Claims:

1. A bearing component of steel (12) such as component of a linear bearing of a rolling element bearing and a sliding bearing, for example a component selected from the group comprising a bearing race, a rolling element such as a tapered roller, a barrel roller, a needle roller, a bearing ball and a rolling element cage, the bearing component having at least one layer (112; 112, 112'; 112, 112'; 112") having a high current insulation property applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by a PECVD (plasma enhanced chemical vapor deposition) process (but excluding an ALD process or a plasma enhanced ALD process) at at least one surface region (110) of said component (12), said at least one layer (112; 112, 112'; 112, 112'; 112") comprising a non-conductive oxide layer selected from the group of materials comprising an Al_2O_3 layer, a TaxOy layer, an SixOy layer, a mixed layer comprising two or more of the foregoing oxides, a multilayer structure comprising alternating layers of two or more of the foregoing oxides and a DLC layer such as a ta-C layer, there being at least one ALD layer (114) comprising at least one layer of a material deposited by an ALD (atomic layer deposition) process on said at least one layer having a high hardness and a high current insulation property, the ALD layer itself having a high current insulation property and comprising a material or layer structure selected from the said group of materials.

2. A bearing component in accordance with claim 1, wherein the composition of the at least one layer applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by. a

PECVD (plasma enhanced chemical vapor deposition) process (but excluding an ALD process or a plasma enhanced ALD process) is at least substantially the same as the composition of the layer deposited by the ALD process.

3. A bearing component in accordance with claim 1 or claim 2, wherein the said at least one layer applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by. a PECVD (plasma enhanced chemical vapor deposition) process (but excluding an ALD process or a plasma enhanced ALD process) has a thickness in the range from 0.5 microns to 4microns and the ALD layer has a thickness in the range from 1nm to 1000 nm, especially 10 to 50 nm.

4. A bearing component in accordance with any one of the preceding claims, wherein the steel of which the article is made is a martensitic grade of steel,

5. A bearing component in accordance with any claim 4, wherein the martensitic grade of steel is at least one of a bearing steel and a cold-workable steel.

6. A bearing component in accordance with either of the preceding claims 4 and 5, wherein the martensitic grade of steel is one of 100Cr6, 100CrMn6, 16MnCr5, C80 or X30CrMoN 15 1, or a steel in accordance with Din: 1.4108 or SAE: AMS5898.

7. A bearing component in accordance with any one of the preceding claims, wherein the at least one layer having a high hardness and a high current insulation property applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by. a PECVD

(plasma enhanced chemical vapor deposition) process (but excluding an ALD process or a plasma enhanced ALD process) is provided with an additional PVD layer deposited by arc (filtered arc, rectangular sources, round sources, Laser arc, cylindrical sources), by magnetron sputtering, reactive magnetron sputtering or by means of dual magnetron sputtering (rectangular sources, round sources, cylindrical sources), any of the foregoing optionally with plasma enhancement prior to the deposition of the ALD layer.

8. A bearing comprising a bearing component in accordance with any one of the preceding claims.

9. A machine comprising a bearing component in accordance with any one of the preceding claims 1 to 7 or a bearing in accordance with claim 8.

Claims:

1. A bearing component of steel (12) such as component of a linear bearing of a rolling element bearing and a sliding bearing, for example a component selected from the group comprising a bearing race, a rolling element such as a tapered roller, a barrel roller, a needle roller, a bearing ball and a rolling element cage, the bearing component having at least one layer (112; 112, 112'; 112, 112'; 112") having a high hardness and a high current insulation property applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by a PECVD (plasma enhanced chemical vapor deposition) process, but excluding an ALD process or a plasma enhanced ALD process, at at least one surface region (110) of said component (12), said at least one layer (112; 112, 112'; 112, 112'; 112") comprising a non-conductive oxide layer selected from the group of materials comprising an Al_2O_3 layer, a TaxOy layer, an SixOy layer, a mixed layer comprising two or more of the foregoing oxides, a multilayer structure comprising alternating layers of two or more of the foregoing oxides and/or a DLC layer, there being at least one ALD layer (114) comprising at least one layer of a material deposited by an ALD (atomic layer deposition) process on said at least one layer having a high hardness and a high current insulation property, the ALD layer itself having a high current insulation property and comprising a material or layer structure selected from the group of materials comprising an Al_2O_3 layer, a TaxOy layer, an SixOy layer, a TiO_2 layer, a HfO_2 layer, a mixed layer comprising two or more of the foregoing oxides, and a multilayer structure comprising alternating layers of two or more of the foregoing oxides.

2. A bearing component in accordance with claim 1, wherein the DLC layer is a ta-C layer.

3. A bearing component in accordance with claim 1 or claim 2, wherein the composition of the at least one layer applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by a PECVD (plasma enhanced chemical vapor deposition) process, but excluding an ALD process or a plasma enhanced ALD process, is at least substantially the same as the composition of the layer deposited by the ALD process.

4. A bearing component in accordance with any one of the preceding claims, wherein the said at least one layer applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by a PECVD (plasma enhanced chemical vapor deposition) process, but excluding an ALD process or a plasma enhanced ALD process, has a thickness in the range from 0.5 microns to 4 microns and the ALD layer has a thickness in the range from 1 nm to 1000 nm, especially 10 to 50 nm.

5. A bearing component in accordance with any one of the preceding claims, wherein the steel of which the article is made is a martensitic grade of steel,

6. A bearing component in accordance with claim 5, wherein the martensitic grade of steel is at least one of a bearing steel and a cold workable steel.

7. A bearing component in accordance with either of the preceding claims 5 and 6, wherein the martensitic grade of steel is one of 100Cr6, 100CrMn6, 16MnCr5, C80 or X30CrMoN 15 1, or a steel in accordance with Din: 1.4108 or SAE: AMS5898.

8. A bearing component in accordance with any one of the preceding claims, wherein the at least one layer having a high hardness and a high current insulation property applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by a PECVD (plasma enhanced chemical vapor deposition) process, but excluding an ALD process or a plasma enhanced ALD process, is provided with an additional PVD layer deposited by arc (filtered arc, rectangular sources, round sources, Laser arc, cylindrical sources), by magnetron sputtering, reactive magnetron sputtering or by means of dual magnetron sputtering (rectangular sources, round sources, cylindrical sources), any of the foregoing optionally with plasma enhancement prior to the deposition of the ALD layer.

9. A bearing comprising a bearing component in accordance with any one of the preceding claims.

10. A machine comprising a bearing component in accordance with any one of the preceding claims 1 to 8 or a bearing in accordance with claim 9.

11. A method of coating a bearing component of steel (12) such as component of a linear bearing of a rolling element bearing and a sliding bearing, for example a component selected from the group comprising a bearing race, a rolling element such as a tapered roller, a barrel roller, a needle roller, a bearing ball and a rolling element cage, comprising depositing at least one layer (112; 112, 112'; 112, 112'; 112") at at least one surface region (110) of said component (12), the layer having a high hardness and a high current insulation property and being applied by a PVD (physical vapor deposition) process, by a CVD (chemical vapor deposition) process, or by a PECVD (plasma enhanced chemical vapor deposition) process, but excluding an ALD process or a plasma enhanced ALD process, said at least one layer (112; 112, 112'; 112, 112'; 112") comprising a non-conductive oxide layer selected from the group of materials comprising an Al_2O_3 layer, a TaxOy layer, an SixOy layer, a mixed layer comprising two or more of the foregoing oxides, a multilayer structure comprising alternating layers of two or more of the foregoing oxides and/or a DLC layer, and depositing at least one ALD layer (114) comprising at least one layer of a material deposited by an ALD (atomic layer deposition) process on said at least one layer having a high hardness and a high current insulation property, the ALD layer itself having a high current insulation property and comprising a material or layer structure selected from the group of materials comprising an Al_2O_3 layer, a TaxOy layer, an SixOy layer, a TiO_2 layer, a HfO_2 layer, a mixed layer comprising two or more of the foregoing oxides, and a multilayer structure comprising alternating layers of two or more of the foregoing oxides.