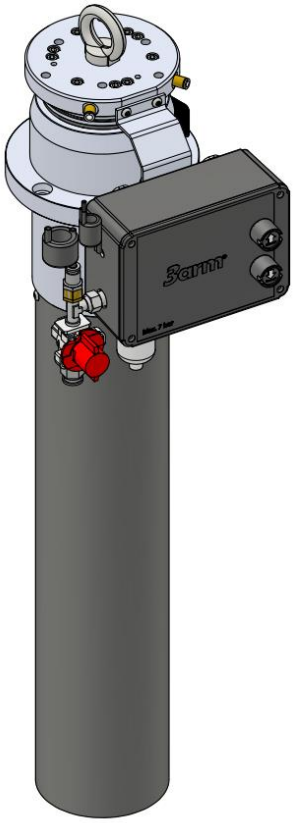
INSTRUCTION MANUAL

PNEUMATIC LIFTER

3arm®

ROSCAMAT®



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ISO 9001 BUREAU VERITAS Certification

TECNOSPIRO MACHINE TOOL SL

DESIGN & QUALITY ROSCAMAT 3arm Made in Barcelona

www.3arm.net

www.roscamat.com

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1 INTRODUCTION

Dear customer,

We would like to congratulate you on your choice, and we are pleased to continue our constant work to provide our customers with a simple, reliable and versatile way to improve ergonomics in the workplace.

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 pneumatic Lift compatible with 3arm® and Roscamat® products.

2 ABOUT THIS MANUAL

This document corresponds to the Pneumatic lifter instruction manual.

-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 equipment. 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 for the entire life of the equipment, in a place close to 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 this manual deteriorates, please contact TECNOSPIRO MACHINE TOOL, S.L. to replace it.
- ✓ 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 with respect to their specific configuration and must 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
Instruction manual	15/11/2021

3 SAFETY INFORMATION

3.1 SCOPE OF APPLICATION

This chapter contains very important information related to the safety of your equipment and is aimed at all staff involved in any of the stages of the life of this equipment (transport, assembly, installation, commissioning, adjustment, learning, 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 risks of injuries.
- ✓ 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.
- ✓ The equipment must not be modified without due authorisation from TECNOSPIRO MACHINE TOOL, S.L.
- ✓ The equipment must only be operated for its intended use. Any other use is strictly prohibited. Any use other than the use 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.
- ✓ Do not use it for any purpose that is not considered 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.
- ✓ It is forbidden to manipulate mobile and joint elements during use.
- ✓ When not in use, leave the carriage in the lowest position of its stroke.
- ✓ 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:

- ✓ 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 must not be installed in:

- ✓ Corrosive areas
- ✓ Dusty areas
- ✓ Areas with high electromagnetic emissions
- ✓ Areas with extreme temperatures (very high or very low)
- ✓ Areas with high humidity
- ✓ Outdoor areas.

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:

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

3.5 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.

3.6 PERSONAL PROTECTION EQUIPMENT (PPE)

The personal protection equipment for this machine is: **safety footwear, hard hat, safety glasses and protective gloves** for the transport, assembly, installation, commissioning and dismantling phases.

Safety footwear, safety gloves and safety goggles for the adjustment, learning, operation and troubleshooting stages.

It is the integrator/end user's responsibility to define the personal protection equipment derived from 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 machine.

It is also mandatory to tie hair 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 manipulator shall be:

- Production operators: occupational risk prevention course, full training for the workstations and on the residual risks of the quasi machine. Minimum of one year's experience in similar facilities.

- Maintenance workers: occupational risk prevention course, full training in the manipulation, operation, maintainability and conservation of the quasi machine and the residual risks. Minimum of two years' experience in similar facilities and with the technical level necessary to perform tasks without problems.

- Cleaning workers: occupational risk prevention course, training in the products and procedures to be able to do the cleaning tasks.

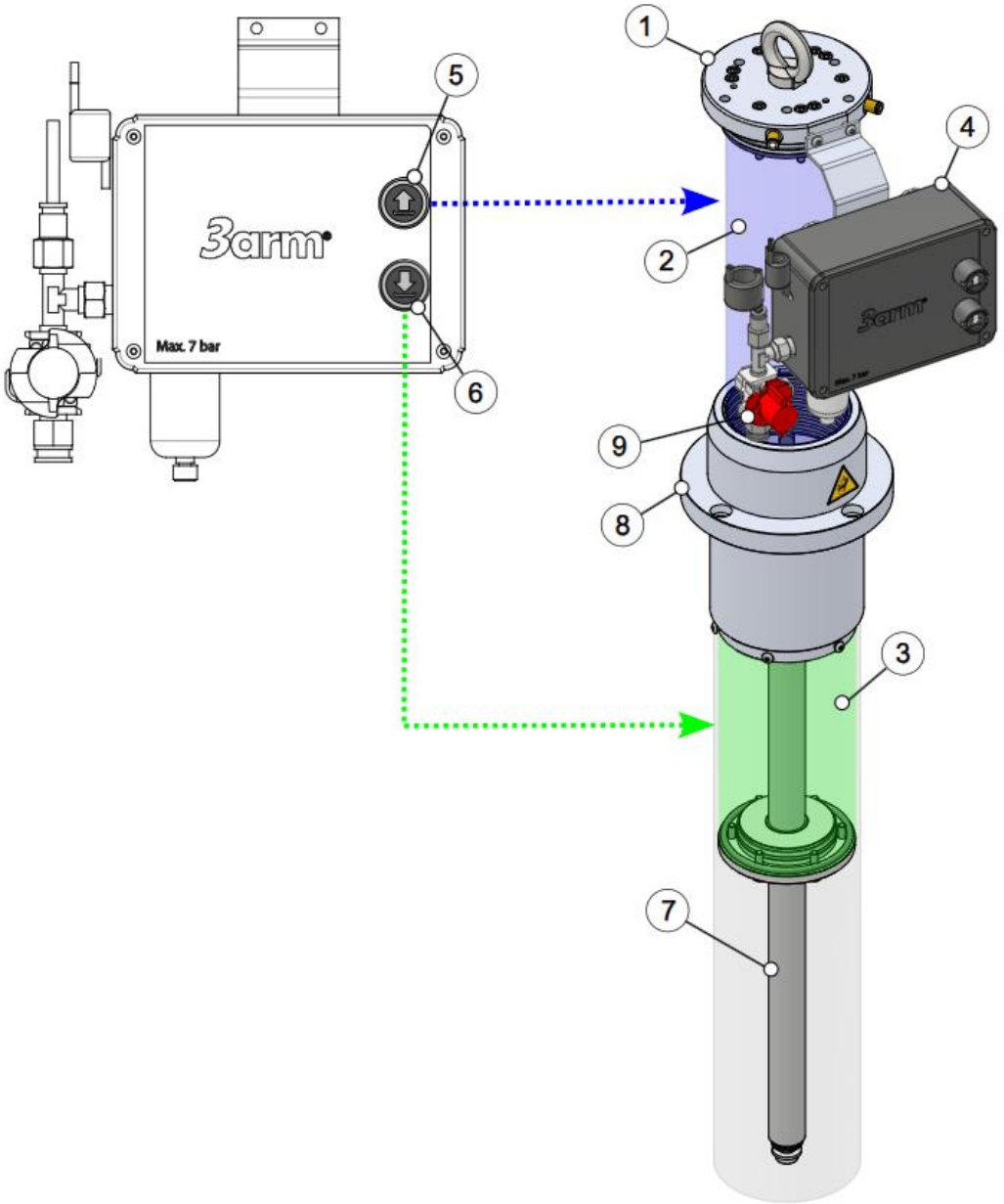
- Apprentices/students: they may only work on the quasi machine when monitored at all times by an installation supervisor.

- Public (non-workers): visitors or passers-by must maintain a minimum safety distance of two metres from the edges of the perimeter of the quasi machine.

4 GENERAL DESCRIPTION AND TECHNICAL INFORMATION

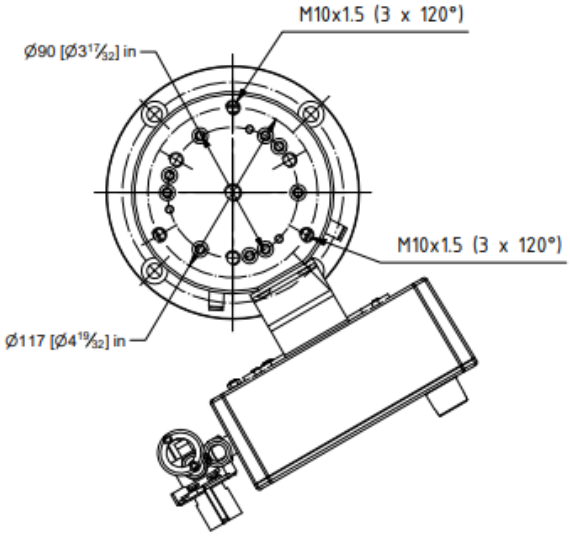
This pneumatic lifter has been designed for use together with 3Arm and Roscamat products, as well as compatible 3arm® accessories, thus providing a vertical stroke in addition to the height of the fixed column (optional). Using the button pad, the operator can vary the height according to the needs of the task.

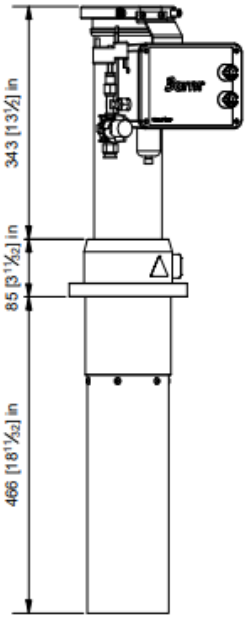
4.1 MAIN PARTS



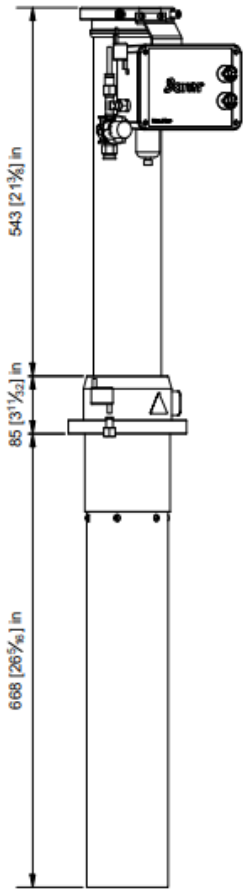
1- Fastening strip
2- Chamber A (Sleeve)
3- Chamber B
4- Control box (button pad)
5- Button for upward movement
6- Button for downward movement
7- Rod
8- Fastening base
9- Pressure cut-off valve

4.2 DIMENSIONS

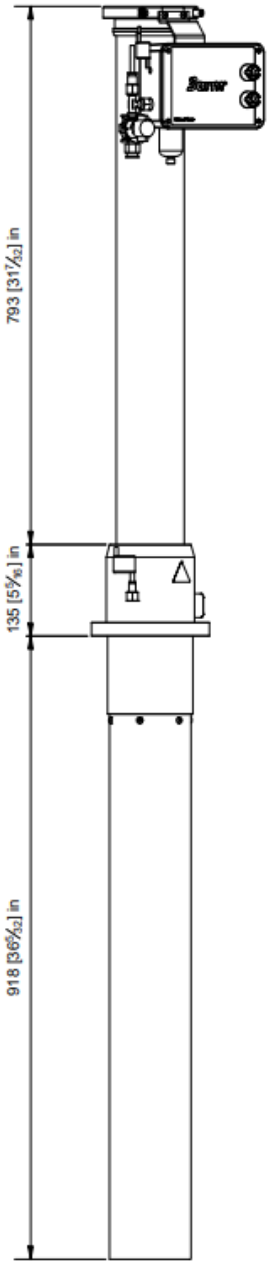




Pneumatic lifter 300



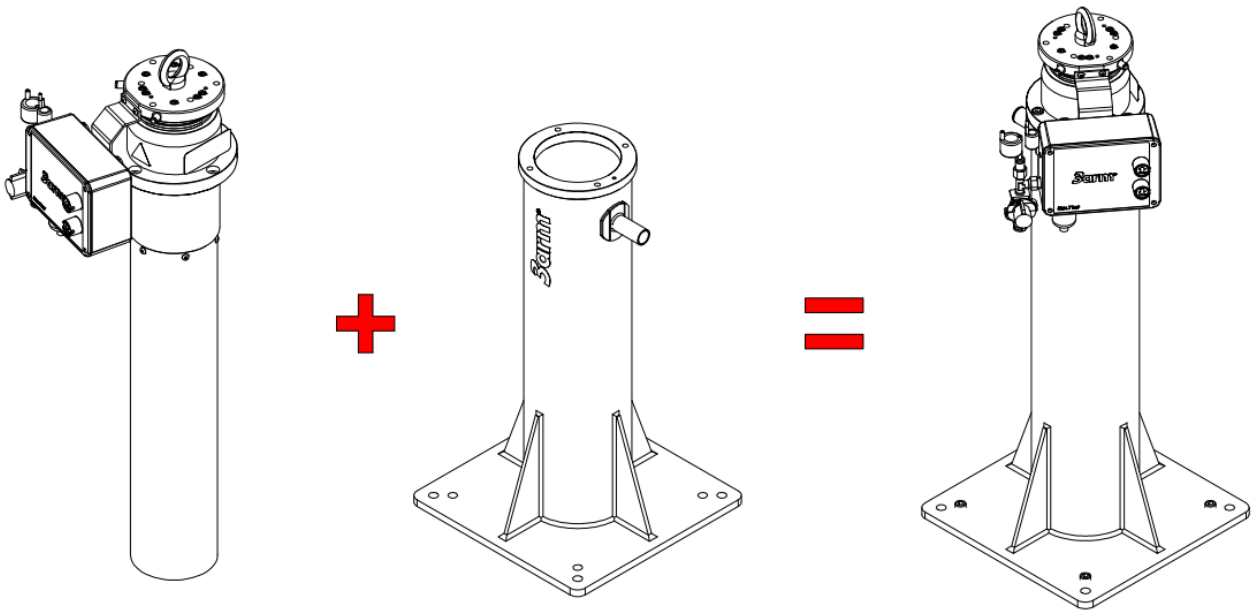
Pneumatic lifter 500



Pneumatic lifter 750

4.3 CONFIGURATIONS

Although the equipment can be supplied individually, it is most commonly acquired together with a fixed column[1] which facilitates the installation of the assembly and enables adaptability to the working height.



[1] Consult your 3arm® distributor for column heights

4.4 TECHNICAL SPECIFICATIONS

GENERAL TECHNICAL SPECIFICATIONS			
Nominal load capacity with 3arm®[2]			
	Pneumatic lifter 300		80 kg *(176lb)*
	Pneumatic lifter 550		80 kg *(176lb)*
	Pneumatic lifter 750		80 kg *(176lb)*
Maximum capacity with centered load[3]			
	Pneumatic lifter 300		240 kg *(529 lb)*
	Pneumatic lifter 550		240 kg *(529 lb)*
	Pneumatic lifter 750		240 kg *(529 lb)*
Maximum momentum[4]			
	Pneumatic lifter 300		1103 Nm *(813 ft lb)*
	Pneumatic lifter 550		1103 Nm *(813 ft lb)*
	Pneumatic lifter 750		1103 Nm *(813 ft lb)*
Empty weight[5]			
	Pneumatic lifter 300		30 kg *(66,2 lb)*
	Pneumatic lifter 550		37 kg *(81,6 lb)*
	Pneumatic lifter 750		49 kg *(108 lb)*
Pneumatic specifications			
	Power fluid		Pressurised air
	Max. working pressure		0.7 MPa (7 bar)
	Min. working pressure		0.55 MPa (5.5 bar)
	Air quality		Filtered and dry
	Consumption	Pneumatic lifter 300	11 l/cycle
		Pneumatic lifter 550	18 l/cycle
		Pneumatic lifter 750	27 l/cycle
Operating conditions			
	Temperature		-10 to +50ºC (14 – 122ºF)
	Relative humidity		Max. 70%
	Environment		Industrial environments

[2] **Nominal load capacity with 3arm®:** Load that can be lifted in the foreseen conditions. It is defined as a load uniformly distributed over the fastening base. The value of the nominal capacity for the configuration acquired is found on the identification label.

[3] **Maximum capacity with centered load:** Maximum load that can be lifted with the arm in the folded position, close to the elevator's rotation axis.

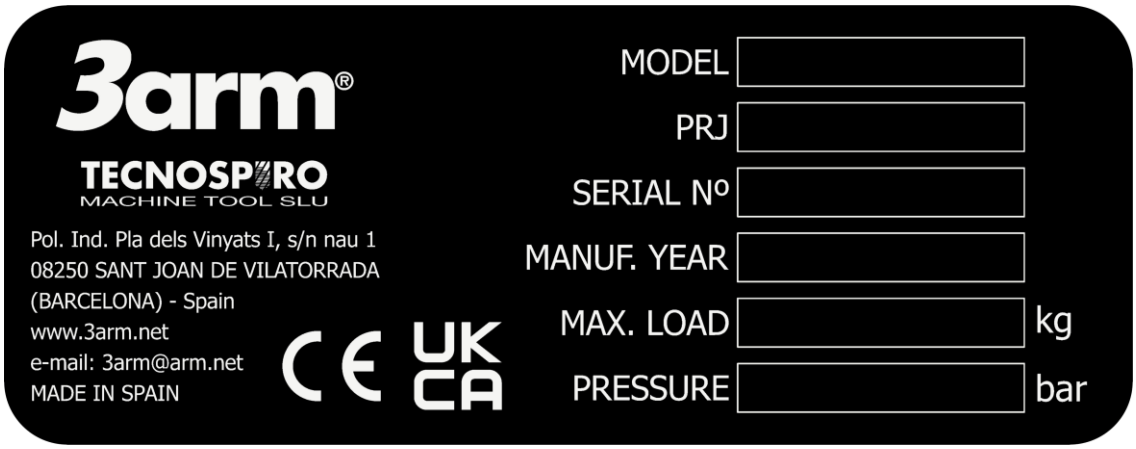
[4] **Maximum momentum:** Maximum applicable momentum at the centre of the Lift. The maximum momentum value for the configuration is found on the identification label.

[5] **Empty weight:** The empty weight refers to the typical weight of the Lift without air. This value shown here may not match the value shown on the adhesive label in specific configurations with the Lift and fixed column, as in this case the weight of the assembly is indicated.

4.5 IDENTIFICATION

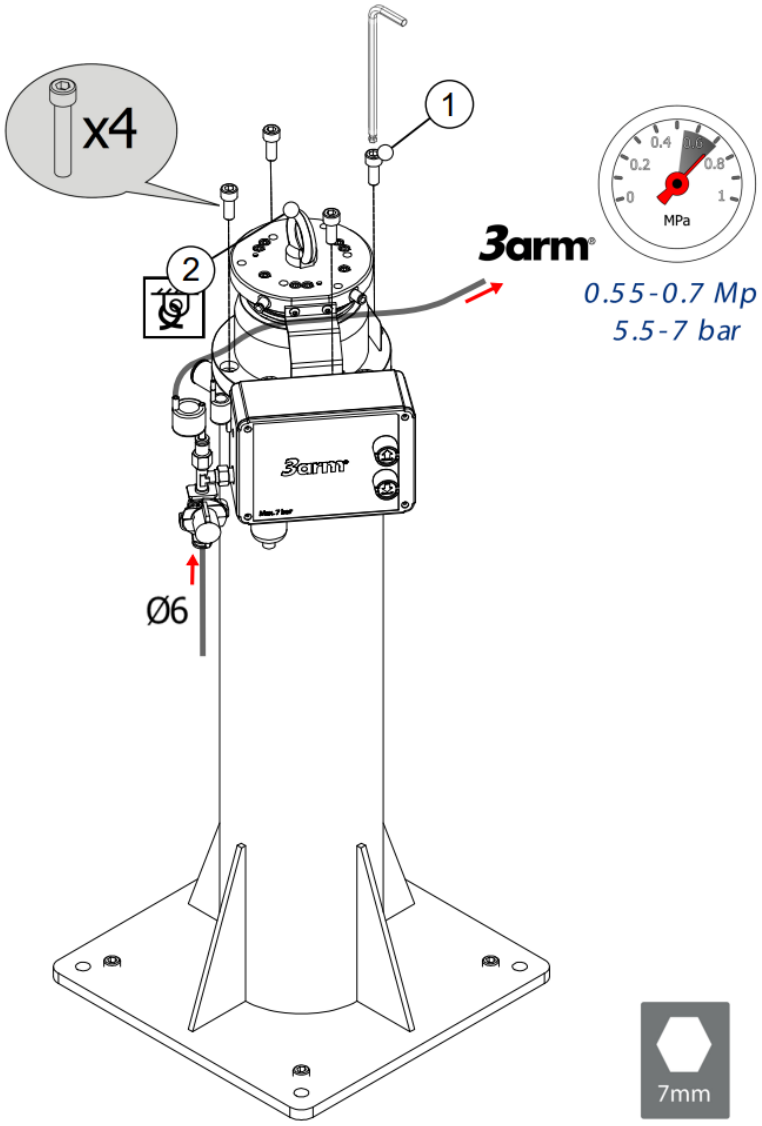
An adhesive label located above the fastening base identifies the Pneumatic lifter and indicates the following specifications.

CE and UKCA marking, manufacturer (name, address and business name), date of manufacture, serial number, model, maximum working load.



5 INSTALLATION

1. Fasten the Lift using 4 screws M10 (1) to adapt to the characteristics of the ground in the location selected (you can use a similar alternative method if approved by the integrator).
2. Connect the supply tube (Ø 6 mm) to the free connector.
3. Unscrew the eyebolt (2) to remove it.



INSTALLATION

- ✓ The installation location must be a horizontal surface, thus avoiding shifting and deviations.
- ✓ This equipment has been designed for use together with 3Arm and Roscamat products, as well as compatible 3arm® accessories. In any case, the integrator, owner and/or end user is responsible for determining the product's suitability for each use, the installation location, the specific definition of the task to be performed within the limits set forth in this manual and the issue of the CE statement of compliance.

AIR SUPPLY

- ✓ The air supply must comply with the specifications shown in [See TECHNICAL SPECIFICATIONS page 12].
- ✓ The supply air must pass through an air group with a discharge valve and air filter.

INSTALLATION LOCATION

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

USE OF EYEBOLT

- ✓ Remove the eyebolt after completing the installation.
- ✓ Use of the eyebolt should be limited to the installation, transport, and decommissioning phases.

NOTE: For ceiling installations, consult your 3arm® and/or Roscamat® distributor.

6 OPERATION

6.1 OPERATION

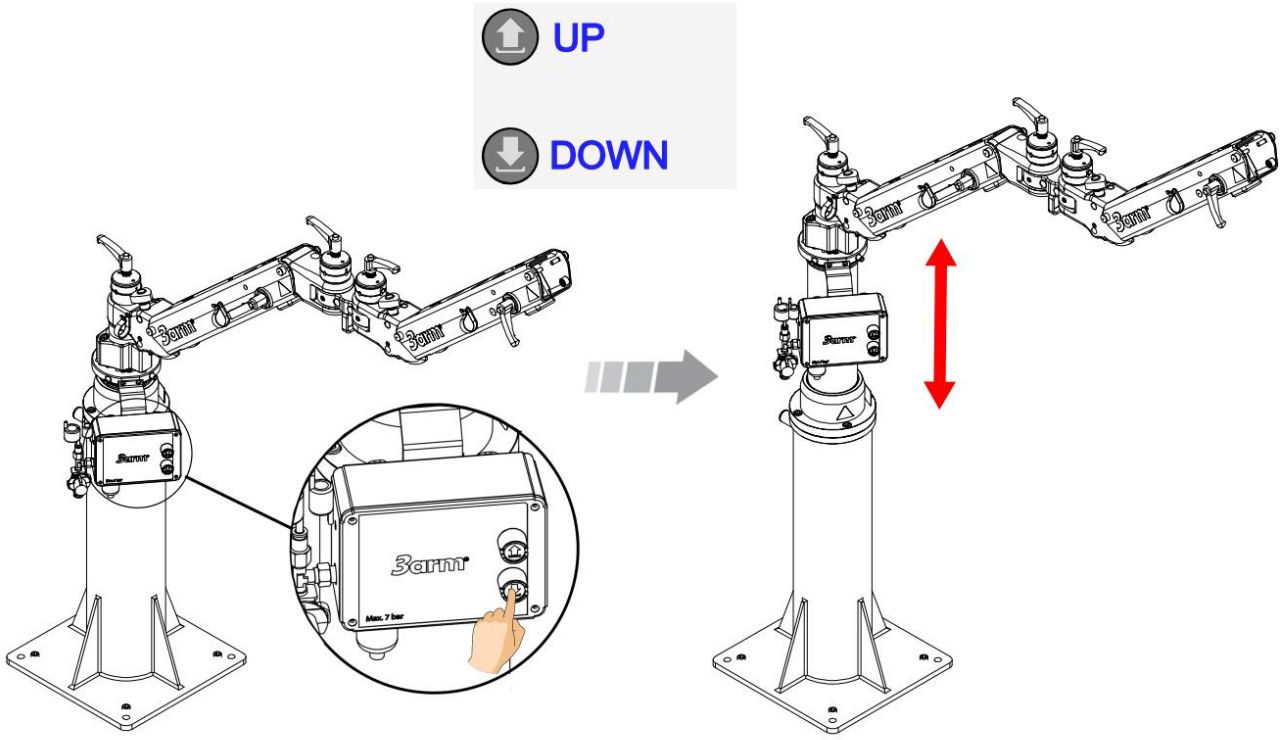
OPERATION

✓ The pneumatic lifter should only be operated when the 3Arm® or Roscamat® equipment is not in use (Cannot work simultaneously).

Press and hold down the button (black or white) until it reaches the appropriate position, as relevant:

- Upper button: Upward movement

- Lower button: Downward movement



AT THE END OF THE WORKDAY

✓ The elevator must be positioned in its lowest possible position, since in the period of inactivity the piston will fall by gravity.

ADDITIONAL INFORMATION

There are 2 types of control boxes for:

✓ Operating the Pneumatic lifter from your 3Arm equipment (no actuation / external actuation).

✓ Operating the Pneumatic lifter from the control box (simple actuation)

✓ Operating the Pneumatic lifter from the control box and your 3Arm equipment (double actuation).

6.2 PNEUMATIC DIAGRAM

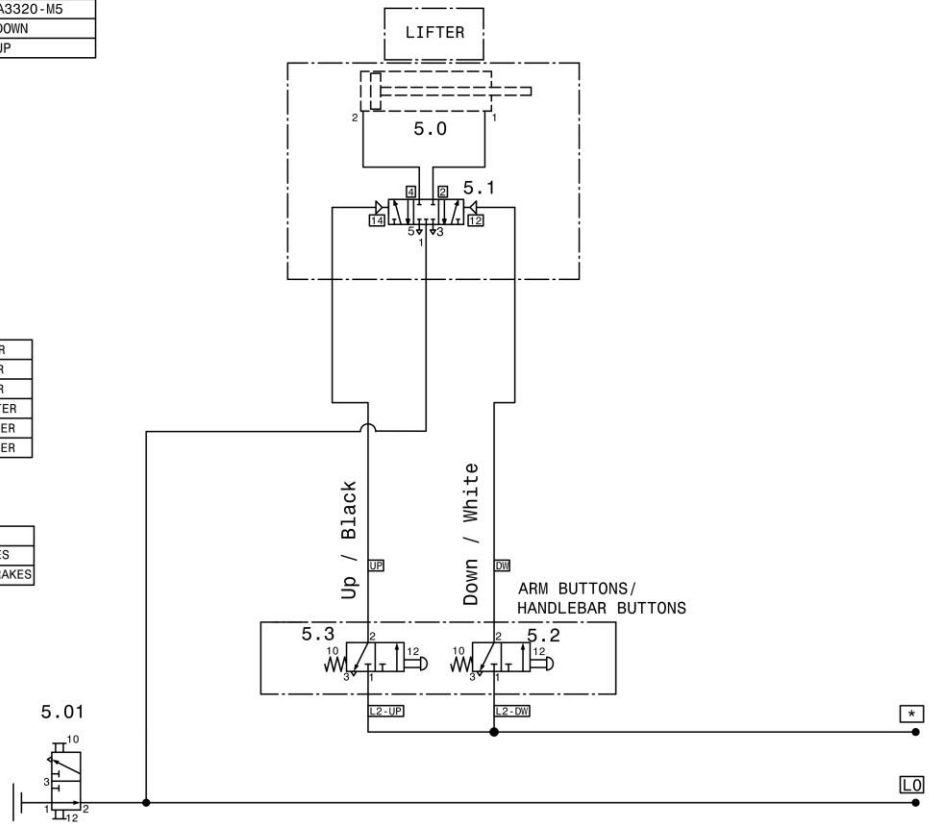
REF	QUANT	CODE	DESCRIPTION
5.0	1	-	ELEVATOR (SEE NOTE)
5.01	1	NH026156	SLIDING VALVE 3/2 0669 04 10
5.1	1	NH026116	AIR OPERATED VALVE 5 PORT SYA3320-M5
5.2	1	M3171800	BUTTON VALVE VM1000-4NU-32B DOWN
5.3	1	M3153100	BUTTON VALVE VM1000-4NU-32B UP

NOTE:

PNEUMATIC LIFTER	300	EA108200 300 PNEUMATIC LIFTER
	500	EA108400 500 PNEUMATIC LIFTER
	750	EA108600 750 PNEUMATIC LIFTER
PNEUMATIC PR LIFTER	PR 300	EA108800 300 PNEUMATIC PR LIFTER
	PR 550	EA109100 550 PNEUMATIC PR LIFTER
	PR 750	EA109200 750 PNEUMATIC PR LIFTER

*VALUES:

L2	FOR MANIPULATOR AND S7
L1	FOR 3ARM SERIES (EXCEPT S7) WITH PNEUMATIC BRAKES
L0	FOR 3ARM SERIES (EXCEPT S7) WITHOUT PNEUMATIC BRAKES



DESCRIPTION	CODE
PNEUMATIC LIFTER EXTERNAL CONTROL PNEUMATIC SCHEME	EA105800-PN

*			
	NAME	DATE	REVISION
DRAWN BY	OSCAR	08/11/2021	0
APPROVED BY	OSCAR	08/11/2021	

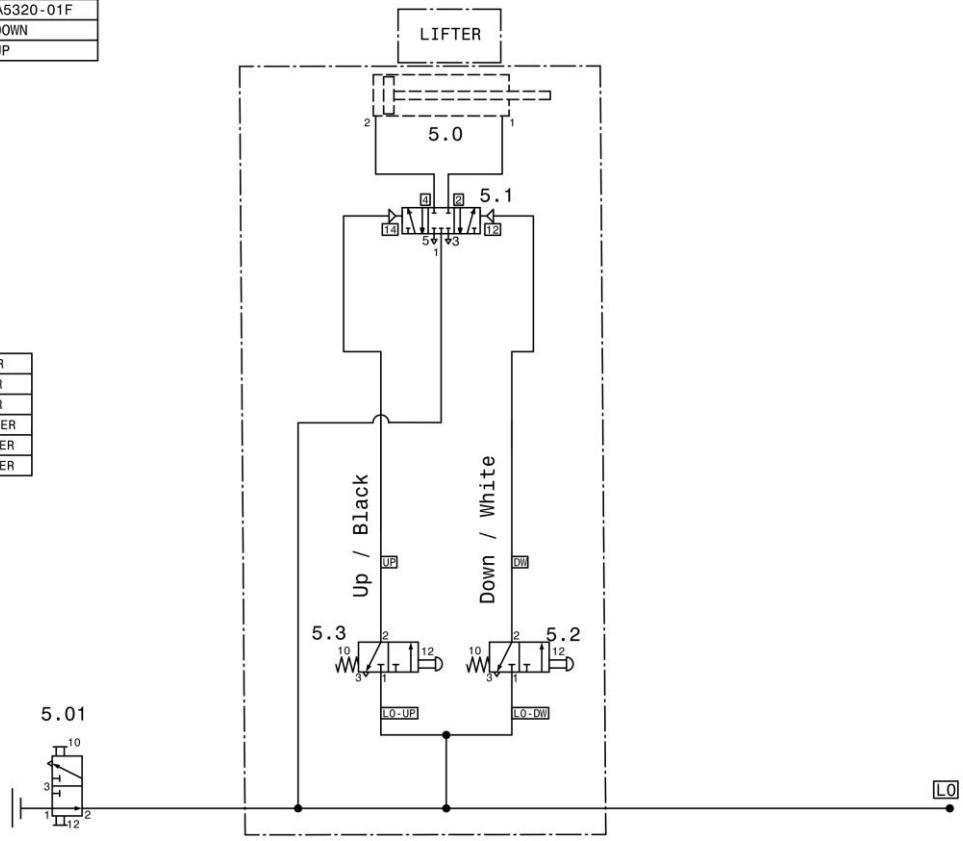
TECNOSPIRO MACHINE TOOL SL
GRUPSPIROIDE

Pneumatic lifter - No actuation (external actuation)

REF	QUANT	CODE	DESCRIPTION
5.0	1	-	ELEVATOR (SEE NOTE)
5.01	1	NH026156	SLIDING VALVE 3/2 0669 04 10
5.1	1	NH026246	AIR OPERATED VALVE 5 PORT SYA5320-01F
5.2	1	M3171800	BUTTON VALVE VM1000-4NU-32B DOWN
5.3	1	M3153100	BUTTON VALVE VM1000-4NU-32B UP

NOTE:

PNEUMATIC LIFTER	300	EA108200 300 PNEUMATIC LIFTER
	500	EA108400 500 PNEUMATIC LIFTER
	750	EA108600 750 PNEUMATIC LIFTER
PNEUMATIC PR LIFTER	PR 300	EA108800 300 PNEUMATIC PR LIFTER
	PR 550	EA109100 550 PNEUMATIC PR LIFTER
	PR 750	EA109200 750 PNEUMATIC PR LIFTER



DESCRIPTION	CODE
PNEUMATIC LIFTER SIMPLE CONTROL PNEUMATIC SCHEME	EA002004-PN

*			
	NAME	DATE	REVISION
DRAWN BY	OSCAR	08/11/2021	0
APPROVED BY	OSCAR	08/11/2021	

TECNOSPIRO MACHINE TOOL SL
GRUPSPIROIDE

Pneumatic lifter - Simple actuation

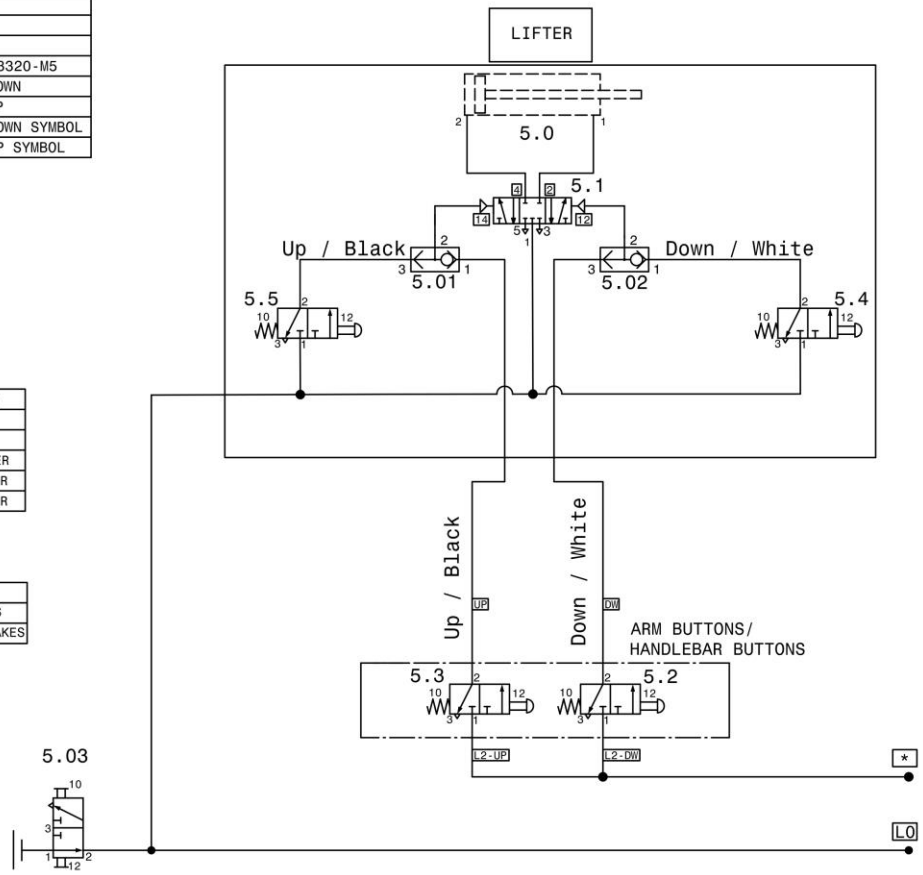
REF	QUANT	CODE	DESCRIPTION
5.0	1	-	ELEVATOR (SEE NOTE)
5.01-5.02	2	NH026196	FUNCTION "O" VALVE VR1210F-04
5.03	1	NH026156	SLIDING VALVE 3/2 0669 04 10
5.1	1	NH026116	AIR OPERATED VALVE 5 PORT SYA3320-M5
5.2	1	M3171800	BUTTON VALVE VM1000-4NU-32B DOWN
5.3	1	M3153100	BUTTON VALVE VM1000-4NU-32B UP
5.4	1	M3172100	BUTTON VALVE VM1000-4NU-32B DOWN SYMBOL
5.5	1	M3171900	BUTTON VALVE VM1000-4NU-32B UP SYMBOL

NOTE:

PNEUMATIC LIFTER	300	EA108200 300 PNEUMATIC LIFTER
	500	EA108400 500 PNEUMATIC LIFTER
	750	EA108600 750 PNEUMATIC LIFTER
PNEUMATIC PR LIFTER	PR 300	EA108800 300 PNEUMATIC PR LIFTER
	PR 550	EA109100 550 PNEUMATIC PR LIFTER
	PR 750	EA109200 750 PNEUMATIC PR LIFTER

*VALUES:

L2	FOR MANIPULATOR AND S7
L1	FOR 3ARM SERIES (EXCEPT S7) WITH PNEUMATIC BRAKES
L0	FOR 3ARM SERIES (EXCEPT S7) WITHOUT PNEUMATIC BRAKES



DESCRIPTION	CODE
PNEUMATIC LIFTER DUAL CONTROL PNEUMATIC SCHEME	EA106400-PN

*			
	NAME	DATE	REVISION
DRAWN BY	OSCAR	08/11/2021	0
APPROVED BY	OSCAR	08/11/2021	

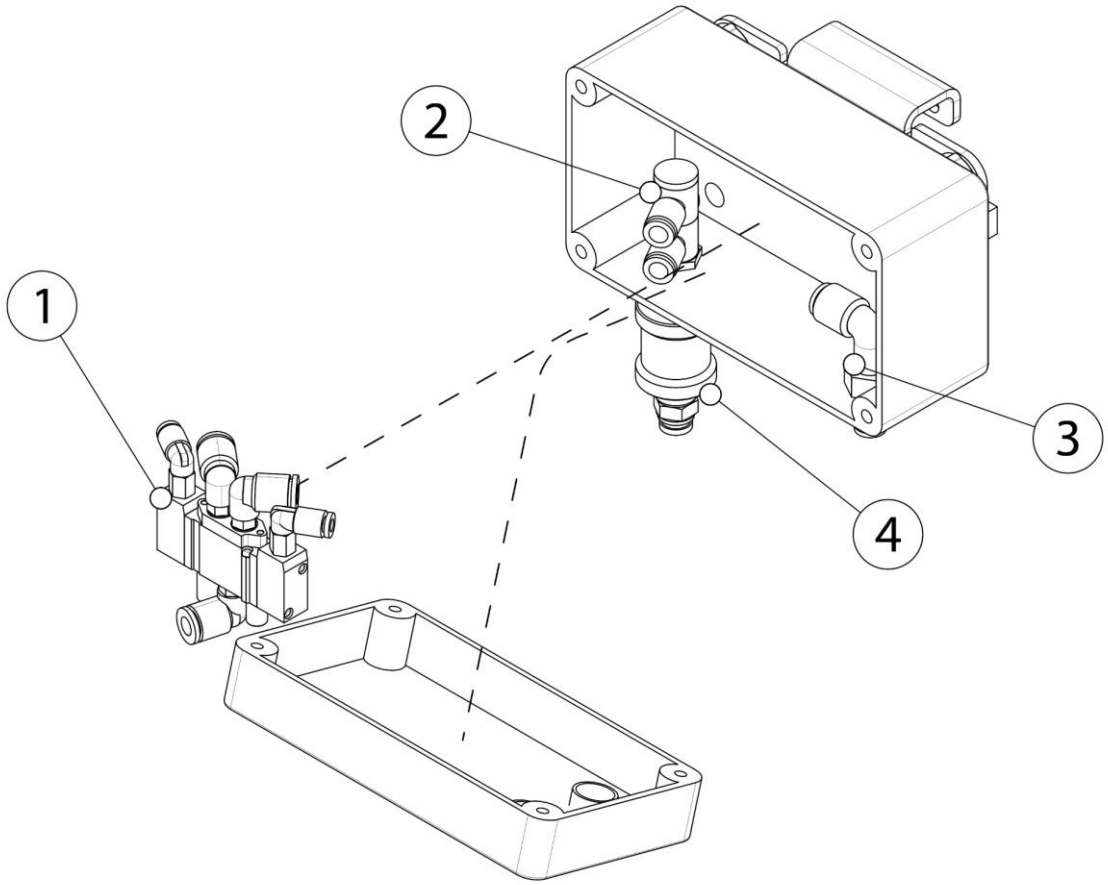
TECNOSPIRO MACHINE TOOL SL
GRUPSPIROIDE

Pneumatic lifter - Double actuation

6.3 PNEUMATIC COMPONENTS

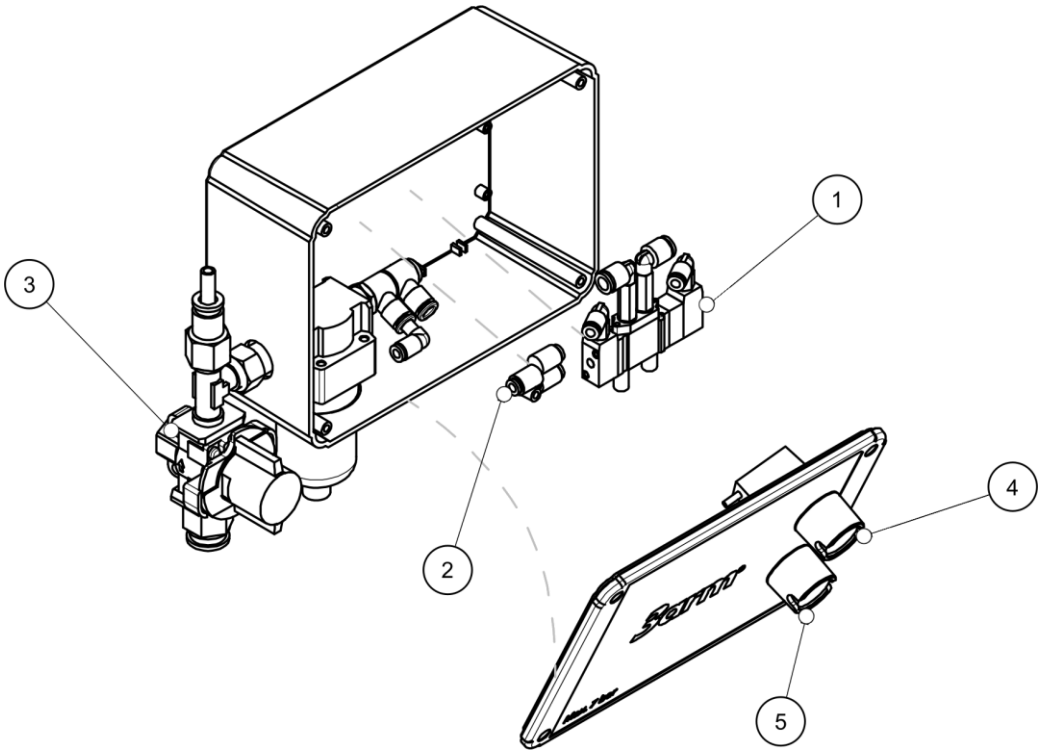
To check the connections of the pneumatic circuit piping or to replace any of the components located under the button pad cover:

1. Remove the screws that secure the cover.
2. Turn the cover over carefully and hold it.
3. At this point, it is possible to access the components under the button pad cover.



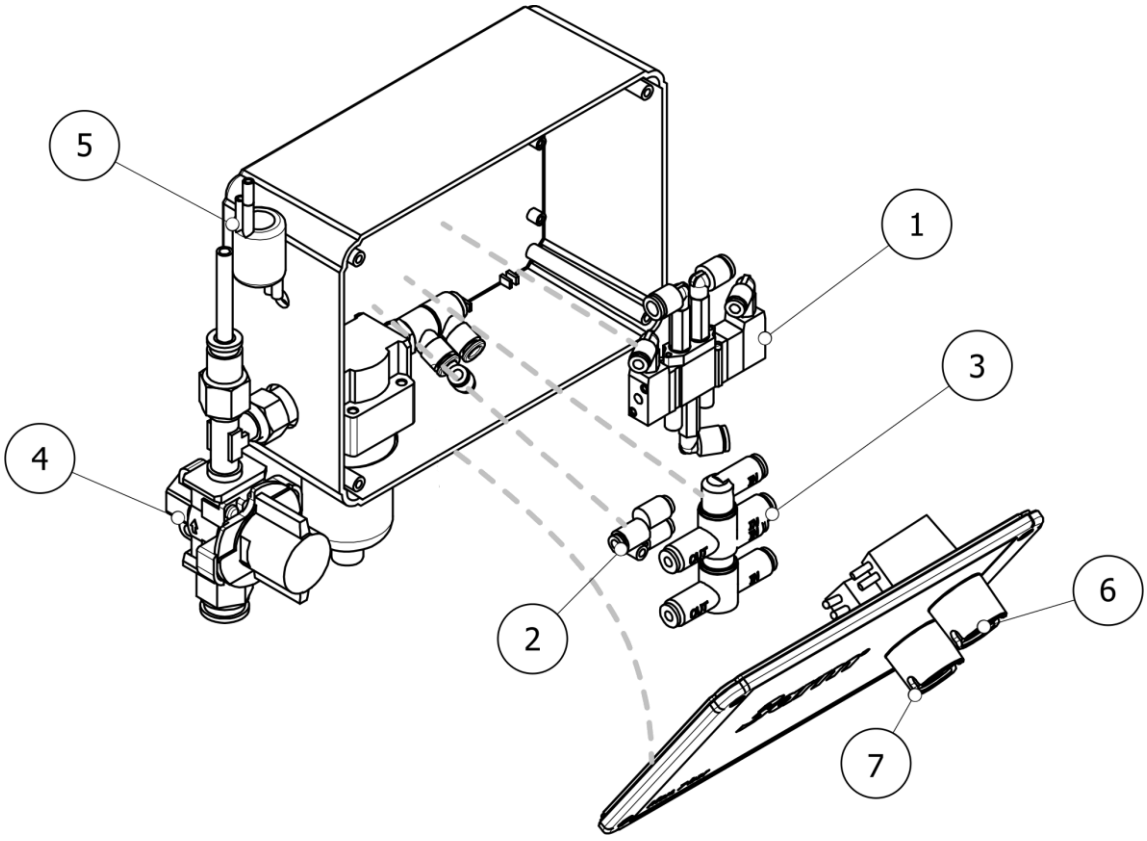
Pneumatic lifter - No actuation (external actuation)

IDENTIFIER	CODE	DESCRIPTION
1	NH026116	5-WAY ACTUATION VALVE SYA3320-M5
2	NH131400	AIR FILTER ASSY AC20-Q2B025-B
3	NH127900	COIL TUBE Ø4x2 TCU-0425B-2-25-X6



Pneumatic lifter - Simple actuation

IDENTIFIER	CODE	DESCRIPTION
1	NH026116	5-WAY ACTUATION VALVE SYA3320-M5
2	NH091036	CONNECTOR KQ2U06_00
3	NH131400	AIR FILTER ASSY AC20-Q2B025-B
4	M3153100	SWITCH VM1000-4NU-32B – UP
5	M3171800	SWITCH VM1000-4NU-32B – DOWN



Pneumatic lifter - Double actuation

IDENTIFIER	CODE	DESCRIPTION
1	NH026116	5-WAY ACTUATION VALVE SYA3320-M5
2	NH091036	CONNECTOR KQ2U06_00
3	NH026196	SELECTOR VALVE O VR1210F-04
4	NH131400	AIR FILTER ASSY AC20-Q2B025-B
5	NH127900	COIL TUBE Ø4x2 TCU-0425B-2-25-X6
6	M3153100	SWITCH VM1000-4NU-32B – UP
7	M3171800	SWITCH VM1000-4NU-32B – DOWN

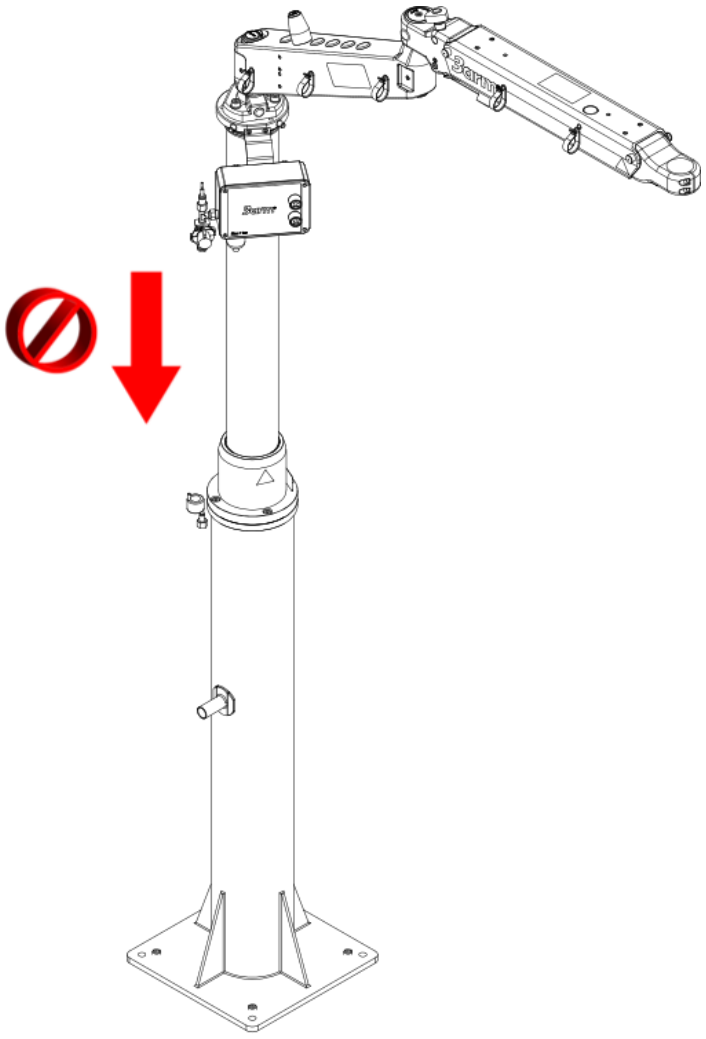
7 SAFETY DEVICES

In the event of sudden failure of the pneumatic power supply, the 5-way closed centre valve will prevent the uncontrolled and sudden descent of the Lift.

Steps for the verification.

Starting with the Lift in its highest position, with the 3Arm or Roscamat equipment duly installed and integrated.

1. Cut the air supply (remove the air supply pipe *[See* INSTALLATION *p. 14]* or cut the supply from tap of your installation).
2. Check that the Lift remains in the same position for at least 10 minutes.



VERIFICATION

✓ For this verification, it is necessary to have the 3Arm® or Roscamat® equipment installed and integrated.

8 MAINTENANCE

8.1 MAINTENANCE PROGRAMME

COMPONENT DESCRIPTION	ACTION	PERIOD
Cleaning and lubricating	Move the pneumatic Lift to its highest possible position *[See OPERATION p.16].* Clean the exterior part of Chamber A with a clean, dry cloth and grease again using universal lithium grease.	Every year
Check the safety devices are working properly	Verify to rule out possible malfunctions in the safety devices by following the guidelines described in *[See SAFETY DEVICES p. 23].*	Before each use
Screws and fasteners	Check tightening and functionality of the securing elements.	Periodically
General cleaning	When dirty, clean with a mild household product. Do not use other cleaning agents, as they may cause damage. **(Exclude the cylinder sleeve)**.	Periodically
General check of the pneumatic circuit and pneumatic connections	Carry out a general check of the fastenings and housings between tubes. Check that there are no air leaks and that the connectors work correctly.	Periodically

The list of spare parts can be consulted in this manual *[See SPARE PARTS p. 29].*

8.2 COMMON PROBLEMS

Problem	Intervention
The Lift does not go up or down.	- Check supply tube connection *[See* INSTALLATION *p.14].* - Check the supply pressure is correct *[See TECHNICAL SPECIFICATIONS p. 12].* - Check the 5/3 closed centre valve is in good condition *[See* PNEUMATIC COMPONENTS *p. 20 and PNEUMATIC DIAGRAM p. 17].*
The Lift goes up and/or down too quickly.	- Check the supply pressure is correct *[See TECHNICAL SPECIFICATIONS p. 12].*
The Lift goes up, but not down or vice versa.	- Check the supply pressure is correct *[See TECHNICAL SPECIFICATIONS p. 12].* - Check the condition of the up and down buttons. If necessary, replace with new ones *[See SPARE PARTS p. 29].* - Check the pneumatic connections of the equipment *[See* PNEUMATIC COMPONENTS *p. 20 and PNEUMATIC DIAGRAM p. 17].*
The Lift goes up and down, but does so with interruptions.	- Check the supply pressure is correct *[See TECHNICAL SPECIFICATIONS p. 12].* - Ensure the load nominal and/or maximum moment have not been exceeded *[See TECHNICAL SPECIFICATIONS p. 12].* - Clean and grease the exterior face of the cylinder *[See MAINTENANCE PROGRAMME p. 24].* - Check the seal in the connectors *[See* PNEUMATIC COMPONENTS *p. 20 and PNEUMATIC DIAGRAM p. 17].*
The Lift descends when left in the raised position.	- Check the 5/3 closed centre valve is in good condition *[See* PNEUMATIC COMPONENTS *p. 20 and PNEUMATIC DIAGRAM p. 17].* - Check the seal in the connectors *[See PNEUMATIC COMPONENTS p. 20 and PNEUMATIC DIAGRAM p. 17].* - Check the pneumatic connections of the equipment *[See* PNEUMATIC COMPONENTS *p. 20 and PNEUMATIC DIAGRAM p. 17].*

If you do not find a solution in the table above, contact its 3arm® and/or Roscamat® distributor to correct the fault.

The list of spare parts can be consulted in this manual *[See SPARE PARTS p. 29].*

BREAKDOWNS

- ✓ Any breakdown that may affect safety should be corrected immediately.
- ✓ The equipment should only be used in perfect technical condition, respecting the safety regulations and taking this document into consideration.

8.3 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 GUIDELINES FOR PACKAGING, TRANSPORT AND DISMANTLING

9.1 PACKAGING

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

9.1.1 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.

9.1.2 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.

9.1.3 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.

9.1.4 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.

9.2 TRANSPORT

The following data must be taken into account for transport.
External dimensions depending on the segment (width x height x depth), approx. in mm:

- Pneumatic lifter 300: 272x482x732 mm
- Pneumatic lifter 500: 272x482x932 mm
- Pneumatic lifter 750: 272x482x1182 mm

*If you acquire the product together with another accessory, the dimensions may vary.

I total weight depending on the segment:

- Pneumatic lifter 300: 41 kg
- Pneumatic lifter 500: 53 kg
- Pneumatic lifter 750: 68 kg

9.3 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.

10 3ARM - ROSCAMAT COMPATIBILITY TABLE

Accessory	SERIES – 3arm								
Pneumatic lifter	S0	S1	S2	S3	S4	S6	S7	M3	M5
	●	●	●	●	●	●	⦸	●	⦸

Accessory	SERIES – ROSCAMAT						
Pneumatic lifter	200	400	500	Mosquito	Tiger	Shark	Dragon
	●	●	●	●	●	●	●

11 ACCESSORIES COMPATIBILITY TABLE

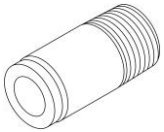
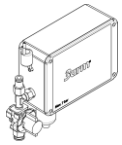
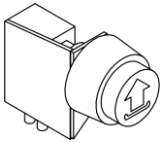
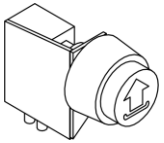
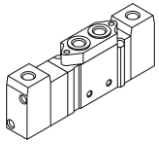
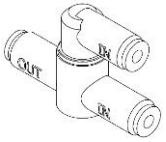
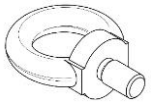
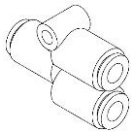
	PNEUMATIC LIFTER
EXTENSION 500	●
EXTENSION 1000	⦸
TROLLEY	●
FIXED COLUMN	●
D63 COLUMN LIFTER	⦸
FLOOR RAIL	●
LINEAR GUIDE	⦸

● = Compatible
⦸ = NOT Compatible

COMPATIBILITY

✓ This equipment has been designed for use together with 3arm® and Roscamat® products, as well as compatible 3arm® accessories. The manufacturer accepts no responsibility for any damage that may be caused by using the equipment for other purposes.

12 SPARE PARTS

CODE	DESCRIPTION	PICT.	CODE	DESCRIPTION	PICT.
NH020496	O-RING Ø97.79(POLZ)x5.33(MM)		**NH110900**	CONNECTOR KQ2S06-01S	
EA109800	PNEUMATIC LIFT BOX		**EA1058A0R**	PNEUMATIC LIFT BOX ASSY - EXTERNAL ACTUATION	
EA0020A4R	PNEUMATIC LIFT BOX ASSY - SIMPLE ACTUATION		**EA1064A0R**	PNEUMATIC LIFT BOX ASSY – DOUBLE ACTUATION	
M3153100	SWITCH BUTTON (UP)		**M3171800**	SWITCH BUTTON (DOWN)	
NH026116	5-WAY ACTUATION VALVE ASSEMBLY SYA3320-M5		**NH026196**	SELECTOR VALVE O VR1210F-04	
AC006966	MALE EYEBOLT DIN-580 M12		**NH091036**	CONNECTOR KQ2U06_00	

NOTES

DATE	DESCRIPTION

EC/UKCA DECLARATION OF CONFORMITY

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 LIFTER
Model:	PNEUMATIC LIFTER 300, 500, 750
From the serial number:	001-027 Consecutive

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

2006/42/EC – Machinery Directive

In the process of adaptation to Regulation 2023/1230

2014/68/EU – Pressure equipment Directive

Authorised for documentation:

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

Sant Joan de Vilatorrada, Monday, 27 October 2025

Ramon Jou Parrot, Technical Director

TECNOSPIRO MACHINE TOOL SLU