

## Operating Instructions Air Amplifiers



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# 1 Basic information

Air amplifiers made by MAXIMATOR GmbH serve to compress pre-amplified compressed air from the compressed air network to a desired higher.

This procedure yields the following advantages:

- Selective pressure increase upstream of individual consumers
- Zero energy consumption after reaching of end pressure
- No electrical installations necessary
- Simple, safe and economic working
- No investment required into in-house high-pressure network or decentralised separate compressor unit

## 1.1 Notes on the Operating Instructions

These present Operating Instructions describe the configuration of air amplifiers and provides information relating to their appropriate operation and maintenance. Please, thoroughly study the Operating Instructions prior to the first use of the amplifiers. The Operating Instructions facilitate a swift understanding of all technical details and contain all necessary information for proper utilisation of our air amplifiers. The Operating Instructions include technical data, a technical description, and information regarding start-up, operation and maintenance. Each and any provided technical data as well as dimensions and weights are valid as at the printing date of these Operating Instructions. Each and any provided technical data as well as dimensions and weights are valid as at the printing date of these Operating Instructions. Deviations from narrative and pictorial information depend on the respective specific technical features and accessories, which means that the customer may not derive any claims whatsoever from such. Please, make sure to comply with all maintenance, erection and operating notes provided in these present Operating Instructions to ensure full function and safety. The air amplifiers may only be used for applications and purposes listed in these Operating Instructions. The manufacturer will not recognise any claims due to inappropriate operation and insufficient maintenance. Please, make sure to note and observe all documentation regarding compressor components and all other documents and records attached in the annex thereto. All relevant accident prevention regulations and other generally accepted safety requirements must be observed and complied with.

## 1.2 Use to the intended purpose

Air amplifiers are exclusively employed in compressed air networks in order to compress pre-amplified compressed air to a desired end pressure.

The drives of our amplifiers are rated for compressed air up to 10 bars.

Changes at, and modifications of, air amplifiers are not permitted for safety reasons.

Please, make sure to comply with all maintenance, erection and operating notes provided in these present Operating Instructions to ensure full function and safety.

Please, consult MAXIMATOR GmbH if you intend use other gases than compressed air.

## 1.3 Warranty and liability

As a rule, the „General Conditions of Sale and Delivery“ provided by the air amplifier manufacturer are valid.

Warranty and liability claims in case of personnel injury and/or property damage shall be excluded when such are attributable to one or more of the below causes

- Use of an air amplifier to other than the intended purpose.
- Inappropriate start-up, operation and/or maintenance of air amplifiers.
- Changes at air amplifiers
- Operation of an air amplifier with defective safety installations improperly mounted safety and protection installations.
- Non-observance of notes and advices given in these Operating Instructions regarding compressor start-up, operation and maintenance.
- Insufficient monitoring of parts that are subject to wear and tear.
- Inappropriate repair work.

## 2 Safety notes

### 2.1 General safety directives

Safety of the machines is governed by the below EC Directives:

- Directive 89/655/EEC
- Accident prevention regulations VSG 1.1, VSG 3.1
- Machine Directive Annex II A, Paragraph 98/37/EC:

as well as the applied harmonised standards

- EN 60204-1
- EN ISO 12100-1 and 12100-2, EN 294, EN 349, EN 60204, EN 418, EN 693, EN 574
- Accident prevention regulations of German Employers' Liability Insurance Association [Berufsgenossenschaft]

Air amplifiers may emanate hazards when used by non-skilled personnel, inappropriately or for any other than the intended purpose. Every person that is ordered to operate or maintain the air amplifiers must have read and understood the complete Operating Instructions prior to carrying out any of such operations. This applies also when the person already with the air amplifiers or received training on compressors. The owner is advised to request its personnel to verify perusal of the contents of these Operating Instructions in writing. Knowledge of the contents of the Operating Instructions is one prerequisite to protect operatives from hazards as well as avoid faults and thus operate the air amplifiers safe and without disturbances or malfunctions. The Operating Instructions shall be accessible to operating and maintenance personnel at any time! Responsibility for accident-free operation of compressors is the owner or its authorised personnel that is employed in operating or maintaining the air amplifiers.

All notes regarding labour safety refer to the currently valid regulations in the European Community. The applicable laws and national regulations have to be kept in other countries both in the European Community and in non-EU countries, the owner is obliged to determine the present status of codes and regulations. Both in the European Community and in non-EU countries, the owner is obliged to determine the present status of codes and regulations. Beside the labour safety notes in these Operating Instructions, the generally valid safety and accident prevention regulations must be observed and complied with.

All information provided in these Operating Instructions has to be observed without any restrictions!

## 2.2 Symbols and signal words



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### HAZARD

Types and sources of hazards that may result in personal injuries or property damage.  
Measures to avert such hazards.

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### CAUTION

Types and sources of hazards that may result in personal injuries or property damage.  
Measures to avert such hazards.

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### NOTE

Advice for users and useful information.

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### NOTE

Environmental impacts

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## 2.3 Fundamental Safety measures

### 2.3.1 Technical condition

**Please, observe the following:**

- In order to avoid hazards and ensure optimal performance, do not carry out any changes or modifications at the air amplifiers. The user is obliged to operate the air amplifiers in an appropriate and safe operating condition. The technical condition must conform to all statutory requirements and regulations
- The user is obliged to operate the air amplifiers in an appropriate and safe operating condition. The technical condition must conform to all statutory requirements and regulations.
- Inspect the air amplifiers prior to each start-up for damage and appropriate condition.
- Any changes at the air amplifiers that have an impact on their safety have to be reported by personnel at once to the owner.



## 2.3.2 Safety notes relating to compressor operation

Check the air amplifiers for operating safety prior to each start-up!

**Observe the following safety notes during compressor operation:**

- All generally valid safety and accident prevention regulations have to be observed!
- Make sure to know all installations, actuators and controls as well as their functions prior to starting the air amplifiers!
- Make sure during the entire operation that on-site conditions are conducive to the application of the air amplifiers.
- Stop the air amplifiers at once when any changes are noticed during their operation.



### CAUTION

Make sure to depressurise the air amplifiers prior to starting any work on the units.

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### CAUTION

Setting and repair work may only be carried out by certified workshops!

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## 2.3.3 Safety notes relating to maintenance and repair

Operating disturbances that are caused by insufficient or inappropriate maintenance may result in very high repair costs and long downtimes of the air amplifiers.

The manufacturer will not assume any liability for damage that is due to inappropriate maintenance and care!

Required maintenance intervals are specified in a maintenance schedule.

**Please, observe the following:**

- The air amplifiers may only be serviced, maintained and repaired by service personnel of the manufacturer or specifically trained and instructed skilled personnel.
- Each and any maintenance and repair work at the air amplifiers may only be carried out when the compressors have been switched off and depressurised

## 2.3.4 Requirements to owner's personnel

- The hazards that may emanate from the air amplifiers have to be pointed out to personnel before starting any work.
- Hazards of injury may emanate from the air amplifiers when not operated by properly skilled persons.
- Each person that is instructed to start up, maintain or repair the air amplifiers must have completely read and understood these Operating Instructions.
- The Operating Instructions must be accessible to the personnel at any time. It is recommended that taking note of the contents of the Operating Instructions be documented in writing.
- Upon instruction of the owner personnel has to wear protective clothing.
- All Safety notes in these Operating Instructions and in all pertaining documents must be observed and complied with at any time and without any restrictions.
- An air amplifier has to be immediately switched off when hazards are detected that may result in personal injury.
- Personnel must have well-founded knowledge of the following operational sequences, in-house regulations and behaviours:
  - Operating sequences of the air amplifiers
  - Limitation, safeguarding and marking of hazard zones
  - Behaviour and measures in cases of hazards or emergency

## 2.4 Specific safety notes

### 2.4.1 Safety in case of emissions

Depending on the specific type of application, expanding compressed air will generate a certain noise level. Air leaving the silencer may be soiled. It is also possible that small ice crystals form at the silencer that may come loose and hurl away. Persons near running air amplifiers may have to wear protective goggles and, as the case may be, ear protection.

## 2.4.2 Safety in case of defective compressors

During operation of the air amplifiers, both the drive part and the high-pressure part are under pressure. Exiting gases are under high pressure after a defective but also during normal operation and must not be caught or deflected by objects or body parts. It must be ensured that upon a defect, the air amplifiers concerned is immediately depressurised and repaired.



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### HAZARD

Maintenance and repair work may only be carried after the compressors were depressurised.

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## 2.4.3 Safety at the place of installation

MAXIMATOR air amplifiers are built in compliance with the generally accepted engineering standards that were valid upon the time of their development and manufacture and are deemed operationally safe.

Air amplifiers may emanate hazards when used by non-skilled personnel, inappropriately or for any other than the intended purpose. Air amplifiers have been solely designed for compression of air. Please, consult MAXIMATOR GmbH if you intend use other gases than compressed air. Piping and accessories have to be matched to the respective system pressure and have to have an adequate size. Suitable measures have to be adopted to ensure that the drive and supply pressures ( $p_l$  and  $p_g$ ) do not exceed the admissible value of 10 bars. Depressurise the entire system prior to commencing any repair work. Air amplifiers must be installed so that controls and actuating elements as well as bolted unions are freely accessible at any time.

Safety devices are installed downstream of the air amplifier to prevent any excess of the admissible operating pressure by 10%. These safety devices must not be lockable. They must be easily accessible and subjected to recurring functional inspections.

Measuring devices have to be provided to monitor the compressor pressure.

The regulations in the pressure Vessel Ordinance have to be observed when a downstream pressure tank is installed.



### 3 Technical Description

MAXIMATOR air amplifiers are driven by compressed air.

They increase pressure by the respective pressure ratio. Temporarily, a higher pressure is generated at a constant pressure in the compressed air system.

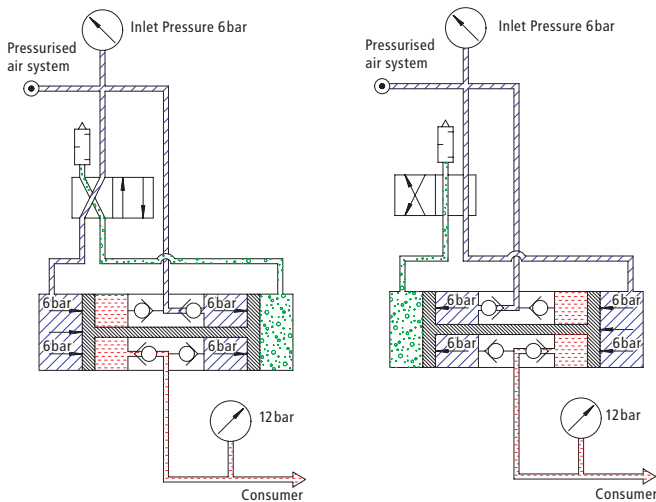
The following air amplifier models are available:

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

They can be installed into air amplifier stations which are equipped with a compressed air tank. The compressed air tank is provided to compensate pressure fluctuations and accumulate a larger quantity of air that has to be swiftly available.

The amplifier code denotes the pressure ratio. A floating gate valve alternately admits a working pressure to the pistons.

The reversing process is initiated by pilot valves that are actuated when the piston is in its final position. Non-return valves protect the inlet and outlet ports.



**Fig. 1: General action principle**

## 3.1 Functioning of the air amplifiers

### 3.1.1 Air amplifiers MPLV 4 and MPLV 4L

The feeding pressure fills the compression space from Port A. The drive space is not charged with pressure, hence the piston evades until actuates the pilot valve in the top cap. Now drive air from Port  $P_1$  flows through the main block valve and gets into the drive space. Thus, air in the compression space is compressed and conveyed to the pressure outlet (Port B). When the piston actuates the pilot valve in the bottom cap, the inflow of air into the drive space is interrupted and the process begins anew.

The pressure increase is due to the fourfold larger surface area of the piston in the drive space in comparison to the piston in the compression space.

#### Example:

Drive pressure	= 6 bars
Pressure ratio	= 1:4
Operating pressure	= $6 \times 4 = 24$ bars

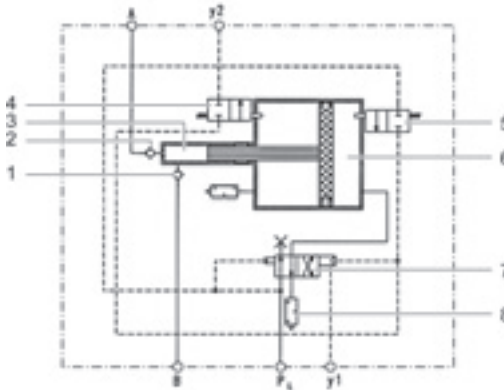
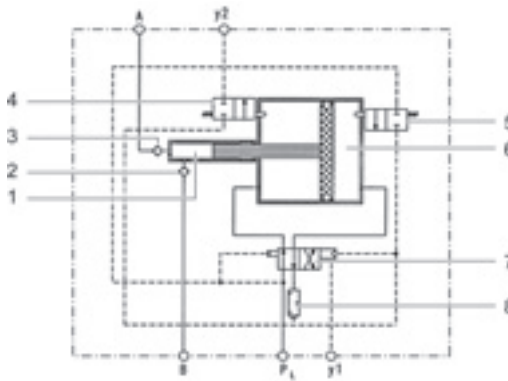


Fig. 2: Functioning of MPLV 4

1	Pressure outlet	5	Pilot valve
2	Feeding pressure	6	Drive space
3	Compression space	7	Servo-valve
4	Pilot valve	8	Exhaust

$P_1$  = Drive pressure  
 $B$  = pressure outlet  
 $Y_2$  = Exhaust air from pilot valve

$A$  = Feeding pressure  
 $Y_1$  = Exhaust air from control valve



**Fig. 3: Functioning of MPLV 4L**

- |   |                   |   |             |
|---|-------------------|---|-------------|
| 1 | Compression space | 5 | Pilot valve |
| 2 | Pressure outlet   | 6 | Drive space |
| 3 | Feeding pressure  | 7 | Servo-valve |
| 4 | Pilot valve       | 8 | Exhaust     |

$P_1$  = Drive pressure Tab. 1:

B = Pressure outlet

$Y_2$  = Exhaust air from pilot valve

A = Feeding pressure

$Y_1$  = Exhaust air from control valve

The function in this model MPLV 4L is distinguished from the normal MPLV 4 version in the „suction stroke“ is carried out through drive air and by the admission pressure at Port „A“. This means that lower admission pressures can be used.

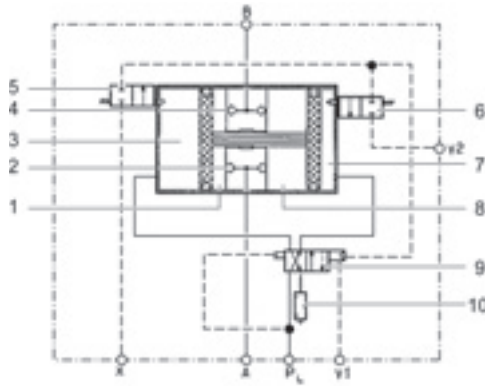
### 3.1.2 Air amplifiers MPLV 2, SPLV 2 and GPLV 2

From Port A, feeding air flows through the non-return valves 2 and gets into compression spaces I and II. The drive pressure (Port  $P_1$ ) fills drive space II through the main block valve, while drive space I is pressure-relieved. Due to its movement, the piston reduces the volume of compression space II and pressure is increased. Operating pressure is conveyed to the device outlet (Port B) through the non-return valve 4. The main block valve is reversed by a pilot valve upon reaching its end position. Drive space II is vented. The amplification of compressed air is performed in compression space I.

In air amplifiers fitted with a Port X, control air is charged from an external source. Control air is branched off from drive compressed air (upstream of pressure reduction) and charged through pipes to Port X. A directional control valve in the control pipe can be used to the air amplifiers on and off.

**Example:**

Drive space II	= 4 bars
+ Compression space I	= 4 bars
<hr/>	
Compression space II	= 8 bars



**Fig. 4: Functioning of MPLV 2, SPLV2, GPLV2**

- |                            |                         |
|----------------------------|-------------------------|
| 1 Compression space II     | 6 Pilot valve           |
| 2 Non-return valves inlet  | 7 Drive space I         |
| 3 Drive space II           | 8 + Compression space I |
| 4 Non-return valves outlet | 9 Servo-valve           |
| 5 Pilot valve              | 10 Exhaust              |

$P_L$  = Drive pressure:

$B$  = pressure outlet

$Y_2$  = Exhaust air from pilot valve



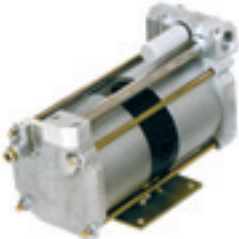

$A$  = Feeding pressure



$Y_1$  = Exhaust air from control valve

$X$  = Control pipe  
(possible external port for control pipe)



## 3.2 Overview of air amplifiers

Designation	Figure	Brief characteristic
MPLV 2		<ul style="list-style-type: none"> <li><input type="checkbox"/> Output capacity 580 l<sub>N</sub>/min at 6 bars admission pressure and 8 bars operating pressure</li> <li><input type="checkbox"/> Operating time 50%</li> <li><input type="checkbox"/> Selective pressure increase upstream of individual consumer</li> <li><input type="checkbox"/> Upon reaching of end pressure - zero energy consumption</li> </ul>
MPLV 4		<ul style="list-style-type: none"> <li><input type="checkbox"/> Output capacity 50 l<sub>N</sub>/min at 6 bars admission pressure and 16 bars operating pressure</li> <li><input type="checkbox"/> Operating time 50%</li> <li><input type="checkbox"/> Selective pressure increase upstream of individual consumer</li> <li><input type="checkbox"/> Upon reaching of end pressure - zero energy consumption</li> </ul>
SPLV 2		<ul style="list-style-type: none"> <li><input type="checkbox"/> Output capacity 960 l<sub>N</sub>/min at 6 bars admission pressure and 8 bars operating pressure</li> <li><input type="checkbox"/> Operating time 50%</li> <li><input type="checkbox"/> Selective pressure increase upstream of individual consumer</li> <li><input type="checkbox"/> Upon reaching of end pressure - zero energy consumption</li> </ul>
SPLV 3		<ul style="list-style-type: none"> <li><input type="checkbox"/> Output capacity 230 l<sub>N</sub>/min at 6 bars admission pressure and 15 bars operating pressure</li> <li><input type="checkbox"/> Operating time 50%</li> <li><input type="checkbox"/> Selective pressure increase upstream of individual consumer</li> <li><input type="checkbox"/> Upon reaching of end pressure - zero energy consumption</li> </ul>

Designation	Figure	Brief characteristic
GPLV 2		<ul style="list-style-type: none"> <li><input type="checkbox"/> Output capacity 1200 l<sub>N</sub>/min at 6 bars admission pressure and 8 bars operating pressure</li> <li><input type="checkbox"/> Operating time 50%</li> <li><input type="checkbox"/> Selective pressure increase upstream of individual consumer</li> <li><input type="checkbox"/> Upon reaching of end pressure - zero energy consumption</li> </ul>
GPLV 5		<ul style="list-style-type: none"> <li><input type="checkbox"/> Output capacity 360 l<sub>N</sub>/min at 8 bars admission pressure and 30 bars operating pressure</li> <li><input type="checkbox"/> Operating time 50%</li> <li><input type="checkbox"/> Selective pressure increase upstream of individual consumer</li> <li><input type="checkbox"/> Upon reaching of end pressure - zero energy consumption</li> </ul>

## 4 Erection and start-up

### 4.1 General notes on erection at place of application

Our air amplifiers can be installed in any desired position.

Fixing angles are provided for fastening the air amplifiers. Make sure to avoid ingress of any foreign matter into the air amplifiers ports during erection (e.g. drilling dust during wall mounting). Remove the blind plugs from air amplifiers ports only just prior to fastening the respective ports.



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**NOTE**

Make sure to apply always the same torque (8 Nm) on stud bolts and nuts when mounting air amplifiers to prevent distortion of the top and bottom parts of air amplifiers.

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### 4.2 Compressed air system

The compressed-air port requires mounting of a compressed air control unit made by MAXIMATOR downstream of the air amplifiers.

The compressed air control unit consists of pressure filter, water separator, shut-off valve, pressure controller, pressure gauge and, if need be, safety valve.



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**Fig. 5: Compressed air control unit**

If there is no compressed air control unit installed, the specified compressed air quality for the air amplifier has to be ensured according to the requirements of the manufacturer.

## Requirements to compressed air quality:

- Solid matter  
Maximum particle size 5  $\mu\text{m}$   
Maximum particle concentration 5  $\text{mg}/\text{m}^3$
- Dew point  
Up to +10 °C, water content of 9.4  $\text{g}/\text{m}^3$   
Up to + 2 °C, water content of 5.6  $\text{g}/\text{m}^3$
- Oil content  
1.0 to 5  $\text{mg}/\text{m}^3$

### 4.2.1 Compressed air lubricator

A compressed air lubricator is not necessarily required. All moving air amplifiers parts are treated with special grease during erection.

The grease may become gummy when the air amplifier is operated with extremely dry air for a longer period of time. Use of a compressed air lubricator is recommended in such cases.



#### CAUTION

After use of a compressed air lubricator the air amplifiers must never be operated without this oiler. The oil of the compressed air lubricator purges grease from the air amplifiers so that permanent lubrication cannot be ensured.

Special grease made by the MAXIMATOR GmbH may be used for re-lubrication. When employing a compressed air lubricator, the oil content of compressed air should be 1  $\text{mg}/\text{m}^3$  to 5  $\text{mg}/\text{m}^3$ .

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### 4.2.2 Pipe cross sections

The compressed air port must not be specified smaller than the port thread. Reduction to smaller port threads may result in performance losses and malfunctions of the air amplifiers.

Excessively long supply pipes may give rise to problems due to pressure drop in smaller pipes.

## 4.3 High-pressure system

The employed HP pipes and accessories parts must be matched to the air amplifiers as regards pressure and cross sections. Otherwise the performance capacity and safety of the air amplifiers may be impaired.

### 4.3.1 Pressure pipe

The pressure pipe and the pertaining accessories must withstand the maximum outlet pressure of the air amplifiers. The pressure strength may only be fallen short of when an adequate safety valve is installed in the pressure pipe. The cross section of the pressure pipe must not be smaller than that of the pressure port. A smaller cross section will reduce output capacity and lead to higher warming of the compressor.

### 4.3.2 Compressor medium

The air amplifiers may only be used for compressed air. Any other media have to be tested before utilisation by MAXIMATOR GmbH for compatibility with the air amplifier materials.

## 4.4 Start-up

As in a normal piston-type compressor, there occur pressure pulsations in air amplifiers due to the stroke frequency. Such pressure pulsations can be reduced by providing an additional volume (e.g. a pressure tank). The filling time of the additional volume downstream of the air amplifier can be reduced by means of a bypass pipe. This means that the air amplifier is bypassed by a pipe with non-return valve that is branched off directly from the compressed air port. The air amplifier only starts to increase pressure when the operating pressure  $p_b$  is equal to the inlet pressure  $p_a$ . Air amplifiers with external control air are equipped with a port marked „X“ (also possible for SPLV 2 and GPLV 2). This pipe that is branched off from inlet pressure can be used for installation of a pressure switch.

## Connection options for air amplifiers:

1. Control of operating pressure  $p_b$  by reduction of drive pressure  $p_i$ .  
Larger pressure fluctuations in the compressed air network make an impact on operating pressure. Pressure reduction will decrease output capacity.
2. Direct control of operating pressure  $p_b$  by pressure reducer valve.  
Good control of operating pressure at highest output capacity. Pressure fluctuations in the compressed air network do not make an impact on operating pressure (external control port).
3. Use of a pressure switch NO (normally open, only possible in SPLV 2 and GPLV 2). Drive air flows through the bypass pipe to pressure outlet until the same pressure is achieved. A larger volume can be faster filled on the pressure outlet side. The air amplifier operates until the operating pressure set at the pressure switch NO has been reached. This connection option is only reasonable when there is no continuous compressed air consumption.
4. Use of a pressure switch NC (normally shut, only possible in SPLV 2 and GPLV 2).  
The pressure switch NC has to be set to a lower pressure than the drive pressure. Air flows through the bypass pipe as long as the operating pressure is lower than the set pressure. The air amplifier does not yet operate under these circumstances. The air amplifier only starts to work when the operating pressure has reached the set value. Wearing of sealings can be reduced with this switching set-up.

## 5 Maintenance and servicing

### 5.1 Maintenance notes

The air drives of all air amplifiers are pre-treated with high-performances grease during erection and require no other form of lubrication. During maintenance and servicing work of the air amplifiers, the servo-valves and air pistons shall be treated with an acid- and silicon-free high-performances grease provided by the manufacturing company. A compressed air oiler has to be installed upstream of the air amplifier at a stroke frequency of  $\geq 150$  strokes/min or an operating time of  $> 50$  %.

### 5.2 Servicing



#### NOTE

Use only original MAXIMATOR spare parts when repairing.



#### NOTE

Exercise and observe utmost cleanliness during serving and repair of air amplifiers to ensure proper functioning and longevity of the precision-machined parts.

Possible fault	Cause of fault	Fault removal
Air amplifier fails to run at low air pressure.	Friction of O-rings on servo-valve is too high.	<input type="checkbox"/> Re-lubricate. <input type="checkbox"/> Replace O-rings on servo-valve.
Air amplifier fails to run or operates only slowly.	Exhaust or servo-valve covered with ice.	<input type="checkbox"/> Dewater compressed air with water separator.
	Formation of residue in the silencer.	<input type="checkbox"/> Clean the silencers. <input type="checkbox"/> Replace, if need be.
Air amplifier fails to run. Air escapes through the exhaust.	O-rings at servo-valve are defective.	<input type="checkbox"/> Change and grease O-rings.
	O-ring at air piston is defective or worn out.	<input type="checkbox"/> Change and grease O-rings.

Possible fault	Cause of fault	Fault removal
Air amplifier does not work. Air flows through small boring at housing of main block valve.	Servo-valve is hung up.	<input type="checkbox"/> Clean servo-valve and sleeve. <input type="checkbox"/> Check O-rings and sleeve and replace, if need be. Lubricate.
Air amplifier does not work. Air flows through small boring at servo-valve housing.	Pilot valve in top or bottom cap is hung up.	<input type="checkbox"/> Clean and grease pilot valve. <input type="checkbox"/> Replace pilot valve, if need be. Clean servo-valve and sleeve.
Air amplifier runs with high frequency and short strokes.	Pilot valve in top or bottom cap is hung up.	<input type="checkbox"/> Clean and grease pilot valve. <input type="checkbox"/> Replace pilot valve, if need be
Air amplifier fails to reach its arithmetic end pressure.	Sealings on air pistons are worn out.	<input type="checkbox"/> Replace and grease sealings.
	Failure of non-return valves.	<input type="checkbox"/> Check and clean non-return valves. <input type="checkbox"/> Replace non-return valves, if need be.
Only applicable to MPLV 4, SPLV3 and GPLV 5 Air amplifiers fails to reach end pressure.	Leakage in HP sealing.	<input type="checkbox"/> Replace HP sealing.
Only applicable to MPLV 4, SPLV3 and GPLV 5 Air amplifier does not stop.	Admission pressure too low.	<input type="checkbox"/> Increase admission pressure.

## 5.3 Repair



### NOTE

Repair instructions for the air amplifiers can be found on the Internet at [www.maximator.de](http://www.maximator.de).



### CAUTION

Repair work has to be carried out by qualified skilled operatives. Make sure to observe absolute cleanliness.  
Make sure to observe absolute cleanliness. Minor impurities may cause serious damage at precision-machined compressor components.



Individual parts of the air amplifiers can be ordered as spare parts from MAXIMATOR. Sealings are subject to high wear and tear.

The order numbers and compositions of sealing kits are indicated in the respective drawing. Said drawing is part of each air amplifier documentation and is enclosed to the packaging of the air amplifiers.

Please, quote the serial number of the air amplifier when ordering spare parts. The serial number (a 6-digit number) is located on the machine plate and the compressor housing.



#### NOTE

You can ship defective air amplifiers for repair to MAXIMATOR. All repair work is conducted by qualified personnel in clean rooms.

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### 5.3.1 Liability for material defects

For air amplifiers, manufacturer grants a warranty of twelve (12) months on material quality and workmanship. Said warranty commences on the air amplifier shipment date.

This warranty does not cover defects caused by application of inadmissible medias and foreign matter in the drive or media. This shall also apply to excision of maximum operating pressure. This warranty does also not apply to damage resulting from normal wear and tear (wear parts, such as sealings, guiding elements, etc.), improper operation and inadequate maintenance.



## 6 Technical data

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



- Hochdruck-Pumpen für verschiedene Flüssigkeiten (Öl, Wasser, Emulsion usw.)
- High-pressure pumps for different liquids (oil, water, emulsion etc.)
- Pompes haute pression pour différents fluides



- Druckluft-Erhöher
- Compressed Air Amplifiers
- Surpresseurs d'air comprimé



- Gasinnendruck-Technik
- Gas Assist Injektion Systems
- Technique de gaz sous pression



- Prüfstände für Druckprüfungen, Berstdruckprüfungen und Impulsprüfungen
- Special Test Benches
- Bancs d'essai spéciaux



- Ventile, Rohre, Armaturen für die Hochdruck-Technik
- High Pressure Valves, Fittings, Tubing
- Vannes, tubes, raccords pour techniques haute pression

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