



270 Degree Geared Hinges (V2) for K1/K1 Max/K1C. Easy print option. Not print in place.



[VIEW IN BROWSER](#)

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Summary

These Hinges allow K1 series doors to open 270 degrees removing the 90 degree shatter risk of the stock Creality design.

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Tags: [door](#) [mod](#) [hinge](#) [pla](#) [petg](#) [diablo](#) [fix](#) [hinges](#) [asa](#) [degree](#) [max](#) [720](#) [k1](#) [k1max](#) [k1c](#)

I CANNOT SAY THIS ANY SIMPLER. I'M WRITING THIS IN UPPER CASE SO THAT WHEN SOMEBODY SAYS 'I DON'T UNDERSTAND WHAT I NEED TO PRINT' I CAN SAY IT'S ALL IN THE INFORMATION PAGE. AT A BARE MINIMUM, EVEN IF YOU DON'T READ ANY OF THE MAIN TEXT, PLEASE READ THE 4 BULLET POINTS HERE. K1 and K1C owners, pay particular attention to bullet points 2 and 3.

1. For older K1 and all K1 Max printers, All the files in this file set when printed will produce every print part needed for assembling a complete pair of hinges.

2. **For more recent K1 printers and ALL K1C printers**, you will NEED **2different** side panel hinge pieces (available in a separate file set elsewhere in my downloads and linked below in the main text) these **replace** the 2 side panel pieces of this file set. All the other parts of the hinge assembly remain the same.
3. K1 owners please note:- Creality starting using K1C frames on the K1 shortly after the K1C was released. Check which case your printer uses before you print the parts. These 2 hinges affix to the left side of the printer using the two corner screws that hold the side panel in place. On older K1 models, the spacing between those holes in the corners is around 6cm (around 2 and a half inches), these older cased printers need nothing extra and can happily use all the files already here to print their hinges. The K1C and subsequent releases of the K1 use a 2cm spacing for those screws (around 3 quarters of an inch). Those with the K1C case type 2cm hole spacing WILL NEED the 2 replacement parts from the K1C adapters download to assemble the hinges for use on their printers. From info given by users out there, there are 2 versions of the k1c case. one has the door glass holes offset to one side by around half a millimeter. This means that although most k1c case owners can fit the hinges without any issue, a small proportion may find that their glass holes are .5mm offset to the side. If this affects you, just file the hole/slot of the printed part that connects to the glass to widen the slot by half a millimeter. **NOTE:- if that gap is any larger than .5mm then the hinge is assembled incorrectly! Even one tooth out in the gear mesh will affect the offset by around 1 - 1.5mm and can drastically affect clearances while also incurring door misalignment where it closes against the printer frame. Regardless of which printer you use (K1/K1C/K1 Max)It is essential that the hinge be assembled correctly!.... Check the pictures provided with this download for better detail on correct assembly of the hinge halves.**
4. During later revisions of the hinge design that were initially for my own use and required longer term testing before release, I created a number of files that could also be used as updates and upgrades to this version of the 270 degree hinges (V2 worked perfectly and I didn't want to change anything in the main file set of the V2 hinges). As a result there are now 2 different 'optional sets' of hinge pins for those who may prefer the pin improvements over the more simple straight pins of the V2 hinges originals. YOU DO NOT NEED THEM! If for any reason you see those upgrades and feel they add some kind of confusion, then you can happily ignore their existence and stay with the pins supplied in this V2 file set.

I HAVE ADDED SOME MORE SIMPLIFIED INSTRUCTIONAL IMAGES TO THE MAIN PICTURES. THEY ARE THERE SOLELY TO KEEP THINGS AS SIMPLE AS

POSSIBLE FOR THOSE WHO DON'T WANT TO READ ALL THE DETAILED STUFF.

If You find this design useful, Please consider leaving a like, sharing a make, or leaving a comment (enough likes earns me a discount on a roll of filament, and in designs like this I go through a lot of it).

This is version 2 of the 270 degree hinges (V1 is now deleted). Version 2 has been downloaded around 2000 times now and is a tried and trusted design. As such I no longer touch this file set as I do not want to risk changing anything that may potentially introduce problems. Until recently there was an option on the V2 hinges to use additional face plates to change the look of the hinges. Unfortunately a very small number of people complained that they were confused by the additions and options over and above the stock requirements needed to complete a set of hinges and as a result I have removed the majority of extras that were once available on V2. Hopefully this will solve the confusion issues once and for all.

The 2 later pin design options I created after V2 went live are still available for download and use in my other downloads, but I stress again, they are NOT needed and remain solely for those who may prefer their design to the more simple straight pins of the V2 file set.

PLA	PETG	ASA	.4 nozzle	.2 layer
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IMPORTANT NOTES :-

It is worth noting here that some sellers of Acrylic replacement K1/K1C doors make a point that the K1 and K1C actually use slightly different doors to each other. The difference is minimal but enough to bring the door notch into play as a potential issue, along with the screw holes between K1 and K1c also being around half a millimetre different laterally. I adjusted the fitting holes to find the middle ground so no adjustment beyond that already built in to the hinges should be needed. I can only see one potential issue and that is if Creality fit a K1 door to a K1C or vice versa. The potential for a clearance issue arises if they do that so in a worst case scenario you may have to file the screw slots of the door hinge piece to account for that half millimetre.

K1C owners (and newer K1 printers using the 20mm spacing on the printer side panels) WILL NEED the K1C adapters in order to be able to

use these hinges. They are available here:- [K1C adapters for use with geared 270 degree door hinges](#) The two parts from there replace the two side hinge parts of this file set (The half of the hinges that attaches to the side of the printer).

MAIN DESCRIPTION

A 270 degree geared door hinge design for allowing K1 and K1 Max owners to open the glass door and swing it fully open through 270 degrees and allow it to rest against the side panel instead of being at risk from damage at the the normally stock 90 degree maximum. The gif used in the photos to demonstrate the hinge range is the later version 3, but it is functionally identical to version 2 in door operation. Version 3 just has additional 'beauty' plates.

Being component form and not 'Print in Place' makes it is an easier print and more importantly allows for more exotic filaments than PLA to be used if desired. Print in Place hinges often fuse together with even fairly simple filaments like PETG. Printing the hinge in individual parts removes the problems of that potential issue.

The files in this specific set are for the Early models of the K1 and ALL versions of thee K1 Max! The 2 different parts needed to adapt this hinge set work with the K1C and later releases of K1 printers (that Creality switched to the K1C frame) are in the link above the 'Main Description' title further up this page.

Until recently I was using mordeivs 'print in place' 270 degree hinges and I'd liked the function of those so much at the time of printing that I created two geared latches to follow the overall design but with my own twist. Both catches work with these new hinges and are on my profile models. The first design was the '[Penwald](#)' Door catch followed by the more over engineered '[Vorlon](#)' Door catch. For those wanting to securely hold the door in place at the side of the printer after fitting 270 degree hinges? they are both worth a look. The catches have universal mounting plates to allow for use on all 3 current K series printers (K1.K1C/K1 max). Creating those catches made me realise I could make my own version of the hinges and set me off on a nightmare journey that only ended as I uploaded the last revision (V3).

Both hinges comprise of :- Two Main hinge parts, 2 hinge pins, 2 central link plates and 2 end locks. There is also an optional puck cover that can be used with the puck to hold the nuts in place so they cannot fall out during assembly. It is not necessary, but when I was doing multiple test

prints and had the door on and off a lot, it saved me a lot of time looking for the nuts when they fell out.

Parts are (hopefully) in the orientation that they should be printed. The hinges should be printed stood on their edge with the gears obviously pointing upwards. Because of the two gaps in the gears you will need supports there. After numerous updates it is possible I may have at least one upside down. Use common sense and rotate it if that has happened and I've missed it.

The only other parts needing support are the End locks (the parts that fit to the hinge pins top and bottom). They should be printed flat but this means the two holes underneath in each will need support adding. These end parts were designed to fit the pins tightly making glue an option rather than a requirement. For the belt and braces brigade, you can obviously use glue to permanently attach them.

Note: Since creating this version I have created 2 sets of modified hinge pins in a separate file set for those wanting them. The difference being that the new pins feature a clip that holds the pin in situ even without the end locks in place. They are an OPTIONAL upgrade but may be worth considering, especially for those who don't want to use glue but may also have concerns about the potential for the end caps coming loose (which they shouldn't as they are tight AF even without glue).

Additional recommended parts :-

- 4 x M3 10mm for the sides.
- 4 x M3 16mm (or 18mm) screws for the glass door (k1/K1C owners, make sure that the screws you use for attaching the door to the hinge do NOT touch the printer belts when the door is closed. If in doubt, trim the upper door screws to sit flush with the door puck. This potential clearance issue does NOT affect K1 Max printers.
- 4 x M3 nuts are also needed for the puck behind the glass door for the hinge screws to attach to.

I know this is probably obvious but it needs saying anyway. The tempered glass door is very easy to break. Handle it carefully.

Print information :-

Print both Hinges (Each hinge is in 2 parts, one for the side panel and the other for the door). Print them upright with the flattest portion closest to the bed for the best adhesion and less support material needed. These parts are not interchangeable between top and bottom hinges so don't mix them up. Print at a minimum 40 percent infill and with 3 walls.

4 Hinge pins, 2 per hinge and all are identical. Again at a minimum 40 percent infill. Print upright. For reference, I have never had any issues of failure in the PLA hinge pins provided that they move freely in the hinge on assembly. Any tightness will add torsional stresses that could shear the pin. If you cannot easily rotate the pin in situ by hand, then get the sandpaper out and get it to turn freely. I recently changed the PLA pins out for a set of ASA prints as I was using up the remains of an ASA roll. The PLA pins I removed showed no sign of wear despite many months of use.

4 Centre plates , 2 per hinge. All identical). Print flat.

4 Locking plates/End Caps (2 per hinge. All identical) 40 percent infill. Print flat with the holes facing the bed (and use supports for those holes).

2 Pucks for the other side of the glass to hold the nuts the hinge screws to. (1 puck per hinge. both identical). minimum 30 percent infill, Any layer height.

2 'OPTIONAL' nut trap covers that prevent the nuts falling out of the pucks during fitting to the door. You are theoretically only fitting the hinges once so the nut traps are likely overkill and a bit of tape would hold the nuts in place just as well. Use them, or Don't. Totally up to you.

Post processing if required:-

Remove any and all support material. I initially ran a screwdriver through the hinge gears in case of any rogue support material (Crealty Print auto support adds some hard to remove support in there that needed removal). Test fit the pins through the hinge gears and centre plates.

I designed this so that if for any reason your tolerances are wonky and the pin is too tight? the nuclear option allows for using an 8mm HSS drill bit to chase the gear holes through. I only had to do this on one particular piece of my many test prints. I ran the bit through by hand, gripping the drill bit in a pair of vice grips and slowly sending it through. The blockage on that one part being some reluctant support material inside the single middle gear (the hardest to get to).

It is essential that the pins move freely in the hinge portions. You don't want the pins too tight as the pins will be held solidly in place by the top and bottom end caps, the hinge portions are designed to rotate around the pins. If the pins are too tight in the hinge pieces, the hinge will try to rotate around the affected pin/s in the end caps. Given how tight the end caps were designed to hold the pins (to avoid needing glue) you potentially run the risk of sheering a tight fitting pin if it is binding on the hinge. I found on a number of test prints that were tighter than I would

like, that working the hinge back and forth a few times while assembled and off the printer was enough to get them moving freely.

Assembling the hinges:-

I have added a picture based assembly sheet to the main images of the download for those who may prefer it in image form.

Take one half of a hinge, one hinge pin and two centre plates (the parts like a bike chain link). Thread the pin through the gears capturing the centre plates with the pin as you do so.

Take the other half of the hinge and align it as straight as possible (with the gears meshed). It may not be 100 percent perfect alignment but near straight as dammit is close enough. Check the pictures to see what I mean there regarding the alignment if you need a visual aid, I added a photo showing the correct alignment and also showed how it could be done wrong, wrong alignment will at a minimum, stop the door fitting correctly.

Slide the second pin in place through the gears and centre plates. The plates will then lightly hold the 2 halves in place as long as you don't let the pins slip back out at this point.

Finally, Firmly push the Locking caps into place on both ends of the pin and test the movement of the hinge. It should be smooth. Ensure it moves through the complete range of movement, a small amount of resistance is fine as it will ease off as soon as it is in use on the printer.

Assemble the second hinge the same way you did the first.

Fitting the hinges:- The scary bit. This would be far easier to do with two people, but I did it alone so that's the description you get.

First remove the door from your printer. To do this you need to open the door and remove the two screws holding the lower door hinge to the printer (Not the two holding the glass to the hinge) ; Obviously keep hold of the door while doing this. While still holding the door, lift and angle it out at the bottom towards you as you face the printer to make the lower hinge slide forward and fall free. At this point you can lower the door away releasing the upper hinge locating lug to fully free the door from the printer. No part of the stock hinges is used with the 270 degree replacements other than the 4 small glass protection bungs. I mention this as I have seen at least one person try to fit the 270 degree hinges ON TOP of the original Creality hardware. Don't be that guy.

Lay the glass on a towel on a flat surface (not your coat where a button or zip could be enough to shatter the glass at the slightest pressure). Remove the original crappy hinges from the glass door. **Note:-** The screws for the hinges on the door pass through small rubber grommets that are there to prevent the screws making any contact with the glass. They fall out easily so pay extra attention as soon as the hinge is free of the screws as you don't want to misplace even one of them. Make sure you keep the little rubber inserts to hand as they are needed for fitting the 270's.

Place the rubber sleeves in the door glass and fit the hinges loosely to the glass. General advice from other hinge creators says attach a bit of masking tape cut to shape and stuck to the puck before fitting to act as an additional buffer between the puck and the glass. I personally didn't do that with mine but it would be remiss of me not to mention that other creators suggest it.

Align the glass in its closed position on the printer and tape it securely in place using Duck/Duct tape or a similar strong tape. Don't stick tape on the Creality sticker logo of the printer unless you want to see letters removed when you remove the tape later.

Finally attach the hinges to the side of the printer and lightly nip up all the screws.

Do not remove the tape and/or open the door until you know all the screws are actually threaded. Tighten everything properly only after you are sure your alignments are good. My method of first testing was :- After the first initial nip up of the screws and everything in place. I removed the tape and while still 'taking the weight' of the door, I opened it to about the normal 90 degrees, closed it again to check the fit, then opened it to around 180 degrees, closed it again and only then fully tightened everything down. The last test after that being the full 270 degrees. Of the many sets I've printed and tested as I write this, only one needed a slight tweak to a hinge alignment as it creaked when the door was opened and closed. I figured this was an alignment issue and sure enough, loosening and retightening the screws of the affected hinge fixed it instantly.

Solely for saying it. Because these hinges can be assembled in two parts there is an alternate way of fitting that the print in place type cannot use. The alternate method is described in detail on the V3 hinge upgrade page here :- [V3 270 degree hinge magnetic upgrade](#). That method does Not connect the two parts of the hinges together until the last steps. The alternate method is totally optional. There are reasons why I prefer it, but the method shown on this page for V2 works just fine.

Final Note:-

The Penfold and Vorlon catches I designed to hold the glass in place when the door is fully open at 270 degrees both have mounting plates with 4 holes that allow for use with all 3 current K series printers including the K1C. The vorlon also has a set of small plugs to fill the two screw holes not used after fitting.

OPTIONAL

To simplify this V2 file set, there is now only one optional cover set for the hinge fronts (available in a separate download). This adds a set of beauty plates for those wanting something that looks different than a flat face to the hinges.

The later V3 hinge was designed to allow magnetic couplings so that the face panels could be changed quickly and easily. V2 and V3 covers are NOT interchangeable. They are slightly different shapes, different thicknesses, and more importantly, V3 plates have no screw holes. I've clearly marked the cover plate downloads as V2 and V3 to avoid any confusion.

For those who do want the magnetic face plate options, you need a minimum of the door hinge pieces of the V3 set (this will marry up to the v2 hinge pieces without issue). Older K1 and All K1 Max owners can use all four parts of the v3 set to replace the main hinge pieces of V2 and have the option for magnetic covers on all four parts. K1C and later K1 printers with 20mm spacings cannot use the v3 hinge piece side covers so cannot use the magnetic option on the printer sides, Only the fronts.

No warranty implied or given. I can only say that they work perfectly on my K1-Max and are the hinges that were permanently in use on my printer without issue until I switched them for the upgraded version 3 magnetic set.

This remix is based on



Creality K1 & K1 Max Door Hinges Geared Print in Place

by Mordiev

Model files



v2r-hinge-top-door.stl

☐ rotate 180 degrees y axis to print. K1C owners 'may' need to slightly widen the screw holes



v2-hinge-top-side.stl

☐ Rotate 180 degrees y axis to print flat side down



v2-hinge-bottom-door.stl

☐ rotate 180 degrees y axis to print. K1C owners 'may' need to slightly widen the screw holes



v2-hinge-bottom-side.stl



straight-hinge-pins.stl

☐ Optional upgraded pins available in a separate download set



centre-plates.stl



end-locks.stl

☐ Tight set designed to not require glue. I use these myself



end-locks-alternate-loose-fit-set-will-need-glue.stl

☐ Added after one person struggled to fit the original versions



door-puck.stl

☐ Replaced the original to allow for the optional nut retainer



door-puck-nut-retainer.stl

☐ Optional retainers hold the nuts securely in the puck.

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