

# Operating and Installation Instructions

## AD Chemicor AD 20 - AD 50



## Metal Pneumatic Diaphragm Pumps

*ought to be studied before installing the pump*



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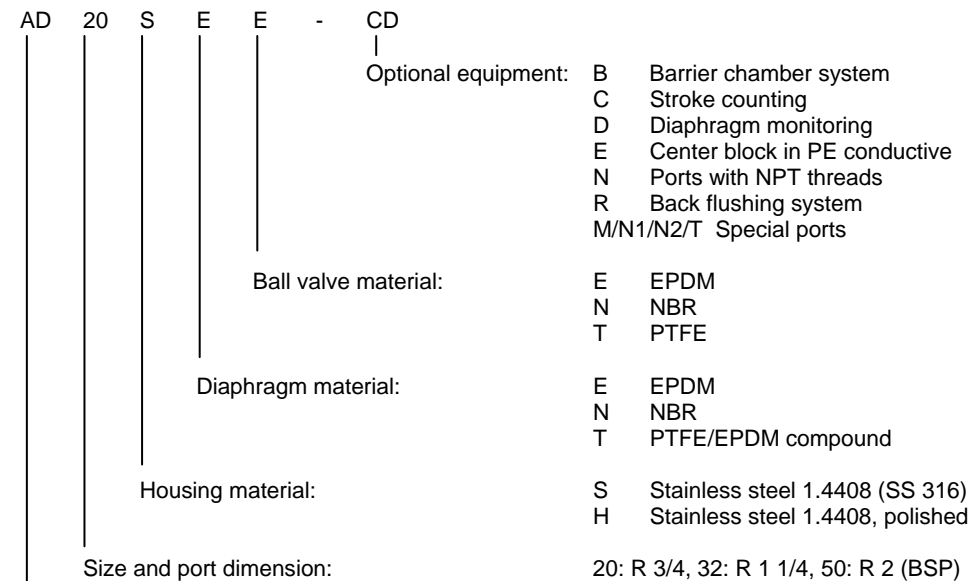
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**Introduction**

The ALMATEC Maschinenbau GmbH is certified as a modern, quality-orientated enterprise according to DIN EN ISO 9001:2000 and 14001:2005. Before release for dispatch, any pump of the Chemicor series has to undergo an extended final control. The performance data registered during this are archived in our records and can be read back at any time.

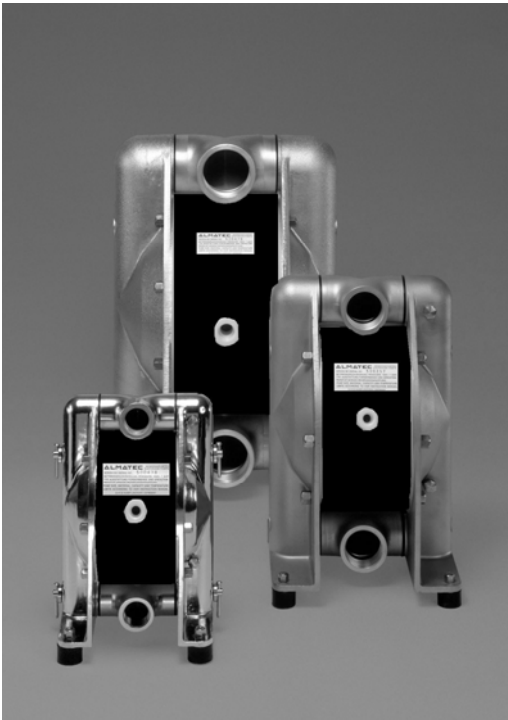
Before putting any pump into operation, make sure, that the materials of construction are resistant to the chemical to be pumped. To check this, the exact pump code is required. This code, the serial number and the year of construction are noted on the identification plates on the pump itself.

**Designation system**



ALMATEC Pneumatic diaphragm pump, Series Chemicor

**Operation in explosion-proof areas and for inflammable liquids  
(Reg.-No. PTB: 03 ATEX D004)**



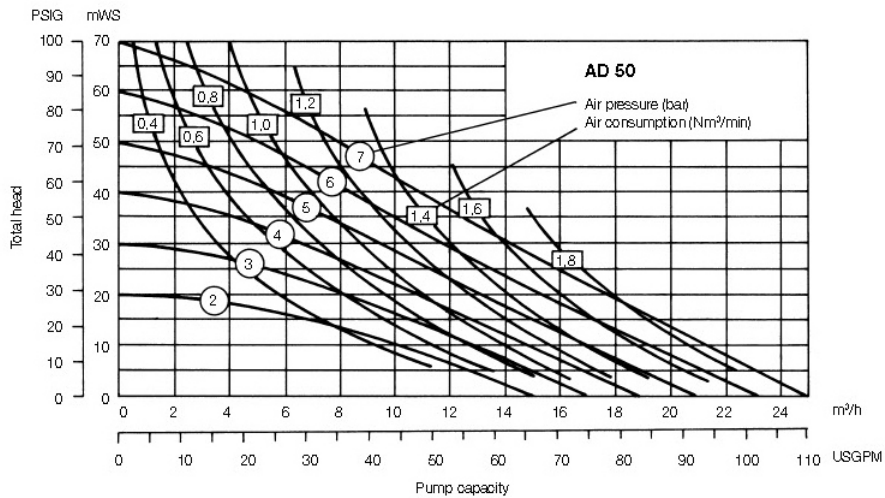
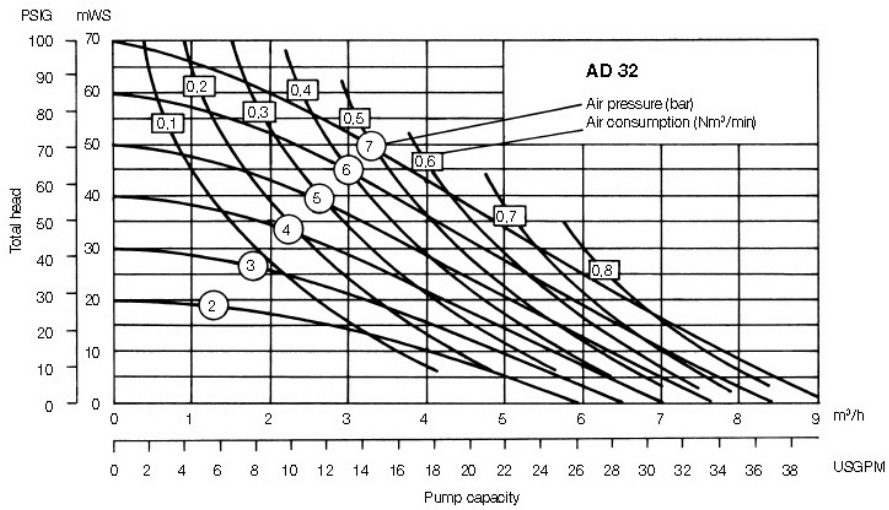
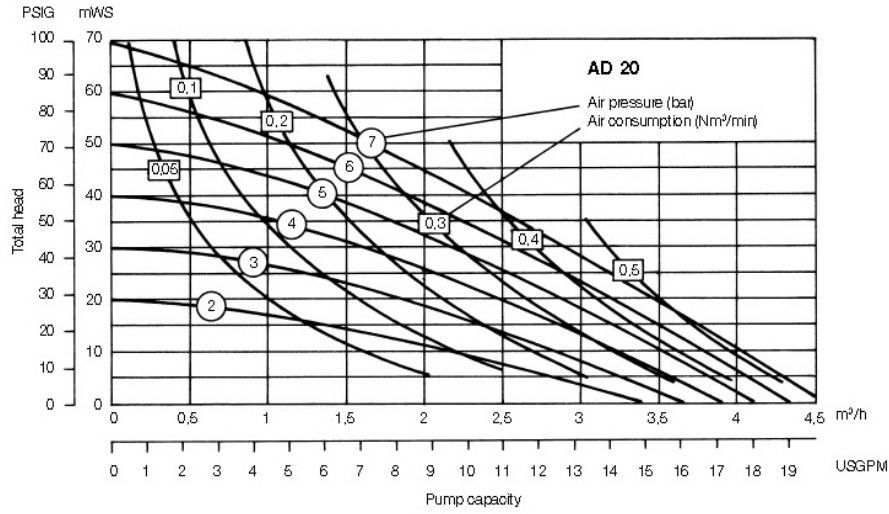
For inflammable liquids as well as for applications in explosion-proof areas, Chemisor pumps have to be equipped with a center section in conductive PE instead of the standard Polyamid block. The pump has to be grounded to one of the tapping holes located in the side housings. All other housing parts are connected to the side housing; therefore it is not necessary to ground single parts. Piping systems and product connections have to be grounded separately. To avoid ignition hazards the formation of dust deposits on the pumps must be prevented. In explosion-proof areas repair working only after careful inspection of the practicability and only with appropriate tools. For the marking according to 94/9/EG please see the attached conformity declaration. The "X" in the marking stands for the max. operating temperature, which is 80°C for the UC series with center section made of conductive PE.

<b>Technical data</b>	<b>AD 20</b>	<b>AD 32</b>	<b>AD 50</b>
Dimensions (mm): length	154	203	278
width	150	200	270
height	241	325	450
Nominal port size (BSP)	3/4"	1 1/4"	2"
Air connection (BSP)	1/4"	1/4"	1/2"
Weight (kg)	6	13	29
Max. particle size of solids (mm)	9	12	14
Suction lift, dry (mWC):			
EPDM ball valves	2	2	3
PTFE ball valves	1	1,5	2
Suction lift, wet (mWC)	9	9	9
Max. driving and operating pressure (bar)	7	7	7
Max. operating temperature (°C)	130	130	130
with center block in conductive PE (X)	80	80	80
with NBR equipment	80	80	80
Theoretical displacement volume per single stroke (l)	0,1	0,34	0,98
Sound pressure level acc. to DIN 45635, part 24, depending on the operating data [dB (A)]:			
driving pressure 3 bar	68-71	69-71	63-65
driving pressure 5 bar	73-75	71-75	64-68
driving pressure 7 bar	74-78	73-76	69-74

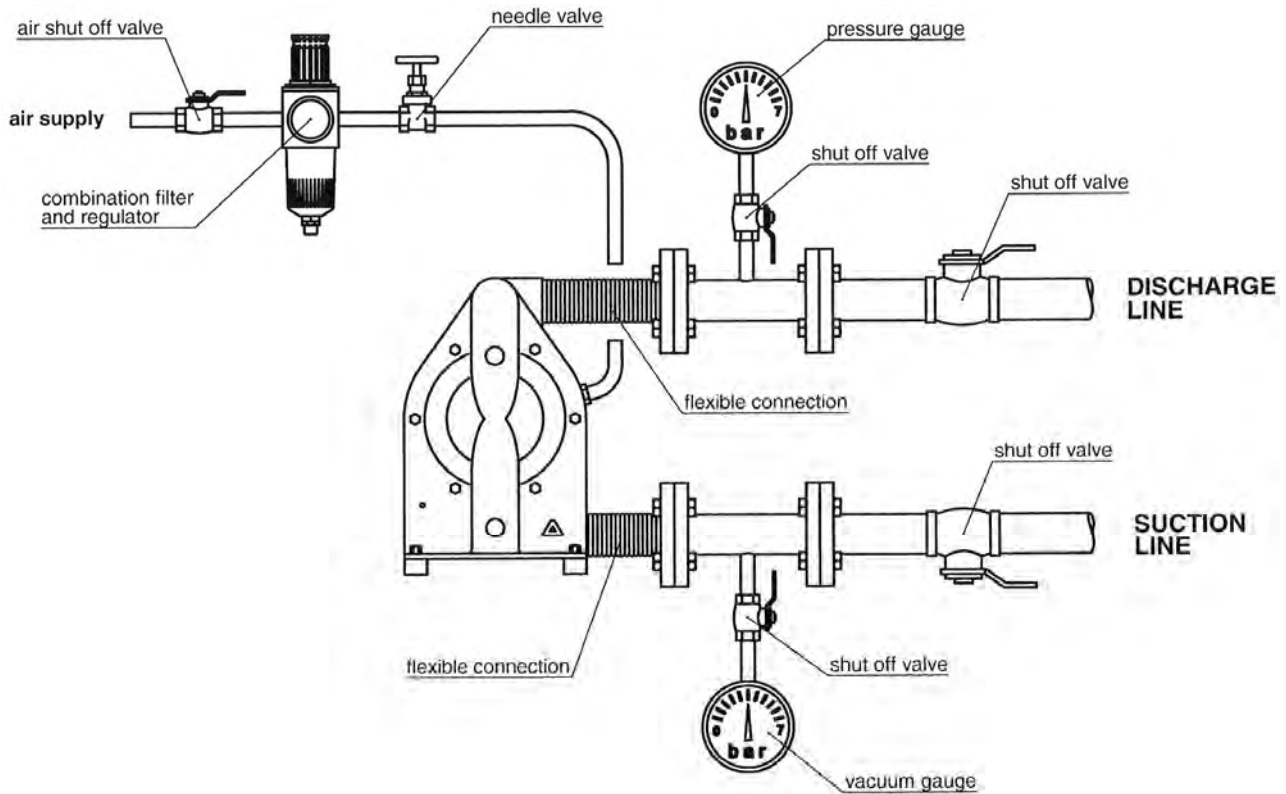
These technical data are for ALMATEC CHEMICOR pumps without optional equipment.

## Performance charts

Performance data are in accordance with DIN EN ISO 9906. The data refer to water (20°C), without using of a pulsation damper.



## Recommended installation



## Installation and operation

The number in brackets, which is added to every part mentioned in the following explanations, refers to its position in the spare part list and the exploded view.

In general, the pump has to be connected load free. Neglecting this causes leakage and maybe even damages. To avoid vibrations, pulsation dampers and compensators are recommended. Before connecting the pump, take the yellow blind plugs out of the suction and discharge connections as well as the air inlet [18] in the center block [16]. Use threadseal only sparingly, otherwise the connections could be damaged.

To facilitate the installation and maintenance shut off valves should be installed right before and after the pump. The nominal width of the connection pipes has to be chosen in accordance to the connections of the pump. A smaller piping can cause cavitation (suction line) as well as a loss of performance (suction and discharge line). In case the pipe is too big, the dry suction capacity of the pump can decrease. Connect the suction line to the lower manifold [2] which can be swivelled carefully along its longitudinal axis into the position required. Seal the suction line diligently; hosepipes should be suitably armoured. A suction line continuously rising will prevent the formation of air locks in the line which would affect the suction lift. The discharge line has to be connected to the upper manifold [2] which can be swivelled along its longitudinal axis as well.

The air inlet [18] is located in the middle of the center block [16]. Before installation, make sure that the air supply pipe is free of solids. To supply the pump with driving air sufficiently, the pipe diameter should match the size of the air inlet. Take care that no dirt or particles can intrude into the pump during the connection, as these can accumulate inside the pump and can cause malfunctions. An air filter [19] directly behind the air inlet [18] prevents the entry of bulk particles.

The integrated PERSWING P air control system is a precision-control that requires oil-free, dry and clean compressed air for optimal function. If humidity is expected, a water separator or air dryer has to be fitted to protect the pump from blocking by ice. The ideal condition is the dewpoint of air at -20°C. In humid surroundings, icing from the outside may occur despite the driving air is dried. If so, a prolonged waste-air-exhaust (ca. 500mm by pipe or hose) can be helpful. When installing the pump into boards or cabinets, it has to be ensured that cold air does not get caught behind the muffler.

The pressure of the driving air has to be limited to the amount required to meet the performance needed. Excessive pressure increases both the air consumption and the wear of the pump. The pump is regulated by tuning the flow rate of the air. An empty pump has to be driven slowly (e.g. via a needle-valve). The pump starts automatically. Pumps of the Chemicor series are self-priming when dry, thus it is not necessary to fill the suction line of the pump. The suction lift capacity of a liquid-filled pump, however, is much higher. The pump is appropriate for running dry during slow operation. Dry running at high stroke frequency causes premature wear. The maximum permissible stroke frequencies can be found in the following table. The pumps can briefly (up to max. one hour) be operated against a closed discharge line. Throttling on the suction side may damage the pump.

Size	AD 20	AD 32	AD 50
Max. number of strokes/min. during nominal performance	320	200	170



- Before putting the pump into operation as well as after some hours of operation, the housing bolts [8] have to be fixed according to the torque data of the following schedule, as the elements of construction "settle". Fixing the bolts is necessary as well after periods of stoppage, at temperature variations, after transport and dismantling the pump.

Size	AD 20	AD 32	AD 50
Torque values for housing bolts Nm (ft lbs)	15	23	23



- Installation, operation, and maintenance by qualified staff only.
- Pressure tests of the plant a pump is included in may only be carried out with the pump disconnected from the pressure on both ports or by using the pressure the pump develops while operating. The load of a pressure in the plant may damage the pump.
- Pneumatic diaphragm pumps must not be operated with a positive suction pressure.
- Depending on the conditions of operation, the liquid conveyed might escape from the pump through the muffler in case of a diaphragm rupture (muffler has to be renewed). For further safety requirements the optional equipment diaphragm monitoring and barrier chamber system are recommended.
- The state of the muffler has to be inspected regularly, as a blocked muffler can be forced out of the pump. If this happens, damages of properties and/or persons cannot be excluded.
- If the product tends to settle, the pump has to be flushed regularly. For larger solids a filter has to be installed in the suction line.
- The relevant effective security advises have to be respected.
- Pumps of the Chemicor series must not be submerged.
- Pools of liquid which appear in the near outer area of the pump have to be inspected on danger potential, if necessary safety measures are to be taken.
- Chemical and biological reactions in the product chamber of the pump (mixture of different substances) and the freezing of the liquid have to be avoided.
- Especially when deliver critical liquids, wear parts, like diaphragms, should be replaced within a preventive maintenance.
- The use of non-original ALMATEC spare parts and structural changes lead to the lapse of the warranty immediately. When operating such a pump, damages of properties and/or persons cannot be excluded.
- The operation of the pump with nitrogen as driving gas is possible. In closed rooms sufficient ventilation must be provided.
- According to the requirements of our 14001-certification, every unit which is send to the pump manufacturing plant for diagnosis or maintenance reasons has to be accompanied by a filled out decontamination-sheet. Otherwise a processing is not possible. The decontamination-sheet is enclosed to this manual. Please pay attention to the further safety regulations.

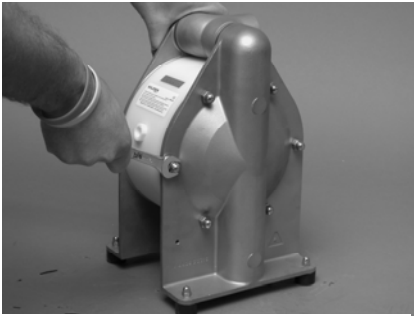
In case the flow rate of the pump decreases after some time of operation without any obvious reason, this is frequently due to a muffler blocked by heavily soiled driving air: take out the muffler [20] and replace it, if necessary; clean the air-valve carefully without any solvents and install an air filter to clean the driving air before entering the pump.

## Disassembly

The general design of the Chemisor pumps is simple. A plastic tool designed for the mounting of the air-valve [22] is delivered along with every pump. Further special tools are not required. Please find the part number for any part in the spare part list.



- Before starting to disassemble the pump, take care that the pump has been emptied and rinsed. Further the pump has to be cut off from any energy on the air and product side. If the pump is being deported from the plant, a reference about the delivered liquid has to be attached.
- Please respect the relevant additional security advises, if the pump has been used for aggressive, dangerous or toxic liquids.



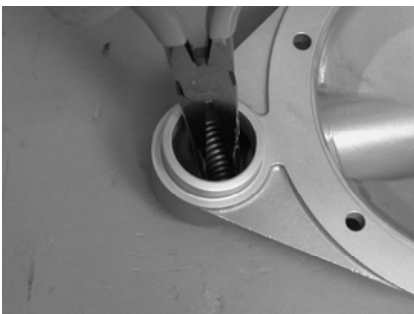
Loosen nuts of the housing bolts on one side of the pump.



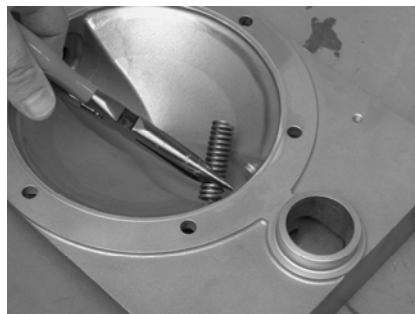
Remove side housing [1] and suction/discharge ports [2].



Draw the O-rings port outside [7] off the side housings [1]. Remove the inner O-rings [6] out of the ports [2].



Remove the valve stops [3] and the ball valves [15] out of the side housings [1]. For the AD 32 and AD 50 the use of a screwdriver to remove the valve stops maybe is more convenient.

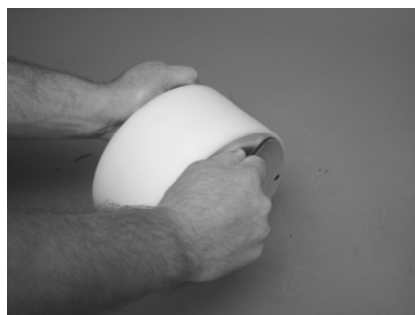


*For pumps with back flushing system (optional equipment code R) only:*

Take out the locking handle of the black flushing system [30]; draw off the pressure plate and the outer O-Ring and take out the ball lifter from inside the side housings [1]; withdraw inner O-ring.



Remove the center block [16] by gently pulling apart.



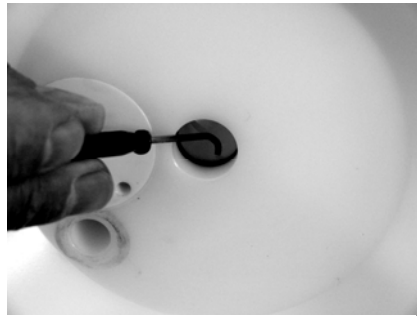
Screw one diaphragm [14] counterclockwise off the shaft [13].



Pull the other diaphragm [14] together with the shaft [13] out of the center block [16].



Screw out the set screws, shaft [13a].



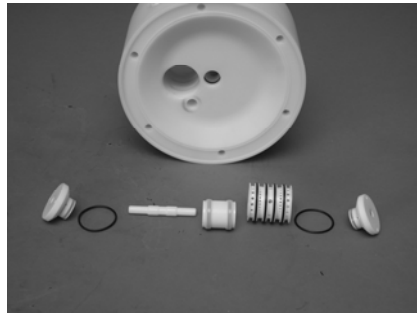
Remove both parts of the shaft piston rings [17] from their grooves carefully (do not damage the edges in the center block; a re-assembly of the same piston rings is impossible; they have to be replaced). Unscrew the muffler [20], the air inlet [18] and the air filter [19] out of the center block [16].



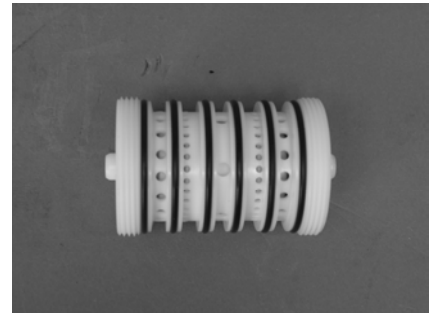
To remove the PERSWING P air control system, screw off both end caps using the plastic mounting tool delivered with the pump. Take out main and pilot piston.



Push out the air-valve housing with the mounting tool turned around.



The disassembled PERSWING P air control system.

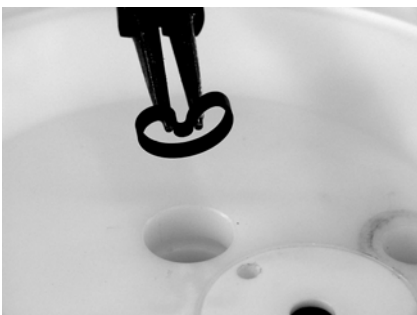


Complete air valve assembly.

### Hints and tips for reassembly

The re-assembly of the components is principally carried out vice-versa to the dismantling. Here are some additional references.

For the installation of the PERSWING P air control system, first screw in one end cap flushly into the center block [16]. Insert one of the six O-rings, air-valve housing [24] into the end cap from the inside. Moisture the four O-rings [24] of the air-valve housing with a bit of water and push the housing into the center block [16] using the mounting tool. Take care that it slips in softly. Do never insert the housing violently with a hammer. In case the housing cocks or hardly gets in, take it out again completely and start again. Insert the main piston and the pilot piston. Lay the sixth O-Ring [24] on the edge of the air-valve housing and screw in the second end cap.



To install a new piston ring [17], carefully shape it like a kidney (see picture on the left) and with locking ring pliers and insert the ring into the groove in the center block [16]; completely press the rings into the grooves smoothly using some round tool.

Insert the inner O-rings [6] in the manifolds [2] carefully (bending the rings absolutely has to be avoided! Moisturising the rings and twisting them carefully may be helpful). Mount the outer O-rings [7] onto the ledges of the side housings [1].



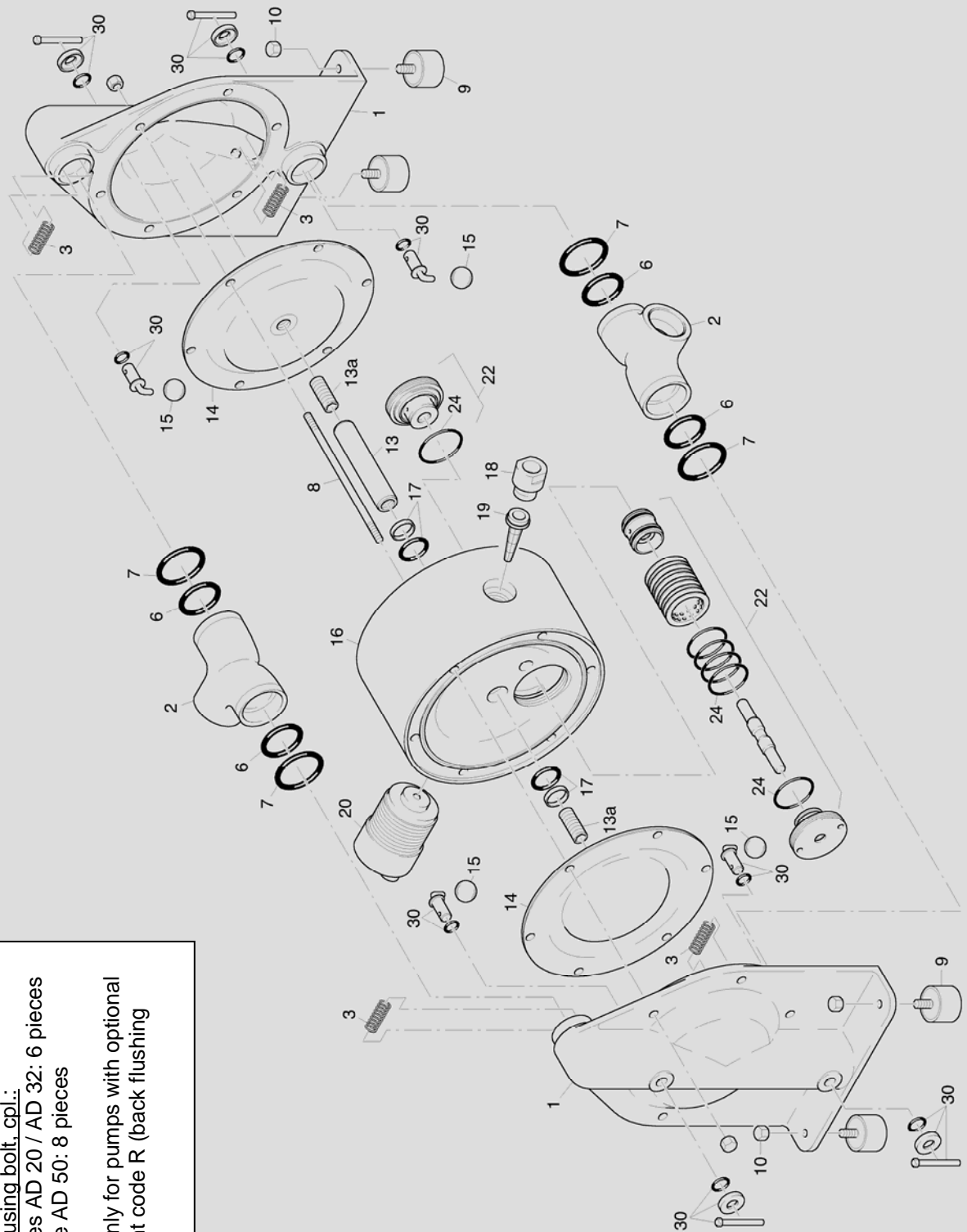
## Spare part list

Pump size				AD 20	AD 32	AD 50
Item	Pc.	Description	Material	Part number	Part number	Part number
1	2	Pump housing (code S..)	1.4408	5 20 210 26	5 32 210 26	5 50 210 26
		Pump housing (code H..)	1.4408 polished	5 20 210 27	5 32 210 27	5 50 210 27
2	2	Suction/discharge port (code S..), BSP	1.4408	5 20 011 26	5 32 011 26	5 50 011 26
		Suction/discharge port (code H..), BSP	1.4408 polished	5 20 011 27	5 32 011 27	5 50 011 27
3	4	Valve stop	1.4571	5 20 216 24	5 32 216 24	5 50 216 24
6	4	O-ring, ports, inside (code .E.)	EPDM	9 24 537 72	9 36 539 72	9 54 542 72
		O-ring, ports, inside (code .N.)	NBR	9 24 537 71	9 36 539 71	9 54 542 71
		O-ring, ports, inside (code .T.)	PTFE	9 24 537 60	9 36 539 60	9 54 542 60
7	4	O-ring, ports, outside	EPDM	9 28 512 72	9 42 540 72	9 62 543 72
8	*	Housing bolt with nuts	1.4301	5 20 020 22	5 32 020 22	5 50 020 22
9	4	Shock absorber	NR	1 15 022 85	1 15 022 85	1 40 022 85
10	4	Nut	1.4305	9 06 106 22	9 06 106 22	9 08 106 22
13	1	Shaft	1.4301	2 15 030 22	2 25 030 22	2 40 030 22
13a	2	Set screw, shaft	1.4305	9 10 220 22	9 12 221 22	9 16 222 22
14	2	Diaphragm (code .E.)	EPDM	1 15 031 72	1 25 031 72	1 40 031 72
		Diaphragm (code .N.)	NBR	1 15 031 70	1 25 031 70	1 40 031 70
		Diaphragm (code .T.)	PTFE/EPDM	1 15 031 67	1 25 031 67	1 40 031 67
15	4	Valve ball (code ..E)	EPDM	1 15 032 72	1 25 032 72	1 40 032 72
		Valve ball (code ..N)	NBR	1 15 032 71	1 25 032 71	1 40 032 71
		Valve ball (code ..T)	PTFE	1 15 032 60	1 25 032 60	1 40 032 60
16	1	Center block	PA	1 15 240 53	1 25 240 53	1 40 240 53
17	2	Shaft piston ring, cpl.	PTFE	1 15 041 64	1 25 041 64	1 40 041 64
18	1	Air inlet	PETP	1 15 047 84	1 15 047 84	1 40 047 84
19	1	Air filter	PE	1 15 043 51	1 15 043 51	1 40 043 51
20	1	Muffler	PE	1 15 244 51	1 15 244 51	1 40 244 51
22	1	PERSWING P® air control system, cpl.	PETP	2 15 001 84	2 15 001 84	2 40 001 84
24	6	O-ring, air valve housing (included in item 22)	NBR	9 35 504 71	9 35 504 71	9 46 515 71

\* AD 20 and AD 32: 6 pieces; AD 50: 8 pieces per pump

Please see page 2 for explanation of the pump code.  
When ordering spare parts, please state the serial-no. of the pump.

## Exploded view



Item 8 housing bolt, cpl.:  
 pump sizes AD 20 / AD 32: 6 pieces  
 pump size AD 50: 8 pieces

Item 30 only for pumps with optional  
 equipment code R (back flushing  
 system)

## OPTIONAL EQUIPMENT

For special requirements ALMATEC pneumatic double diaphragm pump of the Chemicor series can be furnished with several accessories. The pump code informs which of these are included in the pump.

### Barrier chamber system (option code B)

To comply with high safety standards, the barrier system replaces the standard diaphragm [14] by a tandem arrangement of two diaphragms [14,49] and a barrier chamber [40] of transparent PMMA filled with a non-conductive liquid (De-ionised water) in between. To ensure the correct operation of the pump, the barrier chambers [40] have to be filled completely. In case a diaphragm breaks, the conductivity of the barrier liquid rises which is registered by the conductivity sensors [43]. The minimum conductivity of 22  $\mu\text{S}$  covers a wide range of media. Otherwise, a conductive barrier liquid can be filled into the chamber, so that the liquid emerging in case of a diaphragm rupture causes a decrease in conductivity to be registered. After using for some time the De-ionised water can be pollute with germs. In this case the water needs to be replaced.

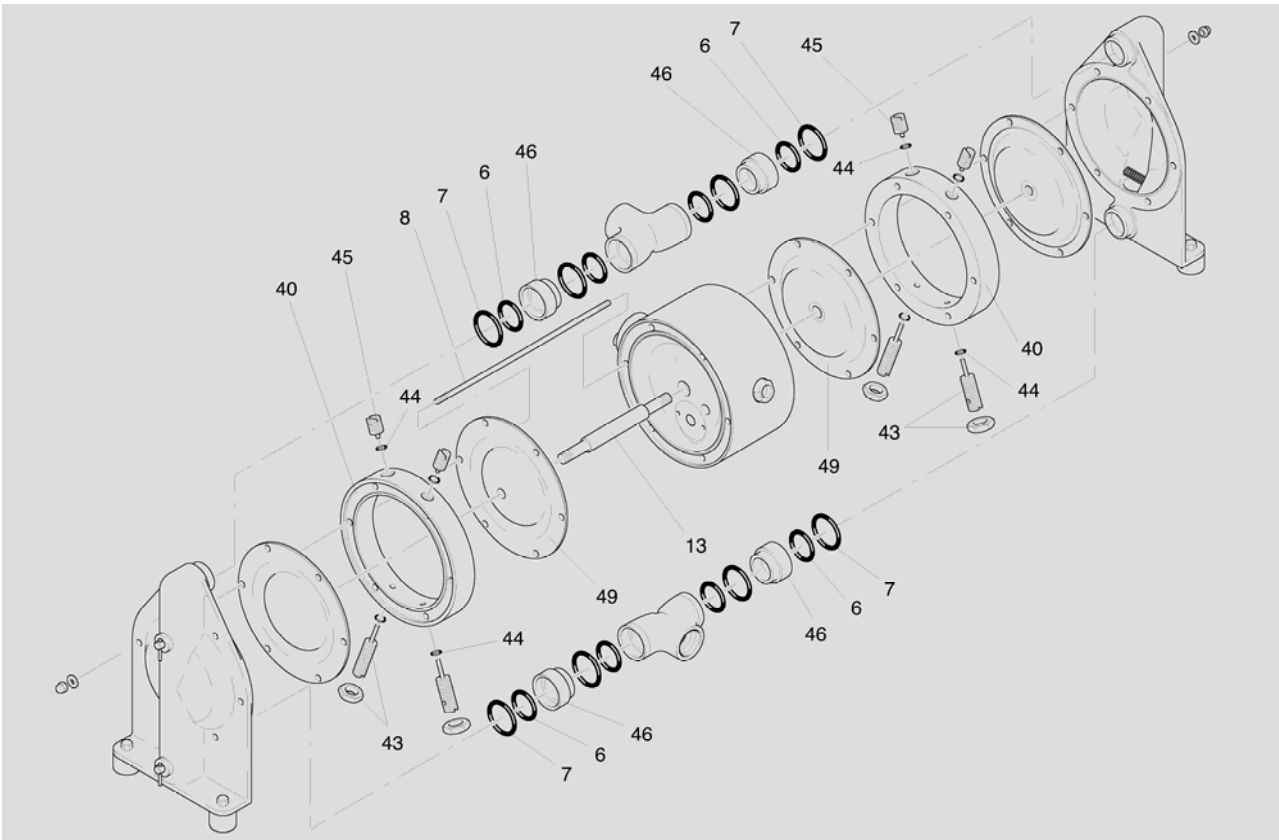
The barrier system is available in three variations:

- B 1 Barrier system with sensors, standard
- B 3 Barrier system complete with sensors and controller
- B 4 Barrier system complete with sensors and controller for explosion proof zone

The sensors can either be connected to an existing controller (code B 1) or to the controller included (code B 3 / B 4). The wiring diagram and technical data can be found on the controller itself. The controllers have to be installed in a suitable cabinet.

For further details, please refer to the data delivered by the manufacturers of the components.

The max. allowed operating temperature for CHEMICOR pumps with barrier chamber system is 80°C.



Pump size			Barrier chamber system		AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
B 1	8	*	Housing bolt, separation chamber, cpl	1.4301	5 20 120 22	5 32 120 22	5 50 120 22
	13a	2	Set screw, shaft, barrier chamber	1.4305	9 10 223 22	9 12 224 22	9 16 225 22
	40	2	Separation chamber ring	PMMA	1 15 076 58	1 25 076 58	1 40 076 58
	43	4	Conductivity sensor	PE conductive	1 10 074 56	1 10 074 56	1 10 074 56
	44	8	O-ring, separation chamber	EPDM	9 03 509 72	9 03 509 72	9 03 509 72
	45	4	Plug	PA	1 10 077 53	1 10 077 53	1 10 077 53
	46	4	Manifold extension	1.4571	5 20 113 24	5 32 113 24	5 50 113 24
	-	4	O-ring, ports, inside (code .E.)	EPDM	9 24 537 72	9 36 539 72	9 54 542 72
	-	-	O-ring, ports, inside (code .N.)	NBR	9 24 537 71	9 36 539 71	9 54 542 71
	-	-	O-ring, ports, inside (code .T.)	PTFE	9 24 537 60	9 36 539 60	9 54 542 60
	-	4	O-ring, ports, outside	EPDM	9 28 512 72	9 42 540 72	9 62 543 72
	49	2	Inner diaphragm	EPDM	1 15 131 72	1 25 131 72	1 40 131 72
	B 3	-	1	as B 1, but additional: Conductivity controller	diverse	1 00 075 99	1 00 075 99
B 4	-	1	as B 1, but additional: Conductivity controller Ex	diverse	1 00 175 99	1 00 175 99	1 00 175 99

### Stroke counting (option code C 2 / C 3 / C 4)

A sensor (Namur) is integrated in the center block [16] of the pump to monitor the movement of a diaphragm [14] without direct contact.

The stroke counting system is available in four variations:

- C 2            Stroke sensor (Namur), also for explosion proof zone
- C 3            Stroke counting system complete with sensor and stroke counter
- C 4            Stroke counting system complete with sensor, stroke counter and controller for explosion proof zone

In case only the sensor is included (code C 2), it has to be connected to an existing controller. For applications an explosion-proof device is required for (code C 4) the intrinsically safe controller has to be installed between the sensor and the counter. The wiring diagram and technical data can be found on the electric units themselves. The controllers have to be installed in a suitable cabinet.

For further details, please refer to the data delivered by the manufacturers of the components.

Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
C 2	16	1	Center block for sensor	PA	1 15 340 53	1 25 340 53	1 40 340 53
	-	-	Center block, conductive for sensor	PE conductive	1 15 340 55	1 25 340 55	1 40 340 56
	50	1	Stroke sensor, Namur	diverse	1 00 072 99	1 00 072 99	1 00 072 99
C 3	-	1	as C 2, but additional: Clamp amplifier	diverse	1 00 171 99	1 00 171 99	1 00 171 99
	-	1	Stroke counter	diverse	1 00 071 99	1 00 071 99	1 00 071 99
C 4	-	1	as C 2, but additional: Controller	diverse	1 00 370 99	1 00 370 99	1 00 370 99
	-	1	Stroke Counter	diverse	1 00 071 99	1 00 071 99	1 00 071 99

### Stroke counting pneumatic (option code C 9 / C 10)

Differently from the optional equipment codes C 2 - C 4, the strokes of the pump are registered pneumatically on the codes C 9 / C 10. The pressure switch registers the changes in pressure within the air chamber behind one of the diaphragms and it converts the pneumatic impulse into an electrical signal.

The pneumatic stroke counting system is available in two types:

- C 9        consist of:
  - pressure switch, cpl. mounted, 1 – 10 bar
  - socket with cable 5 m
  - adaptor elbow NPT ¼"
  - hose DN 4/6, 2,5 m
- C 10     consist of:
  - as C 9 and a stroke counter

For assembly screw the adaptor elbow into the additional air connection of the pump (it is possible that the adaptor is already installed). The air inlet for the pump is located in the middle of the center block. The air inlet for the pneumatic stroke counting system can be found sideways to this. Link up the adaptor and the pressure switch with the hose. Connect the socket to the electrical connection plug of the pressure switch and the cable to existing registering devices (code C 9) resp. to the enclosed stroke counter (code C 10). Technical data, connection schemes and further details can be found in the technical documentation delivered by the manufacturers of the pressure switch and the stroke counter.



The pneumatic stroke counting system requires a minimum air pressure of 1.5 bar for optimal function!

Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
C 9	16	1	Center block with additional air connection R 1/4	PA	1 15 440 53	1 25 440 53	1 40 440 53
			Center block, conductive with add. air connection R 1/4	PE conductive	1 15 440 55	1 25 440 55	1 40 440 56
	-	1	Adaptor elbow	PP	1 00 875 51	1 00 875 51	1 00 875 51
	-	1	Hose	PE	1 00 876 51	1 00 876 51	1 00 876 51
	-	1	Pressure switch cpl.	diverse	1 00 972 99	1 00 972 99	1 00 972 99
	-	1	Socket with cable	diverse	1 00 973 99	1 00 973 99	1 00 973 99
C 10	-	1	as C 9, but additional: Stroke counter	diverse	1 00 071 99	1 00 071 99	1 00 071 99

### Diaphragm monitoring system (option code D)

A capacitive diaphragm sensor is mounted in the muffler [20] of the pump, which registers any liquid approaching the sensor, no matter whether the liquid is conductive or not. Hence, a fast reaction to a damage of a diaphragm becomes possible. In case of humid surrounding air a false alert may occur despite operating the pump with dried compressed air.

The diaphragm monitoring system is available in two variations:

- D 1 Diaphragm sensor (Namur), also for explosion proof area
- D 3 Diaphragm monitoring system complete with sensor and controller

The diaphragm sensor can either be connected to an existing controller (code D 1) or to the controller included (code D 3). The wiring diagram and technical data can be found on the controller itself. The controllers have to be installed in a suitable cabinet.

For further details, please refer to the data delivered by the manufacturers of the components.

Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
D 1	51	1	Diaphragm sensor, Namur	diverse	1 00 773 99	1 00 773 99	1 00 773 99
D 3	51	1	Diaphragm sensor, Namur	diverse	1 00 773 99	1 00 773 99	1 00 773 99
	-	1	Controller	diverse	1 00 370 99	1 00 370 99	1 00 370 99

### Center block made of PE conductive (option code E)

For inflammable liquids as well as for applications in explosion proof areas, only pumps of the CHEMICOR series with a center block made of PE conductive instead of the routinely PA one may be used (ATEX conformity). The max. operating temperature for pumps with a center block made of PE is 80°C.

Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
E	16	1	Center block, conductive	PE conductive	1 15 240 55	1 25 240 55	1 40 240 56
	20	1	Muffler, conductive	Bz	1 15 244 34	1 15 244 34	1 40 244 34

### Suction/discharge port suitable for sanitary thread (option codes M / N1 / N2 / T)

For special applications the sizes AD 20 and AD 32 can be equipped with ports which are suitable for sanitary threads (M=DIN 11851, N1=Naue, N2=Neumo, T=Tri-Clamp)

Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
M	2	2	Suction/discharge port suitable for sanitary thread DIN 11851 (code S..)	1.4408	5 20 311 26	5 32 311 26	-
			Suction/discharge port suitable for sanitary thread DIN 11851 (code H..)	1.4408 polished	5 20 311 27	5 32 311 27	-
N 1	2	2	Suction/discharge port suitable for sanitary thread Naue (code S..)	1.4408	5 20 511 26	5 32 511 26	-
			Suction/discharge port suitable for sanitary thread Naue (code H..)	1.4408 polished	5 20 511 27	5 32 511 27	-
N 2	2	2	Suction/discharge port suitable for sanitary thread Neumo (code S..)	1.4408	5 20 611 26	5 32 611 26	-
			Suction/discharge port suitable for sanitary thread Neumo (code H..)	1.4408 polished	5 20 611 27	5 32 611 27	-
T	2	2	Suction/discharge port suitable for Tri-Clamp (code S..)	1.4408	5 20 211 26	5 32 211 26	-
			Suction/discharge port suitable for Tri-Clamp (code H..)	1.4408 polished	5 20 211 27	5 32 211 27	-

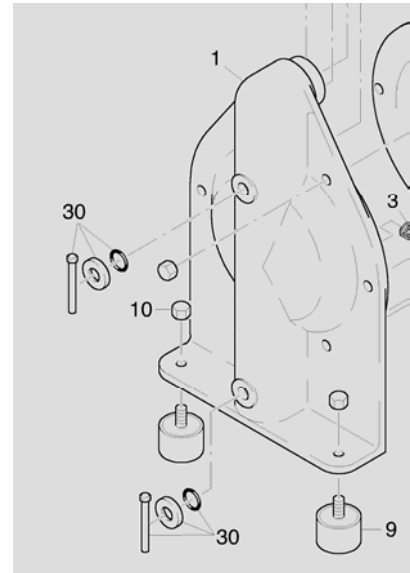
### Suction/discharge ports with NPT threads (option code N)

CHEMICOR pumps commonly comes with BSP connection threads. For the sizes AD 20 and AD 32 the pumps can also be equipped with NPT threads.

Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
N	2	2	Suction/discharge port with NPT thread (code S..)	1.4408	5 20 711 26	5 32 711 26	-
			Suction/discharge port with NPT thread (code H..)	1.4408 polished	5 20 711 27	5 32 711 27	-

### Back flushing system (option code R)

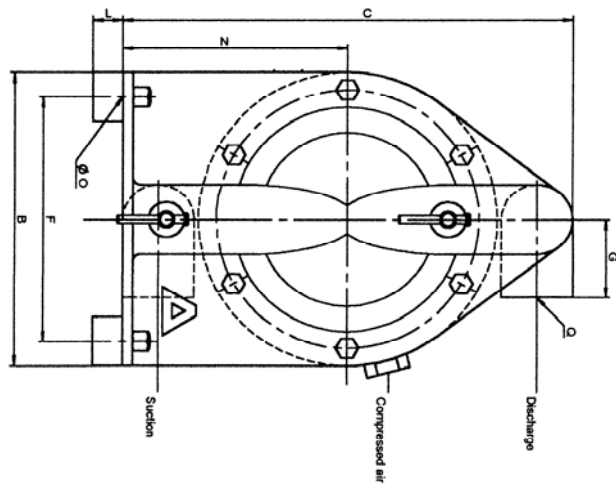
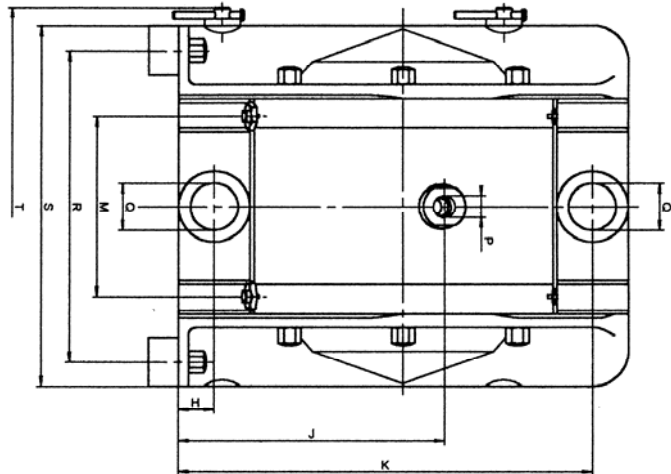
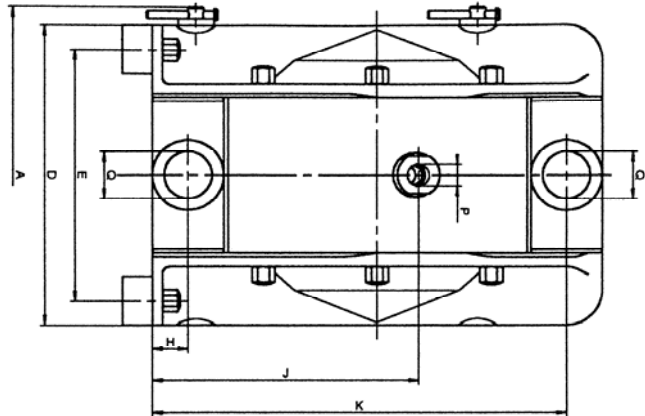
A pump equipped with the unique back flushing system can be emptied along with an inclining discharge line while being installed within the plant. Ball lifters are fitted to the four product valves. The valve balls are lifted out of their seats by turning the handle upwards by 180°. The pump is drained entirely on the suction side.



Pump size					AD 20	AD 32	AD 50
Code	Item	Pc.	Description	Material	Part number	Part number	Part number
R	1	2	Pump housing for back flushing system (code S..)	1.4408	5 20 310 26	5 32 310 26	5 50 310 26
			Pump housing for back flushing system (code H..)	1.4408 polished	5 20 310 27	5 32 310 27	5 50 310 27
	30	4	Ball lifter, cpl.	1.4571	5 20 033 24	5 32 033 24	5 50 033 24

## Dimensions

mm	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T
AD 20	177	150	227	154	129	125	40	19	135	209	17	92	114	6.5	1/4"	3/4"	159	184	207
AD 32	228	200	311	203	178	175	52	27	184	285	17	109	156	6.5	1/4"	1-1/4"	214	239	264
AD 50	318	270	422	278	238	230	70	38	212	386	20	141	212	8.5	1/2"	2"	280	320	360



Subject to change without notice, 2008/07 (replaces 2008/02)

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