The Phi Persei duo: A little sharing between companions



Held in a gravitational embrace, the pair of stars in Phi Persei have lived normal lives for the last 10 million years. The duo's quiet lives end when the more massive star enters its twilight years. The aging star swells as it runs out of the fuel — hydrogen — which powers its thermonuclear furnace.



3 As the aging star expands, it begins dumping its mass onto its companion.





The once-massive star sheds practically all of its mass, leaving its hot, bright core exposed.



5 The smaller companion, on the other hand, has captured most of its partner's excess mass and changes its identity from a mildmannered, moderately massive star to a massive, hot, rapidly spinning "Be" star



In fact, the star is spinning so rapidly that its shape is distorted into a flattened spheroid. The rapid rotation also causes the star to dump hydrogen gas, which has settled into a broad ring — like the rings of Saturn — around the star



This graphic is not to scale.