Wittig

SLS 34 – SLS 54

Operating Instructions and· Spare Parts List·

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C O N T E N T S

SAFETY INSTRUCTION

Safety valve

- A non-locking safety valve is to be provided after every compressor (in accordance with German rules for the prevention of accidents).
- The valve is to be dimensioned and set such that the highest permissible operating pressure cannot be exceeded by more than 10%.
- It must be capable of blowing off the entire capacity of the compressor.
- The valve is to be provided with manual venting.

The following must be observed when installing the safety valve:

- Install immediately after the compressor before every other shutoff device (especially before a shutoff valve).
- TÜV (German Technical Inspectorate) component identifications and safety seal must be present.
- The setting must correspond to the maximum permissible operating pressure (see chapter "Technical data").
- The setting is to be secured against unauthorised or accidental change.
- It must not be possible to block the valve.
- Perfect functioning is to be checked every week running by operating the manual vent while the compressor is running.

E X P L O S I O N H A Z A R D exists through pressure and temperature rise in the event of incorrect installation/arrangement or by manipulating the safety valve.

Vent valve

- The vent valve is the controller in the facility in the case of vacuum pumps and it is the safety element in the discharge pipe.
- If the intake vacuum drops below the set minimum value, the vent valve opens and the compressor sucks in air from the atmosphere. The intake pressure is thus limited to the permissible minimum value.

E X P L O S I O N H A Z A R D exists through increasing vacuum and temperature rise in the event of incorrect installation/arrangement or by manipulating the vent valve.

Protection against conntact

- The compressor drive and the hot discharge pipe are to be provided with protection against contact.
- Accidental contact with rotating or moving compressor parts must be excluded.
- The permissible surface temperature is not to exceed 80°C (in accordance with German rules for the prevention of accidents).

OPERATING INSTRUCTIONS AND SPARE PARTS LIST

Operating instructions for air-cooled rotary compressors, Types SLS 34 + SLS 54

Technical data look rating plate

1.0 Description : Types SLS 34 + SLS 54 are air-cooled rotary compressors suitable for the production of pressure or vacuum. In continuous operation they are capable of providing overpressure at a maximum of 2 bar excess or a vacuum of 100mbar (90%). The compressor is cooled by a radial fan mounted on the rotor shaft. They are equipped with an automatic lubrication oil pump driven by rotor shaft. The pulley for V-belt drives can be fitted directly on to the compressors shaft end, in case the radial tension is not more than 105 kg. The maximum permissible speed is 1500 rpm.

2.0 Assembly :

2.1 Stationary operation : The compressor with the base plate bolted in position shoult be set up in such a way as to be free from vibration. No concrete foundation is necessary. The base plats should be anchored to the floor by means of rag bolts.

2.2 Drive: Where the drive is to be provided by an electric motor, the latter should be exactly aligned with the compressor.
Care should be taken to ensure that the distance between the coupling ends is correct (3-5 mm). The motor should be switched on briefly and the direction of rotations checked (see arrow on the fan cowling).

2.3 Coupling : The coupling must be of flexible design and must not transmit thrust from the motor to the compressor.

3.0 Installation in vehicles : The compressor must be located in such a way that it is readily accessible and protected from falling rocks or masonry. It should be firmly bolted to the chassis. Adequate space should be provided for connection of the pressure and suction lines.The compressor should be mounted in such a way that maintenance work can be carried out without difficulty.

3.1 Power transmission: Power may be transmitted by means of an articulated shaft, V belt drive or a coupling. The articulated shaft must be splined so that no thrust is transmitted. The inclination or lateral angle of the articulated shaft in relation to the compressor shaft must not exceed the permissible maximum of 15°.

3.2 If a V belt drive is used the belt must not be too taut. The belt should have one thumb-breadth's slack.

For coupling drive see items 2.2 and 2.3.

4.0 Intake and discharge lines: The blind flanges or plastic plugs at the intake and discharge connections (7 and 8, see fig.1) should not be removed until the pipelines have been laid ready for connection to the compressor. The intake lines should be scrupulously cleaned. The discharge line should be blown through with compressed air. Pipelines should be examined for welding beads at the weld seams.

4.1 Check valve : On compressors and vacuum pumps the discharge connection should be fitted with a check valve (discharge connection (8) above, suction stud (7) down). At machines with fitted changeover-fourway cock the check valve there is installed. In the discharge line, especially when an upward gradient is present, condensate with outlet cocks must be fitted at the lowest points.

4.2 Safety valve: It a hand-operated shut-off valve or stop-cock is fitted in the discharge line, a safety valve must be installed between it and the compressor. The design and setting of the safety valve should be such that the maximum permissible operating pressure cannot be exceeded by more than 10%. It must be secured in such a way that the setting cannot be altered by unauthorized persons or by mistake.

4.3 Float valve: If there is any danger of liquid getting into the intake line of the vacuum pump, a reliable, automatically closing float valve must be fitted in the intake line.

4.4 Vacuum relief valve: For vacuum operation, a vacuum relief valve should be fitted in the intake line or on the vacuum chamber, to open when the nominal vacuum is reached and allow the compressor to take in atmospheric air.

4.5 Silencer: The air escaping from the vacuum pump to the outside produces a loud whistling noise. We recommend you to install our silencer, which effectively muffles this noise.

4.6 Temperature measurement: The temperature of the compressed air must be monitored by a reliable thermometer, which should be installed near the discharge connection.

In the case of mobile compressors of the same type, a temperature measuring point set up in the vicinity of the discharge connection is adequate.

The temperature of the compressed air must not exceed 180°C. Higher temperatures are permissible for short periods during vacuum operation.

4.7 Intake air filter

The air filter must be mounted vertically. However, it must not be installed with the clean air nozzles pointed downwards since dirt will fall into the clean air line when removing the cartridge and can thus get into the filter, or the dust discharge of the preseparator will be impaired.

5.0 Commissioning:

5.1 Oil tank: Oil reservoir (2) should be filled after removal of the cap (1) up to the thread underside of the oil pot. The oil level should never be permitted to fall below the lower notch (6) in the dipstick (4). After filling, the cap (1) should be screwed on again firmly.

Quantity of oil: 3,4 l

Usefull contents: 2,6 l

5.2 Shut-off elements: All shut-off valves and slides should be opened.

5.3 Manometers and vacuum gauges:

Manometers and vacuum gauges should be kept under observation until the desired operating pressure or operating vacuum is reached.
The maximum pressure and vacumm figures should not exceed those specified on the rating plate.
If the machine is operated at higher pressure or greater vacuum, blockages or overheating must be reckoned with.

6.0 Maintenance:

6.1 The oil level in the oil reservoir (2) should be checked regularly at the dipstick (4). Whenever the oil level falls to the lower notch (6) (minimum level). the oil must be topped up immediately.

6.2 The air filter on the intake side should be examined at regular intervals depending on the prevalence of dust (see section 9.10 and 9.20).
If an oil-bath-type air filter is fitted, the oil pot of the filter should be removed at intervals of about 3 months with the machine stopped, cleaned and refilled with fresh compressor oil.

6.3 All condensate collectors in the intake or discharge lines should be emptied at least 3 times daily. Condensate in the discharge lines should be blown out with compressed air, condensate in the intake line should be drained off with the compressor at rest.

6.4 The operating pressure or operating vacuum should be checked daily.

7.0 Construction with fitted changeover fourway cock (see Fig. 1)

7.1 Connection 8 (R 2") is to connect with the receiver.
At connection 7 (R 2") an exhaust silencer can be fitted over a short piping to reduce efficiantly the exhaust noise. A stirring lance over a hose can also here be operated.

7.2 The fitted changeover-fourway cock (5) has the position 9 = suction and 10 = pressure operation. At running compressor-vacuum pump an intermediate position for longer periods (2-3 min) should be prevented otherwise overheating can occur. The change lever must always be pressed to the impact. Through the intermediate position at non-running machine the receiver can quickly be ventilated.

8.0 Lubricating oil

We recommend the following proprietary brands of lubrication oil:

	Summer Grades	Winter Grades
BP	* BP Vanellus-T 40 BP Energol IC-D 40 * BP Energol HD-S SAE 40	* Vanellus-T 30 BP Energol IC-D 30 * BP Energol HD-S SAE 30
ESSO	Essolube HDX 40 Esso-Motor Oil 40	Essolube HDX 30 Esso-Motor Oil 30
MOBIL	Mobil Delvac 1140	Mobil Delvac 1130
SHELL	Shell Rotella SX 40	Shell Rimula X 30
TEXACO	Ursatex SAE 40	Ursatex SAE 30

* These oils can also be obtained at petrol stations.

Remark:
1. If the ambient or intake temperatures are 40 °C or more, use the **next highest viscosity group.**
2. If the ambient or intake temperatures are 5 °C or less, use the **next lowest viscosity group.**
3. **Do not use** multigrade oils.

8.1 Lubrication Oil Consumption

Compressor type	Lubrication oil consumption in cm^3/h	Capacity of oil tank in litre	Sufficient for approx. service hours
SLS 34	23	2,6	100
SLS 54	95		25

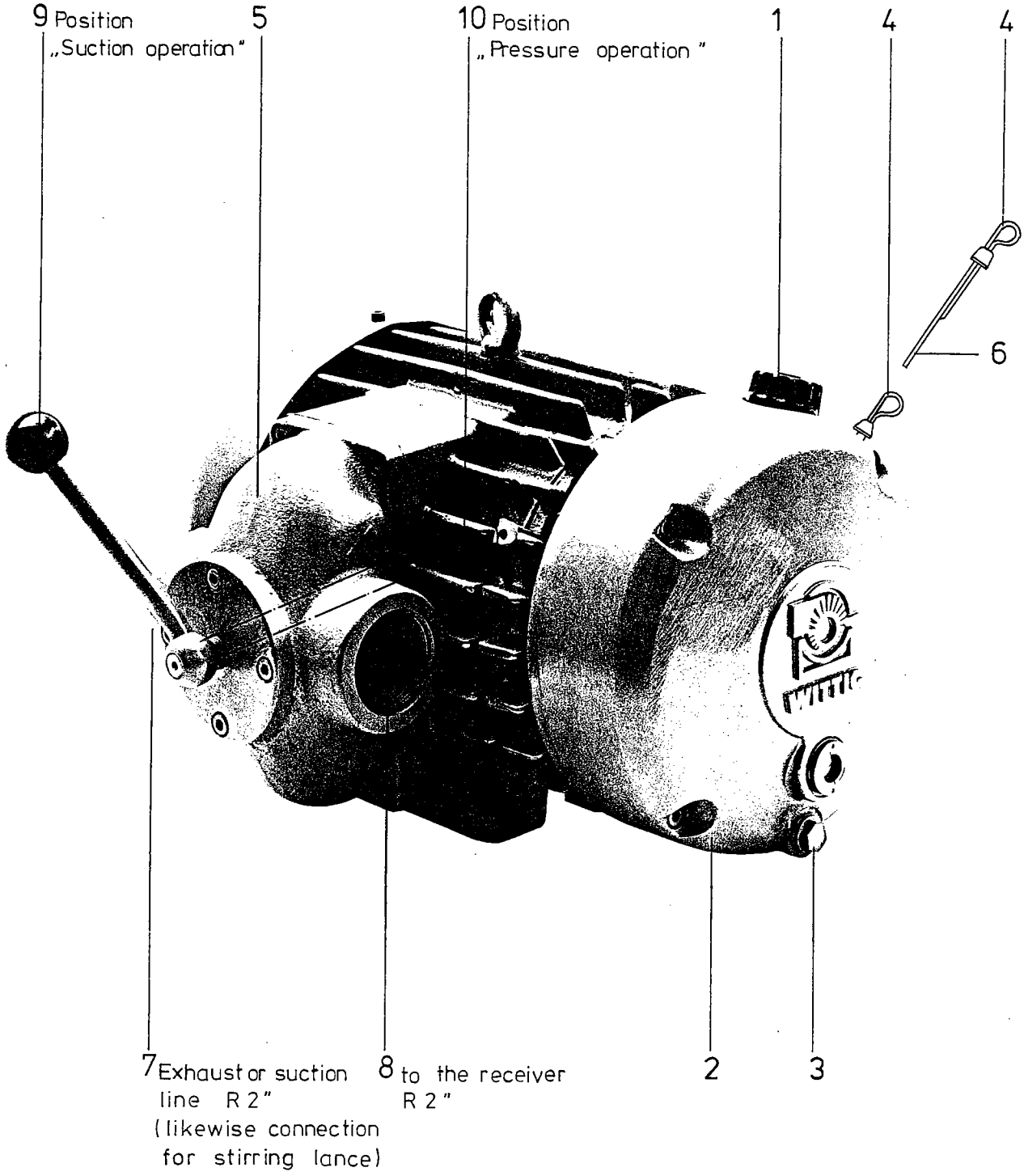

9 Position
„Suction operation"
5
10 Position
„Pressure operation"
1
4
4
6
7 Exhaust or suction
line R 2"
(likewise connection
for stirring lance)
8 to the receiver
R 2"
2
3

Fig. 1

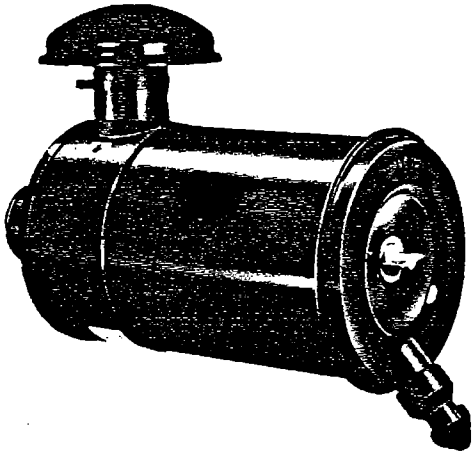
9.0 INTAKE AIR FILTER

9.10 Mounting

The air filter must be mounted vertically. However, it must not be installed with the clean air nozzles pointed downwards since dirt will fall into the clean air line when removing the cartridge and can thus get into the filter, or the dust discharge of the preseparator will be impaired.

Take care that the direction sign on the marking "OBEN-TOP" on the dust container is in upward direction.

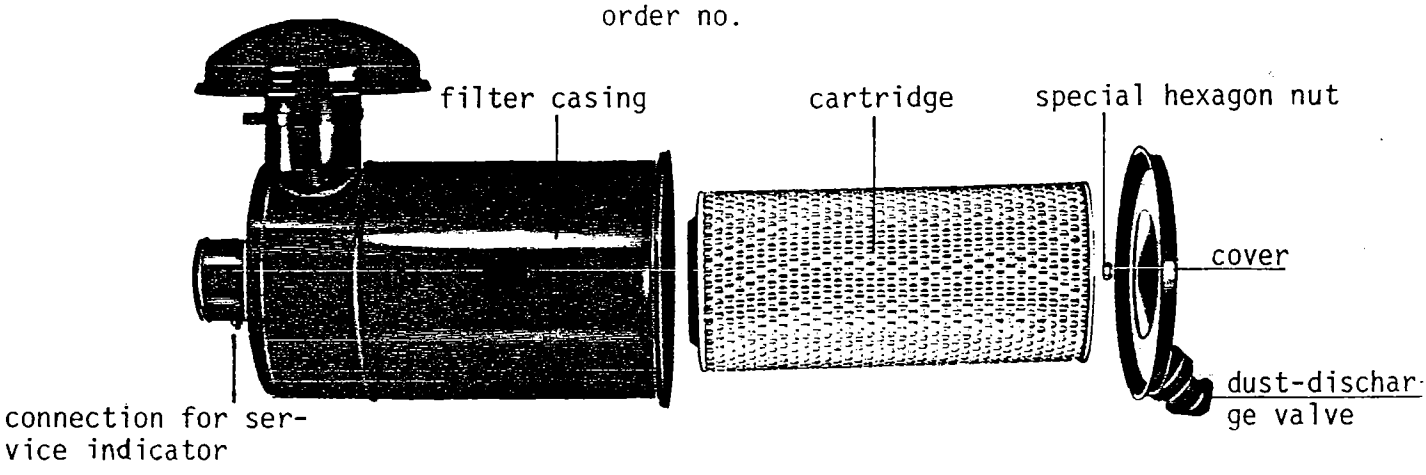
9.20 Maintenance



Filter maintenance is in the rule limited to servicing the cartridge.
The maintenance intervals are dependent on the respective dust conditions.

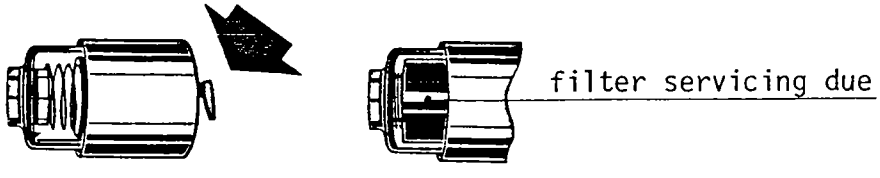
Maintenance of the filter cartridge is then to be undertaken when a red field appears in the maintenance indicator or the maintenance switch responds with electrical supervision (switch-off the compressor motor or actuation of an optical or acoustical signal).

The air filter cartridge should not be used for more than 2 years.
Cartridge maintenance should only be carried out with the compressor shut down.
See spare parts list for replacement cartridge order no.



9.30 Maintenance indicator

After filter maintenance, the red field is to be cleared by pressing the reset button. The maintenance indicator is then once again ready for operation.



The maintenance indicator must not be installed with the reset button to the top.

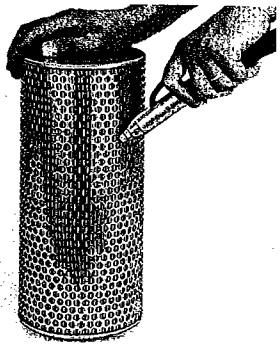
9.40 Dust discharge valve

Any dust cakings should be removed by pressing the valve together. If the filter is installed in a horizontal position, the valve must point downwards.

9.50 Cartridge change

Shut down the compressor.
Remove the cover with the dust discharge valve.
Undo hex nut with spanner.
Remove soiled cartridge and throw away.
Clean the filter housing with a moist cloth, above all, at the sealing surface of the filter cartridge.
Take care to ensure that no dust enters the clean air piping.
Insert new filter cartridge into filter housing.
Tighten hex nut with spanner.
Mount cover.

9.60 Cleaning



Cartidges can also be cleaned if necessary. Independently of this, they should be replaced as described in section 9.20 "Maintenance".

Cleaning can be performed as follows:

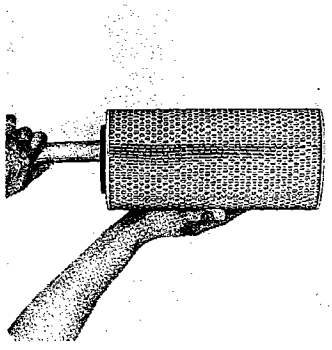
By blowing out

Blow out the cartridge surface with dry compressed air of not more than 5 bar aimed from the outside at an incline in the direction of the folds.

Knocking clean as a temporary measure

This should only be done if cleaning by means of washing or blowing out are not possible.
Knock out the cartridge several times with the front front end against a soft surface (e.g. palm), so that the dust falls out. Do not use force, avoid damaging the cartridge.

9.70 Checking the cartridge



Before reinsertion, the cleaned cartridge should be checked for damage; e.g. on the paper bellows, the rubber gaskets and for signs of dents or damage to the sheet steel jacketing.

It is possible to detect cracks and holes in the paper bellows by tilting the cartridge against the light or by lighting it using a torch.

Damaged cartridges should not be re-used.
In case of doubt, throw away the cartridge and insert a new one.

9.80 Cartridge storage

It is a good idea to keep a replacement cartridge for each cartridge type used in the machine in the store. Stored cartridges must be adequately protected against dust, moisture and damage. They are best stored in their original packaging.

PLEASE NOTICE!

When ordering spare, please quote the machine-type, machine-number, the pos.-number, designation of part, the quantity and the order-number. Screws, nuts and washers after DIN-Standard are not stated in the list for spare parts.

Example:

Spare parts list no.:	E 19/1988/2E
Type:	SLS 34
Machine no.:	914 480/10
Spare parts:	4 rotor vanes, pos.-no. 4 order-number 342 913 00
	2 rotary shaft seals, pos.-no. 11 order-number 461 038 00

For manufacturers who operate with a bigger number of compressors it is advantageous to lay out a store for spare parts.

Following parts should be given priority:

Part-No.	Designation	Quantity	Order-number	
			SLS 34	SLS 54
4	Rotor vanes	4	342 613 00	342 614 00
10	Cylindrical roller bearings	2	411 341 00	
11	Rotary shaft seals	2	461 038 00	
13	O-ring	1	463 680 00	
31	Gasket	2	465 540 MA	
			465 541 MA	
			465 542 MA	
32	Gasket	2	465 735 00	
34	Gasket	1	465 736 00	
-	Filter cartridge for intake air filter	1	432 609 00	

Please note, that the rotor, part no. 3 and the oil pot cover, part no. 6 are suitable for only one rotation direction (see arrows on compressor).

Part-No.	Designation	Quantity	Order-number SLS 34	SLS 54	Explanations
1	housing	1	914 450 00	914 470 00	
2	housing cover	2	914 451 00		
3	rotor complete clockwise rotation	1	914 455 00	914 471 00	according rotation direction
	rotor complete anticlockwise rotation	1	914 456 00	914 472 00	
4	rotor vane	4	342 613 00	342 614 00	
5	bearing cover	1	914 459 00		
6	oil tank cover clockwise rotation	1	914 460 00		according rotation direction
	oil tank cover anticlockwise rotation	1	914 484 00		
7	oil tank	1	914 461 00		
8	fan complete	1	340 005 00		
9	fan cowling	1	914 469 00		
10	cylindrical roller bearings	2	411 341 00		
11	rotary schaft seals	2	461 038 00		for part 5
12	sleeve for rotary shaft seals	1	411 790 00		on part 3
13	o-ring 210 x 3	1	463 680 00		for part 6
14	oil filler cap	1	472 019 00		
15	dipstick	1	914 879 00		
16	gasket	1	465 635 MA		between parts 6 and 35/36
17	locking screw	1	444 897 00		for part 7
18	gasket ring 17x 21	1	421 716 MA		for part 17
19	direction rotation plate	1	455 912 MA		
20	pipe connection with non retour valve	1-2-3	425 165 00		for parts 1 and 6
21	angle pipe connection with check valve	1	425 168 00		for part 2
22	angle pipe connection M 8	2	425 166 00		for part 6
23	pipe connection M 8	2	425 159 00		for part 6
24	oil suction pipe 6x 1x 100	1	062 007 MA		between part 28 and 35/36
25	oil pressure pipe 4x 0,5x 100	1	062 003 MA		
26	oil pressure pipe 4x 0,5x 250	1-2	062 003 MA		
27	oil pressure pipe 4x 0,5x 150	3-4	034 004 00		in part 7
28	suction sieve	1	425 373 00		on part 24
29	plate for oil type	1	455 915 MA		
30	data plate (rating plate)	1	455 893 MA		
31	gasket Ø 215/180 x 0,08	2	465 540 MA		between part 1 and 2
	gasket Ø 215/180 x 0,12	2	465 541 MA		
	gasket Ø 215/180 x 0,15	2	465 542 MA		
32	gasket Ø 130/100 x 0,5	2	465 735 00		between part 2 and 5/6
34	gasket Ø 230/110 x 0,5	2	465 736 00		for flange suction-pressure-side
35	oil pump	1	425 931 00	425 926 00	
37+	mounting flange	1	914 465 00		on part 1
38+	check valve housing	1	914 466 00		on part 37
39+	check valve holder	1	914 251 00		into part 38
40+	check valve plate	1	914 252 00		into part 38
41+	gasket	1	464 525 00		between part 1 and 38

\+ Without parts 37 - 41 at machines with fitted changeover-fourway cock.(Parts 45 - 55)

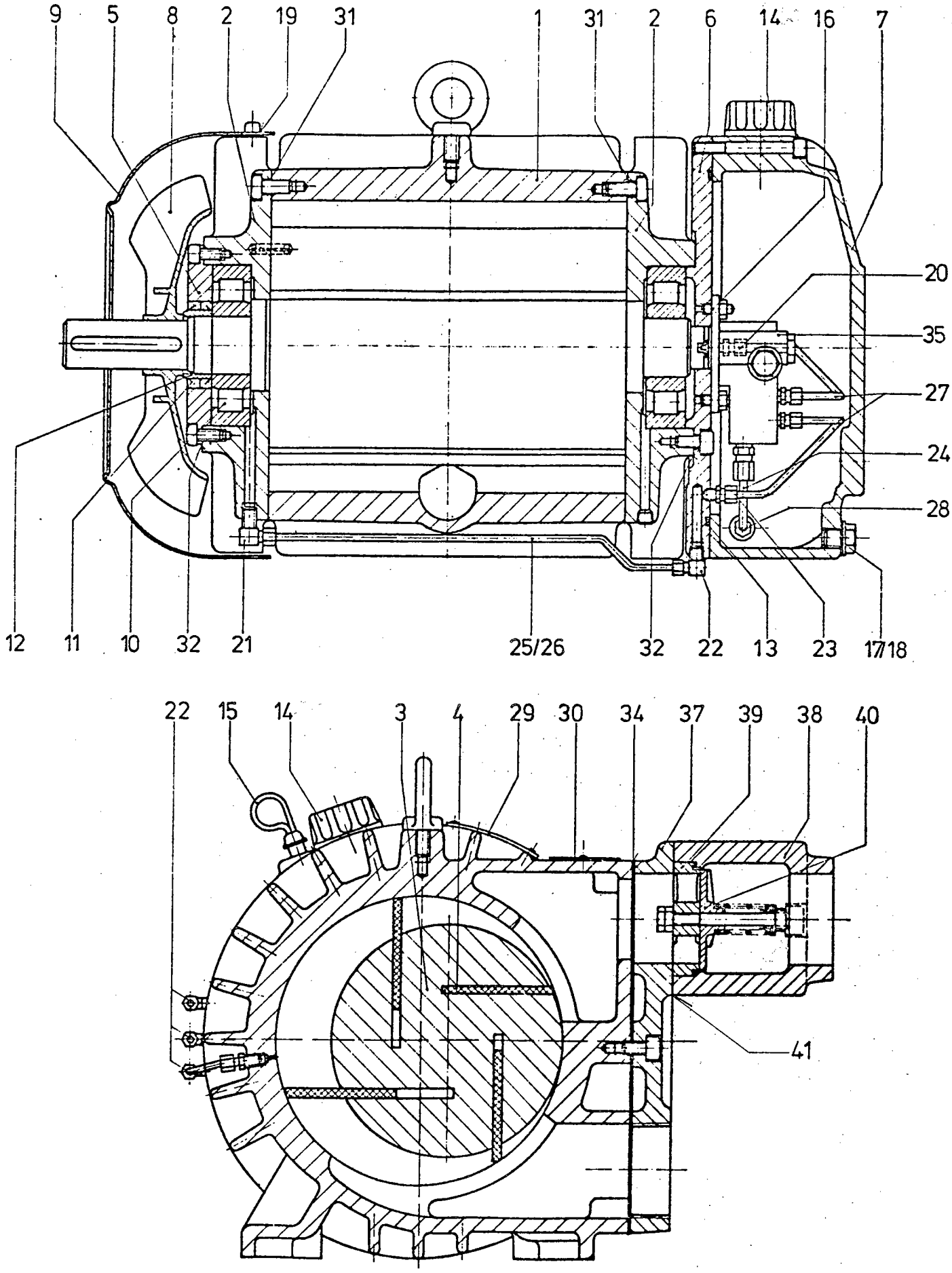


Abb. 2 Längs-und Querschnitt durch die Kompressor-Vakuumpumpe, Ausführung mit Rückschlagventil.

Fig. 2 Longitudinal - and cross section of the compressor-vacuum pump, with fitted check valve.

CHANGEOVER - FOURWAY COCK

Part-No.	Designation	Quantity	Order-number SLS 34 + SLS 54	Explanations
45	changeover-housing	1	914 453 00	fitted on part 1
46	check valve plate	1	914 454 00	into part 45
47	valve cone	1	914 464 00	into part 45
48	cover for valve cone	1	914 463 00	on part 45
50	spring washer	2-3	451 639 00	for part 47
51	o-ring 20 x 3	1	463 520 00	into part 48
52	gear shift lever	1	914 477 00	for part 47
53	gasket Ø 112/72 x 0,5	1	465 738 00	between part 45 and 48
54	reference plate "Suction"	1	455 907 MA	on part 45
55	reference plate "Pressing"	1	455 908 MA	on part 45
56	ball head with tolerance ring	1	449 842 00	for part 52

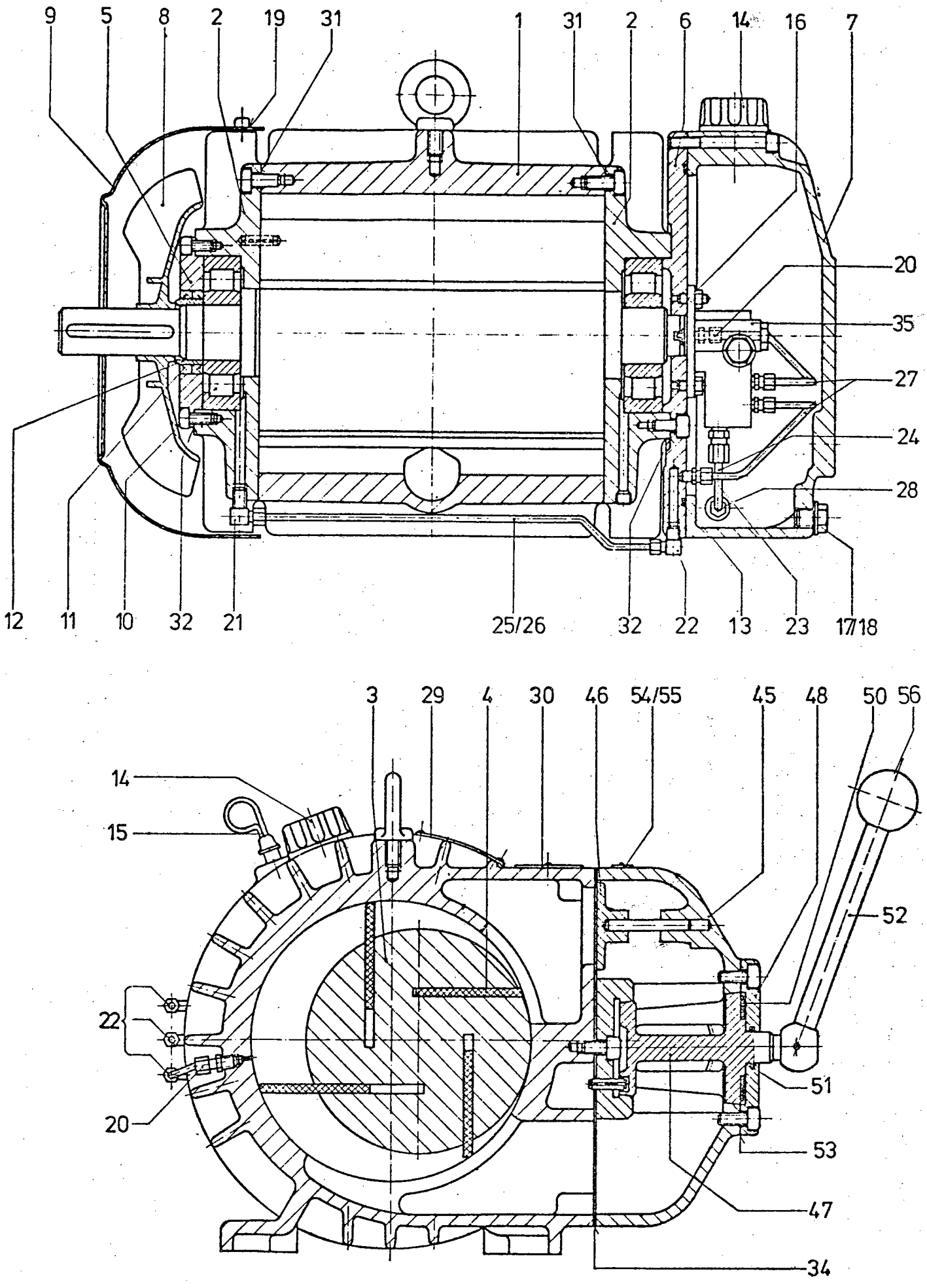


Abb.3 Längs- und Querschnitt durch die Kompressor-Vakuumpumpe, Ausführung mit Umschalt-Vierwegehahn.

Fig. 3 Longitudinal - and cross section of the compressor-vacuum pump, with fitted change over-fourway cock.