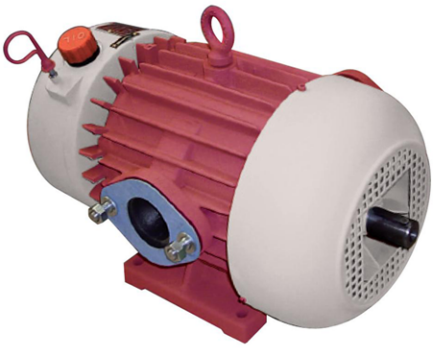
Operating Instructions and Spare Parts List

(Original Instructions)

WITTIG

A Gardner Denver Product

SL 15-20



BE 11/1988/2 GB 02/12

Static electricity.

Ensure, that where required, the ancillaries are earthed in accordance with BS5958 Part 1 1992; 'Control of Undesirable Static Electricity'.

Powder-air combinations are potentially explosive.

Drive line.

It is the responsibility of the installer of the equipment ro ensure all rotating and moving parts of the installation are adequately guarded to a standard which complies with the prevailing safety legislation.

Equipment.

The equipment has internal moving parts some of which may be accessed through the inlet and outlet apertures. Do not place any objects, especially fingers, into these apertures since personal injury could result.

Installation.

A relief valve must be fitted in the outlet pipe work as close to the machine as possible. The valve must be positioned so as not to vent air onot any personnel since the air discharged will be hot and can cause severe burns.

Storage/Infrequent Usage.

Before the machine is installed or when it will not be used for long periods:

- Store in a dry, heated building
- Handle with care and keep the suction and delivery ports covered.
- Rotate the drive shaft each week, in the direction shown by the arrow on the cover.

Where the machine is mounted on a vehicle and located outside, it should be operated for at least 15 minutes each week (twice a week in damp/cool conditions).

Fire.

The equipment includes seals made of fluoroelastomer polymers which degrade if exposed to temperatures above 300°C. If the material has been so exposed then it must not be handled with bare hands.

Maximum surface temperature 150°C. Highly combustable materials must not come into contact with the discharge pipework or machine body.

Relief Valve Check.

This procedure should be carried out every month to clear the valve seat and check the valve is functional. (Ear protection is recommended).

Noise

maximum noise level at a distance of 7 metres is 73 dB(A) at 0.5 Barg.

OPERATING INSTRUCTIONS AND SPARE PARTS LIST

Operating instructions for air-cooled rotary compressors, Types SL 15-1 & 20-1

Technical data

The nameplate of the machine contains the machine serial number and the essential machine data.

Compressor Vacuum Pump	**Type**	**SL15**	**SL20**
Volume Flow, - Free Passage - At Residual Pressure 400 mbar/60% Vacuum	M^3/h	 125 123	 165 155
Operating Pressure	barg	0.5	0.5
Maximum Operating Pressure	barg	2.0	2.0
Power requirement at the shaft - At 0.5 barg	kW	 3.0	 3.7
Permissable Speed Range	rpm	1000 - 1500	1000 - 1500
Operating Vacuum for continous operation	mbar/%	200/80	200/80
Weight with non return valve	kg	48.3	57.3
Sound pressure level at a distance of 7 metres and at 400 mbar / 0.5 barg	dB(A)	67/71	69/73

Data and illustrations right of alteration reserved

OPERATING INSTRUCTIONS AND SPARE PARTS LIST

Operating instructions for air-cooled rotary compressors, Types SL 15-1 + 20-1

Technical data look rating plate

1.0 Description: Types SL 15-1 + 20-1 are air-cooled rotary compressors suitable for the production of pressure or vakuum. In continuous operation they are capable of providing overpressure at a maximum of 2 bar excess or a vacuum of 100 mbar (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. The maximum permissible speed is 1800 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 housing cover).

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^{o}.

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 5, 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 (5) to the rigth at clockwise rotating machines, to the left at anticlockwise rotating machines seen on the free shaft end). 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.

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 noth (6) in the dipstick (4). After filling, the cap (1) should be screwed on again firmly.

Quantity of oil : 2,6 l
Useful contents : 2 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 vacuum figures should not exceed those specified on the rating plate. If the machine is operated at higher pressures 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 immediatelly.

6.2 The air filter on the intake side should be examined at regular intervals depending on the prevalence of dust (see section 6.72 and 6.73). 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.

6.5 Lubricating oil

We recommend the following proprietary brands of lubricating oil:

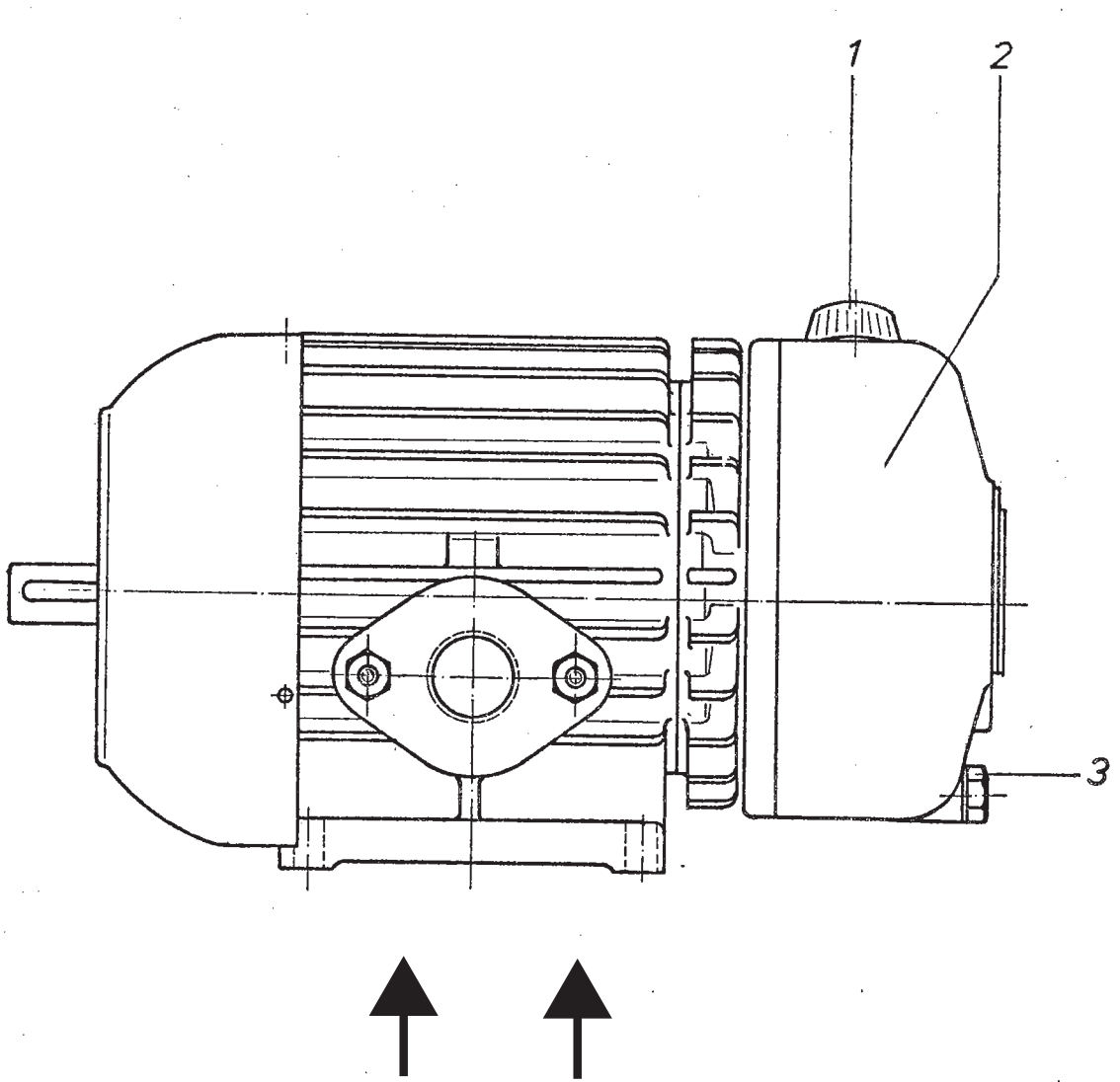
	Summer Grades	Winter Grades
BP	* BP Vanellus-T 40 BP Energol IC-D 40 * BP Energol HD-S SAE 40	* BP Vanellus-T 30 BP Energol IC-D 30 * BP Energol HD-S SAE 30
ESSO	Essolube HDX 40 Esso-Motor Oil 40	Essolube HDX 30 Esso-Motor Oil 30
MOBIL	Mobil Delvac 1140	Mobil Delvac 1130
SHELL	Shell Rotella SX 40	Shell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

6.6 Lubricating Oil Consumption

The lubricating oil consumption is approx. 23 cm^3/h.
The contents of the oil tank is sufficient for approx. 85 service hours.


1
2
3
MOUNT MACHINE THIS WAY UP ONLY

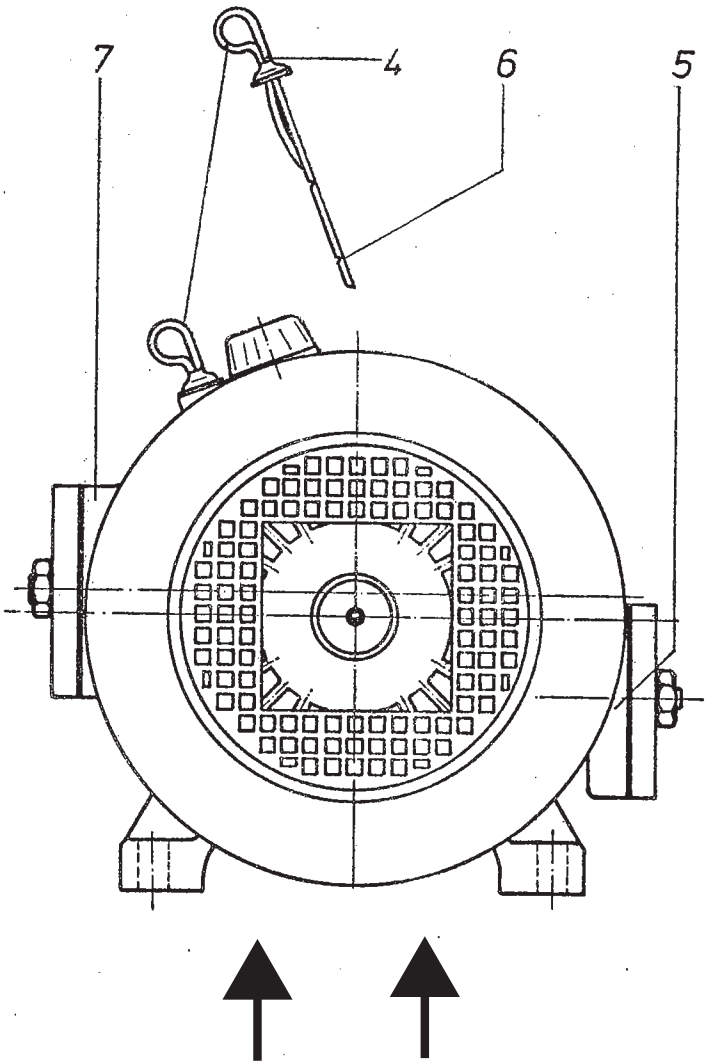

7
4
6
5
MOUNT MACHINE THIS WAY UP ONLY

Abb.1
Fig. 1

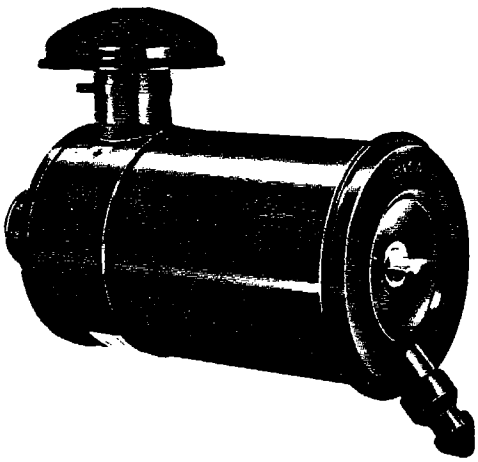
6.70 INTAKE AIR FILTER

6.71 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.

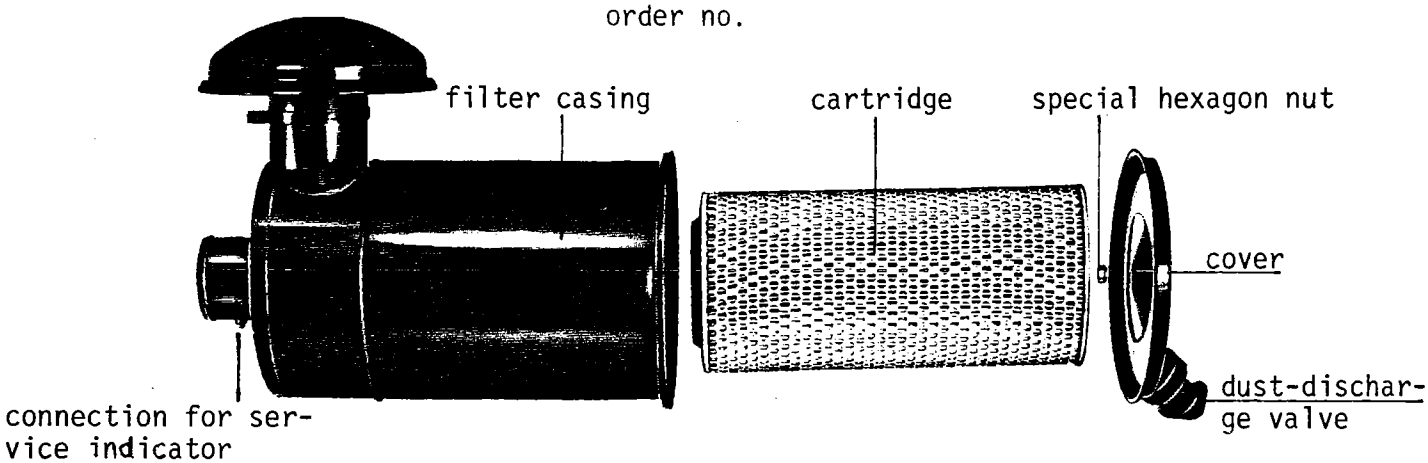
6.72 Maintenance



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

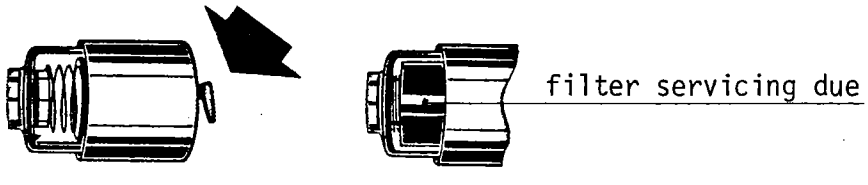
Maintenance of the filter cartridge is then to be undertaken when a red field appears in the maintenance indicator or the maintenance switch responds with electrical supervision (switch-off the compressor motor or actuation of an optical or acoustical signal).

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.



6.73 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.

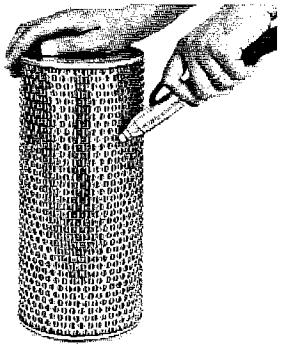
6.74 Dust discharge valve

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.

6.75 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.

6.76 Cleaning



Cartidges can also be cleaned if necessary. Independently of this, they should be replaced as described in section 6.72 "Maintenance".

Cleaning can be performed as follows:

By blowing out

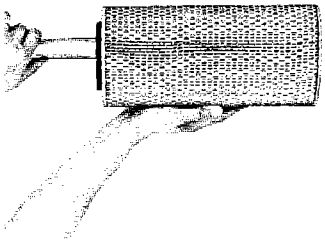
Blow out the cartridge surface with dry compressed air of not more than 5 bar aimed from the outside at an incline in the direction of the folds.

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.

6.77 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.

6.78 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.

6.8 Checking The Blade Wear

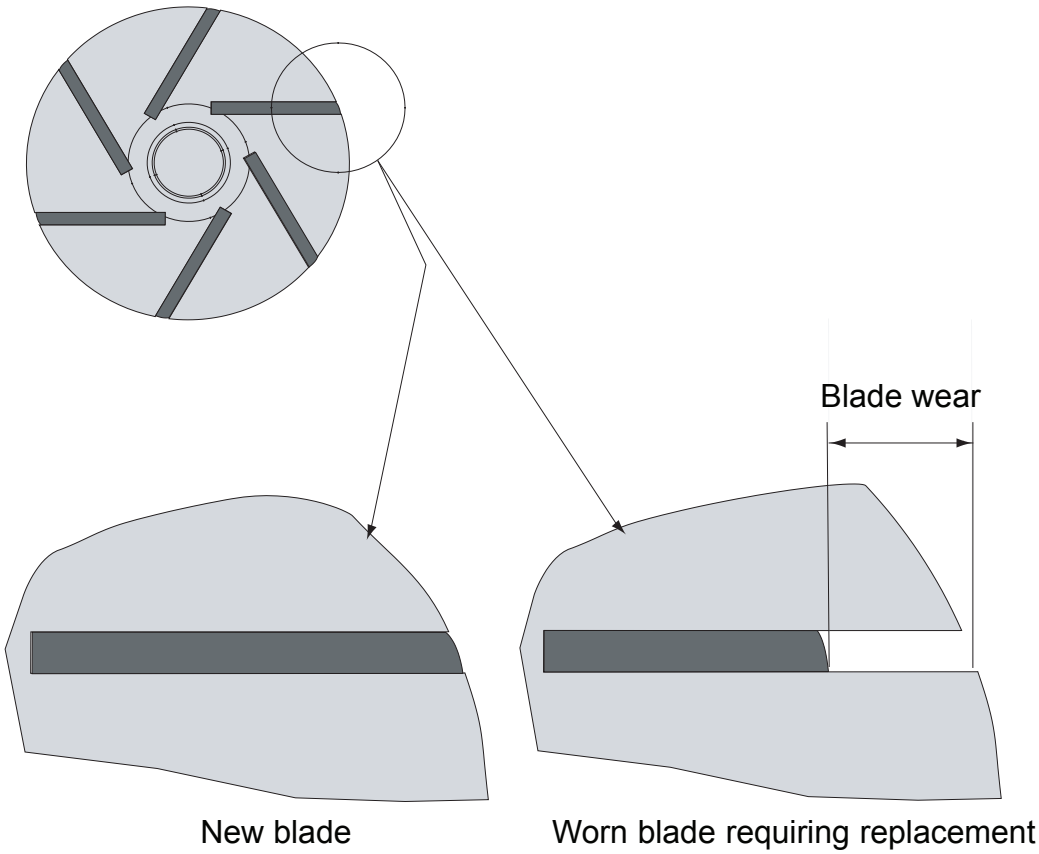
6.81 Using the drawing below, check the blade wear as follows:

6.82 Remove the pipework from the most convenient port.

6.83 Turn the rotor until one of the blade slots lies perpendicularly opposite the port.

6.84 Push the blade down to the bottom of the slot and measure the distance from the blade to the top of the slot (shown below).

6.85 Replace blades before 15mm wear is reached.



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 11/1988/2
Type:	SL 15 - 1
Machine no.:	914 429 / 32
Spare parts:	8 rotor vanes, pos.-no. 4 order-number 342 624 00
	2 rotary shaft seals, pos.-no. 11 order-number 461 019 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 SL 15-1	Order-number SL 20-1
4	Rotor vanes	8	342 624 00	342 625 00
10	Cylindrical roller bearings	2	411 222 00	
11	Rotary shaft seals	2	461 019 00	
13	O-ring	1	463 674 00	
28	Gasket	2	465 573 00 465 574 00 465 575 00	
29	Gasket	2	465 779 00	
-	Filter cartridge for intake air filter	1	**6320000786-2** ***OR*: TW43260800** *** See Page 12 (last page) for details**	

We request to note, that oil pump, part-no. 33 and 34 only is suitable for one rotation direction.

The rotation direction of the oil pump must harmonize with the rotation direction of the compressor. (see arrows on compressor and oil pump).

SPARE PARTS LIST, Types SL15-1 and SL20-1

Part-No.	Designation	Quantity	Dimensions	Order-number	Explanations
1	housing SL 15-1	1		914400	according type
	housing SL 20-1	1		914421	
2	housing cover	2		914401	
3	rotor complete SL 15 - 1	1		914418	according type
	rotor complete SL 20 - 1	1		914425	
4	rotor vane SL 15 - 1	8		342 624	according type
	rotor vane SL 20 - 1	8		342 625	
5	end cover	1		914416	
6	oil tank cover	1		914414	
7	oil tank	1		914415	
8	fan, complete	1		340010	
9	fan cowling	1		914419	
10	cylindrical roller bearings	2	NU306 MAC3	411222	
11	rotary shaft seals	2	30x50x10	461019	for part 5
12	distance pipe	2	ø 8/6x16	062028	between parts 1 and 9
13	O-ring	1	180 x 3	463674	for part 6
14	oil filler cap	1	R 1"	472 019	
15	dipstick	1		914879	
16	gasket	1	ø28/38x0,25	465635	between parts 6 and 33/34
17	locking screw	1	R 3/8"	444897	for part 7
18	gasket ring	1	A 18 x 22	421714	for part 17
19	direction rotation plate	1		455910	
20	pipe connection with non ret. Valve	2	M 8	425165	for parts 2 and 6
21	angle pipe connection	1	M 8	425166	for part 6
22	pipe connection	1	M 8	425159	for part 6
23	oil pressure pipe	1	4 x 0,5	062003	
24	oil pressure pipe	1	4 x 0,5	062003	
25	oil pressure pipe	1	4 x 0,5	062003	
26	plate for oil type	1		455915	
27					
28	gasket	2	ø190/160x0,	465573 - 75	between parts 1 and 2
29	gasket	2	ø110/72x1	464779	between parts 2 and 5/6
30					
31	gasket	1	NW 40 x 85	464523	for flange pressure side
32	gasket	1	NW 50 x 95	464525	for flange suction side
33	oil pump, clockwise rotation	1	TOM 2	425933	according rotation direction
34	oil pump, anticlockwise rotation	1	TOM 2	425934	

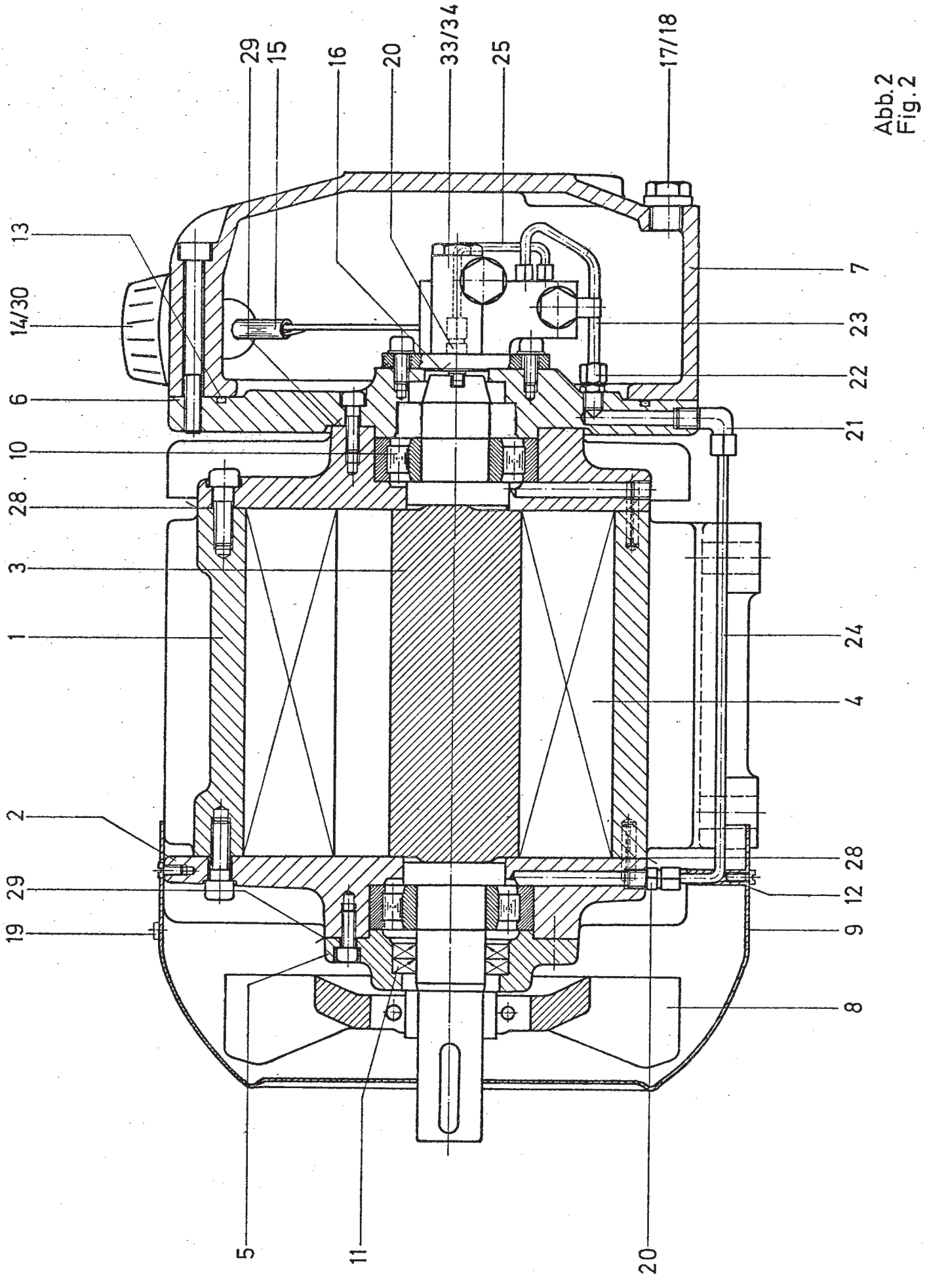

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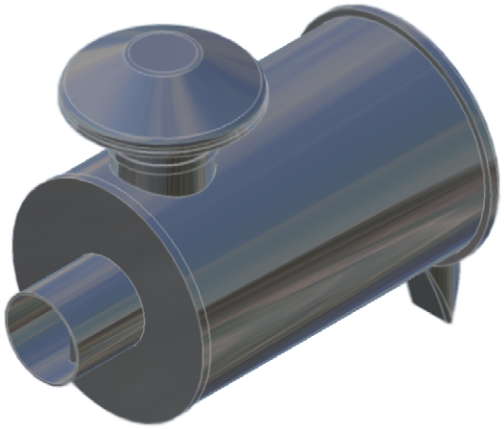
Abb.2
Fig.2

Filters:



TWZ43244800

*If you have the filter pictured above - the replacement element part number is: **TW43260800**

8430000457-2

*If you have the later filter pictured above - the replacement element part number is: **6320000786-2**

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