How to choose your drop mode

On the differences between 4.74 s dropping mode and 9.3 s catapult mode

Experiment masses and dimensions

	short capsule **dropping mode**	long capsule **dropping mode**	short capsule **catapult mode**
max payload height [mm]	980	1730	950
capsule net weight [kg]	226	266	236.2
capsule gross weight [kg]	500		400*
max payload mass [kg]	274	234	163.8**

* actual limit, enhancement up to 500 kg in future depends on technical evolution progress
** actual limit, enhancement up to 263.8 kg in future depends on technical evolution progress

Others

Not only, but especially for catapult experiments it is mandatory to design a stiff rigid mechanical setup which is able to withstand the acceleration forces without any displacement of the assembly parts. Cantilever beams or any kind of systems that might oscillate during the acceleration process must be avoided.

A catapult experiment needs to be fine balanced (Center of gravity very close to the vertical axis). As soon as the capsule is balanced by the Drop Tower Crew any mechanical changes must be declared.

The use of a micro-g-centrifuge (turntable to generate accelerations between 1g and 0g) is not possible for catapult mode.

The use of the Drop Tower combustion laser diagnostic system is not possible for catapult mode.