



IEC/TC OR SC:

33

SECRETARIAT:

Italy

DATE:

2020-01

A. STATE TITLE AND SCOPE OF TC

Technical Committee 33 was formed in 1946. The scope is defined as: "To prepare International Standards for power capacitors and their applications".

The co-operation between IEC and CENELEC is continuous. In practice, all of IEC standards regarding power capacitors and their applications have been adopted by CENELEC.

For the development of the standards, the co-operation with CIGRE and IEEE is important.

B. MANAGEMENT STRUCTURE OF THE TC

After the plenary meeting held in 2019, the structure of the TC is as follows:

Label	Description
WG 23	Self-healing A.C. shunt power capacitors having a rated voltage above 1 000 V
JWG 17A	(TC 33 - SC 17A): Grading capacitors
JWG 22F	(TC 33 - SC 22F): Thyristor controlled series capacitors
MT 13	Series capacitor banks and protective equipment
MT 18	Power electronics capacitors
MT 19	Shunt capacitors for a.c. power systems having a rated voltage above 1000 V
MT 20	Coupling capacitors and capacitor dividers
MT 21	Shunt power capacitors for a.c. systems having a rated voltage up to and including 1000 V
MT 24	Special applications
MT 25	AC motor capacitors

C. BUSINESS ENVIRONMENT

Power capacitors are used for several applications. The most important application of power capacitors is for power factor correction and are termed as shunt capacitors. In this application, the capacitors are connected in parallel to low voltage or high voltage networks. Shunt power capacitors for network use can also meet the increased demand for the reduction of transient and, if in a filter circuit, of harmonics and, if switched in a controlled manner (i.e. electronically),

they can stabilize and improve the use of the network. Some of the important standards are IEC 60831, IEC 61921 and IEC 60871.

Series power capacitors (IEC 60143) connected in series to the networks stabilize the transmission voltage, increase the transmitted power of the lines and control the power flow in parallel lines.

Other important applications for power capacitors are: capacitors for a.c. motors (IEC 60252), capacitors for power electronics (IEC 61071), coupling capacitors and capacitors dividers for capacitor voltage transformers (IEC 60358), capacitors for microwave ovens (IEC 61270) and capacitors for induction heating and melting ovens (IEC 60110).

The customers of IEC standards regarding power capacitors connected to low and high voltage networks are generally capacitor manufacturers and utilities (end users) which produce, transmit and distribute electrical energy. Some of these companies are represented in the TC and in its WGs. However, representation of utilities in TC is low. Bigger participation of end users in committees is welcomed

The customers of IEC standards regarding other applications are generally electrical equipments' manufacturers companies (e.g. domestic appliances' manufacturers) or small factories; their representation in the TC is low. Liaisons with users' committees are welcomed.

The IEC standards are widely used at the regional, national and international level. In practice they do not have important competing standards. The parallel voting system with CENELEC has had as a consequence the identity of IEC and EN Standards in the field of activity of TC 33.

D. MARKET DEMAND

Power factor correction, particularly in high voltage, is an important and growing part of the market of power capacitors, especially in rapid developing countries. The market for power electronics capacitors is also increasing due to the use more and more important of electric vehicles able to reduce pollution in large cities. In contrary, the market of capacitors for fluorescent lamps is rapidly decreasing against the use of electronic ballasts. The market of motor capacitors is nearly stable: in front of a decrease in some applications, there is an increase in others.

E. TRENDS IN TECHNOLOGY AND IN THE MARKET

The development of the dielectric and other components and materials, the knowledge of how to protect the capacitors and how to reduce the consequences in case of a failure have, during the last decades, resulted in smaller, more economical and more reliable capacitors.

The latest developments in the technology of film metallization have given much work to TC 33 in the continuous effort to develop standards that are aligned with the state of the art.

F. SYSTEMS APPROACH ASPECTS (REFERENCE - AC/33/2013)

There is no need for a systems approach in TC 33.

G. CONFORMITY ASSESSMENT

The standards developed by TC 33 include test requirements and reproducible test methods where applicable. However, the publications do not provide a conformity assessment system or scheme.

H. HORIZONTAL ISSUES

The standard developed by TC 33 contain provisions about safety and security of operation, when needed. The energy efficiency and environmental aspects are not explicitly addressed by the documents, but are nonetheless an important focus for the technology development in the field of activity of the committee.

I. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
Environmentally related issues	Publication about noise measurement	2022-12-31
Technological developments	Publications about self-healing capacitors, power factor correction banks, TRV capacitors	2023-06-30

Note: The progress on the actions should be reported in the RSMB.