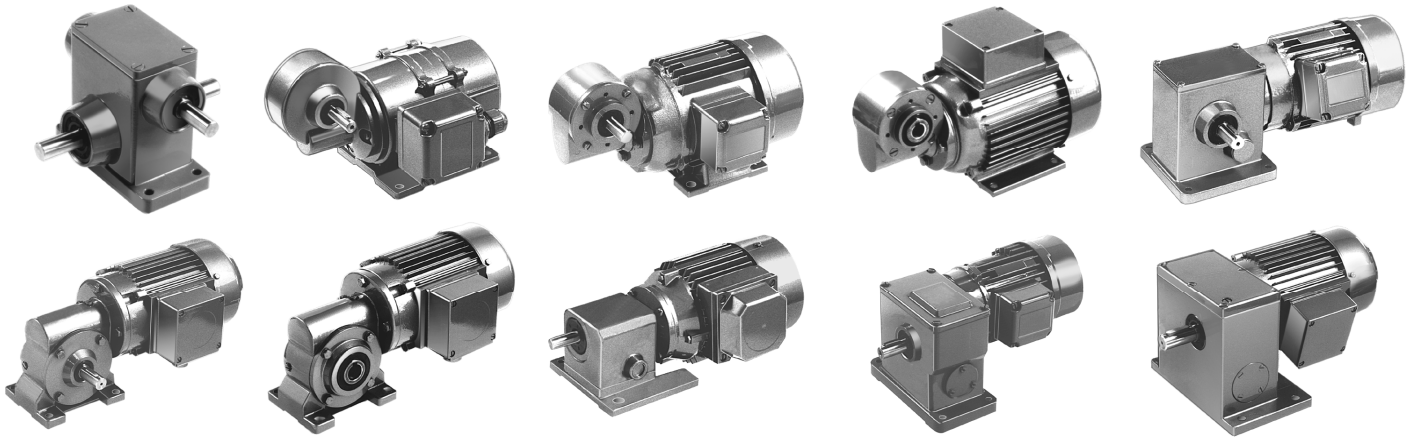
Operating and maintenance instructions

Worm gear boxes and geared motors

G/II, MEG, MEK, MH, MZ, R, RH, RL, RM, RS, SRM and SRS



MÄDLER
GEGRÜNDET 1882

Responsible Mädler branches according to German Post Code Areas:

PCA 1, 2 and 3
Subsidiary
Mädler GmbH
Brookstieg 16
D-22145 Stapelfeld
Tel. +49 40-60 04 75 10
Fax +49 40-60 04 75 33
hamburg@maedler.de

PCA 0, 4 und 5
Subsidiary
Mädler GmbH
Bublitzer Str. 21
D-40599 Düsseldorf
Tel. +49 211-97 47 1 0
Fax +49 211-97 47 1 33
duesseldorf@maedler.de

PCA 6, 7, 8 und 9
Headquarter
Mädler GmbH
Tränkestr. 6-8
D-70597 Stuttgart
Tel. +49 711-7 20 95 0
Fax +49 711-7 20 95 33
stuttgart@maedler.de

For Switzerland:

Mädler-Norm-Antrieb AG
Postbox 74
Güterstr. 6
CH-8245 Feuerthalen
Tel. +41 52-647 40 40
Fax +41 52-647 40 41
info@maedler.ch
www.maedler.ch

Foreword

A standalone geared motor is not subject to the Machinery directive. Through appropriate installation and/or assembly in an overall system it becomes a component of the machine or plant under construction, which must comply with the relevant standards and directives. The manufacturer of the machine bears the sole responsibility for compliance with these standards.

1. Safety Instructions

A machine may not be taken into use until it has been ascertained that it meets the protection and safety requirements of machinery directive 89/392/EEC and its amending directives 91/368/EEC and 93/44/EEC. The basic prerequisite for correct installation and connection is knowledge of, and compliance with, the operating and safety instructions, and the regulations relating to industrial safety and accident prevention. Only qualified persons may be charged with work on geared motors. Faults susceptible to prejudice safety must be rectified immediately by previously appointed staff.

Geared motors are devices for use in industrial machinery and plant. In operation, these devices can have dangerous live, nona

insulated parts, or perhaps moving or rotating parts. Hence, for example, unauthorised removal of the required casing, or improper use, incorrect operation or poor maintenance, could lead to severe bodily harm or damage to machinery.

Persons responsible for the safety of the machine or plant must therefore ensure that:

- only qualified persons are charged with working on the machines or plant.
- such persons always have access ta the current operating instructions and other product documentation applicable to the work in hand, and that they are charged with consistent compliance with these documents.
- unqualified persons are prohibited from working on or near the machines or equipment.

Qualified personnel are persons who by reason of their training, experience, instruction and their knowledge of the relevant standards, regulations, accident prevention rules and working conditions have been authorized by the person responsible for the safety of the machine or plant to perform the appropriate activities required, and thereby are able to recognise and prevent potentially dangerous situations (For the definition of skilled workers see VDE 0 105 or IEC 364, which also regulate the prohibition of the employment of unqualified persons). A knowledge of first aid and the local rescue organisation must also be included.

It is assumed that the basic planning of the machine or plant and all operations relating to its transportation, assembly, installation, commissioning , maintenance and repair will be performed by qualified personnel or controlled by responsible skilled hands. In this respect, special attention should be paid to:

- technical data and information on permissible use which are included in the catalogue, the documents relating to the order and on the data plate, - the general regulations applicable to erection and safety.
- the local regulations and requirements specific to the machine or plant - the proper employment of tools, lifting and transport devices.
- the use of personal protective equipment.
- assembly conditions, to ensure the necessary protection for operators during use, and to prevent personnel from approaching too closely for safety.

The present documentation would become too unwieldy if it contained all the detailed information relative to possible construction variants, and it cannot take into account every conceivable case involving erection, operation or maintenance. Consequently, it only contains the essential instructions necessary for qualified personnel operating geared motors in industrial areas of application. Should, in a special case where it is intended to use the machine or plant in non-industrial areas of application, more stringent requirements have to be met (e.g. to prevent children's fingers from touching the machine), these conditions must be assured during assembly by introducing additional safety measures for the machine or plant.

Changes from normal operation (increased power consumption, raised temperatures, vibrations, noises, etc. or indications from monitoring facilities) lead to the assumption that the machine is not functioning correctly. To prevent faults which, in their turn, might cause serious indirect or direct damage to persons or machinery, the responsible maintenance stag must be informed immediately.

IN CASE OF DOUBT: SWITCH OFF THE MACHINE INVOLVED AT ONCE!!!

2. Regulation Use

The geared motors are designed exclusively for installation in or for mating with a machine or plant in industrial use. Use for any other or extended purpose is non-regulation. The supplier will not be liable for any damage arising from this improper use.

3. Erection

The beds on which the gears and geared motors are to be erected must be adequately dimensioned and free from vibration. When mounting the geared motors

care must be taken to ensure that these are immovably mounted, free from distortion, and on a level surface. Adequate ventilation for the motors must be assured. Should coupling elements be fitted onto the drive- or output-shaft blows to the shafts must be avoided since they could cause leakage or damage to the bearings. Prior to fitting, the shaft-ends should be lightly greased to facilitate mounting. We recommend that a flexible coupling be employed in order to reduce shock on the gears or geared motor from the machine being driven.

4. Electrical Connection

The electrical connection of the motor may only be performed by personnel with the appropriate qualification and in compliance with the prescribed safety precautions and the local regulations governing electrical connections (see para. 1 Safety Instructions). The motor must be connected in accordance with the circuit diagram in the terminal box. Care must be taken to ensure that the voltage of the power supply corresponds to that on the performance plate of the motor Any additional devices installed, such as brakes, revolution counter generators, and secondary fans, must comply with the appropriate standards. The direction of rotation can be changed in three-phase motors by changing two phases, in alternating-current (a.c.) motors by re-clamping the bridges on the terminal board, and in direct-current (d.c.) motors by changing the polarity of the armature voltage - all this may only be performed when the motor is at standstill!

5. Safety Precautions

The earth lead must without fail be connected to the marked earthing screw! To protect it against overloading every motor should be fitted with a trip switch. Heat-sensitive safety devices react to effective values, and the manufacturer will design them accordingly when ordered. Where a transformer is used, the voltage must be restricted to the level of the effective nominal voltage.

6. Maintenance

Attention! Before starting any maintenance operations the geared motor must be permanently disconnected from the mains.

a) Motor:
It is recommended that, depending on the ambient dust arising, the dirt accumulating on the fan cowling of the motor and the motor and gears themselves should be cleaned off from time to time (heating). In the case of motors with carbon brushes, these should be checked at regular intervals. The life of the brushes depends on the mode and conditions of operation. The brushes must be renewed as and when this becomes necessary. Once the fan cowling, the holding band or the screw-caps hove been removed the brushes are in most cases easily accessible.

b) Gears:
On delivery, the geared motors are ready for use and filled with gear grease or oil. This ensures long-term lubrication for all drive parts and bearings. No complicated stripping, cleaning or grease change are required. Should, however, any additional greasing become necessary then synthetic and mineral lubricants must not be mixed.

Lubrication – filling quantities in cm³

Gearbox	Quantity in cm³	Type of lubrication
G/II	45	Oil
MEK	48	Grease
MEG	87	Grease
MH	104	Grease
MZ	80	Grease
R	160	Öil
RH	126	Öil
RL	104	Grease
RM	272	Grease
RS	398	Grease
SRM	152	Öil
SRS	279	Öil