Low Voltage Switchgear
MNS *i*S with MS*peed*

Power and productivity
for a better world™

Even better

Introduction

Variable Speed Drive (VSD) is the established technology for efficient operation and control of electric motor. It provides a system by which the voltage and frequency of the power supplied to the motor can be varied and controlled. This helps customers to operate a motor precisely at the process need and to use energy more efficiently and thus lower the environmental impact.

In most practices, VSDs are powered from power feeders of switchgears or motor control centers and feed the electric motors downstream. The VSDs are commonly installed freely on the wall or in separate enclosures. Much effort is consumed for engineering, procurement, project management, commissioning and maintenance throughout the life cycle of switchgears and VSDs, particularly when the equipments are sourced from different vendors.

The Innovation

MNS *i*S now offers the first energy saving low voltage switchgear solution with the latest portfolio M*Speed*. M*Speed* is the innovative integration of the two cutting-edge technologies: MNS *i*S low voltage switchgear and ACS850 industrial drive. MNS *i*S with its distinguished safety features is renowned and preferred by the most demanding industries, while ACS industrial drive wins its rapport with robust design and energy conservation features. MNS *i*S with M*Speed* combines the best of the both and enhances plant safety, process efficiency and energy saving.

M*Speed* is precisely engineered in withdrawable and fixed techniques. The withdrawable technique is available up to and includes 45kW for 400V, and 55kW for 500V motors. It inherits the flexibility and features that are present in the MNS *i*S withdrawable motor starter design. The fixed technique is designed for motors up to 160kW for 400V, and 200kW for 500V systems. MNS *i*S with M*Speed* offers customers an unprecedented experience on managing the low voltage switchgear and VSDs.

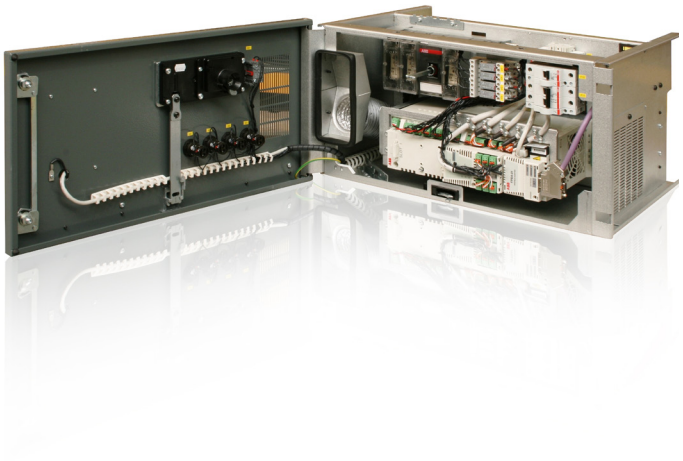
Why MNS *i*S with M*Speed* ?

- Single point purchase of MCC & VSDs
- Zero engineering and project management
- Ease of deal and cost saving
- Solution for speed and simplicity
- Eco-friendly

Safe and save

Why MNS *i*S with M*Speed* ?

- VSDs in withdrawable technique
- Practical and safe
- Tested and verified
- Inherent safety of MNS *i*S technology
- Complete solution package with ABB expertise



Higher Safety

Occupational health and safety performance (OHS) is the top priority and key performance measurement for every organization. MNS *i*S with M*Speed* deploys the best of ABB expertise and devices in supporting customers enhance the OHS performance.

In ensuring maximum human safety, MNS *i*S with M*Speed* is tested and verified according to IEC 61641 for Internal Arc Safety. This certifies the equipment's robustness to restrict the damage within the compartment where the arc flash accident happened. The assurance is further extended with the system rigorously type tested by third party test laboratories according to IEC 60439-1 and IEC 61439-2, and also fully verified according to IEC 61000 for Electromagnetic Compatibility (EMC).
MNS *i*S with M*Speed* is engineered and designed according to IEC 60947-4-1 which ensures short circuit device coordination. It is using ABB produced components only and thus guarantees customers the most optimized performance and highest quality

MNS *i*S with M*Speed* enables the new approach in operating and maintaining the VSDs. The functional unit at a single location alleviates the needs of operating and coordinating the physically separated power feeder at switchgear and VSD at a different location. Maintenance is made easier and safer with the power isolation clearly visible and secured at functional unit. The withdrawable technique ensures the maximum maintenance safety with the module being withdrawn and maintained away from the live bus. Last but not least, the safety is further enriched with the control and power compartments segregated.

ABB advocates correct starting methods for different types of industrial objects (pumps, fans) based on industry application and usage. This is a realizable way for energy saving in site electrical installations.

Energy Saving

The correct starting and operating methods for different types of industrial objects (pumps, fans) based on industry application and usage are the keys for energy saving.

Pump and fan applications are identified with biggest potential of energy saving. A pump or fan running at half speed consumes only one quarter as much energy as a unit running at full speed.

M*Speed* adjusts the speed of the equipment driven by the motor by altering the voltage and speed. The adjustment refers to the external production parameters, for example flow rate or temperature of the driven equipment. The energy saving is therefore realized by having the motor running at various speed following the production system requirements.

The ABB software tools "PumpSave" and "FanSave" are available to assist customers in estimating the potential energy savings in the specific customer applications. The tools are available for download at www.abb.com/drives, link Drive PC Tools.

More savings, better efficiency

Why MNS *i*S with M*Speed* ?

Optimizing engineering, procurement, project management, operation and maintenance.

Lower Life Cycle Costs
Conventionally customers spend much time and effort in specifying, preparing and evaluating tenders, project managing, commissioning, operating and maintaining the switchgear and VSD, with the goal of costs optimization. Such dedications however do not guarantee the expected results particularly when there are different vendors at different locations with difference competencies involved.

MNS *i*S with M*Speed* offers the opportunity to work differently while delivering savings at every stage throughout the life cycle of the system. ABB renders professional project management on commercial and technical aspects reduces the risks and hours during engineering, procurement and project management. The design is highly standardized and customers can expect short delivery lead time. Only approved feeder factories perform the assembly and every assembled unit is factory tested under the stringent quality control process of our world-wide valid quality control system. The quality is safeguarded and therefore the installation and commissioning hours at site can be significantly reduced. The highly standardized system also streamlines the spare part inventory.

Apart from the above, interconnecting cables between the switchgear and VSD are eliminated along with the cabling support and accessories. The VSD is no longer installed on the wall or in standalone enclosure allowing better flexibility and optimization in substation layout.

- New way of operating and maintaining VSDs.
- Common local monitoring tool for VSDs and Motorstarters
- Withdrawable units with VSD give high flexibility during operation

User Friendly Operation and Control
The withdrawable technique of M*Speed* offers high flexibility during operation. Faulty units can be withdrawn and replaced with lowest mean time to repair (MTTR) to maintain high process availability.

MNS *i*S with M*Speed* seamlessly integrates as a single communication connection to process controller. No separation of process controller is anymore required for communication with switchgear and VSDs.

Web based local human interface M*View* provides the essential access to both the starters and VSDs locally at substation. In addition to the local operation panel, software tool “DriveStudio” supports the remote monitoring and management at a convenient location in the control room.

Quick start up, guided maintenance

Why MNS *i*S with M*Speed* ?

- Ready to use standardized modules
- No extra Power Feeder or intelligent module required
- Faster delivery lead time
- Space saving
- Project supervision and local site support.
- VSDs in withdrawable technique
- Practical and safe
- Tested and verified
- Inherent safety of MNS *i*S technology
- Complete solution package with ABB expertise.

Swift Commissioning

No doubt, MNS *i*S with M*Speed* allows swift project commissioning. With ABB taking on the responsibility of the switchgear and VSD, the current practice of commissioning personnel coordinate among different vendors for troubleshooting is a thing of past.

MNS *i*S with M*Speed* eases and shortens the project commissioning phase. The system is tested and approved during the factory acceptance test ensuring proper operation, function and quality. The convenience of commissioning the functional unit at one location and software tools are the additional enhancements on commissioning experience. The reduction of commissioning and troubleshooting hours are easily recognized.

Easy Maintenance

MNS *i*S with M*Speed* is equipped with various diagnostics tools for supporting condition based maintenance. The temperature of the withdrawable M*Speed* outgoing power contacts and the insertion cycles are supervised. Alarms are triggered when major components require inspection and maintenance.

The single functional unit of M*Speed* proves to be invaluable for maintenance. Isolation is conveniently visible and there are less components for maintenance with the absence of the switchgear-VSD interconnecting cable and the accessories.

M*Speed* in withdrawable technique enables lowest mean time to repair (MTTR). The unit under maintenance can be withdrawn from the switchgear, and replace by a spare unit of same rating. The motor can resume running and thus maintain high process availability.

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