

ELECTRONIC EQUIPMENT PRODUCTION

# MEDIUM VOLTAGE DRIVES

**SECOM**



Founded in 1975, SECOM is a leading distributor in the Power Electronic Components market. Over time the company evolved, becoming an important designer and manufacturer of power electronic devices for industrial automation manufacturing technologies for various industrial processes.

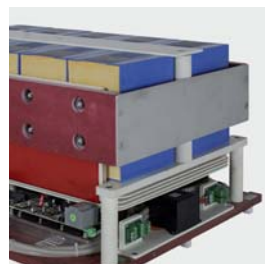
Furthermore SECOM continuously carries out new research and technical proposals in conjunction with important clients, providing technical support to meet their specific needs. Flexibility and short delivery time have become pillars to SECOM's company policy.

Headquartered near Milan in Sesto San Giovanni, Italy, SECOM is recognized around the world for manufacturing high quality products. SECOM's technically advanced products combine with our organization's solid field service, committed to providing prompt and reliable support.

## IGBT MEDIUM VOLTAGE CONVERTER



SECOMDRIVE MV IGBT Inverter are high performance water cooled drives in three level Neutral Point Clamped (NPC) topology.



Power stage can also be used as Active Front End (AFE) regenerative converter.

SECOMDRIVE MV IGBT Inverter meet the following requirements:

- High dynamic performances
- High power rating at low frequencies
- Line power factor = almost 1.0 (AFE version)
- Four-quadrant operation (AFE version)

The line side and motor-side converters use IGBT modules in a range from 4 MVA to 8 MVA.

The IGBT Power Stack is a complete 3phase inverter solution in a unique wheel stand module and each phase is on a single removable drawer.

Main features as:

- Ready-to-connect cabinet unit
- Design focused on easy maintenance and quick power module replacement (wheeled power modules allow very fast substitution without any special tool or lifting device)
- Interchangeable modules, usable on both AFE or INVERTER unit.

- 1** IGBT Inverter assembly
- 2** IGBT Inverter module
- 3** Typical cabinet installation

| Technical Data                 | SECOM IGBTs module  |
|--------------------------------|---|
| Line side converter            | Diode DFE rectifier or 4Q - AFE module                          |
| Motor side converter           | IGBT INV module   |
| Unit Power ratings             | 4 MVA ÷ 8 MVA   |
| Rated output current (In)      | 870 A ÷ 1400 A continuously (rms value)                         |
| Rated output voltage           | 3150 Vac  |
| Efficiency                     | > 98%   |
| Motor type                     | Induction or synchronous  |
| Main supply voltage (50/60 Hz) | 3160 Vac +/- 10%  |
| Inverter output frequency      | up to 65 Hz   |
| Input power factor             | ≥ 0.93  |
| Cooling                        | (water cooled type only)  |
| Auxiliary voltages range       | 380 ÷ 480 Vac 50/60 Hz  |
| Protection degree              | IP00 (module)   |
| Overall module dimensions      | 697 mm (W) x 750 mm (D) x 1735 (H)                              |
| Single module weight           | 300 ÷ 450 kg  |
| Applicable standards           | IEC 60146 - IEC 61800-3/4/5<br>IEC60204-11 - IEC62103 - EN62271 |



## IGCT MEDIUM VOLTAGE CONVERTER



SECOMDRIVE MV IGCT Inverter are high performance water cooled drives in three level Neutral Point Clamped (NPC) topology.



Power stage can also be used as Active Front End (AFE) regenerative converter.

SECOMDRIVE MV IGCT Inverter meet the following requirements:

- High dynamic performances
- High power rating at low frequencies
- Line power factor = almost 1.0 (AFE version)
- Four-quadrant operation (AFE version)

The line side and motor-side converters use IGBT modules in a range from 10 MVA to 13 MVA.

The IGCT Power Stack is a complete 3phase inverter solution in a unique wheel stand module and each phase is on a single removable drawer.

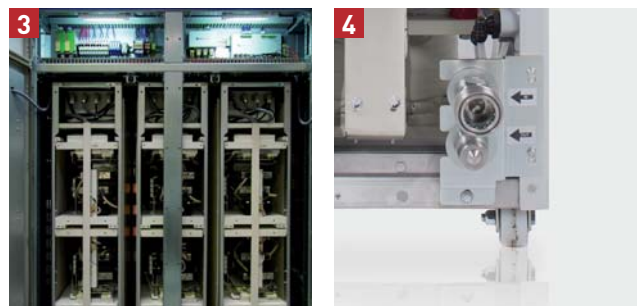
Main features as:

- Ready-to-connect cabinet unit
- Design focused on easy maintenance and quick power module replacement (wheeled power modules allow very fast substitution without any special tool or lifting device)
- Interchangeable modules, usable on both AFE or INVERTER unit.

- 1** IGCT Inverter module
- 2** IGCT Inverter module rear view
- 3** Typical cabinet installation
- 4** Water inlet/outlet



| Technical Data                 | SECOM IGCTs module   |
|--------------------------------|--|
| Line side converter            | Diode DFE rectifier or 4Q - AFE module                     |
| Motor side converter           | 3 x IGCT module phase ( AFE or INV)                        |
| Unit Power ratings             | 10 MVA - 11 MVA - 13 MVA                                   |
| Rated output current (In)      | 1400 A - 1600 - 1890 A continuously (rms value) (3 module) |
| Rated output voltage           | 3150 Vac   |
| Efficiency                     | > 98%  |
| Motor type                     | induction or synchronous                                   |
| Main supply voltage (50/60 Hz) | 3160 Vac +/- 10%   |
| Inverter output frequency      | up to 65 Hz  |
| Input power factor             | ≥ 0.93   |
| Cooling                        | (water cooled type only)                                   |
| Auxiliary voltages range       | 380 ÷ 480 Vac 50/60 Hz                                     |
| Protection degree              | IP00 (module)  |
| Overall 1ph module dimensions  | 390 mm (W) x 690 mm (D) x 1740 (H)                         |
| Single 1ph module weight       | 278 kg   |
| Applicable standards           | IEC 60146, IEC 61800-3/4/5, IEC60204-11, IEC62103, EN62271 |





SECOMDRIVE Medium Voltage multi-level Inverter are based on IGBT cascaded H bridges cells (CHB), in a 3L NPC typology.





CHB cells are available in air or water cooled solution.

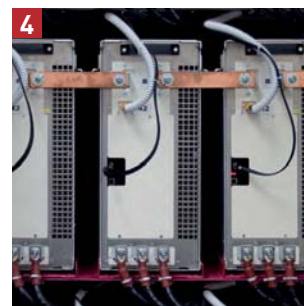
No Regenerative configuration as standard with output voltage levels from 3,3 kV up to 11 kV and output power from 200 kVA (at 3,3 kV) up to 13 MVA (at 11 kV).

The CHB converter structure uses standard power modules in a simple structure. The cells can be easily extracted from the cabinet using a supporting sliding system.

SECOMDRIVE Multi-Level converter main features:

- Easy maintenance and quick power module replacement
- Modular design
- Standard and modular dimensions for either air or water cooled system.

- 1 Multi-Level module**
- 2 Multi-Level module front view**
- 3 Multi-Level output busbar**
- 4 Multi-Level typical installation**



| Technical Data                 | SECOM Multi-Level module   |
|--------------------------------|--|
| Line side converter            | Diode DFE rectifier  |
| Motor side converter           | N (6, 9, 15) cells   |
| Unit Power ratings             | 200 kVA ÷ 13 MVA   |
| Rated output current (In)      | 35 ÷ 612 A   |
| Rated output voltage           | 3,3 ÷ 11 kV  |
| Efficiency                     | > 98%  |
| Motor type                     | Induction  |
| Main supply voltage (50/60 Hz) | 3,3 ÷ 11 kV  |
| Inverter output frequency      | Up to 100 Hz   |
| Input power factor             | ≥ 0.97   |
| Cooling                        | Air (water as option)  |
| Auxiliary voltages range       | 230 V (50 Hz)  |
| Protection degree              | IP00   |
| Overall 1ph module dimensions  | From 35 to 147 A: 240 x 550 x 850 mm<br>From 192 to 262 A: 290 x 590 x 920 mm<br>From 306 to 402 A: 380 x 590 x 990 mm<br>From 472 to 612 A: 380 x 590 x 1190 mm |
| Single 1ph module weight       | 65 ÷ 130 kg  |
| Applicable standards           | IEC60146, IEC61800-3/4/5,<br>IEC 60204-11, IEC62103, EN62271   |





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ISO 9001

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