Claims

1. Coating (210) deposited on a surface of a substrate (201) comprising a multi-layered film (216) consisting of a plurality of A-layers and a plurality of B-layers deposited alternating one on each other forming a A/B/A/B/A… architecture, the A-layers comprising aluminium chromium boron nitride and the B-layers comprising aluminium chromium nitride and not comprising boron, characterized in that,

- the multi-layered film (216) comprises at least a first portion (216a) and a last portion (216c), wherein the average boron content in the first coating portion (216a) is higher than the average boron content in the last coating portion (216c), and

- both the first coating portion (216a) and the last coating portion (216c) exhibit inherent compressive stresses and wherein the inherent compressive stress in the first coating portion (216a) is lower than it in the last coating portion (216c).

2. Coating according to claim 1, characterized in that, the average boron content in the first coating portion (216a) is at least 1.2-times higher than the average boron content in the last coating portion (216c).

3. Coating according to claim 2, characterized in that, the average boron content in the first coating portion (216a) is at least 1.4-times higher than the average boron content in the last coating portion (216c).

4. Coating according to any of the previous claims 1 to 3, characterized in that, the average boron content in the first coating portion (216a) is at the most 6-times higher than the average boron content in the last coating portion (216c).

5. Coating according to any of the previous claims, characterized in that, the inherent compressive stress in the first coating portion (216a) is about 2.5 GPa or lower.

6. Coating according to any of the previous claims, characterized in that, the inherent compressive stress in the last coating portion (216c) is about 3 GPa or higher.

7. Coating according to any of the previous claims, characterized in that, the inherent compressive stress in the last coating portion (216c) is not higher than 8 GPa.

8. Coating according to any of the previous claims, characterized in that the A-layers in the multi-layered film (216) have an element composition without considering contaminations which is given by the formula $(Al_xCr_yB_z)N$, where $x > 0$, $y > 0$ and $z > 0$ are respectively the concentration of aluminium, chromium and boron in atomic percentage if only aluminium, chromium and boron are considered for the evaluation of the element composition in the corresponding A-layers.

9. Coating according to any of the previous claims, characterized in that the B-layers in the multi-layered film (216) have an element composition without considering contaminations which is given by the formula $(Al_vCr_w)N$, where $v > 0$ and $w > 0$ are respectively the concentration of aluminium and chromium in atomic percentage if only aluminium and chromium are considered for the evaluation of the element composition in the corresponding B-layers.

10. Coating according to claim 8, characterized in that the coefficients x, y and z in the A-layers meet the conditions $1 \leq x/y \leq 4.5$ and/or $0.01 \leq z \leq 30$.

11. Coating according to claim 9, characterized in that the coefficients v and w in the B-layers meet the condition $1 \leq v/w \leq 4.5$.

12. Coating according to any of the previous claims, characterized in that the coating comprises a base layer (212) which exhibit an inherent compressive stress which is equal or lower than it in the first portion (216a) of the multi-layered film (216).

13. Coating according to any of the previous claims, characterized in that the coating comprises an outermost layer (220) which exhibit an inherent compressive stress which is equal or higher than it in the last portion (216a) of the multi-layered film (216).

14. Method for producing a coating according to any of the previous claims, characterized in that at least the multi-layered film (216) is produced by using PVD-techniques, preferably arc ion plating deposition techniques and the first coating portion (216a) and the last coating portion (216c) of the multi-layered film (216) are

deposited by using the same coating configuration including same targets, and same coating parameters excepting bias voltage, wherein a negative bias voltage lower than 70 V in absolute values for depositing the first coating portion (216a) of the multi-layered film (216) and a negative bias voltage of at least 90 V or higher in absolute values for depositing the last coating portion (216c) of the multi-layered film is used.

15. Method according to claim 14, characterized in that for depositing the first coating portion (216a) of the multi-layered film (216) a negative bias voltage is used which is lower in absolute value than the negative bias voltage used for depositing the last coating portion (216c) of the multi-layered film (216).