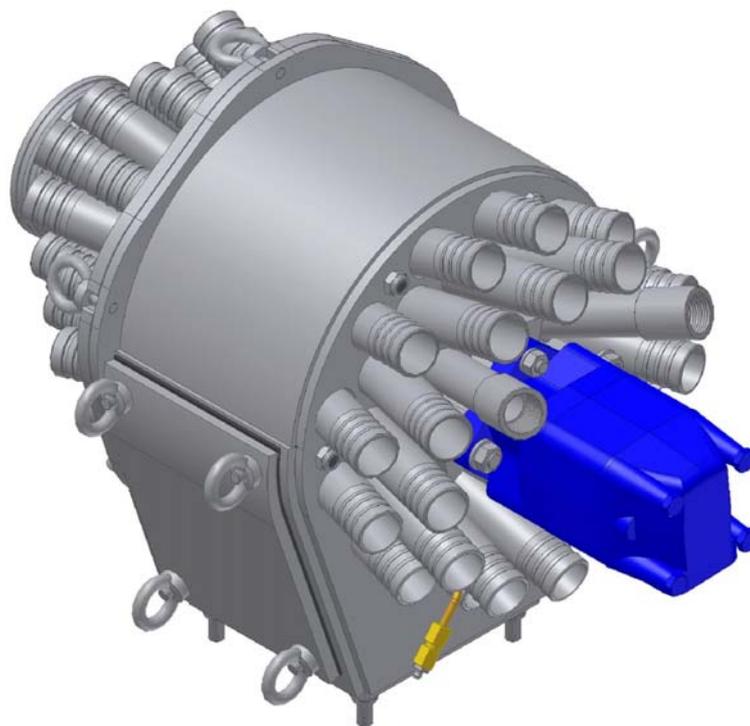


ExaCut with ventilation ECL 24/30/40/48



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Dear customer,

By buying the ExaCut you have acquired a high quality product. If you want your ExaCut to function reliably over a long period of time, it has to be serviced at regular intervals, as stipulated in the instructions. Therefore, this manual should be at the disposal of the operators and maintenance personnel at all times and they should carefully adhere to it.

We do not accept any liability for any damage sustained resulting from failure to adhere to these maintenance instructions.

ATTENTION! Please read before the first operation!

Our operating and maintenance manuals are updated at regular intervals. With your improvement proposals, you would help us make this manual more user-friendly.

Please fax your proposals to our design department +49 (0)5434 - 8310, or e-mail abeln@vogelsang-gmbh.com.

Notes

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Legend of symbols



Warning advisories (technical), safety advisories



Technical or general information

1. Intended use

The ExaCut is an orifice-plate dosing distributor for precisely distributing natural fertilisers (e.g. liquid manure, sewage sludge) to 24/30 or 40 discharge hoses on the spreading vehicles.

Any other use is contrary to the intended purpose. The manufacture will not be liable then for any resulting damage.

2. Safety suggestions

Attention! Before maintenance and repair work :



- Turn off the engine for the tractor / spreading vehicle.
- Depressurize the oil motor's feed and discharge hoses by turning the tractor's hydraulics valve to floating position.

Caution! There are sharp blades inside the ExaCut!

- Before putting into operation, read and observe the operating and safety instructions.
- Before starting work, you should become familiarised with all devices and control elements and with their functions.



Warning and information signs posted provide important information for safe operation!

Warning and information signs may not be removed!

- Observe the instruction given by the manufacturer of the spreading vehicle into which the ExaCut is integrated.
- The maximum admissible pressure is 3 bar.

3. Mounting

When attached to a spreading vehicle, be sure to provide safe ascent facilities for maintenance work.

3.1. Stone trap

The stone trap (fig. 5.2, pos.11) at the bottom of the unit (6"-hole pattern) should be closed

- so that an access to the blades is not possible (e.g. flexible hose, DN 100, 1m long which can be pinched off) **or**
- so that the oil-motor switches automatically off (e.g. mechanical valve).

3.2. Hydraulics

(see fig. 3.2)

- Connect hydraulics hoses (minimum DN 16) with plugs **[1]** and **[2]** on the hydraulic motor of the ExaCut.
- If two ExaCut's are put in line, couple leakage connections **[3]** of both hydraulic motors with a hose (minimum DN 6). Pressure in the flyback-pipe should be as low as possible (max. 15 bars).
- Technical data hydraulic motors: see chapter 7.

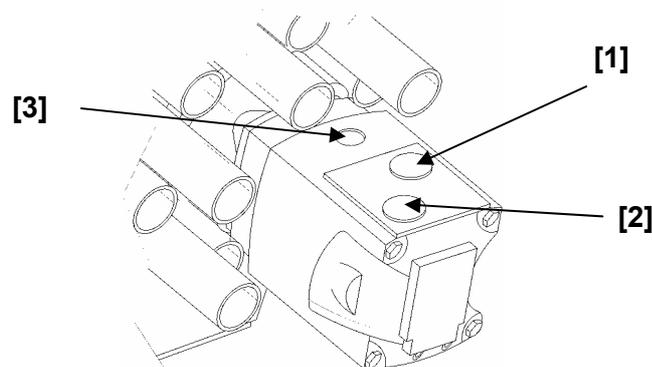


Fig. 3.2

Change of rotation direction

To insure that the ExaCut works free from interferences please change the rotation direction regularly. Therefore connect the ExaCut on a double active device. The changing of rotation direction allows the elimination of almost all interferences due to foreign bodies without any outer intervention.



Attention! Never set the control unit suddenly into 'blocking' position if the rotor is rotating at a high speed. If possible, always switch form 'operating' to 'floating' position.

You can get best working safety through the reversal of the rotation direction on each starting or through a time relay, that switches over approx. one time a minute. In this case the knives always sharpen alone. We recommend to install a manometer in the pressure pipes of the ExaCut in order to detect interferences as soon as possible and to avoid them by reversal.

3.3. Requirements of the vehicle hydraulic

min. oil stream	50l/min
max. oil stream	75l/min
max. oil stream, cont.	175 bar, max. 200 bar



Attention:

Tractors get the named oil power only with nominal RPM. The higher the oil stream the more important is the indifference to foreign bodies and fibrous materials. In case of low quantities of very fluid liquid 50l/min is perfect.

3.4. Connecting the discharge hoses

See hoses' connections fig. 3.4a-d and fig. 3.4e



Attention! When hoses are installed avoid the hoses to have a low well as abrasion and flexure point.

- When hoses are installed put attention to the sequences on the connection diagram [fig. 3.4a-d].
- Install another hose or a check shutter so that the air can flow to the ExaCut.
- In case of hose installation put attention on a low difference between the hoses' length. Hoses which are near to the distributor and go to the ground should be installed on a big bend. Avoid hoses to have a low.
- Mandatory standard:
Opposed und adjacent hoses of the ExaCut should have low differences in hoses' length. The longest and the shortest hose should be placed in an angle of 90°.
- The hose holders which show to the middle of the distributor serve the ventilation (1x on the fill-side in case of ECL24 and 1x on the fill and oil motor side in case of ECL30 and ECL40 and 2x ont the fill and oil motor side in case of ECL48). See fig. 3.4a-d, pos. 1. Short hoses should be used here to avoid a pollution of of machine.

Filling pipes in case of vacuum tanker

In case of two ExaCut use DN 150 minimum until the T-part. After that put in 2x DN 125 or possibly 2x DN 100.

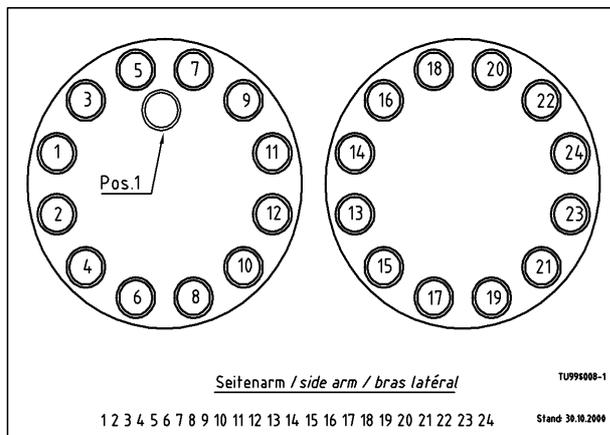
Two separated connections with hoses DN 150 directly at the tanker, reduced by a cone short of the ExaCut would be optimal: Thereby you avoid high pressure loss and obstruction of the T-part. The distribution quantities will be higher too in case of thick liquid medium.

Connection diagram for ECL 24, ECL 30, ECL 40 und ECL 48

Ventilation (pos. 1)

See also fig. 3.4e

ExaCut ECL 24



ExaCut ECL 24 with sectional cut off

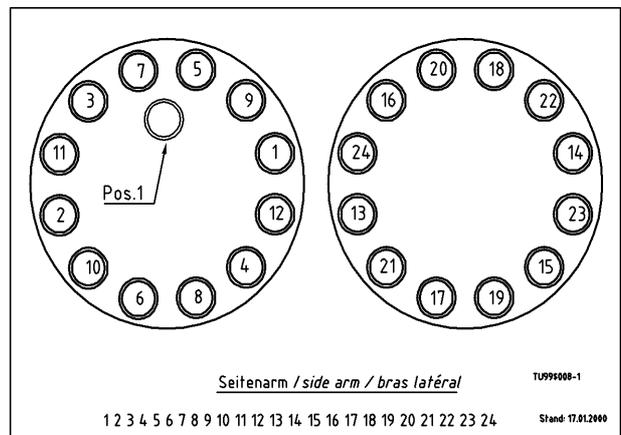
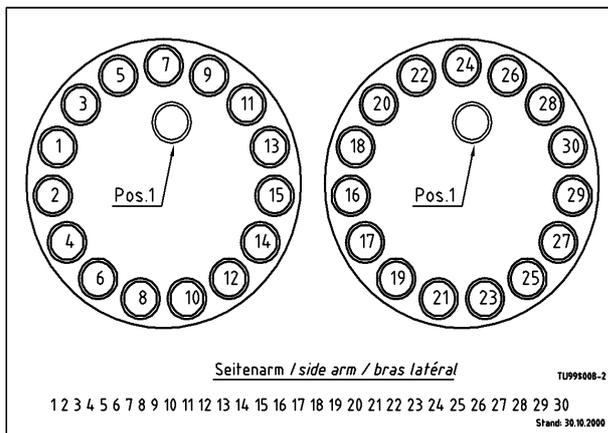


Fig. 3.4a

ExaCut ECL 30



ExaCut ECL 30 with sectional cut off

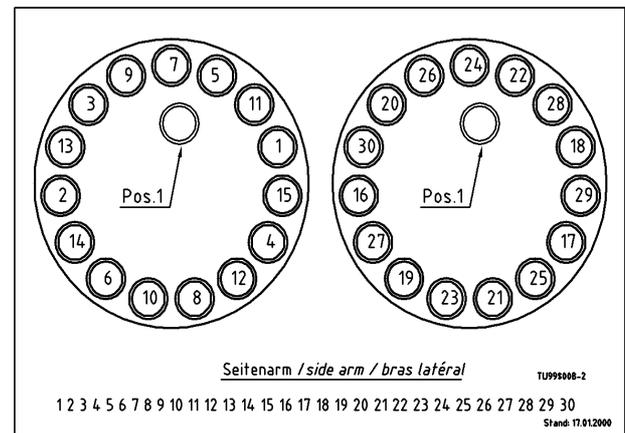
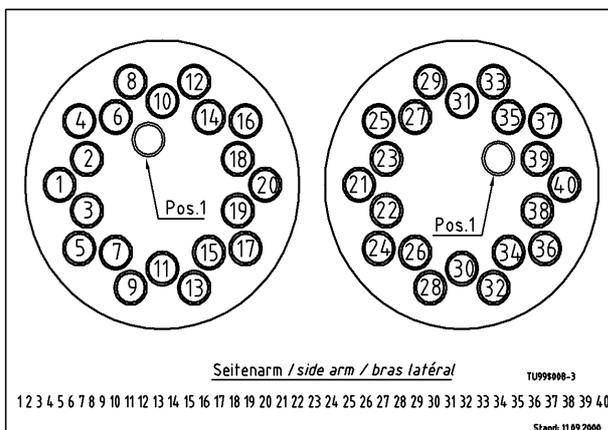


Fig. 3.4b

ExaCut ECL 40



ExaCut ECL 40 with sectional cut off

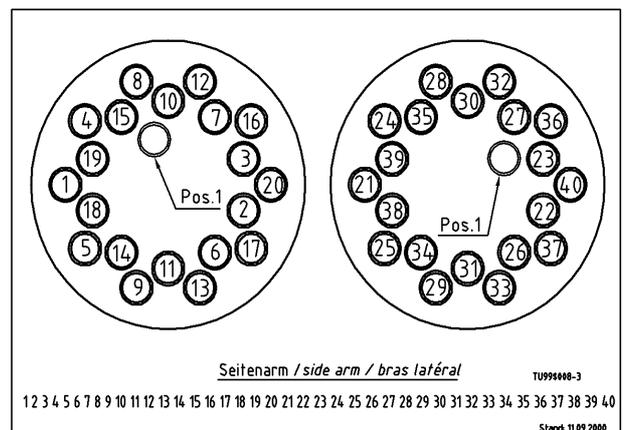
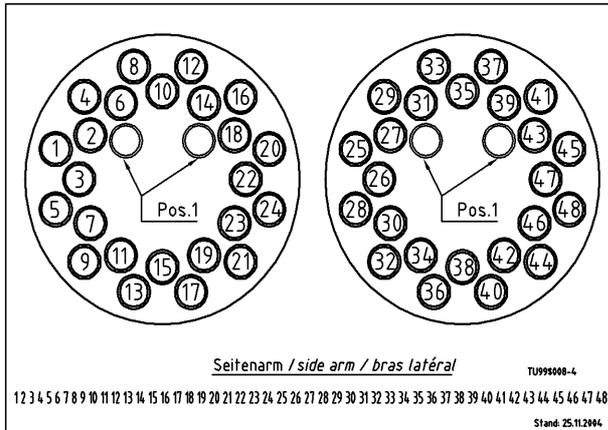


Fig. 3.4c

ExaCut ECL 48 for double symmetrical hoses' connection



ExaCut ECL 48 for double symmetrical hoses' connection with sectional cut off

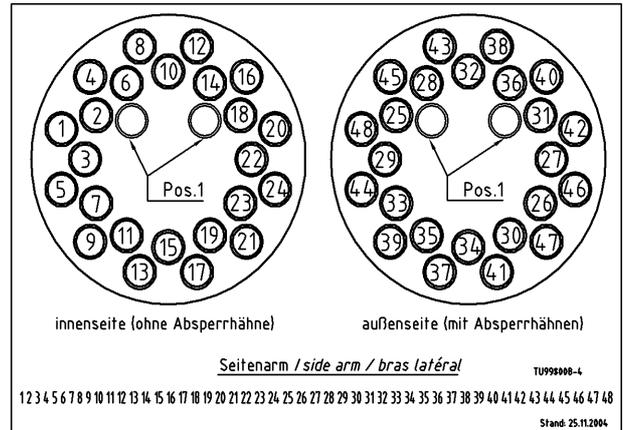


Fig. 3.4d



Attention! These hoses connections only apply, when hoses are installed as in following Fig. 3.4e. Please count on the hoses from the middle of the linkage to the outside.

Hoses' installation

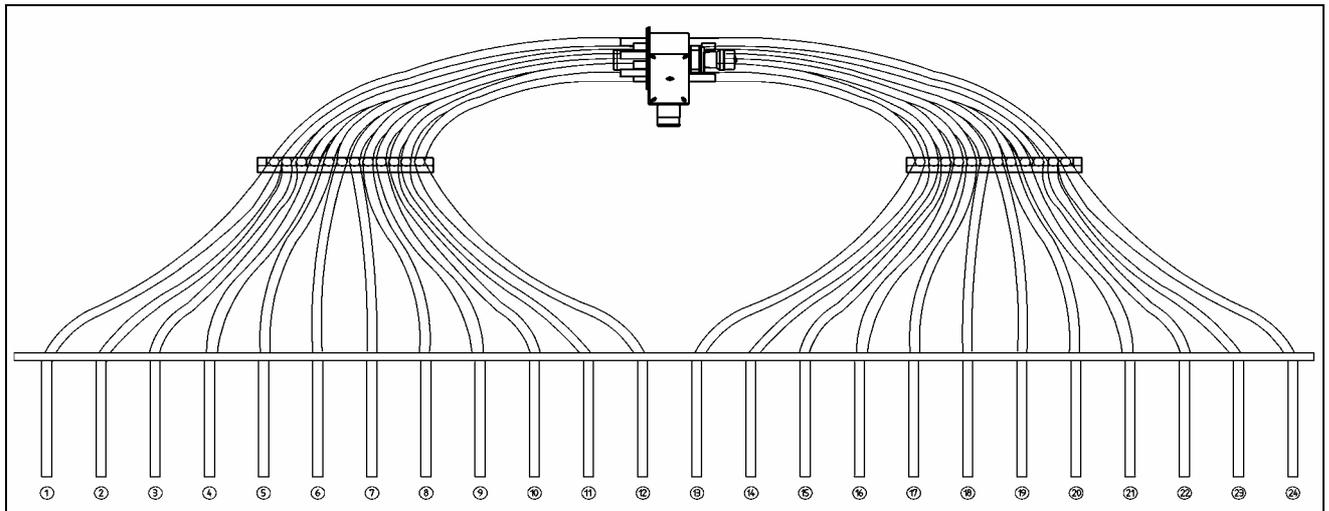


Fig. 3.4e

Please contact us in case of different hoses' installation!

4. Using for the first time / initiation

ExaCut can be used on pump tanker, vacuum tanker and normal tanker. In case of pump tanker pressure limit has to be put on 3 bars. This is possible with a pressure limit valve (option). We recommend using a pressure gauge at manure supply pipe for controlling.

Assessable capacity:

The max. capacity depends on the solid particle portion, the type of liquid manure, the pressure of the spreading vehicle and the hole size of the cutting ring.

The max. capacity may come from 500 to 6000 l/min per distributor.

Necessary pressure:

To aim a good distribution you need a pressure of min. 0,2 bar in the distributor. This means: With a higher flow rate you will obtain a better distribution in case of fluid liquid medium

Suggestions for operating:



- Switch on the ExaCut a short time before the liquid manure passes it.
- Avoid run dry of the ExaCut longer than 30 seconds.
- After approx. 50 operating hours retighten the countersunk screws of the eccentric adjuster with 24 Nm.
- Change the rotation direction at regular intervals. It depends on the connection, whether the control device can be reversed or a time controlled solenoid valve will be used. In both cases blades are best sharpened.
- If a few quantity of liquid manure comes out of the ventilation pipes, short hoses can be connected and leaded to the ground.

5. Maintenance



Attention!

- Before starting maintenance and repair work on the ExaCut, turn off the engine of the tractor / spreader vehicle and depressurise the feed and discharge hoses on the oil motor (set valve to floating position).

Caution! Risk of injury! The ExaCut has got sharp blades!

5.1. Cleaning and checking

- Remove foreign bodies like stones through the stone trap (fig. 5.2a, pos. 11) at regular intervals (intervals depend on the amount of foreign bodies).



Attention!

- Clean the distributor while working slowly regularly with fresh water in order to keep the air pipe at the innerside of the distributor free. Rinse through air connections.
- Check the manoeuvrability of eccentric adjuster at regular intervals, remove it if necessary and keep it going.

- Rinse the ExaCut also before long breaks.
- The ExaCut must be cleaned with opened lids for maintenance and checked for wear.
- Lubricate the oil motor holding fixture with a lot of grease after cleaning in order to protect the sealing washer's running surface.
- All cutting surfaces have to be sprayed with biodegradable oil before long breaks.



Attention!

First turn off the tractor and put hydraulic valve in floating position!

- Open stone trap and empty the distributor. Then unscrew the lateral lid for maintenance. Grease cutting parts.



Attention!

If you demount the housing lid for cleaning, the eccentric adjuster will release. Before mounting the housing lid again, you have to preload the eccentric adjuster according to chapter 5.2 + fig. 5.2b, c.

5.2. Replacement of wear parts

(see the following figure 5.2, pos. 1-40)

Change cutting parts if the driving hub of the rotor stands out 8-10 mm out of the cutting part.



On our VOGELSANG web-site www.vogelsang-gmbh.com you'll find the replacement of wear parts as computer animation.

1. **Turn off the engine of the tractor / spreading vehicle and put the hydraulic valve into floating position.**
2. Open the stone trap (pos.40) and let the distributor run dry.
3. Open lid for maintenance (pos.24+23).
4. Unscrew housing lid (pos.1) of the ExaCut.
5. Screw out the screws (pos.17) of the rotor (pos.7).
6. Pull off the rotor of the distributor (pos.7). Pay attention to the adjusting washers [pos.20]. If the rotor of distributor won't come off, it's possible (since model 2002/12) to pull off the rotor by using a hex. head cap screw M30 (see chapter 5.3).
7. Unscrew the nuts of the cutting rings (pos.5) from the rear side and remove the cutting rings (pos.4). Before mounting the new cutting rings clean the bearing surface and moisten the surrounding field of the threaded bolts with sealing compound, for example silicone. While screwing tight the nuts, observe the tightening torque of 28 Nm maximum. Pay attention to our package insert BPZ.21 for the tightening torque.
8. Control shaft sealing rings and bushes (pos.9) on wear, change it if needs.
9. Lubricate Cell-PU sheet gasket (pos.8). In case of wear, change it.
10. Clean lid seals (pos.21) and control on possible damage.
11. Preload the eccentric adjuster (pos.11) with a little water pump tong and lock it with spring cotter pins. (see chapter 5.4 and fig. 5.4 a,b)
12. Put on the cutting parts (pos.6).
13. Grease bushes (pos.9) on the rotor. Mount rotor (pos.7) by a slight turning motion in order to protect the shaft sealing ring. Pay attention to the adjusting washers (pos.20) and distance sleeve (pos.18) with o-Ring (pos.19) between rotor and hydraulic motor.
14. Mount cover (pos.1).
15. Control if rotor is on centre, adjust it, if needs.
16. Remove spring cotter pins (while doing so you should hear a noise like a 'click' – the eccentric adjuster is rotating), close stone trap (pos.40) and lid for maintenance (pos.24+23).

Explosion drawing – ExaCut wear parts

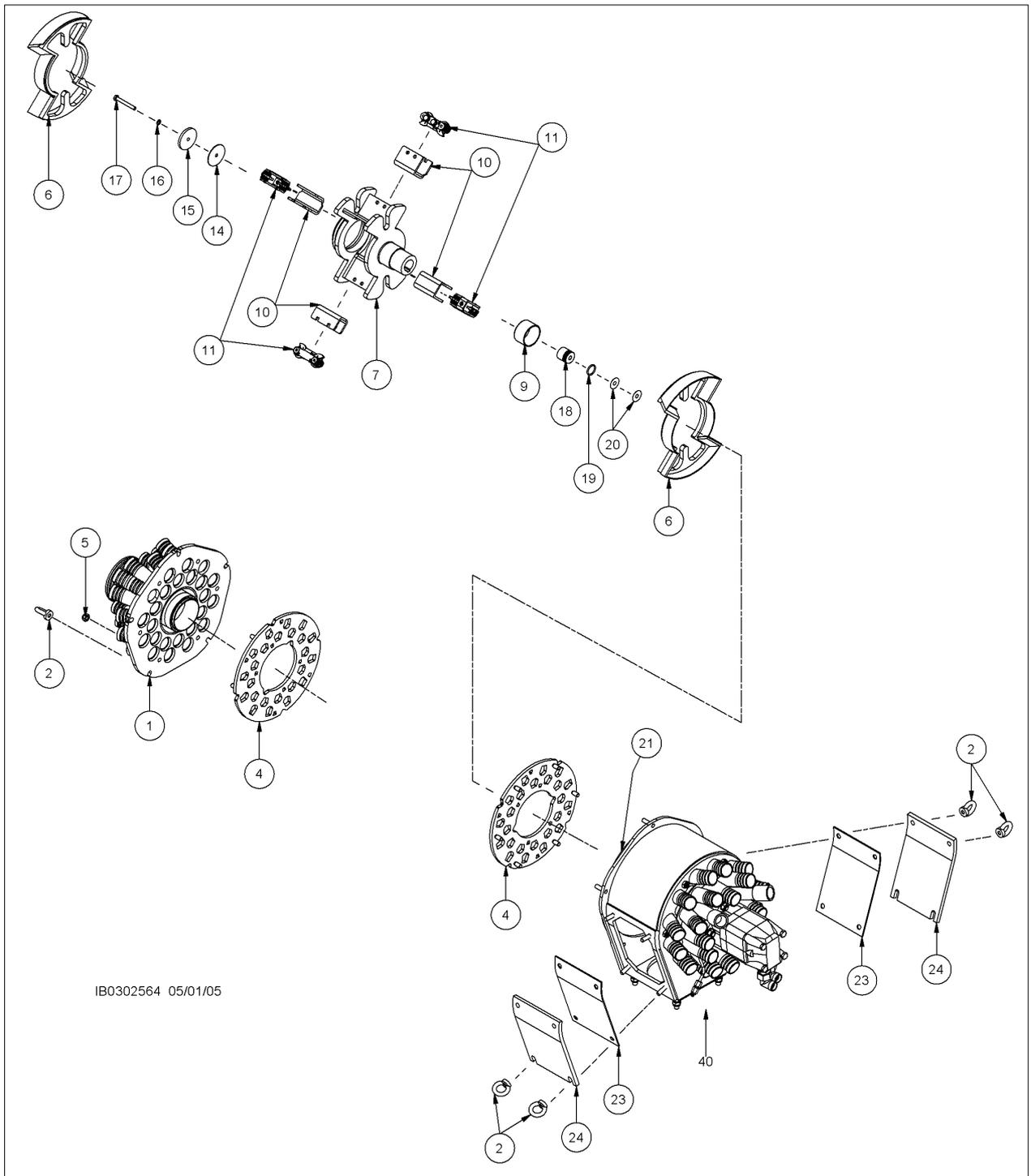


Fig. 5.2

5.3. Disassembly of rotor from hydraulic motor

Pull off the rotor from the hydraulic motor by using a hex. head cap screw M30. If necessary, pay attention to our package insert BPZ.12.

<p>Remove the screw, the washer and the sealing.</p>	
<p>For centering the washer put a hex. head cap screw M10 x * into the boring of sleeve. (* max. 30 mm length)</p>	
<p>For pulling off the rotor from the motor, screw on a greased hex. head cap screw M30 into the rotor. After screwing in deeply enough, the rotor comes off from the motor.</p>	

Please note:

In case of tight rotors it can be necessary to pull off without center-screw first and to use this one afterwards

5.4. Preload the eccentric adjuster

First preload the eccentric adjuster manually and lock it with a cotter pin after the hinge spring (see fig. 5.4a).



Caution! Use gloves to avoid hurts! (Fig. 5.4b)

Then preload more with a little water pump tong so that the holes are in alignment (fig. 5.4b).
Then lock it with the cotter pin (fig. 5.4a)



Attention! Remove cotter pins through lid for maintenance not before mounting of cover.

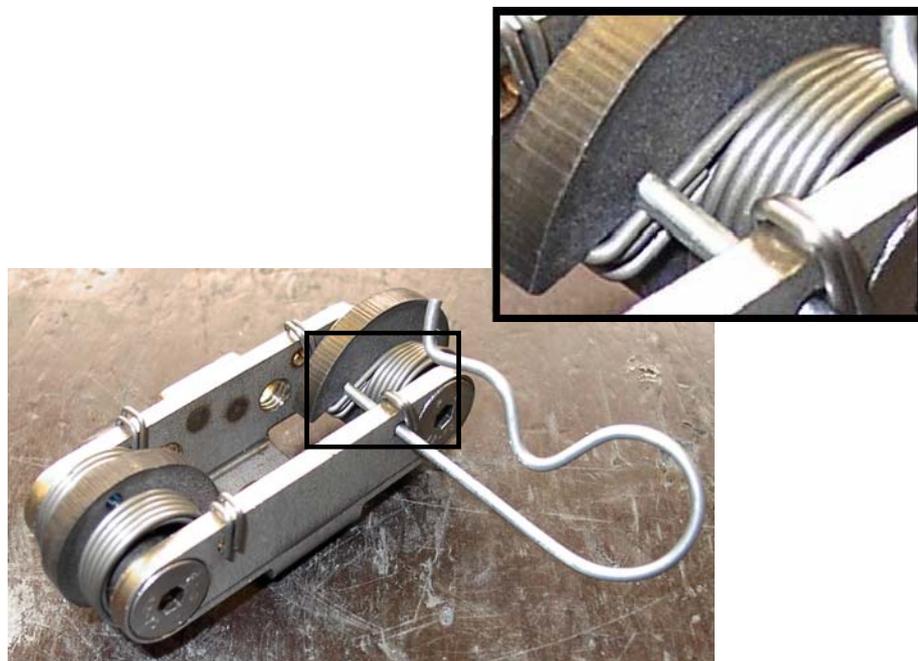


Fig. 5.4a



Fig. 5.4b

6. Troubleshooting

Fault	Possible cause	Remendy
ExaCut vibrates	<ul style="list-style-type: none"> • rotor`s rotation speed is to low • rotor clogged • ventilation clogged 	<ul style="list-style-type: none"> • check hydraulic • clean ExaCut • rinse air pipes with water
insufficient cutting effect	<ul style="list-style-type: none"> • too high liquid manure capacity • cutting parts out of order • pretension element out of order • cutting parts do not move • rotor works too slowly 	<ul style="list-style-type: none"> • reduce pump speed • change cutting parts • change pretension element • make cutting part practicable • check hydraulic
bad distribution pattern	<ul style="list-style-type: none"> • too low/high rotor speed • pot pressure too low • hose`s installation wrong • fibrous material under cutting part 	<ul style="list-style-type: none"> • check the tractor`s oil delivery rate • increase flow rate quantity • see hose`s installation plan • remove fibrous material
only hoses are fed with liquid manure	<ul style="list-style-type: none"> • the rotor is clogged 	<ul style="list-style-type: none"> • if possible, reverse rotor briefly • remove blockage • check hydraulic
You can't mount the cover	<ul style="list-style-type: none"> • eccentric adjuster is not preloaded 	<ul style="list-style-type: none"> • preload eccentric adjuster

7. Technical data: hydraulic motors (OMS)

motor type		OMS 125	OMS 160	OMS 200	OMS 250
VOGELSANG Art-No.		AOM.016	AOM.015	AOM.017	AOM.018
shaft Ø		32	32	32	32
max. speed [rpm]	cont.	600	470	375	300
	int. ¹⁾	720	560	450	360
max. pressure drop [psi]	cont.	3050	3050	3050	2900
	int. ¹⁾	3990	3770	3630	3630
	peak ₂₎	4280	4060	3920	3920
max. torque [lbf in]	cont.	3320	4340	5400	6370
	int. ¹⁾	4340	5310	6370	7700
max. oil flow [USgal/min]	cont.	19.8	19.8	19.8	19.8
	int. ¹⁾	23.8	23.8	23.8	23.8
max. inlet pressure [psi]	cont.	3340	3340	3340	3340
	int. ¹⁾	4280	4280	4280	4280
	peak ₂₎	4350	4350	4350	4350
max. return pressure with drain line [psi]	cont.	2030	2030	2030	2030
	int. ¹⁾	2540	2540	2540	2540
	peak ₂₎	3050	3050	3050	3050
max. return pressure without drain line [psi]	cont.	440	510	650	730
	int. ¹⁾	1090	1090	1090	1090

¹⁾ Intermittent operation: the permissible values may occur for max. 10% of every minute.

²⁾ Peak load: The permissible values may occur for max. 1% of every minute.

8. Declaration of Incorporation

Declaration of Incorporation

in accordance with Machinery Directive 98/37/EC Annex II B

Hugo Vogelsang, Maschinenbau GmbH
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We declare, that the following ExaCut is not a complete machinery. Installation of this machine must be in accordance with the safty instruction which are included in the Maintenance and Operating Instruction. The machine must not be put into service until the machinery into which it is incorporated has been declared to be in conformity with the Macinery Directive.

Category of machine:

Machine type: ExaCut.....

EEC Directives: Machinery Directive (98/37/EC) :1998

Applied harmonized standard:

DIN EN ISO 12100-1 :2004
DIN EN ISO 12100-2 :2004
EN 294 :1992
EN 349 :1993

Applied national standard and technical specifications:

DIN 4844-1 :2002
DIN 4844-2 :2001
DIN 4844-3 :2003
DIN 11000 :1980
DIN 11001-6 :1980
DIN EN 707 :1999
DIN EN 1553 :1999

Hugo Vogelsang Maschinenbau GmbH



49632 Essen, 2005-01-04

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