WE CLAIM:

1. A bearing steel comprising, as a chemical composition, by mass %,
C: 0.9% to 1.5%,
Si: 0.1% to 0.8%,
Mn: 0.l% to 1.5%,
Cr: 0.5% to 2.0%,
Al: 0.01% to 0.05%,
Ca: 0.00001% to 0.0050%,
Rare Earth Metal: 0.0001% to 0.050%,
O: 0.0001% to 0.0030%,
Ti: limited to less than 0.005%,
N: limited to 0.015% or less,
P: limited to 0.03% or less,
S: limited to 0.05% or less, and
a balance consisting of iron and unavoidable impurities, and
comprising, as a metallographic structure, inclusions which contain complex oxysulfides including Rare Earth Metal, Ca, O, S, and Al, TiN, MnS, Al_2O_3, and complex oxides including Al and Ca,
wherein, a number fraction of the complex oxysulfides in a total number of the inclusions is 50% to less than 100% and a number of complex oxysulfides having a major axis of 5 μm or more is 0.001 pieces to 2 pieces in an observed section of 1 mm^2, and
a number of TiN existing independently from the complex oxysulfides and
having a major axis of 5 μm or more is 0.001 pieces to less than 1.0 piece in the observed section of 1 mm^2.

2. The bearing steel as claimed in Claim 1,
wherein, when the S content in the chemical composition is more than 0.01% to 0.05%, the Ca content is 0.00050% to 0.0050%.

3. The bearing steel as claimed in Claim 1 or 2, further comprising, as the chemical composition, by mass %, at least one of
V: 0.05% to 0.70%,

Mo: 0.05% to 1.00%,
W: 0.05% to 1.00%,
Ni: 0.10% to 3.50%,
Cu: 0.10% to 0.50%,
Nb: 0.005% to less than 0.050%, and
B: 0.0005% to 0.0050%.

4. The bearing steel as claimed in any one of Claims 1 to 3,
wherein an Al content in the complex oxysulfides is 20 mass% or less in Al_2O_3 equivalent.

5. The bearing steel as claimed in any one of Claims 1 to 4,
wherein a total number of MnS having a major axis of 10 μm or more and the TiN existing independently from the complex oxysulfides and having the major axis of 5 μm or more is 5 pieces or less in the observed section of 1 mm^2.

6. The bearing steel as claimed in Claim 3,
wherein the Cu content and the Ni content expressed in mass% satisfy $Cu \leq Ni$.

7. A method for producing a bearing steel, the method comprising:
Al-deoxidizing a molten steel using Al;
REM-deoxidizing the molten steel using Rare Earth Metal after the Al-deoxidizing for 5 minutes to 10 minutes;
casting the molten steel after the REM-deoxidizing so as to obtain a cast piece which includes, as a chemical composition, by mass %,
C: 0.9% to 1.5%,
Si: 0.1% to 0.8%,
Mn: 0.1% to 1.5%,
Cr: 0.5% to 2.0%,
Al: 0.01% to 0.05%,
Ca: 0.00001% to 0.0050%,
Rare Earth Metal: 0.0001% to 0.050%,

O: 0.0001% to 0.0030%,

Ti: limited to less than 0.005%,

N: limited to 0.015% or less,

P: limited to 0.03% or less,

S: limited to 0.05% or less, and

a balance consisting of iron and unavoidable impurities;

heating the cast piece in a temperature range of 1270°C to 1300°C and holding the cast piece after the heating in a temperature range of 1200°C to 1250°C for 60 seconds or more; and

hot-plastic-working the cast piece after the heating and the holding so as to obtain a hot-worked steel.

8. The method for producing the bearing steel as claimed in Claim 7, the method further comprising vacuum-degassing the molten steel using Ca after the REM-deoxidizing and before the casting, when the molten steel includes, as a chemical composition, by mass%,

S: more than 0.01% to 0.05%.

9. The method for producing the bearing steel as claimed in Claim 7 or 8, wherein the cast piece further includes, as the chemical composition, by mass %, at least one of

V: 0.05% to 0.70%,

Mo: 0.05% to 1.00%,

W: 0.05% to 1.00%,

Ni: 0.10%to3.50%,

Cu: 0.10% to 0.50%,

Nb: 0.005% to less than 0.050%, and

B: 0.0005% to 0.0050%.

10. The method for producing the bearing steel as claimed in any one of Claims 7 to 9, wherein, in the casting, the molten steel is cast while being rotated horizontally in a mold under a condition of 0.1 m/minute to 0.5 m/minute.

11. The method for producing the bearing steel as claimed in any one of Claims 7 to 10, the method further comprising soft-annealing the hot-worked steel after the hot-plastic-working by being heated in a temperature range of 700°C to 750°C and by being held for 30 hours to 50 hours so as to obtain a softened steel.

12. The method for producing the bearing steel as claimed in any one of Claims 8 to 11, the method further comprising fluxing the molten steel using $CaO\text{-}CaF_2$ for a desulfurization after the REM-deoxidizing and before the vacuum-degassing.

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