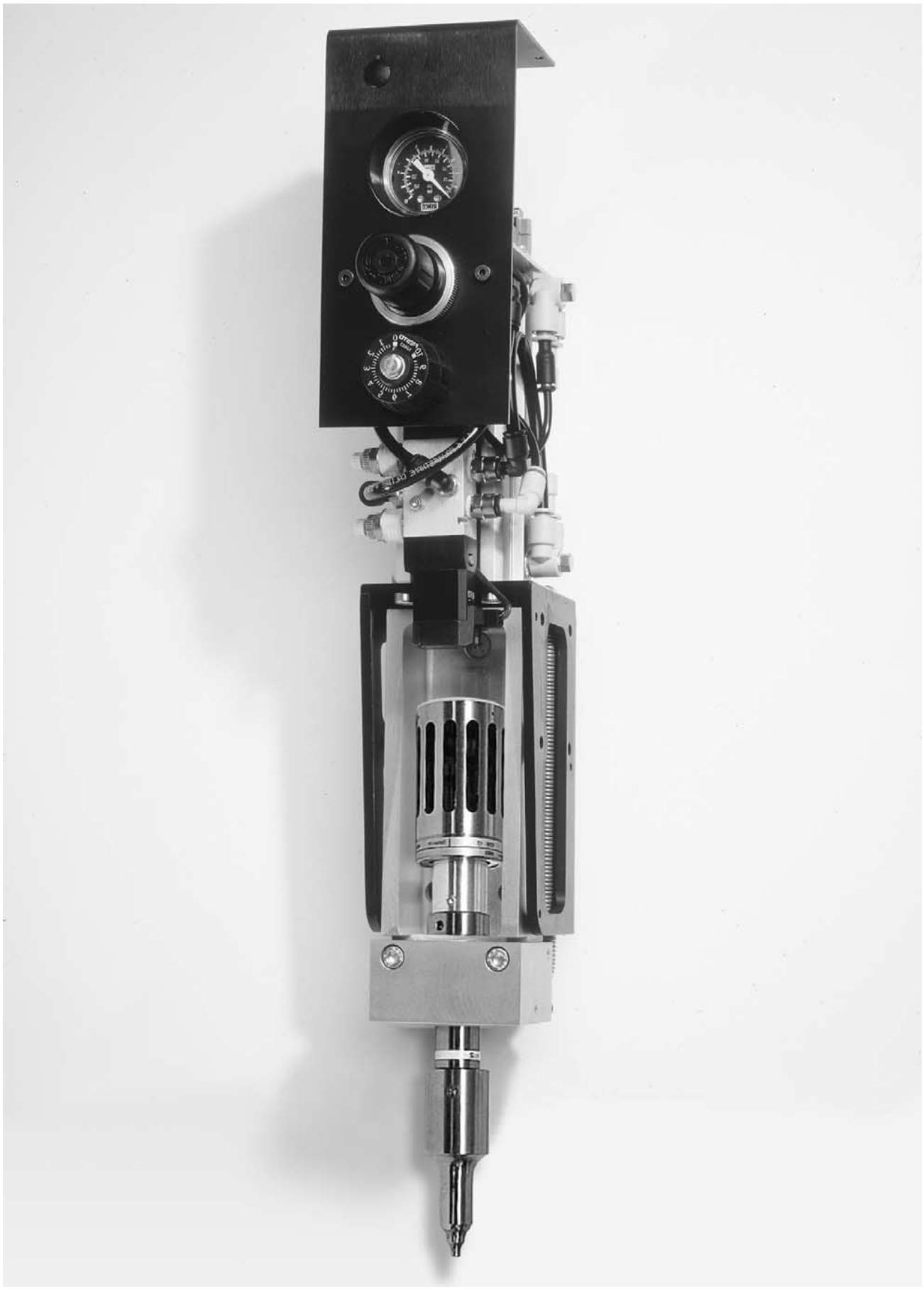
Operating Instructions

SPECIAL FEED UNIT SV35-100-1/50-1

English



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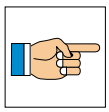
Note



Please read carefully and take note of these operating instructions before unpacking the device!

Only persons who are familiar with the operating instructions and the applicable regulations with regard to occupational safety and accident prevention may use, service and maintain this device.

Content

Important!

Should you have any enquiries about your special feed unit, please quote the exact model code and serial number. These are to be found on the rating plate located on the side of the device.

This device's design and circuitry are both subject to ongoing development and improvement and represent the current state of the art.

RINCO ULTRASONICS AG
Romanshorn, Switzerland

Foreword

Congratulations on purchasing the special feed unit. This manual is aimed at providing both purchaser and user with all necessary information for handling, assembly, operation and care of the special feed unit. In order to ensure that the system can be operated at all times, the information and instructions in this manual must be followed.

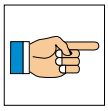
1 Safety

1.1 Explanation of symbols and signs

Symbols are used to indicate dangers and modes of behaviour. The symbols are used in the operating instructions. All warning and information symbols describe situations that, if not observed, could endanger people, objects and the environment.

There are two types of warning symbols in the operating instructions:

Structure of the warning system



Note!
Particularly important information or instructions to ensure trouble-free operation.

Caution!
Refers to potentially dangerous situations. Failure to heed the warning could result in severe injury or damage to components.

2 Safety information

2.1 General

The special feed unit meets the current state of the art and is safe to operate. Both the individual modules and the device as a whole are subject to ongoing quality inspections.

2.2 Correct use

The special feed unit is intended exclusively for the ultrasonic welding and ultrasonic cutting of suitable plastics. Any other or further use is unauthorised. The manufacturer is not liable for any damage caused by improper use. The risk is borne solely by the user.

2.3 Particularly important

Before commissioning this device, read these operating instructions carefully. Insufficient knowledge about use and operation can result in damage to the device. These operating instructions should always be available wherever this device is in use. Changes, modifications and additions to the device that could impair its functionality may not be made without the permission of the supplier.

2.4 Personnel

- Only reliable personnel with the necessary training or who have been instructed accordingly may operate the special feed unit.
- Ensure that only authorised personnel work with the special feed unit!
- In accordance with the electro-technical regulations, only an electrical engineer or persons instructed and supervised by an electrical engineer may work on the electrical equipment of this device.
- Only trained personnel with knowledge of pneumatics may work on the pneumatic facilities!

2.5 Personnel protection

With special equipment, the focus is on the design features of modularity and compactness. As the Special feed unit can be used in an infinite variety of different applications, personnel protection has to be incorporated into the equipment design.

2.6 Installation of the equipment

Ensure that the equipment has been unplugged from the mains before performing any connection work!
The mains connection must have a connection to ground!
Observe any statutory safety requirements that may be applicable at national level!
In the event of non-compliance with these instructions, the manufacturer shall not be liable for any damage to persons or property!

Only personnel who have been instructed accordingly may install and set up the equipment in production facilities.
When working with generators, as well as with converters and boosters, the relevant operating instructions must be observed.
In order to obtain good welding results, the horn face and the surface of the parts should be exactly parallel to each other. The tools required for setting this up are included in the special machine design.
Use only dry compressed air for operation. If necessary, a water separator should be connected in series.

2.7 Operation

When operating the special feed unit, on no account must the generator or converter casing be opened. There is a high voltage inside the device – danger of injury!
Do not do anything that could impair safety! Only operate the special feed unit when all safety devices and facilities are in place and in good working order.

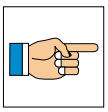
Before switching on the special feed unit, ensure that there is no danger of anyone being injured when it starts up.
Correct operation and the careful handling of equipment and relevant tools during operation:

- Maintain the operational readiness
- Increase the service life
- Reduce downtimes to a minimum

2.8 Warranty

By supplying the system, RINCO ULTRASONICS AG enters a warranty obligation in accordance with the VSM (Swiss Association of Machinery Manufacturers).

- The user must have a knowledge of the content of these operating instructions
- The instructions and warnings contained in these operating instructions must be observed
- Unauthorised modifications or changes to parts of the special feed unit, the oscillating system and to the generator are not permitted.



RINCO ULTRASONICS AG will be happy to discuss any problems over the telephone or to send trained personnel to provide the necessary instruction.

3 Transportation

Only specially trained personnel may perform transport work. The transport information on the packaging must be observed.

3.1 Unpacking

The equipment is packed at the factory for transport. The shipping container for the equipment withstands normal loads when transported by road, rail and air. On receipt of the shipment, check that all parts correspond to the packing list and also whether there is any visible damage. If you find any damage, notify the transport company immediately and retain the packaging as proof.

3.2 Transport damage

The transport company is responsible for any damage that occurs during transport. A complete report detailing the damage has to be submitted to the transport company; this serves as a basis for the claim for damages.
In the event of any damage to or loss of the goods supplied by us, we should be notified immediately. A copy of the above-mentioned report should also be submitted as proof of damage or loss.
If the goods are delivered by RINCO ULTRASONICS AG free of all charges or CIF, the damaged goods will, if necessary, be replaced and claims will be submitted to the relevant transport insurance company.

3.3 Equipment location

The location of the equipment is important. In order to guarantee a long service life, the equipment should be installed in a clean environment. Care should be taken to ensure that the electronic equipment is stored away from all vibrations.

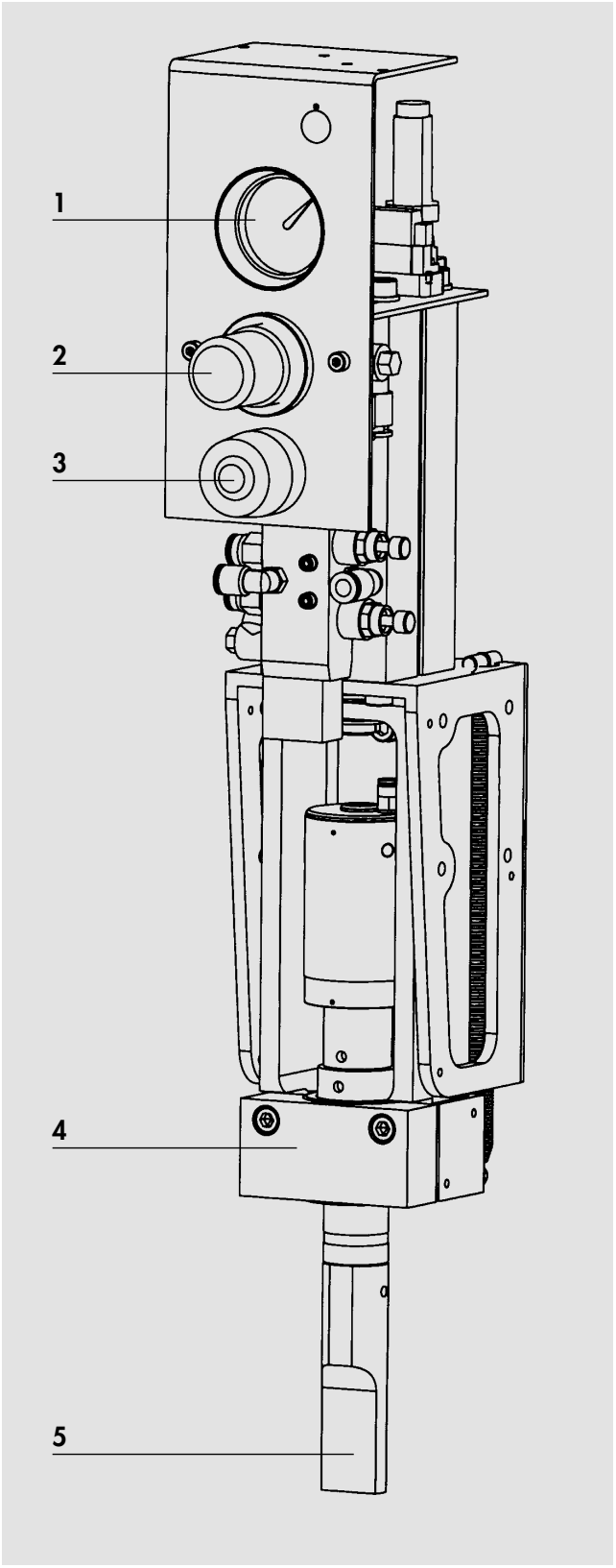
The factory settings are made at 20° C. The ambient temperature during use can be between 10° C and 45° C.

4 Product information

4.1 Product overview

4.1.1 Special feed unit

1 System pressure display
2 System pressure controller
3 Speed regulating valve
4 Converter casing
5 Horn

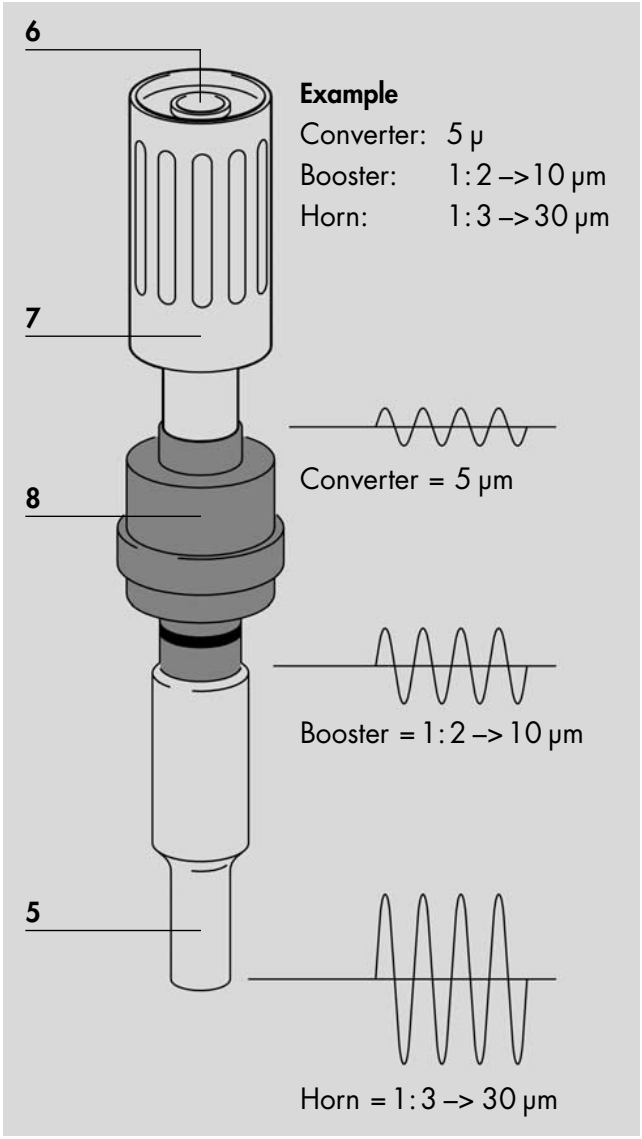


4.1.2 Oscillator unit

5 Horn
6 HF connection
7 Converter
8 Booster

Amplitude amplification
The amplitude can be amplified by means of various types of booster or horn.
The individual elements are mechanically connected by means of a screw thread.
The **tightening torque** for 35 kHz systems is 15 – 20 Nm. We recommend the use of a RINCO-tool key.

The **permissible operating temperature** is between **10° C and 50° C.**



4.1.3 Converter

Piezoelectric converter

Type	
C35-10	No amplification with cooling connection as standard
C35-12	No amplification, slit

4.1.4 Booster

The following booster types are available for RINCO 35 kHz welding equipment:

Reducing booster	**Colour**	**Material**	**Booster**	**Colour**	**Material**
1:0.5	blue	Aluminium	1:1	green	Aluminium
1:0.6	violet	Aluminium	1:1.5	yellow	Aluminium
other ratios available on request			1:2	white	Titanium
			1:2.5	black	Titanium
			1:3	brown	Titanium

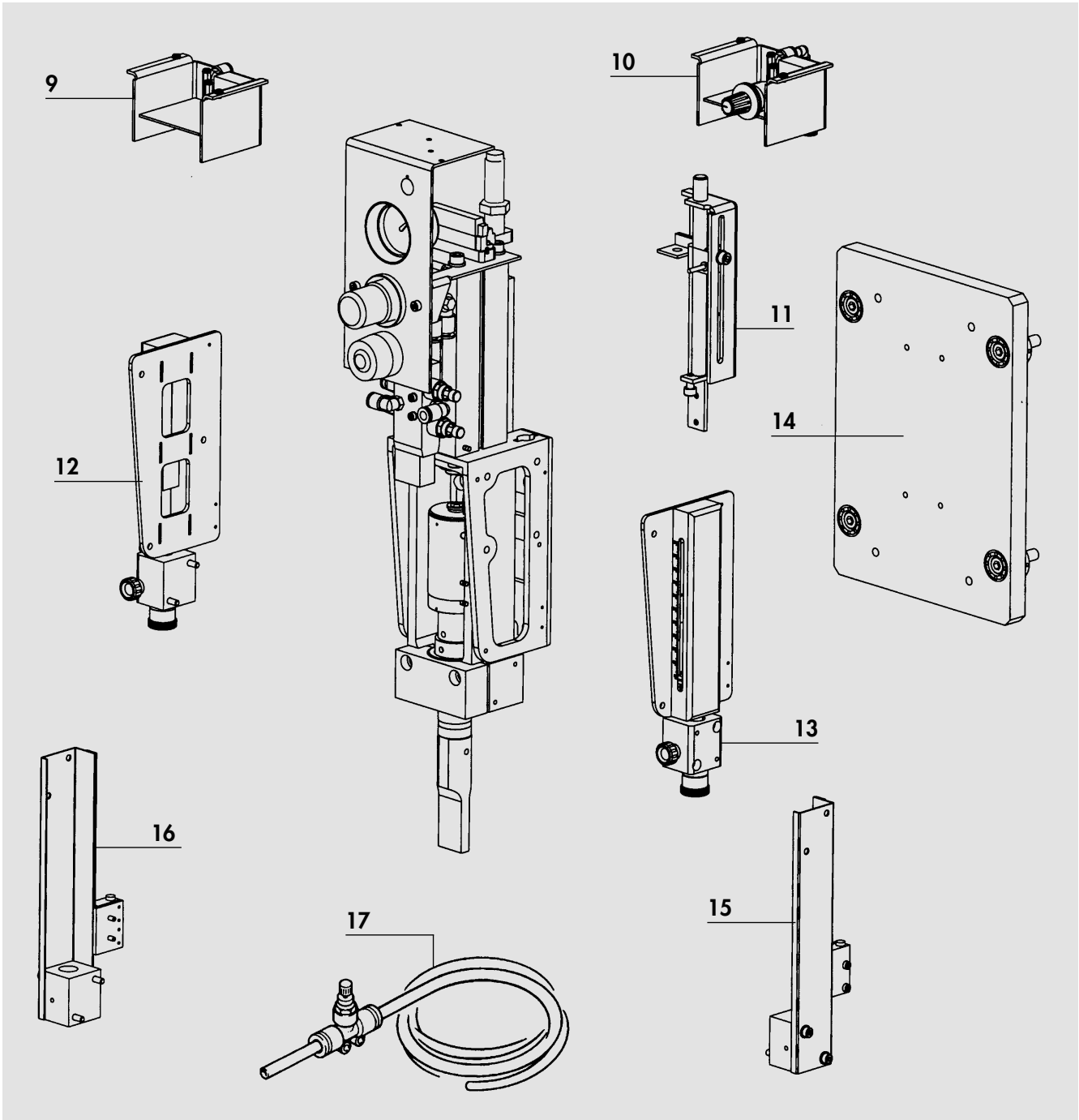
Connecting thread
- Converter side: M8
- Horn side: M8

Before assembly, the coupling surfaces should be cleaned. Parts with a damaged coupling surface should be replaced.

4.1.5 Options

9 Trigger block without potentiometer
10 Trigger block with potentiometer
11 Depth cut-off
12 Lift stop left
13 Lift stop right
14 Levelling plate
15 Path measurement right
16 Path measurement left
17 Cooling set (converter cooling)*

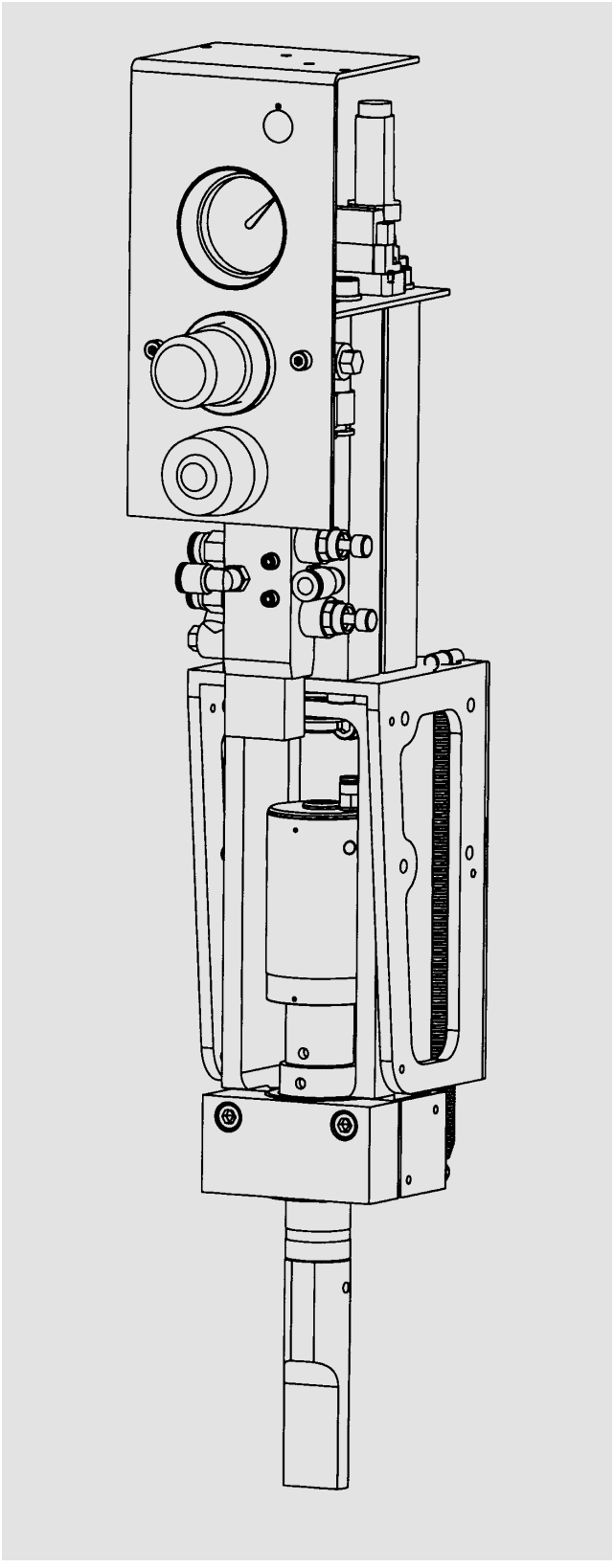
* If a cooling set is ordered, an unslit C35 -10 converter is also supplied.



4.2 Technical specifications

4.2.1 Feed unit

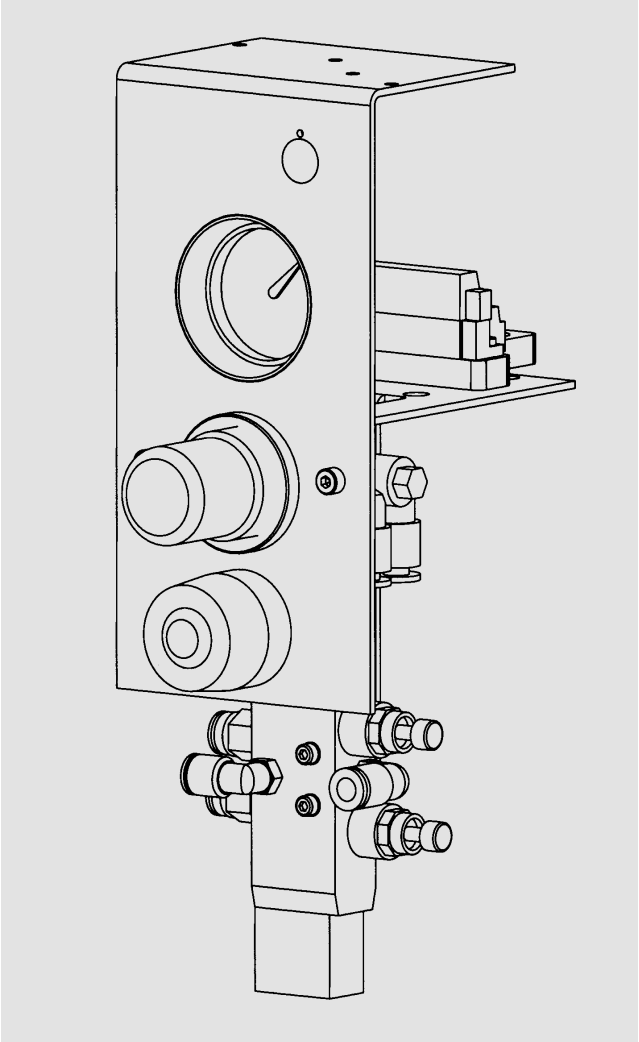
- Maximum tool stroke: 100 mm or 50 mm
- Force at 6 bar: 745 N
- Adjustable depth stop with fine adjustment and scale
- Precision ball guidance on feed slide
- Dual action cylinder with magnetic ring
- Switch for upper cylinder position



4.2.2 Front

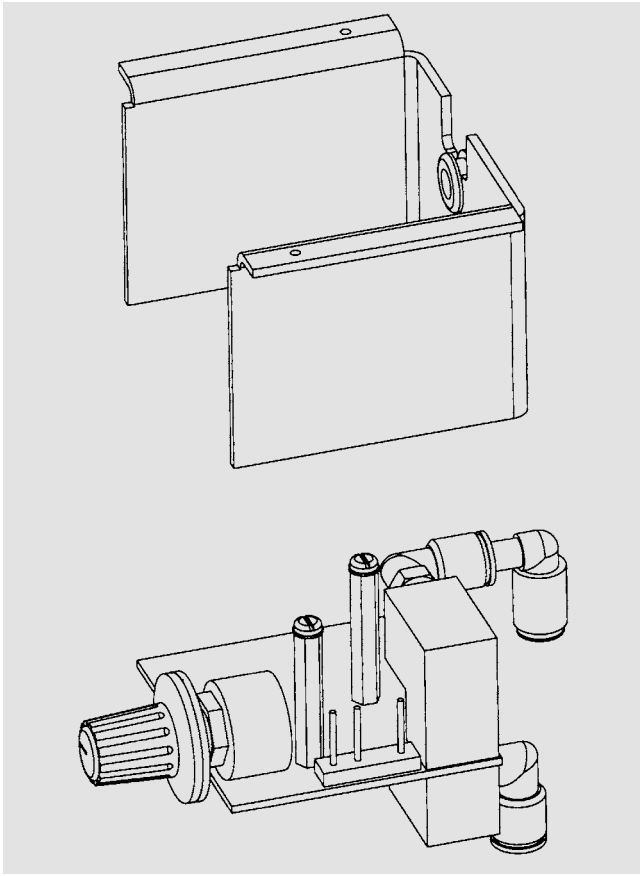
The front, namely the pressure-regulating throttle-valve, was designed so that it can be placed on the pneumatic cylinder and screwed into position.
The entire module can, of course, also be installed separately

When selecting a valve, check whether the application requires the use of an auxiliary-control valve (operating pressure range of 0–8bar). Such a valve, with 24V DC coil, is mounted as standard.



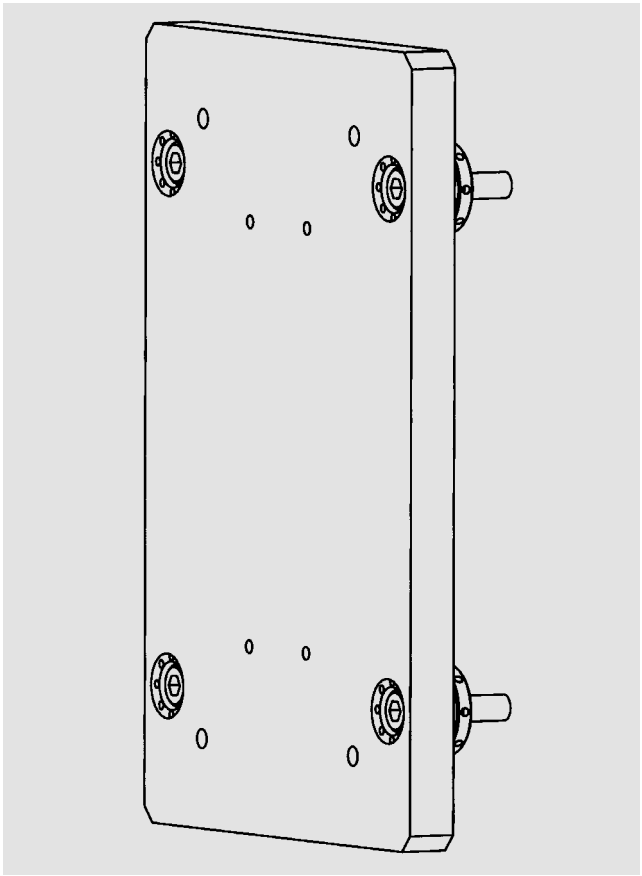
4.2.3 Trigger block

The trigger block (with or without potentiometer) can be placed on the front and screwed into position.
A circuit-board with pressure sensor is located inside the block; this feeds the signal for the ultrasonic trigger to the generator.



4.2.4 Levelling plate

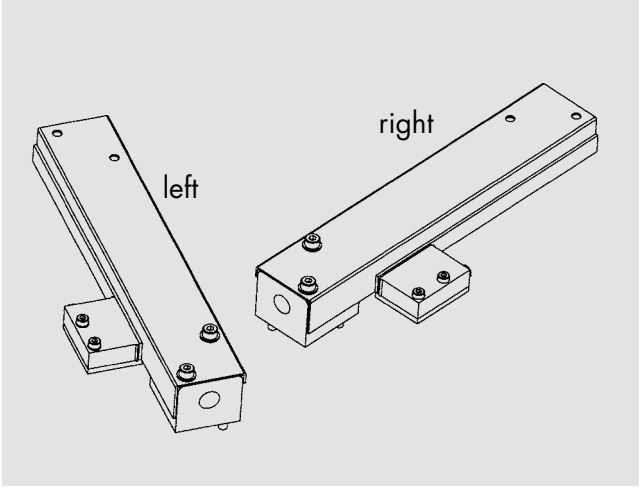
The levelling plate facilitates a high degree of parallelism.



4.2.5 Path measurement

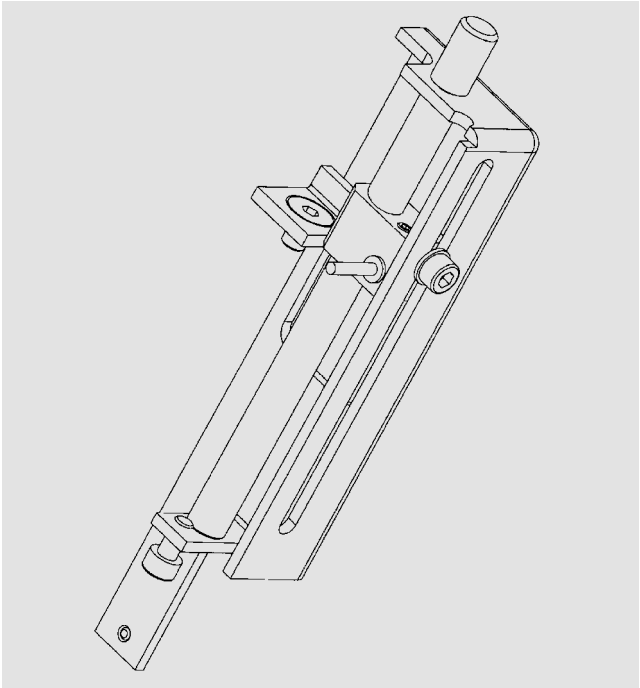
The path measurement unit is fitted with a magnetic sensor (resolution 0.01 mm) and magnetic tape. The complete module can be attached to the side of the special feed unit (converter support). The path measurement unit can be mounted on both sides of the special feed unit.

The path measurement unit should **only** be used in conjunction with the PCS generator control unit. See the PCS operating manual for information on welding in the path mode.



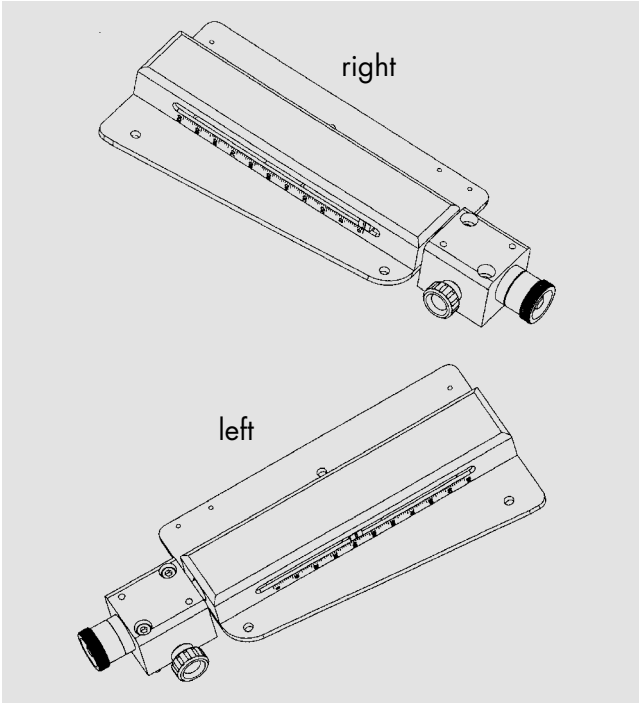
4.2.6 Depth cut-off

The depth cut-off is fitted with an inductive sensor. The complete module can be attached to the special feed unit (cylinder support). The depth cut-off can be retrofitted as pre-assembled module. The depth cut-off is only possible with special feed unit SV35-100-1.



4.2.7 Lift stop right/left

The lift stop can be attached to the special feed unit (cylinder support) as complete module. The lift stop can be mounted on both sides of the special feed unit.



4.2.8 Compressed air

Ensure that only dry compressed air is connected.

- Minimum 5.5 bar
- Maximum 7 bar

4.2.9 Dimensions

See diagrams on pages 20 and 21.

4.2.10 Weight

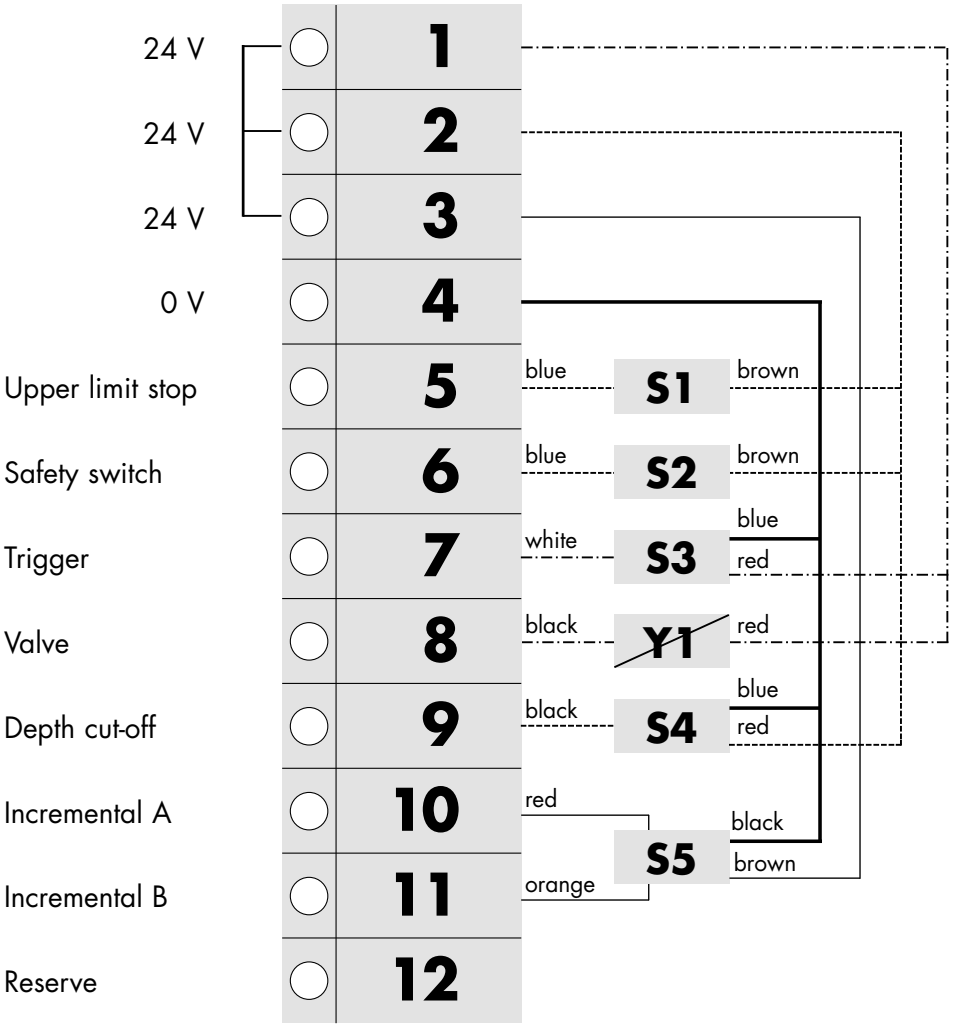
SV35-100-1	6.0 kg with oscillator system
SV35-50-1	6.0 kg with oscillator system

4.2.11 Available generators

Type	maximum output	max. current consumption
SL35 400/600/900	400/600/900 W	5 A
PCS35 400/600/900	400/600/900 W	5 A
RL35 250/400/600/900	250/400/600/900 W	5 A

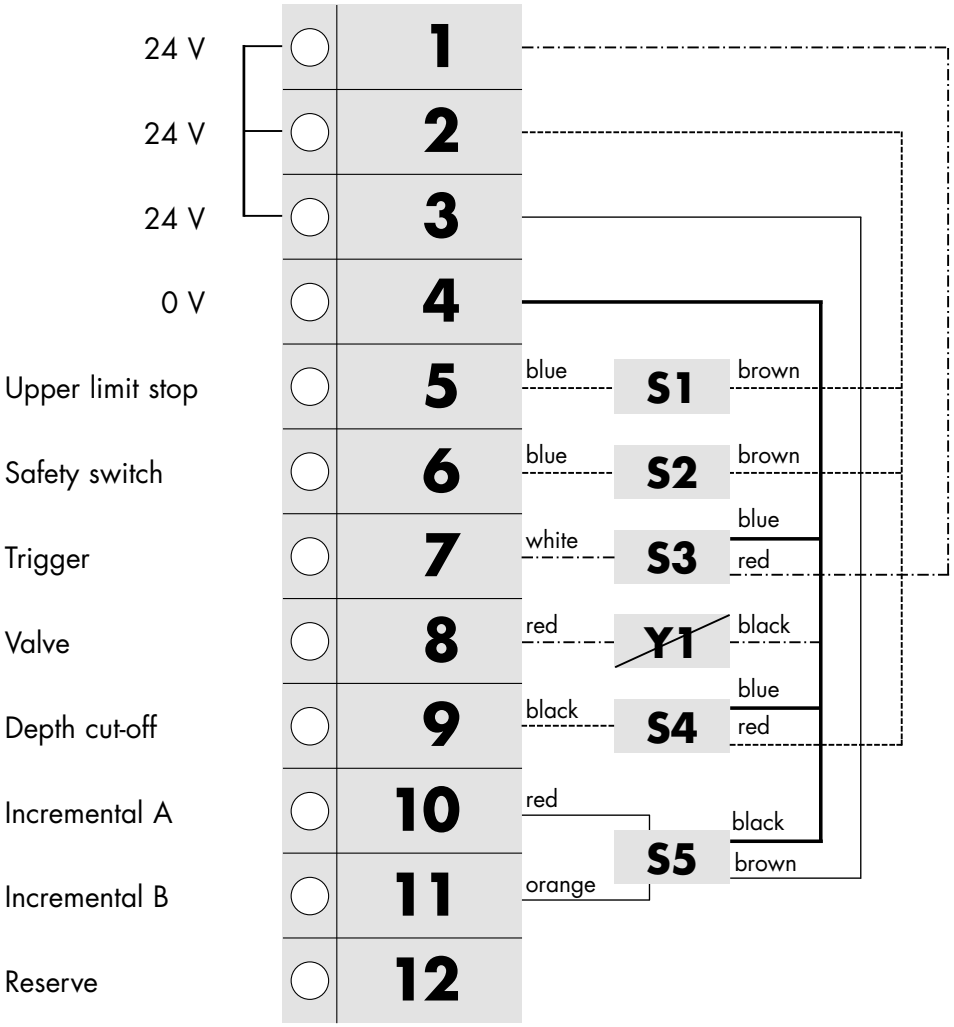
5 Electric diagram

5.1 Connection plan for use with generator



S1 Sensor upper limit stop
S2 Safety switch sensor
S3 Trigger
S4 Depth cut-off sensor (only with SV35-100-1)
S5 Magnetic sensor (path measurement)
Y1 Solenoid valve

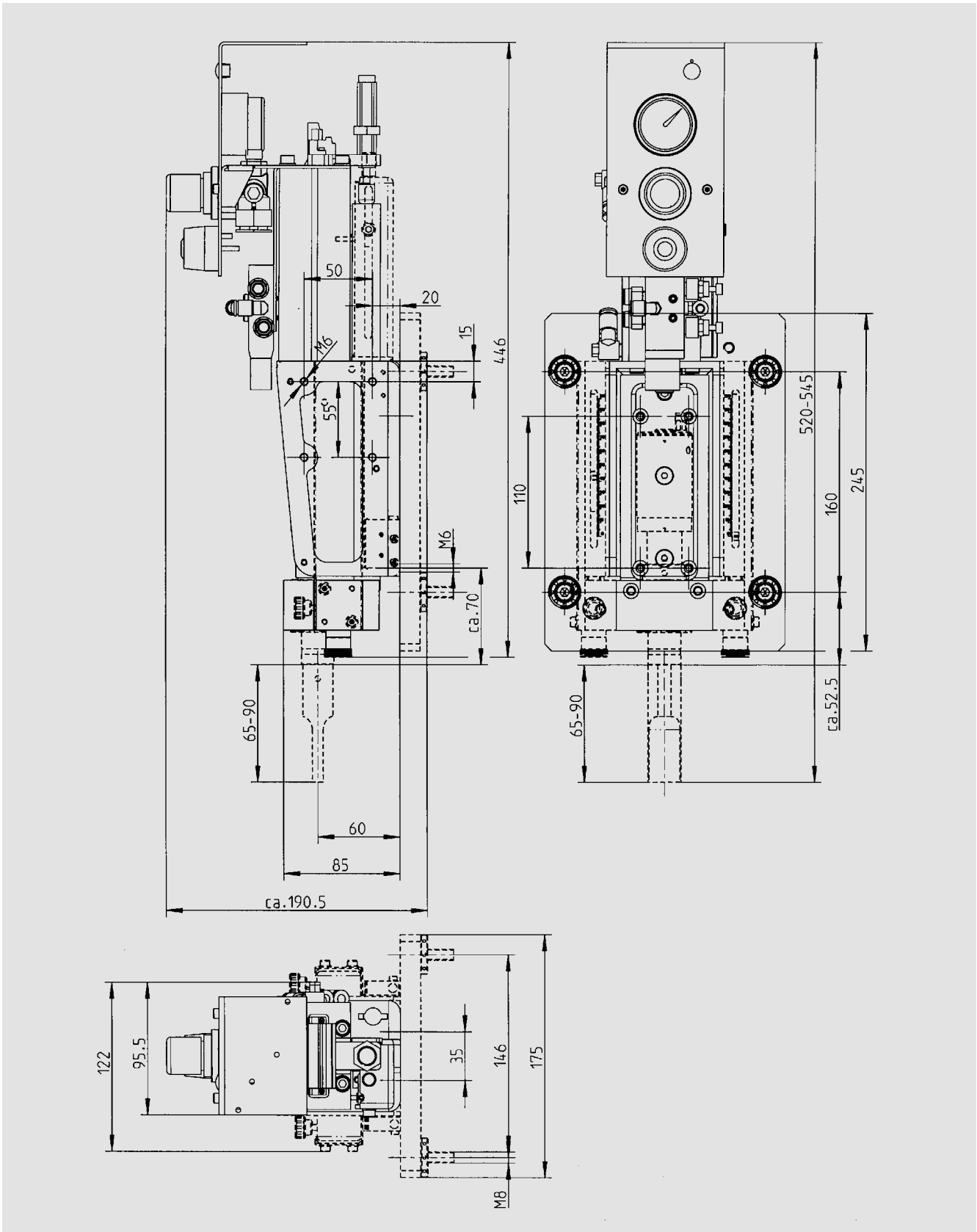
5.2 Connection plan for use with PLC



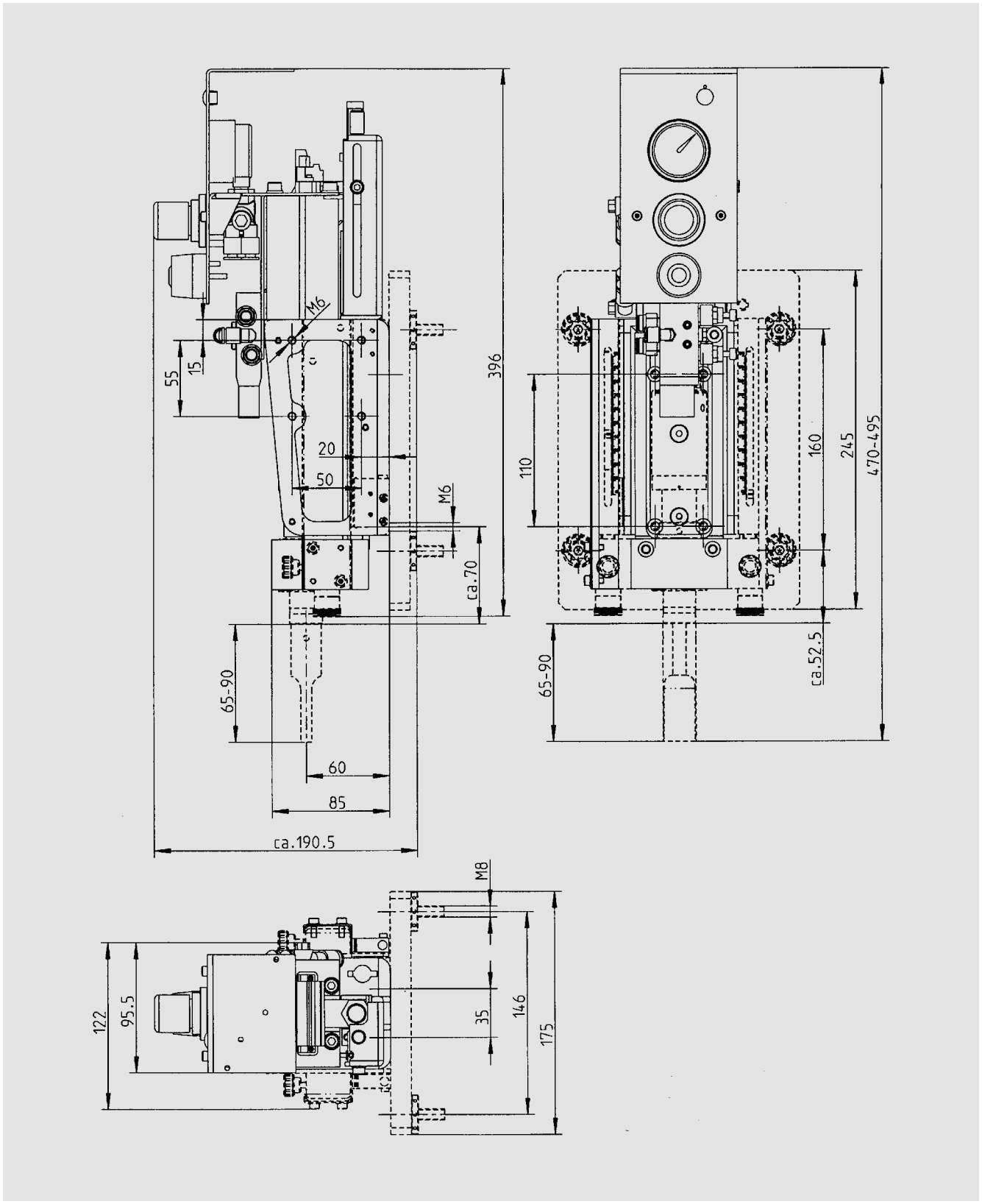
S1 Sensor upper limit stop
S2 Safety switch sensor
S3 Trigger
S4 Depth cut-off sensor (only with SV35-100-1)
S5 Magnetic sensor (path measurement)
Y1 Solenoid valve

6 Technical drawings

6.1 Dimensional drawing SV35-100-1



6.2 Dimensional drawing SV35-50-1



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