

CutForge Converter - User Guide

DXF to NC1 (DSTV) — quick guide

CutForge Converter · program version 1.1.2
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CutForge Converter turns 2D part drawings in DXF into NC1 (DSTV) files for CNC beam and plate lines. It reads drawings from Tekla, Advance Steel, bocad, HiCAD and 1:1 burn-out (plate) drawings on its own, checks the result and shows for every part whether it is done or needs a look.

1. Installation and free trial

- 1 Download the installer from **dxftonc1.com** (button Download free trial). You need Windows 10 or 11 (64-bit).
- 2 Run CutForge-Converter-Setup.exe. It installs for your user only, no administrator rights needed.
- 3 If Windows shows "Windows protected your PC", click **More info -> Run anyway**. The installer is not digitally signed yet.

The **free trial** lets you save NC1 from **30 DXF drawings**, no card needed. A drawing counts once: you can save the same drawing again and again. Viewing, editing and checking do not count.

Licence: after purchase you receive a key by e-mail (CF-XXXX-XXXX). Click **Licence...**, paste the key and confirm. The key is verified online; after that the program also works offline and only needs to reach the server once every 30 days.

2. Quick start

- 1 **Open DXF...** – pick one or more drawings. You can also **drag** drawings or a whole folder into the window.
- 2 **NC1 folder...** – choose where the NC1 files are saved.
- 3 Check the part list on the left (statuses below). Click a part to see the drawing, the generated NC1 and the hole table.
- 4 **Save all green** – saves every part with status done at once. A single part is saved with **Save NC1**.

3. Part statuses

Status	Meaning	What to do
done	The part was read completely and the self-check passed.	Save.
to check	NC1 was created, but something should be verified (message below the drawing).	Read the message, edit if needed, then save.
manual	The drawing could not be read automatically.	Cut out the parts (section 6) or send it for processing (section 8).
saved	The NC1 file is saved in the folder.	—
☐ assembly only	An assembly drawing, not a part.	Nothing, no NC1 is made from it.
∅ excluded	Accessories that are not cut (e.g. chain, lid) – excluded automatically.	—

Use the selector above the list to show only parts in one status (for example only to check).

Below the drawing there are messages of three kinds: errors (the part was not processed), warnings to verify and information (marked **i**), for example where the program took the scale, quantity or profile from. The messages are shown in the language of the program; a message that has no translation yet (a new or very rare one) stays in Slovak, with all its numbers.

4. Grade, tolerance, bill of materials

- **Grade:** if the drawing has no steel grade, pick or type it in the toolbar and click **For all. By profile...** sets different grades per profile. The grade of a single part is changed at the part.
- **Tolerance $\pm$ mm:** manufacturing tolerance used by the self-check (EN 1090-2, annex B).
- **hole collisions:** when on, holes colliding with the profile body are marked to check.
- **Job bill of materials...**: compares the loaded parts with the job BOM, so you see whether all parts are in NC1 and in the right quantity.

5. Editing a part

Click a part and switch on **Edit**:

- **Hole** – click on a face in the drawing to add a hole; **Delete** removes the selected hole.
- **Thread / countersink...** – makes a hole a thread (M, MF, G, R, NPT, UNC, UNF, also left-hand) or a countersink.
- **Turn endend, Flip topbottom, Mirror y, <-> Swap faces** – orient the part the way your machine needs it.
- **Undo / Redo / Original** – every edit can be undone; Original returns the part to the state from the drawing.

NC1 is always checked again before saving. An edited part is marked "edited manually" in the list.

6. Cutting parts out of a shared drawing

When one drawing contains several parts (for example a burn-out sheet with a table):

- 1 Right-click the drawing in the list -> **Cut out parts of this drawing...** (or **Cut out parts...** in the toolbar).
- 2 The whole drawing opens. Drag a rectangle around each part with the mouse.
- 3 Position, quantity, material and thickness are filled in from the drawing table. Check them and confirm.
- 4 The cut-out parts are added to the list as separate parts. **Undo cutouts** removes them.

7. Plate export and PDF

- **Export plates to DXF...** – plates to DXF for laser or plasma, sorted into folders by thickness.
- **PDF drawing** – the drawing of the selected part as PDF (for example for the workshop).

8. A drawing that cannot be read

Send for processing... sends the drawing (packed and protected) to our team. We prepare the NC1 within 24 hours on business days; in **Sent drawings...** you see the status and download the result. The scope of the service is defined in the licence terms (EULA).

A damaged drawing

A drawing that refers to a block that is not defined in it, or has a damaged DXF structure, is not forced open: the program shows a short message without a technical dump and carries on with the other drawings. Repair the drawing in your CAD with **AUDIT** and **PURGE**, or send it for processing. A drawing with too many nested blocks (more than 250,000 entities after expansion, nesting deeper than 16 levels, a block array of more than 10,000 copies) is not opened, for safety – explode the blocks in your CAD (**EXPLODE / BURST**), simplify the drawing and save it again.

9. Scale, profile, quantity and angles

Whatever the drawing does not state, the program works out from the drawing, and an information message (marked **i**) below the drawing says where it came from. It never guesses blindly: when the data disagree, the part stays to check or manual.

- **Scale from the profile cross-section.** A drawing without dimensions and without a scale in the title block (for example angles drawn 1:1 in model space) often also shows the cross-section of the profile. The program measures its legs, thickness, root and toe radii and area, compares them with the catalogue and accepts the scale only when at least three measurements agree. If the cross-section does not fit the profile in the description (for example a cross-section of $80 \times 48 \times 8$ with the description L50x5), the scale is not determined – the part stays with the error "drawing scale not determined" and the information below it explains why. Correct the profile in the **Profile** field or send the drawing for processing.
- **Angle without thickness** (description only "L60"). The thickness is taken from the cross-section: the program picks the single thickness from the EN 10056-1 catalogue for which all measurements fit (for example L60x6). The part gets the warning "verify" – check the profile. If the profile is only in the file name (for example Rx152_L60x6.dxf), the cross-section confirms it and only the information remains.
- **Quantity "2x".** A separate text "2x", "2 x", "x2" or "(2x)" near the part description or its mark is the quantity (as are "2 pcs" and "2 ks"). A text next to a hole ($\emptyset$, M8, R) is not taken as a quantity. When the drawing shows different quantities, the one nearest to the description is used and the part gets the warning "other quantities".
- **Angle radius in the NC1 header.** The header carries the catalogue root radius r1 from EN 10056-1 (L60x6 -> 8, L50x5 -> 7, L70x7 -> 9, L60x40x5 -> 6), the same as Tekla writes. For a few profiles Tekla's own catalogue differs from the standard, and the program follows the original Tekla NC1 files: L75x75x7 and L75x75x8 -> 10, L60x30x6 -> 6, L30x30x2 -> 5, L150x75x9 -> 10.5. Until now it was $1.5 \times$ thickness (L60x6 -> 9), so NC1 files of angles saved by earlier versions have a different radius in the header; the shape of the part (sharp legs) does not change. Drawings made by HiCAD are the exception: HiCAD itself writes $1.5 \times$ thickness into the header (L80x40x6 -> 9, L120x80x8 -> 12), so for drawings recognised as HiCAD drawings (its blocks and layers) the program keeps writing $1.5 \times$ thickness. For angles without a catalogue radius (L75x50x5, L80x65x6, L130x75x8, L130x75x10) and for bent plates outside the catalogue, $1.5 \times$ thickness is used; in the first case the information below the drawing says so.
- **Dimension objects (DIMENSION) that disagree with the drawing.** Sometimes a dimension object has a different value than the drawn distance – for example a dimension of 80 over 50 units, because its dimension style has the factor DIMLFAC 1.6. **An honest dimension (its value equals the measured distance) is never discarded:** when such a dimension disagrees with the drawing, the drawing does not win and the dimension applies – the part stays with an error or "to check", not with a silently changed length. Only a dimension that has a reason to disagree can be ignored (DIMLFAC in its style, or an overridden text when the length L from the description confirms the drawn length – a dimension across a break in a view, 165 drawn and 330 written, is not ignored), and only when at least two independent measurements confirm the drawing (cross-section, view heights against the profile, drawn length against L from the description). The program then uses the scale from the drawing and marks the part with a warning that describes the dimension (value, drawn distance, reason).
- **Length L from the description against the drawn length.** When the description gives a length that the drawing ($\times$ scale) does not confirm – for example the description "L60*6 L528", a drawn length of 330 and dimensions $\times$ DIMLFAC 1.6 = 528 – the drawing does not win either: an NC1 of length 330 would silently contradict the description, so the reading from the dimensions applies and the part stays with an error or "to check".
- **A small difference of scales.** When the scale from the dimensions differs from the scale from the drawing (or from L in the description) by more than 0.2 % but less than 2 %, nothing changes –

the scale from the dimensions applies – but the part gets a warning with both lengths (per the drawing and per the dimensions), so the length does not change silently. Check it.

10. More

- **Check for updates...** – the program updates itself; this checks right away.
- **Settings...** – appearance and defaults. **Light / dark** switches the theme.
- **DWG:** the program opens DXF only. Save the drawing as DXF in your CAD (for example AutoCAD: Save As -> DXF).

11. FAQ

A part is "to check" - can I save it? Yes, but read the message below the drawing first. Usually it is a missing grade or a dimension to confirm.

An angle "L60" got profile L60x6 and a warning - is that right? The program derived the thickness from the cross-section in the drawing (section 9). Check it against the drawing; if it is wrong, change the profile in the **Profile** field.

How many trial drawings are left? Bottom right in the status bar of the window (clicking it opens **Licence...**).

Can I move the licence to another computer? Yes, write to us and we will move it.

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