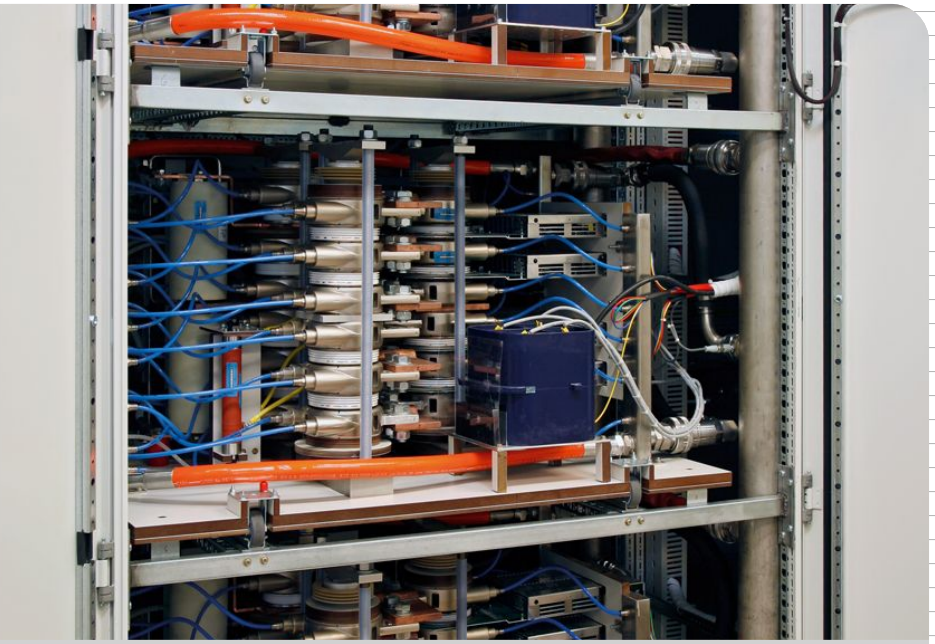
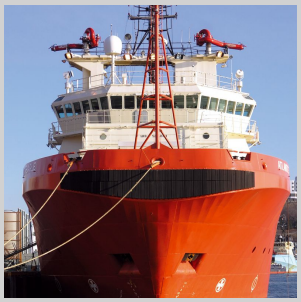
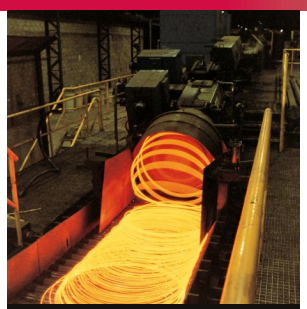
MV500





MV500 water-cooled, medium-voltage frequency converters

The MV_{500} series of the INGEDRIVE® converter range is composed of medium-voltage, IGCT-based, water-cooled frequency converters. They are designed to control both synchronous and asynchronous AC motors in a wide range of industrial and marine applications. Its modular design makes it possible to encompass a wide range of powers while its intuitive structure facilitates its use and maintenance. Together with the configuration tools INGEDRIVE® LT Servicer and INGEDRIVE® AD Servicer, the parameterisable control unit and the touch screen, the MV_{500} series is a safe, flexible and user-friendly solution.



Applications: Iron and steel industry, process lines, water treatment, cement industry, mining, chemical industry and marine sector.

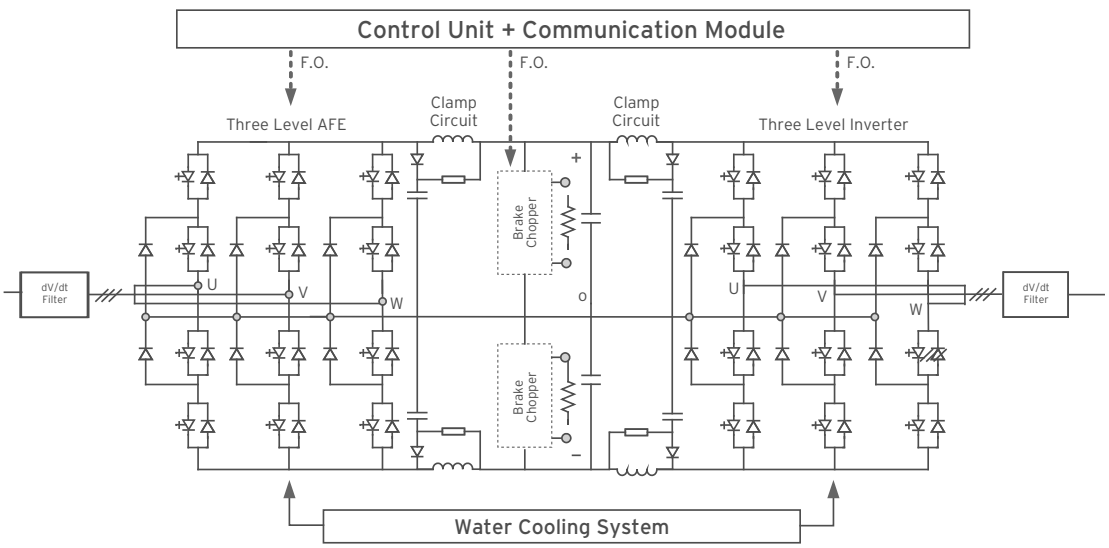


Diagram for AFE topology

INGEDRIVE

MV500

technical characteristics

MV500

Power Range	6 MVA - 27 MVA
Input Section	DFE (12 or 24 Pulse) or AFE (Press-Pack IGCTs). Others consult factory
Output Section	NPC Three Level Inverter (Press-Pack IGCTs)
Converter Cooling	Water
Type of Motor	Induction or synchronous

Electrical Characteristics

Supply voltage V_{SUPPLY} (1)	2x1.8 kV_{AC} (12P DFE) 4x0.9 kV_{AC} (24P DFE) 1x3.15 kV_{AC} (AFE)
Supply voltage tolerance	+ 10% / -10%
Output voltage V_{OUT} (DFE)	0 V_{AC} up to 3150 V_{AC}
Output voltage V_{OUT} (AFE)	0 V_{AC} up to 3300 V_{AC}
Supply frequency	50/60 Hz (+/- 5%)
Output frequency	0 Hz to 70 Hz
Input current Total Harmonic Distortion (THDC)	< 5.5% (typical for AFE Rectifier)

Control

Static speed accuracy (2)	< 0.01% in field weakening / < 0.01% at constant flux
Speed response time	< 50ms
Static torque accuracy (2)	< 1% in field weakening / < 1% at constant flux
Torque response time	< 10ms
Shaft torque ripple	< 5% in field weakening / < 3% at constant flux
Control type	Vector Control VC
Modulation type	SVPWM
Drive protections	Overcurrent, earth faults, output shortcircuit, overload on the Frequency Converter, over / low voltage on the DC bus, IGCTs fault, cooling fault, imbalance between motor phases, rectifier or inverter disconnected phases
Motor protections	Overload (3), overspeed
Semiconductor Switching Frecuency	600 Hz. Others consult factory

Load Class

Base load current	1 x rated output current
Overload	Consult factory
Cosphi	0.96 (DFE) to 1 (AFE)
Efficiency at 100% of the Rated Operating Point	0.976 to 0.98 (Depending on the topology)

Cooling Liquid Conditions

Allowed cooling liquids	Sea water / Fresh water
Inlet cooling liquid temperature	+ 5 ºC to 50 ºC (reduction power curves for + 32 ºC < T < + 50 ºC)
Maximum liquid pressure in the circuit	6 bar
Temperature increase during operation	max. 5 ºC (at Rated Power)
ΔP Coolant flow (Primary Circuit)	< 1 bar
Pmax Coolant flow (Primary Circuit)	6 bar
pH level of cooling water	6.0 to 8.0
Conductivity in the secondary circuit	< 3 µS/cm. Redundant deionizer system included

General Environmental Conditions

Audio noise	< 75 dB (A) 1 m from cubicle
Ambient conditions during operation	+ 5 ºC to + 55 ºC (reduction power curves for + 45 ºC < T < + 55 ºC)
Permissible ambient temperature during storage and transport	- 15 ºC to + 75 ºC, without water in the primary and secondary circuits
Installation altitude	< 1000m above the sea (100% load capability) > 1000m above the sea (with derating)
Humidity rating	Relative humidity < 95%, moisture condensation not permissible
Degree of protection	IP43. Others consult factory
Standards	According to IEC
Paint finish	RAL 7035 standard. Others consult factory. Indoor installation

Options

Main Options	Braking chopper, redundant set pump, different communications modules, expansion card

(1) No-load transformer voltage
(2) Referred to maximum values of equipment and working with closed-loop vector control mode
(3) Depending on electrical characteristics

FT06ITE01_C/MV500E/000.25/1108 NJC

Ingeteam

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