



Proizvodni program

- **Srednji energetska transformatori do 160 MVA i najvišeg napona do 170 kV**
 - S regulacijskom sklopkom pod opterećenjem
 - S regulacijskom preklopkom u beznaponskom stanju
 - Bez regulacijskih odcjepa
- **Specijalni transformatori:**
 - Ispravljački transformatori (6 pulsni, 12 pulsni, 18 pulsni, 24 pulsni, 36 pulsni)
 - Transformatori za željeznice
 - Pećni transformatori
 - Transformatori za mobilne trafostanice
- **Servis i popravak transformatora**



Production program

- **Medium power transformers rated power up to 160 MVA and voltage up to 170 kV**
 - With On load tap changer
 - With Off circuit tap changer
 - Without regulation tapplings
- **Special transformers:**
 - Converter transformers (6 pulse, 12 pulse, 18 pulse, 24 pulse, 36 pulse)
 - Transformers for railways
 - Transformers for furnaces
 - Transformers for mobile substations
- **Servicing and repairing transformers**

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Srednji energetska transformatori

Medium Power Transformers

2,5-160 MVA do/up to 170kV



Osnovni tehnički podaci

➔ KONČAR D&ST proizvodi srednje energetske uljne transformatore i specijalne transformatore do 160 MVA najvišeg napona opreme 170 kV. Regulacija napona se izvodi regulacijskim odcjepima pomoću sklopke pod opterećenjem te preklopke ili prekapčanjem ispod poklopca u beznaponskom stanju. Transformatori se izrađuju i ispituju u skladu s normom IEC 60076, a moguće su izvedbe prema drugim međunarodnim standardima. Namjenjeni su za vanjsku i unutarnju ugradnju, a mogu se opteretiti snagom većom od nazivne prema normi IEC 60076-7.

Jezgra

Jezgra je izrađena od hladnovaljanog magnetskog lima niskih specifičnih gubitaka i slagana principom step-lapa. Limovi su obostrano izolirani tankim slojem anorganske izolacije, postoje na transformatorsko ulje i visoke temperature.

Namoti

Namoti su projektirani tako da zadovolje zahtjeve na mehaničku otpornost prema silama kratkog spoja, dopuštenom zagrijanju i ispitnim naponima. Cilindričnog su oblika, izrađeni od vodiča velike vodljivosti izoliranih lakom ili papirom. Ovisno o struji i naponu koriste se različiti tipovi namota - preloženi, spiralni, slojni upleteni.

Izolacija

Osnovni materijali izolacije su ploče od prešpana prerađene u odgovarajuće oblike te transformatorsko ulje. Izolacija između namota i prema uzemljenim dijelovima sastoji se od ulja i barijera od prešpana u obliku cilindara i kapa. Korišteno mineralno ulje u skladu je s normom IEC 60296. Na zahtjev transformatori mogu biti punjeni sintetičkim esterom ili vegetabilnim uljem.

Otpornost na kratki spoj

Transformatori su tako dimenzionirani i izvedeni da izdrže sile kratkog spoja, što se dokazuje ispitivanjem prema normi IEC 60076-5 ili odgovarajućim proračunima.

Buka

Intenzitet buke mjeri se prema normi IEC 60076-10. Na zahtjev izrađujemo transformatore sa sniženom bukom.

Kotao

Izrađen je od čeličnih limova i može izdržati određeni pretlak i vakuum bez trajnih deformacija.

Zaštita od korozije

Zbog različitih uvjeta okoline u kojima naši transformatori rade, poduzima se niz zahvata da se osigura odgovarajuća zaštita od korozije. Gotovi kotlovi, poklopci i ostali metalni dijelovi pripremaju se i štite u skladu s ISO 12944 standardom ovisno o kategoriji korozije C1 do C5M.

Basic technical data

➔ KONČAR D&ST manufactures oil immersed power transformers and special transformers up to 160 MVA, for the highest system voltage up to 170 kV. Voltage regulation is carried out by reconnecting the tapplings by means of an on-load tap changer under load and off-circuit tap changer or reconnection bolts under tank cover at no voltage condition. Transformers are intended for outdoor operation under various climatic conditions as well as for indoor use. Transformers are designed and tested in accordance with the standard IEC60076, but other international standards can be applied as well. All the transformers can be loaded above rated power in accordance to IEC60076-7.

Core

Core is made of cold rolled magnetic steel sheets of low specific losses and stacked by step-lap principle. Sheets are mutually insulated by a thin layer of inorganic insulation, resistant to transformer oil and high temperatures.

Windings

Windings are constructed to meet the requirements with regard to the mechanical resistance to short-circuit forces, permissible temperatures rise and test voltages. They are cylindrical in shape, made of conductors of a high conductivity, insulated by paper or enamel. Depending on the current and voltage, various winding types such as disc continuously wound, spiral, layer and interleaved type, are used.

Insulation

Basic insulation material are the pressboards mould into necessary shapes and transformer oil. Insulation between the windings and to earthing parts consists of oil and pressboard barriers shaped like cylinders and caps. Applied mineral oil is in accordance with the standard IEC 60296. Transformers filled with synthetic esters or vegetables oil are available on request.

Ability to withstand short-circuit

Transformers are designed and manufactured in such way to withstand short-circuit forces, which is proven by testing acc. to IEC 60076-5 or relevant calculation, respectively.

Noise

Noise level is measured acc. to standard IEC 60076-10. Transformers with reduced noise level are available on request.

Tank

Tank is made of steel sheets and is capable of withstanding a certain overpressure and vacuum without permanent deformations.

Corrosive protection

Since our transformers operate under different hard enviromental conditions, series of actions are taken, in order to ensure proper corrosive protection. Finished tanks, covers and other metal parts are prepared and painted following ISO 12944 standard according to climate conditions C1 up to C5M.

