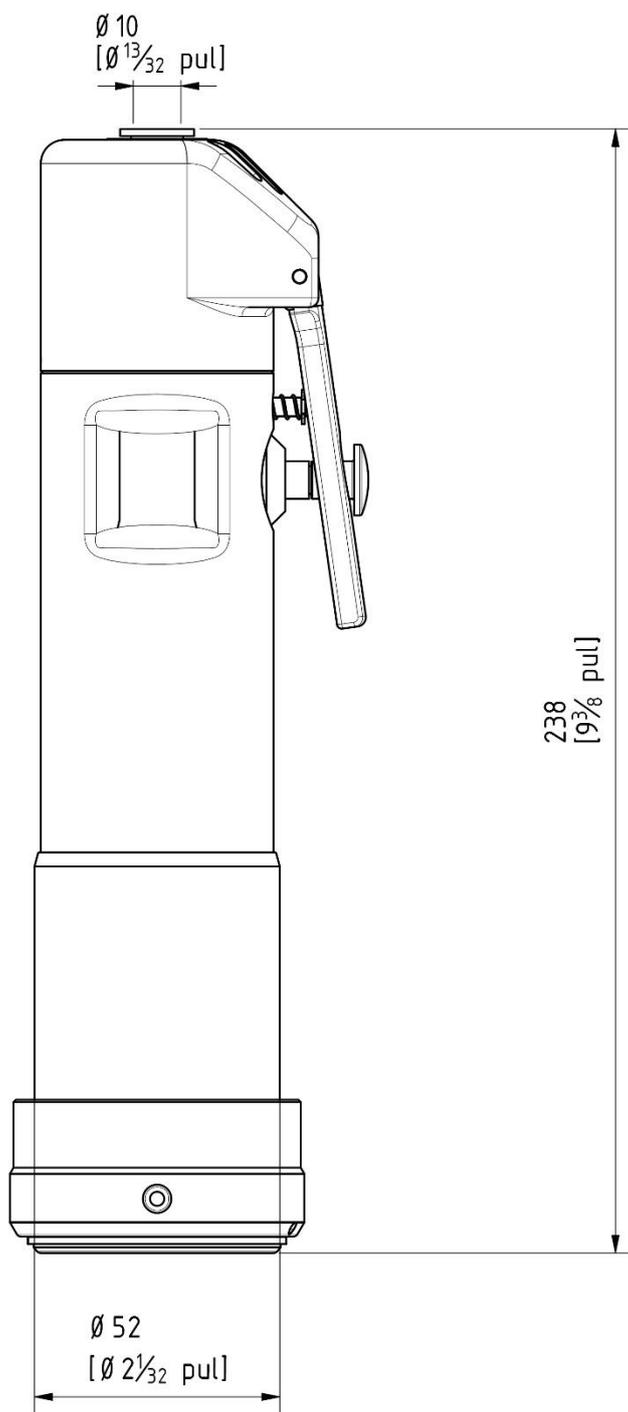
1.- Motor starter lever
2.- Reversing button

3.- Air inlet
4.- Motor shaft

3.2 DESCRIPTION AND PRINCIPLE OF OPERATION

Motor powered by pressurized air, properly filtered and lubricated, with output for gear modules.

3.3 DIMENSIONS



3.4 TECHNICAL SPECIFICATIONS

GENERAL TECHNICAL SPECIFICATIONS		
Thread cutting capacity		M2 - M24
Materials suitable for thread cutting		Metals and metallic and plastic materials
Speed Range		90 - 2100 rpm
Power		730 W
Weight		1.2kg
Noise level		78 db.
Pneumatic specifications		
	Consumption	300-900 l/m
	Intake filter	5 U.m.
Operating conditions		
	Temperature	+15 to 45°C <i>(59-113°F)</i>
	Relative humidity	Max. 70%
	Environment	Industrial environments

3.5 IDENTIFICATION

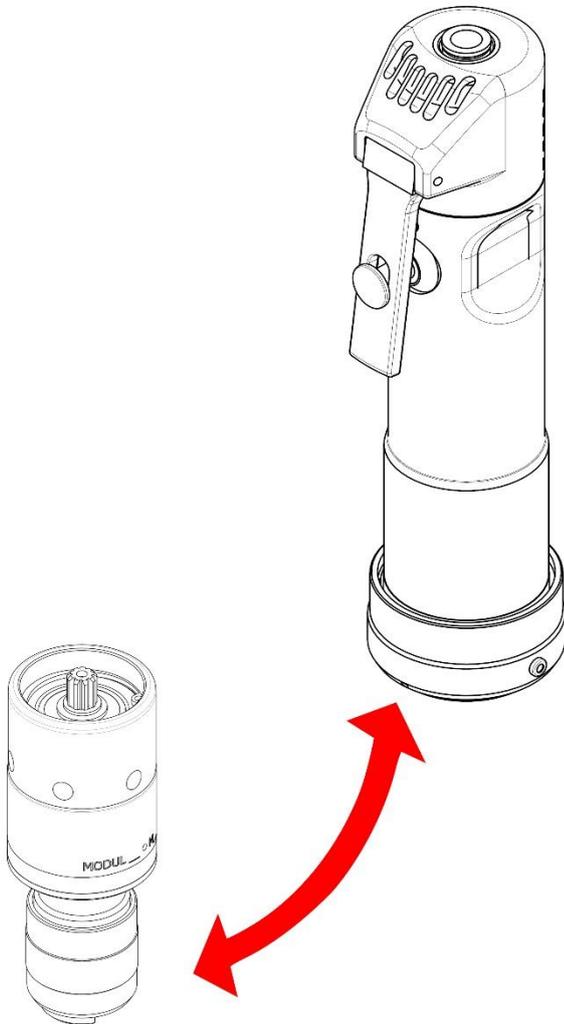
The pneumatic motor incorporates date of manufacture and serial number engraved for identification and traceability.

4 INSTALLATION, ADJUSTMENTS AND OPERATION

4.1 INSTALLATION

4.2 CHANGING MODULES

1. To remove the module:
 - Turn collar (A) to the right (red on red)
 - Remove the module
2. To insert the module:
 - Insert the module (red with red)
 - Turn collar(B) to the left (close, green with red)
 - Check that the module is self-supporting



5 OPERATION



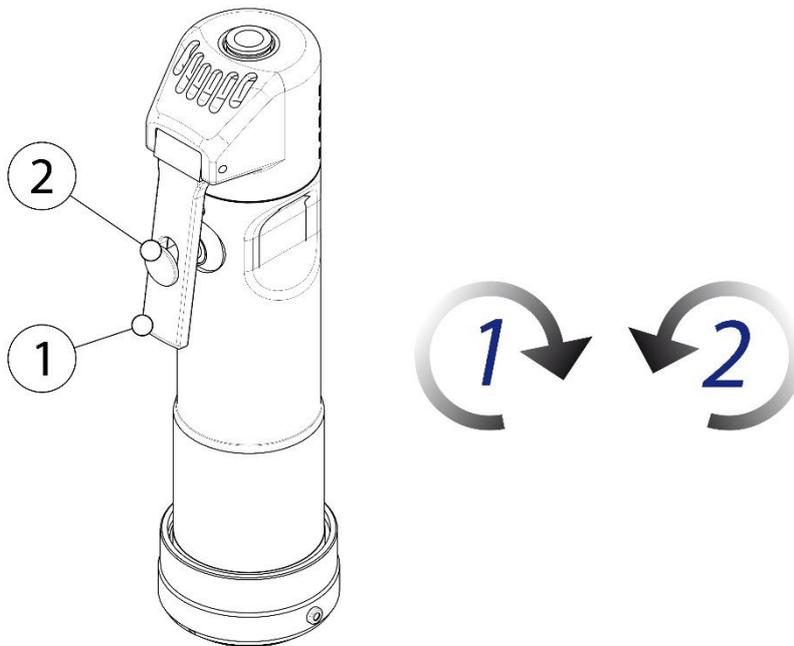
WARNING

- ✓ The sequence described below is for information only and assumes that the installation, adjustments such as the installation of the module, reducers (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 PROTECTIVE EQUIPMENT \(PPE\) pg. 7/](#).
- ✓ 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.
- ✓ Ensure that the materials with which you are going to work (cutting threads), meet the requirements described [/See TECHNICAL SPECIFICATIONS pg. 11/](#).
- ✓ The parts to be worked on must be properly secured.

5.1 THREADING OPERATIONS

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

- 1- Connect the motor to the pneumatic system.
- 2- Press and hold lever¹ (1) for thread cutting operations (clockwise rotation).
- 3- Press and hold down the reversing button (2), for unscrewing operations (anti-clockwise rotation).

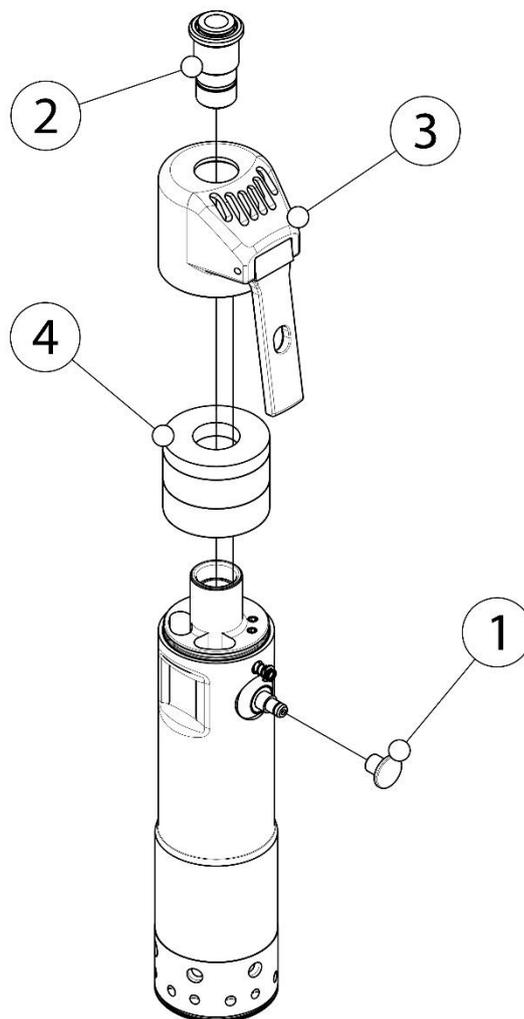


¹ Buttons (1) and (2) are press-and-hold type buttons, preventing the machine from operating without intervention/supervision of an operator.

6 MAINTENANCE

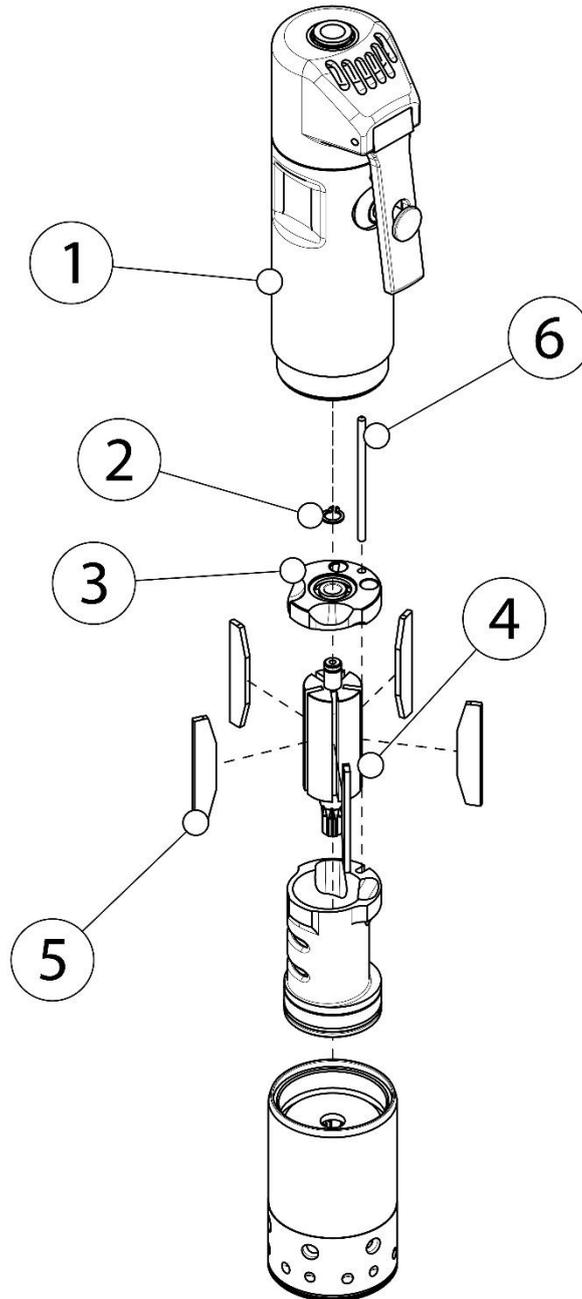
6.1 EXHAUST FILTER REPLACEMENT

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.



6.2 MOTOR PLATES REPLACEMENT

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.
3. Loosen the motor housing (1) with a strap wrench.
4. Remove the entire rotor assembly from inside the sleeve.
5. Remove the "seeger" ring (2) from the upper part of the rotor and remove the upper cylinder head (3), the motor stator (4) and finally remove the plates (5).





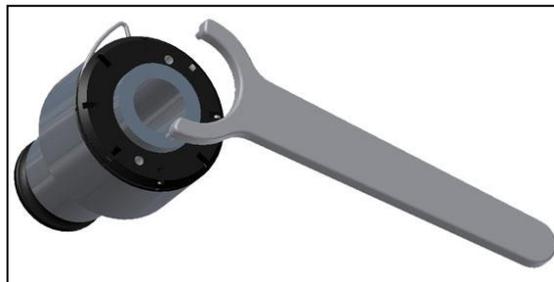
CAUTION

Observe the direction and position of the motor stator and cylinder head.

6. Carefully clean and blow on all parts.
7. Grease the motor plates and bearings with SAE10 oil.
8. Place the plates (5) in their housings.
9. Place the motor stator (4) in its correct position and insert the upper cylinder head (3) together with the bearing and mount the seeger ring (2).
10. Take the rotor assembly and insert it into the housing vertically and without turning so that the rod (6) is inserted into the bottom of the motor housing.
11. Once the rod (6) is positioned in its housing, screw the whole assembly together and tighten with the strap wrench.
12. Connect the intake tube to the motor.

6.3 CLUTCH ADJUSTMENT

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.



7 COMMON PROBLEMS

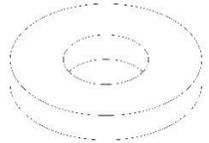
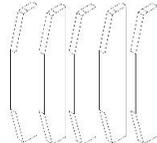
7.1 PROBLEM: THE CLUTCH SLIPS AND THE TAP DOES NOT ROTATE WHEN THE MOTOR IS RUNNING

Possible Causes	Solution
1- Loose clutch	= Adjust the clutch <i>[See CLUTCH ADJUSTMENT pg.16]</i>
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	

8 WARRANTY

See attached warranty document.

9 SPARE PARTS

CODE	DESCRIPTION	PICT.	CODE	DESCRIPTION	PICT.
40202603	Felt washer		NH120846R	ORVIM ROTOR VANE KIT	

10 GUIDELINES FOR PACKAGING, TRANSPORT AND DISMANTLING

10.1 PACKAGING

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

10.1.1 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.

10.1.2 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.

10.1.3 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 side is.

10.2 TRANSPORT

The following data must be taken into account for transport.

External dimensions depending on the model, 80mmx80mmx250mm approx.

Total weight depending on the model: 1.5kg.

10.3 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.

11 ACCESSORIES AND ADJUSTMENTS

11.1 MODULE SYSTEM

MODULE	Max. Vel. (rpm)	Max. torque		Ø Adapter	Thread cutting capacity - Steel <90kg	
		Nm	Ft · lb		Metric	Inches
90	90	150	110	Ø31	M16-M27	5/8" - 1 1/8"
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"

11.2 TORQUE RELATION - METRIC 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"			
8	M8					
10		5/16"		750	750	
12 16	M10	3/8"		550		
18 20				300	300	
22	M12	7/16"				
25 28 32 36	M14	1/2"				
40	M16	9/16"		170	300	
45 50		5/8"	G 1/2"	90	170	
56 63	M18		G 5/8"			
70 80	M20 M22	3/4"	G 3/4" G 7/8"			
90 100 110		7/8"		90	90	
125	M24					
140	M27	1"				
220	M30	1. 1/8"				

11.3 TURNING TORQUE (Nm) FOR THREADING

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
33	364	260	252	160
36	-	-	360	230
39	-	-	-	250
42	-	-	-	340

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.

11.5 THREADING ACCESSORIES

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)

Type 3 - Ø 48mm: capacity M30-M42
(for modules 40)



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	31/48	22	18	DIN 376
M33	48	25	20	DIN 376
M36	48	28	22	DIN 376
M39	48	32	24	DIN 376
M42	48	32	24	DIN 376

DIE STOCK

For threading with dies
Capacity of M5-M24



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



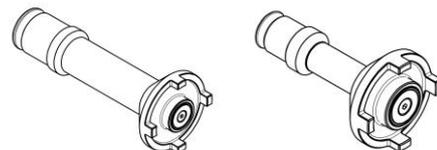
REDUCING BUSH

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



DECLARATION OF INCORPORATION

According to Directive 2006/42/CE on machinery, Appendix II B

The manufacturer:

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

Declares that this product:

Designation:	Pneumatic motor
Model:	TS VIII
No. Series:	Starting with series 1

Complies with Machinery Directive 2006/42/EC

It is also declared that the technical documentation for this incomplete machine has been prepared in accordance with the requirements of Annex II B. This documentation shall be sent to the relevant market surveillance authorities with an appropriately reasoned request.

Commissioning of the incomplete machine is prohibited until it is assembled or integrated, with the help of other parts, into a machine that complies with the provisions of the European Machinery Directive and with the EC declaration of conformity according to the annex. IIA.

Authorised for documentation:

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

Sant Joan de Vilatorrada, Friday, 18 February 2022

TECNOSPIRO
MACHINE TOOL SL



Ramon Jou Parrot, Technical Director

RASCAMAT[®]

TECNOSPIRO
MACHINE TOOL SLU