CLAIMS

1. A member excellent in damping capacity, being produced by fabricating a steel sheet having an average grain diameter of 30 μm or more and a Vickers hardness of 120 or less at the hardest part thereof.

2. The member excellent in damping capacity according to Claim 1, wherein the steel sheet has an average grain diameter of 50 μm or more.

3. The member excellent in damping capacity according to Claim 1 or 2, wherein the steel sheet has a composition comprising, by mass%, 0.050% or less of C, less than 1.0% of Si, 0.05 to 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or less of Al, 0.005% or less of N, and the balance being Fe and inevitable impurities.

4. The member excellent in damping capacity according to Claim 3, wherein the steel sheet further comprises, by mass%, 0.0001 to 0.0030% of B.

5. The member excellent in damping capacity according to Claim 1 or 2, wherein the steel sheet has a composition comprising, by mass%, 0.005% or less of C, less than 1.0% of Si, 0.05 to 0.5% of Mn, 0.04% or less of P, 0.03% or less of

S, 1.0% or less of Al, 0.005% or less of N, 0.01 to 0.06% of Ti, 0.0001 to 0.0030% of B, and the balance being Fe and inevitable impurities.

6. The member excellent in damping capacity according to Claim 1 or 2, wherein the steel sheet has a composition comprising, by mass%, 0.005% or less of C, less than 1.0% of Si, 0.05 to 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 0.004% or less of Al, 0.005% or less of N, and the balance being Fe and inevitable impurities.

7. A steel sheet having a composition comprising, by mass%, 0.050% or less of C, less than 1.0% of Si, 0.05 to 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or less of Al, 0.005% or less of N, and the balance being Fe and inevitable impurities and having an average grain diameter of 30 μm or more, wherein the steel sheet is employed as a member excellent in damping capacity by being fabricated into a desired shape and then being heat-treated in a temperature range of 500°C or higher.

8. The steel sheet according to Claim 7, further comprising, by mass%, 0.0001 to 0.0030% of B.

9. A steel sheet having a composition comprising, by mass%,

0.005% or less of C, less than 1.0% of Si, 0.05 to 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or less of Al, 0.005% or less of N, 0.01 to 0.06% of Ti, 0.0001 to 0.0030% of B, and the balance being Fe and inevitable impurities and having an average grain diameter of 30 μm or more, wherein the steel sheet is employed as a member excellent in damping capacity by being fabricated into a desired shape and then being heat-treated in a temperature range of 500°C or higher.

10. The steel sheet according to any of Claims 7 to 9, wherein the average grain diameter is 50 μm or more.

11. A process for producing a member excellent in damping capacity, comprising fabricating the steel sheet according to any of Claims 7 to 10 into a desired shape and then heat-treating it in a temperature range of 500°C or more.

12. A steel sheet having a composition comprising, by mass%, 0.005% or less of C, less than 1.0% of Si, 0.05 to 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 0.004% or less of Al, 0.005% or less of N, and the balance being Fe and inevitable impurities, wherein the steel sheet is employed as a member excellent in damping capacity by being fabricated into a desired shape and then being heat-treated

in a temperature range of 600°C or higher.

【CLAIMS】

【Claim 1】

A member excellent in damping capacity, the member produced by fabricating a steel sheet, characterized in that the steel sheet has an average crystal grain diameter of 30 μm or greater and has a Vickers hardness of 120 or below at a hardest part thereof.

【Claim 2】

The member excellent in damping capacity according to claim 1, wherein the average crystal grain diameter of the steel sheet is 50 μm or greater.

【Claim 3】

The member excellent in damping capacity according to claim 1 or claim 2, wherein the steel sheet has a composition comprising, by mass%, of 0.050% or less of C, less than 1.0% of Si, 0.05 - 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or less of Al, 0.005% or less of N, and a balance being Fe and inevitable impurities.

【Claim 4】

The member excellent in damping capacity according to claim 3, wherein the steel sheet further comprises, by mass%, 0.0001 - 0.0030% of B.

【Claim 5】

The member excellent in damping capacity according to claim 1 or claim 2, wherein the steel sheet has a composition comprising, by mass%, of 0.005% or less of C, less than 1.0% of Si, 0.05 - 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or

less of Al, 0.005% or less of N, 0.01 - 0.06% of Ti, 0.0001-0.0030% of B, and a balance being Fe and inevitable impurities.

【Claim 6】

The member excellent in damping capacity according to claim 1 or claim 2, wherein the steel sheet has a composition comprising, by mass%, of 0.005% or less of C, less than 1.0% of Si, 0.05 - 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 0.004% or less of Al, 0.005% or less of N, and a balance of being Fe and inevitable impurities.

【Claim 7】

A steel sheet used for a member excellent in damping capacity, the steel sheet having a composition consisting, by mass%, of 0.050% or less of C, less than 1.0% of Si, 0.05 - 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or less of Al, 0.005% or less of N, and a balance being Fe and inevitable impurities, the steel sheet having an average crystal grain diameter of 30 μm or greater, wherein the steel sheet is heat-treated in a temperature of 500°C or higher after being fabricated into to a desired shape.

【 Claim 8】

The steel sheet according to claim 7, further comprising, by mass%, 0.0001 - 0.0030% of B.

【 Claim 9】

A steel sheet used for a member excellent in damping capacity, the steel sheet having a composition comprising, by mass%, of 0.005% or less of C, less than 1.0% of Si,

0.05 - 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 1.0% or less of Al, 0.005% or less of N, 0.01 - 0.06% of Ti, 0.0001-0.0030% of B, and a balance being Fe and inevitable impurities, the steel sheet having an average crystal grain diameter of 30 μm or greater, wherein the steel sheet is heat-treated in a temperature of 500°C or higher after being fabricated into a desired shape.

【Claim 10】

The steel sheet according to any one of claim 7 to claim 9, wherein the average crystal grain diameter of the steel sheet is 50 μm or greater.

【Claim 11】

A method of producing a member excellent in damping capacity by fabricating the steel sheet according to any one of claim 7 to claim 9 into a desired shape and heat-treating the steel sheet in a temperature of 500°C or higher.

【Claim 12】

A steel sheet used for a member excellent in damping capacity, the steel sheet having a composition comprising, by mass%, of 0.005% or less of C, less than 1.0% of Si, 0.05 - 0.5% of Mn, 0.04% or less of P, 0.03% or less of S, 0.004% or less of Al, 0.005% or less of N, and a balance being Fe and inevitable impurities, wherein the steel sheet is heat-treated in a temperature of 600°C or higher after being fabricated into a desired shape.

【Claim 13】

A method of producing a member excellent in damping capacity by fabricating the steel sheet according to claim 12 into a desired shape and heat-treating the steel sheet in a temperature of 600°C or higher.

【Claim 14】

A method of producing a member excellent in damping capacity by fabricating the steel sheet according to claim 10 into a desired shape and heat-treating the steel sheet in a temperature of 500°C or higher.