

# Low voltage circuit breaker

## SACE Tmax T5



SACE Tmax T5 is a highly advanced low voltage moulded case circuit-breaker 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 Tmax T5 can be found in the three-pole and four-pole, fixed and withdrawable versions, fitted with the very latest generation electronic and thermal-magnetic trip units, with the possibility of interchangeability. SACE Tmax T5 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 Tmax T5 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 regulation.

#### **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 Tmax T5 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 Tmax T5 and related accessories do not contain any of the restricted substances listed into RoHS II directive.

#### **WEEE**

SACE Tmax T5 and related accessories are not 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.

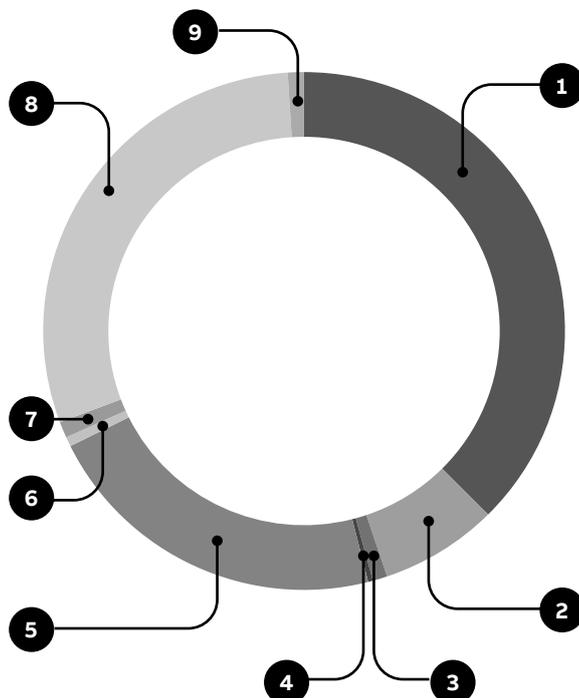
### Certifications and awards



### Material declaration

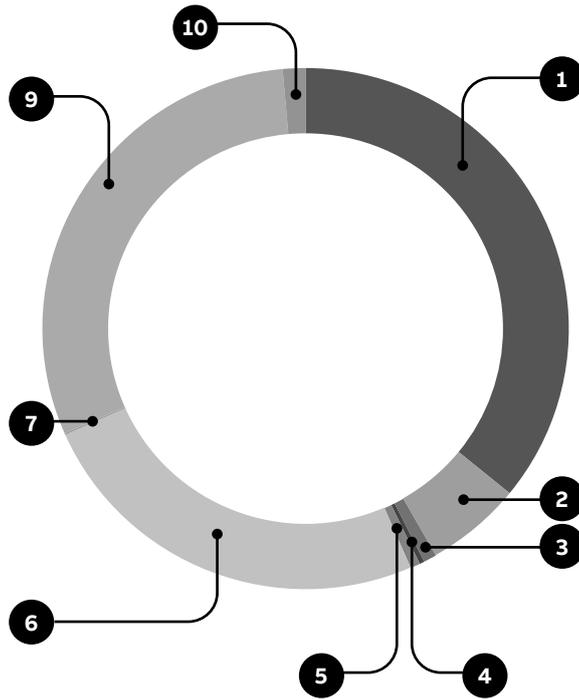
The charts below show the constituents of Tmax T5 400 3-poles. The constituent materials are distributed as follows.

**Tmax T5 with thermal-magnetic trip unit.**  
**The total weight of the product is 4.112 gr.**



| Material            | % wt  |
|---------------------|-------|
| 1 BMC/SMC           | 37,5% |
| 2 PC compounds      | 7,3%  |
| 3 PA compounds      | 0,9%  |
| 4 ABS               | 0,3%  |
| 5 Cu and Cu alloys  | 21,6% |
| 6 Precious metals   | 0,6%  |
| 7 Other iron alloys | 1%    |
| 8 Steel             | 29,7% |
| 9 Other             | 1%    |
| TOTAL               | 100%  |

**Tmax T5 with electronic trip unit.**  
**The total weight of the product is 4.471 gr.**



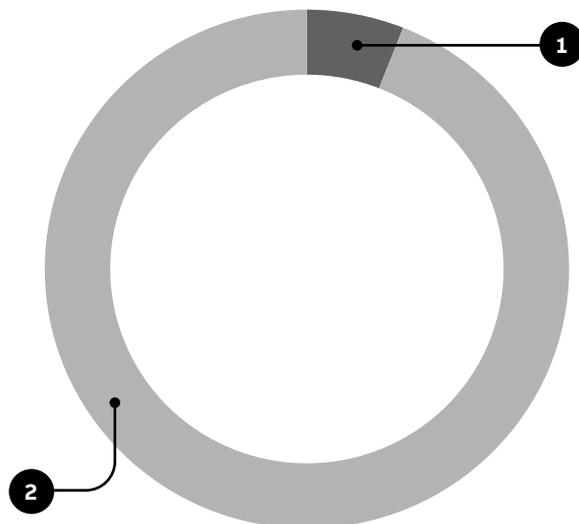
| Material                  | % wt          |
|---------------------------|---------------|
| 1 BMC/SMC                 | 35,9%         |
| 2 PC compounds            | 5,9%          |
| 3 PA compounds            | 0,8%          |
| 4 ABS                     | 0,3%          |
| 5 Precious metals         | 0,6%          |
| 6 Copper & its alloys     | 24,9%         |
| 7 Other Ferrous Materials | 0,1%          |
| 8 Stainless Steel         | 0,0%          |
| 9 Steel                   | 30,2%         |
| 10 Other                  | 1,4%          |
| <b>TOTAL</b>              | <b>100,0%</b> |

## Packaging

The total weight for Tmax T5 packaging material is 675 grams. The chart provides information for each packaging material used.

The polymer films used are marked with the proper identification code and are recyclable.

### Tmax T5 packing material composition



| Material     | %           |
|--------------|-------------|
| 1 Plastic    | 6%          |
| 2 Cardbox    | 94%         |
| <b>TOTAL</b> | <b>100%</b> |

## Product Use



### Energy

Power losses for Tmax T5 equipped with thermal magnetic release and electronic release are respectively equal to 19.5 and 16.5 W per pole. These values represent about 0.01% of the total power flowing through Tmax T5 breaker. The energy consumption during the use of Tmax T5 has been estimated assuming 20 years of continual operation with a 30% load rate and 100% operation time.

Energy consumption  
(TM trip unit) = 922 KWh.

Energy consumption  
(Electronic trip unit) = 781 KWh.

## End-of-life

At the end of operating life, constituent components of Tmax T5 have been optimized in order to reduce waste amount and increase recovery of the material. Metals and polymers contained into SACE Tmax T5 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%.