Due to the flexible character of the surface it may also be used as a textile-printing stencil.

EP 0 196 443 A2 discloses a sleeve with an inner layer made of an elastic rubber material and which is provided with circumferentially running channels on its outer surface. Forced-draft ducts are filled with compressed air during attachment and have no influence on the compressibility of the layer in which they are located. A similar sleeve is described in U.S. Pat. No. 4,864,926. Both sleeves must be attached using compressed air.

SUMMARY OF THE INVENTION

It can be concluded from the discussion above that the expandable layer is of particular importance. Therefore, it is the purpose of the invention to make available an expandable layer, between a core cylinder and a rotary printing form, that better fulfills the task that confront it, and through which especially a sleeve can be attached in an improved manner.

In an embodiment of the present invention this task is solved through the use of an expandable layer made of a compressible material, which is attached to a rotary printing form between a core cylinder and a sleeve. The expandable layer has depressions on its outer circumferential surface and/or inner circumferential surface.

In a further aspect of the present invention, the depressions are fashioned, at least partly, as open circumferential annular channels.

In a further aspect of the present invention, the annular channels are run parallel to each other.

In a further aspect of the present invention, the annular channels are placed equidistantly.

In a further aspect of the present invention, the depressions, at least partly, are fashioned as channels for use with liquid or gaseous media.

In a further aspect of the present invention, the expandable layer is fitted with surface layer protection on its outer circumferential surface.

In a further aspect of the present invention, the expandable layer is made of an elastic material with gaseous filling, for example, plastic foam or expanded polystyrene pellets.

In a further aspect of the present invention, the elastic material and/or the surface protection layer is fined with electrical conduction particles.

In a further aspect of the present invention, at least some of the depressions or annular channels are arranged according so the required bending compensation of the sleeve.

In a further aspect, the present invention provides an expandable layer made of compressible material, which could be fitted to a rotary printing form between a core cylinder and a sleeve. Depressions are fitted on the outer circumferential surface or on the inner circumferential surface of the expandable layer. An initial section of the depressions stretches in an axial direction on the expandable layer. A subsequent section of the depressions stretches in a radial direction over the expandable layer, whereby a part of the material of the expandable layer can be displaced in the depressions and at least a portion of the depressions is arranged according to a required bending compensation of the sleeve.

In a further aspect, the present invention provides a core cylinder with an expandable layer made of compressible material, which is adapted to be attached to a rotary printing form between the core cylinder and a sleeve. Depressions are fitted on the outer circumferential surface or on the inner circumferential surface of the expandable layer. An initial section of the depressions stretches in an axial direction on the expandable layer. A subsequent section of the depressions stretches in a radial direction over the expandable layer, whereby a part of the material of the expandable layer can be displaced in the depressions and at least a portion of the depressions is arranged according to a required bending compensation of the sleeve.

In a further aspect, the present invention provides a rotary printing form with an expandable layer made of compressible material, which is attached to the rotary printing form between a core cylinder and a sleeve. Depressions are fitted on the outer circumferential surface or on the inner circumferential surface of the expandable layer. An initial section of the depressions stretches in an axial direction on the expandable layer. A subsequent section of the depressions stretches in a radial direction over the expandable layer, whereby a part of the material of the expandable layer can be displaced in the depressions and at least a portion of the depressions is arranged according to a required bending compensation of the sleeve.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic diagram of a preferred embodiment of a core cylinder with an attached expandable layer, during the attachment of a sleeve, in accordance with the present invention.

FIG. **2** is a schematic diagram of a preferred embodiment of a sleeve completely attached to the core cylinder, in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

In FIG. **1**, a cylindrical core cylinder **2** is shown with an expandable layer **3** attached. This expandable layer is provided with several depressions **4** on its outer circumferential surface, which in this case are fashioned as open circumferential annular channels. The expandable layer **3** can be fitted with surface layer protection on the outer surface, which however is not shown. A sleeve **1** is attached to the core cylinder **2** and the expandable layer **3** from the left in the drawing. To facilitate the attachment a channel **5** is running through the core cylinder **2** and expandable layer **3**, over which the sleeve **1** can be charged on with pressure, which could, for example, be generated using a gaseous medium. FIG. **1** clearly shows that those areas of the expandable layer **3**, which are already under the sleeve **1**, are very compromised, whereby a part of the expandable layer material is displaced in the depressions **4**.

FIG. **2** shows the completely attached sleeve.

In accordance with an embodiment of the invention, the outer or the inner circumferential surface of the expandable layer is provided with depressions. The depressions could stretch in axial and/or radial direction over the expandable layer and could have different shapes and cross sections. They could also be shaped as holes that, for example, could continue hole structures in the sleeve through the expandable layer. At least a part of the depressions, which are also shaped as open circumferential annular channels, are fashioned in accordance with a required bending compensation of the sleeve.

During the attachment of the sleeve, a part of the expandable layer material is displaced in the depressions so that the compressibility of the expandable layer increases. Depending on the distribution, shape, and geometric arrangement of the depressions the sleeve bending could be compensated for.