

toranado

precision geared extruder

1



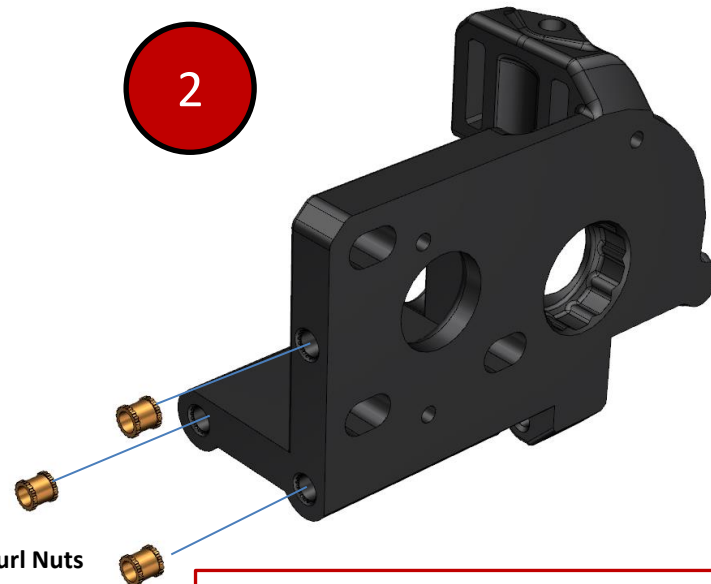
tpge-extruderbase.stl

Remove 4x designed-in print support ribs

Note: Thread a long M3 screw through the knurl nut as shown. This allows the soldering iron to rest on the knurl nut edge while heating and installing – the screw can also be used to control perpendicularity, guiding the knurl nut during installation.



2

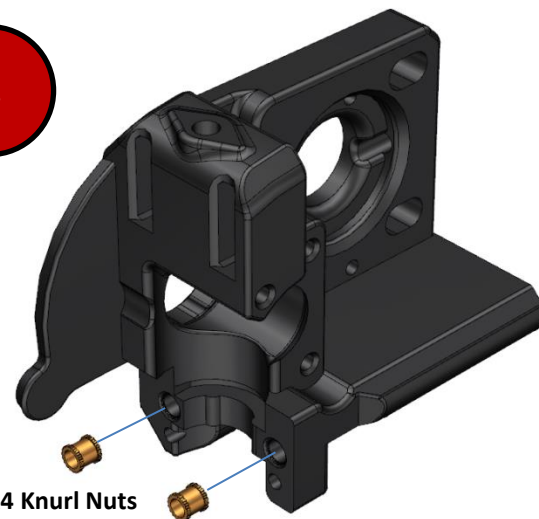


3x M3x4 Knurl Nuts

Using a soldering iron, install 3x M3x4 Knurl nuts into extruder base.

Note: Try to bury the knurl nuts down into the part, just below the installation surface.

3



2x M3x4 Knurl Nuts

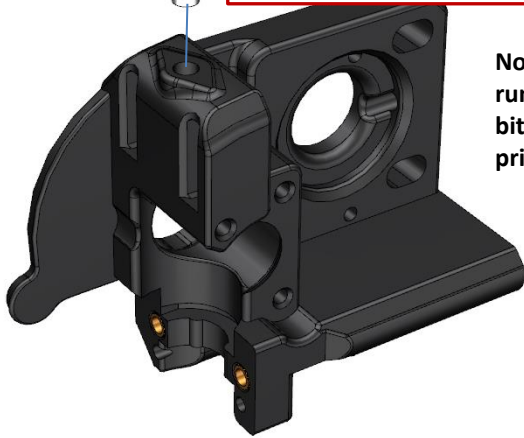
Install two more M3x4 knurl nuts into extruder base in holes shown..

4

PTFE tubing
4mmOD 1.8mmID – 26.6mm long

Press-fit PTFE tubing into
filament hole

Note: May require
running a 4mm drill-
bit through hole
prior to insertion

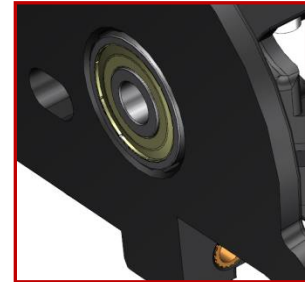
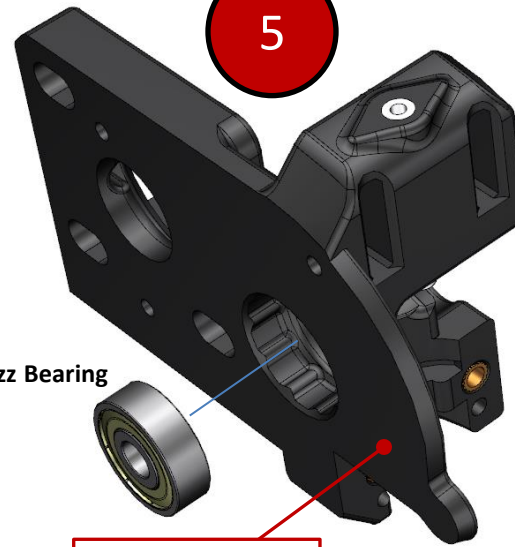


5

Press-fit 625zz bearing flush
with **tpge-extruderbase.stl**
print bed surface

625zz Bearing

Print Bed Surface



6

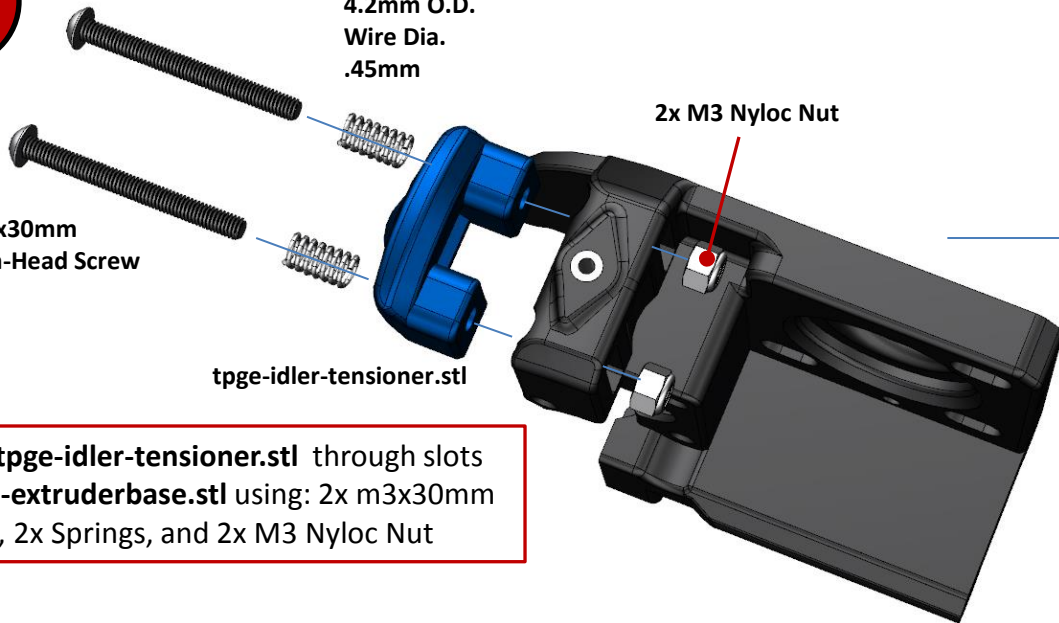
2x Spring
4.2mm O.D.
Wire Dia.
.45mm

2x M3x30mm
Button-Head Screw

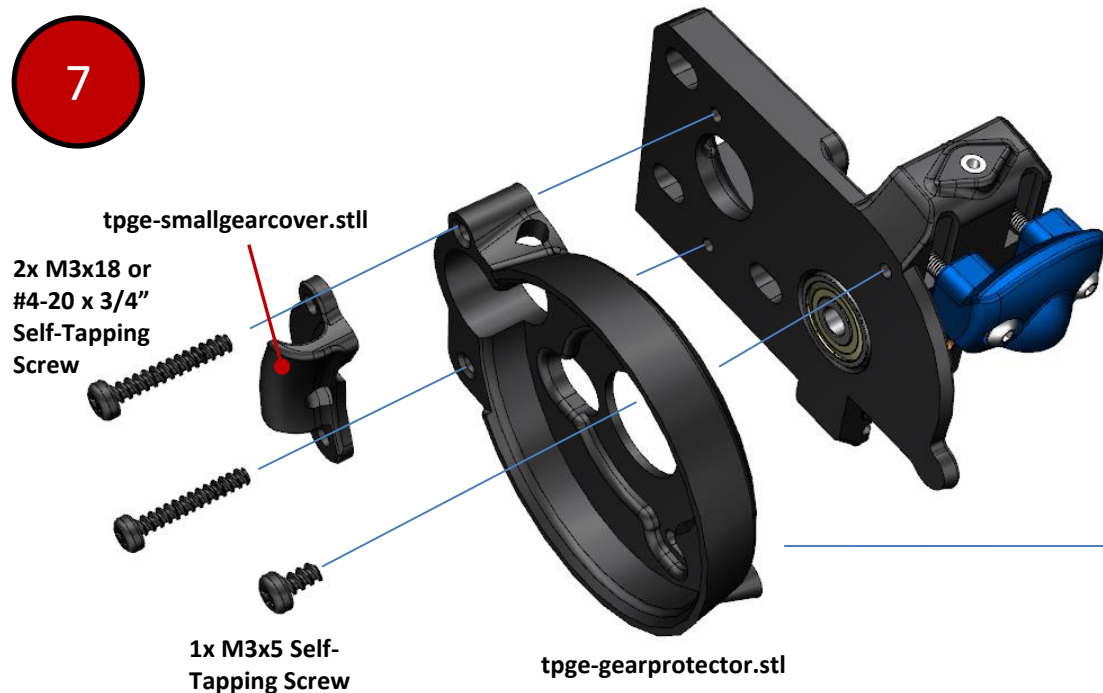
2x M3 Nyloc Nut

tpge-idler-tensioner.stl

Install **tpge-idler-tensioner.stl** through slots
in **tpge-extruderbase.stl** using: 2x m3x30mm
screws, 2x Springs, and 2x M3 Nyloc Nut



7

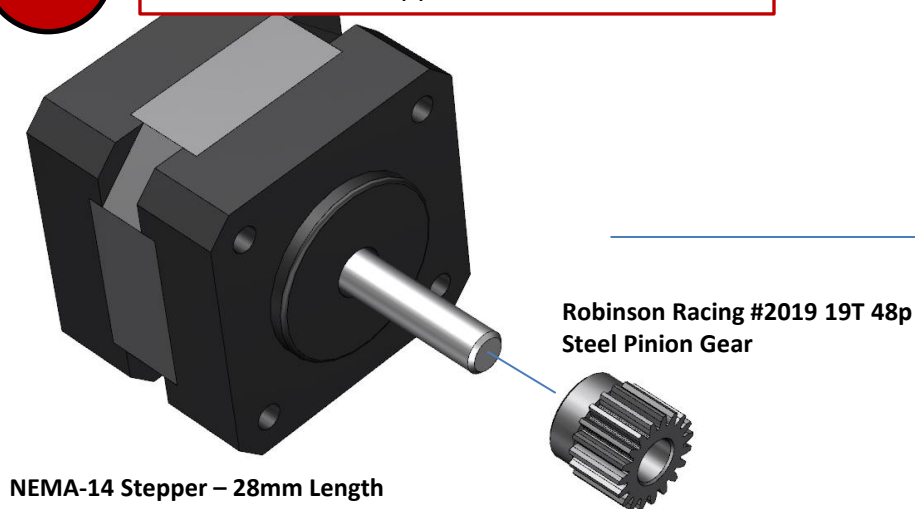


Install **tpge-smallgearcover.stl** and **tpge-gearprotector.stl** onto extruder assembly using: 2x M3x18 or #4-20 x 3/4" and 1x M3x5 self-threading screws.

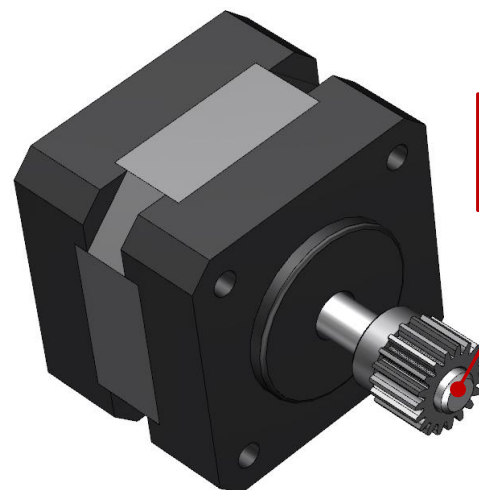


8

Install Robinson Racing #2019 Pinion Gear onto NEMA-14 Stepper Motor

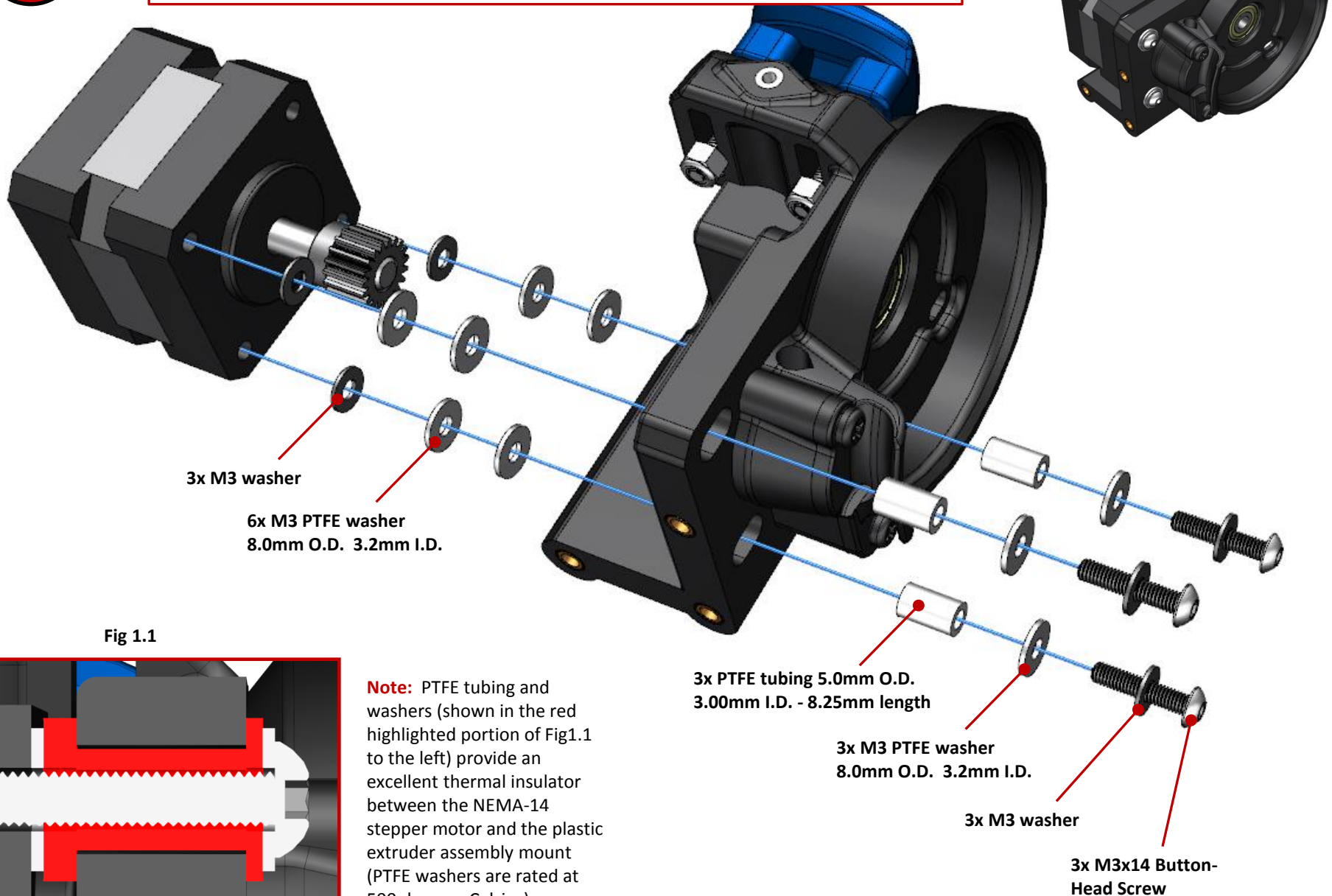


Leave about 1.3mm of the motor shaft exposed.



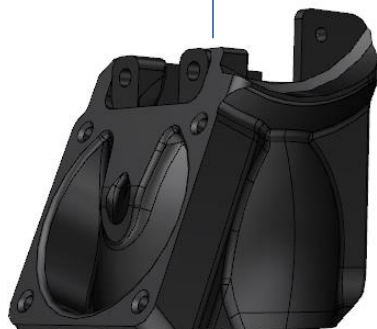
9

Install NEMA-14 motor assembly to the extruder assembly using 3X M3x14 screws with 6x M3 Washers, 9x M3 PTFE Washers and 3x PTFE Tubing. (Do not fully tighten M3x14 screws, as motor will need adjusted to main gear).



10

Install 40mm fan duct to the extruder assembly using 2X M3x14 or #4-20 x 5/8" and 1x M3x5 self-tapping screws.



tpge-40mmfanduct.stl



2x M3x14 or
#4-20 x 5/8"
Self-Tapping
Screw



2x M3 Washers



1x M3x5 Self-
Tapping
Screw



Install Main Gear onto Aluminum Hub and 5mm shaft using 2x 6-32 3/8" Truss-Head Screws

94T 48p Acetal Main Gear

Aluminum hub w/ 5mm bore and set screw

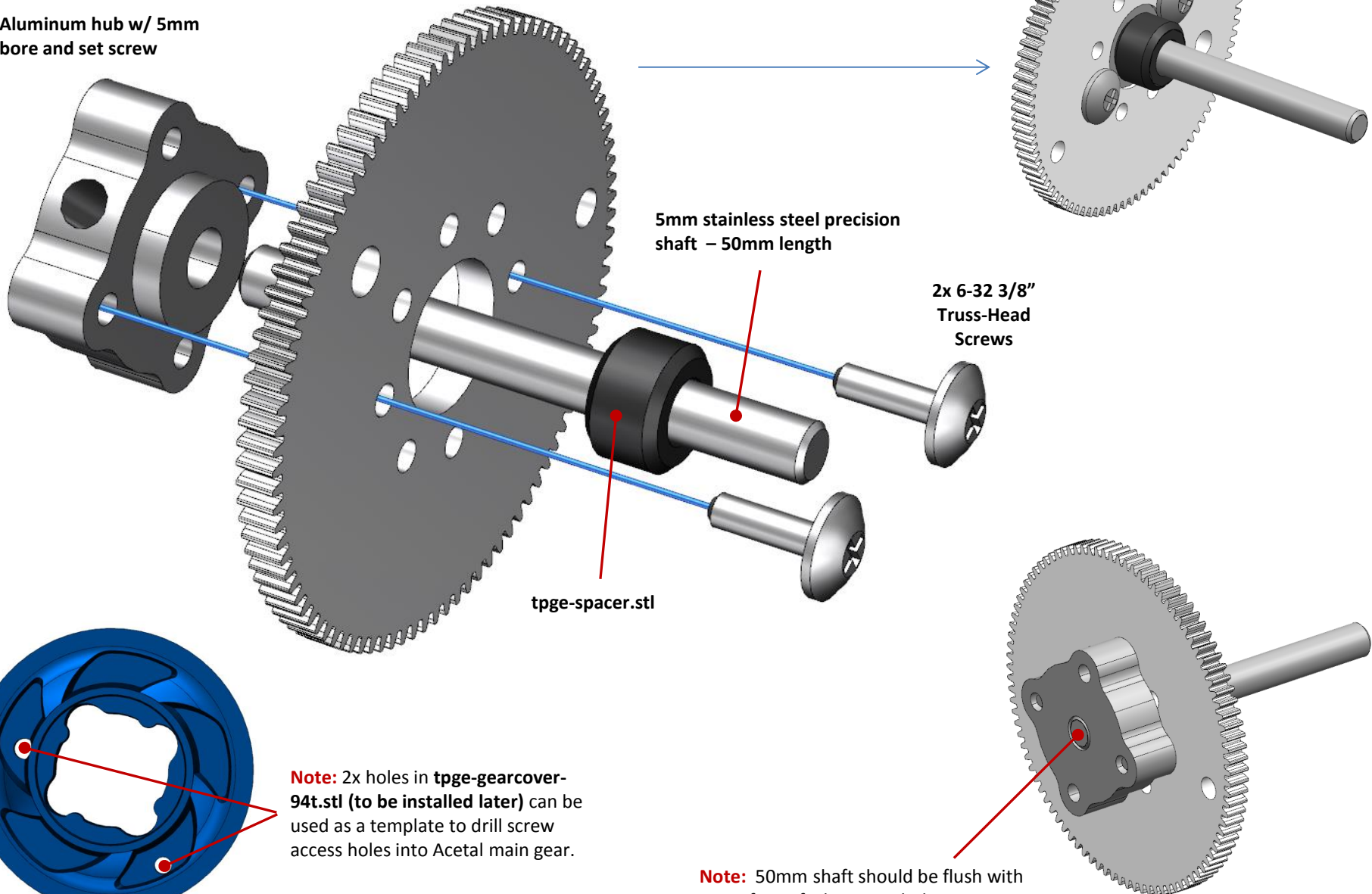
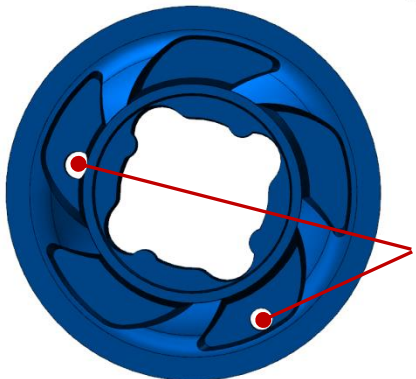
5mm stainless steel precision shaft – 50mm length

2x 6-32 3/8" Truss-Head Screws

tpge-spacer.stl

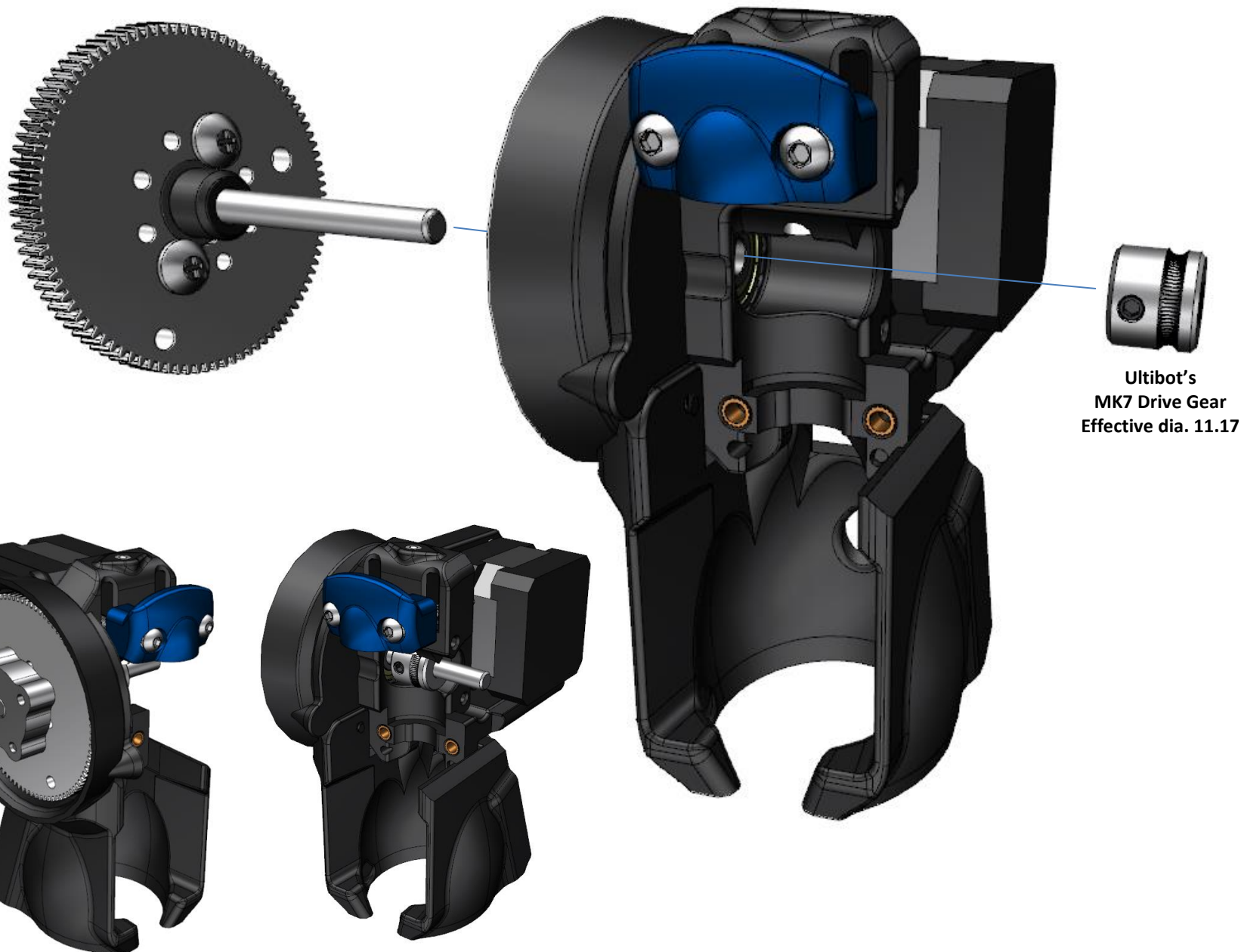
Note: 2x holes in **tpge-gearcover-94t.stl** (to be installed later) can be used as a template to drill screw access holes into Acetal main gear.

Note: 50mm shaft should be flush with outer face of aluminum hub



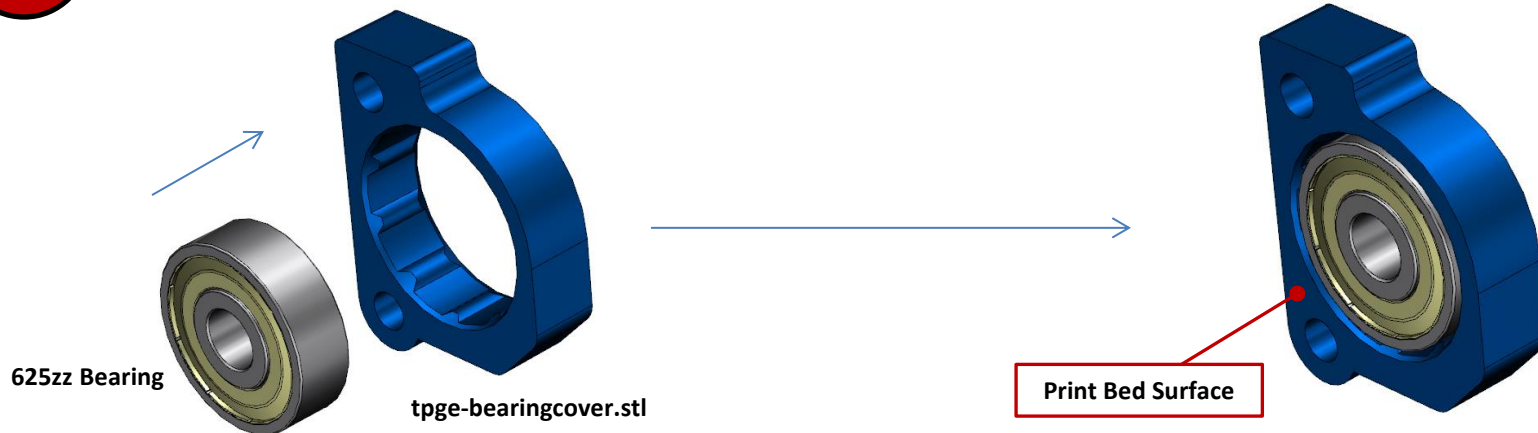
12

Install Main Gear assembly onto extruder assembly, passing through MK7 Drive Gear.



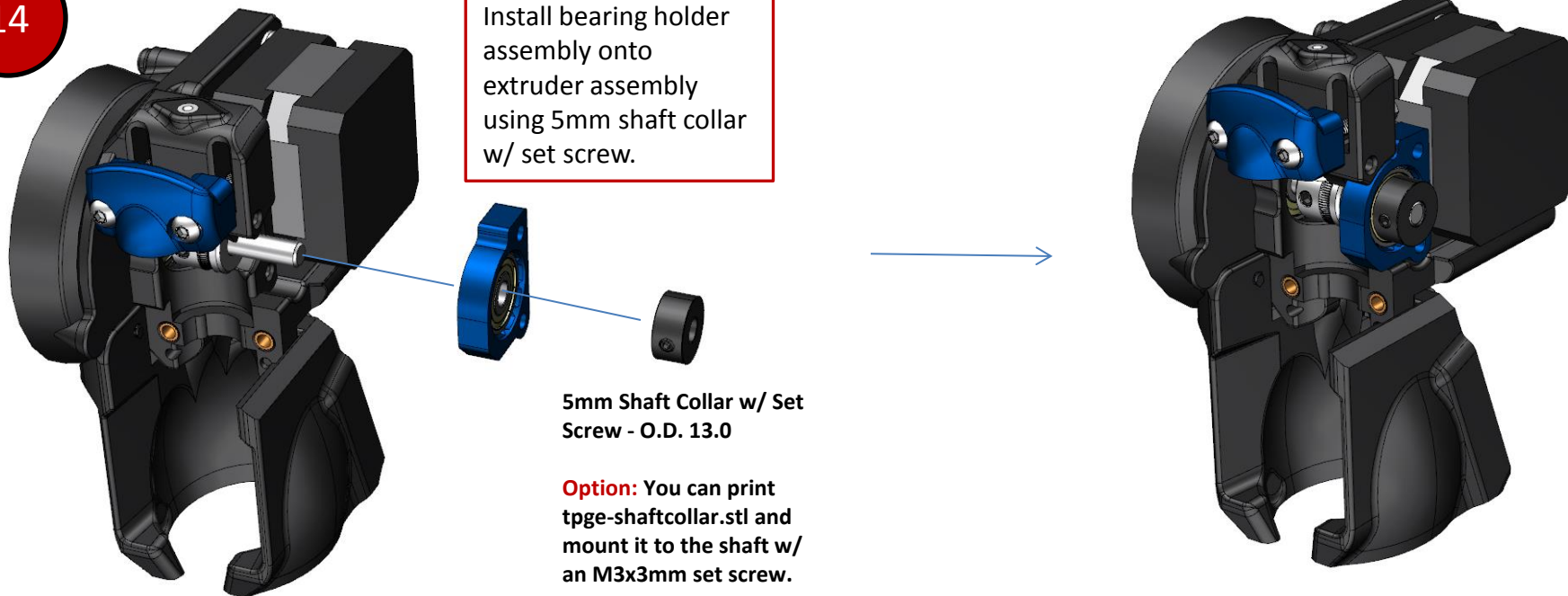
13

Install 625zz bearing into **tpge-bearingcover.stl**, flush with print bed surface.



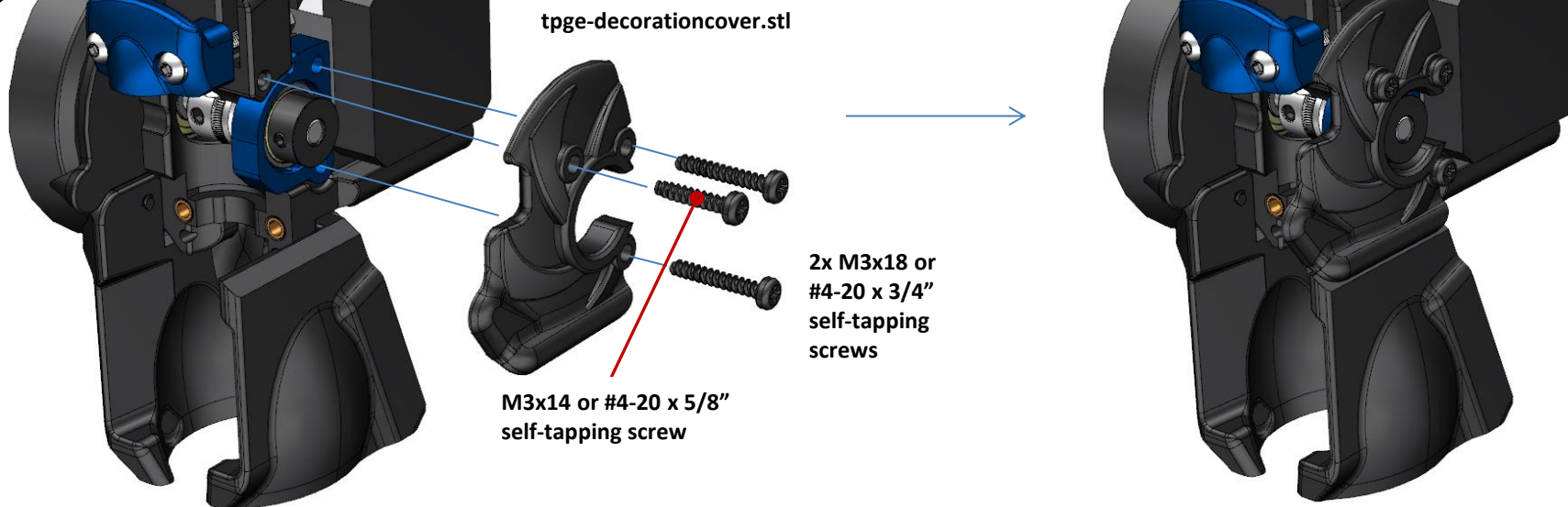
14

Install bearing holder assembly onto extruder assembly using 5mm shaft collar w/ set screw.



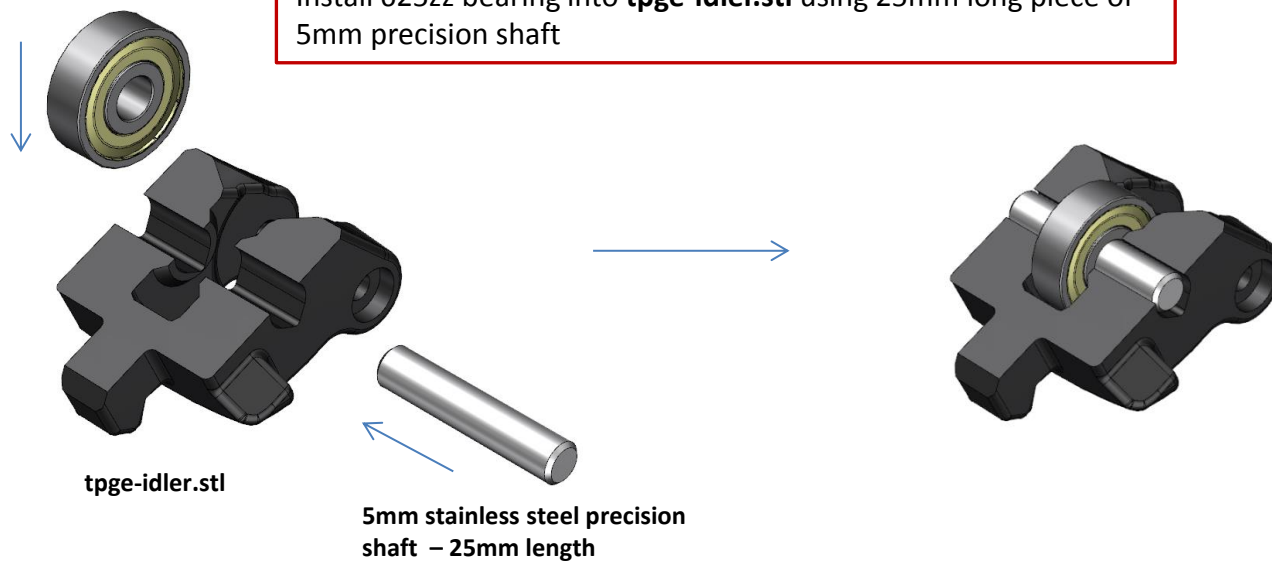
15

Install **tpge-decorationcover.stl** onto extruder assembly with 2x M3x18 or #4-20 x 3/4" and 1x M3x14 or #4-20x 5/8" self-tapping screws



16

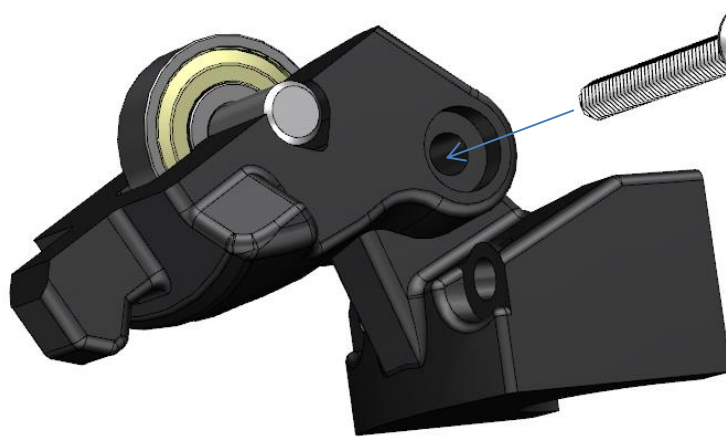
Install 625zz bearing into **tpge-idler.stl** using 25mm long piece of 5mm precision shaft



17

Install idler assembly onto **tpge-clamp-hotend.stl** using M3x22 screw

M3x22 button-head screw



tpge-clamp-hotend.stl



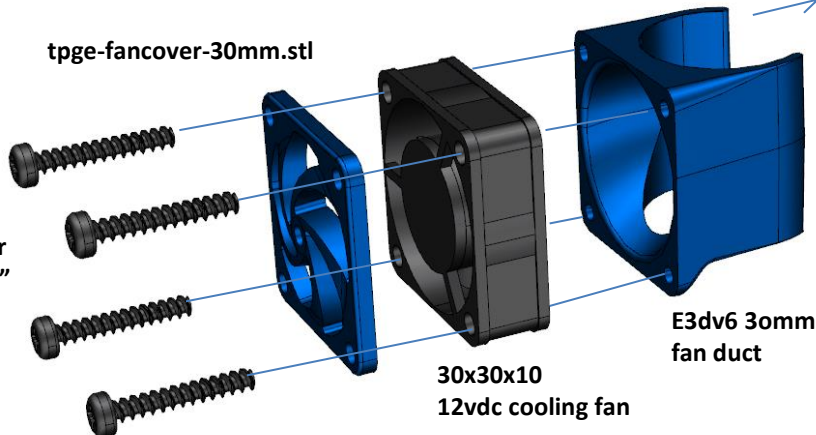
Note: Be sure to apply even pressure when self-threading machine screws. Do not over-tighten, just seat screw snugly. Idler should move freely but not wobble too much when screw is seated properly.

18

Install 30x30x10mm fan, **tpge-fancover-30mm.stl** and e3dv6 fan-duct onto e3dv6 hotend assembly using 4x M3x18 or #4-20 x 3/4" self-tapping screws

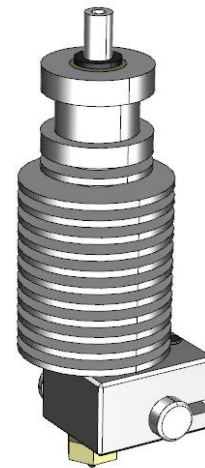
tpge-fancover-30mm.stl

4x M3x18 or
#4-20 x 3/4"
self-tapping
screws

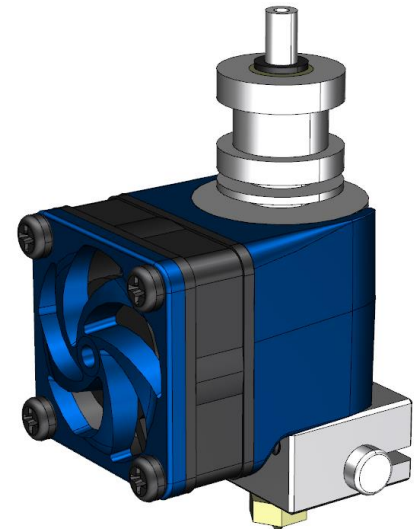


30x30x10
12vdc cooling fan

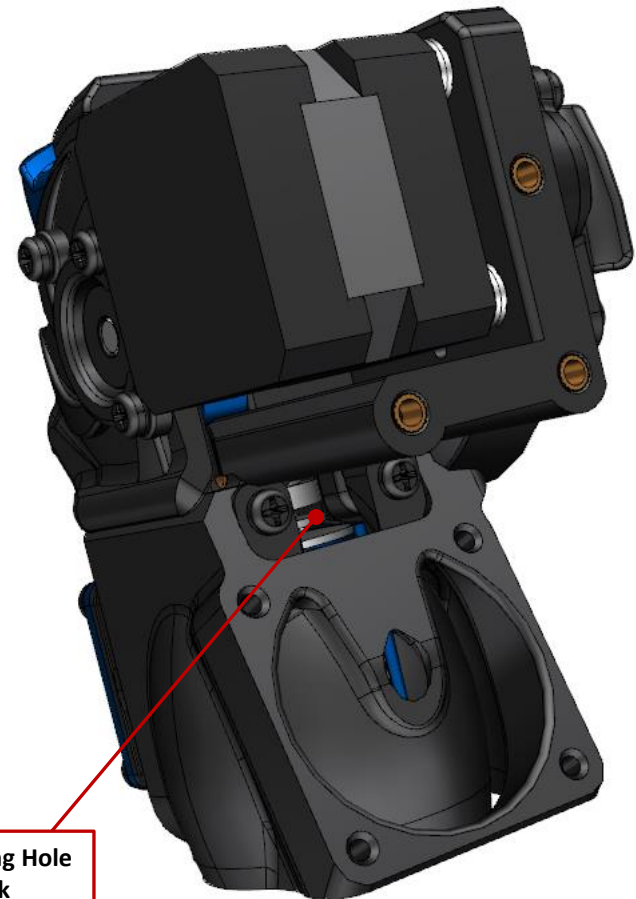
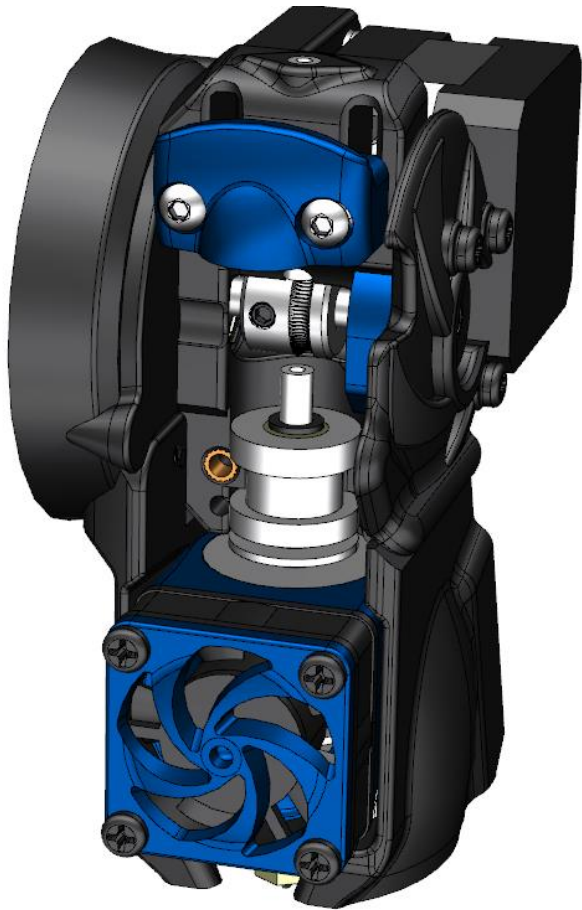
E3dv6 30mm
fan duct



E3dv6 Hotend Assembly



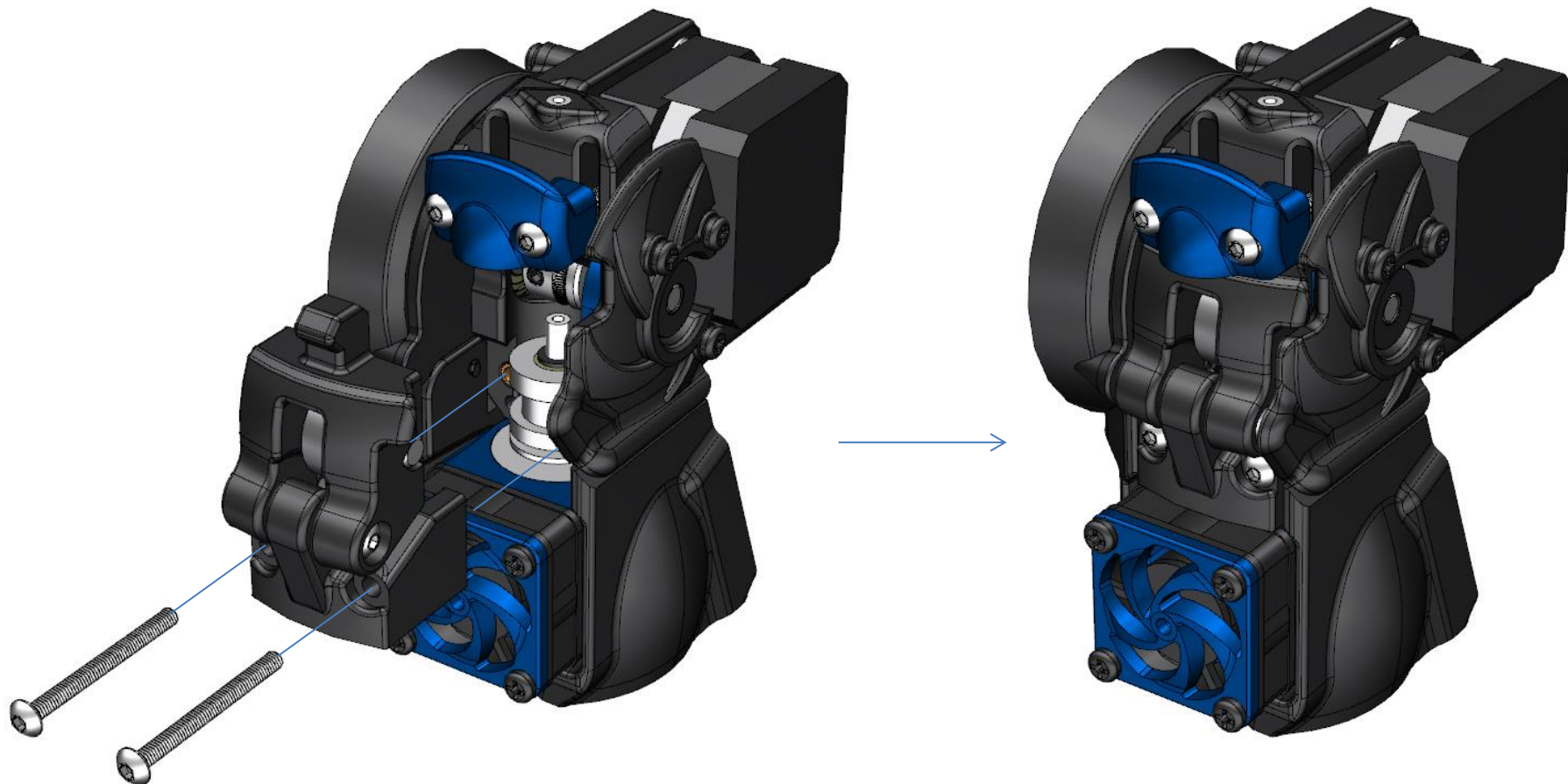
Set e3dv6 hotend assembly into extruder assembly (This the time to route fan, heater cartridge and thermistor wires through the opening in the back of the extruder assembly).



Wire Routing Hole
in Back

20

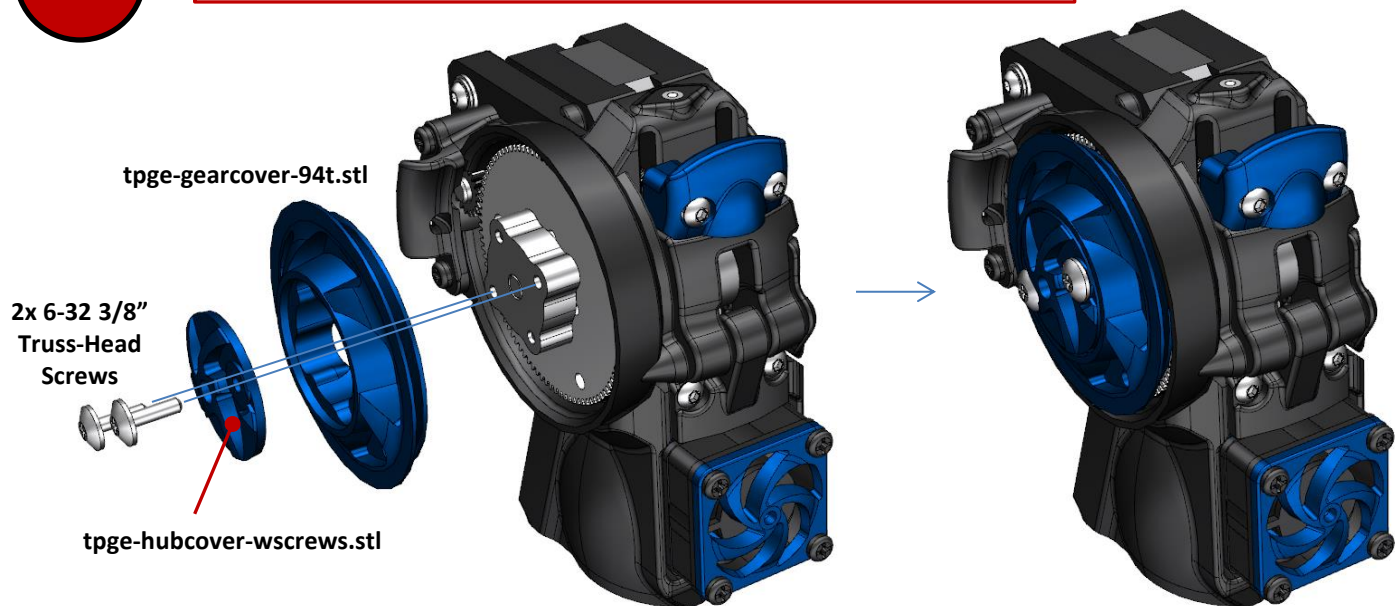
Attach idler assembly and clamp e3dv6 hotend assembly tightly onto extruder assembly using 2x M3x30 screws



2x M3x30 button-head screws

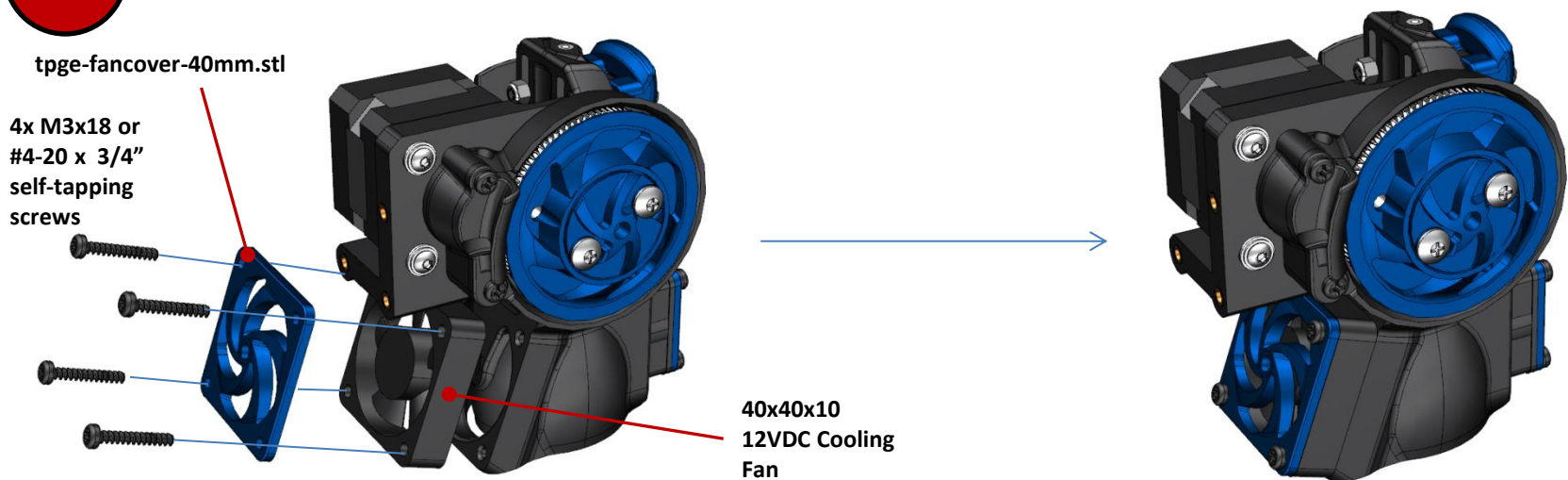
21

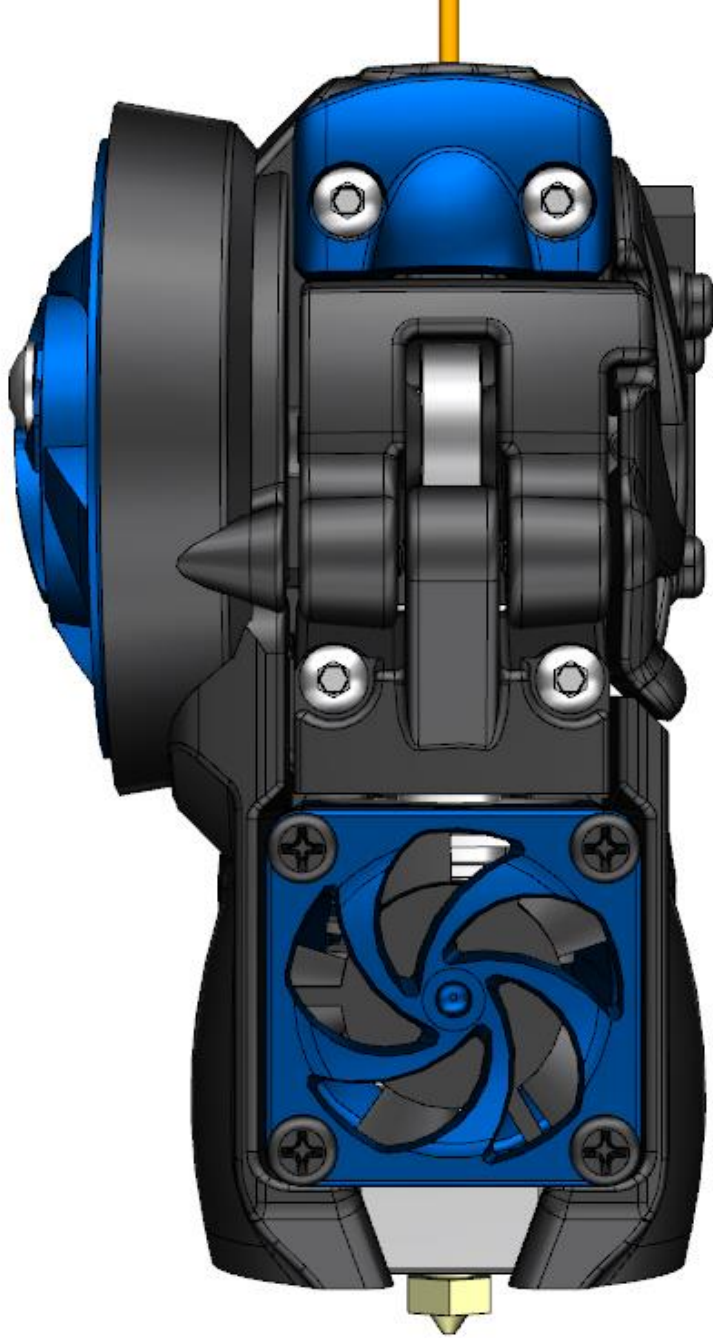
Attach **tpge-gearcover-94t.stl** and **tpge-hubcover-wscrews.stl** onto extruder assembly using 2x 6-32 3/8" Truss-Head screws



22

Attach **tpge-fancover-40mm.stl** and 40x40x10mm cooling fan onto extruder assembly using 4x M3x18 or #4-20 x 3/4" self-tapping screws





toranado
precision geared extruder