



PNEUMATIC IMPACT PISTON VIBRATORS VPB FAMILY

Use and Maintenance Manual

Index

1	Introduction	3	10	Technical Assistance	14
1.1	Aim of the publication	3	11	Guarantee	14
1.2	Publication identification	3	11.1	Guarantee conditions.....	14
1.3	Liability	3			
1.4	Copyright.....	3			
1.5	Use of the manual	3			
1.6	Maintenance of the manual.....	3			
1.7	Updates	3			
1.8	Warning symbols	3			
1.9	Legal references.....	4			
2	Safe use	4			
2.1	Intended use	4			
2.2	Usage not permitted	4			
2.3	Potential dangers of general nature	4			
2.4	Vibrator symbols.....	4			
2.5	Risks relating to vibrations.....	5			
2.6	Risks relating to noise.....	5			
2.7	Operator qualifications.....	5			
2.8	Methods of personal protection	6			
2.9	Recommendations provided by the user	6			
3	General description of the vibrator.....	6			
3.1	Introduction	6			
3.2	Identification of models.....	6			
3.3	Identification of the equipment.....	7			
3.4	Fundamental components of the vibrator	7			
3.4.1	Vibrating body.....	7			
3.4.2	Cover	7			
3.4.3	Piston	7			
3.4.4	Locking screw	7			
3.4.4	ORing	7			
3.4.4	Washer.....	7			
4	Technical data	7			
4.1	Main sizes and weights	7			
4.2	Technical data	8			
4.3	Construction criteria.....	8			
4.4	Environmental criteria	8			
5	Transport, packaging and storage	8			
5.1	Transport.....	8			
5.2	Packaging	8			
5.3	Storage	8			
6	Installation	8			
6.1	Environmental conditions required for use	8			
6.2	Removal of protective materials.....	8			
6.3	Positioning the vibrator	8			
6.4	Securing the Vibrator	9			
6.5	Connection to energy sources.....	11			
6.6	Quality of the air supply	12			
7	Use	13			
7.1	Preliminary checks	13			
7.2	First ignition.....	13			
7.3	Functionality checks	13			
7.4	Checks after the first hour.....	13			
7.5	Function anomalies.....	13			
8	Ordinary maintenance	13			
8.1	Maintenance procedures	14			
8.1.1	Visual inspection	14			
8.1.2	Cleaning	14			
8.1.3	Periodic checks	14			
9	Disposal.....	14			

1 Introduction

1.1 Aim of the publication

This manual is aimed at those who use pneumatic impact piston vibrators belonging to the VPB family; it contains all the necessary information for the correct use of these vibrators. The proper functioning and lifespan of each vibrator relies on scrupulous and careful respect for the instructions and rules contained in the manual, as well as the safety and protection of the operator and materials processed. It is therefore advised that you carefully read and meticulously follow all the guidelines contained in this publication. All information is updated at the date of publication.

1.2 Publication identification

The "USE AND MAINTENANCE MANUAL" is an official document produced by VIBRONORD and constitutes an integral part of provision; it is distinguished by a Document Code, located at the foot of the page, which enables identification, traceability and successive references.

1.3 Liability

VIBRONORD has made every effort to ensure that the information contained in this manual is accurate and exhaustive, however no responsibility is assumed in the case of error or inaccuracy. VIBRONORD retains the right to modify, at any time and without warning, the specification of the hardware herein described. VIBRONORD reserves the right to modify this manual at any time and without the obligation of forewarning.

1.4 Copyright

The reproduction, transmission, transcription or recording in a search engine of this information, as a whole or in part, as well as translation into other languages, in whatever format, of this manual and connected documents, is completely forbidden without prior written authorisation from VIBRONORD.

1.5 Use of the manual

The manual is subdivided into 11 chapters, as specified in the index.

The manual should be read sequentially, from beginning to end, one page after another and the various warnings and notifications must be understood and remembered.

As it is assumed that the operator is qualified in the use of this type of equipment, all general information and instructions have been omitted as these should necessarily enter into his/her field of experience.

The manual should be considered an integral part of the vibrator and should therefore be included with it whenever it

is relocated, whether this be internally or externally to the company where it is used.

1.6 Maintenance of the manual

The manual should be cared for throughout the life of the vibrator. Keep the manual in a place protected from heat and humidity. Do not remove, tear or rewrite any part of this manual for any reason.

In case of operational situations not mentioned or different of those given in the manual, please contact the manufacturer for a possible update.

The manual must be kept with the greatest care; it is necessary to avoid its inadequate safe-keeping and even partial damage to its contents.

The operator is responsible for the immediate replacement of the manual in the event that it is damaged, lost, or becomes totally or partially illegible.

1.7 Updates

VIBRONORD reserves the right to update this manual at any time and without the obligation of forewarning.

1.8 Warning symbols

Within this manual the following symbols indicate to the user particularly relevant information and especially delicate or dangerous procedures.



NOTE

Indicates important information



WARNING

Indicates a situation in which poor attention or incorrectly followed procedures could cause damage (possibly irreparable) to the vibrator.



ATTENTION

This is used to indicate a situation which puts people in danger.

In addition to these general symbols, particular symbols are associated with some specific risks; these are from time to time explained throughout the text.

These particular symbols that signal risky areas and conduct are reported on the vibrator by means of adhesive plates.

Before approaching the vibrator and putting it to use, it is necessary to carefully note the symbols listed above, their messages and instructions and to understand their import.

The operator is responsible for the immediate replacement of the adhesive plates applied to the vibrator in the case of loss or damage or if they have become partially or totally illegible.

1.9 Legal references

The contents of this publication are provided in conformance with the following regulations:

EN ISO 12100

and with regards to European Directive

MD 2006/42/CE (Machinery Directive)

2 Safe use

2.1 Intended use

ATTENTION

The use of the vibrator and its accessories for any activity different from that allowed and specified in this manual is absolutely forbidden.

VPB pneumatic vibrators are typically used in conjunction with mechanical equipment for carrying material. VPB pneumatic vibrators can be installed in any position and their primary aim is to cause the vibration of the structure to which they are fastened, in order to facilitate the movement of the material carried.

The vibration is generated by the impact of the piston of the vibrator with the structure to be vibrated.

2.2 Usage not permitted

ATTENTION

All uses not explicitly indicated in the preceding paragraph should be considered not permitted, without the specific approval of VIBRONORD.

ATTENTION

The pneumatic vibrators described in this manual cannot be installed and used in potentially explosive areas (ATEX).

2.3 Potential dangers of general nature

ATTENTION

The majority of accidents at work result from a failure to observe the most basic safety regulations. It is necessary that whoever operates the vibrator is perfectly aware of and respects the regulations written in this publication and on the warning plates.

Adherence to the general regulations indicated below is strictly necessary.

ATTENTION

Before using the vibrator, carefully read this manual and check that the installation has been carried out correctly, according to the instructions given in the following pages. Also carefully note the adhesives affixed to the vibrator.

ATTENTION

Any action performed on the vibrator must occur with the complete absence of pressure. Failure to follow this instruction can put the safety of the installer in danger.

ATTENTION

The inhibition or dismantling of the covers mounted on the vibrator is absolutely forbidden for any reason.

ATTENTION

Before proceeding to use the vibrator ensure that no components are visibly damaged.

ATTENTION

Do not carry out any work or modifications of any kind on the vibrator. Do not modify in any way and for any reason components of the vibrator, with the aim to adapt other devices on it. In the event of malfunction/accident resulting from a failure to follow the instructions above, VIBRONORD will not respond to the consequences induced.

Please contact VIBRONORD beforehand in the event that changes to be made to the vibrator are required.

ATTENTION

Check that the structure to be vibrated is elastically isolated and that there are no pieces or materials left free which could, as a result of the vibration, fall and cause damage to the operator or others.

ATTENTION

In the course of cleaning the vibrator or its components never use solvents of any kind or acidic substances which could corrode the metal surfaces.

2.4 Vibrator symbols

All warnings and given principles for the safe use of the product are present on the body of the vibrator by means of adhesive plates or direct engraving onto the body of the vibrator.

ATTENTION

On the edge of the vibrator a warning plate is positioned (see Figure 2.4.a) indicating the potential dangers which are explained in Table 2.4.a.



Figure 2.4.a

	Request that the manual is read request for the careful reading of the instructions supplied alongside the machine (Instruction Leaflet) and the further instructions issued here (Usage and Maintenance Manual)
	Instruction to use PPE for hearing recalls the necessity to use a system of protection for hearing on the part of the operator.
	Recalls residual risks Recalls the possibility of residual risks and sees their treatment in the instructions supplied alongside the machine.
	CE Symbol recalls the compliance of the machine to applicable Community directives.

Table 2.4.a

ATTENTION

Figure 2.4.b shows the plate which indicates the principal functional range of the vibrator:

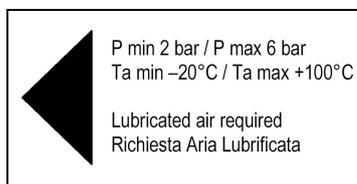


Figure 2.4.b

ATTENTION

It is absolutely essential to guarantee that the pressure value for the pneumatic supply line is between 2 and 6 bar. Failure to observe the above recommendation can cause malfunction during normal use and damage to the vibrator itself.

2.5 Risks relating to vibrations

The vibrator is secured to an elastically suspended structure, which receives the vibrations, from which the location of the operator must be completely independent. Otherwise the vibrations transmitted to the operator should be measured and the safety measures required by current legislation regarding the safety and health of the operator should be implemented.

2.6 Risks relating to noise

The dB(A) value indicated in the data sheets shows the value revealed in use, at the maximum supply pressure at a distance of 1 metre with the vibrator equipped with the appropriate silencer and secured to a test bench. For models in the VPB family this value is higher than 80 dB (A); with the aim of protecting workers during the use of the vibrator the use of adequate means of personal protection (hearing protection systems) is required (FIG. 2.6). However, once the vibrator has been secured in its final position, to the equipment to be vibrated, it is obligatory to measure the individual exposure times of the operator, because these could exceed the value of 80 dB(A) for individual daily exposure, even for models for which the noise measured on the bench was less than 80 dB(A).

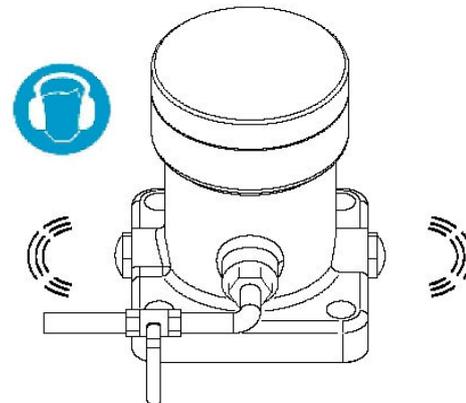


Figure 2.6

ATTENTION

With the aim of reducing the noise generated by the vibrator during use the application of adequate silencers at its outlet is advised.

2.7 Operator qualifications

The operations described in this manual, regarding the individual phases of the life cycle of the vibrator have been carefully and exhaustively analysed by VIBRONORD, including with regards to the attributes of the operator. The competence of the operators is a necessary and indispensable condition for the correct use of the equipment

with regards to all the safety requirements outlined in this manual.

The personnel who use the vibrators must be in possession of the qualifications required by current law with regards to the protection of workers. They must be provided with, and use, the necessary personal protection equipment required by current national legislation, with particular reference to: safety footwear, protective gloves and possible means for protecting the ears, eyes and head.

The following is an outline of the professional attributes which the individual operator assigned to work the vibrator and/or the potential machine to which the vibrator has been secured, must possess.

The assigned operator must:

- Be in possession of the qualifications required by current law with regards to the protection of workers.
 - Possess an in-depth knowledge of the machine to which the vibrator will be attached, of the structure of its main functional blocks and about its units of manoeuvre which allow the isolation of the machine from primary supply sources;
 - Be adequately trained so as to be able to carry out the implementation of all operational work necessary to the function and control of the specific equipment.
 - Be adequately trained in the correct evaluation of events which occur throughout the course of the work cycle;
 - Be adequately trained in the operation of the emergency stop procedure for the machine (also in relation to the potential consequences regarding the load);
- Possess an in-depth knowledge and ability to be able to carry out preventative and corrective maintenance work with the aim of preserving the efficiency of the machine.

 **ATTENTION**

This outline, strongly advised, must however be integrated with the professional attributes required by relevant current legislation in the country where the product is to be used.

2.8 Methods of personal protection

Due to the nature of the material to be treated the assigned operator must protect his/her body from direct or indirect discharge of possible materials or substances.

These substances could be harmful for contact and/or inhalation.

 **ATTENTION**

Always use adequate means of protection according to the circumstances, such as: masks, overalls, gloves, goggles, earmuffs, safety footwear, etc.

2.9 Recommendations provided by the user

The user must provide the installation area with appropriate lighting as approved by the laws in force with regards to health and safety in the workplace.

Clear and legible symbol signs must be displayed close to the work area and highly visible, forbidding access to the work area to all unauthorised and inadequately protected personnel.

Before entrusting the assignment, the user must provide the correct training for the assigned operators and be convinced that they have acquired the necessary knowledge and skills according to the outline of required professional attributes.

The user must guarantee appropriate tidiness and correct cleaning of the environment in which the vibrator and/or the machine with which the vibrator is used is necessary for the protection of the user and so as not to compromise the proper functioning of the equipment and the safety of the operator during normal use and maintenance operations.

The user must provide the installation area of the vibrator, and/or the machine with which the vibrator is used, with adequate fire-fighting stations. The operator must be able to access, in case of an emergency, the general device for intercepting the main supply.

3 General description of the vibrator

3.1 Introduction

Pneumatic vibrators in the VPB family are machines intended to create a vibration.

They consist of a body made of cast iron provided with adequate holes for securing the vibrator to the structure to vibrate, a closure cover and a piston. The piston is the element that generates the vibration directly impacting on the structure to vibrate. The frequency and force of impact depend on the supply pressure and the structure to vibrate.

These vibrations are used to shake up various pieces or materials; therefore in industry and construction to compact, filter, sift and transport materials.

3.2 Identification of models

The VPB family of vibrators is composed of 3 models identified by an alphanumeric code structured as follows (TAB.3.2):

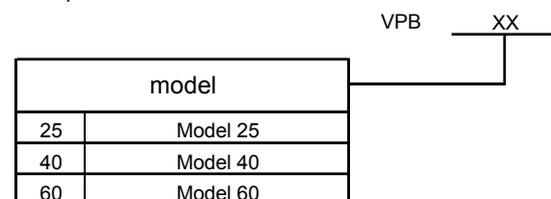


Table 3.2

The various models differ in their dimensions, number of vibrations, force generated and other technical characteristics (See Chapter 4).

3.3 Identification of the equipment

All vibrators in the VPB family are identified by the incision of the acronym VPB and their model number, located on the front part of the main body.



Otherwise appropriate nameplates are affixed to the body of the vibrator (See Para. 2.4)

3.4 Fundamental components of the vibrator

Vibrator models VPB are composed of the following principal components:

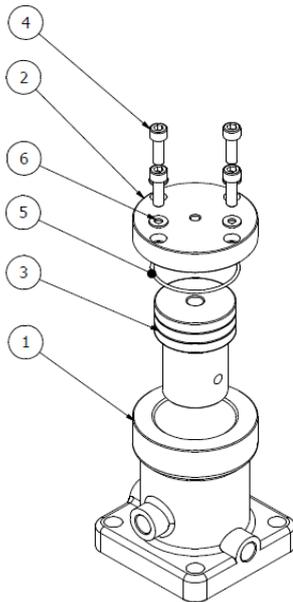


Figure 3.4.a

1	Vibrating body
2	Cover
3	Piston
4	Locking screw
5	ORing
6	Washer

Tab 3.4

3.4.1 Vibrating body

The vibrating body is made from cast iron and includes the holes for fastening.

3.4.2 Cover

The cover is made of steel.

3.4.3 Piston

The piston is made of steel and constitutes the impacting element of the vibrator

3.4.4 Locking screw

Constitutes the fastening and joining element of the cover; They are made of steel.

3.4.4 ORing

Ensures the pneumatic seal of the vibrator.

3.4.4 Washer

They are made of steel .

4 Technical data

4.1 Main sizes and weights

The main sizes and weights of vibrators in the VPB family are shown in the following table (TAB.4.1):

DIMENSIONS	A	B	C	D	E	F	G	H	I	L	Weight [kg]
	[mm]	[mm]	[mm]	[mm]	[mm]	IN	OUT	[mm]	[mm]	[mm]	
VPB 25	61	95	19	59	80	1/4"	1/4"	30	10	10,5	2,5
VPB 40	80	125	25	75	100	3/8"	3/8"	45	13	13	5
VPB 60	113	165	29	99	137 x 143	1/2"	2X1/2"	59	27	17	12

Table 4.1

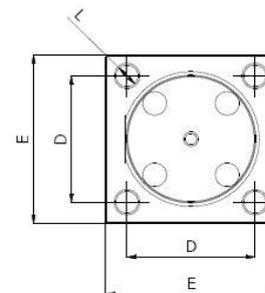
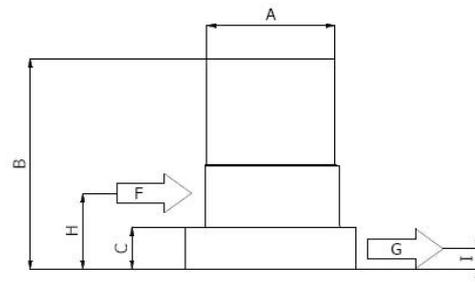


Figure 4.1

4.2 Technical data

The main technical data for vibrators in the VPB family are shown in the following table (TAB4.2):

DATA	VIBRATIONS PER MINUTE			FORCE		
	[n/min]			[N]		
	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar
VPB 25	2760	3840	4920	305	660	995
VPB 40	1560	2280	2820	460	890	1320
VPB 60	1260	1680	1980	1240	2250	3180

Table 4.2



NOTE

The data provided in tables 4.2 are subject to decline as a result of wear from the use of the vibrator.

4.3 Construction criteria

Vibrating body	cast iron
Cover	steel
Piston	steel
Locking screw	steel
ORing	NBR
Washer	Steel

4.4 Environmental criteria

Equipment for use in environment	Internal External (with directed discharge)
Temperature of the working environment	Minimum -20°C Maximum +100°C
Temperature of the storage environment	Minimum -20°C maximum +50°C
Relative Humidity of storage	Maximum 80% with temp. ≤ 40°C.
Pressure interval of the air supply	P min 2 bar P max 6 bar

Table 4.4

5 Transport, packaging and storage

5.1 Transport

For the vibrators covered by this manual no special means of transport are expected, however you are advised to adhere to the following rules:

- During all loading/unloading and transport activities, handle the vibrator and its packaging with care.
- On receipt of the goods check the condition of the packaging which should not appear damaged.
- In the event of damage to the packaging check the condition of the vibrator.

5.2 Packaging

For the transport of the vibrator, the packaging consists of a protective cardboard box.



NOTE

It is recommended that you conserve the original packaging container to guarantee the proper transport of the vibrator in the case of relocation.

5.3 Storage

The vibrator must be stored in an enclosed, dry place in which the temperature is between -20° C and +50° C and the relative humidity does not exceed 80%. Avoid humid and brackish storage areas.



WARNING

Whenever an extended storage period has been necessary it is recommended that you carry out a thorough check of the vibrator before putting it to use.



ATTENTION

However the vibrator is to be stored after use it is recommended that it is allowed to cool completely, before being thoroughly cleaned before storage.

6 Installation

6.1 Environmental conditions required for use

The installation environment must be well-ventilated and adequately lit.

The environmental conditions must respect the criteria given in 4.4

6.2 Removal of protective materials

The vibrator is shipped in special containers (packaging) which protect it from external agents during transport and for periods of storage. The removal of packaging material must be carried out with extreme care so as to avoid, during this activity, handling the structures and surfaces of the vibrator inappropriately.

6.3 Positioning the vibrator

The correct positioning of the vibrator guarantees the perfect functioning of the system.

Position the vibrator away from contact with corrosive liquids.

When positioning the vibrator, consider that the space available around the vibrator must be calculated so as to guarantee proper ventilation and allow the operator to perform the following activities:

- Carry out all movement necessary for mounting and dismantling activities including the use of potential accessories provided;
- Perform ordinary maintenance activities, especially those of cleaning;

After having secured the vibrator it is recommended that you check that it is perfectly mounted and fastened.

⚠ ATTENTION

In the act of installation completely and absolutely **AVOID** the establishment of structural ties with surfaces or structures subject to stress or dynamic loads external to the vibrator.

When in the area where the vibrator has to be installed, a connection with structures subject to loads is foreseen, explain the relative difficulties to VIBRONORD before the purchase.

6.4 Securing the Vibrator

The body of the pneumatic vibrators in the VPB family is furnished with ready-made holes to facilitate its fastening to the structure/equipment to be vibrated.

The area to which the vibrator has to be secured must be mechanically robust enough to be able to endure the impact generated and allow an adequate mechanical coupling, with the aim of better distributing the force generated by the vibrator. To guarantee the correct mechanical fixture recourse to the use of a coupling bracket to host the vibrator is advised.

⚠ ATTENTION

The installation area of the vibrator must be able to withstand the shocks generated by the vibrator (FIG. 6.4.a).

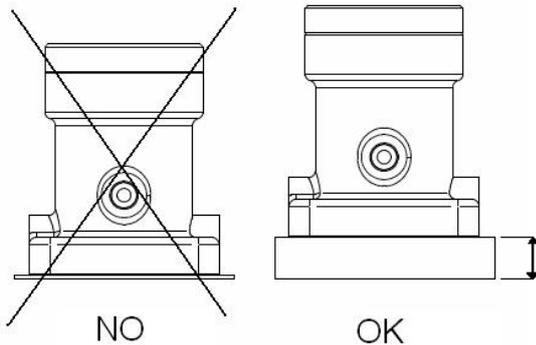


Figure 6.4.a

Avoid fastening the vibrator to flexible structures which could generate unwanted spurious vibrations in directions perpendicular to the vibrator's motion (FIG. 6.4.b).

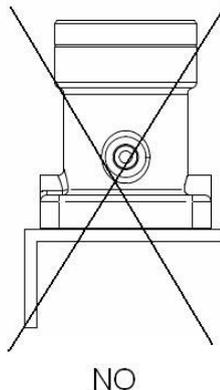


Figure 6.4.b

In the event of installation in places exposed to the elements provide an adequate discharge circuit for the vibrator so as to avoid the penetration of liquid inside the vibrator itself (FIG.6.4.c).

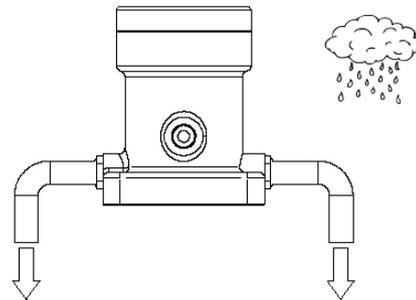


Figure 6.4.c

The vibrator must be secured to the structure to be vibrated using adequate means of fastening, which must be fully tightened, and provided with appropriate anti-loosening facilities.

In order to guarantee the correct tightness of the means of fastening, it is recommended that you use a torque wrench and adhere to the table shown below to establish the exact torque (TAB. 6.4).

Vibrator	Thread	Torque N/m
VPB25	M10	43
VPB40	M12	60
VPB60	M16	160

Table 6.4

⚠ ATTENTION

Always use hex head screw or allen screw of at least class **8.8** and anti-loosening and self-locking washers. **DO NOT** use slotted or cross screws and flat and flexible washers (FIG. 6.4.d).

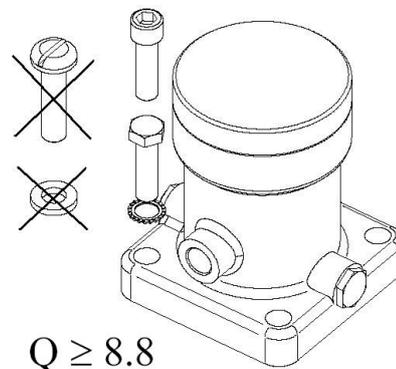


Figure 6.4.d

 **ATTENTION**

To prevent the means of fastening from loosening over time use an appropriate anti-loosening liquid (e.g. LOCTITE 270).

During the stage of securing the vibrator to the structure to be vibrated, always check that the area to which the body is attached is adequately clear, dry, clean and grease-free, in order to avoid the danger of the screws loosening or of tension and breaking of the same during operation (FIG.6.4.e).

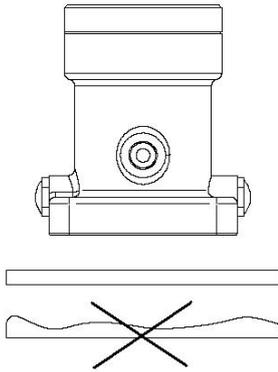


Figure 6.4.e

Furthermore ascertain that the means of fastening are clean and free from substances which can reduce the friction between the joined surfaces.

 **ATTENTION**

It is obligatory to check the initial tightness of the means of fastening after the first period of function and in any case within the first hour.

 **ATTENTION**

Once the installation has been carried out it is required that the tightness of the means of fastening is checked at least monthly (FIG. 6.4.f).

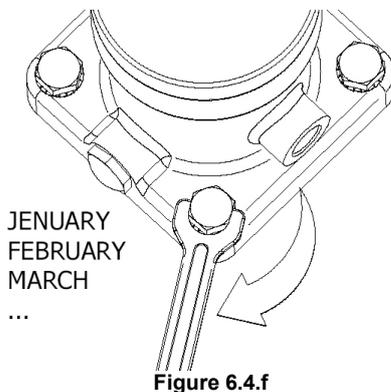


Figure 6.4.f

 **ATTENTION**

In the occasion that the vibrator is mounted in a suspended position, from which its potential fall could put people in danger, it is appropriate to provide facilities which have the potential to prevent, or protect from, a fall; these should be prepared by the installer.

 **ATTENTION**

On the cover of the vibrators VPB there is a threaded hole for fixing appropriate facilities (FIG 6.4.g).

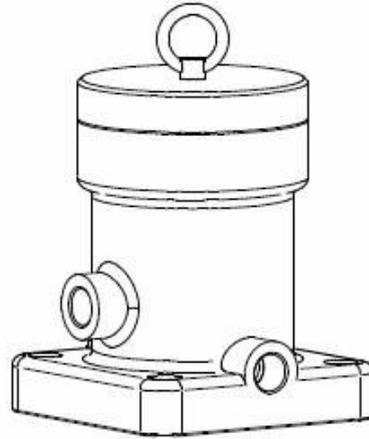


Figura 6.4.g

 **ATTENTION**

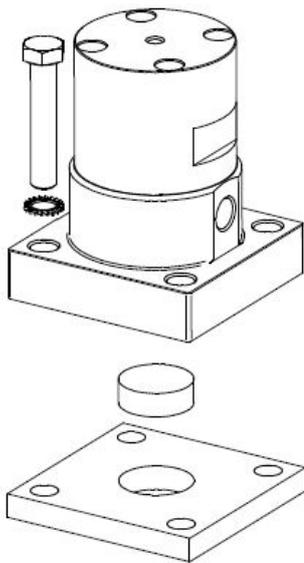
The vibrator is subject to mechanical stress during its normal function due to its own vibrating action. In order to guarantee its correct and safe function the following is recommended:

- Weekly check the integrity of the fastening components and in the case that they are damaged or worn, carry out an immediate substitution.
- Monthly verify the tightness of the fastening components.
- Substitute the fastening components at least every 500 working hours to prevent them from fatigue failures.

VIBRONORD takes no responsibility for accidents or malfunction resulting from failure to check the means of securing the vibrator.

The optional **B-PLATE KIT** allows to reduce the noise generated by the vibrator and generate impacts similar to a rubber hammer. The effect is achieved by interposing a disk of polymeric material between the piston and the installation surface (FIG. 6.4.h).

The plate is provided with holes for the passage of the fixing screws of the vibrator, and a central hole adapted to host the absorber insert.


Figure 6.4.h

! ATTENTION

The plate must be placed between the vibrator and the surface to vibrate.

! ATTENTION

The absorber insert must be placed inside the plate before the positioning of the vibrator.

6.5 Connection to energy sources

Connection to energy sources must be carried out with full respect for the specifications made in this chapter.

! ATTENTION

Connection to the pneumatic line must be carried out by fully qualified personnel with regards to all safety qualifications required by current legislation with reference to the place where the vibrator is installed. All connections must be made with the absence of pressure.

Pneumatic vibrators in the VPB family are equipped for the mounting of fittings dedicated to the connection of the pipe for the supply and discharge of air.

The size of the fittings and of the tubing varies according to the model and should be chosen basing on the following table (TAB. 6.5):

Vibrator	Fitting	Pipe
VPB25	GAS 1/4"	DN 10
VPB40	GAS 3/8"	DN 12
VPB60	GAS 1/2"	DN 15

Table 6.5

! ATTENTION

For the connection of the vibrator to the pneumatic line use only flexible pipes and fittings appropriate to the usage pressure values and maximum temperature.

! ATTENTION

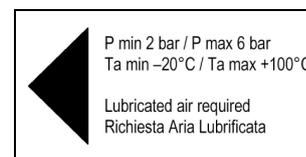
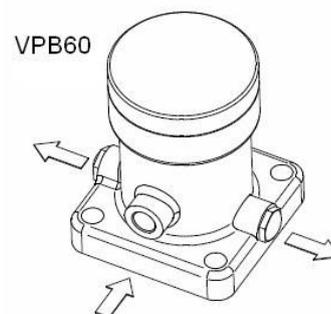
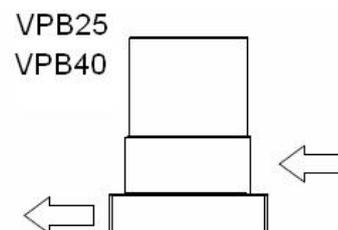
The connection of the pneumatic supply line tubes to the body of the vibrator is the responsibility and role of the client.

In carrying out the connection respect for the following procedure is recommended:

- Check that the selected fitting model and tube are correct according to the table 6.5.
- Screw the input and output fittings in the correct places provided on the body of the vibrator, checking the adequacy of the pneumatic seal.
- Connect the input and output pipes to their respective fittings.

! ATTENTION

During the connection of the input and output pipes for the pneumatic supply line take extra care to avoid switching the position of the pipes. The entrance of the pneumatic supply line is identified by its label (Figure 6.5a).


Figure 6.5.a

Figure 6.5.b

⚠ ATTENTION

After having connected the vibrator to the pneumatic supply line it is recommended that you fix the input and output pipes nearby the vibrator itself in order to avoid, in case of accidental detachment, the risk of bruising resulting from a whip effect.

⚠ ATTENTION

The connection of the vibrator to the pneumatic line requires the installation of an interception valve placed on the inlet pipe.

This valve allows for the supply line to be cut off and safeguards the operator in all cases when it is necessary to work on the vibrator; ordinary maintenance and/or replacement work.

⚠ ATTENTION

In order to reduce the stop time of the vibrator in the case of emergency, the interception valve should be positioned close to the vibrator, thereby reducing to a minimum the lung effect caused by the presence of residual air inside the inlet pipe on the occasion that the line is cut off (FIG. 6.5.c).

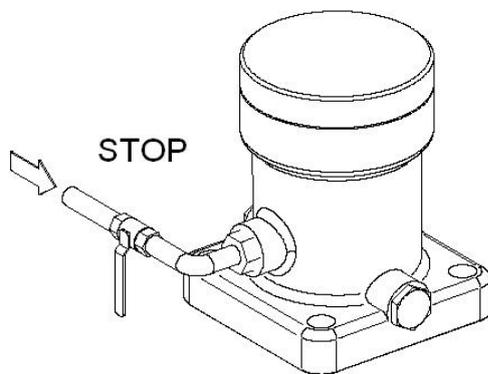


Figure 6.5.c

For the correct function of the vibrator the air supply pressure must be between 2 and 6 bar.

In order to obtain the correct regulation of the pressure air supplied to the vibrator, the installation of an appropriate pressure regulator is recommended.

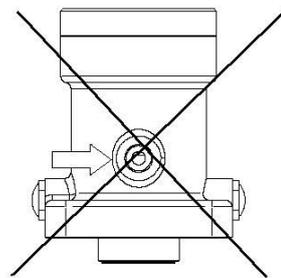
⚠ ATTENTION

Always check that the pressure in the pneumatic supply line falls within the limits indicated on the plate on the vibrator.

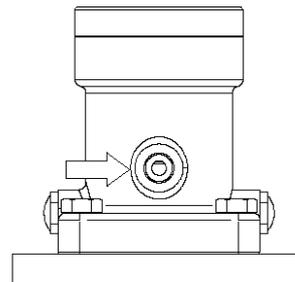
To avoid getting into contact with the piston and the correct operation of the vibrator, the vibrator should operate only when it's fixed on a suitable support.

⚠ ATTENTION

It is absolutely forbidden to operate the vibrator when it is not attached to a suitable support (FIG. 6.5.d).



NO



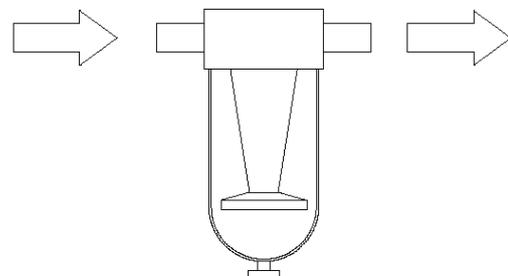
OK

Figure 6.5.d

6.6 Quality of the air supply

⚠ ATTENTION

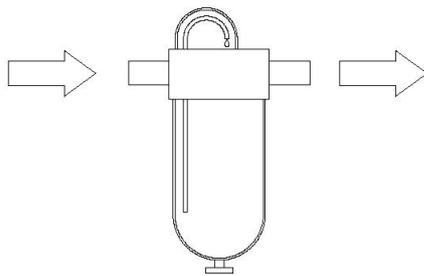
For the correct function of the vibrator the air used should be filtered (FIG. 6.6a), dehumidified and lubricated (FIG.6.6b).



Filter requested

≤ 5 μm

Figure 6.6.a



Lubricated air
oil ISO VG5

Figure 6.6.b

ATTENTION

The use of lubricating oil, such as type ISO VG5, suitable for working temperatures and conforming to the vibrator's usage temperature range (see given plate), is recommended.

ATTENTION

In the instance that a NON-lubricated air supply is used, the mechanical friction will tend to increase resulting in a consequent increase in noise and a reduction in the lifespan of the vibrator.

ATTENTION

In order to safeguard the environment and the operator, the insertion of an appropriate removal filter placed on the air discharge is advised.

The aim of the filter is to capture the lubricating particles contained in the air supply and prevent their emission into the environment.

7 Use

7.1 Preliminary checks

Before the normal use of the vibrator it is advisable to ascertain:

- Its proper positioning and mechanical fastening according to that established in 6.3 and 6.4.
- The correct execution of the connection to the pneumatic supply line as established in 6.5.
- The correct quality of the air supply as established in 6.6.

7.2 First ignition

To fuel the vibrator through the opening of the interception valve and ascertain the following:

- Absence of air loss from joints and fittings located on the vibrator and on its relative accessories (e.g. filters, silencers, etc.).
- Ascertain that the number of vibrations generated per minute does not exceed the values shown in Table 4.2.a.

ATTENTION

In the instance that the number of vibrations per minute exceeds the value indicated in the reference table reduce the vibrator's pressure supply until the number of vibrations shown in the table is reached.

7.3 Functionality checks

Ascertain that the number, position, and fastening of the vibrator/vibrators to the structure subject to vibration are appropriate to the aim established for the end use.

ATTENTION

Ascertain that during the function of the equipment the structure subject to vibration does not behave in an unforeseen, anomalous manner.

7.4 Checks after the first hour

A thorough check of the tightness of the fastening components after the first working hour of the vibrator is required.

Adhere to the values shown in Table 6.4.

7.5 Function anomalies

In the case that function anomalies are encountered, contact VIBRONORD immediately.

8 Ordinary maintenance

The maintenance activities discussed in this chapter have been established after a thorough examination of the usual working conditions and use of the vibrator.

In cases of significantly dissimilar necessities please contact VIBRONORD promptly.

In this chapter the ordinary maintenance procedures applicable to the vibrator are established.

In drawing up an appropriate maintenance programme for the vibrator even possible periods of inactivity need to be taken into account.

Short periods of inactivity

For short periods of inactivity (less than 2 months) no special checks are required.

Long periods of inactivity

Before fuelling the vibrator after a long period of inactivity, it is good practice to carry out a general check of the equipment.

WARNING

Correct and punctual maintenance allows for prevention of the majority of anomalies and ensures performance of the vibrator over time, as well as giving it a longer lifespan.

 **ATTENTION**

The maintenance work must be carried out by personnel specifically qualified in the performance of such tasks, keeping in mind the safety measures previously described.

 **ATTENTION**

Before carrying out any maintenance work on the vibrator, unless specified otherwise, always stop it, closing the intercepting valve.

 **ATTENTION**

It is forbidden to remove the outer covers of the vibrator to access its internal components.

8.1 Maintenance procedures

This paragraph outlines the procedural steps recommended for the correct execution of the ordinary maintenance to be carried out on the vibrator. The procedures are organised by topic and include frequency and possible warnings.

The procedures are organised according to the following topics:

- Visual inspection
- Cleaning
- Periodic checks

 **ATTENTION**

Only carry out maintenance activities wearing adequate clothing, appropriate to the type of maintenance to be carried out and at the same time capable of protecting the operator from the danger of bruising and cuts.

8.1.1 Visual inspection

Weekly, carry out a visual check of the integrity of the vibrator as sequenced in the following points:

- Ascertain the integrity of the means of mechanical fastening.
- Ascertain the physical integrity of the pneumatic supply pipes and the relative fittings.
- Ascertain the physical integrity of the mechanical structure of the vibrator.
- Ascertain the state of clogging of the filters and the silencer.

8.1.2 Cleaning

The normal cleaning activities for the vibrator must be followed with respect to that advised in this paragraph. For each component to be treated, specific products must be used, the use of substances such as: solvents, acids, etc. or inappropriate tools can cause great damage to the equipment and its components.

- Remove any accumulation of dirt on the body and near to the fittings of the vibrator.

8.1.3 Periodic checks

Ascertain weekly the condition of mechanical fittings and related torques, adhering scrupulously to the values shown in Table 6.4.

9 Disposal

The disposal of the vibrator must be carried out in respect of and in compliance with the laws in force in the destination country.

It is recommended that in the event of disposal you contact the competent authorities or the manufacturer to find out the correct disposal procedures.

**WARNING**

The abandonment of disposed equipment in any place which is not specifically designed for that purpose is contrary to principles of respect for and protection of the environment and in some countries is punishable by administrative and penal sanctions.

10 Technical Assistance

For whatever work, VIBRONORD is completely at the disposal of the Clientèle, directly or indirectly, through their own agents/resellers in the area.

Equipment and specialist personnel are available for refurbishing and repair work at the offices of:

VIBRONORD S.r.l.

Viale delle industrie 13/15

20881 Bernareggio (MB) Italy

Tel. +39 0396 800 139

Fax +39 039 688 4154

www.vibronord.com

11 Guarantee

The vibrator is covered by guarantee according to the Guarantee Conditions recorded below.

The guarantee becomes invalid when:

- Repairs are carried out without the consent of the manufacturer;
- The vibrator is used for means other than those for which it is intended;
- The instructions contained in this publication are not followed.

**WARNING**

VIBRONORD is not liable for possible failures, malfunctions and anomalies arising from the failure to adhere to the ordinary maintenance procedures outlined in this manual.

11.1 Guarantee conditions

Art. 1 The guarantee is applied to components of the vibrator which demonstrate construction or assembly defects, according to the judgement of in-house technicians.

Art. 2 The guarantee does not cover components which are subject to wear, and damage resulting from misuse or failure to observe the instructions contained in this usage and maintenance manual.

Art. 3 In compliance with European Directive 1999/44/CE the duration of the guarantee is two years from the date of consignment.

Art. 4 VIBRONORD is not liable for damage or inconvenience caused by the failure to observe the the rules and instructions contained in this leaflet.

Art. 5 The guarantee is rendered ex-works, therefore costs for the transport of equipment under guarantee from the client to the manufacturer, and vice-versa, are not covered.

Art. 6 The guarantee does not cover the cost of labour necessary for the substitution or repair of the part returned.

Art. 7 The guarantee becomes invalid in the event that the product has evidently been tampered with, or modifications have been made to the same without previous written authorisation on the part of VIBRONORD.

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