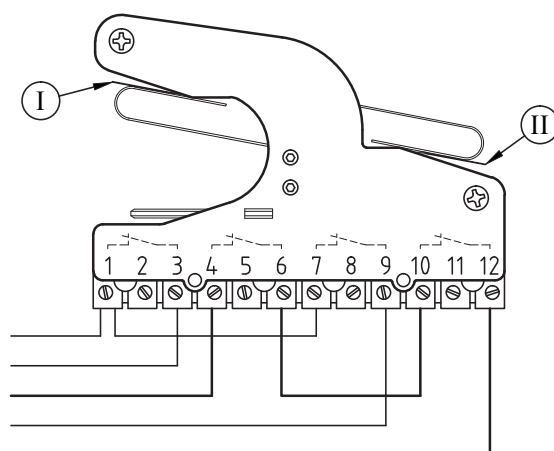
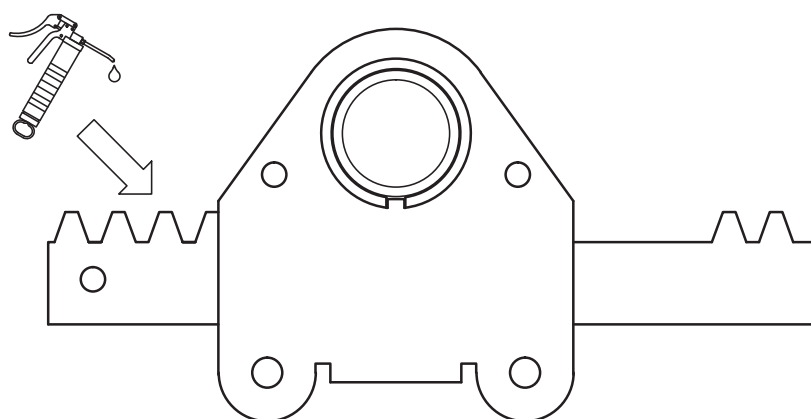


Installation & maintenance



APPLICATION AND OPERATION

- The limit switch system is solely intended for use in GW motor gearboxes manufactured by De Gier B.V.
- Depending on the type of motor gearbox, the driven shaft of the motor gearbox can make a maximum of 34, 88 or 1400 revolutions.
- Operating temperature: -15°C to +60°C.

The clutch shaft of the limit switch system is driven by a transmission between the driven shaft of the motor gearbox and the screwed spindle (1). During normal operation the switch nuts (5) will move linearly in the direction of one of the operating switches (S11 or S12), depending on the direction of rotation of the screwed spindle (1). When the set starting or limiting position is reached, the switch nut (5) will hit the stop (2). The switch nut will start to turn with the screwed spindle (1) and push the switch spring (6) of the operating switch (S11 or S12). The operating switch (S11 or S12) will send a signal to the relay, which switches off the motor gearbox's electric motor. If the relay or the operating switch (S11 or S12) are not functioning properly, the switch spring (6) of the emergency switch (S21 or S22) will be pressed. The emergency switch (S21 or S22) will send a signal to a safety relay, which switches off the control and therefore the electric motor. This prevents any consequential damage occurring to the driven system.

MOUNTING

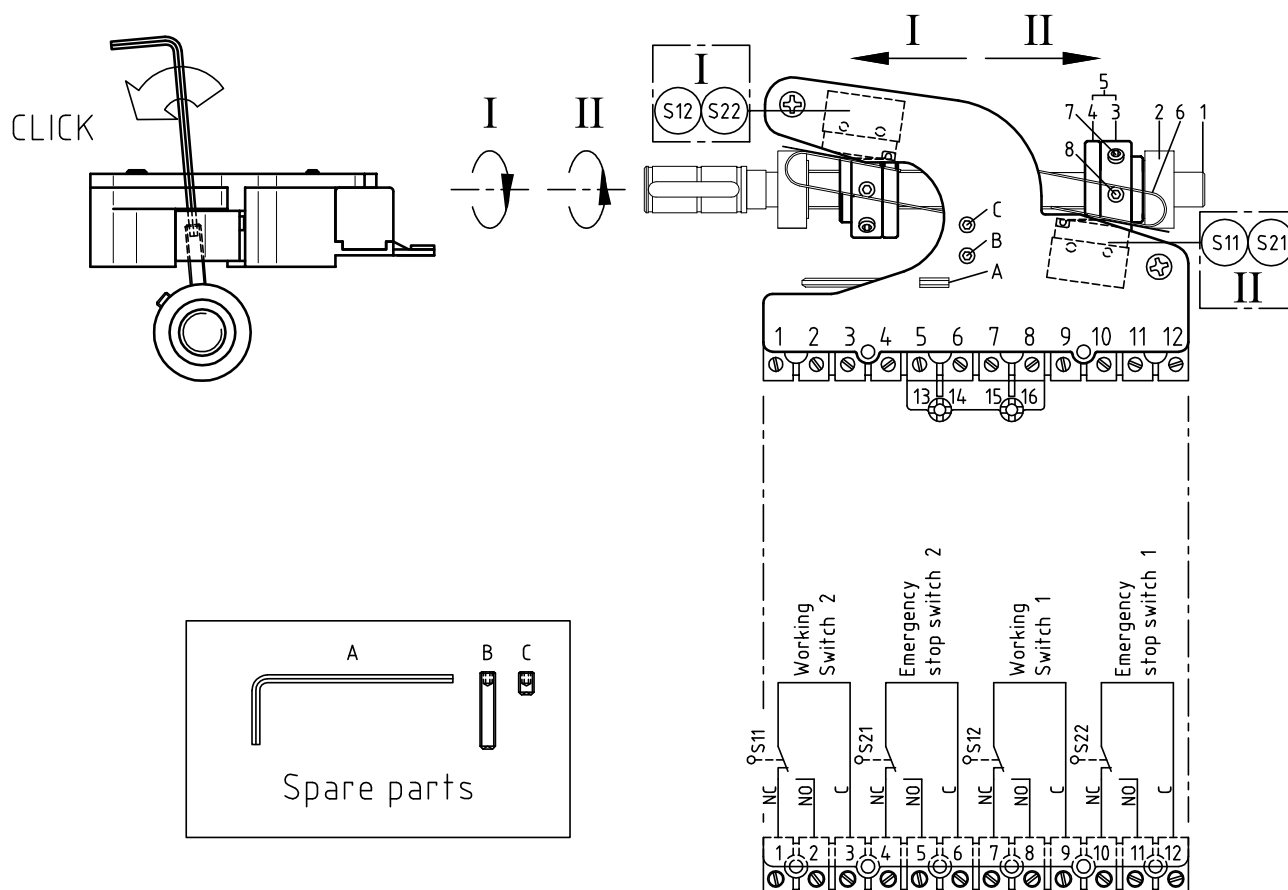
The following points must be taken into account when mounting the limit switch:

1. Place the limit switch under the black plastic cover of the motor gearbox.
2. Place the limit switch in the position intended for the switch, above the clutch shaft.
3. Ensure that the set screw (B) can push the switch spring (6) of the operating switches (S11 or S12). This means that the set screw (B) must always be positioned between the switch spring (6) and the operating switches (S11 or S12).
4. Tighten the cross-slotted screws by hand.

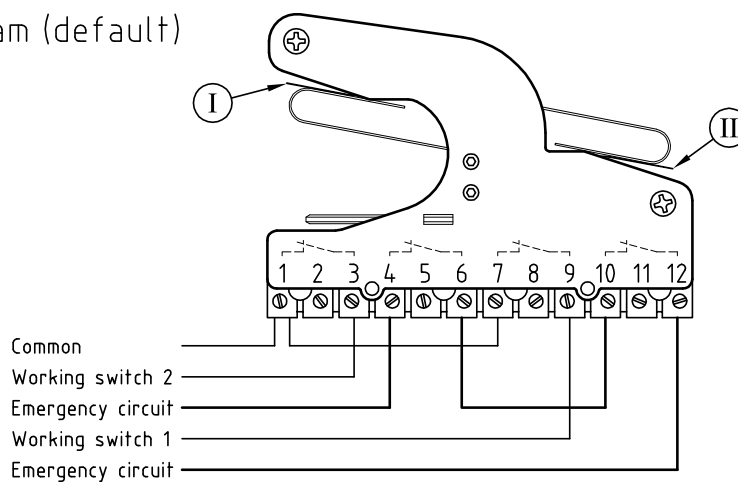
ADJUSTING THE LIMIT SWITCH

The following steps must be adhered to when adjusting the limit switch system:

1. Remove the black plastic protective cover of the motor gearbox. The limit switch is now visible.
2. Check that the adjusting rings (3) on the knurled nut are loose (4), so that the knurled nuts (4) can easily be turned by hand on the screwed spindle (1).
3. Determine which operating switch (S11 or S12) should switch in the starting and limiting position. This can be done by rotating the shaft of the electric motor. To do this place a hexagonal pin-face wrench in the shaft of the motor. During rotation of the shaft the switch nuts (5) move linearly over the screwed spindle (1) in the direction of an operating switch (S11 or S12). The relevant operating switch (S11 or S12) limits the system in the selected direction of rotation (left or right) of the shaft of the electric motor.
 - *Note:* To rotate the shaft of the electric motor a drill with a hexagonal broach can also be used. To prevent damage to the hexagon in the shaft, the drill must not exceed a maximum of 250 revolutions per minute.
 - *Tip:* In order to avoid errors, mark which operating switch will limit the starting position and the limiting position.
4. Bring the system to its extreme starting position by rotating the shaft of the electric motor.
5. Turn the knurled nut (4) against the stop (2) in the direction of the operating switch (S11 or S12) which limits the starting position, determined under point 3.
6. With the aid of the wrench (A) rotate the adjusting ring (3) over the knurled nut (4) until the operating switch (S11 or S12) switches. A single soft click will be audible (see Fig. 2).
7. With the wrench (A) fasten the adjusting ring (3) onto the knurled nut (4) by tightening the set screws (7 and 8), so that the adjusting ring (3) cannot be rotated any further over the knurled nut (4).
8. Bring the system to its extreme limit position by rotating the shaft of the electric motor.
9. To adjust the limit position repeat steps 5 to 8.
 - *Note:* Replace the hexagonal wrench (A) in the limit switch. It is important that the short side is facing downwards.
10. Store the bag containing the instructions for adjustment outside the limit switch system.
 - *Note:* Do not store any loose parts beneath the black plastic protective cover, as this can cause damage to the limit switch system.
11. Replace the black plastic protective cover on the motor gearbox.



5 Wire connection diagram (default)



APPLICATION

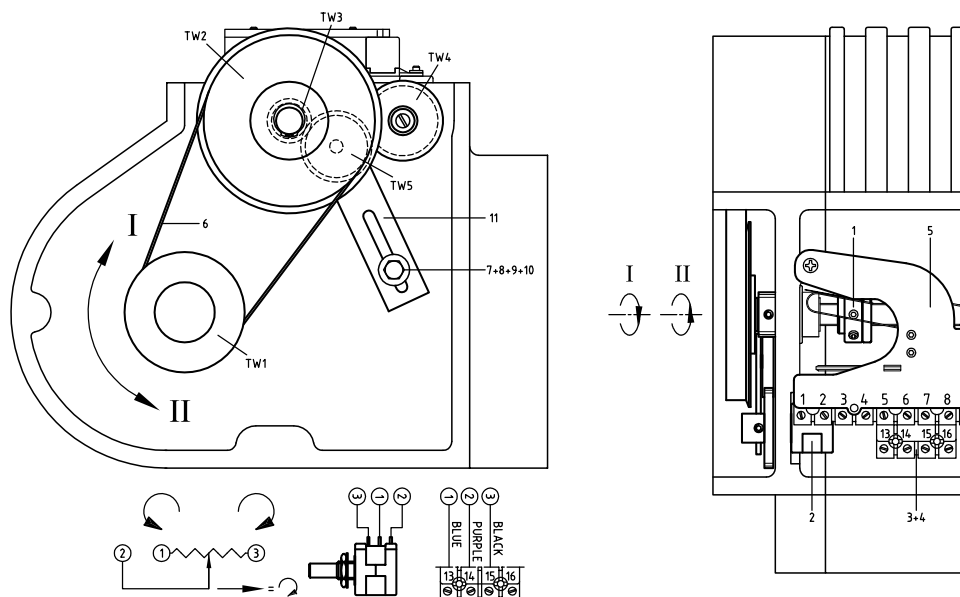
- The potentiometer set is solely intended for use in GW motor gearboxes manufactured by De Gier B.V.
- The potentiometer has a maximum range of 10 revolutions and is available in resistance 0.5 k Ω , 1 k Ω , 2 k Ω , 5 k Ω and 10 k Ω .
- Operating temperature: +1°C to +60°C.

The clutch shaft (1) of the limit switch system is driven by the driven shaft of the motor gearbox, with a geared-belt transmission. Geared-belt transmission reduces the number of rotations of the clutch shaft to 9 revolutions of the shaft of the potentiometer. Depending on the transmission ratio this geared-belt transmission consists of 2 or 3 gears (if the geared-belt transmission consists of 2 gears, the clamp (11) and gear (TW5) are not supplied). The enclosed calculation must be used to calculate the correct transmission.

MOUNTING

The following steps must be adhered to when mounting the potentiometer set:

1. Remove the black plastic protective cover and the side plate of the motor gearbox. The limit switch system will be visible.
2. Slide the gear (6) from the plastic gear (TW2).
3. Remove the locking rings and the gear (TW2) from the clutch shaft (1).
4. Turn the M5 set screw (7) in the relevant tapped hole.
5. Attach the bronze nut (8) and fasten this clamp against the casing of the motor gearbox.
6. Mount the gear (TW5) onto the clamp (11).
7. Slide the clamp (11) and gear (TW5) over the set screw (7) and fasten the ring (9) and M5 nut (10). Do not fasten the clamp yet!
8. Loosen the limit switch (5).
9. Slide the connector block (3) over the synthetic clamp (4) and click them together under the limit switch (5).
10. Attach the potentiometer (2) and tighten the limit switch (5). Take care to use the correct fastening method.
11. Mount the gear (TW3) onto the clutch shaft (1).
12. Slide the gear (TW4) over the shaft of the potentiometer (2). Do not tighten this gear yet.
13. Place the gear (TW5) on the clamp (11) between the gears (TW3 and TW4) and fasten the clamp. The gear (TW5) must be pushed very lightly against the other gears. The gear transmission must be supple and light.
14. Attach the locking rings and the gear (TW2) to the clutch shaft (1).
15. Slide the gear (6) over the gear (TW2).
16. Adjust the limit switch system (see instructions).
17. Adjust the potentiometer and fasten the gear (TW4) onto the shaft of the potentiometer (2).
18. Fasten the side plate and the black plastic cover.

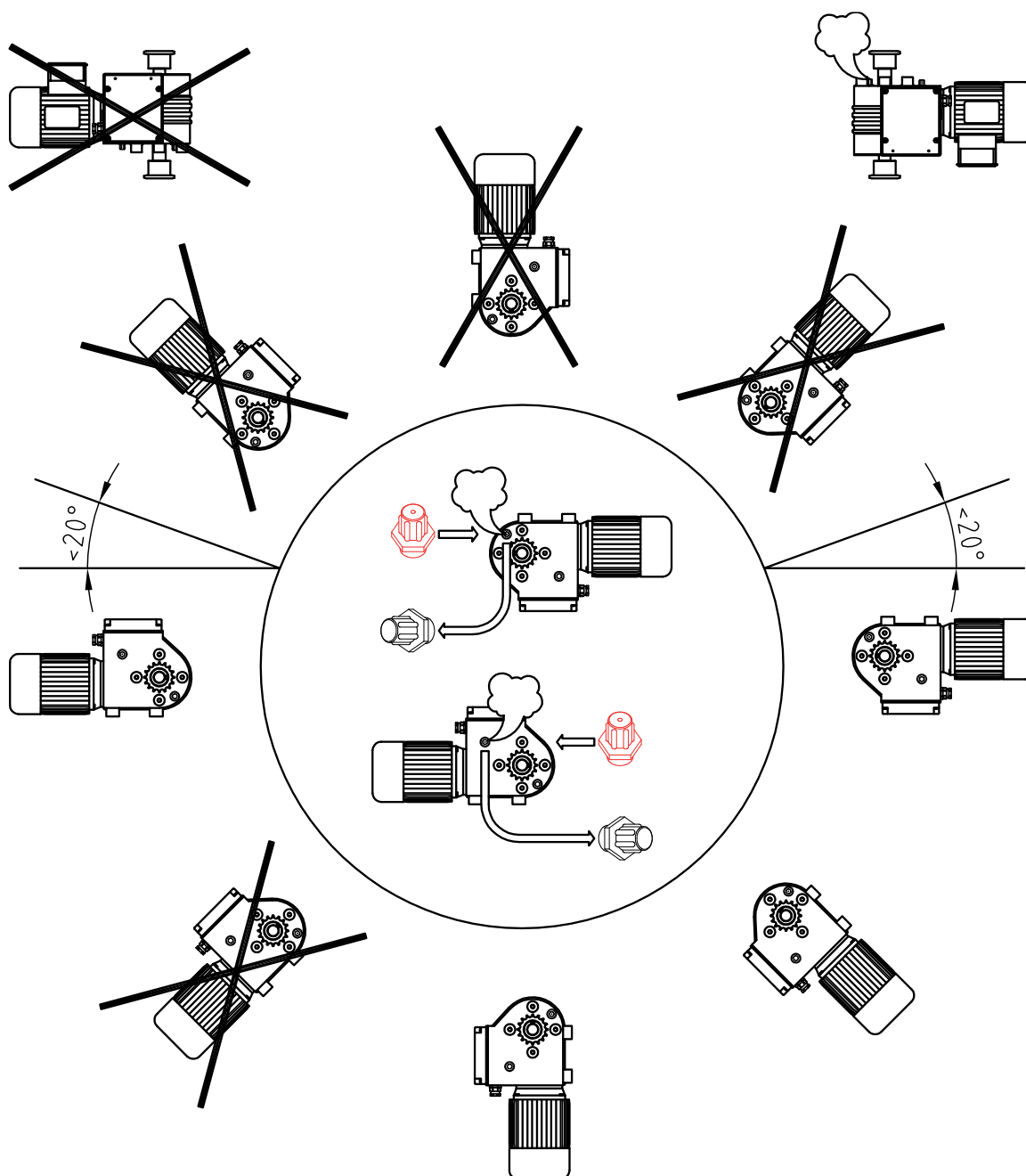




Voltage on limit switch [V]	Minimum current [mA]	Maximum current [A]
230	50	1.5
24	200	0.5

MOUNTING POSITIONS FOR GW10, GW30, GW40 and GW80

- Only mount the motor gearbox in one of the permitted positions.
- Retain approx. 50 cm above the black hood for adjusting the limit switch system.
- Retain approx. 30 cm behind the electric motor for access in the event of loss of power, in order to drive the motor gearbox manually or with a drill (maximum revolutions 250 rpm).
- Replace the top black plug with a red vent plug. Always mount the vent plug in the highest position (see circle in figure below). When changing the plugs, position the motor gearbox with the plugs facing upwards to prevent oil spillage.
- Use a minimum of 3 steel bolts M10x16 (8.8 quality) for mounting.
- When mounting in a dusty or humid environment the motor gearbox must be placed in a housing.
- Operating temperature: -15°C to $+60^{\circ}\text{C}$.



INSPECTION AND MAINTENANCE

PERSONNEL

Inspection and maintenance must only be carried out by the personnel specified below:

Technical personnel from the installation company.

Persons who have received instruction from the installation company's technical personnel.

Important: Switch off the power supply when carrying out any work.

If falling objects pose any danger to personnel during the work, the work area must be closed off.

MOTOR GEARBOXES

MAINTENANCE INTERVALS

EVERY MONTH

Check for oil leaks on the outside of the motor gearbox and around the mounting area. In case of leakage, inform the installer.

HALF-YEARLY

Check for any increase in noise production. In case of an increase in noise, warn the installer. Lubricate the chain couplings with a lubricant with a viscosity ratio equal to that of an SAE oil.

ANNUALLY

Check if the motor gearbox mounting plate and bolts are securely fastened.

Check if the couplings are still in good order and not worn or rusted.

Check the limit switch system for rust.

Check that the set screws on the limit switch system are tight.

Check the electrical connection of the motor gearbox and the limit switch system.

RACK BOXES

MAINTENANCE INTERVALS

HALF-YEARLY

Check for any increase in noise production. In case of an increase in noise, inform the installer.

Check the shape of the teeth of the gear rack and gears. In case of damage inform the installer.

Lubricate the gear rack and gears with De Gier THG grease.

Check the slide bearings. If any slide bearings are worn or broken inform the installer.

Lubricate the slide bearings with De Gier THG grease.

Lubricate the chain couplings with a lubricant with a viscosity ratio equal to that of an SAE oil.

ANNUALLY

Check that the fastening of the gearcase is tight.

Check if the couplings are still in good order and not worn or rusted.

MOTOR GEARBOXES: GW10, GW30, GW40 and GW80

- Standard GW gearcase oil: De Gier GW oil.
- Gearcase oil for hoisting motor gearbox: De Gier GW oil for hoisting gearboxes
- NOTE: Always place the vent plug in the highest position.

Standard motor gearbox		Hoisting motor gearboxes	
Motor gearbox type	Oil [litre]	Motor gearbox type	Oil [litre]
GW10	0,9	GW40HB, GW80HB	1,2
GW30	1,0	GW40HC, GW80HC	1,2
GW40, GW80	1,2	GW100HB	1,1
GW100	1,1	GW125 HC	1,1
GW110S, GW150S	1,1	GW150HC	1,1

Description	V [l]	Article number
Oil for GW-motorgearboxes	1,0	P.SME.GW.01
Oil for Hoisting motor gearbox	1,0	P.SME.GW.02

CHAIN COUPLINGS

- Chain coupling oil: SAE oil or similar grade.
- The lubricant must be applied on and between the chain rollers. Oil viscosity 80cST – 120cST at 20°C.

Temperature [°C]	Viscosity class
– 5 tot +25	SAE 30
+25 tot +45	SAE 40
+45 tot +65	SAE 50

RACK BOXES

- Grease: De Gier GW grease.
- The grease must be applied to the slide bearings, gears and gear racks.
- Maintenance interval: half-yearly.

Description	m [kg]	Article number
Grease for THG rack boxes	5,0	P.SME.THG5000

Lubrication instructions:

- Lubricate in the areas indicated: Slide bearings, pinion and gear rack.
- Lubricants: De Gier THG grease.
- Maintenance interval: Half-yearly.

