A prototype of industrial-scale spouted bed dryer, which designed capacity was 2,500 kg/h, was designed, constructed and tested. The paddy was continuous fed through the dryer. The prototype performed well on moisture reduction and milling quality, each of which was consistent throughout the testing periods. The head rice yield results were satisfactory as long as the final moisture content was beyond 18 % d.b. Regardless of using inlet temperature up to 144 °C. The whiteness was also well acceptable. At present, the prototype was not able to achieve a desirable feed rate and energy consumption. This could be attributed to the improper use of fan.