

KTH Prototype Center - Waterjet Instructions

This document is read-only for the general public, but can be edited by Prototype Staff

If you have any suggested edits, please email prototype@kth.se

last revised 2/2018

FAQ

How do I submit files?

In the instructions below you will find detailed information on how to submit files to be cut. If you have not made contact yet, you can email these to prototype@kth.se

How long will it take for my parts to be done?

This really depends on the demand and schedule of the assistants. The work is carried out by student assistants, so if it is a busy time, it will take longer. Expect at least 2-3 business days. Rush jobs are possible.

How does it work with material?

We simply charge you (your course, or company) based on the amount of material used. Occasionally, if the part is small we can use scrap. You can always bring material to us to be cut. We are not "in it for the money."

What can the waterjet cut?

Steel, aluminum, plastics, woods and more. The waterjet comes from here (<http://www.kimtech.se/en/waterjet-cutting/waterjet-technology-14427697>). The all knowing Google will tell you what is possible based on the machine.

Who can have things cut here?

This must be discussed with prototype@kth.se

Manual

Resources

- Link to manufacturer: <http://www.kimtech.se/en/waterjet-cutting/waterjet-technology-14427697>

Instructions - How to submit files properly.

The waterjet is not as simple as the laser, and is a bit more dangerous than a 3D printer. For this reason, we only let trained users operate the machine. Since the assistants will be cutting out your parts - you need to make sure (and you should triple check) your files are correct. This saves many emails, wasted material, and lots of frustration. Please review the following before sending your files to us!

Proper file submission = happy assistant = your part being done sooner

- Software

- ☒ Autocad / Illustrator: save as the oldest version of DXF possible (DWG has issues usually)
- ☒ Solidege: save as DXF or DWG (in drafts) year 2000 or older
- ☒ Other: DXF usually works best

- Drawing preparation:

- ☒ The waterjet **cannot** cut holes smaller than 4mm in diameter. Instead we can make small marks on the material to guide a drill bit very accurately. You will have to manually drill these holes out after. See below for more info on this**
- ☒ The diameter of the jet is approximately 1.1mm - these will be the dimensions of your “marks”
- ☒ These “marks” generally do not go all the way through, but can if you request them to - not guaranteed either way
- ☒ If a hole diameter is critical (or any dimension for that matter, ex. press fit) the waterjet is not that accurate (approx .1mm). If you are concerned about a tight tolerance, we suggest you to advise us to make a mark for drilling instead of the full size hole.

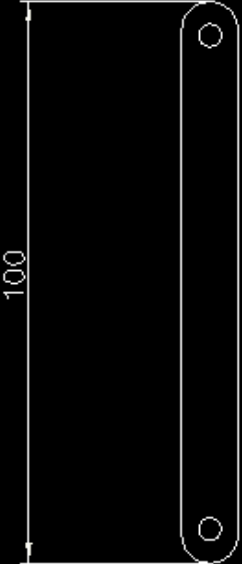
- The file:

- a. Scaling must be 1:1
- b. Accepts formats in DXF or DWG (found in drafts mode of Solid Edge)
- c. Must save in year 2000 or older (see below)*
- d. Must only be the “top view” of the drawing
- e. Remove background lines (example outline of A2 paper), but it is possible to remove if forgotten.
- f. It is advised to leave a single text dimension in the drawing (for example the outer size of the part) to verify size
- g. If you have holes smaller than 4mm (or others to be marked), just leave them and we will fix them on our side
- h. FILE NAME FORMAT (for bonus points): Xmm_MATERIAL_qtyY_partname_project_yymmdd.dxf
 - i. Example: 3mm_steel_qty5_adaptorplate_ecocars_171031.dxf

- To include in email or technical drawing
 - a. Name and contact information:
 - b. What project this is for
 - c. Date that it NEEDS to be done
 - d. If we are supplying material or you are
 - e. The type of material (steel, aluminum, etc)
 - f. The thickness of the material (we advise giving us a minimum, maximum and ideal value - we will do our best)
 - g. The approximate outer dimensions of the piece (to triple check the scaling is correct)
 - h. If there are holes under 4mm in diameter, or holes that you would like simply 'marked' and not cut (see drawing preparation point 2) a short discussion on this - this can also put this on the technical drawing
 - i. How many of the part you would like cut

- Example of a sufficient drawing

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



100

All holes can be "marked for drilling"
 The total length should be 100mm
 The distance between the holes should be 88 mm
 The thickness should be 2 mm

Material: Steel
 Qty.: 8

	NAME	DATE	Solid Edge
DRAWN	ladmin	11/06/17	
CHECKED			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ±X.X°			TITLE
2 PL ±X.XX 3 PL ±X.XXX			SIZE: A4
			DWG NO
			FILE NAME: Scissor_Link_2.dft
			SCALE: WEIGHT: SHEET 1 OF 1

We take your DXF/DWG and upload it to the cutting software and further tweak the drawing ourselves before cutting

Other useful information:

- Standard sizes of material thicknesses (not all in stock):

☒ 1mm

☒ 2mm

☒ 4mm

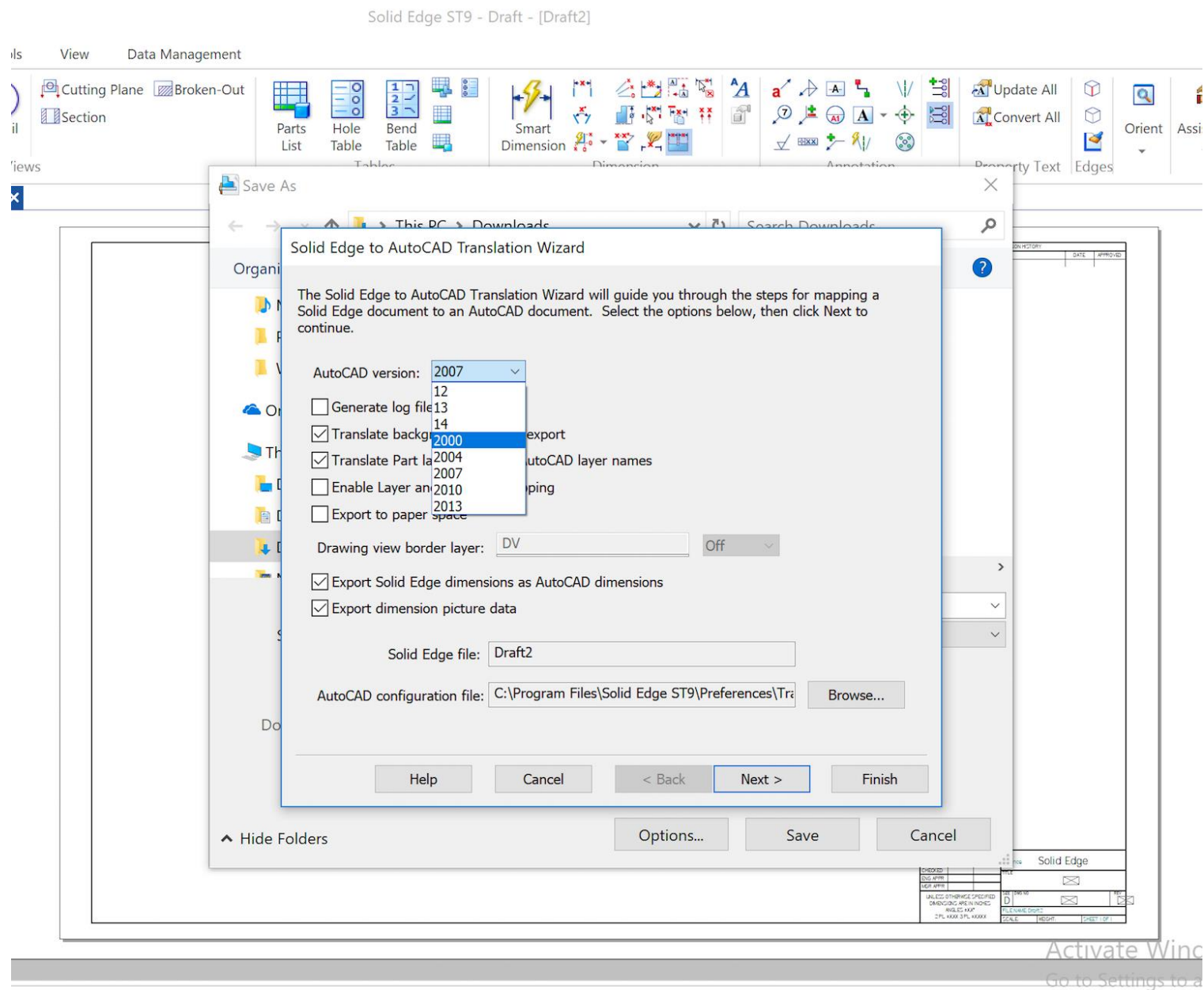
☒ 5mm

☒ 6mm

☒ 10mm

☒ 12mm

*For Solid Edge: make sure to save in year 2000 or older! (Under options)



** The water jet program needs to “lead in” and “lead out” for a cut - this is why 4mm is a limit. If your hole size is under 4mm and you REALLY don’t care about tolerances, we may be able to trick the software, but it is extra work. We suggest drilling the holes out yourself

Key Pointers for operators

- Never operate the waterjet without training or approval
- Never attempt to fix the waterjet using tools without assistant support
- Don't forget to turn off the water when done cutting
- Clean after yourselves and put everything back where you took it
- Watch out the parts are sharp once they are cut!