

# Oscillator HOF/50

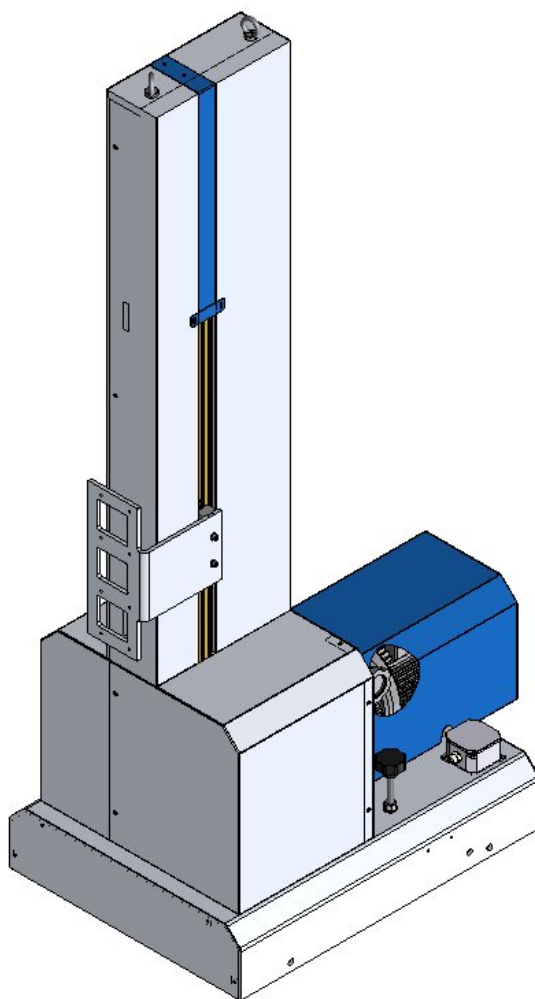
Customer Product Manual 7192822\_02

Released 07/2015



Nordson Deutschland GmbH – Erkrath - Germany





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TITLE OF THE DOCUMENT : <b>OPERATING AND MAINTENANCE MANUAL</b>	NO.:
	RELEASE NO.:

CUSTOMER :	JOB ORDER NO.:
SERIAL NO.:	DATE :

REL. NO.	DATE	DESCRIPTION
Prepared	Controlled	Approved



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## 0.0 INTRODUCTION

### 0.1 Document identification

The operating and maintenance manual is a document issued by **Nordson** against a specific job order and it is an integral part of the machine.

Such a document is marked with a serial number that corresponds to that of the machine, in order to permit tracing and identification.

**All copy rights and distribution's rights of this manual and the relevant enclosed documents are reserved to Nordson.**

### 0.2 Object of the document

This manual sets out:

- To provide technicians, workers and maintenance people with instructions, information and advice on how to work in the best safety conditions.
- To put the worker in a position to use the machine correctly and safely and to maintain it in a good and efficient condition.
- To be able to prove, through the provided information, the compliance of the machine with the directives in force regarding industrial safety standards.

### 0.3 General conditions

During the drawing up of this document the following directives have been considered:

- UNI EN ISO 12100-1:2010, Safety of machinery – General principles for design – Risk assessment and risk reduction
- UNI EN ISO 13849-1:2008, Safety of machinery – Safety-related parts of control systems - Part 1: General principles for design
- UNI EN ISO 13857:2008, Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
- UNI EN 349:2008, Safety of machinery – Minimum gaps to avoid crushing of parts of the human body
- UNI EN ISO 13850:2008, Safety of machinery – Emergency stop - Principles for design
- CEI EN 60204-1, Safety of machinery – Electrical equipment of machines



**ATTENTION:** If this machine is an integral part of a plant, it is forbidden to start it unless the whole plant is in compliance with the "**Machine directive**"**2006/42/CE** and those that follow.

#### **0.4 Identification data of the manufacturer**

The identification of **Nordson** as machine manufacturer is in compliance with the legislation in force through these certificates:

- **Declaration of conformity** (see attachments)
- **CE plate**
- **Operation and maintenance manual**

A special identification plate, applied to the machine, permanently carries information regarding **CE** mark. The copies of the identification plates "**CE MARK**", applied on each single machine, and the relevant "**DECLARATION OF CONFORMITY**" are attached.



The machine has been supplied by:

**NORDSON CORPORATION**

**0.5 Nordson International**

**Europe**

<b><u>COUNTRY</u></b>		<b><u>PHONE</u></b>	<b><u>FAX</u></b>
<b>Austria</b>		43-1-707 5521	43-1-707 5517
<b>Belgium</b>		31-13-511 8700	31-13-511 3995
<b>Czech Republic</b>		4205-4159 2411	4205-4124 4971
<b>Denmark</b>		45-43-66 0123	45-43-64 1101
<b>Finland</b>		358-9-530 8080	358-9-530 80850
<b>France</b>		33-1-6412 1400	33-1-6412 1401
<b>Germany</b>	<i>Erkrath</i>	49-211-92050	49-211-254 658
	<i>Lüneburg</i>	49-4131-8940	49-4131-894 149
<b>Italy</b>		39-02-904 691	39-02-9078 2485
<b>Netherlands</b>		31-13-511 8700	31-13-511 3995
<b>Norway</b>	<i>Hot Melt</i>	47-23 03 6160	47-22 68 3636
	<i>Finishing</i>	47-22-65 6100	47-22-65 8858
<b>Poland</b>		48-22-836 4495	48-22-836 7042
<b>Portugal</b>		351-22-961 9400	351-22-961 9409
<b>Russia</b>		7-812-11 86 263	7-812-11 86 263
<b>Slovak Republic</b>		4205-4159 2411	4205-4124 4971
<b>Spain</b>		34-96-313 2090	34-96-313 2244
<b>Sweden</b>	<i>Hot melt</i>	46-40-680 1700	46-40-932 882
	<i>Finishing</i>	46 (0) 303 66950	46 (0) 303 66959
<b>Switzerland</b>		41-61-411 3838	41-61-411 3818
<b>United Kingdom</b>	<i>Hot Melt</i>	44-1296-610-140	44-1296-610-175
	<i>Finishing</i>	44-161-498-1500	44-161-498-1501
	<i>EFD</i>	44-1582-666-334	44-1582-664-227

**Distributors in  
Eastern & Southern  
Europe**

<b>DED, Germany</b>	49-211-92050	49-211-254 658
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**Outside Europe**

For Your nearest **Nordson** office outside Europe contact the **Nordson** offices below for detailed information

<b><u>CONTACT NORDSON</u></b>	<b><u>PHONE</u></b>	<b><u>FAX</u></b>
-------------------------------	---------------------	-------------------

**Africa/Middle East**

<b>DED, Germany</b>	49-211-92050	49-211-254 658
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**Asia/Australia/  
Latin America**

<b>Pacific South Division, USA</b>	1-440-985-4000	1-440-985-1096
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**Japan**

<b>Japan</b>		81-3-5762-2700	81-3-5762 2701
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**North America**

<b>Canada</b>		1-905-475-6730	1-905-475-8821
<b>USA</b>	<i>Finishing</i>	1-440-892-1580	1-440-985-1417

## 0.6 Symbols used in the manuals

To make the reading and the understanding of this manual easier and immediate, the following symbols have been used:



**"Conductor"**: qualified and authorized person that has been instructed to start the machine with the necessary protections in place via the use of the commands on the push-button panel.



**Mechanical maintenance person**: a technician qualified and authorized to install, repair and carry out special maintenance that is exclusively mechanical.



**Electrical maintenance person**: a technician qualified and authorized to install, repair and carry out special maintenance exclusively electrical.



**Manufacturer's technician with mechanical competences**: for complex and/or special operations.



**Manufacturer's technician with electrical or electronic competences**: for complex and/or special operations.

## 0.7 Machine updates

In the case of technical changes made by **Nordson** during the operating life of the machine an appropriate revision of the document itself will be supplied with the essential data specified on the page “**DOCUMENT IDENTIFICATION**”.

RECIPROCATORE mod. HF30

Nordson

TITOLO DOCUMENTO : MANUALE ISTRUZIONI D'USO E MANUTENZIONE		N°:
		REVISIONE :

CIENTE :	COMMESSA N°: CCV
MATRICOLA MACCHINA :	DATA :

REV.	DATA	DESCRIZIONE
Preparato	Controllato	Approvato

Pagina 3

Manuale di Uso e Manutenzioni

In the case that **Nordson** submits a copy of the document with revisions, the costumer should see to the elimination of the parts concerned and to the replacement.

### **0.8 How to ask for further copies**

Further copies should be ordered from **Nordson** offices (see tables at pages 8 and 9):

## **0.9 Responsibilities**

This manual reflects the technical state of the machine at the moment of sale and it is open to changes, depending on the firm opinion of the manufacturer.

In case of manual changes the manufacturer is not obliged to update those manuals that accompany machines already sold.

The manufacturer is released from any responsibility in any case of improper or incorrect use such as, for example:

- the use of the machine by not trained staff;
- use without following the regulations in force;
- incorrect installation;
- mains supply defects;
- serious lack of maintenance;
- not authorized modifications to the machine;
- the use of unsuited spare parts;
- inobservance of the "operating and maintenance manual";

It must be remembered that any total or partial reproduction of this manual is forbidden unless authorised by **Nordson**.

## **1.0 TECHNICAL ASSISTANCE**

For any technical or commercial requirements, please contact:



## 2.0 GENERAL SAFETY INSTRUCTIONS

Each interaction between the worker and the machine has been carefully studied and analysed during the planning stages.

The choice in construction, the technical features of the machine and the indications reported in this document are intended to guarantee the greatest safety level to the exposed people and the worker.

According to the "**Machine directive**" 2006/42/CE it is useful to remember the following definitions:

**"Dangerous zones"**: every zone inside and/or in proximity to a machine where the presence of an exposed person is a danger to safety and health.

**"Exposed person"**: any person situated entirely or partially in a dangerous zone.

**"Worker"**: a person instructed to operate, regulate and carry out ordinary maintenance and/or clean the machine.

To better define the limit of operation, the relevant qualifications of the "**worker**" and to make the immediate reading and the understand of the manual easier, the following classifications have been used:



### **Conductor:**

qualified and authorized person that has been instructed to start the machine with the necessary protections in place via the use of the commands on the push-button panel.



### **Mechanical maintenance person:**

a technician qualified and authorized to install, repair and carry out special maintenance that is exclusively mechanical.



### **Electrical maintenance person:**

a technician qualified and authorized to install, repair and carry out special maintenance exclusively electrical.



### **Manufacturer's technician with mechanical competences:**

for complex and/or special operations.



### **Manufacturer's technician with electrical or electronic competences:**

for complex and/or special operations.

The employer should provide the necessary training to the staff regarding the risks of accidents, and safety devices to protect the worker, and must also insist on the observance of rules and company instructions about safety and protection measures.

The worker has to respect the instructions given by the employer or other authorised people and particularly:

- Use correctly the machine, equipment, tools, and safety's devices;
- Use correctly the individual protective devices;
- Notify immediately any dangerous conditions;
- Must not remove or modify safety devices or control signal;
- Follow scrupulously the indications in this manual;

The unauthorised tampering and substitution of one or more parts or groups of the machine, the use of equipment or normal wear material other than that indicated by **Nordson**, can pose a risk of accidents and hence release the manufacturer from civil or penal responsibilities.



**ATTENTION** : Before starting up the machine and carrying out working operations, electric boards, control panels, and all protections, must be closed and the working area must be free and clean.

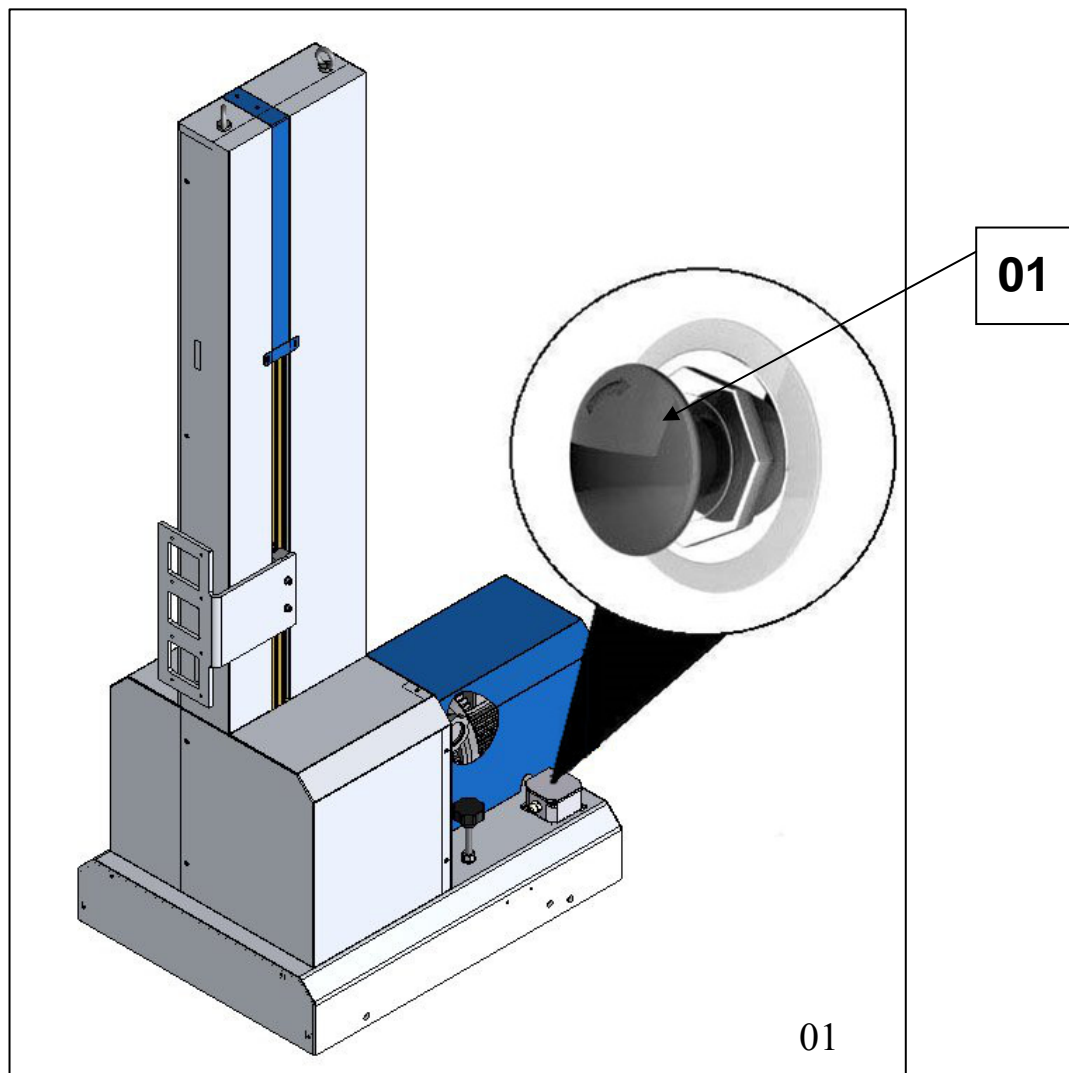


**ATTENTION:** If this machine is an integral part of a plant, it is forbidden to start it unless the whole plant is in compliance with the "**Machine directive**" **2006/42/CE** and those that follow.



## 2.1 Dangerous areas and placing of safety devices

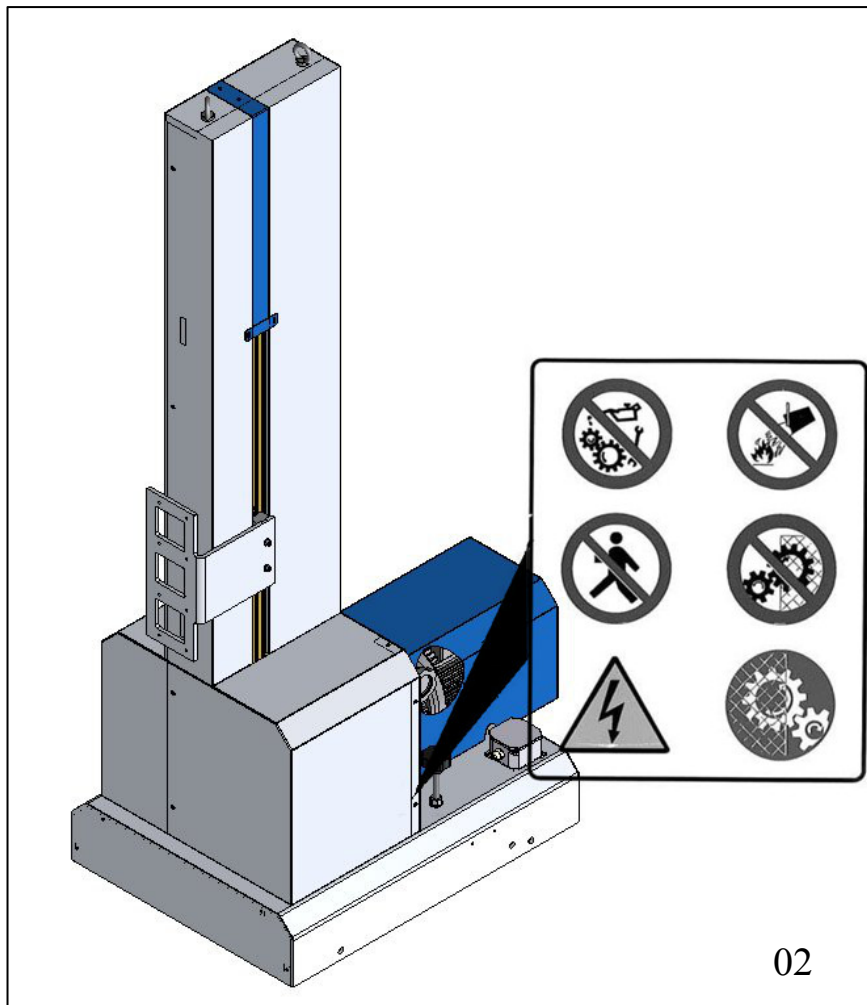
- Due to the structural typology of the machine that is integrated in painting plants, it is necessary to determine and fence an area 01 A where the operator must not enter when the plant is in function.
- Emergency stop: the position of the emergency/stop button 01 **(01)** depends on the type of control module connected to the machine and it has to be integrated to the emergency circuit of the general plant (see the attached wiring diagrams).



## 2.2 Position of warning labels

The warning labels that are clearly visible and attached to the machine are additional and not alternative measures to the already foreseen protections.

Such labels further improve the operator's safety, in that they give correct information regarding requirements and cautions.



### **2.3 General prohibitions**



Do not remove safety devices and protections.



**Temporary removal of protections** - protections and safety devices of the machine must NOT be removed during maintenance; it is necessary to adopt immediately measures to reduce risks, under the supervision of authorised people.



It is forbidden for any person, except the conductor, to access to the operating area of the machine.



Do not clear or lubricate while the machine is running.



It is forbidden to use water to put out fires.

### **2.4 General obligations**



Switch off at the mains supply before unplugging electrical devices.



Check the effectiveness of protections and precautionary measures.



Notify immediately faults and lack of protections and precautionary measures and any dangerous situation.

### **2.5 Danger**



High voltage.

### **2.6 Advice about lighting**

The machine is not provided with an autonomous lighting system, because a normal working environment condition, that is at least 300 lux, is sufficient.

The customer should supply a similar lighting value, to carry out the normal working operations.

For maintenance work a portable lamp is recommended.

### 3.0 DESCRIPTION OF THE MACHINE

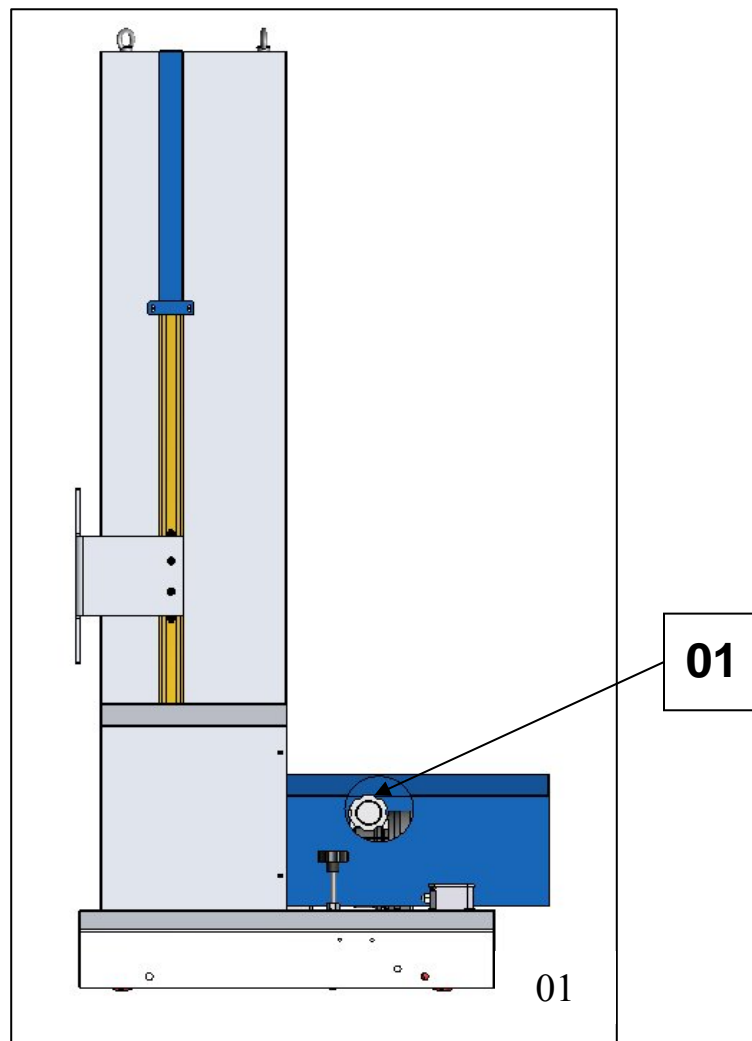
The ever-increasing need to produce automatically and to optimise the production cycles of spray-coating systems has led in these years to the development of reciprocators that, replacing the operator during the most repetitive phases of working processes, eliminate errors caused by carelessness and inexperience.

The **Oscillator mod. HOF/50** represents an innovation in the automated systems; it has been studied to support loads up to 50 Kg and it allows a great versatility in use, because it can be used with different possibilities of gun supporting-arms.

The main feature of this machine is the alternative movement of the gun supporting-arm, thanks to a sliding guide between two pairs of wheels integral with the structure of the machine. The column is slim and allows the assembling of the guns supporting-arms at the minimum distance of around 200 mm.

Moreover the use of a new transmission system, with the consequent elimination of the connecting rod, has allowed to obtain a constant speed along the whole stroke, and to keep uniform the movement also during the reversal.

The speed adjustment occurs manually by operating on the handwheel of the variable-speed motor, located under the cover at the rear part of the machine; that allows a variable speed from a minimum of 10 to a maximum of 50 cycles/minute 01(01).



## Description

The Oscillator HOF/50 is a carbon steel self-supporting structure 02(01).

In order to help the positioning, the base 02(02) of the machine is equipped with rotating wheels 02(03).

A special guide 02(04) with self-cleaning profile, that slides between two pairs of anti-friction wheels 02(05) is fixed to the inner part of the structure.

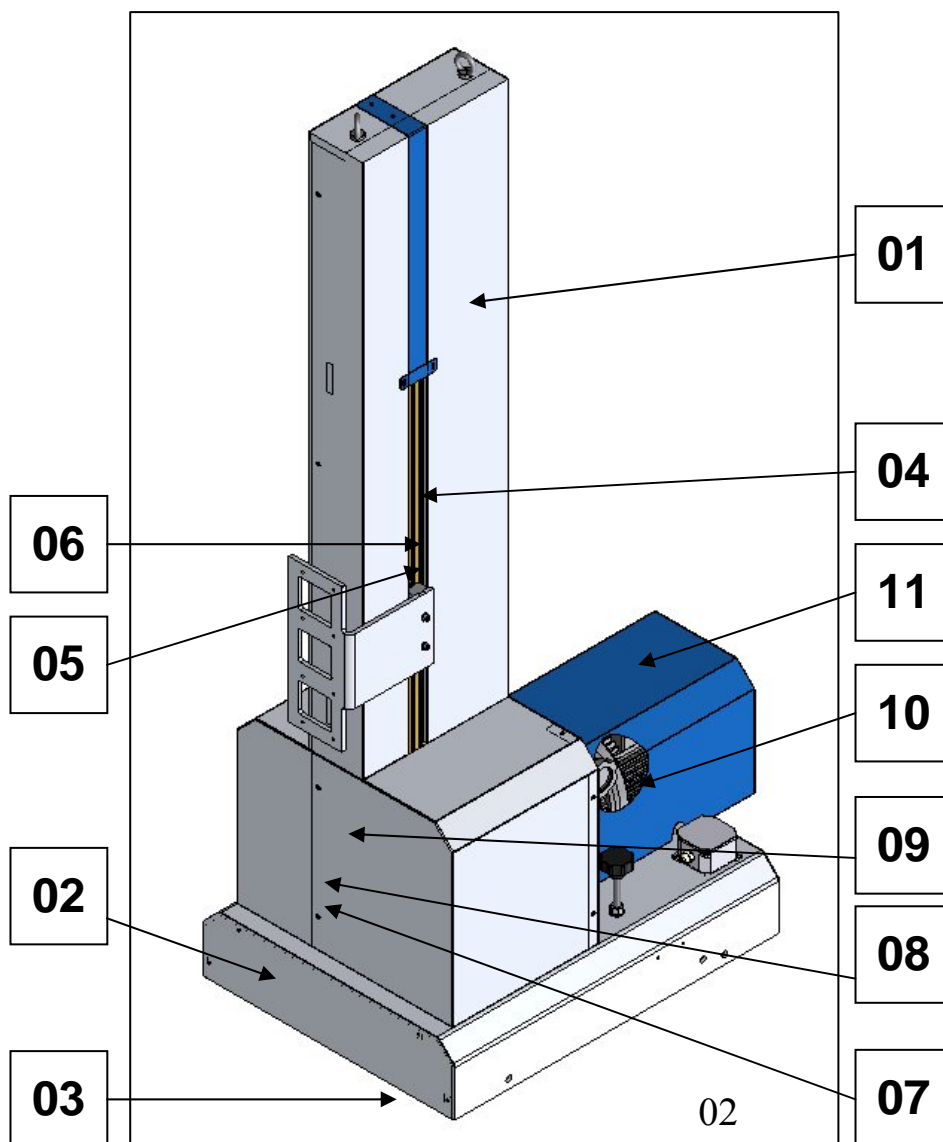
The two sliding wheels are fixed on pivots 02(06) integral with the machine structure.

Two wheels are concentric, while the other two are eccentric to enable the play adjustment with the guide.

The movement is obtained via a system that turns the circular movement into a linear movement; this system is constituted by an adjustment plate 02(07) with a wheel 02(08) on which the sliding guide is located 02(09).

It is possible to adjust the stroke from a min of 140 mm up to a max of 500mm depending on the position of the wheel on the adjusting plate.

The movement is guaranteed by a strong variator 02(10) located at the back side of the machine and suitably protected by a safety guard 02(11).

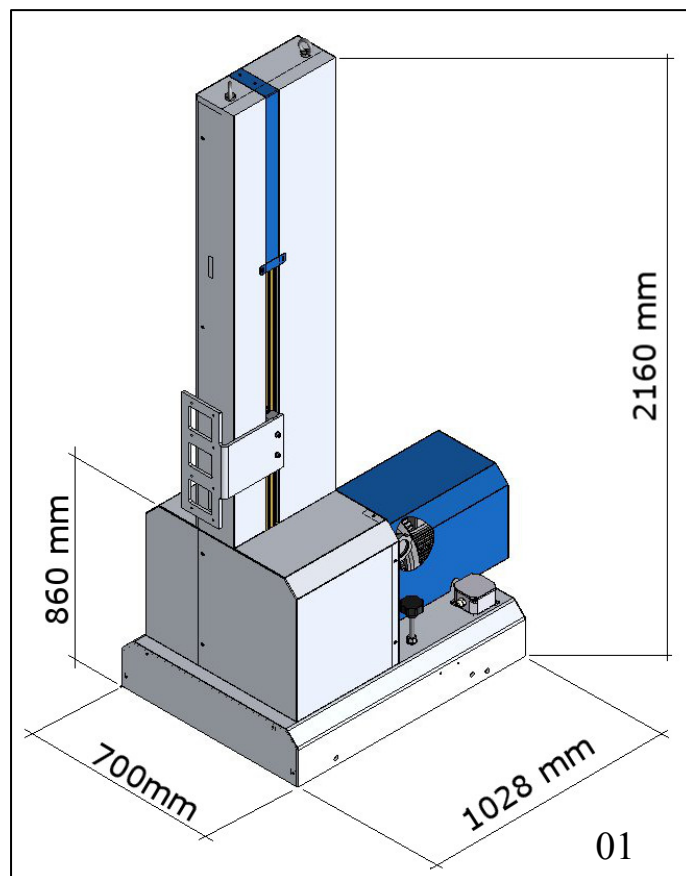


### **3.1 Terminology used**

- **TROLLEY:** used to move the arm of the spray-gun.
- **ARM:** part of the machine for fitting the spray gun.
- **GUN:** apparatus not supplied by **Nordson** suitable for the spraying of epoxidic powders or paints.

## 4.0 TECHNICAL DATA

### 4.1 Weights and overall dimensions



**ATTENTION:** It is forbidden to use the machine in the presence of explosive atmosphere.

STANDARD VERSION	HOF/50
USEFUL STROKE	140 ÷ 500 mm; step 40 mm
DISTANCE FROM THE GROUND	860 mm
MIN SPEED	10 cycles/min
MAX SPEED	50 cycles/min
CAPACITY (referred to the column)	50 Kg
TOTAL WEIGHT	330 Kg
NOISE	< 70dB
RATED POWER	1,1 Kw
POWER SUPPLY	400 V AC +/- 10% 3F 50 Hz

## 5.0 IDENTIFICATION OF THE MACHINE

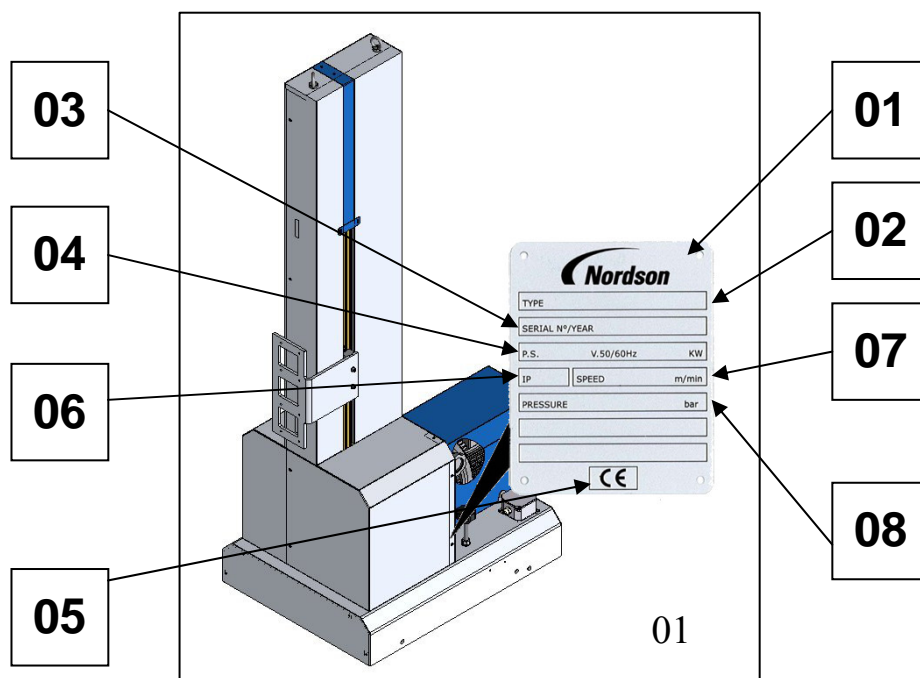
**5.0.1** - This manual contains the operating and maintenance instructions for the machine manufactured by **Nordson**

The figure 01 shows the location of the identification plate of the machine that specifies the following information:

- 01(01) Name of the manufacturer/Address
- 01(02) Type
- 01(03) Serial number and Year of manufacture
- 01(04) Power supply
- 01(05) Certification mark
- 01(06) Protection level
- 01(07) Speed
- 01(08) Pressure (only for pneumatic releases)



**ATTENZIONE:** the serial no. 01 (03) n the plate must be mentioned whenever contacting the Manufacturer for information or spare parts.



**5.0.2** - Copies of the plates "**CE MARK**", applied to each machine, and the relevant "**DECLARATION OF CONFORMITY**" are attached.

**5.0.3** - If the plate **CE MARKING** is accidentally damaged, removed from the machine or simply the manufacturer mark is removed, the customer must inform **Nordson**



## 6.0 FORESEEN AND UNFORESEEN USE OF THE MACHINE

The use of the **Oscillator mod. HOF/50** is foreseen exclusively in automatic systems of spray-coating with thermosetting powders or paints. Contact **Nordson** for more information. It has been planned for automatic guns that perform vertical and horizontal movements.



**ATTENTION:** If this machine is an integral part of a plant, it is forbidden to start it unless the whole plant is in compliance with the "**Machine directive**" **2006/42/CE** and those that follow.

The use of the machine must be carried out exclusively by staff that knows its work and have acknowledged all that is described on this manual.



It is absolutely forbidden to use the machine for any use other than that for what it is intended unless a specific request has been made to **Nordson**.

The incorrect use of the machine could cause risks both to the operator and to the machine itself.

### 6.1 Additional risks

The normal automatic modality of the machine does not foreseen risks, on condition that the whole plant, where the machine is integrated, is in compliance with the "**Machine directive**" **2006/42/CE**.

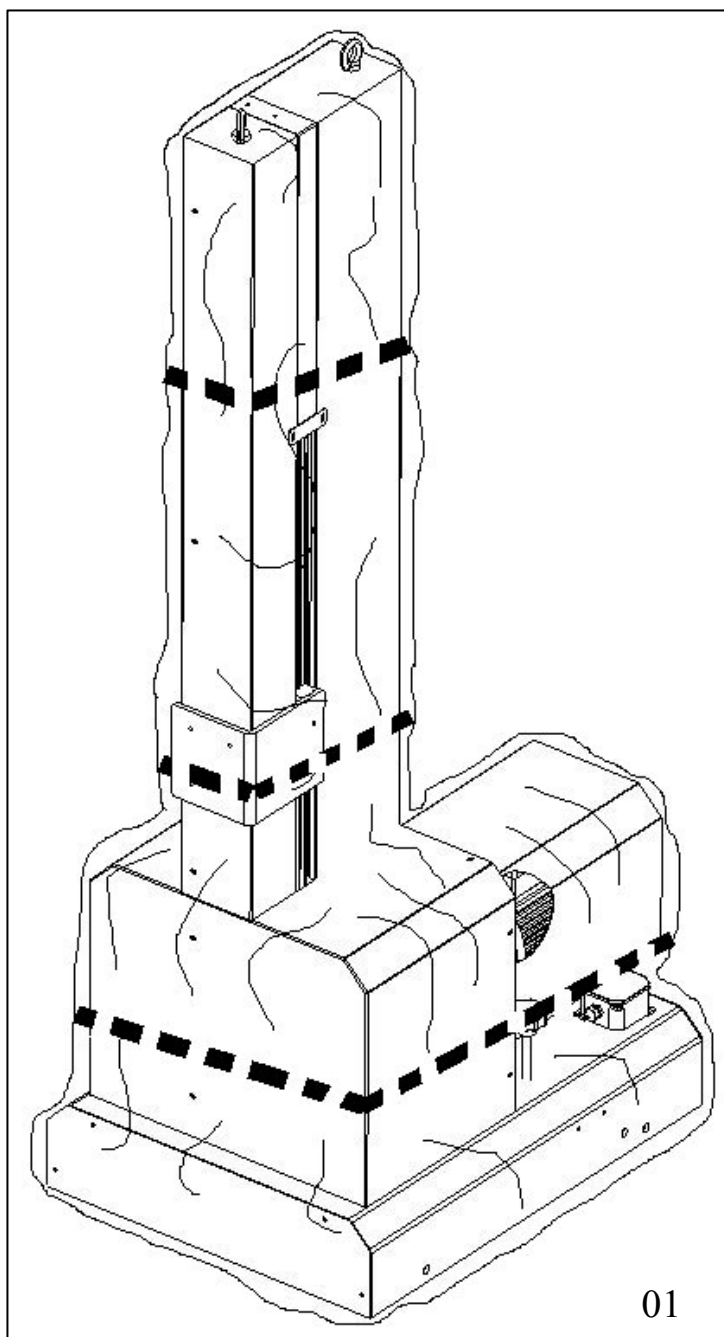
The only residual risk is the possibility to reach the movable sliding vertical parts with the upper limbs.

This risk can occur only during the maintenance operations where the operator is in close contact with the machine.

In any case the risk has been limited by using special protections and safety plates that inform and make the reaching of the dangerous zone difficult.

## 7.0 MOVING AND TRANSPORT

The machine is normally sent completely wrapped up with Pluriball, but depending on distance and type of contractual agreements it may be also blocked to a pallets or in a crate. 01



### 7.1 Staff qualification



During the movement and unloading from the means of transport qualified staff for the use of fork lift trucks, cranes or hoists should be used.

### 7.2 Equipment and means to use



**ATTENTION:** Before carrying out any moving operations of the machine, make sure there is nobody in the proximity.

Use chains and ropes and make sure that their characteristics are compatible with the weight and the overall dimension of the machine to move and in accordance with the regulations in force.

#### ADVICE

- Slings must be in accordance with the regulations ISO 4878 - ISO 9351.
- Only use slings, if the label, indicating all manufacturer's data, is attached and the capacity is clearly shown.
- Check slings before each lifting.
- Do not used in case of damage, cuts or wear.
- Follow the load factors indicated for each standard configuration.
- Use suitable protections to lift loads with sharp corners.
- Do not twist or knot the belt.
- Follow the instructions for use indicated by the supplier.
- Hook the other ends of the slings on to the hook of the lifting machineries.

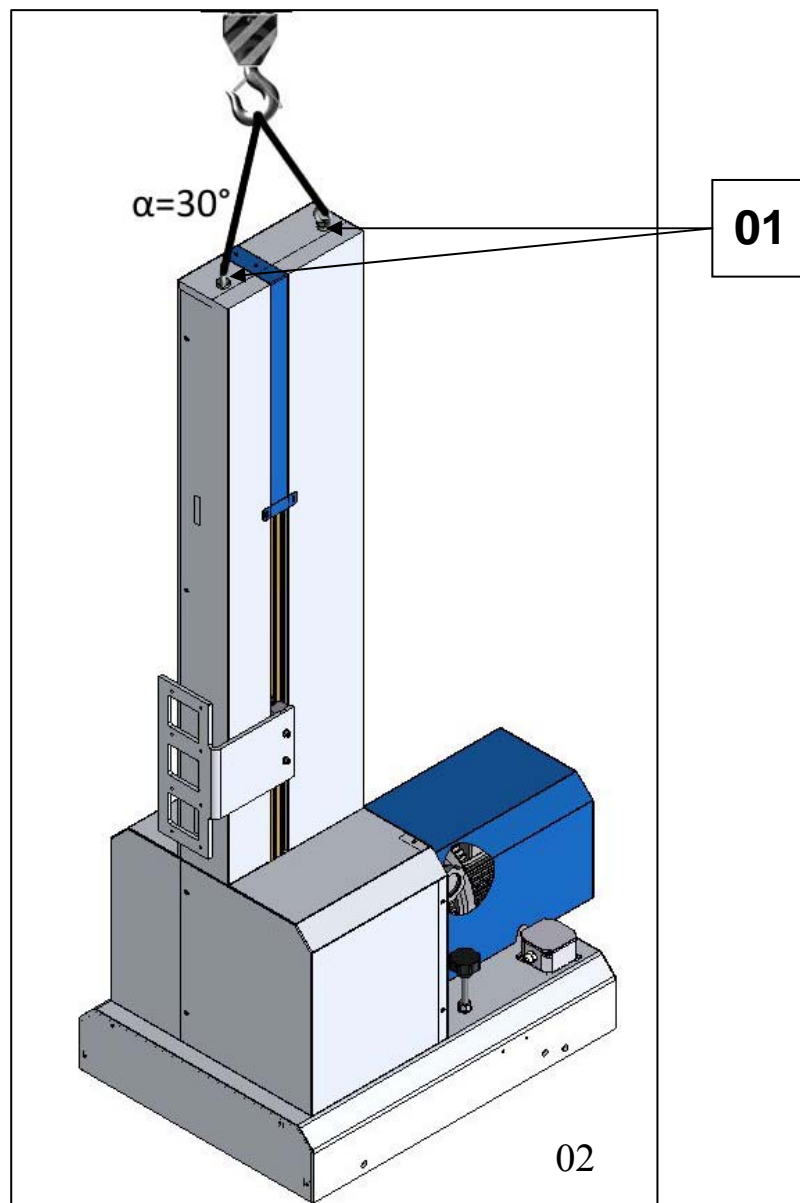
### 7.3 Advice about lifting

Depending on transport conditions, the reciprocator by **Nordson** can be moved by lifting with ropes or fork lift trucks.

#### 7.3.1 Lifting with ropes



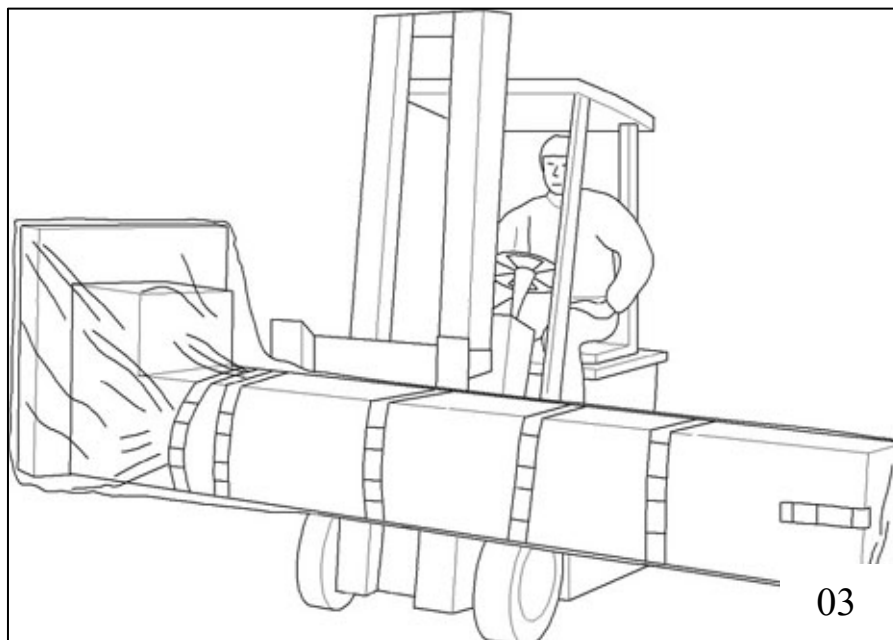
Place the special lifting eyebolts 02(01) in the special hooking points as indicated in figure 02 using two ropes, with maximum corner  $\alpha$  equal to  $30^\circ$  and rope characteristics adapted to the lifting of loads indicated.



### 7.3.2 Lifting with machines



If the oscillator by **Nordson** is moved horizontally, it is necessary to lay it down on the forks of the forklift truck paying attention to position the spray coupler facing down as in figure 03.



### 7.4 Storage conditions

If the machine has already been installed and a storage period, during which the machine will not be used, is necessary, all precautions must be taken to avoid contact with dust dirt, humidity and all moving mechanical parts that are prone to rust must be covered with a layer of grease. If the machine has to be moved, wrap it up with Pluriball and follow the previous procedures in order to move it.

### 7.5 Checking the machine

When unpacking the machine, check immediately that during transport none of the parts have been damaged.

Any damage to the machine, loss of additional or supplied parts must be communicated immediately to **Nordson**

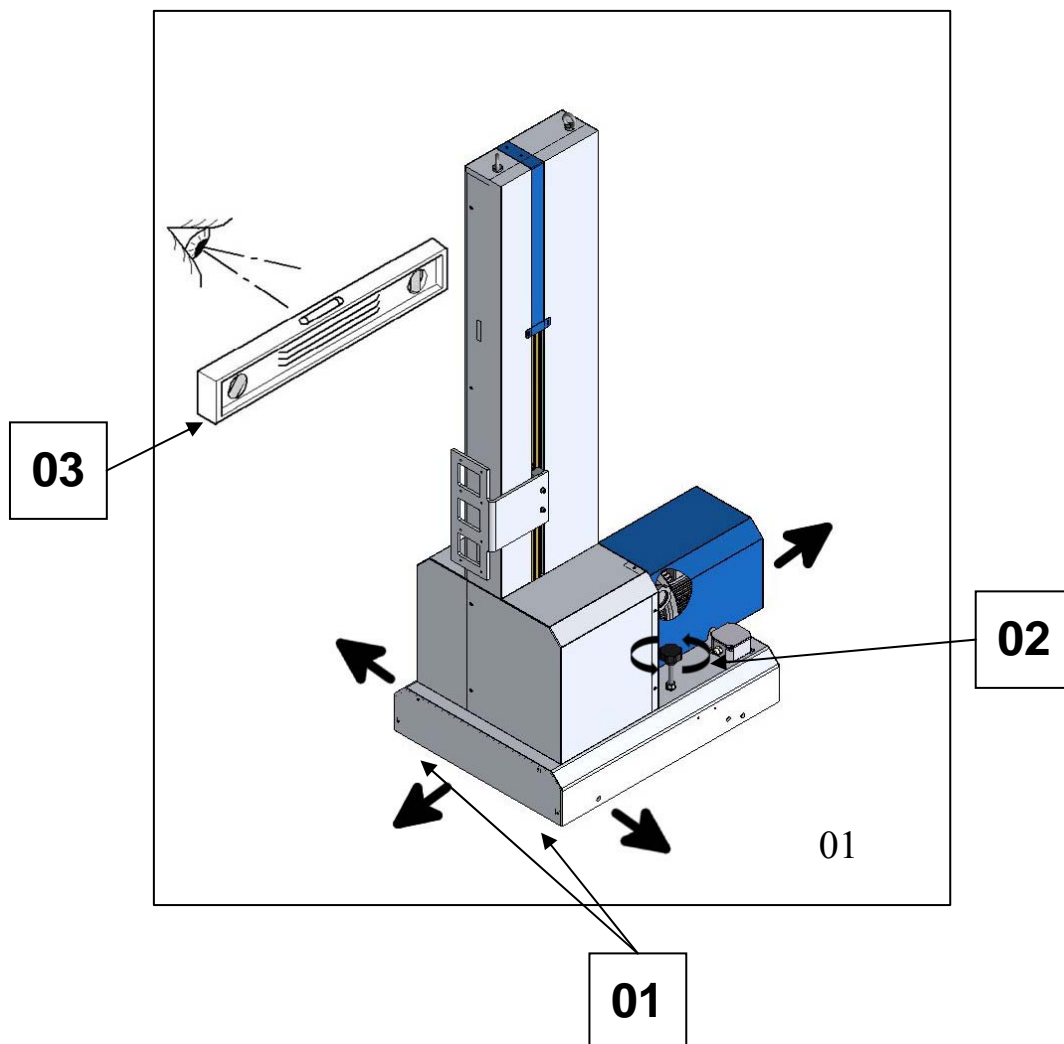
## 8.0 MACHINE INSTALLATION

There is no particular advice or precautions to take during the installation of the machine that can be placed on a normal floor, suitably levelled.

To place the machine in a paint plant, it is sufficient to let it slide on the wheels 01(01), under the basement, up to the required position.

Turn the special gradual knobs 01(02) to level the machine and block the safety lock nuts.

**NOTE:** check the correct vertical position of the machine 01(03).



The machine can work with the following environmental and climatic conditions:

- Environmental luminosity **min.300 Lux.**
- Environmental temperature **+5°/+40° C**
- Relative humidity maximum **50% at 40° C**
- Relative humidity maximum **90% at 20° C**



**ATTENTION:** It is forbidden to use the machine in explosive atmospheres.

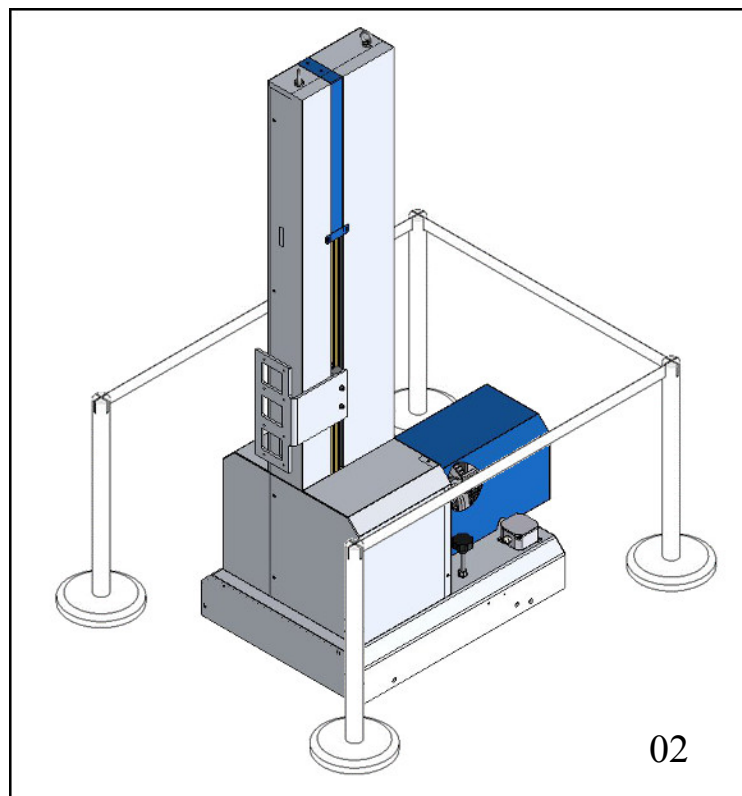


**ATTENTION:** In case of use in explosive atmospheres, it is possible to supply the version according to the ATEX directive (to advise during the order).

## **8.2 Need of free spaces**



**ATTENTION:** When the reciprocator is positioned, it is necessary to define the area, where the moving parts (gun supporting arm) have their range, according to the EEC laws regarding the security on working stations. 02



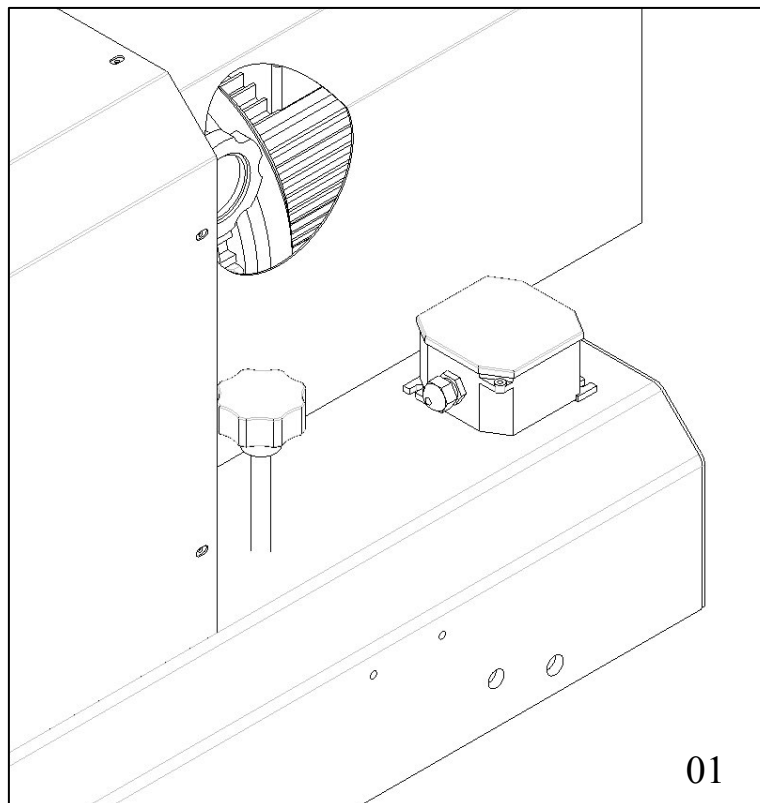
## 9.0 SETTING UP THE MACHINE

### 9.1 Connection of the oscillator



Connect the machine to the control module, by using the cables already connected to the junction box. 01

The ON/OFF control of the oscillator mod. HOF/50 must be predisposed according to the following instructions.



**ATTENTION:** the oscillator mod. HOF/50 needs the following power supply:

**400V 3ph 50HZ 1.1 Kw**

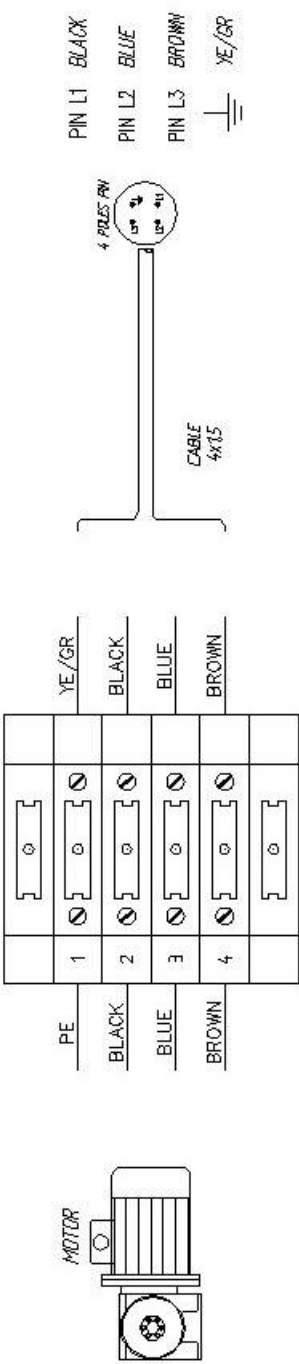
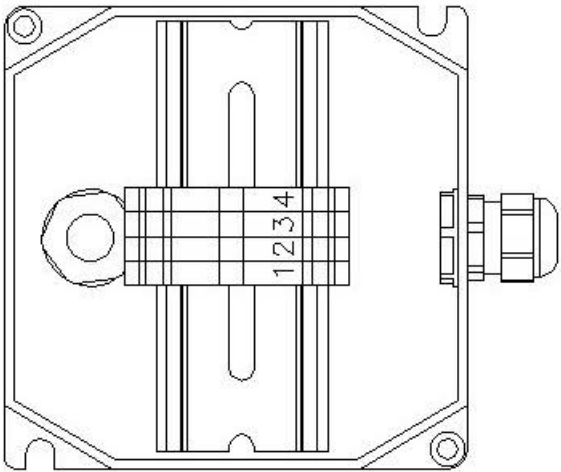
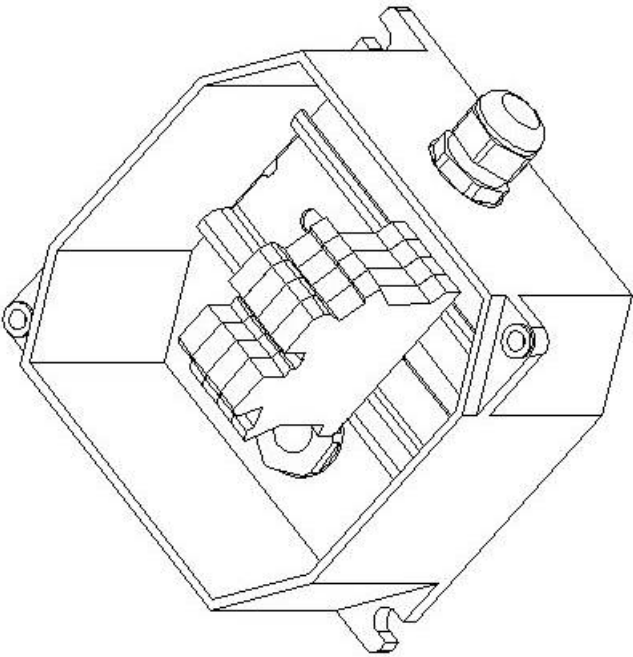


Follow the regulations in force regarding the electrical motors protections.

For any other kind of application, contact the **Nordson** technical office in advance.



9.2 Electrical connection

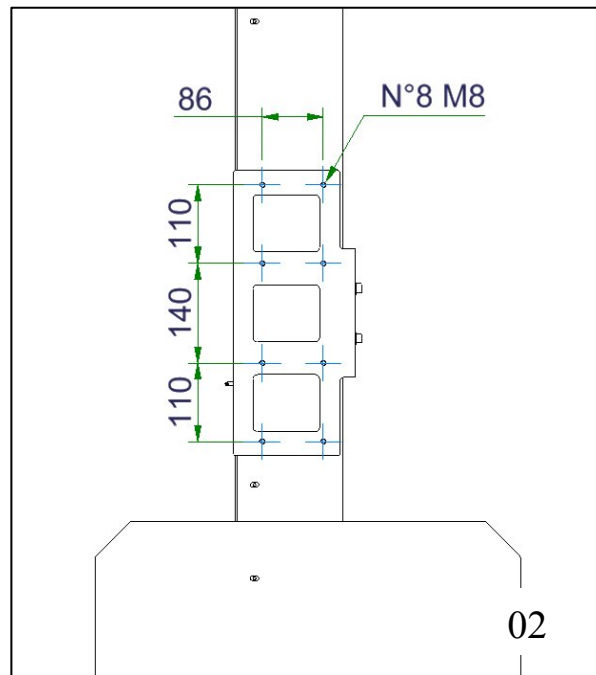


### 9.3 Assembly of guns supports



An attachment is located on the oscillator for fitting the gun supporting-arm.

Here below, the drawing with the dimensions of the holes available on the standard plate of the oscillator. 02



**ATTENTION:** The oscillator HOF/50 has a maximum capacity of **50 kg**, this value reduces depending on the position; to determine the correct position see chapter 9.3 "Machine balancing".

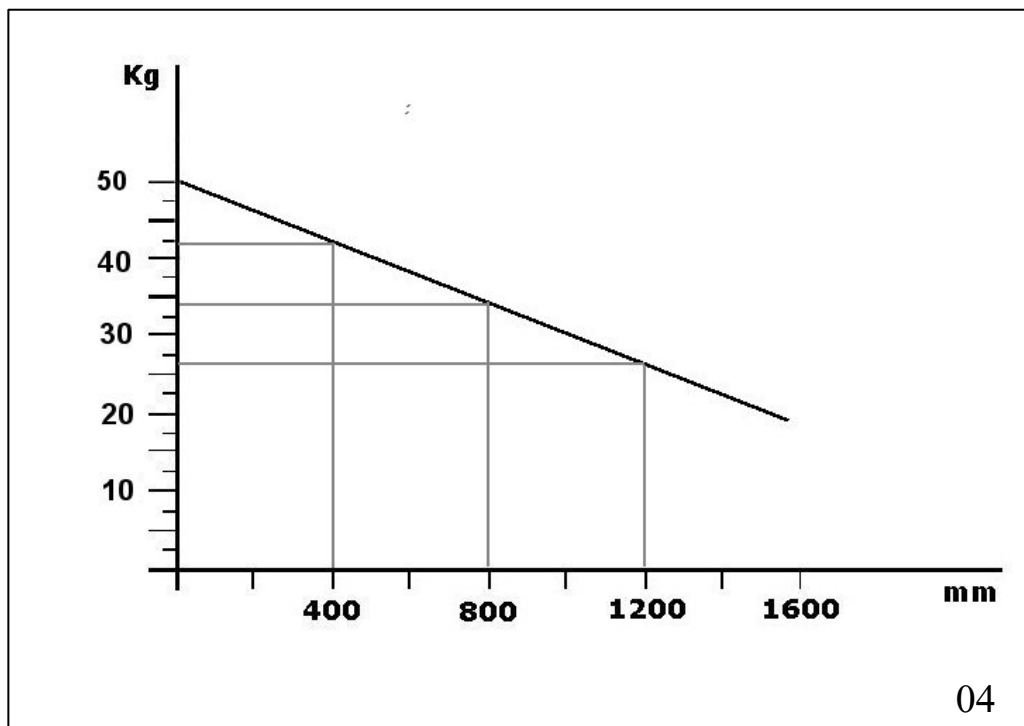


**ATTENTION:** the arms must be grounded.

### 9.3 Machine balancing



The oscillator HOF/50 by **Nordson** can support a maximum capacity of 50 kg. This value reduces depending on the position of the gun supports as indicated in the graph in fig. 04. The machine is supplied with 2 steel counterweights for a total weight of 17 Kg.



## **10.0 BEFORE START UP**

When starting the machine no particular preparatory procedures are necessary because the machine is tested and adjusted in all its functions by **Nordson**.

### **10.1 Staff qualification**

The operator of the machine, before carrying out any kind of productive cycle, must know all the information, shown in this technical manual about the machine.

### **10.2 Foreseen control positions**

The machine has been projected to be commanded and controlled in all its functions by one operator only.

The foreseen working position is in front of the control panel, integrated in the control system of the plant, from where the operator can verify the correct working of the plant.

### **10.3 Control modules**

The **Oscillator HOF/50** by **Nordson** is projected to be connected to the proper control module.

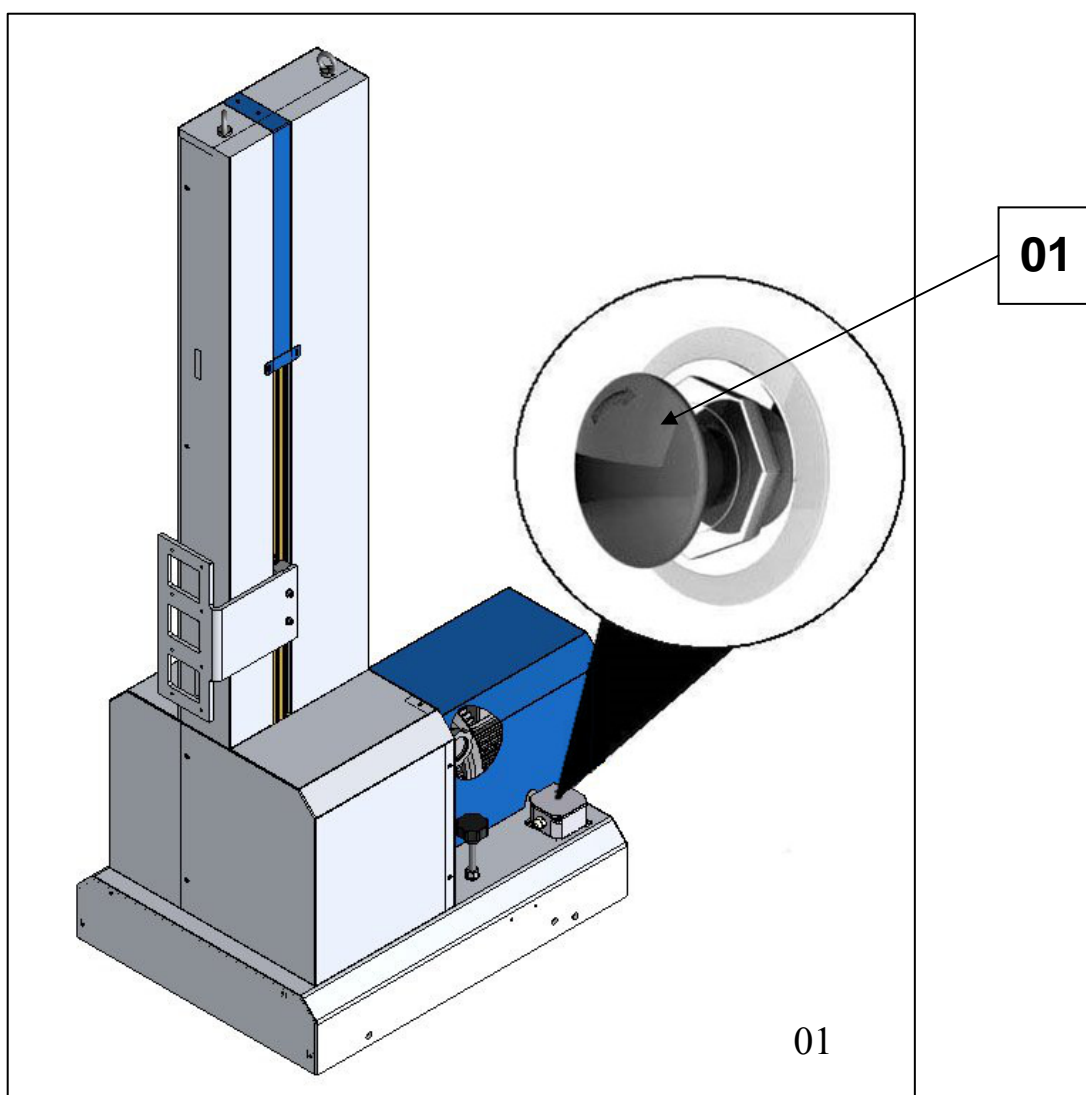
For the descriptions of modules refer to the operating manual supplied.

## 10.4 Emergency buttons and their placing

In case of danger, failure or any emergencies it is necessary to press the **EMERGENCY STOP** push button 01(01) common to the whole plant.



To reset, press the **EMERGENCY** push button, with rotating it.



## 11.0 USE OF THE MACHINE



For a correct use and programming, see the operating manual of the control module.

## 12.0 MAINTENANCE

In order to have a safe, efficient and reliable machine, careful and constant maintenance is essential.

### 12.1 General safety advice

It is compulsory, before any maintenance to turn off the power and use any protective devices necessary during all intervention phases.

### 12.2 Technical competence

There are three kinds of maintenance interventions:



#### **INTERVENTIONS THAT REQUIRE SPECIFIC TECHNICAL COMPETENCE**

Can be carried out by not specific staff and usually regard cleaning duties.



#### **INTERVENTIONS THAT REQUIRE SPECIFIC TECHNICAL COMPETENCE**

Can only be carried out by staff qualified by customer and regard ordinary maintenance. Mechanical or electric competences may be required.



#### **INTERVENTIONS THAT REQUIRE PARTICULAR TECHNICAL COMPETENCE**

Can only be carried out by **Nordson** qualified mechanical or electrical technicians.

At the beginning of each paragraph, referring to the various maintenance subjects, the relative symbol referring to the necessary qualification of the operator is indicated.

### **12.3 Periodical maintenance table**

[illegible]



## **12.4 Summery table of suggested spare parts**

The following components are subject to wear and so a suitable stock should be kept for spare parts.

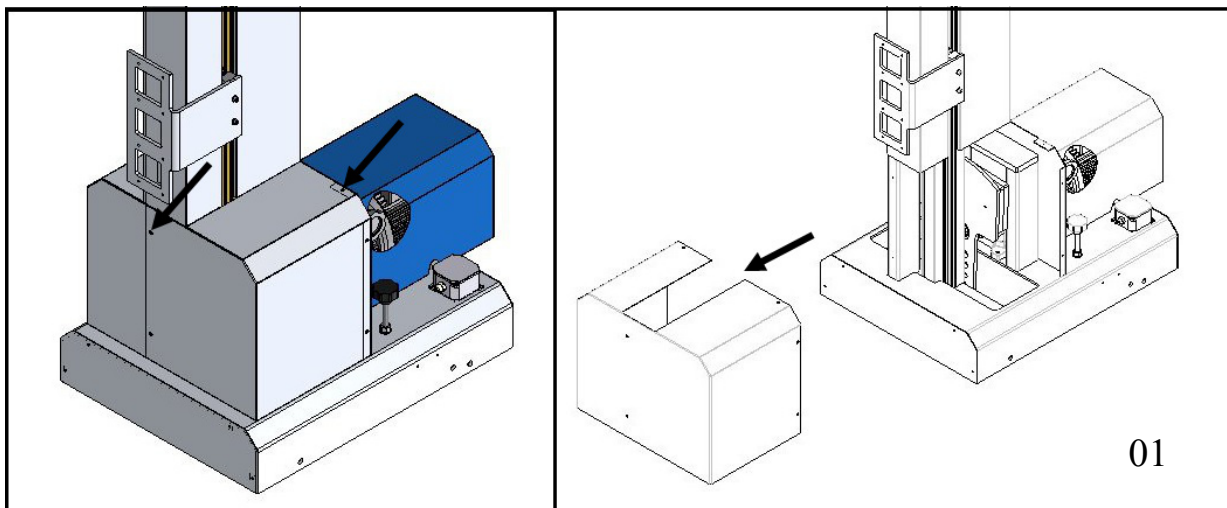
<b>Part Number</b>	<b>Description</b>
7034550	Stroke adjusting wheel
7034551	Motovariator_
736296	KIT,2*CONCENTRIC,2*ECCEN WHEELS

## 12.5 Adjustment of the stroke



To adjust the stroke of the oscillator, do as follows:

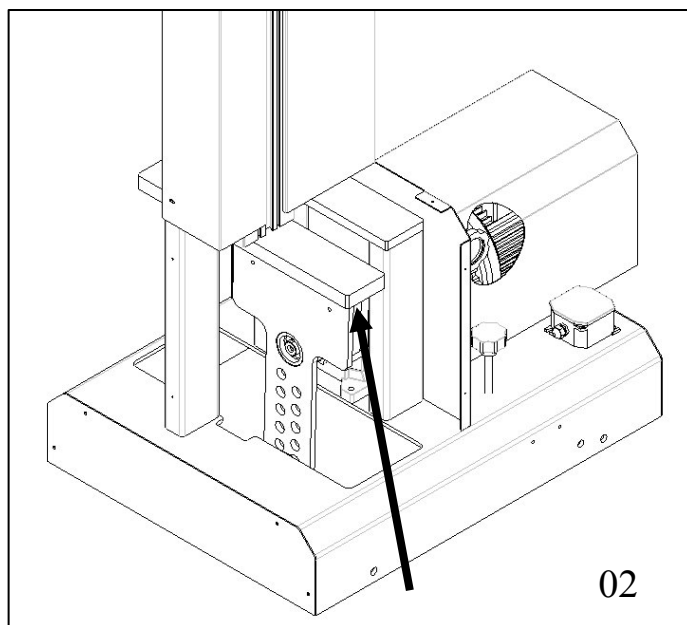
- Turn off the power supply to the machine.
- Remove the frontal door of the oscillator, by removing the fixing screws, as shown in the picture 01.



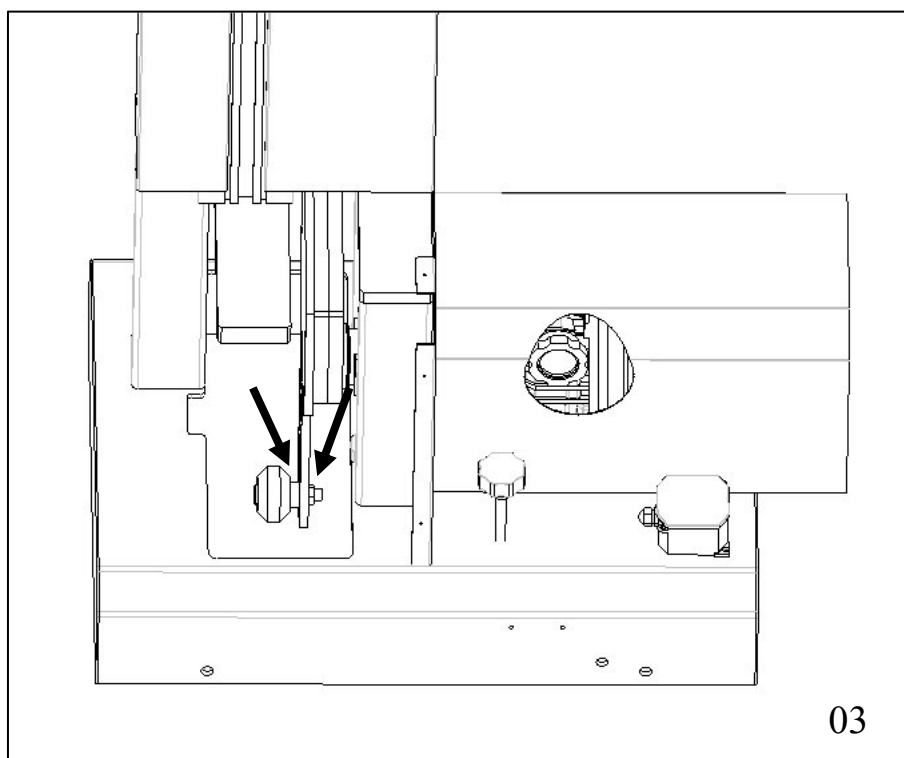
- Lift the guide up to the max stroke position and block it with a staff, so as to allow the adjusting wheel to go down. 02



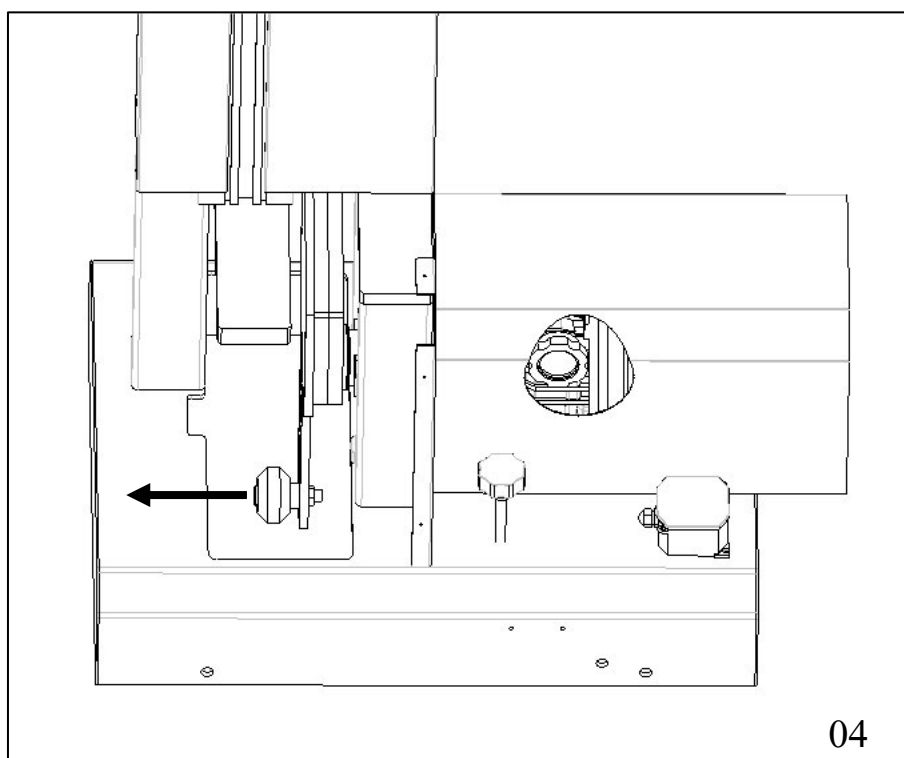
**ATTENTION:** for safety reasons, it is better that this operation is carried out by two operators: one who holds the guide, the other who proceeds with its disassembly.



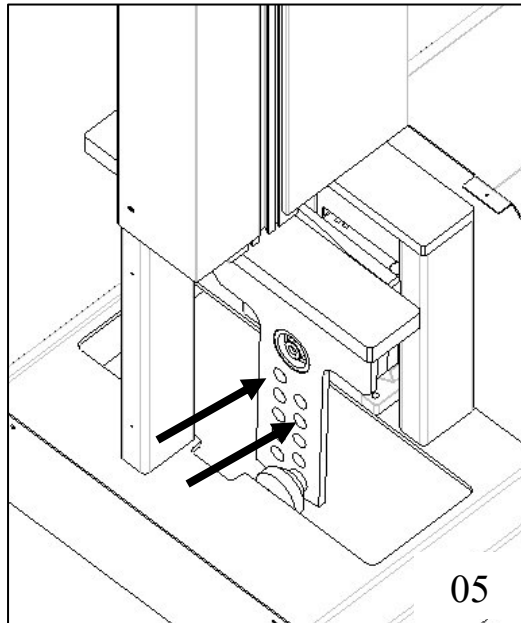
- With two wrenches, loosen the nut that blocks the hub of the wheel. 03



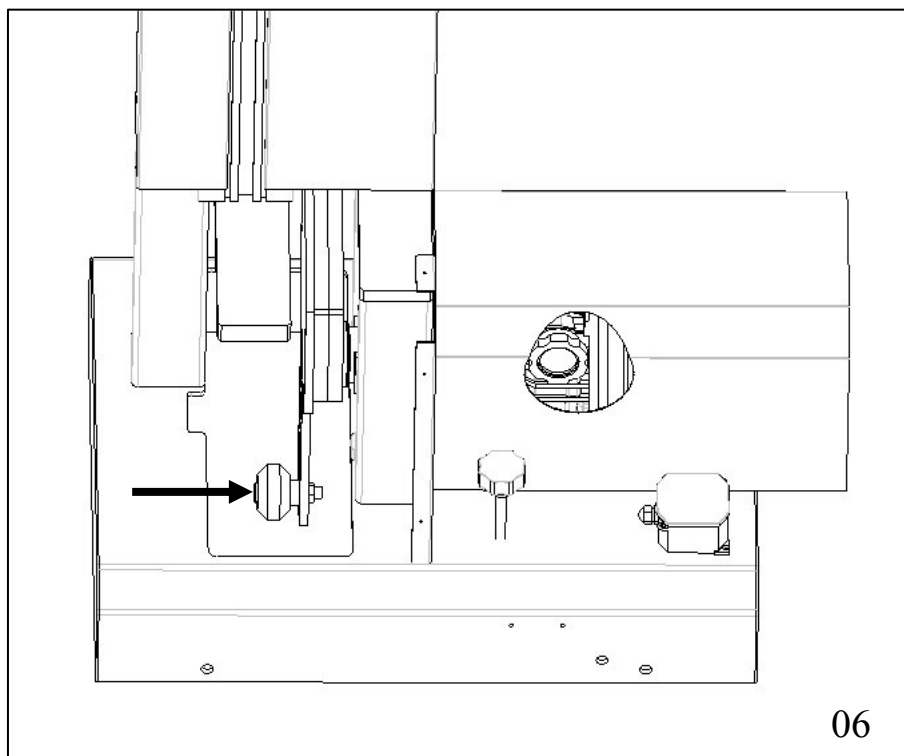
- Remove the wheel with its hub from the hole (start position). 04



- Choose the new hole to position the wheel, depending on the desired stroke. 05



- Insert the wheel into the desired hole. 06



- Block the hub, by tighten the fixing nut with a wrench, holding the hub.

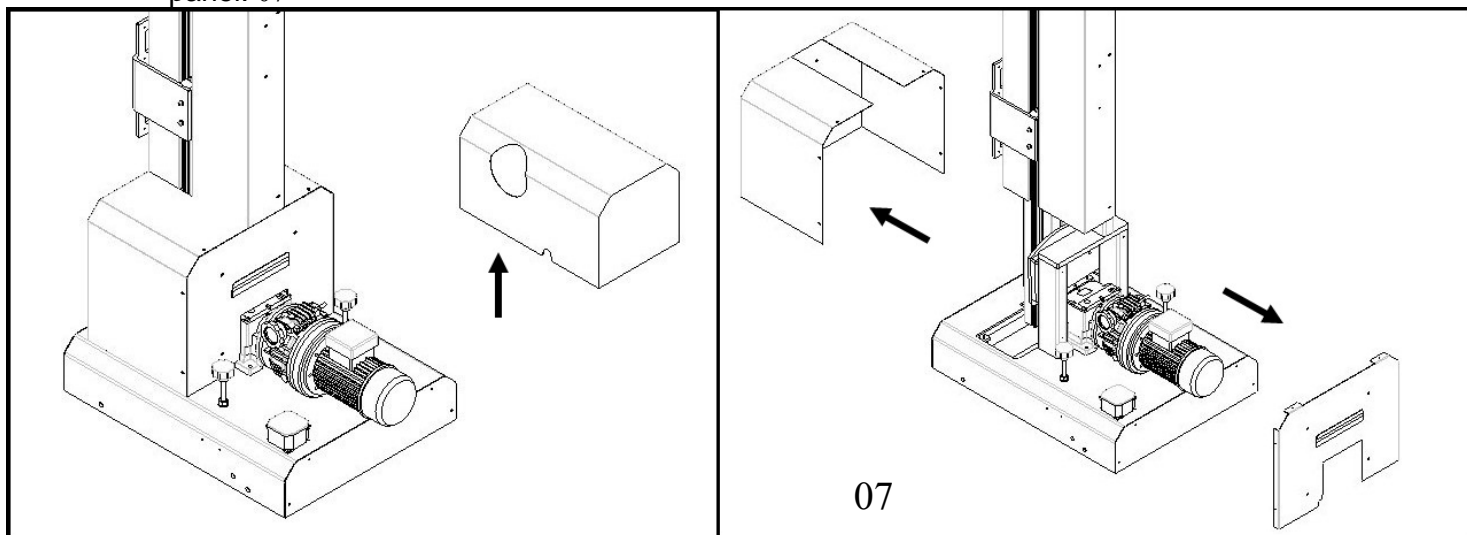
**NOTE:** carry out the same operations also to replace the wheel when it is worn.

## 12.6 Replacement of the motovariator

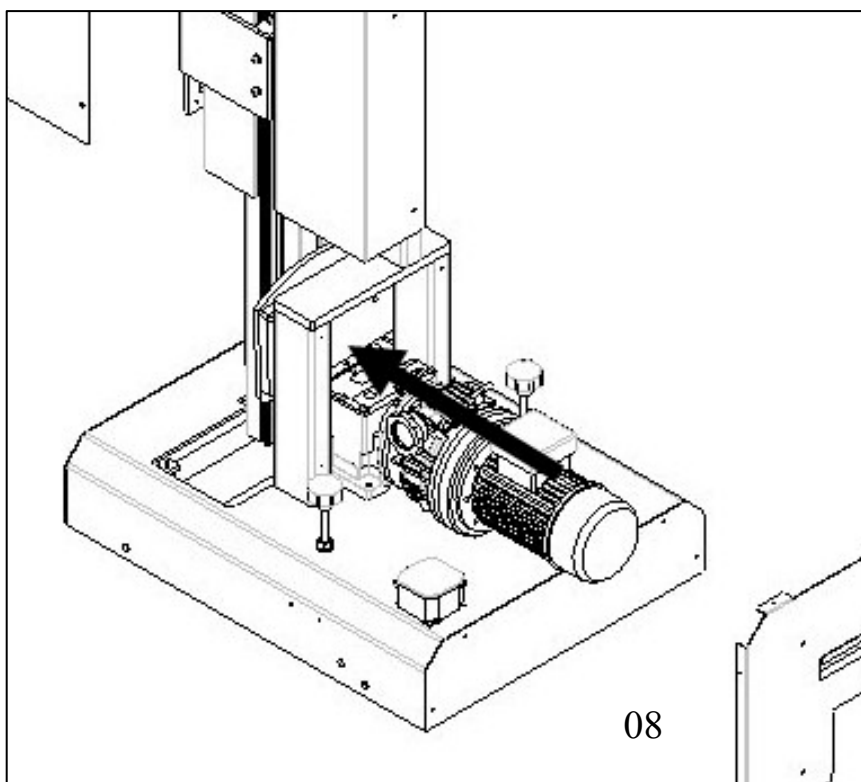


To replace the motovariator do as follows:

- Turn off the power supply to the machine.
- Remove the safety guard of the motovariator, lifting it, and then remove the rear vertical panel. 07

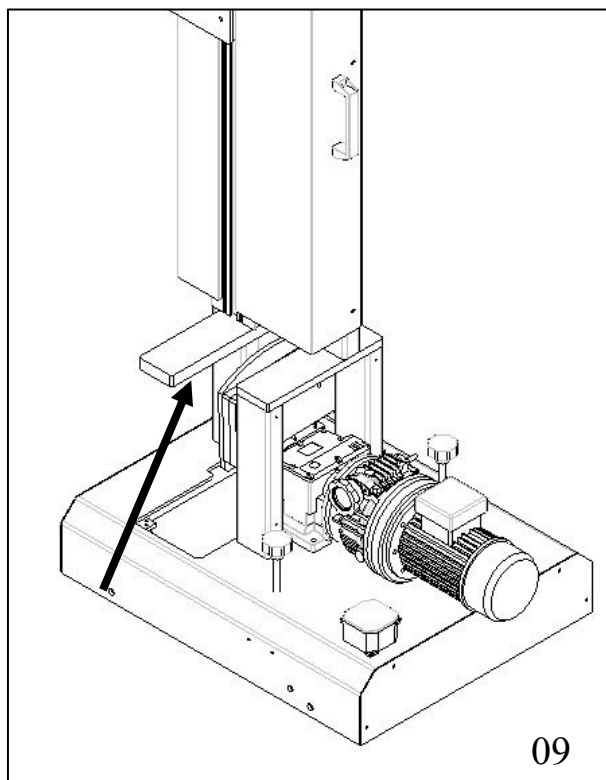


- Move the counterweight to the upper position (and guide down). 08

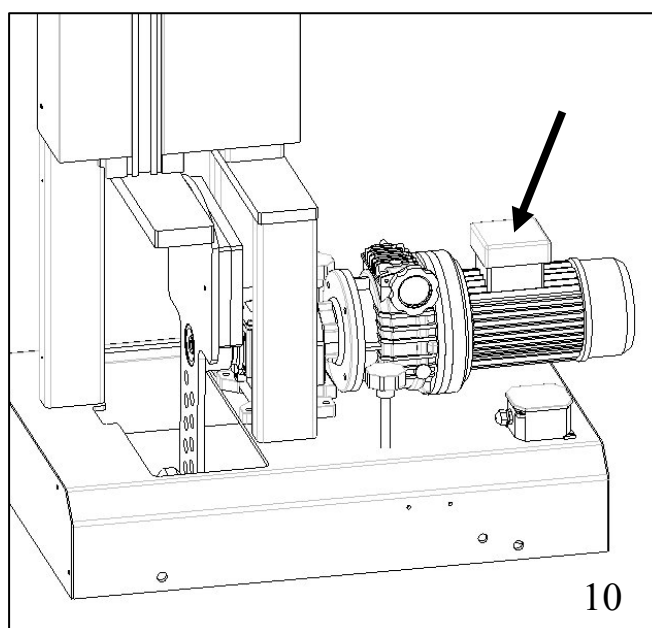


- List the guide up to the max stroke position and block it with a staff. 09

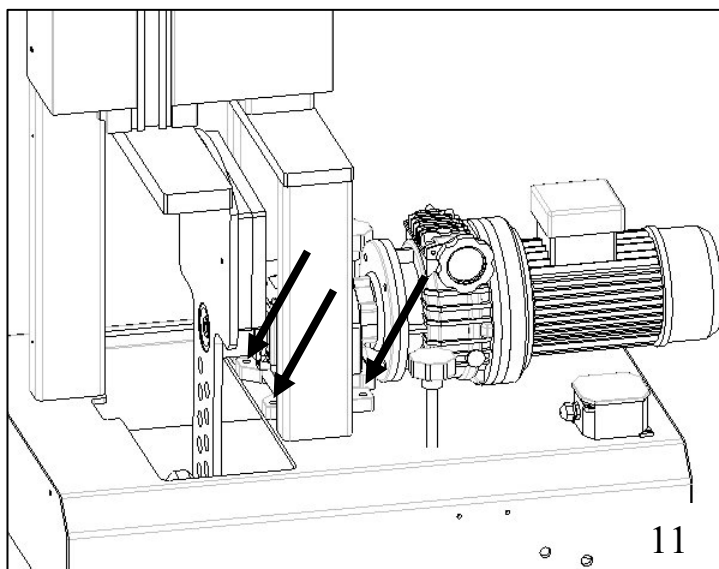
**NOTE:** to make the work easier and for safety reasons, it is better that the following operations are carried out by two operators.



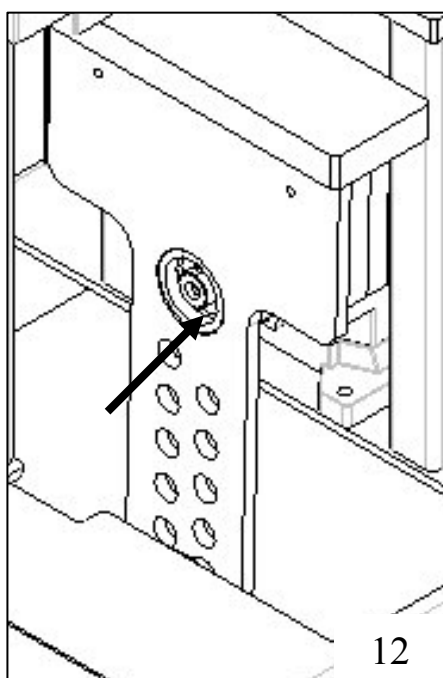
- Open the electric box and loosen the terminals of the cables. 10



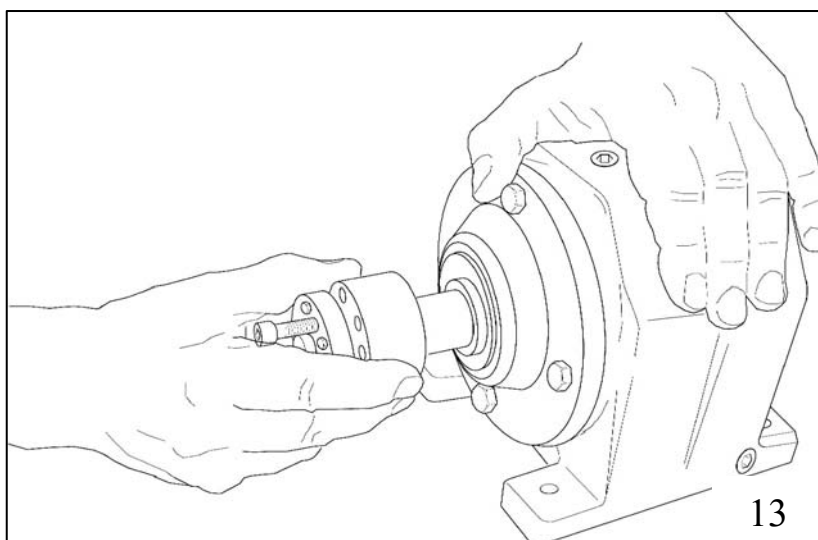
- Loosen the four screws that fix the motovariator. 11



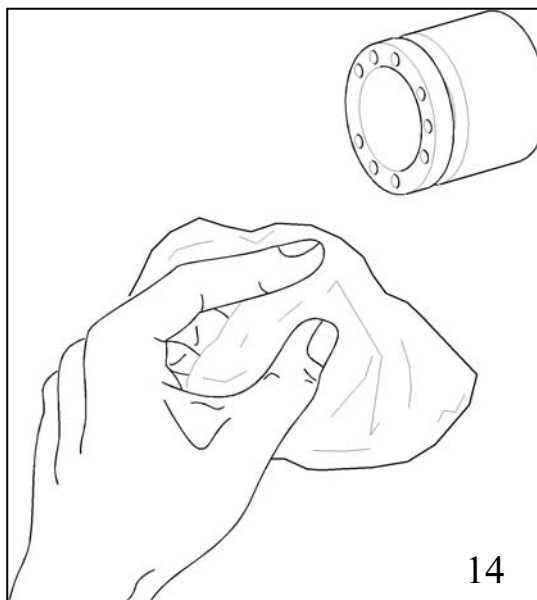
- Loosen the screws of the ring block, before removing completely the motovariator. 12



- Unscrew the screws from the threaded holes of the ring block. 13

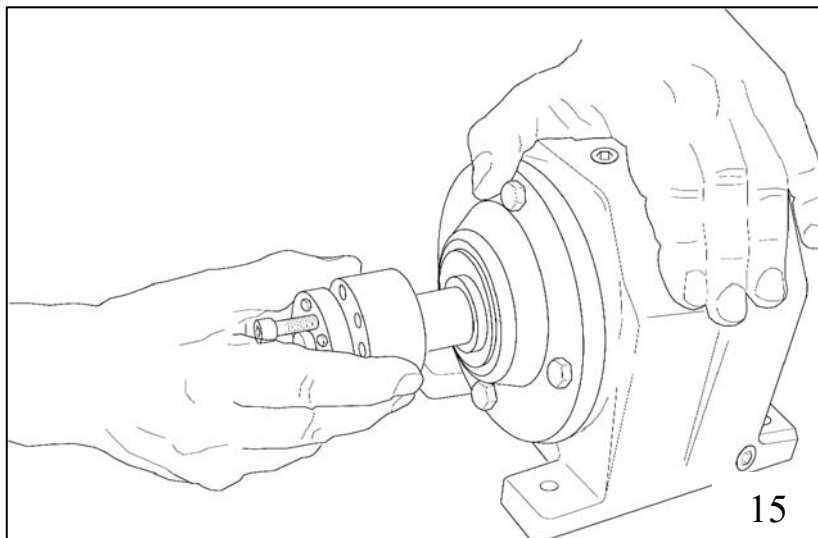


- Clean the ring block with a cloth. 14

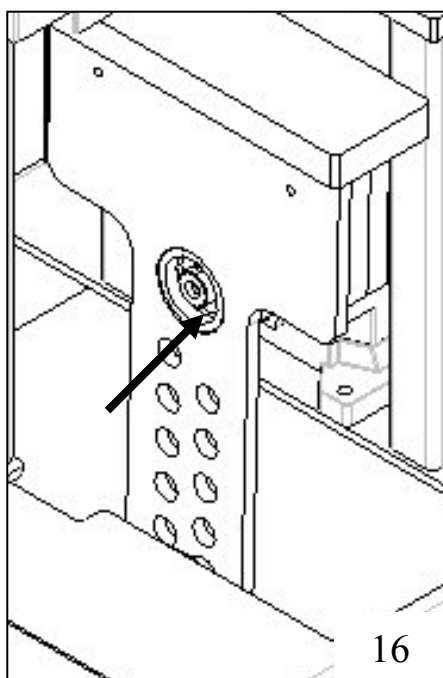




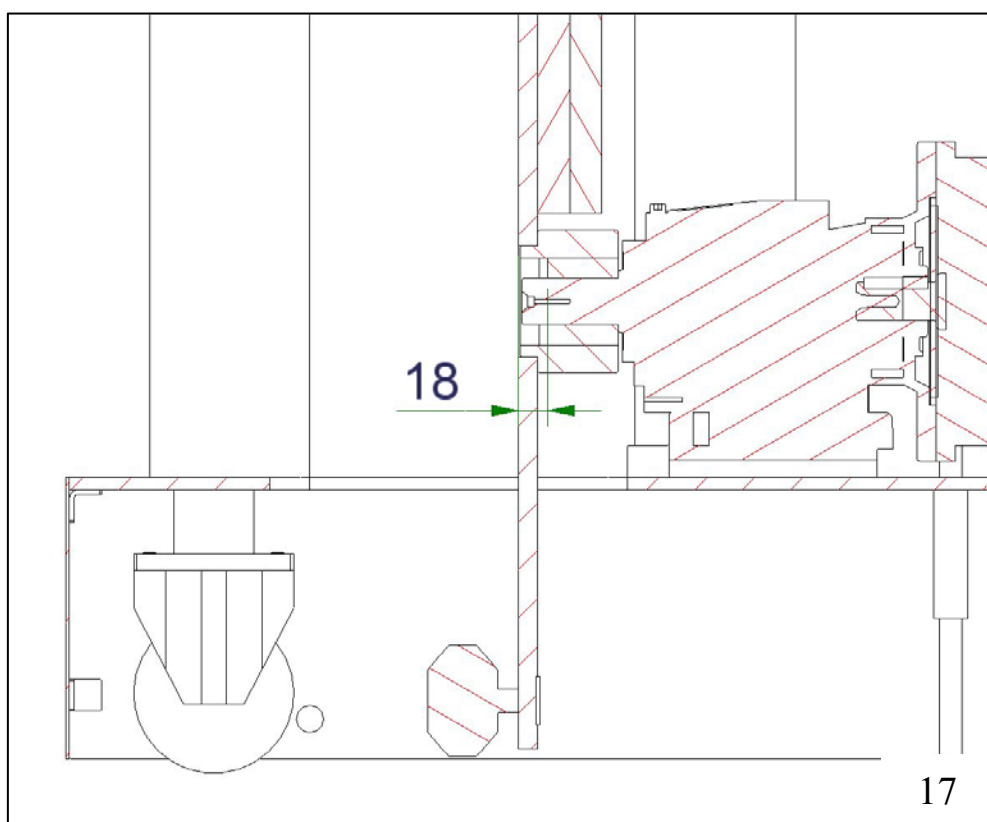
- Retighten, without closing, the screws on the new motovariator. 15



- Position the plate with holes on the shaft of the motovariator and tighten the screws crosswise. 16



- To insert correctly the ring block on the shaft of the motovariator, refer to the following drawing. 17



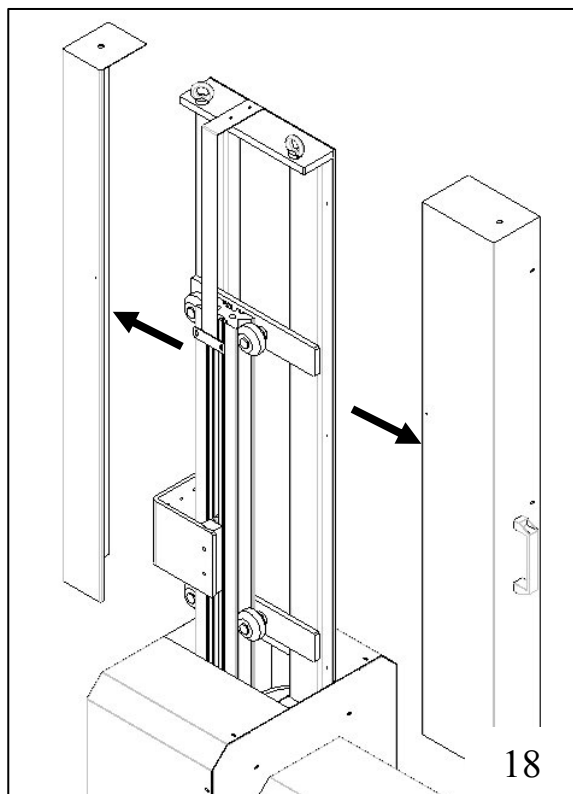
- Carry out the reverse operations to assemble completely the motovariator and start up the machine.

## 12.7 Adjustment of the trolley wheels

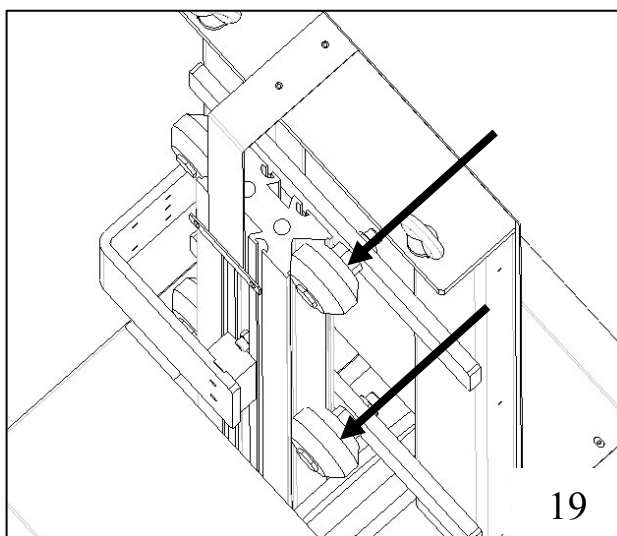


To adjust the trolley wheels, do as follows:

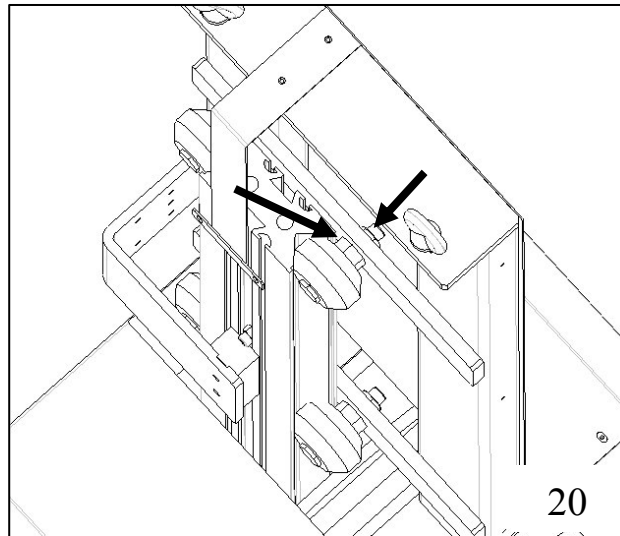
- Turn off the power supply to the machine.
- Remove the upper cover as indicated in the picture.18



- Once the covers are removed, the eccentric wheels are accessible to be adjusted.19

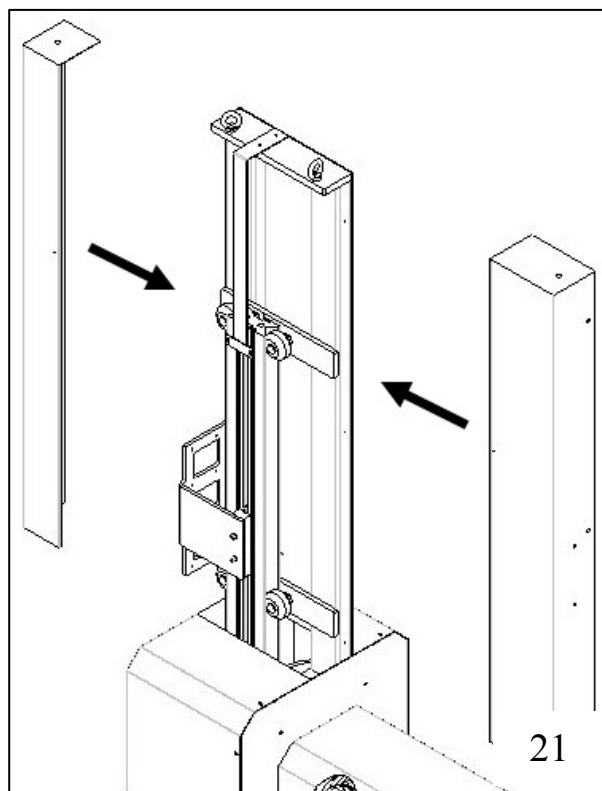


- Loosen the nut that blocks the eccentric hubs of the wheels. Hold the hub with a suitable wrench. 20



**ATTENTION:** it is important that there is no play between the wheel and the guide but at the same time the wheel must not be blocked.

- Adjust the position of the eccentric hub so that the wheel is free to turn easily on the guide, creating a certain friction. Avoid excessive loads on the wheels so as to damage the surface.
- Once the adjustment has been carried out, hold the hub and tighten the lock nut with a suitable wrench; then reassemble the upper covers. 21.

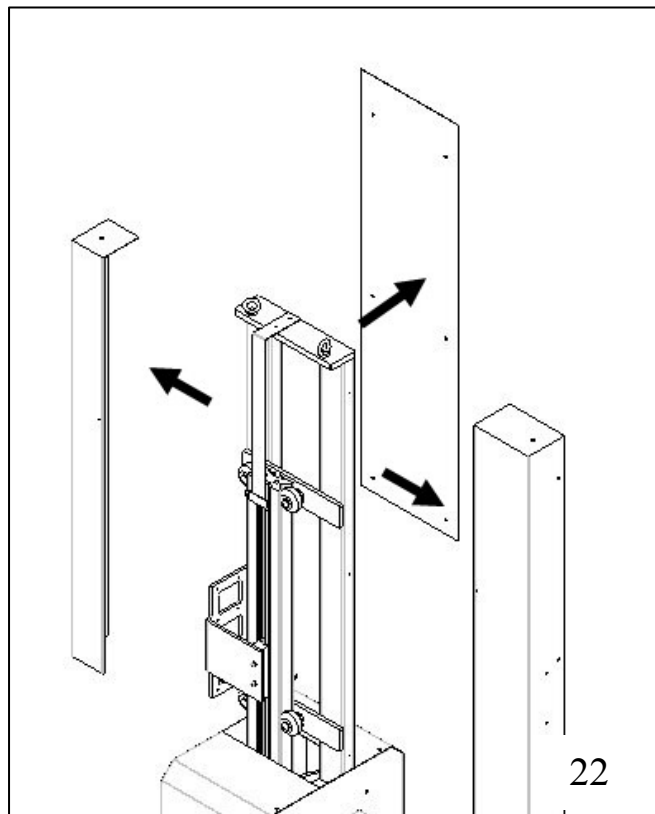


## 12.8 Replacement of the trolley wheels

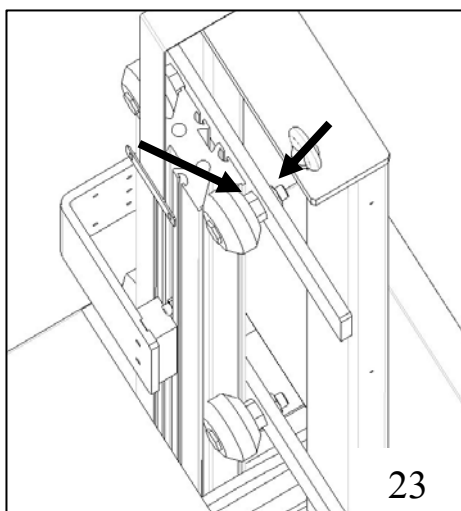


To replace the wheels of the trolley do as follows:

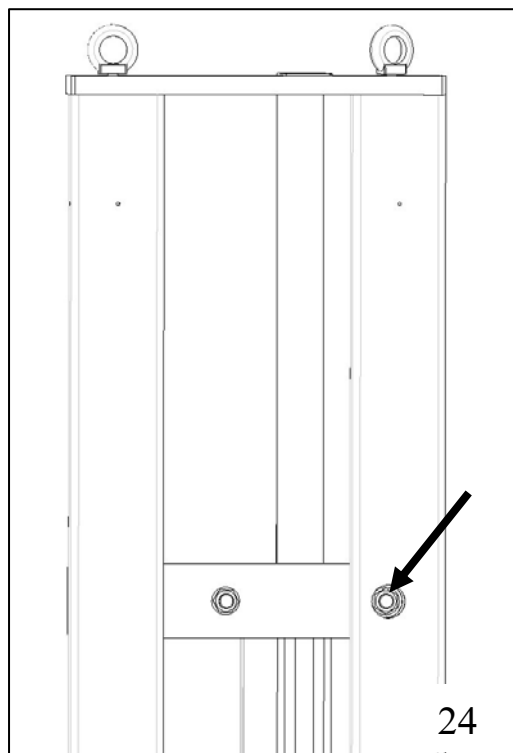
- Turn off the power supply to the machine.
- Remove the upper covers as indicated in the picture. Make sure that the guide is in the lower point.22



- Loosen the nut that blocks the eccentric hubs of the wheels. Hold the hub with a suitable wrench.23



- Use a box spanner no. 24 to loose the nut of the concentric wheels.24



- Replace the wheels, one at a time, to avoid that the guide falls down, causing damages.
- Follow the reverse operations to assemble the new wheels.

## 13.0 ALARMS

ANOMALY	CAUSE	REMEDY
NOISE AND VIBRATIONS DURING THE STROKE	<ul style="list-style-type: none"><li>■ Wrong adjustment of the trolley wheels</li><li>■ Worn out trolley wheels</li><li>■ Dirty guide</li></ul>	<ul style="list-style-type: none"><li>■ Adjust the trolley wheels</li><li>■ Replace the trolley wheels</li><li>■ Clean the guide</li></ul>
NOISE AT THE REVERSAL POINTS	<ul style="list-style-type: none"><li>■ Clearance of the motovariator</li></ul>	<ul style="list-style-type: none"><li>■ Replace the motovariator</li></ul>
THE OSCILLATOR DOES NOT START	<ul style="list-style-type: none"><li>■ Lack of voltage</li></ul>	<ul style="list-style-type: none"><li>■ Check the general switch on the main cabinet</li><li>■ Check the power supply cable and relative connectors</li></ul>

## 14.0 SPARE PARTS

### 14.1 General advice

- In order to optimise and address correctly the demand of spare parts and/or technical assistance, it is necessary to refer to **Nordson**.
- If the customer uses, above all during the period of contractual guarantee of the machine, not original **Nordson**, spare parts, the guarantees about functional performances and above all accident prevention safeties are no more valid. Therefore **Nordson** declines each possible responsibility direct, indirect or consequential, about accidents occurred to staff, or about possible restrictions of productive performances of the machine.
- The safety and reliability of **Nordson** equipment is only guaranteed with the proper use of correct **Nordson** spare parts.
- Before removing any components of the machine and replacing them with spare parts, it is necessary to look it up in the "**OPERATING AND MAINTENANCE MANUAL**" attached. This is necessary to identify all information to adopt to guarantee safety during the interventions (safety and accident prevention measures).



## **14.2 How to order spare parts**

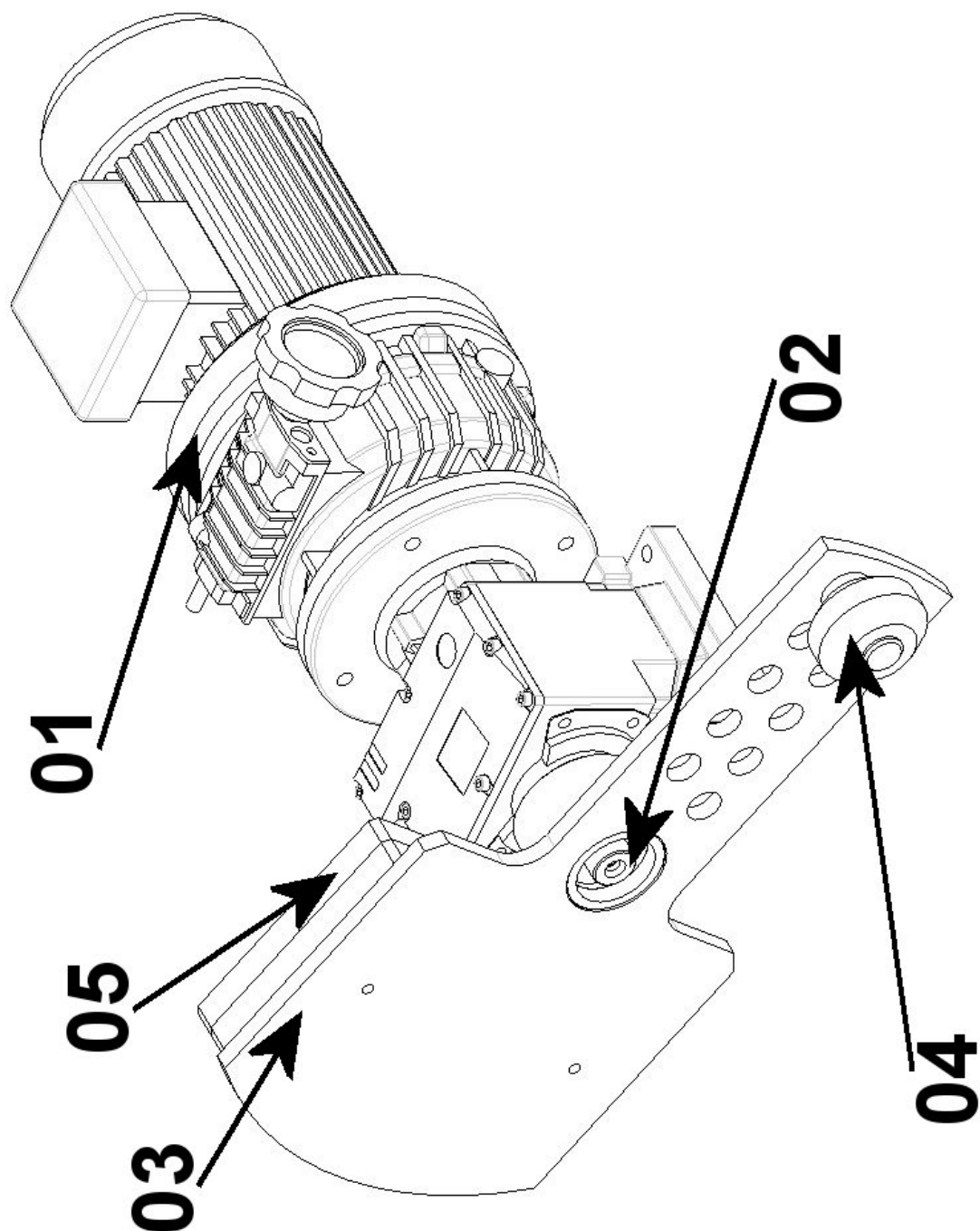
To order spare parts see the data on the CE plate.  
The order will have to contain the following elements:

- Model/Type of machine
- Serial No.
- Description of the group
- Position no. of the spare parts
- Description of the spare parts
- Code of the spare part
- Quantity

### **Example:**

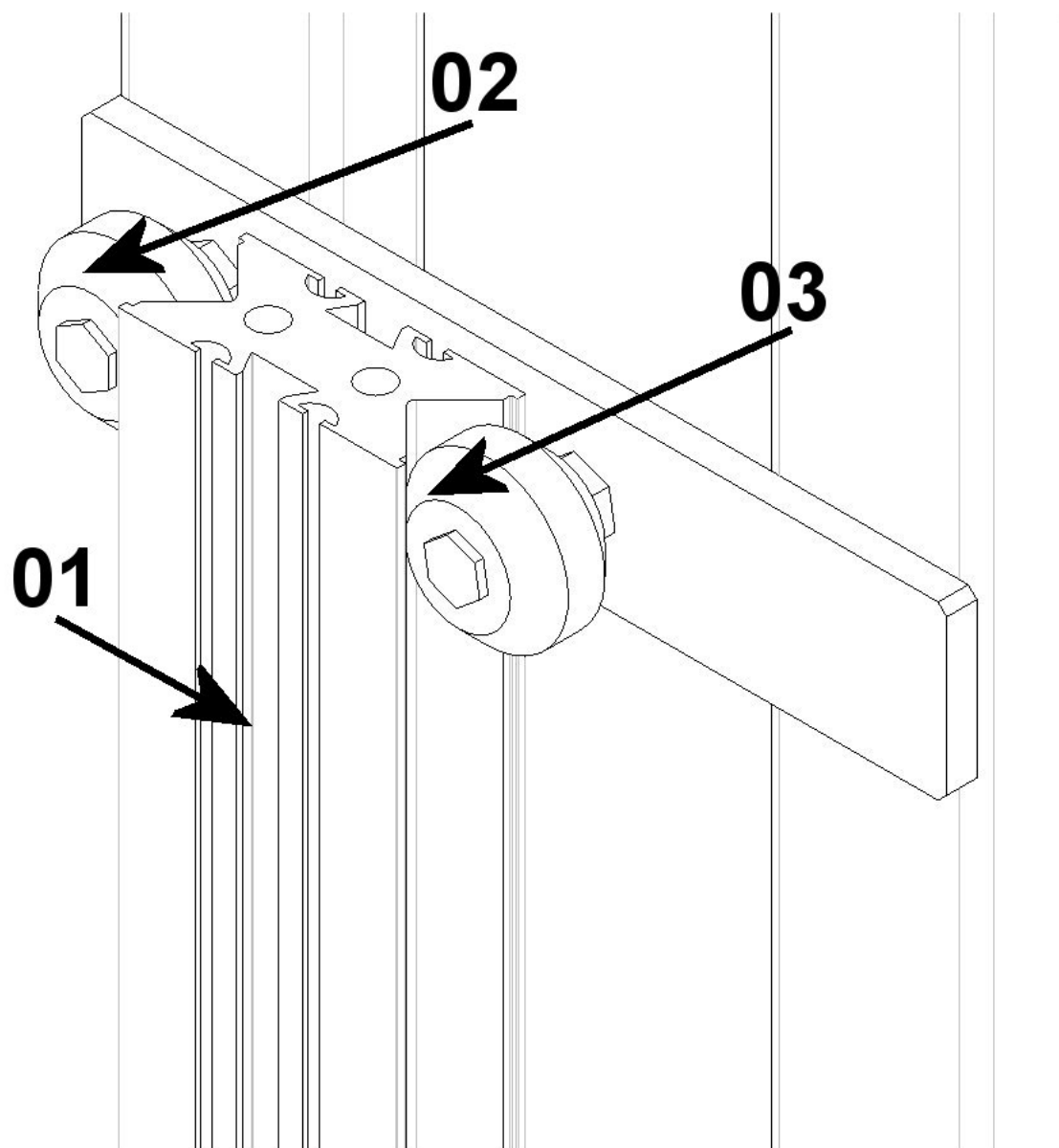
- Oscillator HOF/50
- Serial No. 99999
- Trolley group
- Position 02
- Concentric wheel
- 736410
- No. 2 Pcs

## MOTOVARIATOR GROUP AND ADJUSTING PLATE



## MOTOVARIATOR GROUP AND ADJUSTING PLATE

Pos.	Part Number	Description	Q.ty
1	7034551	Motovariator, HOF/50	1
2	7034552	Bush taperlock HOS/50	1
3	7034553	Crank arm, stroke adjusting, HOS/50	1
4	7034550	Wheel, stroke adjusting, HOF/50	1
5	7034554	Counterweight, additional, HOS/50	2

**SLIDING GUIDE GROUP AND WHEELS**

## SLIDING GUIDE GROUP AND WHEELS

Pos.	Code	Description	Q.ty
1	7034554	Column profile, HOF/50	1
2	736410	Concentric wheel	2
3	736411	Eccentric wheel	2

## 15.0 DRAINING OF HARMFUL SUBSTANCES AND DISMANTLING OF THE MACHINE

The user must remember that the harmful substances used, see lubricating oil, grease etc., must be drained in accordance with the local laws in force.

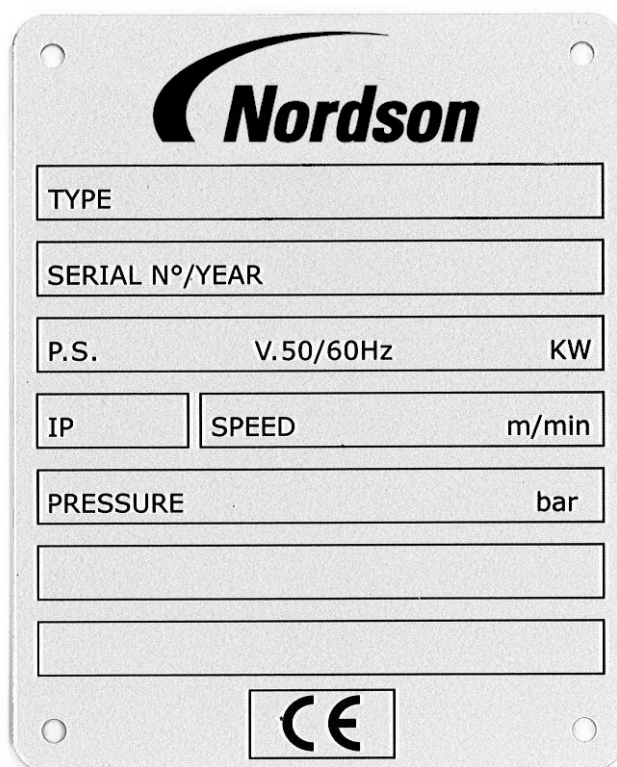
The dismantling of the machine and the removal of its components must be carried out according with the local laws or directives.

The machine is prevalently composed by:


- ferrous materials (structure and mechanical parts)
- materials derived from copper (electric wires and electric motor winding)
- Aluminium materials (mechanical parts)

## 16.0 ATTACHMENTS

**CE PLATE**



**Nordson**

TYPE		
SERIAL N°/YEAR		
P.S.	V.50/60Hz	KW
IP	SPEED	m/min
PRESSURE		bar
		



## CE DECLARATION

# EC DECLARATION OF CONFORMITY

## ACCORDING TO CE DIRECTIVE 2006/42/CE

**DESCRIPTION** Oscillator HOF Series

**FAMILY/MODELS** All - for powder coating applications

**APPLICABLE DIRECTIVES** Machinery Directive 2006/42/CE  
Electromagnetic Compatibility Directive 2014/30/EU  
Directive 2014/34/EU ATEX zone II 3 D referred to  
equipment and protection systems which are used in  
the presence of  
explosive atmosphere

**STANDARDS USED TO  
VERIFY COMPLIANCE:** UNI EN ISO 12100:2010

**MARKING OF PRODUCT:** 

The equipment delivered is generally intended to be part of a powder coating system, and can be operated on its own or in conjunction with other equipment.

In order to be in full compliance with the CE machinery directive and its amendments, the customer is obliged to respect the applicable regulations for his powder coating system upon incorporation of the equipment in the powder coating plant and before starting operation.

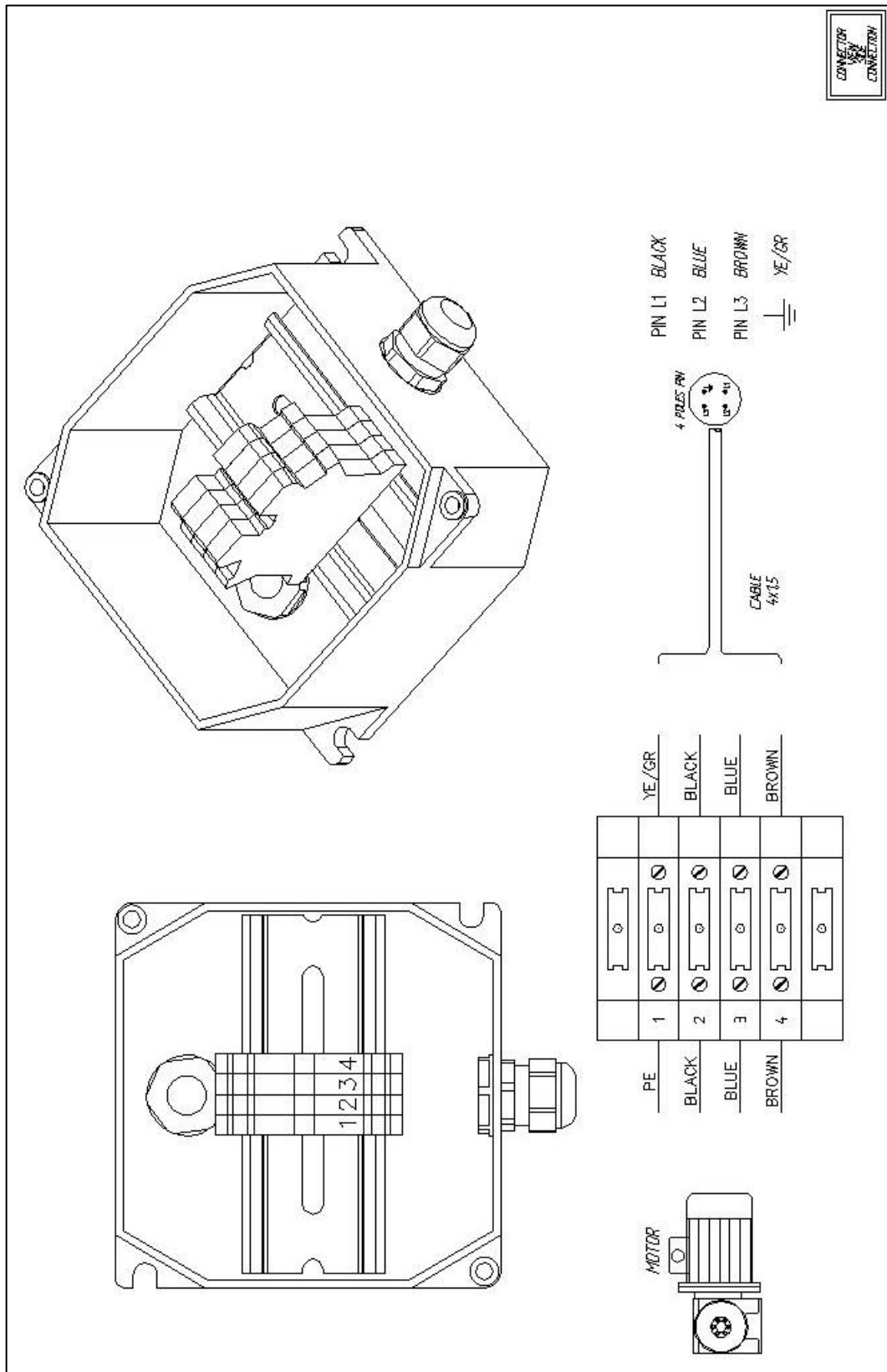
We hereby declare that the product specified conforms to the directives and standards described above and that it has been provided with a CE label. Provided the product is installed and operated in line with the Nordson manuals, its operation is safe.










Kai Flockenhaus  
Manager Procurement & Process,  
ICS Europe (Industrial Coating Systems)  
Nordson Deutschland GmbH

Date: 23<sup>rd</sup> May 2016

## WIRING DIAGRAMS



## RECOMMENDED OILS

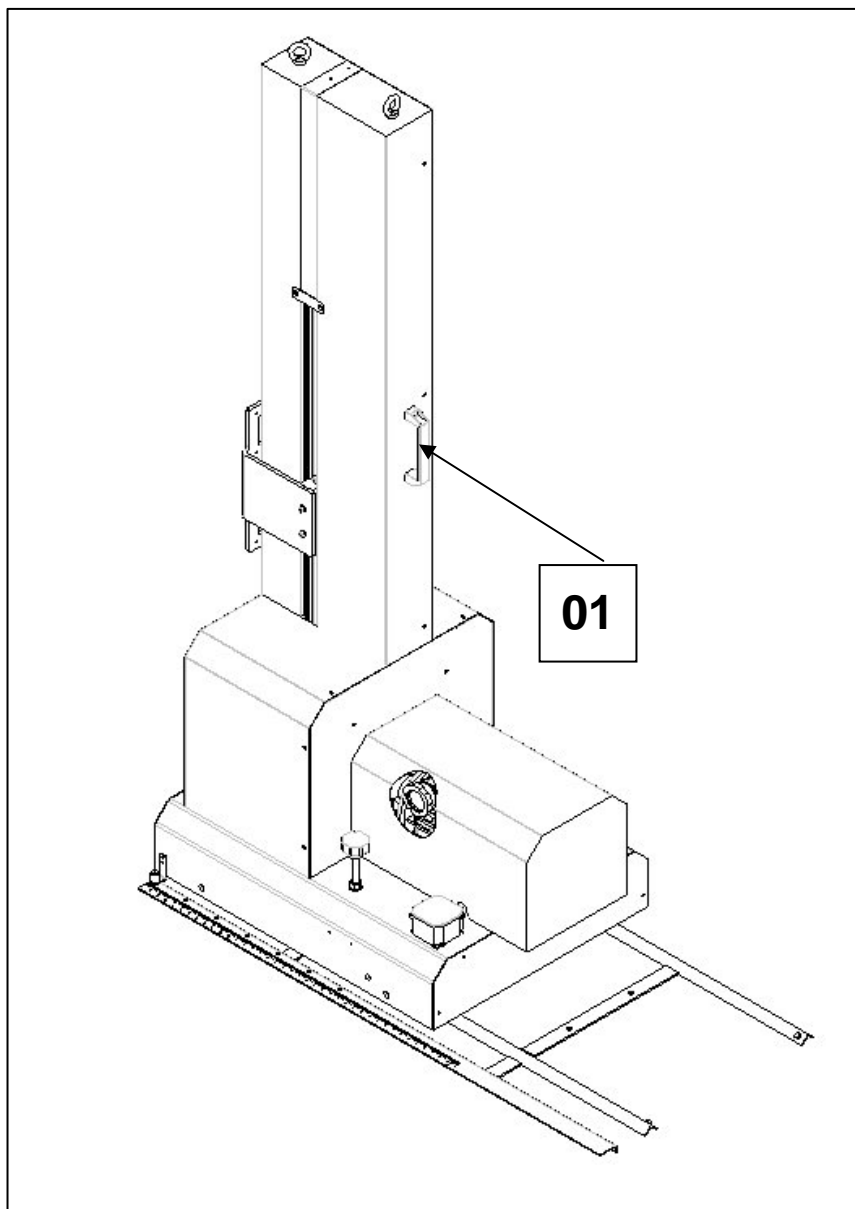
Standard supplied	For these mounting position specify in the order or add oil Per queste posizioni specificare in fase d'ordine o aggiungere olio					
						
B3	B6	B7	B8	V5	V6	V8
0.31 LT	0.31 LT	0.31 LT	0.31 LT	0.31 LT	0.31 LT	Ask
AGIP Telium VSF 320			SHELL Omala S4 WE 320			

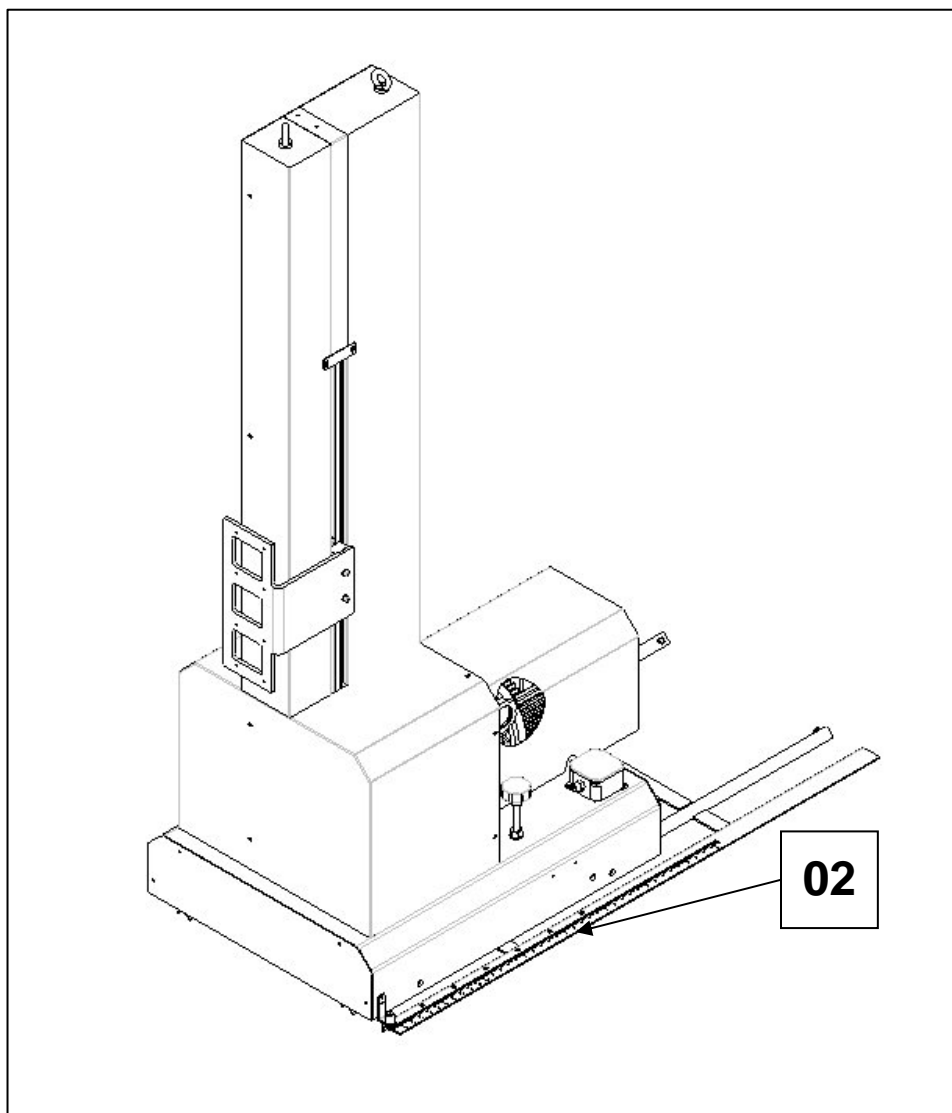
**tab. 1**

- EN** Unit **452A** is supplied with synthetic oil for lifetime lubrication, no maintenance is necessary.  
See table 1 for lubrication and recommended quantity.  
In table 2 please see possible radial loads and axial loads on the gearbox.
- I** Il riduttore **452A** viene fornito completo di olio sintetico per la lubrificazione permanente e non necessita di alcuna manutenzione.  
Vedi tab.1 per oli e quantità consigliati.  
In tab.2 sono presenti i carichi radiali e assiali applicabili al riduttore.
- D** Das Getriebe **452A** ist mit synthetischem Öl gefüllt und ist lebensdauergeschmiert.  
In Tabelle 1 ist die Schmiermenge und das empfohlene Schmiermittel angegeben.  
In Tabelle 2 sind die zulässigen Radial - und Axialbelastungen des Getriebes aufgeführt.
- F** Le réducteur **452A** est fourni complet avec de l'huile synthétique pour la lubrification permanente et ne nécessite aucun entretien.  
Voir tableau 1 concernant les huiles et les quantités conseillées.  
Les charges radiales et axiales applicables au réducteur sont précisées dans le tableau 2.
- E** El reductor tamaño **452A** se suministra, lubricado de por vida con aceite sintético y no requieren mantenimiento alguna.  
Ver tabla 1, para cantidades y aceites recomendados.  
En la tabla 2, se encuentran las cargas radiales y axiales admitidas por el reductor.

## 17.0 PERSONALIZATION/SPECIAL EXECUTIONS

### 17.1 Kit handle for manual movement





Pos.	Code	Mu	Q.ty	
01		No	1	Kit handle for manual moving
02		No	1	Kit rails for manual movement L= 1500 mm



## 17.2 Oscillator mod. HOF/50 on z-axis mod. HBF

