

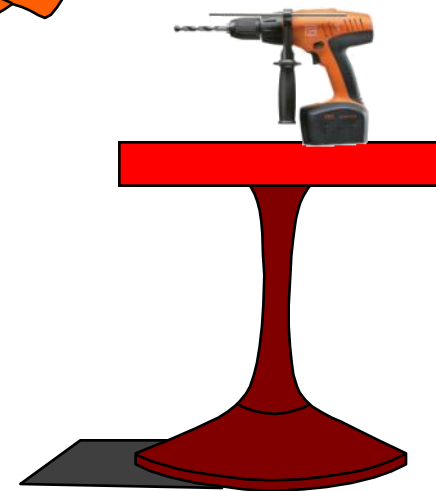
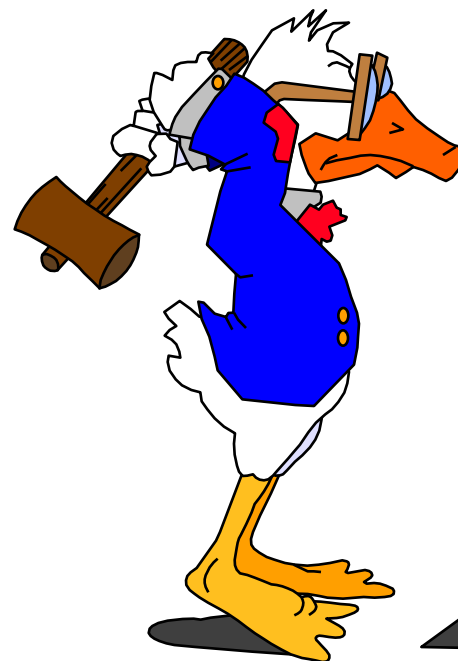


Starting Page



Cordless drill-driver ABS18

Cordless combi drill ASB 18





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Spare part lists and drawings please see Internet under

www.fein.com / Fein Service / Spare part catalogue

FRT: ABS 18 und ASB 18



1. Technical Data

| Typ | ABS 18 | ASB 18 |
|--------------------------------------------------|----------------|------------------|
| Voltage | 18 V = | 18 V = |
| No load speed: 1.Gear | 0-400/rpm | 0-400/rpm |
| 2.Gear | 0-1400/rpm | 0-1400/rpm |
| Max. torque level: | | |
| Soft case | 35 Nm | 35 Nm |
| Hard case | 60 Nm | 60 Nm |
| Percussion rate: | | 6400 / 22400/bpm |
| Drill-Ø Steel | 13 mm | 13 mm |
| Drill-Ø Wood | 50 mm | 50 mm |
| Drill-Ø Stone | - - | 16 mm |
| Chuck capacity | 2-13 mm | 2-13 |
| Wood screws-Ø | 10 mm | 10mm |
| Steel screws-Ø | M10 | M10 |
| Weight with Battery | 2,9 kg | 3,0 kg |
| Thread on chuck reception | 1/2"/20 UNF-3B | 1/2"/20 UNF-3B |
| Handy Master-Set with suitable batteries: | | |
| Order number NiCd | 7 113 06 50 | 7 104 04 50 |
| Order number NiMH | 7 113 06 51 | 7 104 04 51 |





2. Maintenance

Please make sure that electric tools are repaired, serviced and tested by specialists. As repairs carried out in an inexpert way may cause considerable hazards for the user (BGV A2).

Please observe the legal environmental guidelines for the disposal of batteries!

Use original FEIN spare parts only !



2. Maintenance

Maintenance work is limited to careful handling of the machine, to ensure free cooling slots, and to clean the housing, if and when necessary. Ensure perfect charging condition of the batteries.

The Handy Master is produced in modular construction which means that defective units can be replaced as complete parts.

The exception is the replacement of the drill chuck. For this purpose the gear has to be disassembled and a special tool is required to unscrew the drill chuck.



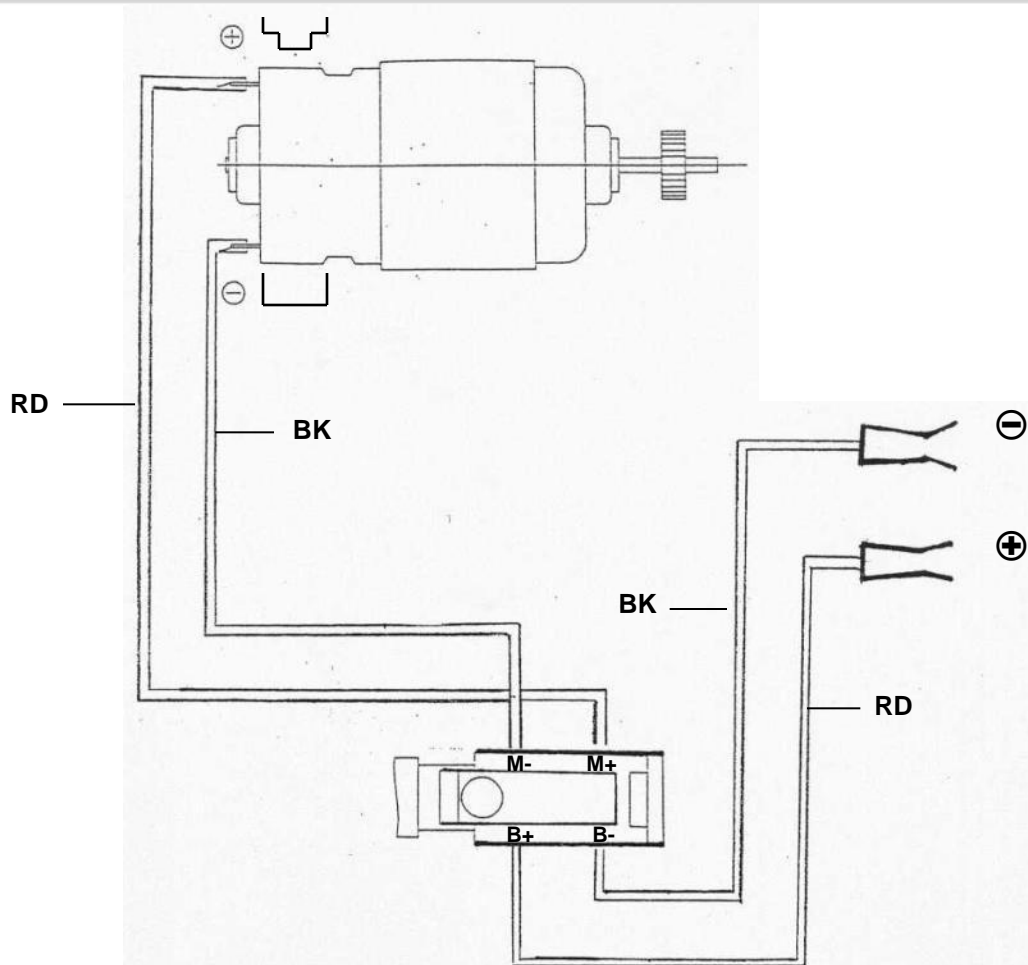
3. Electrical test

- 3.1. Wiring diagram
- 3.2. Trouble shooting
- 3.3. Motor check
- 3.4. Switch check

FRT: ABS 18 und ASB 18



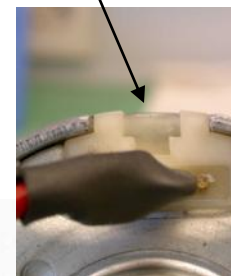
3.1. Wiring diagram



Plus-Connection

Motor +

mark: 



Minus-Connection

Motor -

mark: 





3.2. Trouble shooting

Failure

1. Machine does not start
2. No speed of the actuator (acceleration).
3. Drive shaft continues to turn when the actuator is released (no brake).
4. Machine runs, drive shaft can be held (no torque)
5. Strong gear noise, sized.
6. When using the coupling for screw action, the adjustment ring turns.
7. Drill chuck does not run round.
8. Striking impact too weak despite strong contact pressure.
9. Defective spindle lock.
Drill chuck cannot be opened and closed with one hand.

Relief

- Check charge condition of battery, if necessary recharge battery.
Clean the contacts on the machine and battery.
Check electronic actuator.
- Replace the entire electronic actuator (60).
- Replace the electronic actuator (60).
- Permit speed 1 or 2 to snap in and/or replace the drive motor (50) and/or gear (40).
- Replace the entire gear (40).
- Replace the retaining ring (30).
- 0.4 mm beat is permissible measured at a distance of 25 mm in front of drill chuck end. In case of excess, replace the striking train (40).
- Replace entire gear (40).
- Change entire gear (40).



3.3. Check: Motor

1. Connect the motors (50) without gear to the corresponding source of voltage to measure the current without load.

Maximum values:

$$9.6 \text{ V} = 3.0 \text{ A}$$

$$12 \text{ V} = 6.0 \text{ A}$$

$$14.4 \text{ V} = 5.0 \text{ A}$$

$$18 \text{ V} = 3,8 \text{ A}$$

Caution: The short-time make current peaks are higher than 10A !

2. When the upper value is exceeded, the motor has to be cleaned, the plain bearings have to be lubricated with special oil (10 ml bottle, order ref.: 3 21 32 023 02 6), if this does not help, replace the motor.



3.4. Check: Switch

Switch test:

- Disconnect the motor (50) from the gear unit (40).
- Disconnect the motor (50) from the switch (60).
- Connect approx. 15 cm of cable to the switch (60) on the motor side and pass it out again on the drill chuck side.
- Connect cable passed out to a lamp bulb (e.g. 12V car lamp).
- Place upper part of housing.
- Push on the battery.
- Check functions.

Observe: Middle position of the change-over switch blocks the switch pusher.



4. Disassembly

4.1. Preparation

4.2. Motorhousing

4.3. Motor / Gear box

4.4. Gear

4.5. Chuck

4.6. Adjustment ring

FRT: ABS 18 und ASB 18



4.1. Preparation



Remove handle and battery

4.2. Motor housing

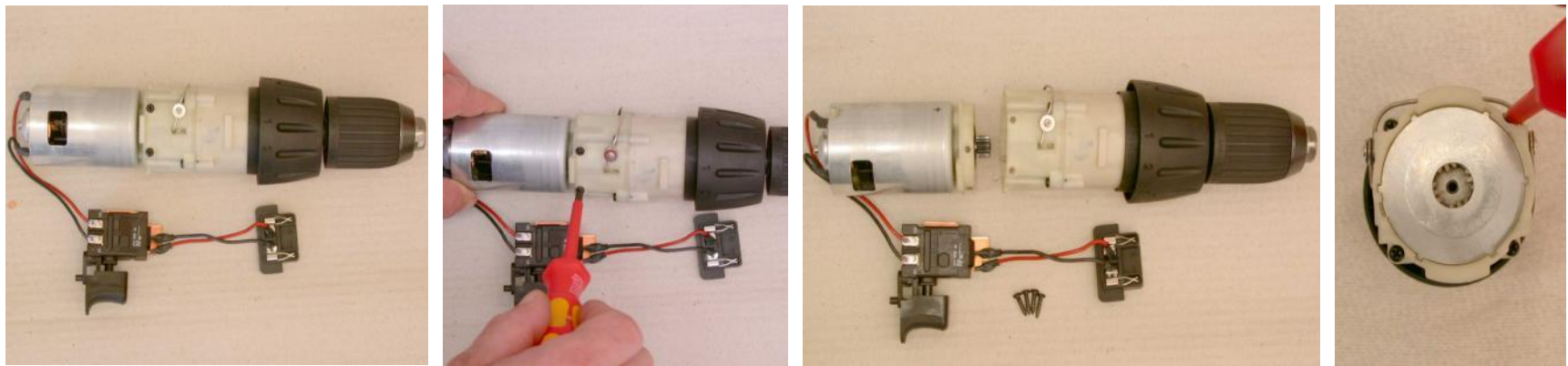


1. Remove 9 screws
2. Drop off the cover of the motorhousing
3. Take motor, gear and switch out of the motor housing

Tools:

- PH 2 screwdriver

4.3. Motor / Gear

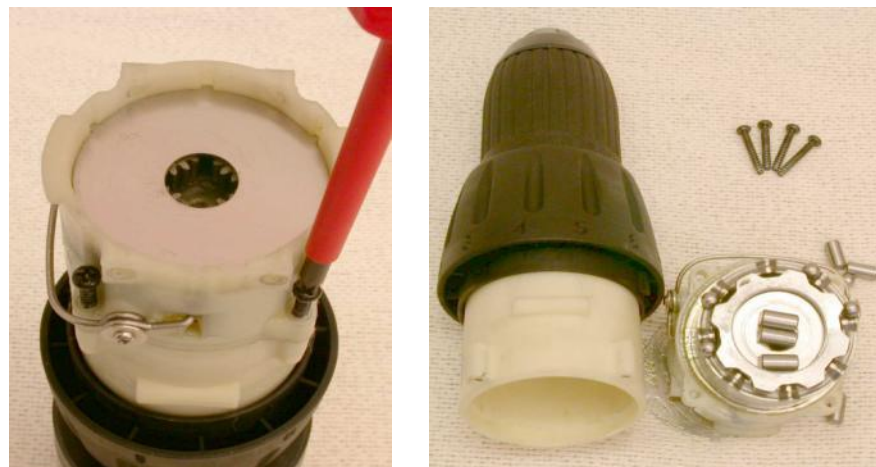


1. Unscrew 4 screws on the motor flange
2. Remove the front part of the gear box with chuck
3. Open 4 screws on the gear box and dismantle gears

Tools:

- PH 2 screwdriver

4.4. Gear



1. Unscrew 4 screws on the gear box
2. Take out the whole gear

Werkzeug:
• PH 2 screwdriver

4.5. Chuck

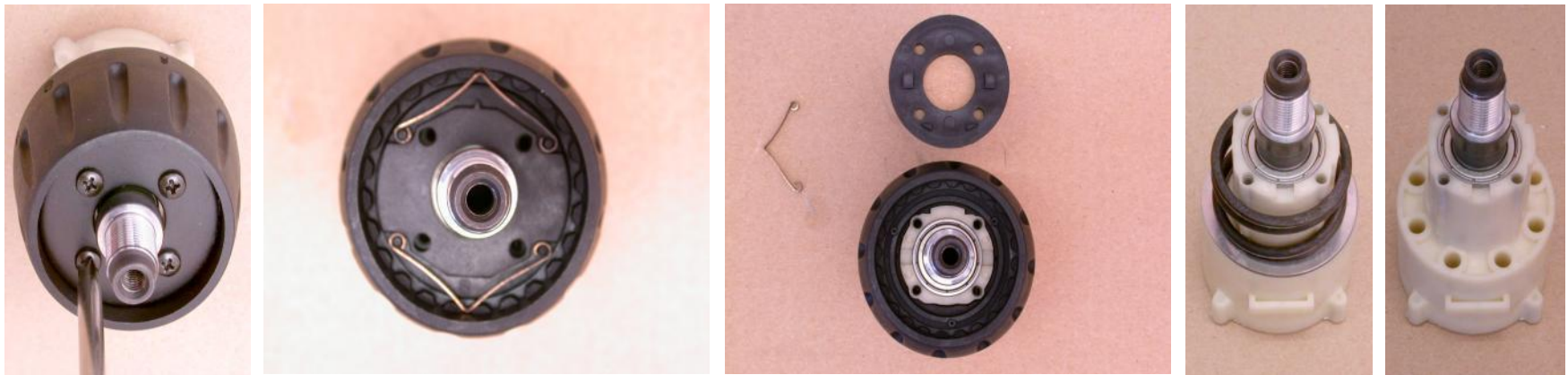


1. Put the special tool into the gear box and clamp it in a bench vice
2. Unscrew the safety screw
(fixed with **Loctite** and **Left-hand thread**)
3. Unscrew chuck with fork wrench SW 19 and turn it down

Tools:

- PH 2 screwdriver
- fork wrench SW 19

4.6. Adjustment ring



1. Loosen 4 screws and take it off together with the cover
2. Take off the springs and the enclosure plate, pull off the adjustment ring from the gear box
3. Take off the circle spring and steel plate from the gear box

Werkzeug:
• PH 2 screwdriver



5. Assembly

5.1. Torque clutch / Adjustment ring

5.2. Chuck

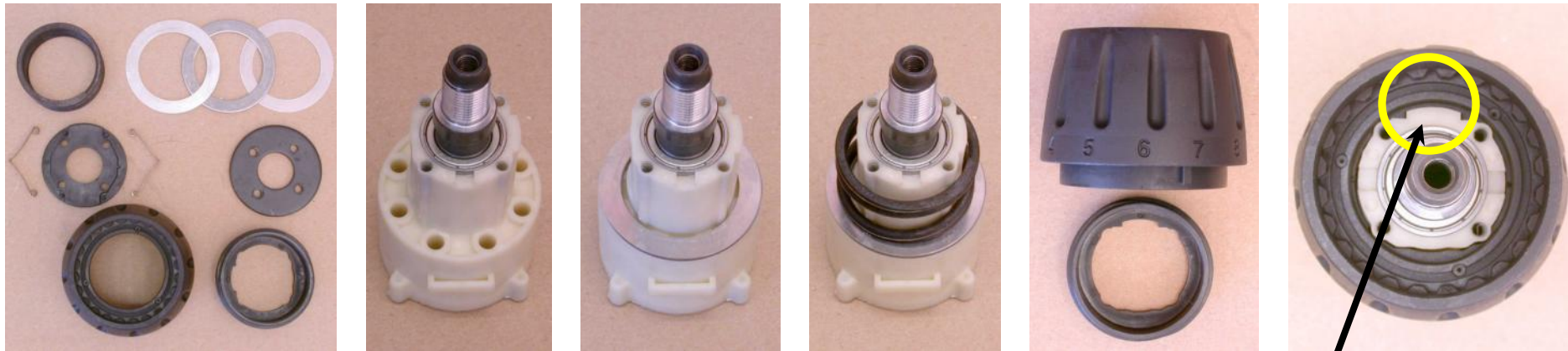
5.3. Gears

5.4. Motor / Gear box

5.5. Motorhousing

5.6. Handle

5.1. Torque clutch / Adjustment ring ABS 18

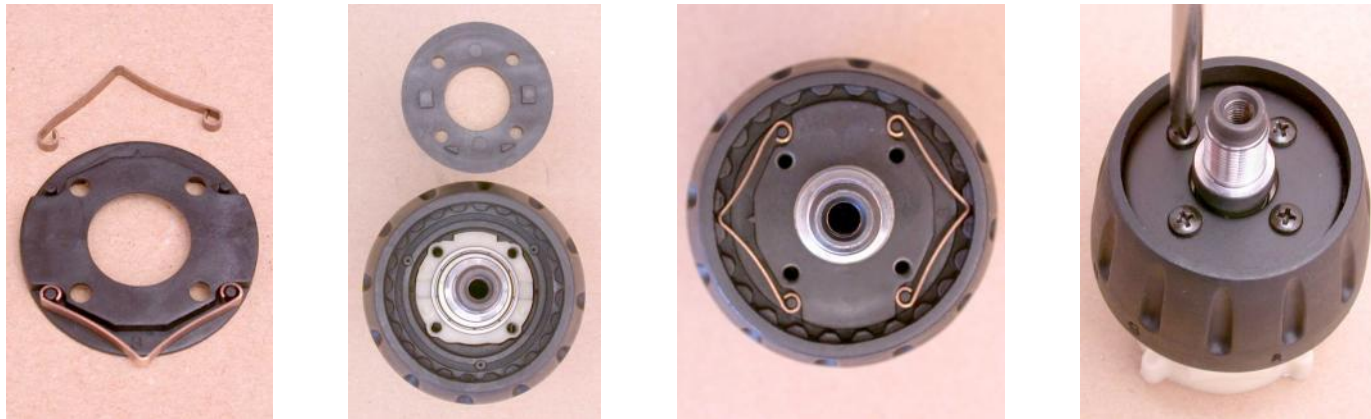


1. Put the steel plates and the circle spring on the gear box
2. Put on the adjustment ring - fits only in one position !!!!!

Werkzeug:

- PH 2screwdriver

5.1. Torque clutch / Adjustment ring ABS 18



1. Set up springs on to the plastic plate
2. Set up the springs into the adjustmentring - please make sure that the springs snap in properly !
3. Put on the enclosed steel plate and fix it with 4 screws

Werkzeug:

- PH 2 Kreuzschlitz-schraubendreher

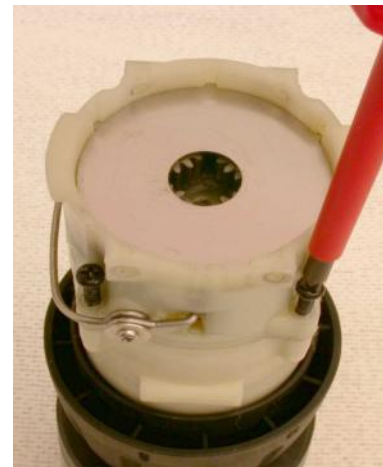
5.2. Chuck



1. Clamp the special tool in a bench vice
2. Put the motor housing together with the assembled adjustment ring on the special tool
3. Screw on the chuck
4. Fix it with the safety screw - **Attention screw has left-handed thread !!!**

Werkzeug:
• PH 2 screwdriver

5.3. Gears



1. Take off preassembled gear box from the special tool
2. Put in the whole gear
3. Fix the gear with 4 screws - check the position of the shift linkage

Tools:

- PH 2 screwdriver

5.4. Motor / Gears



1. Screw on the flange from the gear box onto the motor
2. Put the preassembled gear together with chuck on the motor and fix it with the screws

Tools:

- PH 2 screwdriver

5.5. Motorhousing



1. Insert the complete motor - gear unit in the motor housing
2. Put in the lever for gear change and L / R
3. Close the motorhousing and fix it with screws

Tools:

- PH 2screwdriver



5.6. Handle



1. Slide on the handle holder, please make sure that the holder snap in place on the forseen nut on the motor housing
2. Put on hexagon screw and depth adjustment
3. Screw in the handle
4. Put on the charged battery and test the function of the tool



Tools:
• PH 2 screwdriver



6. Tools

6.1. All mechanical tools

6.2. Special tools

6.3 Lubricants



6.1. All mechanical tools

- | | |
|---------------------------------|--------|
| • Vice | retail |
| • Cable hook | retail |
| • Seeger ring pliers (external) | retail |
| • Tweezers | retail |
| • Screw driver: 1,2x9x150 | retail |
| • Screw driver: PH 2 | retail |
| • Fork wrench SW 19 | retail |



6.2. Special tools

**For Disassembly chuck of
ABS 18 und ASB 18**

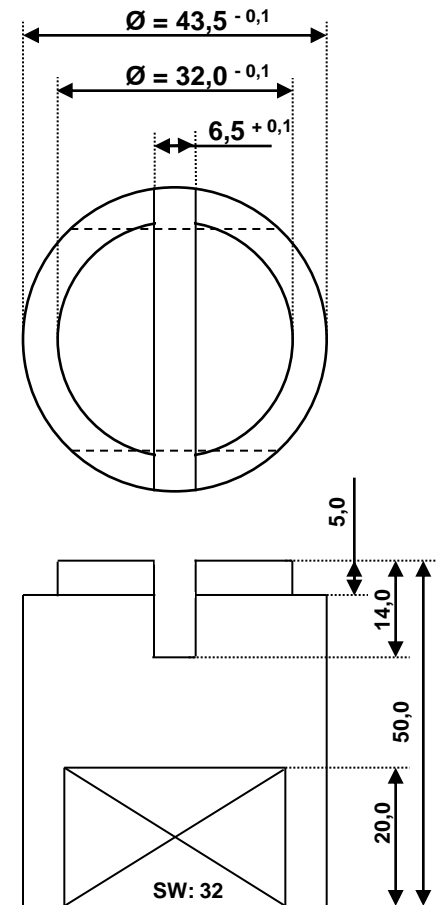
Id.- nr.: 64131016009

Material: St 37

measurements in: mm

tolerances: 0,1mm

all edges lightly trimmed





6.3. Lubricants

| Type of grease Company Designation | Appearance | Technical data | Application | Article No. of the complete package and type of package | Grease quantity and position |
|------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| 0 40 <u>205</u> 0000 2 | Orange, transparent, medium viscous | Flash point: 255°C Setting point / pour point: -21° Celsius ISO-VG: 220 | Oil used to lubricate guide rails (also vertical), hydrostatic drives, bearings and gears; prevents "stick-and-slip effect". | Bottle 10ml 32132032026 Tin 250ml 32132017032 | 1-2 drops on plain bearing in motor (50) |
| 0 40 <u>120</u> 0500 7 | Beige, paste-like NLGI: 2 | Drop point: none Operative range: -30° to +260° Celsius | With PTFE additives. FEIN: e.g.: Screw coupling | Tube 85g 32160003208 | Slightly grease the adjustment ring / 2- pitch thread (30) |



7. ALG 20 - Battery Charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

- 7.1. Intended use / Safety instructions**
- 7.2. Operation**
- 7.3. Notes**
- 7.4. Significance of the LED**
- 7.5. Cleaning, maintenance and repair**
- 7.6. Technical data / accessories**





7.1. ALG 20 - Charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

Intended use:

- For use in industry and trade, to charge and re-charge FEIN batteries with an battery voltage of 9.6 - 18 V

Safety notes:

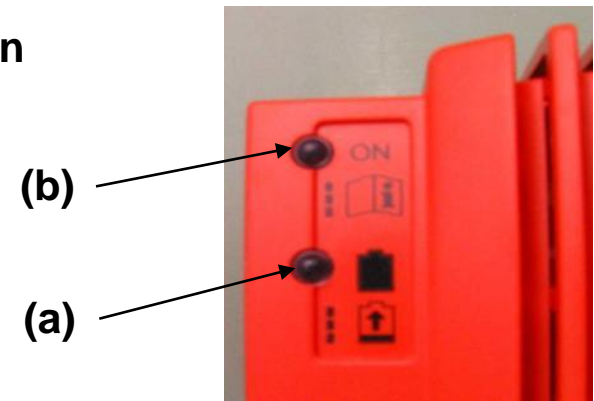
- Storage and operation in locations where temperatures of +40° C are exceeded may lead to failures in charging and have to be prevented by all means.
- In case of longer storage remove the battery from the battery charger and pull the mains plug.
- The contacts of the battery have to be covered when stored outside of the battery charger.

In case of a short circuit caused by bridging, there is a danger of fire and explosion !

7.1. ALG 20 - Battery charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

Operation:

- Connect the battery charger to the mains without the battery. The red LED (b) will light up, which indicates the readiness for operation.
- Push on the battery. Batteries with industrial interface (d) can be connected by means of an adapter (3) only (see operating instructions).
- The monitoring of the charging process is indicated by a green flashing light (a) and red continuous light (b).
- The end of the charging process is indicated by a green continuous light (a).
- In case of a red flashing light (b) please observe the following notes.





7.3. ALG 20 - Charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

Notes

Among other things the charging process is controlled by a temperature sensor in the battery. The charging process has been harmonized to the respective cell type of the battery (NiCd/NiMH) by special coding.

The temperature sensor in the battery ensures that no quick charge is carried out at temperatures of the battery of below 5 Celsius and over +40 Celsius.

If the battery reached an overtemperature during the previous discharging process or if it has been stored too cold (red flashing LED), the quick charge system starts up automatically as soon as the battery temperature is within the charging temperature range.

Given an extreme total discharge, the charging process may be delayed by several minutes after pushing on the battery (red flashing LED).

If the battery is not charged despite normal temperature, it has to be considered safe that the battery is defective.

When the battery is fully charged, the charger will switch from quick charge to float charge automatically, and the green LED is lit. Repeated placement of the charged battery will lead to overcharging, has a negative effect on the service life, and thus has to be avoided.

New unformatted batteries and/or totally discharged batteries which have to be formatted reach their full capacity after 3 to 5 charging / discharging cycles.

Depending on the battery capacity the charging time of the FEIN battery charger ALG 20 is between 20 and 60 minutes.

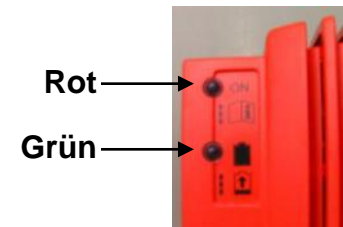
If the battery decreases in capacity within a short period of time despite correct charging, the end of its service life is reached.



7.4. ALG 20 - Charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

Significance of the LED

| LED | Significance |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Red | Without battery attached: ready for operation |
| Red | With battery attached: Battery defective Contact interruption |
| Red flashing | Limit temperature of the battery is exceeded or not made, temperature sensor defective or the battery is totally discharged No quick charge possible, only float charge active. |
| Red – green flashing | Active quick charge |
| Green | Quick charge completed (battery charged). Float charge active. |





7.5. ALG 20 - Charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

Cleaning and servicing:

! Remove the plug prior to servicing !

- **Keep contacts clean in the plug-on socket.**
- **Clean the cooling orifices.**
- **Clean the electric part in dry state only.**
- **Make sure that no metal chips get into the battery charger.**

Maintenance and repair:

Repairs are not intended for the ALG 20 battery charger.

Exception: Defective mains cable.



7.6. ALG 20 - Battery charger (! Excerpt from the Battery charger ALG 20 operating instructions!)

Technical data

| | | |
|-----------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------|
| Order references | 9 26 04 073 01 4 (230V ~) 9 26 04 074 01 2 (230V-240V ~, N 06) 9 26 04 075 01 6 (230V-240V ~, N 24) | 9 26 04 077 01 3 (120V~, N12) |
| Typ | ALG 20 | ALG 20 |
| Voltage | 220 - 240 V ~ | 110 - 120 V ~ |
| Power input | 110 W | 110 W |
| Frequency | 50 / 60 Hz | 50 / 60 Hz |
| Types of batteries | NiCd / NiMH | NiCd / NiMH |
| Voltage range | 9,6 V - 18 V --- | 9,6 V - 18 V --- |
| Capacity range | 0,8 Ah - 3 Ah | 0,8 Ah - 3 Ah |
| Charging time | 20 - 60 min | 20 - 60 min |
| - Ni Cd: 2 Ah | 35 min | 35 min |
| - NiMH: 3 Ah | 60 min | 60 min |
| Charging current max. | 4,1 A | 4,1 A |
| Trickle charge | 160 mA | 160 mA |
| Weight | 1,0 kg | 0,8 kg |
| Safety class | 2 | 2 |
| Accessories: | (for interface „Industry“) | |
| Adapter | 9 26 04 078 01 1 | |



7.7. Batteries

| Batteries | Advantages | Disadvantages |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>NiCd</p> <p>-</p> | <ul style="list-style-type: none"> - Price advantage by larger spread - Rapid charging - Special flat discharge characteristic - For wireless tools with high performance - Recyclable | <ul style="list-style-type: none"> - Memory effect by continuous discharge or long user breaks (self-discharge) |
| <p>NiMH</p> | <ul style="list-style-type: none"> - Available with higher capacity - Free from heavy metals - No memory effect - 30 % higher capacity at same size - Can be recharged at any time with rapid charger - Rapid charging - Special flat discharge characteristic | <ul style="list-style-type: none"> - Expensive - Sensitive to minus temperatures - Sensitive to overcharge (buffering) - Irreversible damage of the capacity after excessive storage – self-discharge |



8. Changes, Extras, Info for repair

2002 Product launch: ABS 9
ABS 12
ABS 14
ASB 14

2004 Product launch: ABS 18
ASB 18

Garantie/Reparatur/Lebensdauer von Akkus
Warranty/Repair/Service life of batteries
Garantie/travaux de réparation/durée de vie d'accus
Garantía/reparación/vida útil de acumuladores



FRT:

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DE: Garantie: Akkus fallen nicht unter die 3 - Jahresgarantie. Für die Gewährleistung gelten die gesetzlichen Bestimmungen je Land z. B. innerhalb der EU gilt: - 1 Jahr für den gewerblichen Gebrauch - 2 Jahre für den privaten Gebrauch. Ausgenommen sind Fehler, wenn: - durch Tiefentladungen Zellen zerstört sind, - häufige Teiladungen (Memoryeffekt) stattgefunden haben, - gebrauchsbeförderter Verschleiß oder Schäden durch äußere Einflüsse vorliegen. Das Herstellungsdatum erlaubt die Plausibilität zu prüfen. Es ist auf dem Akku eingepreßt in der Form MM/JJ z. B. 10/07 für Oktober 2007. Reparatur: Eine dauerhafte, qualitätsgerechte Reparatur von Akkus ist nicht möglich. Auch wenn Drittanbieter behaupten, dass Sie Akkus günstig reparieren können, so ist die Wirkung nur von kurzer Dauer, da die neuen Zellen nicht auf bestehende Komponenten abgestimmt sind. FEIN und seine Vertretungen bietet langfristig Qualität. Defekte Akkus werden grundsätzlich ausgetauscht. Lebensdauer: Akkus verlieren im Laufe der Zeit ihre Kapazität. FEIN definiert einen Akku als funktionstüchtig, wenn er mindestens 80% der Nennkapazität abgibt. Die reale Kapazität eines Akkus kann nur mit Messgeräten bestimmt werden. Wenn Sie kein geeignetes Messgerät besitzen, unterstützt sie der FEIN-Kundendienst gerne bei der Auswahl.</p> | <p>EN: Warranty: Batteries/battery packs are not included under the 3 year warranty. For the warranty, the legal regulations of each country apply, e.g., within the EU, the following applies: - 1 year for commercial use - 2 years for domestic use. Errors are excluded when: - cells have been destroyed through deep discharging, - frequent partial-charging (memory effect) has taken place, - wear due to usage or damage from exterior influences is given. The date of manufacture enables the plausibility to be checked. It is imprinted on the battery pack as MM/YY; e.g. 10/07 for October 2007. Repair: Lasting and quality-sufficient repair of battery packs is not possible. Even when third-party suppliers state that they can repair batteries/battery packs profitably, the effect is not long-lasting, as the new cells are not matched to the existing components. FEIN and associated representatives offer long-term quality. Defective batteries/battery packs are generally replaced. Service Life: Batteries/battery packs lose their capacity with time. FEIN defines a battery/battery pack as operative when its power output is at least 80% of the rated capacity. The actual capacity of a battery/battery pack can only be determined with measuring equipment. When you do not have a suitable measuring device, the FEIN after-sales service will gladly support you in choosing one.</p> |
| <p>FR: Garantie : Les accus ne sont pas couverts par la garantie de 3 ans. Les dispositions légales des pays correspondants s'appliquent pour la garantie, p. ex. pour les pays de l'Union Européenne, la garantie est de : - 1 an pour une utilisation professionnelle - 2 ans pour une utilisation privée Sont exclus de la garantie les défauts en cas où : - des éléments auraient été détruits à la suite de décharges profondes, - des décharges partielles auraient été effectuées souvent (effet de mémorisation), - une usure naturelle ou des dommages auraient été causés par des influences externes. La date de fabrication permet de contrôler la plausibilité. Elle est marquée mm/aa sur l'accu, p. ex. 10/07 pour octobre 2007. Travaux de réparation : Une réparation permanente et fiable d'accus n'est pas possible. Même si d'autres fabricants prétendent être capable de réparer des accus à un prix favorable, l'effet n'est que de courte durée, puisque les nouveaux éléments ne sont pas adaptés aux composants existants. FEIN et ses stations de service offrent une qualité durable. Les accus défectueux sont par principe remplacés. Durée de vie : Avec le temps, les accus perdent de leur capacité. Selon FEIN un accu est capable de fonctionner s'il restitue au moins 80% de sa capacité nominale. La capacité réelle d'un accu ne peut être déterminée qu'avec des appareils de mesure. Si vous ne possédez pas d'appareil de mesure approprié, le service après-vente FEIN vous aide volontiers à en choisir un.</p> | <p>ES: Garantía: Los acumuladores no están cubiertos por la garantía de 3 años. La garantía concedida rige según las disposiciones legales de cada país, así, p. ej., en la UE: - 1 año para el uso a nivel profesional. - 2 años para el uso a nivel particular. Se exceptúan aquellas averías originadas por: - Celdas dañadas por altas descargas. - Descargas parciales frecuentes (efecto memoria). - Desgaste originado por el uso, o daños motivados por influencias externas. La fecha de fabricación sirve de indicativo. Va marcada en el acumulador en la forma mm/aa, p. ej., 10/07 para Octubre 2007. Reparación: No es posible obtener una reparación duradera de los acumuladores en la calidad requerida. Aunque existan terceros que afirman poder reparar acumuladores de forma económica, el efecto obtenido solamente es de corta duración, ya que las nuevas celdas no han sido acondicionadas a los componentes ya existentes. FEIN y sus representantes ofrecen calidad a largo plazo. Por ello, deberán sustituirse siempre los acumuladores defectuosos. Vida útil: La capacidad de los acumuladores va mermando con el transcurso del tiempo. FEIN define un acumulador apto para funcionamiento si el mismo dispone como mínimo de un 80% de la capacidad nominal. La capacidad real de un acumulador solamente puede determinarse con aparatos de medición. Si no dispusiese de un aparato de medición apropiado, el servicio técnico FEIN le asesorará gustosamente en la elección del mismo.</p> |

3 411 30 356 06 0 - Printed in Germany - 01/08

Diese Information bei der jeweiligen Ersatzteilliste einordnen!
 Please add this information to the corresponding spare parts list!
 Mettre cette information dans la liste correspondante des pièces de rechange !
 Adosar esta información a la respectiva lista de piezas de repuesto!

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