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# DEPLOYMENT SYSTEM FOR 50+ CUBESATS

**Abstract**

In recent years there has been a proliferation of CubeSats due to their low cost, standardized design and short development time. They are attractive as technology demonstrators for Universities and emerging nations. International and Government agencies are now also showing an interest, particularly in higher performance nanosats with 3U or more. However, with the increasing demand, comes a need to find a way of launching large numbers of CubeSats. The aim of this study is to design a deployment system to deliver fifty or more CubeSats together. The study commenced with a review of the deployment mechanisms currently available, such as the P-POD,T-POD, X-POD, ISI-POD, CSD and J-POD systems, as well as auxiliary launch adaptors. CubeSat build standards and Launcher requirements were then reviewed to provide a set of requirements for the design. The aim was to be compatible with as wide a range of launchers as possible. Three design options were prepared to meet the design requirements: the "Cube", the "Tower" and the "H". Key features of the different designs are detailed and the options were traded off. Requirements and state of the art for the door opening and the delivery mechanism were also subject to a trade-off. The design selected was that of the "H" deployment system. Its design was then refined and animations produced to show operation. The "H" has a versatile structure with detachable auxiliary panels. It offers a capacity of 72 CubeSats in its standard configuration or 12 lots of 6U units in its alternate configuration. It is compatible with Vega, Soyuz, Rockot and PSLV. It is hoped that eventually this design will create an opportunity for launching a multitude of CubeSats in the future.