

NORD-R Range 1500VDC (Deformable and reinforced contacts)

(39kA to 140kA)

Deformable Disconnect Switches

For more than 100 years, Mersen has been providing the market with safe, reliable and longer life time off-load disconnectors. These devices offer high performances and robustness for heavy duty requirements with very limited maintenance.

Mersen offers one of the largest product ranges on the market and is the global leader. Mersen has a switch solution that will meet your unique needs.

Our standard NORD High Current Switch product line is rigorously engineered to meet your technical specifications.

Operation : They can be operated manually, with a pneumatic piston or with an adapted motor (see list) up to 20.000 cycles.

Signaling, Terminal Box or Locking system can be studied and customized.

Power breaking capacity up to 100kA - 100V DC - L/R < 20msec. (on demand)

Acceptable ripple current at 2%

Indoor in a currentless state

Ambient air should not exceed +40°C (otherwise please consult)

Altitude should not exceed 1000 m

Relative humidity should not exceed 95%

Features Benefits

- Deformation of Busbar during Operation without need of Flexible connexion
- No Load operation
- Accept Busbar dilatation thanks to build-in deformability (Flexible joints are not necessary)
- Indoor Type - Horizontal or Vertical axis mounting offering very compact design
- Configuration with 1 or 2 poles, regular disconnecter or change-over
- Mechanical endurance 20.000 cycles (with respect to maintenance instructions)
- Connexion plates in Aluminium or Copper or mix (one side Copper, one side Aluminium)
- Large customization possible with :
 - connexion plate (length, fixing holes)
 - Manual, motor or pneumatic drives
 - auxiliaries switches, blocking magnets, locking devices
 - dimension fitting
- Typical temperature rise at nominal current 15°K above busbar (with 40°C max.)
- Temperature rise at nominal current is less than 65°K (with 40°C max. ambient temperature)
- Visible break by direct seeing of the mobile silver-plated copper contacts
- Mechanically independant mobile contact arms with high pressure springs
- Electrical contact with silver to silver contact which offer high short-circuit current withstand and Low and constant voltage drop
- Easy connections to Copper busbar by bolting or welding and self-supporting (Busbar must be sized to withstand the disconnecter additional weight)
- Large insulation and creepage distances using Fiberglass reinforced polyester insulators
- Residual current breaking capacity 10 A - 1500 V DC
- Power breaking capacity up to 50kA - 15 V DC - L/R < 20 msec (upon request)
- Punctual temperature withstand without equipment damages 140°C
- Upon request, possible association of two devices on the same drive
- Operation mechanism by a toggle closed system (bichromate galvanized steel)

Applications

- Power conversion with the possible functions to disconnect, or to change-over or to earth the rectifiers or the drives.



Standards

IEC 60947-3 and IEC 60077-1



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Technical data overview

| | |
|----------------------|--|
| Size per Standard | NORD-R 39kA to 140kA Aluminium or Copper type |
| Speed/Characteristic | Around 1 sec with pneumatic operation 3 to 12 seconds with motor operation (depend on the rating) |
| Number of Poles | 1 or 2 |
| Working Temperature | -20°C to +40°C |

Product range

Technical Data

| | NORD-R Range |
|---|---|
| Number of poles/phases | 1 |
| Degree of protection | IP 0 |
| Rated voltage DC | 1500 V |
| Voltage drop | 50 mV |
| Design | motorized on the right with 3 microswitches |
| Temperature rise at rated current (°K) | 65 ° K |
| Dielectric withstand between live parts and earth (50 Hz - 1 min) | 10 kV |
| Dielectric withstand between live parts in open position (50 Hz - 1 min) | 10 kV |
| Dielectric withstand between auxiliary contacts and earth (50 Hz - 1 min) | 2.5 kV |
| Dielectric withstand between motor and earth (50 Hz - 1 min) | 2 kV |
| Peak short-circuit current withstand - One pole configuration | 8 x nominal current |
| Deformability (Long / Tran / Axially) | 25 / 80 / 10 mm |
| Package | 1 |

NORD-R Range 1500VDC (Deformable and reinforced contacts)

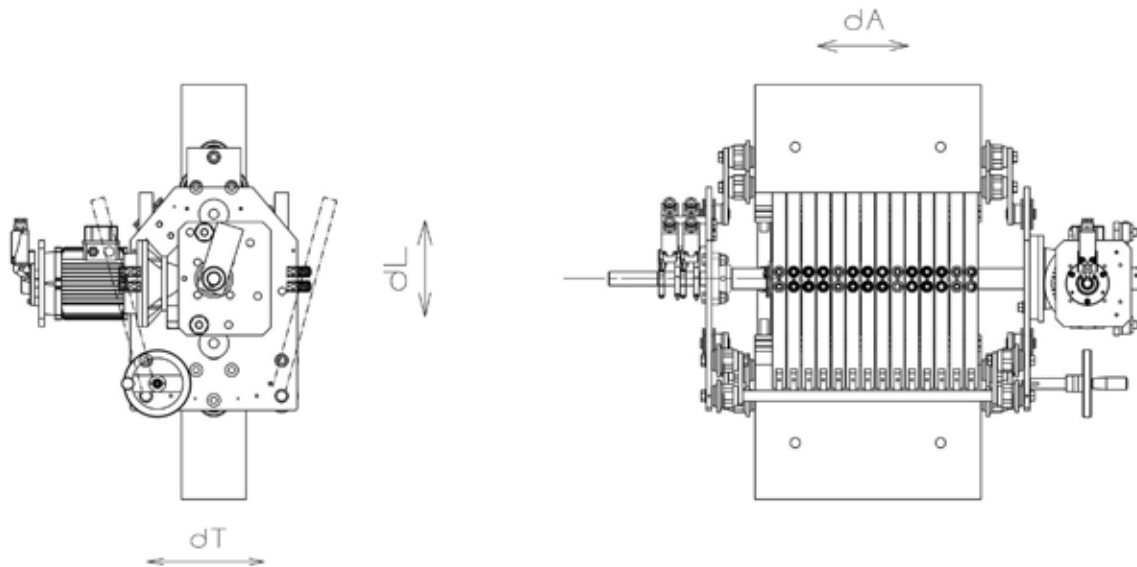
(39kA to 140kA)

Dimensions

NORD-R : DEFORMABILITY ILLUSTRATION

AXIAL - TRANSVERSAL - LONGITUDINAL

Max deformability 25mm - 80mm - 10mm

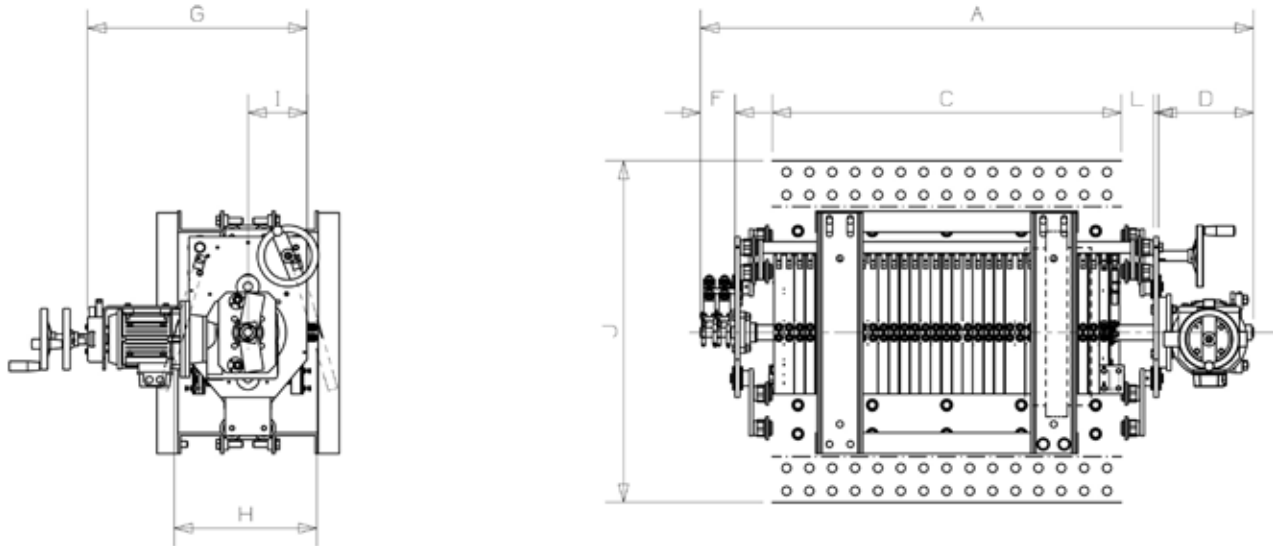


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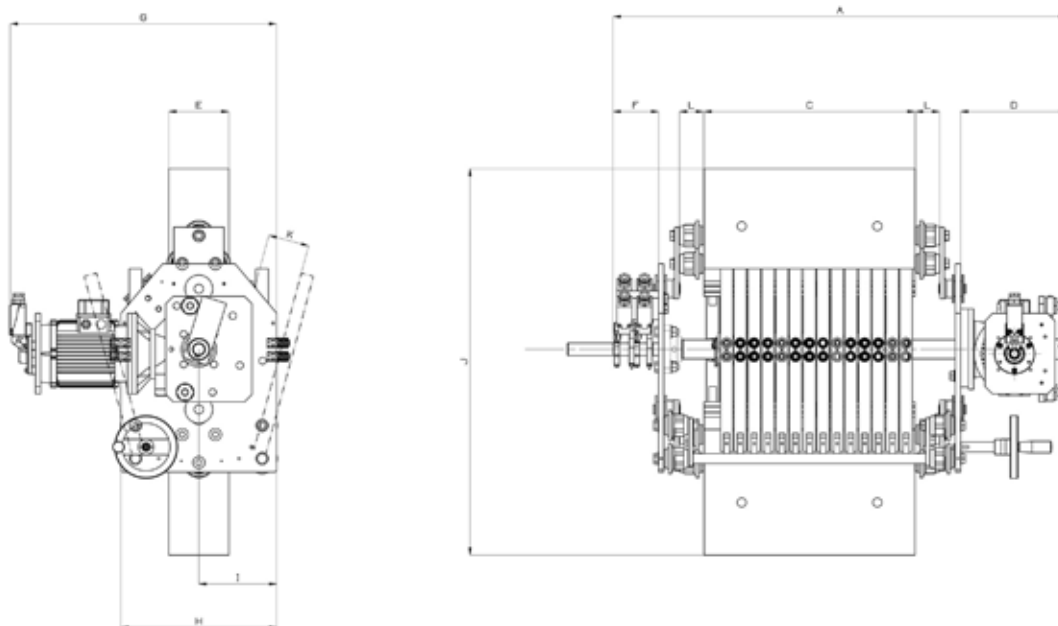
Dimensions

NORD-R (DEFORMABLE) COPPER



| Rated current | A | B | C | D | F | G | H | I | J | K | L |
|--------------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| 44,500 one pole; 2 faces | 572 | 225 | 450 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| 50,000 one pole; 2 faces | 622 | 225 | 500 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| 56,000 one pole; 2 faces | 672 | 225 | 550 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| 61,500 one pole; 2 faces | 722 | 225 | 600 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| 67,000 one pole; 2 faces | 822 | 225 | 700 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| 78,000 one pole; 2 faces | 972 | 225 | 850 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| 89,000 one pole; 2 faces | 1072 | 225 | 950 | 197 | 140 | 616 | 480 | 240 | 560 | 85 | 61 |
| For Higher Current Rating please ask | - | - | - | - | - | - | - | - | - | - | - |

NORD-R (DEFORMABLE) ALUMINIUM

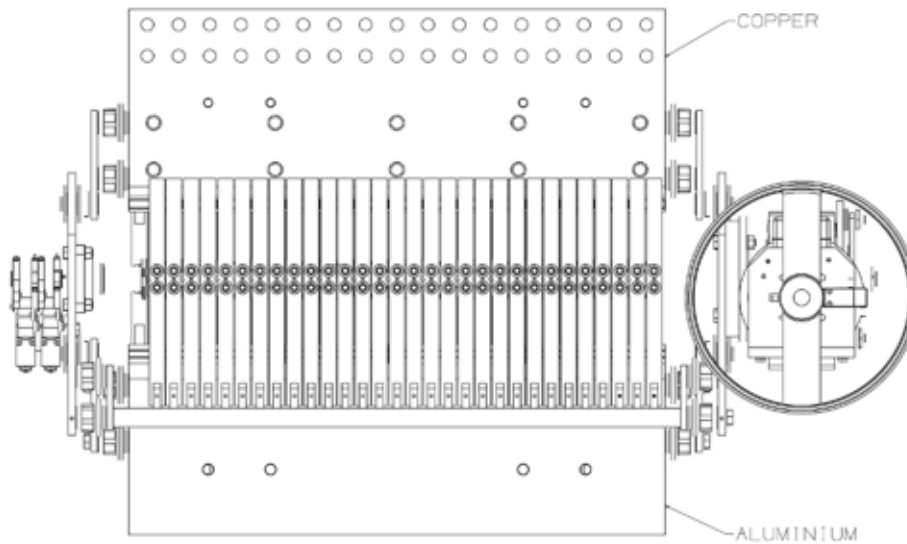


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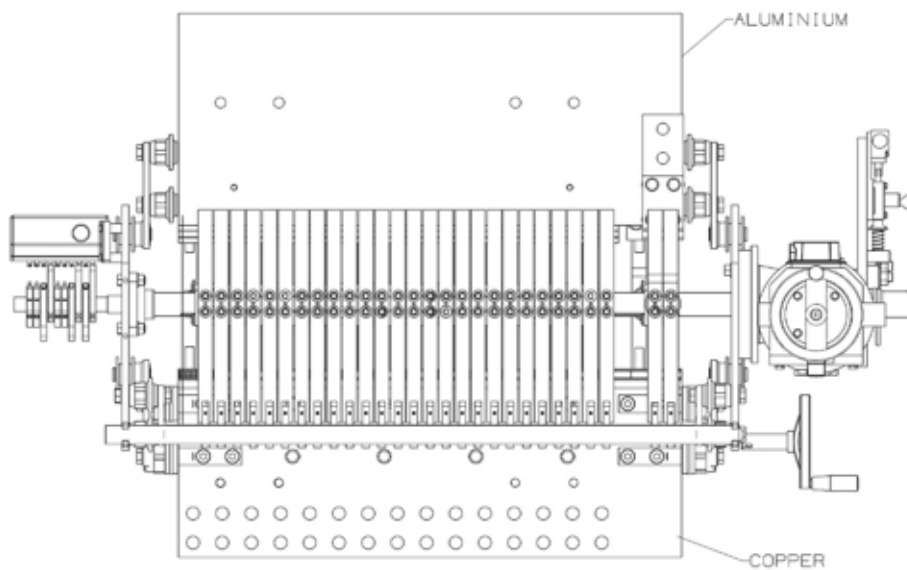
(39kA to 140kA)

Dimensions

NORD-R (DEFORMABLE) ALUMINIUM - COPPER



NORD-R (DEFORMABLE) COPPER - ALUMINIUM



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Functions



Sacrificial contact

Sacrificial contact for residual current up to 10 Amp as total under 1'500 VDC



Load Breaking contacts

Load Breake capacity contacts up to 50'000 Amp under 15 V DC max (please consult)



Earthing contacts

Earthing contacts to have a earthing position (NOR Aluminium Only)



Customized signaling

This range can be equipped with micro switches offering 10 Amp under 400VAC (or DC13 110VDC 0,5Amp) and 10 million cycles operation.

These microswitches are used to signal the switch position and also to cut the power of the motor when it arrives at the end of its operation.

The disconnectors can be equipped with 1, 2, 3 microswitches (more under study).

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Functions



Manual operation locking

The disconnector in this range have their position secured in Open and Closed (or both) positions using various locking systems for complete security.

- Padlocking (1 padlock diam 6mm)
- Key locking using preferably a Ronis Lock
- Blocking Magnets



Blocking magnets

Blocking magnets are used to guarantee electromechanically the position of the Disconnector using remote control. This operation can be done for one or both position (open and closed).

Blocking magnet can be used missing Voltage or Voltage can be 24VDC, 48VDC, 110VDC, 230VDC and 230VAC (consumption GE40; TGN15; TGN17 between 20 to 45W)



Connection box, Connection Terminal

This Disconnector range can be equipped with a wiring connection terminal or connection box.



Control box

This Disconnector range can be equipped with a control box to operate the disconnector (open and close).



Mechanical Operation Counter

This Disconnector can be equipped with a mechanical operation counter (one complete cycle (open and close) = 1) to watch maintenance operations

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Functions



In a Cubicle

Disconnectors can be protected in made to measure cubicles or under roofs



Torque Limiting system

Disconnectors can be protected by torque limiting systems to save the mechanism in case of faulty operation. This system is based on a clutch system



Remote Control

Possibility to operate the Disconnecter with remote motor with or without cardan pivot joint upon request

Accessories



W110902

Indication facilities

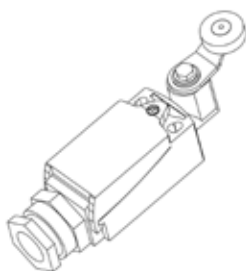
| Catalog number | Reference number | Length | Weight kg ¹⁾ | Package |
|------------------------------|------------------|--------|-------------------------|---------|
| MECHANICAL OPERATION COUNTER | W110902 | 63 mm | 0,50 | 1 piece |

1) weight in kg per piece or set including package

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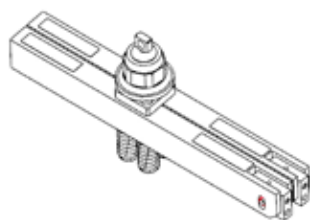
Accessories



J828422

Microswitches

| Catalog number | Reference number | Weight kg ¹⁾ | Package |
|---|------------------|-------------------------|---------|
| AUXILARY LIMIT SWITCH (NO+NC) | J828422 | 1,00 | 1 piece |
| AUXILARY SWITCH (NO+NC) CONTROL POSITION SAFETY | W907714 | 1,00 | 1 piece |



J821936

Supplementary poles

| Catalog number | Reference number | Rated current I _n | Weight kg ¹⁾ | Package |
|----------------------|------------------|------------------------------|-------------------------|---------|
| S/E NORD-R 50C 25/50 | H821935 | 2800 A | 5,6 | 1 piece |
| S/E NORD-R 50L 25/50 | J821936 | 2800 A | 5,6 | 1 piece |



D989141

Removable handles for emergency manual operation

| Catalog number | Reference number | Length | Weight kg ¹⁾ | Package |
|--------------------------|------------------|--------|-------------------------|---------|
| VOLANT D=100/14 | D989141 | 100 mm | 2,0 | 1 piece |
| S/E VOLANT EQUIPE PBD AC | C881638 | 105 mm | 3,0 | 1 piece |



J986984

Manual operation handles

| Catalog number | Reference number | Length | Weight kg ¹⁾ | Package |
|----------------------|------------------|--------|-------------------------|---------|
| MANUAL LEVER NOR 400 | A984400 | 400 mm | 1,8 | 1 piece |
| MANUAL LEVER NOR 600 | J986984 | 600 mm | 2,0 | 1 piece |

1) weight in kg per piece or set including package