



# MNS – ACS800

## Switchgear mounted industrial drives

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AC Drives are factory assembled in enclosures and ready for installation in a normal industrial environment. In addition to the drives, various auxiliary equipment for control, safety and communication as well as filters to eliminate disturbances in the network are also often included.

Modern technological processes increasingly require, instead of constant-speed drives, speed-controlled drives which are controlled via the same fieldbuses and connected to the same process control station.

From the point of view of the plant's electricity supply, it is an advantage that the drives are installed in separate switchgear compartments with a common supply. The filtering of harmonics and elimination of disturbances can then be effected centrally. Thanks to the high level of standardization, the delivery times of switchgear equipped with drives are short.

## Installation in MNS switchgear

The drive with its auxiliary equipment can be installed in the MNS switchgear to form a drive center of one or several cubicles. These drive compartments can also be included in MNS MCCs.

A modern, field-bus controlled drive often requires additional components for functioning. Installation of the whole unit

in the factory guarantees fast and smooth installation and commissioning at site, as well as a suitable environment for sensitive equipment.

The MNS switchgear makes it also possible to build larger separate functional units, where all the drives required by the industrial process or its part can be located in one place. A switchgear can include drives of different sizes and a common AC supply. The installation of drives in the MNS switchgear is based on solutions designed and tested for these purposes, where attention has been paid to the space required for installation and maintenance.

The switchgear includes factory tested fieldbus and auxiliary circuit cabling as well as the drive supply cable. Switchgears also have common auxiliary voltage supply and the only cabling that has to be done on site is the motor cabling. In case of 690V solution, no cabling for du/dt filter is needed, either.

Integration of drives in the switchgear with communication via fieldbuses enables extensive factory acceptance tests (FAT), which shortens the times for testing and commissioning at site.

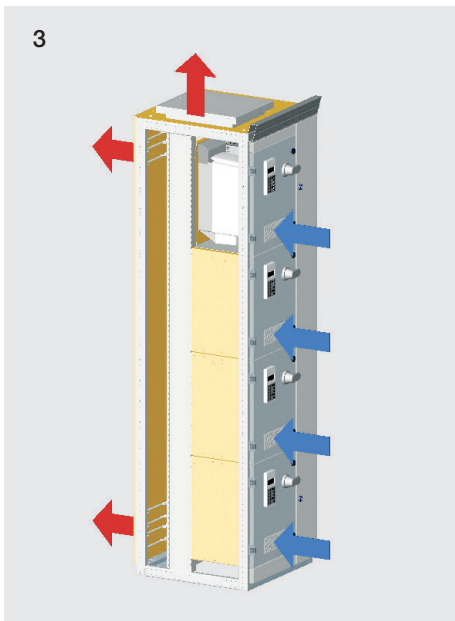
## Protection of motors in explosive atmospheres

MNS installations with ACS800 drives provide also a certified solution for the protection of motors intended for use in potentially explosive atmospheres.

1 Switchgear mounted industrial drives | 2 ATEX certified ACS800 drives



2 Switchgear mounted industrial drives | MNS – ACS800



3 Efficient cooling | 4 MNS low voltage switchgear

Such installations are equipped with CE type tested safety circuits which include an ATEX certified thermistor protection. The supply circuit of the drive is designed to meet the requirements of ATEX classification.

It has to be noted that the motors shall be equipped with PTC sensors according to the zone classification. An adequate marking is fixed on the cover of starters provided with ATEX certified drives.

#### Efficient cooling, longer lifetime

In MNS installations with drives special attention has been paid to ventilation. They are through ventilated, which means that the cooling air is taken in from the switchgear room and blown out as shown in the picture. Efficient cooling ensures a long working life-time for the equipment.

#### Segregated ACS800-solutions

The MNS solution with drives is equipped with cable compartments, which makes the cabling easy and safe. It also makes it possible to prepare for unusual cable sizes.

Each drive unit has its own main device switch-fuse. The operating handle of the switch-fuse interlocks the apparatus compartment door, when the switch-fuse is in the operating position. However, if the unit requires some procedures to be carried out such as measurement or adjustment, but without interrupting the power supply, the interlocking can be bypassed.

If required, the control panel of the drive can be mounted on the door of the apparatus compartment, so the setting of parameters can be done safely without opening the doors.

#### Drive unit data

Frame size	Rated power			Functional units		Quantity pcs/ cubicle
	400 V max. kW	500 V max. kW	690 V max. kW	Width mm	Height mm	
R2	1.5-5.5	2.2-7.5		400	500	4
R3	7.5-22	11-22		400	600	3
R4	22-30	22-37		400	1000	2
R5	37-75	37-90		400	1400	1
R6	75-132	75-160		400	2125	1
	160	200		600	2125	1
R7	110-160	132-200		600	2125	1
R8	200-400	250-500		400+800	2125	1
R4			11-30	400	2000	1
R5			45-55	400	2000	1
R6			75-110	400	2125	1
			132-160	600	2125	1
R7			132-160	600	2125	1
R8			315-560	400+800	2125	1

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