

The invention is based on a method according to the preamble of claim 1. A rotary transformer of this kind is known from the DE-A-30 35 676.

The wires of the winding of this known rotary transformer are sealed in the circumferential recess in the coil support by means of a sealing compound, with the wires and the sealing compound initially projecting out of the surface of the coil support. The surface of the latter is then ground such that it lies in one plane with the partly ground-off wires and the sealing compound.

The object of the invention is to provide a method for producing a rotary transformer of this kind which is simpler in terms of manufacture and, in particular, does not require the wires to be sealed in the circumferential recess in the coil support.

This object is solved by the invention described in claim 1. Advantageous developments of the invention are described in the subclaims.

According to the invention a small plastic coil bobbin is therefore inserted in the core, which consists of ferrite or an equivalent material, which bobbin is provided with circumferential slots for carrying the wire of the winding. Slots of this kind can be produced in a plastic bobbin with a high degree of accuracy. They are preferably of a width which is such that the wire is laid tightly in the slots with a slight deformation of its lacquer coating. The coil bobbin meanwhile creates an electrically and magnetically neutral area within the ferrite core which ensures that the turns formed by the continuous wire are positioned in an accurate and defined manner. The use of a flat wire of a rectangular cross section enables the winding space to be utilised particularly well.

The invention is explained on the basis of the drawings, in which:

Figure 1 is a sectional view of the rotary transformer formed according to the invention,
Figure 2 is a scaled-up detail from Figure 1,
Figure 3 is a modification of the arrangement according to Figure 2,
Figure 4 shows the structure of the coil bobbin,
Figure 5 shows the position of the wires in the slots in the coil bobbin and
Figure 6 is a modification of the arrangement according to Figure 5.

Figure 1 shows a rotary transformer which is formed from two annular ferrite cores 1, 2, which are arranged coaxially one inside the other and between which an air gap 3 of a width of approximately $35\text{ }\mu\text{m}$ is formed. The ferrite core 1 rotates about the axis A and thus forms the rotor of the rotary transformer. The ferrite core 2 bears the stator winding 4, which is connected to the stationary circuit. The core 1 is provided with a slot 6, which extends around the outer circumference. The coil bobbin 7, which consists of a plastic material, is inserted tightly in the slot 6 and may be bonded. The coil bobbin 7 is in turn provided at its outer circumference with two circumferential slots into which the wire 5 of the transformer winding is wound.

Figure 2 shows the structure of the coil bobbin 7 at the outer circumference. The two circumferential slots 8, 9, which are formed by three flanges 10, 11, 12, carry the continuous wire 13, which forms the winding of the rotating core 1. The slots 8, 9 are of a width B of 0.1 mm and a depth T of 0.3 mm. The width B and the diameter of the wire 13 are adapted to one another such that the wire 13 is laid tightly in the slots 8, 9 with a slight deformation of its lacquer coating. The number of turns is five, the slot 8 not being fully utilised. This number of turns results from the desired electrical turns ratio of, e.g. 5 : 2 of the rotary transformer.

Figure 3 shows a modification in which a total of four flanges 10, 11, 15, 12 form three slots 8, 14, 9, which altogether carry six layers of the wire 13.

According to Figure 4 the coil bobbin 7 is provided with a slit 16 at one point. This enables the bobbin 7 to be opened out in the direction of the arrows 17 and laid in the slot 6 in the ferrite core 1 in the manner of a spring ring.

Figures 5 and 6 show the path of the wire 13 along the two slots 8, 9. The beginning 18 of the wire is firstly laid on the bottom of the slot 9. Two further layers are then wound in the slot 9, after which the wire 13 is passed over via the slit 19 in the flange 11 into the slot 8, where it is wound into three layers. The winding end 20 is subsequently guided out through an opening 21 in the flange 10. The advantage of this solution lies in the fact that there is just one transition from the slot 8 to the slot 9 and the winding technique is as a result simplified.

Figure 6 shows the individual layers of the wire wound according to Figure 5 one on top of the other within the slots 8, 9. The parts of the wire 13 which are shown are the bottom layer 13a, which forms the beginning of the third turn, the middle layer 13b, which forms the beginning of the fourth turn, the top layer 13c, which forms the beginning of the fifth turn, and the layer 13d, which forms the end of the fifth turn and is guided out as the winding end 20.

Claims



1. Method for producing a rotary transformer for a recorder with two annular cores (1, 2) of ferrite or an iron compound with a circumferential recess (6), which is filled with a coil support (7) carrying the wire (13) of the winding, characterised in that a coil support (7), which is preformed from an elastic plastic material, is laid in the recess (6) and a wire is laid in slots which extend around the coil support and are of a width which is adapted to the diameter of the wire (13) such that the wire (13) lies securely in the slots without adhesive.

2. Method according to claim 1, characterised in that the wire (13) which is used is a flat wire of a rectangular cross section.

3. Method according to claim 1, characterised in that a plurality of wires (13) are laid in the slots one on top of the other.

4. Method according to claim 1, characterised in that the coil support (7) comprises a radial slit (16) at one point and is laid in the recess (6) by being opened out in the manner of a spring ring.