

CLAIMS

1. A perpendicular magnetic recording medium comprising: at least a backing layer, an underlayer, an intermediate layer, and a perpendicular magnetic recording layer sequentially laminated on a non-magnetic substrate,
5 wherein the backing layer includes at least a soft magnetic film having an amorphous structure,
the underlayer includes a first underlayer and a second underlayer laminated from the non-magnetic substrate side,
10 the first underlayer is an fcc-structured PdV alloy layer, wherein the amount of V included in the PdV alloy is within a range of 1 atom % to 65 atom %,
the second underlayer includes a NiW alloy, and
the intermediate layer includes Ru or a Ru alloy.
- 15 2. A magnetic recording and reproducing apparatus provided with the perpendicular magnetic recording medium according to claim 1; and a single magnetic pole head that writes information on the perpendicular magnetic recording medium.
- 20 3. The media for perpendicular magnetic recording according to claim 1, wherein the amount of V included in the PdV alloy is within a range of 40 atom % to 50 atom %.

4. The media for perpendicular magnetic recording according to claim 1,
wherein the thickness of the first underlayer is in a range of 1 nm to 5 nm.
- 5 5. The media for perpendicular magnetic recording media according to claim 1,
wherein the thickness of the second underlayer is in a range of 2 nm to 20 nm.