

## Some notes on Motor MD36



### ☑ 编码器接线说明

红色: VCC(3.3~5V)

黑线: GND

绿色: 编码器A相输出 (内置电阻上拉到VCC)

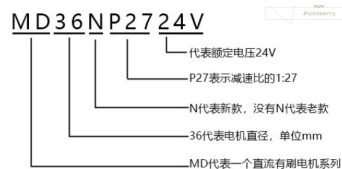
白色: 编码器B相输出 (内置电阻上拉到VCC)

### MD36N相比于MD36

主要是优化了低速时候的非线性问题  
并减小了发热, 缩短了长度  
可以完全兼容之前使用MD36的产品, 功率35W

### ☑ 实用新型专利证书

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.



### ☑ 关于采购时减速比选择的说明

MD36NP5.18:表示5.18减速比

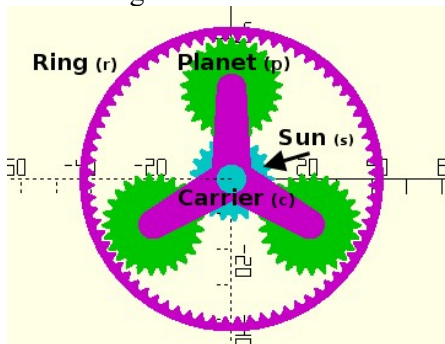
MD36NP27:表示27减速比

MD36NP51:表示51减速比

MD36NP71:表示71减速比

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  $\left(\frac{11+46}{11}\right)^2 = \frac{3249}{121} = 26.8512396694.....$