



## Universal ball and socked arm

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### Summary

WORK IN PROGRESS UPDATES AND ADDITIONAL PARTS COMING This is a universal ball and socked arm design that aims to be...

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WORK IN PROGRESS  
UPDATES AND ADDITIONAL PARTS COMING

This is a universal ball and socked arm design that aims to be versatile, customizable easy to adapt/ print and sturdy.

The idea is that me and everyone who needs it can easily build a arm and use accessories from either my library other users or simply design new ones. Therefore, I tried to make the entire design with commonly available parts and an easy interface between all parts so everyone can design new accessories.

To connect the parts, you will need Bolts M3 ~20 - ~40

M3 nuts OR square nuts OR hotmelt inserts (M3xD4.6xL5)

<https://www.aliexpress.com/item/4000232858343.html?spm=a2g0s.9042311.0.0.27424c4dELIdSE>

To interface with existing parts:

Extrusion: 10x10x10mm with 4mm hole and D6mm x h4mm countersink for the head.

1mm chamfers on all edges

Hole: 10.5x10.5x10mm with 4mm hole at the back and facility to insert nut

### Assembly

Insert the nuts or hotmelt inserts in the parts. Hotmelt inserts should be pushed in ~0.5mm deeper than the surface and then a bolt is quickly threaded through to ensure no plastic is blocking the insert.

For the knobs simply thread a M3x25 bolt directly into the plastic. Be careful not to overtighten or you will strip the plastic!

I recommend printing the ball and socked parts in PETG. they flex more before breaking and slide better. For best results use a little oil or grease and print the balls with supports. (All other parts are designed to be printed without supports!)

Tighten all screws really well as they are designed to provide mechanical support. Otherwise the printed parts WILL break!

Only use the sockets with cutout where necessary as they have less gripping force due to a smaller surface area. To increase gripping force on all sockets you can tighten the M3 bolt in addition to the handwheel.

## **Print instructions Category: DIY Print Settings**

**Printer Brand:** Creality

**Printer:** CR-10S

**Rafts:** No

**Supports:** No

**Resolution:** 0.2

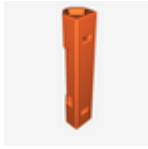
**Infill:** 5%

**Filament:** Hobbyking PLA/PETG

### **Notes:**

3-4 shells, no supports (only balls need support). Print ball and socked in PETG.

# Model files



**universarm\_arm\_100mm\_25300.stl**

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**universarm\_arm\_100mm.3mf**

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**universalarm\_socket\_v2.stl**

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**universalarm\_90\_ad0001.stl**

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**universalarm\_ball\_reinforced.stl**

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**universalarm\_90deg\_genderchange.3mf**

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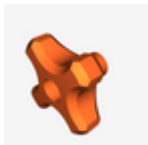
**universarm\_arm\_250mm.stl**

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**universalarm\_socket\_v2\_w\_cutout.3mf**

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**universalarm\_knob.3mf**

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**universalarm\_90\_ad0001.3mf**

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**universalarm\_socket\_v2\_w\_cutout.stl**

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**universarm\_arm\_150mm.stl**

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**universalarm\_socket\_v2.3mf**

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**universalarm\_ball\_reinforced.3mf**

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**universarm\_arm\_150mm.3mf**

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**universalarm\_knob.stl**

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**universarm\_arm\_200mm.stl**

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**universarm\_arm\_250mm.3mf**

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**universarm\_arm\_100mm.stl**

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**universalarm\_90deg\_genderchange.stl**

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**universarm\_arm\_200mm.3mf**

[Find source .stl files on Thingiverse.com](#)

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