



Starting page





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For drawings and spare part list, please see Internet
www.fein.de

FRT: BLK 1.3 CS / BLK 1.3 T



1. Technische Daten

Part number		7 232 36	7 232 35	7 232 37	7 232 29
Model		BLK 1.3 CS	BLK 1.3 T	BLK 1.6 L	BLK 2.0
Power consumption	Watt		350		350
Power output	Watt		210		210
Power mains connection type			1~		1~
Cutting speed	m/min	approx 2.3	approx 2.3	approx 2.7	approx 1.0
Stroke rate	rpm	1800	1800	1500	1000
Safety class			II		II
Cable length with plug	m		5		5
Weight without cable	kg	1.75	1.75	1.9	1.8
Maximum material thickness:					
Steel up to 400 N/mm ²	mm	1.3	1.3	1.6	2.0
Steel up to 600 N/mm ²	mm	0.8	0.8	1.0	1.5
Steel up to 800 N/mm ²	mm			0.7	1.0
Al up to 400 N/mm ²	mm	2.0	2.0	2.5	2.5
Drill to plunge	Ø in mm	18.5	18.5	24	18
Cutting width	mm	5	5	5	8
Radius of smallest curve (inner)	mm	15	25	65	0
Radius of smallest curve (outer)	mm	20	30	70	4





2. Maintenance and repair

2.1. Regulations

2.2. Cleaning and care

2.3. Carbon brush replacement

2.4. Maintenance and service intervals



2.1. Regulations

Regulations:

Only specially trained electricians are permitted to repair, service and test electrical tools. Faulty or poor maintenance/repair work may expose operators to significant hazards (*BGV A2*).

Perform routine tests in accordance with *DIN VDE 0702-1*.

After repairs, observe the regulations specified in *DIN VDE 0701 Part 1*.

Only use original FEIN replacement parts!

Whenever operating the tool, be sure to comply with the pertinent accident prevention regulations as stipulated by your local liability insurance association.

This tool is intended to be operated in full compliance with the pertinent equipment and product safety laws.

When outside of Germany, comply with the locally valid product safety regulations!



2.2. Cleaning and care



If the tool is switched on accidentally, this can cause injuries.



Always unplug the mains cable before cleaning the tool.

Do the following once per week, but more often if the tool is used frequently:

- **Clean the cooling vents.**
- **Use compressed air to clean the motor area from the outside.**
- **Apply grease between the punch and the die holder:
85 g tube (3 21 60 003 19 8)**



2.3. Carbon brush replacement

The machine is equipped with carbon brushes that switch off automatically.

When checking the carbon brushes, make sure that they are reinstalled in the same position and move easily in the carbon brush holder.

Once the carbon brushes wear down to a length of just 7 mm, replace them with new carbon brushes.

Only use original FEIN carbon brushes, otherwise EMC requirements may not be fulfilled!

Begin by 'wearing in' the carbon brushes for 20 minutes without load at the lowest possible speed.



2.4. Maintenance and service intervals

After approx. 300 operating hours:

- **Disassemble the machine and clean it; use compressed air or a brush to clean the insulating components**

Depending on type and duration of usage, but every 6 months at the latest:

- **Disassemble machine**
- **Thoroughly clean machine**
- **Wash out the gears using detergent and regrease them**
- **Replace the bearings**
- **Check cables and inner strands for abrasions**
- **Check for good fit of plugs and sockets**



3. Electrical function test

3.1. Test data

3.2. Testing devices and aids

3.3. Wiring diagram / Connection plan

FRT: BLK 1.3 CS / BLK 1.3 T



3.1. Test data for BLK 1.3 CS und BLK 1.3 T

Part number		7 232 35	7 232 36
Model		BLK 1.3 T	BLK 1.3 CS
Power consumption	Watt		350
Power output	Watt		210
Power mains connection type			1~
Cutting speed	m/min	approx. 2.3	
Stroke rate	min	1800 (1620 - 1980)	
Safety class		II	
Cable length with plug	m	5	
Weight without cable	kg	1.75	
No-load current	A	0.65 (0.58 - 0.75)	
Idle speed	rpm	3100 (2790 - 3410)	



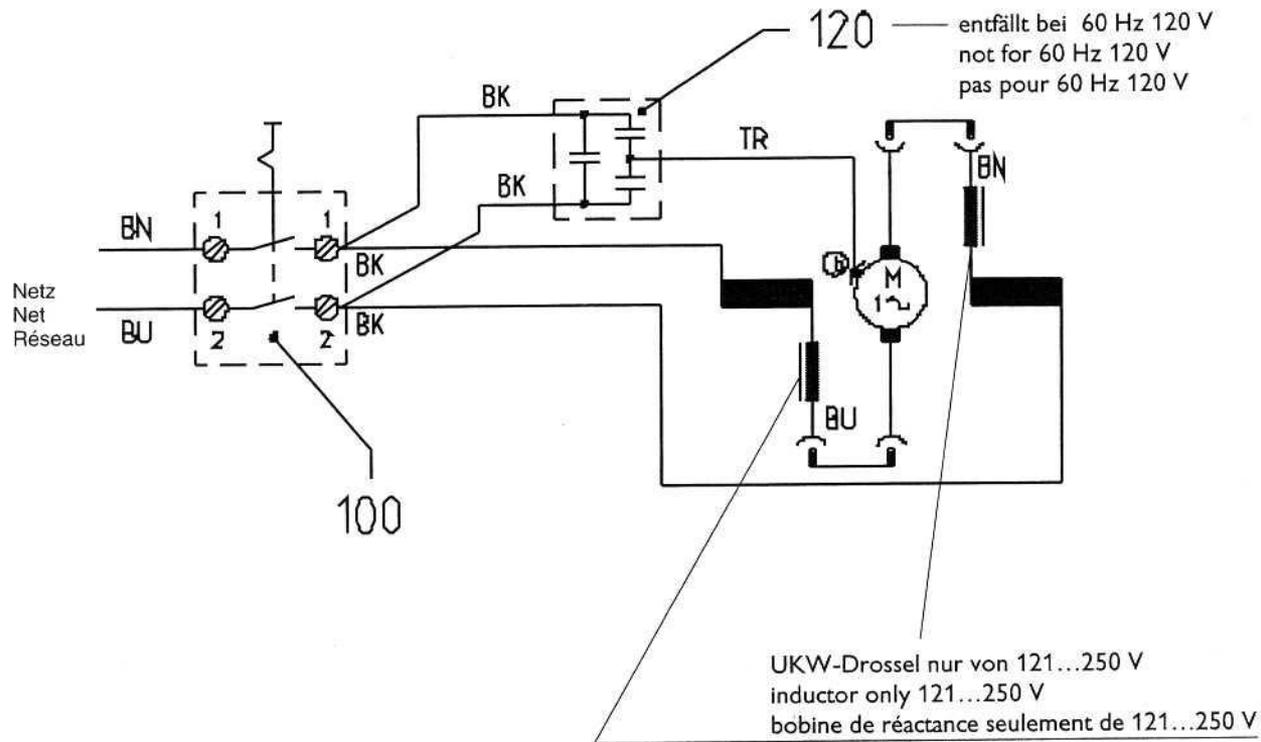
3.2. Testing devices and aids

- **Multimeter for measuring RMS values (voltage, current, resistance)**
- **Speed gauge, impulse counter (suitable for pendulum movement)**

FRT: BLK 1.3 CS / BLK 1.3 T



3.3. Connection plan

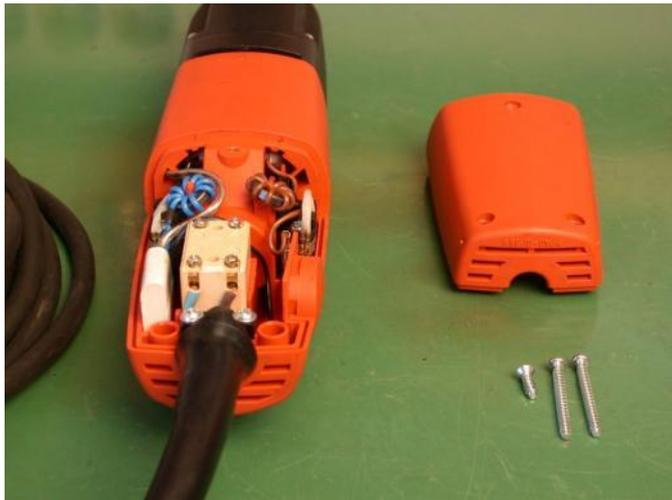


4. Disassembly - Preparation

Before beginning to disassemble the tool (motor and gearbox), always disconnect the machine from the mains.



4.1. Disassembly - Motor



1. Remove the bolts and detach the cover
2. Remove the brush holder with the carbon brushes
3. Disassemble the switch and cable

Tools:

- Screwdriver
Phillips PH 2
- Flat pliers

FRT: BLK 1.3 CS / BLK 1.3 T



4.2. Disassembly - Disconnecting motor and gear box

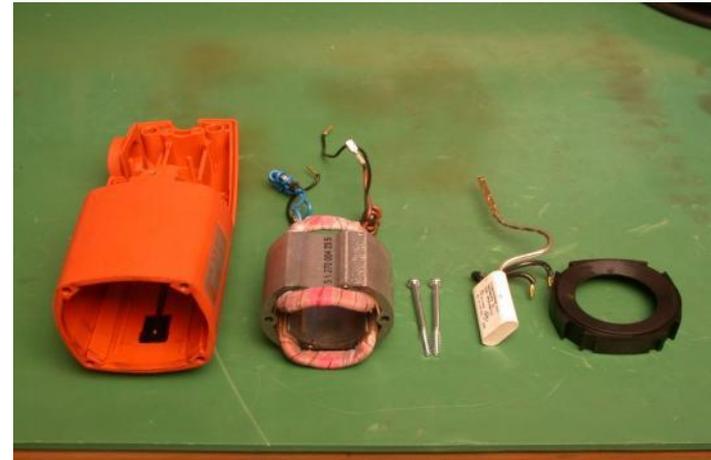


1. Remove the bolts
2. Disconnect the gear box with armature from the motor case

Tools:

- Screwdriver
Phillips PH 2
- Plastic hammer

4.3. Disassembly - Field magnet

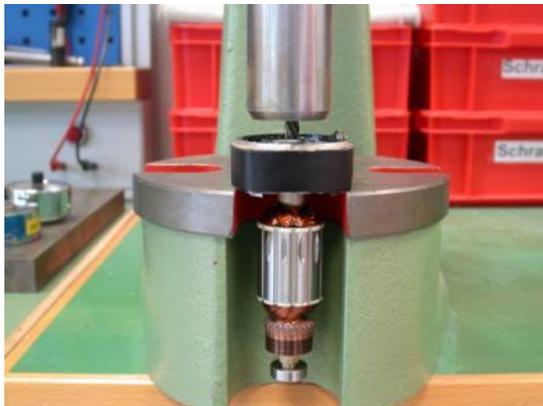


1. Remove the air conducting ring
2. Loosen the bolts on the field magnet and remove them
3. Use a hammer to lightly tap the field magnet out of the motor case

Tools:

- Screwdriver
Phillips PH 2
- Plastic hammer

4.4. Disassembly - Armature und intermediate bearing



1. Remove speed reducer shaft from intermediate bearing
2. Use a press to force the armature out of the intermediate bearing
3. Extract the ball bearing from the armature shaft and replace it if necessary

Tools:

- Plastic hammer
- Mandrel press
- Ball bearing extractor
19 mm
- Extracting bell
w. and w/o tip

4.5. Disassembly - Gear / eccentric shaft



-
1. Extract the circlip, remove the gear and feather key
 2. Extract the circlip, use a hammer to lightly tap the eccentric shaft and driver out of the gearbox case

Tools:

- Circlip pliers outside, straight
- Circlip pliers inside, straight
- Plastic hammer

4.6. Disassembly - Gear case / plunger



-
1. Remove nut using open-ended spanner (size 30)
 2. Carefully pull the plunger out of the gearbox case

Tools:

- Open-ended spanner (size 30)

4.7. Disassembly - Plunger



1. Loosen nut, remove bearing sleeve with die and plunger
2. Remove plunger and punch from bearing sleeve

Tools:

- Screwdriver
- Punch



5. Assembly

- 5.1. Plunger**
- 5.2. Die holder with plunger / Gear box**
- 5.3. Eccentric shaft**
- 5.4. Gear / speed reducer**
- 5.5. Armature / intermediate bearing**
- 5.6. Motor / field magnet**
- 5.7. Motor / armature with intermediate bearing**
- 5.8. Brush holder with carbon brushes**
- 5.9. Switch / power cable**
- 5.10. Motor / gear box**

5.1. Assembly - Plunger



1. Assembly plunger lower und upper part
2. Assembly punch and preassembled plunger
3. Insert assembled plunger with punch into the die holder

Apply Molykote lubricant between the punch and the die holder!!!!

Grease:

- Tube 85g
3 21 60 003 19 8

5.2. Assembly - Die holder with plunger / Gear box



1. Insert preassembled die holder and plunger into gear box
2. Fasten inserted plunger using the nut

5.3. Assembly - Eccentric shaft

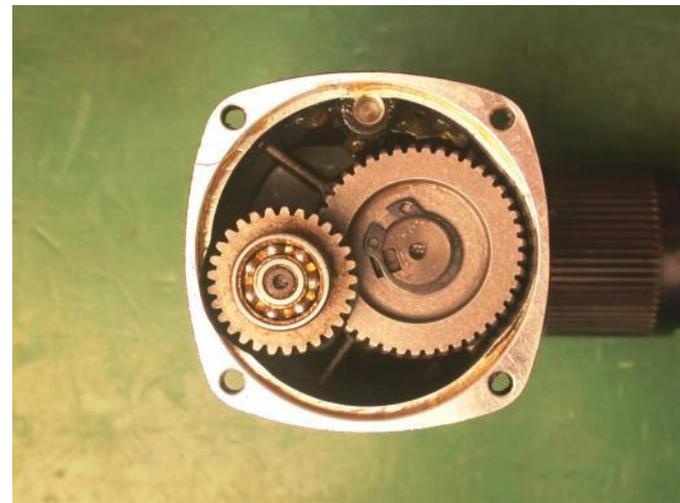
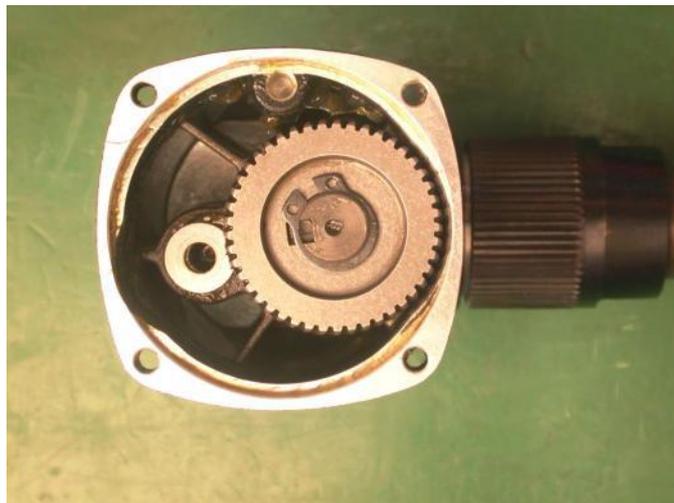


1. Insert driver with needle sleeve into plunger
2. Insert eccentric shaft into gearbox case (eccentric shaft must mesh with driver)
3. Fasten circlip

Tools:

- Needle-nosed pliers, straight
- Circlip pliers inside, straight

5.4. Assembly - Gear / speed reducer



1. Fasten feather key and gear to eccentric shaft and fasten circlip
2. Insert the speed reducer

Tools:

- Flat pliers
- Circlip pliers outside, straight

5.5. Assembly - Armature and intermediate bearing

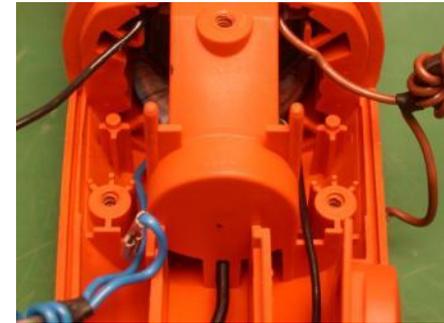


1. Press on ball bearing and sealing ring
2. Press armature into intermediate bearing sign

Tools:

- Mandrel press

5.6. Assembly - Motor / field magnet

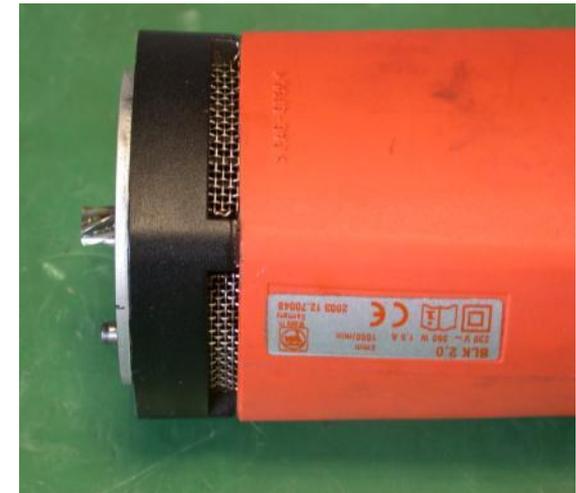


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1. Insert cable into field magnet and install field magnet
ID number on slider switch - at this side
 2. Tighten bolts
 3. Insert cable into the intended cable guides

Tools:

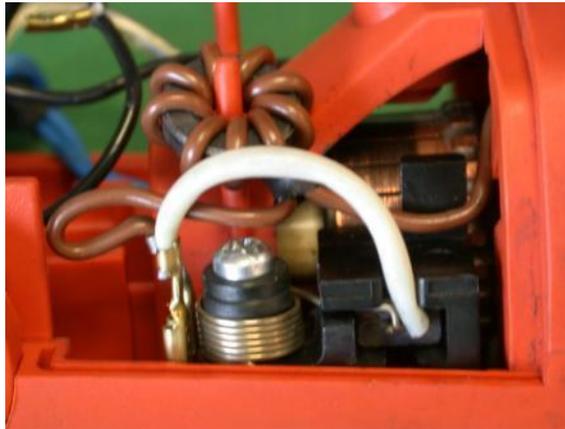
- Screwdriver
Phillips PH 2

5.7. Assembly - Motor / armature with intermediate bearing



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1. Insert armature with intermediate bearing into motor case
 2. Check position of protective grating - at lower side of case and on side of type plate

5.8. Assembly - Brush holder with carbon brushes

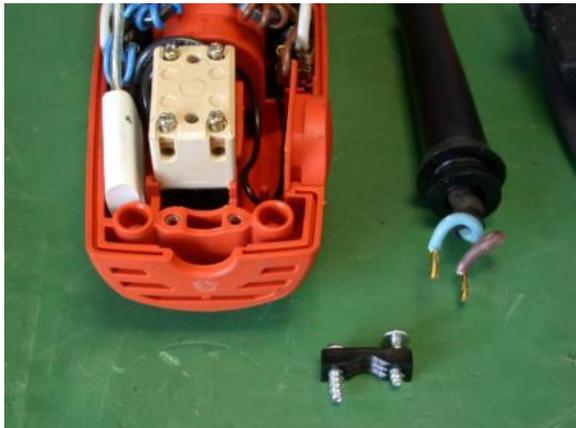


1. Check that cables are properly guided
2. Fasten carbon brush holder, insert carbon brushes and connect them
3. Make sure that cables are properly installed, fasten chokes to intended press

Tools:

- Screwdriver
Phillips PH 2
- Cable hook

5.9. Assembly - Switch / power cable



1. Insert switch
2. Connect motor cable, condensator and mains cable
3. Fasten strain relief
4. Install cover and fasten it - **Don't jam cable!**

Tools:

- Screwdriver
Slotted,
Phillips PH 2



5.10. Assembly - Motor / gear box



1. Place gearbox case onto motor and fasten it
2. Check for proper functioning

Tools:

- Screwdriver
Phillips PH 2



6. Tools

- 6.1. All tools
- 6.2. Special tools
- 6.3. Lubricants
- 6.4. Adhesive, sealing and other agents



6.1. All tools

Open-ended spanner, size 30	Retail
Plastic hammer	Retail
Screwdriver, slotted	Retail
Phillips PH 2	Retail
Cable hook	
Flat pliers	Retail
Needle-nosed pliers	Retail
Circlip pliers (outside, straight)	Retail
(inside, straight)	Retail
Punch	Retail
Mandrel press	Retail



6.2. Special tools

<u>Ball bearing extractor:</u>	Extracting bell	6 41 04 150 00 8
	Clamping chuck	6 41 07 019 00 7



6.3. Lubricants

Fettart Type of grease Type de graisse	Tuben-Inhalt Contents of tube Contenu de tube	Bestellnummer Order Reference Référence	Fettmenge Quantity Quantité
0 40 108 0400 8	85 g	3 21 60 003 08 3	<p>Für Getriebe:/for gears:/pour engrenages: 15 g Nadellager (450, 650) und Kugellager (420) Needle bearing (450, 650) and ball bearing (420) Roulement à aiguilles (450, 650) et roulement à billes (420)</p> <p>ungefähr 1/3 des Raumes zwischen Innen- und Außenring approx. 1/3 of the space between inner and outer ring environ 1/3 du volume entre bague intérieure et extérieure</p>
0 40 119 0500 7	85 g	3 21 60 003 19 8	<p>Gleitflächen von Stößel (610,620) und Pleuel (640) sowie Stempel (660) einstreichen Lubricate the sliding surfaces of the plunger (610, 620), connecting rod (640) and also the punch (660) Enduire les surfaces de glissement du coulisseau (610, 620) et de la bielle (640) ainsi que le poinçon (660)</p>



6.4. Adhesive, sealing and other agents

Order no.	Designation	Colour	Con- tents	Description	Machine types
0480050003	Loctite 574	Orange	250 ml	Surface sealant, fast hardening, max. gaps of up to 0.5 mm <for Al joints>	Between external bearing (590) and intermediate bearing (390)
0480050033			100 ml		



Last and most important page

Thank you for your attention and good luck for the trouble shooting !!!!!!!!!!!!!!!!!!!!!

