



**OPERATING INSTRUCTIONS
FREQUENCY CONVERTER MON 003**

TB, GTB

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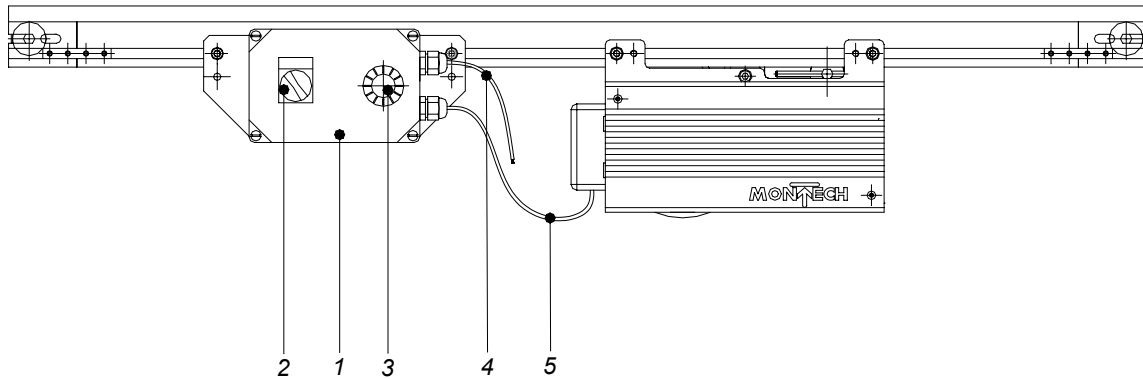
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1 General Description

1.1 Mounting of frequency converter on TB / GTB

Fig. 1.1-1: Connection of frequency converter TB (GTB not shown)



- 1 Frequency Converter MFR 600
- 2 Switch 0/1
- 3 Potentiometer speed control
- 4 Motor supply cable (shielded)
- 5 Mains supply cable

} Order number
54546 TB / 50001 GTB

The MON 003 frequency converters are designed for the speed variation of standard 3-phase asynchronous induction motors from zero up to an adjustable maximum speed.

The devices work with a clock frequency of approx. 5 kHz, providing smooth running of the motor even in the low rpm range.

The drives are designed for 2-quadrant operation (driving in both directions of rotation). Braking is possible up to a power level equal to the power losses of the motor. During braking, the motor becomes over-excited (with overvoltage); that is, the power losses of the motor increase heavily in braking operation.

The mains, motor and control line connections are designed as plug-in terminals.

The control inputs of the drive are isolated against the power supply and motor lines (in accordance with VDE 0884). The drives are also protected against a direct short-circuit or ground circuit on the motor lines.

The electronic limit of the motor current and power allows a maximum motor power of approximately 150% of the nominal power for case temperatures below 30°C. At higher temperatures, the maximum power is reduced to approximately 120% of the nominal power at a case temperature of 80 °C. The devices feature a thermal protection that locks the function if an operating temperature of 85 °C is exceeded. This thermal protection must be acknowledged by turning the operating power supply on and off.

Control lines with a length of more than 2 meters must be shielded. Under a length of 2 meters, shielding is recommended only if heavy interference noise is expected.

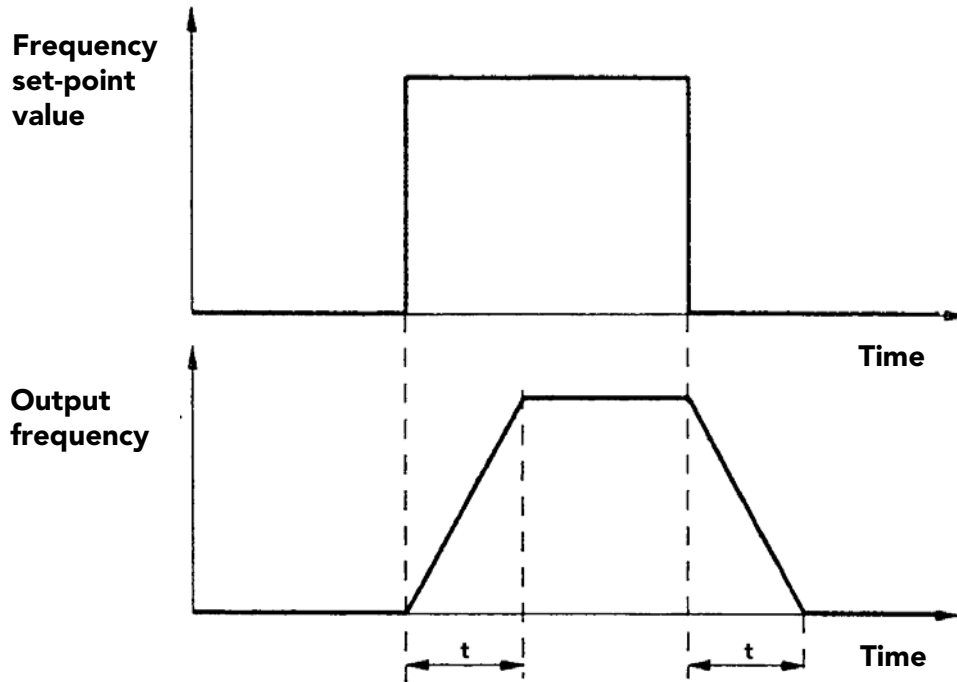
2 Technical Data

Main power supply voltage	150 / 230 V AC
Permissible main power supply voltage tolerance	± 15%
Main power supply voltage frequency	50 – 60 Hz
Recommended fuse in main power supply	4 A
Max. motor size	375 W
Nominal motor voltage	3 x 230 V AC
Motor current (max. at 30°C case temp.)	3 A eff
(max. at 80°C case temp.)	2.4 A eff
Operating temperature range (temperature of the outside of the converter case)	0 – 50°C
Dimensions (L x W x D)	150 x 100 x 70 mm
Weight	0.85 kg
Output frequency ranges	
Normal operation (DS 1–4 «off»)	0 – 120 Hz
Adjustment range of the min. frequency (trimpot RPot2)	0 – 50% of the set maximum frequency
Ramp times	
Normal operation, frequency step	120 Hz
short ramp (DS 1 «off»)	2 – 15 sec
Control signals	
B1 and B2 open	Potentiometer
Reversing signal	without

3 Function of the Set-Point Integrator

3.1 Normal frequency operation mode

Fig. 3.1-1: Diagram of ramp times



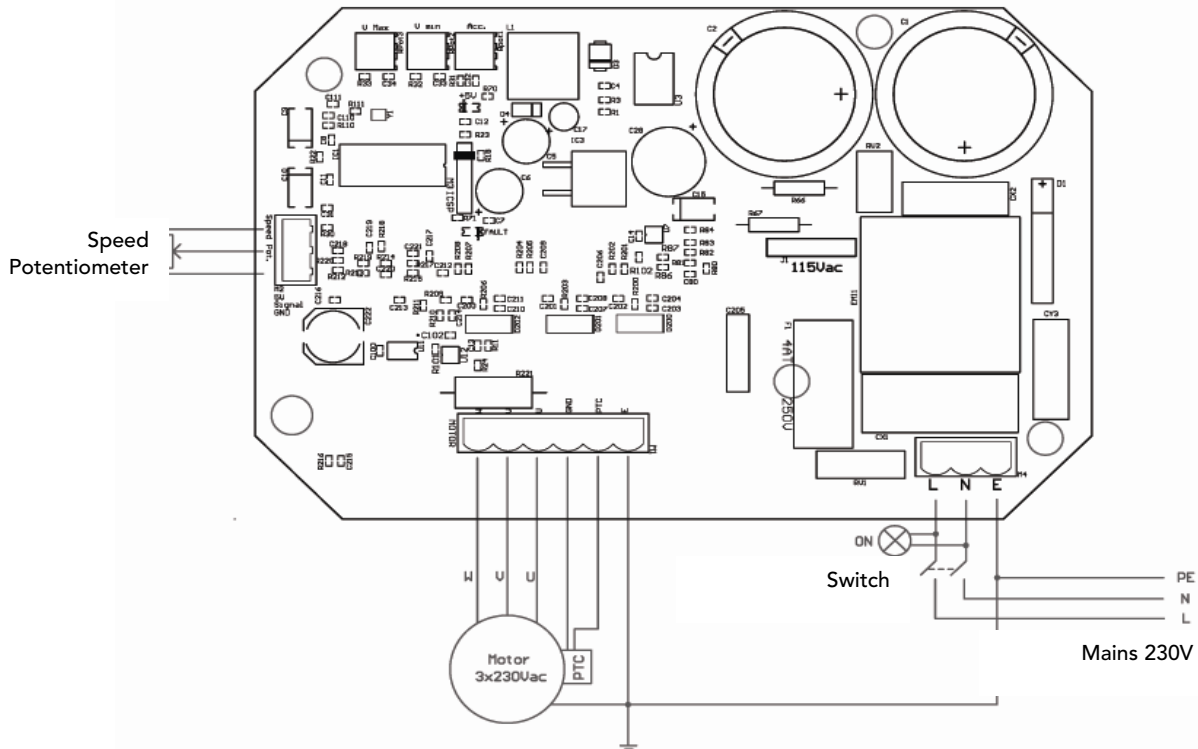
Ramp time t can be set with trimpot RPot1.
Without switch.

4 Electrical connection

4.1 Switching example for control of frequency converter

Fig. 4.1-1: Switching example for control of frequency converter

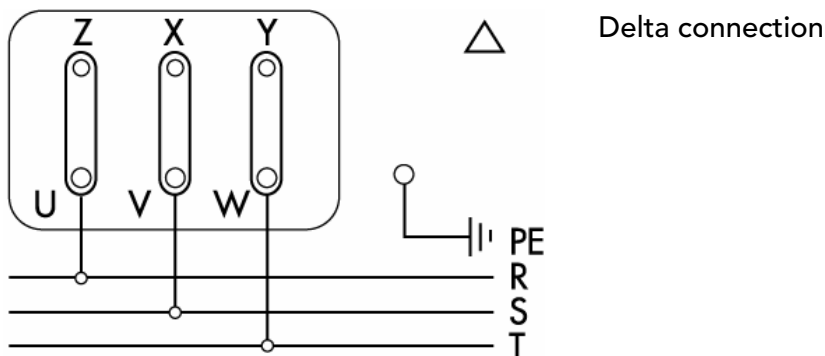
Use of the enable loop to provide thermal protection of the motor



In the case of a motor without a thermo sensor, a bypass is required for the thermo protector (PTC).

4.2 Electrical connection of TB / GTB motor

Fig. 4.2-1: Connection of mains voltage 3 x 230 V

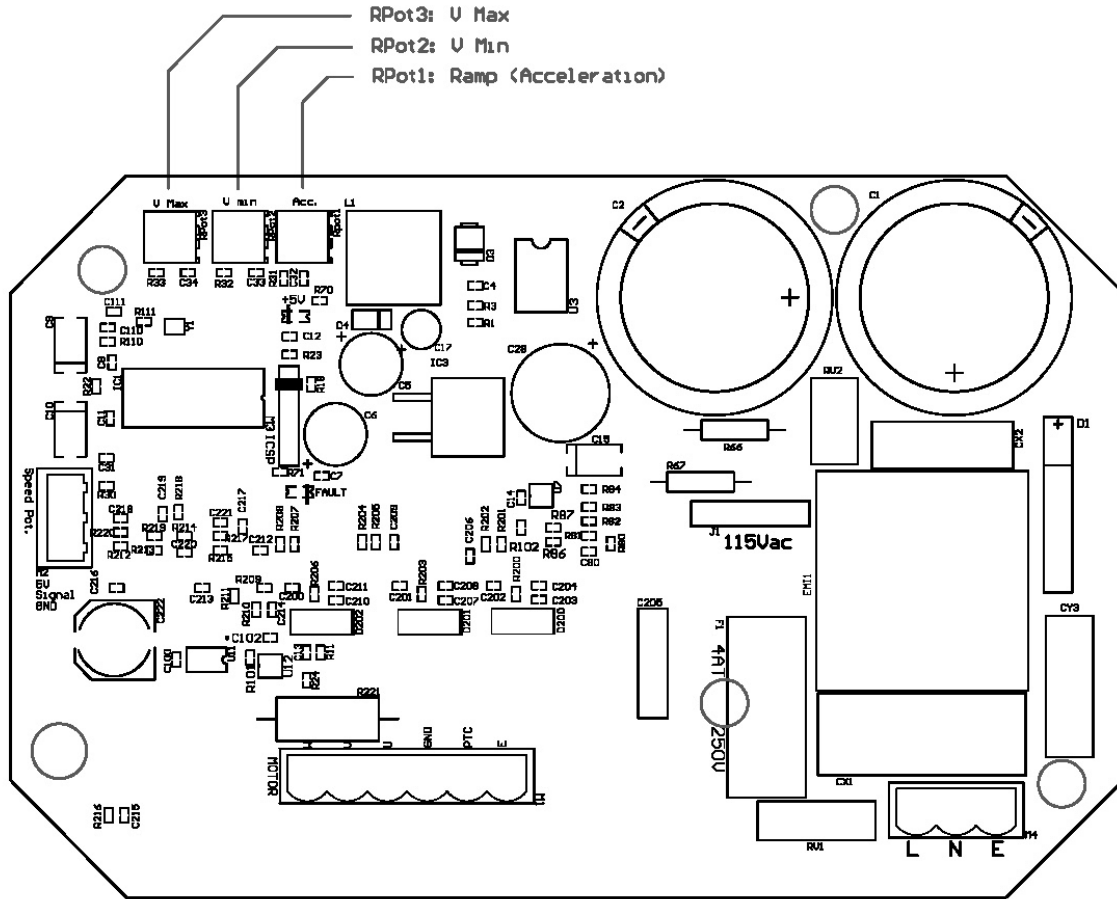


(Change of direction of rotation by interchanging two phases)

5 Converter Start-up and Settings

5.1 Position of the switches, jumpers and potentiometers

Fig. 5.1-1: Position of the switches, jumpers and potentiometers



5.2 Adjustment of the trimpots in the "Normal operation" mode

- Connect mains, motor, and control circuits.
- Switch on main power supply, close the enable loop. Turn set-point potentiometer to the maximum CW position:
Adjust the required maximum frequency on trimpot RPot3.
- Turn set-point potentiometer to the maximum CCW position:
Adjust the required minimum rpm on trimpot RPot2.
- Turn the set-point potentiometer quickly from CCW to CW and back:
Adjust the required ramp time on trimpot RPot1.

6 Safety Considerations



The following safety precautions must be observed during all phases of operation, service, and repair of this device. Failure to comply with these precautions violates the intended use of this device.

Grounding of the device:

To minimize the shock hazard, the drive must be connected to an electrical ground. Terminal PE or the metal case must be connected to the electrical ground (safety ground) of the power outlet.

Do not operate in an explosive environment! Operation of this device in the presence of flammable gases, fumes, or dusts may cause an ignition and must be prevented.

CAUTION!

To prevent potential shock hazards, do not expose this device to moisture, rain or wetness. Wetness inside the case may cause an electrical connection between the main power line and the inputs.

Only qualified personnel may perform installation, adjustment, and service of this device! Any work performed on the electrical parts of the device is very dangerous. The high voltage carried by this device can result in death. The voltage may be present even after the main power supply has been disconnected. Therefore, it is important to wait 30 seconds after switching off the main power supply to ensure that the capacitors in the device are fully discharged.

This device must not be used as an electrical disconnect. It is prohibited to work on the output lines while the main power supply is connected, even if the driven motor does not carry voltage or current. Do not operate this device without mechanical switches or circuit breakers in the power supply line.

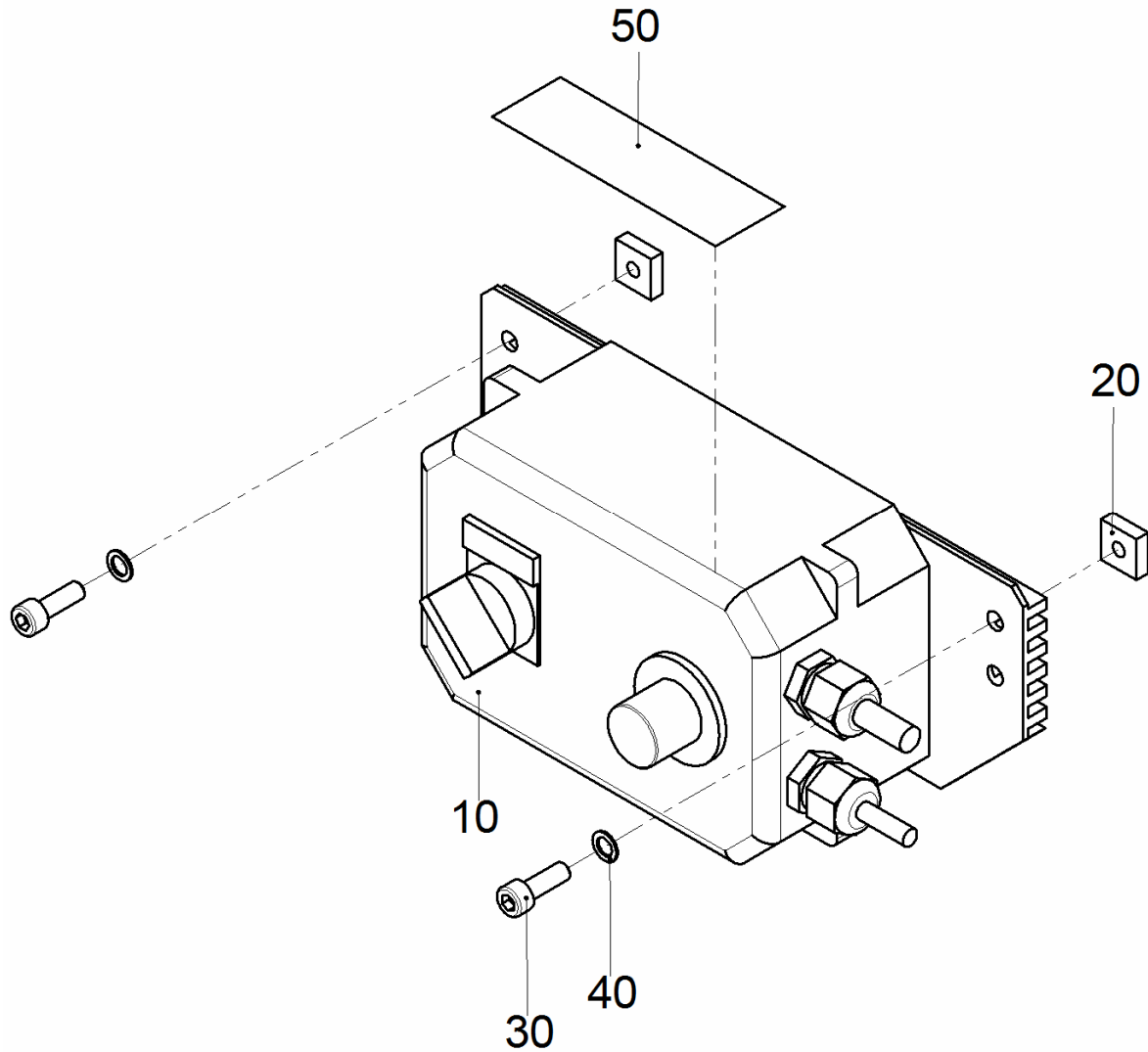
Do not use this device to realize safety or emergency functions. A malfunction of the connected motor while the operating supply is turned on cannot be excluded.

Do not touch the electrical parts of this device. During operation, the electrical parts carry dangerous voltages. Likewise, touching the power circuits during operation may cause damage to the device due to electrostatic discharge.

7 Exploded drawings / Spare parts lists

7.1 TB frequency converter Art. No. 54546

Fig. 7.1-1: TB frequency converter Art. No. 54546

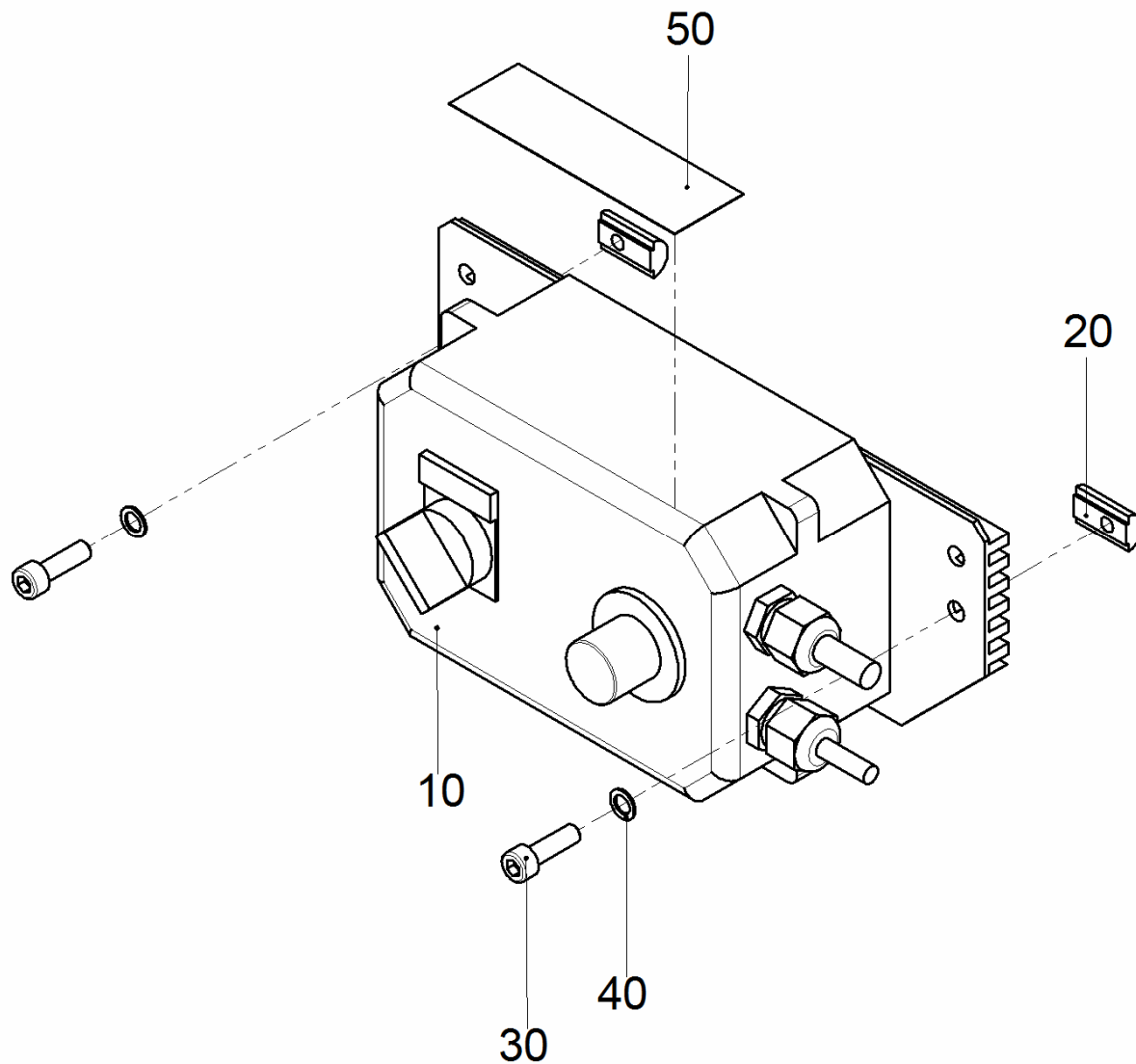


7.1-1: Spare parts list for TB frequency converter

Item	Designation	Order number	
		TB	Material
10	Frequency converter	507170	Various
20	Sliding block M6	21913	Steel
30	Machine screws M6x10	506027	Steel
40	Ribbed washer M6.	505255	Steel
50	Warning plate	45881	Vinyl sheet

7.2 GTB frequency converter Art. No. 54546

Fig. 7.2-1: GTB frequency converter Art. No. 54546



7.2-1: Spare parts list for GTB frequency converter

Item	Designation	Order number	
		GTB	Material
10	Frequency converter	507170	Various
20	Sliding block M6	506969	Steel
30	Machine screws M6x14	504798	Steel
40	Ribbed washer M6.	502366	Steel
50	Warning plate	45881	Vinyl sheet



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