Claims

[Claim 1] A target assembly comprising a target formed of tungsten or molybdenum, a backing plate made of copper or a copper alloy, and an insert material which is an aluminum plate or an aluminum alloy plate, the target being diffusion-bonded to the backing plate by the mediation of the insert material which intervenes between the target and the backing plate, wherein

diffusion bonding is achieved by the mediation of a metal thin film layer which is present between the target and the insert material and between the backing plate and the insert material, which is formed of Ti, V, Cr, Nb, Pd, Ir, Pt, or an alloy containing at least one species of the metals, and which has a thickness more than 0.1 μm and 3.0 μm or less;

each of the average shear strength at the interface between the target and the insert material in the in-plane direction and the average shear strength at the interface between the insert material and the backing plate in the in-plane direction is 4 [kg/mm^2] or higher.

[Claim 2] A target assembly according to claim 1, wherein the ratio of the standard deviation σ of the shear strength at the interface between the target and the insert material in the in-plane direction to the shear strength at the interface between the target and the insert material in the in-plane direction, and the ratio of the standard deviation σ

of the shear strength at the interface between the insert material and the backing plate in the in-plane direction to the shear strength at the interface between the insert material and the backing plate in the in-plane direction, which are coefficients of variation, are each 0.15 or less.

[Claim 3] A method for manufacturing a target assembly comprising a target formed of tungsten or molybdenum, a backing plate made of copper or a copper alloy, and an insert material which is an aluminum plate or an aluminum alloy plate, the target being diffusion-bonded to the backing plate by the mediation of the insert material which intervenes between the target and the backing plate, wherein

the manufacturing method comprises disposing a metal thin film layer which is formed of Ti, V, Cr, Nb, Pd, Ir, Pt, or an alloy containing at least one species of the metals and which has a thickness more than 0.1 μm and 3.0 μm or less, between the target and the insert material or between the backing plate and the insert material or both, and subsequently, performing diffusion bonding, to thereby yield a target assembly; and

each of the metal thin film layer of the target assembly at the interface between the target and the insert material in the in-plane direction and the average shear strength at the interface between the insert material and the backing plate in the in-plane direction has the average shear strength of 4 [kg/mm^2] or higher.