

SINUS MV+-16000-06-D

medium voltage variable speed drive SINUS MV
+- 6.0 kV - 16000 kVA



Main

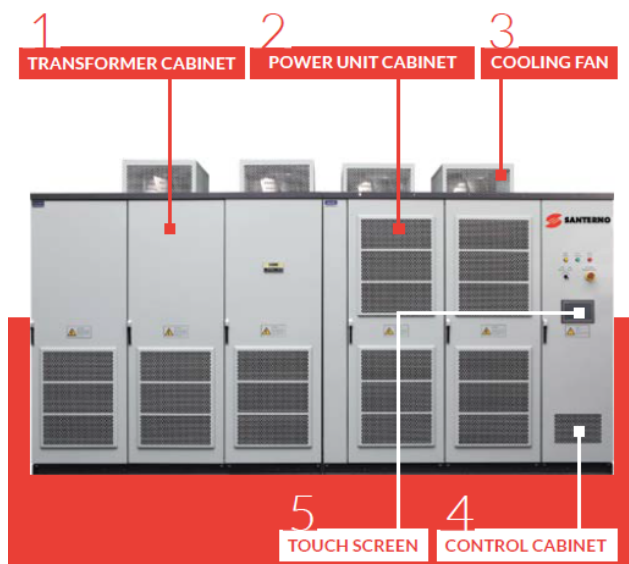
Range of product	SINUS MV
Product or component type	Medium voltage variable speed drive
Device short name	SINUS MV
Product destination	Asynchronous motors
Product specific application	Fan, pump, compressor, conveyor
Assembly style	In floor-standing enclosure with separate air flows

Complementary

Product composition	Enclosure Phase-shifting transformer Medium voltage arrestors Cooling fans Human machine interface Power cells (18) Plinth (2)
Number of cells	5 cells /per phase x 3 phases
Network number of phases	3 phases
Input type	30 pulse diode rectifier bridge
Output type	Transistor (IGBT)
[Us] rated supply voltage	6.0 kV
Supply voltage limits	(tolerance: -15%~+10%)
Supply frequency	50/60 Hz (tolerance: +/- 5 %)
[Uc] control circuit voltage	400 V or customized
Motor power kW	12800 kW
Line current	1540 A
Drive efficiency with transformer (including fan power)	>= 96 % (standard efficiency), >= 98 % (inverter section) >= 96.5 % (high efficiency)
Technology	Cell-cascaded multilevel PWM
Apparent power	16000 kVA
Modulation technique	SVPWM
Overload Capability	120% 2 minutes 150% instantaneous
Instantaneous over-current protection	150% protects immediately (or customized)

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Cell Type	690V/1540A
Cell Voltage	690V
Output frequency	0.0...120 Hz
Language	English / Russian / Spanish (Customized)
Acceleration and deceleration time	5s...6000s (load dependent)
Asynchronous motor control profile	V/f control (Optional: Vector control with Close loop/open loop, 4-quadrant operation with regenerative energy feedback)
Display type	10 inch touch screen HD display for operation function, status and configuration
Output voltage	6.0kV
Analogue input number	3
Analogue input type	4...20 mA, 2~10 V (excitation feedback 4~20mA/2~10V included)
Analogue output number	4
Analogue output type	4~20mA (two ways are fixed and the other two ways are optional)
Digital output number	8
Digital input number	8
Protection type	Overcurrent for drive Overvoltage for drive Undervoltage for drive Controller shutdown for drive Cooling fan stop for drive Overload for drive Over temperature protection for drive Communication failure for drive Phase loss for drive Ground fault protection for drive
Frequency resolution	0.01 Hz for output
Communication port protocol	DeviceNet (optional) Modbus (Integrated) Profibus (Integrated) Ethernet (Integrated)
Operating position	Vertical +/- 10 degree
Color of enclosure	Grey (RAL 7032) or customized
Width	14500 mm
Depth	1800 mm
Height	2400 mm
Product weight	22000 kg



Environment

IP degree of protection	IP31
Standards	EN/IEC 61800-3 EN/IEC 61000 EN/IEC 60757 EN/IEC 60721 EN/IEC 60076 IEEE 519 : 1992
Marking	CE
Dust	Non-conductive, no causticity <6.5mg/dm3
Noise level	<= 80 dB @meter
Vibration resistance	4.9 m/s ² (f=10...50 Hz)
Relative humidity	0...90 % 0...95 % (optional)
Ambient air temperature for operation	40...50 °C with current derating of 2 % per °C 0...40 °C
Ambient air temperature for storage	-40...70 °C
Type of cooling	Water cooling
Operating altitude	1000...2000 m with current derating 1% per 100 m <= 1000 m without derating

Integrated Dry Transformer

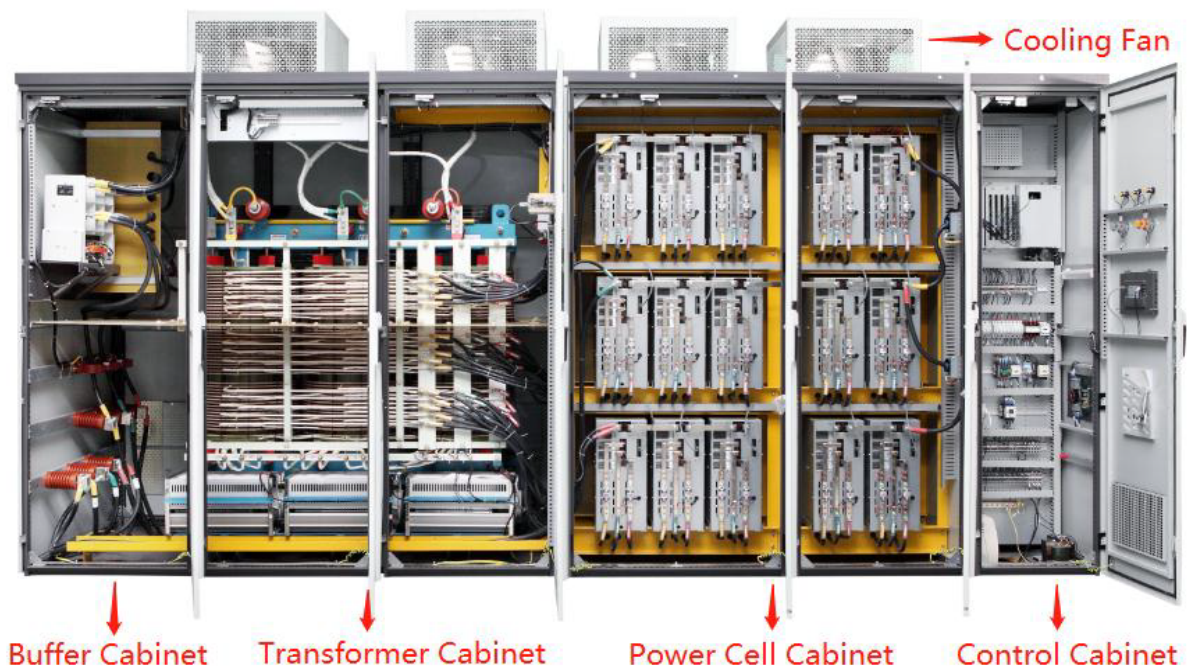
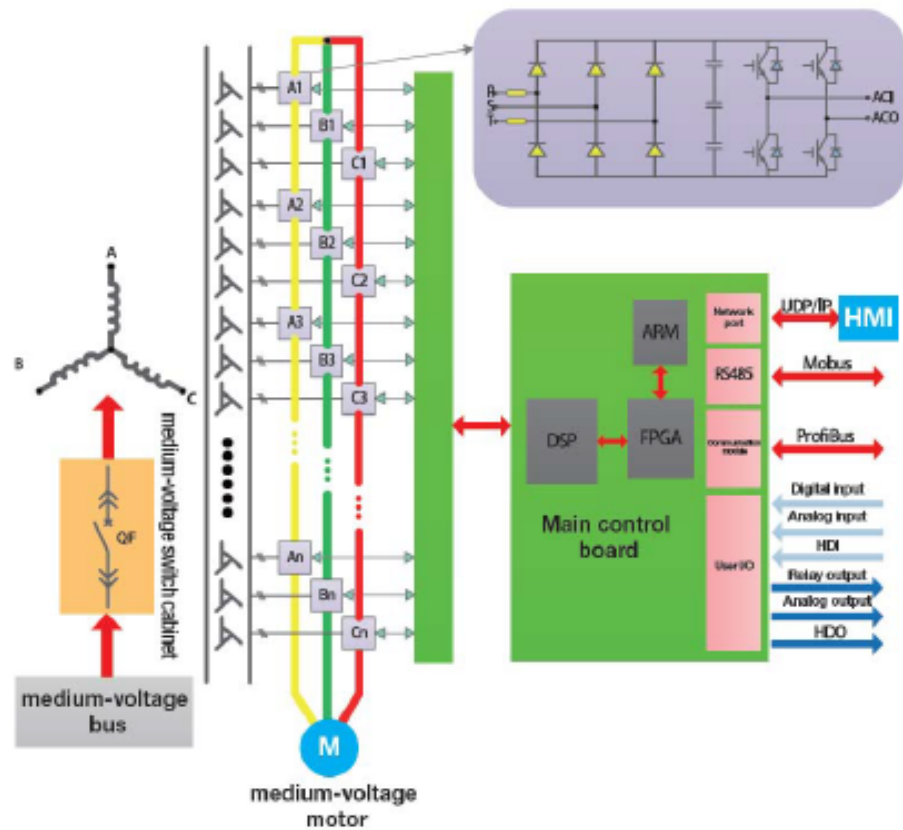
Rating	16000kVA
Input Voltage	6.0kV
Output Voltage	0.64kV
Type	Dry Transformer
Winding Material	Copper
Impedance	8%
Insulation/temperature rise	Class H/115°C
Type of cooling	Forced Air
Additional fittings: + 5% tapping	included

Main Components

IGBT	Fuji JAPAN or Semikron Germany or similar Brands
Rectifier	Semikron Germany or others Brands
Capacitor	EPCOS Germany or Similar
Fiber & Interface	Agilent, United states
Fan	EBM, GERMANY
Fiber & interface	Broadcom, United states
Opt Coupler	Toshiba, Japan
Relay & MCB	Schneider, FRANCE
CPLD	LATTICE, United States
DSP	TI, USA
IGBT Driver	AVAGO, USA
FPGA	Xilinx, USA
UPS	EATON , USA
MCU	ATMEL, USA
HALL	LEM, USA
TERMINALS	PHOENIX, GERMANY

Product data sheet

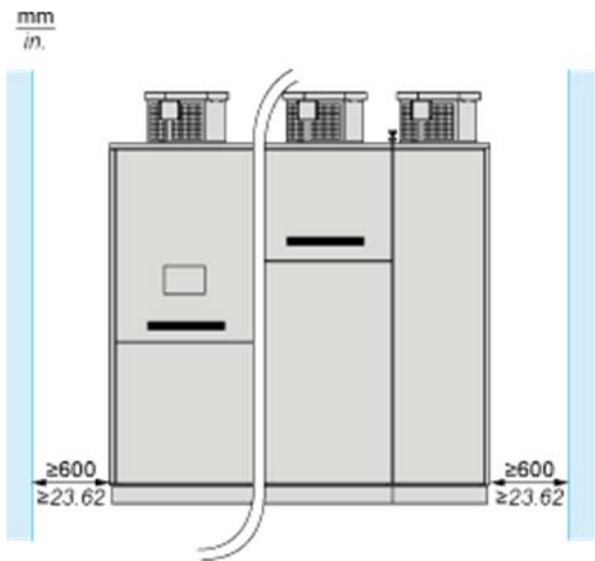
Topology diagram



Product data sheet

Mounting and Clearance

Clearance



Outline Drawing

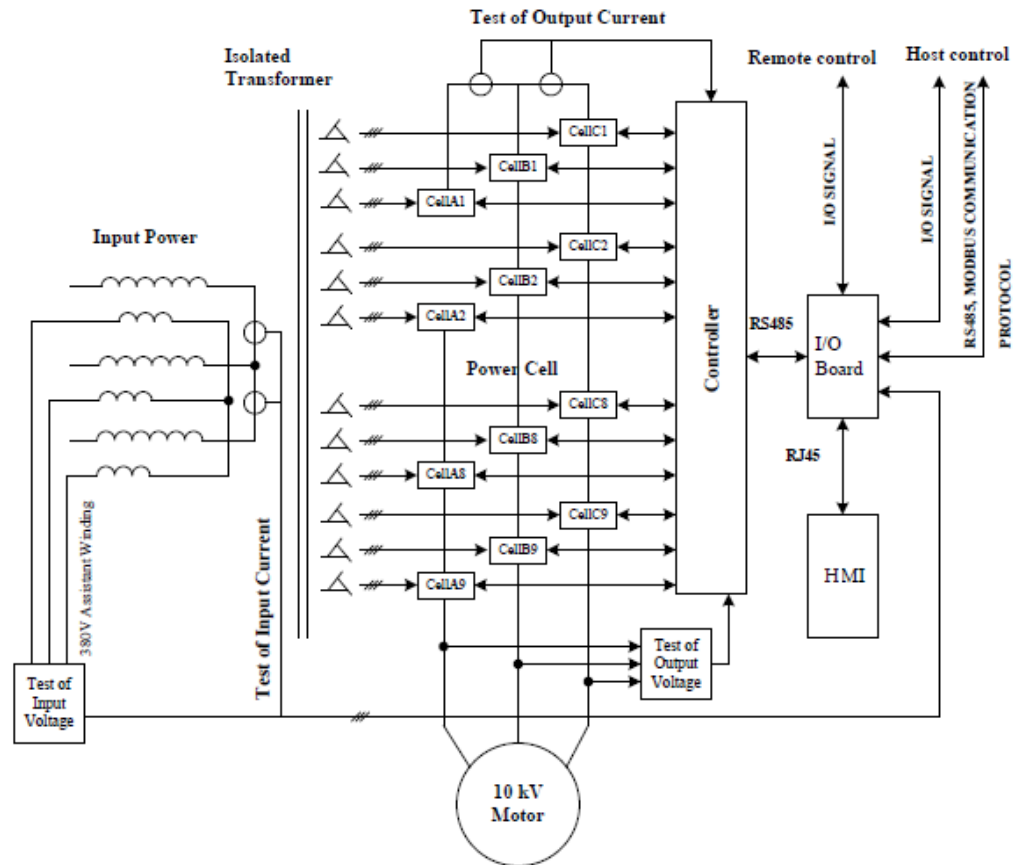


Product data sheet

Connections and Schema

Connections and Schema

Sample Wiring Diagram

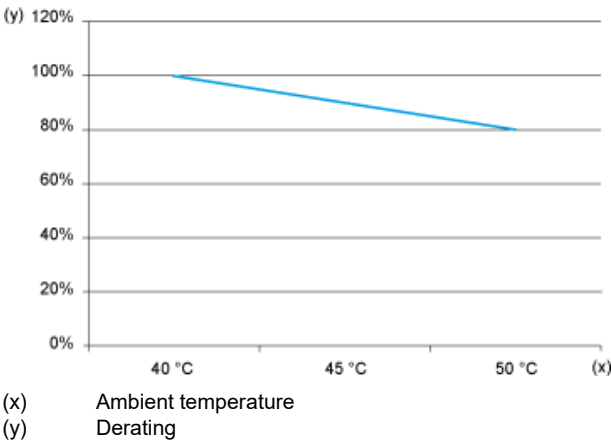


Product data sheet

Performance Curves

Power Derating of Output Current

Temperature Derating



Altitude Derating

