



# RENEWABLE ENERGIES & PROTECTION OF BATTERIES



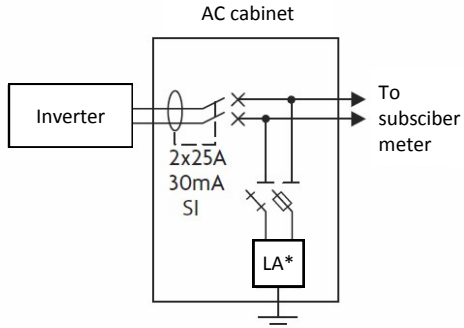
A wide range of solutions for photo-voltaic applications:

- For off-grid sites
- For grid connected sites
- Energy storage
- Protection of sensitive materials

# AC CABINETS, DC CABINETS

## AC cabinets:

This cabinet installed on the AC circuit protects the installation at the output of the inverter. Particularly recommended for applications with a power of 3kW peak.



\*LA: Lightning arrester with remote control contact



### Modular equipment:

- Differential circuit breaker 25A - 30mA
- Surge arrester type 2 - 20 kA
- 10,3 x 38 disconnection lightning arrester circuit breaker

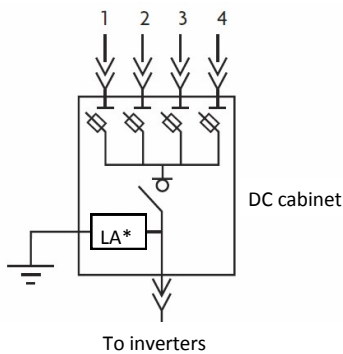
### Dimensions & references:

PV chains	H (mm)	W (mm)	D (mm)	Part number
AC residential cabinet - 30 mA	217	235	110	47315
AC residential cabinet - 30 mA SI	217	235	110	47316

## DC cabinets:

This box installed on the DC circuit between the photovoltaic panel chains or chains and the inverter. It includes a junction + protection + disconnection and lightning arrester type 2 - 20 kA. The panels are connected directly to terminal blocks via cable glands or directly to connectors (multi-contacts) type MC4.

### DC 600 Vcc cabinets



\*LA: Thermal disconnection Lightning arrester



### Modular equipment:

- Switch:
  - 25A for models 1, 2, 3 & 4 strings
  - 40A for models 5 & 6 strings
- Surge arrester type 2 - 20 kA
- Single pole circuit breaker 10,3 x 38
- Connector type MC4 (4 to 6 mm<sup>2</sup>)

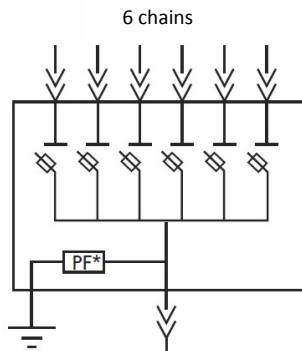
### Dimensions & references:

PV chains	H (mm)	W (mm)	D (mm)	Sectioning/LA*/ Cable gland	Sectioning/LA*/ MC4	Sectioning/LA*/ Circuit breaker and cable gland	Sectioning/LA*/ Circuit breaker and MC4
1 à 2	217	307	110	47303	47306	47309	47312
3 à 4	409	307	115	47304	47307	47310	47313
5 à 6	409	307	115	47305	47308	47311	47314

# AC CABINETS, DC CABINETS

- Junction boxes:**

This box installed on the DC circuit allows the junction of the chains of photovoltaic panels (PV). It includes 1000 Vdc fuses (fuses not supplied) and surge arrester type 2 - 20 kA. Cable entries by gland (PE) or MC4 connector.



25 to 70mm<sup>2</sup>

\*LA: Thermal disconnection Lightning arrester

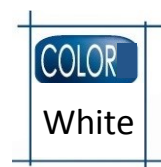
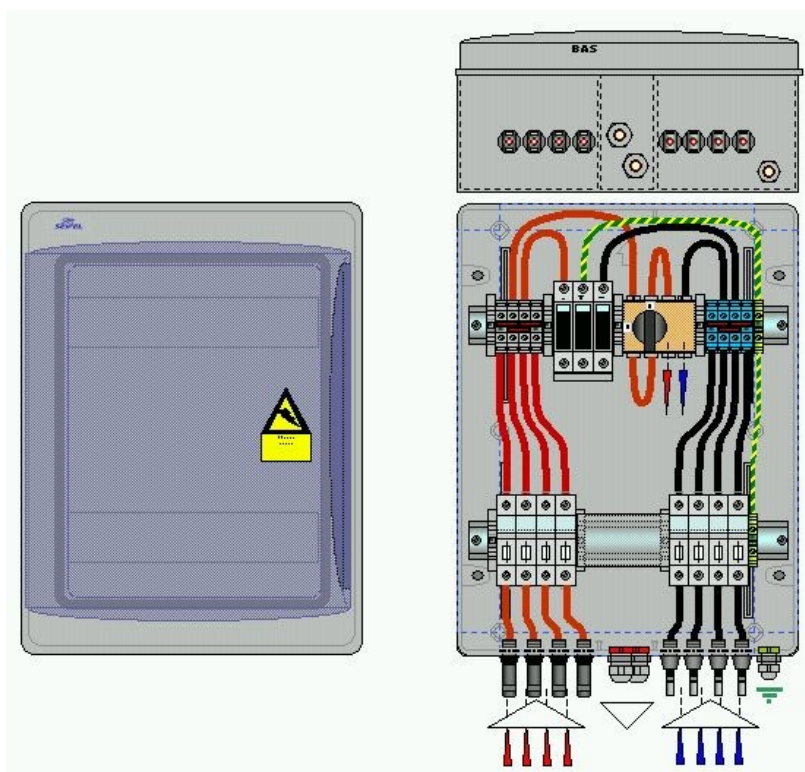


- Modular equipment:**

- Surge arrester type 2 - 20 kA
- Single pole circuit breaker 10,3 x 38
- Connector type MC4 (4 to 6 mm<sup>2</sup>)
- Terminal block for cable 25 to 70 mm<sup>2</sup>

- Dimensions & references:**

PV chains	H (mm)	W (mm)	D (mm)	Cable glands	MC4
6 chains	409	307	115	47325	47326
7 chains	409	307	115	47327	47328
8 chains	409	307	115	47329	47330



RAL9010



IEC 60529



IEC 62262

*Contact us for  
Any other configuration*

# INSULATING INDOOR MODULAR CABINETS CC RANGE



- **Structural characteristics:**

- Casings made of glassfiber reinforced polyester, grey RAL 7035
- Monobloc casing
- Cover made of UV resistant polycarbonate, transparent or opaque, various height possible according to model
- Closing by four sealable insulating screws, with rectangular or triangular head.
- Exceptional junction between two associated boxes thanks to rectangular casings and ribs on all sides: good IP2x protection at the junction, without the use of joint or other device.
- Fixing inserts in the bottom of the casing
- à 960°C self extinguishing as per IEC 60695-2-10



Cabinet	Dimensions in mm			Cover		IP
	Length	Width	Depth	Transparent	Opaque	
CC-12	285	190	185	AC70035	AC70036	IP55
CC-22	285	285	185	AC70010	AC70017	IP55
CC-23	380	285	185	AC70011	AC70018	IP55
CC-25	570	285	185	AC70032	AC70019	IP43
CC-25 A	570	285	225	AC70030	AC70031	IP43
CC-27	760	285	185	AC70013	AC70020	IP43
CC-33 A	380	380	225	AC70014	AC70021	IP55
CC-35	570	380	185	AC70034	AC70033	IP43
CC-35 A	570	380	225	AC70015	AC70022	IP43
CC-37 A	760	380	225	AC70016	AC70023	IP43
CC-55	570	570	185	AC70009	AC70024	IP43
CC-55 A	570	570	225	AC70027	AC70028	IP43
CC-26	630	285	190	AC70038	AC70039	IP43
CC-36 A	630	398	225	AC70040	AC70041	IP43
CC-56	630	570	185	AC70025	-	IP43

COLOR	IP	IK
Grey	43	10
RAL 7035	IEC 60529	IEC 62262

# HIGH PERFORMANCE IP66 OUTDOOR POLYESTER CABINETS ARED RANGE







• **Structural characteristics:**

- Cabinets made in glassfiber reinforced polyester, grey RAL 7035
- Monobloc casing
- Full door rotating on two invisible hinges, opening angle > 90°
- Locking by 1 or 2 latches (depending on dimensions of cabinet) with removable key
- Other locking systems available as option: triangular head, key latch
- Padlocking device available as option
- Closing gasket for high quality sealing
- Mounting embossings in the casing: 4 in ARED-325, 8 in the other models
- Supplied with screws to fix equipment on the embossings of the casing
- Supplied with set of 4 brackets for wall mounting from the outside of the cabinet
- Modular chassis available as an option
- 960°C self extinguishing as per IEC 60695-2-10
- Resistant to chemical agents, UV rays, weatherproof

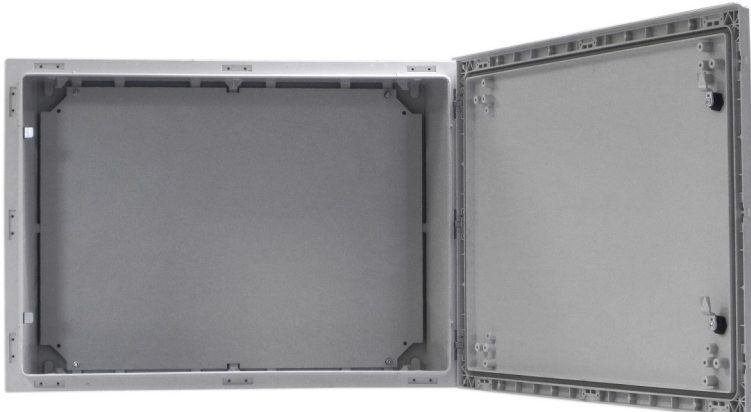
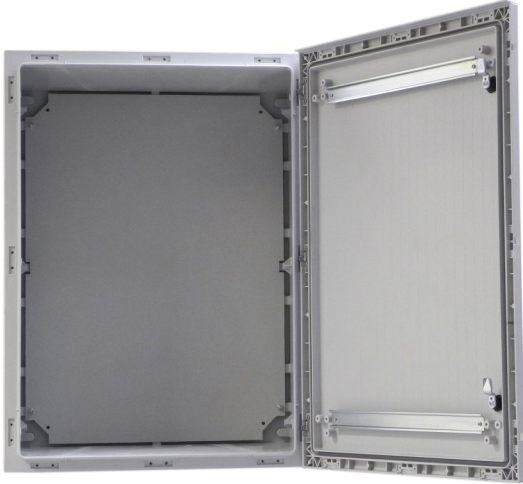


Model	Height	Width	Depth	Ref.
ARED 325	300 mm	250 mm	140 mm	AC50532
ARED 43	400 mm	300 mm	200 mm	AC50543
ARED 54	500 mm	400 mm	200 mm	AC50554
ARED 64	600 mm	400 mm	230 mm	AC50564
ARED 65	600 mm	500 mm	230 mm	AC50565



 <b>Grey</b> <small>RAL 7035</small>	 <b>66</b> <small>IEC 60529</small>	 <b>10</b> <small>IEC 62262</small>	 <b>UV protection</b>
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# HIGH PERFORMANCE IP66 OUTDOOR POLYESTER CABINETS ARED 86 & 68



- **Structural characteristics:**

- Cabinets made in glassfiber reinforced polyester, grey RAL 7035
- Monobloc casing
- Full door rotating on two invisible hinges, opening angle > 180°
- Locking by 2 latches with removable key
- Other locking systems available as option: triangular head, key latch
- 3 point locking system with rotating handle + cylinder lock available as an option
- Padlocking device available as option
- Closing gasket for high quality sealing
- 8 mounting embossings in the casing
- Supplied with screws to fix equipment on the embossings of the casing
- Supplied with set of 4 brackets for wall mounting from the outside of the cabinet
- Transparent door available as an option
- Possibility to compartmentalize the inside of the casing and to place screens
- Modular chassis available as an option
- Fixing on pole is possible thanks to 2 corrosion resistant metal profiles allowing to take strap, available as an option
- 960°C self extinguishing as per IEC 60695-2-10
- Resistant to chemical agents, UV rays, weatherproof

Model	Height	Width	Depth	Ref.
ARED 68	615 mm	847 mm	330 mm	AC50568
ARED 86	852 mm	610 mm	330 mm	AC50586

 <b>Grey</b> <small>RAL 7035</small>	 <b>66</b> <small>IEC 60529</small>	 <b>10</b> <small>IEC 62262</small>	 <b>UV protection</b>
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## CONNECTION BOX ARRAY BOX



• **Use :**

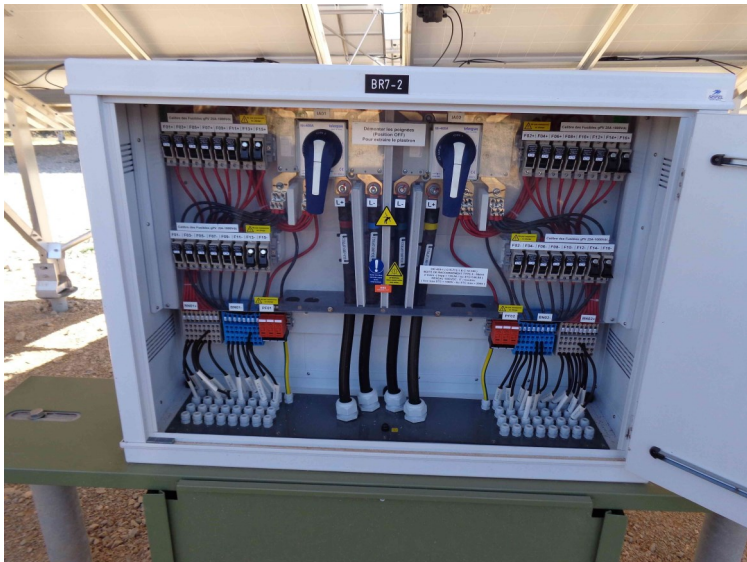
- Connection box for solar power plants
- Outdoor installation (UV-resistant cabinet), high degree of protection
- Installation: against a wall, on a concrete slab, or on a base made of the same material as the cabinet
- Any amount of strings possible

• **Technical characteristics :**

- Casing and door made of thermoplastic compound
- Door mounted on hinges (opening up to 180 °, right or left) with locking device, 3-point locking system maneuverable by rotating handle

• **Options:**

- Supply and installation of electrical equipment, fixed on DIN rail: according to customer's order
- Protection by 1 or 2 DC switches
- Fuse holder
- MC4 connectors or cable glands
- Document holder on the inside door



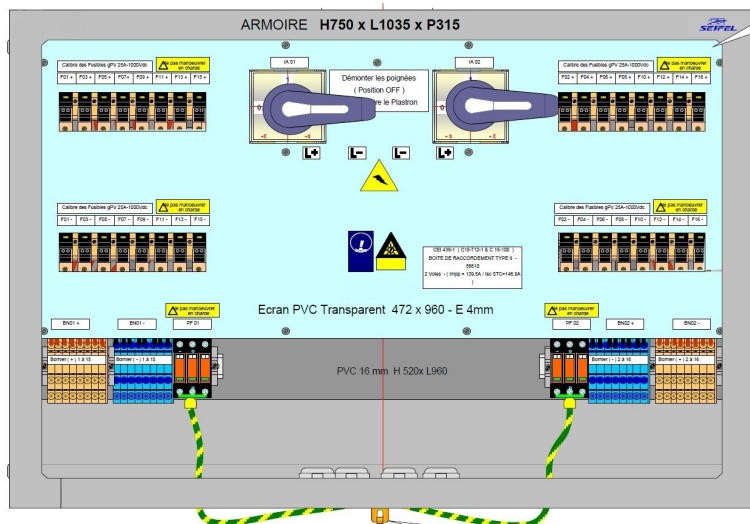
COLOR Cream	COLOR Grey	IP 55	IK 10	100%

AFNOR 3225  
NF X 08-002

RAL 7035

IEC 60529

IEC 62262



*Contact us for any other configuration*



## CABINETS FOR INVERTERS

- **Use :**
  - To protect the inverter from the elements
  - Outdoor installation (UV-resistant cabinet), high degree of protection
  - Installation: against a wall, on a concrete slab, or on a base made of the same material as the cabinet
- **Technical characteristics :**
  - Casing and door made of thermoplastic compound
  - Door mounted on hinges (opening up to 180 °, right or left) with locking device, 3-point locking system maneuverable by rotating handle
- **Options:**
  - Mounting brackets for inverters in the cabinet
  - Thermostatically regulated ventilation
  - Supply and installation of electrical equipment, fixed on DIN rail: according to customer's order
  - Cable entry and exit cones or cable glands
  - Cable entry and exit from top or bottom, left or right
  - Document holder on the inside door

Cabinet	Height	Width	Depth	Code (cream)
Cabinet 1 inverter *	1600 mm	1080 mm	540 mm	55924
Cabinet 2 inverters *	1600 mm	1710 mm	630 mm	55925
Cabinet 3 inverters *	1600 mm	1710 mm	630 mm	56358
Cabinet 4 inverters *	2000 mm	1980 mm	630 mm	56360
Base for cabinet 1 inverter.	500 mm	1125 mm	585 mm	56400
Base for cabiner 2 / 3 inv.	500 mm	1755 mm	675 mm	56168

\* Cabinet delivered with fan

COLOR Cream	COLOR Grey	IP 55	IK 10	100%
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AFNOR 3225  
NF X 08-002

RAL 7035

IEC 60529

IEC 62262



**Contact us for  
Any other dimension**





## SOL'R BOX

- **Use :**

- Protection of batteries for autonomous rural installation
- Safe for one (size S) or two (size M) batteries
- Installation inside and outside
- Battery (ies) placed directly in the bottom of the SOL'R BOX



- **Technical characteristics :**

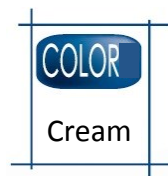
- SOL'R BOX made of thermoplastic compound (acid resistant material)
- High and low vents for hydrogen evacuation resulting from the charge / discharge of the battery
- Closure with triangular lockable and lockable latch
- Possibility to add a removable shelf

- **Options:**

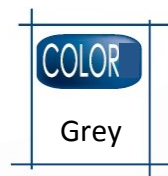
- Cable glands for cable entry and exit
- Securing of electrical outlets on the sides
- Fixing of the load regulator on the walls possible thanks to a set of inserts + screws
- Indicator of the state of charge of the battery (ies)
- Wiring



Product	Height	Width	Depth	Code (grey)
SOL'R BOX S	390 mm	476 mm	300 mm	55842
SOL'R BOX xM	390 mm	600 mm	300 mm	56884
SOL'R BOX M	390 mm	900 mm	300 mm	55843
SOL'R BOX MEDIUM H	490 mm	900 mm	300 mm	56961
SOL'R BOX L	750 mm	1200 mm	300 mm	56848
<b>With removable shelf</b>				
SOL'R BOX S + shelf	615 mm	476 mm	300 mm	57046
SOL'R BOX M + shelf	750 mm	900 mm	300 mm	57039
SOL'R BOX L + shelf	750 mm	1200 mm	300 mm	57043



AFNOR 3225  
NF X 08-002



RAL 7035



IEC 60529



IEC 62262



**Contact us for  
Any other dimension**

## BATT'BOX

- **Use :**

- On-site battery protection
- No limitation of the number of elements, depends on the configuration of the battery rack
- Outdoor installation
- The BATT'BOX covers the batteries which are placed directly on concrete slab.

- **Technical characteristics :**

- BATT'BOX made of thermoplastic compound (acid resistant material)
- High and low vents for hydrogen evacuation resulting from the charge / discharge of the battery
- Sunroof
- Cable glands for cable entry and exit,
- Supplied as a kit (mounting instructions included).

- **Six standard sizes (interior dimensions) :**

- Batt'Box XS : H 585 x W 555 x D 510 mm
- Batt'Box S : H 485 x W 960 x D 510 mm
- Batt'Box M : H 985 x W 1635 x D 735 mm
- Batt'Box L : H 1315 x W 2040 x D 1365 mm
- Batt'Box XL : H 1315 x W 2490 x D 1680 mm
- Batt'Box XXL : H 1315 x W 2850 x D 1455 mm

- **Options:**

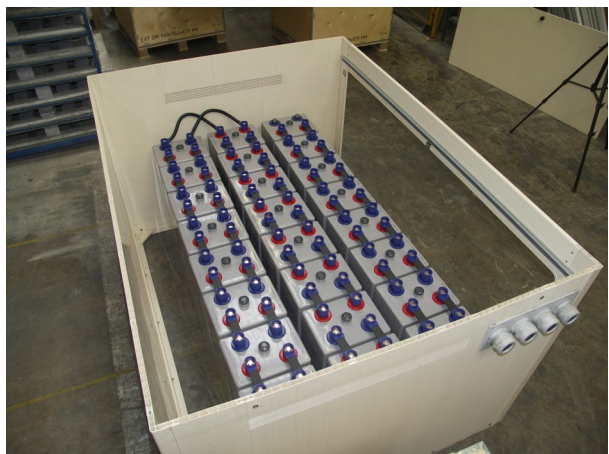
- Opening and lockable front panel (with triangular latches) for battery level check
- Bottom panel to close the base of the BATT'BOX
- Retention tray to be placed under the battery racks to contain any acid leakage. This tray is fully covered by the BATT'BOX
- Fixing of the load regulator on the walls possible thanks to a set of inserts + screws
- Fan 48V DC, 165m<sup>3</sup> / h, to improve ventilation (recommended for batteries type OPzS)
- Padlocking barrel (sold individually)



Above view of a BATT'BOX with an outdoor cabinet on site



BATT'BOX with open front panel



BATT'BOX with open roof and facade panel

 COLOR Cream	 COLOR Grey	 IP 44	 IK 10	 100%
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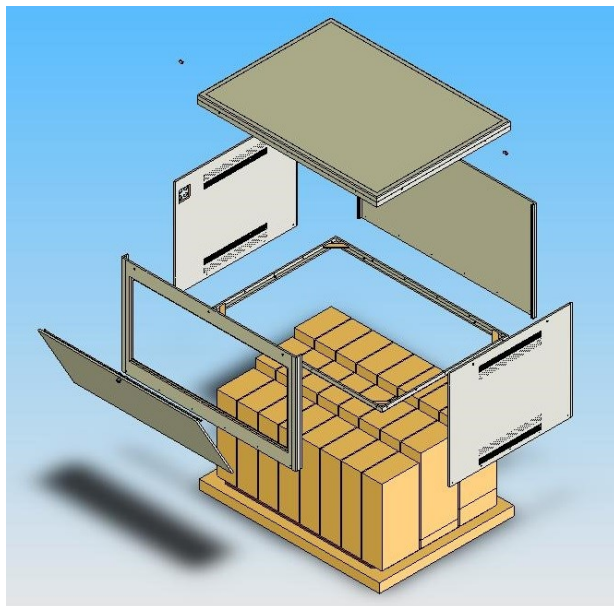
AFNOR 3225  
NF X 08-002

RAL 7035

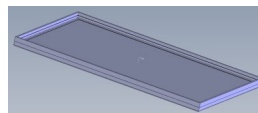
IEC 60529

IEC 62262

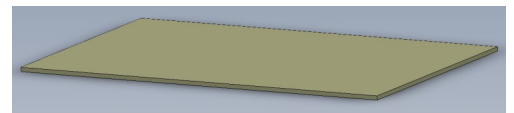




Product	Code (grey)
BATT'BOX XS	56064
BATT'BOX S	55839
BATT'BOX M	55840
BATT'BOX M with opening front panel	56056
BATT'BOX L	55841
BATT'BOX L with opening front panel	56009
BATT'BOX XL	56008
BATT'BOX XL with opening front panel	56759
BATT'BOX XXL	56827
BATT'BOX XXL with opening front panel	56408
Bottom panel for BATT'BOX XS	56805
Bottom panel for BATT'BOX S	56806
Bottom panel for BATT'BOX M	56826
Bottom panel for BATT'BOX L	56807
Bottom panel for BATT'BOX XL	56808
Bottom panel for BATT'BOX XXL	56809
Retention tray for BATT'BOX XS	56789
Retention tray for BATT'BOX S	56790
Retention tray for BATT'BOX M	56791
Retention tray for BATT'BOX L	56731
Retention tray for BATT'BOX XL	56792
Retention tray for BATT'BOX XXL	56793
48V DC, 165m3/h fab	56665
Padlocking barrel (sold individually)	55922



Retention tray



Bottom panel

**Other solutions:  
Vertical Batt'BOX, ...**



**Contact us for any other dimension**

## SOL'R CONT FOR ENERGY STORAGE



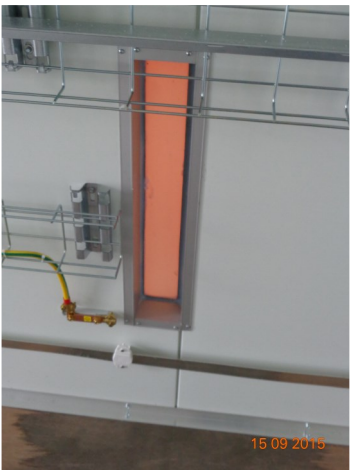
### The +

- SEIFEL exclusive know how
- Custom design solution
- Excellent thermal characteristics
- Empty or equipped application
- First trip 20' container



### Technical characteristics

- SEIFEL 60mm thick insulation into one 20' container
- Ventilation: natural, mechanical, electrical fan, air conditioner
- Sizing of ventilation defined by SEIFEL's Engineering Department
- Integration of equipment (inserts for battery chargers, inverter) battery rack, battery
- Separation wall (between battery, generator)
- Container with double door also possible
- Internal / external lighting
- Cable trays
- Earthing
- Pre-cabling possible
- Direct shipment from SEIFEL to seaport



# BASALTE SHELTERS



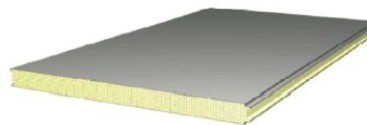
- **Use :**
  - Protection of electrical and telecommunications equipment,
  - Outdoor installation (shelter resistant to UV),
  - Installation method: on concrete slab
- **Technical characteristics:**
  - Eurocode 3 and 5 compliant metal chassis
  - Panels conform to NF EN 10346 painted according to XP P34-301 and NF EN 10169
  - Panel type:
    - . Isotherm: 40 mm (walls) and 60 mm (roof) with a ZM Evolution coating
    - . Thermal:
      - Walls  $U_c = 0.528 \text{ W / m}^2 \cdot ^\circ \text{C}$
      - Roof  $U_c = 0.375 \text{ W / m}^2 \cdot ^\circ \text{C}$
  - Anodised aluminum frame 20 microns
  - Type of floor: plywood CTB-X coated and non-slip, bonding class 3
  - Permissible working load: 1000 kg / m<sup>2</sup> on 2 lateral strips of width 600 mm and 250 kg / m<sup>2</sup> in the center
  - Fixing to the ground: square at the bottom in each corner (brackets and dowels provided)
- **Locking :**
  - 1-point lock with half cylinder European
  - 3-point lock with half-cylinder European in variant



Floor



Floor mounting provided



Shelter panel



UV protection

Size	Height	Width	Depth	Unloaded weight
6 m <sup>2</sup>	2700 mm	2340 mm	2420 mm	730 kg
8 m <sup>2</sup>	2700 mm	3570 mm	2420 mm	955 kg
10 m <sup>2</sup>	2700 mm	4720 mm	2420 mm	1180 kg



Air inlet protection kit  
Code 60531



Air outlet protection kit  
Code 60533



Air extractor kit  
Code 60886



Air intake grid on door kit  
Code 60690



High temperature probe kit  
Code 60889

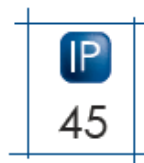


2x36w fluorescent lighting + switch(\*) kit  
Code 47340

(\*) Provide 2x10A - 30mA surge protection in a box



RAL 9006



IEC 60529



IEC 62262



100%



Floor

## OUTDOOR CABINETS





- **Use :**
  - Protection of electrical and telecommunication equipment,
  - Outdoor use (UV resistant enclosure),
  - Mounting on base or concrete slab.
- **Technical characteristics :**
  - Cabinet made in thermoplastic compound,
  - Protection degree from IP43 to IP55, shock resistance IK10,
  - 19" racks supplied inside the cabinet,
  - Earthing, wiring, cable glands ..... on request
  - Document holder on the door, internal side,
  - Door mounted on hinges (90° opening, on left or right side) with padlocking facility; locking of the door by means of a 3 point system with rotating handle without locking cylinder
  - Doorstop by mechanical self-locking arm
  - Colour: grey or cream
  - Delivered assembled

19" accessories	Code
Natural ventilation	56834
300m3/h ventilation with thermostat	56835
400W heating with thermostat	56836
Lighting controlled by door contact	56837
6 sockets + circuit breaker 16A-30mA	56838
H645xW451 perforated grid	821006
Fixed plate D410 30kg (for 675 mm deep cabinet)	648139
2U Telescopic plate (for 675 mm deep cabinet)	56839
1P+N 10 or 16A-C circuit breaker	56840

	Height	Width	Depth	Code Grey	Code Cream
<b>16 U</b>	965 mm	675 mm	405 mm	60088	60089
			675 mm	60093	60094
<b>24 U</b>	1320 mm	675 mm	405 mm	60090	56828
			675 mm	60095	60096
<b>32 U</b>	1700 mm	675 mm	405 mm	60083	60084
			675 mm	60097	60085
<b>42 U</b>	2120 mm	675 mm	405 mm	56829	60092
			675 mm	60098	60099
<b>Socle</b>	135 mm	675 mm	405 mm	56830	56831
			675 mm	56832	56833
<b>Socle</b>	300 mm	675 mm	405 mm	60017	60086
			675 mm	60100	60087

Contact us for any other configuration

<b>IP</b> 44	<b>IP</b> 55	<b>IK</b> 10	<b>COLOR</b> Grey	<b>COLOR</b> Cream
IEC 60529	IEC 62262	RAL 7035	AFNOR 3225	NF X 08-002
 100%		 UV protection		

## GENERAL CHARACTERISTICS OF OUR ENCLOSURES: BATT'BOX - SOL'R BOX - ARRAY BOX OUTDOOR CABINETS

The material of the enclosures is a thermoplastic compound die-cast in the mass, designed for outdoor use. This material is resistant to rapid temperature changes, shocks, UV, corrosion, chemical agents and pollution.

The enclosures are manufactured according to our exclusive modular construction process (15 mm thick profiles). Made of thermoplastic compound (100% recyclable material), those double skin profiles are mechanically assembled and welded by cold polymerisation.

This process gives to the final product the following characteristics:

- Protection degree : IP 43 to IP 55 as per IEC 60529
- Shock resistance: IK 10 as per IEC 62262
- Dielectric rigidity: 6 kV as per IEC 60950, transversal resistance of our material
- Fire resistance: UL 94 Vo (self extinguishing material) as per ISO 1210, no propagation of a flame, 2x10 seconds the material extinguishes in a duration inferior to 10 seconds, the material does not let fall a burning drop
- Climatic cycle: method 1 NF C 20-761, wet heat resistance, 6 x 24 hours cycles at extreme temperatures +70° C -30° C with 55% humidity in a climatic precinct, typical temperature +55° C -20° C with 55% humidity in a climatic precinct
- Aging : NF C 20-540, colour resistance test, duration 6 weeks
- Glow wire test: NFC 20-921 or CEI 60695-2, 960° glow wire applied during 30 seconds, the extinguishing time must be inferior to 30 seconds, the material must not produce any burning drop.
- Acid resistance: no reaction while exposed to acids
- Corrosion: corrosion free (thermoplastics)
- Thermal insulation:  $K = 0,3 \text{ W} / ^\circ \text{C} / \text{m}^2$

## BENEFITS OF ENCLOSURES IN THERMOPLASTICS

The enclosures displayed in this brochure are made of double skin profiles of thermoplastic compound, 100% recyclable.

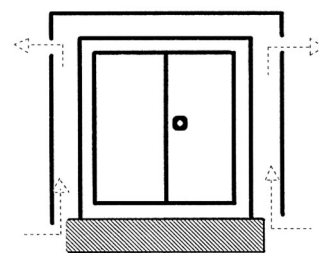
- Chemical aggressions: acid might escape from the batteries and affect some plastic materials (polyester) that turn grey or black. Thanks to their resistance to chemical aggressions, the enclosures made in thermoplastic compound do not have the same limitation and keep their aspect for years.

- Humid Environnements: a wet environment favors the emergence of foam in existing porosities of certain heterogeneous plastics (glassfiber reinforced polyester). Due to their molecular homogeneity, enclosures in thermoplastic compound are recommended for applications located in such environments.

- Electrical insulation: These enclosures house electrical equipment. It is important that those enclosures are made of an insulating material, providing a complete electrical safety for all the applications. The use of enclosures made of plastics ensures that, as their walls are non conductive.

- Thermal characteristics: studies have shown that the heat transfer coefficient of the thermoplastic compound relative to the one of stainless steel (or steel) is twice as good. It was also proved that the heat dissipation of thermoplastic compound is 244 times better compared to stainless steel (or steel).

- Condensation of water: the use of stainless steel (or steel) under normal condition of use (high temperature, UV exposure) will cause condensation of water inside the enclosure, and therefore a possibility of short-circuiting of batteries; the use of enclosure in thermoplastic compound with natural ventilation system will help reduce these phenomena, providing a longer life to the equipment placed inside; see sketch below.



- Standards and norms: the enclosures in thermoplastic compound are conceived according to severe standards and norms (aging, glow wire test, fire resistance, climatic cycle, UV resistance, damp heat test).

- References: our enclosures in thermoplastic compound are used on all continents in many applications such as electrical distribution, gas distribution, water distribution, IT, telecommunication facilities, and various applications such as protection of fuel cells, pumping solar stations compressors.

# Sustainable solutions for your networks

## ELECTRICITY

- Low voltage network & service entrance
  - \* Distribution
  - \* Cut off and protection
  - \* Meter protection
  - \* Apartment buildings



## STREET LIGHTING

- Command enclosures
- Meter panels
- Junction boxes
- Signaling, traffic lights



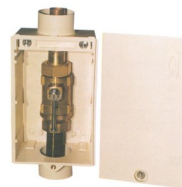
## INDUSTRIAL APPLICATIONS

- Switchboards
- Monitoring and control
- Protection of sensitive equipment
- Harsh environments



## GAS

- Service entrance
- Cut off
- Regulation
- Meter protection



## TELECOM

- Telecommunications
  - \* Mobile telephony
  - \* Broadband network
- Highway signage



## WATER

- Service entrance: cut off and meter protection
- Sanitation
  - \* Control
  - \* Chlorination
  - \* Limmigraph



## MARINA & CAMPING

- Marinas
- Camping, mobile homes

Find our products on our website:  
[www.seifel.eu/en/](http://www.seifel.eu/en/)