

Why RH200 is better



RH200 AT is simply the best astrograph you can get in the market. We used math to prove it, calculating light collecting area, resolution and Exposure Value for most used telescopes in astrophotography and most of them have a price similar to our RH200 AT. So it's time to discover numbers!

Let's start with calculating the real light collecting area. Our RH200 AT is hardly obstructed to guarantee a large corrected illuminated field, so a common belief is "it should collect less light than a smaller apo". Is it real? Using the circle area formula, we calculated the value for RH200 AT with secondary obstruction included, an 100mm Apo, a 130mm Apo and a 150mm Apo.

Telescope	Diameter	Free light collecting area (mm ²) (with secondary obs. subtracted)	compared to RH200
RH200 AT	200mm (obs. 55%)	21.900	
Apo 100	100mm	7.850	-179%
Apo 130	130mm	13.250	-65%
Apo 150	150mm	17.650	-24%

So you can see even if we calculate and subtract the RH200 AT's secondary mirror area, the free light collected is still significantly bigger than a common 100mm and 130mm Apochromat. And noticeable also compared to a 150mm Apo, but it's not as easy to transport as the RH200 AT.

Ok, now we showed it gets more light. But how with resolution? According to Rayleigh's criteria, calculated for the green light, we have:

Telescope	Diameter	resolution arc/sec	compared to RH200
RH200 AT	(obs. 55%) 200mm	0.69	
Apo 100	100mm	1.38	-100%
Apo 130	130mm	1.06	-54%
Apo 150	150mm	0.92	-33%

And how much is f/ speed relevant? We used this formula to calculate the Exposure Value: $EV = \log_{(2)}(A^2/T)$, where A is the f/ aperture and T is the exposure time in seconds. T, the exposure time, is 300s.

f/8	f/6	f/5	f/3	
-2.22	-3.05	-3.58	-5.05	given value
-127%	-65%	-41%		compared to f/3

This means an f/3 telescope will get 41% more light than an f/5 one. And 127% more than an f/8. This formula doesn't consider the telescope's diameter and light collecting area, so you should remember also the benefits showed above.

The RH200 AT:

- collects more light
- shows more details
- takes more pictures per night

Don't have one already? Discover the RH200 AT Series on www.officinastellare.com and at our dealers!

