

SECOM

Power Electronic Equipment & Components

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Since 1975 we are operating in the market of distribution of components and devices for power electronics



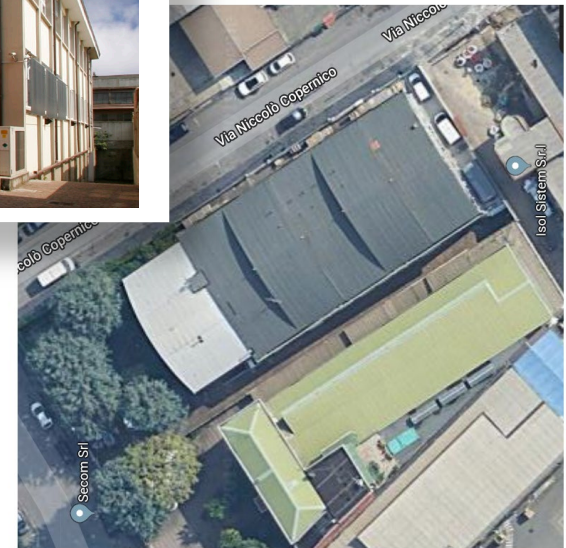
About us

SECOM S.r.l

Established in 1975, **SECOM** is a leading company in the market of power electronic equipment and distribution of components.

Over the years, the company has become an important active player in the design and production of conversion equipment. SECOM devices are installed in important industries active in **industrial automation technologies** for various sectors.

Production excellence and efficient organization allow SECOM to provide the market a prompt and professional service in numerous sectors of static energy conversion.



Where we are

SECOM S.r.l

Since 45 years SECOM has been creating and studying customized technical solutions on behalf of its customers, providing them with decisive technical support to achieve their goals.

Based in **Sesto San Giovanni**, near Milan, SECOM is recognized worldwide for its high-quality products.



Italy

Via Archimede 18

Sesto San Giovanni, (MI)

20099



SECOM
Power Electronic Equipment & Components

Markets

SECOM S.r.l

The passion and the desire to grow have pushed us over the years to a continuous process of improvement. We have collected challenges from different industrial sectors, expanding our technical knowledge.

Today we can consider ourselves an important player for different productive realities.

These are the **industrial sectors** in which we are most active:

Chemical, Oil & Gas



Power electronics



Alternative energy



Steel



Galvanic



Traction



Products

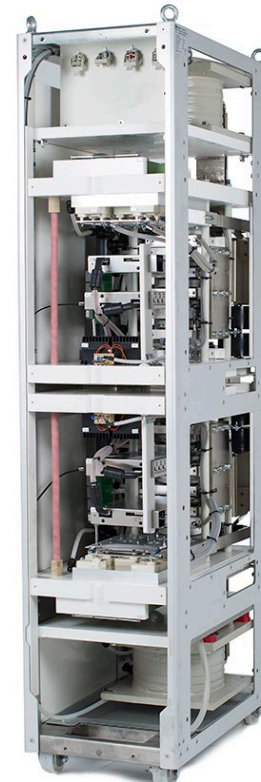
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COMPONENTS



LV CONVERTER



MV CONVERTER



SPECIALS

Components

SECOM S.r.l

SECOM is a leading company in the **electronic components** market for products such as high-speed fuses, semiconductors, power capacitors and power resistors.

Thanks to targeted company policies and a deep market knowledge, SECOM is able to respond promptly and professionally to all request coming from the market.

The components distributed by the company are divided into four different main families:

- Fuses
- Semiconductors
- Capacitors
- Resistors



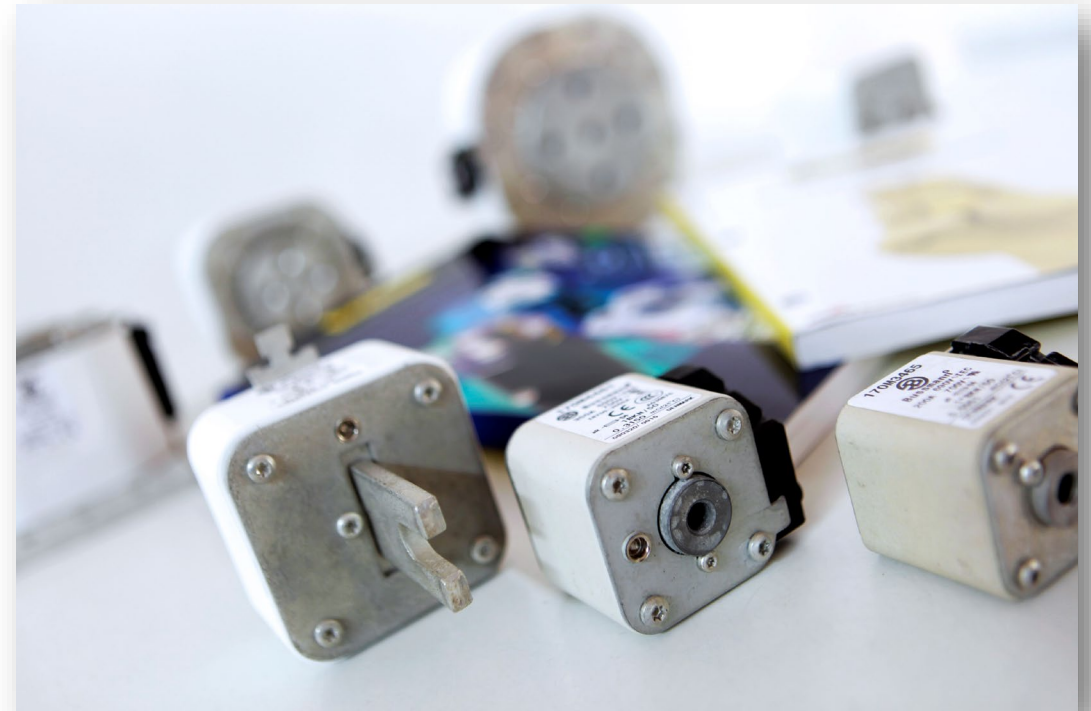
Fuses

SECOM S.r.l

SECOM is a main distributor of **EATON BUSSMAN SERIES** fuses for every industrial applications and especially for high-speed fuses used in power electronics.

We offer different types of fuses:

- British
- Ferrule
- North American
- Square body
- PV Fuses
- Traction
- Accessories



Semiconductors

SECOM S.r.l

SECOM is a leader in the Italian market for power electronic devices and assembly. It partners with many companies that intend to develop their own special products. For this scope, the company has established over time a strong relationship with several important semiconductor's producers (ABB, Powerex, Infineon, Mitsubishi, Dynex, Hitachi, Proton, etc.).

We offer different types of semiconductors:

- Diodes
- Thyristors
- Modules
- IGBT
- IGCT
- Assembly



Film Capacitors

SECOM S.r.l

SECOM is a main distributor of ELECTRONICON GmbH, for every industrial applications, especially film capacitors for power electronics.

- E50 PK16 - High density film capacitor
- E51 AC/DC - High voltage, low inductance
- E53/E55 AC/DC - High current and low self-inductance
- E56 DC / E59 AC/DC - Large capacitor
- E60 AC/DC - Hermetical case capacitor
- E63 DC - With integrated safety mechanism
- E62 3ph AC Filter - AC filtering and power factor correction



ELECTRONICON®
always in charge



Film Capacitors

SECOM S.r.l

SECOM is also a main distributor of **Shengye Electrical Co. Ltd.** for DC link capacitors, AC filter capacitors, Impulse capacitors, and Snubber capacitors.

DCLJC DC-Link capacitor



DCLJ2 DC-Link capacitor



DCL DC-Link capacitor



FFC1 Heavy duty AC filter



DCLJ1 DC-Link capacitor



FFC3 Heavy duty AC filter



EST Impulse capacitor



DCLT5 DC-Link capacitor



FFCT4 AC Filter capacitor



SNUT1 Snubber capacitor



SNUT2 Snubber capacitor







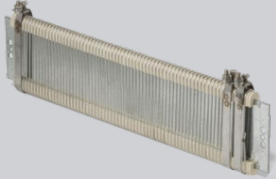
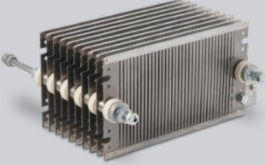
SNUT3 Snubber capacitor



Resistors

SECOM S.r.l

SECOM is the Italian exclusive distributor of **FRIZLEN** industrial power resistors. FRIZLEN power resistors represent the highest quality standards “made in Germany”. FRIZLEN product range is extremely extensive and covers a broad power spectrum from 10 W to 500 kW with a protection degree from IP00 up to IP67.

| T100 | T200 | T300 | T400 | T500 | T600 |
|---|--|--|--|--|--|
|  |  |  |  |  |  |
| Tubular fixed resistors. The original ones | Wirewound potentiometers. The flexible ones | Wirewound flat resistors. The innovative ones | Load and testing resistors. The loadable ones | Lamina type fixed resistors. The modular ones | Steel-grid fixed resistors. The robust ones |

FRIZLEN





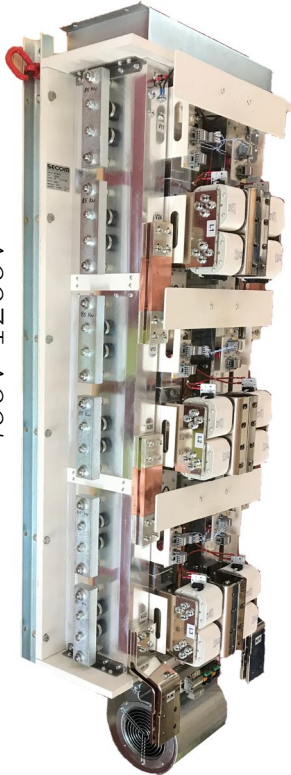


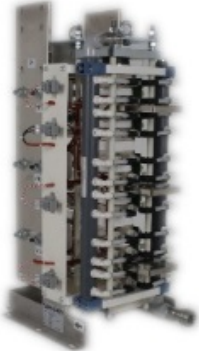
AC/DC Converter

SECOM S.r.l

SECOM AC/DC three-phase power converters have been distributed worldwide by the company since 1990. They cover a large range from small to large converters with a current capability higher of several thousands' amps, with voltage ratings from 400Vac to 1200Vac.

Some example of application

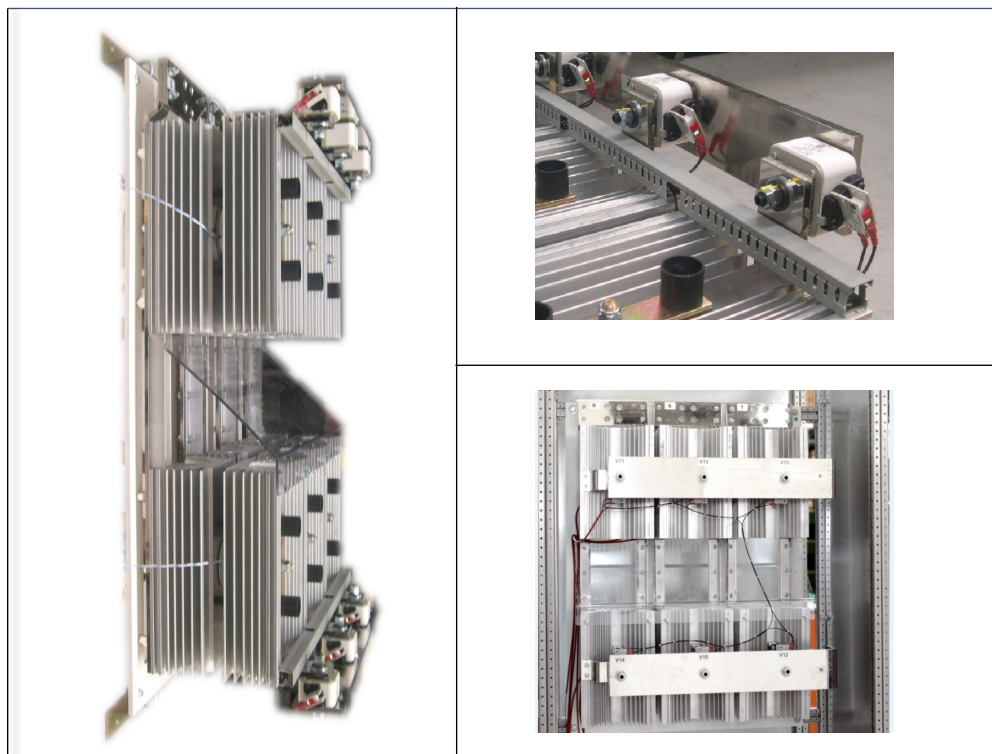
- DC Motor Control (2Q, 4Q)
- DC BUS Power Supply
- Excitation System
- Galvanic application
- Laboratory testing

| | | | | |
|--|--|--|---|--|
| GR91 100A-750A 400V-690V 2Q-4Q FA  | GR9 250A-1000A 400V-690V 2Q FA-W  | GR9A 1000A-2000A 400V-690V 2Q FA-W  | GR6 1500A-5000A 400V-850V 2Q-4Q FA  | GR19 3500A -5000A 400V-1200V 2Q-4Q FA  |
| GR93 750A-4500A 400V-990V 2Q-4Q FA  | GR00 100A-1450A 400V-850V 2Q NA  | GRW6 1000A-4500A 400V-990V 2Q W  | | |

GR00

SECOM S.r.l

The GR00 series has been developed with the aim of offering a product that could guarantee high reliability without the necessary maintenance of the fans.

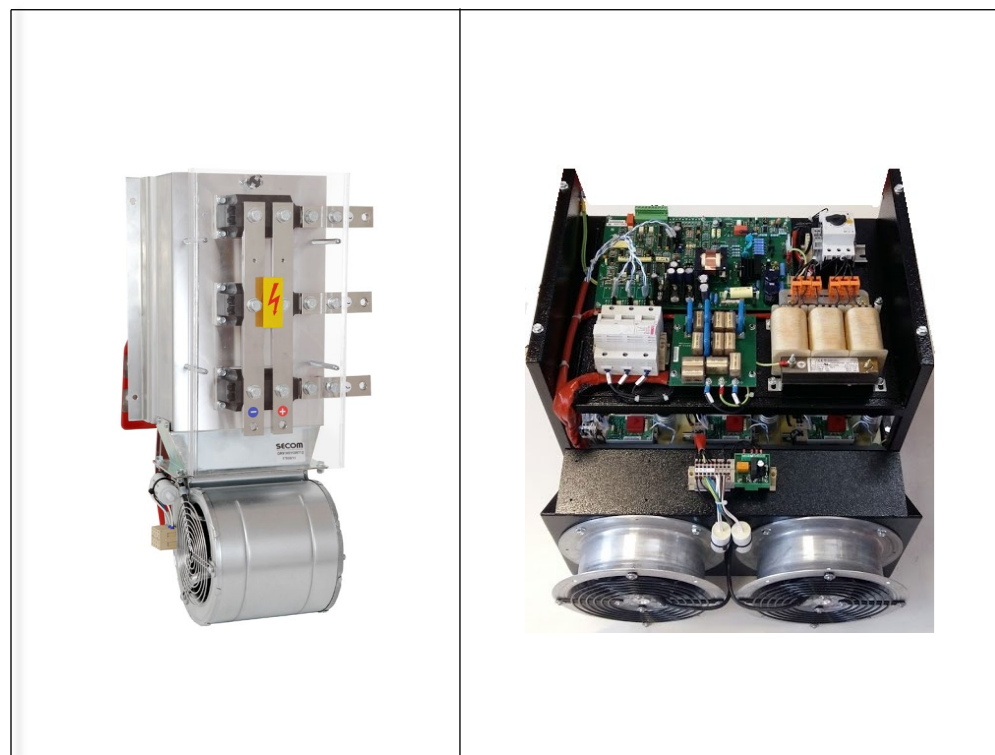


| MAIN GENERAL DATA | |
|----------------------------|--|
| Converter Type | -Diode rectifier -Unidirectional DC Converter |
| Main supply Voltage | 380 ÷ 480V, 500 ÷ 650V, 660 ÷ 750V, 850 ÷ 990 |
| Tolerance | ± 10% power supply |
| Nominal current | 100 ÷ 2000 Adc |
| Rated Frequency | 50 and 60 Hz; ± 2% |
| Insulation Voltage | 2,5 ÷ 4 kV |
| Protection Degree | IP00 |
| Diode/Thyristor Protection | RC Snubber; Fuses |
| Converter Protection | Overtemperature; |
| Cooling System | Natural air |
| Installation Type | Wall Mounting |
| Dimesions | Different for current size and type |
| Weight | Different for current size and type |

GR91

SECOM S.r.l

The **GR91** series has been developed for DC Bus power supply and DC motor control. This power converter covers the range of currents from 100Adc up to over 750Adc. On request is equipped of control card for DC bus precharge operation.

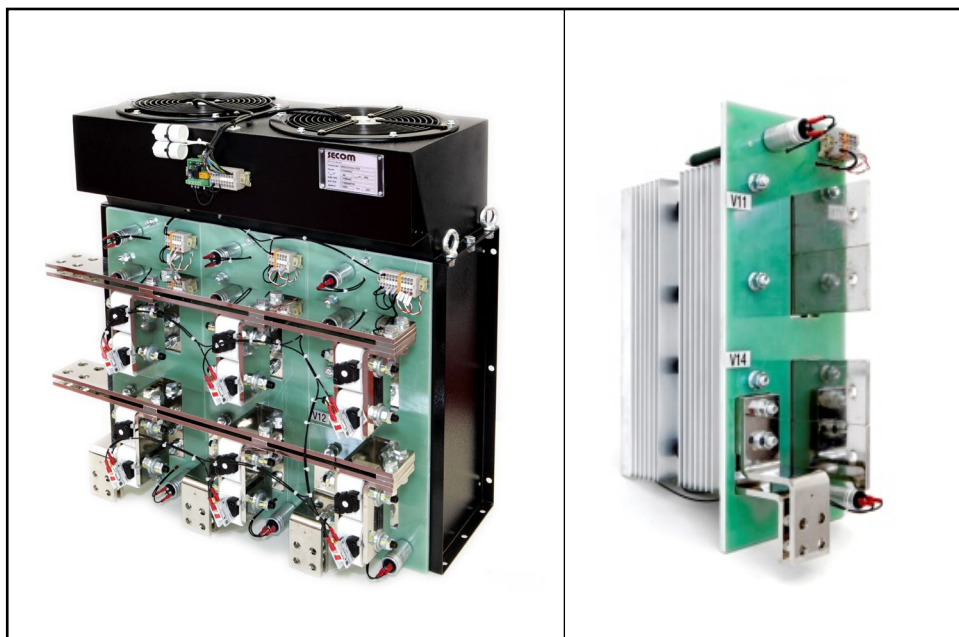


| MAIN GENERAL DATA | |
|----------------------------|---|
| Converter Type | -Diode rectifier -Unidirectional DC Converter -Bidirectional DC Converter |
| Main supply Voltage | 380 ÷ 480V, 500 ÷ 650V, 660 ÷ 750V, 850 ÷ 990 |
| Tolerance | ± 10% power supply |
| Nominal current | 100 ÷ 750 Adc |
| Rated Frequency | 50 and 60 Hz; ± 2% |
| Insulation Voltage | 2,5 ÷ 4 kV |
| Protection Degree | IP00 |
| Diode/Thyristor Protection | RC Snubber; Fuses |
| Converter Protection | Overtemperature; |
| Cooling System | Forced air |
| Installation Type | Wall Mounting, in cabinet |
| Dimesions | Different for current size and type |
| Weight | Different for current size and type |

GR93

SECOM S.r.l

Regarding AC/DC converters in forced cooling air the GR93 family covers the widest range of solutions, with currents from 450Adc up to over 4500Adc and mains voltages up to 990Vac. The GR93 converter is available in unidirectional and bidirectional thyristor versions or diode versions.



MAIN GENERAL DATA

| | |
|----------------------------|---|
| Converter Type | -Diode rectifier -Unidirectional DC Converter -Bidirectional DC Converter -Regenerative DC Converter |
| Main supply Voltage | 380 ÷ 480V, 500 ÷ 650V, 660 ÷ 750V, 850 ÷ 990 |
| Tolerance | ± 10% power supply |
| Nominal current | 750 ÷ 4500 Adc |
| Rated Frequency | 50 and 60 Hz; ± 2% |
| Insulation Voltage | 2,5 ÷ 4 kV |
| Protection Degree | IP00 |
| Diode/Thyristor Protection | RC Snubber; Fuses |
| Converter Protection | Overtemperature; Ventilation Failure |
| Auxiliary Voltage | 1-phase 230Vac 50Hz or 3-phase 400 V at 50Hz |
| Cooling System | Forced air |
| Installation Type | Wall Mounting |

GR9

SECOM S.r.l

GR9 is an AC/DC power converter developed by SECOM. This device have been designed to cover the lower range of current in order to give an extremely compact and alternative solution to the other similar SECOM products.

The design uses power module semiconductor.



MAIN GENERAL DATA

| | |
|----------------------------|---|
| Converter type | -Diode rectifier -Half-controlled DC converter -Unidirectional DC converter |
| Semiconductor type | Diode / Thyristor module |
| Main supply voltage | 380 ÷ 480V, 500 ÷ 690 V |
| Tolerance | ± 10% power supply |
| Nominal current | 500 ÷ 1250 Adc |
| Rated frequency | 50 and 60 Hz; ± 2% |
| Insulation voltage | 2,5 ÷ 4 kV |
| Diode/Thyristor protection | RC snubber; line fuses |
| Converter protection | Overtemperature; ventilation failure |
| Auxiliary voltage | 3-phase 400 V at 50Hz |
| Cooling system | Forced air / Water cooled (GR9W) |
| Installation type | Fixed |
| Dimensions | 320*500*650mm (W*D*H) |
| Weight | 60 kg |

GR9A

SECOM S.r.l

GR9A is an AC/DC power converter developed by SECOM. This device have been designed to cover the lower range of current in order to give an extremely compact and alternative solution to the other similar SECOM product (GR6).

The design uses disk semiconductor.



MAIN GENERAL DATA

| | |
|----------------------------|---|
| Converter Type | -Diode rectifier -half-controlled DC Converter -Unidirectional DC Converter |
| Semiconductor Type | Diode / Thyristor Capsule type |
| Main supply Voltage | 380 ÷ 480 V, 500 ÷ 850 V |
| Tolerance | ± 10% power supply |
| Nominal current | 1000 ÷ 2000 Adc |
| Rated Frequency | 50 and 60 Hz; ± 2% |
| Insulation Voltage | 2,5 ÷ 4 kV |
| Diode/Thyristor Protection | RC Snubber; Line Fuses |
| Converter Protection | Overtemperature; Ventilation Failure |
| Auxiliary Voltage | 3-phase 400 V at 50Hz |
| Cooling System | Forced air |
| Installation Type | Fixed |
| Dimesions | 243x725x500mm (W x D x H) |
| Weight | 60 kg |

GR6

SECOM S.r.l

GR6 AC/DC Three phase power converter is the answer to the important issues of saving space and the simplification of maintenance activities pertinent to many modern company. Used in the multidrive system or for DC motor control.



MAIN GENERAL DATA

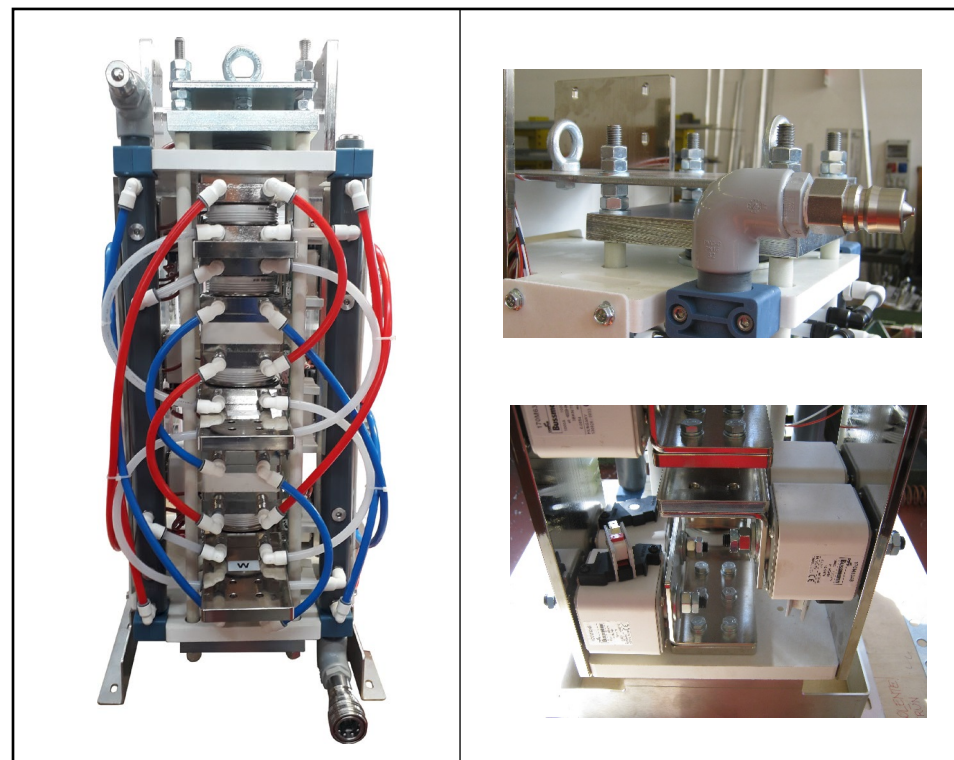
| | |
|----------------------------|---|
| Converter Type | -Diode rectifier -Unidirectional DC converter -Bidirectional DC converter -Regenerative DC converter |
| Main supply Voltage | 380 ÷ 480 V, 500 ÷ 850 V |
| Tolerance | ± 10% power supply |
| Nominal current | 1500 ÷ 5000 Adc |
| Rated Frequency | 50 and 60 Hz; ± 2% |
| Insulation Voltage | 2,5 ÷ 4 kV |
| Diode/Thyristor Protection | RC Snubber; fuses |
| Protection degree | IP00/IP20 |
| Converter Protection | Overtemperature; ventilation Failure |
| Auxiliary Voltage | 3-phase 400 V at 50Hz |
| Cooling System | Forced air |
| Installation Type | Removable by wheels |
| Dimesions | 320*650*1650mm (W*D*H) 390*650*1650mm (W*D*H) |
| Weight | 150 ÷ 370 kg |

GRW6

SECOM S.r.l

A water-cooled version of AC/DC converter is available for all the applications that require high power with a very compact solution either high or low voltage range.

GRW6 family can use diodes or thyristors.



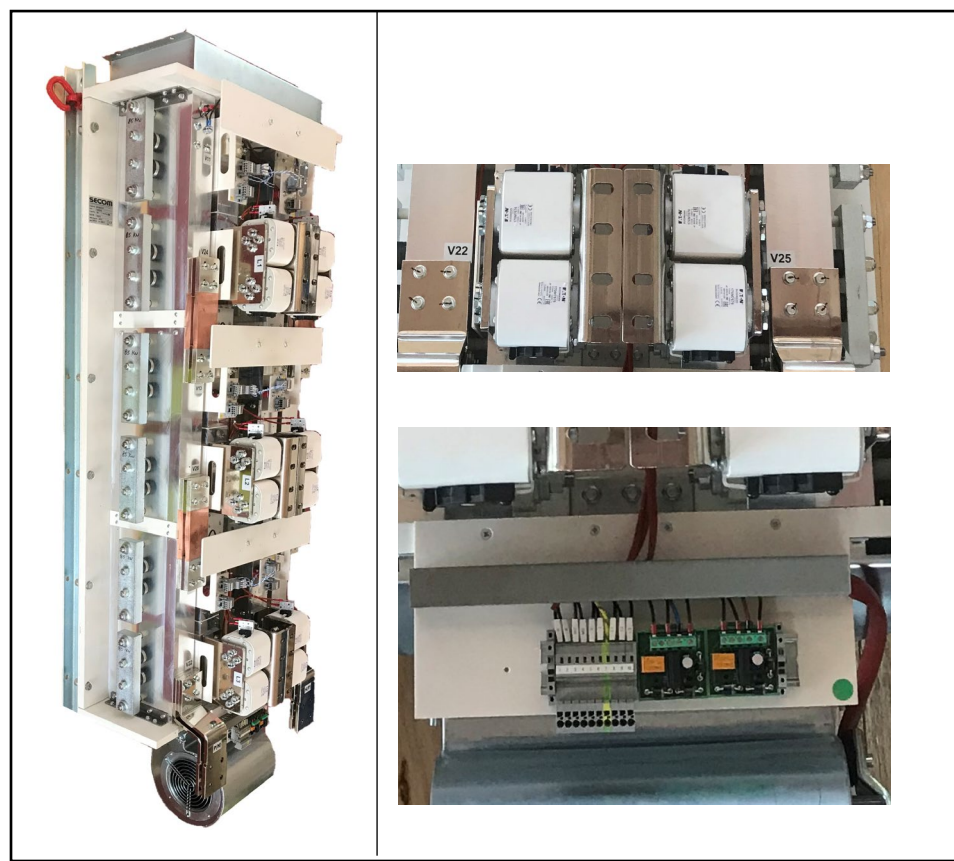
MAIN GENERAL DATA

| | |
|----------------------------|--|
| Converter type | -Diode rectifier -Unidirectional DC converter |
| Semiconductor type | Diode / Thyristor capsule type |
| Main supply voltage | 380 ÷ 440V, 480 ÷ 690 V |
| Tolerance | ± 10% power supply |
| Nominal current | 1500 ÷ 4500 Adc |
| Rated frequency | 50 and 60 Hz; ± 2% |
| Insulation voltage | 2,5 ÷ 4 kV |
| Diode/Thyristor protection | RC snubber; fuses |
| Converter protection | Overtemperature thermoswitch |
| Cooling system | Water cooled |
| Installation type | Fixed |
| Dimensions | 375*845*487mm (W*D*H) |
| Weight | 105 kg |

GR19

SECOM S.r.l

SECOM developed a brand-new DC power converter named **GR19**. It's the answer to the bigger power application for DC motor application, with high range of voltage up to 1200Vac.



MAIN GENERAL DATA

| | |
|----------------------------|---|
| Converter type | -Diode rectifier -Unidirectional DC converter -Bidirectional DC converter -Regenerative DC converter |
| Main supply voltage | 500÷690V, 800÷850V, 950V, 1200V |
| Tolerance | ± 10% power supply |
| Nominal current | 3500 ÷ 5000 Adc |
| Rated frequency | 50 and 60 Hz; ± 2% |
| Protection degree | IP00 |
| Diode/Thyristor protection | RC snubber; fuses |
| Converter protection | Overtemperature; ventilation failure |
| Auxiliary voltage | 3-phase 400 V at 50Hz |
| Cooling system | Forced air |
| Installation type | Wall mounting |
| Dimensions | 780*1320*440mm (W*H*D) 780*2112*480mm (W*H*D) |
| Weight | 250 ÷ 500 kg |

LV Drives

SECOM S.r.l

SECOM has developed expertise and gained experience in the power converter market for various industrial applications.

Flexibility, innovation and know-how are the main keys to the company's success in recent years.

Drives and auxiliary device designed in collaboration with our customers are further examples of the added value that the company can offer to innovative applications.

In this section the following families of **low voltage** devices:

- Inverter DC/AC drive - **SDI**;
- F3E regenerative drive - **SDF**;
- AFE low harmonic drive - **SDA**;
- Single Drive - **SDS**;
- Precharge Unit - **SPU**;
- Braking Unit - **SBU**;
- Other...



Inverter, F3E, AFE

SECOM S.r.l

Inverter family provides a different and new answer for all AC applications: Driving AC motor, renewable power sources, regenerative converter as Front End power supply. SECOM has started selling LV drives **since 2007**.



MAIN GENERAL DATA

| | |
|----------------------|---|
| Main supply Voltage | 380 ÷ 480V, 500 ÷ 690 V |
| Tolerance | ±10% power supply |
| Current range | Up to 830A for the single Inverter to 6480A with 8 module in parallel |
| Switching frequency | From 1,25kHz to 5KHz |
| Protection degree | Case IP20 |
| Converter protection | Overtemperature switch |
| Auxiliary voltage | 24V for interface 230V 50Hz / 60Hz for cooling system |
| Safety Function | STO (SIL3) integrated |
| Cooling system | Forced air or water cooling |
| Installation type | Removable by wheels for frame 2 Fixed for frame 3 |
| Dimensions (W*H*D) | F2: 245*1398*650mm F3: 245*830*500mm |
| Weight | Up to 178kg (F2) Up to 100kg (F3) |

MV drives

SECOM S.r.l

SECOM has developed expertise and gained experience in the power converter market for various industrial applications.

Flexibility, innovation and know-how are the main keys to the company's success in recent years.

Power converters and special assemblies designed in collaboration with our customers are further examples of the added value that the company can offer to innovative applications.

In this section three families of **medium voltage** devices will be considered:

1. IGBT MV converter;
2. IGCT MV converter.
3. MV Multi-Level converter.



IGBT MV Stack

SECOM S.r.l

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

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.

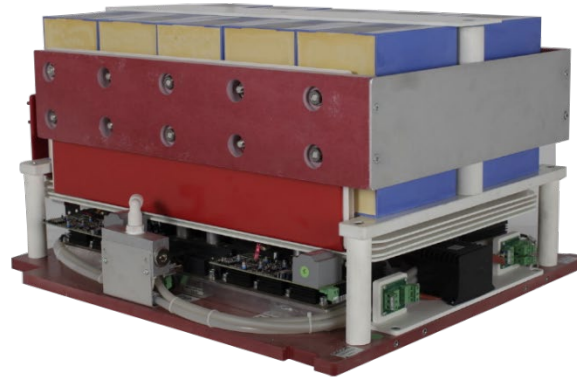
| Technical Data module | SECOM IGBTs |
|--------------------------------|---|
| Line side converter | Diode DFE rectifier or 4Q - AFE module |
| Motor side converter | IGBT INV module |
| Unit power ratings | 4 MVA ÷ 8 MVA |
| Rated output current (In) | 870 A ÷ 1400 A continuously |
| Rated output voltage | 3150 Vac |
| Efficiency | > 98% |
| Motor type | Induction or synchronous |
| Main supply voltage (50/60 Hz) | 3150 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 IEC60204-11 – IEC62103 – EN62271 |

IGBT MV Stack

SECOM S.r.l

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.



IGCT MV Stack

SECOM S.r.l

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

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 10 MVA to 15 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.

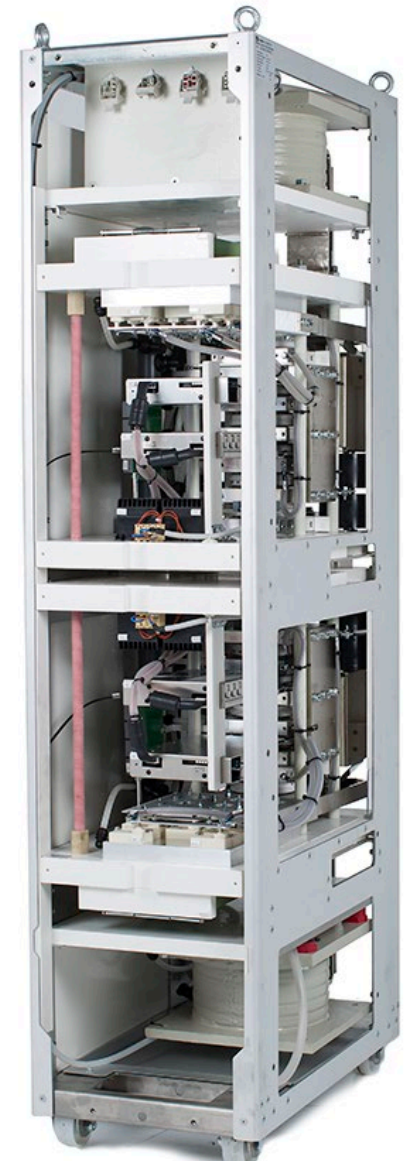
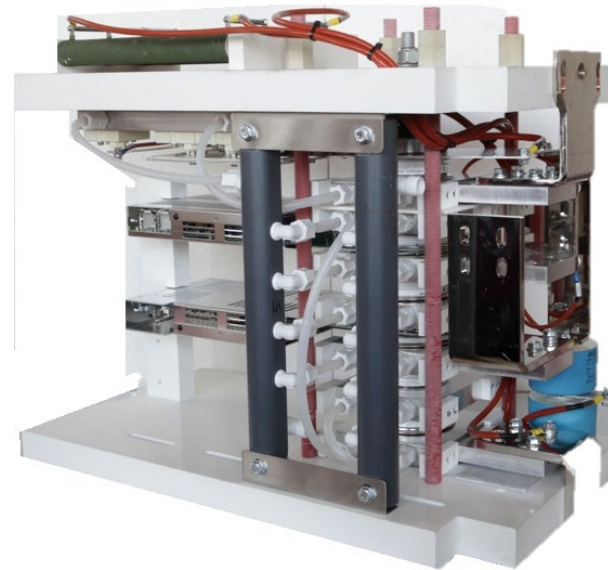
| Technical Data module | SECOM IGBTs |
|--------------------------------|---|
| Line side converter | Diode DFE rectifier or 4Q - AFE module |
| Motor side converter | 3 x IGCT module phase (AFE or INV) |
| Unit power ratings | 10MVA – 11MVA – 12MVA – 15MVA |
| Rated output current (In) | 1400A – 1600A – 1700A - 1900A continuously (3 module) |
| Rated output voltage | 3150 Vac |
| Efficiency | > 98% |
| Motor type | Induction or synchronous |
| Main supply voltage (50/60 Hz) | 3150 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 1 ph 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 |

IGCT MV Stack

SECOM S.r.l

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.



MV Multilevel modules

SECOM S.r.l

SECOMDRIVE MV Multi-level Inverter are based on IGBT cascades 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.

| Technical Data | SECOM IGBTs |
|--------------------------------|---|
| 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 | <ul style="list-style-type: none">• 35 ÷ 147 A: 240*550*850 mm• 192 ÷ 262 A: 290*590*920 mm• 306 ÷ 402 A: 380*590*990 mm• 472 ÷ 612 A: 380*590*1190 mm |
| Single module weight | 65 ÷ 130 kg |
| Applicable standards | IEC 60146 – IEC 61800-3/4/5 IEC60204-11 – IEC62103 – EN62271 |

MV Multilevel converter

SECOM S.r.l

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;



Specials-Custom

SECOM S.r.l

SECOM is present in the power electronic conversion market not only with several power converters but also offering a wide range of **custom-made solutions** depending on the client's requirements.

For this purpose SECOM can develop electrical design and offer plant solutions with special projects such as special bridge converter in a stand-alone configuration or installed in an electrical panel.

In the same way, protection devices are offered to prevent electrical damages or failure due to line overvoltages, electrical network disturbances, flickers and sudden perturbances such as power transformers or disconnections.

Our company has been always present in the special application market developing high technology devices.

Traction market application

- Line traction overvoltage protection
- Battery charger
- Switching power supply
- HF converter for auxiliary directly fed by the 3-kV contact line

Metals market application

- High frequency converter

Industrial market application

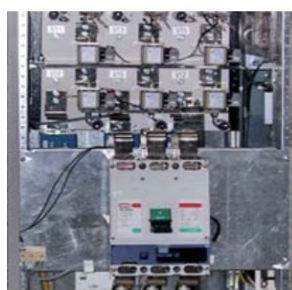
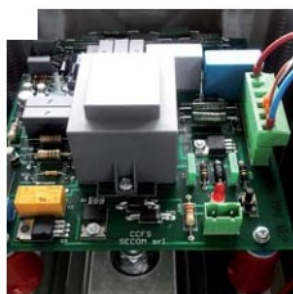
- SCR Power stacks on custom design
- FSK Filters
- Auxiliaries with specific custom design

Research Institute application

- Power supplies
- Special power stack

Specials-Custom

SECOM S.r.l



Contact Us

SECOM S.r.l



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