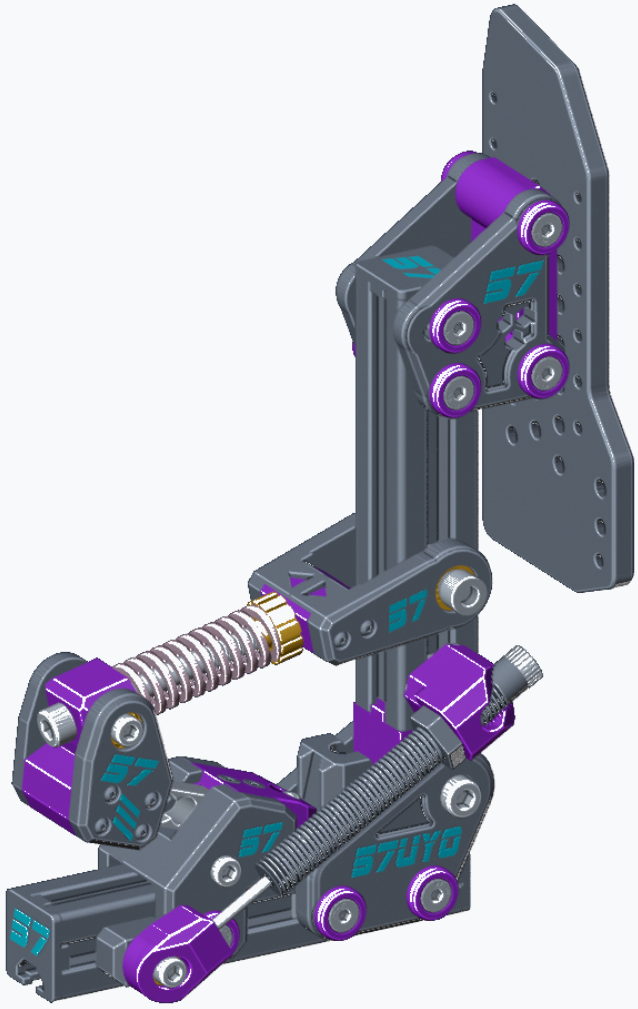
BUILD IT YOURSELF

# 57 PEDALS PRO THROTTLE

## MK-II / ASSEMBLY GUIDE




### BUILT, NOT BOUGHT.

Base pedal + optional adjustable damper

Mechanical assembly / 35 illustrated steps

PREPARE

# TOOLS AND ASSEMBLY CONVENTIONS

### M8 tap and tap wrench

Tap one end of each 150 mm profile, minimum 16 mm usable thread depth.

### Hex keys

Use the correct key for each socket or countersunk head.

### Heat-insert installation tool

Fit inserts squarely; allow the plastic to cool before inserting screws.

### Temporary bearing press

Long M8 and M6 bolts, two large washers and matching nuts. These are tools, not extra installed hardware.

### Check the orientation

Inside washers contact the bearing inner race. Press-fit force goes through the outer ring.

### T-nut types

M6: spring-loaded roll-in. M8: heavy-duty sliding T-nuts; insert these before closing the profile end.

### Screw lengths

Socket bolts are measured under the head. Countersunk screws are measured including the head. Use the JDM washer/screw sets as supplied.

**Complete the base through Step 28. Steps 29-35 add the optional damper.**

REFERENCE

# STANDARDIZED HARDWARE SIZES

### M8 socket: 16 / 50 / 100 mm

3 x 16 mm: bottom pivot and spring-pivot arms. 1 x 50 mm: pedal axle. 1 x 100 mm: spring rod.

### M6 socket: 12 / 16 / 30 mm

2 x 12 mm: rear spring pivot. 5 x 16 mm: three load-cell block, travel stop, damper upper pivot. 1 x 30 mm: damper lower pivot.

### M6 countersunk

JDM washer/screw sets at side plates, face mount and LC covers. Two 20 mm screws secure the pedal face.

### M3 screws

16 mm for the LC side plates and front spring block. 14 mm countersunk for both damper pivots.

### M4 countersunk: 10 mm

Eight screws secure the two load-cell blocks.

### Heat inserts

M3: 6 mm long. M6: 7 mm long. M8: 8 mm long.

### Bearings and shims

608ZZ: 8 x 22 x 7 mm. 696ZZ: 6 x 15 x 5 mm. Rear spring shims: one 1 mm per side. Damper: three shims above and one below.

**The separate project BOM workbook is the purchasing and price reference.**

35 ILLUSTRATED STEPS

# ASSEMBLY AT A GLANCE

| | |
|---|---|
| **01-06** | Profiles, main pivot bearings, base side plates and pedal arm |
| **07-13** | Front and rear load-cell blocks, side plates and base mounting |
| **14-22** | Spring pivots, travel stop, spring and compression ring |
| **23-28** | Pedal-face mount, load-cell covers, profile covers and pedal face |
| **29-35** | Optional damper: lower and upper pivots, mounting and final adjustment |

Keep previously fitted parts in place as you move to the next step. Some close-ups omit surrounding parts to expose the joint.

Mechanical assembly only. Controller wiring and pedal-to-rig mounting are separate. Source files and the BOM are supplied in the project folder.

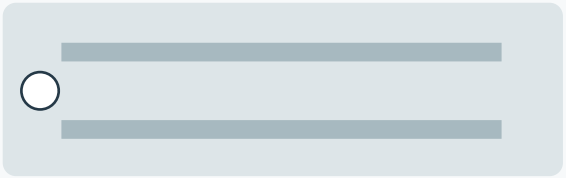
01

BUILD THE PEDAL

# PREPARE THE TWO ALUMINIUM PROFILES

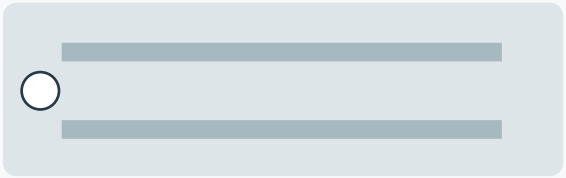
**YOU WILL NEED** 2 x 3030 profiles, 150 mm | M8 tap

**M8 THREAD - ONE END ONLY**



**3030 profile / 150 mm**

**M8 THREAD - ONE END ONLY**



**3030 profile / 150 mm**

**ASSEMBLE**

Use two 3030 aluminium profiles, both 150 mm long. Tap the centre hole at ONE end of each profile with M8 thread.

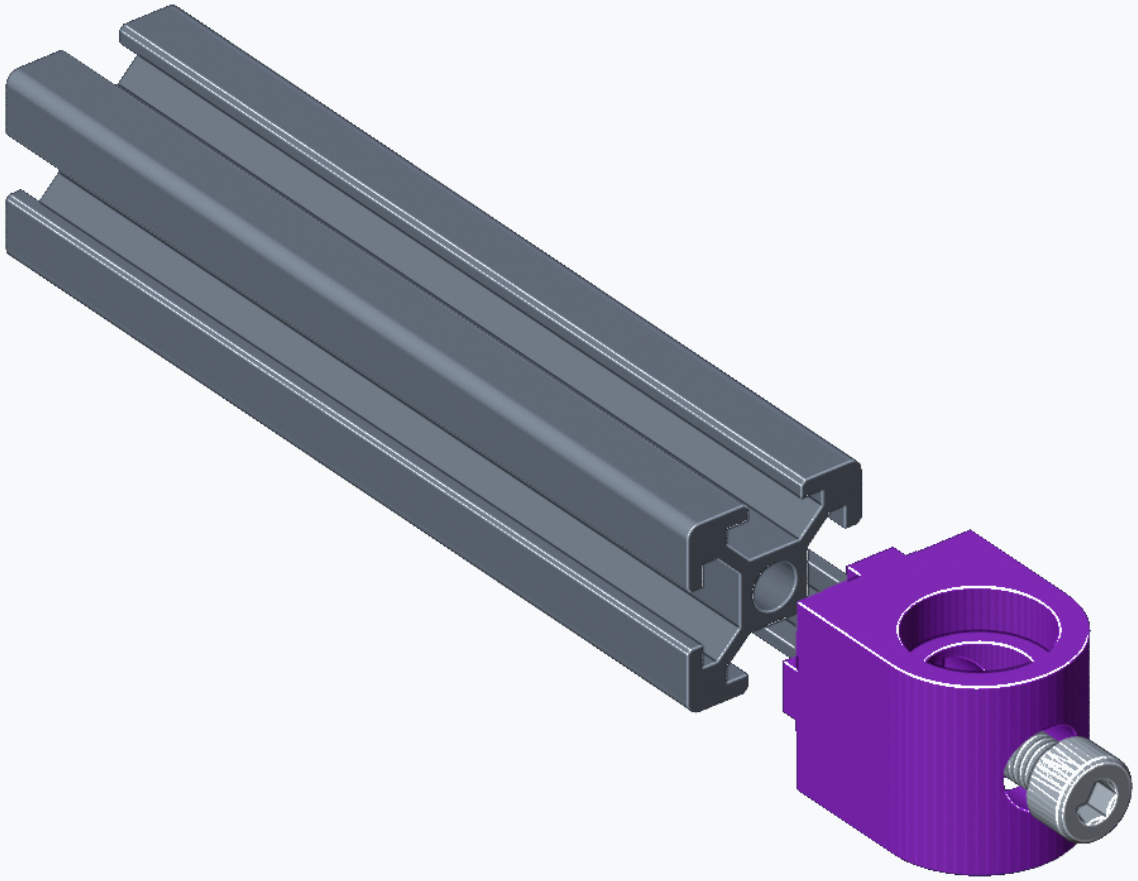
Minimum usable thread depth: 16 mm. Deburr the ends and remove swarf before assembly.

02

BUILD THE PEDAL

# MOUNT THE BOTTOM PIVOT

**YOU WILL NEED** Bottom pivot | 1 x M8 x 16 socket bolt



**Fit the pivot to the threaded profile end**

## ASSEMBLE

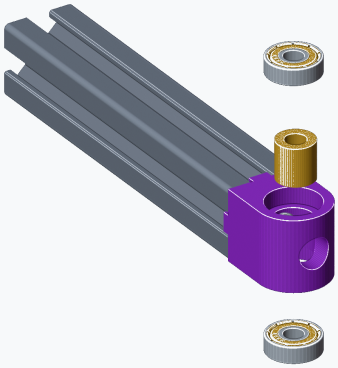
Fit the locating tabs into the profile slots, with the rounded pivot end facing outward. Secure with one M8 x 16 mm socket bolt. No washer is used here.

# 03

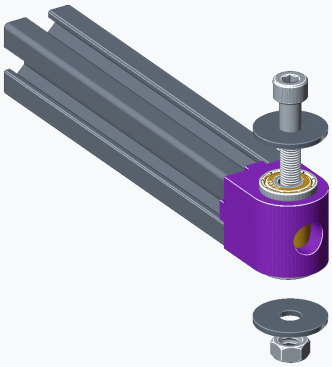
BUILD THE PEDAL

## FIT THE MAIN PIVOT BEARINGS

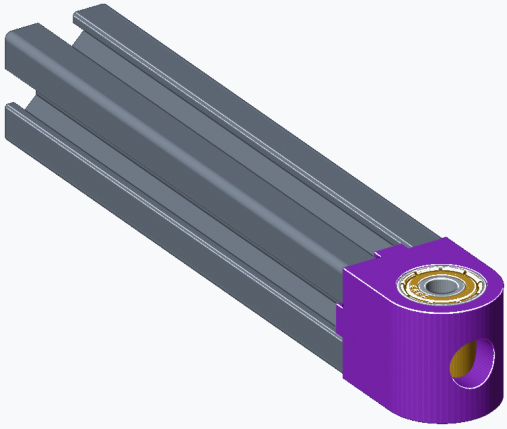
**YOU WILL NEED** 2 x 608ZZ | Bearing spacer | Temporary M8 press tools



**1** Place the spacer between the bearings



**2** Press both bearings squarely into the pivot



**3** Remove the pressing tools

**ASSEMBLE**

Fit two 608ZZ bearings with the spacer between their inner races.

Temporary press: a sufficiently threaded M8 bolt, two large washers and an M8 nut. Apply pressure evenly through the bearing outer rings. Remove the tool after pressing.

# 04

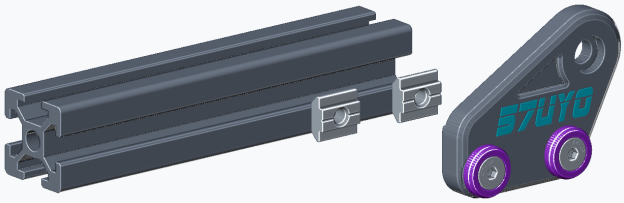
BUILD THE PEDAL

## FIT THE FIRST BASE SIDE PLATE

**YOU WILL NEED** First side plate | 2 x M6 roll-in T-nuts | 2 x JDM M6 washer/screw sets




**1** Fit the two washer and countersunk-screw sets




**2** Align the plate with two M6 roll-in T-nuts

### ASSEMBLE

Fit two spring-loaded M6 roll-in T-nuts in the lower profile. Orient their threaded holes toward the plate.

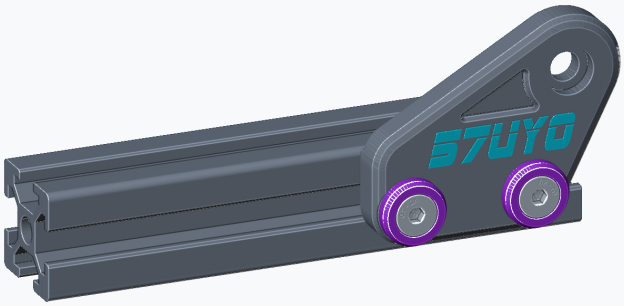
Keep the plate upright in its final orientation and secure it with two JDM M6 washer/screw sets.

05

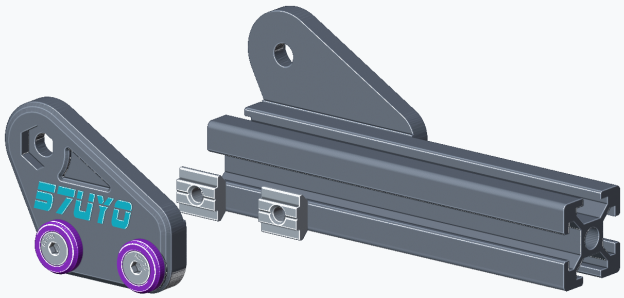
BUILD THE PEDAL

# FIT THE OPPOSITE BASE SIDE PLATE

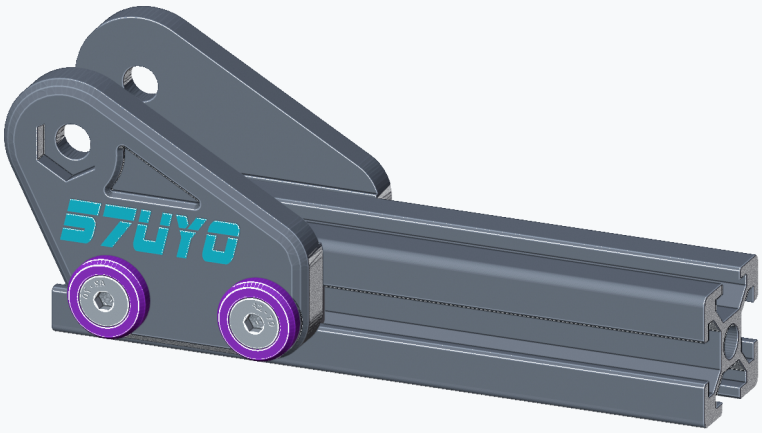
**YOU WILL NEED** Opposite side plate | 2 x M6 roll-in T-nuts | 2 x JDM M6 washer/screw sets




1 **Rotate the base assembly**




2 **Fit the second plate in the same way**




3 **Both plates mounted**

**ASSEMBLE**

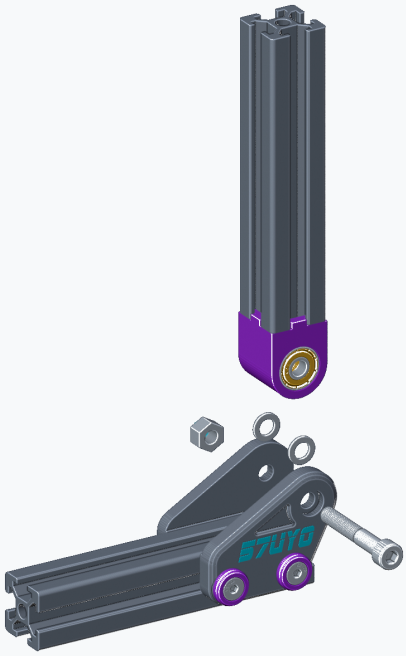
Rotate the assembly to access the other side. Fit the second plate with two more M6 roll-in T-nuts and two JDM M6 washer/screw sets.

06

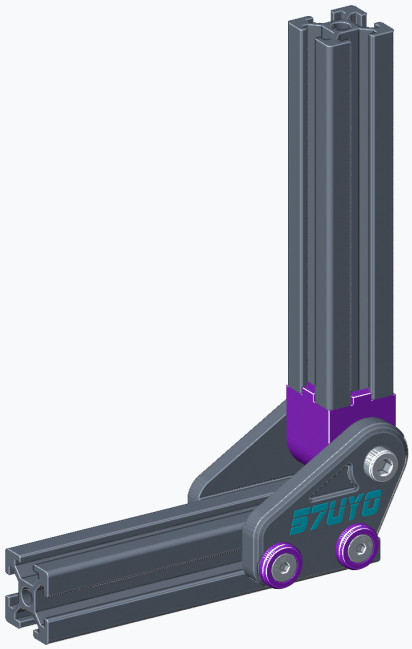
BUILD THE PEDAL

# INSTALL THE PEDAL ARM

**YOU WILL NEED** Pedal arm | M8 x 50 socket bolt | 2 x M8 washers | M8 locknut




1 **Lower the prepared arm between the plates**




2 **Fit the axle and locknut**

## ASSEMBLE

Axle order: M8 x 50 socket bolt > side plate > M8 washer > arm bearing assembly > M8 washer > opposite side plate > M8 locknut.

Both washers sit INSIDE the side plates. Tighten securely and check that the arm moves freely.

07

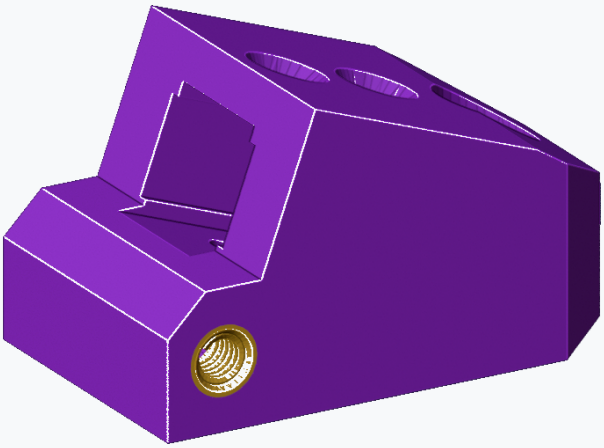
BUILD THE PEDAL

# FIT THE M6 BRASS HEAT-SET INSERTS

**YOU WILL NEED** 2 x M6 heat inserts, 7 mm long



1 **Fit one M6 insert into each side**



2 **Inserts fitted before the load cell**

## ASSEMBLE

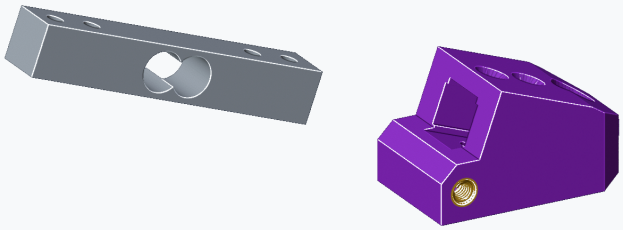
Heat-set one M6 insert into each side of the front load-cell block. Keep them square and allow the block to cool.

# 08

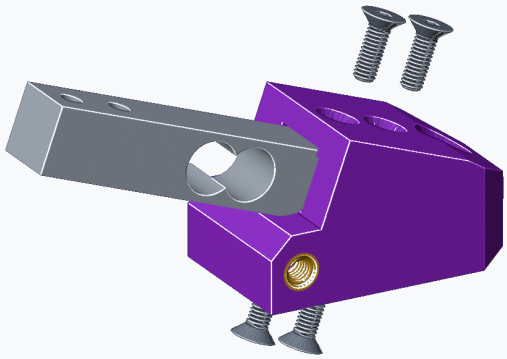
BUILD THE PEDAL

# ASSEMBLE THE LOAD-CELL FRONT BLOCK

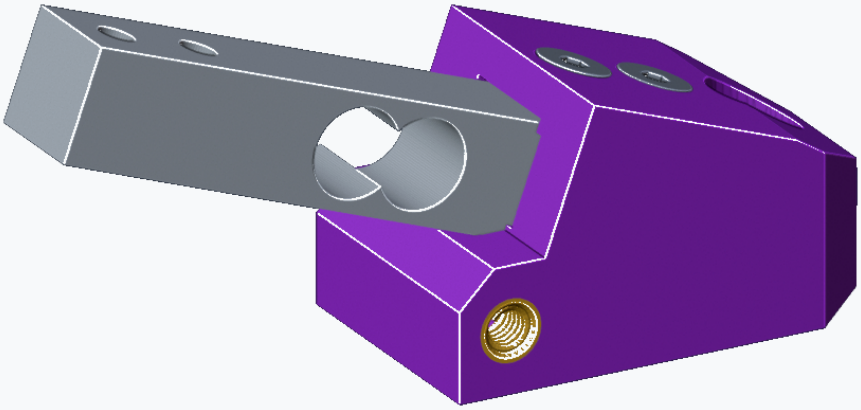
**YOU WILL NEED** Load cell | Front block | 4 x M4 x 10 countersunk screws



**1** Slide in the load cell



**2** Fit 4 M4 countersunk screws



**3** Completed subassembly

## ASSEMBLE

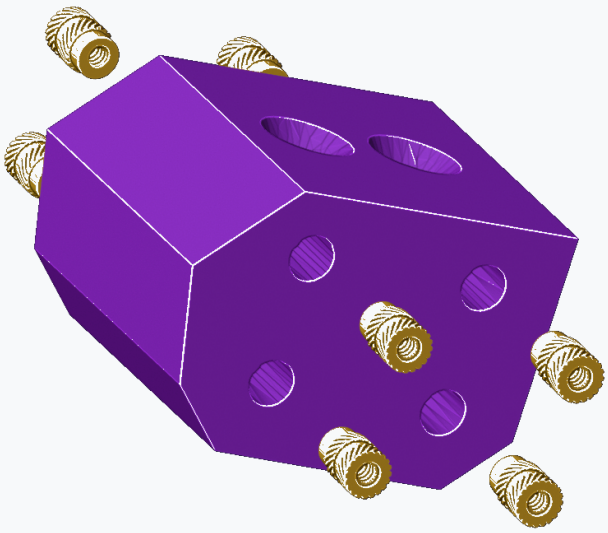
Slide the load cell into the prepared front block. Secure with four M4 x 10 mm countersunk screws: two from above and two from below.

09

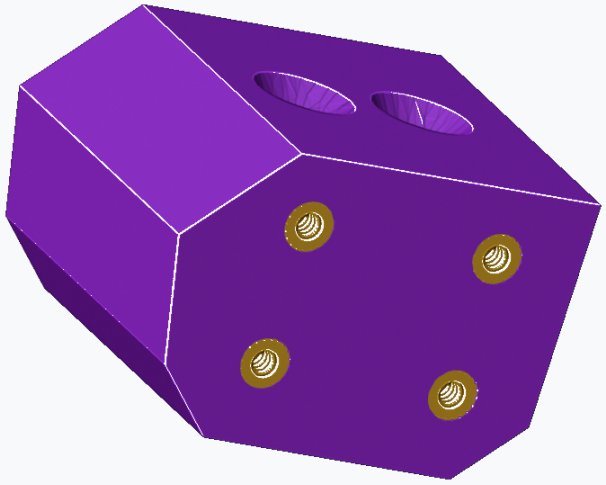
BUILD THE PEDAL

# PREPARE THE REAR LOAD-CELL BLOCK

**YOU WILL NEED** 8 x M3 heat inserts, 6 mm long



1 **Heat-set 4 inserts into each side**



2 **All 8 inserts fitted**

## ASSEMBLE

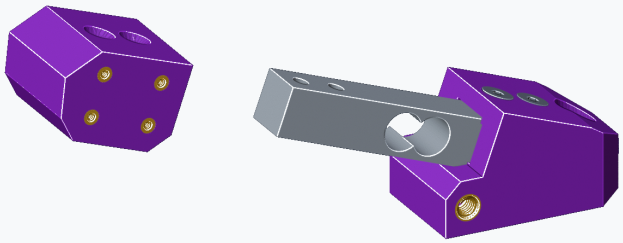
Fit four M3 x 6 mm heat inserts into EACH side of the rear load-cell block: eight total. Allow to cool.

10

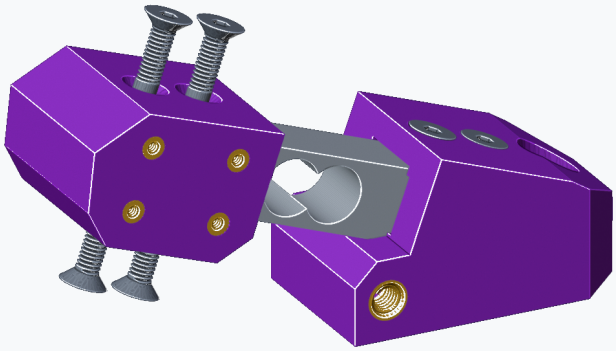
BUILD THE PEDAL

# FIT THE REAR BLOCK TO THE LOAD CELL

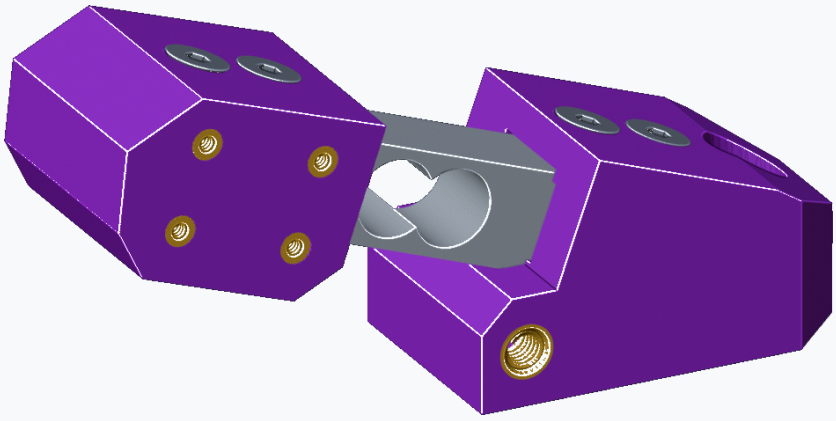
**YOU WILL NEED** Rear LC block | 4 x M4 x 10 countersunk screws



1 **Slide on the prepared rear block**



2 **Fit 4 M4 countersunk screws**



3 **Completed load-cell subassembly**

**ASSEMBLE**

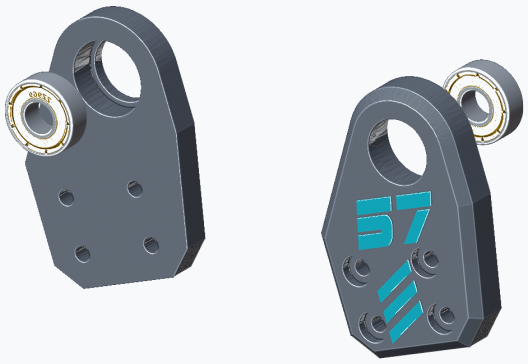
Slide the rear block onto the opposite end of the load cell, with its eight M3 inserts already fitted. Secure with four M4 x 10 mm countersunk screws.

# 11

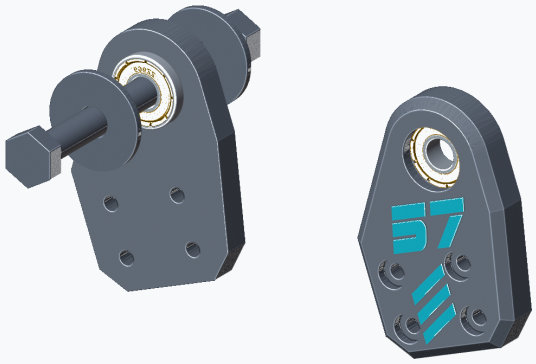
BUILD THE PEDAL

## FIT THE LOAD-CELL SIDE-PLATE BEARINGS

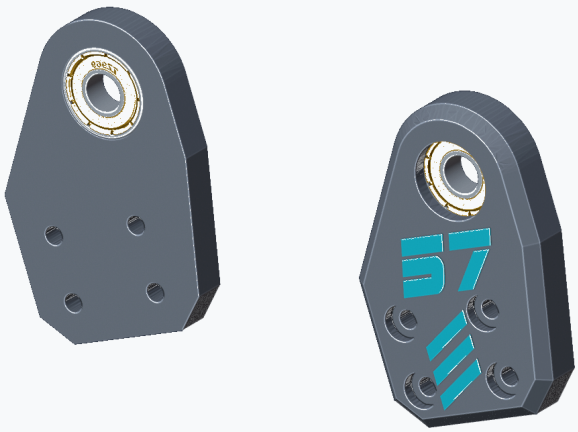
**YOU WILL NEED** 2 x 696ZZ bearings | Temporary M6 press tools



1 **Bearings enter from the inside**



2 **Press-fit; repeat for the other plate**



3 **Remove all pressing tools**

### ASSEMBLE

Press both 696ZZ bearings into the inner faces of the load-cell side plates until FLUSH. The illustrated plates are mirrored, with one logo face shown.

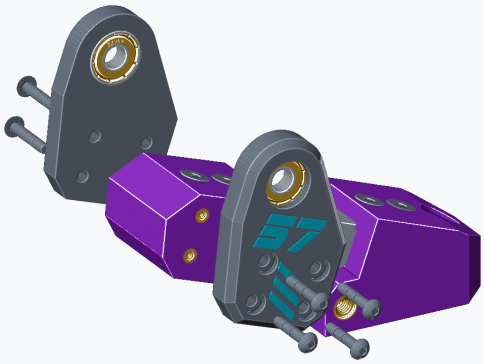
Use a longer M6 bolt, two large washers and an M6 nut as a temporary press. Press squarely on the bearing outer ring, then remove the tools.

12

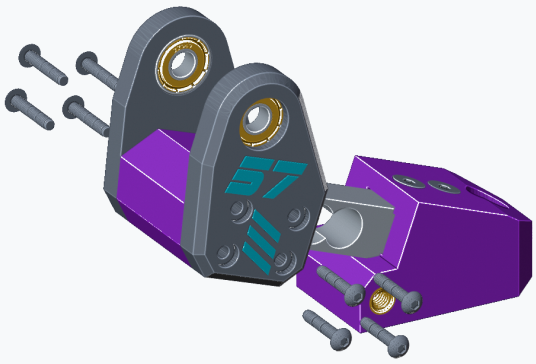
BUILD THE PEDAL

# MOUNT THE LOAD-CELL SIDE PLATES

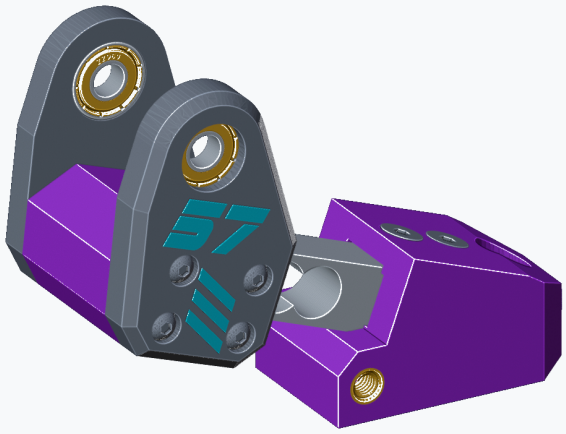
**YOU WILL NEED** 2 prepared LC side plates | 8 x M3 x 16 screws



1 **Align both prepared side plates**



2 **Fit four M3 screws per side**



3 **Both plates secured**

**ASSEMBLE**

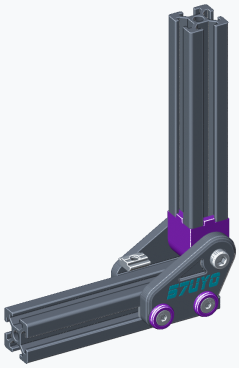
Mount both prepared plates to the rear load-cell block with four M3 x 16 mm screws per side. Logos face outward.

# 13

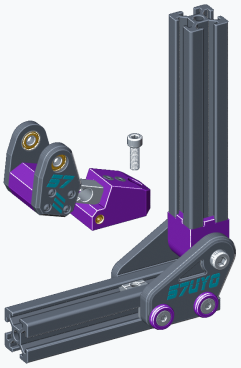
BUILD THE PEDAL

# MOUNT THE LOAD-CELL ASSEMBLY ON THE BASE PROFILE

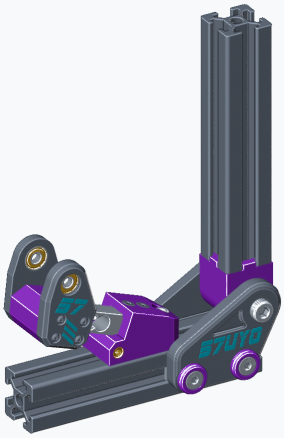
**YOU WILL NEED** 1 x M6 x 16 socket bolt | 1 x M6 roll-in T-nut



**1** Fit an M6 roll-in T-nut



**2** Align the assembly and M6 bolt



**3** Secure the assembly

## ASSEMBLE

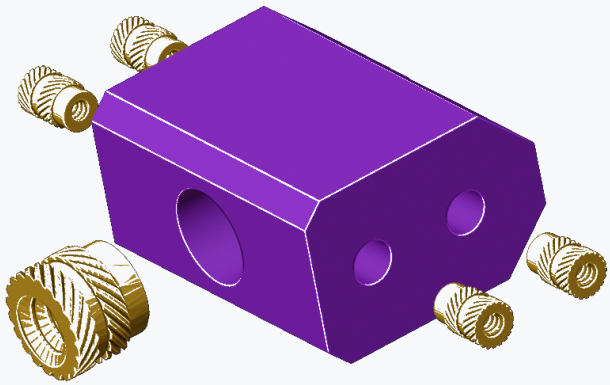
Fit an M6 spring-loaded roll-in T-nut in the top slot of the base profile, threaded hole upward. Mount the front load-cell block with one M6 x 16 mm socket bolt.

# 14

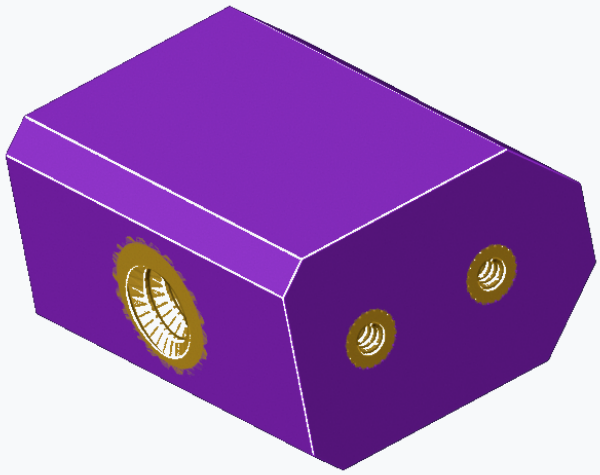
BUILD THE PEDAL

## PREPARE THE FRONT SPRING BLOCK

**YOU WILL NEED** 4 x M3 x 6 heat inserts | 1 x M8 heat insert, 8 mm long



1 **Heat-set the five brass inserts**



2 **Prepared front spring block**

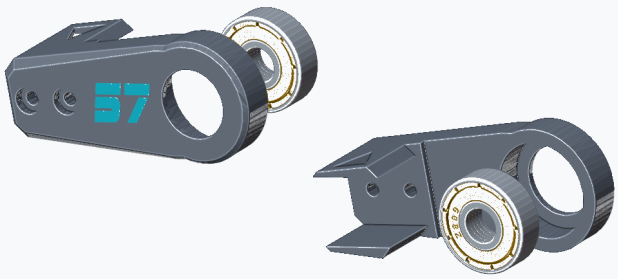
**ASSEMBLE**

Fit four M3 x 6 mm heat inserts, two per side of the front spring block. Fit the M8 x 8 mm insert from the front. Allow to cool.

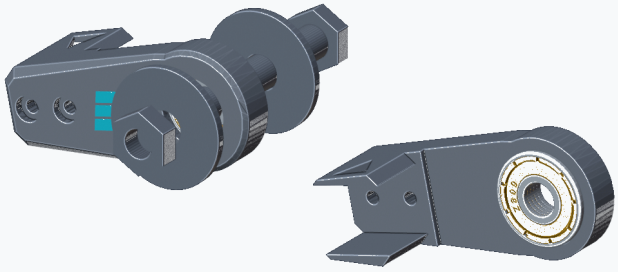
15

BUILD THE PEDAL

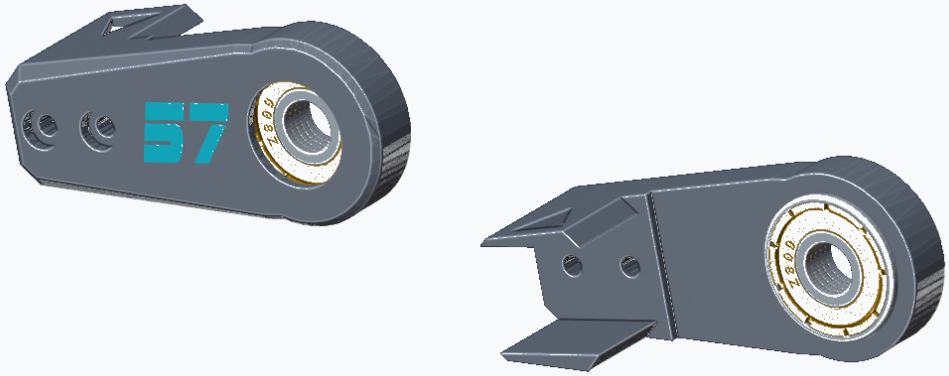
# FIT THE SPRING-PIVOT ARM BEARINGS



1 Bearings enter from the inside



2 Press-fit; repeat for the other arm



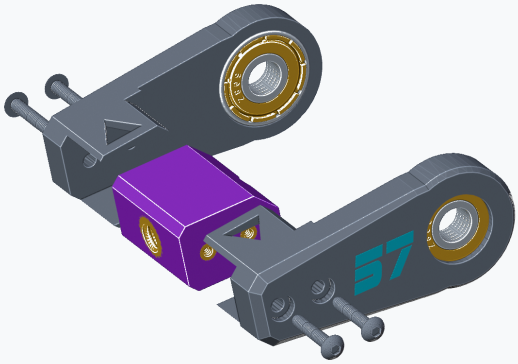
3 Bearings seated flush; tools removed

16

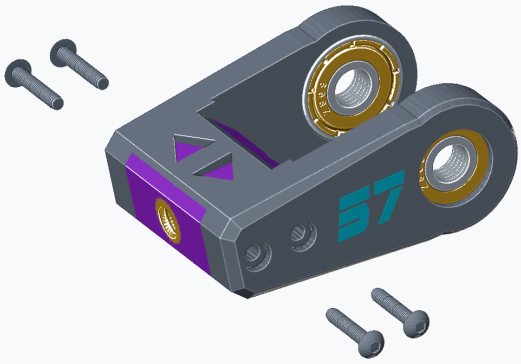
BUILD THE PEDAL

# MOUNT THE FRONT SPRING BLOCK BETWEEN THE PIVOT ARMS

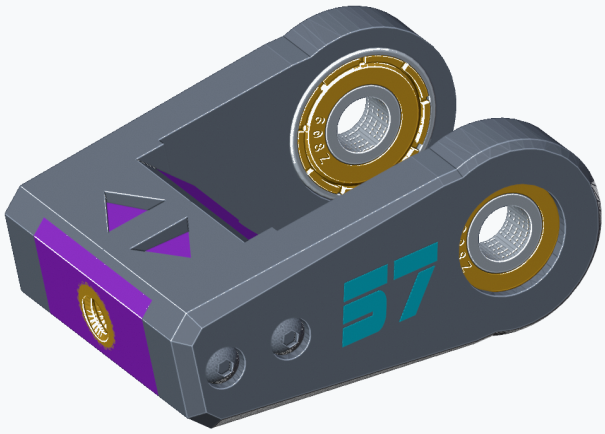
**YOU WILL NEED** Front spring block | 2 pivot arms | 4 x M3 x 16 screws



1 **Align the block and prepared arms**



2 **Fit two M3 screws per side**



3 **Completed spring-pivot subassembly**

**ASSEMBLE**

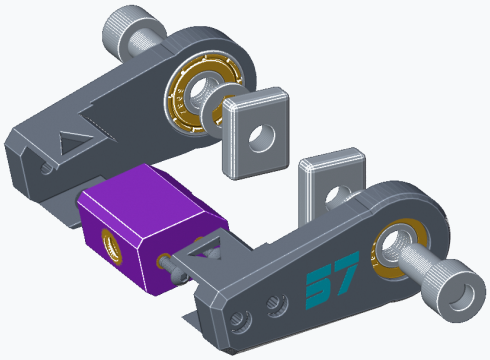
Mount the front spring block between the prepared pivot arms using four M3 x 16 mm screws, two per side. Keep the arms facing right as shown.

# 17

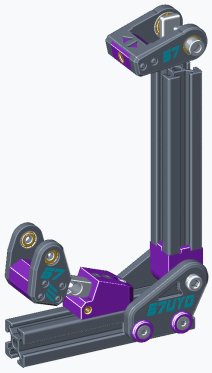
BUILD THE PEDAL

## SLIDE THE SPRING PIVOT ONTO THE PEDAL ARM

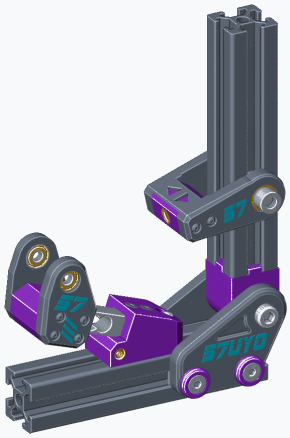
**YOU WILL NEED** 2 x M8 x 16 socket bolts | 2 x M8 washers | 2 x heavy-duty M8 T-nuts



**1** Prepare the bolts, inner washers and T-nuts



**2** Slide the assembly into the pedal-arm slots



**3** Position and secure the assembly

### ASSEMBLE

Fit one M8 x 16 socket bolt from outside each bearing. Place one M8 washer on the INSIDE, between the bearing inner race and profile.

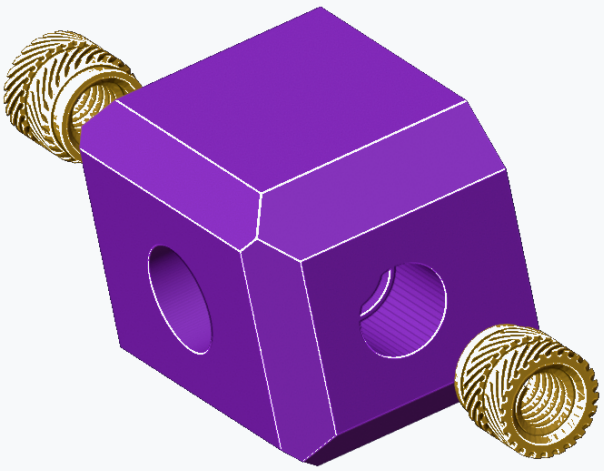
Half-thread each HEAVY-DUTY M8 T-nut onto its bolt. Slide both T-nuts into the arm slots from the open end, position the pivot, then tighten.

# 18

BUILD THE PEDAL

## PREPARE THE REAR SPRING BLOCK

**YOU WILL NEED** 2 x M6 heat inserts, 7 mm long



1 **Heat-set one M6 insert per side**



2 **Prepared rear spring block**

### ASSEMBLE

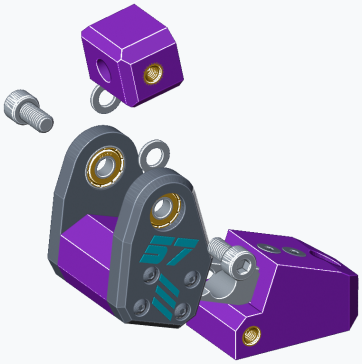
Fit one M6 insert into each side of the rear spring block. Allow to cool.

# 19

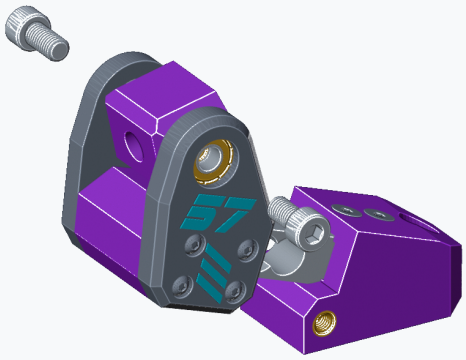
BUILD THE PEDAL

# MOUNT THE REAR SPRING BLOCK BETWEEN THE LOAD-CELL UPRIGHTS

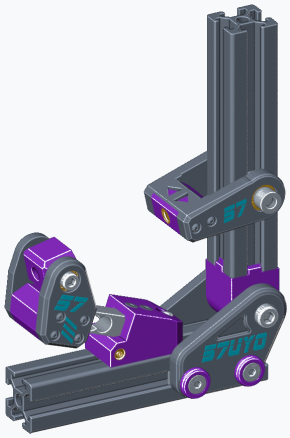
**YOU WILL NEED** 2 x M6 x 12 socket bolts | 2 x M6 shims, 1 mm thick



1 **Block and one inner shim per side**



2 **Fit the two outside M6 bolts**



3 **Rear spring block mounted**

## ASSEMBLE

Position the rear spring block between the load-cell uprights. Fit ONE 1 mm M6 shim on each side, contacting the bearing inner race.

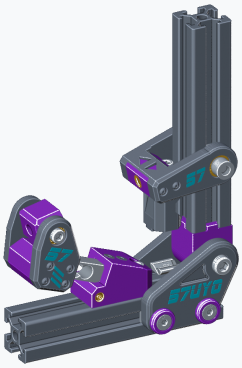
Secure from outside with two M6 x 12 mm socket bolts. A 1.2 mm washer per side is the agreed fallback if 1 mm shims are unavailable. Check free movement.

# 20

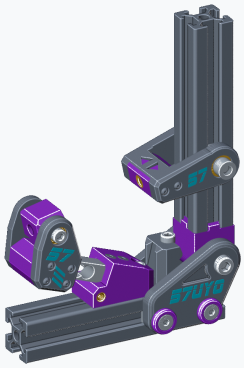
BUILD THE PEDAL

## MOUNT THE PEDAL TRAVEL STOP

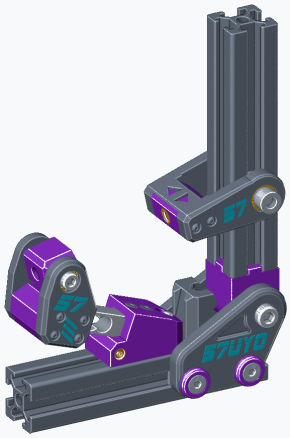
**YOU WILL NEED** Travel stop | 1 x M6 roll-in T-nut | 1 x M6 x 16 socket bolt



**1** T-nut, stop and M6 bolt aligned



**2** Seat the stop and insert the bolt



**3** Travel stop mounted

### ASSEMBLE

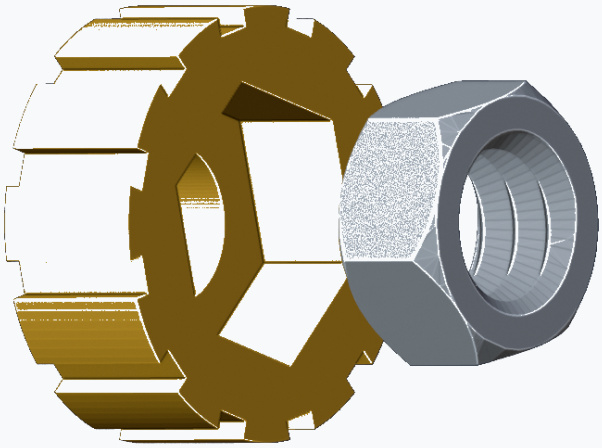
Fit the M6 roll-in T-nut into the base profile. Place the travel stop over it and secure with an M6 x 16 mm socket bolt. The stop sits under the spring.

21

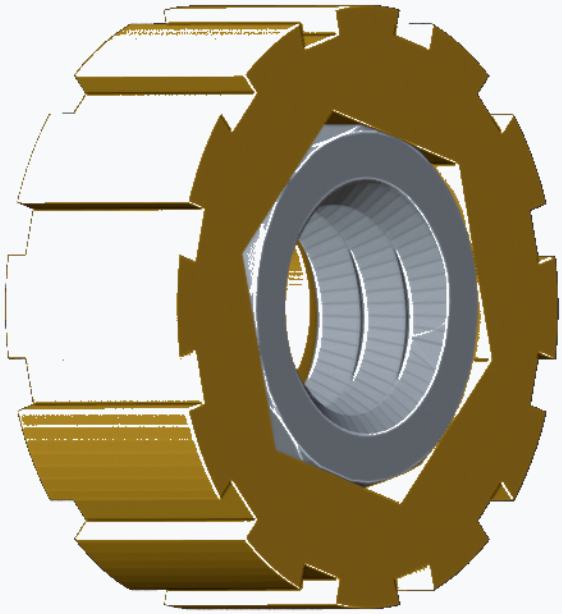
BUILD THE PEDAL

# PREPARE THE SPRING COMPRESSION RING

**YOU WILL NEED** Compression ring | 1 x M8 locknut



1 **Align the M8 lock nut with the pocket**



2 **Press-fit the nut into the ring**

**ASSEMBLE**

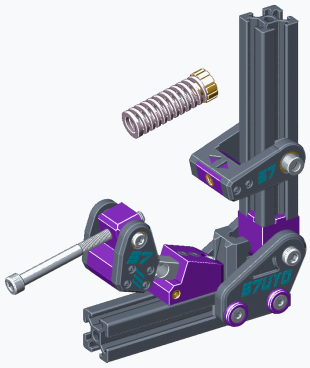
Press-fit the M8 locknut fully into the compression ring hex pocket. The ring will sit in front of the spring.

22

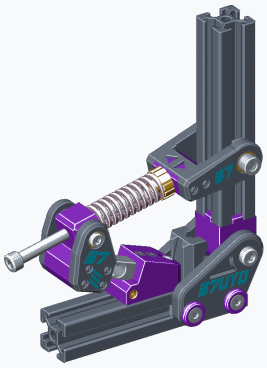
BUILD THE PEDAL

# INSTALL THE SPRING AND M8 X 100 MM BOLT

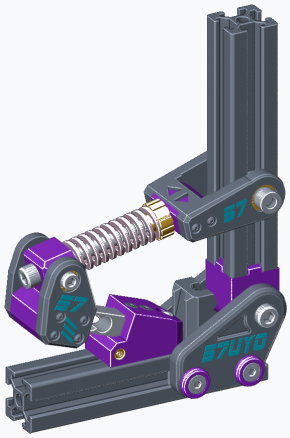
**YOU WILL NEED** Spring | Prepared compression ring | 1 x M8 x 100 socket bolt



1 **Bolt from behind; spring and ring above**



2 **Place spring and ring; advance the bolt**



3 **Screw the assembly together**

## ASSEMBLE

Insert the M8 x 100 mm bolt from behind the rear spring block. Place the spring and prepared compression ring between the blocks, with the ring in front of the spring.

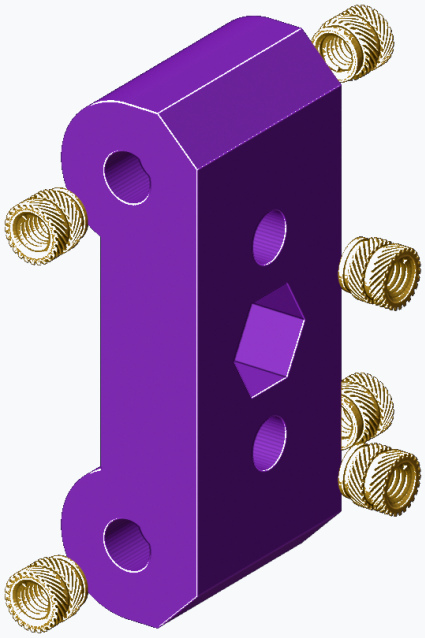
Advance the bolt and screw the assembly together. The travel stop is already fitted under the spring.

23

BUILD THE PEDAL

# PREPARE THE PEDAL-FACE MOUNTING BLOCK

**YOU WILL NEED** Pedal-face mount block | 6 x M6 heat inserts, 7 mm long



1 **Heat-set all six M6 inserts**



2 **Prepared pedal-face mount**

**ASSEMBLE**

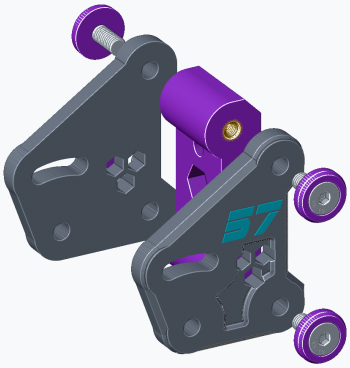
Fit six M6 inserts: two in each side face and two from the back for the pedal-face screws. Allow to cool.

# 24

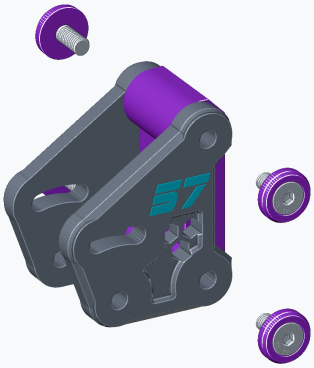
BUILD THE PEDAL

## FIT THE PEDAL-FACE MOUNTING SIDE PLATES

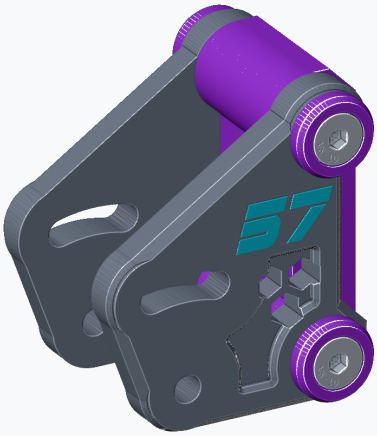
**YOU WILL NEED** Mount block | 2 side plates | 4 x JDM M6 washer/screw sets



1 **Align the prepared block and plates**



2 **Fit two JDM washer/screw sets per side**



3 **Completed face-mount subassembly**

**ASSEMBLE**

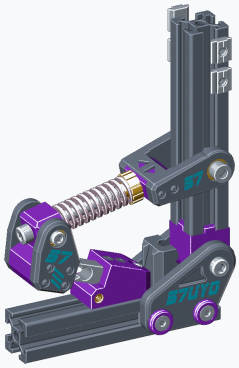
Fit the two side plates to the prepared mounting block with two JDM M6 washers and countersunk screws per side. Leave the two rear inserts available for the pedal face.

25

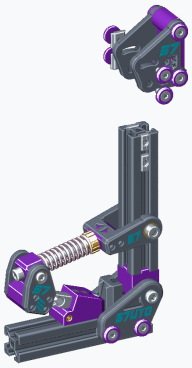
BUILD THE PEDAL

# FIT THE PEDAL-FACE MOUNT ONTO THE PEDAL ARM

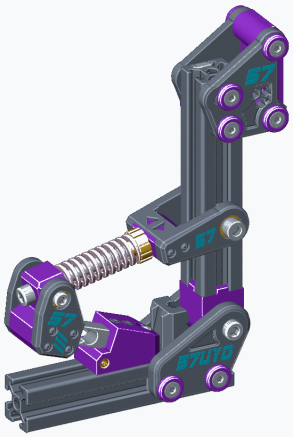
**YOU WILL NEED** 4 x M6 roll-in T-nuts | 4 x JDM M6 washer/screw sets



1 **Fit two M6 T-nuts per side**



2 **Slide on the prepared face mount**



3 **Secure with four washer/screw sets**

**ASSEMBLE**

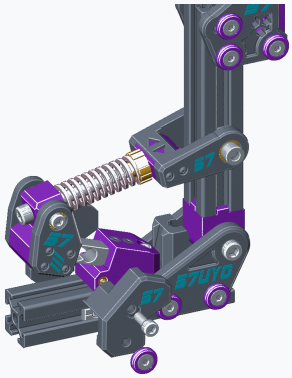
Fit two M6 roll-in T-nuts into EACH side of the pedal arm. Slide the prepared pedal-face mount onto the arm. Align and secure with four additional JDM M6 washer/screw sets.

26

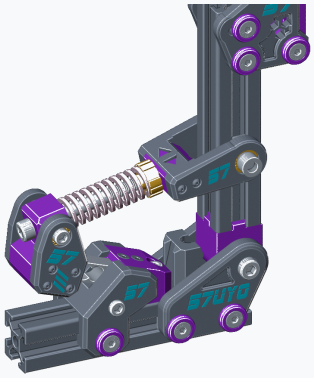
BUILD THE PEDAL

# FIT THE LOAD-CELL COVER PLATES

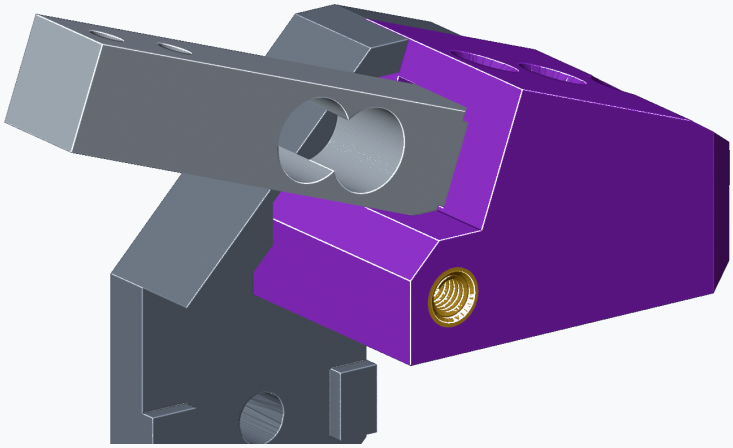
**YOU WILL NEED** 2 LC covers | 2 x M6 roll-in T-nuts | 2 washer/screw sets | 2 x M6 x 16 socket bolts



1 **Fit roll-in T-nuts; align both covers**



2 **Secure each cover at both points**



3 **Close-up: cable gap behind smaller cover**

**ASSEMBLE**

Each cover uses a washer and M6 countersunk screw into a roll-in T-nut INSIDE the profile, plus an M6 x 16 mm socket bolt into the load-cell block.

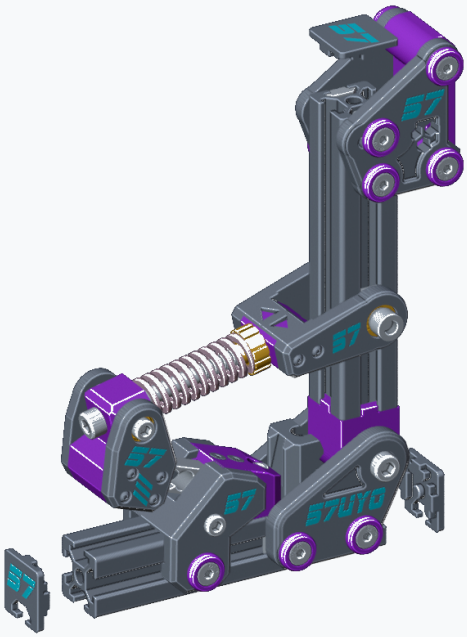
Route the load-cell cable through the gap between the BACK EDGE of the block and the covering protrusion on the smaller, far-side plate. The close-up shows the inner side.

27

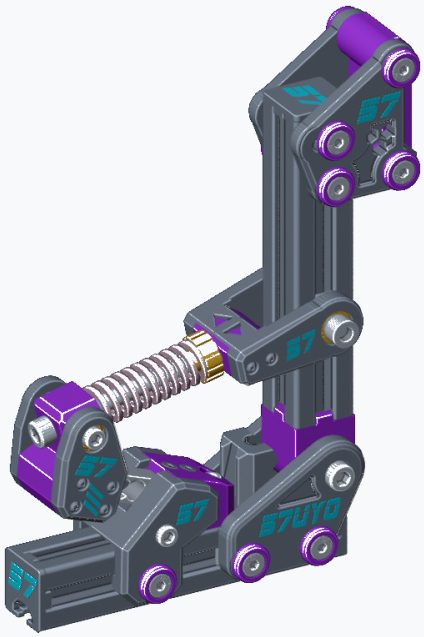
BUILD THE PEDAL

# FIT THE PROFILE-END COVERS

**YOU WILL NEED** 3 profile covers | Optional hot glue



1 **Align the three covers**



2 **Press the covers into place**

**ASSEMBLE**

Press the two covers WITH T-nut cutouts into the ends of the base profile. Fit the solid cover WITHOUT a cutout or logo at the top of the pedal arm.

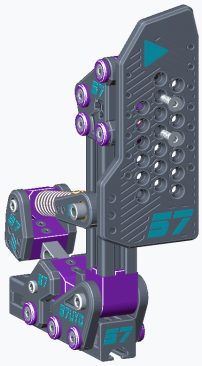
If needed, use a small dab of hot glue to hold the covers in place.

28

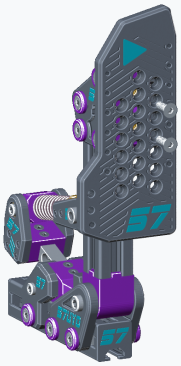
BUILD THE PEDAL

# MOUNT THE PEDAL FACE

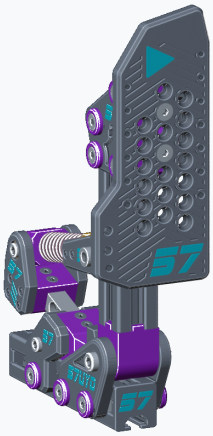
**YOU WILL NEED** Pedal face | 2 x M6 x 20 countersunk screws



1 **Front view: align the pedal face**



2 **Insert the two M6 x 20 mm screws**



3 **Pedal face secured**

**ASSEMBLE**

Rotate the pedal to the front. Mount the pedal face to its block with two M6 x 20 mm countersunk screws, then tighten evenly.

29

OPTIONAL DAMPER

# PREPARE THE LOWER-PIVOT TOP CAP

**YOU WILL NEED** Lower-pivot top cap | 2 x M3 heat inserts, 6 mm long



1 **Fit the two M3 heat-set inserts**



2 **Prepared top cap**

## ASSEMBLE

Fit two M3 x 6 mm brass heat inserts squarely into the lower-pivot top cap. Seat their entry ends flush with the cap face, as shown. Allow to cool.

30

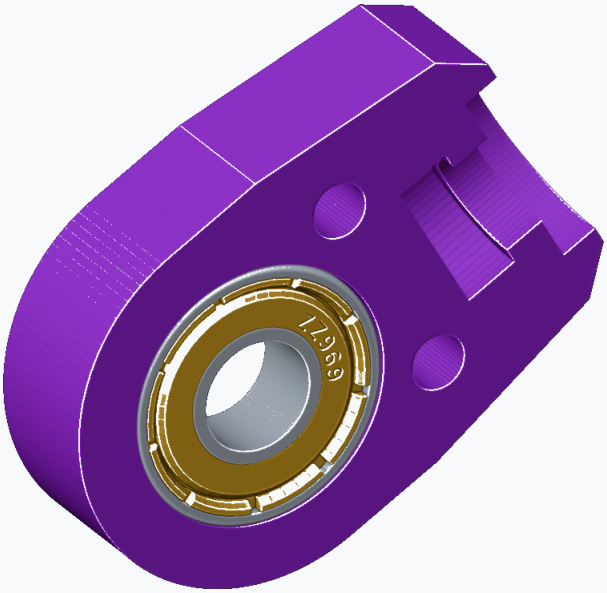
OPTIONAL DAMPER

# FIT THE LOWER-PIVOT BEARING

**YOU WILL NEED** Lower-pivot housing | 1 x 696ZZ bearing



1 **Align bearing with the lower housing**



2 **Press-fit the bearing into its seat**

**ASSEMBLE**

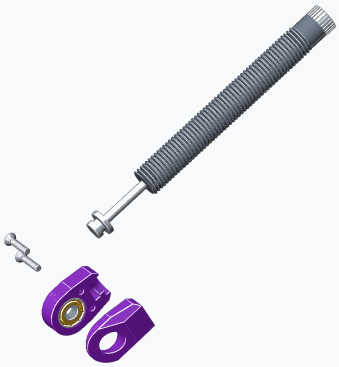
Press the 696ZZ bearing squarely into the lower housing. Apply force to the outer ring.

# 31

OPTIONAL DAMPER

## CLOSE THE LOWER PIVOT AROUND THE DAMPER

**YOU WILL NEED** Prepared lower-pivot parts | Damper | 2 x M3 x 14 countersunk screws



1 **Insert the damper end in the housing**



2 **Fit cap; insert screws from underneath**



3 **Completed lower-pivot subassembly**

**ASSEMBLE**

Seat the damper end in the lower housing, then fit the prepared top cap.

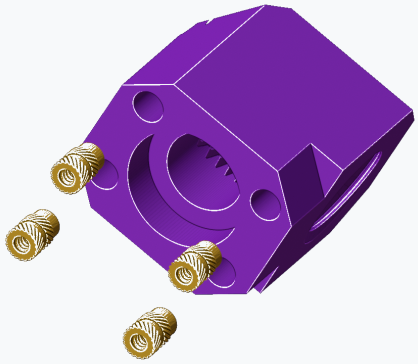
Insert the two M3 x 14 mm countersunk screws from UNDERNEATH the lower housing. They thread into the top-cap inserts. Tighten evenly.

# 32

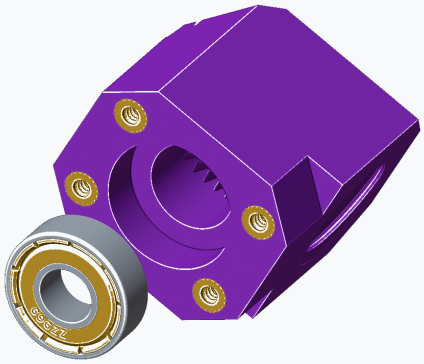
OPTIONAL DAMPER

## PREPARE THE TOP PIVOT

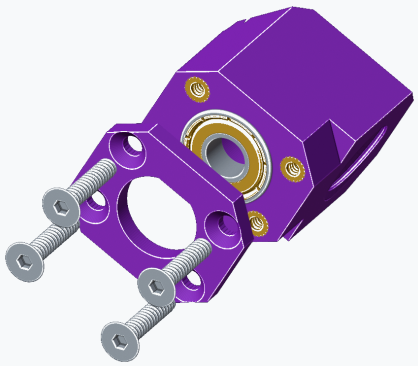
**YOU WILL NEED** Top-pivot block | 4 x M3 x 6 inserts | 696ZZ bearing | Cover | 4 x M3 x 14 screws



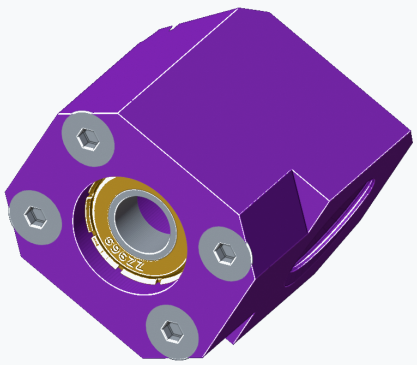
1 **Fit four M3 x 6 mm inserts**



2 **Insert the 696ZZ bearing**



3 **Fit the cover and four M3 x 14 screws**



4 **Tighten the cover evenly**

**ASSEMBLE**

Fit the four M3 x 6 mm heat inserts and allow to cool. Insert the 696ZZ bearing into its seat.

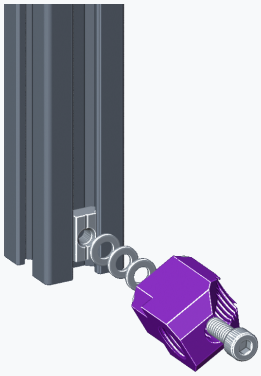
Fit the cover UNDER the bearing and secure it with four M3 x 14 mm countersunk screws.

# 33

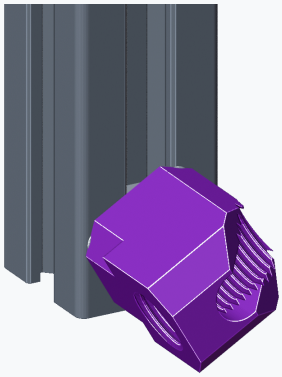
OPTIONAL DAMPER

## MOUNT THE TOP PIVOT ON THE PEDAL ARM

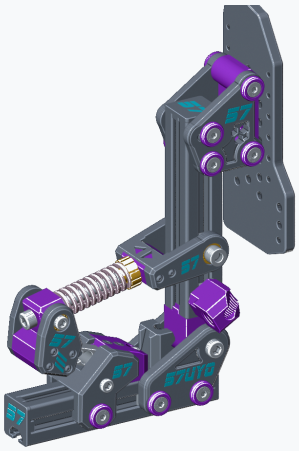
**YOU WILL NEED** Prepared top pivot | M6 roll-in T-nut | 3 M6 shims | M6 x 16 socket bolt



**1** T-nut > three shims > pivot > M6 x 16 bolt



**2** Tighten the mounting bolt



**3** Top pivot installed

**ASSEMBLE**

Inside to outside: M6 roll-in T-nut INSIDE the arm slot > THREE M6 shims > pivot bearing/block > M6 x 16 mm socket bolt.

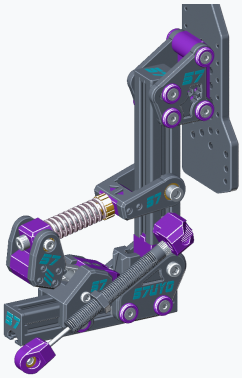
Tighten the stack to secure the top-pivot assembly on the pedal arm.

# 34

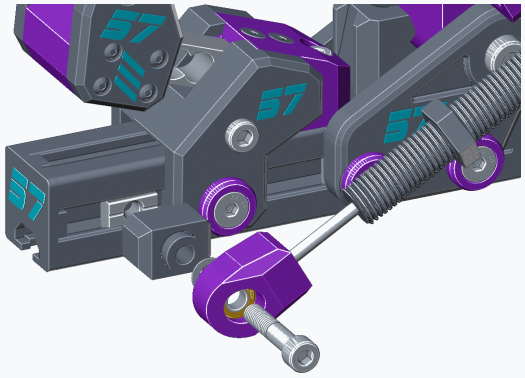
OPTIONAL DAMPER

# THREAD IN THE DAMPER AND MOUNT THE LOWER PIVOT

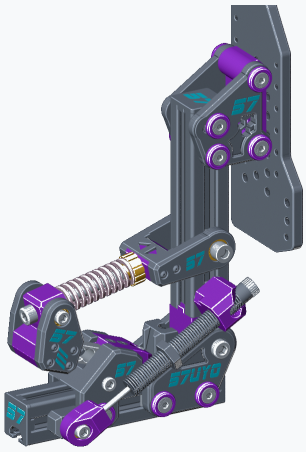
**YOU WILL NEED** Damper + 1 supplied M14 nut | Printed spacer | M6 shim | M6 T-nut | M6 x 30 socket bolt



**1** **Thread M14 damper into the top pivot**



**2** **Fit the lower mounting stack**



**3** **Secure with M6 x 30 mm socket bolt**

## ASSEMBLE

Thread the M14 retention nut onto the damper, leaving it loose halfway along the body. Thread the damper into the top pivot until its lower pivot roughly aligns with the base.

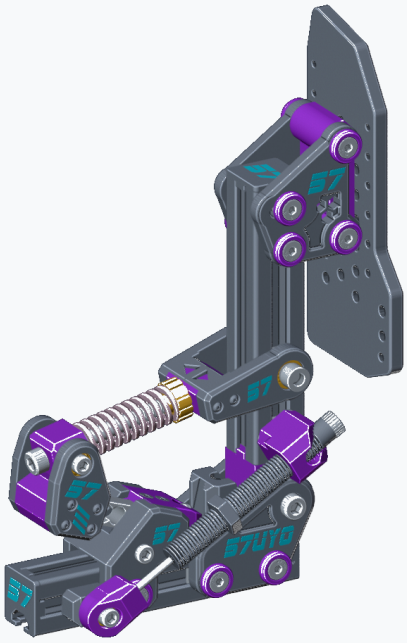
Lower mounting order: roll-in T-nut INSIDE the base slot > printed spacer block > ONE M6 shim > lower-pivot bearing > M6 x 30 mm socket bolt.

35

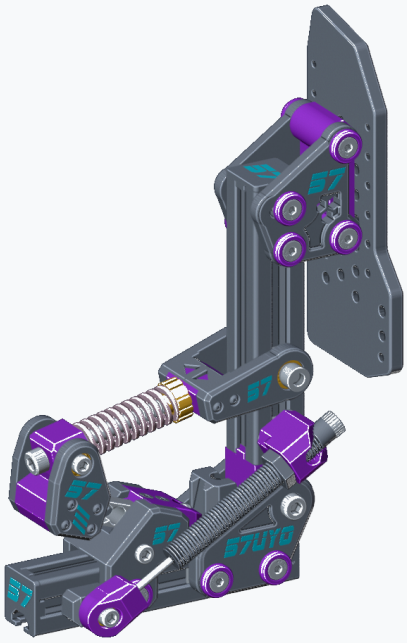
OPTIONAL DAMPER

# FINAL ADJUSTMENT - THROTTLE ASSEMBLY COMPLETE

**YOU WILL NEED** One M14 retention nut, supplied with the damper



1 **Rotate damper; check full pedal travel**



2 **Tighten the M14 retention nut**

## ASSEMBLE

Rotate the damper to obtain its full range without restricting pedal travel. Check the complete pedal stroke.

When satisfied with the position, tighten the M14 retention nut against the top pivot. Your throttle pedal is assembled!