GASCO GROUP
Feeding Systems Specialists

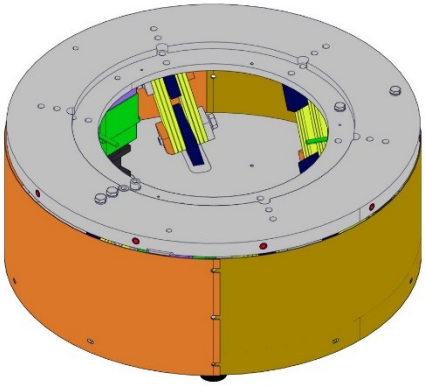
SISTEMI DI ALIMENTAZIONE PER L'AUTOMAZIONE

DRIVE UNIT BV SERIES

Model BV75-1

Use and Maintenance Instruction Manual

ORIGINAL INSTRUCTIONS



This manual applies to the following models: BV75-1

GASCO GROUP
Feeding Systems Specialists

Original title: Manuale di istruzione uso e manutenzione di: BASE VIBRANTE SERIE BV
Original title translation: Use and Maintenance Instruction Manual of: DRIVE UNIT BV series

INSTRUCTIONS FOR USE
DRIVE UNIT BV SERIES

Model BV75-1

GASCO GROUP
Feeding Systems Specialists

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1 INTRODUCTION

This manual is intended for an easy and quick access by users to all information necessary for the equipment use and maintenance.

The operator shall carefully read it in full, making sure that any information included is understood, before conducting any activity connected to the partly completed machinery.

The manual shall also be used as reference document whenever a specific procedure or activity needs to be remembered.
Therefore, it must be made available, at all times, to the staff in charge of maintenance and to operators, for reference purposes, when needed.

	This symbol indicates compulsory reference to the use and maintenance instruction manual. **Whenever this symbol is displayed, operators shall check the manual supplied with the equipment before carrying out activities which may involve the use of the partly completed machinery.**

Gasco group Srl reserves its right to modify the project, make changes / improvements to the partly completed machinery together with updates of the instruction manual without notice to its customers and without obligations with regards to the delivery of possible updated versions.

1.1 MANUAL SYMBOLS

Within the manual specific texts and symbols will be displayed to highlight important advice, warnings, and prohibitions:

This symbol is used to highlight particularly relevant technical information which cannot be neglected.
It is essential to follow the information displayed next to it.

This symbol indicates important hazard warnings, which are paramount for the safety of the partly completed machinery and operators.
Carefully read the information displayed next to this symbol and acknowledge relevant hazard.

This symbol indicates that some actions and/or operations with the partly completed machinery are forbidden as these might, under certain circumstances, threaten the safety of the partly completed machinery and of the operators.
Carefully read the information displayed next to this symbol and follow relevant prohibition.

1.2 TESTING, WARRANTY AND RESPONSIBILITY

Testing

Each partly completed machinery is delivered to our customers ready for installation, after having passed all trials and testing established by the producer and according to what provided for by relevant legislation in force.

Warranty

(Feeding and automation equipment produced by the Company Gasco group S.r.l.).
Gasco group S.r.l. guarantees its products and relevant accessories from material defect or manufacturing fault for 12 months from the date of shipping. such guarantee, Gasco group agrees to repair or replace those parts which shall be acknowledged as faulty. Repairs shall be carried out solely at the factory and the goods return will be at care and expense of the customer together with the reporting of the fault encountered. All costs incurred in for the disassembly and reassembly of the part to be repaired or replaced, together with packaging and shipping costs, are for the customer to bear. The guarantee does not include deficiencies or defects due to the normal wear and tear and/or to an improper use of the goods. For a regular operation of the equipment, the instructions supplied with the material must be strictly followed, as any damage due to an improper use shall not be included in the guarantee.
Gasco group Srl defines its responsibility as solely referring to its product, thus excluding any direct or indirect damage, in particular when above mentioned equipment is used incorrectly or in contrast to what provided for by the instructions. Any alteration or change in the equipment, carried out without prior authorisation by Gasco group Srl, will result in the loss of warranty rights. Possible variations applied to the equipment by Gasco group Srl after the date of delivery, might be covered by guarantee, solely with regards to the variation, and without affecting the expiry date of the guarantee concerning the main equipment The guarantee shall be considered as void in case the customer fails to report any fault encountered within 8 days from the date of its acknowledgment. With reference to parts purchased by Gasco Group from third parties, the conditions of the guarantee established by relevant manufacturers are automatically transferred to the customer. In any event the guarantee is provided solely if the payment terms and conditions of the equipment are fulfilled.

1.3 DEFINITIONS AND GLOSSARY

Hazard area	Each area within and/or in proximity to the partly completed machinery, where the presence of people exposed might result in risks to the personnel safety and/or health.
Exposed person	Anyone who might happen to be in the whole, or part of, the hazard area.
Operator	Person in charge of installing, operating, adjusting, performing maintenance operations on, cleaning, repairing, transporting the equipment and all necessary activities for its correct use. The different operators shall be appointed according to the different operator qualifications.
Operator qualification	Minimum skill and knowledge level which the operator must have to be able to properly operate on the partly completed machinery.
Number of operators	Sufficient number of operators required to perform correct work activities with the partly completed machinery. A different number of operators, therefore, might not allow to achieve the objective or result in hazards for the personnel involved in the operations.
Safety components	Specific component designed by the producer and sold separately from the partly completed machinery to perform safety functions. Any mechanism whose failure might jeopardize the safety of the exposed persons, shall be considered as a safety component.
Safety stickers - Pictograms	Signs, symbols and messages displayed on the partly completed machinery, next to areas where hazards, important prohibitions, advice and warnings need to be reported.
Layout	A combination of parts or groups of the partly completed machinery bound to each other for transportation purposes.
Electrical	Partly completed machinery or electrically powered device.
Hydraulic	Partly completed machinery or device powered by pressurised oil.
Pneumatic	Partly completed machinery or device powered by compressed air.

1.4 OPERATORS CLASSIFICATION

Operators must, at all times, be aware of the hazard and warning signs and be able to operate autonomously.
Each operator will solely perform the tasks established, based on skills, training, qualifications and authorisations granted.
Operators are classified according to what stated below:

OPERATOR ATTENDANT C1 Level	Non-qualified personnel, lacking therefore specific skills, capable of operating the partly completed machinery by means of the controls located on the control panel and perform simple start or production resumption operations following possible stoppage. **This operator is not allowed to perform activities within the hazard area.**
OPERATOR ATTENDANT C2 Level	Non-qualified personnel, lacking therefore specific skills, capable of performing the tasks relating to level **C1**, and simple operations involving the partly completed machinery, such as its cleaning and basic adjusting functions. **This operator is not allowed to perform activities involving electrical or mechanical parts.**
MECHANICAL MAINTENANCE TECHNICIAN M1 Level	Qualified technician capable of operating the partly completed machinery in normal conditions, to perform change of format, intervene on mechanical parts to perform all necessary adjustments, maintenance operations and repairs. **This operator is not allowed to perform activities on live electrical systems.**
ELECTRICAL MAINTENANCE TECHNICIAN M2 Level	Qualified technician capable of operating the partly completed machinery in normal conditions, in charge of all electrical activities concerning adjustment, maintenance and repairs. This technician may also test the partly completed machinery working cycle by means of the control box. **He cannot intervene on mechanical parts.** **Only this technician can operate in case of energised electrical cabinets and junction boxes**.
GASCO GROUP TECHNICIAN M3 Level	Qualified technician appointed by **Gasco group s.r.l.** or by its agents to perform complex operations including installation and commissioning.
EXTERNAL TECHNICIAN M1 or M2 Level	Qualified technician appointed by the manufacturer or dealer of complex commercial components, capable of performing alterations, repairs or replacements. **Any technician appointed by the company operating the partly completed machinery, the employer and the appointed installation company must verify the compliance to all safety requirements after any kind of intervention and alteration prior to using the partly completed machinery.**

2 GENERAL FEATURES

2.1 MANUFACTURER DETAILS

GASCO group s.r.l.

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2.2 DECLARATION OF INCORPORATION

The image below displays a facsimile of the declaration of incorporation

Gasco group Srl

SISTEMI DI ALIME[illegible] L'AUTOMA[illegible]

FAC-SIMILE

DICHIARAZIONE DI INCORPORAZIONE
(All. IIb Dir. 2006/42/CE)

IL FABBRICANTE

GASCO group s.r.l.
Azienda / Company

Via Alla Costa 18 | 17047 | SV
Indirizzo / Address | *Cap / Zip* | *Provincia / Province*

Vado Ligure | Italia / Italy
Città / City | *Nazione / Nation*

Tel. + 39 019886188 / fax + 39 019886187
Numero di telefono - Fax / Telephone number - Fax

www.gascogroup.it - e-mail: commerciale@gascogroup.it
Sito web - E-mail / Web site - E-mail

sotto la propria esclusiva responsabilità,
DICHIARA CHE LA QUASI MACCHINA

- Denominata SISTEMA DI ALIMENTAZIONE VIBRANTE;
- Descrizione Prodotto da orientare _____;
- Matricola _____;
- Anno _____;

Rispetta i seguenti requisiti essenziali applicati:

1; 1.1; 1.1.1; 1.1.2; 1.1.3; 1.1.5; 1.3; 1.3.1; 1.3.2; 1.3.4; 1.4; 1.4.1; 1.4.2; 1.4.2.1; 1.5; 1.5.4; 1.5.9; 1.5.10; 1.6; 1.6.1; 1.6.5; 1.7; 1.7.1; 1.7.1.1; 1.7.2; 1.7.4; 1.7.4.1; 1.7.4.2

La documentazione tecnica pertinente è stata compilata in conformità dell'allegato VII B della Direttiva 2006/42/CE, e il fabbricante si impegna a trasmettere, in risposta a una richiesta adeguatamente motivata delle autorità nazionali, informazioni pertinenti sulla quasi-macchina.

VIETA

la messa in servizio finché la macchina finale in cui deve essere incorporata non sia stata dichiarata conforme, se del caso, alle disposizioni della Direttiva 2006/42/CE.

La persona giuridica autorizzata a costituire la documentazione tecnica pertinente è: GASCO GROUP Srl, con sede a Vado Ligure (SV), Via alla Costa, 18, Italia.

Luogo e data del documento / Place and date of document

Vado Ligure,_____

Il Fabbricante / The Manufacturer: GASCO group s.r.l.

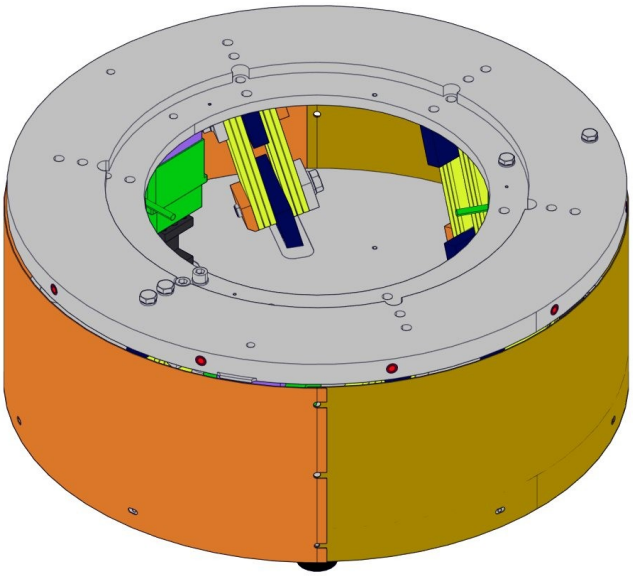
Nominativo firmatario / Signatory Name: Ing. Adriano Rosso

Qualifica / qualification: Amministratore delegato

Firma / Signature:

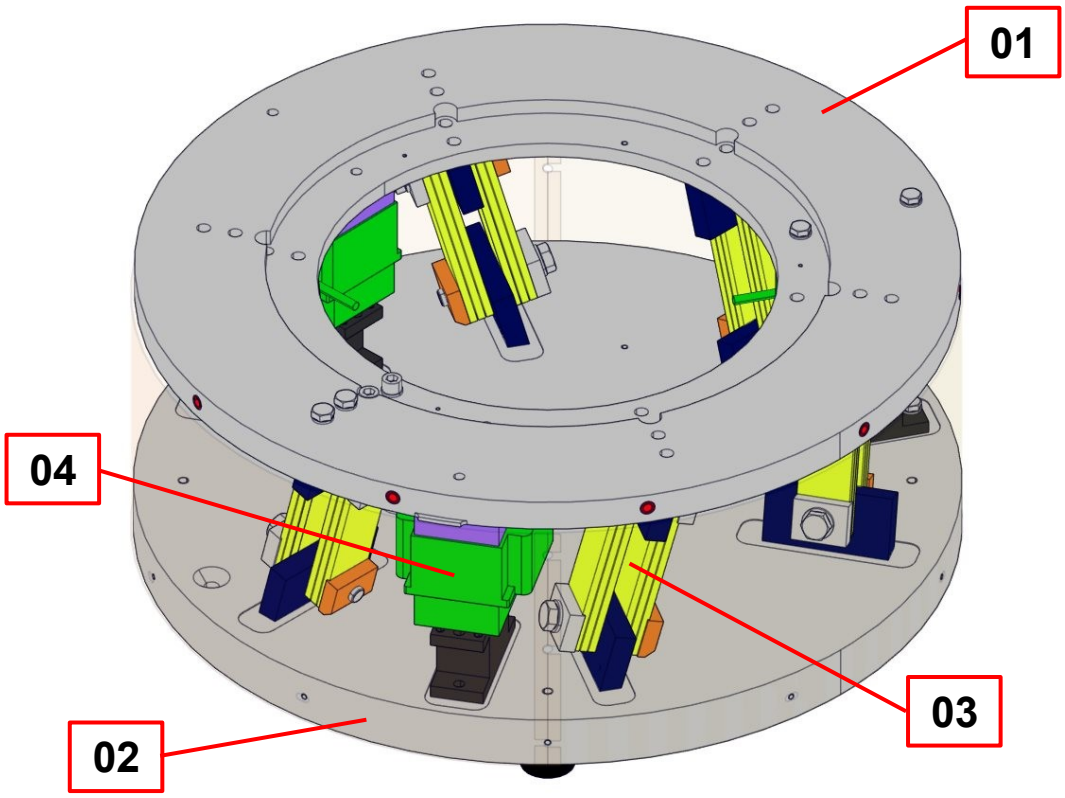
2.3 GENERAL DESCRIPTION OF THE PARTLY COMPLETED MACHINERY AND REFERENCE DRAWINGS

Drive units are systems converting electromagnetically produced vibrations into mechanical ones; such vibrations can be used to convey components and products.



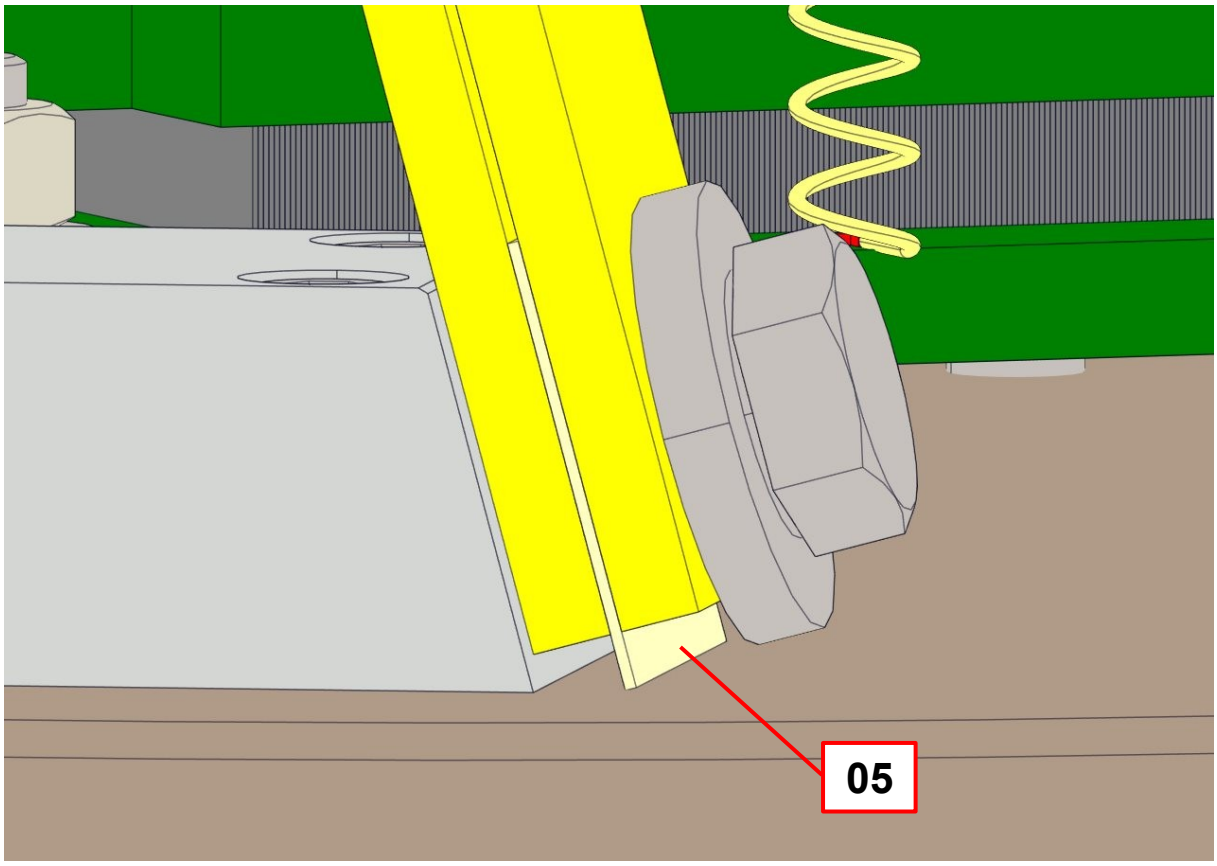
Drive unit reference drawing

Drive units consist of two superimposed masses, an upper **(01)** and a lower one **(02)**, elastically joined by a series of leaf springs **(03)** and three electromagnets **(04)** each consisting in two parts, separated by the air gap, one of which is joined to the upper mass and the other to a bracket fixed on the lower one.



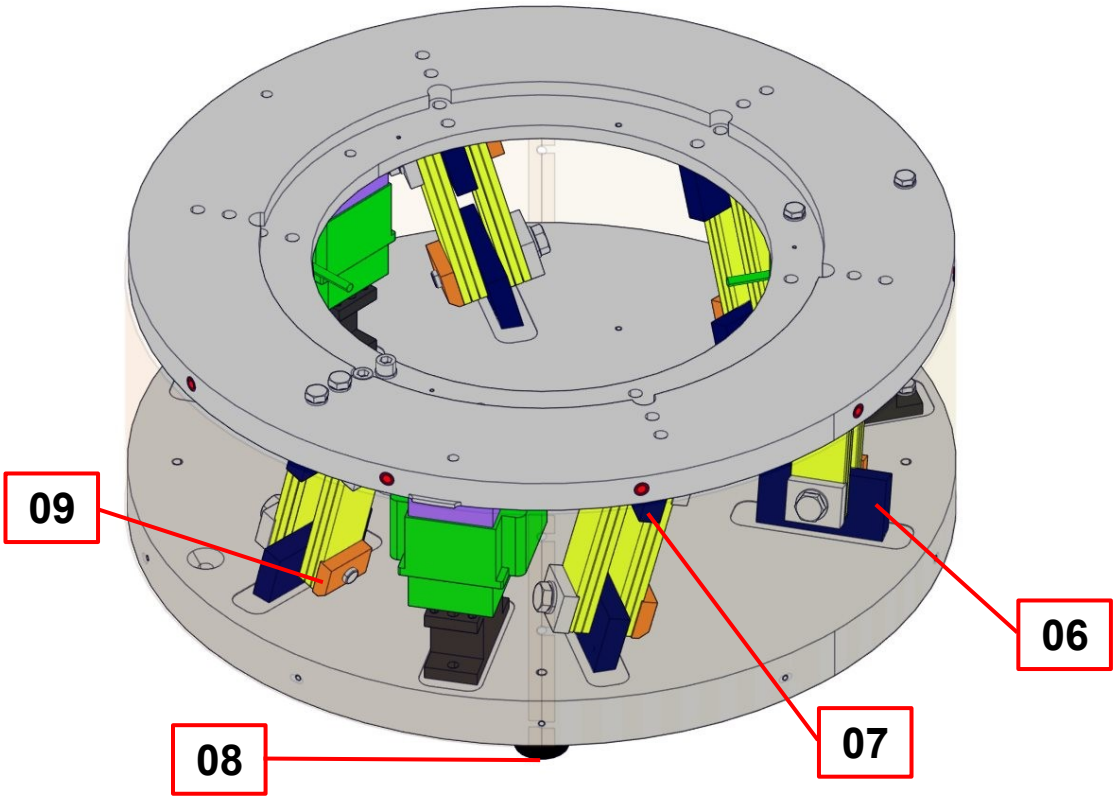
Drive unit components reference drawing

The leaf springs, when mounted in parallel in groups, are separated by means of Bakelite rectangular spacers **(05)**.



Drive unit components reference drawing

The group described, in turn, works in elastic isolation from its environment by means of elastic supports **(08)**. The leaf springs, consisting in one or more fibre sheets, are held in the correct position by means of spring compressors **(09)**; the groups are therefore joined to the lower and upper mass by means of relevant lower **(06)** and upper **(07)** blocks.



Drive unit components reference drawing

2.4 GENERAL INFORMATION AND DIAGRAMS

2.4.1 GENERAL INFORMATION

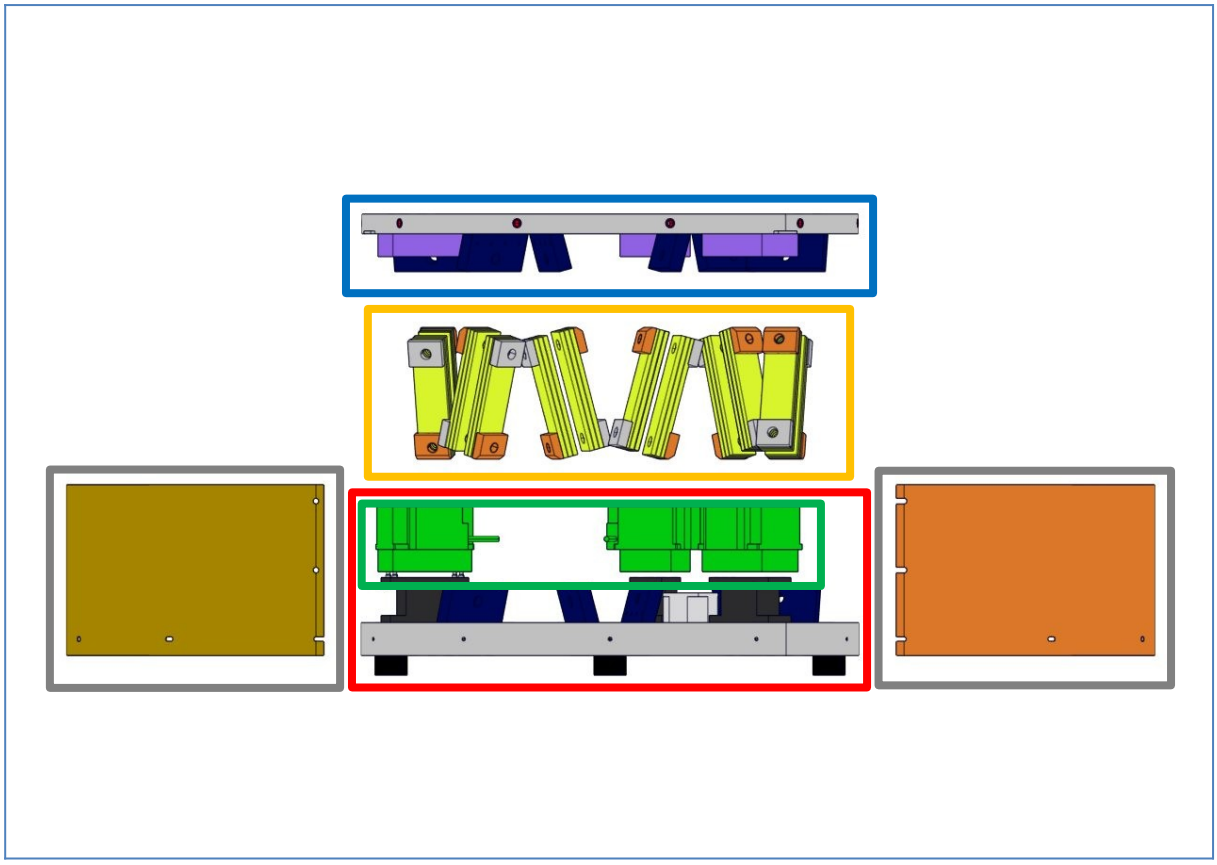
1. The drive unit must be fixed to a firm structure, in order to avoid the dispersion of vibrations.
2. The unit does not allow the selected parts to gather in the outlet area.
3. In case of system realignment, the bowl must be once again secured to the base by means of tightening of relevant fastening nut (see table with clamping force values).
4. In case of selection air blowing, pay attention to the handling of on/off (delayed OFF compared to the unit switching off – anticipated ON compared to its switching on).
5. Bowl maximum capacity: 1/3 of its volume (when not expressly indicated).
6. Maximum load: see following table.

MAXIMUM LOAD	
MODEL	**DRIVE UNIT MAXIMUM LOAD [Kg]**
BV75-1	**25/40**

2.4.2 DIAGRAMS

As already mentioned in the previous paragraph, the partly completed machinery drive unit consists of the following main parts:

NAME OF PART	POSITION SYMBOL
Upper mass	
Lower mass	
Protection cases	
Elastic leaf springs	
Electromagnet	



2.5 TECHNICAL FEATURES

Following are the main characteristics of the partly completed machinery:

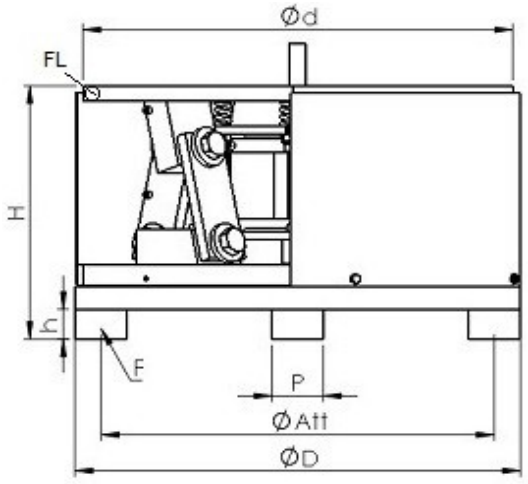
- **PARTLY COMPLETED MACHINERY**

NAME	DRIVE UNIT SERIES BV
MODELS REFERRING TO THIS MANUAL	BV75-1
YEAR OF PRODUCTION	2022
SERIAL NUMBER	…

- **OCCUPATIONAL STANDARD THRESHOLD VALUES**

TEMPERATURE	(°C)	50
HUMIDITY	(%)	80

- **TECHNICAL DATA**



MODEL	D	H	Att	F	P	MF	h	d	LT
BV75-1	770	324	670	M10	50	-	30	760	M10

- **ADDITIONAL DATA**

MODEL	V/M	Consumption [A] 230V/50Hz	Power [W] 230V/50Hz	Air gap [mm]	Weight [Kg]	Antivibration
BV75-1	3000	6	1320	1,2 / 1,7	300	4x90°

3 CHARACTERISTICS OF THE PARTLY COMPLETED MACHINERY

3.1 DESCRIPTION OF THE PARTLY COMPLETED MACHINERY

Drive units consist of systems converting electromagnetically produced vibrations into mechanical ones, using these to convey parts of different shapes or materials.
For further details, please refer to paragraph “GENERAL DESCRIPTION OF THE PARTLY COMPLETED MACHINERY AND REFERENCE DRAWINGS”.

The structure of the drive unit and the characteristics of the magnet allow an ideal use of the device in different environmental conditions. For special applications, however, we recommend consulting the manufacturer.

In its regular use, during the work cycle, operators/attendants should not intervene, except for the external supervision with regards to the proper functioning of the partly completed machinery.

The use of the partly completed machinery for non-compliant purposes or different from the ones included in this manual may result in unpredictable damage to the machinery and risks for the operators involved in its use.

3.2 PERSONAL PROTECTION EQUIPMENT

The personal protection equipment to be made available to operators in charge of the partly completed machinery must comply with current laws in force; the adoption of the different devices shall be established in advance according to the operations the personnel are called to perform.

USE OF THE PARTLY COMPLETED MACHINERY

Personal protection equipment which the operator must wear during the use of the partly completed machinery consists of:

- overalls;
- accident prevention footwear;
- disposable hair net or cap;
- disposable beard cover (when necessary).

Together with above mentioned equipment, when necessary, the following items must be provided:

- gloves;
- hearing protection devices;
- protection goggles;
- respiratory protective equipment.

CLEANING OPERATIONS

The personal protection equipment which qualified operators must use during cleaning consists of:

- overalls;
- accident protection footwear;
- disposable hair net or cap;
- disposable beard cover (when necessary);
- gloves;
- protection goggles.

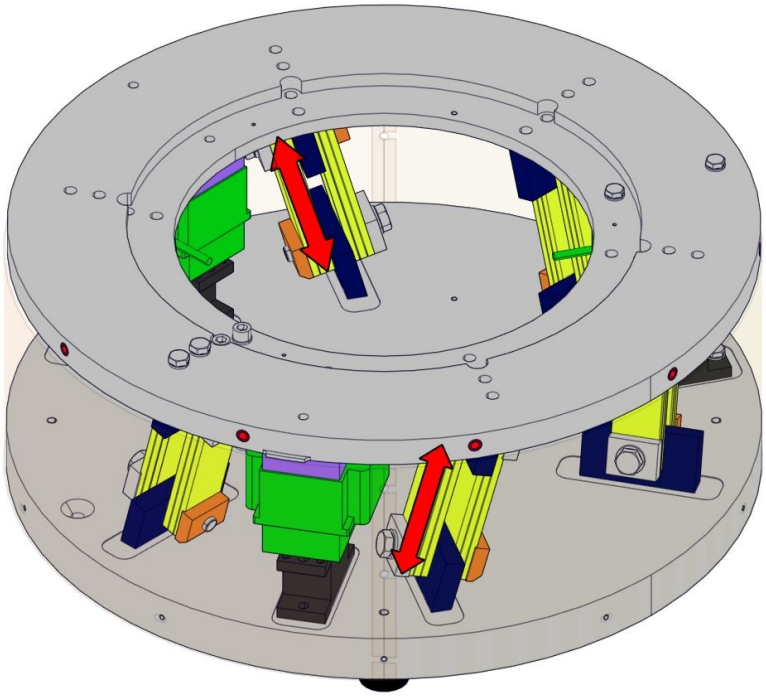
MAINTENANCE OPERATIONS

The personal protection equipment which qualified operators must use in case of maintenance operations consists of:

- overalls;
- accident prevention footwear;
- disposable hair net or cap;
- disposable beard cover (when necessary);
- gloves;
- protection helmet.

3.3 WORKING PRINCIPLE

Drive units are equipped with several electromagnets, which, once excited by the current, create a magnetic field with a force of attraction acting on the contrast counter core coupled to them. The electromagnets are integral to a static mass, while the counter core is integral to an upper mobile plate; such attraction force allows bending of the leaf springs connecting the static mass to the upper plate.
The leaf springs return to the initial position after every impulse; such succession of cycles creates a vibratory movement of the upper mass, capable of conveying the parts along the tracks of the bowl which is an integral part of the mass.
The drive unit has already been tested at the factory before delivery; we recommend, anyhow to check the working status before using it.



Partly completed machinery operation reference image

3.4 PUSH BUTTONS PANELS

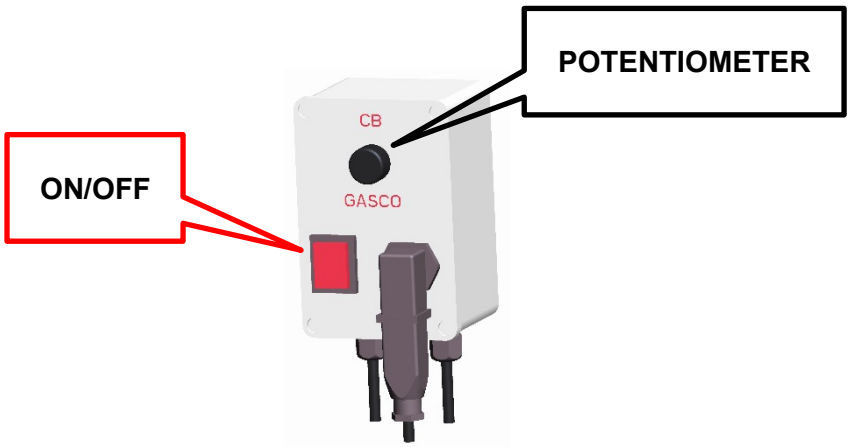
With reference to the unit controls, please refer to relevant manual.

4 OPTIONAL ITEMS

4.1 CONTROLLERS

BV drive units object of this manual are designed as to be equipped with electronic controllers supplied by Gasco Group Srl.

The CB series controller is the standard one used to control the drive units; below is a reference image of an electronic controller series CB4 / CB6.



Series CB controller reference image

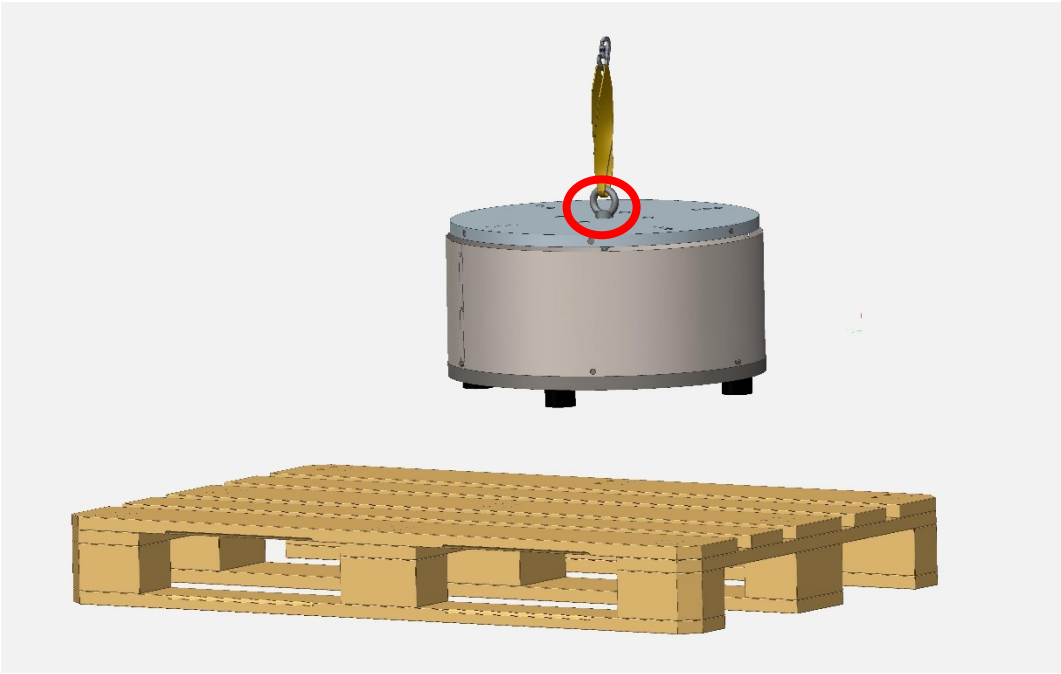
In alternative, other controllers can be available, both at fixed and variable frequency.

5 TRANSPORT AND COMMISSIONING

5.1 TRANSPORT AND HANDLING

Handling activities connected to the transportation of the partly completed machinery must be conducted in compliance to below mentioned indications, using suitable personal protection equipment.

While preparing the partly completed machinery for transport, all necessary equipment and tools must be available (hooks, straps, chains, eyebolts, etc.), suitably dimensioned to the weight of the components to be fixed and handle, making sure that the equipment used is approved and in good working order.
The hoisting and subsequent handling of the drive units must be carried out by means of the eyebolt supplied, once duly fastened to the unit central screw (according to the different models of drive unit, the eyebolt fastening slot can be located in the upper or lower mass); the eyebolt must bear a load higher than the weight to be lifted, taking into consideration the safety coefficient of the eyebolt. The unit must be positioned and fixed by means of relevant supports (elastic supports) on a suitable structure.



Reference image

The hoisting of the single elements must be performed solely by means of devices suitable for the weight to be lifted, load size and characteristics of the partly completed machinery (centre of gravity, protrusions, fragile parts to be protected, etc....).

Loading/unloading examples

It is important, while carrying out such operations, to pay attention not to damage the partly completed machinery in any of its components and not to jeopardise the settings entered during construction and testing.
In case of impact, it is essential to check the presence of possible distortions and, when necessary, require the intervention of an authorised technician in order to verify the suitability of the partly completed machinery before starting it.

During the handling operations nobody should be allowed in the manoeuvring area; the surrounding area is to be considered as hazardous and must be segregated to avoid accidental access. Hoisting equipment shall be operated solely by specifically trained personnel. The person in charge of handling must verify the stability of the load before hoisting and handling. Walking and standing under suspended loads is forbidden.

The local personnel should be aware of all accident prevention rules.

5.2 STORAGE

Whenever the partly completed machinery needs to be stored, it is important to protect it from external agents such as rain or wind, possibly in a dry and suitable area; all necessary maintenance operations should also be carried out to guarantee subsequent operation.

5.3 ASSEMBLY INSTRUCTIONS OF THE PARTLY COMPLETED MACHINERY

All assembly and incorporation operations concerning the partly completed machinery shall be carried out directly by the manufacturer or by qualified technicians who must have read this manual.

Assembly and incorporation of the partly completed machinery must be planned, in terms of methods and timeframe, upon assessment of logistics, availability of equipment and resources.

All the technical characteristics of the partly completed machinery necessary for its regular assembly and incorporation are included in this chapter.

5.3.1 INCORPORATION

Incorporation of the partly completed machinery must be carried out solely by specifically trained personnel and according to the following procedure:

- Position the partly completed machinery within the established installation area;
- Proceed with connecting and fixing the partly completed machinery to other machinery/partly completed machinery;
- Connect to the mains and proceed to the commissioning phase as indicated in the chapter “COMMISSIONING”;
- Assess possible incorporation risks (machinery/partly completed machinery group);
- Perform CE certification of the machinery/partly completed machinery group before use.

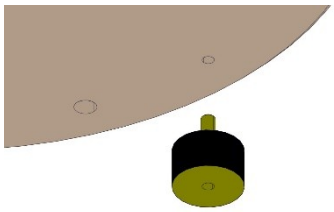
With regards to the hoisting and transport operations performed in this phase, please refer to the paragraph “TRANSPORT AND HANDLING”.
Before any assembly and installation operation, see relevant specific diagrams and technical drawings supplied by the manufacturer.

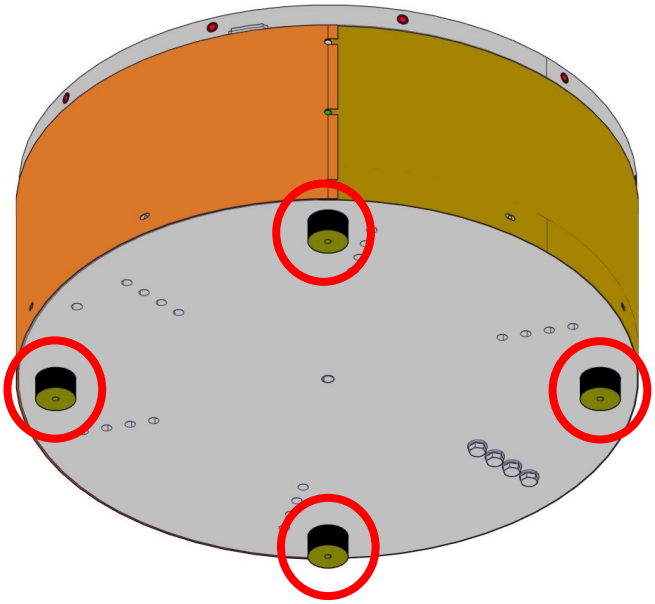
Follows information necessary to perform the correct incorporation of the partly completed machinery to other machinery/partly completed machinery.

The manufacturer declines any responsibility with regards to damage due to improper incorporation performed without following the instructions included in this manual.

LOWER SECURING BY MEANS OF ELASTIC SUPPORTS

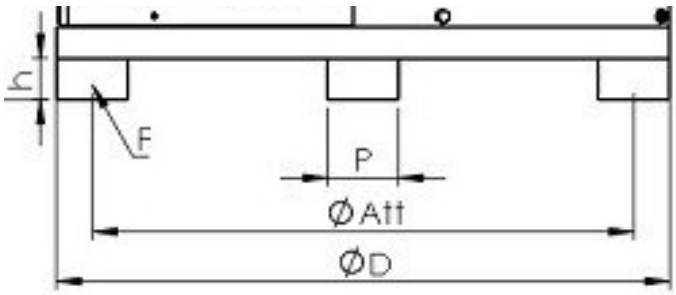
The partly completed machinery must be positioned and secured by means of relevant elastic anti-vibration supports on a suitable surface; for this operation, only the anti-vibration supports supplied with the partly completed machinery can be used, the position of these is shown in the following image.





N° 4 anti-vibration elastic supports

The following table shows the characteristic details of the anti-vibration supports:

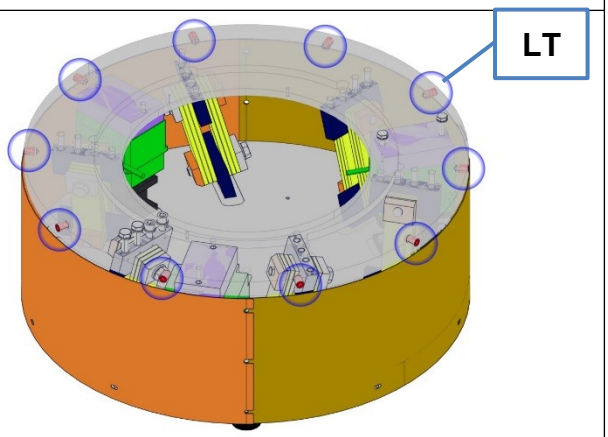


MODEL	Anti-vibration	D	Att	F	P	h
BV75-1	4x90°	770	670	M10	50	30

UPPER SECURING OF DRIVEN DEVICE

The partly completed machinery object of this manual is designed for the fitting of a device (for example a bowl) in its upper part; in order to carry out said securing there are several Ensat self-tapping bushes; use exclusively the provided fastenings.
Follows position of the bushes and relevant characteristics.

BV75-1



MODEL	LT	Nm *
BV75-1	M10	15 - 18

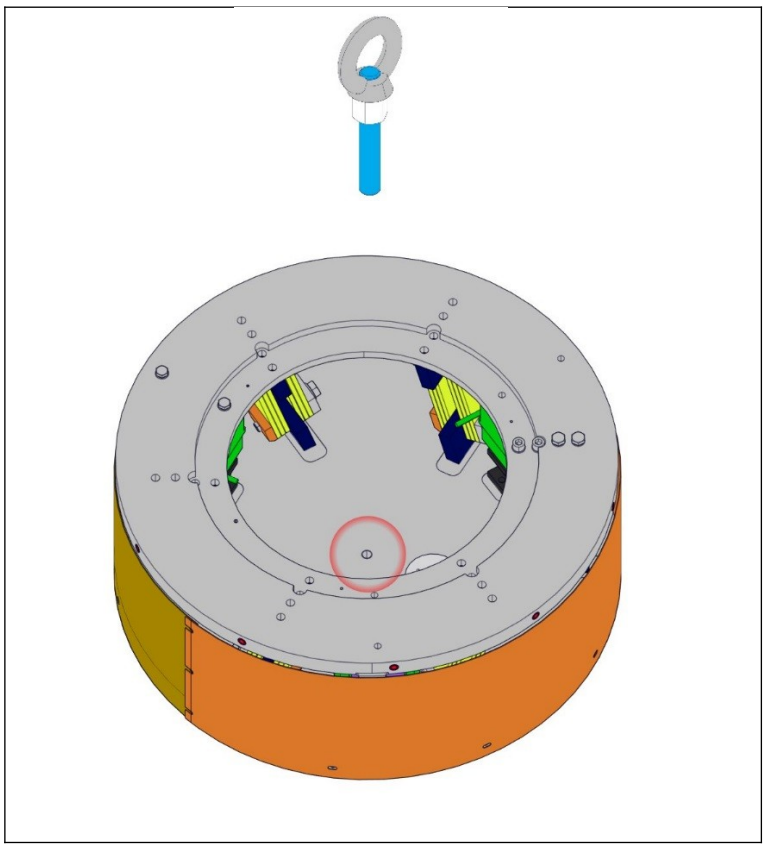
***Nm** = tightening torque of the nut securing the device to the base.

For **BV75-1** model drive units the fastening of the device must take place by means of the 10 lateral threads (LT).

Tighten the lateral securing nuts of the device by means of suitable torque wrench, according to the tightening torque values indicated in the table.

UPPER SECURING OF THE EYEBOLT PIN

The drive units object of this manual are equipped, in their lower part, with a central thread for the fastening of a pin and subsequent securing of a cap or of an eyebolt for hoisting.



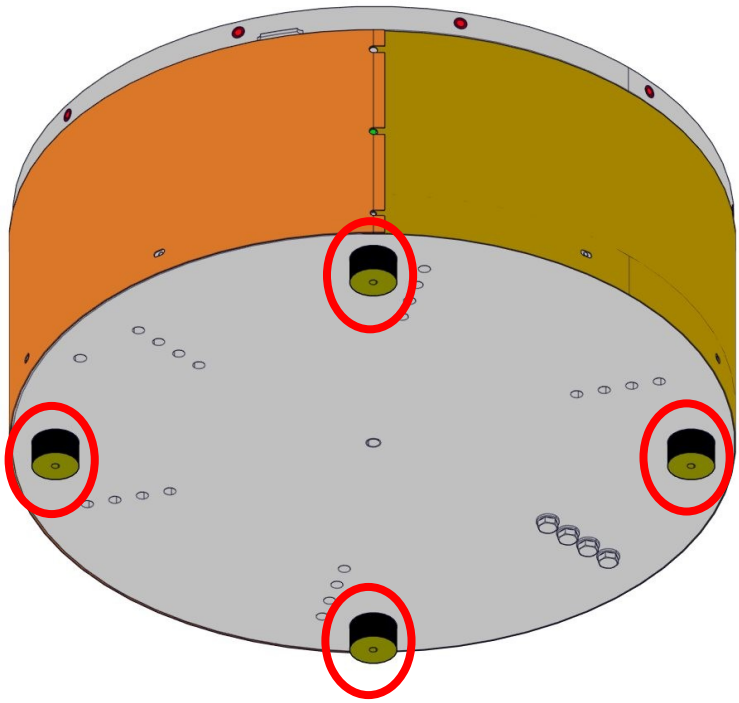
Use suitable torque wrench, applying a minimum tightening torque of 20 Nm.

5.3.2 INSTALLATION

For the regular operation of the partly completed machinery the latter must be positioned on a flat surface, of suitable size, taking into consideration the total weight of the partly completed machinery, complete of all related components and necessary accessories.

When present, make sure the supporting structure is equipped with all protections necessary to guarantee the safety of those who need to access the partly completed machinery according to what provided for by current accident prevention regulations.

The drive unit must be positioned and secured by means of specific elastic supports on a suitable structure (please refer to the paragraph “INCORPORATION”); similarly, the vibrating system must be secured to a rigid structure, to avoid the dispersion of vibrations.



5.3.3 COMMISSIONING

These instructions refer to preliminary activities to commissioning and must be performed by qualified personnel.

Before commissioning, carry out a general check of the main components:

a) Perform a thorough check of all connections, fastenings, and tightening of bolts that may have loosened during transport or installation;

b) Check that the mains voltage corresponds to the input voltage of the transformer inside the switchboard and that the screws of the electric contacts are not loose;

c) Check that the vibrating system is correctly secured to a firm support structure;

d) Check all safety systems, protections and warning signs that may be present;

e) Check the correct operation of all external energy sources;

f) Verify that the partly completed machinery has not been damaged during the assembly phase;

g) Make sure that all moving parts can move freely;

h) Assess the integrity of electrical cables, control panels and switchboards (where supplied).

Before commissioning, the partly completed machinery should be subject to an initial starting procedure; this is necessary also after a lengthy period of inactivity.
Before the commissioning of the partly completed machinery verify the presence of possible obstacles with regards to moving parts; at the first start of the partly completed machinery all the moving parts should be checked, making sure it completes a whole cycle.

During commissioning the following procedures must be followed:

- Protective devices should not be removed or made ineffective; namely safety switches mustn't be tampered with.
  While performing maintenance operations on the partly completed machinery, it may be necessary to temporarily disconnect safety devices: this operation can only be performed by authorised and duly trained personnel.

- Do not keep hands next to the rotating parts of the partly completed machinery.
  Do not wear clothing which might get tangled in the moving parts (scarves, rings, bracelets, watches etc).
  People with long hair should use clips or caps to enclose it.

- It is forbidden to perform operations on live parts.

5.3.4 CONNECTIONS

ELECTRICAL CONNECTIONS

WARNING!
The activities described in this paragraph must be performed solely by qualified operators, namely:

- **Trained technician** having completed training and specialising courses, experienced with regards to the installation, commissioning and maintenance of the installations, and aware of accident prevention rules.

The partly completed machinery object of this manual is supplied with relevant electric power cable; the connection must be carried out with phase, neutral and ground connection.

WARNING!
Make sure that the characteristics of the power supply the base is going to be connected to are in accordance with those indicated in the label (voltage and frequency).

PNEUMATIC CONNECTIONS

The partly completed machinery "DRIVE UNIT BV" does not require pneumatic connections.

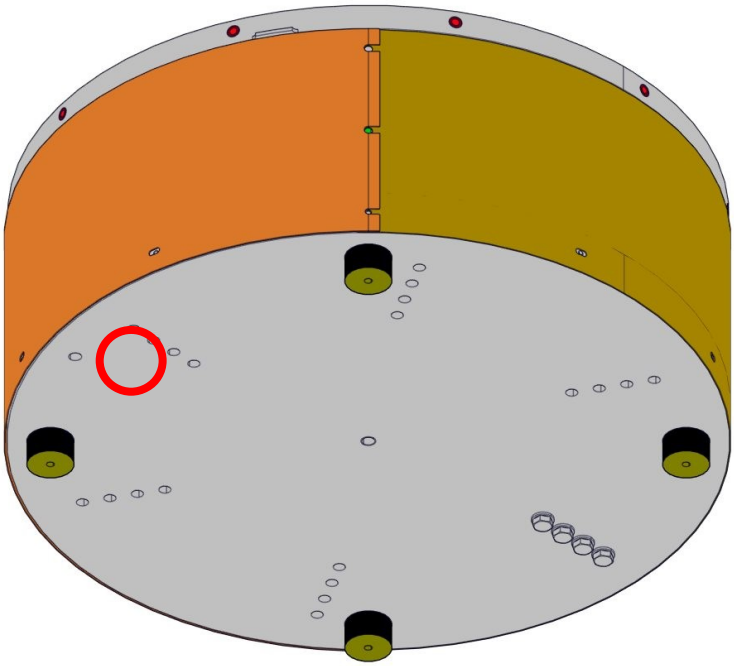
HYDRAULIC CONNECTIONS

The partly completed machinery "DRIVE UNIT BV" does not require hydraulic connections.

CONNECTION MAP

The partly completed machinery is equipped with electrical connection.

For further details, please refer to specific documents.



FILLIN ""

Connection map

POS. 1	Electrical connection	○

5.4 REINSTALLATION

In order to dismantle the partly completed machinery, in case of sale, re-installation or storage at the client's premises, please comply with following general dismantling procedure:

a) Position the moving parts of the partly completed machinery in the most suitable position for transportation purposes;

b) According to the different joint points, enumerate all the parts to be separated, to facilitate future mounting operations;

c) Remove electrical and pneumatic power supply (when present);

d) Disconnect all electrical cables according to the following procedure:
   1. Remove the cables from the switchboard;
   2. Remove them from the conduits up to the group they are connected to;

e) Possibly dismantle the partly completed machinery by separating the parts indicated;

f) Proceed to fix, by means of mechanical blocks or other devices, all the parts subject to movement during transportation.

For the new positioning and connection, please refer to the relevant paragraphs included in this manual. In case of long storage, make sure the partly completed machinery is sheltered from rain and wind, possibly in a dry area.

Make sure to provide suitable protection to electrical parts, such as switchboards, control panels and all those parts which can be affected by humidity and temperature fluctuations.

5.5 DEMOLITION AND DISPOSAL

At the end of its life cycle, users must deal with the disposal of the partly completed machinery in compliance with what provided for by the regulations in force, starting from the removal of lubricants and general cleaning of the different parts, proceeding then to separate the parts the partly completed machinery consists of.
After having dismantled the partly completed machinery as per above mentioned procedure, the different materials need to be separated according to what provided for by the current laws in force.

With regards to removal, it must be pointed out that the materials the partly completed machinery is made of are not hazardous ones and essentially consist of:

1. Painted, plastic coated or galvanised ferritic steel;
2. Plastic material in polyethylene, filled or not, or adiprene;
3. Elastomers;
4. Electrical cables with relevant sheathing;
5. Control and actuation electronic devices;
6. Supporting feet and derivative rubber materials.

WARNING!

While dealing with the disposal it's necessary to comply with the current national regulation in force. Please store polluting materials such as lubricants and solvents in metallic containers only.

With reference to the disposal of consumables, please comply with following general rules:

- the PLC battery must be replaced by electrical maintenance personnel;
- exhausted batteries must not be disposed of with common waste, but they should be delivered to suitable disposable facilities;
- exhaust lubricants, oily residuals and oil-soaked objects must be disposed of in relevant collection points, avoiding discharge in municipal draining facilities.

6 SAFETY

Each Gasco group S.r.l. partly completed machinery is produced in compliance with the relevant regulations in force on the subject.
The partly completed machinery is equipped with safety devices for the prevention of dangers to people operating on it or in the surrounding areas.
Failing to follow what included in this manual, an improper installation or poor periodic maintenance, can result in problems to the partly completed machinery and unpredictable risks for the operators.

The warnings included are aimed at providing useful information about the partly completed machinery in general, to avoid hazards for the people and properties.

Incident free operations mainly depend on the personnel involved in the use, maintenance and repair of the partly completed machinery, who must operate in a diligent way and in full compliance with safety regulations, strictly applying what indicated in these technical documents.

This symbol indicates that dismantling protection cases is forbidden.

When encountering this signal, the operator must keep protection cases mounted at all times.

Make sure that the safety prescriptions are known and complied with by all the personnel involved in the use, cleaning and maintenance of the partly completed machinery.

Furthermore, make sure that all safety rules are followed.

It is the responsibility of the employer to inform the personnel about the following subjects referring to safety issues with regards to the use of the partly completed machinery:

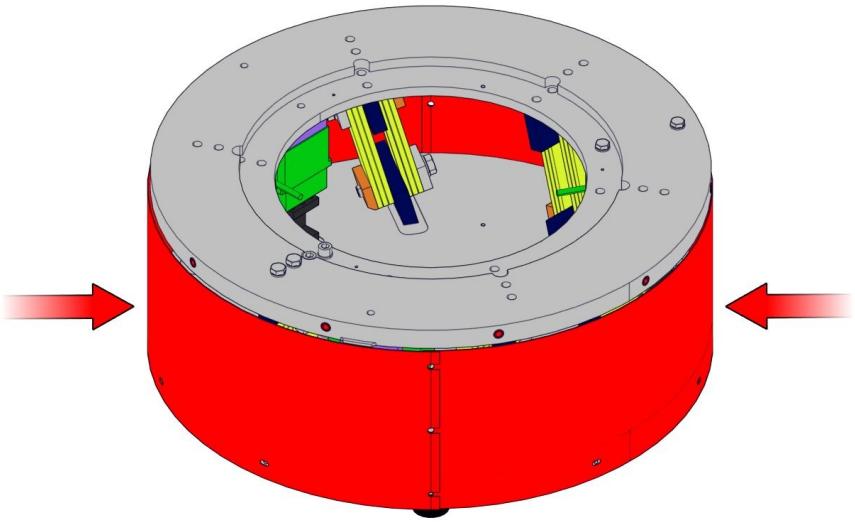
- **injury risks;**
- **current residual unremovable risks;**
- **devices aimed at the safety of operators;**
- **general accident prevention rules established by directives.**

6.1 MOBILE GUARDS

The partly completed machinery DRIVE UNIT, in the standard supply, does not require installation of mobile guards.

6.2 FIXED GUARDS

The partly completed machinery DRIVE UNIT, in the standard supply, requires installation of fixed guards, namely side protection cases.
The following image shows above mentioned protection cases highlighted in red.



Position of fixed protections

These guards are connected to the partly completed machinery and can be removed solely by means of suitable spanners, solely available to authorised personnel.

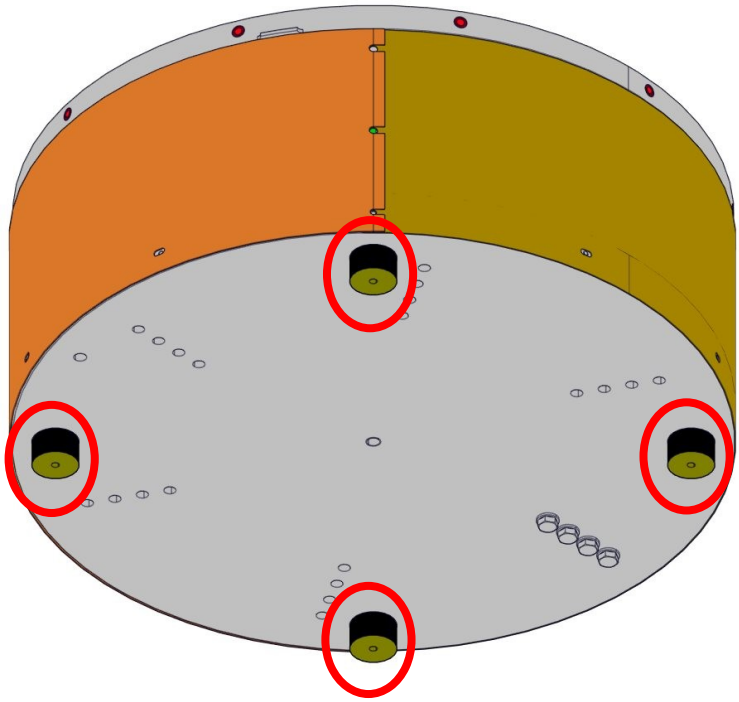
All guards must be mounted before starting the partly completed machinery and can solely be removed when the partly completed machinery is not working, by maintenance personnel.

It is responsibility of the customer, by means of the personnel in charge of operation and maintenance of the partly completed machinery, to make sure that these are properly maintained.
The producer shall not be responsible with regards to possible damage or injuries resulting from lack of use or not pristine status of safety guards.

DO NOT USE THE PARTLY COMPLETED MACHINERY WITHOUT FIXED AND MOUNTED GUARDS.

6.3 ADDITIONAL SAFETY DEVICES

The partly completed machinery DRIVE UNIT, in the standard supply, requires the installation of anti-vibration devices (elastic supports) specifically designed to reduce spreading of vibrations.



6.4 WARNING DEVICES

The partly completed machinery DRIVE UNIT, in its standard supply, does not require the installation of other warning devices.

6.5 LIGHTING

The partly completed machinery is supplied without any lighting system, therefore it should be used in areas and premises with a suitable lighting level; when the incorporation of the equipment within the machinery/partly completed machinery group is implemented, it is the responsibility of the incorporator to perform an assessment and evaluate the possible need for further artificial lighting systems.

6.6 SAFETY OF ELECTRICAL SYSTEMS

For a safe operation of the partly completed machinery, it is paramount that the electrical system is designed, implemented and installed according to the current regulations in force.

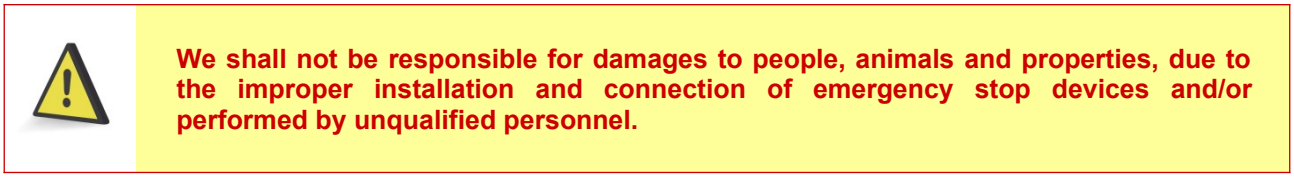
Check the correct connection of the power cord.

When the supply of the partly completed machinery does not include electrical switchboards, the customer must make sure that the partly completed machinery is connected to a switchboard designed and manufactured according to the current regulations in force; such electrical board must be equipped with general switches and protective devices on the door to avoid opening of the latter if energised.

We shall not be responsible for damages to people, animals, and properties, due to the connection of the partly completed machinery to switchboards not to standards, improperly designed and manufactured or by unqualified personnel.

6.7 EMERGENCY STOP DEVICES

The partly completed machinery, in the standard version, is supplied without emergency stop devices.
Installation and subsequent connection of necessary emergency stop devices must be performed by qualified technicians after the incorporation of the partly completed machinery.



We shall not be responsible for damages to people, animals and properties, due to the improper installation and connection of emergency stop devices and/or performed by unqualified personnel.

Emergency stop devices certified and to standard can only be used.

We shall not be responsible for damages to people, animals and properties, due to the installation of emergency stop devices not to standard.

Please refer to the documents provided with reference to the incorporation of the machinery/partly completed machinery.
The safety devices must be used in case of imminent danger or mechanical incidents.

7 RISKS

7.1 INTRODUCTION

The partly completed machinery has been designed and manufactured with characteristics and features aimed at guaranteeing the safety of the operator and remove or reduce risks as much as possible.
Necessary protection measures must be adopted with regards to risks which cannot be removed. Furthermore, it is compulsory to inform users of the partly completed machinery concerning residual risks due to the incomplete efficiency of above-mentioned protection measures.

The employer is responsible for the training of operators and maintenance personnel, also by means of relevant courses, in order to suitably instruct the personnel about general and residual risks.

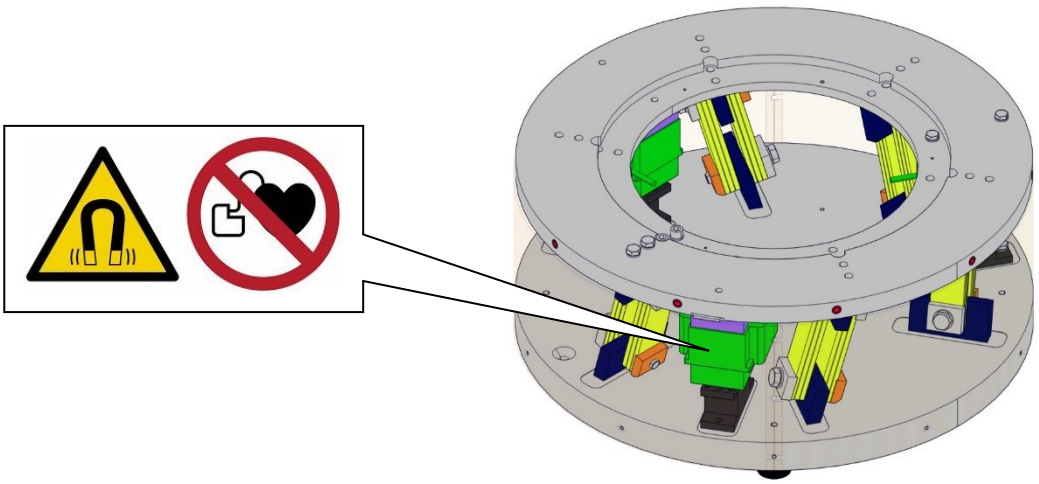
As most risks are incurred in when operators access the hazard zone to adjust, clean, maintain the partly completed machinery or perform other manual operations which might be necessary, such operations should be performed with the utmost attention.

7.2 RESIDUAL RISKS

The partly completed machinery has been designed and manufactured by the producer in order to operate, once incorporated in machinery/partly completed machinery systems or in a machinery, at the highest safety level.
All the energised and moving mechanical parts and components which might be source of hazard are equipped with protections aimed at making them not accessible and anyhow located where they cannot be reached in normal working conditions.
During the incorporation of the partly completed machinery with other machinery/partly machinery systems, it is necessary to perform a risk assessment of the whole system.
Despite all precautions adopted during the design and manufacturing phase of the partly completed machinery, some residual risks should be taken into consideration:

Vibration residual risk: the drive units object of this manual create vibrations while in operation; it is therefore necessary to implement suitable devices aimed at damping vibrations (anti-vibration systems) whenever the ones supplied are not sufficient, in order to prevent damage to other devices in the area surrounding the drive unit or to structures (resonance).

Magnetic field residual risk: the drive unit object of this manual is supplied with three electromagnets which create a magnetic field during operation.



It is important to follow below procedure:

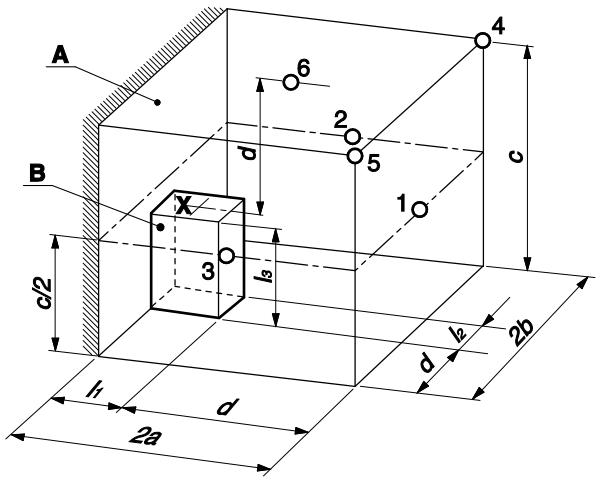
1. Operators must be aware that the magnetic field might interfere with pacemakers.
2. The operators who have been informed about the residual non removable risk must, in turn, inform other operators who might not be aware of the danger.
3. Warning and prohibition signs must be placed at a safe distance.
4. Do not approach the device with ferromagnetic components, as these could result in damage or crushing.
5. Do not approach the device with electronic devices, computers, measuring instruments, magnetic cards and mechanical precision components, as these may get damaged.

The partly completed machinery must be operated solely by suitably trained personnel, fully aware of what provided for by this manual and by general regulations concerning safety in the workplace.

7.3 INSTRUCTIONS CONCERNING NOISE REDUCTION

The partly completed machinery has been designed and manufactured in order to reduce noise emission to the minimum.
The measurements taken in operators workstations concerning a partly completed machinery belonging to the same series have resulted in the following values:

1 **A**-weighted peak emission level of sound pressure: LAp = 70 dB (A)



The measurement of the A-weighted equivalent sound pressure level has resulted as manufactured in compliance with the standard EN ISO 3744.

As provided for by this standard, the partly completed machinery is located concentrically with regards to the reference fictitious parallelepiped, with the direct longitudinal axis as the x axis and the front towards point 1 (see picture).

The instruments used for the measurements are the following:

- Digital multifunction Lafayette phonometer model DT-8820 class 1 in compliance with IEC 651 and IEC 804
- Sound level calibrator 4230 class 1 complying with the provisions of IEC 942 regulations

If the partly completed machinery is positioned in a reverberating environment, or in presence of other noise sources and the level of daily exposure is higher than 80 dB(A), there is a possible risk; therefore, in this case, it is the responsibility of the employer to implement suitable personal protection equipment for operators.

Drive units equipped with bowls customised according to the conditions of use (for example in case of particular products inserted in them), may generate weighted sound pressure levels higher than 80 dB (A).

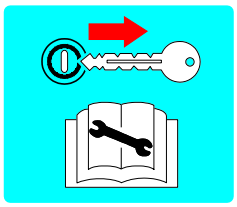
In some cases, even in presence of technical solutions aimed at the reduction of the acoustic level (required and agreed upon during the offer phase), the sound level might anyway be higher than 80 dB (A); in these cases, it is responsibility of the final customer to carry out relevant risk assessments in order to adopt suitable protection measures before operating the device.

7.4 INSTRUCTIONS AIMED AT THE REDUCTION OF VIBRATIONS

The partly completed machinery DRIVE UNITS object of this manual create vibrations while in operation.

It is the responsibility of the final customer to perform, according to what provided for by current regulations in force, relevant risk assessments at the final incorporation of the partly completed machineries, in order to make them safe before their operation.

8 DESCRIPTION OF ADJUSTMENT, MAINTENANCE AND CLEANING OPERATIONS

	**This is a mnemonic symbol, it indicates:** **The need of locking the general switch and remove the key before carrying out maintenance operations.**

	**This symbol indicates prohibition of lubricating moving parts.** **In presence of this signal, the operator must perform maintenance on the partly completed machinery when this has been stopped.**

8.1 ADJUSTMENT PROCEDURES

The partly completed machinery DRIVE UNIT does not require particular adjustment procedures.

ADJUSTMENT AND FORMAT CHANGE PROCEDURES				
ITEM	**CODE**	**INTERVENTION**	**OPERATOR**	**FREQUENCY**
1.	OR1			
2.	OR2			
3.	OR3			
4.	OR4			
5.	OR5			
6.	OR6			

The values included in the column OPERATOR refer to the table “OPERATORS CLASSIFICATION” of this manual.

8.2 MAINTENANCE PROCEDURES

Maintenance consists of a group of organised activities which must be performed on the parts of the partly completed machinery on a regular and systematic basis.

Routine maintenance consists in:
1) assessment of the working state of the different parts;
2) removal or fixing of anomalies, even those which, even if not resulting in immediate hazards or technical malfunctioning, might create problems in the future due to their persistence.

Extraordinary maintenance consists in the full replacement of parts of the partly completed machinery which reached their average working life, in order to prevent damage resulting in the stoppage of the partly completed machinery or production.

For all routine and extraordinary maintenance intervention, frequency measured in working hours, operator qualified to perform relevant intervention, average time needed and detailed description of the intervention have been listed.
Frequency and time needed for each intervention are for information only, the aim is to allow an easier maintenance planning. Only after a regular maintenance service and subsequent critical analysis, the real needs can be assessed on the basis of the main needs of the company.
It is essential to verify, by means of visual assessment, the general wear and tear of the partly completed machinery on a daily basis; this assessment should be performed in order to prevent possible damage or malfunctioning due to the use conditions relating to the environment, for example within steamy environments, or in particularly hot climates, etc.
The following table shows recommended routine maintenance operations with reference to the relevant description sheet.

For maintenance operations on the partly completed machinery it is important, when required, for precaution purposes, to intervene on the local switch disconnectors, by locking them in the position of power disconnection in order to stop, at all times, possible energising of the engines.

When lacking switch disconnectors, always use the general switch.

WARNING!

Before performing the operations indicated, make sure the DRIVE UNIT voltage is disconnected.

8.2.1 MECHANICAL INTERVENTION PROCEDURES

MECHANICAL MAINTENANCE				
ITEM	**CODE**	**INTERVENTION**	**OPERATOR**	**FREQUENCY**
1.	OM1	Assessment of screw tightening	M1	2 years
2.	OM2	Inspection of anti-vibration systems wear and tear	M1	2 years
3.	OM3	Calibration of air gap	M1	2 years
4.	OM4	Replacement of leaf spring	M1	Abnormal functioning
5.	OM5	Replacement of electromagnet	M1	Abnormal functioning
6.	OM6			

The values included in the column OPERATOR refer to the table “OPERATORS CLASSIFICATION” of this manual.

Maintenance operations on the partly completed machinery should be performed after having checked that all provisions concerning safety are followed; when necessary, wear relevant personal protection equipment.

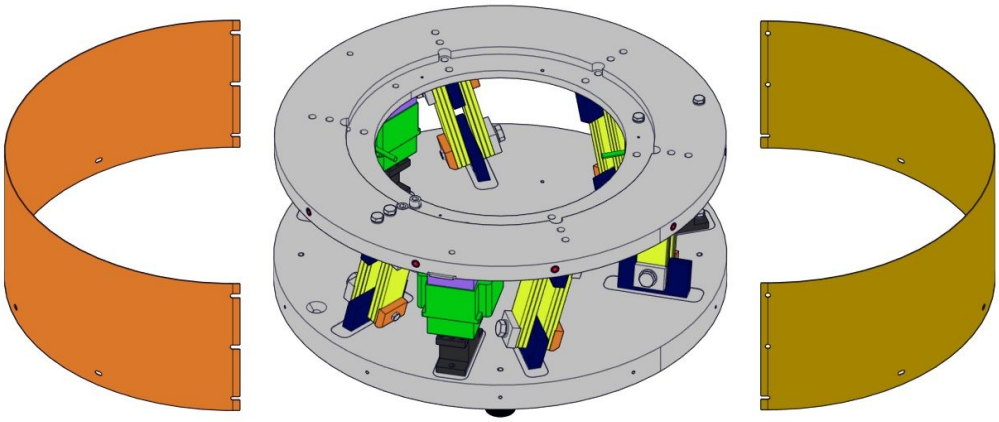
Please refer to the incorporation manual of the partly completed machinery to the machinery/partly completed machinery group

ASSESSMENT OF SCREW TIGHTENING	**OM1**
QUALIFIED OPERATOR	M1
FREQUENCY	2 years
NECESSARY TIME:	30 minutes

Carry out a thorough assessment of the correct tightening of all screws the partly completed machinery is equipped with. With reference to the tightening torque of the bolts fixing the bowl to the unit, please refer to the paragraph “INCORPORATION”.

Such assessment must, furthermore, be carried out for all screws located within the partly completed machinery:

- Remove protection cases;
- Verify correct tightening of the internal screws (blocks, leaf springs, etc; in particular, please refer to maintenance sheet OM4 with regards to tightening torque of leaf spring screws);

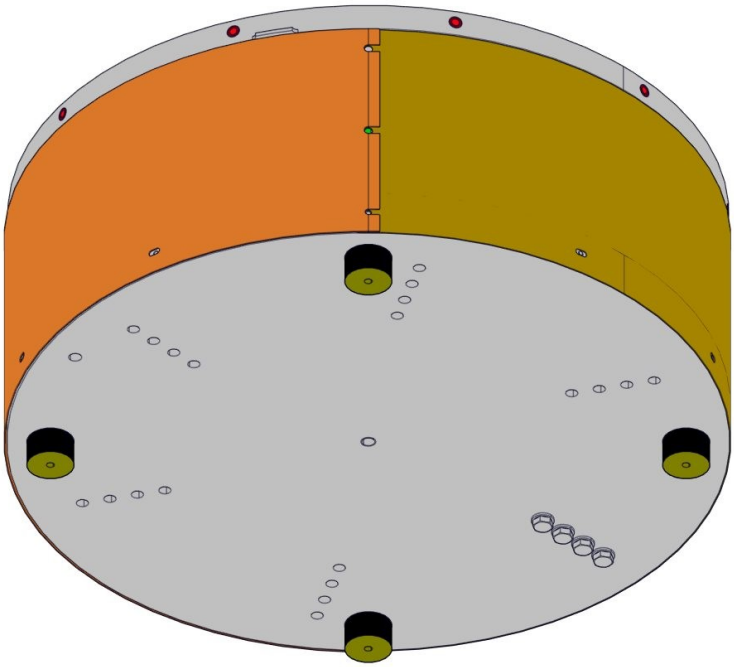


- Reposition the protection cases by fastening them with relevant screws.

All maintenance operations, both routine and extraordinary, must be performed when the partly completed machinery is switched off.

ASSESSMENT OF ANTI-VIBRATION SYSTEMS WEAR AND TEAR	**OM2**
QUALIFIED OPERATOR	M1
FREQUENCY	2 years
NECESSARY TIME:	15 minutes

Carry out a thorough assessment of possible wear and tear of the anti-vibration elastic supports together with their correct tightening.



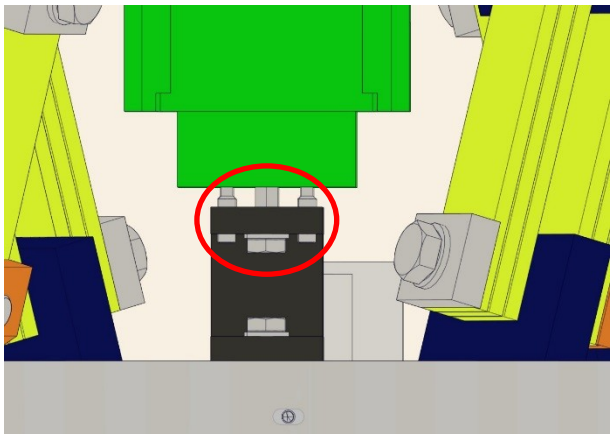
All maintenance operations, both routine and extraordinary, must be performed when the partly completed machinery is switched off.

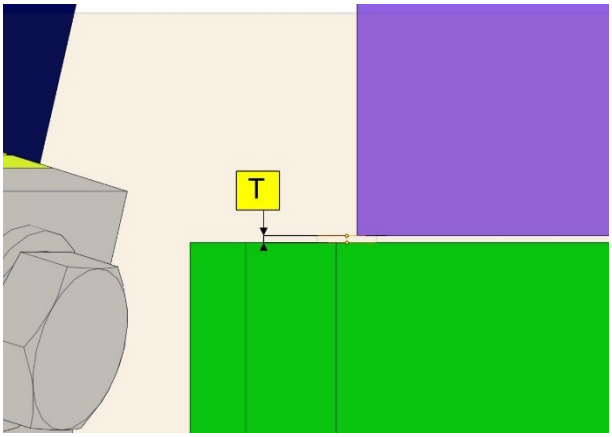
CALIBRATION OF AIR GAP	OM3
QUALIFIED OPERATOR	M1
FREQUENCY	2 years
NECESSARY TIME:	60 minutes

Make sure that the gap between the two parts of the electromagnet (air gap) is free from residuals and in compliance to what indicated in the paragraph “TECHNICAL FEATURES”.

In order to perform this assessment, the procedure below must be followed:

- Disconnect voltage to the drive unit;
- Remove the drive unit protection cases;
- Assess the air gap value (T) by means of n. 2 feeler gauges located between armature and coil, position defined by the screws and markings located on the brackets of the 3 coils joined to the unit lower disc;





- In case this distance does not comply with what indicated by the manufacturer, use the screws located between the supporting bracket and the electromagnet: loosen the central screw and adjust the air gap by means of relevant markings in order to set the air gap value within the range indicated in the paragraph “TECHNICAL FEATURES”;
- Tighten the central screw;
- Reposition the protection cases previously removed.

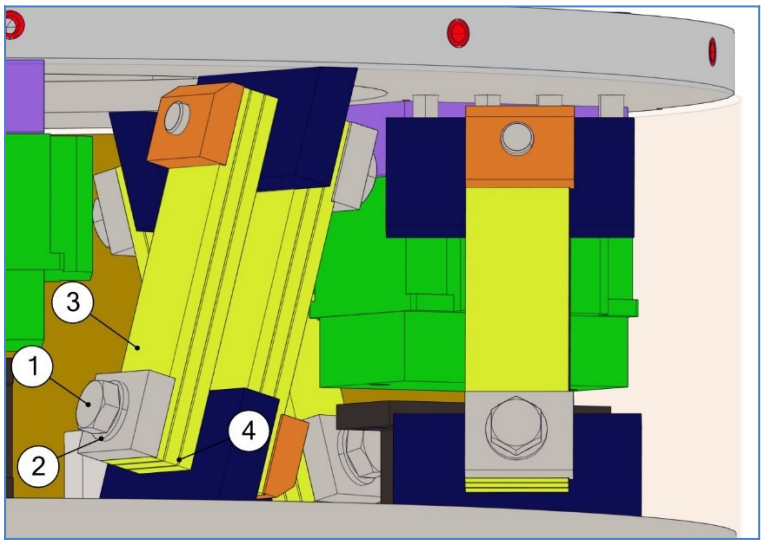
All maintenance operations, both routine and extraordinary, must be performed when the partly completed machinery is switched off.

REPLACEMENT OF LEAF SPRINGS	OM4
QUALIFIED OPERATOR	M1
FREQUENCY	In case of abnormal functioning
NECESSARY TIME:	60 minutes

For the replacement of leaf springs, please follow the procedure below:

- Disconnect voltage to the drive unit;
- Remove side protections;
- Unscrew and remove fixing nuts **(1)** and washers **(2)** of the leaf springs;
- Remove the leaf springs **(3)** and relevant shims **(4)**;
- Replace the damaged leaf springs with new ones, making sure to reposition the shims in the correct location; fasten the leaf springs by means of the previously removed nuts and washers, tightening them by means of a torque wrench, at the tightening torque indicated in the table below;
- Reposition the protection cases.

LEAF SPRINGS NUTS TIGHTENING TORQUE	
M12	*50 – 60 Nm*
M16	*90 – 100 Nm*

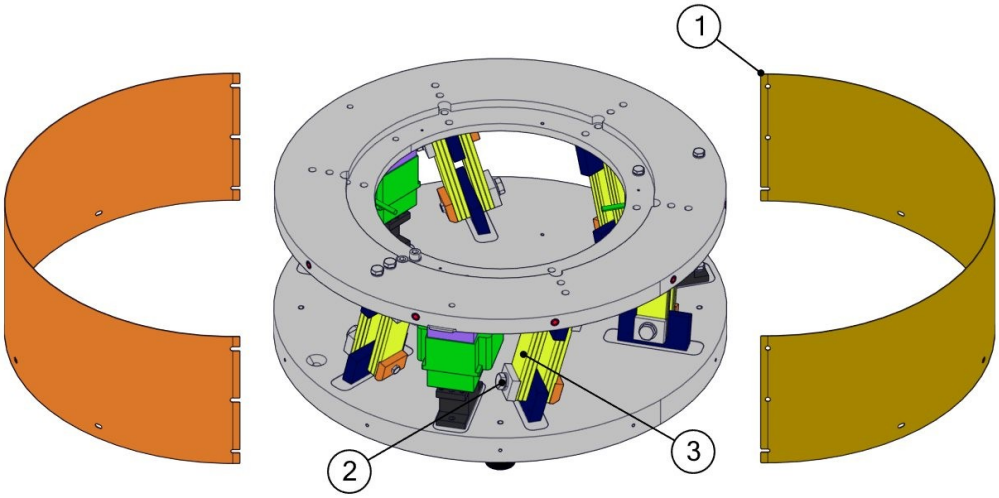


All maintenance operations, both routine and extraordinary, must be performed when the partly completed machinery is switched off.

REPLACEMENT OF ELECTROMAGNET	**OM5**
QUALIFIED OPERATOR	M1
FREQUENCY	In case of abnormal functioning
NECESSARY TIME:	90 minutes

Below is the procedure to be followed in order to replace the drive unit electromagnet; we recommend writing down the precise position of the components while they are being removed, as these need to be repositioned correctly in order to avoid malfunctioning of the drive unit.

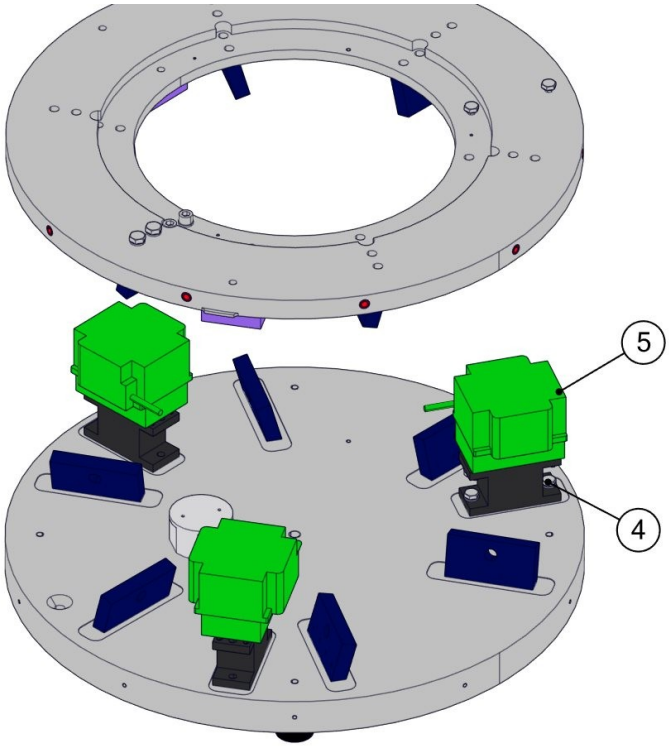
- Disconnect voltage to the drive unit;
- Remove protection cases **(1)**;
- Unscrew and remove the leaf springs fixing nuts and washers **(2)**;
- Remove all leaf springs **(3)** part of the drive unit;



Replacement of electromagnet – page 1/3

REPLACEMENT OF ELECTROMAGNET	OM5

- Disconnect the ground cable;
- Now the upper flange assembly of the drive unit can be removed;
- Unscrew and remove the screws **(4)** connecting the support bracket of the electromagnet;
- Remove the electromagnet **(5)** and replace, positioning the new component in the same position of the one removed;



- Fasten the electromagnet by means of the fixing screws previously removed;

Replacement of electromagnet – page 2/3

- Reposition the upper flange assembly of the drive unit in the correct position;

WARNING!

When repositioning the upper disc, make sure that the two discs are in a perfect parallel position and at the distance equal to 214 mm.

- Reposition the leaf springs previously removed and fasten them with relevant screws, by means of a torque wrench at the tightening torque indicated in the maintenance sheet OM4 “REPLACEMENT OF LEAF SPRINGS”;

WARNING!

Carry out air gap calibration (see relevant maintenance sheet).

- Reposition protection cases and fasten by means of relevant screws.

All maintenance operations, both routine and extraordinary, must be performed when the partly completed machinery is switched off.

Replacement of electromagnet – page 3/3

8.2.2 ELECTRICAL INTERVENTION PROCEDURES

ELECTRICAL MAINTENANCE				
ITEM	**CODE**	**INTERVENTION**	**OPERATOR**	**FREQUENCY**
1.	OE1	Checking electrical cables and connections.	M2	2 years
2.	OE2			
3.	OE3			
4.	OE4			
5.	OE5			
6.	OE6			

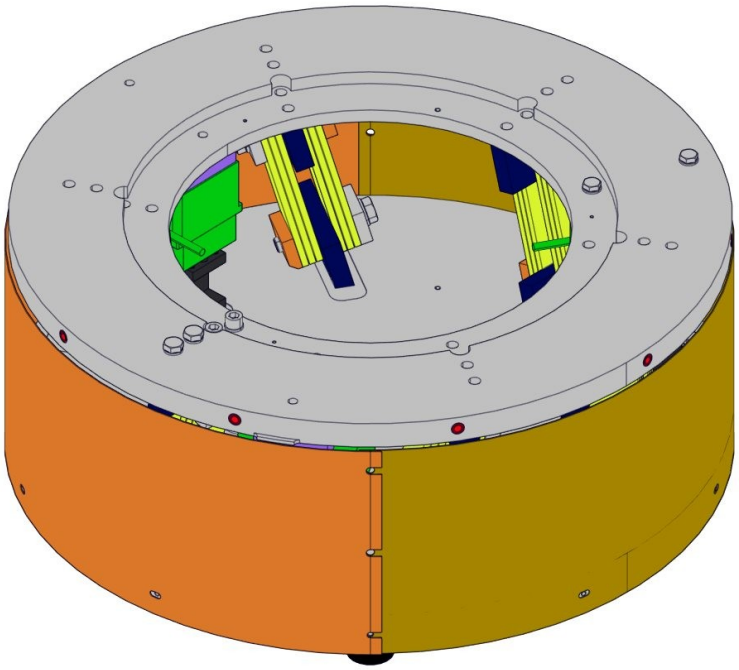
The values indicated in the column OPERATOR refer to the table **"**OPERATORS CLASSIFICATION**"** of this manual.

Maintenance operations on the partly completed machinery should be performed after having checked that all provisions concerning safety are followed; when necessary, wear relevant personal protection equipment.

Please refer to the incorporation manual of the partly completed machinery to the machinery/partly completed machinery group.

CHECKING ELECTRICAL CABLES AND CONNECTIONS	**OE1**
QUALIFIED OPERATOR	M2
FREQUENCY	2 years
NECESSARY TIME:	30 minutes

Verify the state of the electrical cables and relevant connections.



All maintenance operations, both routine and extraordinary, must be performed when the partly completed machinery is switched off.

8.2.3 FURTHER INTERVENTION PROCEDURES

The partly completed machinery object of this manual does not require further intervention procedures.

8.3 INDICATIONS CONCERNING CLEANING OF THE PARTLY COMPLETED MACHINERY

Before proceeding to the cleaning of the partly completed machinery, please carefully read the paragraphs **"RESIDUAL RISKS"** and **"PERSONAL PROTECTION EQUIPMENT"**.

Cleaning operations must be performed when the partly completed machinery is disconnected from power sources (isolated electrical and pneumatic supplies.)

8.3.1 CLEANING PROCEDURES

Cleaning procedures regarding the surface of the partly completed machinery follow what included in the chapter "INDICATIONS CONCERNING CLEANING OF THE PARTLY COMPLETED MACHINERY" of this manual.

CLEANING OPERATIONS				
ITEM	**CODE**	**INTERVENTION**	**OPERATOR**	**FREQUENCY**
1.	PU1	Drive unit cleaning	C2	2 years
2.	PU2			
3.	PU3			
4.	PU4			
5.	PU5			
6.	PU6			

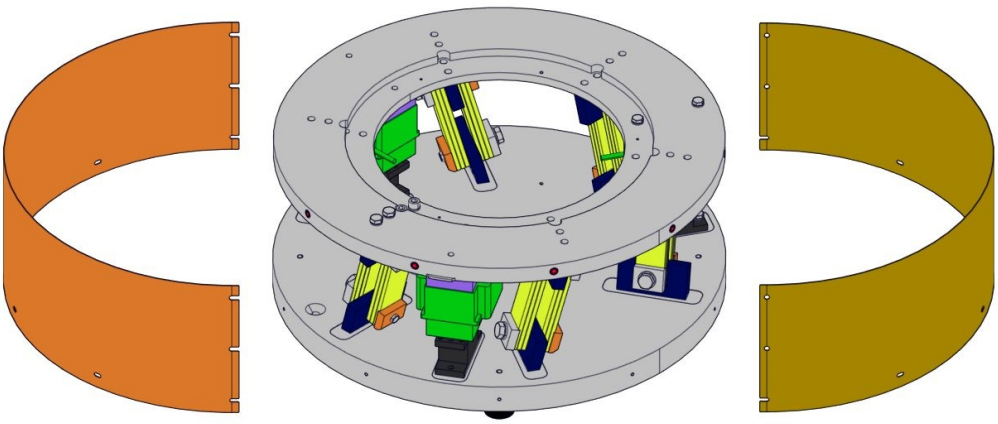
The values indicated in the column OPERATOR refer to the table **"**OPERATORS CLASSIFICATION**"** of this manual.

Cleaning of the drive unit	PU1
QUALIFIED OPERATOR	C2
FREQUENCY	2 years
NECESSARY TIME:	30 minutes

Clean the internal part of the drive unit by means of dry compressed air:

- Remove the protection cases and verify that there are no metallic residuals in the air gap which could alter vibration;
- Clean the internal part of the drive unit; do not use liquids, simply filtered and dry compressed air;
- Reposition the protection cases and fasten.

Assess frequency of the operation according to the work environment (presence of dust, etc).



Cleaning operations must take place when the partly completed machinery is switched off.

9 TROUBLESHOOTING

Following are some likely causes of faults (anomalies due to the partly completed machinery operation) and less likely ones (anomalies due to an improper use of the partly completed machinery or manufacturing faults).

Total lack of vibrations:

Cause:	**Solution:**
Fault in the electronic regulator circuit.	Contact our technical department.
Faulty electromagnet.	Replace the electromagnet.
Lack of current from the mains to the control unit or from this to the drive unit.	Check connections.
Faulty fuse located within the control unit.	Replace the faulty fuse with an identical one.

Insufficient vibration width:

Cause:	**Solution:**
Excessive leaf springs resistance.	Replace leaf springs.
Excessive weight of the parts within the bowl.	Reduce number of parts within the bowl.
Loosening of bowl fixing screws.	Tighten screws.
Loosening of leaf springs fixing screws.	Tighten leaf springs fixing screws.
Unit out of frequency.	Set drive unit frequency.
Unit protection case constrained by obstacle.	Remove obstacle.
Unstable unit support.	Make unit support stable.
Loosening of anti-vibration supports located under the unit.	Adjust anti-vibration supports.
One or more leaf springs broken.	Replace damaged leaf springs.
One or more leaf springs fixing screws broken.	Replace the damaged screws.

Noisy drive unit:

Cause:	**Solution:**
Air gap noncomplying with nominal value.	Clean opposing electromagnet surfaces and adjust the air gap value so that it reaches nominal value.
Loosening of unit internal screws.	Tighten all screws.

10 SPARE PARTS CATALOGUE

All enquiries concerning spare parts should be addressed to:

GASCO group s.r.l.

Offices and Factory: via Alla Costa 18
17047 VADO LIGURE (SV) – ITALY
Phone: +39 019 886188 (rollover) - Fax +39 019 886187 - gasco@gascogroup.it

Including:

1. Model of partly completed machinery;
2. Serial number;
3. Code of part that is being ordered;
4. Quantity required;
5. Shipping instructions.

WARNING!

The leaf springs supplied within the drive units might be of variable thickness in order to better establish mechanical frequency.

In case of replacement, therefore, please make sure to indicate the serial number shown on the labels of the partly completed machinery, in order to replace them with ones of the same thickness.

Following are all the replacement groups of the partly completed machinery, with charts including:

- Identification of reference group;
- Identification table of spare and non-spare components;
- Blow-up of reference group, with relevant identification of spare parts.

The following table shows the criteria adopted to define the spare parts priorities:

Risk level	
F	**High risk:** with the possible stoppage of machinery/partly completed machinery.
S	**Medium risk:** with possible slowing down of machinery/partly completed machinery operation.
N	**Low risk:** with low impact with regards to the machinery/partly completed machinery operation.
Risk frequency	
H	Less than **6 months** frequency.
L	With frequency equal to or higher than **1 year**.

Risk level	Risk frequency	CRITICALITY LEVEL
F	**H**	**A**
S	**H**	**A**
F	**L**	**A**
S	**L**	**B**
N	**H**	**B**
N	**L**	**C**

Do not use spare parts different from the original.

Not all spare parts may be available in the warehouse for prompt delivery, therefore, in order to reduce to a minimum the necessary stoppage time for possible replacements, we suggest keeping available at your warehouse some of the parts most subject to wear and tear.

10.1 POSITION OF SPARE PARTS

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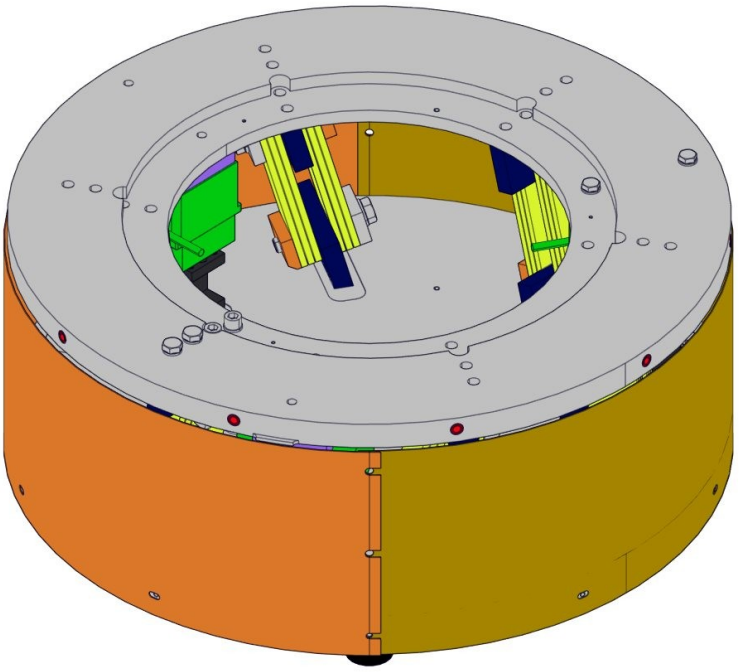
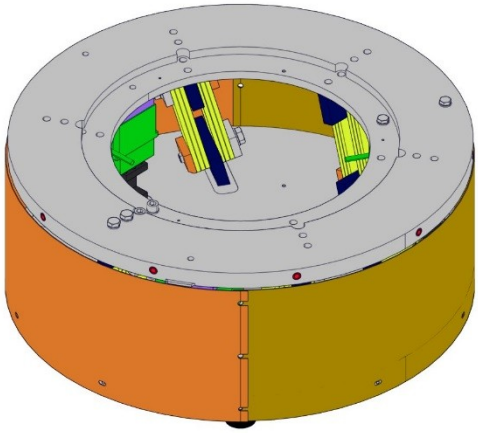
I.1.1 SPARE PARTS GROUP N. BV75-1

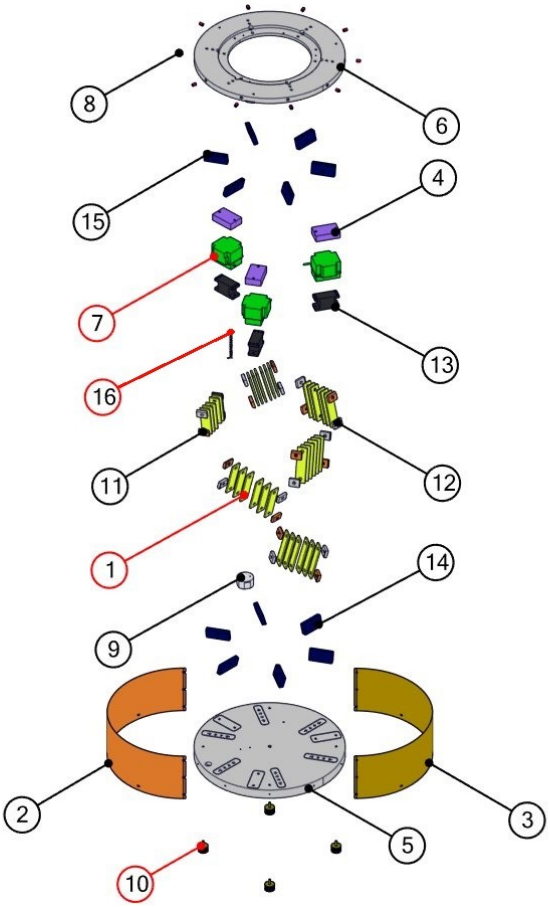
Description	*Table N.*
DRIVE UNIT	**BV75-1**



Description	*Table N.*
DRIVE UNIT	**BV75-1**

BOM ID	Q. ty	Code	Description	Priority
1	36	BLFB501887	Leaf spring	B
2	1	CARTER_ESTERNO^BV75-1R(2)_BV75-1R-1	External protection case	
3	1	CARTER_INTERNO^BV75-1R(2)_BV75-1R-1	Internal protection case	
4	3	CONTRASTO^BV75-1R(2)_BV75-1R	Contrast	
5	1	DISCO_INFERIORE^ASSIEME_FLANGIA_INFERIORE_ASM_BV75-1R(2)_BV75-1R-1	Lower disc	
6	1	DISCO_SUP^ASSIME_FLANGIA_SUP_ASM_BV75-1R(2)_BV75-1R-1	Upper disc	
7	3	ELETTRO_BR^BV75-1R(2)_BV75-1R	Electromagnet	B
8	10	ENSAT_M10^ASSIME_FLANGIA_SUP_ASM_BV75-1R(2)_BV75-1R	Ensat M10 Bushing	
9	1	GEWISS44002^BV75-1R(2)_BV75-1R-1	Gewiss Box	
10	4	PAVM10503040SH^ASSIEME_FLANGIA_INFERIORE_ASM_BV75-1R(2)_BV75-1R	Anti-vibration elastic support	B
11	12	PRESSAMOLLA_FISSAGGIO^ASSIEME_FLANGIA_INFERIORE_ASM_BV75-1R(2)_BV75-1R	Fastening spring compressor	
12	12	PRESSAMOLLA_TESTA^ASSIEME_FLANGIA_INFERIORE_ASM_BV75-1R(2)_BV75-1R	Spring compressor head	
13	3	STAFFA_REG^BV75-1R(2)_BV75-1R	Adjusting bracket	
14	6	TASSELLO_BALESTRA^ASSIEME_FLANGIA_INFERIORE_ASM_BV75-1R(2)_BV75-1R	Lower block	
15	6	TASSELLO_BALESTRA^ASSIME_FLANGIA_SUP_ASM_BV75-1R(2)_BV75-1R	Upper block	
16	1	CAVO_MASSA^BV75-1R(2)_BV75-1R-1	Ground cable	C
17	48	DISTANZIALE^BV75-1R(2)_BV75-1R-1	Spacer	





Description	*Table N:*
DRIVE UNIT	**BV75-1**

11 ATTACHMENTS

The documents included in the following table are supplied in attachment to this use and maintenance manual.

ATTACHMENTS			
File / Document	**Title**	**Type**	**Supplier**
DI.INC_BV	Drive Units – BV Series Declaration of Incorporation	Declaration of incorporation	Gasco group S.r.l.