WHAT IS CLAIMED IS:

1. A composition for an Fe-based alloy, the composition comprising:

iron;

chromium;

molybdenum;

at least one of carbon and boron; and

at least one additional components selected from the group consisting of tungsten, cobalt, yttrium, manganese, silicon, aluminum, niobium, zirconium, phosphorus, nickel, and scandium,

wherein per 100 parts by weight of the iron,

the chromium is contained in an amount of 25.4 to 55.3 parts by weight,

the molybdenum is contained in an amount of 35.6 to 84.2 parts by weight, and

the additional components are contained in a total amount of less than 1.125 parts by weight.

2. The composition of claim 1, wherein an alloy that is formed by melting the composition and then cooling the melted composition from a melting point to a glass transition temperature at a cooling rate of 10^1 to 10^4 (degree/sec) has an amorphous phase in a proportion of 90 to 100%.

3. The composition of claim 1, wherein the alloy prepared from the composition is one selected from the group consisting of powder, ribbon, sheet, wire, and three-dimensional shaped body.

4. An Fe-based amorphous alloy powder, comprising:

iron;

chromium;

molybdenum;

at least one of carbon and boron; and

at least one additional components selected from the group consisting of tungsten, cobalt, yttrium, manganese, silicon, aluminum, niobium, zirconium, phosphorus, nickel, and scandium,

wherein per 100 parts by weight of the iron,

the chromium is contained in an amount of 25.4 to 55.3 parts by weight,

the molybdenum is contained in an amount of 35.6 to 84.2 parts by weight, and

the additional components are contained in a total amount of less than 1.125 parts by weight.

5. The Fe-based amorphous alloy powder of claim 4, wherein the alloy powder has an amorphous phase in a proportion of 90 to 100% by volume.

6. The Fe-based amorphous alloy powder of claim 5, wherein the alloy powder is prepared by cooling a composition for an alloy from a melting point to a glass transition temperature at a cooling rate of 10^1 to 10^4 (degree/sec).

7. The Fe-based amorphous alloy powder of claim 6, wherein the alloy powder has an average particle size of 10 to 100 ㎛.

8. The Fe-based amorphous alloy powder of claim 7, wherein the alloy powder is prepared by atomizing.

9. The Fe-based amorphous alloy powder of claim 4, wherein the alloy powder is used as a material in at least one process selected from the group consisting of a coating forming process, a metal powder injection molding (MIM) process, a three-dimensional (3D) printing process, and a powder metallurgy (P/M) process.

10. The Fe-based amorphous alloy powder of claim 4, wherein when a shaped body is manufactured by thermal spraying using the alloy powder, a proportion of an amorphous phase in the shaped body is 90 to 100% by volume.

11. The Fe-based amorphous alloy powder of claim 10, wherein when the thermal spraying is performed using a high velocity oxygen fuel (HVOF) device under the following spraying conditions, the proportion of the amorphous phase in the manufactured shaped body is 95 to 100% by volume,

[Condition]

Gun type: Hybrid, Air cap: 2701, LPG flow: 160 SCFH, LPG pressure: 90 PSI, Oxygen flow: 550 SCFH, Oxygen pressure: 150 PSI, Air flow: 900 SCFH, Air pressure: 100 PSI, Nitrogen flow: 28 SCFH, Nitrogen pressure: 150 PSI, Gun speed: 100 m/min, Gun pitch: 3.0mm, Feeder rate 45 g/min, Stand-off distance: 250 mm.

12. The Fe-based amorphous alloy powder of claim 11, wherein the shaped body has a Vickers hardness of 700 to 1,200 Hv (0.2),

and a friction coefficient of 0.001 to 0.08 μm at a load of 100 N, or 0.06 to 0.12 μm at a load of 1,000 N.

13. An Fe-based amorphous alloy powder, wherein proportion (a) of an amorphous phase in an alloy powder and proportion (b) of the amorphous phase in an alloy fulfill an equation of $0.9 \leq b/a \leq 1$, the alloy powder being prepared by melting a composition for an alloy containing iron, chromium, molybdenum, at least one of carbon and boron, and further containing at least one additional components selected from the group consisting of tungsten, cobalt, yttrium, manganese, silicon, aluminum, niobium, zirconium, phosphorus, nickel, and scandium,

wherein the additional components are contained in a total amount of less than 1.125 parts by weight per 100 parts by weight of the iron,

and then cooling the melted composition from a melting point to a glass transition temperature at a cooling rate of 10^1 to 10^4 (degree/sec), and the alloy being prepared by re-melting the alloy powder and cooling the re-melted alloy powder from a melting point to a glass transition temperature at the cooling rate of 10^1 to 10^4 (degree/sec).

14. An Fe-based alloy shaped body that is manufactured by 3D printing using the alloy powder of claims 4 to 8,

wherein a proportion of an amorphous phase of an alloy in the shaped body is 90 to 100%.

15. A shaped body that is manufactured by sintering using the alloy powder of claim 4,

wherein the shaped body contains boride or carbide, or both the boride and carbide, and the boride and carbide are contained in a total amount of 3 to 8 parts by weight per 100 parts by weight of the iron.

16. The shaped body of claim 15, wherein the boride and the carbide come from boron and carbon of the alloy powder.