

Cam Design

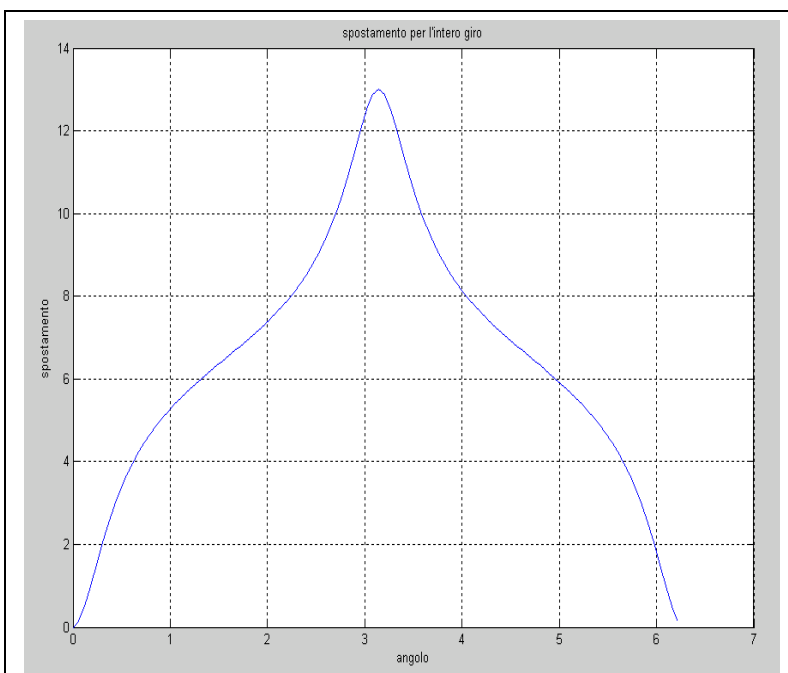
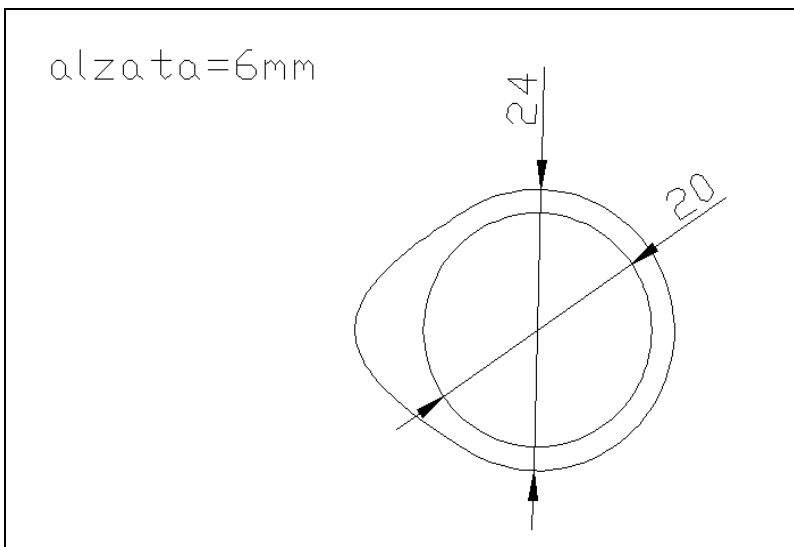
Cam is one of the most commonly used mechanisms in automation and assembly systems. A cam is an eccentric-shaped device which is usually used to convert the rotational motion of a shaft into a translation or an oscillation of a “follower” plane.

Here I just want to present the results I obtained in the attempt of designing cam devices with prescribed characteristics.

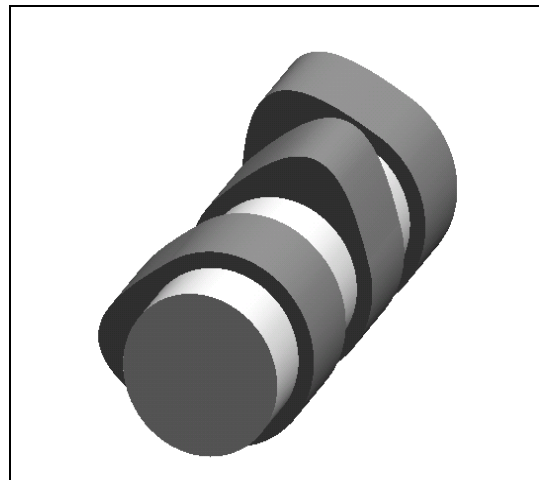
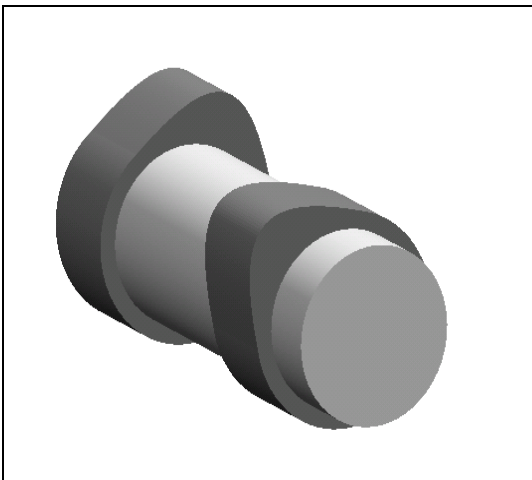
In fact, by giving the value of the follower offset (and eventually the velocity/acceleration profiles) and the motion type (harmonic/elliptical/cycloidal), it is possible to design the desired cam.

An example of the output from the code, is given below (where a cam with an elliptic motion in combination with a follower offset value of 6mm is chosen)

The first image represent the shape of the cam with the indication of the main dimensions, while the second image presents the displacement of the follower with respect to the rotation angle of the shaft (in radians)



It is also possible to assemble the created cam profile with a shaft, to recreate a sort of “distribution shaft” (commonly used in automotive industry)



The created profile can be imported on a CAM software in order to simulate the behavior of the designed device (i.e by animating the model).

