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# Converter

# FU 4/5

**Operator's Manual**



### 1. Foreword

For your own safety and protection from bodily injuries, carefully read, understand and follow the safety instructions in this manual.

Please operate and maintain your Wacker machine in accordance with the instructions in this manual. Your Wacker machine will reward your attention by giving trouble-free operation and a high degree of availability.

Replace faulty or defective components Immediately.

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## 2. Safety instructions

### for 3-phase frequency and voltage convertes

#### 2.1 General

- 2.1.1 Converters may only be operated by persons who
- \* are at least 18 years of age
  - \* are physically and mentally fit for this job
  - \* have been instructed in operating with converters and proved their ability for the job to the employer
  - \* may be expected to carry out the job they are charged with carefully.
- The persons must be assigned the job of operating converters by the employer.
- 2.1.2 Converters may only be operated if the operating instructions of the manufacturer relating to the specific product and these safety instructions are observed.
- 2.1.3 The persons entrusted with the operation of converters are to be familiarised with the necessary safety precautions relating to the machine. In case of unusual applications the contractor must compile and issue the necessary additional instructions.

#### 2.2 Operation

- 2.2.1 The actuation (control) elements and safety equipment must not be inadmissibly tampered with or their operation prevented.
- 2.2.2 It must be ensured that the converter is only connected to the voltage and frequency specified on the nameplate. Choose correct cross section for extension cords.
- 2.2.3 Before the converter is commissioned, it must be ensured that the protective hoods are firmly installed.
- 2.2.4 Before the converter is commissioned, the machine must be installed in a stable condition to prevent it from unintentionally tipping over, slipping or falling.
- 2.2.5 The converter must not to be switched on and off by inserting the plug into the socket or pulling it out. This also applies to the equipment to be connected to the converter.

## Safety instructions

- 2.2.6 The power supply cable of the converter must not be used to pull the plug out of the socket.
- 2.2.7 The power supply cable of the external vibrator must not be used to pull the plug out of the socket.
- 2.2.8 Electric equipment and material may only be used if they comply with the operational and local safety requirements. They must be in proper conditions and they must be maintained in this condition.
- 2.2.9 It is forbidden to operate converters in hazardous environments.



**Danger to life**

- 2.2.10 Do not expose electrical equipment to rain. Do not use electrical equipment in damp or wet surroundings.

## 2.3 Safety checks

- 2.3.1 Before starting operation, the operator has to check that all control and safety devices function properly.
- 2.3.2 Check electric cables regularly for damage.
- 2.3.3 Converters may only be operated with all the safety equipment.
- 2.3.4 If defects in the safety equipment or other defects are detected which impair the safe operation of the internal vibrator, the supervisor is to be notified without delay.
- 2.3.5 The machine must to be switched off immediately in case of defects jeopardizing the operational safety of the equipment.

## 2.4 Maintenance

- 2.4.1 Only use original spare parts. Modifications to this machine including the adjustment of the maximum speed set by the manufacturer are subject to the express approval of WACKER. In case of nonobservance all liabilities shall be refused.
- 2.4.2 The converter is to be disconnected from the mains supply for maintenance and repair work.
- 2.4.3 Work on the electric parts of the machines may only be carried out by skilled technicians.

- 2.4.4 The green/yellow protective earth conductor of the connection cable must be longer so that it does not become detached if the strain relief clamp fails. There is a danger to life and limb if this connection is broken. After repair work, check protective earth conductor for continuity.
- 2.4.5 All safety devices must be reinstalled properly immediately after maintenance and repair jobs have been completed.

## 2.5 Transport

- 2.5.1 For loading and transporting converters with lifting devices, suitable attachments are to be provided at the specified attachment points.
- 2.5.2 On transport vehicles converters are to be secured against slipping or tipping over.

## 2.6 Maintenance checks

- 2.6.1 According to the conditions and frequency of use, converters have to be checked for safe operation at least once every 6 months by skilled technicians, such as those found at WACKER service stations, and be repaired if necessary.

**Please also observe the corresponding rules and regulations valid in your country.**

## Technical data

### 3. Technical data

	FU 4/200	FU 5z/200
Item no	0008890	0008891
Length x width x height mm:	790 x 350 x 495	800 x 350 x 495
Operating weight (Ground) kg:	64	75
<b>Input ratings</b>	Thtee-phase current 400 V 50 Hz	
Rated current A:	10	13,2
Power input kVA:	6,9	9,2
<b>Output</b>		
Voltage V:	42 3 ~	
Rated current A:	52	69
Frequency Hz:	200	
Power input kVA:	3,8	5
Socket	3 x 32 A	4 x 32 A
Drive engine	3-phase squirrel cage motor for connection to the mains	
<b>Protection system</b>	IP 44	
Sound pressure level 1 m Distance L <sub>PA</sub> :	77 dB(A)	80 dB(A)



## **4. Description**

### **4.1 Field of application**

For use in applications with Wacker 42 V / 200 Hz high frequency internal vibrators, 42 V / 200 Hz external vibrators.

### **4.2 Transport to work site**

**Conditions:**

- \* Only use suitable lifting equipment with a minimum lifting capacity of 80 kg for the transport of the converter.
- \* Always switch off engine during transport!
- \* Attach appropriate fastening means to central lifting point provided.
- \* Tie down the converter securely during transport on the loading surface of a vehicle.

**Note:** Also refer to the specifications in safety instruction.

## Operation

### 5. Operation

#### 5.1 Putting into operation

##### 5.1.1 Connection:

Make sure available voltage corresponds to voltage required for converter before connection. Factory setting is 400 V unless otherwise indicated when ordering. Use and correctly connect green-yellow cable lead of supply line to plug connection for equipment grounding conductor. Also pay close attention to a perfect connection of the equipment grounding conductor when using an extension line.

##### 5.1.2 Switching on the converter:

Only switch on the converter under no-load conditions.

#### 5.2 Motor protection

The overload circuit breaker is set to the rated current of the motor. In case the converter is switched off by means of the overload circuit breaker find out why and eliminate defect.

## **6. Maintenance**

### **6.1 Maintenance schedule**

Component	Maintenance work	Maintenance interval
Feed cable	Check for perfect condition, change if defective.	daily

### **6.2 Slip rings**

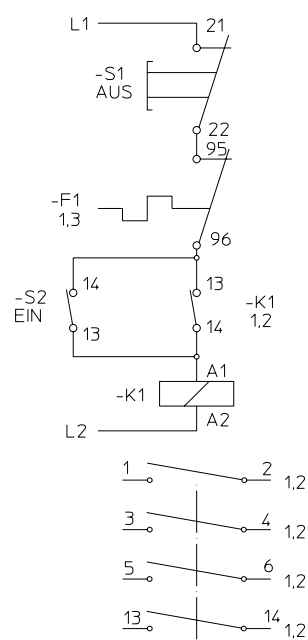
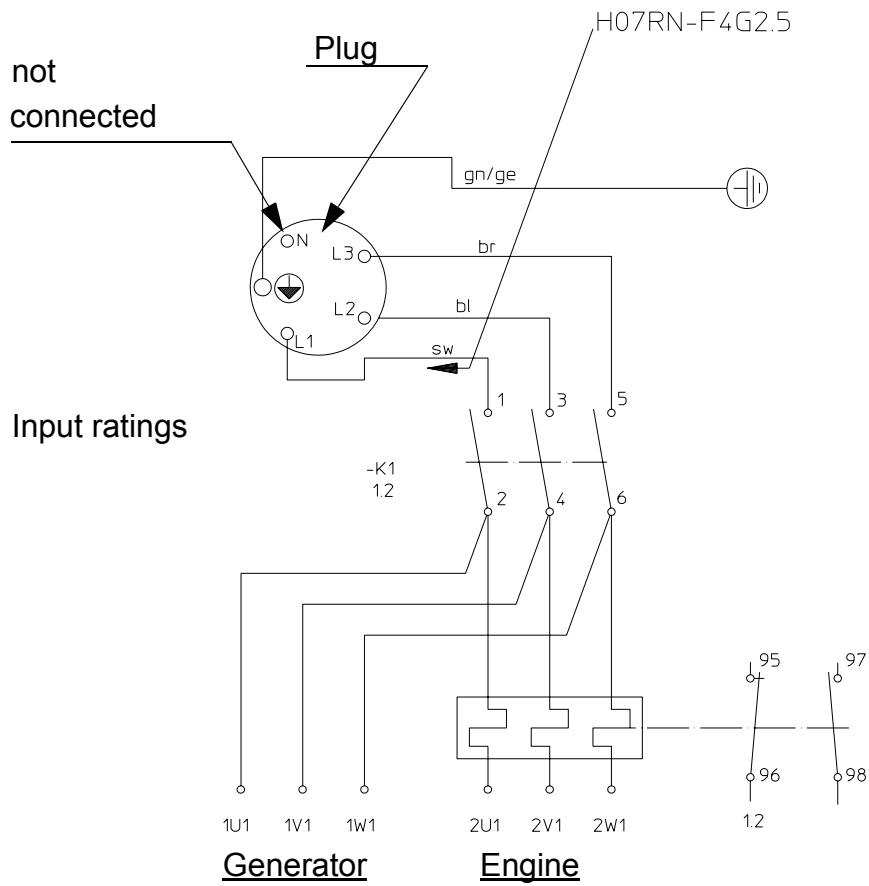
- 6.2.1 The surface of the slip rings must be bright. If necessary, clean the surface, respectively polish with emery paper. Before, make sure that the converter is disconnected. Remove abrasive dust.

### **6.3 Carbon brushes**

- 6.3.1 The carbon brushes should rest with entire cross section and with moderate pressure on the slip rings. Bed-in new carbon brushes only with currentless (dead) converter as follows: Put emery cloth with smooth side on slip ring such that the brushes rest on the abrasive side. Move emery cloth to and fro until brushes fit to the round shape of the slip rings. Remove abrasive dust.

## Electric wiring diagram

## 7. Electric wiring diagram



## 8. Diagram

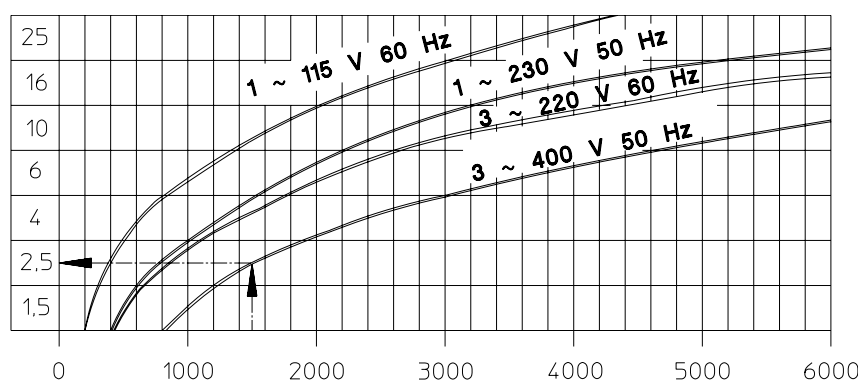
### Selection of required cross section for extension of cables and power lines

This procedure takes into consideration:

- \* The ohmic and inductive resistance of the line with an admissible loss of voltage of 5% and  $\cos \phi = 0,8$  as per voltage-frequency-curve.
- \* The admissible warming-up of the lines as per VDE standard (table of required minimum cross section).

### Voltage - Frequency - Curves

Cross-section area of cable in  $\text{mm}^2$



Rated current x length of cable A x m

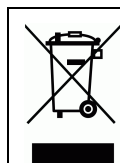
Minimum cross-section area according to VDE		
Cable	Max. load	Max. fuse
$\text{mm}^2$	A	A
1	15	10
1,5	18	10/3~16/1~
2,5	26	20
4	34	25
6	44	35
10	61	50
16	82	63
25	108	80

## Disposal

### 9. Disposal

#### 9.1 Environmentally friendly reuse

Provide for environmentally friendly reuse of the machine. Comply with all regional regulations and directives such as the European directive regarding old electric and electronic devices.



Do not add the device to normal waste disposal. Instead, it should be collected separately.

## EG - Konformitätserklärung

## EC - Conformity-Certificate

**Wacker Construction Equipment AG, Preußenstraße 41, 80809 München**

bescheinigt, daß das Baugerät:

hereby certify that the construction equipment specified hereunder:

1. Art / Category:

**Umformer / Converter**

2. Typ / Type:

**FU ... / FUE ... / KTU ...**

3. Gerätenummer innerhalb Typenserien-Nummer / Type serial number of equipment:

**0007752, 0007949, 0007978, 0007979, 0008884, 0008890, 0008891,  
0008901, 0008902, 0008934, 0008935, 0008947, 0008948, 0008949,  
0008950, 0108479, 0107999, 0108000, 0610011, 0610012, 0610013,  
0610015, 0610019, 0610020, 0610022, 0610023, 0610094, 0610156**

in Übereinstimmung mit folgenden Richtlinien hergestellt worden ist:

has been produced in accordance with the following standards:

**98/37/EWG**

**89/336/EWG**

**73/23/EWG**

*ppa O Ho C*

Dr. Stenzel  
Leitung Forschung und Entwicklung  
Research and Development Management





## C E R T I F I C A T E

Registration-Number: 6236/QM/06.97

This is to certify that the company

**WACKER**



**Wacker Construction Equipment AG  
Wacker-Werke GmbH & Co. KG**

at the following locations

**Head Office Munich  
Preußenstraße 41  
80809 Munich**

**Production plant Reichertshofen  
Karlsfeld logistics centre  
Sales regions with all branches all over Germany**

has implemented and maintains a  
**Quality Management System** for the following scope:

**Machine manufacture  
Construction machines**

This Q System complies with the requirements of

**DIN EN ISO 9001:2000**

**and the requirements of the German and international Road Traffic Act.**

This Certificate is valid until 2009-06-05.

**VDE Testing and Certification Institute**  
Certification

Date: 2003-05-30

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TGA-ZM-09-92-00  
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