MAXIMATOR®

HOCHDRUCKTECHNIK · HYDRAULIK · PNEUMATIK · PRÜFTECHNIK

Assembly Instructions for Air Amplifiers

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1 Basic Information

Air amplifiers from MAXIMATOR are used for compressing pre-amplified compressed air from the compressed air network to a desired higher final pressure. This process provides the following advantages:

- ❒ Selective pressure increase upstream of individual consumers
- ❒ No energy consumption once the final pressure has been reached
- ❒ No electrical installation necessary
- ❒ Simple, safe and cost-efficient operation
- ❒ Requires no investment in an in-house high-pressure network or a decentralized separate compressor system

1.1 Notes on the Assembly Instructions

These assembly instructions describe how to set up the air amplifiers and provide information about how to operate and maintain them correctly. Read the assembly instructions carefully before actually using this equipment. The assembly instructions facilitate rapid understanding of the technical details and contain all the necessary information on how to use the air amplifiers. The assembly instructions contain technical data, a technical description and information on how to put into service, operate and maintain the air amplifiers. Technical data and measurement and weight information apply to the day on which these assembly instructions were printed. They may differ in detail from a particular implementation, without fundamentally changing the objective information and thereby losing validity. Differences in textual and pictorial statements depend on equipment and accessories, which means that no claims arising from this can be asserted. All maintenance, assembly and operating information prescribed in these assembly instructions must be complied with to ensure full functionality and safety. The air amplifiers are intended only for the purposes mentioned in the assembly instructions. The manufacturer cannot recognize claims caused by incorrect operation and inadequate maintenance. The attached documents relating to components and all other documents that are part of the scope of delivery must be observed. The relevant accident prevention regulations and other generally recognized safety requirements must be complied with.

1.2 Intended Use

Air amplifiers are used exclusively in compressed air networks to compress pre-amplified air to a desired final pressure.
The drive of the air amplifiers is designed for primary pressure of up to 10 bars.
Air amplifier changes and conversions are not permitted, for reasons of safety. All maintenance, assembly and operating information prescribed in these assembly instructions must be complied with to ensure full functionality and safety. If you are using other gases, you must consult MAXIMATOR GmbH.

1.3 Warranty and Liability

In principle, the "General Conditions of Sale and Delivery" supplied by the manufacturer of the air amplifiers shall apply.

Warranty and liability claims in case of personal or property damage shall be precluded if they are due to one or more of the following causes:

- ❒ Abnormal use of the air amplifiers.
- ❒ Incorrect putting into service, operation or maintenance of the air amplifiers.
- ❒ Changes to the air amplifiers.
- ❒ Operating the air amplifiers with defective safety devices or incorrectly installed safety and protective devices.
- ❒ Failure to comply with the information in these assembly instructions in respect of putting into service, operation and maintenance.
- ❒ Inadequate surveillance of parts that are subject to abrasion.
- ❒ Incorrect repair work.

2 Safety Instructions

2.1 General Safety Directives

The following EC Directives apply to the safety of the machinery:

- ❒ Machinery Directive 2006/42/EC, Annex II No.1 B

and applied harmonized standards

- ❒ EN ISO 12100-1 and 12100-2

The air amplifiers may be the source of hazards if they are used by untrained staff, or are used incorrectly or abnormally. Each person that is instructed to operate or maintain the air amplifiers must have read and understood the complete assembly instructions before carrying out the corresponding activities. This also applies if the person in question has already operated, or received training for, the air amplifiers. We recommend that the operating company should obtain written confirmation from staff that they are familiar with the assembly instructions. Familiarity with the content of the assembly instructions is one of the prerequisites for protecting people against hazards and for avoiding errors and hence for operating the air amplifiers safely and without malfunction. The assembly instructions must be available to operators and maintenance staff at all times! The operating company, or staff authorized by it to use the air amplifiers within the scope of their duties, is responsible for ensuring accident-free operation.
Work safety-related data is based on currently valid directives issued by the European Community. In other countries, the relevant laws and regulations must be complied with. The operating company must determine the current status of all regulations both for the European Community and for other countries. Apart from the work safety information in these assembly instructions, generally accepted safety and accident prevention regulations must be observed and complied with.

All information given in the assembly instructions must be observed unconditionally!

2.2 Symbols and Signal Terms

HAZARD

Type and source of hazard
Hazards that may result in serious bodily injuries or even death.
Hazard avoidance measures.

CAUTION

Type and source of hazard
Hazards that may result in bodily injuries or property damage.
Hazard avoidance measures.

NOTE

User tips and useful information.

NOTE

Environmental impact

2.3 Basic Safety Measures

2.3.1 Technical condition

The following must be observed:

- ❒ To avoid hazards and to ensure optimal performance, no modifications or conversions must be made to the air amplifiers.
- ❒ The user is obliged to ensure that the air amplifiers are operated when in perfect working condition and safe to operate. The technical condition of the air amplifiers must comply with statutory requirements and regulations.
- ❒ Each time before the air amplifiers are put into service, checks must be performed to ensure that they are not damaged and are in proper condition.
- ❒ Staff must immediately report to the operating company any changes to the air amplifier that affect safety.

2.3.2 Safety instructions for operation

Each time before the air amplifiers are put into service, checks must be performed to ensure that they are operationally safe.

The following safety instructions must be observed when operating the air amplifiers:

- ❒ Generally accepted safety and accident prevention regulations must be observed!
- ❒ Staff must be familiar with all devices and actuators and how they function before putting the air amplifiers into service!
- ❒ During system operation, always ensure that operating conditions are suitable for deployment of the air amplifiers.
- ❒ Shut down the air amplifiers immediately if you observe changes during operation.

CAUTION

Before working on the air amplifiers, make sure that they are depressurized.

CAUTION

Adjustment and repair work may only be undertaken by specialist workshops!

2.3.3 Safety instructions for maintenance and repair work

Operating malfunctions brought about by inadequate or incorrect maintenance may also cause substantial repair costs and long downtimes in relation to the air amplifiers.
The manufacturer accepts no liability for damage resulting from incorrect maintenance and care!
The maintenance intervals are laid down in a maintenance schedule.

The following must be observed:

- ❒ The air amplifiers may only be maintained and repaired by the manufacturer's service team or by specially trained and instructed specialized personnel.
- ❒ All maintenance and repair work must be performed when the air amplifiers are switched off and depressurized.

2.3.4 Requirements on staff

- ❒ Prior to commencing work, staff must be instructed in the hazards connected with handling the air amplifiers.
- ❒ The air amplifiers may pose injury hazards if operated by untrained personnel.
- ❒ Any person instructed to put into service, maintain or repair the air amplifiers must have read and understood the assembly instructions in their entirety.
- ❒ The assembly instructions must be available to staff at all times. We recommend that you obtain written confirmation from staff that they are familiar with the contents of the assembly instructions
- ❒ Staff must wear protective clothing as directed by the operating company.
- ❒ All safety information contained in these assembly instructions and in all other documents must always be fully observed and complied with.
- ❒ If hazards that might result in personal injury are identified, the air amplifier must be shut down immediately.
- ❒ Staff must have sound knowledge of the following operating processes, regulations and procedures:
  - Operating procedures for air amplifiers
  - Protective fencing, safeguards and signs in the danger zone.
  - Behaviour and measures to be taken in the event of hazards.

2.4 Special Safety Instructions

2.4.1 Safety in the event of emissions

Depending on use, some noise build-up can be expected, due to the expanding compressed air. Air escaping from the silencer may be soiled. Small ice crystals, which may come loose and fly away, may also form on the silencer. Staff located in the environment of operating air amplifiers must wear protective goggles and, where applicable, hearing protection.

2.4.2 Safety in the event of defective devices

During operation of the air amplifiers, both the drive part and the high-pressure part are under pressure. The escaping gases are subjected to high pressure if there is a defect or even during normal operation. They must not be intercepted or restrained by objects or body parts. You must ensure, in the event of a defect, that the air amplifier is immediately depressurized and repaired.

HAZARD

Maintenance and repair work may only be carried out on depressurized equipment.

2.4.3 Safety at the installation location

The air amplifiers have been built in accordance with the generally accepted engineering standards valid at the time of their development and manufacture and are deemed to be operationally safe.
The air amplifiers may be the source of hazards if they are used by staff who have not been professionally trained, or are used incorrectly or abnormally. Air amplifiers are designed exclusively for compressing air. If you are using other gases, you must consult MAXIMATOR GmbH. Pipes and accessories must be matched to system pressure and be of the corresponding size. You must take appropriate measures to ensure that the drive and charge pressure (p_L and p_a) does not exceed the permissible value of 10 bars. Before repair work is undertaken, the entire system must be depressurized. The air amplifier must be installed in a way that keeps the actuators and bolted unions freely accessible at all times.
Safety devices, designed to prevent the permissible operating pressure from being exceeded by 10%, are fitted downstream of the air amplifier. These safety devices must not be lockable. They must be easily accessible and subjected to recurring function tests.
Measuring devices must be provided for surveillance of the compressor pressure. If a downstream pressure tank is used, the provisions of the pressure vessel regulation must be complied with.

3 Technical Description

MAXIMATOR air amplifiers are driven by compressed air.
They increase pressure by the corresponding pressure ratio. Given constant pressure in the compressed air system, a higher pressure is generated temporarily.
The following models are available:

- GPLV 2
- SPLV 2
- MPLV 2
- MPLV 2.5
- SPLV 3
- MPLV 4
- GPLV 5
- SPLV 10

They can be fitted to air amplifier stations, which are equipped with a compressed air tank. The compressed air tank is designed to offset fluctuations in pressure and accumulate a greater air quantity, which needs to be available quickly.
The amplifier code indicates the pressure ratio. A floating gate valve alternately applies working pressure to the pistons.
The flow redirection process is triggered by pilot valves, which are actuated when the pistons are in their final position. Non-return valves protect the inlet and outlet ports.

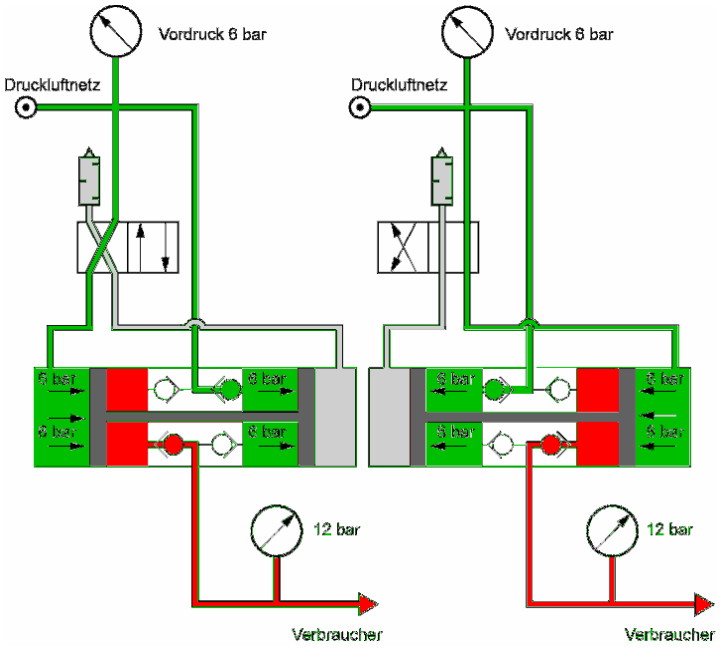


Fig. 1: General working principle

3.1 Operation of Air Amplifiers

3.1.1 MPLV 4 and MPLV 4L air amplifiers

The charge pressure fills the compression compartment from port A. As no pressure is applied to the drive compartment, the piston does not operate until it actuates the pilot valve in the top cap. Drive air from port P_L now flows through the control slide valve, accessing the drive compartment. This compresses the air in the compression compartment and conveys it to the pressure outlet (port B). When the piston actuates the pilot valve in the bottom cap, the inflow of air into the drive compartment is interrupted and the process begins again.
The pressure increase is due to the surface of the piston in the drive compartment being four times larger than that of the piston in the compression compartment.

Example:

Drive pressure	= 6 bars
Pressure ratio	= 1:4
Operating pressure	= 6 x 4 = 24 bars

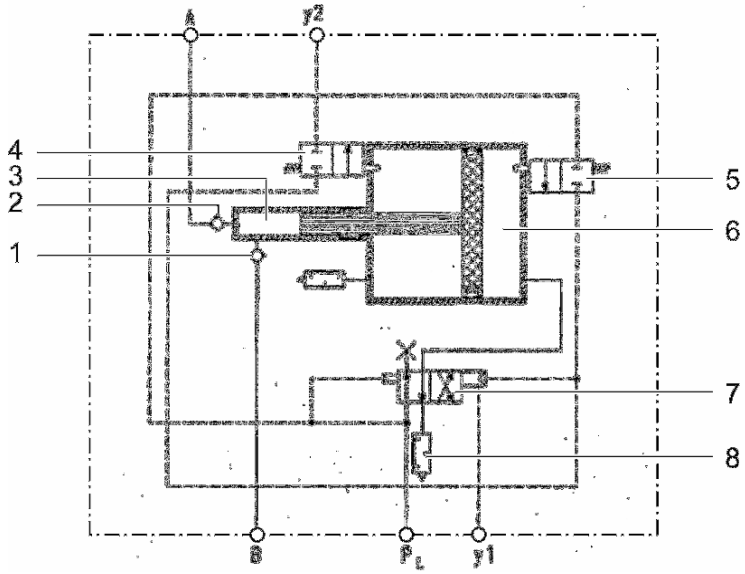


Fig. 2: How MPLV 4 works

1	Pressure outlet	5	Pilot valve
2	Charge pressure	6	Drive compartment
3	Compression compartment	7	Control slide valve
4	Pilot valve	8	Exhaust

P_L = Drive pressure
B = Pressure outlet
Y_2 = Exhaust air from pilot valve

A = Charge pressure
Y_1 = Exhaust air from control valve

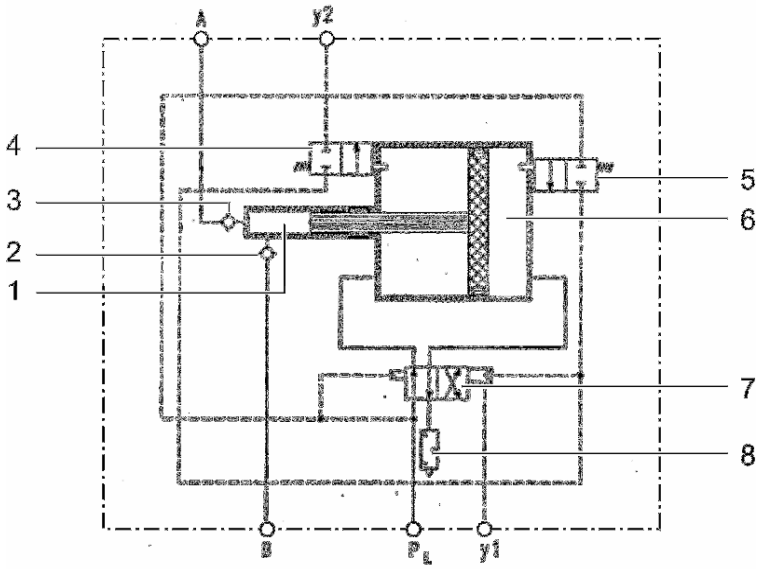


Fig. 3: How MPLV 4L works

1	Compression compartment	5	Pilot valve
2	Pressure outlet	6	Drive compartment
3	Charge pressure	7	Control slide valve
4	Pilot valve	8	Exhaust

P_L = Drive pressure	A = Charge pressure
B = Pressure outlet	Y_1 = Exhaust air from control valve
Y_2 = Exhaust air from pilot valve	

The functionality of the MPLV 4L model differs from that of the standard MPLV 4-version in that the "intake stroke" is performed by the drive air and not by the primary pressure at port "A". This enables you to use lower primary pressures.

3.1.2 MPLV 2, SPLV 2 and GPLV 2 air amplifiers

The charge air flows from port A through the non-return valves 2 and enters compression compartments I and II. The drive pressure (port P_L) fills drive compartment II via the control slide valve, while drive compartment I is depressurized. Due to its movement, the piston reduces the volume in compression compartment II, thereby increasing the pressure. Operating pressure is conveyed to the outlet of the device (port B) through the non-return valve 4. When the control slide valve reaches its final position, it is switched by a pilot valve. Drive compartment II is ventilated. The compressed air is amplified in compression compartment I.

Control air is supplied externally for air amplifiers with a port X. It is branched off from the drive compressed air (upstream of pressure reduction), being charged through pipes to port X. A directional control valve in the control pipe can be used to switch the air amplifier on or off.

Example:

Drive compartment II	= 4 bars
+ compression compartment I	= 4 bars
Compression compartment II	= 8 bars

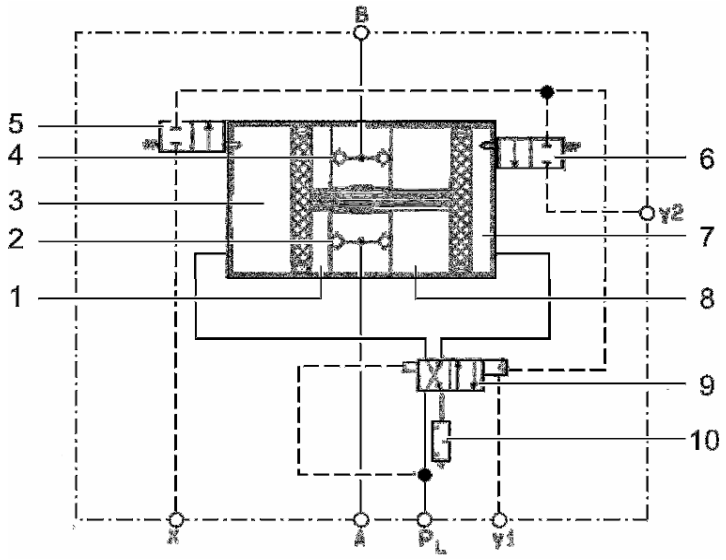


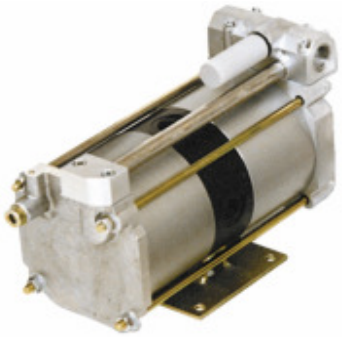
Fig. 4: How MPLV 2, SPLV 2 and GPLV 2 work

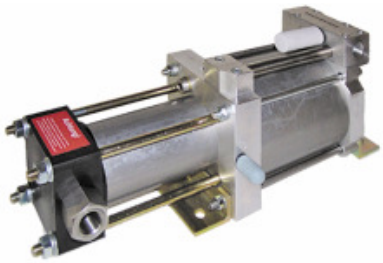
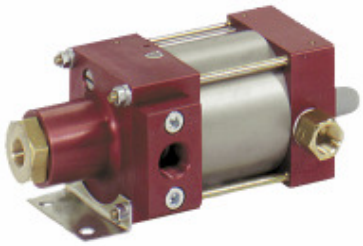
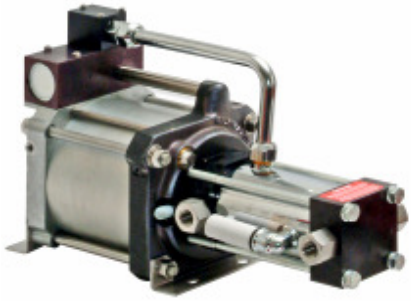
1	Compression compartment II	6	Pilot valve
2	Non-return valves inlet	7	Drive compartment I
3	Drive compartment II	8	Compression compartment I
4	Non-return valves outlet	9	Control slide valve
5	Pilot valve	10	Exhaust

P_L = Drive pressure
B = Pressure outlet
Y_2 = Exhaust air from pilot valve

A = Charge pressure
Y_1 = Exhaust air from control valve
X = Control pipe (possible external port for control pipe)

3.2 Overview of Air Amplifiers

Designation	Figure	Brief characteristics
GPLV 2		❑ Output capacity 1200 l_N/min at 6 bars primary pressure and 8 bars operating pressure ❑ Operating time 50% ❑ Selective pressure increase upstream of an individual consumer. ❑ Once final pressure has been reached - no energy consumption.
SPLV 2		❑ Output capacity 960 l_N/min at 6 bars primary pressure and 8 bars operating pressure ❑ Operating time 50% ❑ Selective pressure increase upstream of an individual consumer. ❑ Once final pressure has been reached - no energy consumption.
MPLV 2		❑ Output capacity 580 l_N/min at 6 bars primary pressure and 8 bars operating pressure ❑ Operating time 50% ❑ Selective pressure increase upstream of an individual consumer. ❑ Once final pressure has been reached - no energy consumption.

Designation	Figure	Brief characteristics
SPLV 3		❑ Output capacity 230 l_N/min at 6 bars primary pressure and 15 bars operating pressure ❑ Operating time 50% ❑ Selective pressure increase upstream of an individual consumer. ❑ Once final pressure has been reached - no energy consumption.
MPLV 4		❑ Output capacity 50 l_N/min at 6 bars primary pressure and 16 bars operating pressure ❑ Operating time 50% ❑ Selective pressure increase upstream of an individual consumer. ❑ Once final pressure has been reached - no energy consumption.
GPLV 5		❑ Output capacity 360 l_N/min at 8 bars primary pressure and 30 bars operating pressure ❑ Operating time 50% ❑ Selective pressure increase upstream of an individual consumer. ❑ Once final pressure has been reached - no energy consumption.

4 Assembly and Putting into Service

4.1 General Assembly Instructions on site

The air amplifier can be installed in any position you require.
Fixing angles are provided to anchor the air amplifier. It is important that no foreign matter (e.g. drilling dust during wall mounting) should enter into the air amplifier ports during assembly. Do not remove the blind plugs from the air amplifier ports until immediately before you attach the corresponding ports.

NOTE

Always ensure that you apply the same torque (8 Nm) to stud bolts and nuts when assembling air amplifiers, as this will prevent the top and bottom parts of the air amplifier from being distorted.

4.2 Compressed Air System

The compressed air port requires a Maximator compressed air control unit to be fitted downstream of the air amplifier.
This air control unit consists of a pressure filter, water separator, shut-off valve, pressure controller, manometer and, where applicable, a safety valve.

Fig. 5: Compressed air control unit

If no compressed air control unit is fitted when operating an air amplifier, the compressed air quality must be ensured in accordance with MAXIMATOR's requirements.

Requirements on compressed air quality:

- ❒ Solid matter
  Maximum particle size 5 µm
  Maximum particle concentration 5 mg/m³
- ❒ Dew point
  Up to +10 °C, water content of 9.4 g/m³
  Up to + 2 °C, water content of 5.6 g/m³
- ❒ Oil content
  1.0 to 5 mg/m³

4.2.1 Compressed air lubricator

A compressed air lubricator is not absolutely essential. All moving air amplifier parts are treated with special grease during assembly.
If the air amplifier is operated with extremely dry air over an extended period, the grease may resinify. We recommend use of a compressed air lubricator in such cases.

CAUTION

Once a compressed air lubricator has been used, the air amplifier must never be operated without it. The oil of the compressed air lubricator washes the grease from the air amplifier, such that permanent lubrication cannot be ensured.
Special grease made by MAXIMATOR GmbH can be used for re-lubrication. If a compressed air lubricator is used, the oil content of the compressed air should be between 1 mg/m³ and 5 mg/m³.

4.2.2 Pipe cross-sections

The compressed air port must not have a smaller specification than the port thread. Reduction to smaller port threads may cause performance losses and air amplifier malfunctions. Excessively long supply pipes may give rise to problems due to pressure drop in small pipes.

4.3 High-Pressure System

The HP pipes and accessories used must be matched to the air amplifier in terms of pressure and cross-section. If this is not the case, the performance capacity and safety of the air amplifier may be impaired.

4.3.1 Pressure pipe

The pressure pipe and corresponding accessories must withstand the air amplifier's maximum outlet pressure. Only if a corresponding safety valve has been fitted to the pressure pipe, is it permissible to fall below compressive strength. The cross-section of the pressure pipe must not be smaller than that of the pressure port. A smaller cross-section will cause a reduction in output capacity and increased warming of the amplifier medium.

4.3.2 Amplifier medium

Air amplifiers are designed exclusively for use with compressed air. Other media must be tested by MAXIMATOR GmbH in respect of their compatibility with the air amplifier materials before being used.

4.4 Putting into Service

As with a standard piston compressor, the stroke frequency also causes pressure pulsations in the air amplifier. You can reduce these pressure pulsations by providing an additional volume (e.g. pressure tank). You can use a bypass pipe to reduce the fill time of the additional volume downstream of the air amplifier. To bypass the air amplifier, a pipe with non-return valve is branched off directly from the compressed air port. The air amplifier does not start to increase pressure until operating pressure p_b is equal to the inlet pressure. Air amplifiers with an external control air supply have a port marked "X" (also possible for SPLV 2 and GPLV 2). This pipe, which is branched off from the inlet pressure, can be used for fitting a pressure switch.

Connection options for air amplifiers:

1. Control of operating pressure p_b by reduction of drive pressure p_l.
   Greater fluctuations in pressure in the compressed air network have an impact on operating pressure. Pressure reduction will reduce output volume.
2. Direct control of operating pressure p_b through pressure reduction valve.
   Good control of operating pressure at highest output capacity. Fluctuations in pressure in the compressed air network have no impact on operating pressure (external control port).
3. Use of a pressure switch NO (normally open, only possible for SPLV 2 and GPLV 2).
   Drive air flows through the bypass pipe to the pressure outlet until the same pressure is achieved. It is possible to fill a larger volume quickly on the pressure outlet side. The air amplifier operates until the operating pressure set at pressure switch NO is achieved. This connection option is only appropriate if there is no continuous compressed air consumption.
4. Use of a pressure switch NC (normally closed, only possible for SPLV 2 and GPLV 2).
   The pressure switch NC needs to be set to a lower pressure than the drive pressure. As long as the operating pressure is smaller than the set pressure, the air will flow through the bypass pipe. The air amplifier does not yet operate under these circumstances. It only starts to operate when the operating pressure reaches the set value. This switching enables the abrasion of the seals to be reduced.

5 Servicing and Maintenance

5.1 Maintenance Information

The air drives of all air amplifiers are pre-treated with high-performance grease during assembly and require no other type of lubrication.
During service and maintenance work on the air amplifiers, control slide valves and air pistons must be treated with an acid- and silicone-free high-performance grease provided by the manufacturer.
In the event of a stroke frequency of >= 150 strokes/min or an operating time of > 50%, a compressed air lubricator must be installed upstream of the air amplifier.

5.2 Maintenance

NOTE

Use only original MAXIMATOR spare parts to maintain the air amplifiers.

NOTE

Exercise utmost cleanliness when repairing an air amplifier to ensure the proper functioning and durability of the precision-machined parts.

Possible fault	Cause of fault	Fault removal
Air amplifier fails to operate at low air pressure.	Friction of o-rings on control slide valve is too high.	❑ Re-lubricate. ❑ Replace o-rings on control slide valve.
Air amplifier does not operate or operates only slowly.	Exhaust or control slide valve covered with ice.	❑ Use water separator to de-water compressed air.
	Formation of residue in the silencer.	❑ Clean the silencer. ❑ Replace, where applicable.
Air amplifier fails to operate or air escapes through the exhaust.	O-rings on the control slide valve are defective.	❑ Change and grease o-rings.
	O-rings on air pistons are defective or worn out.	❑ Change and grease o-rings.

Possible fault	Cause of fault	Fault removal
The air amplifier does not operate. Air flows through small boring on control slide valve housing.	Control slide valve hangs up..	❑ Clean control slide valve and sleeve ❑ Check and, if necessary, replace o-rings and sleeve. Lubricate.
The air amplifier does not operate. Air escapes through small boring in bottom cap.	Pilot valve in top or bottom cap hangs up.	❑ Clean and grease pilot valve. ❑ If necessary, replace pilot valve.
Air amplifier operates with high frequency and short strokes.	Pilot valve in top or bottom cap is defective.	❑ Clean and grease pilot valve. ❑ If necessary, replace pilot valve.
Air amplifier does not achieve the calculated final pressure.	Seals on air pistons are worn out.	❑ Change and grease seals.
	Non-return valves fail.	❑ Check and clean non-return valves. ❑ If necessary, replace non-return valves.
Only for MPLV 4 Air amplifier does not achieve the final pressure.	Leakage in HP seal.	❑ Replace HP seal.
Only for MPLV 4 Air amplifier does not stop.	Primary pressure is too low.	❑ Increase primary pressure.

5.3 Repair

NOTE

Instructions on repairing the air amplifiers can be found on the Internet at www.MAXIMATOR.de.

CAUTION

Repair work must be carried out by qualified specialist personnel.
Ensure absolute cleanliness. Even the smallest impurities may cause serious damage to precision-machined components.

Individual air amplifier parts can be ordered as spare parts from MAXIMATOR GmbH.
Seals are subject to high abrasion.
The order number and composition of the seal kits are specified on the corresponding drawing. The drawing is part of the air amplifier documentation and is enclosed with the packaging.
Please quote the serial number of the documentation when ordering spare parts.
The serial number (6-digit number) is located on the nameplate and on the housing of the air amplifier.

NOTE

You can ship defective air amplifiers for repair to MAXIMATOR GmbH.
The repair work is carried out by qualified staff in clean rooms.

5.3.1 Warranty

The manufacturer provides a warranty of 12 months on material quality and workmanship for air amplifiers. The warranty shall commence on the date on which the air amplifier is shipped.
The warranty shall not cover defects that arise due to incorrect handling or malfunctions caused by the use of impermissible liquids and foreign matter in the drive or amplifier medium. This shall also apply if the maximum operating pressure is exceeded. Wear parts like seals and guiding elements etc. shall also be excluded from the warranty.

6 Technical Data

Technical Data	GPLV 2	SPLV 2	MPLV 2	SPLV 3	MPLV 4	GPLV 5
Pressure ratio	1:2	1:2	1:2	1:3,2	1:4	1:5
Air drive pressure in bar	1-10	1-10	1-10	1-10	2-10	1-10
max. operating pressure in bar	20	20	20	32	40	60
max. noise level in dB	79	79	79	79	79	79
max. operating temperature in °C	60	60	60	60	60	60
Port for air drive pressure	G 3/4“	G 1/2“	G 3/8“	G 1/2“	G 3/8“	G 1/2“
Port for pressure inlet	G 1/2“	G 1/2“	G 3/8“	G 1/2“	G 3/8“	G 3/8“
Port for pressure outlet	G 1/2“	G 1/2“	G 3/8“	G 1/2“	G 1/2“	G 3/8“
Weight	20.5	16.0	3.3	8.5	2.2	16.0

Einbauerklärung nach 2006/42/EG, Anhang II, Nr.1 B
Inhalt gemäß 2006/42/EG, Anhang II, Nr.1 B.
Anschrift Hersteller: MAXIMATOR GmbH
Lange Straße 6
99734 Nordhausen
Der Dokumentationsbeauftragte ist bevollmächtigt, die speziellen technischen Unterlagen nach Anhang VII B zusammenzustellen:
dokumentationsbeauftragter@maximator.de / Tel.: 03631-9533-5109

Die Bauart von Druckluft Nachverdichtern der Baureihe: **MPLV, GPLV, SPLV**

ist eine unvollständige Maschine nach Artikel 2g und ausschließlich zum Einbau in oder zum Zusammenbau mit einer anderen Maschine oder Ausrüstung vorgesehen.
Grundlegende Sicherheits- und Gesundheitsschutzanforderung gemäß Anhang I dieser Richtlinie kommen zur Anwendung und wurden eingehalten:
Auflistung siehe separate Anlage
Die speziellen technischen Unterlagen gemäß Anhang VII B wurden erstellt und sie werden der zuständigen nationalen Behörde auf Verlangen in elektronischer Form übermittelt.
Folgende harmonisierte Normen (oder Teile dieser Normen) wurden angewendet :
DIN EN ISO 12100-1
DIN EN ISO 12100-2
Diese unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die unvollständige Maschine eingebaut werden soll, den Bestimmungen der Maschinenrichtlinie entspricht.

Declaration of Incorporation acc. to 2006/42/EC, Annex II, Nr.1 B
Contents acc. to 2006/42/EC, Annex II, Nr.1 B.
Name and address of manufacturer: MAXIMATOR GmbH
Lange Straße 6
99734 Nordhausen/Germany
The documentation officer is authorised to compile the relevant technical documentation as set forth in Annex VII B:
dokumentationsbeauftragter@maximator.de / Tel.: +49(0)3631-9533-5109

The model of air amplifiers type: **MPLV, GPLV, SPLV**

is a partly completed machinery as defined in Article 2g and exclusively envisaged for installation into or assembly with other machinery or equipment.
Essential health and safety requirements (EHSR) acc. to Annex I to this directive have been applied and complied with:
See separate Appendix
The relevant technical documentation according to Annex VII B was compiled and will be forwarded to the competent national authority in electronic format upon request.
The following harmonised standards (or parts of such standards were applied:
DIN EN ISO 12100-1
DIN EN ISO 12100-2
The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive on Machinery.

Déclaration d'incorporation de quasi-machines conformément à la Directive 2006/42/CE, Annexe II, Nr.1 B
Contenu conforme à la Directive 2006/42/CE, Annexe II, Nr.1 B.
Adresse du fabricant : MAXIMATOR GmbH
Lange Straße 6
99734 Nordhausen/Germany
La personne en charge de la documentation a procuration pour établir la documentation technique spéciale conformément à l'Annexe VII B : dokumentationsbeauftragter@maximator.de / Tél. : 03631-9533-5109

Le modèle de surpresseurs d'air type: **MPLV, GPLV, SPLV**

est une quasi-machine conformément à l'Article 2g et elle est destinée uniquement à être intégrée ou dans une autre machine ou un autre équipement ou à réaliser avec ceux-ci un ensemble cohérent.
Les exigences essentielles de santé et de sécurité conformément à l'Annexe I de la Directive ont été appliquées et respectées :
Voir la liste en Annexe
La documentation technique spéciale conformément à l'Annexe VII B a été établie et sera transmise sous forme électronique, sur réquisition, aux services nationaux compétents.
Les normes harmonisées suivantes (ou des parties de ces normes) ont été appliquées :
DIN EN ISO 12100-1
DIN EN ISO 12100-2
Cette quasi-machine ne pourra être mise en service qu'après avoir constaté que la machine dans laquelle la quasi-machine est intégrée, satisfait aux prescriptions de la Directive sur les machines.

Nordhausen, den 16.11.2011 (Nordhausen, 16 November 2011) [Nordhausen, le 16 novembre 2011]

i.V. .....

Jochen Diemer (Technischer Leiter) (Chief Technical Officer) [Directeur technique]

Anlage zur Einbauerklärung gemäß 2006/42/EG Anhang II, Nr.1 B

Beschreibung der grundlegenden Sicherheits- und Gesundheitsschutzanforderungen gemäß 2006/42/EG, Anhang I, die zur Anwendung kommen und eingehalten wurden :

Nr.	Grundlegende Anforderungen	Zutreffend	Erfüllt
1.1.1.	Begriffsbestimmung	Ja	Ja
1.1.2.	Grundsätze für die Integration der Sicherheit	Ja	Ja
1.1.3.	Materialien und Produkte	Ja	Ja
1.1.4.	Beleuchtung	Nein	
1.1.5.	Konstruktion der Maschine im Hinblick auf die Handhabung	Ja	Ja
1.1.6.	Ergonomie	Nein	
1.1.7.	Bedienungsplätze	Nein	
1.1.8.	Sitze	Nein	
1.2.	Steuerungen und Befehlseinrichtungen		
1.2.1.	Sicherheit und Zuverlässigkeit von Steuerungen	Ja	Nein
1.2.2	Stellteile	Nein	
1.2.3.	Ingangsetzen	Ja	Nein
1.2.4.	Stillsetzen	Ja	Nein
1.2.4.1	Normales Stillsetzen	Ja	Nein
1.2.4.2	Betriebsbedingtes Stillsetzen	Nein	
1.2.4.3	Stillsetzen im Notfall	Ja	Nein
1.2.4.4	Gesamtheit von Maschinen	Nein	
1.2.5.	Wahl der Steuerungs- oder Betriebsarten	Nein	
1.2.6.	Störung der Energieversorgung	Ja	Nein
1.3.	Schutzmaßnahmen gegen mechanische Gefährdungen		
1.3.1.	Risiko des Verlusts der Standsicherheit	Ja	Nein
1.3.2.	Bruchrisiko beim Betrieb	Ja	Ja
1.3.3.	Risiken durch herabfallende oder herausgeschleuderte Gegenstände	Ja	Ja
1.3.4.	Risiken durch Oberflächen, Kanten und Ecken	Ja	Ja
1.3.5.	Risiken durch mehrfach kombinierte Maschinen	Nein	
1.3.6.	Risiken durch Änderungen der Verwendungsbedingungen	Nein	
1.3.7.	Risken durch bewegliche Teile	Ja	Ja
1.3.8.	Wahl der Schutzeinrichtungen gegen Risiken durch bewegliche Teile	Nein	
1.3.8.1	Bewegliche Teile der Kraftübertragung	Nein	
1.3.8.2	Bewegliche Teile, die am Arbeitsprozess beteiligt sind	Nein	
1.3.9.	Risiko unkontrollierter Bewegungen	Nein	
1.4.	Anforderung an Schutzeinrichtungen		
1.4.1.	Allgemeine Anforderungen	Nein	
1.4.2.	Besondere Anforderungen an trennende Schutzeinrichtungen	Nein	
1.4.2.1	Feststehende trennende Schutzeinrichtungen	Nein	
1.4.2.2	Bewegliche trennende Schutzeinrichtugen mit Verriegelung	Nein	
1.4.2.3	Zugangsbeschränkende verstellbare Schutzeinrichtungen	Nein	
1.4.3.	Besondere Anforderungen an nichttrennende Schutzeinrichtungen	Nein	
1.5.	Risiken durch sonstige Gefährdungen		
1.5.1.	Elektrische Energieversorgung	Nein	
1.5.2.	Statische Elektrizität	Ja	Ja
1.5.3.	Nichtelektrische Energieversorgung	Ja	Nein
1.5.4.	Montagefehler	Ja	Ja
1.5.5.	Extreme Temperaturen	Nein	
1.5.6.	Brand	Ja	Ja
1.5.7.	Explosion	Nicht zutreffend oder gesondert bescheinigt	
1.5.8.	Lärm	Ja	Nein

1.5.9.	Vibrationen	Nein	
1.5.10.	Strahlung	Nein	
1.5.11.	Strahlung von aussen	Ja	Ja
1.5.12.	Laserstrahlung	Nein	
1.5.13.	Emission gefährlicher Werkstoffe und Substanzen	Ja	Nein
1.5.14.	Risiko, in einer Maschine eingeschlossen zu werden	Nein	
1.5.15.	Ausrutsch-, Stolper- und Sturzrisiko	Ja	Nein
1.5.16.	Blitzschlag	Nein	
1.6.	Instandhaltung		
1.6.1.	Wartung der Maschine	Ja	Nein
1.6.2.	Zugang zu den Bedienungsständen und den Eingriffspunkten für die Instandhaltung	Nein	
1.6.3.	Trennung von Energiequellen	Ja	Nein
1.6.4.	Eingriffe des Bedienungspersonals	Ja	Ja
1.6.5.	Reinigung innen liegender Maschinenteile	Nein	
1.7.	Information		
1.7.1.	Informationen und Wartungshinweise an der Maschine	Nein	
1.7.1.1	Information und Informationseinrichtungen	Nein	
1.7.1.2	Warneinrichtungen	Nein	
1.7.2.	Warnung vor Restrisiken	Nein	
1.7.3.	Kennzeichnung der Maschinen	Ja	Ja
1.7.4.	Betriebsanleitung	Nein	
1.7.4.1	Allgemeine Grundsätze für die Abfassung der Betriebsanleitung	Nein	
1.7.4.2	Inhalt der Betriebsanleitung	Nein	
1.7.4.3	Verkaufprospekte	Nein	
2.	Zusätzliche grundlegende Sicherheits- und Gesundheitsschutzanforderungen an bestimmte Maschinengattungen	Nein	
2.1.	Nahrungsmittelmaschinen und Maschinen für kosmetische oder pharmazeutische Erzeugnisse	Nein	
2.2	Handgehaltene und/ oder handgeführte tragbare Maschinen	Nein	
2.2.2.	Tragbare Befestigungsgeräte und andere Schussgeräte	Nein	
2.3.	Maschinen zur Bearbeitungen von Holz und von Werkstoffen mit ähnlichen physikalischen Eigenschaften	Nein	
3.	Zusätzliche grundlegende Sicherheits- und Gesundheitsschutzanforderungen zur Ausschaltung der Gefährdungen, die von der Beweglichkeit von Maschinen ausgehen.	Nein	
4.	Zusätzliche grundlegende Sicherheits- und Gesundheitsschutzanforderungen zur Ausschaltung der durch Hebevorgänge bedingten Gefährdungen.	Nein	
5.	Zusätzliche grundlegende Sicherheits- und Gesundheitsschutzanforderungen an Maschinen, die zum Einsatz unter Tage bestimmt sind.	Nein	
6.	Zusätzliche grundlegende Sicherheits- und Gesundheitsschutzanforderungen an Maschinen, von denen durch das Heben von Personen bedingte Gefährdungen ausgehen.	Nein	

Appendix to Declaration of Incorporation according to 2006/42/EC Annex II, No.1 B

Description of essential health and safety requirements as defined in 2006/42/EC, Annex I, which were applied and complied with:

No.	Essential requirements	Applicable	Complied
1.1.1.	Definitions	Yes	Yes
1.1.2.	Principles of safety integration	Yes	Yes
1.1.3.	Materials and products	Yes	Yes
1.1.4.	Lighting	No	
1.1.5.	Design of machinery to facilitate its handling	Yes	Yes
1.1.6.	Ergonomics	No	
1.1.7.	Operating positions	No	
1.1.8.	Seating	No	
1.2.	Control systems		
1.2.1.	Safety and reliability of control systems	Yes	No
1.2.2.	Control devices	No	
1.2.3.	Starting	Yes	No
1.2.4.	Stopping	Yes	No
1.2.4.1	Normal stop	Yes	No
1.2.4.2	Operational stop	No	
1.2.4.3	Emergency stop	Yes	No
1.2.4.4	Assembly of machinery	No	
1.2.5.	Selection of control or operating modes	No	
1.2.6.	Failure of the power supply	Yes	No
1.3.	Protection against mechanical hazards		
1.3.1.	Risk of loss of stability	Yes	No
1.3.2.	Risk of break-up during operation	Yes	Yes
1.3.3.	Risk due to falling or ejected objects	Yes	Yes
1.3.4.	Risks due to surface, edges or angles	Yes	Yes
1.3.5.	Risks related to combined machinery	No	
1.3.6.	Risks related to variations in operating conditions	No	
1.3.7.	Risks related to moving parts	Yes	Yes
1.3.8.	Choice of protection against risks arising from moving parts	No	
1.3.8.1	Moving transmission parts	No	
1.3.8.2	Moving parts involved in the process	No	
1.3.9.	Risks of uncontrolled movements	No	
1.4.	Required characteristics of guards and protective devices		
1.4.1.	General requirements	No	
1.4.2.	Special requirements for guards	No	
1.4.2.1	Fixed guards	No	
1.4.2.2	Interlocking movable guards	No	
1.4.2.3	Adjustable guards restricting acces	No	
1.4.3.	Special requirements for protective devices	No	
1.5.	Risks due to other hazards		
1.5.1.	Electricity supply	No	
1.5.2.	Static electricity	Yes	Yes
1.5.3.	Energy supply other than electricity	Yes	No
1.5.4.	Errors of fitting	Yes	Yes
1.5.5.	Extreme temperatures	No	
1.5.6.	Fire	Yes	Yes
1.5.7.	Explosion	Not applicable or certified separately	
1.5.8.	Noise	Yes	No
1.5.9.	Vibrations	No	
1.5.10.	Radiation	No	
1.5.11.	External radiation	Yes	Yes
1.5.12.	Laser radiation	No	

1.5.13.	Emissions of hazardous materials and substances	Yes	No
1.5.14.	Risk of being trapped in a machine	No	
1.5.15.	Risk of slipping, tripping or falling	Yes	No
1.5.16.	Lightning	No	
1.6.	Maintenance		
1.6.1.	Machinery maintenance	Yes	No
1.6.2.	Access to operating positions and servicing points	No	
1.6.3.	Isolation of energy sources	Yes	No
1.6.4.	Operator intervention	Yes	Yes
1.6.5.	Cleaning of internal parts	No	
1.7.	Information		
1.7.1.	Information and warnings on the machinery	No	
1.7.1.1	Information and information devices	No	
1.7.1.2	Warning devices	No	
1.7.2.	Warning of residual risks	No	
1.7.3.	Marking of machinery	Yes	Yes
1.7.4.	Instructions	No	
1.7.4.1	General principles for the drafting of instructions	No	
1.7.4.2	Contents of the instructions	No	
1.7.4.3	Sales literature	No	
2.	Supplementary essential health and safety requirements for certain categories of machinery	No	
2.1.	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products	No	
2.2	Portable hand-held and/or hand-guided machinery	No	
2.2.1.	General		
2.2.2.	Portable fixing and other impact machinery	No	
2.3.	Machinery for working wood and material with similar physical characteristics	No	
3.	Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery	No	
4.	Supplementary essential health and safety requirements to offset hazards due to lifting operations	No	
5.	Supplementary essential health and safety requirements for underground work	No	
6.	Supplementary essential health and safety requirements for machinery presenting particular hazards due to the lifting of person	No	

Annexe à la déclaration sur quasi-machine conformément à la Directive 2006/42/CE Annexe II, n° 1 B

Description des prescriptions essentielles de santé et de sécurité conformément à la Directive 2006/42/CE, Annexe I, ayant été appliquées et qui sont respectées :

N°	Exigences fondamentales	Applicables	Réalisées
1.1.1.	Définitions	Oui	Oui
1.1.2.	Principes d'intégration de la sécurité	Oui	Oui
1.1.3.	Matériaux et produits	Oui	Oui
1.1.4.	Eclairage	Non	
1.1.5.	Conception de la machine en vue de sa manutention	Oui	Oui
1.1.6.	Ergonomie	Non	
1.1.7.	Poste de travail	Non	
1.1.8.	Siège	Non	
1.2.	Systèmes de commande		
1.2.1.	Sécurité et fiabilité des systèmes de commande	Oui	Non
1.2.2.	Organes de service	Non	
1.2.3.	Mise en marche	Oui	Non
1.2.4.	Arrêt	Oui	Non
1.2.4.1	Arrêt normal	Oui	Non
1.2.4.2	Arrêt pour des raisons de service	Non	
1.2.4.3	Arrêt d'urgence	Oui	Non
1.2.4.4	Ensemble de machines	Non	
1.2.5.	Sélection des modes de commande ou de fonctionnement	Non	
1.2.6.	Défaillance de l'alimentation en énergie	Oui	Non
1.3.	Mesures de protection contre les risques mécaniques		
1.3.1.	Risque de perte de stabilité	Oui	Non
1.3.2.	Risque de rupture en service	Oui	Oui
1.3.3.	Risques dus aux chutes, aux éjections d'objets	Oui	Oui
1.3.4.	Risques dus aux surfaces, aux arêtes ou aux angles	Oui	Oui
1.3.5.	Risques dus aux machines combinées	Non	
1.3.6.	Risques dus aux variations des conditions de fonctionnement	Non	
1.3.7.	Risques liés aux éléments mobiles	Oui	Oui
1.3.8.	Choix d'une protection contre les risques engendrés par les éléments mobiles	Non	
1.3.8.1	Eléments mobiles de transmission	Non	
1.3.8.2	Eléments mobiles concourant au travail	Non	
1.3.9.	Risques dus aux mouvements non commandés	Non	
1.4.	Caractéristiques requises pour les protecteurs et les dispositifs de protection		
1.4.1.	Exigences de portée générale	Non	
1.4.2.	Exigences particulières pour les protecteurs	Non	
1.4.2.1	Protecteurs fixes	Non	
1.4.2.2	Protecteurs mobiles avec dispositif de verrouillage	Non	
1.4.2.3	Protecteurs réglables limitant l'accès	Non	
1.4.3.	Exigences particulières pour les dispositifs de protection	Non	
1.5.	Risques dus à d'autres dangers		
1.5.1.	Alimentation en énergie électrique	Non	
1.5.2.	Electricité statique	Oui	Oui
1.5.3.	Alimentation en énergie autre qu'électrique	Oui	Non
1.5.4.	Erreurs de montage	Oui	Oui
1.5.5.	Températures extrêmes	Non	
1.5.6.	Incendie	Oui	Oui
1.5.7.	Explosion	Ne s'applique pas ou attestée séparément	
1.5.8.	Bruit	Oui	Non

1.5.9.	Vibrations	Non	
1.5.10.	Rayonnements	Non	
1.5.11.	Rayonnements extérieurs	Oui	Oui
1.5.12.	Rayonnement laser	Non	
1.5.13.	Emission de matières et de substances dangereuses	Oui	Non
1.5.14.	Risque de rester prisonnier dans une machine	Non	
1.5.15.	Risque de glisser, de trébucher ou de tomber	Oui	Non
1.5.16.	Foudre	Non	
1.6.	Entretien		
1.6.1.	Entretien de la machine	Oui	Non
1.6.2.	Accès aux postes de travail ou aux points d'intervention	Non	
1.6.3.	Séparation de la machine de ses sources d'énergie	Oui	Non
1.6.4.	Intervention de l'opérateur	Oui	Oui
1.6.5.	Nettoyage des parties intérieures	Non	
1.7.	Informations		
1.7.1.	Informations et avertissements sur la machine	Non	
1.7.1.1	Informations et dispositifs d'information	Non	
1.7.1.2	Dispositifs d'alerte	Non	
1.7.2.	Avertissements sur les risques résiduels	Non	
1.7.3.	Marquage des machines	Oui	Oui
1.7.4.	Notice d'instructions	Non	
1.7.4.1	Principes généraux de rédaction de la notice d'instructions	Non	
1.7.4.2	Contenu de la notice d'instructions	Non	
1.7.4.3	Documents commerciaux	Non	
2.	Exigences essentielles complémentaires de santé et de sécurité pour certaines catégories de machines	Non	
2.1.	Machines destinées à l'industrie alimentaire et machines destinées à l'industrie cosmétique ou pharmaceutique	Non	
2.2	Machines portatives tenues et/ou guidées à la main	Non	
2.2.2.	Appareils portatifs de fixation et autres machines à chocs	Non	
2.3.	Machines à bois et matériaux ayant des caractéristiques physiques similaires	Non	
3.	Exigences essentielles complémentaires de santé et de sécurité pour pallier les dangers dus à la mobilité des machines	Non	
4.	Exigences essentielles de santé et de sécurité complémentaires pour pallier aux dangers dus aux opérations de levage	Non	
5.	Exigences essentielles de santé et de sécurité complémentaires pour les machines destinées à des travaux souterrains	Non	
6.	Exigences essentielles de santé et de sécurité complémentaires pour les machines présentant des dangers particuliers dus au levage de personnes	Non	