

PRESSUREPIPE GRINDING DEVICE

*INSTRUCTION MANUAL
VERSION 2,0*



GERUS Apparatebau GmbH & Co KG
Engelschalkstraße 16
86316 Friedberg



EG-Konformitätserklärung

Wir, die Firma

GERUS Apparatebau GmbH&CO.KG

**Engelschalkstrasse 16, 86316 Friedberg,
Deutschland,**

erklären hiermit, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Sicherheits- und Gesundheitsanforderungen den nachfolgenden angeführten EG-Richtlinien entspricht.

Maschinenrichtlinie 2006/42/EG
EMV-Richtlinie 2004/108/EG

Bezeichnung der Maschine:
Description of the machine:

Typ:
Type:

Serien-Nr.:
Serial No.:

Angewandte harmonisierte Normen:
Applied harmonized standards:

Bevollmächtigter für techn. Dokumentation:
Authorized person for techn. documentation:

Ort und Datum:
Place and date:

Name und Position des Unterzeichners:
Name and position of signer:

EC-Declaration of Conformity

We, the company

GERUS Apparatebau GmbH&CO.KG

**Engelschalkstrasse 16, 86316 Friedberg,
Germany,**

declare hereby that the following described machine in its conception, construction and form put by us into circulation is in accordance with all the relevant essential health and safety requirements of the following EC directives.

Machinery directive 2006/42/EC
EMC directive 2004/108/EC

Druckrohr-Schleifvorrichtung
Pressurepipe grinding device

32/40

PPG1-0276-

EN 12100, EN 60204

Dipl.Ing. H. Müschenborn

Friedberg, 25.07.2011

Dipl.Ing. R. Schroll, Geschäftsführer
Dipl.Ing. R. Schroll, Business manager

Unterschrift des Unterzeichners
Signature of signer



REACH Erklärung

Wir, die Firma

GERUS Apparatebau GmbH&CO.KG

**Engelschalkstrasse 16, 86316 Friedberg,
Deutschland,**

erklären hiermit, dass wir als Hersteller von Maschinen und Werkzeugen zur Überholung und Instandsetzung von Großmotoren von der Verordnung nur als nachgeschalteter Anwender betroffen sind und daher nicht zur Registrierung und Vorregistrierung verpflichtet sind.

Beim Gebrauch unserer Maschinen werden Keine Schadstoffe im Rahmen von Artikel 7.1 und 7.2 der Verordnung freigesetzt

Ort und Datum:
Place and date:

Name und Position des Unterzeichners:
Name and position of signer:

REACH Declaration

We, the company

GERUS Apparatebau GmbH&CO.KG

**Engelschalkstrasse 16, 86316 Friedberg,
Germany,**

declare hereby that as a manufacturer of machines and tools for overhauling and maintenance of large bore engines we are only concerned by the regulation as downstream user and, therefore, we are not bound to register or pre-register.

Under normal use of our machines, no harmful substances within the scope of Article 7.1 and 7.2 of the regulation are released.

Friedberg, 03.11.2011

Dipl.Ing. R. Schroll, Geschäftsführer
Dipl.Ing. R. Schroll, Business manager

Unterschrift des Unterzeichners
Signature of signer

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2.) Operating instructions

This pressure pipe grinding device was developed for the grinding of bowling/cones at injection pressure pipes medium speed Diesel engines running. This application field of these motors include marine equipment and auxiliary power units and test drives. This allows the ceiling cone to the pressure tubes used either wholly or particularly processed. This was primarily designed for the handling of the pressure tube con grinding device.

32/40,

40/54,

48/60

58/64

In general this machine is used to restore sealing surfaces on pressure pipes for the fuel system.

This process hereby allows consequently a very safe surface finish to ensure a seal of the injection pressure pipes within the engine fuel system.

A good surface quality will therefore be reached after large engine operating time

3.) Technical Data

Modification in terms of technical progress are reserved.

Maximum grinding disk diameter mm:	15 (in) : (4 ½)
Idle speed :	10000 1/min
Shaftthread :	M 10
Nominal consumption	750 W
Releasing unit capacity:	460 W
Typical A-stated noise level:	5 m/s ² (15 ft/s ²)
Accoustic power level:	84 dB(A)
Accoustic output level:	97 dB(A)
Weight:	kg (lbs)

Measured data determined according to EN 50144. Technical data are affected with tolerance (according to each with valid standards).

The pressure pipe grinding device was designed in accordance with standard for flexible safety device of Type B.

4) Operating Manual

4a.) Safety instructions

On-the-job-safety

- a.) **Keep your working area clean and lit up.** *Disordered and dark working areas may lead to accidents.*
- b.) **Do not work with electric tools in explosive areas, where there are flammable liquids, gases or explosive dust.** *Electric tools cause sparks, which will enflame dust or vapors.*
- c.) **Keep away children and other persons while using electric tools.** *During distraction you may lose control over the equipment.*

Electrical Safety

- a.) **The connecting plug of the electric tool must fit in the outlet. The plug may not be changed in any way. Do not use adapter plug together with guard grounded electric tools. Unchanged plugs and fitting sockets decrease the risk of electrical shock.**
- b.) **Avoid body contact with grounded surface like pipes, heaters, stoves and refrigerators. There is a high risk through electric shock if your body is grounded.**
- c.) **Keep electric tools away from rain and dampness. The intrusion of water to an electric tool increases the risk of electric shock.**
- d.) **Do not divert the cables from its intended use to carry the electric tool, to hang up or to pull the plug from the socket. Keep the cable away from heat, oil, sharp corners or moving equipment parts. Damaged or entangled cables increase the risk of electrical shock.**
- e.) **If you are working with electric tools outdoor only use extension cord, which is applicable for outdoor. This use of an applicable extension cable for outdoor decreases the risk of electrical shock.**
- f.) **If the handling of an electric tool in damp area is not available, use a fault protection switch. The use of a fault protection switch decreases the risk of electrical shocks.**

Safety of persons

- a.) **Be alert, look out what you are doing, go to work rational with an electric tool. Do not use electrical tool when you are tired or under the influence of drugs, alcohol or medication. One moment of carelessness with the use of electrical tools may lead to serious injuries.**
- b.) **Wear personal protective equipment and always safety glasses. The wearing of protective equipment, non-skid safety shoes, safety helm or hearing protection, according to application of the electrical tool decreases the risk of injuries.**
- c.) **Avoid unintended starting Ensure that the electrical tool is turned off before you connect it to electric power supply and/or battery, pick it up or carry it. If you have your finger on the switch while carrying the electrical tool, or the device is turned on while being connected to electrical power supply, this can lead to accidents.**
- d.) **Remove adjusting tools or nut spanner before you turn on the electrical tool. A tool or spanner which is in a moving device part can cause injuries.**
- e.) **Avoid an abnormal posture. Assume a safe stand and at all times keep your balance. This way you can control the electrical tool in unexpected situations better.**
- f.) **Wear appropriate clothing. Do not wear loose clothing or jewelry. Keep hair, clothes and gloves away from moving parts. Loose clothing, jewelry or long hair can be caught by moving parts.**
- g.) **If dust suction cleaning device or collection device are able to be assembled, make sure they are connected and can be used correctly. Use of a dust suction cleaning device can decrease endangerment by dust.**

Handling an use of electrical tools

- a.) **Do not overload the device. For your work only use the designated electrical tool. You work better and safer in the stated range of performance with the adequate electrical tool.**
- b.) **Do not use an electrical which is defected. An electrical tool which cannot be switched on/off is dangerous and must be repaired.**
- c.) **Pull the plug from the power outlet and/or remove the battery before you adjust the device, change accessories or put the device aside. This precaution avoids an unintended start of the electrical tool.**

- d.) **Store unused electrical tools out of the reach of children. Do not let people use the device who are not familiar with it or have not read the instruction.** *Electrical tools are dangerous if used by unexperienced people.*
- e.) **Take care of electrical tools with accuracy. Check whether moveable parts function correctly and are not jammed, whether parts are broken or damaged that the operation of the electrical tool is affected. Repair damaged parts before use of the device.** *Many accidents are caused by badly maintained electrical tools.*
- f.) **Keep cutting tool sharp and clean.** *Accurately tended cutting tools with sharp cutting edge do not jam easy and are easier to guide.*
- g.) **Use electrical tools, accessories, application tool, etc. according to this instruction.** *Consider the working condition and the activity to be performed.*

4b.) Advice for transport and storage

The pressure pipe con grinding device will be delivered in a spezial fort his machine made box. To prevent damage which may occur through transport we recommend to use these boxes on all transport as well as storing of the pressure pipe con grinding device.

We recommend before storage to put a sprayoil film on the metallic surface. You can avoid the machine to rust.

4c.) Assembling instruction

Before installing the pressure pipe con grinding device prepare fort the initial situation:

- The working environment must be approachable, assembling in working areas is necessary.
- To avoid accident risks the working area must be free of oil and grease. Eye protection is necessary.
- If from last use of the pressure pipe con grinding unit there is still an injection pressure pipe attached you must remove this.

Important:

The injection pressure pipes which need to be grinded must be free from oil and grease. They have to be cleaned thoroughly.

Important:

The device is to be connected on a rugged frame and may not swing or lean in any way to instability..

The pressure pipe grinding device is completely assembled. Some assembling work has still to be done before starting:

- Step 1) Screw the counterflange (Pos. 23) about 35 mm on the injection pressure pipe (Pos. 43).

Attention:

The counter flange (POS 23) was carried out with different thread depending on the type of engine:

32/40 – lefthand thread
48/60 – lefthand thread
40/54 – righthand thread
58/64 – righthand thread

- Step 2) Screw the inset (Pos. 32) on the adapter flange (Pos. 18) and lightly tighten the screws of the inset with a 5mm socket head wrench.

Attention:

To tighten the inset lock the adapter flange by hand or use of a face spanner against rotation.

- Step 3) Screw the injection pressure pipe with the counter flange (Pos. 23) as far as it will go so that the cone of the pressure pipe touches the inset.
- Step 4) Secure with the face spanner (Pos. 48) and hook wrench (Pos. 49) the counter flange against the adapter flange.
- Step 5) Now you can unscrew the inset (Pos. 32) of the adapter flange. Please push with a hook wrench against counter flange.
- Step 6) Now you screw the threaded ring (Pos. 16) clockwise with the rotating pin.
- Step 7) Loosen both mounting screws (Pos. 39) on the panel (Pos. 12) and turn out the grinding device with the panel (Pos. 28) to the left.

- Step 8) Now turn the swivel arm (Pos. 25) with the grinding device against clockwise till it touches the stopp screw.
- Step 9) Stick the grinding di sc (Pos. 47) on t he grinding w heel S chleifscheibe (Pos.37).
- Step 10) Press the interlock button on the back of the grinding device. The drive shaft of the grinding device is now affixed and you can mount the grinding wheel (Pos. 37) on the grinding device by using a fastening screw nut and a face spanner (Pos. 48)
- Please tighten fastening screw nut!***
- Step 11) Turn the grinding device including the console back to the right and t ighten them with the tightening screws (Pos. 39).

4d.) Instruction manual

Working with the pressure pipe con grinding device

- Step 1) Turn the swivel amr (Pos. 25) with the grinding device against clockwise till it touches the locking scre.
- Step 2) Adjust by turning into the locking screw (Pos. 14) the grinding wheel position till it is parallel to the pressure pipe con.
- Step 3) By using the feedin gdevice feed the grinding wheel (Pos. 37) till the grinding wheel slightly touches the pipe con at the external end.
- Step 4) Putt he turning arm (Pos. 25) back in starting position so that the front of the grinding wheel is aligned upright to the pressure pipe
- Now you can putt he power supply on the grinding device.***
- Step 5) Screw the wedging piece (Pos. 44) to the pressure pipe (sword) to use this at turning handle for the pressure pipe
- Step 6) Turn on the grinding device.

- Step 7) Evenly turn the injection pipe and turn the turning arm (Pos. 25) with the turned on grinding device simultaneously around the con outline (from stop to stop).

ATTENTION: *Eye protection is required!*

- Step 8) To assure a sufficient material removal you may adjust the feed of the pressure pipe (Pos. 38) on the threaded ring (Pos. 16) . For this turn the threaded ring about 20mm steps against clockwise.

Now you repeat Stepp 7 and 8 till the con is efficiently formed.

ATTENTION:
In dependency of the surface structure eventually repeat the grinding operation..

- Step 9) When terminating the grinding operation move the moving arm (Pos. 25) with the grinding device in the original condition back to the left stop.

- Step 10) Turn off the grinding device.

Changing of the grinding disc on the grinding wheel

Before operating the grinding device you have to disconnect the power supply.

- Step 1) Loosen both tightening screws (Pos. 39) on the panel (Pos. 28) and move the grinding device with the panel (Pos. 28) to the left.

- Step 2) Now turn the turning arm (Pos. 25) with the grinding device against clockwise till the locking screw hooks.

- Step 3) Change the grinding discs (Pos. 47) on the grinding wheel (Pos. 37)

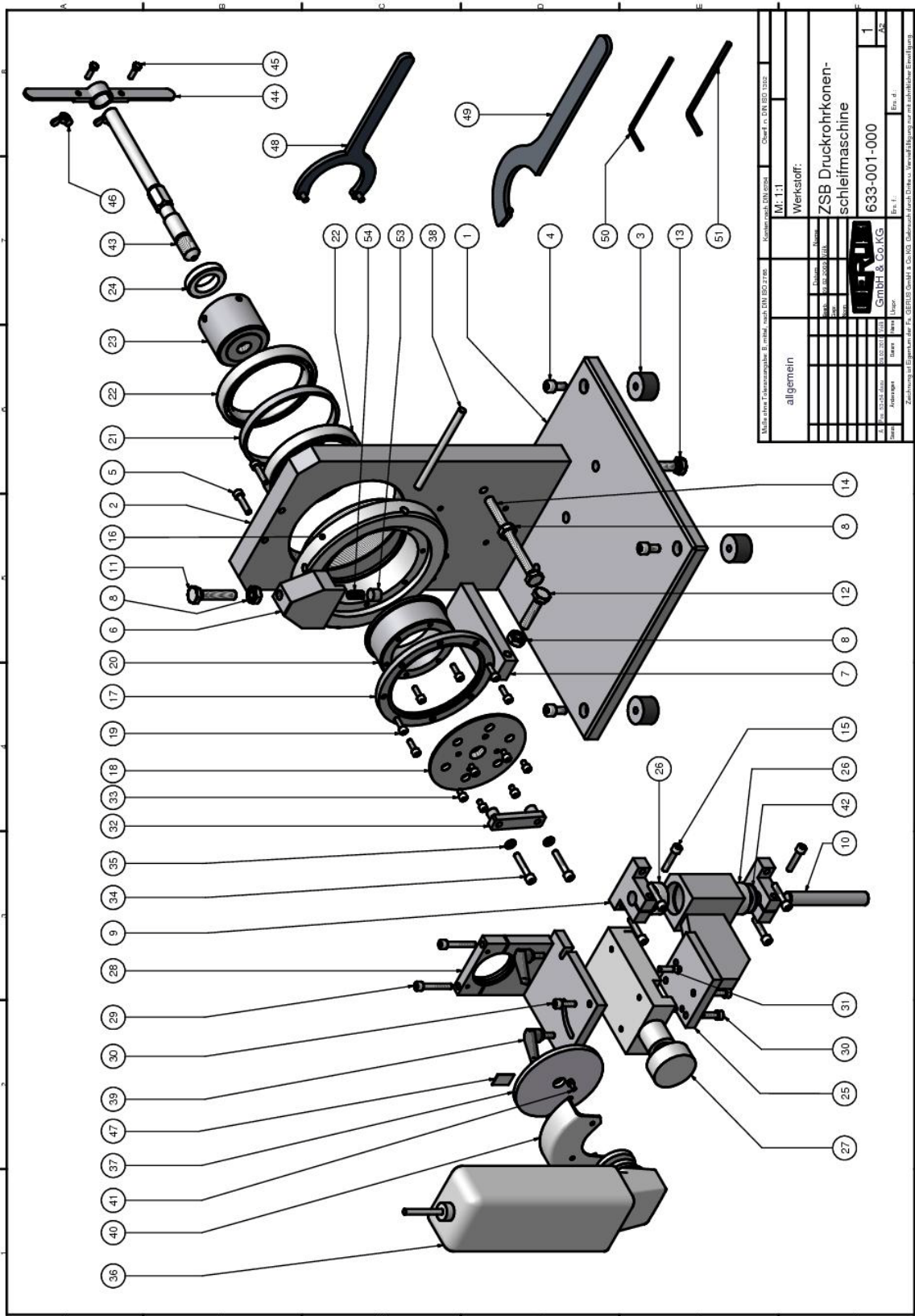
The grinding wheel may be totally removed from the grinding unit to change the grinding disc.

Press the locking button on the back of the grinding device. The driveshaft of the grinding disc is now fixed. You can loosen/attach the grinding disc (Pos. 37) from the grinding device by using a face spanner (Pos. 48).

4e.) Maintenance and care

POS Nr.	Pressure pipe-grinding device	Maintenance	Operating hours
27	Roadbed	Greasing of slide face	after inspection
28	Console	Oiling of bearing surface	after inspection
25	Turning arm	Oiling of turning arm console	after inspection
22	Bearing	Oiling of bearing	after inspection
26	Bearing	Oiling of bearing	after inspection

4f.) Spare part checklist



allgemein		ZSB Druckrohrkronenschleifmaschine	
MP 1.1		6333-001-000	
Werkstoff:		Stahl	
Zustand:		1	
Anzahl:		1	
Größe:		AS	
Hersteller:		GmbH & Co. KG	
Produktionsjahr:		1998	
Produktionsort:		D	
Zeichnung mit Spalten für:		Zustand, Menge, Preis, Material, Bemerkungen	

Item	Designation	GERUS No.	32/40	40/54	48/60	58/64
	Pressurepipe grinding device complete	633-002-000	X			
	Pressurepipe grinding device complete	633-003-000		X		
	Pressurepipe grinding device complete	633-004-000			X	
	Pressurepipe grinding device complete	633-005-000				X
1	Base	633-001-017	1	1	1	1
2	Support Plate	633-001-001	1	1	1	1
3	Bump rubber-metal rubber with M8 Typ E	633-001-032	4	4	4	4
4	Cylinderhead screw DIN912-M8x16		4	4	4	4
5	Cylinderhead screw DIN912-M6x25		4	4	4	4
6	Inset	633-001-020	1	1	1	1
7	Inset	633-001-013	1	1	1	1
8	Hexnut DIN934-M10		3	3	3	3
9	Bearing block	633-001-010	2	2	2	2
10	Channek duaneter 15h6 x 104	633-001-019	1	1	1	1
11	Hexagon head set screw DIN933-M10x50		1	1	1	1
12	Hexagon head set screw DIN933-M10x45		1	1	1	1
13	Hexagon head set screw DIN933-M10x35		3	3	3	3
14	Hexagon head set screw DIN933-M10x120		1	1	1	1
15	Cylinderhead screw DIN912-M6x30		6	6	6	6
16	Threaded ring	633-001-002	1	1	1	1
17	Bearing	633-001-004	1	1	1	1
18	Adapter flange „D“	633-002-005	1			
	Adapter flange „D“	633-003-005		1		
	Adapter flange „D“	633-004-005			1	
	Adapter flange „D“	633-005-005				1
	Adapter flange „S“	633-002-022	1			
	Adapter flange „S“	633-003-022		1		
	Adapter flange „S“	633-004-015			1	
	Adapter flange „S“	633-005-023				1
19	Cylinderhead screw DIN912-M5x16		8	8	8	8
20	Bearing ring	633-001-003	1	1	1	1
21	Spacer ring	633-001-008	1	1	1	1
22	Deep groove ball bearing DIN625 T1-61818-90x115x13	633-001-024	2	2	2	2
23	Counter flange „S“	633-002-006	1			
	Counter flange „S“	633-003-006		1		
	Counter flange „S“	633-002-021	1			
	Counter flange „D“	633-003-021		1		
	Counter flange „D“	633-004-021			1	
	Counter flange „D“	633-005-021			1	1

Item	Designation	GERUS No.	32/40	40/54	48/60	58/64
24	Spacer ring	633-001-007	1			
25	Swivel arm	633-001-011	1	1	1	1
26	Deep groove ball bearing DIN625 T1-6202-15x35x11	633-001-025	2	2	2	2
27	Carriage device	633-001-018	1	1	1	1
28	Console	633-001-012	1	1	1	1
29	Cylinderhead screw DIN912-M6x40		2	2	2	2
30	Cylinderhead screw DIN912-M6x20		5	5	5	5
31	Cylinderhead pin DIN7-6m6x20		2	2	2	2
32	Inset „S“	633-002-009	1			
	Inset „S“	633-003-009		1	1	
	Inset „D“	633-002-014	1			
	Inset „D“	633-003-014		1		
	Inset „D“	633-004-014			1	
	Inset „D“	633-005-014				1
33	Cylinderhead screw DIN912-M5x8		6	6	6	6
34	Cylinderhead screw DIN912-M6x35		2	2	2	2
35	Washer DIN125-6,4		2	2	2	2
36	Electrical angle grinder 110V	633-001-026	-	-	-	-
	Electrical angle grinder 230V	633-002-026	-	-	-	-
	Electrical angle grinder 260V	633-003-026	-	-	-	-
37	Grinding disc	633-001-016	1	1	1	1
38	Rotating pin DIN900-A8	633-001-038	1	1	1	1
39	Release lever	633-001-041	2	2	2	2
40	Protective cover angle grinder	633-001-027	1	1	1	1
41	Cylinderhead screw DIN912-M4x8		2	2	2	2
42	Plate washer DIN2093-31,5x16,3x1,75A		1	1	1	1
43	Pressure pipe		1	1	1	1
44	Clamping section	633-001-042	1	1	1	1
45	Hexagon headset screw DIN933-M5x16		2	2	2	2
46	Wing nut DIN315-M5		2	2	2	2
47	Sandingpaper	633-001-044	1	1	1	1
48	Face spanner	633-001-038	1	1	1	1
49	Hook wrench	633-001-037	1	1	1	1
50	Cranked wrench 4mm	633-001-039	1	1	1	1
51	Cranked wrench 5mm	633-001-040	1	1	1	1
52	Storage box	633-001-043	1	1	1	1
53	Brake block	633-001-200	1	1	1	1
54	Pressure spring DIN2076-D1,5x8,5x17,7		1	1	1	1

4g.) Breakdown and removal

- 1) Roadbed is tight.
Grease the bearing surface to the left and right of the grease nipple. Make easy mobility with the turning knob.
- 2) Turning arm is tight
Oil turning arm console and move turning arm.
- 3) Bearing is tight
Oil bearing and move.
- 4) Breakdown of grinding device:
Follow maintenance plan and handling instruction of the manufacturer (enclosed).

5.) Service

In the event of damage please contact us

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86316 Friedberg
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Fax.:0049 821 – 588 662 - 10