

Operating and Maintenance Instructions including Dismantling and Assembly Instructions

Peristaltic Pumps Series ASL Design IE

Operating data of pump according to order data sheet

Order no.: _____ Pump ID no.: _____
Machine no.: _____ Pump type: _____

1. General

1.1 Application and range of utilisation

Peristaltic pumps are self-priming positive rotary displacement pumps that are safe to run dry and are used for delivering and dosing thin to highly viscous and pasty, clean, neutral, aggressive or abrasive gaseous liquids, liquids which tend to froth and liquids containing solids.

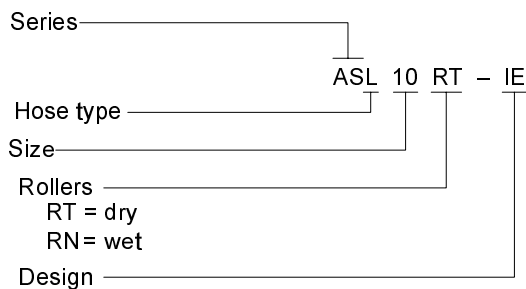
1.2 Performance data

The exact performance and/or operating data applying to the pump are listed in the order data sheet and are engraved in the name plate.

1.3 Abbreviated designation

The abbreviated designation of the peristaltic pump is made up as follows:

Example:



This abbreviated designation is engraved in the name plate.

1.4 Warranty

Our liability in case of shortcomings in the supply has been specified in our delivery conditions. No liability will be accepted for any damage resulting from non-compliance with the operating instructions and the conditions of use.

Should the operating conditions change at any stage (i.e. other pumping medium, speed, viscosity, temperature or pressure conditions) we shall investigate in each case and possibly confirm, whether the pump is suited for these changed conditions. Unless otherwise agreed, pumps supplied by ourselves that are under warranty may only be opened or altered by ourselves or authorised customer service sta-

tions. In case of non-compliance we shall not accept any liability for any defects.

1.5 Testing

A thorough trial run and performance test is carried out on all pump units prior to leaving our works. Only correctly functioning pumps, achieving the specified performances are dispatched. Compliance with the below operating instructions will thus guarantee a fault-free function and full delivery performance.

1.6 Availability

We generally recommend the precautionary purchase and stocking of spare pumps and/or spare parts if the pumps supplied are important for maintaining a production or delivery process. In this way, downtimes can be avoided or reduced to a minimum.

2. Safety

These operating instructions contain fundamental information for installation, operation and maintenance. The operating instructions must therefore be read by the installer and the respective specialised personnel/operator and must be available at all times at the application site of the machine/plant. In addition to the general safety information listed in this safety section also special safety information, i.e. for private use, that is specified in other sections, must be observed.

2.1 Highlighting information in the operating instructions

Safety information contained in these operating instructions which, if not observed, could lead to personal danger, is highlighted by the general hazard sign



hazard sign
acc. to DIN 4844-W9

and, in case of an electrical hazard, by the



For safety information, which if not observed, could adversely affect the machine or its function, the word

CAUTION

is added.

Information directly attached to the machine, such as

- direction of rotation arrow
- fluid connections sign

must be observed and maintained in a fully legible condition.

2.2 Qualification and training of personnel

The operating, maintenance, inspection and assembly personnel must be respectively qualified to carry out these tasks. The area of responsibility, tasks and monitoring of the personnel must be precisely controlled by the customer. Where personnel lacks the required knowledge, instruction and training must be provided. If required, this may be carried out by the manufacturer/supplier on behalf of the machine owner. The owner must also ensure that the contents of the operating instructions are fully understood by the personnel.

2.3 Hazards in case of non-compliance with the safety information

Non-compliance with the safety information may endanger personnel, the environment and the machine. Non-compliance of the safety information may also void the right to any claims for damages.

Non-compliance could for instance cause the following hazards:

- Failure of important machine/plant functions
- Failure of specified maintenance and servicing methods
- Electrical, mechanical and chemical hazards for personnel
- Environmental hazard due to leaking hazardous substances

2.4 Safe working practice

The safety information contained in these operating instructions, current national health and safety regulations and any internal work, operating and safety regulations, specified by the customer, must be observed.

2.5 Safety information for customers/operators

- Any hot or cold machine part representing a hazard must be covered to prevent accidental contact.
- Guards covering moveable parts (i.e. clutch) may not be removed whilst the machine is in operation.
- Leaks of hazardous materials (i.e. explosive, toxic, hot) must be discharged in such a way that no hazard for persons and the environment is created. Legal regulations must be observed.
- Hazards caused by electrical energy must be prevented (for details see i.e. VDE regulations and regulations of the local energy supply companies).

2.6 Safety information relating to maintenance, inspection and assembly operations

The owner shall ensure that all maintenance, inspection and assembly work is carried out by authorised and qualified trained personnel who have studied the operating instructions thoroughly.

In general, all work must be carried out whilst the machine is shut down. The machine shut-down procedure must be observed.

Pumps or units delivering noxious media, must be decontaminated.

Immediately after completion of all work, all safety and protection devices must be reinstalled and made operational again.

Prior to restarting, all points of section “6.1 Preparations for starting” must be observed.

2.7 Reconstruction and spare parts production by the customer

Machine reconstruction or alteration is only permissible after prior agreement by the manufacturer. Original spare parts and accessories authorised by the manufacturer must be used for reasons of safety. Any use of other parts may void the liability for any resulting consequences.

2.8 Inadmissible operating modes

The operational safety of the machine is only assured if the machine is used in accordance with section 1 - General - of the operating instructions. The limit values specified in the data sheet may not be exceeded.

3. Transportation and interim storage

3.1 Packing

The graphic symbols on the packaging must be observed.

During transportation and storage, the suction and discharge side of the pump must be closed with plugs. During installation of the pump aggregate, the plugs must be removed again.

3.2 Transportation

Due to their low weight, peristaltic pumps of series ASL 10 to ASL 15 can be manually transported to the place of installation.

The heavier peristaltic pumps of series ASL 25 to ASL 40 are transported to the installation site by lifting equipment.
In case of crane transportation, sling ropes must be securely fixed to the secured lifting eyes.



The crane installation and sling ropes must be sufficiently sized. Do not secure sling ropes to motor lifting eyes.

3.3 Interim storage

For interim storage, e.g. prior to commissioning or when stopping the pump for more than 3 weeks, one of the pad rollers must be dismantled and the rotor must be turned until the second pad rotor is no longer engaged in order to prevent the pump hose from becoming damaged. The motor can, for instance, be rotated via the fan wheel of the electric motor.

4. Description

4.1 Structural design

Self-priming, peristaltic pump without seals.

Materials

Designation	Material type
Pump casing	Aluminium alloy
Rotor	Aluminium alloy
Pad rollers	Plastic
Roller axles	Aluminium alloy
Pump hose	Various elastomers
Pump connection	1.4571/PE

4.1.1 Pump casing

Compact pump casing design with pushed-in pump hose.

4.1.2 Position, type and dimensions of connections

Position of connections

Suction and discharge connections as seen from the drive side, horizontally to the right or left on top of one another or vertically upwards or downwards next to each other.

Connector type ①

D = Lapped joint flange, connection dimensions	DIN 2642-PN 10 DIN 2501-PN 16
C = Flange, sealing strip, form C	DIN 2633-PN 16
R = External pipe thread	DIN 2999
K = Headed bush with lapped joint flange, connection dimensions (plastic)	DIN 16963/8063-PB 10 DIN 2501-PN 16
T = Nozzle (plastic)	
A = Lapped joint flange, connection dimensions (plastic)	ANSI B 16.5-Class 150
L = Headed bush with lapped joint flange, connection dimensions (plastic)	DIN 1693/ ANSI B 16.5-Class 150

① depending on pump size

Dimensions

Please refer to our dimension sheets.

4.1.3 Rotor with pad rollers

Solid rotor containing a location hole for the geared shaft end and two pad rollers, offset by 180°. The moveable roller axes can be used to change the pre-tensioning of the hose. The roller axle location holes arranged on different hole circle diameters allow a gradual increase or reduction of the suction and discharge pressure. The number of plug-in positions depends on the pump size.

4.1.4 Bearing

The rotor is externally arranged in the bearings of the flange-connected gears or geared motors.

4.1.5 Series ASL ... RT

Pump without lubricant filling.

4.1.6 Series ASL ... RN

Pump with lubricant filling. Pump hose and pad rollers are lubricated by a special lubricant "ALLWEILER special lubricant/cooling agent for peristaltic pumps" which can be obtained directly from Allweiler. The quantity of lubricant required depends on the pump size.

Lubricant filling quantities:

Pump size	Lubricant quantity (l)
ASL 10 RN	0,1
ASL 15 RN	0,2
ASL 25 RN	0,5
ASL 32 RN	1
ASL 40 RN	2

The pump cover contains a hole for venting the pump casing. The screw plug (item 504) is replaced by a filling device.

For safe transportation, the filling device is closed by a cap.

CAUTION

The cap **must** be removed prior to start-up, to allow the medium to be discharged in case of a hose fracture.

4.2 Mode of operation

Two rollers arranged on a rotor alternately compress a thick-walled pump hose. The rotor rotation causes the hose contents (pumped liquid) to be pushed from the suction to the discharge side. The subsequent opening of the pump hose creates a vacuum on the suction side, thus causing constant suction.

The pumped liquid passes through the pump hose without coming into contact with any mechanical parts. The smooth flow allows a gentle delivery without emulsification or turbulence. The pump is safe to run dry and is self-priming when dry. The direction of rotation and thus the direction of delivery is reversible. The pump can thus easily be cleaned without dismantling.

4.3 Aggregate design

4.3.1 Drive

By non-explosion-proof or explosion-proof geared motors, via infinitely variable geared motors, via fre-

quency-controlled geared motors, via a gear stage with flange-connected electric motor or via a gear stage with free shaft end.

4.3.2 Coupling and protection against accidental contact

The rotor with the location hole for the motor shaft end is rigidly coupled to the flanged gear or variable gear motor and/or gear stage.

The pump casing provides protection against accidental contact acc. to DIN 24295.

4.3.3 Base plate

Pump and drive are flanged together to form one unit and can be installed on one base plate.

5. Installation/assembly

5.1 Installation

The pumps are installed horizontally. Other installations are on request.



For safety reasons, the pump may not be installed with the motor facing downwards.

5.2 Fixing

The pump may be fixed on site via the base plate or geared feet. The base plate must be fixed stress-free to the foundations.

5.3 Assembly of pump and geared motor and/or gearing

If the unit is only finished at the place of operation, the installation of the pump and geared motor and/or gearing must be carried out as follows:

1. Secure pump casing (501) to gear flange.
2. Cover location hole in the rotor (301) and the output shaft of the geared motor and/or gearing with a fine coat of molybdenum disulphide (e.g. Molykote).
3. Slide the rotor (301) with the inserted key onto the drive shaft and secure with a hexagonal bolt (314), spring washer (313) and axle holder (312).

(For further information, see 7.22 Assembling the peristaltic pump)

5.4 Space required for maintenance and servicing

CAUTION The pump must be accessible from all sides, allowing the necessary visual inspections to be carried out.

Adequate space must be provided for maintenance and servicing and in particular for dismantling the pump or changing the pump hose. It should also be observed that all hoses and pipes can be easily assembled and dismantled.

5.5 Installation of hoses and pipes

5.5.1 Cleaning and checking the free passage of hoses and pipes

Before connecting the hoses and pipes to the suction and discharge connectors, they must be cleaned and checked for free passage. Remove any kinks in the hoses.

5.5.2 Connection of the hoses and pipes to the suction and discharge connectors of the pump

Any burrs and welding beads must be removed from pipes. Flange seals may not protrude to the inside. Where damage is caused by such residue, the warranty is voided.

For pumps with hose connections, the hose to be connected to the suction connector must be a reinforced hose that does not contract under the generated underpressure.

For pumps with flanged connections, the pipes must be installed stress-free via the flange connectors. The pipes must be supported close to the pump and should be easily attachable to prevent distortion. After releasing the bolts, the flanges may neither be positioned at an angle, spring away nor make contact under pressure. Possible thermal stresses on the pipes must be kept away from the pump by suitable measures, i.e. the installation of compensators. Possible pressure pulsations can be reduced by the installation of pulsation dampers in the suction and discharge pipes (see document "Pulsation dampers" VM 787 D+GB)

5.5.3 Nominal diameters

The nominal diameters of the suction and discharge hoses should be rated according to the nominal pump connector diameters. In case of major deviations, in particular on the suction side, contact the manufacturer.

5.5.4 Cross-section and direction change

Sudden changes in cross-section and direction as well as pronounced bends must be avoided. For pipe or hose bends we recommend a radius of three times the pipe or hose diameter.

5.5.5 Suction head and suction-side supply

When pumping very hot, greasy or viscous liquids, the suction head must be reduced to a minimum to avoid pumping losses. We also recommend to operate the pump at minimum speed.

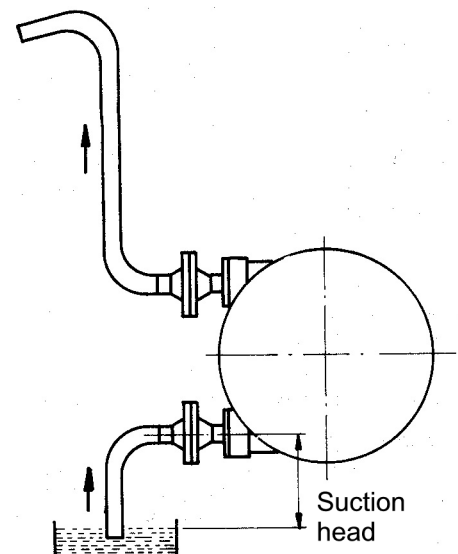


Fig. 1: Minimum suction head

CAUTION In case of slow-flowing liquids, the pump must be operated via a suction-side supply pipe at minimum speed.

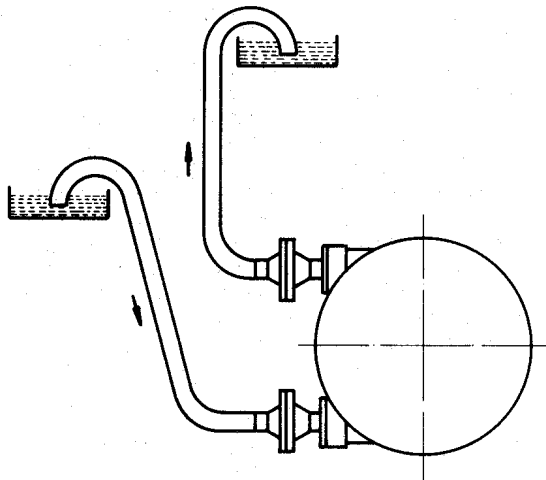


Fig. 2: Suction-side supply pipe

5.6 Safety and control devices

5.6.1 Bypass with stop valve installed in pressure hose of discharge line

If a stop valve is provided in the pressure hose or discharge line or if there is a possibility that the pressure hose or discharge line may be clogged up, a safety element should be provided, i.e. a bypass with installed pressure-relief valve, rupture diaphragm, protective motor switch, etc.

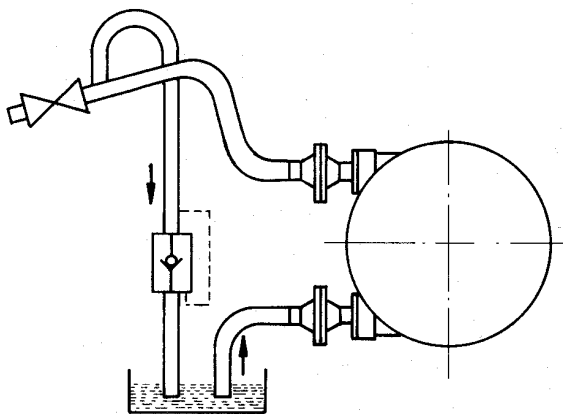


Fig. 3: Bypass with installed stop valve

5.6.2 Pressure gauge

A mano-vacuummeter must be installed in the suction line and a pressure gauge in the discharge line.

5.6.3 Non-return valve / stop valve

A non-return valve or stop valve must be installed in the discharge and suction lines/hoses. These safety devices are required so that in case of a hose fracture, the system pressure can not enter the pump casing and/or the pump is not drained towards the suction side. The stop valves must be situated as close as possible to the pump connectors.

5.6.4 Hose fracture detector

A hose fracture detector can be installed in the pump cover as a safety element (see "Hose fracture detector" document ASM-K, VM 810.0007).

5.7 Electrical connections



The power supply wiring of the coupled gear motor must be carried out by a qualified electrician and in accordance with the circuit diagram of the motor manufacturer. Also the VDE regulations and regulations of the local power supply companies must be observed. Any electrical energy hazard must be prevented.

6. Starting/stopping

6.1 Preparation for starting

6.1.1 Controlling the direction of rotation



The rotational arrow of the pump must correspond with the rotational arrow "n" on the pump type sign. An incorrect direction of rotation may damage the pump or the plant. To check the direction of rotation, the motor may be temporarily switched on with the shut-off valves open.

6.1.2 Checking the suction performance

To check the suction performance, place the palm of the hand on the suction connector with the suction line dismantled and the pump switched on. A clear suction should be felt.

The suction performance can, however, only be precisely checked by installing a man-vacuummeter on the suction side.



Do not close suction connector with hand. Injury hazard!

6.1.3 Discharge opening in the pump cover, series ASL...RT

If no hose fracture detector is installed, the discharge of the liquid pumped from the pump casing (501) must be guaranteed. Therefore, the screw plug (504) must be removed prior to start-up and replaced by a screw-in elbow or similar with corresponding nominal diameter.



Injury hazard, whilst the screw plug (504) is removed and the pump is switched on!

6.1.4 Discharge opening at the filling device, series ASL...RN

Prior to the start-up, the sealing cap (504) must be removed from the filling nozzle. The sealing cap may be replaced by a screw-in elbow or similar to prevent foreign bodies from entering the pump casing.

6.2 Start-up

6.2.1 Starting

Prior to starting the pump, any stop valves located in the suction and discharge lines must be fully opened.

6.2.2 Drive

Switch on gear or variable gear motor. In the latter case, set the desired speed.

6.2.3 Monitoring the delivery values

Once the motor has reached its operating speed, check inlet pressure and pump discharge pressure using mano-vacuummeter and pressure gauge. The

motor must not be overloaded. The power consumption can be checked with an ammeter. The temperature and viscosity of the pumped liquid must also be controlled. The measured values must be compared against values of the order data sheet and/or acceptance report.

6.3 Shut-down

6.3.1 Switch-off

Switch off drive motor.
Let pump slow down until stopped.

6.3.2 Discharge line / hose

A stop valve located in the discharge line/hose must be closed.

6.3.3 Action in case of prolonged shut-down

In case of a prolonged shut-down, the pump must be drained and cleaned. By reversing the direction of delivery, the pump can be cleaned to some extent and the discharge hose can be emptied.
See also 3.3.

7. Maintenance/servicing

7.1 Maintenance

- For maintenance and service work, the information listed in section 2 must be observed.
- Regular control and maintenance work on the pump and drive will extend the service life.

7.1.1 General control

1. The drive motor may not be overloaded.
2. Check suction and discharge hoses/pipes for secure fitting.
3. Monitor pressure and temperature control instruments.

7.1.2 Maintaining components

7.1.2.1 Pump hose

In case of a hose fracture, the pump hose must be replaced. (see section 7.2 Maintenance)

7.1.2.2 Gear and variable gear motors

Refer to operating and maintenance instructions of the manufacturer.

7.2 Servicing (dismantling and assembly instructions)

General

On request, trained service engineers are available for installation and repair work.



If repairs are carried out by the customer's staff or by our trained mechanics, the pump must be completely empty and clean.

This applies, in particular, to pumps which are sent to our factory or contractual service centres for repair. In order to protect our staff and the environment, we cannot carry out any repair work on pumps filled with pumping medium. In these cases we may have to charge the cost for an ecologically acceptable disposal of the medium.

In case of repairs to pumps used for hazardous materials[Ⓞ] and/or environmentally hazardous liquids, the customer/operator must advise his own or our on-site mechanics or our works or contractual serv-

ice centre accordingly. In this case, evidence of the pumped liquid, i.e. in the form of a DIN safety data sheet must be forwarded with the request for a service mechanic.

Alternatively, an absolute safety certificate form - form no. 448/191 - can be requested from our customer service department, which should be completed truthfully and correctly. The completed form should then be sent to the outlet handling the repair or should be presented to the called-out customer service mechanic.

Hazardous materials are:

- Toxic substances
- Substances adversely affecting health
- Caustic substances
- Irritants
- Explosive material
- Fire-enhancing material
- Highly, easily and normally inflammable material
- Carcinogenic material
- Foetopathic substances
- Gene-changing substances
- Substances, in any other way hazardous for human beings

For all on-site work, the customer's or our service personnel must be informed of any hazards they may be exposed to as part of the repair work.

These instructions contain the main dismantling and assembly operations. The steps described in the individual sections must be complied with.

7.2.1 Dismantling the peristaltic pump

Prior to dismantling, the following operations must be carried out:

- Disconnect power supply cable from gear or variable gear motor. It must not be possible to start the motor.
- Close all stop valves in the supply/suction and discharge line.
- Disconnect supply/suction and discharge lines and/or hoses from the pump.
- Discharge flowable pumping medium by briefly switching on the pump.

Note: Use collecting container.



- Hazardous substances and/or ecologically harmful pumped liquids must be drained and collected in such a way that no hazard remains for the personnel.

- Leave peristaltic pump to cool down to ambient temperature.

Dismantling of pump hose and cleaning of internal parts

- Undo hexagon screws (205) and/or hexagon nuts (206) at the suction and discharge nozzle and remove.

For models using lubricants

Note: Collect lubricant in a clean container so that it can be reused after the hose has been replaced.

- Remove packing rings (202), bottom stuffing box rings (201) and the two pump connectors (508) from the pump casing (501).
- Undo hexagon bolts (607) in the pump cover (503) and remove.
- Remove pump cover (503) from pump casing (501)
- Turn rotor (301) until one pad roller (410) does no longer exert any pressure on the pump hose (401).
- Undo hexagon bolt (314) of axle holder (312) and remove.
- Pull roller axle (311) out of the free and disengaged pad roller (410).
- Remove pad roller (410) from the rotor (301).
- Turn rotor (301) until the second pad roller (410) which is still engaged, does no longer exert any pressure on the pump hose (401).
- Pull pump hose (401) out of the pump casing (501).
- Clean the entire internal pump chamber.
- Clean pad rollers (410) and check their function.

7.2.2 Assembling the peristaltic pump hose

CAUTION

Check pad rollers (410) and roller axles (311) for wear prior to reassembly. Where necessary, replace any parts with **original spare parts**. Clean all parts before assembly. In general, use new gaskets.

Assembling the pump hose

- Push pump hose (401) through location hole of suction and discharge nozzle into pump casing (501).
Note: Both ends of the pump hose must protrude equally far from the pump casing.
- Insert bottom stuffing box rings (201) and packing rings (202) into location holes of suction and discharge connector of the pump casing (501).
- Push both pump connectors (506) into the pump hose (401) and fix with the glands (203) over the hexagon bolts (205) and/or stud bolts (205) using the hexagon nuts (206).
- Check correct assembly position of pump hose (401) in pump casing (501).
Note: If laterally offset, tap pump hose into guide position with rubber mallet.
- Insert dismantled pad roller (410) with roller axle (311) into rotor (301).
- Insert axle holder (312) into grooves of the two roller axles (311) and secure with hexagon bolt (314) and spring washer (313).
Note: Observe correct fit of axle holder in grooves of roller axle.

- Readjust both pad rollers (410) (see section 7.3)
- Use hexagon bolts (607) and spring washers (606) to secure pump cover (503) on pump casing (501).
- **For models using lubricants**
Fill lubricant quantity specified in 4.1.8 above, through filling device (items 511, 512). If necessary, undo top hexagon bolt (607) to improve venting and re-secure after filling process (see also 6.1.4).
- Connect power supply cable to drive motor.
- Switch on gear motor and visually check the assembly position of the pump hose (401) in the pump casing (501).
Injury hazard whilst motor is running and pump casing is open.



7.3 Readjustment of the pad rollers

7.3.1 Optimising the suction performance

- Switch on gear motor and bring rotor (301) into horizontal position so that one pad roller does no longer exert any pressure on the pump hose (401) and is disengaged.
- Check suction performance of pump as specified in section 6.1.2 above.
- To optimise suction performance it is possible to adapt the pressing force of the pad rollers in the best possible way to the respective operating condition (refer to section 7.3.2 below).
- To achieve a very high suction performance, additional roller plug-in positions with a higher pressure can be used in addition to the standard adjustment options. Please contact our company for further information.

7.3.2 Increasing or lowering the suction and pump discharge pressure

Note: The location holes for both roller axles, offset by 180° in the rotor, allow various plug-in positions to gradually increase or reduce the suction and pump discharge pressure. The plug-in positions are marked with numbers on the rotor.

7.3.2.1 Increasing the suction and pump discharge pressure

- Remove axle holder (312) from rotor (301).
- To increase the suction and pump discharge pressure, both roller axles (311) and pad rollers (410) must be brought into the next higher plug-in position. The following applies: The higher the number, the greater the contact pressure of the pad rollers onto the pump hose (i.e. from position 1 to position 2).
- When changing the roller axles (311), turn the rotor (301) so that the pad roller to be changed

- does no longer exert any pressure on the pump hose and is disengaged.
- Insert axle holder (312) into the grooves of the two roller axles (311) and secure with the hexagon bolt (314) and spring washer (312).
Note: Check correct seat of axle holder in the grooves of the roller axle.
- After visual inspection for any damage, insert O-ring (502) into the pump casing (501) groove.
Note: Check proper seat of O-ring in groove.
- Proceed as described under 7.2.2.

7.3.2.2 Reduction of suction and discharge pressure

- Remove axle holder (312) from rotor (301).
- To reduce the suction and discharge pressure, both roller axles (311) and the pad roller axles (410) must be brought into the next lower plug-in position, i.e. the lower the number, the lower the contact pressure of the pad rollers on the pump hose (i.e. from position 2 to position 1).
- When changing the roller axles (311), turn the rotor (301) so that the pad roller no longer exerts any pressure on the pump house and is disengaged.
- Insert the axle holder (312) into the grooves of the two roller axles (311) and fasten with the hexagon bolt (314) and spring washer (312).
Note: Check correct fit of the axle holder in the grooves of the roller axle.
- After visual inspection for any damage, insert O-ring (502) into the pump casing (501) groove.
Note: Check proper seat of O-ring in groove.
- Proceed as described under 7.2.2.

After the installation of the peristaltic pump, the following operations must be performed:

- Attach suction and discharge lines/hoses
- Open shut-off valves
- Check delivery direction of pump
- Observe suction and pressure behaviour via mano-vacuummeter and pressure gauge.

7.4 Spare / replacement parts

Parts containing the footnote r.R in the parts list may be provided as spare/replacement parts:



To ensure operational safety, only **original spare parts** supplied by Allweiler should be stocked and installed. In this context, we also refer to section 2.7

When ordering spare/replacement parts, the following must be quoted:

Machine numbers, pump code, part number, designation and number of parts or ID no. and number of parts required.

Note: The machine number and pump code are engraved on the name plate.

The ID no. and quantity is also shown on the attached spare parts list.

8. Problems, causes and remedial action

8.1 Problems including reference numbers, causes and remedial action

The following tables show possible problems and remedial action. In case of any problems not included in the list or if problems can not be related to the specified causes, please contact our factory or sales representative.

Whilst remedying problems, the pump must be depressurised and empty.



Operating problems with peristaltic pump	Reference number for cause and remedial action
Pump does not achieve required pressure	1, 2
Pump does not prime	3, 5, 6, 7, 8, 9, 12
Pump does not start	10, 12, 13, 14
Pump does not achieve the specified flow rate	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13
Pump reaches excessive machine temperature	1, 10, 11
Pump no longer primes	3, 4, 5, 7, 12, 13, 14

8.2 Cause and remedial action

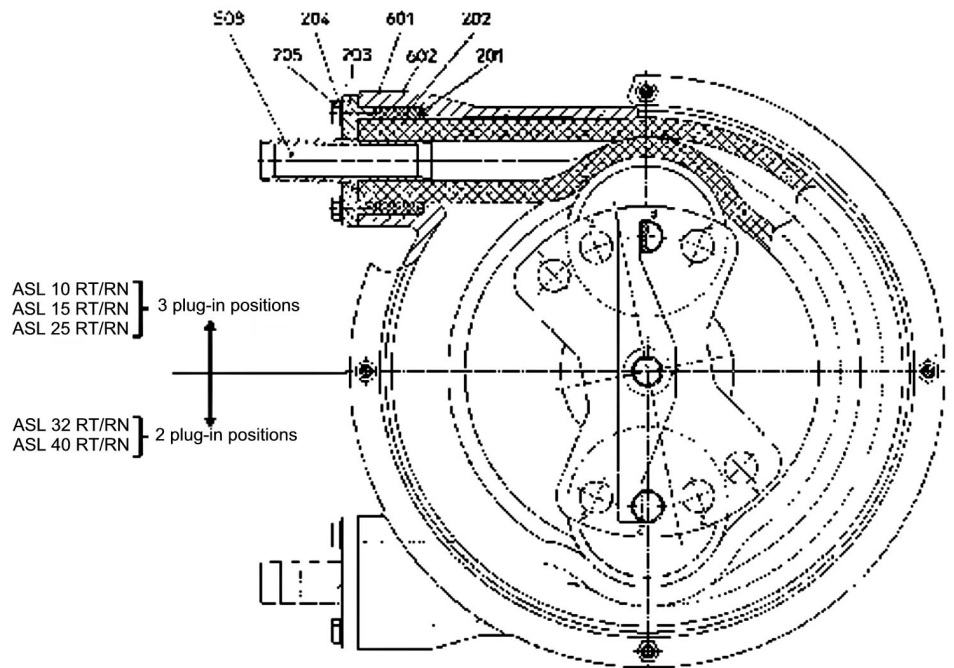
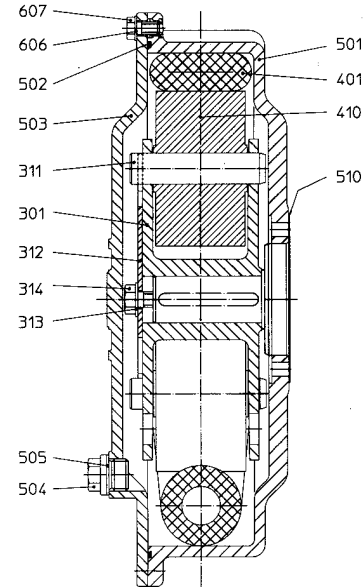
Ref. No.	Cause	Remedial action
1	Incorrect pad roller adjustment	Readjust pad rollers
2	Hose has not yet reached required operating temperature	Leave pump running until operating temperature is reached
3	Suction hose and/or pipe clogged up	Clean suction hose and/or pipe
4	Suction hose and/or pipe clogged up	Clean pressure hose and/or pipe
5	Suction hose and/or pipe leak	Seal leak in suction hose and/or pipe
6	Gate valve in suction and/or discharge pipe not completely open	Open gate valve
7	Suction and/or pressure head too high	Check suction and/or pressure head
8	Viscosity of medium too high/low	Check viscosity and reduce speed, if necessary
9	Wrong direction of pump rotation	Reverse motor polarity
10	Wrong pump speed, drive overloaded	Check pump speed, power, consumption, voltage, frequency
11	Temperature of flow medium too high	Reduce temperature of flow medium

Ref. No.	Cause	Remedial action
12	Foreign bodies in pump	Remove foreign bodies, replace defective parts
13	Solid contents too high, particles too large	Reduce speed, install screen with mesh size = permissible particle size in front of suction connector
14	Solids settle during standstill	Flush pump and dismantle and clean, if necessary

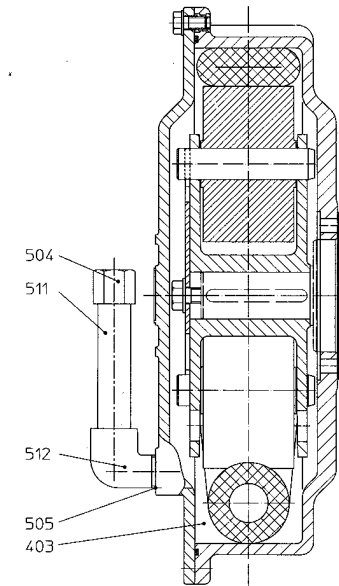
Sectional drawing and list of components

Series ASL - peristaltic pump with gearing, gear or variable gear motor

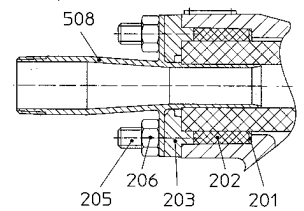
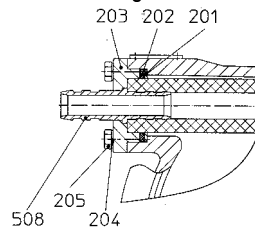
Series ASL..RT



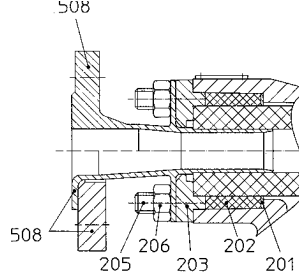
Series ASL..RN



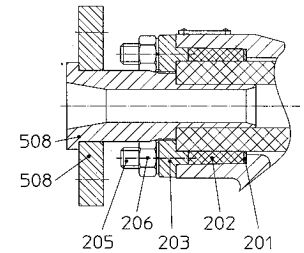
Design for hose connection T, sizes 25 to 40



Hose connection T



Threaded connection R



Flange connection K

Flange connection D, A

Designation	Qty.	Part no.	Designation	Qty.	Part no.
Bottom stuffing box rings	2	201	Pump housing	1	501
Packing ring	2	202 ① R	O-ring	1	502 R
Gland	2	203	Pump cover	1	503
Spring washer	8	204 ③	Screw plug/cap	1	504
Hexagon bolt	8	205 ② ③	Packing ring/sealing	1	505
Hexagon nut	8	206	Pump connector	2	508
Rotor	1	301	Sealing	1	510 ⑤ R
Roller axle	2	311 R	Pipe nipple	1	511
Axle holder	1	312	Angle/taper nipple	1	512
Spring washer	1	313	Name plate	1	601
Hexagon bolt	1	314	Round head grooved pin	4	602
Pump hose	1	401 r, R	Spring washer	4	606 ④
Lubricant	1	403	Hexagon bolt	4	607 ④
Pad roller	2	410 R			

Recommended spare parts
r = small repair set
R = large repair set

- ① O-ring for sizes 10 and 15
- ② Stud bolts for designs with flange or screw neck
- ③ For sizes 10 and 15: quantity 4
- ④ For sizes 32 and 40: quantity 8
- ⑤ Sealing compound for sizes 32, 40 and 50

Subject to technical changes.

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