PRODUCT ENVIRONMENTAL INFORMATION

Low voltage circuit breaker
SACE Emax2

SACE Emax2 is a highly advanced family of low voltage air circuit breakers with unparalleled versatility of use and able to solve all installation problems brilliantly and respond successfully to all plant engineering requirements, from standard ones to the most technologically advanced ones.

SACE Emax2 can be found in the three-pole and four-pole, fixed and withdrawable versions, fitted with the very latest generation electronic trip units, with the possibility of interchangeability. SACE Emax2 set up a new technological standard and leave you free to think up and build installations with extraordinary performances.
The present document applies to products made in Italy and manufactured in Frosinone plant.
This manufacturing site is certified according to ISO 9001, IRIS, ISO 14001, OHSAS 18001 and SA 8000.

Product Conformity & Compliance

REACh (Regulation EC 1907/2006)
SACE Emax2 and related accessories were classified as Articles and, during normal and reasonably foreseeable conditions of use, do not intentionally release any substance or preparation. ABB SACE continuously undertakes communications throughout its supply chain in order to collect information about suppliers' compliance with REACh rgulation.

SVHC (Regulation EC 1907/2006 REACh)
ABB SACE continuously assesses its products for content of Substances of Very High Concern (SVHC), as included in the "Candidate List" by the European Chemicals Agency (ECHA).

RoHS II
SACE Emax2 and related accessories are within the scope of Directive 2011/65/EU (RoHS II) starting from July 2019.
However, according to our best knowledge, SACE Emax2 and related accessories do not contain any of the restricted substances listed into RoHS II directive.

WEEE
SACE Emax2 and related accessories are included in the scope of Directive 2012/19/EU starting from August 15th 2018.

Product Safety
Certification of conformity with the product Standards is carried out in the ABB SACE tests laboratory (accredited by ACCREDIA) in respect of UNI CEI EN ISO /IEC 17025 Standard, by the Italian certification body ACAE (Association for Certification of Electrical Apparatus), member of the European LOVAG organization (Low Voltage Agreement Group) and by the Swedish certification body Intertek Semko, belonging to the international IECEE organization.

Standard:
- IEC 60947-2.

Directives:
- EC “Low Voltage Directive (LVD) 2014/35/EC.
- EC “Electromagnetic Compatibility Directive” (EMC) 2014/30/EC.

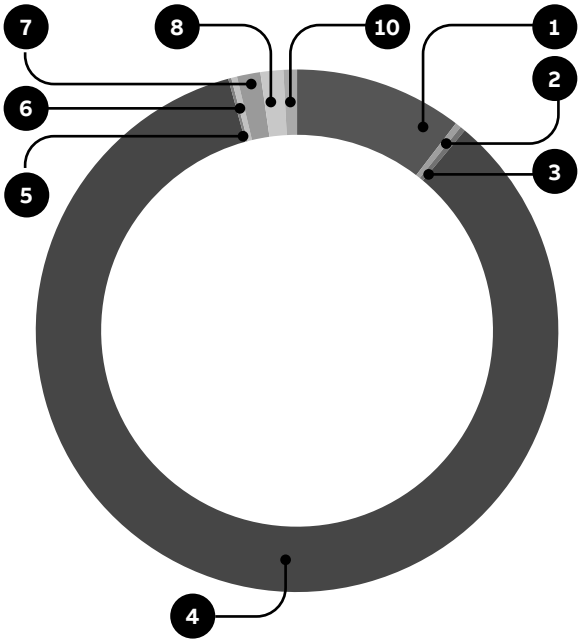
Naval Registers:
- Lloyd’s Register of Shipping, Germanischer Lloyd, Bureau Veritas, RINA, Det Norske Veritas, Russian Maritime Register of Shipping, ABS.

Certifications and awards

Material declaration

The charts below show the constituents of Emax E1.2, E2.2, E4.2 and E6.2 3-poles withdrawable.
The costituent materials are distributed as follows.

Emax E1.2
The total weight of the product is 18.630 gr.



Material		Mass (g)	% wt
1	Steel	1.621	8,7%
2	Stainless steel	58	0,31%
3	Precious metals	50	0,27%
4	Cu and Cu alloys	13.193	70,81%
5	ABS	30	0,16%
6	PA Compounds	57	0,30%
7	PC Compounds	226	1,21%
8	PET Compounds	30	0,18%
9	Melamine resin	-	-
10	BMC/SMC	3.365	18,06%
11	Other materials	-	-
	TOTAL	18.630	100,0%

Emax E2.2
The total weight of the product is 48.000 gr.

Material		Mass (g)	% wt
1	Steel	26.855	55,9%
2	Stainless steel	521	1,08%
3	Precious metals	106	0,22%
4	Cu and Cu alloys	10.998	22,9%
5	ABS	142,4	0,3%
6	PA Compounds	1.507	3,14%
7	PC Compounds	968	2,02%
8	PET Compounds	60	0,12%
9	Melamine resin	14,1	0,03%
10	BMC/SMC	6.825	14,22%
11	Other materials	3,8	0,01%
	TOTAL	48.000	100,0%

Emax E4.2
The total weight of the product is 60.000 gr.

Material		Mass (g)	% wt
1	Steel	31.370	52,28%
2	Stainless steel	644	1,07%
3	Precious metals	138	0,23%
4	Cu and Cu alloys	15.820	26,37%
5	ABS	143	0,24%
6	PA Compounds	1.675	2,79%
7	PC Compounds	1.187	1,98%
8	PET Compounds	90	0,15%
9	Melamine resin	25,5	0,04%
10	BMC/SMC	8.907	14,84%
11	Other materials	3,8	0,01%
	TOTAL	60.000	100,0%

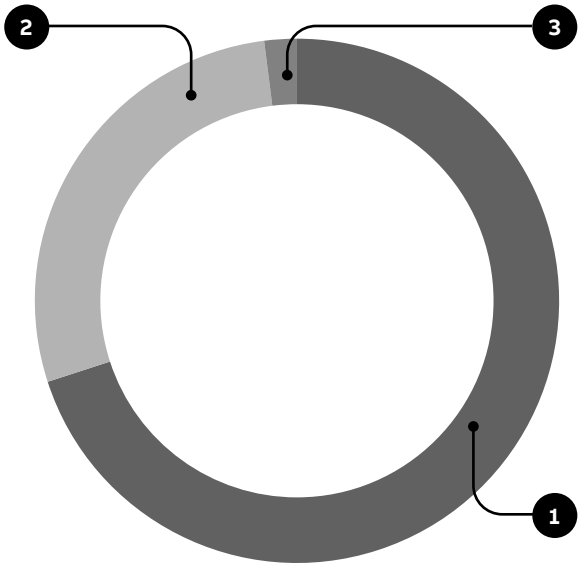
Emax E6.2
The total weight of the product is 100.083 gr.

Material		Mass (g)	% wt
1	Steel	41.049	41,01%
2	Stainless steel	1.750	1,75%
3	Precious metals	276	0,28%
4	Cu and Cu alloys	34.038	34,01%
5	ABS	300	0,3%
6	PA Compounds	3.000	3,0%
7	PC Compounds	1.500	1,5%
8	PET Compounds	180	0,18%
9	Melamine resin	50	0,05%
10	BMC/SMC	17.932	17,92%
11	Other materials	7,6	0,01%
	TOTAL	100.083	100,0%

Packaging

The total weight for Emax2 packaging material is 1.9 Kg for E1.2, 9.85 Kg for E2.2, 8.7 kg for E4.2 and 12.85 kg for E6.2. The charts provide information for each packaging material used.

Emax2 packing material composition



Circuit-breaker	Material	%
E1.2	1 Wood	46%
	2 Cardbox	52%
	3 Plastic	2%
E2.2	1 Wood	77,2%
	2 Cardbox	22,8%
	3 Plastic	0%
E4.2	1 Wood	82%
	2 Cardbox	18%
	3 Plastic	0%
E6.2	1 Wood	76%
	2 Cardbox	24%
	3 Plastic	0%

Product Use

Energy

The power losses for Emax is:

- 134 W/pole for E1.2 1600;
- 184 W/pole for E2.2 2500;
- 300 W/pole for E4.2 4000;
- 517 W/pole for E6.2 6300.

These values represent about 0.02% of the total power flowing through Emax2. The energy consumption during the use of Emax2 has been extimated assuming 20 years of continual operation with a 30% load rate and 100% operation time.

Energy consumption

Type	Energy (KWh)
E1.2 1600	6300
E2.2 2500	8600
E4.2 4000	14.100
E6.2 6300	24400

End-of-life

At the end of operating life, constituent components of Emax2 have been optimized in order to reduce waste amount and increase recovery of the material. Metals and polymers contained into SACE Emax2 are characterized by high recycling rates. Most plastic parts are marked for easy sorting. The recyclability potential of the product has been evaluated using IEC / TR 62635. According to this standard, the potential recyclability ratio is ≥ 80%.

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