

# Technical Description



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Subject to technical changes

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## Technical description

### 1. Design

Framo COMPACTA gear motors are as the name implies, an extremely compact dimensioned motor with integrated two, three or four stage gearing to produce the output speed and torque required in an application. Each COMPACTA is manufactured to the precise specifications ordered by the customer from the wide range of motor types, gear ratios and optional features shown in this catalogue. Framo gear motors are used mainly in mechanical handling, automation and special machines where torque requirements may vary from 10 Nm up to 1600 Nm and output speeds from 193 rpm down to 1 rpm.

### 2. Special features

COMPACTA drive units differ from conventional gearmotors in several fundamental areas:

- weight saving of 30-40 % due to all-aluminium vacuum die casting of very rigid design
- very small dimensions - high power density
- integrated limit switches for positioning tasks (option)

### 3. Motors

A wide range of standard COMPACTA motor voltages and frequencies are available for single-phase and 3-phase AC as well as for 24 DC. With the exception of the DC version, all motors are fitted with a bi-metallic thermal protection (cuts out at 125°C). Standard enclosure rating is IP 54, insulation class B. Depending on the order 3-phase motors can either be connected  $\Delta$  or  $Y$ .

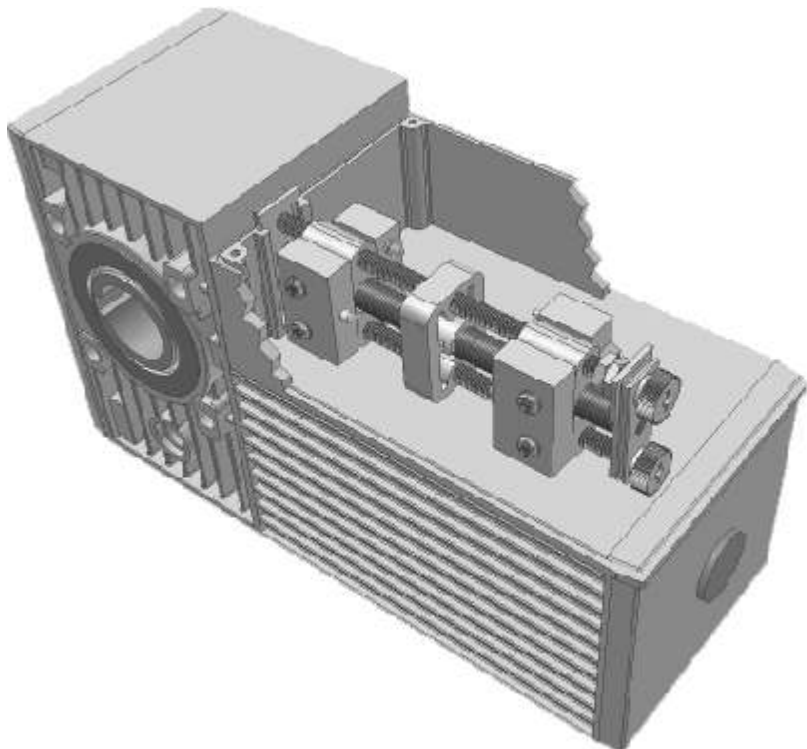
### 4. Duty cycle

COMPACTA gear motors are typically used for intermittent forward / reverse applications (max. duty rating 60 %) using the internal limit switches and a standard non-ventilated motor. For higher duty cycles there is an optional cooling fan or forced ventilation fan (duty rating 100 %). The duty cycle reference time is 10 minutes in a max. ambient temperature 40°C at an altitude of 1000 meters.

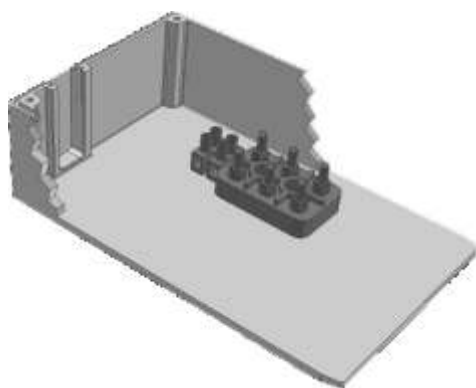
### 5. Limit switches (option)

Compacta gear motor with integrated limit switches are ideal drives for applications with reversing operation. The easy adjustment of the limit switches, the switch-off accuracy and the small size simplify design and installation.

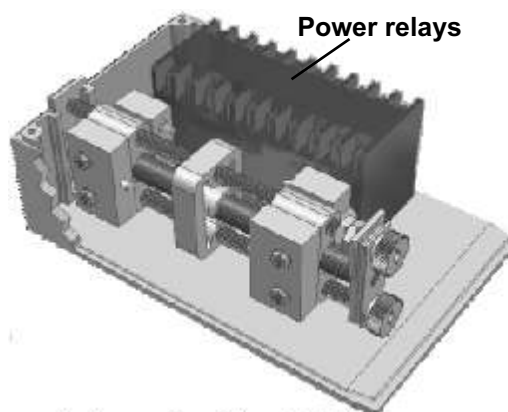
A detailed description of the available limit switch versions follows. By changing the ratio or spindle-pitch of the limit switch mechanism the desired switch range (for maximum range see performance table) can be pre-selected. The limit switches are adjustable. For on-site fine tuning a screwdriver is all that is necessary.



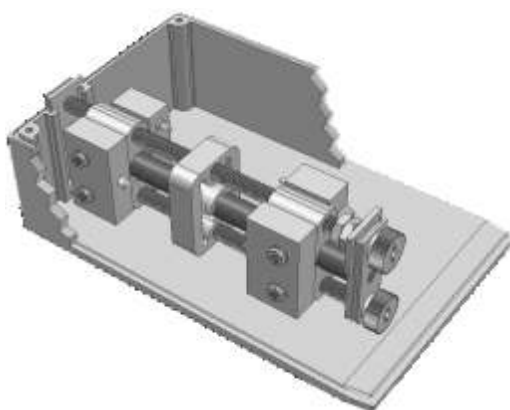
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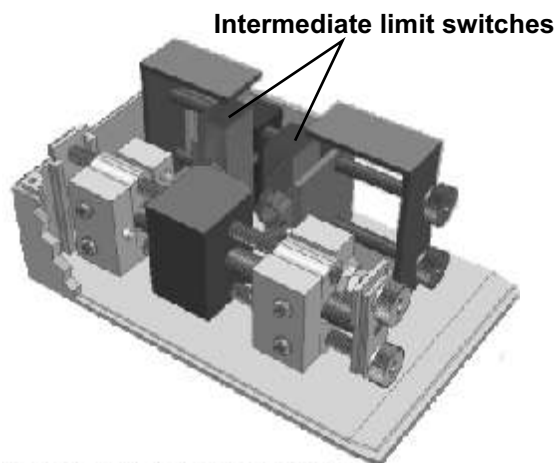
**Version 00**  
Terminal box (box without switch mechanism) in IP 54



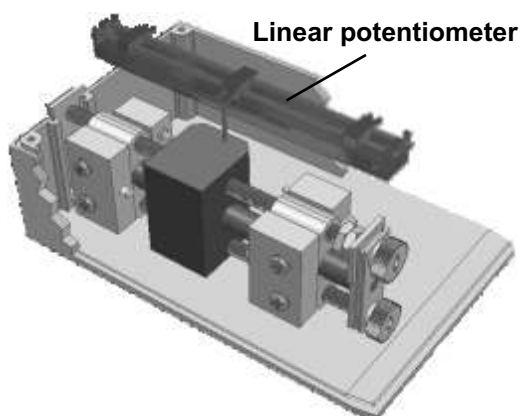
**Limit switch version 1** (not MR6)  
for applications with defined stops in both directions, protected by 2 safety switches, **with integrated power relays**.



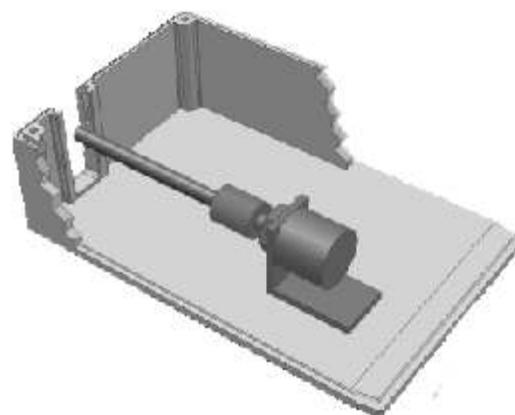
**Limit switch version 2** (not MR6)  
for applications with defined stops in both directions, protected by 2 safety switches, **without integrated power relays**.



**Limit switch version 3** (not MR6)  
for applications with defined stops in both directions, protected by 2 safety switches.  
**2 additional switches for one intermediate position or accel. / decell. signals.**



**Limit switch version 2P** (not MR6)  
for applications with defined stops in both directions, protected by 2 safety switches.  
**Additional potentiometer signal for positioning.**



**Limit switch version 4** (not MR6)  
Without limit switches,  
with integrated rotary potentiometer (max. range 43 turns at the output shaft).

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## 6. Conditions of use



It is a condition of sale that MORAT gear motors shall not be used for the movement of loads whereby persons can be directly or indirectly endangered. The use of MORAT rotary actuators in equipment which is intended for the transport of passengers is only permissible after prior written consultation and the agreement of the manufacturer MORAT or their representatives.

Don't use this drive in explosive environments. Avoid environmental temperatures below 0°C and above 60°C.

We refer users of gear motors to safety rules, regulations and laws governing the protection of staff working in the area of moving equipment. Protective guards or barriers shall be used. Similarly-protective measures are required where suspended loads are involved.

## 7. Self-locking

Self-locking is affected by lead angle, surface quality, speed, lubrication and temperature. A distinction must be made between dynamic (from motion) and static (standstill) self-locking.

Shocks or vibrations can cancel out self-locking.

Similarly a number of factors associated with lubrication, running speed and loading can favour slip characteristics to such an extent that self-locking is counteracted.

This means that gearing which is self-locking in theory is no substitute for a brake or reverse lock. It is therefore impossible for us to accept warranty obligations in respect to self-locking. If safety is involved, a positive brake should be used.

## 8. Options

- Internal limit switches (externally adjustable)
- Rotary or linear potentiometer
- Encoder
- Cooling fan or forced ventilation fan (for frequency inverter control)
- Hand crank with electrical protection (for emergency operation)
- Mounting plate, foot mount plate
- Spring actuated, electrically released motor brake (for precise positioning)
- Armature cone brake for Type MS 12
- Adjustable slip clutch for Type MS 12
- Paint finish
- Anti-corrosion treatment for rotor/stator
- Drainage holes for condensed water
- Stainless steel hollow shaft (for Type MS12 or MR30)
- Reinforced first stage gear for MS 12 and MR 30 (recommended for high duty cycle reverse drive applications)