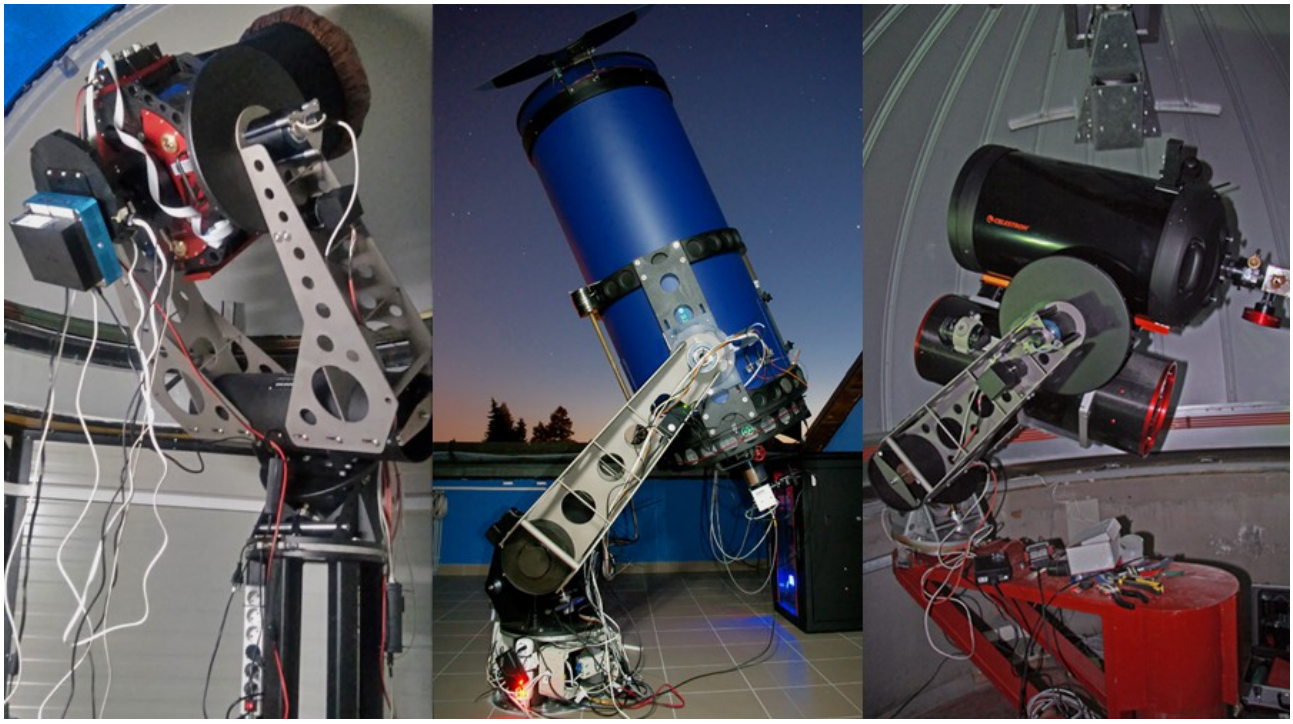
GTD Gemini Telescope Design

MoFoD – a Flexible Fork

MoFoD stands for Mo(dular) Fo(rk) D(esign) and in fact has born as an answer to the challenge of making Fork Mounts more popular among amateur astronomers and some professional users.



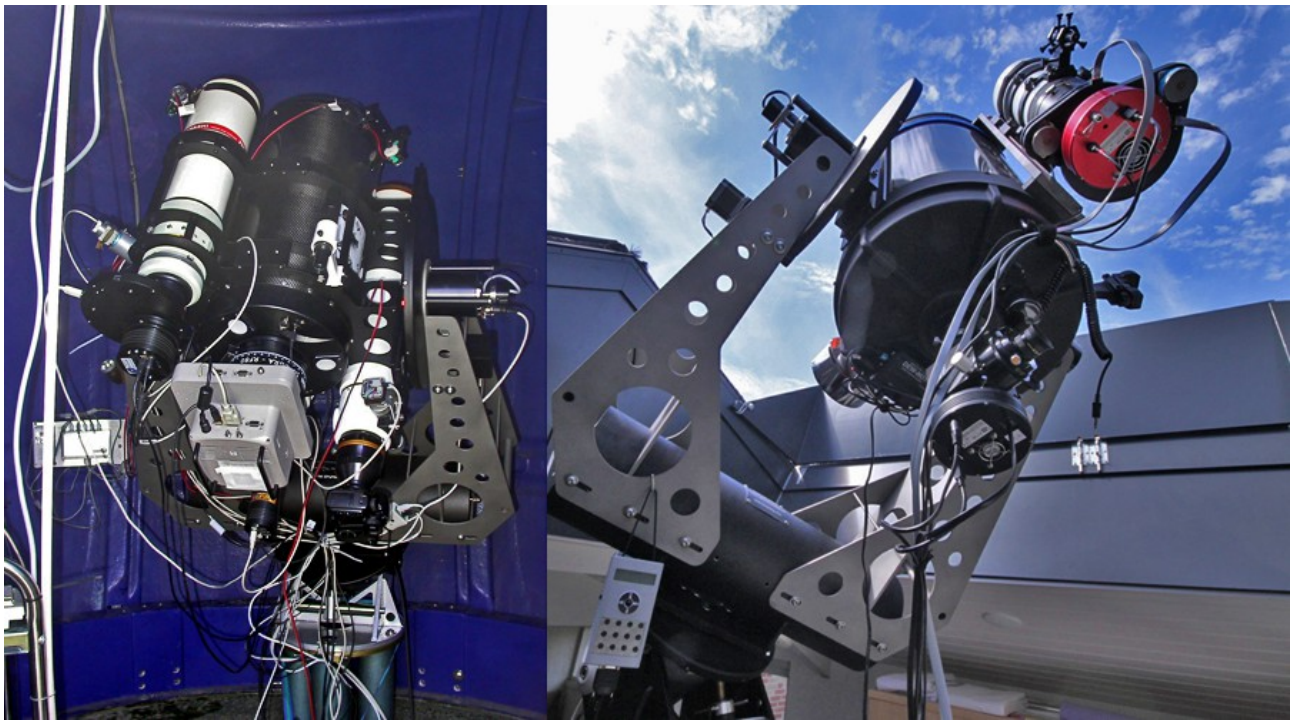
12” Astrograph for University research, 50cm RC for spectroscopy, Dual setup for simultaneous spectroscopy and photometry

To achieve this goal, it was necessary to revise both the manufacturing and the use of the Fork Mount. Taking the example of Modular Design from the Automotive Industry helped to reduce the time and cost of manufacturing. At the same time it offers more flexibility when different customer needs have to be answered.

Let's take a look at the details. What are the main uses of the MoFoD equatorial fork?

Also this is mainly a photographic mount, due to the comfortable ocular position, it is well suited for serious visual observing. However, its main force is the outstanding photographic capability. The absence of meridian flip saves valuable observing time and in some special projects like asteroid or satellite tracking it is indispensable. Moreover, it has a sophisticated friction drive system which provides very accurate tracking with no

backlash in declination, high slewing speed with large telescopes. A 50mm bore in the RA shaft lets you route cables comfortably.



Instrument group in a custom cradle with 10”RC and 3 Refractors, C14 in a MoFoD.

What kind of telescopes can be used on a MoFoD?

Thinking of the commercial SC telescopes, one may assume that a Fork Mount is manufactured for a specific telescope only. Not at all! MoFoD has a standard Losmandy interface and its arms can easily by adjusted to accept a wide range of telescopes. In fact, the only kind of OTAs not suited for this mount are large refractors. All kinds of Cassegrain telescopes (RC, MC, SC, GC) Dall-Kirkham telescopes, fast Newtonian Astrographs can be mounted between the arms of the MoFoD. The upper diameter limit is about 50cm, the payload limit is around 100 kg.

What level of precision can you expect from the MoFoD?

MoFoD is supplied with its dedicated Pulsar2 controller and has an encoder based pointing system. Its intrinsic accuracy is around 30 arc seconds. When adjusted properly, it can achieve an absolute pointing error of cca 1 arc minute without modelling. Its tracking precision in open loop mode is characterised by sub arcsecond precision for a practically unlimited time.

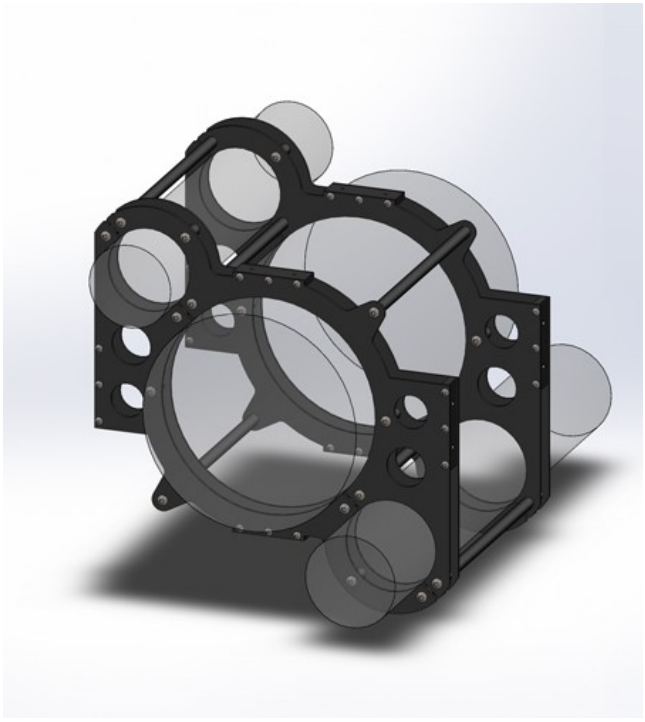
The high resolution encoders offer an absolute reference feature for initializing the mount in remote mode without stellar reference.

The tracking precision allows you to run research projects like SN patrols, astrometry or photometry without autoguiding.

Satellite survey telescope in a MoFoD

What kind of applications has MoFoD been tested in?

Since its introduction in 2010, the smallest instrument installed on a MoFoD is a 10” RC with 3 auxiliary refractors, the largest is a 50cm F9 RC so far. The applications range from astrophotography to exoplanet spectroscopy or even satellite tracking.



Rendering of a custom instrument cradle

How difficult is it to install a MoFoD?

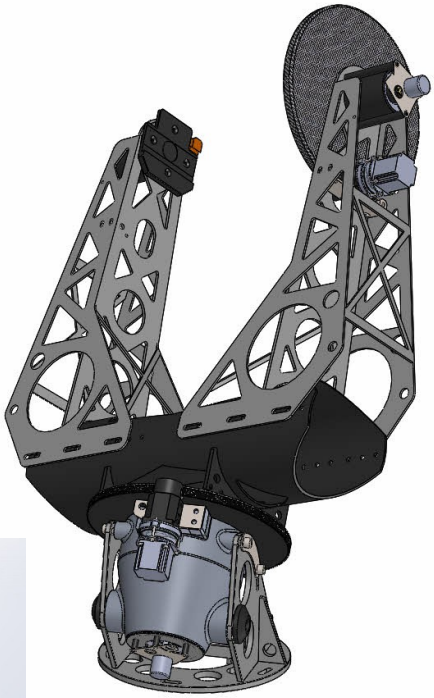
MoFoD is shipped semi assembled, you have to attach the fork arms when installing the mount. The illustrated manual explains this otherwise simple operation. It is a two man job definitely. However, we also offer the complete installation and can help you with the polar alignment via internet.

The engineering story

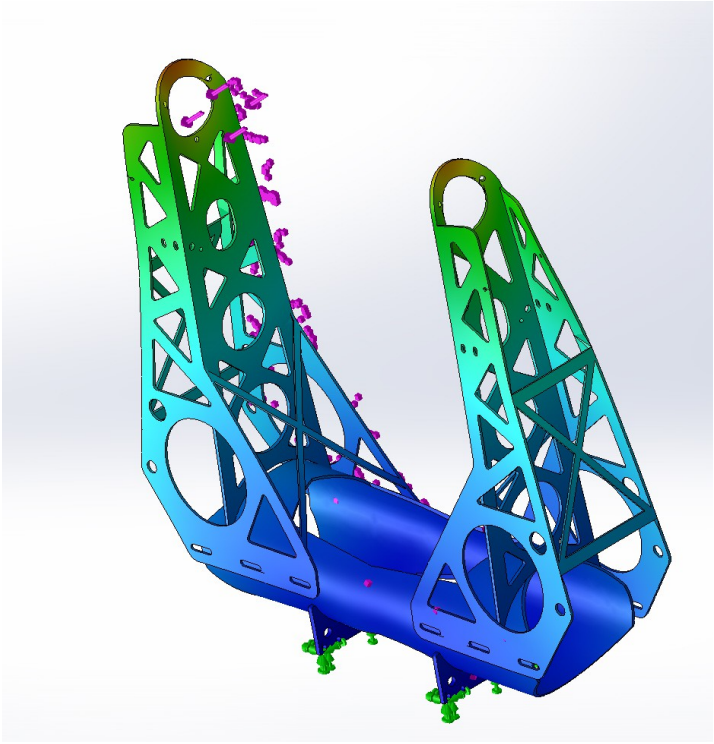
The mechanical structure of MoFoD has evolved from our Mountegra, the unique one arm fork mount of legendary stability and precision. To make the features of this beautiful but costy mount accessible to a broader circle of users, the design has been further developed.

Now we use state of the art technology like laser cutting, carbon composites, ceramic coating and naturally CNC machining.

Taking advantage of powerful modelling tools, we optimised every detail to save weight, increase rigidity and precision.



MoFoD in 3D model



Structural analysis