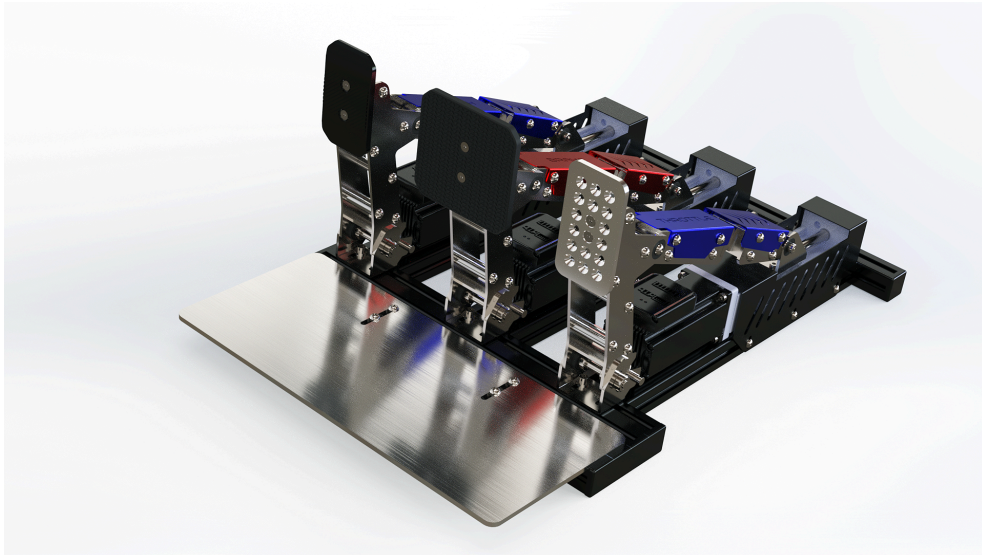


ELITE ACTIVE PEDALS

PREMIUM DIY SIM RACING FFB PROJECT

— by DIY SIM STUDIO —



The **Elite Active Pedals** project allows you to build your own DIY Active Pedals with a **rock-solid, cost-effective** stainless steel construction and – above all – an **attractive, curvaceous aesthetic** that stands out from the rather mundane designs typically found elsewhere. This design is adaptable to whatever components you choose to use for your project.

Utilizing a heavy-duty, zero-flex mechanical frame, a high-torque **brushless servomotor**, and a **precision lead screw assembly**, this pedal translates real-time telemetry into high-fidelity physical feedback (**ABS pulses, engine vibrations, traction loss, and dynamic brake fluid stiffness**).

What this pack includes:

- A premium design for any DIY Active Pedal projects
- DXF, STEP, and STL files
- Precise and clear assembly documentation (PDF & Animated Videos)
- A complete list of parts to purchase (bill of materials)

What this pack does not include:

- The electronics, soldering, and software components for the DIY Active Pedal; however, you can easily find online projects to help you complete this stage. We provide a robust, attractive design that is adaptable to any DIY Active Pedal project based on a servo motor, a linear rail, and a ball screw.

Frequently Asked Questions (FAQ / Q&A)

How is this pedal designed?

It is primarily constructed from **3mm-thick Stainless Steel laser-cut parts** joined using **M6x40** or **M6x30 threaded round spacers**. Some parts require bending, but these involve only simple 90-degree bends. A few parts are 2mm and 1mm thick.

Alternative parts are also available in STEP and STL formats.

How can you save money on manufacturing this pedal assembly?

You should start by finding a supplier that offers affordable laser cutting and bending services. Alternatively, JLCCNC's "Sheet Metal Fabrication Services" is a great option in terms of pricing and production speed.

There are also several 3D-printable parts available that could help you cut costs—such as M6x40 or M6x30 connectors. You can find all of them in STL format.

What is the tolerance for DXF, STEP, and STL files?

For files intended for Stainless Steel laser cutting or CNC machining, the tolerance is **0.2 mm**.

For 3D printing, it is **0.5 mm**.

Which profile is recommended for mounting the pedal set?

We recommend using the 30-series profile (30x30, 30x60 & 30x100).

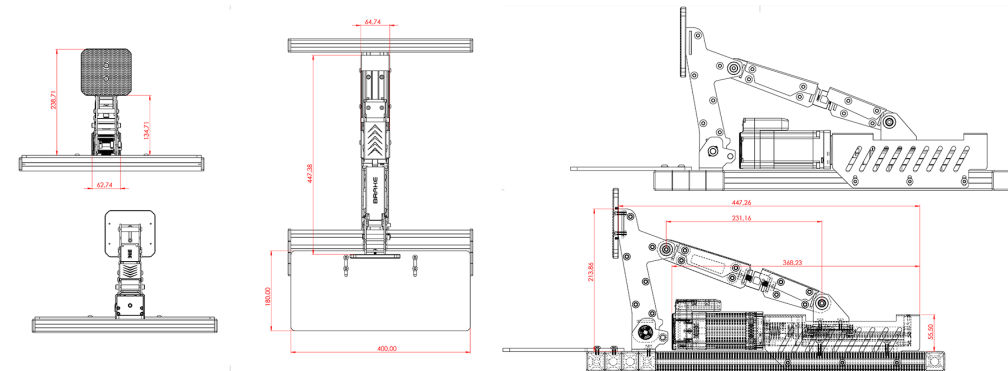
For the pedal assembly itself, ideally you need two 400mm-long profiles—one 30x30 and one 30x100—plus a 400mm-long 30x60 profile for each pedal. Of course, these profiles will need to be secured using 3030 angle brackets and the side covers.

However, you are free to choose a different profile; these dimensions are not mandatory.

What are the dimensions of a pedal?

A pedal measures 238 mm in height (including the footrest) and 213 mm without the footrest.

The width is 62 mm, and the total depth—including the motor and ball screw—is approximately 447 mm. An image showing the dimensions is available directly on the product page.



You can find the dimensions in the "**Full Pedal Overview.pdf**" file, located in the "**Building Guide - A3 PDF Sheet**" folder.

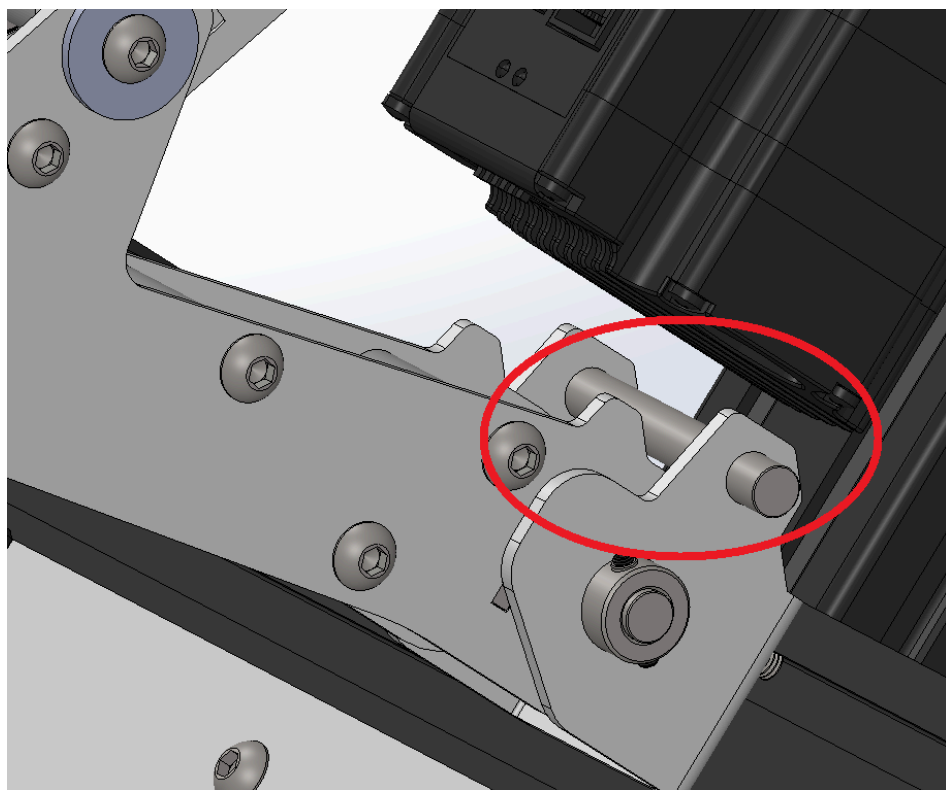
Useful information regarding the pedal unit

Mechanical Pedal stop

It features a safety stop designed to prevent damage to the pedal unit's electronics—for instance, by stopping the Nema motor from being forced inward.

This stop uses an 8mm diameter pin. You cannot adjust the stop itself, other than by using a pin with a larger or smaller diameter.

However, rest assured that it is positioned at the pedal's maximum travel limit.



It will serve as a backup in the event of an issue with the limit set via your software. You can be certain that you will never damage your electronics.

Which ball bearings are used?

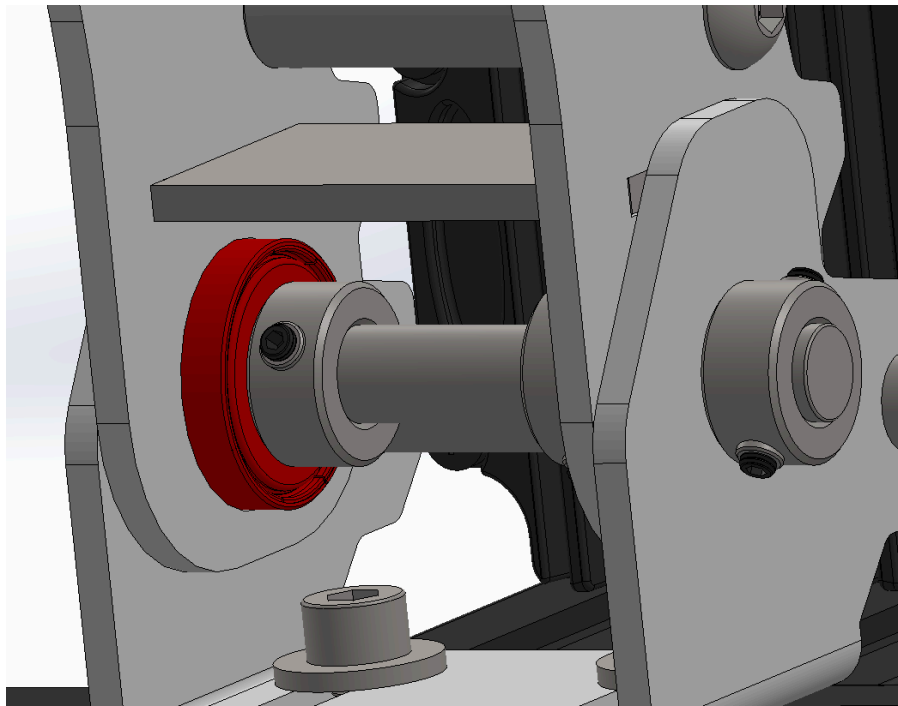
The dynamic forces in an active force feedback pedal are massive and constantly alternating. Traditional plastic bushings or low-grade brass sleeves will suffer from **mechanical play (slop)** over time due to high-frequency ABS vibrations, and **binding** under heavy lateral or twisting foot pressure. High-precision ball bearings isolate the pivot points, ensuring zero-play motion and 100% transmission of motor torque directly to your foot.

Two ball bearings are used for the **pedal axis**, with the following dimensions:

Outer diameter: **Ø22 mm** (mandatory)

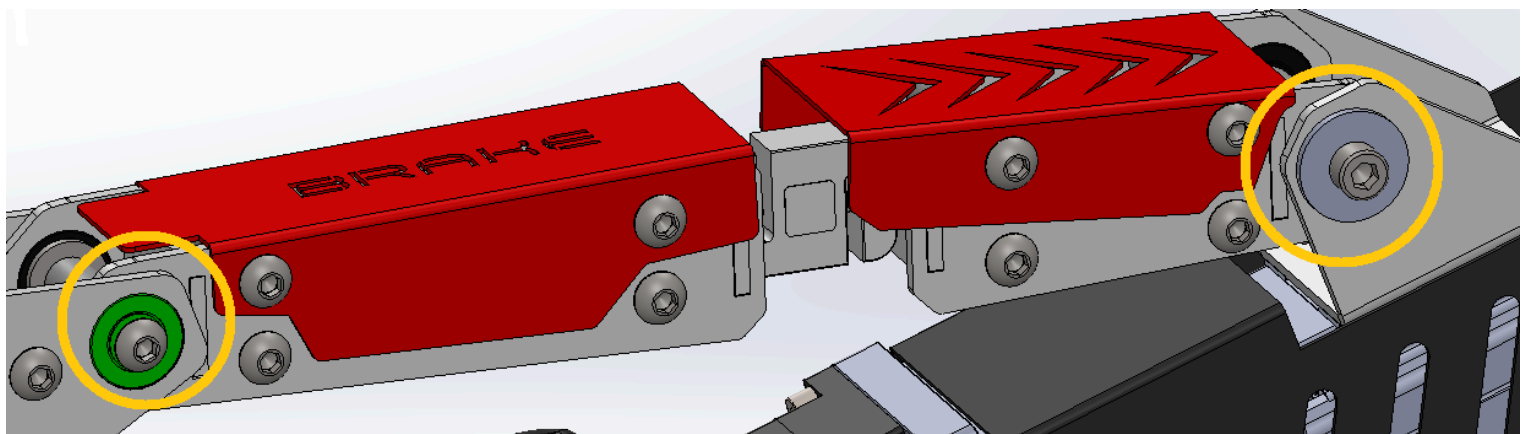
Inner diameter: **Ø8 mm** (mandatory)

Width: between **7 mm** and **10 mm** maximum



These bearings are secured using **drill bit stop collars** to prevent shifting. The part is listed in the bill of materials, and a 3D-printed alternative is available (file "Drill Bit Stop Collar for Pedal.stl").

Four ball bearings are used for the two articulated arms:



Outer diameter: **Ø19mm** (required)

Inner diameter: **Ø6mm** (required)

Width: **6mm** (required)

They can, of course, be found in the Bill of Materials.

Note that you can cover them using the part named "**6x19x6 Bearing Cover - Quantity 6 - 2mm Thickness.DXF**".

For the screws securing these four ball bearings, I recommend using a thread-locking compound to prevent them from coming loose due to vibration. This adhesive, designed for fasteners, will lock the screws in place while still allowing you to unscrew them if necessary.



Useful information regarding the baseplate and footplates

The supplied **baseplate** measures **400mm in width** and **180mm in height**.

It is provided in **DXF** (laser cutting) and **STEP** (CNC machining) formats.

There are also over **25 footplates available**, featuring various designs! They come in DXF, STEP, and STL formats. Please consult the "**Foot Plates Guide.pdf**" file for more details.

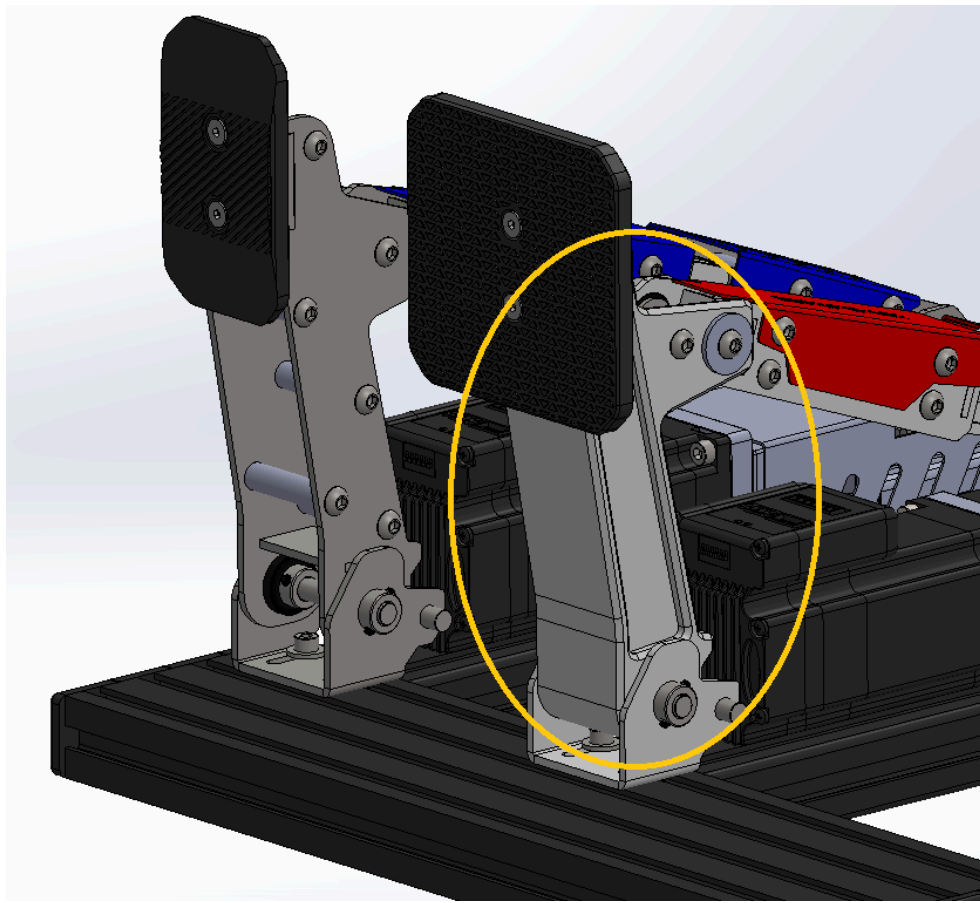
Side brackets are also included in DXF and STEP formats (in the "**Foot Plate Side Panels**" folder).

F1-style heel plates are provided in STL & STEP format.

Finally, for the mobile part, you have an alternative with the CNC-machined or 3D-printed version:

- Full Mobile Part for CNC Machining - 46mm Thickness.STEP
- Full Mobile Part for 3D Printing - 46mm Thickness.STL

It is a more high-end alternative (for the CNC version); instead of having two 3mm plates connected by M6x40 fasteners, you have a single solid piece.



Which screw mechanisms should be used?

You can use the **LKN60 KK Series steel linear actuator** [\[link\]](#) (equipped with a **Nema iSV57T-130S Servo** [\[link\]](#) & **8mm-8mm Shaft Coupler** [\[link\]](#)). For the Load Cell, you can use the **DYLY-107 200KG Load cell** [\[link\]](#).

While these are the most common components for DIY builds, the **pedal assembly can be adapted for alternative parts**; additionally, several components are supplied without pre-drilled holes so you can customize the mounting points yourself.

For example, the **"Rail Mount - 3mm Thickness"** part—which attaches to the rail—comes in a version without holes, allowing you to mount it to any rail model. The same applies to the **"No Hole Rail Spacer - 8mm Thickness"** part.