MNS3.0
Front access Power Motor Control Center

- Two ACB per panel up to size E3
- Power cables connection from the front, wall-standing installation
- Double busbar position: upper and lower
- Power and control cables in the same compartment
- Compact motor feeder starting from size 8E/4 (H=200mm W=150mm)
MNS3.0
Granted performances

- 1.2 billion of MNS system installed in the world since 1973
- A long history of tests and certifications
- ASTA certification for internal arc proof up to 100 kA, 300ms at 690V
- Tested according Germanischer Lloyd
- Shock and vibrations test (IABG)
- Seismic test for safety area in nuclear power plants (DLR)
MNS3.0
Electrical performances

- Rated Current: 6300A
- Rated peak withstand current \( I_{pk} \): 250kA
- Rated short time withstand current \( I_{cw} \): 100kA
- Arc fault containment: 100kA x 300ms
- Rated frequency: 50/60Hz
MNS3.0
Electrical performances

- Rated insulation voltage $U_i$ 1000Vac – 1500Vdc
- Rated operating voltage, $U_e$ 690 Vac – 750Vdc
- Rated impulse withstand voltage 6/8/12kV
- Overvoltage category II / III / IV
- Degree of pollution 3
MNS3.0
Electrical performances

Main busbar
- Rated current 6300A
- Peak withstand current 250kA
- Short-time withstand current 100kA

Distribution busbars
- Rated current 2000A
- Peak withstand current 176kA
- Short-time withstand current 100kA
MNS3.0
Mechanical characteristics

Functional compartments column with ACB breaker

- Busbar
- Instrumentation
- Air circuit breaker
- Cable
MNS3.0
Mechanical characteristics

Functional compartments
MCC column
- Busbar
- Equipment
- Cable
The cubicles structures and the busbars are fixed with special screw and ESLOCK bolts

Maintenance free!
MNS3.0
Mechanical characteristics

Main busbars position
- Upper
- Lower
- Upper & Lower (double busbars system)

Busbar Treatment
- Bare
- Silvered
- Sleeved
MNS3.0
Mechanical characteristics

Busbar front access allow wall standing installation and special layout with reduce footprint:

- Back to back: two separated busbar compartments
- Duplex: one common busbar compartment
Multifunction wall:

- Segregation and insulation of the distribution busbars
- Segregation of the main busbar from the functional units
- Free Fault zone: sensible reduction of possible to have an internal arc
- IP2X guarantee also with drawers removed
MNS3.0
Mechanical characteristics: from IP20 up to IP54

First digit: protection against solid foreign objects
- 0 = No protection
- 1 = solid bodies > 50mm
- 2 = solid bodies > 12mm
- 3 = solid bodies > 2.5mm
- 4 = solid bodies > 1mm
- 5 = dust protected

Second digit: protection against Water
- 0 = No protection
- 1 = vertically dripping water
- 2 = dripping water (15° tilted)
- 3 = sprayed water (60° tilted)
- 4 = splashing water (all direction)
MNS3.0
Mechanical characteristics: segregation form up to 4b

Form 4b: segregation of the busbars from functional units and between functional units; segregation of the terminals from the functional units and from the busbars; the terminal for external conductors are in the same compartment as the associated functional unit.
MNS3.0
MCC Cubicles

Wide range of solution

- Fix modules
- Removable modules (SlimLine)
- Withdrawable modules
### MNS3.0

**MCC Cubicles**

<table>
<thead>
<tr>
<th>Switch Position</th>
<th>Module position</th>
<th>Main and auxiliary circuits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ON</strong></td>
<td>insert</td>
<td>All main and control circuit are connected</td>
</tr>
<tr>
<td><strong>OFF</strong></td>
<td>insert</td>
<td>All main and control circuit are disconnected</td>
</tr>
<tr>
<td>Can be locked with 3 padlocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEST</strong></td>
<td>insert</td>
<td>All main circuits are disconnected, the control circuits are connected</td>
</tr>
<tr>
<td>Can be locked with 3 padlocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MOVE</strong></td>
<td>Insert / insulated / removed</td>
<td>All main and control circuits are disconnected</td>
</tr>
<tr>
<td><strong>ISOLATED</strong></td>
<td>The module is 30mm draw out of the cubicle</td>
<td>All main and control circuits are disconnected and the isolating distance is fulfilled</td>
</tr>
<tr>
<td>Can be locked with 3 padlocks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Friendly use:** all the operations are made with only one switch keeping the highest safety standard
Modularity and flexibility

- Interchangeable modules
- Possibility to modify the modules layout with reduce “out of Service” time
- Modules for industrial drives and Soft starters
- Reactive power compensation modules
MNS3.0
Unit equipped with variable Speed Drive

- MNS offer feeders equipped with variable speed drive type ABB ACS 850
- Withdrawable execution up to 55kW, fix version up to 200kW
- Reduction of the plant consumption through the motor speed control: A pump or fan running at half speed consumes only one eighth of energy.
Possibility to install intelligent modules inside the withdrawable units

Like the ABB M102, a unit complete of
- Protections (26, 27, 37, 46, 49, 51LR, 66…)
- Measuring (A, V, Hz, kW, kVA, kWh….)
- Communication (Profibus DP, Modbus RTU)
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