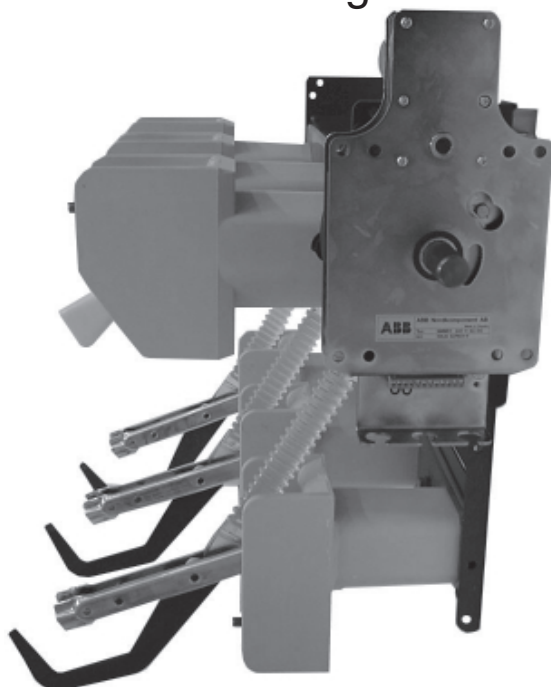


INSTRUCTION

Motor operation device NM 24...220

for NAL and NALF switch/switch fuse disconnecter

Designed for remote control.



Contents

1. General	1
2. Function	1
3. Technical data	1
4. Mounting	2
5. Operation	2
6. Additional equipment	3
7. Setting of shaft and drive coupling	4-5
8. Circuit and connection diagrams	6-7
9. Dimensions	8
10. Part numbers	8

1. General

The motor operating device can be mounted direct on the switch disconnecter or on the wall of the disconnecter cubicle.

The device operates either K or A mechanism. The KS mechanism have to be mounted at the manufacturers factory.

After each motor operation is the device mechanically disconnected and makes it possible to manually operate the disconnecter.

2. Function

The electric motor drives a gearbox that transfers power to the operating gearwheel.

The gearwheel tensions, through the disconnecter shaft, the spring in the mechanism on the disconnecter with a rotating angle of 150°.

The gearwheel starts from position S1 and moves to the end position S2 or end position S3 for charging the spring respectively way and then goes back to position S1.

3. Technical data

Voltage	AC/DC	24 V ±10 %	48 V ±10 %	60 V ±10 %	110 V ±10 %	220 V ±10 %
Current, <i>I</i>	<i>A</i>	3	1.5	0,8	0,8	0,4
Power consumption	<i>W</i>	70	70	45	85	90
Operating time	<i>sec.</i>	~4	~4	~8	~4	~4
Operating temperature	°C	-40 to +55	-40 to +55	-40 to +55	-40 to +55	-40 to +55
Signalling time	<i>sec.</i>	0.5-2.0	0.5-2.0	1.0-4.0	0.5-2.0	0.5-2.0
Weight	<i>kg</i>	6	6	6	6	6

Motor operating device NM 24...220 for NAL and NALF switch/switch fuse disconnectors

Please note!!

Be careful when mounting the device to avoid any injury from sudden movement of the switch disconnector or from the rotating gearwheel of the device.

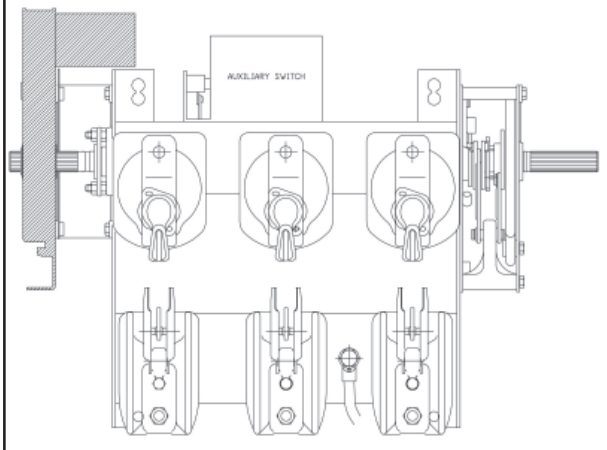
4. Mounting

The motor operating device is mounted on the left or right-hand side of the disconnector with a spacer bracket that must be ordered separately. The device is bolted on with two pieces or four pieces M8 bolts.

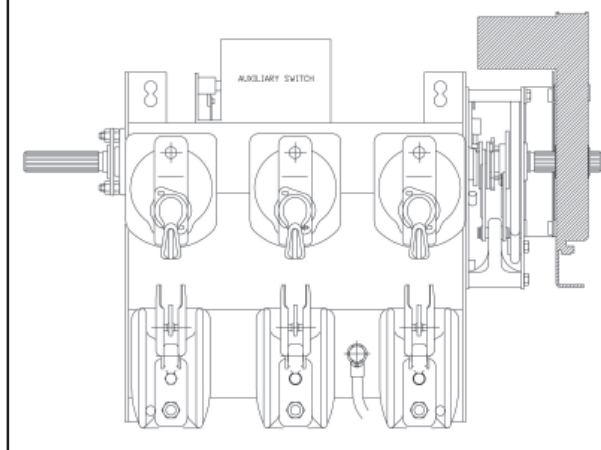
N.B. When mounting with mechanical interlocking between NAL and earthing switch, electrical interlocking is also to be carried out.

Examples of mounting alternatives

Alternative B (page 3–4)



Alternative A (page 3–4)



5. Operation

A. Manual operation

The motor operating device is mechanically disconnected in both open and closed positions. It is manually operated by using an operating handle to rotate the disconnector's shaft or its shaft extension, or else by using some other special type of manual operating device.

If a manual operating device is used, it should be of a type that does not automatically lock the device in its end position. See picture 10.

B. Motor operation

The motor operating device is operated electrically with ON and OFF pushbuttons or by remote control.

The motor operating device is ready for operation in all positions.

6. Additional equipment

Nut washer

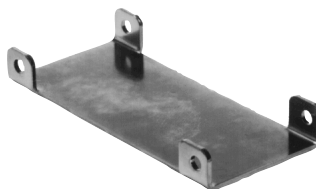
Mounting of the device can be made much easier by using the special nut washer. There is then no trouble with loose nuts.



Ordering number
5DLN527601-20

Spacer bracket

The spacer bracket permits an alternative mounting method. There are four sizes of bracket, for distances 39 mm, 55 mm, 85 mm and 105 mm.



Ordering numbers:

K-mechanism

39 mm	5DLN527601-21
55 mm	5DLN527601-22
85 mm	5DLN527601-23
105 mm	5DLN527601-34



A-mechanism

with space for microswitch
39 mm **5DLN527601-35**

Operating box

Enclosure of polycarbonate. For mounting of contactor units. Supplied with attachment plate. Light grey cover (RAL 7035). For flange openings, see dimensions on last page.

Note! Contact unit to fit contact plate.



Without lock
With lock

Ordering number
5DLN527601-49
5DLN527601-48

Rotary switches

Type ABG 10.



Without lock
With lock

Ordering number
5DLN527601-46
5DLN527601-47

Pushbuttons

Set of ON and OFF pushbuttons.



Ordering number
5DLN527601-45

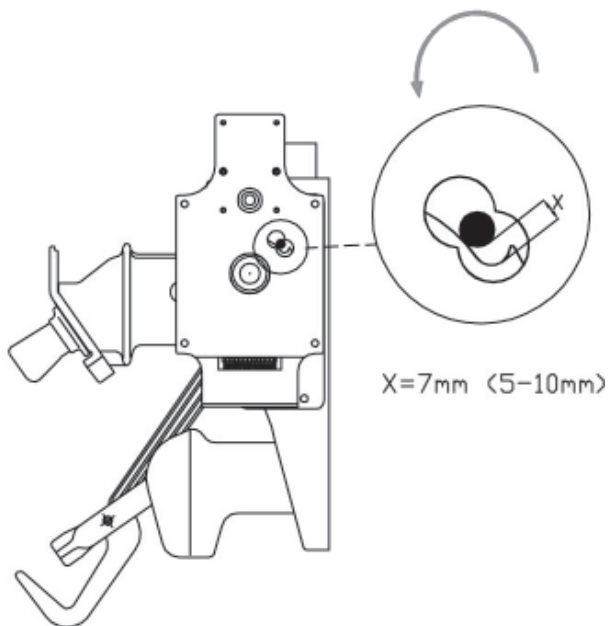
7. Setting of shaft and drive coupling

Alternative A A-mec.

Both springs uncharged.

Turn the operating shaft of the disconnecter anti-clockwise to set the tolerance to zero **before mounting** the motor device.

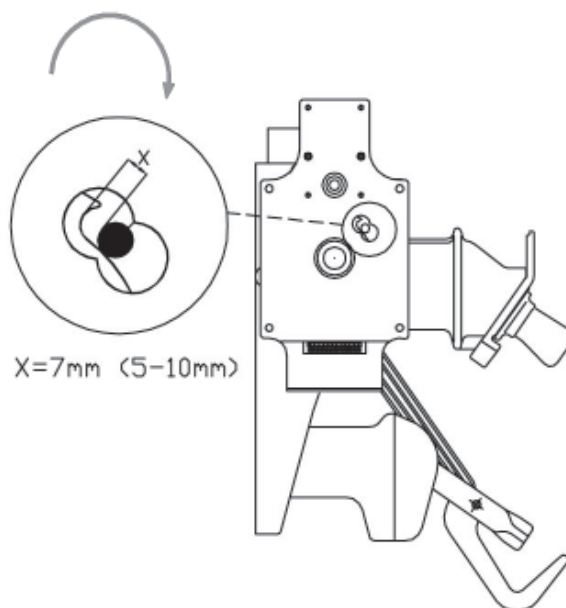
Distance X adjusted to ~7 mm (5–10 mm) **before mounting to the shaft.**



Alternative B A-mec.

Turn the operating shaft of the disconnecter clockwise to set the tolerance to zero **before mounting** the motor device.

Distance X adjusted to ~7 mm (5–10 mm). **before mounting to the shaft.**

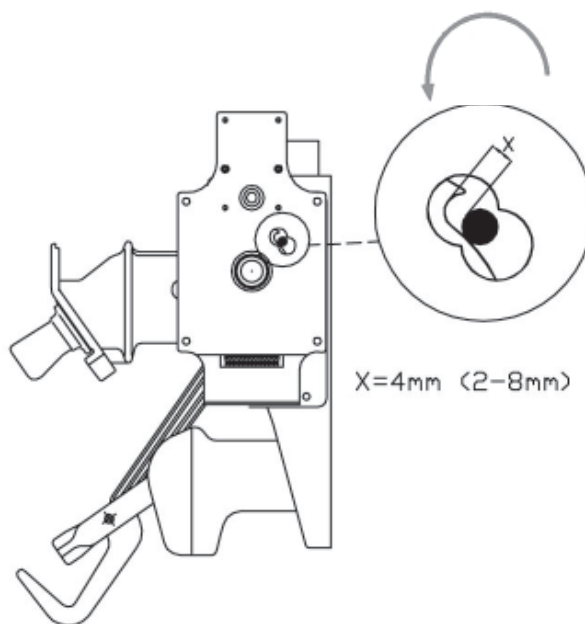


Alternative A K-mec.

The disconnecter in open position.

Turn the operating shaft of the disconnecter anti-clockwise to set the clearance to zero **before mounting** the motor device.

Distance X adjusted to ~4 mm(2–8 mm) **before mounting to the shaft.**

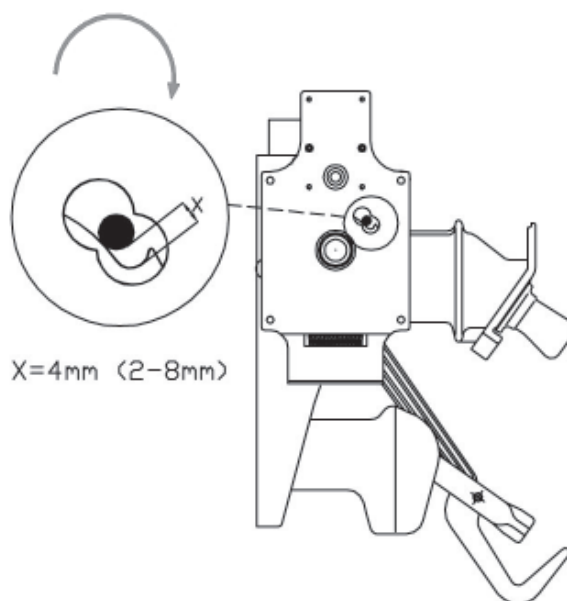


Alternative B K-mec.

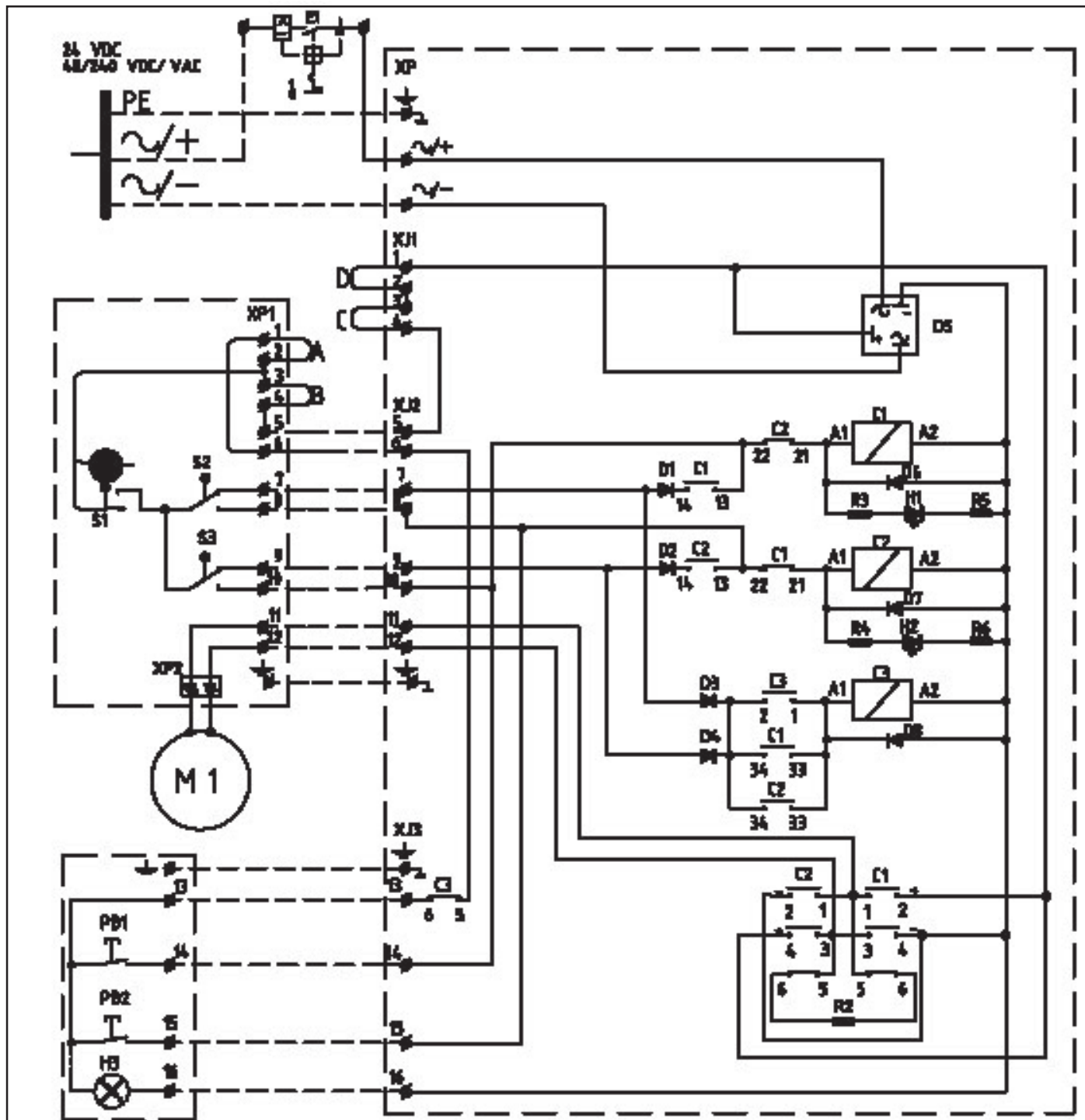
The disconnecter in open position.

Turn the operating shaft of the disconnecter clockwise to set the clearance to zero.

Distance X adjusted to ~4 mm(2–8 mm) **before mounting to the shaft.**



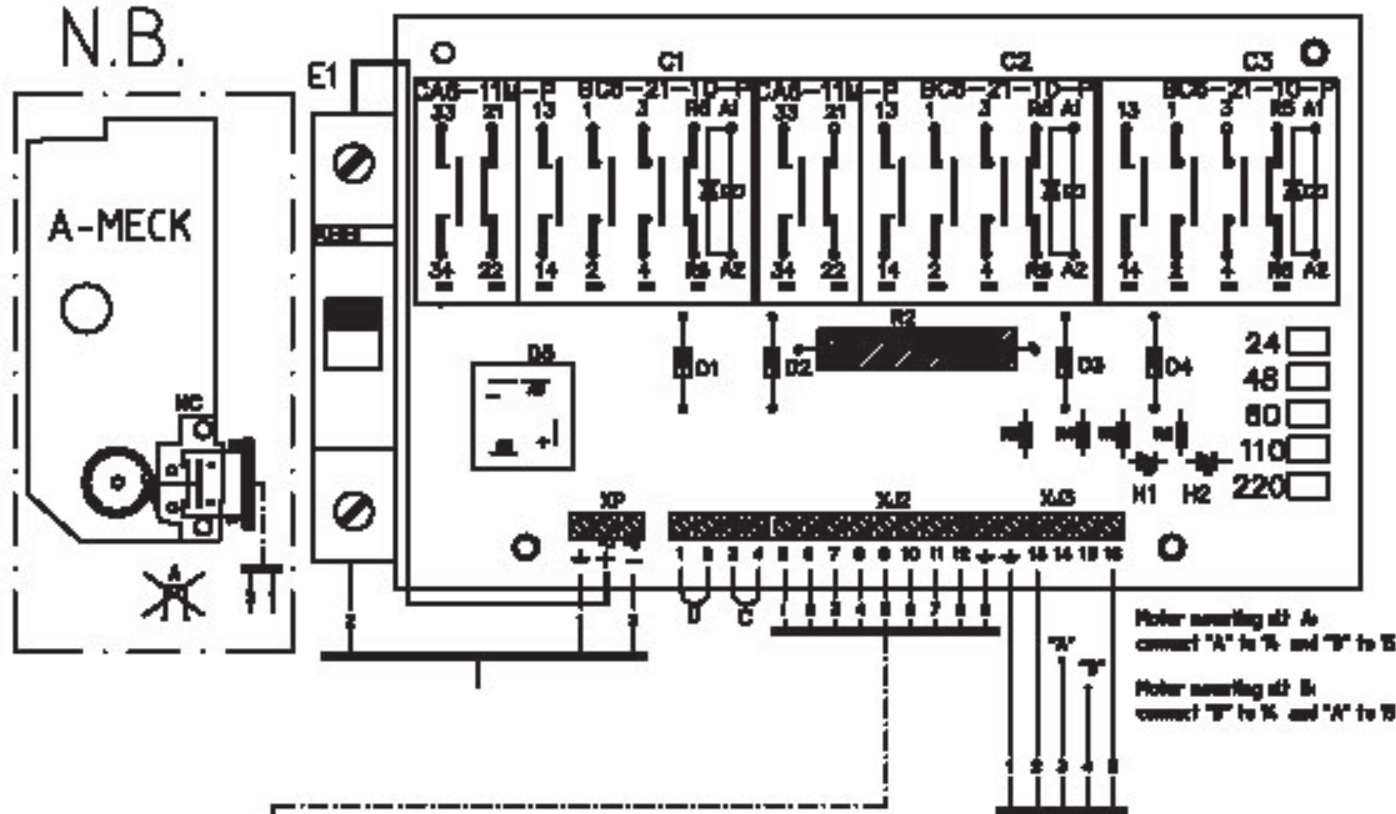
8. Circuit and connection diagrams



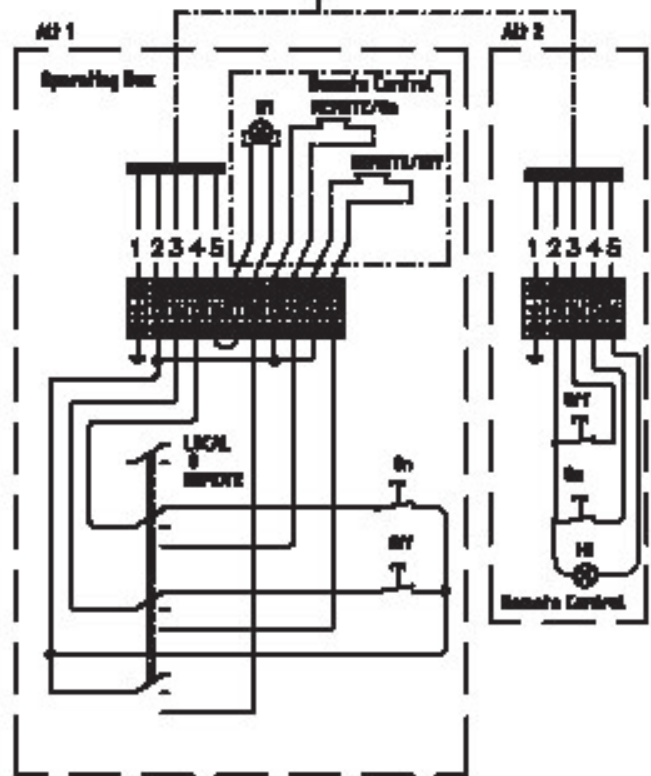
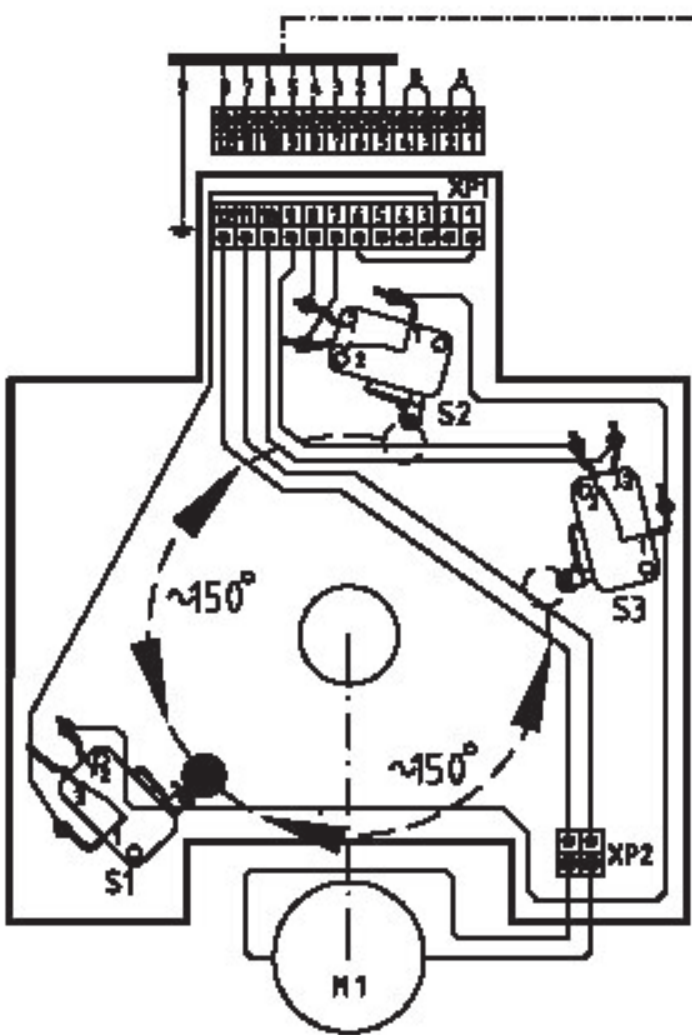
C1-C2 CONTACTOR WITH AUXILIARY CONTACTS
C3 CONTACTOR
R2-R6 RESISTOR
D1-D4 DIODE
D5 DIODE BRIDGE (not for 24v)
D6-D8 DIODE
XP1/XP2 TERMINATIONS FOR MOTOR
XJ1-XJ3 TERMINATIONS FOR CONTACTOR UNIT
M1 MOTOR
A CONNECTION FOR AUXILIAR SWITCH FOR FUSE INTERRUPTION
B,C,D CONNECTION FOR CUSTOMER INTERLOCKING

S1 MICRO SWITCH, START POSITION
S2-S3 MICRO SWITCH, END POSITION
PB1 PUSHBUTTON ON/OFF
PB2 PUSHBUTTON ON/OFF
E1 MINI CIRCUIT BREAKER
H1/H2 LIGHT DIODES
(H3 CONTROL LAMP "DEVICE OK")

N.B.



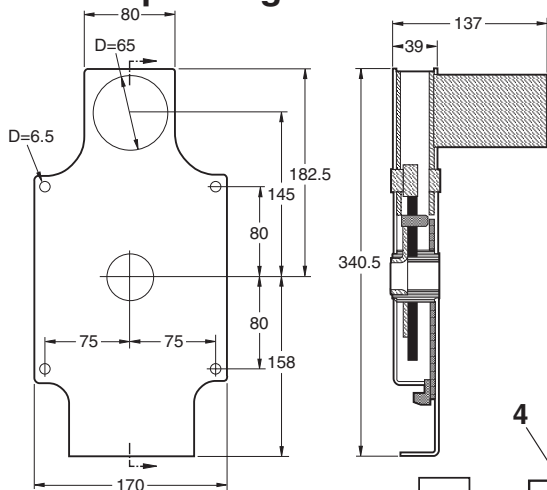
Motor winding at A connect 'A' to R and 'B' to S
 Motor winding at B connect 'B' to R and 'A' to S



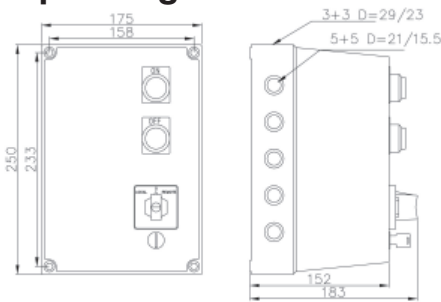
9. Dimensions

Dimensions in mm, The right is reserved to alter design, technical data and dimensions without previous notice.

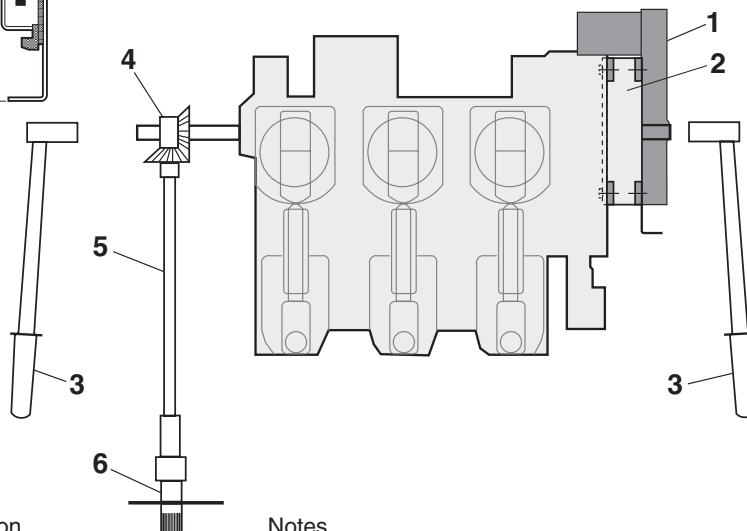
Motor operating device



Operating box



10. Part numbers



Pos no.	Part no.	Description	Notes
1	5DLN 527601-A 5DLN 527601-B 5DLN 527601-C 5DLN 527601-E 5DLN 527601-F	Motor operating device NM24 Motor operating device NM48 Motor operating device NM60 Motor operating device NM110 Motor operating device NM220	Complete with contactor unit. Complete with contactor unit. Complete with contactor unit. Complete with contactor unit. Complete with contactor unit.
2	5DLN 527601-21 5DLN 527601-22 5DLN 527601-23 5DLN 527601-34 5DLN 527601-35 5DLN 527601-34+35	Spacer bracket 39 mm Spacer bracket 55 mm Spacer bracket 85 mm Spacer bracket 105 mm Spacer bracket 39 mm Spacer bracket 105+39 mm	K-mec normal with mechanical interlocking for earthing switch. K-mec right hand side, 36 kV ¹⁾ A-mec for microswitch, mounting alternative A ¹⁾
3	NHPL 053235R1	Operating handle	Ordered with the NAL/NALF
4	NHPL 053362R1	Bevel gear	Ordered with the NAL/NALF
5	NHPL 053346/47R1	Connection rod	Ordered with the NAL/NALF
6	NHP 042249R4	Front bearing	Ordered with the NAL/NALF
7	5DLN 527601-48 5DLN 527601-49	Operating box with lock Operating box without lock	
8	NHPL 053390R1	Fusetrip indication	Ordered with the NALF

¹⁾ With mech. links locking for earthing switch.



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