# Nick's Review of the GoBuilda Dual Mode 2000-25-2 Servo

You may have never heard of goBuilda, a company headquartered in Winfield, Kansas. They make a lot of bits and pieces for the robotics domain. They also make servos. They caught my eye as this servo was a *staff pick* on the Servo City website. This servo may also be offered as part of the kit for the Soling 2.0. Here's a picture and the dimensions:
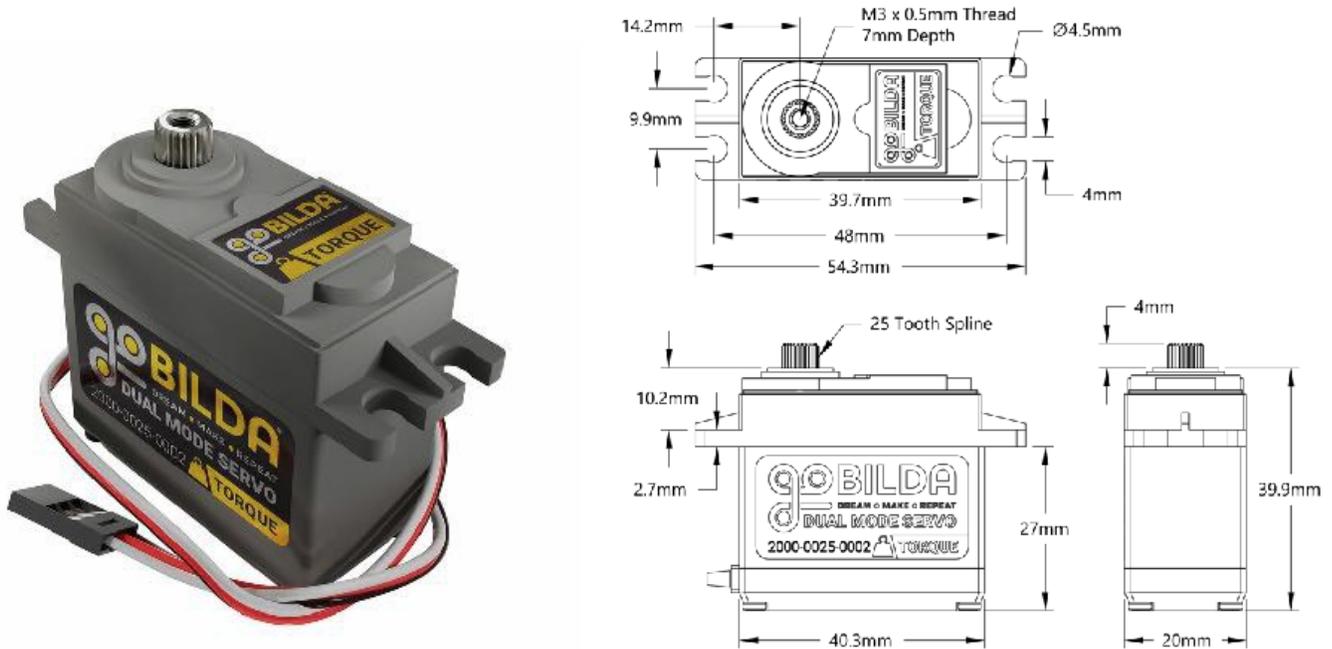
Let's look at some selected specs:

Voltage Range: 4,8-7.4 V

No-load Speed: 50 rpm (6V)

Stall Torque: 300 oz in (6V)

Stall Current: 2.5 amps (6V)

Default Rotation: 180°

Max Rotation: 300° or continuous

Motor: Brushed DC

Output Shaft: Dual Ball Bearings

Shaft: H25T Spline

Those are pretty good numbers, especially 300 oz in of torque and only 2.5 amps. The dual-mode in its name means the servo can be a continuous rotation mode or a rotation limited mode. The good news is it has positioning feedback, meaning the servo returns to where it was when you control it back. In order to change this, you will need the goBuilda Programmer. It's kind of a one-trick pony as it's more like a switch to change servo modes than a true programmer.

Of course, I bought one and of course I took it apart.

First, I put it on my servo tester and got the following numbers:

Range of rotation @ 180°: 886 ms — 2085 ms, midpoint 1457 ms, in 1 ms steps

Rotation Speed: 2.4 sec/cycle (180°)

Next are the physical stuff;

Here's how the package arrives:

It comes in a plastic bag with a nice assortment of arms. In my collection of dozens of arms, I don't have a six-sided arm, so that's something different. Maybe this is common for robotics. The mounting screws were ferrous like HiTech ones, but were a little shorter. It has the standard grommets with brass inserts. One nice touch was they provide a servo arm screw that is a stainless steel cap head screw. Next, let's look at the insides. Pretty standard with four long Phillips head screws.

Looks like most other Chinese private label servos. There are four gears in the gear train - two are steel and two are non-ferrous metal, maybe aluminum.

Let's look at the other end of the servo.
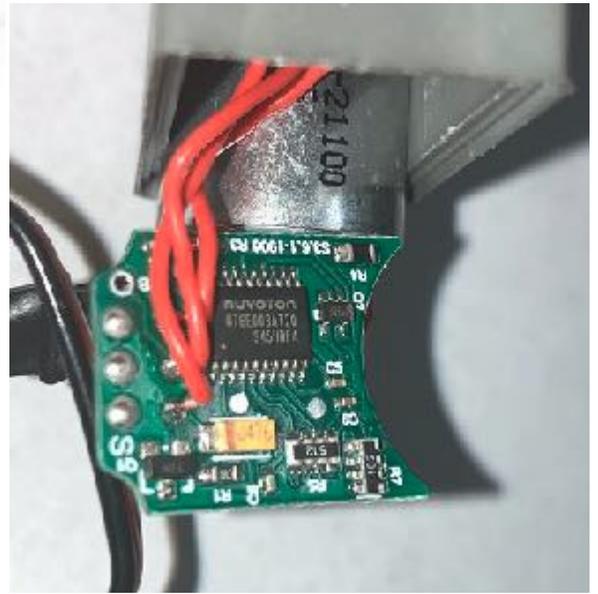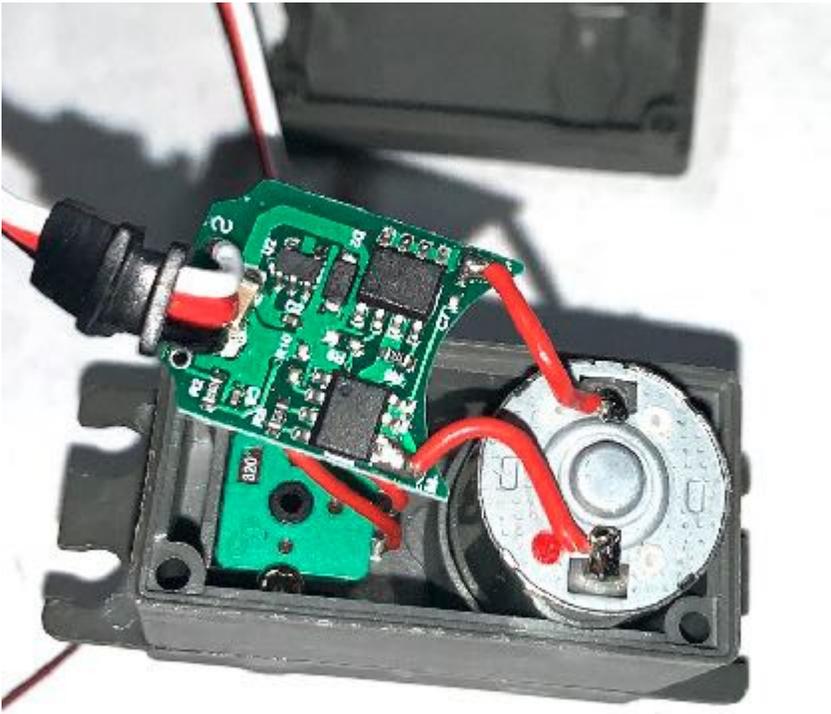
Also pretty standard looking. The MCU is a Nuvoton N76E003AT20 (that's for all you nerd-types). It's a 28¢ part, but I guess that's better than the 9¢ part in the DF95 servos. But then, it doesn't have to do much - they're used in doorbells and thermometers. The printed circuit board had the ID 53.6.1-1906 R3. I don't know what those numbers mean, but it appears as to have been around for several version and is not a beta.

They do have customers service that responds without having to write or speak Chinese. Warranty on their servos appears to be 30 days. They said, *Hey, if it's not working correctly, you should know that within a month*. That's one view. HiTec warranties their servos for two years.

Now, somebody needs to try one in a boat to see how reliable it is. Obviously, it's not waterproof, not even *splash-proof* (IP67) so we need to cover it with John's special goo coating.

Nick