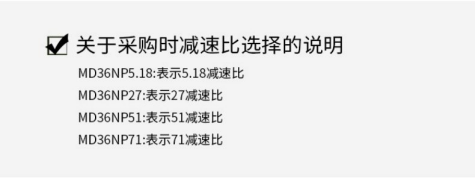
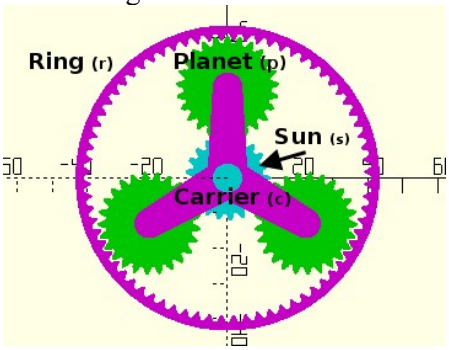
Some notes on Motor MD36

The motor is equipped with planetary gearhead and an optical encoder. The quadrature encoder output 500 count per revolution. The counting process in STM32 multiplied the count by 4, i.e. 2000 counts per revolution.



The documentation/spec states that the gear ratio is 27 for the model used in MMU Robocon. However, this is a rounded number! (The 5.18 ratio is also rounded!!)

The exact gear ratio:



The gear ratio (single stage) is given by $\frac{R+S}{S}=1+\frac{R}{S}$, where R and S are the number of teeth for Ring Gear and Sun Gear, respectively.
Number of Teeth of planetary gearhead of MD36:
Sun Gear = 11
Planet Gear = 17
Ring Gear = 46

Therefore, the exact gear ratio of MD36 (2-stage) is $\left(\frac{11+46}{11}\right)^2=\frac{3249}{121}=26.8512396694.....$