



SLOVENSKI STANDARD
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Application guide for on-load tap-changers - Amendment No. 1 to publication 542 (1976)

Amendment No. 1

Modification n° 1

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ICS:

29.120.40 Stikala Switches

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NORME
INTERNATIONALE
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STANDARD

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542

1976

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Amendement 1

**Guide d'application pour changeurs
de prises en charge**

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Application guide for on-load tap-changers

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PREFACE

This amendment has been prepared by Sub-Committee 14B: On-load tap-changers, of IEC Technical Committee No. 14: Power transformers.

The text of this amendment is based on the following documents:

Six Months' Rule	Report on Voting
14B(C0)15	14B(C0)16

Full information on the voting for the approval of this amendment can be found in the Voting Report indicated in the above table.

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2.2 *Insulation level*

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Number the existing note as "Note 1" and add the following Note 2:

- 2.- Switching operations may cause oscillating transient over-voltages in networks which may lead to oscillating overvoltage stresses on the tap-changer. These stresses have to be considered when selecting the lightning impulse level of the tap-changer: they are not covered by the switching impulse tests of the transformer which are performed in accordance with Clause 14 of IEC Publication 76-3 (1980), Part 3: Insulation levels and dielectric tests.

2.3 *Current*

Amend the title to:

2.3 *Current and step voltage*

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2.3.2 *Overload current*

Replace the text of this sub-clause by the following:

Tap-changers in accordance with Sub-clause 8.1 of IEC Publication 214 meet the overload requirements of IEC Publication 354.

The number of tap-changes for each overload period should be limited to the same number of operations as is required to move from one end of the tapping range to the other.

When, for a particular application, a transformer is to be subjected to loading conditions in excess of the limitations in IEC Publication 354, the tap-changer manufacturer should be asked to recommend a suitably rated tap-changer.

Renumber the existing Sub-clause 2.3.3 as 2.3.4 and insert the following new sub-clause:

2.3.3 *Rated step voltage*

The rated step voltage of the tap-changer (see IEC Publication 214, third edition, Sub-clause 4.18) should be at least equal to the highest step voltage of the tapped winding. The tap-changer is then suitable for operation as long as the applied voltage on the transformer does not exceed the limitations of Sub-clause 4.4 of IEC Publication 76-1.

If the tap-changer is required to operate frequently at a higher applied transformer voltage, its rated step voltage should be increased accordingly.

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2.4 *Breaking capacity*

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Amend the first paragraph to read: <https://standards.iteh.ai/catalog/standards/sist/b323928-a9ae-4911-9302->

The breaking capacity requirements are met if the highest tapping current and the voltage per step of the transformer are within the values of rated through-current and relevant rated step voltage declared by the tap-changer manufacturer for the particular tap-changer.

Insert after the first paragraph:

Operation of tap-changers under temporary overcurrent, such as inrush-current or short-circuit current, should be avoided.

Replace the text of the note by the following:

Note.- In certain applications, such as furnace and rectifier transformers, the tap-changer may be called upon to operate during periods of momentary overcurrent of two to three times the transformer's continuous maximum rated through-current or distorted step voltage or current. This requires a higher breaking capacity than according to rated values.

In case of distorted voltages and currents, the manufacturer should declare upon request their influence on the breaking capacity.

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2.6 *Discharge problems with change-over selectors*

Amend the title to:

2.6 *Discharges during the operation of the change-over selectors*

2.9 *Pressure and vacuum tests*

Replace the text of the sub-clause by the following:

The tap-changer when fully assembled shall withstand all the pressure and vacuum test stresses of its associated transformer. All the relevant information should be given to the manufacturer of the tap-changer.

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3.2 *Diverter and selector switches*

Replace the text of this sub-clause by the following:

To avoid contamination of the oil in the transformer tank, the diverter switch and selector switch shall be housed in a leakproof compartment inside or outside the transformer tank.

4.1 *Safety of operation*

In the first paragraph, add the following text:

... (see IEC Publication 214, third edition, Sub-clause 7.3).

Replace the text of the second paragraph by the following:

- 2) In order to minimize probability of switching under excessive over-load or short-circuit conditions, it is recommended that, in the case of motor control, a protective device be fitted to prevent, or if initiated interrupt, an operation of the motor-drive mechanism when the transformer load exceeds 1.5 times the maximum tapping current.

After Sub-clause 4.3, insert the following new sub-clause:

4.4 *Oil replacement*

Mineral oil shall not be replaced by other fluids without consultation with the tap-changer manufacturer.